NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 01 2017
RECEIVED

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM114968

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.: HH CE 35 2 FED 66H 318938

2. Name of Operator: CHEVRON USA INCORPORATED 4323

9. API Well No.: 30-015-44348

3a. Address: 6301 Deauville Blvd. Midland TX 79706

3b. Phone No. *(include area code)*: (432)687-7866

10. Field and Pool, or Exploratory: PURPLE SAGE / WOLFCAMP, (GAS)

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

At surface: NESE / 2389 FSL / 475 FEL / LAT 32.085504 / LONG -104.153764

At proposed prod. zone: NENE / 280 FNL / 330 FEL / LAT 32.107318 / LONG -104.153432

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 35 / T25S / 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): 330 feet

16. No. of acres in lease: 160

17. Spacing Unit dedicated to this well: 640

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 4300 feet

19. Proposed Depth: 9476 feet / 17159 feet

20. BLM/BIA Bond No. on file: FED: CA0329

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3146 feet

22. Approximate date work will start*: 07/15/2017

23. Estimated duration: 130 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Dorian K Fuentes / Ph: (432)687-7631	12/22/2016

Title: Permitting Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Bobby Ballard / Ph: (575)234-2235	07/26/2017

Title	Office
Natural Resource Specialist	CARLSBAD

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

RWP 8-2-17

INSTRUCTIONS

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

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

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

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

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

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

NOTICES

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

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

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

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Additional Operator Remarks

Location of Well

1. SHL: NESE / 2389 FSL / 475 FEL / TWSP: 25S / RANGE: 27E / SECTION: 35 / LAT: 32.085504 / LONG: -104.153764 (TVD: 0 feet, MD: 0 feet)
   PPP: NESE / 2640 FSL / 430 FEL / TWSP: 25S / RANGE: 27E / SECTION: 35 / LAT: 32.086193 / LONG: -104.153603 (TVD: 9476 feet, MD: 17159 feet)
   BHL: NENE / 280 FNL / 330 FEL / TWSP: 25S / RANGE: 27E / SECTION: 26 / LAT: 32.107318 / LONG: -104.153432 (TVD: 9476 feet, MD: 17159 feet)

BLM Point of Contact

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

Review and Appeal Rights

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

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Inc
LEASE NO.:	NMNM114968
WELL NAME & NO.:	66H-HH CE 35 2 Fed
SURFACE HOLE FOOTAGE:	2389'/S & 475'/E
BOTTOM HOLE FOOTAGE	280'/N & 330'/E
LOCATION:	Section 35, T.25 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **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.**

2. **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 wells.**

3. 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 is located, this does not include the dog house or stairway area.

4. **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.**

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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.

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

High Cave/Karst
Possibility of water flows in the Castillo and Salado.
Possibility of lost circulation in the Delaware.

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.

1. The **13-3/8** inch surface casing shall be set at approximately **450** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
    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 is to include the lead cement slurry.**
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.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch production casing is:

Operator has proposed DV tool at depth of 2100', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 22% - Additional cement may be required.**

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

3. The minimum required fill of cement behind the 5.5 inch production casing is:

   ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. 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.

C. 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. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.**
   a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
   b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
   c. **Manufacturer representative shall install the test plug for the initial BOP test.**
   d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**

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.**

5M 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. 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
   c. 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.
   d. The results of the test shall be reported to the appropriate BLM office.
   e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
   f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes 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.

D. DRILLING MUD

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

Proposed mud weight may not be adequate for drilling through Wolfcamp.

Approved for aerated mud, but not air drilling.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. 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.

TMAK 04212017

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Inc.
LEASE NO.:	NMNM114968
WELL NAME & NO.:	66H-HH CE 35 2 Fed
SURFACE HOLE FOOTAGE:	2389'/S & 475'/E
BOTTOM HOLE FOOTAGE	280'/S & 330'/E
LOCATION:	Section 35, T.25 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

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 and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

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

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

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

Pad Berming:
The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

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

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

Leak Detection System:

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

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

G. ON LEASE ACCESS ROADS

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

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

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

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

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

Ditching
Ditching shall be required on both sides of the road.

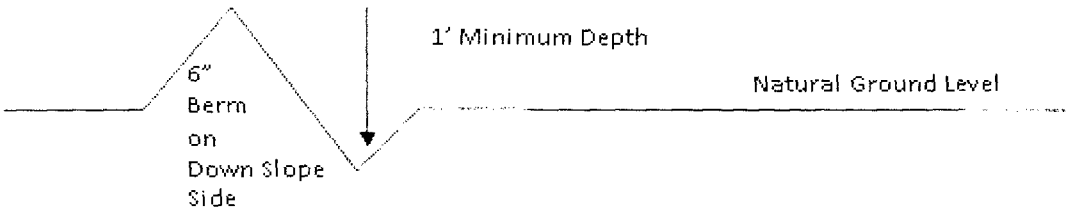
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

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

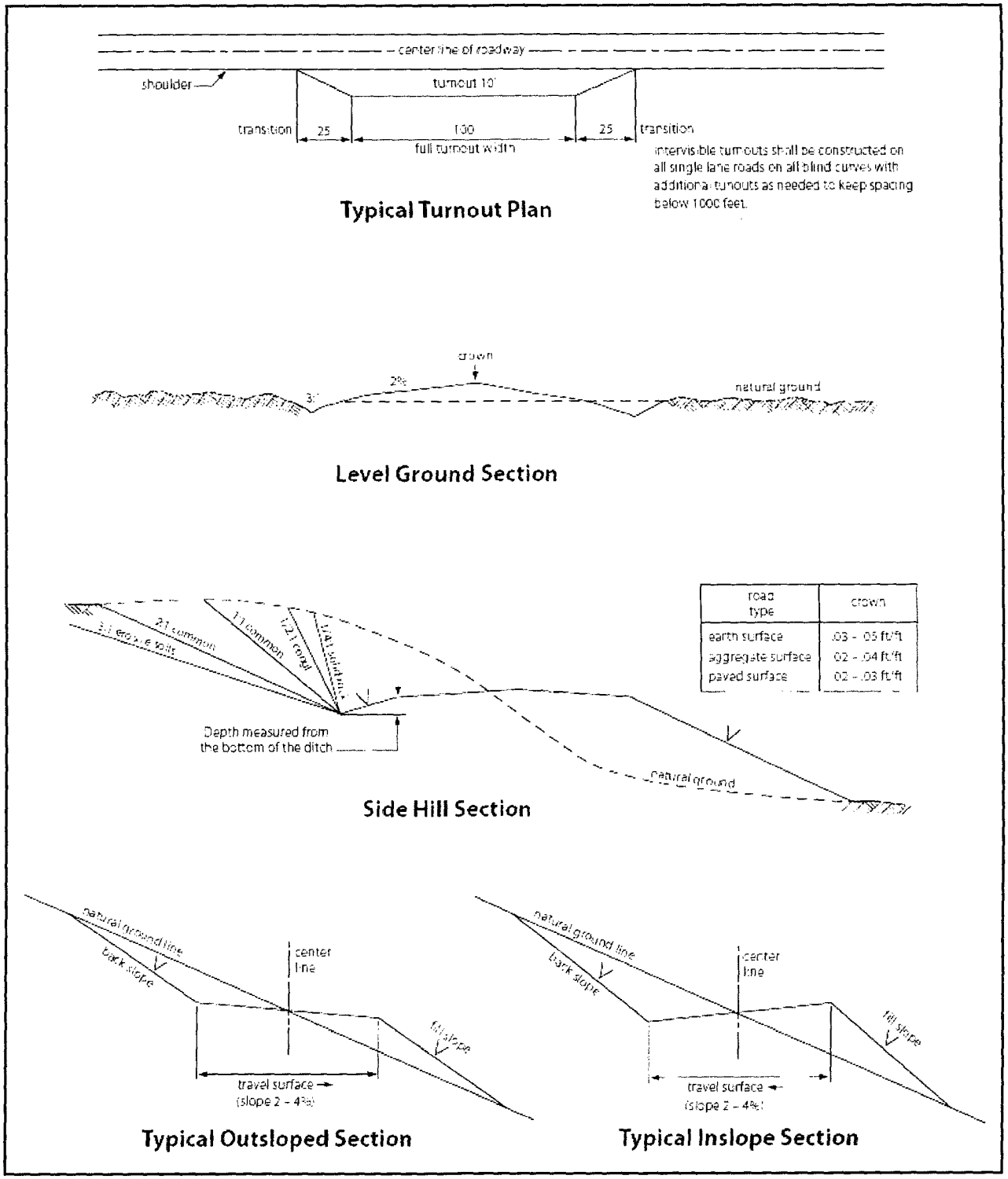


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

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

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 of duney 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.

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.

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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:

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

*Pounds of pure live seed:

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

AFMSS

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

Operator Certification Data Report

07/27/2017

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Dorian K Fuentes **Signed on:** 12/21/2016

Title: Permitting Specialist

Street Address: 6301 Deauville Blvd

City: Midland **State:** TX **Zip:** 79706

Phone: (432)687-7631

Email address: djvo@chevron.com

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

AFMSS

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

Application Data Report
07/27/2017

APD ID: 10400009364 **Submission Date:** 12/22/2016

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Section 1 - General

APD ID: 10400009364 **Tie to previous NOS?** **Submission Date:** 12/22/2016

BLM Office: CARLSBAD **User:** Dorian K Fuentes **Title:** Permitting Specialist

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

Lease number: NMNM114968 **Lease Acres:** 160

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

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

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO **APD Operator:** CHEVRON USA INCORPORATED

Operator letter of designation:

Keep application confidential? NO

Operator Info

Operator Organization Name: CHEVRON USA INCORPORATED

Operator Address: 6301 Deauville Blvd.

Zip: 79706

Operator PO Box:

Operator City: Midland **State:** TX

Operator Phone: (432)687-7866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING **Mater Development Plan name:** HAYHURST DEVELOPMENT AREA

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

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

Well Name: HH CE 35 2 FED **Well Number:** 66 **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** PURPLE SAGE **Pool Name:** WOLFCAMP, (GAS)

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** HH CE 35 2 FED **Number:** 61 62 63 64 65 66

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

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 11.5 Miles **Distance to nearest well:** 4300 FT **Distance to lease line:** 330 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: HH_CE_35_2_FED_66_C_102_06-09-2017.pdf

Well work start Date: 07/15/2017 **Duration:** 130 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 0

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2389	FSL	475	FEL	25S	27E	35	Aliquot NESE	32.085504	-104.153764	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 114968	3146	0	0
KOP Leg #1	2640	FSL	330	FEL	25S	27E	35	Aliquot NESE	32.09351	-104.153112	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 114968	3146	0	0
PPP Leg #1	2640	FSL	430	FEL	25S	27E	35	Aliquot NESE	32.086193	-104.153603	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 114968	-6330	17159	9476

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FNL	330	FEL	25S	27E	26	Aliquot NENE	32.107181	-104.153429	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 107369	-6330	17159	9476
BHL Leg #1	280	FNL	330	FEL	25S	27E	26	Aliquot NENE	32.107318	-104.153432	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 107369	-6330	17159	9476

District I
1625 N French Dr Hobbs, NM 88240
Phone (575) 393 6161 Fax (575) 393-0720
District II
811 S First St, Artesia, NM 88210
Phone (575) 748-1283 Fax (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone (505) 334 6178 Fax (505) 334 6170
District IV
1220 S St Francis Dr, Santa Fe, NM 87505
Phone (505) 476-3460 Fax (505) 476-3462

State of New
Energy, Minerals & Natural
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

AUG 01 2017
RECEIVED

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-015-44348	98220	Purple Sage; Wolfcamp (GAS)

4 Property Code	5 Property Name	6 Well Number
318938	HH CE 35 2 FED	66H

7 OGRID No.	8 Operator Name	9 Elevation
4323	CHEVRON U.S.A. INC.	3146'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	35	25 SOUTH	27 EAST, N.M.P.M.		2389'	SOUTH	475'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
A	26	25 SOUTH	27 EAST, N.M.P.M.		280'	NORTH	330'	EAST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
640			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

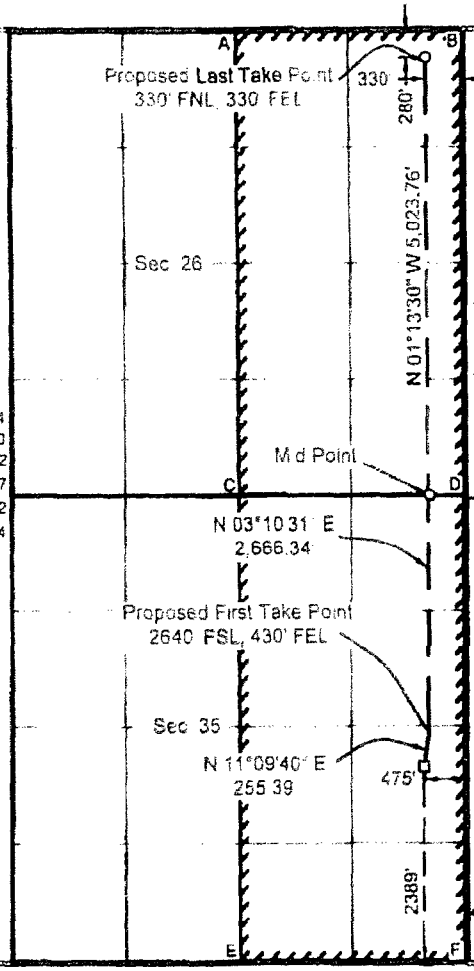
16

LAST TAKE POINT		
X=	555,857	NAD 27
Y=	402,718	
LAT	32.107059	
LONG.	104.152936	
X=	597,041	NAD83
Y=	402,775	
LAT	32.107181	
LONG.	104.153429	
MID POINT		
X=	555,963	NAD 27
Y=	397,745	
LAT	32.093388	
LONG	104.152620	
X=	597,147	NAD83
Y=	397,803	
LAT	32.093510	
LONG	104.153112	
FIRST TAKE POINT		
X=	555,816	NAD 27
Y=	395,083	
LAT	32.086070	
LONG	104.153111	
X=	597,006	NAD83
Y=	395,140	
LAT	32.086193	
LONG.	104.153603	

PROPOSED BOTTOM HOLE LOCATION		
X=	555,856	NAD 27
Y=	402,768	
LAT	32.107196	
LONG.	104.152940	
X=	597,040	NAD83
Y=	402,825	
LAT	32.107316	
LONG.	104.153432	

CORNER COORDINATES TABLE (NAD 27)
A - Y=403056.72 X=553547.34
B - Y=403046.49 X=556180.10
C - Y=397750.87 X=553664.52
D - Y=397744.31 X=556293.47
E - Y=392441.44 X=553540.62
F - Y=392443.13 X=556198.44

HH CE 35 2 FED NO 66H WELL		
X=	555,766	NAD 27
Y=	394,832	
LAT	32.085382	
LONG.	104.153272	
X=	596,950	NAD83
Y=	394,890	
LAT	32.085504	
LONG.	104.153764	
ELEVATION +3146' NAVD 88		



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief and that the organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 12-20-2016

Printed Name: Dorian K. Fuentes

E-mail Address: dfue@chevron.com

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: 11-10-2016

Signature and Seal of Professional Surveyor: 12-16-2016

ROBERT L. LEE — NEW MEXICO — 23006 — PROFESSIONAL SURVEYOR

23006
Certificate Number

APD ID: 10400009364 **Submission Date:** 12/22/2016

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
17762	CASTILE	-3626	505	505	LIMESTONE,ANHYDRITE,GYPSUM	NONE	No
15332	BELL CANYON	-5936	2310	2310	SANDSTONE	NONE	No
17719	LAMAR	-6021	2395	2395	LIMESTONE	NONE	No
15316	CHERRY CANYON	-6834	3208	3208	SANDSTONE	NONE	No
17713	BRUSHY CANYON	-8076	4450	4450	SANDSTONE	NONE	No
17688	BONE SPRING	-9925	6299	6299	LIMESTONE	NONE	No
15338	BONE SPRING 1ST	-10514	6888	6888	SANDSTONE	NONE	No
15338	BONE SPRING 1ST	-10540	6914	6914	SHALE	NONE	No
17737	BONE SPRING 2ND	-11247	7621	7621	SANDSTONE	NONE	No
17738	BONE SPRING 3RD	-12243	8617	8617	LIMESTONE	NONE	No
17709	WOLFCAMP	-13102	9476	17159	MUDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 9476

Equipment: Minimum of 5000 psi rig stack for drill out below surface casing. Stack will be tested as specified in the attached requirements.
Requesting Variance? YES

Variance request: Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold and Chevron would also like to request a variance to use a FMC Technologies conventional wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days.
Testing Procedure: Test BOP from 250 psi to 5000 psi in Ram and 250 psi to 3500 psi in Annular

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Choke Diagram Attachment:

HH CE 35 2 FED 66_BOP-Choke_02-20-2017.pdf

BOP Diagram Attachment:

HH CE 35 2 FED 66_9Pt_02-20-2017.pdf

HH CE 35 2 FED 66_BOP Diagram_02-20-2017.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	450	0	450	-6330	-6780	450	K-55	54.5	STC	5.11	1.82	DRY	3.97	DRY	2.31
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	9015	0	9015	-6330	-15345	9015	L-80	43.5	LTC	1.34	2.9	DRY	2.22	DRY	1.79
3	PRODUCTION	8.5	5.5	NEW	API	N	0	17159	0	17159	-6330	-23489	17159	P-110	20	OTHER	1.66	1.26	DRY	1.31	DRY	2.54

Casing Attachments

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

Inspection Document:

Spec Document:

Taperd String Spec:

Casing Design Assumptions and Worksheet(s):

HH CE 35 2 FED 66_9Pt_02-20-2017.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Casing Attachments

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

Inspection Document:

Spec Document:

Taperd String Spec:

HH CE 35 2 FED 66_9Pt_02-20-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH CE 35 2 FED 66_9Pt_12-22-2016.pdf

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

Inspection Document:

Spec Document:

Taperd String Spec:

Casing Design Assumptions and Worksheet(s):

HH CE 35 2 FED 66_5.5 TXP_02-20-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	450	356	1.33	14.8	6.37	50	C	Class C
INTERMEDIATE	Lead	2100	0	1100	213	2.43	11.9	14.21		CL C	50/50 Poz Class H + Extender, Antifoam, Retarder, Salt, Viscosifier
INTERMEDIATE	Tail		1100	2100	235	1.33	14.8	6.37	0	C	CLASS C + ANTIFOAM, RETARDER, VISCOSIFIER

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead	2100	2100	8015	1524	2.43	11.9	13.76	100	H	50/50 Poz Class H + Antifoam, Extender, Salt, Retarder
INTERMEDIATE	Tail		8015	9015	389	1.21	15.6	5.54	50	H	Class H + Retarder, Dispersant
PRODUCTION	Lead		7015	8015	430	1.21	14.5	5.54		H	50/50 Poz: Class H + Extender, Antifoam, Dispersant, Retarder
PRODUCTION	Tail		8015	17159	2618	1.2	15.6	5.3	50	H	Class H, + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: In compliance with onshore order #2

Describe the mud monitoring system utilized: Visual Mud monitoring Equipment, PVT, Stroke counter, Flow Sensor in compliance with onshore order #2

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
450	9015	OIL-BASED MUD	9	9.5							
9015	17159	OIL-BASED MUD	9.5	10.5							**The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
											will not exceed 10.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.
0	450	SPUD MUD	8.3	8.7							

Section 6 - Test, Logging, Coring

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

Drill Stem Tests are not planned
The logging program will be as follows:
Type: Mudlogs 2 man mudlogs Interval Int Csg to TD Timing: Drillout of Int Csg Vendor TBD
Type: LWD MWD Gamma Interval: Int. and Prod. Hole Timing: While Drilling Vendor: TBD

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

GR,MWD,MUDLOG

Coring operation description for the well:

Conventional whole core samples are not planned; directional survey will be run - will send log(s) when run

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5174 **Anticipated Surface Pressure:** 3089.28

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

HH CE 35 2 FED 66_H2S_12-21-2016.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH CE 35 2 FED 66_AC Report_02-20-2017.pdf

HH CE 35 2 FED 66_Stand Report_02-20-2017.pdf

HH CE 35 2 FED 66_Well Pad Layout_02-20-2017.pdf

Other proposed operations facets description:

The FTP has been added to the Standard report attached _Stand Report. to reflect the C-102.

Other proposed operations facets attachment:

Other Variance attachment:

CHOKE MANIFOLD SCHEMATIC

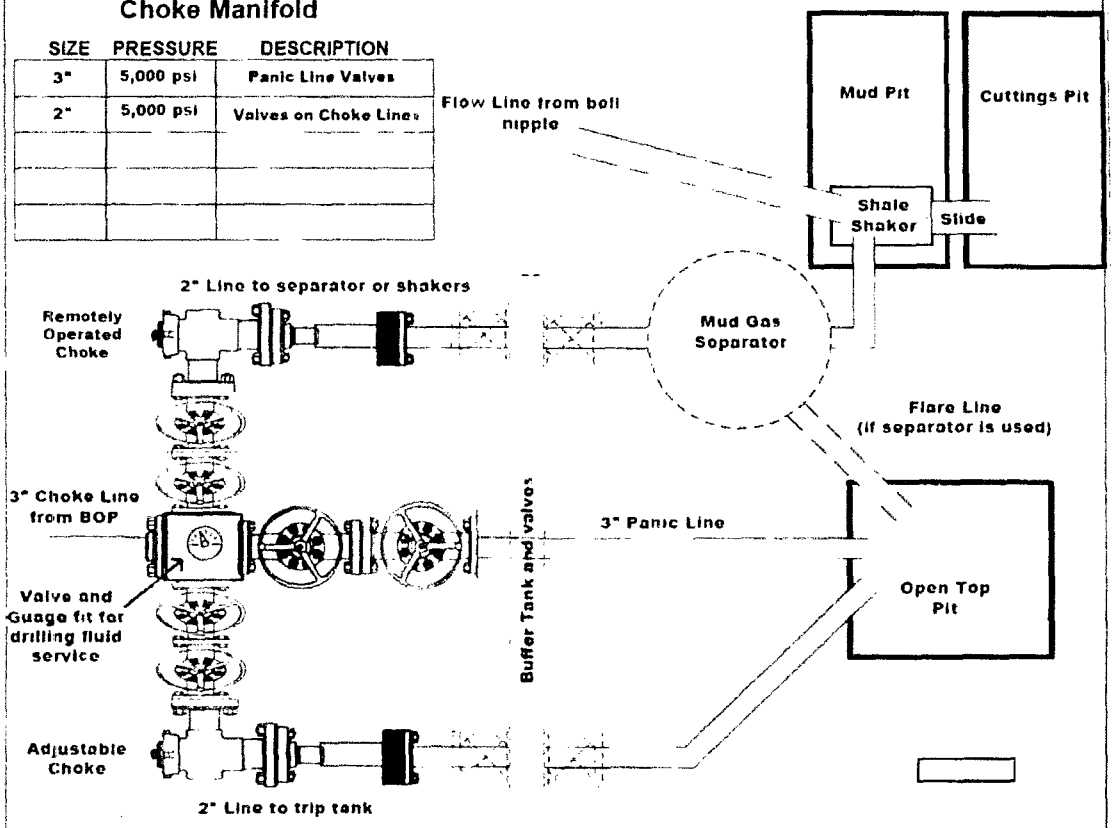
Minimum Requirements

OPERATION : Bone Spring wells/ Intermediate section SWD

Minimum System Pressure Rating : **5,000 psi**

Choke Manifold

SIZE	PRESSURE	DESCRIPTION
3"	5,000 psi	Panic Line Valves
2"	5,000 psi	Valves on Choke Lines



Installation Checklist

The following item must be verified and checked off prior to pressure testing of 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 pressure 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 are targeted with running tess, and will be anchored to prevent whip and reduce vibration. This excludes the line between mud gas separator and shale shaker.**
- ☐ **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 mud gas separator and shale shakers.**
- ☐ **All manual valves will have hand wheels installed.**
- ☐ **If used, flare system will have effective method for ignition**
- ☐ **All connections will be flanged, welded, or clamped (no threaded connections like hammer unions)**
- ☐ **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.**

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer

Wellname: _____

Representative: _____

Date: _____

Diagram B

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9476	
Lateral TVD Wolfcamp A		9476	17159.07'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9476

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

3. BOP EQUIPMENT

Will have a minimum of a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified in the attached testing requirements. Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold. Please refer to the testing and specification documents.

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

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	LTC	New
Production	0'	17159.07'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 17159.07' MD/9,476' TVD (7,500' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	17,159'	15.6	1.2	50	2618	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	17159.07'	OBM	9.5 - 10.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 10.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.

7. **TESTING, LOGGING, AND CORING**

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

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

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **5174 psi**

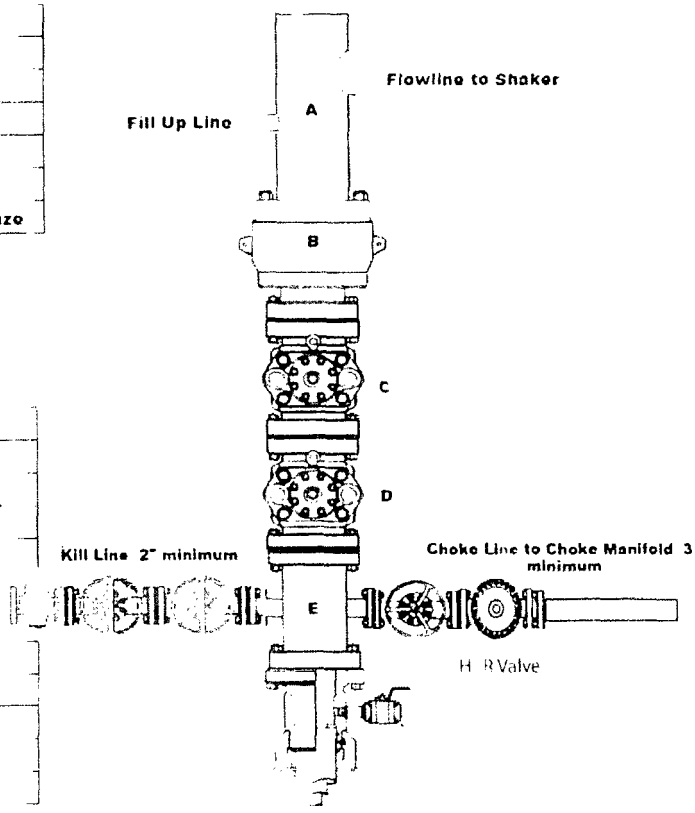
BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

OPERATION : Bone Spring wells/ Intermediate section SWD

Minimum System Pressure Rating : **5,000 psi**

	SIZE	PRESSURE	DESCRIPTION
A		N A	Bell Nipple
B	13 5 8"	5,000 psi	Annular
C	13 5 8"	5,000 psi	Pipe Ram
D	13 5 8"	5,000 psi	Blind Ram
E	13 5 8"	5,000 psi	Mud Cross
F			
DSA		As required for each hole size	



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5,000 psi	Gate Valve
2"	5,000 psi	Gate Valve
2"	5,000 psi	Check Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
3"	5,000 psi	Gate Valve
3"	5,000 psi	HCR Valve

Installation Checklist

The following item must be verified and checked off prior to pressure testing of 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 though flow.***
- ☐ **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 preventors. Hand wheels will also be installed on all manual valves on the choke line 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 safety valve and subs to fit all drill string connections in use.**

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer

Wellname:

Representative: _____

Date: _____

Diagram A

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9084	
Lateral TVD Wolfcamp A		9084	18718.50'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9084

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MPD

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	18718.50'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 18952.56' MD/9084.19' TVD (10173.5' VS @ 89.16° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	18718.50'	15.6	1.2	50	3258	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	18718.50'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9186	
Lateral TVD Wolfcamp A		9186	18952.56'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9186

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MPD

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,000'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	18952.56'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9000'
Production Casing: 18952.56' MD/9185.69' TVD (10173.5' VS @ 89.13° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,000'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	18952.56'	15.6	1.2	50	3258	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9,000'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9,000'	18952.56'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		8745	
Wolfcamp C		9510	
Lateral TVD Wolfcamp C		9653	19395.01

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	8745
Oil/Gas	Wolfcamp C	9653

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MDP

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9000'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	19,395'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9000'
Production Casing: 19395' MD/9,653' TVD (10097.94' VS @ 89.25° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	1.45	1.32	1.78	1.84
Production	1.26	1.5	2.43	1.35

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV TOOL		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,000'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,000'	9,000'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	19,395'	15.6	1.2	50	3473	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9000'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9000'	19,395'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		8745	
Wolfcamp C		9709	
Lateral TVD Wolfcamp C		9709	19571.79'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	8745
Oil/Gas	Wolfcamp C	9709

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MDP

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,000'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	19571.79'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9000'
Production Casing: 19571.79' MD/9,709' TVD (10,222.9' VS @ 88.87° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	1.45	1.32	1.78	1.84
Production	1.26	1.5	2.43	1.35

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV TOOL		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,300'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	19571.79'	15.6	1.2	50	3473	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9,000'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9,000'	19571.79	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		8745	
Wolfcamp D		10027	
Lateral TVD Wolfcamp D		10027	19932.37'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	8745
Oil/Gas	Wolfcamp D	10027

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MDP

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,000'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	19932.37'	8-1/2"	0"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9300'
Production Casing: 19932.37' MD/9955' TVD (10272.31' VS @ 89.56° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	1.45	1.32	1.78	1.84
Production	1.26	1.5	2.43	1.35

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV TOOL		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,300'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	19932.37'	15.6	1.2	50	3605	5.30
Pilot Hole								
Tail	Class C	9,500'	10,000'	17.2	0.97	50-100	50-100	3.61

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	0	0	0
450'	9,000'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9,000'	19932.37'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 man mudlog	Int Csg to TD	Drillout of Int Csg	TBD
LWD	MWD Gamma	Int. and Prod. Hole	While Drilling	TBD
Wireline Logs	Quad Combo w/ Di-Pole Sonic, FMI, Lithoscanner	Prod hole	After Intermediate hole	TBD

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		8745	
Wolfcamp D		9955	
Lateral TVD Wolfcamp D		9955	19925.13'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	8745
Oil/Gas	Wolfcamp D	9955

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MDP

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,000'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	19925.13'	8-1/2"	0"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9300'
Production Casing: 19925.13' MD/9955' TVD (10272.31' VS @ 88.69° inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	1.45	1.32	1.78	1.84
Production	1.26	1.5	2.43	1.35

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV TOOL		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,000'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,000'	9,000'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	19925.13'	15.6	1.2	50	3605	5.30
Pilot Hole								
Tail	Class C	9,500'	10,000'	17.2	0.97	50-100	50-100	3.61

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	0	0	0
450'	9,000'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9,000'	19925.13'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 man mudlog	Int Csg to TD	Drillout of Int Csg	TBD
LWD	MWD Gamma	Int. and Prod. Hole	While Drilling	TBD
Wireline Logs	Quad Combo w/ Di-Pole Sonic, FMI,	Prod hole	After Intermediate hole	TBD

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

Eddy County, NM

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:
The formation tops are just an overview of the area TVD and are subjected to change

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9014	
Lateral TVD Wolfcamp A		9014	14,014'-22,000'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9014

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

3. **BOP EQUIPMENT**

Will have a minimum of a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified in the attached testing requirements. Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold. Please refer to the testing and specification documents.

Chevron requests a variance to use a FMC Technologies UH-2 Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal.

4. **CASING PROGRAM**

a. The proposed casing program will be as follows:The proposed casing program will be as follows: The ranges of the production casing will range from 5000' -10,000' laterals. The targeted formations will be the Wolfcamp A. The casing loads were based on the worst case senerio (10,000' lateral)

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	TXP	New
Production	0'	14,014'-22,000'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	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 recalcuated & 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: 9015'
Production Casing: 14,014'-22,000' MD/9,014' TVD (5,000'-10,000' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.33	50-100		6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50-100	150-250	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	50-100	250-350	6.37
DV Tool		Tool Depth: 2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	50-100	600-850	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50-100	250-450	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	50-100	150-250	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	TD	15.6	1.2	50-100	2000-3000	5.30

1. Final cement volumes will be determined by caliper. Also, due to the surface location not being staked, the cement
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
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	TD	OBM	10.0 - 13.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 9.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.
A closed system will by 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

7. **TESTING, LOGGING, AND CORING**

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

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

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

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **4218 psi**
b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan will be attached with this MPD in the event that H2S is encountered

Eddy County, NM

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:
The formation tops are just an overview of the area TVD and are subjected to change

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9014	
Lateral TVD Wolfcamp A		9014	14,014'-22,000'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9014

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

3. **BOP EQUIPMENT**

Will have a minimum of a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified in the attached testing requirements. Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold. Please refer to the testing and specification documents.

Chevron requests a variance to use a FMC Technologies UH-2 Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal

4. **CASING PROGRAM**

a. *The proposed casing program will be as follows:The proposed casing program will be as follows: The ranges of the production casing will range from 5000' -10,000' laterals. The targeted formations will be the Wolfcamp A. The casing loads were based on the worst case senerio (10,000' lateral)*

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	TXP	New
Production	0'	14,014'-22,000'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	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 recalcuated & 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: 9015'
Production Casing: 14,014'-22,000' MD/9,014' TVD (5,000'-10,000' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement Bottom	Weight (ppg)	Yield (sx/cu ft)	%Excess Open Hole	Sacks	Water gal/sk
Surface								
Tail	Class C	0'	450'	14.8	1.33	50-100		6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50-100	150-250	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	50-100	250-350	6.37
DV Tool		Tool Depth: 2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	50-100	600-850	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50-100	250-450	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant. Retarder	7,015'	8,015'	14.5	1.21	50-100	150-250	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	TD	15.6	1.2	50-100	2000-3000	5.30

1. Final cement volumes will be determined by caliper Also, due to the surface location not being staked, the cement
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
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	TD	OBM	10.0 - 13.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 9.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.
A closed system will by 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

7. TESTING, LOGGING, AND CORING

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

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

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

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

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **4218 psi**
b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan will be attached with this MPD in the event that H2S is encountered

Eddy County, NM

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:
The formation tops are just an overview of the area TVD and are subjected to change

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9014	
Lateral TVD Wolfcamp A		9014	14,014'-22,000'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9014

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

3. **BOP EQUIPMENT**

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Chevron requests a variance to use a FMC Technologies UH-2 Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal.

4. CASING PROGRAM

a. The proposed casing program will be as follows:The proposed casing program will be as follows: The ranges of the production casing will range from 5000' -10,000' laterals. The targeted formations will be the Wolfcamp A. The casing loads were based on the worst case senerio (10,000' lateral)

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	TXP	New
Production	0'	14,014'-22,000'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	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 recalcuated & 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: 9015'
Production Casing: 14,014'-22,000' MD/9,014' TVD (5,000'-10,000' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

Burst Design	Surf	Int	Prod
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.33	50-100		6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50-100	150-250	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	50-100	250-350	6.37
DV Tool		Tool Depth: 2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	50-100	600-850	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50-100	250-450	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	50-100	150-250	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	TD	15.6	1.2	50-100	2000-3000	5.30

1. Final cement volumes will be determined by caliper. Also, due to the surface location not being staked, the cement
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
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	TD	OBM	10.0 - 13.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 9.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.
A closed system will by 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

7. **TESTING, LOGGING, AND CORING**

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

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

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

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **4218 psi**
b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan will be attached with this MPD in the event that H2S is encountered

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9476	
Lateral TVD Wolfcamp A		9476	17159.07'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9476

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

3. **BOP EQUIPMENT**

Will have a minimum of a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified in the attached testing requirements. Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold. Please refer to the testing and specification documents.

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

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	LTC	New
Production	0'	17159.07'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 17159.07' MD/9,476' TVD (7,500' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	17,159'	15.6	1.2	50	2618	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	17159.07'	OBM	9.5 - 10.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 10.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.

7. **TESTING, LOGGING, AND CORING**

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

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

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **5174 psi**

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9476	
Lateral TVD Wolfcamp A		9476	17159.07'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9476

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

3. **BOP EQUIPMENT**

Will have a minimum of a 5000 psi rig stack (see proposed schematic) for drill out below surface casing. Stack will be tested as specified in the attached testing requirements. Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold. Please refer to the testing and specification documents.

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

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	LTC	New
Production	0'	17159.07'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 17159.07' MD/9,476' TVD (7,500' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	17,159'	15.6	1.2	50	2618	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	17159.07'	OBM	9.5 - 10.5	50 -70	5.0 - 10

* The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 10.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure.

7. **TESTING, LOGGING, AND CORING**

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

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

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. There is a pressure ramp that will be seen in the Wolfcamp A formation expected. Estimated BHP is: **5174 psi**

1. **FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9476	
Lateral TVD Wolfcamp A		9476	17159.07'

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	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9476

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

3. **BOP EQUIPMENT**

PLEASE REFERENCE MDP

4. **CASING PROGRAM**

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	TXP	New
Production	0'	17,159'	8-1/2"	5-1/2"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 17159.07' MD/9,476' TVD (7,500' VS @ 90 deg inc)

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	2.9	1.34	1.79	2.22
Production	1.26	1.66	2.54	1.31

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

	Surf	Int	Prod
Burst Design			
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, 15 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
Collapse Design			
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
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cemnent Top	Cement 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	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV Tool		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	17,159'	15.6	1.2	50	2618	5.30

6. **MUD PROGRAM**

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	17,159'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. **TESTING, LOGGING, AND CORING**

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

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

PLEASE REFERENCE MDP

For the latest performance data, always visit our website: www.tenaris.com

July 07 2015

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110
Min. Wall Thickness: 87.5 %

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

PIPE BODY DATA

GEOMETRY

Nominal OD	5.500 in.	Nominal Weight	20.00 lbs/ft	Standard Drift Diameter	4.653 in.
Nominal ID	4.778 in.	Wall Thickness	0.361 in.	Special Drift Diameter	N/A
Plain End Weight	19.83 lbs/ft				

PERFORMANCE

Body Yield Strength	641 x 1000 lbs	Internal Yield	12630 psi	SMYS	110000 psi
Collapse	11100 psi				

TENARISXP™ BTC CONNECTION DATA

GEOMETRY

Connection OD	6.100 in.	Coupling Length	9.450 in.	Connection ID	4.766 in.
Critical Section Area	5.828 sq. in.	Threads per in.	5.00	Make-Up Loss	4.204 in.

PERFORMANCE

Tension Efficiency	100 %	Joint Yield Strength	641 x 1000 lbs	Internal Pressure Capacity[1]	12630 psi
Structural Compression Efficiency	100 %	Structural Compression Strength	641 x 1000 lbs	Structural Bending[2]	92 °/100 ft
External Pressure Capacity	11100 psi				

ESTIMATED MAKE-UP TORQUES[3]

Minimum	11270 ft-lbs	Optimum	12520 ft-lbs	Maximum	13770 ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		

BLANKING DIMENSIONS

Blanking Dimensions

(1) Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007

(2) Structural rating, pure bending to yield (i.e no other loads applied)

(3) Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed.

For additional information, please contact us at contact-tenarishydril@tenaris.com

H_2S Preparedness and Contingency Plan Summary

Chevron

Hayhurst Eddy County, New Mexico

Training

MCBU Drilling and Completions H_2S 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_2S.

Awareness Level

Employees and visitors to MCBU Drilling and Completions locations that have known concentrations of H_2S, who are not required to perform work in H_2S areas, will be provided with an awareness level of H_2S training prior to entering any H_2S areas. At a minimum, awareness level training will include

1. Physical and chemical properties of H_2S
2. Health hazards of H_2S
3. Personal protective equipment
4. Information regarding potential sources of H_2S
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_2S Training

Employees and contractors required to work in areas that may contain H_2S will be provided with Advanced Level H_2S training prior to initial assignment. In addition to the Awareness Level requirements, Advanced Level H_2S training will include:

1. H_2S safe work practice procedures;
2. Emergency contingency plan procedures;
3. Methods to detect the presence or release of H_2S (e.g., alarms, monitoring equipment), including hands-on training with direct reading and personal monitoring H_2S equipment.
4. Basic overview of respiratory protective equipment suitable for use in H_2S 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_2S training;
6. Proficiency examination covering all course material

Advanced H_2S training courses will be instructed by personnel who have successfully completed an appropriate H_2S train-the-trainer development course (ANSI/ASSE Z390.1-2006) or who possess significant past experience through educational or work-related background.

H_2S Preparedness and Contingency Plan Summary

[illegible]

All employees and visitors will be issued an H_2S training certification card (or certificate) upon successful completion of the appropriate H_2S training course. Personnel working in an H_2S environment will carry a current H_2S training certification card as proof of having received the proper training on their person at all times.

[illegible]

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

[illegible]

[illegible]

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.

[illegible]

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.

[illegible]

a) H_2S 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.

Well Control Equipment

a) Flare Line 150' from wellhead with igniter.

b) Choke manifold with a remotely operated choke.

c) Mud / gas separator

Mud Program

In the event of drilling, completions, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater the following shall be considered:

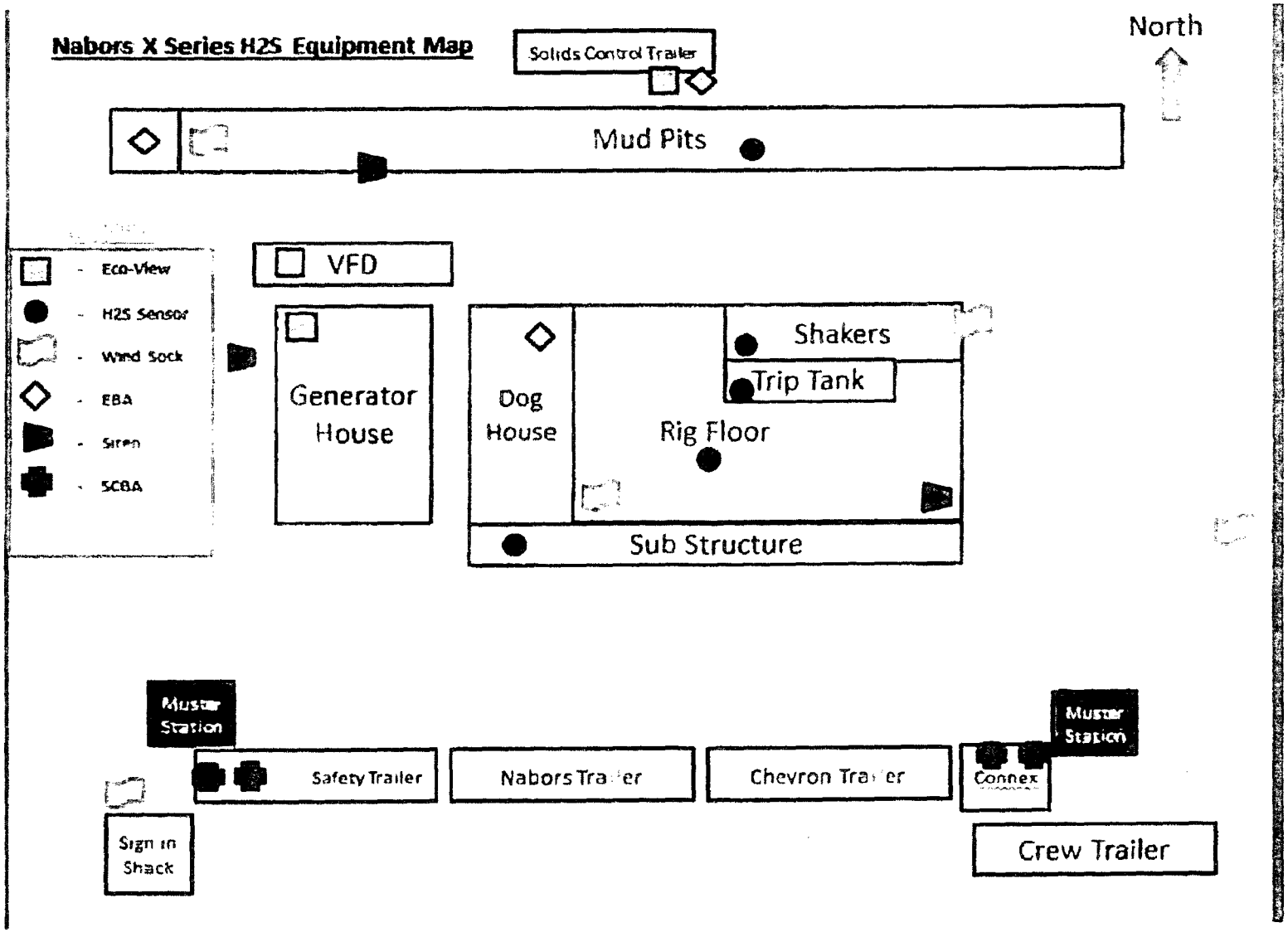
1. Use of a degasser
2. Use of a zinc based mud treatment
3. Increasing mud weight

Public Safety - Emergency Assistance

Agency	Telephone Number
Eddy County Sheriff's Department	575-887-7551
Fire Department:	
Carlsbad	575-885-3125
Artesia	575-746-5050
Carlsbad Medical Center	575-887-4100
Eddy County Emergency Management	575-628-5450
Poison Control Center	800-222-1222

H_2S Preparedness and Contingency Plan Summary

Chevron



Chevron

Chevron

Eddy County, NM (NAD27 NME)
HH CE 35 2 Fed
66

OH
Plan 1 12-19-16

Anticollision Report

20 December, 2016

PHOENIX
TECHNOLOGY SERVICES

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Reference	Plan 1 12-19-16		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	3.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 12/20/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	17,159.08	Plan 1 12-19-16 (OH)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
HH CE 35 2 Fed						
61 - OH - Plan 1 12-19-16	2,000.00	1,998.00	125.02	104.19	6.003	CC
61 - OH - Plan 1 12-19-16	9,468.63	9,382.59	186.45	86.43	1.864	ES, SF
62 - OH - Plan 1 12-19-16	2,000.00	1,998.00	100.02	79.19	4.803	CC
62 - OH - Plan 1 12-19-16	2,200.00	2,194.82	100.91	78.00	4.404	ES
62 - OH - Plan 1 12-19-16	9,390.19	9,342.49	228.94	129.60	2.305	SF
63 - OH - Plan 1 12-19-16	2,007.73	2,006.67	75.03	54.11	3.588	CC
63 - OH - Plan 1 12-19-16	2,100.00	2,097.95	75.16	53.28	3.435	ES
63 - OH - Plan 1 12-19-16	9,304.07	9,273.17	202.23	103.73	2.053	SF
64 - OH - Plan 1 12-19-16	2,150.79	2,149.34	49.40	26.99	2.205	CC
64 - OH - Plan 1 12-19-16	9,120.67	9,113.06	106.32	9.41	1.097	Level 2, ES, SF
65 - OH - Plan 1 12-19-16	2,000.00	1,999.00	25.02	4.19	1.201	Level 2, CC
65 - OH - Plan 1 12-19-16	2,200.00	2,198.15	26.25	3.31	1.144	Level 2, ES, SF

Offset Design HH CE 35 2 Fed - 61 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	2.00	0.00	0.00	0.92	125.00	2.00	125.03				
100.00	100.00	98.00	100.00	0.20	0.20	0.92	125.00	2.00	125.02	124.62	0.40	313.129	
200.00	200.00	198.00	200.00	0.74	0.73	0.92	125.00	2.00	125.02	123.55	1.47	85.164	
300.00	300.00	298.00	300.00	1.28	1.27	0.92	125.00	2.00	125.02	122.47	2.54	49.154	
400.00	400.00	398.00	400.00	1.81	1.80	0.92	125.00	2.00	125.02	121.40	3.62	34.547	
500.00	500.00	498.00	500.00	2.35	2.34	0.92	125.00	2.00	125.02	120.32	4.69	26.632	
600.00	600.00	598.00	600.00	2.89	2.88	0.92	125.00	2.00	125.02	119.25	5.77	21.668	
700.00	700.00	698.00	700.00	3.43	3.42	0.92	125.00	2.00	125.02	118.17	6.85	18.264	
800.00	800.00	798.00	800.00	3.97	3.95	0.92	125.00	2.00	125.02	117.10	7.92	15.784	
900.00	900.00	898.00	900.00	4.50	4.49	0.92	125.00	2.00	125.02	116.02	9.00	13.897	
1,000.00	1,000.00	998.00	1,000.00	5.04	5.03	0.92	125.00	2.00	125.02	114.94	10.07	12.413	
1,100.00	1,100.00	1,098.00	1,100.00	5.58	5.57	0.92	125.00	2.00	125.02	113.87	11.15	11.216	
1,200.00	1,200.00	1,198.00	1,200.00	6.12	6.11	0.92	125.00	2.00	125.02	112.79	12.22	10.229	
1,300.00	1,300.00	1,298.00	1,300.00	6.65	6.64	0.92	125.00	2.00	125.02	111.72	13.30	9.401	
1,400.00	1,400.00	1,398.00	1,400.00	7.19	7.18	0.92	125.00	2.00	125.02	110.64	14.37	8.698	
1,500.00	1,500.00	1,498.00	1,500.00	7.73	7.72	0.92	125.00	2.00	125.02	109.57	15.45	8.093	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 61 - OH - Plan 1 12-19-16

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HDGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,600.00	1,600.00	1,598.00	1,600.00	8.27	8.26	0.92	125.00	2.00	125.02	108.49	16.52	7.566	
1,700.00	1,700.00	1,698.00	1,700.00	8.80	8.79	0.92	125.00	2.00	125.02	107.42	17.60	7.104	
1,800.00	1,800.00	1,798.00	1,800.00	9.34	9.33	0.92	125.00	2.00	125.02	106.34	18.67	6.694	
1,900.00	1,900.00	1,898.00	1,900.00	9.88	9.87	0.92	125.00	2.00	125.02	105.27	19.75	6.330	
2,000.00	2,000.00	1,998.00	2,000.00	10.42	10.41	0.92	125.00	2.00	125.02	104.19	20.83	6.003 CC	
2,100.00	2,099.98	2,095.17	2,097.16	10.95	10.93	72.18	126.02	3.20	125.55	103.68	21.87	5.740	
2,200.00	2,199.84	2,193.32	2,195.19	11.47	11.45	75.85	128.96	6.65	127.34	104.43	22.91	5.557	
2,300.00	2,299.59	2,292.77	2,294.52	12.00	11.97	80.35	132.20	10.46	129.69	105.72	23.97	5.411	
2,400.00	2,399.35	2,392.23	2,393.86	12.53	12.50	84.67	135.45	14.27	132.82	107.79	25.03	5.307	
2,500.00	2,499.11	2,491.69	2,493.19	13.06	13.03	88.76	138.69	18.08	136.67	110.58	26.09	5.239	
2,600.00	2,598.86	2,591.14	2,592.52	13.59	13.56	92.62	141.94	21.90	141.18	114.03	27.15	5.200	
2,700.00	2,698.62	2,690.60	2,691.85	14.13	14.10	96.23	145.19	25.71	146.30	118.09	28.21	5.186	
2,800.00	2,798.38	2,790.06	2,791.18	14.66	14.63	99.58	148.43	29.52	151.96	122.69	29.27	5.191	
2,900.00	2,898.13	2,889.51	2,890.51	15.20	15.16	102.68	151.68	33.34	158.10	127.77	30.33	5.212	
3,000.00	2,997.89	2,988.97	2,989.84	15.74	15.70	105.55	154.92	37.15	164.67	133.28	31.40	5.245	
3,100.00	3,097.65	3,088.43	3,089.17	16.28	16.23	108.19	158.17	40.96	171.63	139.17	32.46	5.287	
3,200.00	3,197.50	3,188.03	3,188.64	16.82	16.77	110.22	161.42	44.78	178.31	144.78	33.53	5.317	
3,300.00	3,297.48	3,287.84	3,288.33	17.35	17.30	41.09	164.68	48.61	183.90	149.28	34.62	5.312	
3,400.00	3,397.48	3,387.71	3,388.07	17.88	17.84	41.31	167.94	52.43	188.88	153.20	35.69	5.293	
3,500.00	3,497.48	3,487.58	3,487.82	18.42	18.38	41.53	171.20	56.26	193.87	157.11	36.75	5.275	
3,600.00	3,597.48	3,587.46	3,587.56	18.95	18.92	41.73	174.46	60.09	198.85	161.03	37.82	5.257	
3,700.00	3,697.48	3,687.33	3,687.31	19.49	19.46	41.93	177.72	63.92	203.84	164.95	38.89	5.241	
3,800.00	3,797.48	3,787.20	3,787.06	20.02	20.00	42.11	180.98	67.75	208.83	168.87	39.96	5.226	
3,900.00	3,897.48	3,887.08	3,886.80	20.55	20.54	42.29	184.24	71.58	213.82	172.79	41.03	5.211	
4,000.00	3,997.48	3,986.95	3,986.55	21.09	21.08	42.45	187.50	75.41	218.82	176.71	42.10	5.197	
4,100.00	4,097.48	4,086.82	4,086.30	21.62	21.62	42.61	190.75	79.24	223.82	180.64	43.18	5.184	
4,200.00	4,197.48	4,186.70	4,186.04	22.16	22.16	42.77	194.01	83.06	228.81	184.57	44.25	5.171	
4,300.00	4,297.48	4,286.57	4,285.79	22.69	22.70	42.91	197.27	86.89	233.81	188.50	45.32	5.159	
4,400.00	4,397.48	4,386.44	4,385.54	23.23	23.24	43.05	200.53	90.72	238.82	192.43	46.39	5.148	
4,500.00	4,497.48	4,486.31	4,485.28	23.76	23.78	43.19	203.79	94.55	243.82	196.36	47.46	5.137	
4,600.00	4,597.48	4,586.19	4,585.03	24.30	24.33	43.32	207.05	98.38	248.82	200.29	48.54	5.127	
4,700.00	4,697.48	4,686.06	4,684.78	24.84	24.87	43.44	210.31	102.21	253.83	204.22	49.61	5.117	
4,800.00	4,797.48	4,785.93	4,784.52	25.37	25.41	43.56	213.57	106.04	258.83	208.15	50.68	5.107	
4,900.00	4,897.48	4,885.81	4,884.27	25.91	25.95	43.68	216.83	109.87	263.84	212.09	51.75	5.098	
5,000.00	4,997.48	4,985.68	4,984.02	26.44	26.49	43.79	220.09	113.69	268.85	216.02	52.83	5.089	
5,100.00	5,097.48	5,085.55	5,083.76	26.98	27.04	43.89	223.35	117.52	273.86	219.96	53.90	5.081	
5,200.00	5,197.48	5,185.43	5,183.51	27.51	27.58	44.00	226.61	121.35	278.87	223.90	54.97	5.073	
5,300.00	5,297.48	5,285.30	5,283.26	28.05	28.12	44.09	229.87	125.18	283.88	227.83	56.05	5.065	
5,400.00	5,397.48	5,385.17	5,383.00	28.59	28.66	44.19	233.13	129.01	288.89	231.77	57.12	5.058	
5,500.00	5,497.48	5,485.05	5,482.75	29.12	29.20	44.28	236.39	132.84	293.91	235.71	58.19	5.050	
5,600.00	5,597.48	5,584.92	5,582.50	29.66	29.75	44.37	239.65	136.67	298.92	239.65	59.27	5.043	
5,700.00	5,697.48	5,684.79	5,682.24	30.19	30.29	44.46	242.91	140.50	303.93	243.59	60.34	5.037	
5,800.00	5,797.48	5,784.67	5,781.99	30.73	30.83	44.54	246.17	144.32	308.95	247.53	61.42	5.030	
5,900.00	5,897.48	5,887.48	5,884.68	31.27	31.39	44.62	249.44	148.17	313.85	251.35	62.51	5.021	
6,000.00	5,997.48	5,999.76	5,996.93	31.80	31.99	44.66	251.00	150.00	315.98	252.34	63.64	4.965	
6,100.00	6,097.48	6,100.32	6,097.48	32.34	32.53	44.66	251.00	150.00	315.99	251.27	64.72	4.883	
6,200.00	6,197.48	6,200.32	6,197.48	32.88	33.06	44.66	251.00	150.00	315.99	250.20	65.78	4.803	
6,300.00	6,297.48	6,300.32	6,297.48	33.41	33.59	44.66	251.00	150.00	315.99	249.13	66.85	4.727	
6,400.00	6,397.48	6,400.32	6,397.48	33.95	34.12	44.66	251.00	150.00	315.99	248.06	67.92	4.652	
6,500.00	6,497.48	6,500.32	6,497.48	34.49	34.65	44.66	251.00	150.00	315.99	246.99	68.99	4.580	
6,600.00	6,597.48	6,600.32	6,597.48	35.02	35.18	44.66	251.00	150.00	315.99	245.92	70.06	4.510	
6,700.00	6,697.48	6,700.32	6,697.48	35.56	35.71	44.66	251.00	150.00	315.99	244.85	71.13	4.442	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
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Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 61 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,800.00	6,797.48	6,800.32	6,797.48	36.10	36.24	44.66	251.00	150.00	315.99	243.78	72.20	4.376	
6,900.00	6,897.48	6,900.32	6,897.48	36.63	36.78	44.66	251.00	150.00	315.99	242.71	73.27	4.313	
7,000.00	6,997.48	7,000.32	6,997.48	37.17	37.31	44.66	251.00	150.00	315.99	241.64	74.34	4.250	
7,100.00	7,097.48	7,100.32	7,097.48	37.71	37.84	44.66	251.00	150.00	315.99	240.57	75.41	4.190	
7,200.00	7,197.48	7,200.32	7,197.48	38.24	38.37	44.66	251.00	150.00	315.99	239.50	76.48	4.131	
7,300.00	7,297.48	7,300.32	7,297.48	38.78	38.91	44.66	251.00	150.00	315.99	238.43	77.55	4.074	
7,400.00	7,397.48	7,400.32	7,397.48	39.32	39.44	44.66	251.00	150.00	315.99	237.36	78.62	4.019	
7,500.00	7,497.48	7,500.32	7,497.48	39.85	39.97	44.66	251.00	150.00	315.99	236.29	79.69	3.965	
7,600.00	7,597.48	7,600.32	7,597.48	40.39	40.50	44.66	251.00	150.00	315.99	235.22	80.77	3.912	
7,700.00	7,697.48	7,700.32	7,697.48	40.93	41.04	44.66	251.00	150.00	315.99	234.15	81.84	3.861	
7,800.00	7,797.48	7,800.32	7,797.48	41.46	41.57	44.66	251.00	150.00	315.99	233.08	82.91	3.811	
7,900.00	7,897.48	7,900.32	7,897.48	42.00	42.10	44.66	251.00	150.00	315.99	232.01	83.98	3.763	
8,000.00	7,997.48	8,000.32	7,997.48	42.54	42.64	44.66	251.00	150.00	315.99	230.94	85.05	3.715	
8,100.00	8,097.48	8,100.32	8,097.48	43.08	43.17	44.66	251.00	150.00	315.99	229.86	86.12	3.669	
8,200.00	8,197.48	8,200.32	8,197.48	43.61	43.70	44.66	251.00	150.00	315.99	228.79	87.19	3.624	
8,300.00	8,297.48	8,300.32	8,297.48	44.15	44.24	44.66	251.00	150.00	315.99	227.72	88.27	3.580	
8,400.00	8,397.48	8,400.32	8,397.48	44.69	44.77	44.66	251.00	150.00	315.99	226.65	89.34	3.537	
8,500.00	8,497.48	8,500.32	8,497.48	45.22	45.31	44.66	251.00	150.00	315.99	225.58	90.41	3.495	
8,600.00	8,597.48	8,600.32	8,597.48	45.76	45.84	44.66	251.00	150.00	315.99	224.50	91.48	3.454	
8,700.00	8,697.48	8,700.32	8,697.48	46.30	46.37	44.66	251.00	150.00	315.99	223.43	92.55	3.414	
8,800.00	8,797.48	8,800.32	8,797.48	46.83	46.91	44.66	251.00	150.00	315.99	222.36	93.63	3.375	
8,900.00	8,897.48	8,900.32	8,897.48	47.37	47.44	44.66	251.00	150.00	315.99	221.29	94.70	3.337	
9,000.00	8,997.06	8,999.89	8,997.06	47.91	47.97	37.39	251.00	150.00	309.75	214.64	95.11	3.257	
9,100.00	9,093.77	9,096.61	9,093.77	48.42	48.49	41.63	251.00	150.00	290.24	195.99	94.26	3.079	
9,200.00	9,184.69	9,187.53	9,184.69	48.89	48.98	49.77	251.00	150.00	259.93	166.44	93.49	2.780	
9,300.00	9,267.06	9,269.89	9,267.06	49.34	49.42	62.70	251.00	150.00	224.26	129.24	95.02	2.360	
9,400.00	9,338.36	9,341.19	9,338.36	49.80	49.80	79.20	251.00	150.00	194.30	95.67	98.64	1.970	
9,468.63	9,379.76	9,382.59	9,379.76	50.11	50.02	90.00	251.00	150.00	186.45	86.43	100.02	1.864	ES, SF
9,500.00	9,396.44	9,399.27	9,396.44	50.25	50.11	94.14	251.00	150.00	188.33	88.25	100.08	1.882	
9,600.00	9,439.52	9,442.36	9,439.52	50.71	50.34	102.39	251.00	150.00	219.94	120.81	99.13	2.219	
9,700.00	9,466.30	9,469.14	9,466.30	51.17	50.48	101.81	251.00	150.00	282.99	183.28	99.71	2.838	
9,800.00	9,475.97	9,478.81	9,475.97	51.64	50.53	90.93	251.00	150.00	363.71	261.65	102.05	3.564	
9,900.00	9,476.00	9,478.84	9,476.00	52.14	50.53	90.00	251.00	150.00	452.48	349.91	102.57	4.411	
10,000.00	9,476.00	9,478.84	9,476.00	52.73	50.53	90.00	251.00	150.00	545.16	442.00	103.16	5.285	
10,100.00	9,476.00	9,478.84	9,476.00	53.39	50.53	90.00	251.00	150.00	640.04	536.22	103.82	6.165	
10,200.00	9,476.00	9,478.84	9,476.00	54.13	50.53	90.00	251.00	150.00	736.28	631.72	104.56	7.042	
10,300.00	9,476.00	9,478.84	9,476.00	54.94	50.53	90.00	251.00	150.00	833.43	728.06	105.37	7.909	
10,400.00	9,476.00	9,478.84	9,476.00	55.83	50.53	90.00	251.00	150.00	931.65	825.39	106.25	8.768	
10,500.00	9,476.00	9,478.84	9,476.00	56.77	50.53	90.00	251.00	150.00	1,030.71	923.52	107.19	9.616	
10,600.00	9,476.00	9,478.84	9,476.00	57.78	50.53	90.00	251.00	150.00	1,130.25	1,022.07	108.18	10.447	
10,700.00	9,476.00	9,478.84	9,476.00	58.85	50.53	90.00	251.00	150.00	1,229.89	1,120.64	109.25	11.257	
10,800.00	9,476.00	9,478.84	9,476.00	59.97	50.53	90.00	251.00	150.00	1,329.59	1,219.21	110.38	12.046	
10,900.00	9,476.00	9,478.84	9,476.00	61.15	50.53	90.00	251.00	150.00	1,429.32	1,317.76	111.56	12.812	
11,000.00	9,476.00	9,478.84	9,476.00	62.38	50.53	90.00	251.00	150.00	1,529.09	1,416.30	112.79	13.557	
11,100.00	9,476.00	9,478.84	9,476.00	63.66	50.53	90.00	251.00	150.00	1,628.89	1,514.82	114.07	14.280	
11,200.00	9,476.00	9,478.84	9,476.00	64.98	50.53	90.00	251.00	150.00	1,728.72	1,613.32	115.39	14.981	
11,300.00	9,476.00	9,478.84	9,476.00	66.35	50.53	90.00	251.00	150.00	1,828.56	1,711.80	116.76	15.661	
11,400.00	9,476.00	9,478.84	9,476.00	67.75	50.53	90.00	251.00	150.00	1,928.42	1,810.25	118.16	16.320	
11,500.00	9,476.00	9,478.84	9,476.00	69.20	50.53	90.00	251.00	150.00	2,028.29	1,908.68	119.61	16.958	
11,600.00	9,476.00	9,478.84	9,476.00	70.68	50.53	90.00	251.00	150.00	2,128.17	2,007.08	121.09	17.576	
11,700.00	9,476.00	9,478.84	9,476.00	72.19	50.53	90.00	251.00	150.00	2,228.07	2,105.47	122.60	18.174	
11,800.00	9,476.00	9,478.84	9,476.00	73.73	50.53	90.00	251.00	150.00	2,327.97	2,203.83	124.14	18.753	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	***Database:***	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	***Offset TVD Reference:***	Reference Datum

Offset Design HH CE 35 2 Fed - 61 - OH - Plan 1 12-19-16

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HDGM

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,900.00	9,476.00	9,478.84	9,476.00	75.30	50.53	90.00	251.00	150.00	2,427.88	2,302.17	125.71	19.313	
12,000.00	9,476.00	9,478.84	9,476.00	76.90	50.53	90.00	251.00	150.00	2,527.80	2,402.49	127.31	19.855	
12,100.00	9,476.00	9,478.84	9,476.00	78.52	50.53	90.00	251.00	150.00	2,627.73	2,498.79	128.94	20.380	
12,200.00	9,476.00	9,478.84	9,476.00	80.17	50.53	90.00	251.00	150.00	2,727.68	2,597.13	130.55	20.894	
12,300.00	9,476.00	9,478.84	9,476.00	81.84	50.53	-90.00	251.00	150.00	2,827.67	2,695.56	132.12	21.403	
12,400.00	9,476.00	9,478.84	9,476.00	83.53	50.53	-90.00	251.00	150.00	2,927.61	2,793.89	133.72	21.894	
12,500.00	9,476.00	9,478.84	9,476.00	85.25	50.53	-90.00	251.00	150.00	3,027.53	2,892.09	135.44	22.353	
12,600.00	9,476.00	9,478.84	9,476.00	86.98	50.53	-90.00	251.00	150.00	3,127.46	2,990.28	137.18	22.798	
12,700.00	9,476.00	9,478.84	9,476.00	88.73	50.53	-90.00	251.00	150.00	3,227.39	3,088.46	138.94	23.229	
12,800.00	9,476.00	9,478.84	9,476.00	90.51	50.53	-90.00	251.00	150.00	3,327.33	3,186.62	140.71	23.646	
12,900.00	9,476.00	9,478.84	9,476.00	92.29	50.53	-90.00	251.00	150.00	3,427.27	3,284.76	142.50	24.050	
13,000.00	9,476.00	9,478.84	9,476.00	94.10	50.53	-90.00	251.00	150.00	3,527.21	3,382.90	144.31	24.441	
13,100.00	9,476.00	9,478.84	9,476.00	95.92	50.53	-90.00	251.00	150.00	3,627.16	3,481.02	146.14	24.820	
13,200.00	9,476.00	9,478.84	9,476.00	97.75	50.53	-90.00	251.00	150.00	3,727.11	3,579.13	147.97	25.188	
13,300.00	9,476.00	9,478.84	9,476.00	99.60	50.53	-90.00	251.00	150.00	3,827.06	3,677.23	149.82	25.544	
13,400.00	9,476.00	9,478.84	9,476.00	101.46	50.53	-90.00	251.00	150.00	3,927.01	3,775.33	151.69	25.889	
13,500.00	9,476.00	9,478.84	9,476.00	103.33	50.53	-90.00	251.00	150.00	4,026.97	3,873.41	153.56	26.223	
13,600.00	9,476.00	9,478.84	9,476.00	105.21	50.53	-90.00	251.00	150.00	4,126.93	3,971.48	155.45	26.548	
13,700.00	9,476.00	9,478.84	9,476.00	107.11	50.53	-90.00	251.00	150.00	4,226.89	4,069.54	157.35	26.863	
13,800.00	9,476.00	9,478.84	9,476.00	109.01	50.53	-90.00	251.00	150.00	4,326.85	4,167.60	159.25	27.169	
13,900.00	9,476.00	9,478.84	9,476.00	110.92	50.53	-90.00	251.00	150.00	4,426.82	4,265.65	161.17	27.467	
14,000.00	9,476.00	9,478.84	9,476.00	112.85	50.53	-90.00	251.00	150.00	4,526.78	4,363.69	163.10	27.755	
14,100.00	9,476.00	9,478.84	9,476.00	114.78	50.53	-90.00	251.00	150.00	4,626.75	4,461.72	165.03	28.036	
14,200.00	9,476.00	9,478.84	9,476.00	116.72	50.53	-90.00	251.00	150.00	4,726.72	4,559.74	166.97	28.308	
14,300.00	9,476.00	9,478.84	9,476.00	118.67	50.53	-90.00	251.00	150.00	4,826.69	4,657.76	168.92	28.573	
14,400.00	9,476.00	9,478.84	9,476.00	120.62	50.53	-90.00	251.00	150.00	4,926.66	4,755.78	170.88	28.831	
14,500.00	9,476.00	9,478.84	9,476.00	122.58	50.53	-90.00	251.00	150.00	5,026.63	4,853.78	172.85	29.081	
14,600.00	9,476.00	9,478.84	9,476.00	124.55	50.53	-90.00	251.00	150.00	5,126.60	4,951.79	174.82	29.325	
14,700.00	9,476.00	9,478.84	9,476.00	126.53	50.53	-90.00	251.00	150.00	5,226.58	5,049.78	176.80	29.563	
14,800.00	9,476.00	9,478.84	9,476.00	128.51	50.53	-90.00	251.00	150.00	5,326.55	5,147.77	178.78	29.794	
14,900.00	9,476.00	9,478.84	9,476.00	130.50	50.53	-90.00	251.00	150.00	5,426.53	5,245.76	180.77	30.019	
15,000.00	9,476.00	9,478.84	9,476.00	132.49	50.53	-90.00	251.00	150.00	5,526.51	5,343.74	182.77	30.238	
15,100.00	9,476.00	9,478.84	9,476.00	134.49	50.53	-90.00	251.00	150.00	5,626.49	5,441.72	184.77	30.452	
15,200.00	9,476.00	9,478.84	9,476.00	136.49	50.53	-90.00	251.00	150.00	5,726.46	5,539.69	186.77	30.660	
15,300.00	9,476.00	9,478.84	9,476.00	138.50	50.53	-90.00	251.00	150.00	5,826.44	5,637.66	188.79	30.863	
15,400.00	9,476.00	9,478.84	9,476.00	140.52	50.53	-90.00	251.00	150.00	5,926.42	5,735.62	190.80	31.061	
15,500.00	9,476.00	9,478.84	9,476.00	142.53	50.53	-90.00	251.00	150.00	6,026.41	5,833.58	192.82	31.254	
15,600.00	9,476.00	9,478.84	9,476.00	144.56	50.53	-90.00	251.00	150.00	6,126.39	5,931.54	194.85	31.442	
15,700.00	9,476.00	9,478.84	9,476.00	146.58	50.53	-90.00	251.00	150.00	6,226.37	6,029.49	196.87	31.626	
15,800.00	9,476.00	9,478.84	9,476.00	148.61	50.53	-90.00	251.00	150.00	6,326.35	6,127.44	198.91	31.806	
15,900.00	9,476.00	9,478.84	9,476.00	150.65	50.53	-90.00	251.00	150.00	6,426.33	6,225.39	200.94	31.981	
16,000.00	9,476.00	9,478.84	9,476.00	152.69	50.53	-90.00	251.00	150.00	6,526.32	6,323.34	202.98	32.152	
16,100.00	9,476.00	9,478.84	9,476.00	154.73	50.53	-90.00	251.00	150.00	6,626.30	6,421.28	205.03	32.319	
16,200.00	9,476.00	9,478.84	9,476.00	156.77	50.53	-90.00	251.00	150.00	6,726.29	6,519.21	207.07	32.483	
16,300.00	9,476.00	9,478.84	9,476.00	158.82	50.53	-90.00	251.00	150.00	6,826.27	6,617.15	209.12	32.643	
16,400.00	9,476.00	9,478.84	9,476.00	160.87	50.53	-90.00	251.00	150.00	6,926.26	6,715.08	211.17	32.799	
16,500.00	9,476.00	9,478.84	9,476.00	162.93	50.53	-90.00	251.00	150.00	7,026.24	6,813.01	213.23	32.951	
16,600.00	9,476.00	9,478.84	9,476.00	164.98	50.53	-90.00	251.00	150.00	7,126.23	6,910.94	215.29	33.101	
16,700.00	9,476.00	9,478.84	9,476.00	167.04	50.53	-90.00	251.00	150.00	7,226.22	7,008.87	217.35	33.247	
16,800.00	9,476.00	9,478.84	9,476.00	169.11	50.53	-90.00	251.00	150.00	7,326.20	7,106.79	219.41	33.390	
16,900.00	9,476.00	9,478.84	9,476.00	171.17	50.53	-90.00	251.00	150.00	7,426.19	7,204.71	221.48	33.530	
17,000.00	9,476.00	9,478.84	9,476.00	173.24	50.53	-90.00	251.00	150.00	7,526.18	7,302.63	223.55	33.667	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 61 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,100.00	9,476.00	9,478.84	9,476.00	175.31	50.53	-90.00	251.00	150.00	7,626.17	7,400.54	225.62	33.801	
17,159.08	9,476.00	9,478.84	9,476.00	176.53	50.53	-90.00	251.00	150.00	7,685.23	7,458.39	226.85	33.879	

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	*HH CE 35 2 Fed*	***MD Reference:***	*GL + KB @ 3171.00usft*
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	***Output errors are at***	*3.00 sigma*
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 62 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	2.00	0.00	0.00	1.15	100.00	2.00	100.04				
100.00	100.00	98.00	100.00	0.20	0.20	1.15	100.00	2.00	100.02	99.62	0.40	250.521	
200.00	200.00	198.00	200.00	0.74	0.73	1.15	100.00	2.00	100.02	98.55	1.47	68.136	
300.00	300.00	298.00	300.00	1.28	1.27	1.15	100.00	2.00	100.02	97.48	2.54	39.326	
400.00	400.00	398.00	400.00	1.81	1.80	1.15	100.00	2.00	100.02	96.40	3.62	27.639	
500.00	500.00	498.00	500.00	2.35	2.34	1.15	100.00	2.00	100.02	95.33	4.69	21.307	
600.00	600.00	598.00	600.00	2.89	2.88	1.15	100.00	2.00	100.02	94.25	5.77	17.336	
700.00	700.00	698.00	700.00	3.43	3.42	1.15	100.00	2.00	100.02	93.18	6.85	14.612	
800.00	800.00	798.00	800.00	3.97	3.95	1.15	100.00	2.00	100.02	92.10	7.92	12.628	
900.00	900.00	898.00	900.00	4.50	4.49	1.15	100.00	2.00	100.02	91.02	9.00	11.118	
1,000.00	1,000.00	998.00	1,000.00	5.04	5.03	1.15	100.00	2.00	100.02	89.95	10.07	9.931	
1,100.00	1,100.00	1,098.00	1,100.00	5.58	5.57	1.15	100.00	2.00	100.02	88.87	11.15	8.973	
1,200.00	1,200.00	1,198.00	1,200.00	6.12	6.11	1.15	100.00	2.00	100.02	87.80	12.22	8.184	
1,300.00	1,300.00	1,298.00	1,300.00	6.65	6.64	1.15	100.00	2.00	100.02	86.72	13.30	7.522	
1,400.00	1,400.00	1,398.00	1,400.00	7.19	7.18	1.15	100.00	2.00	100.02	85.65	14.37	6.959	
1,500.00	1,500.00	1,498.00	1,500.00	7.73	7.72	1.15	100.00	2.00	100.02	84.57	15.45	6.474	
1,600.00	1,600.00	1,598.00	1,600.00	8.27	8.26	1.15	100.00	2.00	100.02	83.50	16.52	6.053	
1,700.00	1,700.00	1,698.00	1,700.00	8.80	8.79	1.15	100.00	2.00	100.02	82.42	17.60	5.683	
1,800.00	1,800.00	1,798.00	1,800.00	9.34	9.33	1.15	100.00	2.00	100.02	81.35	18.67	5.356	
1,900.00	1,900.00	1,898.00	1,900.00	9.88	9.87	1.15	100.00	2.00	100.02	80.27	19.75	5.064	
2,000.00	2,000.00	1,998.00	2,000.00	10.42	10.41	1.15	100.00	2.00	100.02	79.19	20.83	4.803 CC	
2,100.00	2,099.98	2,096.43	2,098.41	10.95	10.93	71.25	100.79	0.58	100.23	78.35	21.88	4.581	
2,200.00	2,199.84	2,194.82	2,196.67	11.47	11.45	71.50	103.21	-3.79	100.91	78.00	22.91	4.404 ES	
2,300.00	2,299.59	2,294.13	2,295.67	12.00	11.97	71.26	107.04	-10.68	102.37	78.40	23.97	4.271	
2,400.00	2,399.35	2,394.12	2,395.31	12.53	12.51	70.88	111.04	-17.88	103.97	78.95	25.03	4.154	
2,500.00	2,499.11	2,494.10	2,494.96	13.06	13.04	70.51	115.04	-25.08	105.58	79.49	26.09	4.046	
2,600.00	2,598.86	2,594.09	2,594.60	13.59	13.58	70.16	119.03	-32.28	107.19	80.03	27.16	3.946	
2,700.00	2,698.62	2,694.07	2,694.25	14.13	14.12	69.81	123.03	-39.49	108.80	80.57	28.23	3.854	
2,800.00	2,798.38	2,794.06	2,793.89	14.66	14.66	69.48	127.03	-46.69	110.42	81.11	29.31	3.767	
2,900.00	2,898.13	2,894.04	2,893.54	15.20	15.20	69.15	131.03	-53.89	112.04	81.65	30.39	3.687	
3,000.00	2,997.89	2,994.03	2,993.18	15.74	15.74	68.84	135.02	-61.09	113.67	82.20	31.47	3.612	
3,100.00	3,097.65	3,094.01	3,092.83	16.28	16.29	68.53	139.02	-68.29	115.30	82.75	32.55	3.542	
3,200.00	3,197.50	3,193.95	3,192.43	16.82	16.83	67.48	143.02	-75.49	117.59	83.95	33.63	3.496	
3,300.00	3,297.48	3,293.74	3,291.87	17.35	17.38	-5.00	147.01	-82.68	121.35	86.67	34.68	3.499	
3,400.00	3,397.48	3,393.40	3,391.20	17.88	17.93	-8.10	150.99	-89.86	126.16	90.41	35.75	3.529	
3,500.00	3,497.48	3,493.06	3,490.52	18.42	18.47	-10.96	154.98	-97.03	131.31	94.50	36.81	3.567	
3,600.00	3,597.48	3,592.72	3,589.84	18.95	19.02	-13.60	158.96	-104.21	136.76	98.88	37.88	3.611	
3,700.00	3,697.48	3,692.38	3,689.16	19.49	19.57	-16.03	162.95	-111.39	142.48	103.54	38.94	3.659	
3,800.00	3,797.48	3,792.04	3,788.48	20.02	20.12	-18.27	166.93	-118.57	148.43	108.43	40.01	3.710	
3,900.00	3,897.48	3,891.70	3,887.80	20.55	20.67	-20.34	170.92	-125.75	154.60	113.53	41.07	3.764	
4,000.00	3,997.48	3,991.36	3,987.12	21.09	21.22	-22.25	174.90	-132.92	160.95	118.81	42.14	3.820	
4,100.00	4,097.48	4,091.02	4,086.44	21.62	21.77	-24.01	178.89	-140.10	167.46	124.26	43.21	3.876	
4,200.00	4,197.48	4,190.68	4,185.77	22.16	22.32	-25.64	182.87	-147.28	174.13	129.85	44.27	3.933	
4,300.00	4,297.48	4,290.34	4,285.09	22.69	22.87	-27.14	186.86	-154.46	180.92	135.58	45.34	3.990	
4,400.00	4,397.48	4,390.00	4,384.41	23.23	23.42	-28.54	190.84	-161.64	187.82	141.42	46.41	4.047	
4,500.00	4,497.48	4,489.66	4,483.73	23.76	23.98	-29.84	194.83	-168.81	194.84	147.36	47.48	4.104	
4,600.00	4,597.48	4,589.32	4,583.05	24.30	24.53	-31.05	198.81	-175.99	201.94	153.39	48.54	4.160	
4,700.00	4,697.48	4,688.98	4,682.37	24.84	25.08	-32.17	202.80	-183.17	209.13	159.51	49.61	4.215	
4,800.00	4,797.48	4,788.64	4,781.69	25.37	25.64	-33.22	206.78	-190.35	216.39	165.70	50.68	4.269	
4,900.00	4,897.48	4,888.30	4,881.02	25.91	26.19	-34.20	210.77	-197.53	223.72	171.96	51.75	4.323	
5,000.00	4,997.48	4,987.96	4,980.34	26.44	26.74	-35.12	214.75	-204.71	231.11	178.28	52.82	4.375	
5,100.00	5,097.48	5,087.62	5,079.66	26.98	27.30	-35.98	218.74	-211.88	238.55	184.66	53.89	4.426	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 62 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,197.48	5,187.28	5,178.98	27.51	27.85	-36.79	222.72	-219.06	246.05	191.08	54.97	4.476	
5,300.00	5,297.48	5,286.94	5,278.30	28.05	28.41	-37.56	226.71	-226.24	253.59	197.55	56.04	4.525	
5,400.00	5,397.48	5,386.60	5,377.62	28.59	28.96	-38.27	230.69	-233.42	261.18	204.07	57.11	4.573	
5,500.00	5,497.48	5,486.26	5,476.94	29.12	29.52	-38.95	234.68	-240.60	268.80	210.62	58.18	4.620	
5,600.00	5,597.48	5,585.92	5,576.27	29.66	30.07	-39.59	238.66	-247.77	276.46	217.20	59.25	4.666	
5,700.00	5,697.48	5,685.58	5,675.59	30.19	30.63	-40.20	242.65	-254.95	284.15	223.82	60.33	4.710	
5,800.00	5,797.48	5,786.18	5,775.85	30.73	31.19	-40.77	246.66	-262.18	291.85	230.45	61.40	4.753	
5,900.00	5,897.48	5,886.70	5,886.16	31.27	31.79	-41.21	249.86	-267.95	297.47	234.93	62.53	4.757	
6,000.00	5,997.48	6,007.56	5,996.99	31.80	32.39	-41.36	251.00	-270.00	299.45	235.79	63.66	4.704	
6,100.00	6,097.48	6,108.05	6,097.48	32.34	32.91	-41.36	251.00	-270.00	299.46	234.73	64.73	4.626	
6,200.00	6,197.48	6,208.05	6,197.48	32.88	33.43	-41.36	251.00	-270.00	299.46	233.67	65.79	4.552	
6,300.00	6,297.48	6,308.05	6,297.48	33.41	33.96	-41.36	251.00	-270.00	299.46	232.60	66.86	4.479	
6,400.00	6,397.48	6,408.05	6,397.48	33.95	34.48	-41.36	251.00	-270.00	299.46	231.53	67.92	4.409	
6,500.00	6,497.48	6,508.05	6,497.48	34.49	35.00	-41.36	251.00	-270.00	299.46	230.47	68.99	4.341	
6,600.00	6,597.48	6,608.05	6,597.48	35.02	35.53	-41.36	251.00	-270.00	299.46	229.40	70.05	4.275	
6,700.00	6,697.48	6,708.05	6,697.48	35.56	36.05	-41.36	251.00	-270.00	299.46	228.34	71.12	4.211	
6,800.00	6,797.48	6,808.05	6,797.48	36.10	36.58	-41.36	251.00	-270.00	299.46	227.27	72.19	4.148	
6,900.00	6,897.48	6,908.05	6,897.48	36.63	37.10	-41.36	251.00	-270.00	299.46	226.20	73.25	4.088	
7,000.00	6,997.48	7,008.05	6,997.48	37.17	37.63	-41.36	251.00	-270.00	299.46	225.14	74.32	4.029	
7,100.00	7,097.48	7,108.05	7,097.48	37.71	38.16	-41.36	251.00	-270.00	299.46	224.07	75.39	3.972	
7,200.00	7,197.48	7,208.05	7,197.48	38.24	38.68	-41.36	251.00	-270.00	299.46	223.00	76.46	3.917	
7,300.00	7,297.48	7,308.05	7,297.48	38.78	39.21	-41.36	251.00	-270.00	299.46	221.93	77.52	3.863	
7,400.00	7,397.48	7,408.05	7,397.48	39.32	39.74	-41.36	251.00	-270.00	299.46	220.87	78.59	3.810	
7,500.00	7,497.48	7,508.05	7,497.48	39.85	40.27	-41.36	251.00	-270.00	299.46	219.80	79.66	3.759	
7,600.00	7,597.48	7,608.05	7,597.48	40.39	40.79	-41.36	251.00	-270.00	299.46	218.73	80.73	3.710	
7,700.00	7,697.48	7,708.05	7,697.48	40.93	41.32	-41.36	251.00	-270.00	299.46	217.66	81.80	3.661	
7,800.00	7,797.48	7,808.05	7,797.48	41.46	41.85	-41.36	251.00	-270.00	299.46	216.59	82.86	3.614	
7,900.00	7,897.48	7,908.05	7,897.48	42.00	42.38	-41.36	251.00	-270.00	299.46	215.52	83.93	3.568	
8,000.00	7,997.48	8,008.05	7,997.48	42.54	42.91	-41.36	251.00	-270.00	299.46	214.46	85.00	3.523	
8,100.00	8,097.48	8,108.05	8,097.48	43.08	43.44	-41.36	251.00	-270.00	299.46	213.39	86.07	3.479	
8,200.00	8,197.48	8,208.05	8,197.48	43.61	43.96	-41.36	251.00	-270.00	299.46	212.32	87.14	3.437	
8,300.00	8,297.48	8,308.05	8,297.48	44.15	44.49	-41.36	251.00	-270.00	299.46	211.25	88.21	3.395	
8,400.00	8,397.48	8,408.05	8,397.48	44.69	45.02	-41.36	251.00	-270.00	299.46	210.18	89.28	3.354	
8,500.00	8,497.48	8,508.05	8,497.48	45.22	45.55	-41.36	251.00	-270.00	299.46	209.11	90.35	3.314	
8,600.00	8,597.48	8,608.05	8,597.48	45.76	46.08	-41.36	251.00	-270.00	299.46	208.04	91.42	3.276	
8,700.00	8,697.48	8,708.05	8,697.48	46.30	46.61	-41.36	251.00	-270.00	299.46	206.97	92.49	3.238	
8,800.00	8,797.48	8,808.05	8,797.48	46.83	47.14	-41.36	251.00	-270.00	299.46	205.90	93.56	3.201	
8,900.00	8,897.48	8,908.05	8,897.48	47.37	47.67	-41.36	251.00	-270.00	299.46	204.83	94.63	3.165	
9,000.00	8,997.06	9,007.62	8,997.06	47.91	48.20	-51.40	251.00	-270.00	294.51	199.05	95.47	3.085	
9,100.00	9,093.77	9,104.34	9,093.77	48.42	48.72	-56.56	251.00	-270.00	279.51	183.91	95.60	2.924	
9,200.00	9,184.69	9,195.26	9,184.69	48.89	49.20	-65.64	251.00	-270.00	258.03	161.79	96.24	2.681	
9,300.00	9,267.06	9,277.62	9,267.06	49.34	49.64	-78.09	251.00	-270.00	237.33	139.28	98.04	2.421	
9,390.19	9,331.92	9,342.49	9,331.92	49.75	49.98	-90.00	251.00	-270.00	228.94	129.60	99.33	2.305 SF	
9,400.00	9,338.36	9,348.93	9,338.36	49.80	50.01	-91.20	251.00	-270.00	229.06	129.68	99.38	2.305	
9,500.00	9,396.44	9,407.00	9,396.44	50.25	50.32	-101.14	251.00	-270.00	245.50	146.79	98.71	2.487	
9,600.00	9,439.52	9,450.09	9,439.52	50.71	50.55	-105.33	251.00	-270.00	290.45	192.72	97.74	2.972	
9,700.00	9,466.30	9,476.87	9,466.30	51.17	50.69	-102.41	251.00	-270.00	357.79	258.68	99.11	3.610	
9,800.00	9,475.97	9,486.54	9,475.97	51.64	50.75	-90.91	251.00	-270.00	438.82	336.87	101.95	4.304	
9,900.00	9,476.00	9,486.57	9,476.00	52.14	50.75	-90.00	251.00	-270.00	526.72	424.22	102.49	5.139	
10,000.00	9,476.00	9,486.57	9,476.00	52.73	50.75	-90.00	251.00	-270.00	618.31	515.23	103.08	5.998	
10,100.00	9,476.00	9,486.57	9,476.00	53.39	50.75	-90.00	251.00	-270.00	712.16	608.42	103.74	6.865	
10,200.00	9,476.00	9,486.57	9,476.00	54.13	50.75	-90.00	251.00	-270.00	807.50	703.01	104.48	7.728	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 62 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.00	9,476.00	9,486.57	9,476.00	54.94	50.75	-90.00	251.00	-270.00	903.81	798.51	105.30	8.583	
10,400.00	9,476.00	9,486.57	9,476.00	55.83	50.75	-90.00	251.00	-270.00	1,000.24	894.05	106.19	9.419	
10,500.00	9,476.00	9,486.57	9,476.00	56.77	50.75	-90.00	251.00	-270.00	1,096.46	989.33	107.14	10.234	
10,600.00	9,476.00	9,486.57	9,476.00	57.78	50.75	-90.00	251.00	-270.00	1,192.57	1,084.43	108.14	11.028	
10,700.00	9,476.00	9,486.57	9,476.00	58.85	50.75	-90.00	251.00	-270.00	1,289.19	1,179.99	109.21	11.805	
10,800.00	9,476.00	9,486.57	9,476.00	59.97	50.75	-90.00	251.00	-270.00	1,386.30	1,275.97	110.33	12.565	
10,900.00	9,476.00	9,486.57	9,476.00	61.15	50.75	-90.00	251.00	-270.00	1,483.79	1,372.28	111.51	13.306	
11,000.00	9,476.00	9,486.57	9,476.00	62.38	50.75	-90.00	251.00	-270.00	1,581.59	1,468.85	112.74	14.028	
11,100.00	9,476.00	9,486.57	9,476.00	63.66	50.75	-90.00	251.00	-270.00	1,679.65	1,565.63	114.02	14.731	
11,200.00	9,476.00	9,486.57	9,476.00	64.98	50.75	-90.00	251.00	-270.00	1,777.93	1,662.58	115.34	15.414	
11,300.00	9,476.00	9,486.57	9,476.00	66.35	50.75	-90.00	251.00	-270.00	1,876.38	1,759.67	116.71	16.077	
11,400.00	9,476.00	9,486.57	9,476.00	67.75	50.75	-90.00	251.00	-270.00	1,975.00	1,856.88	118.12	16.721	
11,500.00	9,476.00	9,486.57	9,476.00	69.20	50.75	-90.00	251.00	-270.00	2,073.74	1,954.18	119.56	17.345	
11,600.00	9,476.00	9,486.57	9,476.00	70.68	50.75	-90.00	251.00	-270.00	2,172.61	2,051.57	121.04	17.950	
11,700.00	9,476.00	9,486.57	9,476.00	72.19	50.75	-90.00	251.00	-270.00	2,271.57	2,149.02	122.55	18.536	
11,800.00	9,476.00	9,486.57	9,476.00	73.73	50.75	-90.00	251.00	-270.00	2,370.61	2,246.52	124.09	19.104	
11,900.00	9,476.00	9,486.57	9,476.00	75.30	50.75	-90.00	251.00	-270.00	2,469.74	2,344.07	125.66	19.653	
12,000.00	9,476.00	9,486.57	9,476.00	76.90	50.75	-90.00	251.00	-270.00	2,568.93	2,441.67	127.26	20.186	
12,100.00	9,476.00	9,486.57	9,476.00	78.52	50.75	-90.00	251.00	-270.00	2,668.19	2,539.30	128.89	20.702	
12,200.00	9,476.00	9,486.57	9,476.00	80.17	50.75	-90.00	251.00	-270.00	2,767.40	2,636.89	130.51	21.205	
12,300.00	9,476.00	9,486.57	9,476.00	81.84	50.75	-90.00	251.00	-270.00	2,866.23	2,734.14	132.09	21.699	
12,400.00	9,476.00	9,486.57	9,476.00	83.53	50.75	-90.00	251.00	-270.00	2,964.63	2,830.93	133.70	22.174	
12,500.00	9,476.00	9,486.57	9,476.00	85.25	50.75	-90.00	251.00	-270.00	3,063.03	2,927.61	135.42	22.619	
12,600.00	9,476.00	9,486.57	9,476.00	86.98	50.75	-90.00	251.00	-270.00	3,161.53	3,024.37	137.16	23.050	
12,700.00	9,476.00	9,486.57	9,476.00	88.73	50.75	-90.00	251.00	-270.00	3,260.12	3,121.20	138.92	23.468	
12,800.00	9,476.00	9,486.57	9,476.00	90.51	50.75	-90.00	251.00	-270.00	3,358.79	3,218.10	140.69	23.873	
12,900.00	9,476.00	9,486.57	9,476.00	92.29	50.75	-90.00	251.00	-270.00	3,457.54	3,315.06	142.48	24.266	
13,000.00	9,476.00	9,486.57	9,476.00	94.10	50.75	-90.00	251.00	-270.00	3,556.36	3,412.07	144.29	24.647	
13,100.00	9,476.00	9,486.57	9,476.00	95.92	50.75	-90.00	251.00	-270.00	3,655.25	3,509.13	146.12	25.016	
13,200.00	9,476.00	9,486.57	9,476.00	97.75	50.75	-90.00	251.00	-270.00	3,754.19	3,606.24	147.95	25.374	
13,300.00	9,476.00	9,486.57	9,476.00	99.60	50.75	-90.00	251.00	-270.00	3,853.19	3,703.39	149.80	25.722	
13,400.00	9,476.00	9,486.57	9,476.00	101.46	50.75	-90.00	251.00	-270.00	3,952.24	3,800.57	151.67	26.059	
13,500.00	9,476.00	9,486.57	9,476.00	103.33	50.75	-90.00	251.00	-270.00	4,051.33	3,897.79	153.54	26.386	
13,600.00	9,476.00	9,486.57	9,476.00	105.21	50.75	-90.00	251.00	-270.00	4,150.47	3,995.04	155.43	26.703	
13,700.00	9,476.00	9,486.57	9,476.00	107.11	50.75	-90.00	251.00	-270.00	4,249.65	4,092.33	157.33	27.012	
13,800.00	9,476.00	9,486.57	9,476.00	109.01	50.75	-90.00	251.00	-270.00	4,348.87	4,189.64	159.23	27.311	
13,900.00	9,476.00	9,486.57	9,476.00	110.92	50.75	-90.00	251.00	-270.00	4,448.12	4,286.97	161.15	27.602	
14,000.00	9,476.00	9,486.57	9,476.00	112.85	50.75	-90.00	251.00	-270.00	4,547.41	4,384.33	163.08	27.885	
14,100.00	9,476.00	9,486.57	9,476.00	114.78	50.75	-90.00	251.00	-270.00	4,646.72	4,481.71	165.01	28.160	
14,200.00	9,476.00	9,486.57	9,476.00	116.72	50.75	-90.00	251.00	-270.00	4,746.07	4,579.11	166.95	28.427	
14,300.00	9,476.00	9,486.57	9,476.00	118.67	50.75	-90.00	251.00	-270.00	4,845.44	4,676.53	168.90	28.688	
14,400.00	9,476.00	9,486.57	9,476.00	120.62	50.75	-90.00	251.00	-270.00	4,944.83	4,773.97	170.86	28.941	
14,500.00	9,476.00	9,486.57	9,476.00	122.58	50.75	-90.00	251.00	-270.00	5,044.25	4,871.43	172.83	29.187	
14,600.00	9,476.00	9,486.57	9,476.00	124.55	50.75	-90.00	251.00	-270.00	5,143.70	4,968.90	174.80	29.426	
14,700.00	9,476.00	9,486.57	9,476.00	126.53	50.75	-90.00	251.00	-270.00	5,243.16	5,066.38	176.78	29.660	
14,800.00	9,476.00	9,486.57	9,476.00	128.51	50.75	-90.00	251.00	-270.00	5,342.64	5,163.88	178.76	29.887	
14,900.00	9,476.00	9,486.57	9,476.00	130.50	50.75	-90.00	251.00	-270.00	5,442.15	5,261.40	180.75	30.109	
15,000.00	9,476.00	9,486.57	9,476.00	132.49	50.75	-90.00	251.00	-270.00	5,541.67	5,358.92	182.75	30.324	
15,100.00	9,476.00	9,486.57	9,476.00	134.49	50.75	-90.00	251.00	-270.00	5,641.21	5,456.46	184.75	30.535	
15,200.00	9,476.00	9,486.57	9,476.00	136.49	50.75	-90.00	251.00	-270.00	5,740.76	5,554.01	186.75	30.740	
15,300.00	9,476.00	9,486.57	9,476.00	138.50	50.75	-90.00	251.00	-270.00	5,840.33	5,651.56	188.76	30.940	
15,400.00	9,476.00	9,486.57	9,476.00	140.52	50.75	-90.00	251.00	-270.00	5,939.91	5,749.13	190.78	31.135	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 62 - OH - Plan 1 12-19-16 — Offset Site Error: 0.00 usft

Survey Program: 0-MWD+HDGM — Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,500.00	9,476.00	9,486.57	9,476.00	142.53	50.75	-90.00	251.00	-270.00	6,039.51	5,846.71	192.80	31.325	
15,600.00	9,476.00	9,486.57	9,476.00	144.56	50.75	-90.00	251.00	-270.00	6,139.12	5,944.29	194.82	31.511	
15,700.00	9,476.00	9,486.57	9,476.00	146.58	50.75	-90.00	251.00	-270.00	6,238.74	6,041.89	196.85	31.692	
15,800.00	9,476.00	9,486.57	9,476.00	148.61	50.75	-90.00	251.00	-270.00	6,338.38	6,139.49	198.89	31.869	
15,900.00	9,476.00	9,486.57	9,476.00	150.65	50.75	-90.00	251.00	-270.00	6,438.02	6,237.10	200.92	32.042	
16,000.00	9,476.00	9,486.57	9,476.00	152.69	50.75	-90.00	251.00	-270.00	6,537.68	6,334.72	202.96	32.211	
16,100.00	9,476.00	9,486.57	9,476.00	154.73	50.75	-90.00	251.00	-270.00	6,637.35	6,432.34	205.00	32.377	
16,200.00	9,476.00	9,486.57	9,476.00	156.77	50.75	-90.00	251.00	-270.00	6,737.02	6,529.97	207.05	32.538	
16,300.00	9,476.00	9,486.57	9,476.00	158.82	50.75	-90.00	251.00	-270.00	6,836.71	6,627.61	209.10	32.696	
16,400.00	9,476.00	9,486.57	9,476.00	160.87	50.75	-90.00	251.00	-270.00	6,936.41	6,725.25	211.15	32.850	
16,500.00	9,476.00	9,486.57	9,476.00	162.93	50.75	-90.00	251.00	-270.00	7,036.11	6,822.90	213.21	33.001	
16,600.00	9,476.00	9,486.57	9,476.00	164.98	50.75	-90.00	251.00	-270.00	7,135.82	6,920.55	215.27	33.148	
16,700.00	9,476.00	9,486.57	9,476.00	167.04	50.75	-90.00	251.00	-270.00	7,235.54	7,018.21	217.33	33.293	
16,800.00	9,476.00	9,486.57	9,476.00	169.11	50.75	-90.00	251.00	-270.00	7,335.27	7,115.88	219.39	33.434	
16,900.00	9,476.00	9,486.57	9,476.00	171.17	50.75	-90.00	251.00	-270.00	7,435.01	7,213.55	221.46	33.573	
17,000.00	9,476.00	9,486.57	9,476.00	173.24	50.75	-90.00	251.00	-270.00	7,534.75	7,311.22	223.53	33.708	
17,100.00	9,476.00	9,486.57	9,476.00	175.31	50.75	-90.00	251.00	-270.00	7,634.50	7,408.90	225.60	33.841	
17,159.08	9,476.00	9,486.57	9,476.00	176.53	50.75	-90.00	251.00	-270.00	7,693.43	7,466.60	226.83	33.918	

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 63 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	1.00	0.00	0.00	1.53	75.00	2.00	75.03				
100.00	100.00	99.00	100.00	0.20	0.20	1.53	75.00	2.00	75.03	74.63	0.40	186.976	
200.00	200.00	199.00	200.00	0.74	0.73	1.53	75.00	2.00	75.03	73.55	1.47	50.924	
300.00	300.00	299.00	300.00	1.28	1.27	1.53	75.00	2.00	75.03	72.48	2.55	29.437	
400.00	400.00	399.00	400.00	1.81	1.81	1.53	75.00	2.00	75.03	71.40	3.62	20.702	
500.00	500.00	499.00	500.00	2.35	2.35	1.53	75.00	2.00	75.03	70.33	4.70	15.965	
600.00	600.00	599.00	600.00	2.89	2.88	1.53	75.00	2.00	75.03	69.25	5.77	12.992	
700.00	700.00	699.00	700.00	3.43	3.42	1.53	75.00	2.00	75.03	68.18	6.85	10.952	
800.00	800.00	799.00	800.00	3.97	3.96	1.53	75.00	2.00	75.03	67.10	7.93	9.466	
900.00	900.00	899.00	900.00	4.50	4.50	1.53	75.00	2.00	75.03	66.03	9.00	8.335	
1,000.00	1,000.00	999.00	1,000.00	5.04	5.04	1.53	75.00	2.00	75.03	64.95	10.08	7.446	
1,100.00	1,100.00	1,099.00	1,100.00	5.58	5.57	1.53	75.00	2.00	75.03	63.87	11.15	6.728	
1,200.00	1,200.00	1,199.00	1,200.00	6.12	6.11	1.53	75.00	2.00	75.03	62.80	12.23	6.136	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.65	1.53	75.00	2.00	75.03	61.72	13.30	5.640	
1,400.00	1,400.00	1,399.00	1,400.00	7.19	7.19	1.53	75.00	2.00	75.03	60.65	14.38	5.218	
1,500.00	1,500.00	1,499.00	1,500.00	7.73	7.72	1.53	75.00	2.00	75.03	59.57	15.45	4.855	
1,600.00	1,600.00	1,599.00	1,600.00	8.27	8.26	1.53	75.00	2.00	75.03	58.50	16.53	4.539	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.80	1.53	75.00	2.00	75.03	57.42	17.60	4.262	
1,800.00	1,800.00	1,799.00	1,800.00	9.34	9.34	1.53	75.00	2.00	75.03	56.35	18.68	4.016	
1,900.00	1,900.00	1,899.00	1,900.00	9.88	9.87	1.53	75.00	2.00	75.03	55.27	19.76	3.798	
2,000.00	2,000.00	1,999.00	2,000.00	10.42	10.41	1.53	75.00	2.00	75.03	54.20	20.83	3.602	
2,007.73	2,007.73	2,006.67	2,007.67	10.46	10.45	71.54	75.00	2.01	75.03	54.11	20.91	3.588 CC	
2,100.00	2,099.98	2,097.95	2,098.94	10.95	10.94	73.96	75.57	3.57	75.16	53.28	21.88	3.435 ES	
2,200.00	2,199.84	2,196.91	2,197.78	11.47	11.45	80.93	77.18	8.00	76.23	53.30	22.92	3.325	
2,300.00	2,299.59	2,296.25	2,296.98	12.00	11.98	89.18	78.96	12.88	78.65	54.68	23.97	3.281	
2,400.00	2,399.35	2,395.59	2,396.19	12.53	12.50	96.80	80.74	17.77	82.62	57.60	25.02	3.302	
2,500.00	2,499.11	2,494.93	2,495.39	13.06	13.02	103.62	82.52	22.65	87.91	61.84	26.07	3.372	
2,600.00	2,598.86	2,594.27	2,594.60	13.59	13.55	109.60	84.29	27.54	94.30	67.18	27.12	3.478	
2,700.00	2,698.62	2,693.61	2,693.80	14.13	14.08	114.77	86.07	32.42	101.59	73.43	28.17	3.607	
2,800.00	2,798.38	2,792.95	2,793.00	14.66	14.61	119.23	87.85	37.31	109.60	80.39	29.21	3.752	
2,900.00	2,898.13	2,892.29	2,892.21	15.20	15.14	123.07	89.63	42.19	118.18	87.92	30.26	3.905	
3,000.00	2,997.89	2,991.63	2,991.41	15.74	15.67	126.37	91.41	47.08	127.22	95.90	31.32	4.062	
3,100.00	3,097.65	3,090.97	3,090.62	16.28	16.20	129.23	93.18	51.96	136.62	104.25	32.37	4.221	
3,200.00	3,197.50	3,190.48	3,189.99	16.82	16.73	131.34	94.97	56.86	145.17	111.72	33.45	4.340	
3,300.00	3,297.48	3,290.26	3,289.63	17.35	17.27	62.23	96.75	61.77	151.51	116.97	34.54	4.387	
3,400.00	3,397.48	3,390.12	3,389.35	17.88	17.81	62.49	98.54	66.68	156.70	121.09	35.60	4.401	
3,500.00	3,497.48	3,489.98	3,489.08	18.42	18.34	62.73	100.33	71.59	161.89	125.22	36.67	4.415	
3,600.00	3,597.48	3,589.85	3,588.80	18.95	18.88	62.95	102.11	76.50	167.08	129.34	37.74	4.428	
3,700.00	3,697.48	3,689.71	3,688.53	19.49	19.42	63.17	103.90	81.41	172.28	133.47	38.80	4.440	
3,800.00	3,797.48	3,789.57	3,788.26	20.02	19.96	63.37	105.69	86.32	177.47	137.60	39.87	4.451	
3,900.00	3,897.48	3,889.44	3,887.98	20.55	20.50	63.56	107.48	91.23	182.67	141.73	40.94	4.462	
4,000.00	3,997.48	3,989.30	3,987.71	21.09	21.04	63.74	109.26	96.14	187.87	145.86	42.01	4.472	
4,100.00	4,097.48	4,089.16	4,087.44	21.62	21.58	63.91	111.05	101.05	193.08	150.00	43.08	4.482	
4,200.00	4,197.48	4,189.02	4,187.16	22.16	22.12	64.07	112.84	105.97	198.28	154.13	44.15	4.491	
4,300.00	4,297.48	4,288.89	4,286.89	22.69	22.66	64.22	114.63	110.88	203.49	158.27	45.22	4.500	
4,400.00	4,397.48	4,388.75	4,386.61	23.23	23.20	64.36	116.41	115.79	208.70	162.41	46.29	4.509	
4,500.00	4,497.48	4,488.61	4,486.34	23.76	23.74	64.50	118.20	120.70	213.90	166.55	47.36	4.517	
4,600.00	4,597.48	4,588.48	4,586.07	24.30	24.28	64.63	119.99	125.61	219.11	170.68	48.43	4.524	
4,700.00	4,697.48	4,688.34	4,685.79	24.84	24.82	64.76	121.78	130.52	224.33	174.82	49.50	4.532	
4,800.00	4,797.48	4,788.20	4,785.52	25.37	25.36	64.88	123.56	135.43	229.54	178.96	50.57	4.539	
4,900.00	4,897.48	4,888.06	4,885.24	25.91	25.90	64.99	125.35	140.34	234.75	183.11	51.64	4.546	
5,000.00	4,997.48	4,990.47	4,987.52	26.44	26.46	65.10	127.13	145.23	239.82	187.09	52.73	4.548	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 63 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,097.48	5,099.59	5,096.61	26.98	27.04	65.15	127.97	147.55	242.08	188.23	53.85	4.496	
5,200.00	5,197.48	5,200.47	5,197.48	27.51	27.58	65.15	127.98	147.57	242.09	187.17	54.92	4.408	
5,300.00	5,297.48	5,300.47	5,297.48	28.05	28.11	65.15	127.98	147.57	242.09	186.11	55.98	4.324	
5,400.00	5,397.48	5,400.47	5,397.48	28.59	28.63	65.15	127.98	147.57	242.09	185.04	57.05	4.243	
5,500.00	5,497.48	5,500.47	5,497.48	29.12	29.16	65.15	127.98	147.57	242.09	183.97	58.12	4.166	
5,600.00	5,597.48	5,600.47	5,597.48	29.66	29.69	65.15	127.98	147.57	242.09	182.91	59.19	4.090	
5,700.00	5,697.48	5,700.47	5,697.48	30.19	30.22	65.15	127.98	147.57	242.09	181.84	60.25	4.018	
5,800.00	5,797.48	5,800.47	5,797.48	30.73	30.75	65.15	127.98	147.57	242.09	180.77	61.32	3.948	
5,900.00	5,897.48	5,900.47	5,897.48	31.27	31.29	65.15	127.98	147.57	242.09	179.70	62.39	3.880	
6,000.00	5,997.48	6,000.47	5,997.48	31.80	31.82	65.15	127.98	147.57	242.09	178.64	63.46	3.815	
6,100.00	6,097.48	6,100.47	6,097.48	32.34	32.35	65.15	127.98	147.57	242.09	177.57	64.53	3.752	
6,200.00	6,197.48	6,200.47	6,197.48	32.88	32.88	65.15	127.98	147.57	242.09	176.50	65.60	3.691	
6,300.00	6,297.48	6,300.47	6,297.48	33.41	33.41	65.15	127.98	147.57	242.09	175.43	66.66	3.632	
6,400.00	6,397.48	6,400.47	6,397.48	33.95	33.94	65.15	127.98	147.57	242.09	174.36	67.73	3.574	
6,500.00	6,497.48	6,500.47	6,497.48	34.49	34.47	65.15	127.98	147.57	242.09	173.29	68.80	3.519	
6,600.00	6,597.48	6,600.47	6,597.48	35.02	35.01	65.15	127.98	147.57	242.09	172.22	69.87	3.465	
6,700.00	6,697.48	6,700.47	6,697.48	35.56	35.54	65.15	127.98	147.57	242.09	171.15	70.94	3.413	
6,800.00	6,797.48	6,800.47	6,797.48	36.10	36.07	65.15	127.98	147.57	242.09	170.08	72.01	3.362	
6,900.00	6,897.48	6,900.47	6,897.48	36.63	36.60	65.15	127.98	147.57	242.09	169.01	73.08	3.313	
7,000.00	6,997.48	7,000.47	6,997.48	37.17	37.14	65.15	127.98	147.57	242.09	167.94	74.15	3.265	
7,100.00	7,097.48	7,100.47	7,097.48	37.71	37.67	65.15	127.98	147.57	242.09	166.87	75.22	3.218	
7,200.00	7,197.48	7,200.47	7,197.48	38.24	38.20	65.15	127.98	147.57	242.09	165.80	76.29	3.173	
7,300.00	7,297.48	7,300.47	7,297.48	38.78	38.73	65.15	127.98	147.57	242.09	164.73	77.36	3.129	
7,400.00	7,397.48	7,400.47	7,397.48	39.32	39.27	65.15	127.98	147.57	242.09	163.66	78.44	3.087	
7,500.00	7,497.48	7,500.47	7,497.48	39.85	39.80	65.15	127.98	147.57	242.09	162.59	79.51	3.045	
7,600.00	7,597.48	7,600.47	7,597.48	40.39	40.33	65.15	127.98	147.57	242.09	161.52	80.58	3.004	
7,700.00	7,697.48	7,700.47	7,697.48	40.93	40.87	65.15	127.98	147.57	242.09	160.44	81.65	2.965	
7,800.00	7,797.48	7,800.47	7,797.48	41.46	41.40	65.15	127.98	147.57	242.09	159.37	82.72	2.927	
7,900.00	7,897.48	7,900.47	7,897.48	42.00	41.94	65.15	127.98	147.57	242.09	158.30	83.79	2.889	
8,000.00	7,997.48	8,000.47	7,997.48	42.54	42.47	65.15	127.98	147.57	242.09	157.23	84.86	2.853	
8,100.00	8,097.48	8,100.47	8,097.48	43.08	43.00	65.15	127.98	147.57	242.09	156.16	85.93	2.817	
8,200.00	8,197.48	8,200.47	8,197.48	43.61	43.54	65.15	127.98	147.57	242.09	155.09	87.01	2.782	
8,300.00	8,297.48	8,300.47	8,297.48	44.15	44.07	65.15	127.98	147.57	242.09	154.01	88.08	2.749	
8,400.00	8,397.48	8,400.47	8,397.48	44.69	44.61	65.15	127.98	147.57	242.09	152.94	89.15	2.716	
8,500.00	8,497.48	8,500.47	8,497.48	45.22	45.14	65.15	127.98	147.57	242.09	151.87	90.22	2.683	
8,600.00	8,597.48	8,600.47	8,597.48	45.76	45.67	65.15	127.98	147.57	242.09	150.80	91.29	2.652	
8,700.00	8,697.48	8,700.47	8,697.48	46.30	46.21	65.15	127.98	147.57	242.09	149.73	92.37	2.621	
8,800.00	8,797.48	8,800.47	8,797.48	46.83	46.74	65.15	127.98	147.57	242.09	148.65	93.44	2.591	
8,900.00	8,897.48	8,900.47	8,897.48	47.37	47.28	65.15	127.98	147.57	242.09	147.58	94.51	2.562	
9,000.00	8,997.06	9,000.04	8,997.06	47.91	47.81	58.56	127.98	147.57	237.91	142.63	95.28	2.497	
9,100.00	9,093.77	9,096.76	9,093.77	48.42	48.33	64.91	127.98	147.57	225.79	130.01	95.78	2.357	
9,200.00	9,184.69	9,187.68	9,184.69	48.89	48.81	75.73	127.98	147.57	210.68	113.73	96.95	2.173	
9,300.00	9,267.06	9,270.04	9,267.06	49.34	49.25	89.43	127.98	147.57	202.25	103.79	98.46	2.054	
9,304.07	9,270.19	9,273.17	9,270.19	49.35	49.27	90.00	127.98	147.57	202.23	103.73	98.50	2.053 SF	
9,400.00	9,338.36	9,341.35	9,338.36	49.80	49.64	102.22	127.98	147.57	213.15	114.99	98.15	2.172	
9,500.00	9,396.44	9,399.42	9,396.44	50.25	49.95	110.48	127.98	147.57	250.95	154.97	95.98	2.615	
9,600.00	9,439.52	9,442.51	9,439.52	50.71	50.18	112.51	127.98	147.57	312.84	217.97	94.88	3.297	
9,700.00	9,466.30	9,469.29	9,466.30	51.17	50.32	106.88	127.98	147.57	391.23	293.59	97.64	4.007	
9,800.00	9,475.97	9,478.96	9,475.97	51.64	50.37	91.19	127.98	147.57	479.08	377.22	101.86	4.703	
9,900.00	9,476.00	9,478.99	9,476.00	52.14	50.37	90.00	127.98	147.57	571.30	468.91	102.39	5.580	
10,000.00	9,476.00	9,478.99	9,476.00	52.73	50.37	90.00	127.98	147.57	665.77	562.79	102.97	6.465	
10,100.00	9,476.00	9,478.99	9,476.00	53.39	50.37	90.00	127.98	147.57	761.65	658.01	103.64	7.349	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 63 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.00	9,476.00	9,478.99	9,476.00	54.13	50.37	90.00	127.98	147.57	858.47	754.09	104.38	8.225	
10,300.00	9,476.00	9,478.99	9,476.00	54.94	50.37	90.00	127.98	147.57	955.97	850.78	105.19	9.088	
10,400.00	9,476.00	9,478.99	9,476.00	55.83	50.37	90.00	127.98	147.57	1,054.38	948.30	106.07	9.940	
10,500.00	9,476.00	9,478.99	9,476.00	56.77	50.37	90.00	127.98	147.57	1,153.55	1,046.53	107.01	10.780	
10,600.00	9,476.00	9,478.99	9,476.00	57.78	50.37	90.00	127.98	147.57	1,253.14	1,145.13	108.01	11.602	
10,700.00	9,476.00	9,478.99	9,476.00	58.85	50.37	90.00	127.98	147.57	1,352.82	1,243.74	109.08	12.402	
10,800.00	9,476.00	9,478.99	9,476.00	59.97	50.37	90.00	127.98	147.57	1,452.54	1,342.34	110.20	13.181	
10,900.00	9,476.00	9,478.99	9,476.00	61.15	50.37	90.00	127.98	147.57	1,552.30	1,440.92	111.38	13.937	
11,000.00	9,476.00	9,478.99	9,476.00	62.38	50.37	90.00	127.98	147.57	1,652.09	1,539.47	112.61	14.670	
11,100.00	9,476.00	9,478.99	9,476.00	63.66	50.37	90.00	127.98	147.57	1,751.90	1,638.01	113.89	15.382	
11,200.00	9,476.00	9,478.99	9,476.00	64.98	50.37	90.00	127.98	147.57	1,851.73	1,736.51	115.22	16.072	
11,300.00	9,476.00	9,478.99	9,476.00	66.35	50.37	90.00	127.98	147.57	1,951.58	1,835.00	116.58	16.740	
11,400.00	9,476.00	9,478.99	9,476.00	67.75	50.37	90.00	127.98	147.57	2,051.44	1,933.46	117.99	17.387	
11,500.00	9,476.00	9,478.99	9,476.00	69.20	50.37	90.00	127.98	147.57	2,151.32	2,031.89	119.43	18.013	
11,600.00	9,476.00	9,478.99	9,476.00	70.68	50.37	90.00	127.98	147.57	2,251.21	2,130.30	120.91	18.619	
11,700.00	9,476.00	9,478.99	9,476.00	72.19	50.37	90.00	127.98	147.57	2,351.11	2,228.68	122.42	19.205	
11,800.00	9,476.00	9,478.99	9,476.00	73.73	50.37	90.00	127.98	147.57	2,451.01	2,327.05	123.96	19.772	
11,900.00	9,476.00	9,478.99	9,476.00	75.30	50.37	90.00	127.98	147.57	2,550.92	2,425.39	125.54	20.320	
12,000.00	9,476.00	9,478.99	9,476.00	76.90	50.37	90.00	127.98	147.57	2,650.84	2,523.71	127.14	20.851	
12,100.00	9,476.00	9,478.99	9,476.00	78.52	50.37	90.00	127.98	147.57	2,750.77	2,622.01	128.76	21.364	
12,200.00	9,476.00	9,478.99	9,476.00	80.17	50.37	90.00	127.98	147.57	2,850.72	2,720.35	130.37	21.866	
12,300.00	9,476.00	9,478.99	9,476.00	81.84	50.37	-90.00	127.98	147.57	2,950.72	2,818.77	131.94	22.364	
12,400.00	9,476.00	9,478.99	9,476.00	83.53	50.37	-90.00	127.98	147.57	3,050.65	2,917.10	133.55	22.843	
12,500.00	9,476.00	9,478.99	9,476.00	85.25	50.37	-90.00	127.98	147.57	3,150.58	3,015.31	135.27	23.291	
12,600.00	9,476.00	9,478.99	9,476.00	86.98	50.37	-90.00	127.98	147.57	3,250.50	3,113.50	137.01	23.725	
12,700.00	9,476.00	9,478.99	9,476.00	88.73	50.37	-90.00	127.98	147.57	3,350.43	3,211.67	138.76	24.145	
12,800.00	9,476.00	9,478.99	9,476.00	90.51	50.37	-90.00	127.98	147.57	3,450.37	3,309.83	140.54	24.551	
12,900.00	9,476.00	9,478.99	9,476.00	92.29	50.37	-90.00	127.98	147.57	3,550.31	3,407.97	142.33	24.944	
13,000.00	9,476.00	9,478.99	9,476.00	94.10	50.37	-90.00	127.98	147.57	3,650.25	3,506.11	144.14	25.324	
13,100.00	9,476.00	9,478.99	9,476.00	95.92	50.37	-90.00	127.98	147.57	3,750.20	3,604.23	145.97	25.692	
13,200.00	9,476.00	9,478.99	9,476.00	97.75	50.37	-90.00	127.98	147.57	3,850.14	3,702.34	147.80	26.049	
13,300.00	9,476.00	9,478.99	9,476.00	99.60	50.37	-90.00	127.98	147.57	3,950.09	3,800.44	149.65	26.395	
13,400.00	9,476.00	9,478.99	9,476.00	101.46	50.37	-90.00	127.98	147.57	4,050.05	3,898.53	151.52	26.730	
13,500.00	9,476.00	9,478.99	9,476.00	103.33	50.37	-90.00	127.98	147.57	4,150.00	3,996.61	153.39	27.055	
13,600.00	9,476.00	9,478.99	9,476.00	105.21	50.37	-90.00	127.98	147.57	4,249.96	4,094.68	155.28	27.370	
13,700.00	9,476.00	9,478.99	9,476.00	107.11	50.37	-90.00	127.98	147.57	4,349.92	4,192.74	157.18	27.676	
13,800.00	9,476.00	9,478.99	9,476.00	109.01	50.37	-90.00	127.98	147.57	4,449.88	4,290.80	159.08	27.972	
13,900.00	9,476.00	9,478.99	9,476.00	110.92	50.37	-90.00	127.98	147.57	4,549.84	4,388.84	161.00	28.260	
14,000.00	9,476.00	9,478.99	9,476.00	112.85	50.37	-90.00	127.98	147.57	4,649.81	4,486.88	162.93	28.540	
14,100.00	9,476.00	9,478.99	9,476.00	114.78	50.37	-90.00	127.98	147.57	4,749.77	4,584.92	164.86	28.811	
14,200.00	9,476.00	9,478.99	9,476.00	116.72	50.37	-90.00	127.98	147.57	4,849.74	4,682.94	166.80	29.075	
14,300.00	9,476.00	9,478.99	9,476.00	118.67	50.37	-90.00	127.98	147.57	4,949.71	4,780.96	168.75	29.331	
14,400.00	9,476.00	9,478.99	9,476.00	120.62	50.37	-90.00	127.98	147.57	5,049.68	4,878.97	170.71	29.580	
14,500.00	9,476.00	9,478.99	9,476.00	122.58	50.37	-90.00	127.98	147.57	5,149.65	4,976.98	172.68	29.823	
14,600.00	9,476.00	9,478.99	9,476.00	124.55	50.37	-90.00	127.98	147.57	5,249.62	5,074.98	174.65	30.058	
14,700.00	9,476.00	9,478.99	9,476.00	126.53	50.37	-90.00	127.98	147.57	5,349.60	5,172.97	176.63	30.288	
14,800.00	9,476.00	9,478.99	9,476.00	128.51	50.37	-90.00	127.98	147.57	5,449.57	5,270.96	178.61	30.511	
14,900.00	9,476.00	9,478.99	9,476.00	130.50	50.37	-90.00	127.98	147.57	5,549.55	5,368.95	180.60	30.728	
15,000.00	9,476.00	9,478.99	9,476.00	132.49	50.37	-90.00	127.98	147.57	5,649.52	5,466.93	182.60	30.940	
15,100.00	9,476.00	9,478.99	9,476.00	134.49	50.37	-90.00	127.98	147.57	5,749.50	5,564.90	184.60	31.146	
15,200.00	9,476.00	9,478.99	9,476.00	136.49	50.37	-90.00	127.98	147.57	5,849.48	5,662.88	186.60	31.347	
15,300.00	9,476.00	9,478.99	9,476.00	138.50	50.37	-90.00	127.98	147.57	5,949.46	5,760.84	188.61	31.543	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 63 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,400.00	9,476.00	9,478.99	9,476.00	140.52	50.37	-90.00	127.98	147.57	6,049.44	5,858.81	190.63	31.734	
15,500.00	9,476.00	9,478.99	9,476.00	142.53	50.37	-90.00	127.98	147.57	6,149.42	5,956.77	192.65	31.920	
15,600.00	9,476.00	9,478.99	9,476.00	144.56	50.37	-90.00	127.98	147.57	6,249.40	6,054.72	194.67	32.102	
15,700.00	9,476.00	9,478.99	9,476.00	146.58	50.37	-90.00	127.98	147.57	6,349.38	6,152.68	196.70	32.279	
15,800.00	9,476.00	9,478.99	9,476.00	148.61	50.37	-90.00	127.98	147.57	6,449.36	6,250.62	198.73	32.452	
15,900.00	9,476.00	9,478.99	9,476.00	150.65	50.37	-90.00	127.98	147.57	6,549.34	6,348.57	200.77	32.621	
16,000.00	9,476.00	9,478.99	9,476.00	152.69	50.37	-90.00	127.98	147.57	6,649.32	6,446.51	202.81	32.786	
16,100.00	9,476.00	9,478.99	9,476.00	154.73	50.37	-90.00	127.98	147.57	6,749.31	6,544.45	204.85	32.947	
16,200.00	9,476.00	9,478.99	9,476.00	156.77	50.37	-90.00	127.98	147.57	6,849.29	6,642.39	206.90	33.104	
16,300.00	9,476.00	9,478.99	9,476.00	158.82	50.37	-90.00	127.98	147.57	6,949.28	6,740.33	208.95	33.258	
16,400.00	9,476.00	9,478.99	9,476.00	160.87	50.37	-90.00	127.98	147.57	7,049.26	6,838.26	211.00	33.408	
16,500.00	9,476.00	9,478.99	9,476.00	162.93	50.37	-90.00	127.98	147.57	7,149.25	6,936.19	213.06	33.555	
16,600.00	9,476.00	9,478.99	9,476.00	164.98	50.37	-90.00	127.98	147.57	7,249.23	7,034.11	215.12	33.699	
16,700.00	9,476.00	9,478.99	9,476.00	167.04	50.37	-90.00	127.98	147.57	7,349.22	7,132.04	217.18	33.839	
16,800.00	9,476.00	9,478.99	9,476.00	169.11	50.37	-90.00	127.98	147.57	7,449.20	7,229.96	219.24	33.977	
16,900.00	9,476.00	9,478.99	9,476.00	171.17	50.37	-90.00	127.98	147.57	7,549.19	7,327.88	221.31	34.111	
17,000.00	9,476.00	9,478.99	9,476.00	173.24	50.37	-90.00	127.98	147.57	7,649.18	7,425.80	223.38	34.243	
17,100.00	9,476.00	9,478.99	9,476.00	175.31	50.37	-90.00	127.98	147.57	7,749.16	7,523.71	225.45	34.372	
17,159.08	9,476.00	9,478.99	9,476.00	176.53	50.37	-90.00	127.98	147.57	7,808.23	7,581.56	226.68	34.447	

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 64 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	1.00	0.00	0.00	1.15	50.00	1.00	50.02				
100.00	100.00	99.00	100.00	0.20	0.20	1.15	50.00	1.00	50.01	49.61	0.40	124.631	
200.00	200.00	199.00	200.00	0.74	0.73	1.15	50.00	1.00	50.01	48.54	1.47	33.944	
300.00	300.00	299.00	300.00	1.28	1.27	1.15	50.00	1.00	50.01	47.46	2.55	19.622	
400.00	400.00	399.00	400.00	1.81	1.81	1.15	50.00	1.00	50.01	46.39	3.62	13.799	
500.00	500.00	499.00	500.00	2.35	2.35	1.15	50.00	1.00	50.01	45.31	4.70	10.641	
600.00	600.00	599.00	600.00	2.89	2.88	1.15	50.00	1.00	50.01	44.24	5.77	8.660	
700.00	700.00	699.00	700.00	3.43	3.42	1.15	50.00	1.00	50.01	43.16	6.85	7.300	
800.00	800.00	799.00	800.00	3.97	3.96	1.15	50.00	1.00	50.01	42.08	7.93	6.310	
900.00	900.00	899.00	900.00	4.50	4.50	1.15	50.00	1.00	50.01	41.01	9.00	5.556	
1,000.00	1,000.00	999.00	1,000.00	5.04	5.04	1.15	50.00	1.00	50.01	39.93	10.08	4.963	
1,100.00	1,100.00	1,099.00	1,100.00	5.58	5.57	1.15	50.00	1.00	50.01	38.86	11.15	4.484	
1,200.00	1,200.00	1,199.00	1,200.00	6.12	6.11	1.15	50.00	1.00	50.01	37.78	12.23	4.090	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.65	1.15	50.00	1.00	50.01	36.71	13.30	3.759	
1,400.00	1,400.00	1,399.00	1,400.00	7.19	7.19	1.15	50.00	1.00	50.01	35.63	14.38	3.478	
1,500.00	1,500.00	1,499.00	1,500.00	7.73	7.72	1.15	50.00	1.00	50.01	34.56	15.45	3.236	
1,600.00	1,600.00	1,599.00	1,600.00	8.27	8.26	1.15	50.00	1.00	50.01	33.48	16.53	3.026	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.80	1.15	50.00	1.00	50.01	32.41	17.60	2.841	
1,800.00	1,800.00	1,799.00	1,800.00	9.34	9.34	1.15	50.00	1.00	50.01	31.33	18.68	2.677	
1,900.00	1,900.00	1,899.00	1,900.00	9.88	9.87	1.15	50.00	1.00	50.01	30.25	19.76	2.531	
2,000.00	2,000.00	1,999.00	2,000.00	10.42	10.41	1.15	50.00	1.00	50.01	29.18	20.83	2.401	
2,100.00	2,099.98	2,098.85	2,099.83	10.95	10.94	75.03	50.00	2.71	49.59	27.71	21.88	2.266	
2,150.79	2,150.72	2,149.34	2,150.27	11.21	11.20	80.04	50.00	4.89	49.40	26.99	22.41	2.205	CC
2,200.00	2,199.84	2,198.24	2,199.10	11.47	11.45	86.34	50.00	7.45	49.64	26.72	22.92	2.166	
2,300.00	2,299.59	2,297.51	2,298.24	12.00	11.96	99.54	50.00	12.65	52.07	28.11	23.96	2.173	
2,400.00	2,399.35	2,396.79	2,397.38	12.53	12.48	111.03	50.00	17.84	56.98	31.99	24.99	2.280	
2,500.00	2,499.11	2,496.07	2,496.53	13.06	13.00	120.40	50.00	23.04	63.80	37.77	26.02	2.452	
2,600.00	2,598.86	2,595.34	2,595.67	13.59	13.52	127.83	50.00	28.23	71.99	44.93	27.06	2.661	
2,700.00	2,698.62	2,694.62	2,694.81	14.13	14.04	133.67	50.00	33.43	81.13	53.04	28.09	2.888	
2,800.00	2,798.38	2,795.98	2,796.07	14.66	14.57	138.18	50.00	37.86	90.15	61.01	29.14	3.093	
2,900.00	2,898.13	2,898.06	2,898.13	15.20	15.12	141.24	50.00	38.95	96.47	66.27	30.21	3.194	
3,000.00	2,997.89	2,997.81	2,997.89	15.74	15.65	143.69	50.00	38.95	102.01	70.75	31.27	3.263	
3,100.00	3,097.65	3,097.57	3,097.65	16.28	16.18	145.89	50.00	38.95	107.72	75.39	32.33	3.332	
3,200.00	3,197.50	3,197.43	3,197.50	16.82	16.72	147.44	50.00	38.95	112.09	78.66	33.43	3.353	
3,300.00	3,297.48	3,297.41	3,297.48	17.35	17.25	77.93	50.00	38.95	113.57	79.05	34.52	3.290	
3,400.00	3,397.48	3,397.41	3,397.48	17.88	17.79	77.93	50.00	38.95	113.57	77.98	35.59	3.191	
3,500.00	3,497.48	3,497.41	3,497.48	18.42	18.33	77.93	50.00	38.95	113.57	76.91	36.66	3.098	
3,600.00	3,597.48	3,597.41	3,597.48	18.95	18.86	77.93	50.00	38.95	113.57	75.84	37.73	3.010	
3,700.00	3,697.48	3,697.41	3,697.48	19.49	19.40	77.93	50.00	38.95	113.57	74.77	38.80	2.927	
3,800.00	3,797.48	3,797.41	3,797.48	20.02	19.93	77.93	50.00	38.95	113.57	73.69	39.87	2.848	
3,900.00	3,897.48	3,897.41	3,897.48	20.55	20.47	77.93	50.00	38.95	113.57	72.62	40.94	2.774	
4,000.00	3,997.48	3,997.41	3,997.48	21.09	21.01	77.93	50.00	38.95	113.57	71.55	42.02	2.703	
4,100.00	4,097.48	4,097.41	4,097.48	21.62	21.54	77.93	50.00	38.95	113.57	70.48	43.09	2.636	
4,200.00	4,197.48	4,197.41	4,197.48	22.16	22.08	77.93	50.00	38.95	113.57	69.41	44.16	2.572	
4,300.00	4,297.48	4,297.41	4,297.48	22.69	22.62	77.93	50.00	38.95	113.57	68.34	45.23	2.511	
4,400.00	4,397.48	4,397.41	4,397.48	23.23	23.15	77.93	50.00	38.95	113.57	67.26	46.30	2.453	
4,500.00	4,497.48	4,497.41	4,497.48	23.76	23.69	77.93	50.00	38.95	113.57	66.19	47.38	2.397	
4,600.00	4,597.48	4,597.41	4,597.48	24.30	24.23	77.93	50.00	38.95	113.57	65.12	48.45	2.344	
4,700.00	4,697.48	4,697.41	4,697.48	24.84	24.76	77.93	50.00	38.95	113.57	64.05	49.52	2.293	
4,800.00	4,797.48	4,797.41	4,797.48	25.37	25.30	77.93	50.00	38.95	113.57	62.97	50.59	2.245	
4,900.00	4,897.48	4,897.41	4,897.48	25.91	25.84	77.93	50.00	38.95	113.57	61.90	51.67	2.198	
5,000.00	4,997.48	4,997.41	4,997.48	26.44	26.37	77.93	50.00	38.95	113.57	60.83	52.74	2.153	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 64 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,097.48	5,097.41	5,097.48	26.98	26.91	77.93	50.00	38.95	113.57	59.75	53.81	2.110	
5,200.00	5,197.48	5,197.41	5,197.48	27.51	27.45	77.93	50.00	38.95	113.57	58.68	54.89	2.069	
5,300.00	5,297.48	5,297.41	5,297.48	28.05	27.98	77.93	50.00	38.95	113.57	57.61	55.96	2.029	
5,400.00	5,397.48	5,397.41	5,397.48	28.59	28.52	77.93	50.00	38.95	113.57	56.53	57.03	1.991	
5,500.00	5,497.48	5,497.41	5,497.48	29.12	29.06	77.93	50.00	38.95	113.57	55.46	58.11	1.954	
5,600.00	5,597.48	5,597.41	5,597.48	29.66	29.59	77.93	50.00	38.95	113.57	54.39	59.18	1.919	
5,700.00	5,697.48	5,697.41	5,697.48	30.19	30.13	77.93	50.00	38.95	113.57	53.31	60.25	1.885	
5,800.00	5,797.48	5,797.41	5,797.48	30.73	30.67	77.93	50.00	38.95	113.57	52.24	61.33	1.852	
5,900.00	5,897.48	5,897.41	5,897.48	31.27	31.21	77.93	50.00	38.95	113.57	51.17	62.40	1.820	
6,000.00	5,997.48	5,997.41	5,997.48	31.80	31.74	77.93	50.00	38.95	113.57	50.09	63.47	1.789	
6,100.00	6,097.48	6,097.41	6,097.48	32.34	32.28	77.93	50.00	38.95	113.57	49.02	64.55	1.759	
6,200.00	6,197.48	6,197.41	6,197.48	32.88	32.82	77.93	50.00	38.95	113.57	47.95	65.62	1.731	
6,300.00	6,297.48	6,297.41	6,297.48	33.41	33.35	77.93	50.00	38.95	113.57	46.87	66.70	1.703	
6,400.00	6,397.48	6,397.41	6,397.48	33.95	33.89	77.93	50.00	38.95	113.57	45.80	67.77	1.676	
6,500.00	6,497.48	6,497.41	6,497.48	34.49	34.43	77.93	50.00	38.95	113.57	44.72	68.84	1.650	
6,600.00	6,597.48	6,597.41	6,597.48	35.02	34.97	77.93	50.00	38.95	113.57	43.65	69.92	1.624	
6,700.00	6,697.48	6,697.41	6,697.48	35.56	35.50	77.93	50.00	38.95	113.57	42.58	70.99	1.600	
6,800.00	6,797.48	6,797.41	6,797.48	36.10	36.04	77.93	50.00	38.95	113.57	41.50	72.07	1.576	
6,900.00	6,897.48	6,897.41	6,897.48	36.63	36.58	77.93	50.00	38.95	113.57	40.43	73.14	1.553	
7,000.00	6,997.48	6,997.41	6,997.48	37.17	37.11	77.93	50.00	38.95	113.57	39.35	74.21	1.530	
7,100.00	7,097.48	7,097.41	7,097.48	37.71	37.65	77.93	50.00	38.95	113.57	38.28	75.29	1.508	
7,200.00	7,197.48	7,197.41	7,197.48	38.24	38.19	77.93	50.00	38.95	113.57	37.21	76.36	1.487	Level 3
7,300.00	7,297.48	7,297.41	7,297.48	38.78	38.73	77.93	50.00	38.95	113.57	36.13	77.44	1.467	Level 3
7,400.00	7,397.48	7,397.41	7,397.48	39.32	39.26	77.93	50.00	38.95	113.57	35.06	78.51	1.447	Level 3
7,500.00	7,497.48	7,497.41	7,497.48	39.85	39.80	77.93	50.00	38.95	113.57	33.98	79.59	1.427	Level 3
7,600.00	7,597.48	7,597.41	7,597.48	40.39	40.34	77.93	50.00	38.95	113.57	32.91	80.66	1.408	Level 3
7,700.00	7,697.48	7,697.41	7,697.48	40.93	40.88	77.93	50.00	38.95	113.57	31.83	81.73	1.389	Level 3
7,800.00	7,797.48	7,797.41	7,797.48	41.46	41.41	77.93	50.00	38.95	113.57	30.76	82.81	1.371	Level 3
7,900.00	7,897.48	7,897.41	7,897.48	42.00	41.95	77.93	50.00	38.95	113.57	29.68	83.88	1.354	Level 3
8,000.00	7,997.48	7,997.41	7,997.48	42.54	42.49	77.93	50.00	38.95	113.57	28.61	84.96	1.337	Level 3
8,100.00	8,097.48	8,097.41	8,097.48	43.08	43.02	77.93	50.00	38.95	113.57	27.54	86.03	1.320	Level 3
8,200.00	8,197.48	8,197.41	8,197.48	43.61	43.56	77.93	50.00	38.95	113.57	26.46	87.11	1.304	Level 3
8,300.00	8,297.48	8,297.41	8,297.48	44.15	44.10	77.93	50.00	38.95	113.57	25.39	88.18	1.288	Level 3
8,400.00	8,397.48	8,397.41	8,397.48	44.69	44.64	77.93	50.00	38.95	113.57	24.31	89.26	1.272	Level 3
8,500.00	8,497.48	8,497.41	8,497.48	45.22	45.17	77.93	50.00	38.95	113.57	23.24	90.33	1.257	Level 3
8,600.00	8,597.48	8,597.41	8,597.48	45.76	45.71	77.93	50.00	38.95	113.57	22.16	91.40	1.242	Level 2
8,700.00	8,697.48	8,697.41	8,697.48	46.30	46.25	77.93	50.00	38.95	113.57	21.09	92.48	1.228	Level 2
8,800.00	8,797.48	8,797.41	8,797.48	46.83	46.79	77.93	50.00	38.95	113.57	20.01	93.55	1.214	Level 2
8,900.00	8,897.48	8,897.41	8,897.48	47.37	47.32	77.93	50.00	38.95	113.57	18.94	94.63	1.200	Level 2
9,000.00	8,997.06	8,996.98	8,997.06	47.91	47.86	73.39	50.00	38.95	111.08	15.49	95.58	1.162	Level 2
9,100.00	9,093.77	9,093.70	9,093.77	48.42	48.38	86.33	50.00	38.95	106.57	9.88	96.69	1.102	Level 2
9,120.67	9,113.14	9,113.06	9,113.14	48.52	48.48	90.00	50.00	38.95	106.32	9.41	96.92	1.097	Level 2, ES, SF
9,200.00	9,184.69	9,184.62	9,184.69	48.89	48.87	105.60	50.00	38.95	111.66	14.69	96.97	1.151	Level 2
9,300.00	9,267.06	9,266.98	9,267.06	49.34	49.31	123.34	50.00	38.95	139.68	46.41	93.27	1.498	Level 3
9,400.00	9,338.36	9,347.05	9,347.11	49.80	49.74	136.14	50.74	38.96	192.07	106.52	85.55	2.245	
9,500.00	9,396.44	9,455.87	9,454.62	50.25	50.32	147.69	66.51	39.23	255.03	181.20	73.83	3.454	
9,600.00	9,439.52	9,596.33	9,585.58	50.71	51.00	157.01	116.29	40.10	318.91	258.41	60.50	5.271	
9,700.00	9,466.30	9,795.50	9,742.18	51.17	51.91	165.46	237.71	42.22	375.95	328.44	47.51	7.913	
9,800.00	9,475.97	10,089.20	9,876.59	51.64	53.21	173.15	495.20	46.72	412.58	373.37	39.21	10.523	
9,900.00	9,476.00	10,280.49	9,891.00	52.14	54.07	176.68	685.36	50.72	415.71	377.01	38.69	10.744	
10,000.00	9,476.00	10,379.51	9,891.00	52.73	54.59	177.94	784.23	56.23	415.27	376.04	39.24	10.584	
10,100.00	9,476.00	10,479.17	9,891.00	53.39	55.20	179.08	883.67	62.80	415.06	375.01	40.04	10.366	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 64 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,181.79	9,476.00	10,560.69	9,891.00	54.00	55.75	-180.00	965.01	68.18	415.00	374.14	40.86	10.156	
10,200.00	9,476.00	10,578.84	9,891.00	54.13	55.88	-179.79	983.12	69.38	415.00	373.95	41.06	10.108	
10,300.00	9,476.00	10,678.50	9,891.00	54.94	56.63	-178.68	1,082.57	75.96	415.11	372.84	42.27	9.820	
10,400.00	9,476.00	10,778.34	9,891.00	55.83	57.45	-177.90	1,182.19	82.54	415.28	371.64	43.64	9.517	
10,500.00	9,476.00	10,878.31	9,891.00	56.77	58.34	-177.60	1,281.94	89.14	415.37	370.32	45.05	9.220	
10,600.00	9,476.00	10,978.31	9,891.00	57.78	59.30	-177.71	1,381.72	95.74	415.33	368.86	46.47	8.937	
10,700.00	9,476.00	11,078.30	9,891.00	58.85	60.31	-177.86	1,481.50	102.34	415.29	367.33	47.96	8.660	
10,800.00	9,476.00	11,178.30	9,891.00	59.97	61.38	-178.00	1,581.27	108.94	415.25	365.74	49.51	8.387	
10,900.00	9,476.00	11,278.29	9,891.00	61.15	62.50	-178.15	1,681.05	115.53	415.22	364.09	51.13	8.121	
11,000.00	9,476.00	11,378.29	9,891.00	62.38	63.68	-178.30	1,780.83	122.13	415.18	362.38	52.80	7.863	
11,100.00	9,476.00	11,478.28	9,891.00	63.66	64.91	-178.45	1,880.60	128.73	415.15	360.63	54.52	7.614	
11,200.00	9,476.00	11,578.27	9,891.00	64.98	66.18	-178.60	1,980.38	135.33	415.12	358.83	56.29	7.375	
11,300.00	9,476.00	11,678.27	9,891.00	66.35	67.49	-178.75	2,080.15	141.93	415.10	357.00	58.10	7.144	
11,400.00	9,476.00	11,778.26	9,891.00	67.75	68.85	-178.90	2,179.93	148.52	415.08	355.12	59.95	6.923	
11,500.00	9,476.00	11,878.26	9,891.00	69.20	70.25	-179.05	2,279.71	155.12	415.06	353.22	61.84	6.712	
11,600.00	9,476.00	11,978.25	9,891.00	70.68	71.68	-179.20	2,379.48	161.72	415.04	351.29	63.76	6.510	
11,700.00	9,476.00	12,078.24	9,891.00	72.19	73.14	-179.35	2,479.26	168.32	415.03	349.32	65.70	6.317	
11,800.00	9,476.00	12,178.24	9,891.00	73.73	74.64	-179.50	2,579.04	174.92	415.02	347.34	67.68	6.132	
11,900.00	9,476.00	12,278.23	9,891.00	75.30	76.17	-179.65	2,678.81	181.51	415.01	345.33	69.68	5.956	
12,000.00	9,476.00	12,378.23	9,891.00	76.90	77.73	-179.80	2,778.59	188.11	415.00	343.31	71.70	5.788	
12,100.00	9,476.00	12,478.22	9,891.00	78.52	79.31	-179.95	2,878.36	194.71	415.00	341.26	73.74	5.628	
12,132.14	9,476.00	12,510.35	9,891.00	79.05	79.82	179.99	2,910.43	196.83	415.00	340.60	74.40	5.578	
12,200.00	9,476.00	12,578.22	9,891.00	80.17	80.92	179.90	2,978.19	200.57	415.00	339.20	75.80	5.475	
12,300.00	9,476.00	12,678.26	9,891.00	81.84	82.56	179.75	3,078.19	203.14	415.00	337.12	77.88	5.328	
12,400.00	9,476.00	12,778.33	9,891.00	83.53	84.22	179.64	3,178.25	202.24	415.01	335.03	79.98	5.189	
12,500.00	9,476.00	12,878.33	9,891.00	85.25	85.91	179.65	3,278.22	199.88	415.01	332.92	82.09	5.056	
12,600.00	9,476.00	12,978.33	9,891.00	86.98	87.62	179.66	3,378.19	197.53	415.01	330.80	84.21	4.928	
12,700.00	9,476.00	13,078.33	9,891.00	88.73	89.35	179.67	3,478.17	195.17	415.01	328.67	86.34	4.807	
12,800.00	9,476.00	13,178.33	9,891.00	90.51	91.10	179.67	3,578.14	192.81	415.01	326.52	88.49	4.690	
12,900.00	9,476.00	13,278.33	9,891.00	92.29	92.87	179.68	3,678.11	190.45	415.01	324.37	90.64	4.579	
13,000.00	9,476.00	13,378.33	9,891.00	94.10	94.65	179.69	3,778.08	188.09	415.01	322.20	92.80	4.472	
13,100.00	9,476.00	13,478.33	9,891.00	95.92	96.45	179.70	3,878.05	185.73	415.01	320.03	94.98	4.370	
13,200.00	9,476.00	13,578.33	9,891.00	97.75	98.26	179.70	3,978.03	183.37	415.01	317.85	97.16	4.271	
13,300.00	9,476.00	13,678.33	9,891.00	99.60	100.09	179.71	4,078.00	181.02	415.01	315.66	99.35	4.177	
13,400.00	9,476.00	13,778.33	9,891.00	101.46	101.93	179.72	4,177.97	178.66	415.00	313.46	101.54	4.087	
13,500.00	9,476.00	13,878.33	9,891.00	103.33	103.78	179.73	4,277.94	176.30	415.00	311.26	103.75	4.000	
13,600.00	9,476.00	13,978.33	9,891.00	105.21	105.65	179.73	4,377.92	173.94	415.00	309.05	105.96	3.917	
13,700.00	9,476.00	14,078.33	9,891.00	107.11	107.53	179.74	4,477.89	171.58	415.00	306.83	108.17	3.836	
13,800.00	9,476.00	14,178.33	9,891.00	109.01	109.41	179.75	4,577.86	169.22	415.00	304.61	110.40	3.759	
13,900.00	9,476.00	14,278.33	9,891.00	110.92	111.31	179.76	4,677.83	166.86	415.00	302.38	112.62	3.685	
14,000.00	9,476.00	14,378.33	9,891.00	112.85	113.22	179.76	4,777.80	164.51	415.00	300.15	114.86	3.613	
14,100.00	9,476.00	14,478.33	9,891.00	114.78	115.13	179.77	4,877.78	162.15	415.00	297.91	117.09	3.544	
14,200.00	9,476.00	14,578.33	9,891.00	116.72	117.06	179.78	4,977.75	159.79	415.00	295.67	119.33	3.478	
14,300.00	9,476.00	14,678.33	9,891.00	118.67	118.99	179.79	5,077.72	157.43	415.00	293.42	121.58	3.413	
14,400.00	9,476.00	14,778.33	9,891.00	120.62	120.94	179.79	5,177.69	155.07	415.00	291.17	123.83	3.351	
14,500.00	9,476.00	14,878.33	9,891.00	122.58	122.88	179.80	5,277.67	152.71	415.00	288.92	126.08	3.291	
14,600.00	9,476.00	14,978.33	9,891.00	124.55	124.84	179.81	5,377.64	150.36	415.00	286.66	128.34	3.234	
14,700.00	9,476.00	15,078.33	9,891.00	126.53	126.80	179.82	5,477.61	148.00	415.00	284.40	130.60	3.178	
14,800.00	9,476.00	15,178.33	9,891.00	128.51	128.77	179.82	5,577.58	145.64	415.00	282.14	132.87	3.123	
14,900.00	9,476.00	15,278.33	9,891.00	130.50	130.75	179.83	5,677.55	143.28	415.00	279.87	135.13	3.071	
15,000.00	9,476.00	15,378.33	9,891.00	132.49	132.73	179.84	5,777.53	140.92	415.00	277.60	137.40	3.020	
15,100.00	9,476.00	15,478.33	9,891.00	134.49	134.72	179.85	5,877.50	138.56	415.00	275.33	139.68	2.971	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 64 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,200.00	9,476.00	15,578.33	9,891.00	136.49	136.71	179.85	5,977.47	136.20	415.00	273.05	141.95	2.924	
15,300.00	9,476.00	15,678.33	9,891.00	138.50	138.71	179.86	6,077.44	133.85	415.00	270.77	144.23	2.877	
15,400.00	9,476.00	15,778.33	9,891.00	140.52	140.72	179.87	6,177.41	131.49	415.00	268.49	146.51	2.833	
15,500.00	9,476.00	15,878.33	9,891.00	142.53	142.72	179.88	6,277.39	129.13	415.00	266.21	148.79	2.789	
15,600.00	9,476.00	15,978.33	9,891.00	144.56	144.74	179.88	6,377.36	126.77	415.00	263.92	151.08	2.747	
15,700.00	9,476.00	16,078.33	9,891.00	146.58	146.75	179.89	6,477.33	124.41	415.00	261.64	153.36	2.706	
15,800.00	9,476.00	16,178.33	9,891.00	148.61	148.78	179.90	6,577.30	122.05	415.00	259.35	155.65	2.666	
15,900.00	9,476.00	16,278.33	9,891.00	150.65	150.80	179.91	6,677.28	119.70	415.00	257.06	157.94	2.628	
16,000.00	9,476.00	16,378.33	9,891.00	152.69	152.83	179.91	6,777.25	117.34	415.00	254.76	160.24	2.590	
16,100.00	9,476.00	16,478.33	9,891.00	154.73	154.87	179.92	6,877.22	114.98	415.00	252.47	162.53	2.553	
16,200.00	9,476.00	16,578.33	9,891.00	156.77	156.90	179.93	6,977.19	112.62	415.00	250.17	164.83	2.518	
16,300.00	9,476.00	16,678.33	9,891.00	158.82	158.94	179.94	7,077.16	110.26	415.00	247.87	167.13	2.483	
16,400.00	9,476.00	16,778.33	9,891.00	160.87	160.99	179.94	7,177.14	107.90	415.00	245.57	169.43	2.449	
16,500.00	9,476.00	16,878.33	9,891.00	162.93	163.03	179.95	7,277.11	105.54	415.00	243.27	171.73	2.417	
16,600.00	9,476.00	16,978.33	9,891.00	164.98	165.08	179.96	7,377.08	103.19	415.00	240.97	174.03	2.385	
16,700.00	9,476.00	17,078.33	9,891.00	167.04	167.14	179.97	7,477.05	100.83	415.00	238.67	176.33	2.354	
16,800.00	9,476.00	17,178.33	9,891.00	169.11	169.19	179.97	7,577.03	98.47	415.00	236.36	178.64	2.323	
16,900.00	9,476.00	17,278.33	9,891.00	171.17	171.25	179.98	7,677.00	96.11	415.00	234.06	180.94	2.294	
17,000.00	9,476.00	17,378.33	9,891.00	173.24	173.31	179.99	7,776.97	93.75	415.00	231.75	183.25	2.265	
17,100.00	9,476.00	17,478.33	9,891.00	175.31	175.38	180.00	7,876.94	91.39	415.00	229.44	185.56	2.236	
17,125.33	9,476.00	17,503.65	9,891.00	175.84	175.90	180.00	7,902.26	90.80	415.00	228.85	186.15	2.229	
17,159.08	9,476.00	17,537.40	9,891.00	176.53	176.60	180.00	7,936.00	90.00	415.00	228.07	186.93	2.220	

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 65 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	1.00	0.00	0.00	2.29	25.00	1.00	25.04				
100.00	100.00	99.00	100.00	0.20	0.20	2.29	25.00	1.00	25.02	24.62	0.40	62.353	
200.00	200.00	199.00	200.00	0.74	0.73	2.29	25.00	1.00	25.02	23.55	1.47	16.982	
300.00	300.00	299.00	300.00	1.28	1.27	2.29	25.00	1.00	25.02	22.47	2.55	9.817	
400.00	400.00	399.00	400.00	1.81	1.81	2.29	25.00	1.00	25.02	21.40	3.62	6.904	
500.00	500.00	499.00	500.00	2.35	2.35	2.29	25.00	1.00	25.02	20.32	4.70	5.324	
600.00	600.00	599.00	600.00	2.89	2.88	2.29	25.00	1.00	25.02	19.25	5.77	4.332	
700.00	700.00	699.00	700.00	3.43	3.42	2.29	25.00	1.00	25.02	18.17	6.85	3.652	
800.00	800.00	799.00	800.00	3.97	3.96	2.29	25.00	1.00	25.02	17.09	7.93	3.157	
900.00	900.00	899.00	900.00	4.50	4.50	2.29	25.00	1.00	25.02	16.02	9.00	2.780	
1,000.00	1,000.00	999.00	1,000.00	5.04	5.04	2.29	25.00	1.00	25.02	14.94	10.08	2.483	
1,100.00	1,100.00	1,099.00	1,100.00	5.58	5.57	2.29	25.00	1.00	25.02	13.87	11.15	2.244	
1,200.00	1,200.00	1,199.00	1,200.00	6.12	6.11	2.29	25.00	1.00	25.02	12.79	12.23	2.046	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.65	2.29	25.00	1.00	25.02	11.72	13.30	1.881	
1,400.00	1,400.00	1,399.00	1,400.00	7.19	7.19	2.29	25.00	1.00	25.02	10.64	14.38	1.740	
1,500.00	1,500.00	1,499.00	1,500.00	7.73	7.72	2.29	25.00	1.00	25.02	9.57	15.45	1.619	
1,600.00	1,600.00	1,599.00	1,600.00	8.27	8.26	2.29	25.00	1.00	25.02	8.49	16.53	1.514	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.80	2.29	25.00	1.00	25.02	7.42	17.60	1.421	Level 3
1,800.00	1,800.00	1,799.00	1,800.00	9.34	9.34	2.29	25.00	1.00	25.02	6.34	18.68	1.339	Level 3
1,900.00	1,900.00	1,899.00	1,900.00	9.88	9.87	2.29	25.00	1.00	25.02	5.26	19.76	1.266	Level 3
2,000.00	2,000.00	1,999.00	2,000.00	10.42	10.41	2.29	25.00	1.00	25.02	4.19	20.83	1.201	Level 2, CC
2,100.00	2,099.98	2,098.58	2,099.56	10.95	10.94	72.68	25.88	-0.45	25.32	3.43	21.89	1.157	Level 2
2,200.00	2,199.84	2,198.15	2,199.00	11.47	11.47	73.65	28.56	-4.85	26.25	3.31	22.93	1.144	Level 2, ES, SF
2,300.00	2,299.59	2,297.68	2,298.14	12.00	12.00	71.70	33.04	-12.20	28.32	4.33	23.99	1.180	Level 2
2,400.00	2,399.35	2,397.35	2,397.15	12.53	12.53	65.65	39.00	-21.98	32.00	6.95	25.05	1.278	Level 3
2,500.00	2,499.11	2,497.22	2,496.32	13.06	13.07	60.52	45.12	-32.03	36.15	10.05	26.11	1.385	Level 3
2,600.00	2,598.86	2,597.08	2,595.49	13.59	13.61	56.47	51.24	-42.08	40.54	13.37	27.17	1.492	Level 3
2,700.00	2,698.62	2,696.95	2,694.67	14.13	14.16	53.23	57.36	-52.13	45.08	16.84	28.24	1.596	
2,800.00	2,798.38	2,796.82	2,793.84	14.66	14.71	50.59	63.49	-62.18	49.75	20.44	29.31	1.697	
2,900.00	2,898.13	2,896.68	2,893.01	15.20	15.26	48.40	69.61	-72.23	54.50	24.11	30.38	1.794	
3,000.00	2,997.89	2,996.55	2,992.18	15.74	15.81	46.57	75.73	-82.28	59.31	27.86	31.46	1.886	
3,100.00	3,097.65	3,096.42	3,091.35	16.28	16.37	45.01	81.85	-92.32	64.18	31.65	32.53	1.973	
3,200.00	3,197.50	3,196.19	3,190.42	16.82	16.93	42.78	87.97	-102.36	70.36	36.75	33.61	2.093	
3,300.00	3,297.48	3,295.67	3,289.22	17.35	17.49	-30.70	94.06	-112.37	79.30	44.68	34.62	2.290	
3,400.00	3,397.48	3,394.97	3,387.83	17.88	18.05	-34.22	100.15	-122.37	89.89	54.22	35.68	2.520	
3,500.00	3,497.48	3,494.28	3,486.44	18.42	18.61	-36.99	106.24	-132.36	100.75	64.01	36.74	2.743	
3,600.00	3,597.48	3,593.58	3,585.05	18.95	19.17	-39.21	112.32	-142.35	111.79	74.00	37.80	2.958	
3,700.00	3,697.48	3,692.88	3,683.66	19.49	19.73	-41.04	118.41	-152.34	122.98	84.12	38.86	3.165	
3,800.00	3,797.48	3,792.19	3,782.28	20.02	20.30	-42.56	124.50	-162.34	134.26	94.33	39.93	3.363	
3,900.00	3,897.48	3,891.49	3,880.89	20.55	20.86	-43.85	130.59	-172.33	145.62	104.63	40.99	3.552	
4,000.00	3,997.48	3,990.80	3,979.50	21.09	21.43	-44.94	136.67	-182.32	157.05	114.99	42.06	3.734	
4,100.00	4,097.48	4,090.10	4,078.11	21.62	22.00	-45.89	142.76	-192.31	168.52	125.39	43.13	3.907	
4,200.00	4,197.48	4,189.40	4,176.72	22.16	22.57	-46.72	148.85	-202.31	180.04	135.84	44.20	4.073	
4,300.00	4,297.48	4,288.71	4,275.33	22.69	23.14	-47.45	154.93	-212.30	191.58	146.31	45.27	4.232	
4,400.00	4,397.48	4,388.01	4,373.95	23.23	23.71	-48.09	161.02	-222.29	203.16	156.82	46.34	4.384	
4,500.00	4,497.48	4,487.31	4,472.56	23.76	24.28	-48.67	167.11	-232.28	214.75	167.34	47.41	4.529	
4,600.00	4,597.48	4,586.62	4,571.17	24.30	24.85	-49.19	173.19	-242.28	226.37	177.88	48.49	4.669	
4,700.00	4,697.48	4,685.92	4,669.78	24.84	25.42	-49.65	179.28	-252.27	238.00	188.44	49.56	4.802	
4,800.00	4,797.48	4,785.22	4,768.39	25.37	25.99	-50.08	185.37	-262.26	249.65	199.01	50.63	4.931	
4,900.00	4,897.48	4,884.53	4,867.00	25.91	26.56	-50.46	191.46	-272.25	261.31	209.60	51.71	5.054	
5,000.00	4,997.48	4,983.83	4,965.62	26.44	27.14	-50.81	197.54	-282.25	272.97	220.19	52.78	5.172	
5,100.00	5,097.48	5,083.13	5,064.23	26.98	27.71	-51.14	203.63	-292.24	284.65	230.80	53.86	5.285	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 65 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,197.48	5,182.44	5,162.84	27.51	28.28	-51.44	209.72	-302.23	296.34	241.41	54.93	5.395	
5,300.00	5,297.48	5,281.74	5,261.45	28.05	28.86	-51.71	215.80	-312.22	308.03	252.03	56.01	5.500	
5,400.00	5,397.48	5,381.04	5,360.06	28.59	29.43	-51.97	221.89	-322.21	319.73	262.65	57.08	5.601	
5,500.00	5,497.48	5,480.35	5,458.67	29.12	30.01	-52.20	227.98	-332.21	331.44	273.28	58.16	5.699	
5,600.00	5,597.48	5,579.65	5,557.29	29.66	30.58	-52.42	234.07	-342.20	343.15	283.92	59.24	5.793	
5,700.00	5,697.48	5,678.95	5,655.90	30.19	31.16	-52.63	240.15	-352.19	354.87	294.55	60.31	5.884	
5,800.00	5,797.48	5,791.59	5,767.95	30.73	31.80	-52.82	246.06	-361.89	364.92	303.46	61.46	5.937	
5,900.00	5,897.48	5,906.03	5,882.17	31.27	32.43	-52.93	249.72	-367.89	371.03	308.42	62.61	5.926	
6,000.00	5,997.48	6,020.85	5,996.96	31.80	33.03	-52.97	251.00	-370.00	373.16	309.40	63.76	5.853	
6,100.00	6,097.48	6,121.38	6,097.48	32.34	33.55	-52.97	251.00	-370.00	373.17	308.34	64.82	5.757	
6,200.00	6,197.48	6,221.38	6,197.48	32.88	34.06	-52.97	251.00	-370.00	373.17	307.28	65.89	5.664	
6,300.00	6,297.48	6,321.38	6,297.48	33.41	34.58	-52.97	251.00	-370.00	373.17	306.22	66.95	5.574	
6,400.00	6,397.48	6,421.38	6,397.48	33.95	35.09	-52.97	251.00	-370.00	373.17	305.15	68.01	5.487	
6,500.00	6,497.48	6,521.38	6,497.48	34.49	35.61	-52.97	251.00	-370.00	373.17	304.09	69.08	5.402	
6,600.00	6,597.48	6,621.38	6,597.48	35.02	36.12	-52.97	251.00	-370.00	373.17	303.03	70.14	5.320	
6,700.00	6,697.48	6,721.38	6,697.48	35.56	36.64	-52.97	251.00	-370.00	373.17	301.96	71.20	5.241	
6,800.00	6,797.48	6,821.38	6,797.48	36.10	37.16	-52.97	251.00	-370.00	373.17	300.90	72.27	5.164	
6,900.00	6,897.48	6,921.38	6,897.48	36.63	37.68	-52.97	251.00	-370.00	373.17	299.83	73.33	5.089	
7,000.00	6,997.48	7,021.38	6,997.48	37.17	38.20	-52.97	251.00	-370.00	373.17	298.77	74.40	5.016	
7,100.00	7,097.48	7,121.38	7,097.48	37.71	38.72	-52.97	251.00	-370.00	373.17	297.70	75.46	4.945	
7,200.00	7,197.48	7,221.38	7,197.48	38.24	39.24	-52.97	251.00	-370.00	373.17	296.64	76.53	4.876	
7,300.00	7,297.48	7,321.38	7,297.48	38.78	39.76	-52.97	251.00	-370.00	373.17	295.57	77.59	4.809	
7,400.00	7,397.48	7,421.38	7,397.48	39.32	40.28	-52.97	251.00	-370.00	373.17	294.51	78.66	4.744	
7,500.00	7,497.48	7,521.38	7,497.48	39.85	40.80	-52.97	251.00	-370.00	373.17	293.44	79.73	4.681	
7,600.00	7,597.48	7,621.38	7,597.48	40.39	41.32	-52.97	251.00	-370.00	373.17	292.37	80.79	4.619	
7,700.00	7,697.48	7,721.38	7,697.48	40.93	41.84	-52.97	251.00	-370.00	373.17	291.31	81.86	4.559	
7,800.00	7,797.48	7,821.38	7,797.48	41.46	42.37	-52.97	251.00	-370.00	373.17	290.24	82.93	4.500	
7,900.00	7,897.48	7,921.38	7,897.48	42.00	42.89	-52.97	251.00	-370.00	373.17	289.17	83.99	4.443	
8,000.00	7,997.48	8,021.38	7,997.48	42.54	43.41	-52.97	251.00	-370.00	373.17	288.11	85.06	4.387	
8,100.00	8,097.48	8,121.38	8,097.48	43.08	43.94	-52.97	251.00	-370.00	373.17	287.04	86.13	4.333	
8,200.00	8,197.48	8,221.38	8,197.48	43.61	44.46	-52.97	251.00	-370.00	373.17	285.97	87.20	4.280	
8,300.00	8,297.48	8,321.38	8,297.48	44.15	44.98	-52.97	251.00	-370.00	373.17	284.90	88.26	4.228	
8,400.00	8,397.48	8,421.38	8,397.48	44.69	45.51	-52.97	251.00	-370.00	373.17	283.83	89.33	4.177	
8,500.00	8,497.48	8,521.38	8,497.48	45.22	46.03	-52.97	251.00	-370.00	373.17	282.77	90.40	4.128	
8,600.00	8,597.48	8,621.38	8,597.48	45.76	46.56	-52.97	251.00	-370.00	373.17	281.70	91.47	4.080	
8,700.00	8,697.48	8,721.38	8,697.48	46.30	47.09	-52.97	251.00	-370.00	373.17	280.63	92.54	4.033	
8,758.63	8,756.11	8,780.00	8,756.11	46.61	47.39	-52.97	251.00	-370.00	373.17	280.00	93.16	4.005	
8,800.00	8,797.48	8,816.20	8,792.30	46.83	47.58	-52.94	251.18	-369.99	373.30	279.72	93.58	3.989	
8,900.00	8,897.48	8,888.89	8,864.67	47.37	47.97	-52.13	257.58	-369.64	378.30	283.80	94.51	4.003	
9,000.00	8,997.06	8,960.09	8,934.19	47.91	48.36	-58.80	272.66	-368.80	386.85	291.49	95.36	4.057	
9,100.00	9,093.77	9,030.67	9,000.75	48.42	48.73	-57.62	295.99	-367.51	393.91	298.49	95.41	4.128	
9,200.00	9,184.69	9,100.00	9,062.84	48.89	49.09	-57.13	326.68	-365.82	399.12	304.38	94.74	4.213	
9,300.00	9,267.06	9,171.06	9,122.16	49.34	49.45	-57.31	365.67	-363.67	402.33	308.68	93.65	4.296	
9,400.00	9,338.36	9,241.37	9,175.64	49.80	49.80	-58.14	411.17	-361.15	403.59	310.99	92.60	4.358	
9,500.00	9,396.44	9,312.09	9,223.41	50.25	50.15	-59.59	463.18	-358.28	403.07	310.96	92.11	4.376	
9,600.00	9,439.52	9,383.54	9,264.78	50.71	50.52	-61.67	521.28	-355.07	401.16	308.58	92.59	4.333	
9,700.00	9,466.30	9,450.00	9,296.50	51.17	50.88	-64.12	579.56	-351.85	398.44	304.43	94.01	4.238	
9,800.00	9,475.97	9,529.97	9,325.39	51.64	51.33	-67.59	653.95	-347.74	395.40	298.71	96.69	4.089	
9,843.88	9,476.31	9,563.32	9,334.31	51.86	51.53	-68.92	686.02	-345.97	394.79	296.98	97.81	4.036	
9,900.00	9,476.00	9,607.23	9,343.19	52.14	51.79	-70.37	728.95	-343.60	395.54	296.47	99.08	3.992	
10,000.00	9,476.00	9,688.09	9,350.83	52.73	52.29	-71.76	809.26	-339.16	401.26	300.48	100.78	3.981	
10,100.00	9,476.00	9,784.63	9,351.00	53.39	52.92	-72.18	905.66	-333.83	410.05	307.82	102.22	4.011	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Offset Design HH CE 35 2 Fed - 65 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.00	9,476.00	9,884.20	9,351.00	54.13	53.64	-72.57	1,005.07	-328.34	418.92	315.10	103.81	4.035	
10,300.00	9,476.00	9,983.78	9,351.00	54.94	54.43	-72.95	1,104.50	-322.85	427.70	322.15	105.55	4.052	
10,400.00	9,476.00	10,083.55	9,351.00	55.83	55.30	-73.25	1,204.11	-317.35	434.13	326.68	107.45	4.040	
10,500.00	9,476.00	10,183.49	9,351.00	56.77	56.23	-73.39	1,303.90	-311.83	437.22	327.80	109.42	3.996	
10,600.00	9,476.00	10,283.49	9,351.00	57.78	57.23	-73.40	1,403.75	-306.32	437.52	326.11	111.41	3.927	
10,700.00	9,476.00	10,383.49	9,351.00	58.85	58.29	-73.40	1,503.60	-300.80	437.52	324.02	113.50	3.855	
10,800.00	9,476.00	10,483.49	9,351.00	59.97	59.41	-73.40	1,603.45	-295.29	437.52	321.82	115.71	3.781	
10,900.00	9,476.00	10,583.49	9,351.00	61.15	60.58	-73.40	1,703.29	-289.77	437.52	319.51	118.02	3.707	
11,000.00	9,476.00	10,683.49	9,351.00	62.38	61.80	-73.40	1,803.14	-284.25	437.53	317.10	120.42	3.633	
11,100.00	9,476.00	10,783.49	9,351.00	63.66	63.08	-73.40	1,902.99	-278.74	437.53	314.60	122.92	3.559	
11,200.00	9,476.00	10,883.49	9,351.00	64.98	64.39	-73.40	2,002.84	-273.22	437.53	312.02	125.51	3.486	
11,300.00	9,476.00	10,983.49	9,351.00	66.35	65.75	-73.40	2,102.69	-267.71	437.53	309.35	128.18	3.413	
11,400.00	9,476.00	11,083.49	9,351.00	67.75	67.15	-73.40	2,202.53	-262.19	437.53	306.60	130.93	3.342	
11,500.00	9,476.00	11,183.49	9,351.00	69.20	68.59	-73.40	2,302.38	-256.67	437.53	303.78	133.75	3.271	
11,600.00	9,476.00	11,283.49	9,351.00	70.68	70.07	-73.40	2,402.23	-251.16	437.53	300.90	136.63	3.202	
11,700.00	9,476.00	11,383.49	9,351.00	72.19	71.58	-73.40	2,502.08	-245.64	437.53	297.95	139.58	3.135	
11,800.00	9,476.00	11,483.49	9,351.00	73.73	73.11	-73.40	2,601.92	-240.13	437.53	294.94	142.60	3.068	
11,900.00	9,476.00	11,583.49	9,351.00	75.30	74.68	-73.40	2,701.77	-234.61	437.53	291.87	145.66	3.004	
12,000.00	9,476.00	11,683.49	9,351.00	76.90	76.28	-73.40	2,801.62	-229.09	437.54	288.75	148.78	2.941	
12,100.00	9,476.00	11,783.49	9,351.00	78.52	77.90	-73.40	2,901.47	-223.58	437.54	285.59	151.95	2.879	
12,200.00	9,476.00	11,872.33	9,351.00	80.17	79.37	-73.42	2,990.22	-219.69	437.94	282.90	155.04	2.825	
12,300.00	9,476.00	11,959.55	9,351.00	81.84	80.83	-73.42	3,077.43	-218.52	438.09	280.01	158.08	2.771	
12,399.63	9,476.00	12,050.26	9,351.00	83.53	82.38	-73.43	3,168.13	-219.97	438.37	277.20	161.17	2.720	
12,400.00	9,476.00	12,050.64	9,351.00	83.53	82.38	-73.42	3,168.51	-219.98	437.96	276.79	161.17	2.717	
12,500.00	9,476.00	12,150.64	9,351.00	85.25	84.11	-73.42	3,268.48	-222.29	437.97	273.44	164.53	2.662	
12,600.00	9,476.00	12,250.64	9,351.00	86.98	85.86	-73.42	3,368.45	-224.59	437.97	270.05	167.92	2.608	
12,700.00	9,476.00	12,350.64	9,351.00	88.73	87.63	-73.42	3,468.43	-226.90	437.97	266.62	171.35	2.556	
12,800.00	9,476.00	12,450.64	9,351.00	90.51	89.42	-73.42	3,568.40	-229.21	437.97	263.16	174.81	2.505	
12,900.00	9,476.00	12,550.64	9,351.00	92.29	91.22	-73.42	3,668.37	-231.51	437.98	259.67	178.31	2.456	
13,000.00	9,476.00	12,650.64	9,351.00	94.10	93.04	-73.42	3,768.35	-233.82	437.98	256.14	181.84	2.409	
13,100.00	9,476.00	12,750.64	9,351.00	95.92	94.87	-73.42	3,868.32	-236.13	437.98	252.59	185.39	2.362	
13,200.00	9,476.00	12,850.64	9,351.00	97.75	96.72	-73.42	3,968.29	-238.43	437.98	249.01	188.97	2.318	
13,300.00	9,476.00	12,950.64	9,351.00	99.60	98.58	-73.42	4,068.27	-240.74	437.98	245.41	192.56	2.274	
13,400.00	9,476.00	13,050.64	9,351.00	101.46	100.45	-73.42	4,168.24	-243.05	437.99	241.78	196.21	2.232	
13,500.00	9,476.00	13,150.64	9,351.00	103.33	102.33	-73.42	4,268.21	-245.35	437.99	238.13	199.86	2.191	
13,600.00	9,476.00	13,250.64	9,351.00	105.21	104.23	-73.42	4,368.19	-247.66	437.99	234.46	203.54	2.152	
13,700.00	9,476.00	13,350.64	9,351.00	107.11	106.13	-73.42	4,468.16	-249.97	437.99	230.76	207.23	2.114	
13,800.00	9,476.00	13,450.64	9,351.00	109.01	108.05	-73.42	4,568.13	-252.27	438.00	227.05	210.95	2.076	
13,900.00	9,476.00	13,550.64	9,351.00	110.92	109.97	-73.42	4,668.11	-254.58	438.00	223.32	214.68	2.040	
14,000.00	9,476.00	13,650.64	9,351.00	112.85	111.90	-73.42	4,768.08	-256.89	438.00	219.57	218.43	2.005	
14,100.00	9,476.00	13,750.64	9,351.00	114.78	113.85	-73.42	4,868.05	-259.19	438.00	215.81	222.19	1.971	
14,200.00	9,476.00	13,850.64	9,351.00	116.72	115.79	-73.42	4,968.03	-261.50	438.01	212.03	225.98	1.938	
14,300.00	9,476.00	13,950.64	9,351.00	118.67	117.75	-73.42	5,068.00	-263.81	438.01	208.24	229.77	1.906	
14,400.00	9,476.00	14,050.64	9,351.00	120.62	119.72	-73.42	5,167.97	-266.11	438.01	204.43	233.58	1.875	
14,500.00	9,476.00	14,150.64	9,351.00	122.58	121.69	-73.42	5,267.95	-268.42	438.01	200.61	237.41	1.845	
14,600.00	9,476.00	14,250.64	9,351.00	124.55	123.67	-73.42	5,367.92	-270.73	438.02	196.77	241.24	1.816	
14,700.00	9,476.00	14,350.64	9,351.00	126.53	125.65	-73.42	5,467.89	-273.03	438.02	192.93	245.09	1.787	
14,800.00	9,476.00	14,450.64	9,351.00	128.51	127.64	-73.42	5,567.87	-275.34	438.02	189.07	248.95	1.759	
14,900.00	9,476.00	14,550.64	9,351.00	130.50	129.64	-73.42	5,667.84	-277.65	438.02	185.20	252.83	1.733	
15,000.00	9,476.00	14,650.64	9,351.00	132.49	131.64	-73.42	5,767.81	-279.95	438.03	181.32	256.71	1.706	
15,100.00	9,476.00	14,750.64	9,351.00	134.49	133.64	-73.42	5,867.79	-282.26	438.03	177.43	260.60	1.681	
15,200.00	9,476.00	14,850.64	9,351.00	136.49	135.66	-73.42	5,967.76	-284.57	438.03	173.53	264.50	1.656	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

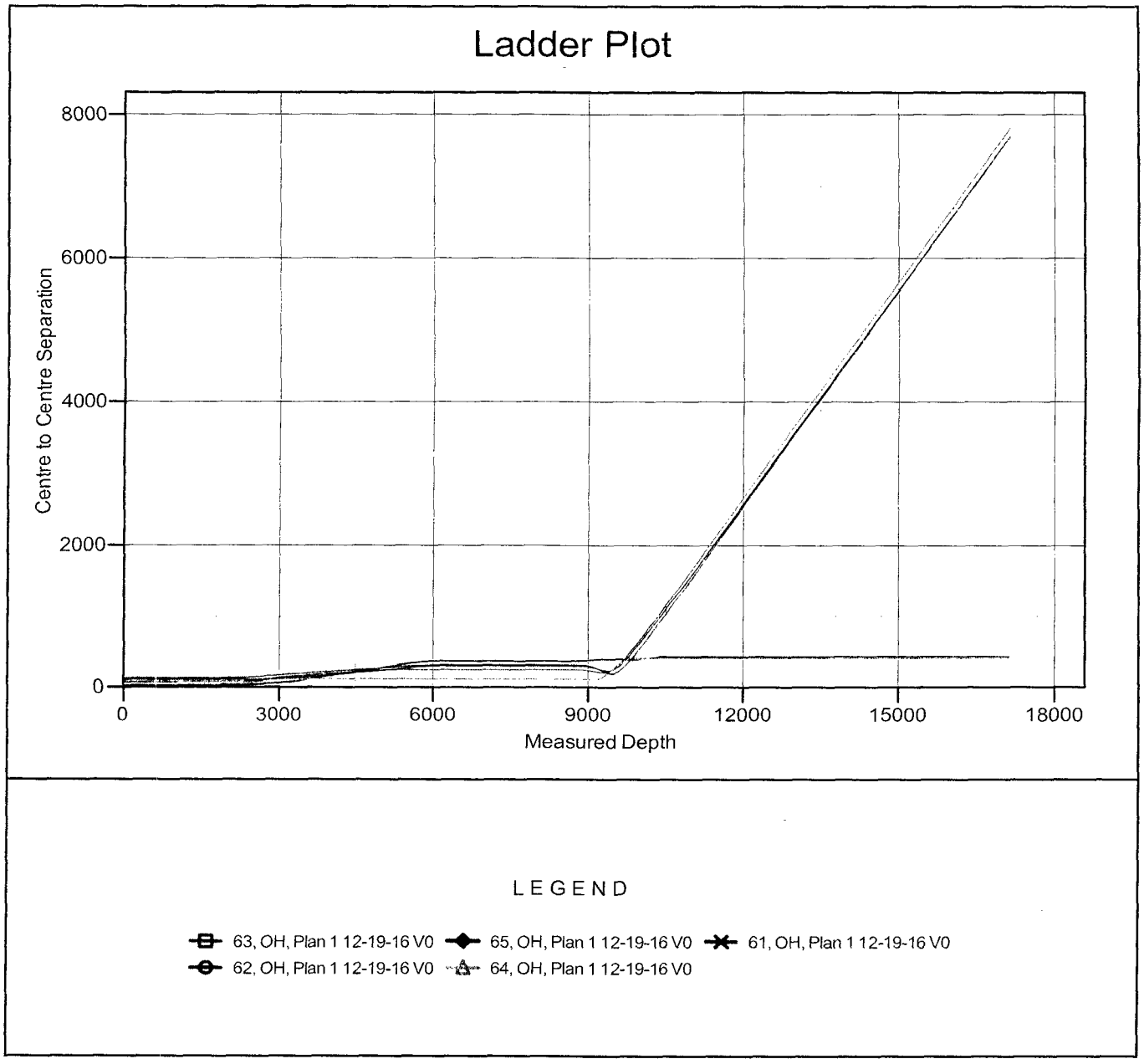
Offset Design HH CE 35 2 Fed - 65 - OH - Plan 1 12-19-16 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,300.00	9,476.00	14,950.64	9,351.00	138.50	137.67	-73.42	6,067.74	-286.87	438.03	169.62	268.41	1.632	
15,400.00	9,476.00	15,050.64	9,351.00	140.52	139.69	-73.42	6,167.71	-289.18	438.04	165.70	272.33	1.608	
15,500.00	9,476.00	15,150.64	9,351.00	142.53	141.72	-73.42	6,267.68	-291.48	438.04	161.78	276.26	1.586	
15,600.00	9,476.00	15,250.64	9,351.00	144.56	143.75	-73.42	6,367.66	-293.79	438.04	157.84	280.20	1.563	
15,700.00	9,476.00	15,350.64	9,351.00	146.58	145.78	-73.42	6,467.63	-296.10	438.04	153.90	284.14	1.542	
15,800.00	9,476.00	15,450.64	9,351.00	148.61	147.82	-73.42	6,567.60	-298.40	438.04	149.95	288.10	1.520	
15,900.00	9,476.00	15,550.64	9,351.00	150.65	149.86	-73.42	6,667.58	-300.71	438.05	145.99	292.05	1.500	Level 3
16,000.00	9,476.00	15,650.64	9,351.00	152.69	151.90	-73.42	6,767.55	-303.02	438.05	142.03	296.02	1.480	Level 3
16,100.00	9,476.00	15,750.64	9,351.00	154.73	153.95	-73.42	6,867.52	-305.32	438.05	138.06	299.99	1.460	Level 3
16,200.00	9,476.00	15,850.64	9,351.00	156.77	156.00	-73.42	6,967.50	-307.63	438.05	134.08	303.97	1.441	Level 3
16,300.00	9,476.00	15,950.64	9,351.00	158.82	158.05	-73.42	7,067.47	-309.94	438.06	130.10	307.96	1.422	Level 3
16,400.00	9,476.00	16,050.64	9,351.00	160.87	160.11	-73.42	7,167.44	-312.24	438.06	126.11	311.95	1.404	Level 3
16,500.00	9,476.00	16,150.64	9,351.00	162.93	162.17	-73.42	7,267.42	-314.55	438.06	122.12	315.94	1.387	Level 3
16,600.00	9,476.00	16,250.64	9,351.00	164.98	164.23	-73.42	7,367.39	-316.86	438.06	118.12	319.95	1.369	Level 3
16,700.00	9,476.00	16,350.64	9,351.00	167.04	166.30	-73.42	7,467.36	-319.16	438.07	114.11	323.95	1.352	Level 3
16,800.00	9,476.00	16,450.64	9,351.00	169.11	168.37	-73.42	7,567.34	-321.47	438.07	110.10	327.97	1.336	Level 3
16,900.00	9,476.00	16,550.64	9,351.00	171.17	170.44	-73.42	7,667.31	-323.78	438.07	106.09	331.98	1.320	Level 3
17,000.00	9,476.00	16,650.64	9,351.00	173.24	172.51	-73.42	7,767.28	-326.08	438.07	102.07	336.01	1.304	Level 3
17,100.00	9,476.00	16,750.64	9,351.00	175.31	174.58	-73.42	7,867.26	-328.39	438.08	98.04	340.03	1.288	Level 3
17,159.08	9,476.00	16,809.72	9,351.00	176.53	175.81	-73.42	7,926.32	-329.75	438.08	95.67	342.41	1.279	Level 3

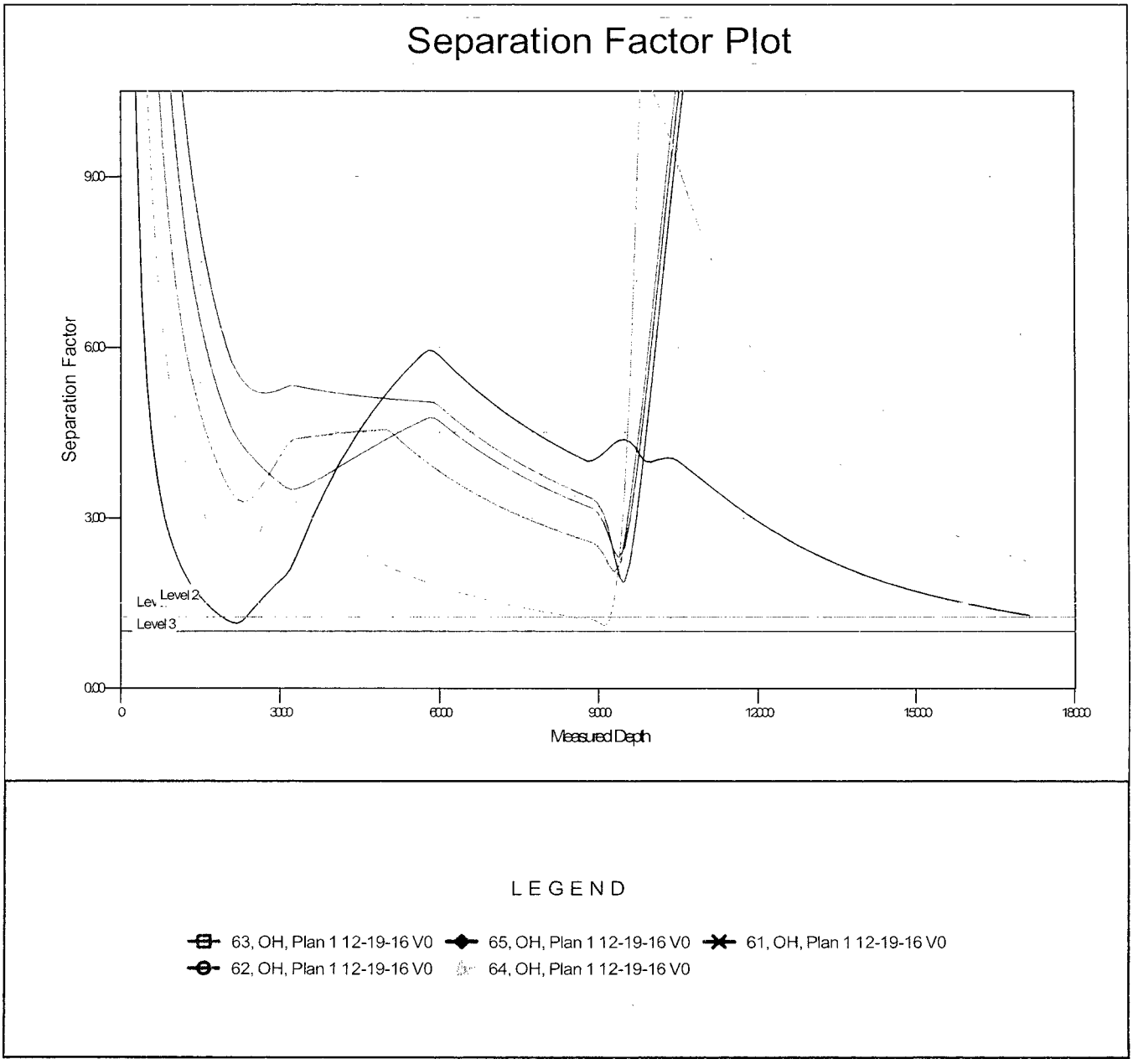
Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to GL + KB @ 3171.00usft	Coordinates are relative to: 66
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 19' 60.00000 W	Grid Convergence at Surface is: 0.10°



Company:	Chevron	**Local Co-ordinate Reference:**	Well 66
Project:	Eddy County, NM (NAD27 NME)	**TVD Reference:**	GL + KB @ 3171.00usft
Reference Site:	HH CE 35 2 Fed	**MD Reference:**	GL + KB @ 3171.00usft
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	66	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	3.00 sigma
Reference Wellbore	OH	**Database:**	Compass 5000 GCR
Reference Design:	Plan 1 12-19-16	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to GL + KB @ 3171.00usft	Coordinates are relative to: 66
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 19' 60.00000 W	Grid Convergence at Surface is: 0.10°



Chevron

Project: Eddy County, NM (NAD27 NME)
Site: HH CE 35 2 Fed
Well: 66
Wellbore: OH
Design: Plan 1 12-19-16
Rig:

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.30°

Magnetic Field
Strength: 48095.0snT
Dip Angle: 59.85°
Date: 12/19/2016
Model: HDGM

WELL DETAILS

Ground Level: 3146.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	394832.00	555766.00	32° 5' 7.37159 N	104° 9' 11.78281 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00		KOP2, Begin 2.00°/100' Build
3	2200.00	4.00	290.00	2199.84	2.39	-6.56	2.00	290.00	2.31		Hold 4.00° Inc at 290.00° Azm
4	3100.00	4.00	290.00	3097.65	23.86	-65.55	0.00	0.00	23.11		Begin 2.00°/100' Drop
5	3300.00	0.00	0.00	3297.48	26.25	-72.11	2.00	180.00	25.43		Begin Vertical Hold
6	8905.56	0.00	0.00	8903.04	26.25	-72.11	0.00	0.00	25.43		KOP2, Begin 10.00°/100' Build
7	9805.56	90.00	8.50	9476.00	592.91	12.58	10.00	8.50	593.01		LP, Hold 90.00° Inc at 8.50° Azm
8	10275.56	90.00	8.50	9476.00	1057.75	82.05	0.00	0.00	1058.61		Begin 2.00°/100' Turn
9	10542.43	90.00	3.16	9476.00	1323.14	109.15	2.00	-90.00	1324.29		Hold 3.16° Azm
10	12134.71	90.00	3.16	9476.00	2913.00	197.00	0.00	0.00	2915.05	MP - HH CE 35 2 Fed 66	Begin 2.00°/100' Turn
11	12356.86	90.00	358.68	9476.00	3137.06	200.60	2.00	-90.00	3139.13		Hold 358.68° Azm
12	17159.07	90.00	358.68	9476.00	7936.00	90.00	0.00	0.00	7936.51	BHL - HH CE 35 2 Fed 66	TD at 17159.07

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - HH CE 35 2 Fed 66	9476.00	7936.00	90.00	402768.00	555856.00	32° 6' 25.90901 N	104° 9' 10.58235 W
FTP - HH CE 35 2 Fed 66	9476.00	251.00	50.00	395083.00	555816.00	32° 5' 9.85480 N	104° 9' 11.19675 W
LTP - HH CE 35 2 Fed 66	9476.00	7886.00	91.00	402718.00	555857.00	32° 6' 25.41417 N	104° 9' 10.57169 W
MP - HH CE 35 2 Fed 66	9476.00	2913.00	197.00	397745.00	555963.00	32° 5' 36.19697 N	104° 9' 9.43619 W

CASING DETAILS

No casing data is available

LEGEND

63, OH, Plan 1 12-19-16 V0
62, OH, Plan 1 12-19-16 V0
65, OH, Plan 1 12-19-16 V0
64, OH, Plan 1 12-19-16 V0
61, OH, Plan 1 12-19-16 V0
Plan 1 12-19-16

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well 66, Grid North

Latitude: 32° 5' 7.37159 N
Longitude: 104° 9' 11.78281 W

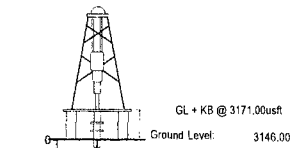
Grid East: 555766.00
Grid North: 394832.00
Scale Factor: 1.000

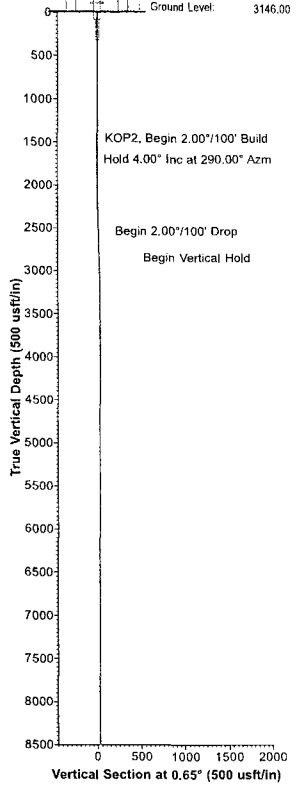
Geomagnetic Model: HDGM
Sample Date: 19-Dec-16
Magnetic Declination: 7.40°
Dip Angle from Horizontal: 59.85°
Magnetic Field Strength: 48095

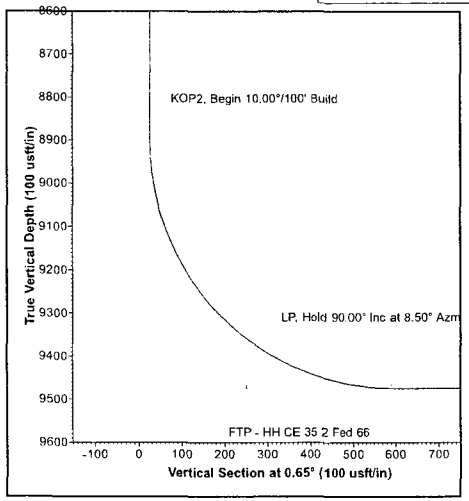
To convert a Magnetic Direction to a Grid Direction, Add 7.30°
To convert a Magnetic Direction to a True Direction, Add 7.40° East
To convert a True Direction to a Grid Direction, Subtract 0.10°

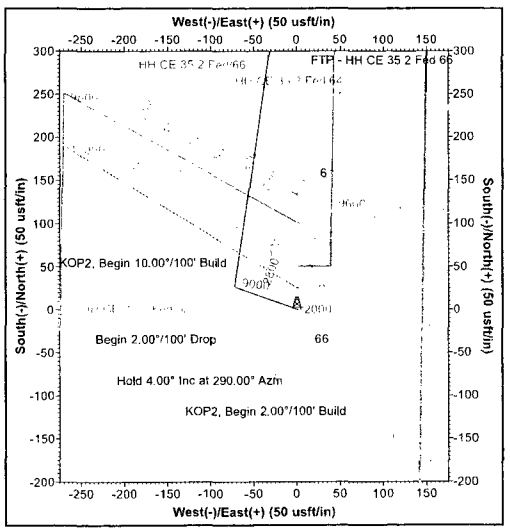
FORMATION TOP DETAILS

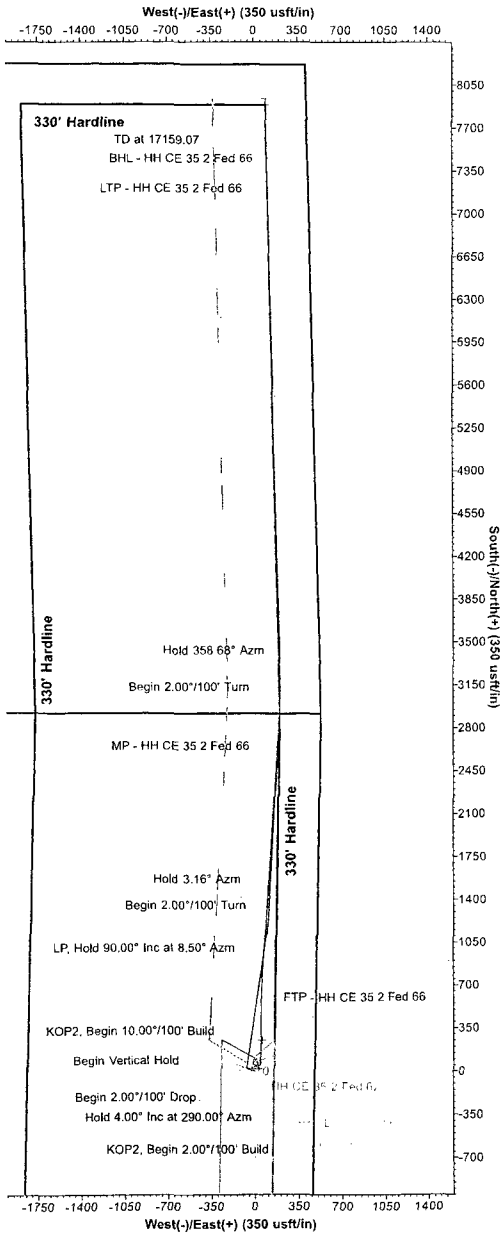
No formation data is available

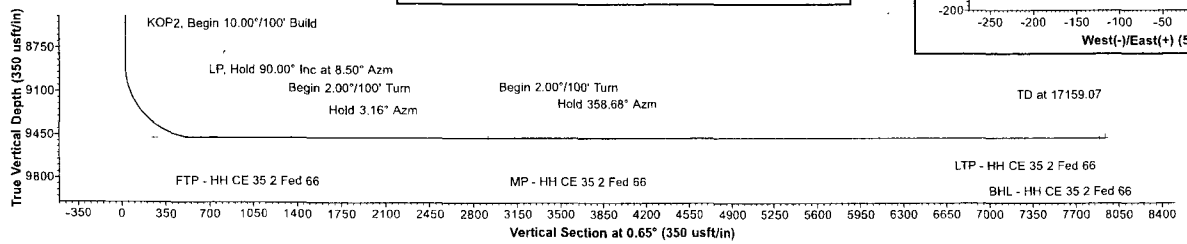












Created By: Bianca LaCombe Date: 13:36, December 20 2016

Chevron

Chevron

Eddy County, NM (NAD27 NME)
HH CE 35 2 Fed
66

OH

Plan: Plan 1 12-19-16

Standard Planning Report

20 December, 2016

PHOENIX
TECHNOLOGY SERVICES

Database:	Compass 5000 GCR	**Local Co-ordinate Reference:**	Well 66
Company:	Chevron	**TVD Reference:**	GL + KB @ 3171.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL + KB @ 3171.00usft
Site:	HH CE 35 2 Fed	**North Reference:**	Grid
Well:	66	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 12-19-16		

Project	Eddy County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site HH CE 35 2 Fed

Site Position:		**Northing:**	394,832.00 usft	**Latitude:**	32° 5' 7.37159 N
From:	Map	**Easting:**	555,766.00 usft	**Longitude:**	104° 9' 11.78281 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.10 °

Well 66

Well Position	**+N/-S**	0.00 usft	**Northing:**	394,832.00 usft	**Latitude:**	32° 5' 7.37159 N
	+E/-W	0.00 usft	**Easting:**	555,766.00 usft	**Longitude:**	104° 9' 11.78281 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,146.00 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	12/19/2016	7.40	59.85	48,095

Design Plan 1 12-19-16

Audit Notes:

Version:	**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	0.65

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	4.00	290.00	2,199.84	2.39	-6.56	2.00	2.00	0.00	290.00	
3,100.00	4.00	290.00	3,097.65	23.86	-65.55	0.00	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,297.48	26.25	-72.11	2.00	-2.00	0.00	180.00	
8,905.56	0.00	0.00	8,903.04	26.25	-72.11	0.00	0.00	0.00	0.00	
9,805.56	90.00	8.50	9,476.00	592.91	12.58	10.00	10.00	0.00	8.50	
10,275.56	90.00	8.50	9,476.00	1,057.75	82.05	0.00	0.00	0.00	0.00	
10,542.43	90.00	3.16	9,476.00	1,323.14	109.15	2.00	0.00	-2.00	-90.00	
12,134.71	90.00	3.16	9,476.00	2,913.00	197.00	0.00	0.00	0.00	0.00	MP - HH CE 35 2 Fed
12,358.86	90.00	358.68	9,476.00	3,137.06	200.60	2.00	0.00	-2.00	-90.00	
17,159.08	90.00	358.68	9,476.00	7,936.00	90.00	0.00	0.00	0.00	0.00	BHL - HH CE 35 2 Fe

Database:	Compass 5000 GCR	**Local Co-ordinate Reference:**	Well 66
Company:	Chevron	**TVD Reference:**	GL + KB @ 3171.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL + KB @ 3171.00usft
Site:	HH CE 35 2 Fed	**North Reference:**	Grid
Well:	66	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 12-19-16		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP2, Begin 2.00°/100' Build									
2,100.00	2.00	290.00	2,099.98	0.60	-1.64	0.58	2.00	2.00	0.00
2,200.00	4.00	290.00	2,199.84	2.39	-6.56	2.31	2.00	2.00	0.00
Hold 4.00° Inc at 290.00° Azm									
2,300.00	4.00	290.00	2,299.59	4.77	-13.11	4.62	0.00	0.00	0.00
2,400.00	4.00	290.00	2,399.35	7.16	-19.67	6.93	0.00	0.00	0.00
2,500.00	4.00	290.00	2,499.11	9.54	-26.22	9.25	0.00	0.00	0.00
2,600.00	4.00	290.00	2,598.86	11.93	-32.78	11.56	0.00	0.00	0.00
2,700.00	4.00	290.00	2,698.62	14.32	-39.33	13.87	0.00	0.00	0.00
2,800.00	4.00	290.00	2,798.38	16.70	-45.89	16.18	0.00	0.00	0.00
2,900.00	4.00	290.00	2,898.13	19.09	-52.44	18.49	0.00	0.00	0.00
3,000.00	4.00	290.00	2,997.89	21.47	-59.00	20.80	0.00	0.00	0.00
3,100.00	4.00	290.00	3,097.65	23.86	-65.55	23.11	0.00	0.00	0.00
Begin 2.00°/100' Drop									
3,200.00	2.00	290.00	3,197.50	25.65	-70.47	24.85	2.00	-2.00	0.00
3,300.00	0.00	0.00	3,297.48	26.25	-72.11	25.43	2.00	-2.00	0.00
Begin Vertical Hold									
3,400.00	0.00	0.00	3,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
3,500.00	0.00	0.00	3,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
3,600.00	0.00	0.00	3,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
3,700.00	0.00	0.00	3,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
3,800.00	0.00	0.00	3,797.48	26.25	-72.11	25.43	0.00	0.00	0.00
3,900.00	0.00	0.00	3,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,000.00	0.00	0.00	3,997.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,100.00	0.00	0.00	4,097.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,200.00	0.00	0.00	4,197.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,300.00	0.00	0.00	4,297.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,400.00	0.00	0.00	4,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,500.00	0.00	0.00	4,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,600.00	0.00	0.00	4,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,700.00	0.00	0.00	4,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,800.00	0.00	0.00	4,797.48	26.25	-72.11	25.43	0.00	0.00	0.00
4,900.00	0.00	0.00	4,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,000.00	0.00	0.00	4,997.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,100.00	0.00	0.00	5,097.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,200.00	0.00	0.00	5,197.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,300.00	0.00	0.00	5,297.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,400.00	0.00	0.00	5,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,500.00	0.00	0.00	5,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,600.00	0.00	0.00	5,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,700.00	0.00	0.00	5,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,800.00	0.00	0.00	5,797.48	26.25	-72.11	25.43	0.00	0.00	0.00
5,900.00	0.00	0.00	5,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,000.00	0.00	0.00	5,997.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,100.00	0.00	0.00	6,097.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,200.00	0.00	0.00	6,197.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,300.00	0.00	0.00	6,297.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,400.00	0.00	0.00	6,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,500.00	0.00	0.00	6,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,600.00	0.00	0.00	6,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,700.00	0.00	0.00	6,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
6,800.00	0.00	0.00	6,797.48	26.25	-72.11	25.43	0.00	0.00	0.00

Database:	Compass 5000 GCR	**Local Co-ordinate Reference:**	Well 66
Company:	Chevron	**TVD Reference:**	GL + KB @ 3171.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL + KB @ 3171.00usft
Site:	HH CE 35 2 Fed	**North Reference:**	Grid
Well:	66	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 12-19-16		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,900.00	0.00	0.00	6,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,000.00	0.00	0.00	6,997.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,100.00	0.00	0.00	7,097.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,200.00	0.00	0.00	7,197.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,300.00	0.00	0.00	7,297.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,400.00	0.00	0.00	7,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,500.00	0.00	0.00	7,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,600.00	0.00	0.00	7,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,700.00	0.00	0.00	7,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,800.00	0.00	0.00	7,797.48	26.25	-72.11	25.43	0.00	0.00	0.00
7,900.00	0.00	0.00	7,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,000.00	0.00	0.00	7,997.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,100.00	0.00	0.00	8,097.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,200.00	0.00	0.00	8,197.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,300.00	0.00	0.00	8,297.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,400.00	0.00	0.00	8,397.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,500.00	0.00	0.00	8,497.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,600.00	0.00	0.00	8,597.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,700.00	0.00	0.00	8,697.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,800.00	0.00	0.00	8,797.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,900.00	0.00	0.00	8,897.48	26.25	-72.11	25.43	0.00	0.00	0.00
8,905.56	0.00	0.00	8,903.04	26.25	-72.11	25.43	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
9,000.00	9.44	8.50	8,997.06	33.93	-70.96	33.12	10.00	10.00	0.00
9,100.00	19.44	8.50	9,093.77	58.56	-67.28	57.80	10.00	10.00	0.00
9,200.00	29.44	8.50	9,184.69	99.44	-61.17	98.74	10.00	10.00	0.00
9,300.00	39.44	8.50	9,267.06	155.31	-52.82	154.70	10.00	10.00	0.00
9,400.00	49.44	8.50	9,338.36	224.47	-42.49	223.97	10.00	10.00	0.00
9,500.00	59.44	8.50	9,396.44	304.83	-30.48	304.46	10.00	10.00	0.00
9,600.00	69.44	8.50	9,439.52	393.94	-17.16	393.72	10.00	10.00	0.00
9,700.00	79.44	8.50	9,466.30	489.10	-2.94	489.03	10.00	10.00	0.00
9,800.00	89.44	8.50	9,475.97	587.41	11.76	587.51	10.00	10.00	0.00
9,805.56	90.00	8.50	9,476.00	592.91	12.58	593.01	10.00	10.00	0.00
LP, Hold 90.00° Inc at 8.50° Azm									
9,900.00	90.00	8.50	9,476.00	686.31	26.54	686.57	0.00	0.00	0.00
10,000.00	90.00	8.50	9,476.00	785.21	41.32	785.63	0.00	0.00	0.00
10,100.00	90.00	8.50	9,476.00	884.12	56.10	884.70	0.00	0.00	0.00
10,200.00	90.00	8.50	9,476.00	983.02	70.88	983.76	0.00	0.00	0.00
10,275.56	90.00	8.50	9,476.00	1,057.75	82.05	1,058.61	0.00	0.00	0.00
Begin 2.00°/100' Turn									
10,300.00	90.00	8.01	9,476.00	1,081.93	85.56	1,082.84	2.00	0.00	-2.00
10,400.00	90.00	6.01	9,476.00	1,181.18	97.76	1,182.21	2.00	0.00	-2.00
10,500.00	90.00	4.01	9,476.00	1,280.79	106.50	1,281.92	2.00	0.00	-2.00
10,542.43	90.00	3.16	9,476.00	1,323.14	109.15	1,324.29	2.00	0.00	-2.00
Hold 3.16° Azm									
10,600.00	90.00	3.16	9,476.00	1,380.62	112.33	1,381.81	0.00	0.00	0.00
10,700.00	90.00	3.16	9,476.00	1,480.47	117.85	1,481.71	0.00	0.00	0.00
10,800.00	90.00	3.16	9,476.00	1,580.32	123.36	1,581.62	0.00	0.00	0.00
10,900.00	90.00	3.16	9,476.00	1,680.17	128.88	1,681.52	0.00	0.00	0.00
11,000.00	90.00	3.16	9,476.00	1,780.01	134.40	1,781.42	0.00	0.00	0.00
11,100.00	90.00	3.16	9,476.00	1,879.86	139.91	1,881.33	0.00	0.00	0.00
11,200.00	90.00	3.16	9,476.00	1,979.71	145.43	1,981.23	0.00	0.00	0.00
11,300.00	90.00	3.16	9,476.00	2,079.56	150.95	2,081.13	0.00	0.00	0.00

Database:	Compass 5000 GCR	**Local Co-ordinate Reference:**	Well 66
Company:	Chevron	**TVD Reference:**	GL + KB @ 3171.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL + KB @ 3171.00usft
Site:	HH CE 35 2 Fed	**North Reference:**	Grid
Well:	66	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 12-19-16		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,400.00	90.00	3.16	9,476.00	2,179.40	156.47	2,181.04	0.00	0.00	0.00
11,500.00	90.00	3.16	9,476.00	2,279.25	161.98	2,280.94	0.00	0.00	0.00
11,600.00	90.00	3.16	9,476.00	2,379.10	167.50	2,380.85	0.00	0.00	0.00
11,700.00	90.00	3.16	9,476.00	2,478.95	173.02	2,480.75	0.00	0.00	0.00
11,800.00	90.00	3.16	9,476.00	2,578.80	178.53	2,580.65	0.00	0.00	0.00
11,900.00	90.00	3.16	9,476.00	2,678.64	184.05	2,680.56	0.00	0.00	0.00
12,000.00	90.00	3.16	9,476.00	2,778.49	189.57	2,780.46	0.00	0.00	0.00
12,100.00	90.00	3.16	9,476.00	2,878.34	195.08	2,880.37	0.00	0.00	0.00
12,134.71	90.00	3.16	9,476.00	2,913.00	197.00	2,915.05	0.00	0.00	0.00
Begin 2.00°/100' Turn									
12,200.00	90.00	1.86	9,476.00	2,978.22	199.86	2,980.30	2.00	0.00	-2.00
12,300.00	90.00	359.86	9,476.00	3,078.21	201.35	3,080.29	2.00	0.00	-2.00
12,358.86	90.00	358.68	9,476.00	3,137.06	200.60	3,139.13	2.00	0.00	-2.00
Hold 358.68° Azm									
12,400.00	90.00	358.68	9,476.00	3,178.19	199.65	3,180.25	0.00	0.00	0.00
12,500.00	90.00	358.68	9,476.00	3,278.16	197.35	3,280.19	0.00	0.00	0.00
12,600.00	90.00	358.68	9,476.00	3,378.14	195.05	3,380.13	0.00	0.00	0.00
12,700.00	90.00	358.68	9,476.00	3,478.11	192.74	3,480.07	0.00	0.00	0.00
12,800.00	90.00	358.68	9,476.00	3,578.08	190.44	3,580.01	0.00	0.00	0.00
12,900.00	90.00	358.68	9,476.00	3,678.06	188.13	3,679.95	0.00	0.00	0.00
13,000.00	90.00	358.68	9,476.00	3,778.03	185.83	3,779.89	0.00	0.00	0.00
13,100.00	90.00	358.68	9,476.00	3,878.00	183.53	3,879.83	0.00	0.00	0.00
13,200.00	90.00	358.68	9,476.00	3,977.98	181.22	3,979.78	0.00	0.00	0.00
13,300.00	90.00	358.68	9,476.00	4,077.95	178.92	4,079.72	0.00	0.00	0.00
13,400.00	90.00	358.68	9,476.00	4,177.92	176.61	4,179.66	0.00	0.00	0.00
13,500.00	90.00	358.68	9,476.00	4,277.90	174.31	4,279.60	0.00	0.00	0.00
13,600.00	90.00	358.68	9,476.00	4,377.87	172.01	4,379.54	0.00	0.00	0.00
13,700.00	90.00	358.68	9,476.00	4,477.84	169.70	4,479.48	0.00	0.00	0.00
13,800.00	90.00	358.68	9,476.00	4,577.82	167.40	4,579.42	0.00	0.00	0.00
13,900.00	90.00	358.68	9,476.00	4,677.79	165.09	4,679.36	0.00	0.00	0.00
14,000.00	90.00	358.68	9,476.00	4,777.76	162.79	4,779.30	0.00	0.00	0.00
14,100.00	90.00	358.68	9,476.00	4,877.74	160.48	4,879.24	0.00	0.00	0.00
14,200.00	90.00	358.68	9,476.00	4,977.71	158.18	4,979.18	0.00	0.00	0.00
14,300.00	90.00	358.68	9,476.00	5,077.68	155.88	5,079.13	0.00	0.00	0.00
14,400.00	90.00	358.68	9,476.00	5,177.66	153.57	5,179.07	0.00	0.00	0.00
14,500.00	90.00	358.68	9,476.00	5,277.63	151.27	5,279.01	0.00	0.00	0.00
14,600.00	90.00	358.68	9,476.00	5,377.60	148.96	5,378.95	0.00	0.00	0.00
14,700.00	90.00	358.68	9,476.00	5,477.58	146.66	5,478.89	0.00	0.00	0.00
14,800.00	90.00	358.68	9,476.00	5,577.55	144.36	5,578.83	0.00	0.00	0.00
14,900.00	90.00	358.68	9,476.00	5,677.52	142.05	5,678.77	0.00	0.00	0.00
15,000.00	90.00	358.68	9,476.00	5,777.50	139.75	5,778.71	0.00	0.00	0.00
15,100.00	90.00	358.68	9,476.00	5,877.47	137.44	5,878.65	0.00	0.00	0.00
15,200.00	90.00	358.68	9,476.00	5,977.45	135.14	5,978.59	0.00	0.00	0.00
15,300.00	90.00	358.68	9,476.00	6,077.42	132.84	6,078.53	0.00	0.00	0.00
15,400.00	90.00	358.68	9,476.00	6,177.39	130.53	6,178.48	0.00	0.00	0.00
15,500.00	90.00	358.68	9,476.00	6,277.37	128.23	6,278.42	0.00	0.00	0.00
15,600.00	90.00	358.68	9,476.00	6,377.34	125.92	6,378.36	0.00	0.00	0.00
15,700.00	90.00	358.68	9,476.00	6,477.31	123.62	6,478.30	0.00	0.00	0.00
15,800.00	90.00	358.68	9,476.00	6,577.29	121.31	6,578.24	0.00	0.00	0.00
15,900.00	90.00	358.68	9,476.00	6,677.26	119.01	6,678.18	0.00	0.00	0.00
16,000.00	90.00	358.68	9,476.00	6,777.23	116.71	6,778.12	0.00	0.00	0.00
16,100.00	90.00	358.68	9,476.00	6,877.21	114.40	6,878.06	0.00	0.00	0.00
16,200.00	90.00	358.68	9,476.00	6,977.18	112.10	6,978.00	0.00	0.00	0.00

Database:	Compass 5000 GCR	**Local Co-ordinate Reference:**	Well 66
Company:	Chevron	**TVD Reference:**	GL + KB @ 3171.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL + KB @ 3171.00usft
Site:	HH CE 35 2 Fed	**North Reference:**	Grid
Well:	66	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 12-19-16		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,300.00	90.00	358.68	9,476.00	7,077.15	109.79	7,077.94	0.00	0.00	0.00
16,400.00	90.00	358.68	9,476.00	7,177.13	107.49	7,177.88	0.00	0.00	0.00
16,500.00	90.00	358.68	9,476.00	7,277.10	105.19	7,277.83	0.00	0.00	0.00
16,600.00	90.00	358.68	9,476.00	7,377.07	102.88	7,377.77	0.00	0.00	0.00
16,700.00	90.00	358.68	9,476.00	7,477.05	100.58	7,477.71	0.00	0.00	0.00
16,800.00	90.00	358.68	9,476.00	7,577.02	98.27	7,577.65	0.00	0.00	0.00
16,900.00	90.00	358.68	9,476.00	7,676.99	95.97	7,677.59	0.00	0.00	0.00
17,000.00	90.00	358.68	9,476.00	7,776.97	93.67	7,777.53	0.00	0.00	0.00
17,100.00	90.00	358.68	9,476.00	7,876.94	91.36	7,877.47	0.00	0.00	0.00
17,159.08	90.00	358.68	9,476.00	7,936.00	90.00	7,936.51	0.00	0.00	0.00
TD at 17159.07									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP - HH CE 35 2 Fed 6	0.00	0.00	9,476.00	7,886.00	91.00	402,718.00	555,857.00	32° 6' 25.41417 N	104° 9' 10.57169 W
- plan misses target center by 9.07usft at 17100.00usft MD (9476.00 TVD, 7876.94 N, 91.36 E)									
- Point									
MP - HH CE 35 2 Fed 6(	0.00	0.00	9,476.00	2,913.00	197.00	397,745.00	555,963.00	32° 5' 36.19697 N	104° 9' 9.43619 W
- plan hits target center									
- Point									
FTP - HH CE 35 2 Fed (	0.00	0.00	9,476.00	251.00	50.00	395,083.00	555,816.00	32° 5' 9.85480 N	104° 9' 11.19675 W
- plan misses target center by 125.32usft at 9500.00usft MD (9396.44 TVD, 304.83 N, -30.48 E)									
- Point									
BHL - HH CE 35 2 Fed (	0.00	0.00	9,476.00	7,936.00	90.00	402,768.00	555,856.00	32° 6' 25.90902 N	104° 9' 10.58235 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,000.00	2,000.00	0.00	0.00	KOP2, Begin 2.00°/100' Build
2,200.00	2,199.84	2.39	-6.56	Hold 4.00° Inc at 290.00° Azm
3,100.00	3,097.65	23.86	-65.55	Begin 2.00°/100' Drop
3,300.00	3,297.48	26.25	-72.11	Begin Vertical Hold
8,905.56	8,903.04	26.25	-72.11	KOP2, Begin 10.00°/100' Build
9,805.56	9,476.00	592.91	12.58	LP, Hold 90.00° Inc at 8.50° Azm
10,275.56	9,476.00	1,057.75	82.05	Begin 2.00°/100' Turn
10,542.43	9,476.00	1,323.14	109.15	Hold 3.16° Azm
12,134.71	9,476.00	2,913.00	197.00	Begin 2.00°/100' Turn
12,358.86	9,476.00	3,137.06	200.60	Hold 358.68° Azm
17,159.08	9,476.00	7,936.00	90.00	TD at 17159.07

Generic Hayhurst Development Pad Layout - Phase 1

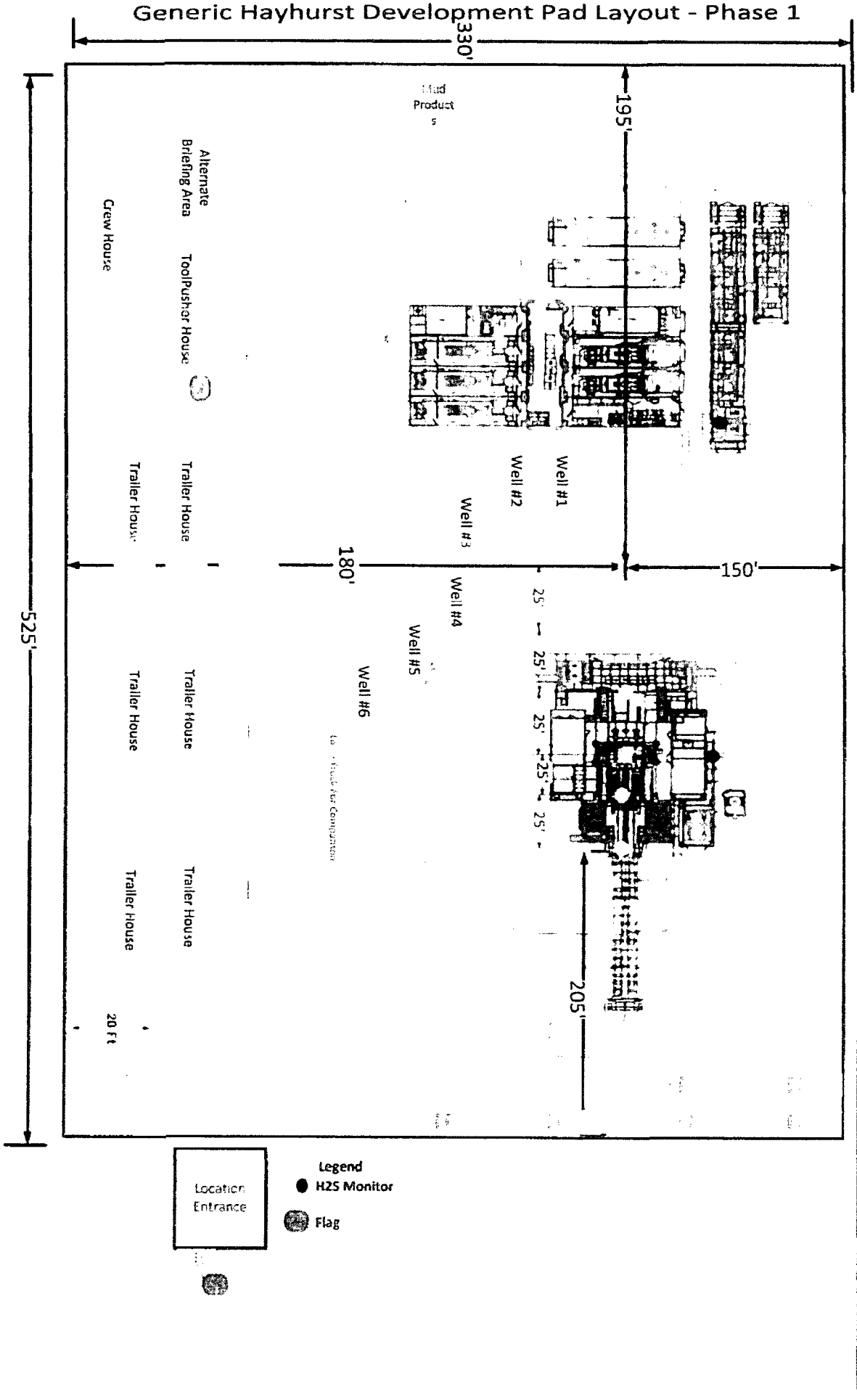
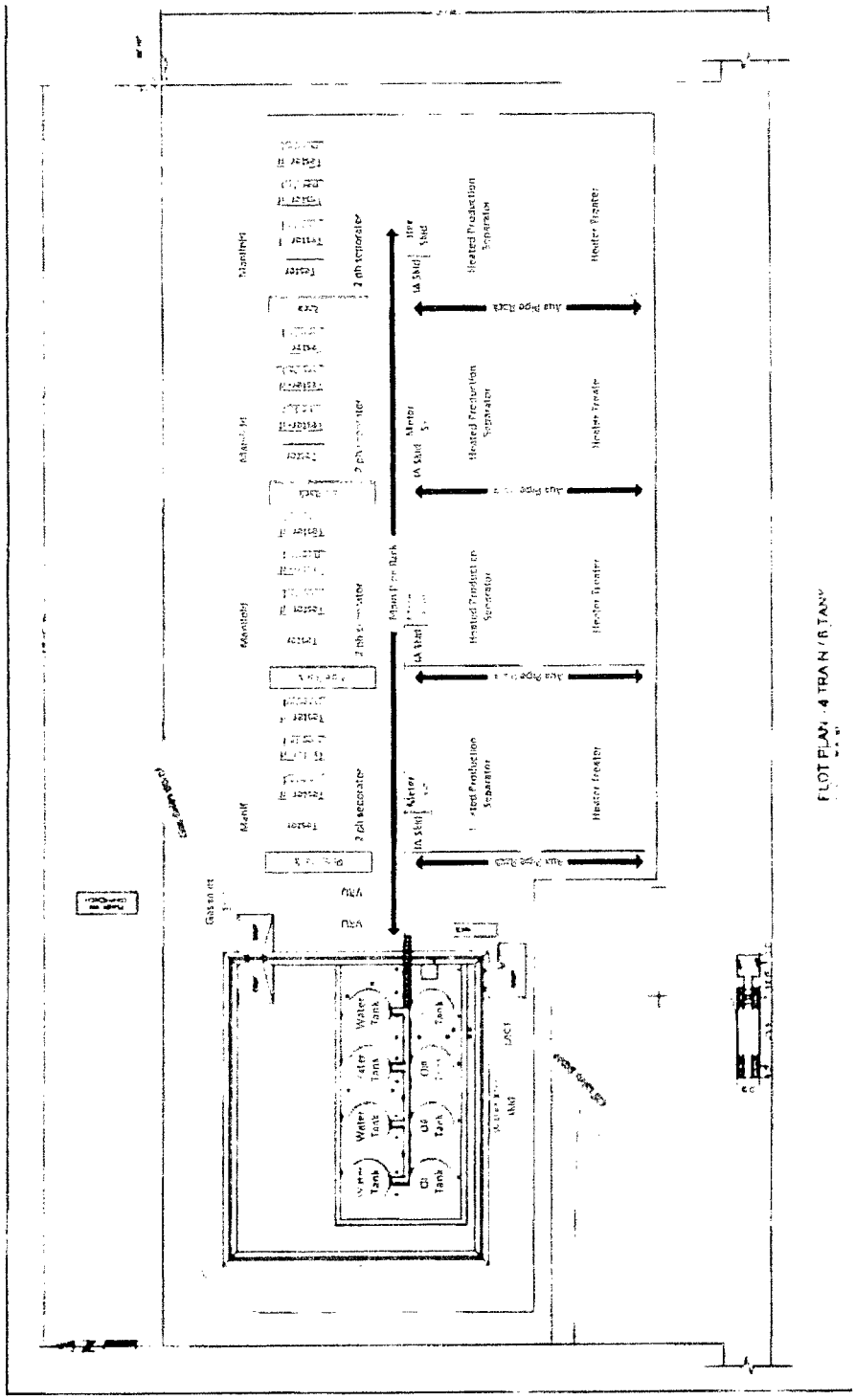
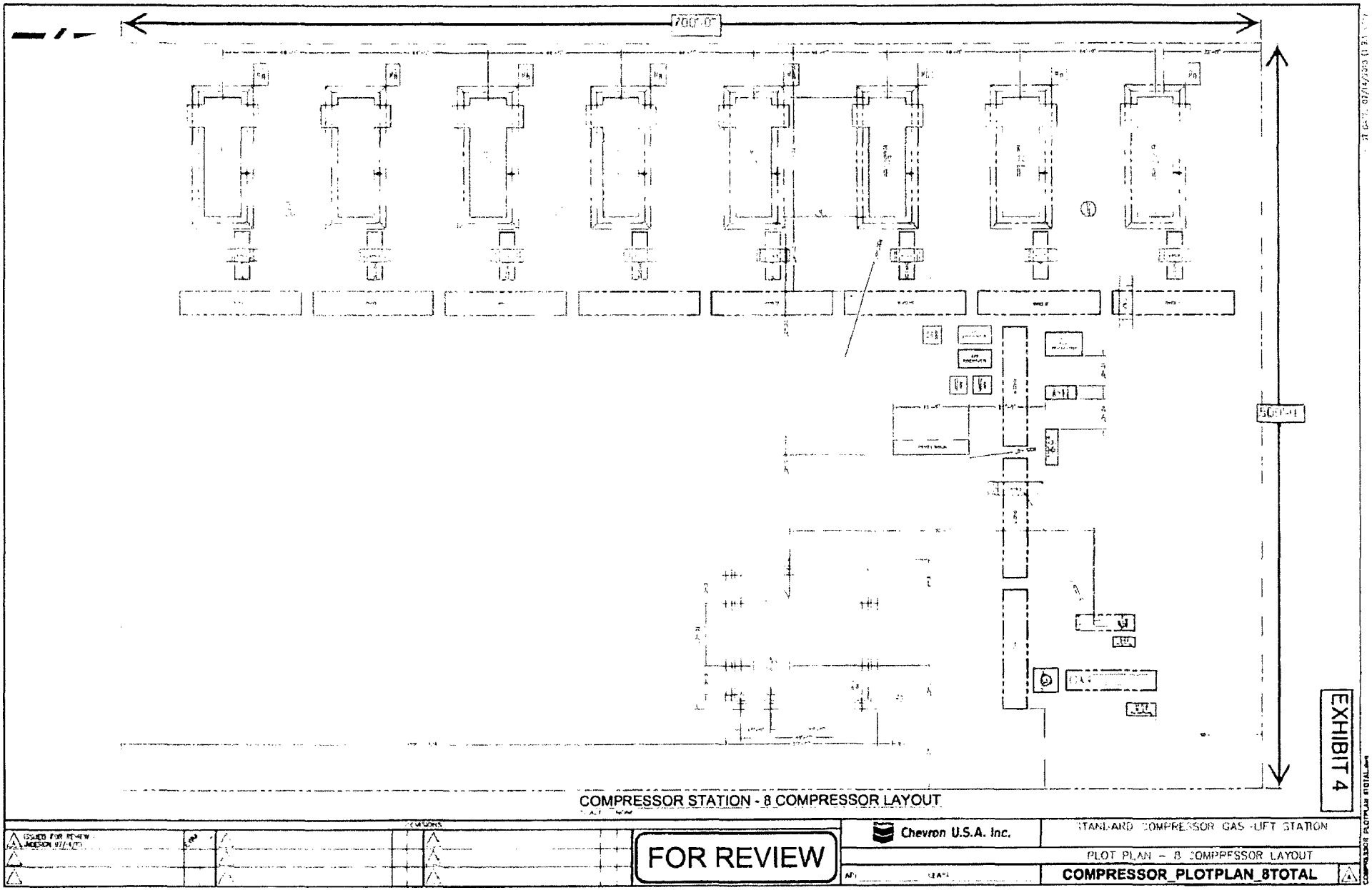


EXHIBIT 4


Heated Production Separator
Heater Treater
Water Tank
Oil Tank


700'-0"
EXHIBIT 4
COMPRESSOR STATION - 8 COMPRESSOR LAYOUT
FOR REVIEW
Chevron U.S.A. Inc.
STANDARD COMPRESSOR GAS -LIFT STATION
PLOT PLAN - 8 COMPRESSOR LAYOUT
COMPRESSOR_PLOTPLAN_8TOTAL

APD ID: 10400009364 **Submission Date:** 12/22/2016

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

HH CE 35 2 FED 66_Roads_12-21-2016.pdf

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

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: repair any pot holes, clear ditches, repair crown

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH CE 35 2 FED 66_New Roads_12-21-2016.pdf

New road type: LOCAL

Length: 4034.49 Feet **Width (ft.):** 24

Max slope (%): 2 **Max grade (%):** 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 24

New road access erosion control: see surface use plan

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: NONE

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: none needed

Access other construction information:

Access miscellaneous information:

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

Drainage Control

New road drainage crossing: CROSSING,CULVERT,OTHER

Drainage Control comments: Sediment traps (hay bales suggested by BLM)

Road Drainage Control Structures (DCS) description: see surface use plan

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

HH CE 35 2 FED 66_Radius Map_12-21-2016.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Estimated Production Facilities description:

Production Facilities description: Facilities: New production facilities located in the NE corner of Sec. 35, T26S-R27E where oil and gas sales will take place.
Production Facilities map:

HH_CE_35_2_FED_66_FAC_CTB___Redlined_Plot_Plan__11x17__06-09-2017.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Water source use type: INTERMEDIATE/PRODUCTION CASING, SURFACE CASING **Water source type:** GW WELL

Describe type:

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 775006.3 **Source volume (acre-feet):** 99.89296

Source volume (gal): 32550264

Water source and transportation map:

HH_CE_35_2_FED_66_30__ROW_Detail_06-09-2017.pdf

Water source comments:

New water well? NO

New Water Well Info

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

Well target aquifer:

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

Aquifer comments:

Aquifer documentation:

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

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

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

Drilling method: **Drill material:**

Grout material: **Grout depth:**

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

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH CE 35 2 FED **Well Number:** 66

Section 6 - Construction Materials

Construction Materials description: Caliche will be sourced from a Chevron operated NMSLO pit in S2 NW4 Section 16 T26S R27E or an alternate private pit in Section 13, T24S R27E in Eddy County, NM.
Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: GARBAGE

Waste content description: garbage & trash see SUPO Page 7 in the (MDP pages 579-590).

Amount of waste: 200 pounds

Waste disposal frequency : Daily

Safe containment description: will be collected in a trash container and disposed of at a state approved facility

Safe containmant attachment:

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

Disposal location description: State approved facility

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

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

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

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

HH CE 35 2 FED 66_Well Pad Layout_12-21-2016.pdf
HH CE 35 2 FED 66_Well Plat_12-21-2016.pdf
Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

HH_CE_35_2_FED_66_APD_SUP_06-09-2017.docx
HH_CE_35_2_FED_66_IR_06-09-2017.pdf
Drainage/Erosion control construction: See SUP

Drainage/Erosion control reclamation: See SUP

Wellpad long term disturbance (acres): 1

Wellpad short term disturbance (acres): 4.5

Access road long term disturbance (acres): 1.85

Access road short term disturbance (acres): 1.85

Pipeline long term disturbance (acres): 0.0022038568

Pipeline short term disturbance (acres): 0.0022038568

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 2.8522038

Total short term disturbance: 6.352204

Reconstruction method: surface use plan

Topsoil redistribution: surface use plan

Soil treatment: surface use plan

Existing Vegetation at the well pad: mesquite, shrubs, grass

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: mesquite, shrubs, grass

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: mesquite, shrubs, grass

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: mesquite, shrubs, grass

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Kevin **Last Name:** Dickerson

Phone:

Email: lfuh@chevron.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: see surface use plan

Weed treatment plan attachment:

Monitoring plan description: see surface use plan

Monitoring plan attachment:

Success standards: As per BLM requirements

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

Right of Way needed? YES **Use APD as ROW?** YES

ROW Type(s): 287001 ROW – Water Facility,288100 ROW – O&G Pipeline,Other

ROW Applications

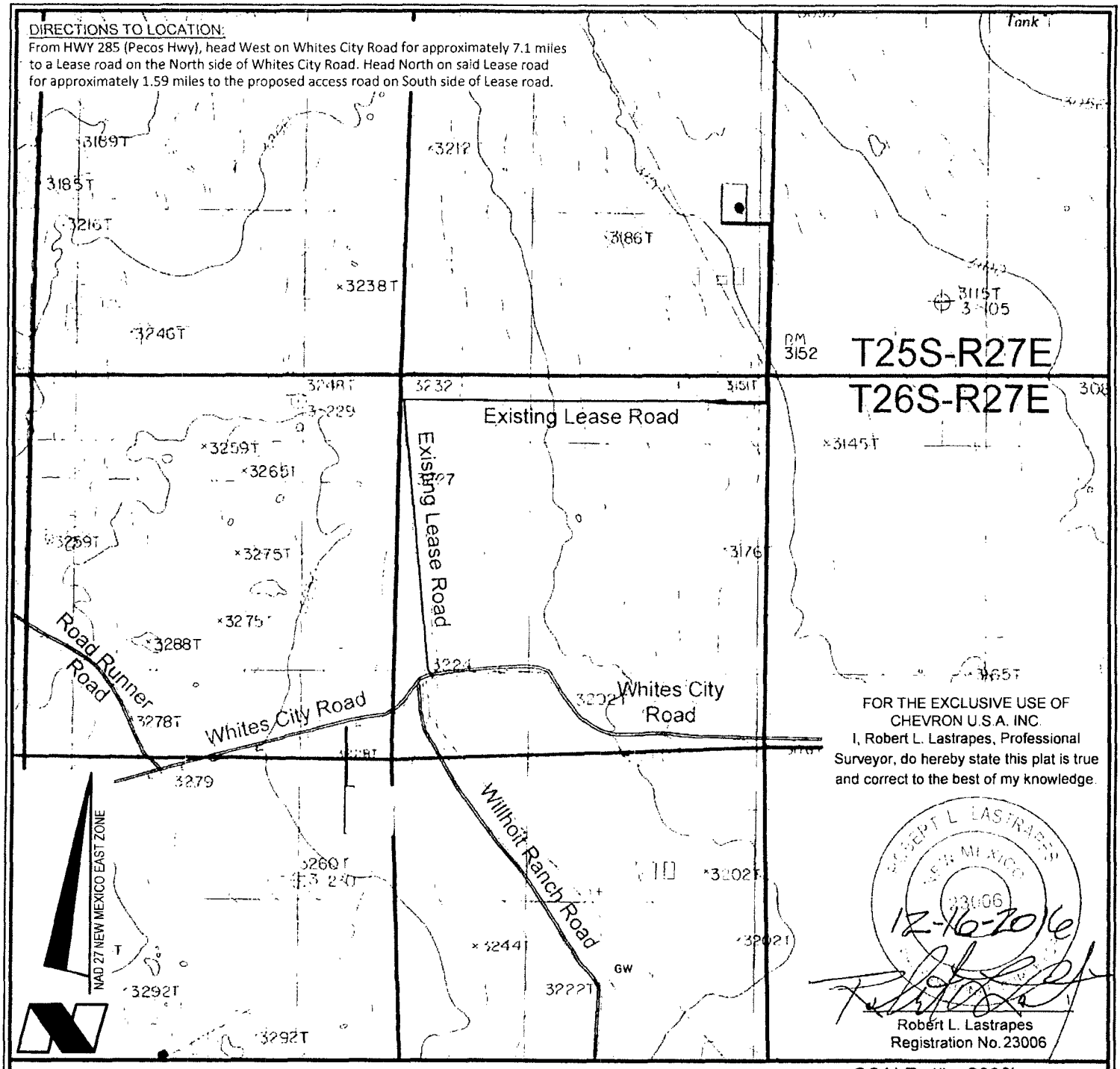
SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: On-site performed by BLM NRS: Paul Murphy

Other SUPO Attachment

DIRECTIONS TO LOCATION:
From HWY 285 (Pecos Hwy), head West on Whites City Road for approximately 7.1 miles to a Lease road on the North side of Whites City Road. Head North on said Lease road for approximately 1.59 miles to the proposed access road on South side of Lease road.



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
NEW MEXICO
23006
12-16-2016

Robert L. Lastrapes
Registration No. 23006

VICINITY MAP

SCALE: 1" = 2000'
2000' 0 1000' 2000'

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

CHEVRON U.S.A. INC.

HH CE 35 2 FED NO. 66 WELL
LOCATED 2389' FSL AND 475' FEL
SECTION 35, T25S-R27E
EDDY COUNTY, NEW MEXICO

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

DRAWN BY: JPLN	REVISIONS		
PROJ. MGR.: GDG	No.	DATE:	REVISED BY:
DATE: 12/12/2016	No.	DATE:	REVISED BY:
FILENAME: T:\2016\2164895\DWG\HH CE 35 2 FED 66 APD.dwg			

R 27 E

NW PAD CORNER	NE PAD CORNER
X= 555,512 NAD 27	X= 555,872 NAD 27
Y= 395,172	Y= 395,166
ELEVATION +3142' NAVD 88	ELEVATION +3141' NAVD 88
SW PAD CORNER	SE PAD CORNER
X= 555,502 NAD 27	X= 555,862 NAD 27
Y= 394,627	Y= 394,621
ELEVATION +3150' NAVD 88	ELEVATION +3146' NAVD 88

HH CE 35 2 FED NO. 66 WELL	
X=	555,766 NAD 27
Y=	394,832
LAT	32.085382
LONG	104.153272
X=	596,950 NAD83
Y=	394,890
LAT	32.085504
LONG.	104.153764
ELEVATION +3145' NAVD 88	

Existing Pipeline

360'

335'

545'

260'

100'

25'

210'

HH CE 35 2 FED
No. 66 Well
2389' FSL, 475' FEL

PROPOSED PAD
±4.50 Acres

T 25 S

Sec. 36

Sec. 35
Bureau of Land Management
±4.50 Acres- Proposed Pad
±2,856.46', ±173.12 Rods,
±1.31 Acres- Proposed Access Road

CENTERLINE
PROPOSED
ACCESS ROAD
20' X ±4,034.49'
±244.51 Rods
±1.85 Acres

LEGEND
Proposed Pad
Proposed Access
Section Line
Utility Line
Pipeline
Existing R O W

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23006
12-16-2016

Robert L. Lastrapes
Registration No. 23006

NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 200'
200' 0 100' 200'

PAGE 1 OF 3

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
HH CE 35 2 FED NO. 66 WELL
SECTION 35, T25S-R27E & SECTION 2, T26S-R27E
EDDY COUNTY, NEW MEXICO

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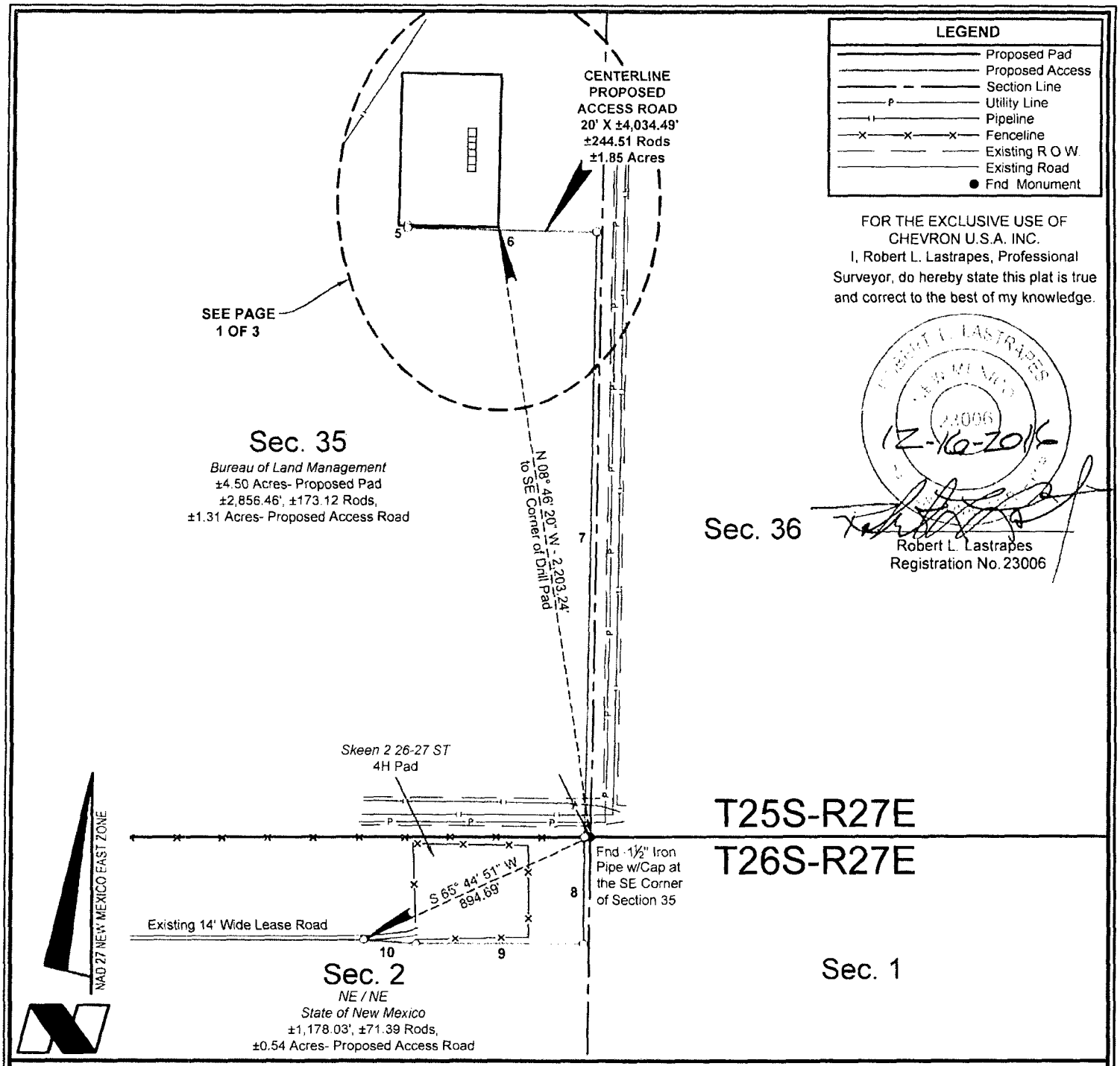

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ROBERT L. LASTRAPES
NEW MEXICO
23006
12-16-2016

Robert L. Lastrapes
Registration No. 23006

PAGE 2 OF 3

SURFACE USE PLAT

Scale: 1" = 500'

500' 0 250' 500'

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
HH CE 35 2 FED NO. 66 WELL
SECTION 35, T25S-R27E & SECTION 2, T26S-R27E
EDDY COUNTY, NEW MEXICO

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FILENAME: T:\2016\2164895\DWG\HH CE 35 2 FED 66 SUP.dwg			

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

PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	N 88° 58' 29" W	360.00'
2	N 01° 01' 31" E	545.00'
3	S 88° 58' 29" E	360.00'
4	S 01° 01' 31" W	545.00'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	S 00° 49' 37" W	10.09'
6	S 88° 58' 40" E	684.96'
7	S 01° 01' 34" W	2161.41'
8	S 00° 30' 12" W	384.92'
9	N 89° 57' 38" W	602.95'
10	N 84° 52' 17" W	190.16'

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PAGE 3 OF 3

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
HH CE 35 2 FED NO. 66 WELL
SECTION 35, T25S-R27E & SECTION 2, T26S-R27E
EDDY COUNTY, NEW MEXICO

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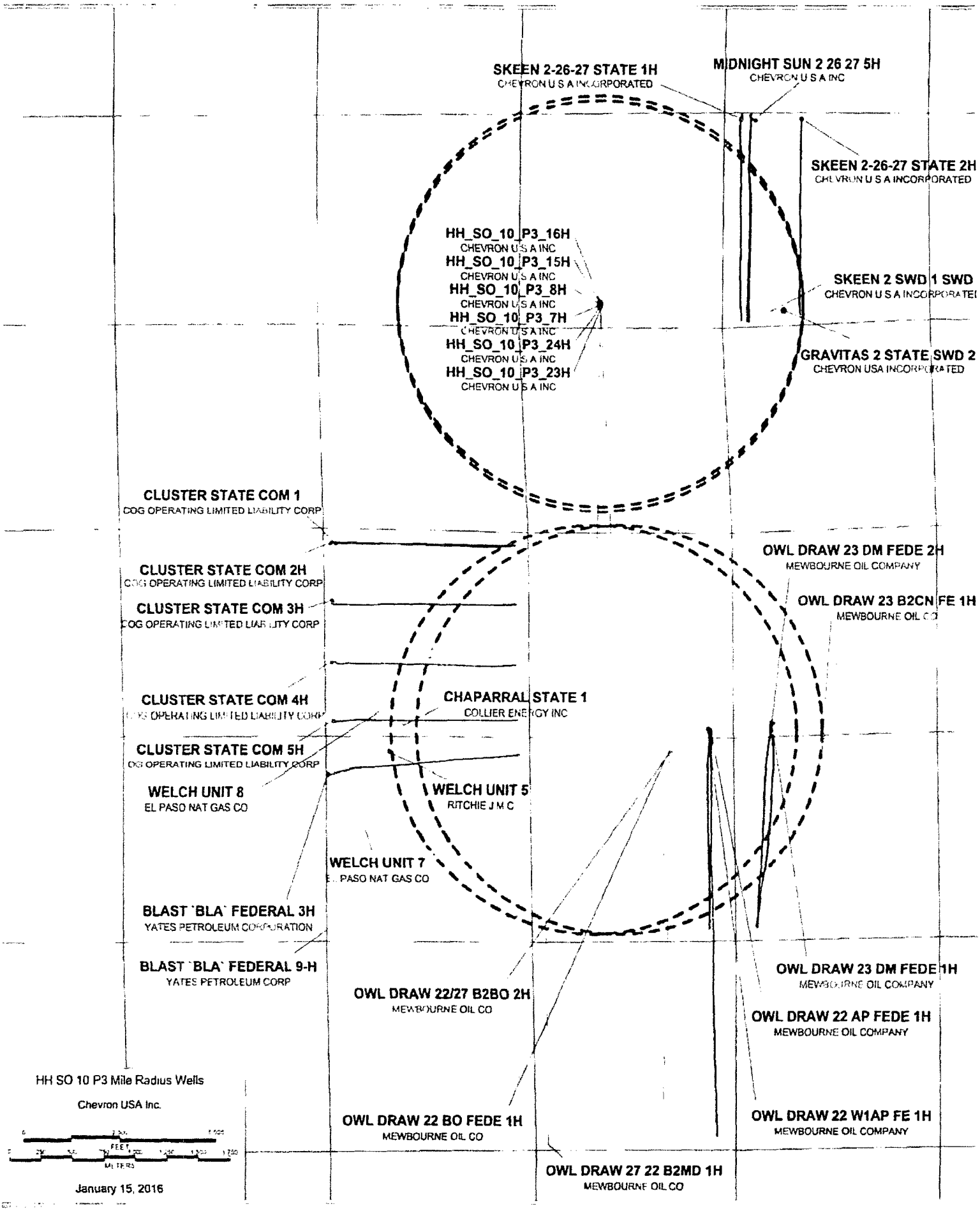
EXHIBIT 3



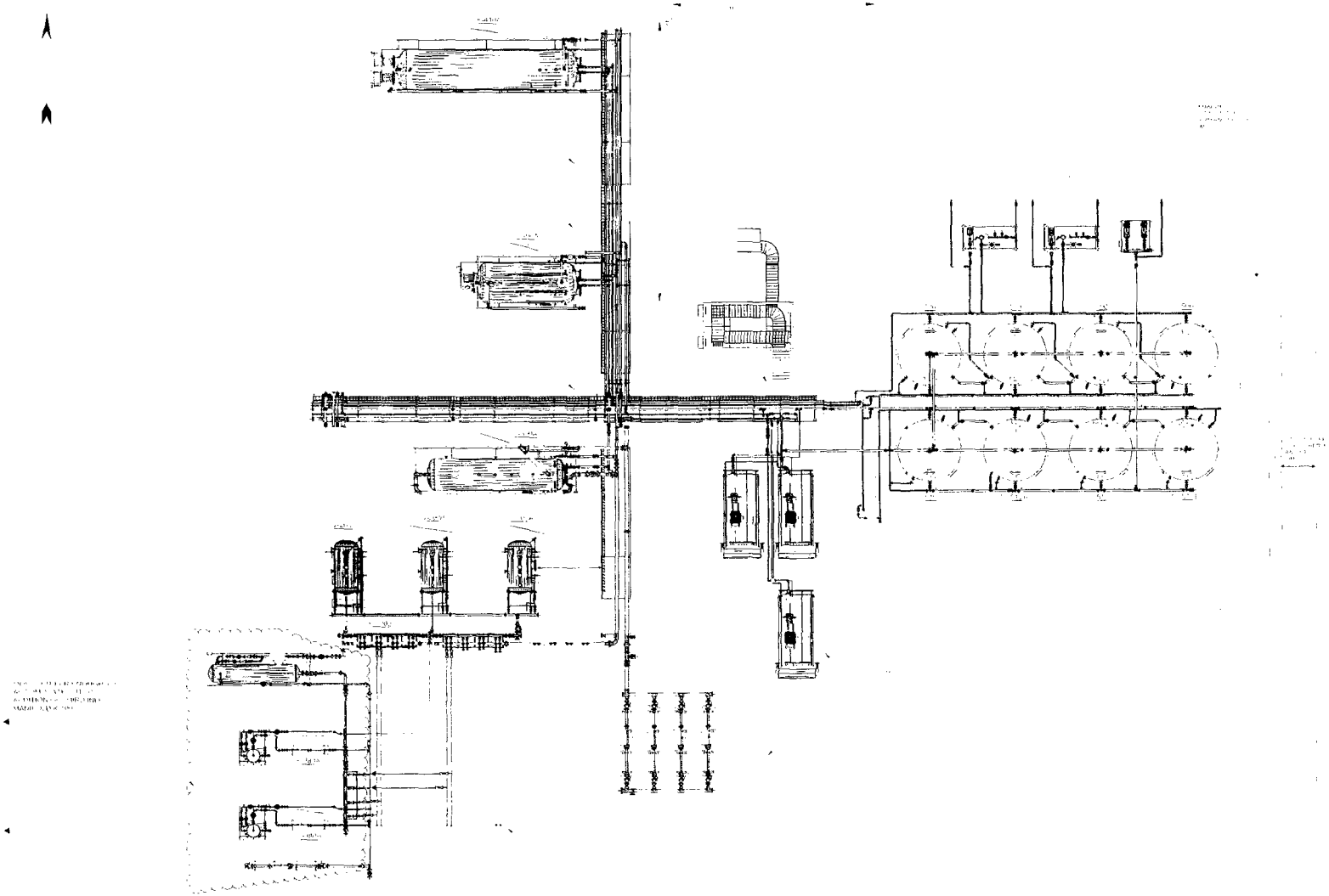
HH SO 10 P3 Mile Radius Wells

Chevron USA Inc.

FEET

METERS

January 15, 2016



FOR REVIEW

Chevron U.S.A. Inc.

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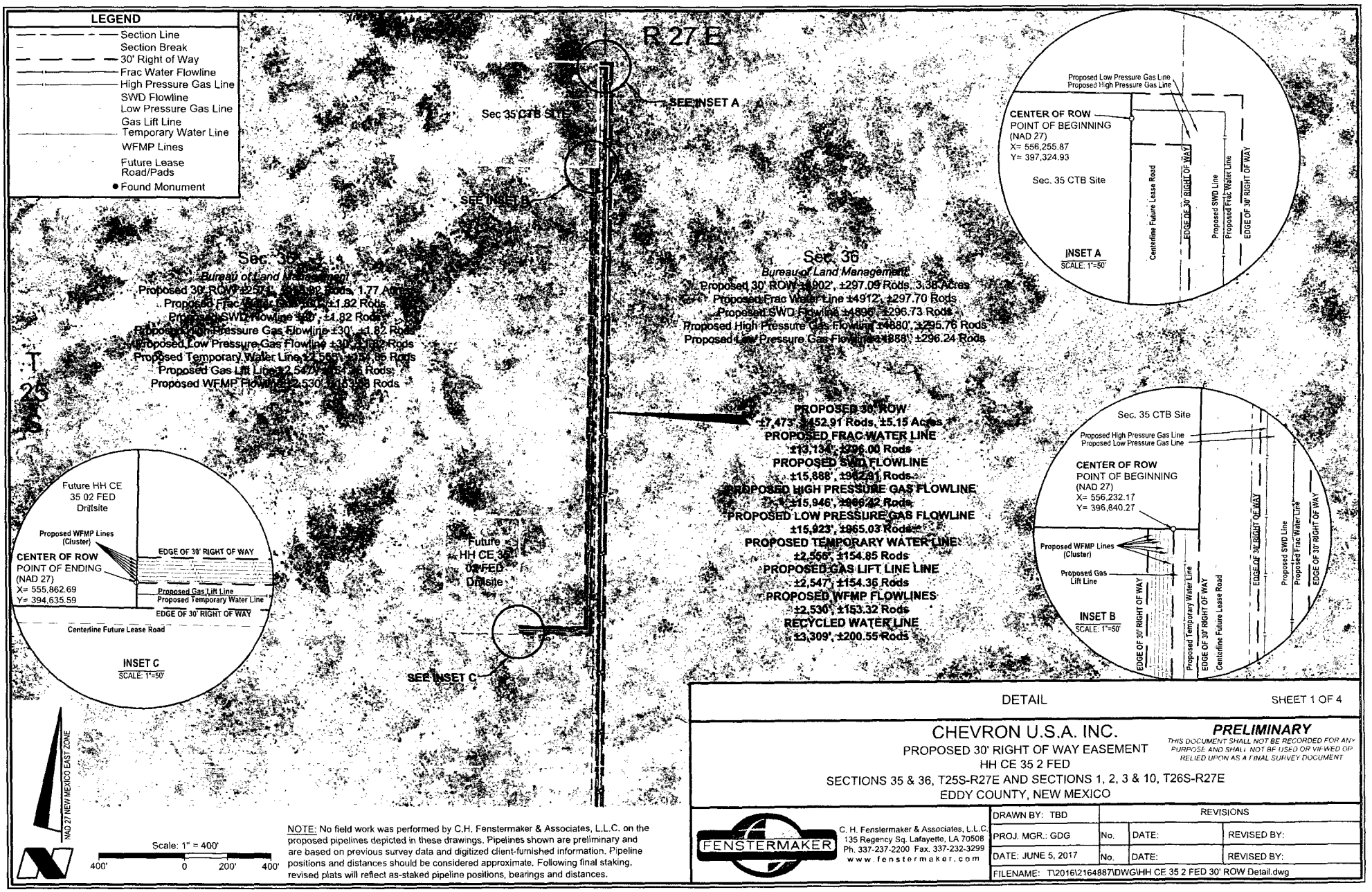

NOTE: No field work was performed by C.H. Fenstermaker & Associates, L.L.C. on the proposed pipelines depicted in these drawings. Pipelines shown are preliminary and are based on previous survey data and digitized client-furnished information. Pipeline positions and distances should be considered approximate. Following final staking, revised plats will reflect as-staked pipeline positions, bearings and distances.

DETAIL

SHEET 1 OF 4

CHEVRON U.S.A. INC.

PROPOSED 30' RIGHT OF WAY EASEMENT
HH CE 35 2 FED
SECTIONS 35 & 36, T25S-R27E AND SECTIONS 1, 2, 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

PRELIMINARY

THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

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DATE: JUNE 5, 2017	No.	DATE:	REVISED BY:	
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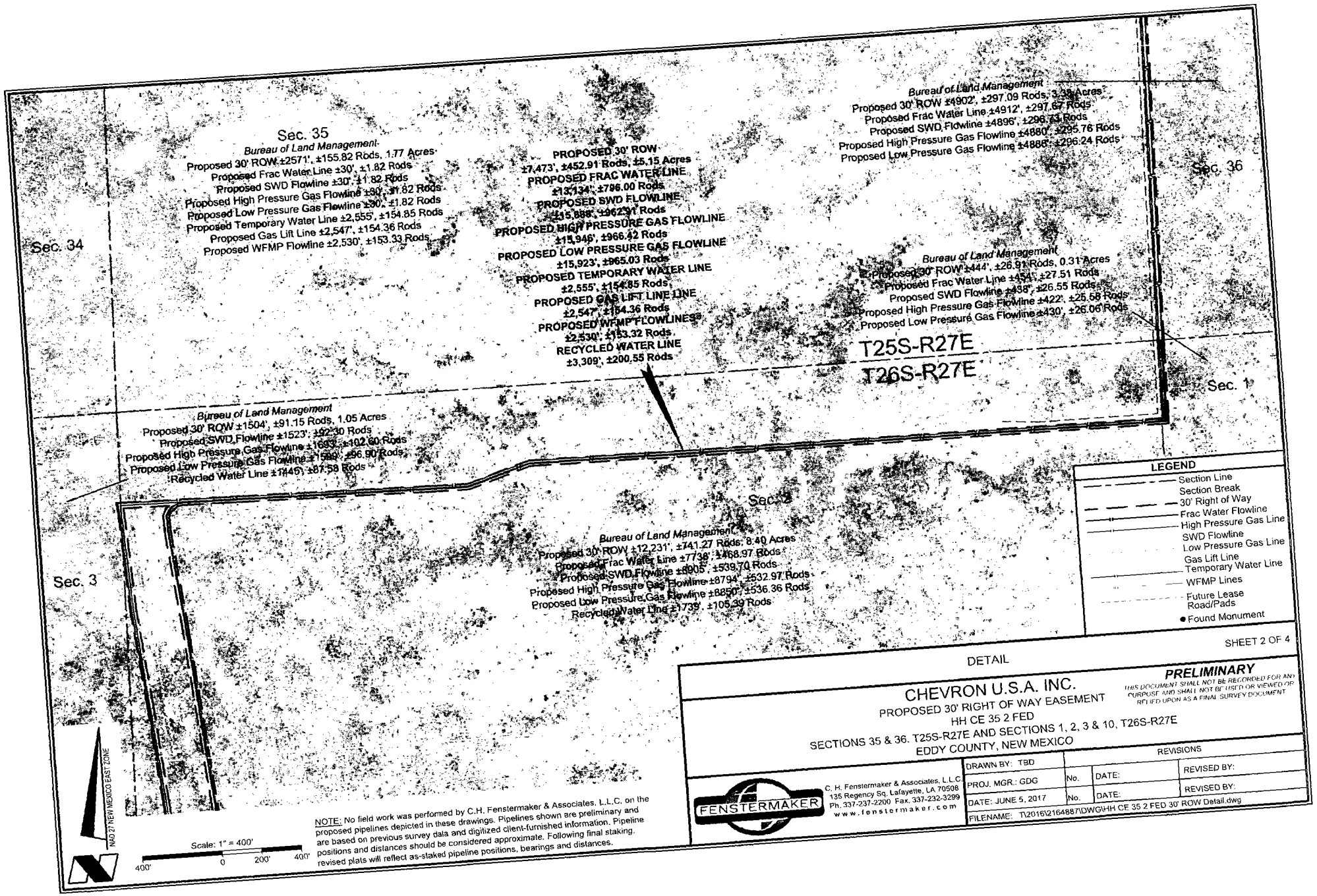

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SHEET 2 OF 4

DETAIL

CHEVRON U.S.A. INC.

PROPOSED 30' RIGHT OF WAY EASEMENT
HH CE 35 2 FED
SECTIONS 35 & 36, T25S-R27E AND SECTIONS 1, 2, 3 & 10, T26S-R27E
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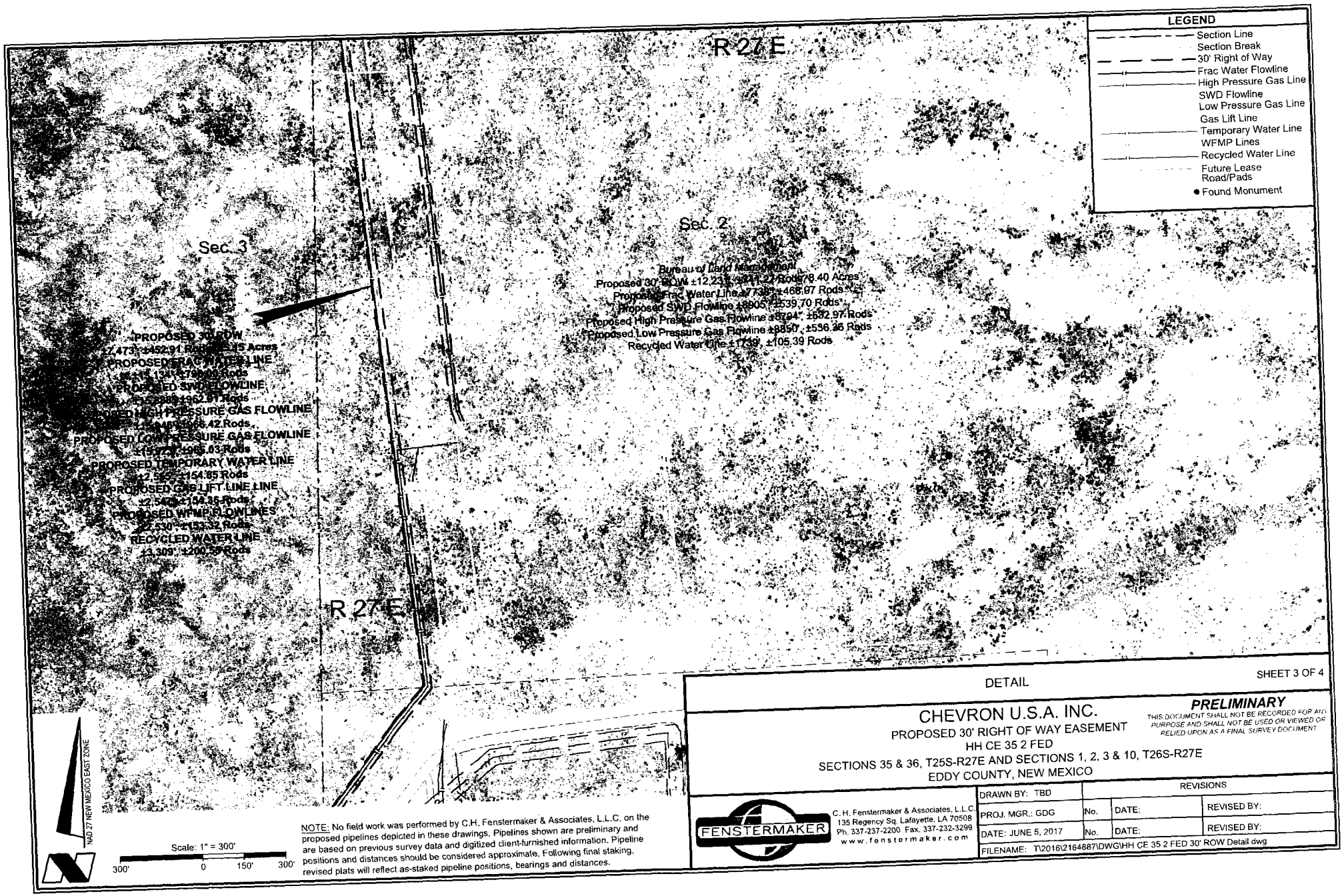

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DETAIL

SHEET 3 OF 4

CHEVRON U.S.A. INC.

PROPOSED 30' RIGHT OF WAY EASEMENT
HH CE 35 2 FED
SECTIONS 35 & 36, T25S-R27E AND SECTIONS 1, 2, 3 & 10, T26S-R27E
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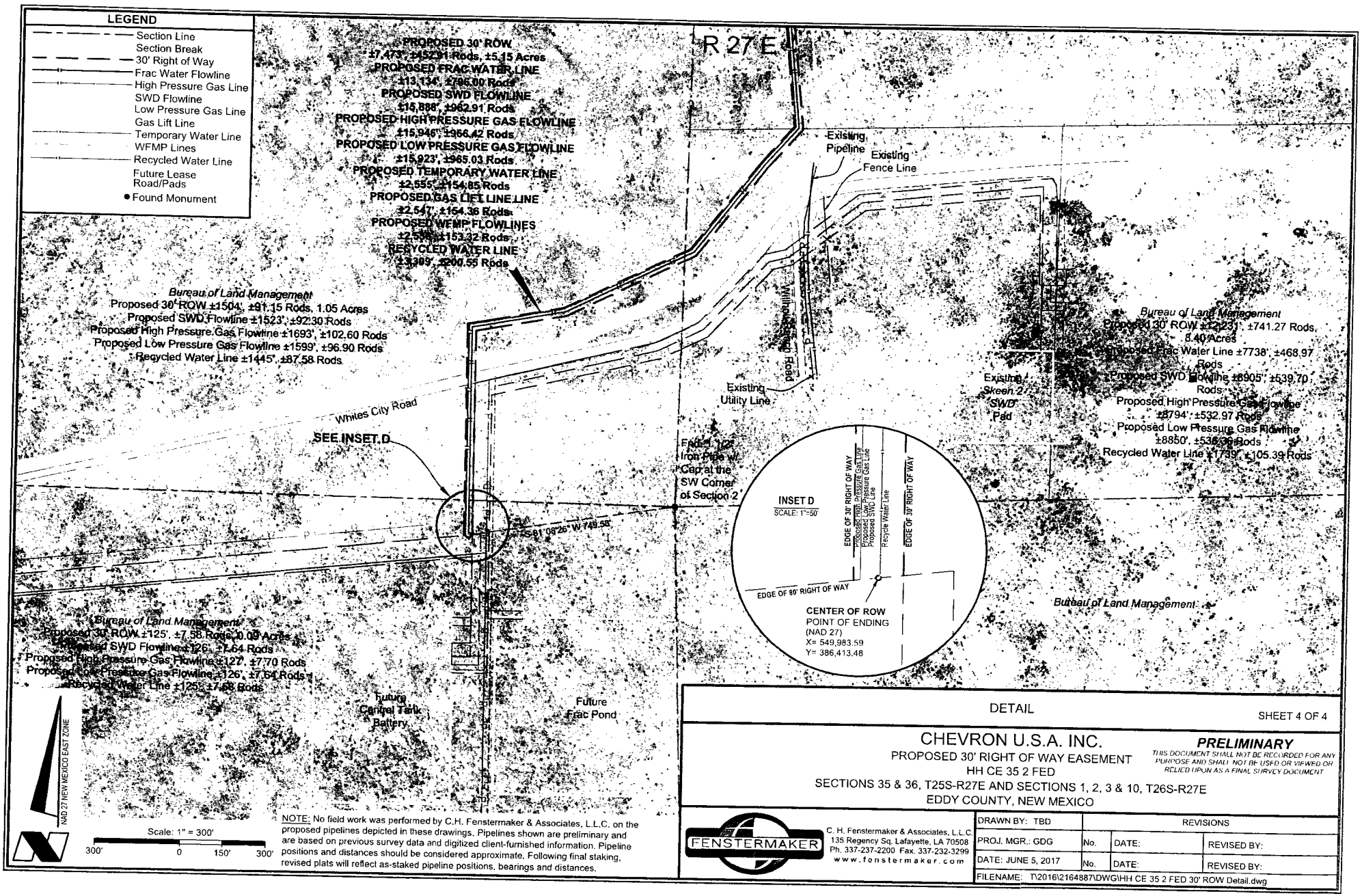

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DETAIL

SHEET 4 OF 4

CHEVRON U.S.A. INC.

PROPOSED 30' RIGHT OF WAY EASEMENT
HH CE 35 2 FED
SECTIONS 35 & 36, T25S-R27E AND SECTIONS 1, 2, 3 & 10, T26S-R27E
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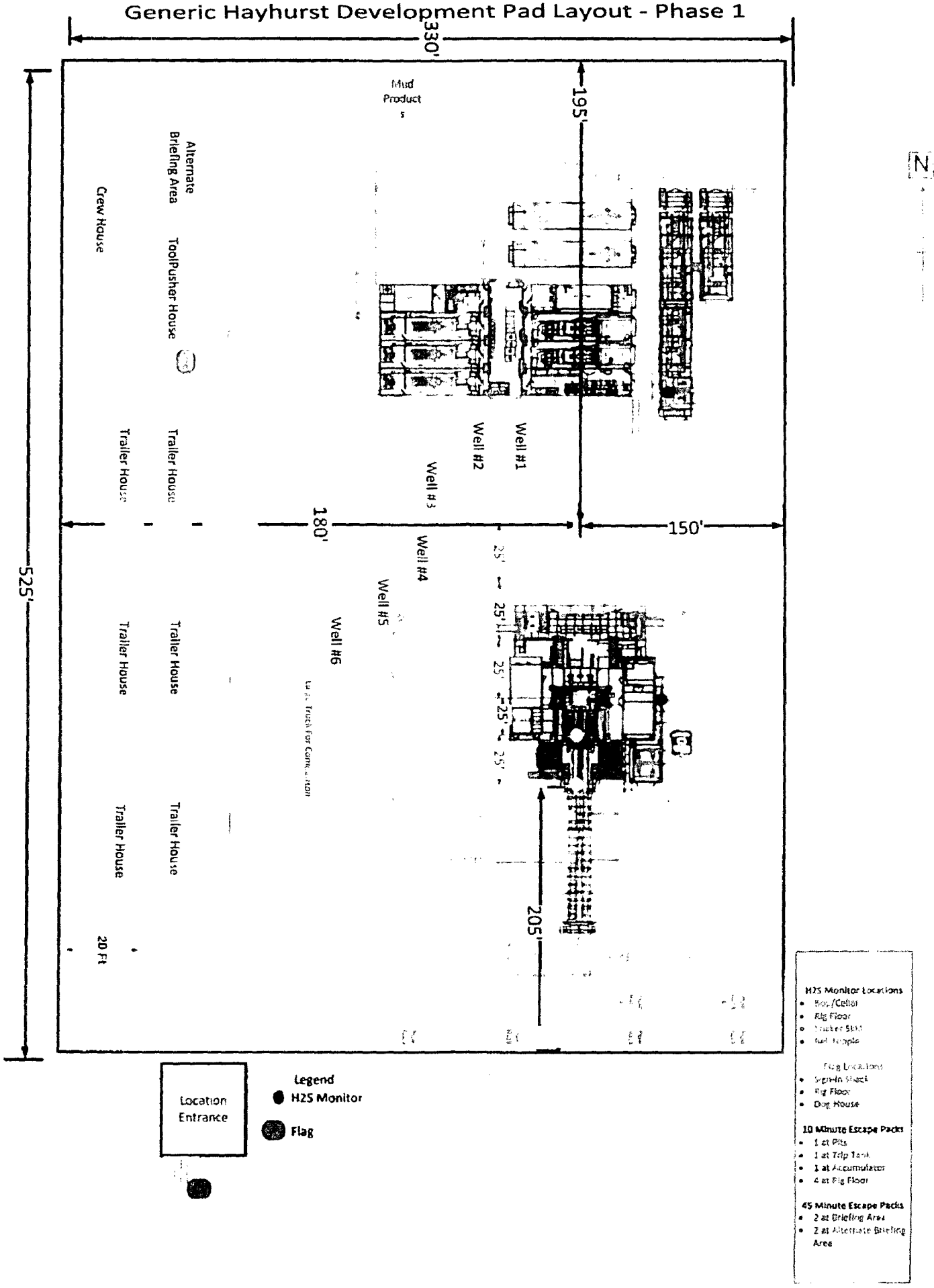
DATE: JUNE 5, 2017	No.	DATE:	REVISED BY:	
FILENAME: T:\2016\2164887\DWG\HH CE 35 2 FED 30' ROW Detail.dwg				

Generic Hayhurst Development Pad Layout - Phase 1



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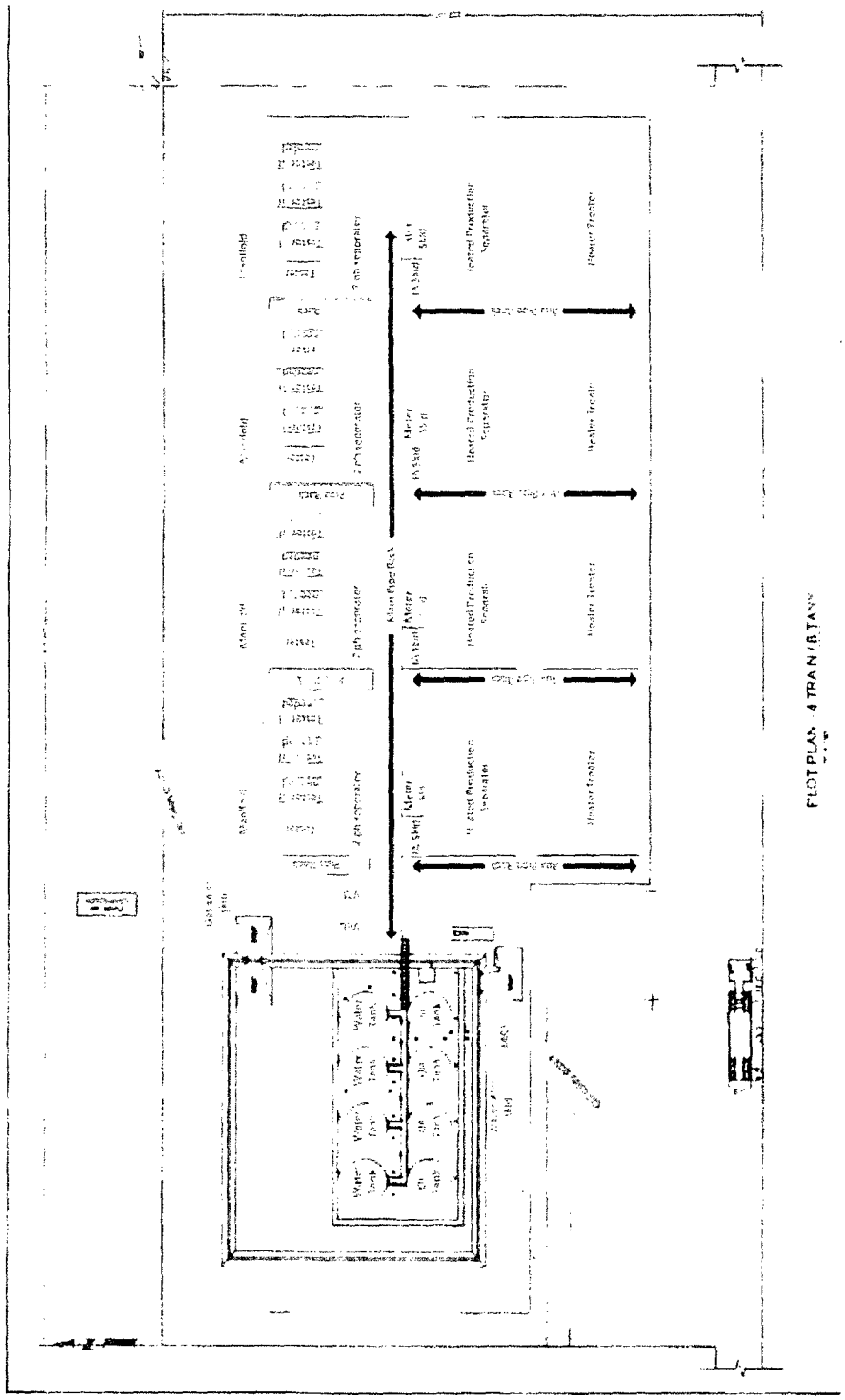

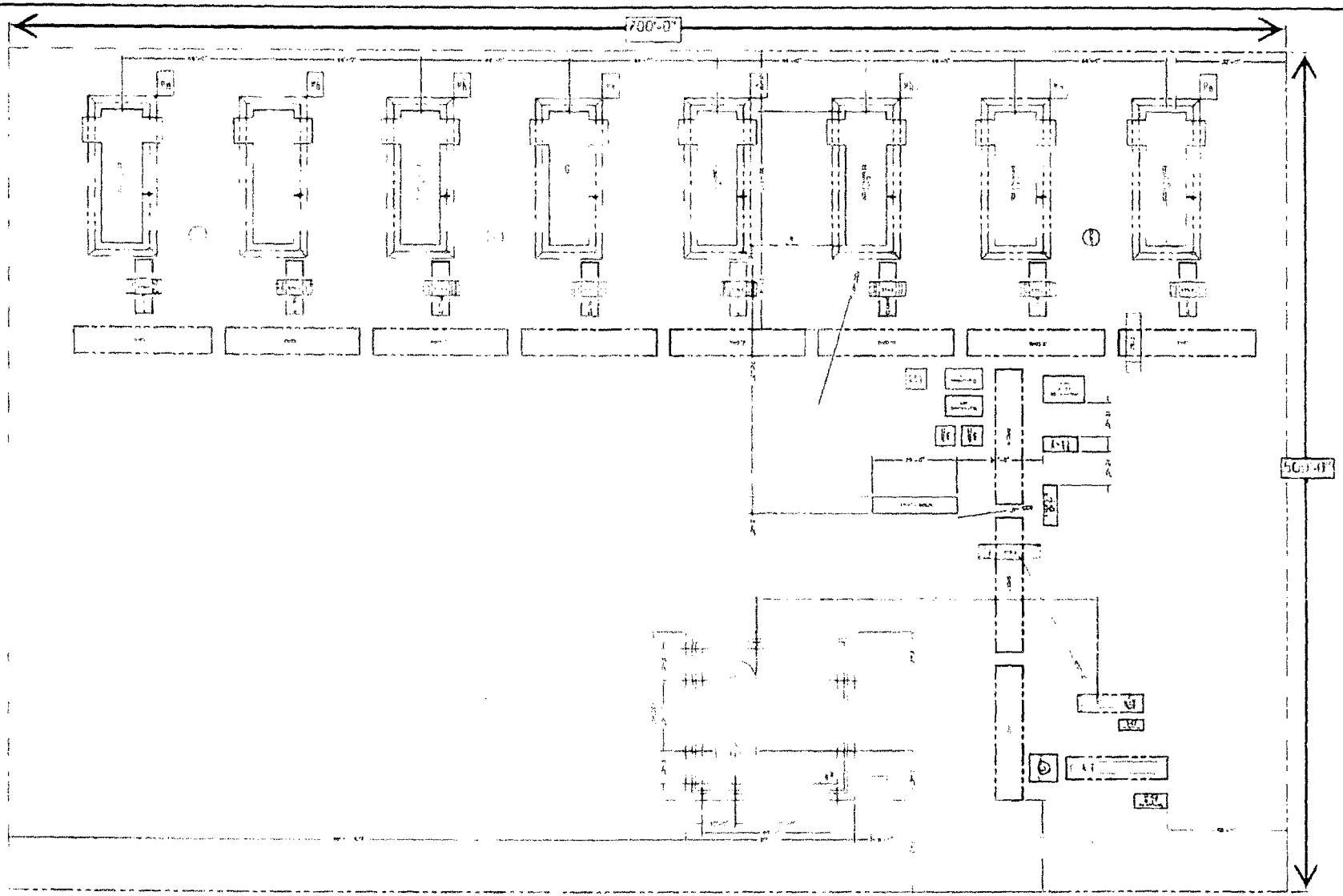

COMPRESSOR STATION - 8 COMPRESSOR LAYOUT

EXHIBIT 4

ISSUED FOR REVIEW – MDS/ON 8/14/15	FOR REVIEW	Chevron U.S.A. Inc.	STANDARD COMPRESSOR GAS-LIFT STATION
			PLOT PLAN – 8 COMPRESSOR LAYOUT
			COMPRESSOR_PLOTPLAN_8TOTAL

R 27 E

NW PAD CORNER	NE PAD CORNER
X= 555,512 NAD 27 Y= 395,172	X= 555,872 NAD 27 Y= 395,166
ELEVATION +3142' NAVD 88	ELEVATION +3141' NAVD 88
SW PAD CORNER	SE PAD CORNER
X= 555,502 NAD 27 Y= 394,627	X= 555,862 NAD 27 Y= 394,621
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X=	596,950 NAD83
Y=	394,890
LAT	32.085504
LONG.	104.153764
ELEVATION +3145' NAVD 88	

Existing Pipeline

360'

3

335'

HH CE 35 2 FED
No. 66 Well
2389' FSL, 475' FEL

545'

2

4

260'

100'

25'

210'

1

5

6

PROPOSED PAD
±4.50 Acres

T
25
S

Sec. 36

LEGEND

- Proposed Pad
- Proposed Access
- Section Line
- Utility Line
- Pipeline
- Existing R O W

Sec. 35

Bureau of Land Management
±4.50 Acres- Proposed Pad
±2,856.46', ±173.12 Rods,
±1.31 Acres- Proposed Access Road

CENTERLINE
PROPOSED
ACCESS ROAD
20' X ±4,034.49'
±244.51 Rods
±1.85 Acres

7

NAD 27 NEW MEXICO EAST ZONE

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
NEW MEXICO
23006
12-16-2016

Robert L. Lastrapes
Registration No. 23006

PAGE 1 OF 3

SURFACE USE PLAT

Scale: 1" = 200'

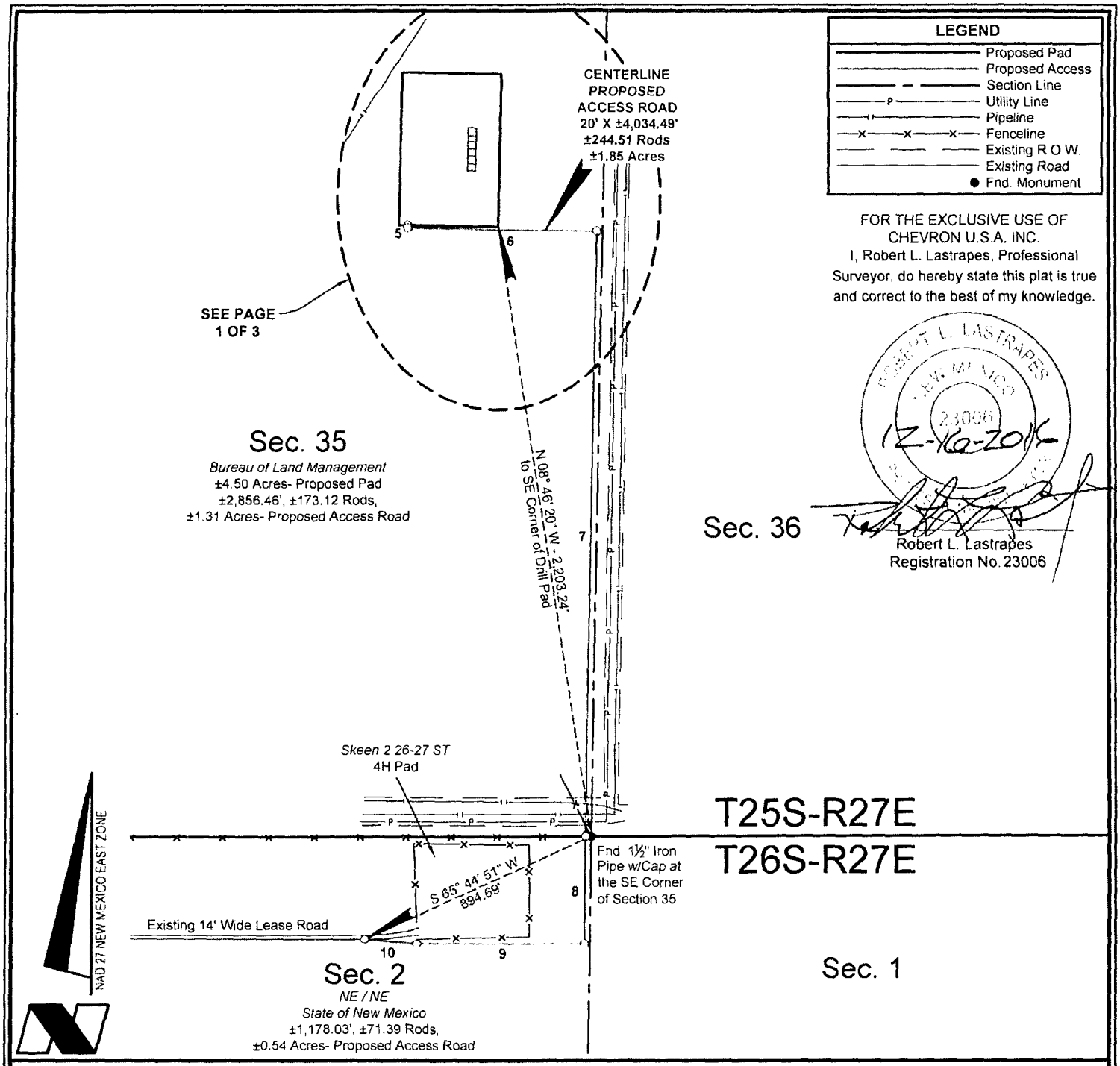
200' 0 100' 200'

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD
HH CE 35 2 FED NO. 66 WELL
SECTION 35, T25S-R27E & SECTION 2, T26S-R27E
EDDY COUNTY, NEW MEXICO

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

DRAWN BY: JPLN	REVISIONS		
PROJ MGR. GDG	No.	DATE:	REVISED BY:
DATE: 12/12/2016	No.	DATE:	REVISED BY:
FILENAME: T:\2016\2164895\DWG\HH CE 35 2 FED 66 SUP.dwg			



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 NEW MEXICO 23006

12-16-2016

Robert L. Lastrapes
Registration No. 23006

PAGE 2 OF 3

SURFACE USE PLAT

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500' 0 250' 500'

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PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	N 88° 58' 29" W	360.00'
2	N 01° 01' 31" E	545.00'
3	S 88° 58' 29" E	360.00'
4	S 01° 01' 31" W	545.00'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	S 00° 49' 37" W	10.09'
6	S 88° 58' 40" E	684.96'
7	S 01° 01' 34" W	2161.41'
8	S 00° 30' 12" W	384.92'
9	N 89° 57' 38" W	602.95'
10	N 84° 52' 17" W	190.16'

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23006
12-16-2016

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PAGE 3 OF 3

SURFACE USE PLAT

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R 27 E

NW PAD CORNER	NE PAD CORNER
X= 555,512 NAD 27	X= 555,872 NAD 27
Y= 395,172	Y= 395,166
ELEVATION +3142' NAVD 88	ELEVATION +3141' NAVD 88
SW PAD CORNER	**SE PAD CORNER**
X= 555,502 NAD 27	X= 555,862 NAD 27
Y= 394,627	Y= 394,621
ELEVATION +3150' NAVD 88	ELEVATION +3146' NAVD 88

HH CE 35 2 FED NO. 61 WELL	
X=	555,768 NAD 27
Y=	394,957
LAT.	32.085725
LONG.	104.153265
X=	596,952 NAD83
Y=	395,015
LAT.	32.085847
LONG.	104.153756
ELEVATION +3144' NAVD 88	

PROPOSED TEMPORARY PAD AREA ±3.01 Acres

PROPOSED PERMANENT PAD AREA ±1.49 Acres

360'

200'

545'

325'

Existing Pipeline

HH CE 35 2 FED No. 61 Well
HH CE 35 2 FED No. 62 Well
HH CE 35 2 FED No. 63 Well
HH CE 35 2 FED No. 64 Well
HH CE 35 2 FED No. 65 Well
HH CE 35 2 FED No. 66 Well

T 25 S

Sec. 36

Sec. 35

Bureau of Land Management
±2,856.46', ±173.12 Rods,
±1.31 Acres- Proposed Access Road

CENTERLINE PROPOSED ACCESS ROAD
20' X ±4,034.49'
±244.51 Rods
±1.85 Acres

LEGEND

- Proposed Pad
- Proposed Access
- Section Line
- Utility Line
- Pipeline
- Existing R.O.W.

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PRELIMINARY

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NAD 27 NEW MEXICO EAST ZONE

PAGE 1 OF 3

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CHEVRON U.S.A. INC.

INTERIM RECLAMATION
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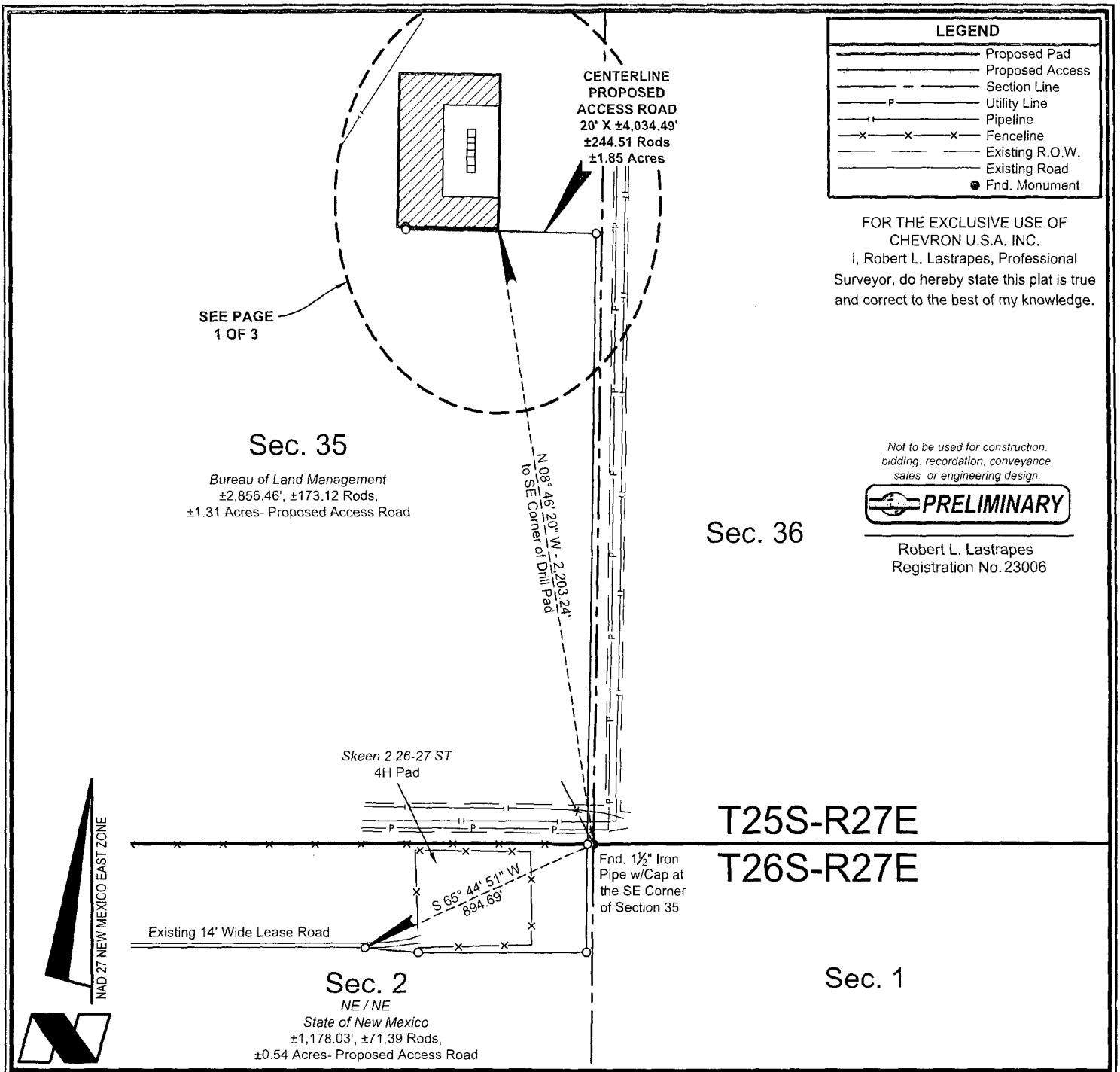

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Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

07/27/2017

Bond Information

Federal/Indian APD: FED

BLM Bond number: CA0329

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: