

**NM OIL CONSERVATION
ARTESIA DISTRICT**

Form 3160-3
(March 2012)

Aug 1 2017

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM118108
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator CHEVRON USA INCORPORATED		7. If Unit or CA Agreement, Name and No.
3a. Address 6301 Deauville Blvd. Midland TX 79706		8. Lease Name and Well No. HH SO 10 15 FED 002 1H 318939
3b. Phone No. (include area code) (432)687-7866		9. API Well No. 30-015-44352
4. Location of Well (Report location clearly and in accordance with any State requirements*) At surface NWNW / 189 FSL / 833 FWL / LAT 32.064526 / LONG -104.184271 At proposed prod. zone SWSW / 280 FSL / 330 FWL / LAT 32 / LONG -104		10. Field and Pool, or Exploratory PURPLE SAGE / WOLFCAMP, (GAS)
14. Distance in miles and direction from nearest town or post office* 35 miles		11. Sec., T. R. M. or Blk. and Survey or Area SEC 3 / T26S / R27E / NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 189 feet	16. No. of acres in lease 1120	12. County or Parish EDDY
17. Spacing Unit dedicated to this well 640	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, 4300 feet applied for, on this lease, ft.	19. Proposed Depth 9000 feet / 19000 feet	20. BLM/BIA Bond No. on file FED: CA0329
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3273 feet	22. Approximate date work will start* 07/01/2017	23. Estimated duration 120 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 (Electronic Submission)		Name (Printed/Typed) Dorian K Fuentes / Ph: (432)687-7631	Date 03/09/2017
Title Permitting Specialist			
Approved by (Signature) (Electronic Submission)		Name (Printed/Typed) Bobby Ballard / Ph: (575)234-2235	Date 07/26/2017
Title Natural Resource Specialist		Office 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

**NM OIL CONSERVATION
ARTESIA DISTRICT**

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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.

Additional Operator Remarks

Location of Well

1. SHL: NWNW / 189 FSL / 833 FWL / TWSP: 26S / RANGE: 27E / SECTION: 3 / LAT: 32.064526 / LONG: -104.184271 (TVD: 9000 feet, MD: 18000 feet)
PPP: SWNW / 330 FNL / 330 FWL / TWSP: 26S / RANGE: 27E / SECTION: 10 / LAT: 32.063119 / LONG: -104.18588 (TVD: 9000 feet, MD: 18000 feet)
BHL: SWSW / 280 FSL / 330 FWL / TWSP: 26S / RANGE: 27E / SECTION: 15 / LAT: 32 / LONG: -104 (TVD: 9000 feet, MD: 19000 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.:	NMNM121473
WELL NAME & NO.:	1H-HH SO 10 15 Fed 002
SURFACE HOLE FOOTAGE:	189'/S & 833'/W
BOTTOM HOLE FOOTAGE:	280'/S & 300'/W
LOCATION:	Section 3, T.26 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

Potash	☒ None	☐ Secretary	☐ R-111-P
Cave Karst Potential	☐ Low	☒ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

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

B. CASING

- 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 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.
 - Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - 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.
 - If cement falls back, remedial cementing will be done prior to drilling out that

string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
 - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. 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.

TMAK 07232017

GENERAL REQUIREMENTS

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

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

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

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

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

- 2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
- 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 are 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.

A. CASING

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

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

B. PRESSURE CONTROL

3. 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.
4. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
5. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. 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.
 - f. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Chevron USA Inc.
LEASE NO.:	NMNM121473
WELL NAME & NO.:	1H-HH SO 10 15 Fed 002
SURFACE HOLE FOOTAGE:	189'/S & 833'/W
BOTTOM HOLE FOOTAGE:	280'/S & 300'/W
LOCATION:	Section 3, T.26 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.

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Cave 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:

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

Automatic Shut-off Systems:

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

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:

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

Directional Drilling:

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

Lost Circulation:

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

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

Abandonment Cementing:

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

Pressure Testing:

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

Watershed

Due to the location of the HH SO 10 15 Fed 002 Pad within the top of an existing drainage, the pad reduction and reclamation will be on the North and West sides of the pad as agreed upon during the onsite performed on January 19, 2017. Reducing the pad

on these two sides will help prevent increase in erosion and sediments deposits within the watershed.

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

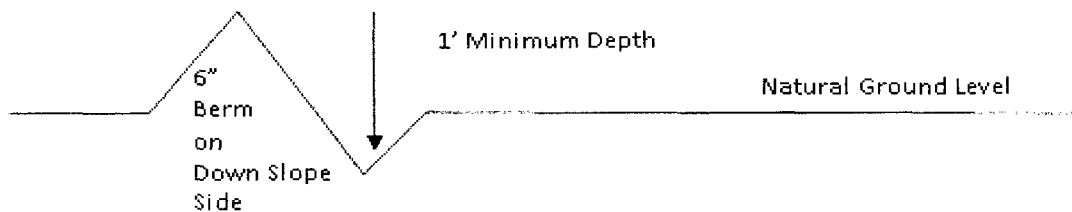
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing 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:

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

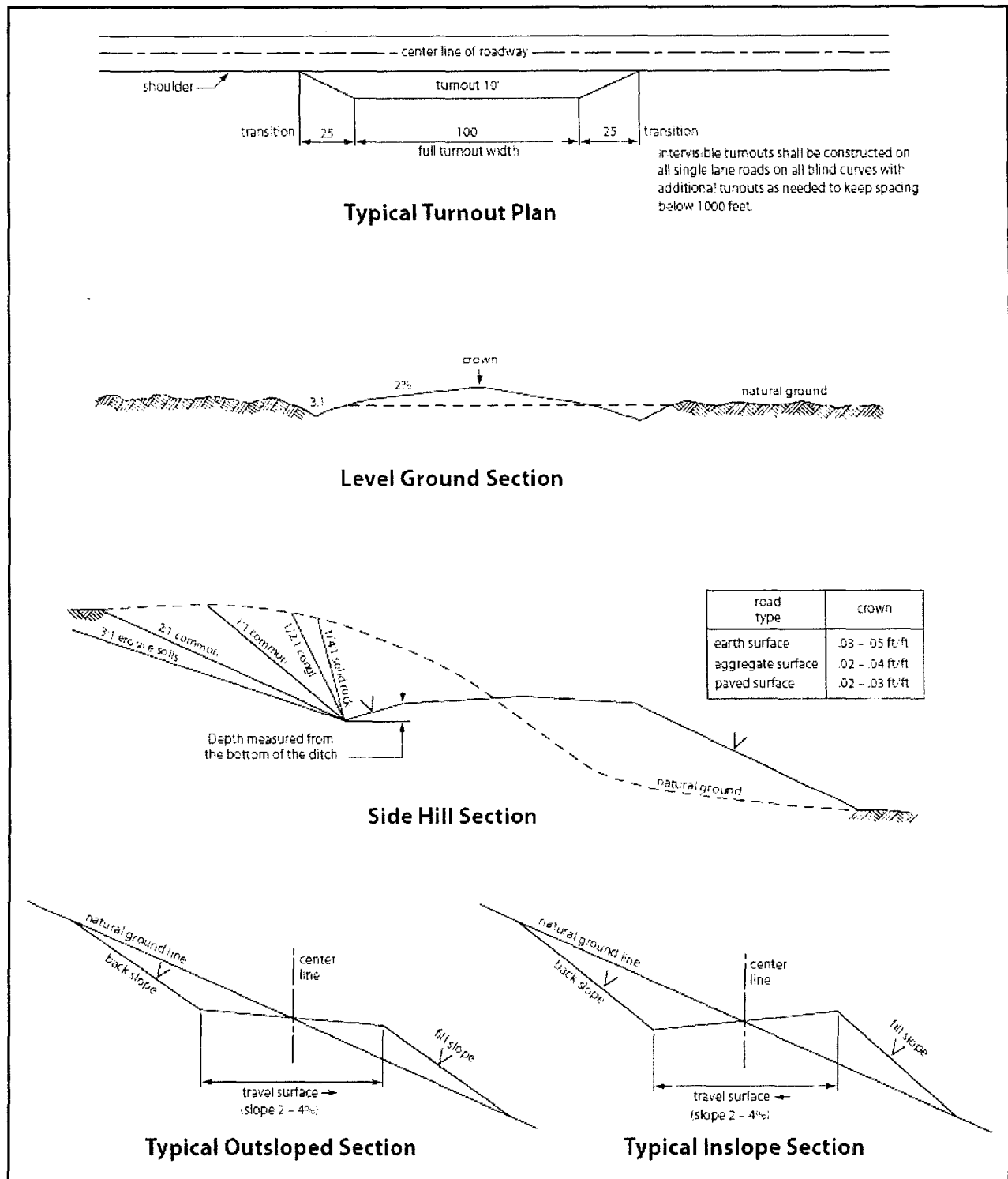


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

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

Painting Requirement

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

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

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

c. Acts of God.

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

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

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

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

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

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

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

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

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

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

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

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

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

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

STANDARD STIPULATIONS FOR BURIED PIPELINE STIPULATIONS

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

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

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

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to

the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

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

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

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

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

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be

segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

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

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

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

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

☒ seed mixture 1	☐ seed mixture 3
☐ seed mixture 2	☐ seed mixture 4
☐ seed mixture 2/LPC	☐ Aplomado Falcon Mixture

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

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

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

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

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

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

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

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

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

Due to the location of the HH SO 10 15 Fed 002 Pad within the top of an existing drainage, the pad reduction and reclamation will be on the North and West sides of the pad as agreed upon during the onsite performed on January 19, 2017. Reducing the pad on these two sides will help prevent increase in erosion and sediments deposits within the watershed.

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

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 1 for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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

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:** 03/09/2017**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:**

APD ID: 10400010582**Submission Date:** 03/09/2017**Operator Name:** CHEVRON USA INCORPORATED**Well Name:** HH SO 10 15 FED 002**Well Number:** 1H**Well Type:** CONVENTIONAL GAS WELL**Well Work Type:** Drill

Section 1 - General

APD ID: 10400010582**Tie to previous NOS?** 10400009597 **Submission Date:** 03/09/2017**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:** NMNM118108**Lease Acres:** 1120**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**Master 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 SO 10 15 FED 002**Well Number:** 1H**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 SO 10 15 FED 002

Well Number: 1H

Is the proposed well in an area containing other mineral resources? 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 SO Number: 1H 2H 3H 4H 5H 6H
10 15 FED 002

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 35 Miles

Distance to nearest well: 4300 FT

Distance to lease line: 189 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: HH_SO_10_15_FED_002_1H_C_102_05-23-2017.pdf

Well work start Date: 07/01/2017

Duration: 120 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NGVD29

Survey number:

	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	189	FSL	833	FWL	26S	27E	3	Aliquot NWN W	32.06452 6	- 104.1842 71	EDD Y	NEW MEXI CO	NEW MEXI CO	F	FEE	327 3	180 00	900 0
KOP Leg #1	189	FSL	833	FWL	26S	27E	3	Aliquot NWN W	32.06452 6	- 104.1842 71	EDD Y	NEW MEXI CO	NEW MEXI CO	F	FEE	- 572 7	180 00	900 0
PPP Leg #1	330	FNL	330	FWL	26S	27E	10	Aliquot SWN W	32.06311 9	- 104.1858 8	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 7	180 00	900 0

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FSL	330	FWL	26S	27E	15	Aliquot SWS W	32.03581 7	- 104.1854 38	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 7	180 00	900 0
BHL Leg #1	280	FSL	330	FWL	26S	27E	15	Aliquot SWS W	32	-104	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 7	190 00	900 0

District I
1625 N French Dr., Hobbs, NM 88240
Phone (575) 393 6161 Fax (575) 393 721

District II
611 S First St. Artesia, NM 88211
Phone (575) 748-1283 Fax (575) 748-9721

District III
1500 Rio Brazos Road, Aztec, NM 87410
Phone (505) 334 6178 Fax (505) 334 6179

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

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

ALL CONSERVATION DISTRICT Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office
RECEIVED AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44352		Pool Code 98220	Pool Name PURPLE SAGE; WOLF-CAMP (GAS)
Property Code 318939	Property Name HH SO 10 15 FED 002		Well Number 1H
GRID No 4323	Operator Name CHEVRON U.S.A. INC.		Elevation 3273'

Surface Location

UT or lot no	Section	Township	Range	Foot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	3	26 SOUTH	27 EAST, N.M.P.M.		189'	SOUTH	833'	WEST	EDDY

Bottom Hole Location If Different From Surface

UT or lot no	Section	Township	Range	Foot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	15	26 SOUTH	27 EAST, N.M.P.M.		280'	SOUTH	330'	WEST	EDDY

Dedicated Acres 640	Joint or Infill	Dedication Code	Order No.
-------------------------------	-----------------	-----------------	-----------

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

FIRST TAKE POINT X= 545 831 NAD 27 Y= 386 675 LAT 32 062997 LONG 104 185387 X= 587 015 NAD 83 Y= 386 732 LAT 32 063119 LONG 104 185880	HH SO 10 15 FED 002 1H WELL X= 545 329 NAD 27 Y= 387 187 LAT 32 064404 LONG 104 183778 X= 587 513 NAD 83 Y= 387 244 LAT 32 064526 LONG 104 184271 ELEVATION 3273 NAVD 88		OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and correct to the best of my knowledge and belief and that the operator in carrying out the operations herein is in compliance with all applicable laws and regulations. Signature: <i>[Signature]</i> Date: 5-23-17 Printed Name: Dorian K Fuentes Firm Address: <i>[Signature]</i>
MID POINT X= 545 952 NAD 27 Y= 381 708 LAT 32 049345 LONG 104 185019 X= 587 136 NAD 83 Y= 381 765 LAT 32 049467 LONG 104 185511	CORNER COORDINATES TABLE (NAD 27) A - Y=392447.75 X=545573.63 B - Y=387009.20 X=545492.51 C - Y=386937.82 X=550774.76 D - Y=381711.59 X=545622.05 E - Y=381659.85 X=550943.63 F - Y=376414.09 X=545653.53 G - Y=376383.44 X=550941.76		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: 1-6-2017 Signature and Seal of Professional Surveyor: <i>[Signature]</i> Certificate Number: 23006
LAST TAKE POINT X= 545 982 NAD 27 Y= 376 742 LAT 32 035692 LONG 104 184946 X= 587 166 NAD 83 Y= 376 799 LAT 32 035814 LONG 104 185438	PROPOSED BOTTOM HOLE LOCATION X= 545 982 NAD 27 Y= 376 692 LAT 32 035555 LONG 104 184945 X= 587 166 NAD 83 Y= 376 749 LAT 32 035677 LONG 104 185437		

APD ID: 10400010582

Submission Date: 03/09/2017

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

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	-12797	9171	9171	MUDSTONE	NATURAL GAS, OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 9171

Equipment: Will have a minimum of 5000 psi rig stack for drill out below surface casing. Stack will be treated 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 another variance to use a FMC technologies conventional wellhead which will be run through the rig floor on surface casing. BOPE will be nipped up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days.

Testing Procedure: Test BOP from 250 psi to 5000 psi in Ram and 250 psi to 3500 psi in Annular (please refer to the HDA - all attachments are included in the MDP).

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Choke Diagram Attachment:

HH_SO_10_15_FED_002_1H_BOP_Choke_03-08-2017.pdf

BOP Diagram Attachment:

HH_SO_10_15_FED_002_1H_BOP_Diagram_03-08-2017.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	3273	2823	450	K-55	54.5	STC	5.11	1.82	DRY	2.31	DRY	3.97
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	9015	0	9015	3273	-5742	9015	L-80	43.5	OTHER	1.34	2.9	DRY	2.22	DRY	1.79
3	PRODUCTION	8.5	5.5	NEW	API	N	0	19557	0	19557	3273	-15446	19557	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_SO_10_15_FED_002_1H_9_PT_03-08-2017.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Casing Attachments

Casing ID: 2 String Type:INTERMEDIATE

Inspection Document:

Spec Document:

Taperd String Spec:

HH_SO_10_15_FED_002_1H_9.625_TXP_03-08-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH_SO_10_15_FED_002_1H_9_PT_03-08-2017.pdf

Casing ID: 3 String Type:PRODUCTION

Inspection Document:

Spec Document:

Taperd String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_10_15_FED_002_1H_P110_TXP_03-08-2017.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		C	50/50 Poz Class C + Antifoam, Extender, Salt, Retarder
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 SO 10 15 FED 002

Well Number: 1H

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 + Extender, Antifoam, Retarder, Salt, Viscosifier
INTERMEDIATE	Tail		8015	9015	389	1.21	15.6	5.54	50	H	Class H + Retarder, Extender, 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	1955 7	3027	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: A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill. All fluids and cuttings will be disposed of in accordance with NMOCD regulations.

Describe the mud monitoring system utilized: 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 PVT, Stroke counter, Flow Sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume - 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
-----------	--------------	----------	----------------------	----------------------	---------------------	-----------------------------	----	----------------	----------------	-----------------	----------------------------

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	450	SPUD MUD	8.3	8.7							
450	9015	OIL-BASED MUD	9	9.5							
9015	19557	OIL-BASED MUD	10	13.5							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. To control pressure we are using 13.5 and may end up using heavier mud weight to 14.0.

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 Logs: 2 man mudlog Interval: Csg to TD Timing: Drillout of Int. Csg Vendor: TBD

Type: LWD Logs: 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: 6438

Anticipated Surface Pressure: 4458

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geoharzards description:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

HH_SO_10_15_FED_002_1H_H2S_03-08-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH_SO_10_15_FED_002_1H_AC_Report_03-08-2017.pdf

HH_SO_10_15_FED_002_1H_Stand_Report_03-08-2017.pdf

HH_SO_10_15_FED_002_1H_Well_Plat_03-08-2017.pdf

HH_SO_10_15_FED_002_1H_Well_Pad_Layout_03-08-2017.pdf

Other proposed operations facets description:

On the Stand Report attached - The FTP is specified from the directional plan to match the C-102.

Other proposed operations facets attachment:

Other Variance attachment:

CHOKE MANIFOLD SCHEMATIC

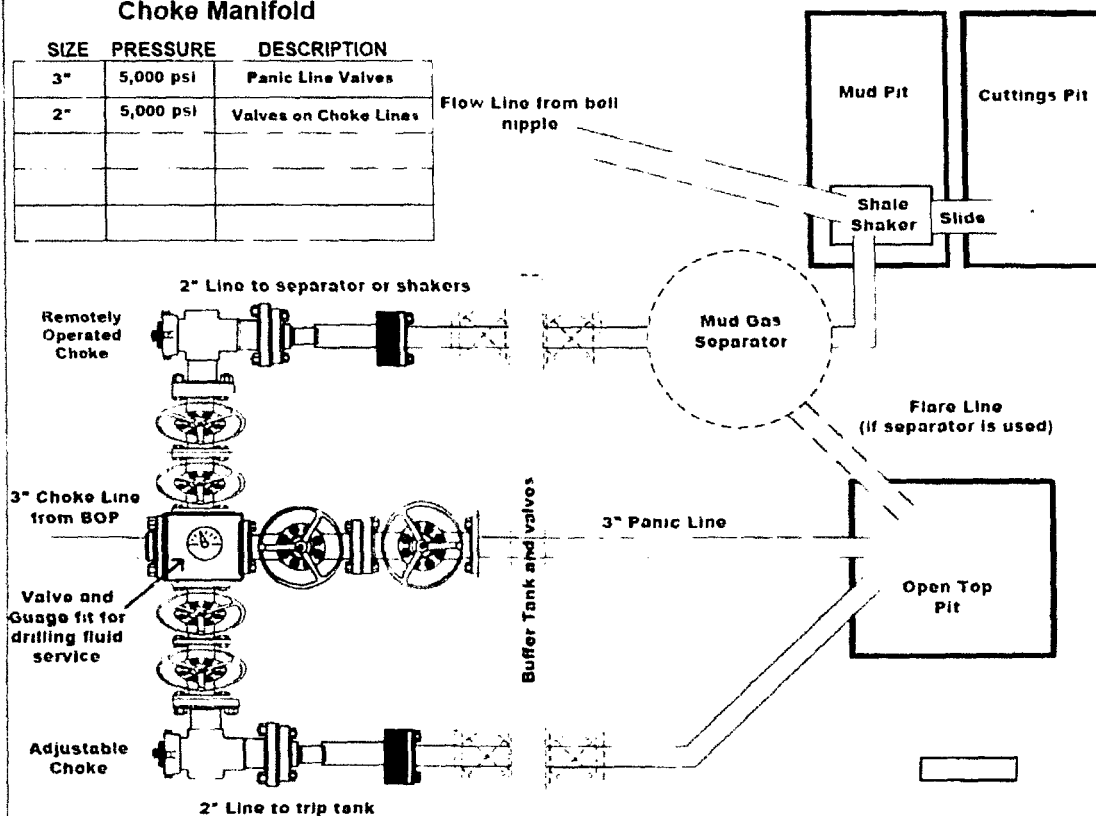
Minimum Requirements

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 tool, 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

BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

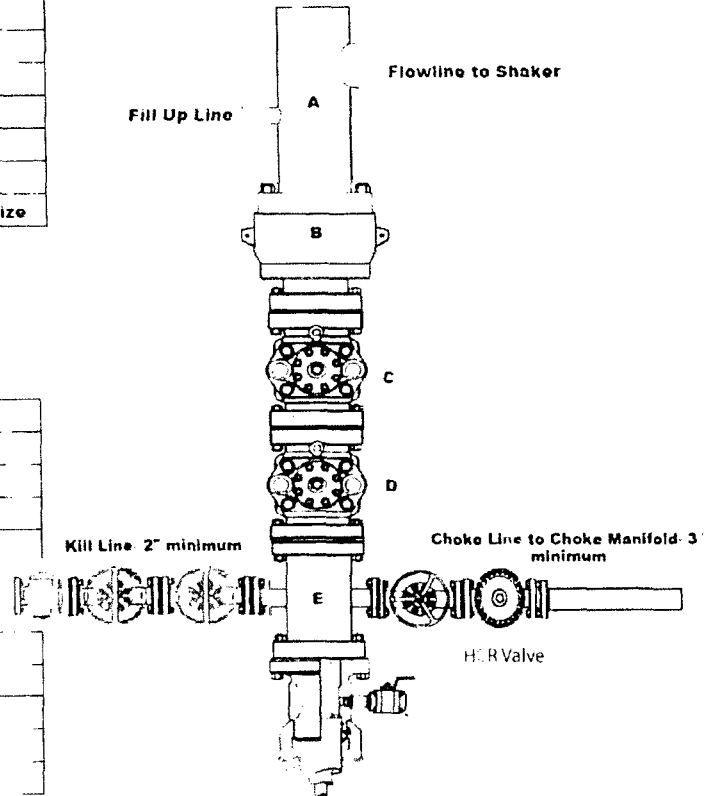
OPERATION : Bone Spring wells/ Intermediate section SWD

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 through 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

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

February 08 2017



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

Size: 9.625 in.
Wall: 0.435 in.
Weight: 43.50 lbs/ft
Grade: L80.1
Min. Wall Thickness: 87.5 %

PIPE BODY DATA			
GEOMETRY			
Nominal OD	9.625 in.	Nominal Weight	43.50 lbs/ft
Nominal ID	8.755 in.	Wall Thickness	0.435 in.
Plain End Weight	42.73 lbs/ft	Standard Drift Diameter	8.599 in.
		Special Drift Diameter	N/A
PERFORMANCE			
Body Yield Strength	1005 x 1000 lbs	Internal Yield	6330 psi
Collapse	3810 psi	SMYS	80000 psi
TENARISXP® BTC CONNECTION DATA			
GEOMETRY			
Connection OD	10.625 in.	Coupling Length	10.825 in.
Critical Section Area	12.559 sq. in.	Threads per in.	5.00
		Connection ID	8.743 in.
		Make-Up Loss	4.891 in.
PERFORMANCE			
Tension Efficiency	100 %	Joint Yield Strength	1005 x 1000 lbs
Structural Compression Efficiency	100 %	Structural Compression Strength	1005 x 1000 lbs
External Pressure Capacity	3810 psi	Internal Pressure Capacity ⁽¹⁾	6330 psi
		Structural Bending ⁽²⁾	38 °/100 ft
ESTIMATED MAKE-UP TORQUES ⁽³⁾			
Minimum	20240 ft-lbs	Optimum	22490 ft-lbs
		Maximum	24740 ft-lbs
OPERATIONAL LIMIT TORQUES			
Operating Torque	ASK	Yield Torque	45900 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

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		9171	
Lateral TVD Wolfcamp A		9171	19557.33

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	9171

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'	19,557'	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: 19667.33' MD/9,171' TVD (10,000' VS @90.4 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
<u>Surface</u>				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.33	50	356	6.37
<u>Intermediate</u>								
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
<u>Production</u>								
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'	19,557'	15.6	1.2	50	3027	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'	19,557'	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		9171	
Lateral TVD Wolfcamp A		9171	19557.33

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	9171

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'	19,557'	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: 19667.33' MD/9,171' TVD (10,000' VS @90.4 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	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'	19,557'	15.6	1.2	50	3027	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'	19,557'	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



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

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

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 ⁽²⁾					
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



H₂S Preparedness and Contingency Plan Summary

Hayhurst Eddy County, New Mexico

Training

MCBU Drilling and Completions H₂S 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 H₂S.

Awareness Level

Employees and visitors to MCBU Drilling and Completions locations that have known concentrations of H₂S, who are not required to perform work in H₂S areas, will be provided with an awareness level of H₂S training prior to entering any H₂S areas. At a minimum, awareness level training will include:

1. Physical and chemical properties of H₂S
2. Health hazards of H₂S
3. Personal protective equipment
4. Information regarding potential sources of H₂S
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 H₂S Training

Employees and contractors required to work in areas that may contain H₂S will be provided with Advanced Level H₂S training prior to initial assignment. In addition to the Awareness Level requirements, Advanced Level H₂S training will include:

1. H₂S safe work practice procedures;
2. Emergency contingency plan procedures;
3. Methods to detect the presence or release of H₂S (e.g., alarms, monitoring equipment), including hands-on training with direct reading and personal monitoring H₂S equipment.
4. Basic overview of respiratory protective equipment suitable for use in H₂S 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 H₂S training;
6. Proficiency examination covering all course material.

Advanced H₂S training courses will be instructed by personnel who have successfully completed an appropriate H₂S train-the-trainer development course (ANSI/ASSE Z390.1-2006) or who possess significant past experience through educational or work-related background.



H₂S Preparedness and Contingency Plan Summary

H₂S Training Certification

All employees and visitors will be issued an H₂S training certification card (or certificate) upon successful completion of the appropriate H₂S training course. Personnel working in an H₂S environment will carry a current H₂S training certification card as proof of having received the proper training on their person at all times.

Briefing Area

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

H₂S Equipment

Respiratory Protection

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

Visual Warning System

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

H₂S Detection and Monitoring System

- a) H₂S 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.



H₂S Preparedness and Contingency Plan Summary

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:

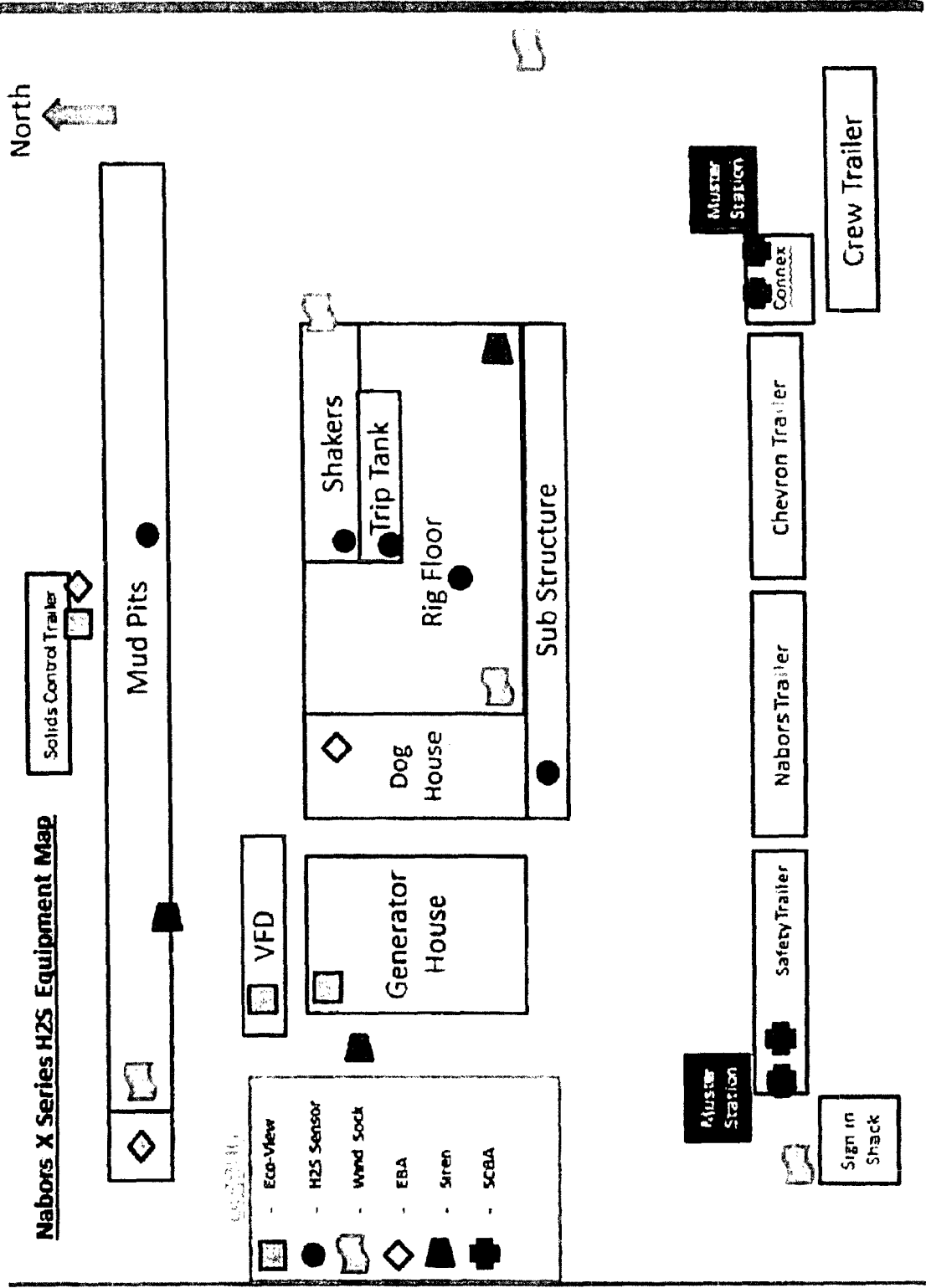
- 1. Use of a degasser
- 2. Use of a zinc based mud treatment
- 3. Increasing mud weight

Public Safety - Emergency Assistance

<u>Agency</u>	<u>Telephone Number</u>
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



H₂S Preparedness and Contingency Plan Summary





Chevron

**Eddy County, NM (NAD27 NME)
HH SO 10 15 Fed
0021**

**OH
Plan 1 02-01-17**

Anticollision Report

01 February, 2017





Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Reference	Plan 1 02-01-17
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.00 u
Warning Levels Evaluated at:	3.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program Date 2/1/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	19,557.33	Plan 1 02-01-17 (OH)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
HH SO 10 15 Fed						
0022 - OH - Plan 1 02-01-17	1,892.86	1,891.85	24.74	5.10	1.260	Level 3, CC
0022 - OH - Plan 1 02-01-17	1,900.00	1,898.97	24.75	5.03	1.255	Level 3, ES, SF
0023 - OH - Plan 1 02-01-17	1,800.00	1,799.00	49.92	31.26	2.675	CC
0023 - OH - Plan 1 02-01-17	2,000.00	1,998.03	51.00	30.25	2.457	ES
0023 - OH - Plan 1 02-01-17	8,600.00	8,597.59	124.56	31.46	1.338	Level 3, SF
0024 - OH - Plan 1 02-01-17	1,948.62	1,947.52	74.56	54.34	3.688	CC
0024 - OH - Plan 1 02-01-17	2,000.00	1,998.63	74.73	53.99	3.603	ES
0024 - OH - Plan 1 02-01-17	19,557.33	20,169.35	1,048.84	645.82	2.602	SF
0025 - OH - Plan 1 02-01-17	2,074.68	2,072.33	99.17	77.60	4.598	CC
0025 - OH - Plan 1 02-01-17	2,300.00	2,297.09	100.43	76.47	4.191	ES
0025 - OH - Plan 1 02-01-17	19,557.33	20,524.98	1,093.86	800.39	3.727	SF
0026 - OH - Plan 1 02-01-17	2,002.50	1,999.42	124.12	103.36	5.979	CC
0026 - OH - Plan 1 02-01-17	2,100.00	2,095.63	125.04	103.27	5.744	ES
0026 - OH - Plan 1 02-01-17	19,557.33	20,486.60	1,574.45	1,172.15	3.914	SF
HH SO 10 P3						
#15H - OH - Plan 2 11-18-16	1,800.00	1,811.00	1,308.89	1,290.18	69.939	CC, ES
#15H - OH - Plan 2 11-18-16	19,557.33	20,494.76	2,300.84	1,853.98	5.149	SF
#23H - OH - Plan 2 11-18-16	1,800.00	1,810.00	1,278.22	1,259.51	68.319	CC, ES
#23H - OH - Plan 2 11-18-16	19,557.33	19,466.36	1,848.95	1,375.71	3.907	SF
#7H - OH - Plan 2 11-18-16	1,800.00	1,811.00	1,292.68	1,273.97	69.072	CC, ES
#7H - OH - Plan 2 11-18-16	19,557.33	20,152.06	1,789.29	1,333.71	3.927	SF

Offset Design

HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17

Survey Program: 0-MWD+HDGM												
Reference												
Offset												
Semi Major Axis												
Distance												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
0.00	0.00	0.00	1.00	0.00	0.00	0.02	24.92	0.01	24.94			
100.00	100.00	99.00	100.00	0.19	0.19	0.02	24.92	0.01	24.92	24.53	0.39	64.691
200.00	200.00	199.00	200.00	0.73	0.73	0.02	24.92	0.01	24.92	23.46	1.46	17.101
300.00	300.00	299.00	300.00	1.27	1.26	0.02	24.92	0.01	24.92	22.39	2.53	9.840
400.00	400.00	399.00	400.00	1.81	1.80	0.02	24.92	0.01	24.92	21.31	3.61	6.907
500.00	500.00	499.00	500.00	2.34	2.34	0.02	24.92	0.01	24.92	20.24	4.68	5.321



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
600.00	600.00	599.00	600.00	2.88	2.88	0.02	24.92	0.01	24.92	19.16	5.76	4.327		
700.00	700.00	699.00	700.00	3.42	3.41	0.02	24.92	0.01	24.92	18.09	6.83	3.646		
800.00	800.00	799.00	800.00	3.96	3.95	0.02	24.92	0.01	24.92	17.01	7.91	3.151		
900.00	900.00	899.00	900.00	4.50	4.49	0.02	24.92	0.01	24.92	15.93	8.99	2.773		
1,000.00	1,000.00	999.00	1,000.00	5.03	5.03	0.02	24.92	0.01	24.92	14.86	10.06	2.477		
1,100.00	1,100.00	1,099.00	1,100.00	5.57	5.57	0.02	24.92	0.01	24.92	13.78	11.14	2.238		
1,200.00	1,200.00	1,199.00	1,200.00	6.11	6.10	0.02	24.92	0.01	24.92	12.71	12.21	2.041		
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.64	0.02	24.92	0.01	24.92	11.63	13.29	1.876		
1,400.00	1,400.00	1,399.00	1,400.00	7.18	7.18	0.02	24.92	0.01	24.92	10.56	14.36	1.735		
1,500.00	1,500.00	1,499.00	1,500.00	7.72	7.72	0.02	24.92	0.01	24.92	9.48	15.44	1.614		
1,600.00	1,600.00	1,599.00	1,600.00	8.26	8.25	0.02	24.92	0.01	24.92	8.41	16.51	1.509		
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.79	0.02	24.92	0.01	24.92	7.33	17.59	1.417 Level 3		
1,800.00	1,800.00	1,799.00	1,800.00	9.33	9.33	0.02	24.92	0.01	24.92	6.26	18.66	1.335 Level 3		
1,892.86	1,892.85	1,891.85	1,892.84	9.82	9.82	89.22	24.76	1.47	24.74	5.10	19.64	1.260 Level 3, CC		
1,900.00	1,899.98	1,898.97	1,899.95	9.86	9.85	90.33	24.74	1.71	24.75	5.03	19.71	1.255 Level 3, ES, SF		
2,000.00	1,999.84	1,998.37	1,999.22	10.38	10.36	112.31	24.22	6.59	26.93	6.19	20.73	1.299 Level 3		
2,100.00	2,099.59	2,097.57	2,098.27	10.90	10.87	132.22	23.63	12.11	33.93	12.18	21.75	1.560		
2,200.00	2,199.34	2,196.77	2,197.32	11.43	11.39	144.43	23.04	17.63	43.53	20.76	22.77	1.912		
2,300.00	2,299.09	2,295.97	2,296.36	11.96	11.91	152.04	22.45	23.15	54.37	30.58	23.79	2.285		
2,400.00	2,398.85	2,395.18	2,395.41	12.49	12.43	157.06	21.86	28.67	65.84	41.02	24.82	2.653		
2,500.00	2,498.60	2,494.38	2,494.46	13.02	12.95	160.58	21.27	34.20	77.67	51.81	25.86	3.004		
2,600.00	2,598.35	2,593.58	2,593.50	13.56	13.47	163.17	20.68	39.72	89.71	62.81	26.90	3.335		
2,700.00	2,698.10	2,692.78	2,692.55	14.09	14.00	165.14	20.09	45.24	101.88	73.94	27.94	3.647		
2,800.00	2,797.86	2,791.99	2,791.60	14.63	14.53	166.69	19.50	50.76	114.15	85.17	28.98	3.939		
2,900.00	2,897.61	2,891.19	2,890.65	15.17	15.06	167.93	18.91	56.28	126.48	96.45	30.03	4.212		
3,000.00	2,897.36	2,890.39	2,889.69	15.71	15.58	168.96	18.32	61.80	138.86	107.79	31.08	4.468		
3,100.00	3,097.11	3,089.59	3,088.74	16.25	16.12	169.82	17.73	67.33	151.28	119.15	32.13	4.709		
3,200.00	3,196.87	3,188.80	3,187.79	16.80	16.65	170.54	17.14	72.85	163.73	130.55	33.18	4.934		
3,300.00	3,296.62	3,288.00	3,286.83	17.34	17.18	171.17	16.55	78.37	176.20	141.97	34.24	5.147		
3,400.00	3,396.37	3,387.20	3,385.88	17.89	17.71	171.71	15.96	83.89	188.69	153.40	35.29	5.347		
3,500.00	3,496.12	3,486.40	3,484.93	18.43	18.25	172.18	15.37	89.41	201.19	164.84	36.35	5.535		
3,600.00	3,595.88	3,585.61	3,583.97	18.98	18.78	172.60	14.78	94.93	213.71	176.30	37.41	5.713		
3,700.00	3,695.63	3,684.81	3,683.02	19.52	19.32	172.98	14.19	100.46	226.23	187.77	38.46	5.882		
3,800.00	3,795.38	3,784.01	3,782.07	20.07	19.85	173.31	13.60	105.98	238.76	199.24	39.52	6.041		
3,900.00	3,895.13	3,883.21	3,881.11	20.62	20.39	173.61	13.00	111.50	251.30	210.72	40.58	6.192		
4,000.00	3,994.89	3,982.42	3,980.16	21.17	20.93	173.88	12.41	117.02	263.85	222.20	41.65	6.336		
4,100.00	4,094.64	4,081.62	4,079.21	21.71	21.46	174.13	11.82	122.54	276.40	233.69	42.71	6.472		
4,200.00	4,194.39	4,180.82	4,178.26	22.26	22.00	174.35	11.23	128.06	288.96	245.19	43.77	6.602		
4,300.00	4,294.14	4,280.02	4,277.30	22.81	22.54	174.56	10.64	133.59	301.52	256.68	44.83	6.725		
4,400.00	4,393.89	4,379.23	4,376.35	23.36	23.08	174.75	10.05	139.11	314.08	268.18	45.90	6.843		
4,500.00	4,493.65	4,478.43	4,475.40	23.91	23.62	174.93	9.46	144.63	326.65	279.69	46.96	6.956		
4,600.00	4,593.40	4,577.63	4,574.44	24.46	24.15	175.09	8.87	150.15	339.22	291.19	48.03	7.063		
4,700.00	4,693.15	4,676.83	4,673.49	25.01	24.69	175.24	8.28	155.67	351.79	302.70	49.09	7.166		
4,800.00	4,792.90	4,776.04	4,772.54	25.56	25.23	175.38	7.69	161.19	364.37	314.21	50.16	7.264		
4,900.00	4,892.66	4,875.24	4,871.58	26.11	25.77	175.51	7.10	166.72	376.94	325.72	51.23	7.359		
5,000.00	4,992.41	4,974.44	4,970.63	26.67	26.31	175.63	6.51	172.24	389.52	337.23	52.29	7.449		
5,100.00	5,092.16	5,073.64	5,069.68	27.22	26.85	175.75	5.92	177.76	402.10	348.74	53.36	7.536		
5,200.00	5,191.91	5,172.85	5,168.72	27.77	27.39	175.86	5.33	183.28	414.68	360.26	54.43	7.619		
5,300.00	5,291.67	5,272.05	5,267.77	28.32	27.93	175.96	4.74	188.80	427.26	371.77	55.49	7.699		
5,400.00	5,391.42	5,371.25	5,366.82	28.87	28.47	176.06	4.15	194.32	439.85	383.29	56.56	7.776		
5,500.00	5,491.17	5,470.45	5,465.86	29.43	29.02	176.15	3.56	199.85	452.43	394.80	57.63	7.851		
5,600.00	5,590.92	5,569.65	5,564.91	29.98	29.56	176.23	2.97	205.37	465.02	406.32	58.70	7.922		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
5,700.00	5,690.68	5,668.86	5,663.96	30.53	30.10	176.31	2.38	210.89	477.61	417.84	59.77	7.991		
5,800.00	5,790.43	5,768.06	5,763.01	31.08	30.64	176.39	1.79	216.41	490.20	429.36	60.84	8.057		
5,900.00	5,890.18	5,867.26	5,862.05	31.64	31.18	176.46	1.20	221.93	502.78	440.88	61.91	8.122		
6,000.00	5,989.93	5,966.46	5,961.10	32.19	31.72	176.53	0.61	227.45	515.37	452.40	62.98	8.183		
6,100.00	6,089.69	6,065.67	6,060.15	32.74	32.26	176.60	0.02	232.98	527.96	463.92	64.05	8.243		
6,200.00	6,189.44	6,164.87	6,159.19	33.30	32.81	176.66	-0.57	238.50	540.56	475.44	65.12	8.301		
6,300.00	6,289.19	6,264.07	6,258.24	33.85	33.35	176.72	-1.16	244.02	553.15	486.96	66.19	8.357		
6,400.00	6,388.94	6,363.27	6,357.29	34.40	33.89	176.78	-1.75	249.54	565.74	498.48	67.26	8.411		
6,500.00	6,488.70	6,462.48	6,456.33	34.96	34.43	176.83	-2.34	255.06	578.33	510.00	68.33	8.464		
6,600.00	6,588.45	6,561.68	6,555.38	35.51	34.98	176.89	-2.93	260.58	590.93	521.53	69.40	8.515		
6,700.00	6,688.20	6,660.88	6,654.43	36.06	35.52	176.94	-3.52	266.11	603.52	533.05	70.47	8.564		
6,800.00	6,787.95	6,760.08	6,753.47	36.62	36.06	176.99	-4.11	271.63	616.11	544.57	71.54	8.612		
6,900.00	6,887.70	6,859.29	6,852.52	37.17	36.60	177.03	-4.70	277.15	628.71	556.09	72.61	8.658		
7,000.00	6,987.46	6,958.49	6,951.57	37.72	37.15	177.08	-5.29	282.67	641.30	567.62	73.69	8.703		
7,100.00	7,087.21	7,057.69	7,050.62	38.28	37.69	177.12	-5.88	288.19	653.90	579.14	74.76	8.747		
7,200.00	7,186.96	7,156.89	7,149.66	38.83	38.23	177.16	-6.47	293.71	666.49	590.66	75.83	8.789		
7,300.00	7,286.71	7,256.10	7,248.71	39.39	38.77	177.20	-7.06	299.24	679.09	602.19	76.90	8.831		
7,400.00	7,386.47	7,355.30	7,347.76	39.94	39.32	177.24	-7.65	304.76	691.69	613.71	77.97	8.871		
7,500.00	7,486.22	7,454.50	7,446.80	40.50	39.86	177.28	-8.24	310.28	704.28	625.24	79.05	8.910		
7,600.00	7,585.97	7,553.70	7,545.85	41.05	40.40	177.31	-8.83	315.80	716.88	636.76	80.12	8.948		
7,700.00	7,685.72	7,652.91	7,644.90	41.60	40.95	177.35	-9.42	321.32	729.48	648.29	81.19	8.985		
7,800.00	7,785.48	7,752.11	7,743.94	42.16	41.49	177.38	-10.01	326.84	742.08	659.81	82.26	9.021		
7,900.00	7,885.23	7,851.31	7,842.99	42.71	42.03	177.41	-10.60	332.37	754.67	671.34	83.34	9.056		
8,000.00	7,984.98	7,950.51	7,942.04	43.27	42.58	177.44	-11.19	337.89	767.27	682.86	84.41	9.090		
8,100.00	8,084.73	8,049.72	8,041.08	43.82	43.12	177.47	-11.78	343.41	779.87	694.39	85.48	9.123		
8,200.00	8,184.49	8,148.92	8,140.13	44.38	43.66	177.50	-12.37	348.93	792.47	705.91	86.56	9.155		
8,300.00	8,284.24	8,248.12	8,239.18	44.93	44.21	177.53	-12.96	354.45	805.07	717.44	87.63	9.187		
8,400.00	8,383.99	8,347.32	8,338.22	45.49	44.75	177.56	-13.55	359.97	817.67	728.96	88.70	9.218		
8,500.00	8,483.74	8,446.53	8,437.27	46.04	45.29	177.59	-14.14	365.50	830.26	740.49	89.78	9.248		
8,600.00	8,583.50	8,545.73	8,536.32	46.60	45.84	177.61	-14.73	371.02	842.86	752.01	90.85	9.277		
8,700.00	8,683.24	8,644.93	8,635.36	47.15	46.38	-137.09	-15.32	376.54	855.34	763.38	91.96	9.301		
8,800.00	8,781.93	8,743.18	8,733.46	47.67	46.92	-100.18	-15.91	382.01	866.22	773.13	93.08	9.306		
8,900.00	8,876.74	8,830.13	8,820.04	48.15	47.39	-93.50	-21.11	386.95	875.95	781.88	94.07	9.312		
9,000.00	8,964.80	8,918.41	8,906.11	48.58	47.86	-91.32	-39.59	392.18	885.49	790.49	95.00	9.321		
9,100.00	9,043.43	9,010.53	8,991.78	48.96	48.33	-90.68	-72.73	397.76	894.71	798.80	95.91	9.328		
9,200.00	9,110.24	9,107.32	9,074.84	49.31	48.80	-90.82	-121.87	403.57	903.43	806.60	96.83	9.330		
9,300.00	9,163.20	9,209.72	9,152.36	49.66	49.29	-91.44	-188.29	409.50	911.40	813.63	97.77	9.322		
9,400.00	9,200.70	9,318.64	9,220.46	50.06	49.81	-92.40	-272.89	415.35	918.33	819.60	98.73	9.301		
9,500.00	9,221.61	9,434.87	9,274.09	50.50	50.41	-93.62	-375.63	420.83	923.82	824.10	99.72	9.264		
9,600.00	9,225.90	9,558.98	9,307.27	50.99	51.09	-95.03	-494.88	425.58	927.41	826.69	100.72	9.208		
9,700.00	9,225.54	9,681.49	9,314.83	51.54	51.80	-95.52	-616.92	428.98	928.30	826.41	101.89	9.111		
9,800.00	9,225.18	9,781.49	9,314.65	52.18	52.44	-95.53	-716.89	431.40	928.31	825.16	103.15	9.000		
9,900.00	9,224.82	9,881.49	9,314.47	52.90	53.16	-95.54	-816.86	433.83	928.32	823.75	104.57	8.878		
10,000.00	9,224.45	9,981.49	9,314.29	53.69	53.95	-95.55	-916.83	436.25	928.32	822.18	106.15	8.746		
10,100.00	9,224.09	10,081.48	9,314.11	54.55	54.82	-95.56	-1,016.80	438.68	928.33	820.46	107.87	8.606		
10,200.00	9,223.73	10,181.48	9,313.93	55.49	55.75	-95.58	-1,116.77	441.10	928.34	818.60	109.74	8.459		
10,300.00	9,223.37	10,281.48	9,313.75	56.49	56.76	-95.59	-1,216.74	443.53	928.35	816.60	111.75	8.307		
10,400.00	9,223.00	10,381.48	9,313.56	57.55	57.82	-95.60	-1,316.71	445.95	928.36	814.48	113.88	8.152		
10,500.00	9,222.64	10,481.48	9,313.38	58.68	58.95	-95.61	-1,416.68	448.38	928.37	812.23	116.14	7.994		
10,600.00	9,222.28	10,581.48	9,313.20	59.86	60.13	-95.62	-1,516.65	450.80	928.38	809.87	118.51	7.834		
10,700.00	9,221.92	10,681.48	9,313.02	61.09	61.36	-95.63	-1,616.63	453.23	928.39	807.40	120.99	7.673		
10,800.00	9,221.55	10,781.48	9,312.84	62.38	62.65	-95.64	-1,716.60	455.66	928.40	804.83	123.57	7.513		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)					
10,900.00	9,221.19	10,881.48	9,312.66	63.71	63.98	-95.65	-1,816.57	458.08	928.41	802.16	126.24	7.354	
11,000.00	9,220.83	10,981.48	9,312.48	65.09	65.36	-95.67	-1,916.54	460.51	928.42	799.41	129.01	7.197	
11,100.00	9,220.47	11,081.48	9,312.30	66.51	66.78	-95.68	-2,016.51	462.93	928.43	796.57	131.86	7.041	
11,200.00	9,220.11	11,181.48	9,312.11	67.97	68.24	-95.69	-2,116.48	465.36	928.44	793.65	134.78	6.888	
11,300.00	9,219.74	11,281.48	9,311.93	69.46	69.74	-95.70	-2,216.45	467.78	928.45	790.66	137.78	6.739	
11,400.00	9,219.38	11,381.48	9,311.75	71.00	71.27	-95.71	-2,316.42	470.21	928.45	787.61	140.85	6.592	
11,500.00	9,219.02	11,481.48	9,311.57	72.56	72.83	-95.72	-2,416.39	472.63	928.46	784.48	143.98	6.449	
11,600.00	9,218.66	11,581.48	9,311.39	74.15	74.42	-95.73	-2,516.36	475.06	928.47	781.30	147.17	6.309	
11,700.00	9,218.29	11,681.48	9,311.21	75.77	76.04	-95.74	-2,616.33	477.48	928.48	778.06	150.42	6.173	
11,800.00	9,217.93	11,781.48	9,311.03	77.42	77.69	-95.75	-2,716.30	479.91	928.49	774.77	153.72	6.040	
11,900.00	9,217.57	11,881.48	9,310.84	79.10	79.36	-95.77	-2,816.27	482.33	928.50	771.43	157.07	5.911	
12,000.00	9,217.21	11,981.48	9,310.66	80.79	81.06	-95.78	-2,916.24	484.76	928.51	768.04	160.47	5.786	
12,100.00	9,216.84	12,081.48	9,310.48	82.51	82.78	-95.79	-3,016.21	487.19	928.52	764.62	163.91	5.665	
12,200.00	9,216.48	12,181.48	9,310.30	84.25	84.52	-95.80	-3,116.18	489.61	928.53	761.14	167.39	5.547	
12,300.00	9,216.12	12,281.48	9,310.12	86.01	86.28	-95.81	-3,216.15	492.04	928.54	757.64	170.91	5.433	
12,400.00	9,215.76	12,381.48	9,309.94	87.79	88.05	-95.82	-3,316.12	494.46	928.55	754.09	174.46	5.322	
12,500.00	9,215.40	12,481.48	9,309.76	89.58	89.85	-95.83	-3,416.09	496.89	928.56	750.51	178.05	5.215	
12,600.00	9,215.03	12,581.48	9,309.58	91.39	91.66	-95.84	-3,516.06	499.31	928.57	746.90	181.67	5.111	
12,700.00	9,214.67	12,681.48	9,309.39	93.22	93.48	-95.85	-3,616.03	501.74	928.58	743.27	185.32	5.011	
12,800.00	9,214.31	12,781.48	9,309.21	95.06	95.32	-95.87	-3,716.00	504.16	928.59	739.60	188.99	4.913	
12,900.00	9,213.95	12,881.48	9,309.03	96.91	97.17	-95.88	-3,815.97	506.59	928.60	735.90	192.70	4.819	
13,000.00	9,213.58	12,981.48	9,308.85	98.78	99.04	-95.89	-3,915.94	509.01	928.61	732.19	196.43	4.728	
13,100.00	9,213.22	13,081.48	9,308.67	100.66	100.92	-95.90	-4,015.91	511.44	928.62	728.44	200.18	4.639	
13,200.00	9,212.86	13,181.48	9,308.49	102.55	102.81	-95.91	-4,115.88	513.86	928.63	724.68	203.95	4.553	
13,300.00	9,212.50	13,281.48	9,308.31	104.45	104.71	-95.92	-4,215.85	516.29	928.64	720.89	207.75	4.470	
13,400.00	9,212.13	13,381.48	9,308.13	106.36	106.62	-95.93	-4,315.82	518.72	928.65	717.09	211.56	4.389	
13,500.00	9,211.77	13,481.48	9,307.94	108.28	108.54	-95.94	-4,415.79	521.14	928.66	713.26	215.40	4.311	
13,600.00	9,211.41	13,581.48	9,307.76	110.21	110.47	-95.96	-4,515.76	523.57	928.67	709.42	219.25	4.236	
13,700.00	9,211.05	13,681.48	9,307.58	112.15	112.40	-95.97	-4,615.73	525.99	928.68	705.56	223.12	4.162	
13,800.00	9,210.68	13,781.48	9,307.40	114.10	114.35	-95.98	-4,715.70	528.42	928.69	701.69	227.00	4.091	
13,900.00	9,210.32	13,881.48	9,307.22	116.05	116.30	-95.99	-4,815.67	530.84	928.70	697.80	230.90	4.022	
14,000.00	9,209.96	13,981.48	9,307.04	118.02	118.27	-96.00	-4,915.64	533.27	928.71	693.90	234.82	3.955	
14,100.00	9,209.60	14,081.48	9,306.86	119.99	120.24	-96.01	-5,015.61	535.69	928.72	689.98	238.75	3.890	
14,200.00	9,209.24	14,181.48	9,306.67	121.96	122.21	-96.02	-5,115.58	538.12	928.74	686.05	242.69	3.827	
14,300.00	9,208.87	14,281.48	9,306.49	123.94	124.19	-96.03	-5,215.55	540.54	928.75	682.10	246.64	3.766	
14,400.00	9,208.51	14,381.48	9,306.31	125.93	126.18	-96.04	-5,315.52	542.97	928.76	678.15	250.61	3.706	
14,500.00	9,208.15	14,481.48	9,306.13	127.93	128.17	-96.06	-5,415.49	545.40	928.77	674.18	254.59	3.648	
14,600.00	9,207.79	14,581.48	9,305.85	129.92	130.17	-96.06	-5,515.46	547.86	928.78	670.37	258.81	3.590	
14,700.00	9,207.43	14,681.48	9,305.67	131.92	132.17	-96.07	-5,615.43	549.86	928.79	666.33	262.88	3.535	
14,800.00	9,207.07	14,781.48	9,305.49	133.93	134.18	-96.07	-5,715.40	549.86	928.80	662.35	266.87	3.482	
14,900.00	9,206.71	14,881.48	9,305.31	135.94	136.19	-96.08	-5,815.37	549.86	928.81	658.35	270.88	3.430	
15,000.00	9,206.35	14,981.48	9,305.13	137.95	138.20	-96.08	-5,915.34	550.25	928.82	654.35	274.89	3.380	
15,100.00	9,205.99	15,081.48	9,304.95	139.97	140.22	-96.09	-6,015.31	550.83	928.83	650.34	278.91	3.332	
15,200.00	9,205.63	15,181.48	9,304.77	141.99	142.24	-96.09	-6,115.28	551.42	928.84	646.31	282.94	3.284	
15,300.00	9,205.27	15,281.48	9,304.59	144.00	144.25	-96.10	-6,215.25	552.00	928.85	642.29	286.97	3.238	
15,400.00	9,204.91	15,381.48	9,304.41	146.01	146.26	-96.10	-6,315.22	552.58	928.86	638.25	291.02	3.193	
15,500.00	9,204.55	15,481.48	9,304.23	148.02	148.27	-96.11	-6,415.19	553.17	928.87	634.21	295.07	3.149	
15,600.00	9,204.19	15,581.48	9,304.05	150.03	150.28	-96.11	-6,515.16	553.75	928.88	630.16	299.13	3.107	
15,700.00	9,203.83	15,681.48	9,303.87	152.04	152.29	-96.12	-6,615.13	554.34	928.89	626.10	303.19	3.065	
15,800.00	9,203.47	15,781.48	9,303.69	154.05	154.30	-96.12	-6,715.10	554.92	928.90	622.04	307.26	3.024	
15,900.00	9,203.11	15,881.48	9,303.51	156.06	156.31	-96.13	-6,815.07	555.51	928.91	617.97	311.34	2.985	
16,000.00	9,197.31	15,981.48	9,296.58	158.30	158.83	-96.13	-6,932.89	556.09	929.32	613.90	315.42	2.946	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
16,100.00	9,196.57	16,098.96	9,295.92	160.35	160.88	-96.14	-7,032.89	556.67	929.33	609.82	319.51	2.909	
16,200.00	9,195.83	16,198.96	9,295.26	162.40	162.94	-96.14	-7,132.89	557.26	929.34	605.73	323.60	2.872	
16,300.00	9,195.09	16,298.96	9,294.60	164.46	164.99	-96.15	-7,232.88	557.84	929.35	601.64	327.70	2.836	
16,400.00	9,194.35	16,398.96	9,293.93	166.52	167.05	-96.15	-7,332.88	558.43	929.35	597.55	331.81	2.801	
16,500.00	9,193.61	16,498.96	9,293.27	168.58	169.11	-96.16	-7,432.87	559.01	929.36	593.45	335.91	2.767	
16,600.00	9,192.87	16,598.96	9,292.61	170.65	171.17	-96.16	-7,532.87	559.60	929.37	589.34	340.03	2.733	
16,700.00	9,192.13	16,698.96	9,291.95	172.72	173.23	-96.17	-7,632.87	560.18	929.38	585.23	344.14	2.701	
16,800.00	9,191.39	16,798.96	9,291.29	174.79	175.30	-96.17	-7,732.86	560.76	929.39	581.12	348.27	2.669	
16,900.00	9,190.65	16,898.96	9,290.63	176.86	177.37	-96.18	-7,832.86	561.35	929.40	577.00	352.39	2.637	
17,000.00	9,189.91	16,998.96	9,289.97	178.93	179.44	-96.18	-7,932.85	561.93	929.40	572.88	356.52	2.607	
17,100.00	9,189.17	17,098.96	9,289.31	181.01	181.51	-96.19	-8,032.85	562.52	929.41	568.76	360.66	2.577	
17,200.00	9,188.44	17,198.96	9,288.65	183.08	183.59	-96.19	-8,132.85	563.10	929.42	564.63	364.79	2.548	
17,300.00	9,187.70	17,298.96	9,287.99	185.16	185.67	-96.19	-8,232.84	563.68	929.43	560.49	368.93	2.519	
17,400.00	9,186.96	17,398.96	9,287.33	187.25	187.74	-96.20	-8,332.84	564.27	929.44	556.36	373.08	2.491	
17,500.00	9,186.22	17,498.96	9,286.66	189.33	189.82	-96.20	-8,432.83	564.85	929.45	552.22	377.23	2.464	
17,600.00	9,185.48	17,598.96	9,286.00	191.41	191.91	-96.21	-8,532.83	565.44	929.45	548.08	381.38	2.437	
17,700.00	9,184.74	17,698.96	9,285.34	193.50	193.99	-96.21	-8,632.83	566.02	929.46	543.93	385.53	2.411	
17,800.00	9,184.00	17,798.96	9,284.68	195.59	196.08	-96.22	-8,732.82	566.61	929.47	539.78	389.69	2.385	
17,900.00	9,183.26	17,898.96	9,284.02	197.68	198.16	-96.22	-8,832.82	567.19	929.48	535.63	393.85	2.360	
18,000.00	9,182.52	17,998.96	9,283.36	199.77	200.25	-96.23	-8,932.81	567.77	929.49	531.48	398.01	2.335	
18,100.00	9,181.78	18,098.96	9,282.70	201.86	202.34	-96.23	-9,032.81	568.36	929.50	527.32	402.18	2.311	
18,200.00	9,181.04	18,198.96	9,282.04	203.95	204.43	-96.24	-9,132.81	568.94	929.51	523.16	406.35	2.287	
18,300.00	9,180.30	18,298.96	9,281.38	206.05	206.53	-96.24	-9,232.80	569.53	929.51	519.00	410.52	2.264	
18,400.00	9,179.56	18,398.96	9,280.72	208.15	208.62	-96.25	-9,332.80	570.11	929.52	514.83	414.69	2.241	
18,500.00	9,178.82	18,498.96	9,280.05	210.24	210.72	-96.25	-9,432.80	570.70	929.53	510.66	418.87	2.219	
18,600.00	9,178.08	18,598.96	9,279.39	212.34	212.81	-96.26	-9,532.79	571.28	929.54	506.49	423.05	2.197	
18,700.00	9,177.34	18,698.96	9,278.73	214.44	214.91	-96.26	-9,632.79	571.86	929.55	502.32	427.23	2.176	
18,800.00	9,176.60	18,798.96	9,278.07	216.54	217.01	-96.27	-9,732.78	572.45	929.56	498.15	431.41	2.155	
18,900.00	9,175.86	18,898.96	9,277.41	218.64	219.11	-96.27	-9,832.78	573.03	929.57	493.97	435.59	2.134	
19,000.00	9,175.12	18,998.96	9,276.75	220.75	221.21	-96.28	-9,932.78	573.62	929.57	489.79	439.78	2.114	
19,100.00	9,174.38	19,098.96	9,276.09	222.85	223.32	-96.28	-10,032.77	574.20	929.58	485.61	443.97	2.094	
19,200.00	9,173.64	19,198.96	9,275.43	224.96	225.42	-96.29	-10,132.77	574.78	929.59	481.43	448.16	2.074	
19,300.00	9,172.90	19,298.96	9,274.77	227.06	227.52	-96.29	-10,232.76	575.37	929.60	477.24	452.35	2.055	
19,400.00	9,172.16	19,398.96	9,274.11	229.17	229.63	-96.30	-10,332.76	575.95	929.61	473.06	456.55	2.036	
19,500.00	9,171.42	19,498.96	9,273.45	231.28	231.74	-96.30	-10,432.76	576.54	929.62	468.87	460.75	2.018	
19,557.33	9,171.00	19,556.29	9,273.07	232.49	232.94	-96.30	-10,490.09	576.87	929.62	466.47	463.15	2.007	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	1.00	0.00	0.00	0.44	49.92	0.38	49.93				
100.00	100.00	99.00	100.00	0.19	0.19	0.44	49.92	0.38	49.92	49.53	0.39	129.588	
200.00	200.00	199.00	200.00	0.73	0.73	0.44	49.92	0.38	49.92	48.46	1.46	34.257	
300.00	300.00	299.00	300.00	1.27	1.26	0.44	49.92	0.38	49.92	47.39	2.53	19.711	
400.00	400.00	399.00	400.00	1.81	1.80	0.44	49.92	0.38	49.92	46.31	3.61	13.836	
500.00	500.00	499.00	500.00	2.34	2.34	0.44	49.92	0.38	49.92	45.24	4.68	10.659	
600.00	600.00	599.00	600.00	2.88	2.88	0.44	49.92	0.38	49.92	44.16	5.76	8.668	
700.00	700.00	699.00	700.00	3.42	3.41	0.44	49.92	0.38	49.92	43.08	6.83	7.304	
800.00	800.00	799.00	800.00	3.96	3.95	0.44	49.92	0.38	49.92	42.01	7.91	6.311	
900.00	900.00	899.00	900.00	4.50	4.49	0.44	49.92	0.38	49.92	40.93	8.99	5.556	
1,000.00	1,000.00	999.00	1,000.00	5.03	5.03	0.44	49.92	0.38	49.92	39.86	10.06	4.962	
1,100.00	1,100.00	1,099.00	1,100.00	5.57	5.57	0.44	49.92	0.38	49.92	38.78	11.14	4.483	
1,200.00	1,200.00	1,199.00	1,200.00	6.11	6.10	0.44	49.92	0.38	49.92	37.71	12.21	4.088	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.64	0.44	49.92	0.38	49.92	36.63	13.29	3.757	
1,400.00	1,400.00	1,399.00	1,400.00	7.18	7.18	0.44	49.92	0.38	49.92	35.56	14.36	3.476	
1,500.00	1,500.00	1,499.00	1,500.00	7.72	7.72	0.44	49.92	0.38	49.92	34.48	15.44	3.234	
1,600.00	1,600.00	1,599.00	1,600.00	8.26	8.25	0.44	49.92	0.38	49.92	33.41	16.51	3.023	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.79	0.44	49.92	0.38	49.92	32.33	17.59	2.838	
1,800.00	1,800.00	1,799.00	1,800.00	9.33	9.33	0.44	49.92	0.38	49.92	31.26	18.66	2.675 CC	
1,900.00	1,899.98	1,898.51	1,899.49	9.86	9.86	82.89	50.41	-1.24	50.19	30.47	19.72	2.545	
2,000.00	1,999.84	1,998.03	1,998.87	10.38	10.38	83.13	51.92	-6.16	51.00	30.25	20.75	2.457 ES	
2,100.00	2,099.59	2,098.02	2,098.63	10.90	10.90	83.62	53.91	-12.67	52.07	30.26	21.80	2.388	
2,200.00	2,199.34	2,198.01	2,198.39	11.43	11.43	84.10	55.90	-19.18	53.13	30.27	22.86	2.324	
2,300.00	2,299.09	2,298.01	2,298.15	11.96	11.96	84.55	57.89	-25.68	54.20	30.28	23.92	2.266	
2,400.00	2,398.85	2,398.00	2,397.92	12.49	12.49	84.99	59.89	-32.19	55.28	30.29	24.98	2.213	
2,500.00	2,498.60	2,497.99	2,497.68	13.02	13.03	85.41	61.88	-38.70	56.35	30.30	26.05	2.163	
2,600.00	2,598.35	2,597.99	2,597.44	13.56	13.57	85.81	63.87	-45.20	57.43	30.31	27.12	2.117	
2,700.00	2,698.10	2,697.98	2,697.20	14.09	14.10	86.20	65.86	-51.71	58.51	30.32	28.20	2.075	
2,800.00	2,797.86	2,797.97	2,796.96	14.63	14.64	86.58	67.85	-58.22	59.60	30.32	29.27	2.036	
2,900.00	2,897.61	2,897.97	2,896.72	15.17	15.18	86.94	69.84	-64.73	60.68	30.33	30.35	1.999	
3,000.00	2,997.36	2,997.96	2,996.48	15.71	15.72	87.29	71.84	-71.23	61.77	30.34	31.44	1.965	
3,100.00	3,097.11	3,097.95	3,096.25	16.25	16.27	87.63	73.83	-77.74	62.86	30.34	32.52	1.933	
3,200.00	3,196.87	3,197.95	3,196.01	16.80	16.81	87.95	75.82	-84.25	63.96	30.35	33.61	1.903	
3,300.00	3,296.62	3,297.94	3,295.77	17.34	17.35	88.27	77.81	-90.76	65.05	30.36	34.69	1.875	
3,400.00	3,396.37	3,397.93	3,395.53	17.89	17.90	88.57	79.80	-97.26	66.15	30.37	35.78	1.849	
3,500.00	3,496.12	3,497.93	3,495.29	18.43	18.44	88.87	81.79	-103.77	67.25	30.38	36.87	1.824	
3,600.00	3,595.88	3,597.92	3,595.05	18.98	18.99	89.15	83.78	-110.28	68.35	30.39	37.96	1.800	
3,700.00	3,695.63	3,697.91	3,694.82	19.52	19.53	89.43	85.78	-116.79	69.45	30.40	39.06	1.778	
3,800.00	3,795.38	3,797.91	3,794.58	20.07	20.08	89.69	87.77	-123.29	70.56	30.41	40.15	1.757	
3,900.00	3,895.13	3,897.90	3,894.34	20.62	20.63	89.95	89.76	-129.80	71.66	30.42	41.24	1.738	
4,000.00	3,994.89	3,997.89	3,994.10	21.17	21.18	90.20	91.75	-136.31	72.77	30.43	42.34	1.719	
4,100.00	4,094.64	4,097.89	4,093.86	21.71	21.72	90.45	93.74	-142.82	73.88	30.44	43.44	1.701	
4,200.00	4,194.39	4,197.88	4,193.62	22.26	22.27	90.68	95.73	-149.32	74.99	30.46	44.53	1.684	
4,300.00	4,294.14	4,297.87	4,293.38	22.81	22.82	90.91	97.73	-155.83	76.10	30.47	45.63	1.668	
4,400.00	4,393.89	4,397.87	4,393.15	23.36	23.37	91.14	99.72	-162.34	77.21	30.48	46.73	1.652	
4,500.00	4,493.65	4,497.86	4,492.91	23.91	23.92	91.35	101.71	-168.84	78.32	30.50	47.83	1.638	
4,600.00	4,593.40	4,597.85	4,592.67	24.46	24.47	91.56	103.70	-175.35	79.44	30.51	48.92	1.624	
4,700.00	4,693.15	4,697.85	4,692.43	25.01	25.02	91.77	105.69	-181.86	80.55	30.53	50.02	1.610	
4,800.00	4,792.90	4,797.84	4,792.19	25.56	25.57	91.97	107.68	-188.37	81.67	30.54	51.12	1.597	
4,900.00	4,892.66	4,897.83	4,891.95	26.11	26.12	92.16	109.67	-194.87	82.79	30.56	52.23	1.585	
5,000.00	4,992.41	4,997.83	4,991.71	26.67	26.67	92.35	111.67	-201.38	83.90	30.58	53.33	1.573	
5,100.00	5,092.16	5,097.82	5,091.48	27.22	27.22	92.53	113.66	-207.89	85.02	30.60	54.43	1.562	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,200.00	5,191.91	5,197.81	5,191.24	27.77	27.77	92.71	115.65	-214.40	86.14	30.61	55.53	1.551	
5,300.00	5,291.67	5,297.81	5,291.00	28.32	28.32	92.89	117.64	-220.90	87.26	30.63	56.63	1.541	
5,400.00	5,391.42	5,397.80	5,390.76	28.87	28.87	93.06	119.63	-227.41	88.39	30.65	57.73	1.531	
5,500.00	5,491.17	5,497.79	5,490.52	29.43	29.42	93.22	121.62	-233.92	89.51	30.67	58.84	1.521	
5,600.00	5,590.92	5,597.79	5,590.28	29.98	29.97	93.38	123.62	-240.43	90.63	30.69	59.94	1.512	
5,700.00	5,690.68	5,697.78	5,690.05	30.53	30.52	93.54	125.61	-246.93	91.75	30.71	61.04	1.503	
5,800.00	5,790.43	5,797.77	5,789.81	31.08	31.08	93.69	127.60	-253.44	92.88	30.73	62.14	1.495 Level 3	
5,900.00	5,890.18	5,897.77	5,889.57	31.64	31.63	93.84	129.59	-259.95	94.00	30.76	63.25	1.486 Level 3	
6,000.00	5,989.93	5,997.76	5,989.33	32.19	32.18	93.99	131.58	-266.45	95.13	30.78	64.35	1.478 Level 3	
6,100.00	6,089.69	6,097.75	6,089.09	32.74	32.73	94.13	133.57	-272.96	96.26	30.80	65.46	1.471 Level 3	
6,200.00	6,189.44	6,197.75	6,188.85	33.30	33.28	94.27	135.57	-279.47	97.38	30.82	66.56	1.463 Level 3	
6,300.00	6,289.19	6,297.74	6,288.61	33.85	33.84	94.41	137.56	-285.98	98.51	30.85	67.66	1.456 Level 3	
6,400.00	6,388.94	6,397.74	6,388.38	34.40	34.39	94.54	139.55	-292.48	99.64	30.87	68.77	1.449 Level 3	
6,500.00	6,488.70	6,497.73	6,488.14	34.96	34.94	94.67	141.54	-298.99	100.77	30.89	69.87	1.442 Level 3	
6,600.00	6,588.45	6,597.72	6,587.90	35.51	35.49	94.80	143.53	-305.50	101.90	30.92	70.98	1.436 Level 3	
6,700.00	6,688.20	6,697.72	6,687.66	36.06	36.04	94.93	145.52	-312.01	103.03	30.94	72.08	1.429 Level 3	
6,800.00	6,787.95	6,797.71	6,787.42	36.62	36.60	95.05	147.51	-318.51	104.16	30.97	73.19	1.423 Level 3	
6,900.00	6,887.70	6,897.70	6,887.18	37.17	37.15	95.17	149.51	-325.02	105.29	30.99	74.29	1.417 Level 3	
7,000.00	6,987.46	6,997.70	6,986.95	37.72	37.70	95.28	151.50	-331.53	106.42	31.02	75.40	1.411 Level 3	
7,100.00	7,087.21	7,097.69	7,086.71	38.28	38.25	95.40	153.49	-338.04	107.55	31.04	76.50	1.406 Level 3	
7,200.00	7,186.96	7,197.68	7,186.47	38.83	38.81	95.51	155.48	-344.54	108.68	31.07	77.61	1.400 Level 3	
7,300.00	7,286.71	7,297.68	7,286.23	39.39	39.36	95.62	157.47	-351.05	109.81	31.10	78.72	1.395 Level 3	
7,400.00	7,386.47	7,397.67	7,385.99	39.94	39.91	95.73	159.46	-357.56	110.94	31.12	79.82	1.390 Level 3	
7,500.00	7,486.22	7,497.66	7,485.75	40.50	40.47	95.83	161.46	-364.07	112.08	31.15	80.93	1.385 Level 3	
7,600.00	7,585.97	7,597.66	7,585.51	41.05	41.02	95.94	163.45	-370.57	113.21	31.18	82.03	1.380 Level 3	
7,700.00	7,685.72	7,697.65	7,685.28	41.60	41.57	96.04	165.44	-377.08	114.34	31.20	83.14	1.375 Level 3	
7,800.00	7,785.48	7,797.64	7,785.04	42.16	42.13	96.14	167.43	-383.59	115.48	31.23	84.25	1.371 Level 3	
7,900.00	7,885.23	7,897.64	7,884.80	42.71	42.68	96.23	169.42	-390.09	116.61	31.26	85.35	1.366 Level 3	
8,000.00	7,984.98	7,997.63	7,984.56	43.27	43.23	96.33	171.41	-396.60	117.75	31.29	86.46	1.362 Level 3	
8,100.00	8,084.73	8,097.62	8,084.32	43.82	43.78	96.42	173.40	-403.11	118.88	31.32	87.57	1.358 Level 3	
8,200.00	8,184.49	8,197.62	8,184.08	44.38	44.34	96.51	175.40	-409.62	120.02	31.35	88.67	1.354 Level 3	
8,300.00	8,284.24	8,297.61	8,283.85	44.93	44.89	96.60	177.39	-416.12	121.15	31.38	89.78	1.349 Level 3	
8,400.00	8,383.99	8,397.60	8,383.61	45.49	45.44	96.69	179.38	-422.63	122.29	31.40	90.88	1.346 Level 3	
8,500.00	8,483.74	8,497.60	8,483.37	46.04	46.00	96.78	181.37	-429.14	123.43	31.43	91.99	1.342 Level 3	
8,600.00	8,583.50	8,597.59	8,583.13	46.60	46.55	96.86	183.36	-435.65	124.56	31.46	93.10	1.338 Level 3, SF	
8,700.00	8,683.24	8,697.55	8,682.86	47.15	47.10	141.77	185.35	-442.15	126.74	32.72	94.02	1.348 Level 3	
8,800.00	8,781.93	8,796.16	8,781.24	47.67	47.65	177.37	187.32	-448.57	142.15	49.24	92.91	1.530	
8,900.00	8,876.74	8,890.52	8,875.38	48.15	48.17	-177.29	189.20	-454.71	174.13	84.86	89.28	1.950	
9,000.00	8,964.80	8,977.77	8,962.43	48.58	48.66	-176.09	190.93	-460.39	222.01	138.81	83.19	2.669	
9,100.00	9,043.43	9,055.25	9,039.73	48.96	49.08	-175.67	192.48	-465.43	284.42	209.46	74.96	3.794	
9,200.00	9,110.24	9,120.62	9,104.95	49.31	49.45	-175.07	193.78	-469.68	359.47	294.30	65.18	5.515	
9,300.00	9,163.20	9,171.88	9,156.09	49.66	49.73	-173.67	194.80	-473.02	444.85	389.89	54.96	8.094	
9,400.00	9,200.70	9,207.47	9,191.60	50.06	49.93	-169.99	195.51	-475.34	537.91	490.74	47.17	11.403	
9,500.00	9,221.61	10,211.42	9,802.33	50.50	53.80	179.97	-442.10	-499.55	580.72	542.30	38.42	15.113	
9,600.00	9,225.90	10,311.22	9,801.86	50.99	54.31	-180.00	-541.87	-497.12	575.97	538.91	37.06	15.542	
9,700.00	9,225.54	10,411.22	9,801.40	51.54	54.89	-180.00	-641.84	-494.68	575.87	537.88	37.99	15.159	
9,800.00	9,225.18	10,511.22	9,800.94	52.18	55.56	180.00	-741.81	-492.25	575.77	536.73	39.04	14.748	
9,900.00	9,224.82	10,611.22	9,800.47	52.90	56.29	180.00	-841.78	-489.82	575.66	535.46	40.20	14.320	
10,000.00	9,224.45	10,711.22	9,800.01	53.69	57.10	180.00	-941.74	-487.38	575.56	534.10	41.47	13.881	
10,100.00	9,224.09	10,811.22	9,799.55	54.55	57.97	180.00	-1,041.71	-484.95	575.46	532.64	42.82	13.439	
10,200.00	9,223.73	10,911.22	9,799.09	55.49	58.91	180.00	-1,141.68	-482.52	575.36	531.10	44.26	12.999	
10,300.00	9,223.37	11,011.22	9,798.62	56.49	59.91	-180.00	-1,241.65	-480.08	575.26	529.48	45.78	12.566	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
10,400.00	9,223.00	11,111.22	9,798.16	57.55	60.98	180.00	-1,341.62	-477.65	575.16	527.80	47.36	12.143	
10,500.00	9,222.64	11,211.22	9,797.70	58.68	62.09	180.00	-1,441.59	-475.21	575.06	526.05	49.01	11.733	
10,600.00	9,222.28	11,311.22	9,797.23	59.86	63.27	180.00	-1,541.56	-472.78	574.96	524.25	50.71	11.337	
10,700.00	9,221.92	11,411.22	9,796.77	61.09	64.49	180.00	-1,641.53	-470.35	574.86	522.39	52.47	10.956	
10,800.00	9,221.55	11,511.22	9,796.31	62.38	65.76	180.00	-1,741.50	-467.91	574.76	520.49	54.27	10.591	
10,900.00	9,221.19	11,611.22	9,795.84	63.71	67.08	-180.00	-1,841.47	-465.48	574.66	518.55	56.11	10.242	
11,000.00	9,220.83	11,711.22	9,795.38	65.09	68.44	180.00	-1,941.44	-463.04	574.56	516.57	57.99	9.909	
11,100.00	9,220.47	11,811.22	9,794.92	66.51	69.85	-180.00	-2,041.41	-460.61	574.46	514.56	59.90	9.591	
11,200.00	9,220.11	11,911.22	9,794.46	67.97	71.29	-180.00	-2,141.38	-458.18	574.36	512.52	61.84	9.288	
11,300.00	9,219.74	12,011.22	9,793.99	69.46	72.76	180.00	-2,241.34	-455.74	574.26	510.45	63.81	9.000	
11,400.00	9,219.38	12,111.22	9,793.53	71.00	74.27	180.00	-2,341.31	-453.31	574.16	508.35	65.80	8.725	
11,500.00	9,219.02	12,211.22	9,793.07	72.56	75.81	180.00	-2,441.28	-450.87	574.05	506.23	67.82	8.464	
11,600.00	9,218.66	12,311.22	9,792.60	74.15	77.39	-180.00	-2,541.25	-448.44	573.95	504.09	69.86	8.216	
11,700.00	9,218.29	12,411.22	9,792.14	75.77	78.99	-180.00	-2,641.22	-446.01	573.85	501.93	71.92	7.979	
11,800.00	9,217.93	12,511.22	9,791.68	77.42	80.61	180.00	-2,741.19	-443.57	573.75	499.76	73.99	7.754	
11,900.00	9,217.57	12,611.22	9,791.22	79.10	82.26	180.00	-2,841.16	-441.14	573.65	497.57	76.09	7.539	
12,000.00	9,217.21	12,711.22	9,790.75	80.79	83.94	180.00	-2,941.13	-438.70	573.55	495.36	78.19	7.335	
12,100.00	9,216.84	12,811.22	9,790.29	82.51	85.63	180.00	-3,041.10	-436.27	573.45	493.14	80.31	7.140	
12,200.00	9,216.48	12,911.22	9,789.83	84.25	87.35	180.00	-3,141.07	-433.84	573.35	490.90	82.45	6.954	
12,300.00	9,216.12	13,011.22	9,789.36	86.01	89.09	180.00	-3,241.04	-431.40	573.25	488.66	84.59	6.777	
12,400.00	9,215.76	13,111.22	9,788.90	87.79	90.85	180.00	-3,341.01	-428.97	573.15	486.40	86.75	6.607	
12,500.00	9,215.40	13,211.22	9,788.44	89.58	92.62	180.00	-3,440.98	-426.54	573.05	484.13	88.91	6.445	
12,600.00	9,215.03	13,311.22	9,787.97	91.39	94.41	180.00	-3,540.95	-424.10	572.95	481.86	91.09	6.290	
12,700.00	9,214.67	13,411.22	9,787.51	93.22	96.21	180.00	-3,640.91	-421.67	572.85	479.57	93.27	6.142	
12,800.00	9,214.31	13,511.22	9,787.05	95.06	98.03	180.00	-3,740.88	-419.23	572.75	477.28	95.47	5.999	
12,900.00	9,213.95	13,611.22	9,786.59	96.91	99.87	180.00	-3,840.85	-416.80	572.65	474.98	97.67	5.863	
13,000.00	9,213.58	13,711.22	9,786.12	98.78	101.71	180.00	-3,940.82	-414.37	572.54	472.67	99.87	5.733	
13,100.00	9,213.22	13,811.22	9,785.66	100.66	103.57	180.00	-4,040.79	-411.93	572.44	470.36	102.09	5.607	
13,200.00	9,212.86	13,911.22	9,785.20	102.55	105.44	180.00	-4,140.76	-409.50	572.34	468.04	104.30	5.487	
13,300.00	9,212.50	14,011.22	9,784.73	104.45	107.33	180.00	-4,240.73	-407.06	572.24	465.71	106.53	5.372	
13,400.00	9,212.13	14,111.22	9,784.27	106.36	109.22	180.00	-4,340.70	-404.63	572.14	463.38	108.76	5.261	
13,500.00	9,211.77	14,211.22	9,783.81	108.28	111.12	180.00	-4,440.67	-402.20	572.04	461.05	111.00	5.154	
13,600.00	9,211.41	14,311.22	9,783.34	110.21	113.03	180.00	-4,540.64	-399.76	571.94	458.70	113.24	5.051	
13,700.00	9,211.05	14,411.22	9,782.88	112.15	114.96	180.00	-4,640.61	-397.33	571.84	456.36	115.48	4.952	
13,800.00	9,210.68	14,511.22	9,782.42	114.10	116.89	180.00	-4,740.58	-394.89	571.74	454.01	117.73	4.856	
13,900.00	9,210.32	14,611.22	9,781.96	116.05	118.82	-180.00	-4,840.55	-392.46	571.64	451.65	119.98	4.764	
14,000.00	9,209.96	14,711.22	9,781.49	118.02	120.77	180.00	-4,940.51	-390.03	571.54	449.30	122.24	4.675	
14,100.00	9,209.60	14,811.22	9,781.03	119.99	122.72	180.00	-5,040.48	-387.59	571.44	446.93	124.50	4.590	
14,200.00	9,209.24	14,911.22	9,780.57	121.96	124.68	180.00	-5,140.45	-385.16	571.34	444.57	126.77	4.507	
14,300.00	9,208.87	15,011.22	9,780.10	123.94	126.65	180.00	-5,240.42	-382.73	571.24	442.20	129.03	4.427	
14,400.00	9,208.51	15,111.22	9,779.64	125.93	128.63	180.00	-5,340.39	-380.29	571.14	439.83	131.30	4.350	
14,500.00	9,208.15	15,211.22	9,779.18	127.93	130.61	-180.00	-5,440.36	-377.86	571.04	437.46	133.58	4.275	
14,600.00	9,207.79	15,311.22	9,778.72	129.92	132.64	-180.00	-5,540.33	-375.43	570.94	435.09	135.89	4.201	
14,700.00	9,207.43	15,411.22	9,778.26	131.92	134.63	-180.00	-5,640.30	-373.00	570.84	432.72	138.17	4.130	
14,800.00	9,207.07	15,511.22	9,777.80	133.93	136.62	-180.00	-5,740.27	-370.57	570.74	430.35	140.45	4.061	
14,900.00	9,206.71	15,611.22	9,777.34	135.94	138.62	-180.00	-5,840.24	-368.14	570.64	427.98	142.74	3.995	
15,000.00	9,206.35	15,711.22	9,776.88	137.95	140.62	-180.00	-5,940.21	-365.71	570.54	425.61	145.02	3.930	
15,100.00	9,205.99	15,811.22	9,776.42	139.97	142.62	-180.00	-6,040.18	-363.28	570.44	423.24	147.31	3.868	
15,200.00	9,205.63	15,911.22	9,775.96	141.99	144.63	-180.00	-6,140.15	-360.85	570.34	420.87	149.60	3.807	
15,300.00	9,205.27	16,011.22	9,775.50	144.02	146.65	-180.00	-6,240.12	-358.42	570.24	418.50	151.89	3.748	
15,400.00	9,204.91	16,111.22	9,775.04	146.05	148.66	-180.00	-6,340.09	-355.99	570.14	416.13	154.18	3.691	
15,500.00	9,204.55	16,211.22	9,774.58	148.08	150.69	-180.00	-6,440.06	-353.56	570.04	413.76	156.48	3.636	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design													HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
15,600.00	9,200.27	16,314.05	9,768.92	150.12	152.71	-180.00	-6,543.11	-370.20	568.68	409.90	158.78	3.582				
15,700.00	9,199.53	16,414.05	9,767.96	152.16	154.74	-180.00	-6,643.10	-369.62	568.46	407.38	161.07	3.529				
15,800.00	9,198.79	16,514.05	9,767.00	154.20	156.77	-180.00	-6,743.10	-369.03	568.24	404.86	163.38	3.478				
15,900.00	9,198.05	16,614.05	9,766.04	156.25	158.81	-180.00	-6,843.09	-368.45	568.02	402.34	165.68	3.428				
16,000.00	9,197.31	16,714.05	9,765.08	158.30	160.85	-180.00	-6,943.08	-367.86	567.80	399.82	167.98	3.380				
16,100.00	9,196.57	16,814.05	9,764.12	160.35	162.89	-180.00	-7,043.08	-367.28	567.58	397.29	170.28	3.333				
16,200.00	9,195.83	16,914.05	9,763.16	162.40	164.94	-180.00	-7,143.07	-366.70	567.36	394.77	172.59	3.287				
16,300.00	9,195.09	17,014.05	9,762.20	164.46	166.98	-180.00	-7,243.06	-366.11	567.14	392.24	174.90	3.243				
16,400.00	9,194.35	17,114.05	9,761.24	166.52	169.03	-180.00	-7,343.06	-365.53	566.92	389.71	177.21	3.199				
16,500.00	9,193.61	17,214.05	9,760.29	168.58	171.09	-180.00	-7,443.05	-364.94	566.70	387.18	179.52	3.157				
16,600.00	9,192.87	17,314.05	9,759.33	170.65	173.14	-180.00	-7,543.04	-364.36	566.48	384.65	181.83	3.115				
16,700.00	9,192.13	17,414.05	9,758.37	172.72	175.20	-180.00	-7,643.04	-363.78	566.26	382.12	184.14	3.075				
16,800.00	9,191.39	17,514.05	9,757.41	174.79	177.26	-180.00	-7,743.03	-363.19	566.04	379.59	186.45	3.036				
16,900.00	9,190.65	17,614.04	9,756.45	176.86	179.33	-180.00	-7,843.02	-362.61	565.82	377.05	188.77	2.997				
17,000.00	9,189.91	17,714.04	9,755.49	178.93	181.39	-180.00	-7,943.02	-362.02	565.60	374.52	191.08	2.960				
17,100.00	9,189.17	17,814.04	9,754.53	181.01	183.46	-180.00	-8,043.01	-361.44	565.38	371.98	193.40	2.923				
17,200.00	9,188.44	17,914.04	9,753.57	183.08	185.53	-180.00	-8,143.00	-360.85	565.16	369.45	195.71	2.888				
17,300.00	9,187.70	18,014.04	9,752.61	185.16	187.60	-180.00	-8,243.00	-360.27	564.94	366.91	198.03	2.853				
17,400.00	9,186.96	18,114.04	9,751.65	187.25	189.67	-180.00	-8,342.99	-359.69	564.72	364.37	200.35	2.819				
17,500.00	9,186.22	18,214.04	9,750.69	189.33	191.75	-180.00	-8,442.99	-359.10	564.50	361.83	202.67	2.785				
17,600.00	9,185.48	18,314.04	9,749.73	191.41	193.83	-180.00	-8,542.98	-358.52	564.28	359.29	204.99	2.753				
17,700.00	9,184.74	18,414.04	9,748.77	193.50	195.90	-180.00	-8,642.97	-357.93	564.06	356.75	207.31	2.721				
17,800.00	9,184.00	18,514.04	9,747.81	195.59	197.98	-180.00	-8,742.97	-357.35	563.84	354.21	209.63	2.690				
17,900.00	9,183.26	18,614.04	9,746.85	197.68	200.07	-180.00	-8,842.96	-356.77	563.62	351.67	211.95	2.659				
18,000.00	9,182.52	18,714.04	9,745.89	199.77	202.15	-180.00	-8,942.95	-356.18	563.40	349.12	214.28	2.629				
18,100.00	9,181.78	18,814.04	9,744.93	201.86	204.24	-180.00	-9,042.95	-355.60	563.18	346.58	216.60	2.600				
18,200.00	9,181.04	18,914.04	9,743.97	203.95	206.32	-180.00	-9,142.94	-355.01	562.96	344.03	218.92	2.571				
18,300.00	9,180.30	19,014.04	9,743.01	206.05	208.41	-180.00	-9,242.93	-354.43	562.74	341.49	221.25	2.543				
18,400.00	9,179.56	19,114.04	9,742.05	208.15	210.50	-180.00	-9,342.93	-353.85	562.52	338.94	223.58	2.516				
18,500.00	9,178.82	19,214.04	9,741.09	210.24	212.59	-180.00	-9,442.92	-353.26	562.30	336.40	225.90	2.489				
18,600.00	9,178.08	19,314.04	9,740.13	212.34	214.68	-180.00	-9,542.91	-352.68	562.08	333.85	228.23	2.463				
18,700.00	9,177.34	19,414.04	9,739.18	214.44	216.78	-180.00	-9,642.91	-352.09	561.86	331.30	230.56	2.437				
18,800.00	9,176.60	19,514.04	9,738.22	216.54	218.87	-180.00	-9,742.90	-351.51	561.64	328.76	232.88	2.412				
18,900.00	9,175.86	19,614.04	9,737.26	218.64	220.97	-180.00	-9,842.89	-350.93	561.42	326.21	235.21	2.387				
19,000.00	9,175.12	19,714.04	9,736.30	220.75	223.07	-180.00	-9,942.89	-350.34	561.20	323.66	237.54	2.363				
19,100.00	9,174.38	19,814.04	9,735.34	222.85	225.17	-180.00	-10,042.88	-349.76	560.98	321.11	239.87	2.339				
19,200.00	9,173.64	19,914.04	9,734.38	224.96	227.26	-180.00	-10,142.87	-349.17	560.76	318.56	242.20	2.315				
19,300.00	9,172.90	20,014.04	9,733.42	227.06	229.37	-180.00	-10,242.87	-348.59	560.54	316.01	244.53	2.292				
19,400.00	9,172.16	20,114.04	9,732.46	229.17	231.47	-180.00	-10,342.86	-348.00	560.32	313.46	246.86	2.270				
19,500.00	9,171.42	20,214.04	9,731.50	231.28	233.57	-180.00	-10,442.85	-347.42	560.10	310.91	249.19	2.248				
19,547.78	9,171.07	20,261.82	9,731.04	232.29	234.57	-180.00	-10,490.63	-347.14	560.00	309.69	250.31	2.237				
19,557.33	9,171.00	20,266.00	9,731.00	232.49	234.66	180.00	-10,494.81	-347.12	560.00	309.53	250.47	2.236				



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	1.00	0.00	0.00	0.58	74.91	0.75	74.92				
100.00	100.00	99.00	100.00	0.19	0.19	0.58	74.91	0.75	74.92	74.53	0.39	194.483	
200.00	200.00	199.00	200.00	0.73	0.73	0.58	74.91	0.75	74.92	73.46	1.46	51.413	
300.00	300.00	299.00	300.00	1.27	1.26	0.58	74.91	0.75	74.92	72.39	2.53	29.581	
400.00	400.00	399.00	400.00	1.81	1.80	0.58	74.91	0.75	74.92	71.31	3.61	20.764	
500.00	500.00	499.00	500.00	2.34	2.34	0.58	74.91	0.75	74.92	70.23	4.68	15.996	
600.00	600.00	599.00	600.00	2.88	2.88	0.58	74.91	0.75	74.92	69.16	5.76	13.009	
700.00	700.00	699.00	700.00	3.42	3.41	0.58	74.91	0.75	74.92	68.08	6.83	10.962	
800.00	800.00	799.00	800.00	3.96	3.95	0.58	74.91	0.75	74.92	67.01	7.91	9.472	
900.00	900.00	899.00	900.00	4.50	4.49	0.58	74.91	0.75	74.92	65.93	8.99	8.338	
1,000.00	1,000.00	999.00	1,000.00	5.03	5.03	0.58	74.91	0.75	74.92	64.86	10.06	7.447	
1,100.00	1,100.00	1,099.00	1,100.00	5.57	5.57	0.58	74.91	0.75	74.92	63.78	11.14	6.728	
1,200.00	1,200.00	1,199.00	1,200.00	6.11	6.10	0.58	74.91	0.75	74.92	62.71	12.21	6.135	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.64	0.58	74.91	0.75	74.92	61.63	13.29	5.639	
1,400.00	1,400.00	1,399.00	1,400.00	7.18	7.18	0.58	74.91	0.75	74.92	60.56	14.36	5.216	
1,500.00	1,500.00	1,499.00	1,500.00	7.72	7.72	0.58	74.91	0.75	74.92	59.48	15.44	4.853	
1,600.00	1,600.00	1,599.00	1,600.00	8.26	8.25	0.58	74.91	0.75	74.92	58.40	16.51	4.537	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.79	0.58	74.91	0.75	74.92	57.33	17.59	4.259	
1,800.00	1,800.00	1,799.00	1,800.00	9.33	9.33	0.58	74.91	0.75	74.92	56.25	18.66	4.014	
1,900.00	1,899.98	1,899.06	1,900.04	9.86	9.85	85.56	74.78	2.46	74.66	54.95	19.71	3.787	
1,948.62	1,948.55	1,947.52	1,948.46	10.11	10.10	88.65	74.62	4.38	74.56	54.34	20.22	3.688 CC	
2,000.00	1,999.84	1,998.63	1,999.53	10.38	10.36	92.64	74.45	6.48	74.73	53.99	20.74	3.603 ES	
2,100.00	2,099.59	2,098.01	2,098.83	10.90	10.88	100.96	74.12	10.55	76.28	54.50	21.78	3.503	
2,200.00	2,199.34	2,197.39	2,198.12	11.43	11.39	108.79	73.79	14.62	79.37	56.56	22.81	3.479	
2,300.00	2,299.09	2,296.77	2,297.42	11.96	11.91	115.92	73.46	18.69	83.83	59.98	23.85	3.515	
2,400.00	2,398.85	2,396.15	2,396.71	12.49	12.43	122.25	73.14	22.76	89.46	64.58	24.89	3.595	
2,500.00	2,498.60	2,495.53	2,496.01	13.02	12.95	127.78	72.81	26.83	96.05	70.13	25.92	3.705	
2,600.00	2,598.35	2,594.91	2,595.31	13.56	13.47	132.56	72.48	30.90	103.43	76.46	26.97	3.836	
2,700.00	2,698.10	2,694.29	2,694.60	14.09	14.00	136.69	72.15	34.97	111.42	83.41	28.01	3.978	
2,800.00	2,797.86	2,793.67	2,793.90	14.63	14.52	140.25	71.82	39.04	119.92	90.87	29.05	4.128	
2,900.00	2,897.61	2,893.05	2,893.19	15.17	15.05	143.34	71.49	43.11	128.81	98.72	30.10	4.280	
3,000.00	2,997.36	2,992.43	2,992.49	15.71	15.58	146.02	71.16	47.18	138.03	106.89	31.15	4.432	
3,100.00	3,097.11	3,091.81	3,091.78	16.25	16.10	148.36	70.83	51.25	147.51	115.32	32.20	4.582	
3,200.00	3,196.87	3,191.19	3,191.08	16.80	16.63	150.41	70.50	55.32	157.21	123.96	33.25	4.729	
3,300.00	3,296.62	3,290.57	3,290.38	17.34	17.16	152.23	70.18	59.39	167.09	132.79	34.30	4.871	
3,400.00	3,396.37	3,389.95	3,389.67	17.89	17.69	153.84	69.85	63.46	177.11	141.75	35.35	5.009	
3,500.00	3,496.12	3,489.33	3,488.97	18.43	18.22	155.28	69.52	67.53	187.26	150.85	36.41	5.143	
3,600.00	3,595.88	3,588.71	3,588.26	18.98	18.76	156.57	69.19	71.60	197.51	160.04	37.47	5.271	
3,700.00	3,695.63	3,688.09	3,687.56	19.52	19.29	157.73	68.86	75.67	207.85	169.32	38.53	5.395	
3,800.00	3,795.38	3,787.47	3,786.85	20.07	19.82	158.79	68.53	79.74	218.27	178.68	39.58	5.514	
3,900.00	3,895.13	3,886.85	3,886.15	20.62	20.35	159.74	68.20	83.81	228.75	188.11	40.64	5.628	
4,000.00	3,994.89	3,986.22	3,985.44	21.17	20.89	160.61	67.87	87.88	239.29	197.59	41.71	5.738	
4,100.00	4,094.64	4,085.60	4,084.74	21.71	21.42	161.41	67.54	91.95	249.89	207.12	42.77	5.843	
4,200.00	4,194.39	4,184.98	4,184.04	22.26	21.96	162.15	67.22	96.02	260.52	216.69	43.83	5.944	
4,300.00	4,294.14	4,284.36	4,283.33	22.81	22.49	162.82	66.89	100.09	271.20	226.31	44.89	6.041	
4,400.00	4,393.89	4,383.74	4,382.63	23.36	23.02	163.45	66.56	104.16	281.91	235.95	45.96	6.134	
4,500.00	4,493.65	4,483.12	4,481.92	23.91	23.56	164.03	66.23	108.23	292.65	245.63	47.02	6.224	
4,600.00	4,593.40	4,582.50	4,581.22	24.46	24.09	164.57	65.90	112.30	303.42	255.33	48.08	6.310	
4,700.00	4,693.15	4,681.88	4,680.51	25.01	24.63	165.07	65.57	116.37	314.21	265.08	49.15	6.393	
4,800.00	4,792.90	4,781.26	4,779.81	25.56	25.17	165.53	65.24	120.44	325.03	274.81	50.22	6.473	
4,900.00	4,892.66	4,880.64	4,879.11	26.11	25.70	165.97	64.91	124.51	335.86	284.58	51.28	6.549	
5,000.00	4,992.41	4,980.02	4,978.40	26.67	26.24	166.38	64.58	128.58	346.72	294.37	52.35	6.623	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,092.16	5,079.40	5,077.70	27.22	26.77	166.77	64.26	132.65	357.59	304.17	53.42	6.694	
5,200.00	5,191.91	5,178.78	5,176.99	27.77	27.31	167.13	63.93	136.73	368.47	313.99	54.48	6.763	
5,300.00	5,291.67	5,278.16	5,276.29	28.32	27.85	167.47	63.60	140.80	379.37	323.82	55.55	6.829	
5,400.00	5,391.42	5,377.54	5,375.58	28.87	28.38	167.80	63.27	144.87	390.28	333.66	56.62	6.893	
5,500.00	5,491.17	5,476.92	5,474.88	29.43	28.92	168.10	62.94	148.94	401.20	343.52	57.69	6.955	
5,600.00	5,590.92	5,576.30	5,574.17	29.98	29.46	168.39	62.61	153.01	412.14	353.38	58.76	7.014	
5,700.00	5,690.68	5,675.68	5,673.47	30.53	30.00	168.66	62.28	157.08	423.08	363.25	59.83	7.072	
5,800.00	5,790.43	5,775.06	5,772.77	31.08	30.53	168.92	61.95	161.15	434.03	373.14	60.89	7.128	
5,900.00	5,890.18	5,874.44	5,872.06	31.64	31.07	169.17	61.62	165.22	444.99	383.03	61.96	7.181	
6,000.00	5,989.93	5,973.82	5,971.36	32.19	31.61	169.41	61.30	169.29	455.96	392.93	63.03	7.234	
6,100.00	6,089.69	6,073.20	6,070.65	32.74	32.15	169.63	60.97	173.36	466.94	402.83	64.10	7.284	
6,200.00	6,189.44	6,172.58	6,169.95	33.30	32.68	169.85	60.64	177.43	477.92	412.75	65.17	7.333	
6,300.00	6,289.19	6,271.95	6,269.24	33.85	33.22	170.05	60.31	181.50	488.91	422.66	66.24	7.380	
6,400.00	6,388.94	6,371.33	6,368.54	34.40	33.76	170.25	59.98	185.57	499.90	432.59	67.32	7.426	
6,500.00	6,488.70	6,470.71	6,467.84	34.96	34.30	170.43	59.65	189.64	510.91	442.52	68.39	7.471	
6,600.00	6,588.45	6,570.09	6,567.13	35.51	34.84	170.61	59.32	193.71	521.91	452.45	69.46	7.514	
6,700.00	6,688.20	6,669.47	6,666.43	36.06	35.38	170.78	58.99	197.78	532.92	462.39	70.53	7.556	
6,800.00	6,787.95	6,768.85	6,765.72	36.62	35.91	170.95	58.66	201.85	543.94	472.34	71.60	7.597	
6,900.00	6,887.70	6,868.23	6,865.02	37.17	36.45	171.11	58.34	205.92	554.96	482.28	72.67	7.636	
7,000.00	6,987.46	6,967.61	6,964.31	37.72	36.99	171.26	58.01	209.99	565.98	492.24	73.74	7.675	
7,100.00	7,087.21	7,066.99	7,063.61	38.28	37.53	171.41	57.68	214.06	577.01	502.19	74.82	7.712	
7,200.00	7,186.96	7,166.37	7,162.90	38.83	38.07	171.55	57.35	218.13	588.04	512.15	75.89	7.749	
7,300.00	7,286.71	7,265.75	7,262.20	39.39	38.61	171.68	57.02	222.20	599.07	522.11	76.96	7.784	
7,400.00	7,386.47	7,365.13	7,361.50	39.94	39.15	171.81	56.69	226.27	610.11	532.08	78.03	7.819	
7,500.00	7,486.22	7,464.51	7,460.79	40.50	39.68	171.94	56.36	230.34	621.15	542.04	79.10	7.852	
7,600.00	7,585.97	7,563.89	7,560.09	41.05	40.22	172.06	56.03	234.41	632.19	552.01	80.18	7.885	
7,700.00	7,685.72	7,663.27	7,659.38	41.60	40.76	172.18	55.70	238.48	643.24	561.99	81.25	7.917	
7,800.00	7,785.48	7,762.65	7,758.68	42.16	41.30	172.29	55.38	242.55	654.29	571.96	82.32	7.948	
7,900.00	7,885.23	7,862.03	7,857.97	42.71	41.84	172.40	55.05	246.62	665.34	581.94	83.39	7.978	
8,000.00	7,984.98	7,961.41	7,957.27	43.27	42.38	172.51	54.72	250.69	676.39	591.92	84.47	8.008	
8,100.00	8,084.73	8,060.79	8,056.57	43.82	42.92	172.61	54.39	254.76	687.45	601.90	85.54	8.036	
8,200.00	8,184.49	8,160.17	8,155.86	44.38	43.46	172.71	54.06	258.83	698.50	611.89	86.61	8.065	
8,300.00	8,284.24	8,259.55	8,255.16	44.93	44.00	172.81	53.73	262.90	709.56	621.88	87.69	8.092	
8,400.00	8,383.99	8,358.93	8,354.45	45.49	44.54	172.90	53.40	266.97	720.62	631.86	88.76	8.119	
8,500.00	8,483.74	8,458.31	8,453.75	46.04	45.08	172.99	53.07	271.04	731.69	641.85	89.83	8.145	
8,600.00	8,583.50	8,557.68	8,553.04	46.60	45.62	173.08	52.74	275.11	742.75	651.84	90.91	8.170	
8,700.00	8,683.24	8,657.06	8,652.33	47.15	46.15	-141.61	52.42	279.18	753.78	661.79	91.99	8.194	
8,800.00	8,781.93	8,755.44	8,750.63	47.67	46.69	-104.81	52.09	283.21	764.29	671.23	93.06	8.213	
8,900.00	8,876.74	8,850.04	8,845.15	48.15	47.20	-98.72	51.78	287.09	774.76	680.71	94.05	8.238	
9,000.00	8,964.80	8,937.98	8,933.01	48.58	47.68	-97.67	51.49	290.69	786.75	691.83	94.92	8.289	
9,100.00	9,043.43	9,016.58	9,011.55	48.96	48.11	-98.07	51.23	293.91	802.43	706.80	95.63	8.391	
9,200.00	9,110.24	9,083.46	9,078.38	49.31	48.47	-98.50	51.00	296.65	824.13	727.89	96.23	8.564	
9,300.00	9,163.20	9,136.59	9,131.46	49.66	48.76	-98.04	50.83	298.82	853.71	756.82	96.89	8.811	
9,400.00	9,200.70	9,174.35	9,169.19	50.06	48.96	-96.01	50.70	300.37	892.13	794.37	97.76	9.125	
9,500.00	9,221.61	9,195.60	9,190.42	50.50	49.08	-91.99	50.63	301.24	939.13	840.48	98.65	9.520	
9,600.00	9,225.90	9,200.30	9,195.12	50.99	49.10	-87.69	50.62	301.43	993.29	894.28	99.01	10.033	
9,700.00	9,225.54	10,292.74	9,860.69	51.54	54.69	-127.09	-620.84	345.05	1,053.09	965.51	87.59	12.023	
9,800.00	9,225.18	10,392.74	9,860.36	52.18	55.34	-127.10	-720.81	347.47	1,053.11	964.38	88.73	11.869	
9,900.00	9,224.82	10,492.74	9,860.04	52.90	56.06	-127.10	-820.78	349.90	1,053.13	963.11	90.02	11.699	
10,000.00	9,224.45	10,592.74	9,859.72	53.69	56.86	-127.10	-920.75	352.33	1,053.15	961.71	91.43	11.518	
10,100.00	9,224.09	10,692.74	9,859.40	54.55	57.73	-127.10	-1,020.72	354.75	1,053.17	960.18	92.98	11.327	
10,200.00	9,223.73	10,792.74	9,859.08	55.49	58.66	-127.10	-1,120.69	357.18	1,053.18	958.53	94.65	11.127	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	9,223.37	10,892.74	9,858.75	56.49	59.65	-127.11	-1,220.66	359.60	1,053.20	956.76	96.44	10.921	
10,400.00	9,223.00	10,992.74	9,858.43	57.55	60.71	-127.11	-1,320.63	362.03	1,053.22	954.89	98.33	10.711	
10,500.00	9,222.64	11,092.74	9,858.11	58.68	61.83	-127.11	-1,420.60	364.46	1,053.24	952.91	100.33	10.498	
10,600.00	9,222.28	11,192.74	9,857.79	59.86	62.99	-127.11	-1,520.57	366.88	1,053.26	950.83	102.42	10.283	
10,700.00	9,221.92	11,292.74	9,857.46	61.09	64.21	-127.11	-1,620.54	369.31	1,053.27	948.66	104.61	10.068	
10,800.00	9,221.55	11,392.74	9,857.14	62.38	65.48	-127.12	-1,720.51	371.73	1,053.29	946.41	106.88	9.855	
10,900.00	9,221.19	11,492.74	9,856.82	63.71	66.80	-127.12	-1,820.48	374.16	1,053.31	944.07	109.24	9.642	
11,000.00	9,220.83	11,592.74	9,856.50	65.09	68.16	-127.12	-1,920.45	376.59	1,053.33	941.66	111.66	9.433	
11,100.00	9,220.47	11,692.74	9,856.18	66.51	69.56	-127.12	-2,020.42	379.01	1,053.35	939.18	114.16	9.227	
11,200.00	9,220.11	11,792.74	9,855.85	67.97	71.00	-127.12	-2,120.39	381.44	1,053.36	936.64	116.73	9.024	
11,300.00	9,219.74	11,892.74	9,855.53	69.46	72.47	-127.13	-2,220.36	383.87	1,053.38	934.03	119.35	8.826	
11,400.00	9,219.38	11,992.74	9,855.21	71.00	73.98	-127.13	-2,320.33	386.29	1,053.40	931.36	122.04	8.632	
11,500.00	9,219.02	12,092.74	9,854.89	72.56	75.52	-127.13	-2,420.30	388.72	1,053.42	928.64	124.78	8.442	
11,600.00	9,218.66	12,192.74	9,854.56	74.15	77.09	-127.13	-2,520.27	391.14	1,053.44	925.87	127.56	8.258	
11,700.00	9,218.29	12,292.74	9,854.24	75.77	78.69	-127.13	-2,620.24	393.57	1,053.45	923.05	130.40	8.079	
11,800.00	9,217.93	12,392.74	9,853.92	77.42	80.32	-127.14	-2,720.21	396.00	1,053.47	920.19	133.28	7.904	
11,900.00	9,217.57	12,492.74	9,853.60	79.10	81.97	-127.14	-2,820.18	398.42	1,053.49	917.29	136.20	7.735	
12,000.00	9,217.21	12,592.74	9,853.27	80.79	83.64	-127.14	-2,920.15	400.85	1,053.51	914.35	139.16	7.570	
12,100.00	9,216.84	12,692.74	9,852.95	82.51	85.34	-127.14	-3,020.12	403.28	1,053.53	911.37	142.16	7.411	
12,200.00	9,216.48	12,792.74	9,852.63	84.25	87.06	-127.14	-3,120.09	405.70	1,053.54	908.36	145.19	7.256	
12,300.00	9,216.12	12,892.74	9,852.31	86.01	88.80	-127.15	-3,220.06	408.13	1,053.56	905.31	148.25	7.107	
12,400.00	9,215.76	12,992.74	9,851.99	87.79	90.55	-127.15	-3,320.03	410.55	1,053.58	902.24	151.34	6.962	
12,500.00	9,215.40	13,092.74	9,851.66	89.58	92.33	-127.15	-3,420.00	412.98	1,053.60	899.13	154.46	6.821	
12,600.00	9,215.03	13,192.74	9,851.34	91.39	94.12	-127.15	-3,519.97	415.41	1,053.62	896.01	157.61	6.685	
12,700.00	9,214.67	13,292.74	9,851.02	93.22	95.92	-127.15	-3,619.94	417.83	1,053.63	892.85	160.78	6.553	
12,800.00	9,214.31	13,392.74	9,850.70	95.06	97.74	-127.16	-3,719.91	420.26	1,053.65	889.67	163.98	6.426	
12,900.00	9,213.95	13,492.74	9,850.37	96.91	99.58	-127.16	-3,819.88	422.68	1,053.67	886.47	167.20	6.302	
13,000.00	9,213.58	13,592.74	9,850.05	98.78	101.42	-127.16	-3,919.85	425.11	1,053.69	883.25	170.43	6.182	
13,100.00	9,213.22	13,692.74	9,849.73	100.66	103.28	-127.16	-4,019.82	427.54	1,053.71	880.01	173.69	6.066	
13,200.00	9,212.86	13,792.74	9,849.41	102.55	105.15	-127.16	-4,119.79	429.96	1,053.72	876.75	176.97	5.954	
13,300.00	9,212.50	13,892.74	9,849.08	104.45	107.04	-127.17	-4,219.76	432.39	1,053.74	873.48	180.26	5.846	
13,400.00	9,212.13	13,992.74	9,848.76	106.36	108.93	-127.17	-4,319.73	434.82	1,053.76	870.18	183.58	5.740	
13,500.00	9,211.77	14,092.74	9,848.44	108.28	110.83	-127.17	-4,419.70	437.24	1,053.78	866.87	186.90	5.638	
13,600.00	9,211.41	14,192.74	9,848.12	110.21	112.75	-127.17	-4,519.67	439.67	1,053.80	863.55	190.24	5.539	
13,700.00	9,211.05	14,292.74	9,847.80	112.15	114.67	-127.17	-4,619.64	442.09	1,053.81	860.21	193.60	5.443	
13,800.00	9,210.68	14,392.74	9,847.47	114.10	116.60	-127.18	-4,719.61	444.52	1,053.83	856.86	196.97	5.350	
13,900.00	9,210.32	14,492.74	9,847.15	116.05	118.54	-127.18	-4,819.58	446.95	1,053.85	853.50	200.35	5.260	
14,000.00	9,209.96	14,592.74	9,846.83	118.02	120.49	-127.18	-4,919.55	449.37	1,053.87	850.12	203.75	5.172	
14,100.00	9,209.60	14,692.74	9,846.51	119.99	122.44	-127.18	-5,019.52	451.80	1,053.89	846.73	207.15	5.087	
14,200.00	9,209.24	14,792.74	9,846.18	121.96	124.40	-127.18	-5,119.49	454.22	1,053.90	843.33	210.57	5.005	
14,300.00	9,208.87	14,892.74	9,845.86	123.94	126.37	-127.19	-5,219.46	456.65	1,053.92	839.92	214.00	4.925	
14,400.00	9,208.51	14,992.74	9,845.54	125.93	128.34	-127.19	-5,319.43	459.08	1,053.94	836.51	217.43	4.847	
14,500.00	9,208.15	15,092.74	9,845.22	127.93	130.32	-127.19	-5,419.40	461.50	1,053.96	833.08	220.88	4.772	
14,600.00	9,207.79	15,192.74	9,844.90	129.92	132.65	-127.18	-5,519.37	463.94	1,054.25	829.60	224.65	4.693	
14,700.00	9,206.93	15,312.03	9,843.77	131.92	134.67	-127.17	-5,638.65	464.54	1,054.15	825.99	228.16	4.620	
14,800.00	9,206.19	15,412.03	9,842.85	133.93	136.66	-127.16	-5,738.65	465.12	1,054.04	822.40	231.64	4.550	
14,900.00	9,205.45	15,512.03	9,841.93	135.94	138.66	-127.15	-5,838.64	465.70	1,053.93	818.80	235.13	4.482	
15,000.00	9,204.71	15,612.03	9,841.00	137.95	140.65	-127.14	-5,938.63	466.29	1,053.82	815.20	238.62	4.416	
15,100.00	9,203.97	15,712.03	9,840.08	139.97	142.66	-127.14	-6,038.63	466.87	1,053.71	811.58	242.13	4.352	
15,200.00	9,203.23	15,812.03	9,839.16	141.99	144.66	-127.13	-6,138.62	467.46	1,053.60	807.96	245.64	4.289	
15,300.00	9,202.49	15,912.03	9,838.24	144.02	146.68	-127.12	-6,238.62	468.04	1,053.49	804.33	249.15	4.228	
15,400.00	9,201.75	16,012.03	9,837.32	146.05	148.69	-127.11	-6,338.61	468.62	1,053.38	800.70	252.68	4.169	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,500.00	9,201.01	16,112.03	9,836.40	148.08	150.71	-127.11	-6,438.60	469.21	1,053.27	797.06	256.21	4.111	
15,600.00	9,200.27	16,212.03	9,835.48	150.12	152.73	-127.10	-6,538.60	469.79	1,053.16	793.41	259.75	4.055	
15,700.00	9,199.53	16,312.03	9,834.56	152.16	154.76	-127.09	-6,638.59	470.38	1,053.05	789.76	263.29	4.000	
15,800.00	9,198.79	16,412.02	9,833.64	154.20	156.79	-127.08	-6,738.58	470.96	1,052.94	786.10	266.84	3.946	
15,900.00	9,198.05	16,512.02	9,832.72	156.25	158.83	-127.07	-6,838.58	471.54	1,052.83	782.43	270.40	3.894	
16,000.00	9,197.31	16,612.02	9,831.80	158.30	160.86	-127.07	-6,938.57	472.13	1,052.72	778.77	273.96	3.843	
16,100.00	9,196.57	16,712.02	9,830.88	160.35	162.90	-127.06	-7,038.57	472.71	1,052.61	775.09	277.52	3.793	
16,200.00	9,195.83	16,812.02	9,829.95	162.40	164.95	-127.05	-7,138.56	473.30	1,052.50	771.41	281.09	3.744	
16,300.00	9,195.09	16,912.02	9,829.03	164.46	166.99	-127.04	-7,238.55	473.88	1,052.39	767.73	284.67	3.697	
16,400.00	9,194.35	17,012.02	9,828.11	166.52	169.04	-127.03	-7,338.55	474.46	1,052.28	764.04	288.25	3.651	
16,500.00	9,193.61	17,112.02	9,827.19	168.58	171.09	-127.03	-7,438.54	475.05	1,052.17	760.34	291.83	3.605	
16,600.00	9,192.87	17,212.02	9,826.27	170.65	173.15	-127.02	-7,538.54	475.63	1,052.06	756.65	295.42	3.561	
16,700.00	9,192.13	17,312.02	9,825.35	172.72	175.21	-127.01	-7,638.53	476.22	1,051.96	752.94	299.01	3.518	
16,800.00	9,191.39	17,412.02	9,824.43	174.79	177.26	-127.00	-7,738.52	476.80	1,051.85	749.24	302.61	3.476	
16,900.00	9,190.65	17,512.02	9,823.51	176.86	179.33	-127.00	-7,838.52	477.38	1,051.74	745.53	306.21	3.435	
17,000.00	9,189.91	17,612.02	9,822.59	178.93	181.39	-126.99	-7,938.51	477.97	1,051.63	741.81	309.82	3.394	
17,100.00	9,189.17	17,712.02	9,821.67	181.01	183.46	-126.98	-8,038.51	478.55	1,051.52	738.09	313.42	3.355	
17,200.00	9,188.44	17,812.02	9,820.75	183.08	185.52	-126.97	-8,138.50	479.14	1,051.41	734.37	317.04	3.316	
17,300.00	9,187.70	17,912.02	9,819.82	185.16	187.59	-126.96	-8,238.49	479.72	1,051.30	730.65	320.65	3.279	
17,400.00	9,186.96	18,012.02	9,818.90	187.25	189.67	-126.96	-8,338.49	480.30	1,051.19	726.92	324.27	3.242	
17,500.00	9,186.22	18,112.02	9,817.98	189.33	191.74	-126.95	-8,438.48	480.89	1,051.08	723.19	327.89	3.206	
17,600.00	9,185.48	18,212.02	9,817.06	191.41	193.82	-126.94	-8,538.47	481.47	1,050.97	719.45	331.52	3.170	
17,700.00	9,184.74	18,312.02	9,816.14	193.50	195.89	-126.93	-8,638.47	482.06	1,050.86	715.72	335.15	3.136	
17,800.00	9,184.00	18,412.02	9,815.22	195.59	197.97	-126.92	-8,738.46	482.64	1,050.75	711.97	338.78	3.102	
17,900.00	9,183.26	18,512.02	9,814.30	197.68	200.05	-126.92	-8,838.46	483.22	1,050.65	708.23	342.41	3.068	
18,000.00	9,182.52	18,612.02	9,813.38	199.77	202.14	-126.91	-8,938.45	483.81	1,050.54	704.48	346.05	3.036	
18,100.00	9,181.78	18,712.02	9,812.46	201.86	204.22	-126.90	-9,038.44	484.39	1,050.43	700.73	349.69	3.004	
18,200.00	9,181.04	18,812.02	9,811.54	203.95	206.31	-126.89	-9,138.44	484.98	1,050.32	696.98	353.34	2.973	
18,300.00	9,180.30	18,912.02	9,810.62	206.05	208.39	-126.88	-9,238.43	485.56	1,050.21	693.23	356.98	2.942	
18,400.00	9,179.56	19,012.02	9,809.69	208.15	210.48	-126.88	-9,338.43	486.14	1,050.10	689.47	360.63	2.912	
18,500.00	9,178.82	19,112.02	9,808.77	210.24	212.57	-126.87	-9,438.42	486.73	1,049.99	685.71	364.28	2.882	
18,600.00	9,178.08	19,212.02	9,807.85	212.34	214.66	-126.86	-9,538.41	487.31	1,049.88	681.95	367.93	2.853	
18,700.00	9,177.34	19,312.02	9,806.93	214.44	216.76	-126.85	-9,638.41	487.90	1,049.77	678.18	371.59	2.825	
18,800.00	9,176.60	19,412.02	9,806.01	216.54	218.85	-126.85	-9,738.40	488.48	1,049.66	674.42	375.25	2.797	
18,900.00	9,175.86	19,512.02	9,805.09	218.64	220.95	-126.84	-9,838.40	489.06	1,049.56	670.65	378.91	2.770	
19,000.00	9,175.12	19,612.02	9,804.17	220.75	223.04	-126.83	-9,938.39	489.65	1,049.45	666.87	382.57	2.743	
19,100.00	9,174.38	19,712.02	9,803.25	222.85	225.14	-126.82	-10,038.38	490.23	1,049.34	663.10	386.24	2.717	
19,200.00	9,173.64	19,812.02	9,802.33	224.96	227.24	-126.81	-10,138.38	490.82	1,049.23	659.32	389.90	2.691	
19,300.00	9,172.90	19,912.02	9,801.41	227.06	229.34	-126.81	-10,238.37	491.40	1,049.12	655.55	393.57	2.666	
19,400.00	9,172.16	20,012.02	9,800.49	229.17	231.44	-126.80	-10,338.36	491.98	1,049.01	651.77	397.24	2.641	
19,500.00	9,171.42	20,112.02	9,799.56	231.28	233.54	-126.79	-10,438.36	492.57	1,048.90	647.98	400.92	2.616	
19,557.33	9,171.00	20,169.35	9,799.04	232.49	234.75	-126.79	-10,495.69	492.90	1,048.84	645.82	403.02	2.602 SF	

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



Phoenix Technology Services LP

Anticollision Report



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Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
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Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0025 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)				Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	2.00	0.00	0.00	0.64	99.91	1.12	99.94					
100.00	100.00	98.00	100.00	0.19	0.19	0.64	99.91	1.12	99.92	99.54	0.38	260.694		
200.00	200.00	198.00	200.00	0.73	0.72	0.64	99.91	1.12	99.92	98.47	1.45	68.823		
300.00	300.00	298.00	300.00	1.27	1.26	0.64	99.91	1.12	99.92	97.39	2.53	39.537		
400.00	400.00	398.00	400.00	1.81	1.80	0.64	99.91	1.12	99.92	96.32	3.60	27.735		
500.00	500.00	498.00	500.00	2.34	2.33	0.64	99.91	1.12	99.92	95.24	4.68	21.359		
600.00	600.00	598.00	600.00	2.88	2.87	0.64	99.91	1.12	99.92	94.16	5.75	17.367		
700.00	700.00	698.00	700.00	3.42	3.41	0.64	99.91	1.12	99.92	93.09	6.83	14.632		
800.00	800.00	798.00	800.00	3.96	3.95	0.64	99.91	1.12	99.92	92.01	7.90	12.641		
900.00	900.00	898.00	900.00	4.50	4.48	0.64	99.91	1.12	99.92	90.94	8.98	11.127		
1,000.00	1,000.00	998.00	1,000.00	5.03	5.02	0.64	99.91	1.12	99.92	89.86	10.06	9.937		
1,100.00	1,100.00	1,098.00	1,100.00	5.57	5.56	0.64	99.91	1.12	99.92	88.79	11.13	8.977		
1,200.00	1,200.00	1,198.00	1,200.00	6.11	6.10	0.64	99.91	1.12	99.92	87.71	12.21	8.186		
1,300.00	1,300.00	1,298.00	1,300.00	6.65	6.64	0.64	99.91	1.12	99.92	86.64	13.28	7.523		
1,400.00	1,400.00	1,398.00	1,400.00	7.18	7.17	0.64	99.91	1.12	99.92	85.56	14.36	6.960		
1,500.00	1,500.00	1,498.00	1,500.00	7.72	7.71	0.64	99.91	1.12	99.92	84.49	15.43	6.475		
1,600.00	1,600.00	1,598.00	1,600.00	8.26	8.25	0.64	99.91	1.12	99.92	83.41	16.51	6.053		
1,700.00	1,700.00	1,698.00	1,700.00	8.80	8.79	0.64	99.91	1.12	99.92	82.34	17.58	5.683		
1,800.00	1,800.00	1,798.00	1,800.00	9.33	9.32	0.64	99.91	1.12	99.92	81.26	18.66	5.355		
1,900.00	1,899.98	1,897.98	1,899.98	9.86	9.86	83.98	99.91	1.12	99.92	80.00	19.72	5.056		
2,000.00	1,999.84	1,997.84	1,999.84	10.38	10.40	86.99	99.91	1.12	99.91	78.53	20.78	4.779		
2,074.68	2,074.33	2,072.33	2,074.33	10.77	10.80	90.00	99.91	1.12	99.17	77.60	21.57	4.598 CC		
2,100.00	2,099.59	2,097.59	2,099.59	10.90	10.93	91.04	99.91	1.12	99.19	77.35	21.84	4.542		
2,200.00	2,199.34	2,197.34	2,199.34	11.43	11.47	95.08	99.91	1.12	99.56	76.66	22.90	4.348		
2,300.00	2,299.09	2,297.09	2,299.09	11.96	12.01	99.07	99.91	1.12	100.43	76.47	23.96	4.191 ES		
2,400.00	2,398.85	2,396.85	2,398.85	12.49	12.54	102.97	99.91	1.12	101.78	76.75	25.03	4.067		
2,500.00	2,498.60	2,496.60	2,498.60	13.02	13.08	106.76	99.91	1.12	103.59	77.50	26.09	3.970		
2,600.00	2,598.35	2,596.35	2,598.35	13.56	13.62	110.40	99.91	1.12	105.84	78.68	27.16	3.897		
2,700.00	2,698.10	2,696.10	2,698.10	14.09	14.15	113.88	99.91	1.12	108.49	80.27	28.22	3.844		
2,800.00	2,797.86	2,795.86	2,797.86	14.63	14.69	117.17	99.91	1.12	111.53	82.24	29.29	3.808		
2,900.00	2,897.61	2,895.61	2,897.61	15.17	15.23	120.29	99.91	1.12	114.92	84.56	30.36	3.786		
3,000.00	2,997.36	2,995.36	2,997.36	15.71	15.76	123.22	99.91	1.12	118.63	87.21	31.42	3.775		
3,100.00	3,097.11	3,095.11	3,097.11	16.25	16.30	125.96	99.91	1.12	122.63	90.14	32.49	3.774		
3,200.00	3,196.87	3,194.87	3,196.87	16.80	16.83	128.53	99.91	1.12	126.90	93.34	33.56	3.782		
3,300.00	3,296.62	3,294.62	3,296.62	17.34	17.37	130.93	99.91	1.12	131.40	96.78	34.62	3.795		
3,400.00	3,396.37	3,394.37	3,396.37	17.89	17.91	133.16	99.91	1.12	136.12	100.43	35.69	3.814		
3,500.00	3,496.12	3,494.12	3,496.12	18.43	18.44	135.24	99.91	1.12	141.03	104.27	36.76	3.837		
3,600.00	3,595.88	3,593.88	3,595.88	18.98	18.98	137.18	99.91	1.12	146.11	108.29	37.82	3.863		
3,700.00	3,695.63	3,693.63	3,695.63	19.52	19.52	138.99	99.91	1.12	151.35	112.46	38.89	3.891		
3,800.00	3,795.38	3,793.38	3,795.38	20.07	20.05	140.68	99.91	1.12	156.73	116.77	39.96	3.922		
3,900.00	3,895.13	3,893.13	3,895.13	20.62	20.59	142.25	99.91	1.12	162.24	121.21	41.03	3.954		
4,000.00	3,994.89	3,992.89	3,994.89	21.17	21.13	143.72	99.91	1.12	167.86	125.76	42.10	3.987		
4,100.00	4,094.64	4,092.64	4,094.64	21.71	21.66	145.09	99.91	1.12	173.58	130.42	43.17	4.021		
4,200.00	4,194.39	4,192.39	4,194.39	22.26	22.20	146.38	99.91	1.12	179.40	135.16	44.24	4.055		
4,300.00	4,294.14	4,292.14	4,294.14	22.81	22.74	147.58	99.91	1.12	185.30	140.00	45.31	4.090		
4,400.00	4,393.89	4,391.89	4,393.89	23.36	23.27	148.71	99.91	1.12	191.28	144.90	46.38	4.125		
4,500.00	4,493.65	4,491.65	4,493.65	23.91	23.81	149.77	99.91	1.12	197.33	149.88	47.45	4.159		
4,600.00	4,593.40	4,591.40	4,593.40	24.46	24.34	150.76	99.91	1.12	203.44	154.92	48.52	4.193		
4,700.00	4,693.15	4,691.15	4,693.15	25.01	24.88	151.70	99.91	1.12	209.61	160.02	49.59	4.227		
4,800.00	4,792.90	4,790.90	4,792.90	25.56	25.42	152.59	99.91	1.12	215.83	165.17	50.66	4.260		
4,900.00	4,892.66	4,890.66	4,892.66	26.11	25.95	153.42	99.91	1.12	222.10	170.37	51.73	4.293		
5,000.00	4,992.41	4,990.41	4,992.41	26.67	26.49	154.21	99.91	1.12	228.41	175.61	52.80	4.326		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0025 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,092.16	5,090.16	5,092.16	27.22	27.03	154.96	99.91	1.12	234.77	180.89	53.87	4.358	
5,200.00	5,191.91	5,189.91	5,191.91	27.77	27.56	155.67	99.91	1.12	241.16	186.21	54.95	4.389	
5,300.00	5,291.67	5,289.67	5,291.67	28.32	28.10	156.34	99.91	1.12	247.59	191.57	56.02	4.420	
5,400.00	5,391.42	5,389.42	5,391.42	28.87	28.64	156.97	99.91	1.12	254.05	196.96	57.09	4.450	
5,500.00	5,491.17	5,489.17	5,491.17	29.43	29.17	157.58	99.91	1.12	260.54	202.37	58.16	4.479	
5,600.00	5,590.92	5,588.92	5,590.92	29.98	29.71	158.15	99.91	1.12	267.05	207.82	59.24	4.508	
5,700.00	5,690.68	5,688.68	5,690.68	30.53	30.24	158.70	99.91	1.12	273.60	213.29	60.31	4.536	
5,800.00	5,790.43	5,788.43	5,790.43	31.08	30.78	159.22	99.91	1.12	280.16	218.78	61.38	4.564	
5,900.00	5,890.18	5,888.18	5,890.18	31.64	31.32	159.72	99.91	1.12	286.75	224.29	62.46	4.591	
6,000.00	5,989.93	5,987.93	5,989.93	32.19	31.85	160.20	99.91	1.12	293.36	229.83	63.53	4.618	
6,100.00	6,089.69	6,087.69	6,089.69	32.74	32.39	160.65	99.91	1.12	299.99	235.38	64.61	4.643	
6,200.00	6,189.44	6,187.44	6,189.44	33.30	32.93	161.09	99.91	1.12	306.64	240.96	65.68	4.669	
6,300.00	6,289.19	6,287.19	6,289.19	33.85	33.46	161.50	99.91	1.12	313.30	246.54	66.75	4.693	
6,400.00	6,388.94	6,386.94	6,388.94	34.40	34.00	161.90	99.91	1.12	319.98	252.15	67.83	4.717	
6,500.00	6,488.70	6,486.70	6,488.70	34.96	34.54	162.29	99.91	1.12	326.67	257.77	68.90	4.741	
6,600.00	6,588.45	6,586.45	6,588.45	35.51	35.07	162.65	99.91	1.12	333.38	263.40	69.98	4.764	
6,700.00	6,688.20	6,686.20	6,688.20	36.06	35.61	163.01	99.91	1.12	340.10	269.05	71.05	4.787	
6,800.00	6,787.95	6,785.95	6,787.95	36.62	36.14	163.35	99.91	1.12	346.83	274.71	72.13	4.809	
6,900.00	6,887.70	6,885.70	6,887.70	37.17	36.68	163.67	99.91	1.12	353.58	280.38	73.20	4.830	
7,000.00	6,987.46	6,985.46	6,987.46	37.72	37.22	163.99	99.91	1.12	360.33	286.06	74.28	4.851	
7,100.00	7,087.21	7,085.21	7,087.21	38.28	37.75	164.29	99.91	1.12	367.10	291.75	75.35	4.872	
7,200.00	7,186.96	7,184.96	7,186.96	38.83	38.29	164.58	99.91	1.12	373.88	297.45	76.43	4.892	
7,300.00	7,286.71	7,284.71	7,286.71	39.39	38.83	164.86	99.91	1.12	380.66	303.16	77.50	4.912	
7,400.00	7,386.47	7,384.47	7,386.47	39.94	39.36	165.13	99.91	1.12	387.46	308.88	78.58	4.931	
7,500.00	7,486.22	7,484.22	7,486.22	40.50	39.90	165.40	99.91	1.12	394.26	314.61	79.65	4.950	
7,600.00	7,585.97	7,583.97	7,585.97	41.05	40.44	165.65	99.91	1.12	401.07	320.34	80.73	4.968	
7,700.00	7,685.72	7,683.72	7,685.72	41.60	40.97	165.90	99.91	1.12	407.89	326.08	81.81	4.986	
7,800.00	7,785.48	7,783.48	7,785.48	42.16	41.51	166.13	99.91	1.12	414.71	331.83	82.88	5.004	
7,900.00	7,885.23	7,883.23	7,885.23	42.71	42.04	166.36	99.91	1.12	421.55	337.59	83.96	5.021	
8,000.00	7,984.98	7,982.98	7,984.98	43.27	42.58	166.58	99.91	1.12	428.39	343.35	85.03	5.038	
8,100.00	8,084.73	8,082.73	8,084.73	43.82	43.12	166.80	99.91	1.12	435.23	349.12	86.11	5.054	
8,200.00	8,184.49	8,182.49	8,184.49	44.38	43.65	167.01	99.91	1.12	442.08	354.90	87.18	5.071	
8,300.00	8,284.24	8,282.24	8,284.24	44.93	44.19	167.21	99.91	1.12	448.94	360.68	88.26	5.086	
8,400.00	8,383.99	8,381.99	8,383.99	45.49	44.77	167.51	99.13	-0.03	454.75	365.37	89.38	5.088	
8,500.00	8,483.74	8,481.74	8,483.74	46.04	45.33	167.80	96.01	-4.61	457.28	366.81	90.48	5.054	
8,600.00	8,583.50	8,581.50	8,583.50	46.60	45.83	168.03	92.57	-9.66	458.89	367.38	91.51	5.015	
8,700.00	8,683.24	8,681.24	8,683.24	47.15	46.32	-145.97	89.13	-14.71	460.58	368.05	92.53	4.977	
8,800.00	8,782.99	8,780.99	8,782.99	47.67	46.82	-110.25	85.72	-19.72	462.84	369.34	93.50	4.950	
8,900.00	8,882.74	8,880.74	8,882.74	48.15	47.30	-105.88	82.41	-24.57	466.90	372.60	94.30	4.951	
9,000.00	8,982.49	8,980.49	8,982.49	48.58	47.75	-106.90	79.32	-29.10	475.46	380.74	94.73	5.019	
9,100.00	9,082.24	9,080.24	9,082.24	48.96	48.16	-109.31	76.55	-33.19	492.18	397.60	94.58	5.204	
9,200.00	9,181.99	9,179.99	9,181.99	49.31	48.51	-111.25	74.16	-36.69	520.50	426.46	94.04	5.535	
9,300.00	9,281.74	9,279.74	9,281.74	49.66	48.79	-111.42	72.24	-39.51	562.46	468.63	93.83	5.994	
9,400.00	9,381.49	9,379.49	9,381.49	50.06	48.99	-108.80	70.84	-41.57	618.03	523.06	94.97	6.508	
9,500.00	9,481.24	9,479.24	9,481.24	50.50	49.12	-102.44	70.01	-42.79	685.24	587.67	97.57	7.023	
9,600.00	9,580.99	9,578.99	9,580.99	50.99	49.15	-95.10	69.74	-43.17	760.84	661.42	99.42	7.653	
9,700.00	9,680.74	9,678.74	9,680.74	51.54	49.17	-95.46	69.64	-43.32	841.69	741.74	99.95	8.421	
9,800.00	9,780.49	9,778.49	9,780.49	52.18	49.18	-95.81	69.54	-43.47	926.28	825.71	100.57	9.210	
9,900.00	9,880.24	9,878.24	9,880.24	52.90	49.20	-96.17	69.44	-43.62	1,013.67	912.40	101.26	10.010	
10,000.00	9,979.99	9,977.99	9,979.99	53.69	49.25	-157.01	-930.87	-67.55	1,075.14	1,014.68	60.46	17.783	
10,100.00	10,079.74	10,077.74	10,079.74	54.55	49.28	-157.01	-1,030.84	-65.12	1,075.28	1,013.53	61.75	17.413	
10,200.00	10,179.49	10,177.49	10,179.49	55.49	49.28	-157.01	-1,130.82	-62.69	1,075.43	1,012.30	63.13	17.034	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0025 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	9,223.37	11,257.16	10,213.56	56.49	60.65	-157.02	-1,230.79	-60.26	1,075.58	1,010.97	64.60	16.649	
10,400.00	9,223.00	11,357.16	10,213.36	57.55	61.67	-157.02	-1,330.76	-57.83	1,075.72	1,009.56	66.16	16.260	
10,500.00	9,222.64	11,457.16	10,213.16	58.68	62.76	-157.02	-1,430.73	-55.41	1,075.87	1,008.08	67.78	15.872	
10,600.00	9,222.28	11,557.16	10,212.96	59.86	63.90	-157.03	-1,530.70	-52.98	1,076.01	1,006.53	69.48	15.486	
10,700.00	9,221.92	11,657.16	10,212.76	61.09	65.09	-157.03	-1,630.67	-50.55	1,076.16	1,004.92	71.24	15.105	
10,800.00	9,221.55	11,757.16	10,212.56	62.38	66.33	-157.04	-1,730.64	-48.12	1,076.31	1,003.24	73.07	14.730	
10,900.00	9,221.19	11,857.16	10,212.36	63.71	67.62	-157.04	-1,830.61	-45.69	1,076.45	1,001.51	74.95	14.363	
11,000.00	9,220.83	11,957.16	10,212.16	65.09	68.95	-157.04	-1,930.58	-43.26	1,076.60	999.72	76.88	14.004	
11,100.00	9,220.47	12,057.16	10,211.95	66.51	70.32	-157.05	-2,030.55	-40.84	1,076.74	997.89	78.86	13.655	
11,200.00	9,220.11	12,157.16	10,211.75	67.97	71.73	-157.05	-2,130.52	-38.41	1,076.89	996.01	80.88	13.315	
11,300.00	9,219.74	12,257.16	10,211.55	69.46	73.18	-157.05	-2,230.49	-35.98	1,077.04	994.09	82.94	12.985	
11,400.00	9,219.38	12,357.16	10,211.35	71.00	74.67	-157.06	-2,330.46	-33.55	1,077.18	992.13	85.05	12.666	
11,500.00	9,219.02	12,457.16	10,211.15	72.56	76.19	-157.06	-2,430.43	-31.12	1,077.33	990.14	87.19	12.357	
11,600.00	9,218.66	12,557.16	10,210.95	74.15	77.74	-157.06	-2,530.40	-28.69	1,077.47	988.12	89.36	12.058	
11,700.00	9,218.29	12,657.16	10,210.75	75.77	79.31	-157.07	-2,630.37	-26.27	1,077.62	986.06	91.56	11.770	
11,800.00	9,217.93	12,757.16	10,210.54	77.42	80.92	-157.07	-2,730.34	-23.84	1,077.77	983.98	93.79	11.491	
11,900.00	9,217.57	12,857.16	10,210.34	79.10	82.55	-157.08	-2,830.31	-21.41	1,077.91	981.87	96.05	11.223	
12,000.00	9,217.21	12,957.16	10,210.14	80.79	84.20	-157.08	-2,930.28	-18.98	1,078.06	979.73	98.33	10.964	
12,100.00	9,216.84	13,057.16	10,209.94	82.51	85.88	-157.08	-3,030.25	-16.55	1,078.20	977.57	100.63	10.714	
12,200.00	9,216.48	13,157.16	10,209.74	84.25	87.58	-157.09	-3,130.22	-14.12	1,078.35	975.39	102.96	10.474	
12,300.00	9,216.12	13,257.16	10,209.54	86.01	89.30	-157.09	-3,230.19	-11.70	1,078.50	973.19	105.30	10.242	
12,400.00	9,215.76	13,357.16	10,209.34	87.79	91.04	-157.09	-3,330.16	-9.27	1,078.64	970.98	107.67	10.018	
12,500.00	9,215.40	13,457.16	10,209.13	89.58	92.79	-157.10	-3,430.13	-6.84	1,078.79	968.74	110.05	9.803	
12,600.00	9,215.03	13,557.16	10,208.93	91.39	94.57	-157.10	-3,530.10	-4.41	1,078.93	966.49	112.44	9.595	
12,700.00	9,214.67	13,657.16	10,208.73	93.22	96.36	-157.10	-3,630.07	-1.98	1,079.08	964.22	114.86	9.395	
12,800.00	9,214.31	13,757.16	10,208.53	95.06	98.16	-157.11	-3,730.04	0.44	1,079.23	961.94	117.28	9.202	
12,900.00	9,213.95	13,857.16	10,208.33	96.91	99.98	-157.11	-3,830.01	2.87	1,079.37	959.65	119.72	9.015	
13,000.00	9,213.58	13,957.16	10,208.13	98.78	101.82	-157.11	-3,929.98	5.30	1,079.52	957.34	122.18	8.836	
13,100.00	9,213.22	14,057.16	10,207.93	100.66	103.66	-157.12	-4,029.95	7.73	1,079.66	955.02	124.64	8.662	
13,200.00	9,212.86	14,157.16	10,207.73	102.55	105.52	-157.12	-4,129.92	10.16	1,079.81	952.69	127.12	8.495	
13,300.00	9,212.50	14,257.16	10,207.52	104.45	107.39	-157.13	-4,229.89	12.59	1,079.96	950.35	129.60	8.333	
13,400.00	9,212.13	14,357.16	10,207.32	106.36	109.27	-157.13	-4,329.86	15.01	1,080.10	948.00	132.10	8.176	
13,500.00	9,211.77	14,457.16	10,207.12	108.28	111.16	-157.13	-4,429.83	17.44	1,080.25	945.64	134.61	8.025	
13,600.00	9,211.41	14,557.16	10,206.92	110.21	113.06	-157.14	-4,529.80	19.87	1,080.40	943.28	137.12	7.879	
13,700.00	9,211.05	14,657.16	10,206.72	112.15	114.98	-157.14	-4,629.77	22.30	1,080.54	940.90	139.64	7.738	
13,800.00	9,210.68	14,757.16	10,206.52	114.10	116.90	-157.14	-4,729.74	24.73	1,080.69	938.51	142.17	7.601	
13,900.00	9,210.32	14,857.16	10,206.32	116.05	118.82	-157.15	-4,829.71	27.16	1,080.83	936.12	144.71	7.469	
14,000.00	9,209.96	14,957.16	10,206.11	118.02	120.76	-157.15	-4,929.68	29.58	1,080.98	933.72	147.25	7.341	
14,100.00	9,209.60	15,057.16	10,205.91	119.99	122.70	-157.15	-5,029.65	32.01	1,081.13	931.32	149.81	7.217	
14,200.00	9,209.24	15,157.16	10,205.71	121.96	124.66	-157.16	-5,129.62	34.44	1,081.27	928.91	152.36	7.097	
14,300.00	9,208.87	15,257.16	10,205.51	123.94	126.62	-157.16	-5,229.59	36.87	1,081.42	926.49	154.93	6.980	
14,400.00	9,208.51	15,357.16	10,205.31	125.93	128.58	-157.17	-5,329.56	39.30	1,081.56	924.07	157.50	6.867	
14,500.00	9,208.15	15,457.16	10,205.11	127.93	130.55	-157.17	-5,429.53	41.72	1,081.71	921.64	160.07	6.758	
14,600.00	9,207.79	15,557.16	10,204.90	129.92	132.53	-157.16	-5,529.50	44.14	1,081.85	919.11	162.64	6.644	
14,700.00	9,207.43	15,657.16	10,204.70	131.92	134.51	-157.17	-5,629.47	46.56	1,082.00	916.67	165.21	6.524	
14,800.00	9,207.07	15,757.16	10,204.50	133.93	136.49	-157.17	-5,729.44	48.98	1,082.14	914.23	167.78	6.403	
14,900.00	9,206.71	15,857.16	10,204.30	135.94	138.48	-157.18	-5,829.41	51.40	1,082.29	911.79	170.35	6.283	
15,000.00	9,206.35	15,957.16	10,204.10	137.95	140.47	-157.18	-5,929.38	53.82	1,082.43	909.35	172.92	6.163	
15,100.00	9,205.99	16,057.16	10,203.90	139.97	142.47	-157.19	-6,029.35	56.24	1,082.58	906.91	175.49	6.043	
15,200.00	9,205.63	16,157.16	10,203.70	141.99	144.47	-157.20	-6,129.32	58.66	1,082.72	904.47	178.06	5.923	
15,300.00	9,205.27	16,257.16	10,203.50	144.02	146.48	-157.20	-6,229.29	61.08	1,082.87	902.03	180.63	5.803	
15,400.00	9,204.91	16,357.16	10,203.30	146.05	148.49	-157.21	-6,329.26	63.50	1,083.01	899.59	183.20	5.683	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design												HH SO 10 15 Fed - 0025 - OH - Plan 1 02-01-17		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM												Offset Well Error: 0.00 usft			
Reference				Offset			Semi Major Axis		Distance				Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
15,500.00	9,201.01	16,467.67	10,200.48	148.08	150.70	-157.21	-6,439.99	49.12	1,084.11	897.93	186.18	5.823			
15,600.00	9,200.27	16,567.67	10,200.00	150.12	152.72	-157.22	-6,539.99	49.71	1,084.35	895.56	188.80	5.744			
15,700.00	9,199.53	16,667.66	10,199.52	152.16	154.74	-157.22	-6,639.99	50.29	1,084.59	893.18	191.41	5.666			
15,800.00	9,198.79	16,767.66	10,199.04	154.20	156.77	-157.23	-6,739.98	50.88	1,084.83	890.80	194.03	5.591			
15,900.00	9,198.05	16,867.66	10,198.56	156.25	158.80	-157.23	-6,839.98	51.46	1,085.07	888.42	196.65	5.518			
16,000.00	9,197.31	16,967.66	10,198.08	158.30	160.83	-157.24	-6,939.98	52.05	1,085.31	886.04	199.27	5.446			
16,100.00	9,196.57	17,067.66	10,197.60	160.35	162.87	-157.24	-7,039.97	52.64	1,085.55	883.66	201.89	5.377			
16,200.00	9,195.83	17,167.66	10,197.12	162.40	164.91	-157.25	-7,139.97	53.22	1,085.79	881.27	204.52	5.309			
16,300.00	9,195.09	17,267.66	10,196.64	164.46	166.95	-157.25	-7,239.97	53.81	1,086.03	878.88	207.15	5.243			
16,400.00	9,194.35	17,367.66	10,196.16	166.52	169.00	-157.26	-7,339.97	54.40	1,086.27	876.49	209.78	5.178			
16,500.00	9,193.61	17,467.66	10,195.68	168.58	171.04	-157.26	-7,439.96	54.98	1,086.51	874.10	212.41	5.115			
16,600.00	9,192.87	17,567.66	10,195.20	170.65	173.09	-157.27	-7,539.96	55.57	1,086.75	871.70	215.05	5.053			
16,700.00	9,192.13	17,667.66	10,194.72	172.72	175.15	-157.27	-7,639.96	56.15	1,086.99	869.30	217.69	4.993			
16,800.00	9,191.39	17,767.66	10,194.24	174.79	177.20	-157.28	-7,739.95	56.74	1,087.23	866.91	220.33	4.935			
16,900.00	9,190.65	17,867.66	10,193.76	176.86	179.26	-157.28	-7,839.95	57.33	1,087.47	864.50	222.97	4.877			
17,000.00	9,189.91	17,967.66	10,193.28	178.93	181.32	-157.29	-7,939.95	57.91	1,087.71	862.10	225.61	4.821			
17,100.00	9,189.17	18,067.66	10,192.80	181.01	183.38	-157.29	-8,039.94	58.50	1,087.95	859.70	228.26	4.766			
17,200.00	9,188.44	18,167.66	10,192.32	183.08	185.45	-157.30	-8,139.94	59.09	1,088.19	857.29	230.90	4.713			
17,300.00	9,187.70	18,267.66	10,191.84	185.16	187.52	-157.30	-8,239.94	59.67	1,088.43	854.89	233.55	4.660			
17,400.00	9,186.96	18,367.66	10,191.36	187.25	189.59	-157.31	-8,339.93	60.26	1,088.67	852.48	236.20	4.609			
17,500.00	9,186.22	18,467.66	10,190.88	189.33	191.66	-157.31	-8,439.93	60.84	1,088.91	850.07	238.85	4.559			
17,600.00	9,185.48	18,567.66	10,190.40	191.41	193.73	-157.32	-8,539.93	61.43	1,089.15	847.66	241.50	4.510			
17,700.00	9,184.74	18,667.66	10,189.92	193.50	195.80	-157.32	-8,639.92	62.02	1,089.39	845.24	244.15	4.462			
17,800.00	9,184.00	18,767.66	10,189.44	195.59	197.88	-157.33	-8,739.92	62.60	1,089.63	842.83	246.80	4.415			
17,900.00	9,183.26	18,867.66	10,188.96	197.68	199.96	-157.34	-8,839.92	63.19	1,089.87	840.41	249.46	4.369			
18,000.00	9,182.52	18,967.66	10,188.48	199.77	202.04	-157.34	-8,939.91	63.78	1,090.11	838.00	252.12	4.324			
18,100.00	9,181.78	19,067.66	10,188.00	201.86	204.12	-157.35	-9,039.91	64.36	1,090.36	835.58	254.77	4.280			
18,200.00	9,181.04	19,167.66	10,187.52	203.95	206.20	-157.35	-9,139.91	64.95	1,090.60	833.16	257.43	4.236			
18,300.00	9,180.30	19,267.66	10,187.04	206.05	208.29	-157.36	-9,239.90	65.53	1,090.84	830.75	260.09	4.194			
18,400.00	9,179.56	19,367.66	10,186.56	208.15	210.38	-157.36	-9,339.90	66.12	1,091.08	828.33	262.75	4.153			
18,500.00	9,178.82	19,467.66	10,186.08	210.24	212.46	-157.37	-9,439.90	66.71	1,091.32	825.91	265.41	4.112			
18,600.00	9,178.08	19,567.66	10,185.60	212.34	214.55	-157.37	-9,539.89	67.29	1,091.56	823.48	268.07	4.072			
18,700.00	9,177.34	19,667.65	10,185.12	214.44	216.64	-157.38	-9,639.89	67.88	1,091.80	821.06	270.74	4.033			
18,800.00	9,176.60	19,767.65	10,184.64	216.54	218.74	-157.38	-9,739.89	68.47	1,092.04	818.64	273.40	3.994			
18,900.00	9,175.86	19,867.65	10,184.16	218.64	220.83	-157.39	-9,839.89	69.05	1,092.28	816.21	276.06	3.957			
19,000.00	9,175.12	19,967.65	10,183.68	220.75	222.92	-157.39	-9,939.88	69.64	1,092.52	813.79	278.73	3.920			
19,100.00	9,174.38	20,067.65	10,183.20	222.85	225.02	-157.40	-10,039.88	70.22	1,092.76	811.36	281.39	3.883			
19,200.00	9,173.64	20,167.65	10,182.72	224.96	227.12	-157.40	-10,139.88	70.81	1,093.00	808.94	284.06	3.848			
19,300.00	9,172.90	20,267.65	10,182.24	227.06	229.21	-157.41	-10,239.87	71.40	1,093.24	806.51	286.73	3.813			
19,400.00	9,172.16	20,367.65	10,181.76	229.17	231.31	-157.41	-10,339.87	71.98	1,093.48	804.08	289.40	3.778			
19,500.00	9,171.42	20,467.65	10,181.28	231.28	233.41	-157.42	-10,439.87	72.57	1,093.72	801.66	292.06	3.745			
19,557.33	9,171.00	20,524.98	10,181.00	232.49	234.54	-157.42	-10,497.20	72.90	1,093.86	800.39	293.46	3.727 SF			

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	3.00	0.00	0.00	0.69	124.91	1.49	124.95				
100.00	100.00	97.00	100.00	0.19	0.19	0.69	124.91	1.49	124.92	124.54	0.38	327.574	
200.00	200.00	197.00	200.00	0.73	0.72	0.69	124.91	1.49	124.92	123.47	1.45	86.363	
300.00	300.00	297.00	300.00	1.27	1.25	0.69	124.91	1.49	124.92	122.40	2.52	49.534	
400.00	400.00	397.00	400.00	1.81	1.79	0.69	124.91	1.49	124.92	121.32	3.60	34.726	
500.00	500.00	497.00	500.00	2.34	2.33	0.69	124.91	1.49	124.92	120.25	4.67	26.734	
600.00	600.00	597.00	600.00	2.88	2.87	0.69	124.91	1.49	124.92	119.17	5.75	21.732	
700.00	700.00	697.00	700.00	3.42	3.40	0.69	124.91	1.49	124.92	118.09	6.82	18.307	
800.00	800.00	797.00	800.00	3.96	3.94	0.69	124.91	1.49	124.92	117.02	7.90	15.815	
900.00	900.00	897.00	900.00	4.50	4.48	0.69	124.91	1.49	124.92	115.94	8.97	13.919	
1,000.00	1,000.00	997.00	1,000.00	5.03	5.02	0.69	124.91	1.49	124.92	114.87	10.05	12.430	
1,100.00	1,100.00	1,097.00	1,100.00	5.57	5.55	0.69	124.91	1.49	124.92	113.79	11.13	11.228	
1,200.00	1,200.00	1,197.00	1,200.00	6.11	6.09	0.69	124.91	1.49	124.92	112.72	12.20	10.239	
1,300.00	1,300.00	1,297.00	1,300.00	6.65	6.63	0.69	124.91	1.49	124.92	111.64	13.28	9.409	
1,400.00	1,400.00	1,397.00	1,400.00	7.18	7.17	0.69	124.91	1.49	124.92	110.57	14.35	8.704	
1,500.00	1,500.00	1,497.00	1,500.00	7.72	7.71	0.69	124.91	1.49	124.92	109.49	15.43	8.097	
1,600.00	1,600.00	1,597.00	1,600.00	8.26	8.24	0.69	124.91	1.49	124.92	108.42	16.50	7.570	
1,700.00	1,700.00	1,697.00	1,700.00	8.80	8.78	0.69	124.91	1.49	124.92	107.34	17.58	7.107	
1,800.00	1,800.00	1,797.00	1,800.00	9.33	9.32	0.69	124.91	1.49	124.92	106.26	18.65	6.697	
1,900.00	1,899.98	1,897.33	1,900.31	9.86	9.84	84.59	124.72	3.14	124.58	104.87	19.71	6.322	
2,000.00	1,999.84	1,996.94	1,999.79	10.38	10.35	89.34	124.12	8.22	124.12	103.39	20.73	5.986	
2,002.50	2,002.33	1,999.42	2,002.26	10.39	10.37	89.50	124.10	8.39	124.12	103.36	20.76	5.979 CC	
2,100.00	2,099.59	2,095.63	2,098.12	10.90	10.87	96.31	123.16	16.43	125.04	103.27	21.77	5.744 ES	
2,200.00	2,199.34	2,194.32	2,196.41	11.43	11.38	103.39	122.12	25.36	127.99	105.18	22.80	5.612	
2,300.00	2,299.09	2,293.02	2,294.70	11.96	11.90	110.07	121.08	34.29	132.84	108.99	23.85	5.571	
2,400.00	2,398.85	2,391.72	2,392.98	12.49	12.43	116.20	120.03	43.22	139.38	114.50	24.89	5.601	
2,500.00	2,498.60	2,490.42	2,491.27	13.02	12.95	121.74	118.99	52.15	147.40	121.48	25.93	5.685	
2,600.00	2,598.35	2,589.11	2,589.56	13.56	13.48	126.68	117.95	61.08	156.67	129.70	26.97	5.809	
2,700.00	2,698.10	2,687.81	2,687.84	14.09	14.01	131.05	116.90	70.01	166.98	138.97	28.01	5.961	
2,800.00	2,797.86	2,786.51	2,786.13	14.63	14.55	134.90	115.86	78.95	178.15	149.09	29.05	6.132	
2,900.00	2,897.61	2,885.20	2,884.41	15.17	15.09	138.28	114.82	87.88	190.02	159.92	30.10	6.313	
3,000.00	2,997.36	2,983.90	2,982.70	15.71	15.62	141.27	113.77	96.81	202.48	171.34	31.14	6.502	
3,100.00	3,097.11	3,082.60	3,080.99	16.25	16.16	143.90	112.73	105.74	215.42	183.23	32.19	6.692	
3,200.00	3,196.87	3,181.29	3,179.27	16.80	16.70	146.23	111.69	114.67	228.76	195.52	33.24	6.883	
3,300.00	3,296.62	3,279.99	3,277.56	17.34	17.25	148.31	110.64	123.60	242.43	208.15	34.29	7.071	
3,400.00	3,396.37	3,378.69	3,375.85	17.89	17.79	150.16	109.60	132.53	256.39	221.05	35.34	7.256	
3,500.00	3,496.12	3,477.38	3,474.13	18.43	18.34	151.83	108.56	141.46	270.58	234.19	36.39	7.436	
3,600.00	3,595.88	3,576.08	3,572.42	18.98	18.88	153.32	107.52	150.39	284.97	247.53	37.44	7.611	
3,700.00	3,695.63	3,674.78	3,670.71	19.52	19.43	154.67	106.47	159.32	299.54	261.04	38.49	7.781	
3,800.00	3,795.38	3,773.48	3,768.99	20.07	19.98	155.90	105.43	168.26	314.25	274.70	39.55	7.946	
3,900.00	3,895.13	3,872.17	3,867.28	20.62	20.52	157.02	104.39	177.19	329.10	288.49	40.61	8.105	
4,000.00	3,994.89	3,970.87	3,965.57	21.17	21.07	158.04	103.34	186.12	344.05	302.39	41.66	8.258	
4,100.00	4,094.64	4,069.57	4,063.85	21.71	21.62	158.97	102.30	195.05	359.11	316.39	42.72	8.406	
4,200.00	4,194.39	4,168.26	4,162.14	22.26	22.17	159.83	101.26	203.98	374.25	330.47	43.78	8.548	
4,300.00	4,294.14	4,266.96	4,260.43	22.81	22.73	160.62	100.21	212.91	389.47	344.63	44.84	8.685	
4,400.00	4,393.89	4,365.66	4,358.71	23.36	23.28	161.36	99.17	221.84	404.75	358.85	45.90	8.818	
4,500.00	4,493.65	4,464.35	4,457.00	23.91	23.83	162.04	98.13	230.77	420.10	373.13	46.96	8.945	
4,600.00	4,593.40	4,563.05	4,555.28	24.46	24.38	162.67	97.08	239.70	435.49	387.47	48.03	9.068	
4,700.00	4,693.15	4,661.75	4,653.57	25.01	24.93	163.26	96.04	248.64	450.94	401.85	49.09	9.186	
4,800.00	4,792.90	4,760.44	4,751.86	25.56	25.49	163.81	95.00	257.57	466.43	416.28	50.15	9.301	
4,900.00	4,892.66	4,859.14	4,850.14	26.11	26.04	164.32	93.95	266.50	481.96	430.75	51.22	9.411	
5,000.00	4,992.41	4,957.84	4,948.43	26.67	26.59	164.81	92.91	275.43	497.53	445.25	52.28	9.517	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,092.16	5,056.54	5,046.72	27.22	27.15	165.26	91.87	284.36	513.13	459.78	53.34	9.619	
5,200.00	5,191.91	5,155.23	5,145.00	27.77	27.70	165.69	90.82	293.29	528.75	474.34	54.41	9.718	
5,300.00	5,291.67	5,253.93	5,243.29	28.32	28.26	166.09	89.78	302.22	544.41	488.93	55.48	9.813	
5,400.00	5,391.42	5,352.63	5,341.58	28.87	28.81	166.47	88.74	311.15	560.09	503.54	56.54	9.906	
5,500.00	5,491.17	5,451.32	5,439.86	29.43	29.37	166.83	87.69	320.08	575.79	518.18	57.61	9.995	
5,600.00	5,590.92	5,550.02	5,538.15	29.98	29.92	167.17	86.65	329.01	591.51	532.84	58.68	10.081	
5,700.00	5,690.68	5,648.72	5,636.44	30.53	30.48	167.49	85.61	337.95	607.25	547.51	59.74	10.164	
5,800.00	5,790.43	5,747.41	5,734.72	31.08	31.04	167.80	84.56	346.88	623.01	562.20	60.81	10.245	
5,900.00	5,890.18	5,846.11	5,833.01	31.64	31.59	168.09	83.52	355.81	638.79	576.91	61.88	10.323	
6,000.00	5,989.93	5,944.81	5,931.30	32.19	32.15	168.37	82.48	364.74	654.58	591.64	62.95	10.399	
6,100.00	6,089.69	6,043.50	6,029.58	32.74	32.70	168.63	81.43	373.67	670.39	606.37	64.02	10.472	
6,200.00	6,189.44	6,142.20	6,127.87	33.30	33.26	168.88	80.39	382.60	686.21	621.12	65.08	10.543	
6,300.00	6,289.19	6,240.90	6,226.15	33.85	33.82	169.12	79.35	391.53	702.04	635.89	66.15	10.612	
6,400.00	6,388.94	6,339.60	6,324.44	34.40	34.38	169.35	78.30	400.46	717.88	650.66	67.22	10.679	
6,500.00	6,488.70	6,438.29	6,422.73	34.96	34.93	169.57	77.26	409.39	733.74	665.44	68.29	10.744	
6,600.00	6,588.45	6,536.99	6,521.01	35.51	35.49	169.78	76.22	418.32	749.60	680.24	69.36	10.807	
6,700.00	6,688.20	6,635.69	6,619.30	36.06	36.05	169.98	75.17	427.26	765.47	695.04	70.43	10.868	
6,800.00	6,787.95	6,734.38	6,717.59	36.62	36.61	170.18	74.13	436.19	781.36	709.85	71.50	10.928	
6,900.00	6,887.70	6,833.08	6,815.87	37.17	37.16	170.36	73.09	445.12	797.25	724.67	72.57	10.985	
7,000.00	6,987.46	6,931.78	6,914.16	37.72	37.72	170.54	72.04	454.05	813.15	739.50	73.64	11.041	
7,100.00	7,087.21	7,030.47	7,012.45	38.28	38.28	170.71	71.00	462.98	829.05	754.34	74.72	11.096	
7,200.00	7,186.96	7,129.17	7,110.73	38.83	38.84	170.88	69.96	471.91	844.96	769.18	75.79	11.149	
7,300.00	7,286.71	7,227.87	7,209.02	39.39	39.40	171.04	68.91	480.84	860.88	784.03	76.86	11.201	
7,400.00	7,386.47	7,326.56	7,307.31	39.94	39.95	171.19	67.87	489.77	876.81	798.88	77.93	11.251	
7,500.00	7,486.22	7,425.26	7,405.59	40.50	40.51	171.34	66.83	498.70	892.74	813.74	79.00	11.300	
7,600.00	7,585.97	7,523.96	7,503.88	41.05	41.07	171.48	65.78	507.63	908.68	828.61	80.07	11.348	
7,700.00	7,685.72	7,622.66	7,602.17	41.60	41.63	171.62	64.74	516.57	924.62	843.48	81.15	11.395	
7,800.00	7,785.48	7,721.35	7,700.45	42.16	42.19	171.75	63.70	525.50	940.57	858.35	82.22	11.440	
7,900.00	7,885.23	7,820.05	7,798.74	42.71	42.75	171.88	62.65	534.43	956.52	873.23	83.29	11.484	
8,000.00	7,984.98	7,918.75	7,897.02	43.27	43.31	172.01	61.61	543.36	972.48	888.12	84.36	11.527	
8,100.00	8,084.73	8,017.44	7,995.31	43.82	43.86	172.13	60.57	552.29	988.44	903.01	85.44	11.569	
8,200.00	8,184.49	8,116.14	8,093.60	44.38	44.42	172.24	59.52	561.22	1,004.41	917.90	86.51	11.610	
8,300.00	8,284.24	8,214.84	8,191.88	44.93	44.98	172.36	58.48	570.15	1,020.38	932.79	87.58	11.650	
8,400.00	8,383.99	8,313.53	8,290.17	45.49	45.54	172.47	57.44	579.08	1,036.35	947.69	88.66	11.690	
8,500.00	8,483.74	8,412.23	8,388.46	46.04	46.10	172.57	56.39	588.01	1,052.33	962.60	89.73	11.728	
8,600.00	8,583.50	8,510.93	8,486.74	46.60	46.66	172.68	55.35	596.95	1,068.31	977.50	90.80	11.765	
8,700.00	8,683.24	8,609.63	8,585.03	47.15	47.22	-141.80	54.31	605.88	1,084.25	992.37	91.88	11.800	
8,800.00	8,781.93	8,707.46	8,682.46	47.67	47.77	-104.15	53.27	614.73	1,099.67	1,006.70	92.98	11.827	
8,900.00	8,876.74	8,801.68	8,776.28	48.15	48.31	-96.93	52.28	623.26	1,114.61	1,020.59	94.02	11.855	
9,000.00	8,964.80	8,889.41	8,863.66	48.58	48.81	-94.61	51.35	631.19	1,129.89	1,034.92	94.97	11.897	
9,100.00	9,043.43	8,968.00	8,941.92	48.96	49.25	-93.83	50.52	638.31	1,146.82	1,050.98	95.84	11.966	
9,200.00	9,110.24	9,035.06	9,008.70	49.31	49.63	-93.40	49.81	644.37	1,166.89	1,070.26	96.63	12.076	
9,300.00	9,163.20	9,088.55	9,061.96	49.66	49.93	-92.57	49.24	649.21	1,191.45	1,094.06	97.39	12.234	
9,400.00	9,200.70	9,126.84	9,100.09	50.06	50.15	-90.87	48.84	652.68	1,221.38	1,123.27	98.12	12.448	
9,500.00	9,221.61	9,148.77	9,121.93	50.50	50.28	-87.99	48.61	654.66	1,256.86	1,158.20	98.66	12.739	
9,600.00	9,225.90	9,154.29	9,127.43	50.99	50.31	-85.08	48.55	655.16	1,297.32	1,198.45	98.88	13.121	
9,700.00	9,225.54	9,155.21	9,128.34	51.54	50.31	-85.12	48.54	655.25	1,343.46	1,244.04	99.42	13.513	
9,800.00	9,225.18	9,156.12	9,129.26	52.18	50.32	-85.16	48.53	655.33	1,395.25	1,295.20	100.05	13.945	
9,900.00	9,224.82	9,157.04	9,130.17	52.90	50.32	-85.21	48.52	655.41	1,452.08	1,351.32	100.76	14.411	
10,000.00	9,224.45	9,157.96	9,131.08	53.69	50.33	-85.25	48.51	655.49	1,513.40	1,411.84	101.56	14.902	
10,100.00	9,224.09	11,002.36	10,159.74	54.55	61.07	-126.60	-1,010.98	774.62	1,569.36	1,475.42	93.94	16.705	
10,200.00	9,223.73	11,102.36	10,159.48	55.49	61.98	-126.60	-1,110.95	777.04	1,569.42	1,473.83	95.58	16.420	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	9,223.37	11,202.36	10,159.21	56.49	62.96	-126.60	-1,210.92	779.47	1,569.47	1,472.13	97.33	16.125		
10,400.00	9,223.00	11,302.36	10,158.95	57.55	63.99	-126.61	-1,310.89	781.89	1,569.52	1,470.32	99.20	15.822		
10,500.00	9,222.64	11,402.36	10,158.69	58.68	65.08	-126.61	-1,410.86	784.31	1,569.57	1,468.40	101.16	15.515		
10,600.00	9,222.28	11,502.36	10,158.43	59.86	66.22	-126.61	-1,510.83	786.73	1,569.62	1,466.39	103.23	15.205		
10,700.00	9,221.92	11,602.36	10,158.17	61.09	67.41	-126.62	-1,610.80	789.16	1,569.67	1,464.28	105.39	14.894		
10,800.00	9,221.55	11,702.36	10,157.90	62.38	68.65	-126.62	-1,710.77	791.58	1,569.72	1,462.08	107.64	14.583		
10,900.00	9,221.19	11,802.36	10,157.64	63.71	69.93	-126.62	-1,810.74	794.00	1,569.77	1,459.80	109.97	14.275		
11,000.00	9,220.83	11,902.36	10,157.38	65.09	71.26	-126.63	-1,910.71	796.42	1,569.82	1,457.45	112.37	13.970		
11,100.00	9,220.47	12,002.36	10,157.12	66.51	72.62	-126.63	-2,010.68	798.84	1,569.87	1,455.02	114.85	13.669		
11,200.00	9,220.11	12,102.36	10,156.86	67.97	74.03	-126.63	-2,110.65	801.27	1,569.92	1,452.53	117.39	13.373		
11,300.00	9,219.74	12,202.36	10,156.60	69.46	75.47	-126.64	-2,210.62	803.69	1,569.97	1,449.97	120.00	13.083		
11,400.00	9,219.38	12,302.36	10,156.33	71.00	76.94	-126.64	-2,310.59	806.11	1,570.02	1,447.36	122.66	12.799		
11,500.00	9,219.02	12,402.36	10,156.07	72.56	78.45	-126.64	-2,410.56	808.53	1,570.07	1,444.69	125.39	12.522		
11,600.00	9,218.66	12,502.36	10,155.81	74.15	79.99	-126.65	-2,510.53	810.96	1,570.12	1,441.96	128.16	12.251		
11,700.00	9,218.29	12,602.36	10,155.55	75.77	81.55	-126.65	-2,610.50	813.38	1,570.17	1,439.19	130.98	11.988		
11,800.00	9,217.93	12,702.36	10,155.29	77.42	83.14	-126.65	-2,710.48	815.80	1,570.22	1,436.38	133.85	11.731		
11,900.00	9,217.57	12,802.36	10,155.02	79.10	84.76	-126.66	-2,810.45	818.22	1,570.27	1,433.52	136.76	11.482		
12,000.00	9,217.21	12,902.36	10,154.76	80.79	86.40	-126.66	-2,910.42	820.65	1,570.33	1,430.62	139.71	11.240		
12,100.00	9,216.84	13,002.36	10,154.50	82.51	88.07	-126.66	-3,010.39	823.07	1,570.38	1,427.68	142.69	11.005		
12,200.00	9,216.48	13,102.36	10,154.24	84.25	89.75	-126.67	-3,110.36	825.49	1,570.43	1,424.71	145.71	10.778		
12,300.00	9,216.12	13,202.36	10,153.98	86.01	91.46	-126.67	-3,210.33	827.91	1,570.48	1,421.71	148.77	10.557		
12,400.00	9,215.76	13,302.36	10,153.71	87.79	93.18	-126.67	-3,310.30	830.33	1,570.53	1,418.68	151.85	10.343		
12,500.00	9,215.40	13,402.36	10,153.45	89.58	94.93	-126.67	-3,410.27	832.76	1,570.58	1,415.61	154.97	10.135		
12,600.00	9,215.03	13,502.36	10,153.19	91.39	96.69	-126.68	-3,510.24	835.18	1,570.63	1,412.52	158.11	9.934		
12,700.00	9,214.67	13,602.36	10,152.93	93.22	98.47	-126.68	-3,610.21	837.60	1,570.68	1,409.41	161.27	9.739		
12,800.00	9,214.31	13,702.36	10,152.67	95.06	100.26	-126.68	-3,710.18	840.02	1,570.73	1,406.27	164.46	9.551		
12,900.00	9,213.95	13,802.36	10,152.40	96.91	102.06	-126.69	-3,810.15	842.45	1,570.78	1,403.10	167.68	9.368		
13,000.00	9,213.58	13,902.36	10,152.14	98.78	103.89	-126.69	-3,910.12	844.87	1,570.83	1,399.92	170.91	9.191		
13,100.00	9,213.22	14,002.36	10,151.88	100.66	105.72	-126.69	-4,010.09	847.29	1,570.88	1,396.71	174.17	9.019		
13,200.00	9,212.86	14,102.36	10,151.62	102.55	107.56	-126.70	-4,110.06	849.71	1,570.93	1,393.49	177.44	8.853		
13,300.00	9,212.50	14,202.36	10,151.36	104.45	109.42	-126.70	-4,210.03	852.13	1,570.98	1,390.25	180.74	8.692		
13,400.00	9,212.13	14,302.36	10,151.09	106.36	111.29	-126.70	-4,310.00	854.56	1,571.03	1,386.99	184.05	8.536		
13,500.00	9,211.77	14,402.36	10,150.83	108.28	113.17	-126.71	-4,409.97	856.98	1,571.08	1,383.71	187.37	8.385		
13,600.00	9,211.41	14,502.36	10,150.57	110.21	115.06	-126.71	-4,509.94	859.40	1,571.14	1,380.42	190.71	8.238		
13,700.00	9,211.05	14,602.36	10,150.31	112.15	116.96	-126.71	-4,609.91	861.82	1,571.19	1,377.12	194.07	8.096		
13,800.00	9,210.68	14,702.36	10,150.05	114.10	118.87	-126.72	-4,709.88	864.25	1,571.24	1,373.80	197.44	7.958		
13,900.00	9,210.32	14,802.36	10,149.78	116.05	120.79	-126.72	-4,809.85	866.67	1,571.29	1,370.46	200.82	7.824		
14,000.00	9,209.96	14,902.36	10,149.52	118.02	122.71	-126.72	-4,909.82	869.09	1,571.34	1,367.12	204.22	7.694		
14,100.00	9,209.60	15,002.36	10,149.26	119.99	124.65	-126.73	-5,009.79	871.51	1,571.39	1,363.76	207.62	7.568		
14,200.00	9,209.24	15,102.36	10,149.00	121.96	126.59	-126.73	-5,109.76	873.94	1,571.44	1,360.40	211.04	7.446		
14,300.00	9,208.87	15,202.36	10,148.74	123.94	128.54	-126.73	-5,209.73	876.36	1,571.49	1,357.02	214.47	7.327		
14,400.00	9,208.51	15,302.36	10,148.47	125.93	130.49	-126.74	-5,309.70	878.78	1,571.54	1,353.63	217.91	7.212		
14,500.00	9,208.15	15,402.36	10,148.21	127.93	132.45	-126.74	-5,409.67	881.20	1,571.59	1,350.23	221.36	7.100		
14,600.00	9,207.79	15,502.36	10,147.95	129.92	134.79	-126.73	-5,528.39	883.84	1,572.08	1,347.04	225.04	6.986		
14,700.00	9,206.93	15,629.27	10,147.15	131.92	136.91	-126.73	-5,636.54	884.52	1,572.15	1,343.51	228.64	6.876		
14,800.00	9,206.19	15,729.27	10,146.48	133.93	138.88	-126.73	-5,736.54	885.10	1,572.19	1,340.09	232.11	6.774		
14,900.00	9,205.45	15,829.27	10,145.82	135.94	140.86	-126.74	-5,836.53	885.68	1,572.24	1,336.66	235.58	6.674		
15,000.00	9,204.71	15,929.27	10,145.16	137.95	142.84	-126.74	-5,936.53	886.27	1,572.29	1,333.23	239.06	6.577		
15,100.00	9,203.97	16,029.27	10,144.50	139.97	144.82	-126.74	-6,036.53	886.85	1,572.34	1,329.79	242.55	6.483		
15,200.00	9,203.23	16,129.27	10,143.84	141.99	146.81	-126.74	-6,136.52	887.44	1,572.38	1,326.34	246.04	6.391		
15,300.00	9,202.49	16,229.27	10,143.18	144.02	148.81	-126.75	-6,236.52	888.02	1,572.43	1,322.89	249.54	6.301		
15,400.00	9,201.75	16,329.27	10,142.52	146.05	150.81	-126.75	-6,336.51	888.61	1,572.48	1,319.43	253.05	6.214		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,500.00	9,201.01	16,429.27	10,141.86	148.08	152.81	-126.75	-6,436.51	889.19	1,572.52	1,315.96	256.57	6.129	
15,600.00	9,200.27	16,529.27	10,141.20	150.12	154.82	-126.75	-6,536.51	889.77	1,572.57	1,312.49	260.08	6.046	
15,700.00	9,199.53	16,629.27	10,140.54	152.16	156.83	-126.75	-6,636.50	890.36	1,572.62	1,309.01	263.61	5.966	
15,800.00	9,198.79	16,729.27	10,139.88	154.20	158.85	-126.76	-6,736.50	890.94	1,572.67	1,305.53	267.14	5.887	
15,900.00	9,198.05	16,829.27	10,139.22	156.25	160.87	-126.76	-6,836.49	891.53	1,572.71	1,302.04	270.68	5.810	
16,000.00	9,197.31	16,929.27	10,138.56	158.30	162.89	-126.76	-6,936.49	892.11	1,572.76	1,298.54	274.22	5.735	
16,100.00	9,196.57	17,029.27	10,137.90	160.35	164.92	-126.76	-7,036.49	892.70	1,572.81	1,295.05	277.76	5.662	
16,200.00	9,195.83	17,129.27	10,137.24	162.40	166.95	-126.77	-7,136.48	893.28	1,572.86	1,291.54	281.31	5.591	
16,300.00	9,195.09	17,229.27	10,136.57	164.46	168.98	-126.77	-7,236.48	893.87	1,572.90	1,288.03	284.87	5.522	
16,400.00	9,194.35	17,329.27	10,135.91	166.52	171.01	-126.77	-7,336.48	894.45	1,572.95	1,284.52	288.43	5.454	
16,500.00	9,193.61	17,429.27	10,135.25	168.58	173.05	-126.77	-7,436.47	895.03	1,573.00	1,281.01	291.99	5.387	
16,600.00	9,192.87	17,529.27	10,134.59	170.65	175.09	-126.77	-7,536.47	895.62	1,573.05	1,277.49	295.56	5.322	
16,700.00	9,192.13	17,629.27	10,133.93	172.72	177.14	-126.78	-7,636.46	896.20	1,573.09	1,273.96	299.13	5.259	
16,800.00	9,191.39	17,729.27	10,133.27	174.79	179.19	-126.78	-7,736.46	896.79	1,573.14	1,270.44	302.70	5.197	
16,900.00	9,190.65	17,829.27	10,132.61	176.86	181.24	-126.78	-7,836.46	897.37	1,573.19	1,266.91	306.28	5.136	
17,000.00	9,189.91	17,929.27	10,131.95	178.93	183.29	-126.78	-7,936.45	897.96	1,573.23	1,263.37	309.86	5.077	
17,100.00	9,189.17	18,029.27	10,131.29	181.01	185.34	-126.79	-8,036.45	898.54	1,573.28	1,259.84	313.45	5.019	
17,200.00	9,188.44	18,129.27	10,130.63	183.08	187.40	-126.79	-8,136.44	899.12	1,573.33	1,256.30	317.03	4.963	
17,300.00	9,187.70	18,229.27	10,129.97	185.16	189.46	-126.79	-8,236.44	899.71	1,573.38	1,252.75	320.62	4.907	
17,400.00	9,186.96	18,329.27	10,129.31	187.25	191.52	-126.79	-8,336.44	900.29	1,573.42	1,249.21	324.22	4.853	
17,500.00	9,186.22	18,429.27	10,128.65	189.33	193.59	-126.80	-8,436.43	900.88	1,573.47	1,245.66	327.81	4.800	
17,600.00	9,185.48	18,529.27	10,127.99	191.41	195.65	-126.80	-8,536.43	901.46	1,573.52	1,242.10	331.41	4.748	
17,700.00	9,184.74	18,629.27	10,127.33	193.50	197.72	-126.80	-8,636.42	902.05	1,573.57	1,238.55	335.02	4.697	
17,800.00	9,184.00	18,729.27	10,126.67	195.59	199.79	-126.80	-8,736.42	902.63	1,573.61	1,234.99	338.62	4.647	
17,900.00	9,183.26	18,829.27	10,126.00	197.68	201.86	-126.80	-8,836.42	903.21	1,573.66	1,231.43	342.23	4.598	
18,000.00	9,182.52	18,929.27	10,125.34	199.77	203.93	-126.81	-8,936.41	903.80	1,573.71	1,227.87	345.84	4.550	
18,100.00	9,181.78	19,029.27	10,124.68	201.86	206.01	-126.81	-9,036.41	904.38	1,573.76	1,224.31	349.45	4.504	
18,200.00	9,181.04	19,129.27	10,124.02	203.95	208.08	-126.81	-9,136.40	904.97	1,573.80	1,220.74	353.06	4.458	
18,300.00	9,180.30	19,229.27	10,123.36	206.05	210.16	-126.81	-9,236.40	905.55	1,573.85	1,217.17	356.68	4.413	
18,400.00	9,179.56	19,329.27	10,122.70	208.15	212.24	-126.82	-9,336.40	906.14	1,573.90	1,213.60	360.30	4.368	
18,500.00	9,178.82	19,429.27	10,122.04	210.24	214.32	-126.82	-9,436.39	906.72	1,573.95	1,210.03	363.92	4.325	
18,600.00	9,178.08	19,529.27	10,121.38	212.34	216.41	-126.82	-9,536.39	907.30	1,573.99	1,206.46	367.54	4.283	
18,700.00	9,177.34	19,629.27	10,120.72	214.44	218.49	-126.82	-9,636.38	907.89	1,574.04	1,202.88	371.16	4.241	
18,800.00	9,176.60	19,729.27	10,120.06	216.54	220.58	-126.83	-9,736.38	908.47	1,574.09	1,199.30	374.79	4.200	
18,900.00	9,175.86	19,829.27	10,119.40	218.64	222.67	-126.83	-9,836.38	909.06	1,574.13	1,195.72	378.41	4.160	
19,000.00	9,175.12	19,929.27	10,118.74	220.75	224.75	-126.83	-9,936.37	909.64	1,574.18	1,192.14	382.04	4.120	
19,100.00	9,174.38	20,029.27	10,118.08	222.85	226.84	-126.83	-10,036.37	910.23	1,574.23	1,188.55	385.67	4.082	
19,200.00	9,173.64	20,129.27	10,117.42	224.96	228.94	-126.83	-10,136.37	910.81	1,574.28	1,184.97	389.31	4.044	
19,300.00	9,172.90	20,229.27	10,116.76	227.06	231.03	-126.84	-10,236.36	911.40	1,574.32	1,181.38	392.94	4.007	
19,400.00	9,172.16	20,329.27	10,116.10	229.17	233.12	-126.84	-10,336.36	911.98	1,574.37	1,177.79	396.58	3.970	
19,500.00	9,171.42	20,429.27	10,115.43	231.28	235.22	-126.84	-10,436.35	912.56	1,574.42	1,174.20	400.21	3.934	
19,557.33	9,171.00	20,486.60	10,115.06	232.49	236.42	-126.84	-10,493.68	912.90	1,574.45	1,172.15	402.30	3.914 SF	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft	
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	11.00	0.00	0.00	0.02	71.19	422.00	1,239.00	1,308.89					
100.00	100.00	111.00	100.00	0.19	0.24	71.19	422.00	1,239.00	1,308.89	1,308.46	0.43	3,023.864		
200.00	200.00	211.00	200.00	0.73	0.78	71.19	422.00	1,239.00	1,308.89	1,307.39	1.51	867.812		
300.00	300.00	311.00	300.00	1.27	1.31	71.19	422.00	1,239.00	1,308.89	1,306.31	2.58	506.600		
400.00	400.00	411.00	400.00	1.81	1.85	71.19	422.00	1,239.00	1,308.89	1,305.24	3.66	357.710		
500.00	500.00	511.00	500.00	2.34	2.39	71.19	422.00	1,239.00	1,308.89	1,304.16	4.73	276.458		
600.00	600.00	611.00	600.00	2.88	2.93	71.19	422.00	1,239.00	1,308.89	1,303.08	5.81	225.286		
700.00	700.00	711.00	700.00	3.42	3.47	71.19	422.00	1,239.00	1,308.89	1,302.01	6.89	190.099		
800.00	800.00	811.00	800.00	3.96	4.00	71.19	422.00	1,239.00	1,308.89	1,300.93	7.96	164.418		
900.00	900.00	911.00	900.00	4.50	4.54	71.19	422.00	1,239.00	1,308.89	1,299.86	9.04	144.851		
1,000.00	1,000.00	1,011.00	1,000.00	5.03	5.08	71.19	422.00	1,239.00	1,308.89	1,298.78	10.11	129.445		
1,100.00	1,100.00	1,111.00	1,100.00	5.57	5.62	71.19	422.00	1,239.00	1,308.89	1,297.71	11.19	117.001		
1,200.00	1,200.00	1,211.00	1,200.00	6.11	6.15	71.19	422.00	1,239.00	1,308.89	1,296.63	12.26	106.740		
1,300.00	1,300.00	1,311.00	1,300.00	6.65	6.69	71.19	422.00	1,239.00	1,308.89	1,295.56	13.34	98.134		
1,400.00	1,400.00	1,411.00	1,400.00	7.18	7.23	71.19	422.00	1,239.00	1,308.89	1,294.48	14.41	90.812		
1,500.00	1,500.00	1,511.00	1,500.00	7.72	7.77	71.19	422.00	1,239.00	1,308.89	1,293.41	15.49	84.507		
1,600.00	1,600.00	1,611.00	1,600.00	8.26	8.30	71.19	422.00	1,239.00	1,308.89	1,292.33	16.56	79.020		
1,700.00	1,700.00	1,711.00	1,700.00	8.80	8.84	71.19	422.00	1,239.00	1,308.89	1,291.26	17.64	74.203		
1,800.00	1,800.00	1,811.00	1,800.00	9.33	9.38	71.19	422.00	1,239.00	1,308.89	1,290.18	18.71	69.939 CC, ES		
1,900.00	1,899.98	1,910.98	1,899.98	9.86	9.92	153.55	422.00	1,239.00	1,310.46	1,290.69	19.77	66.284		
2,000.00	1,999.84	2,010.84	1,999.84	10.38	10.45	153.61	422.00	1,239.00	1,315.15	1,294.35	20.80	63.237		
2,100.00	2,099.59	2,110.59	2,099.59	10.90	10.99	153.75	422.00	1,239.00	1,321.45	1,299.60	21.85	60.480		
2,200.00	2,199.34	2,210.34	2,199.34	11.43	11.53	153.88	422.00	1,239.00	1,327.77	1,304.86	22.91	57.968		
2,300.00	2,299.09	2,310.09	2,299.09	11.96	12.06	154.01	422.00	1,239.00	1,334.09	1,310.12	23.96	55.673		
2,400.00	2,398.85	2,409.85	2,398.85	12.49	12.60	154.14	422.00	1,239.00	1,340.42	1,315.39	25.02	53.569		
2,500.00	2,498.60	2,500.00	2,489.00	13.02	13.09	154.26	422.00	1,239.00	1,346.79	1,320.75	26.03	51.736		
2,600.00	2,598.35	2,591.53	2,580.51	13.56	13.56	154.44	420.92	1,239.98	1,353.81	1,326.78	27.03	50.088		
2,700.00	2,698.10	2,674.59	2,663.49	14.09	13.97	154.69	418.06	1,242.57	1,362.09	1,334.12	27.97	48.704		
2,800.00	2,797.86	2,757.11	2,745.76	14.63	14.38	155.03	413.46	1,246.74	1,371.62	1,342.71	28.90	47.456		
2,900.00	2,897.61	2,838.94	2,827.15	15.17	14.79	155.46	407.16	1,252.45	1,382.44	1,352.60	29.84	46.329		
3,000.00	2,997.36	2,919.96	2,907.46	15.71	15.20	155.95	399.23	1,259.63	1,394.60	1,363.82	30.78	45.316		
3,100.00	3,097.11	3,001.70	2,988.15	16.25	15.62	156.53	389.53	1,268.41	1,408.15	1,376.43	31.72	44.393		
3,200.00	3,196.87	3,099.06	3,084.07	16.80	16.12	157.25	377.18	1,279.60	1,422.42	1,389.67	32.75	43.434		
3,300.00	3,296.62	3,196.42	3,179.99	17.34	16.64	157.95	364.84	1,290.78	1,436.91	1,403.12	33.79	42.530		
3,400.00	3,396.37	3,293.79	3,275.92	17.89	17.17	158.64	352.49	1,301.97	1,451.62	1,416.79	34.83	41.678		
3,500.00	3,496.12	3,391.15	3,371.84	18.43	17.70	159.32	340.14	1,313.16	1,466.53	1,430.65	35.88	40.874		
3,600.00	3,595.88	3,488.51	3,467.77	18.98	18.24	159.98	327.79	1,324.34	1,481.65	1,444.71	36.93	40.116		
3,700.00	3,695.63	3,585.87	3,563.69	19.52	18.78	160.63	315.44	1,335.53	1,496.96	1,458.97	37.99	39.400		
3,800.00	3,795.38	3,683.23	3,659.62	20.07	19.33	161.26	303.09	1,346.72	1,512.46	1,473.40	39.06	38.723		
3,900.00	3,895.13	3,780.59	3,755.54	20.62	19.89	161.89	290.74	1,357.90	1,528.15	1,488.02	40.13	38.083		
4,000.00	3,994.89	3,877.95	3,851.46	21.17	20.44	162.50	278.39	1,369.09	1,544.01	1,502.81	41.20	37.478		
4,100.00	4,094.64	3,975.31	3,947.39	21.71	21.01	163.10	266.04	1,380.28	1,560.04	1,517.77	42.27	36.905		
4,200.00	4,194.39	4,072.67	4,043.31	22.26	21.58	163.68	253.69	1,391.46	1,576.25	1,532.90	43.35	36.362		
4,300.00	4,294.14	4,170.03	4,139.24	22.81	22.15	164.26	241.34	1,402.65	1,592.61	1,548.18	44.43	35.847		
4,400.00	4,393.89	4,267.39	4,235.16	23.36	22.72	164.82	228.99	1,413.84	1,609.13	1,563.62	45.51	35.358		
4,500.00	4,493.65	4,364.75	4,331.09	23.91	23.30	165.38	216.64	1,425.02	1,625.81	1,579.22	46.59	34.894		
4,600.00	4,593.40	4,462.12	4,427.01	24.46	23.88	165.92	204.29	1,436.21	1,642.63	1,594.95	47.68	34.453		
4,700.00	4,693.15	4,559.48	4,522.93	25.01	24.46	166.45	191.94	1,447.40	1,659.60	1,610.83	48.76	34.033		
4,800.00	4,792.90	4,656.84	4,618.86	25.56	25.05	166.97	179.59	1,458.58	1,676.70	1,626.85	49.85	33.634		
4,900.00	4,892.66	4,754.20	4,714.78	26.11	25.63	167.48	167.24	1,469.77	1,693.94	1,643.00	50.94	33.253		
5,000.00	4,992.41	4,851.56	4,810.71	26.67	26.22	167.98	154.89	1,480.96	1,711.31	1,659.28	52.03	32.891		
5,100.00	5,092.16	4,948.92	4,906.63	27.22	26.82	168.47	142.54	1,492.15	1,728.81	1,675.69	53.12	32.545		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,191.91	5,046.28	5,002.56	27.77	27.41	168.95	130.19	1,503.33	1,746.43	1,692.22	54.21	32.215	
5,300.00	5,291.67	5,143.64	5,098.48	28.32	28.00	169.42	117.84	1,514.52	1,764.17	1,708.86	55.30	31.899	
5,400.00	5,391.42	5,241.00	5,194.40	28.87	28.60	169.88	105.49	1,525.71	1,782.02	1,725.63	56.40	31.598	
5,500.00	5,491.17	5,338.36	5,290.33	29.43	29.20	170.34	93.14	1,536.89	1,799.99	1,742.50	57.49	31.310	
5,600.00	5,590.92	5,435.72	5,386.25	29.98	29.80	170.78	80.79	1,548.08	1,818.07	1,759.48	58.58	31.034	
5,700.00	5,690.68	5,533.08	5,482.18	30.53	30.40	171.22	68.44	1,559.27	1,836.25	1,776.57	59.68	30.769	
5,800.00	5,790.43	5,691.89	5,639.18	31.08	31.36	171.83	50.88	1,575.18	1,853.20	1,792.09	61.11	30.326	
5,900.00	5,890.18	5,866.82	5,813.35	31.64	32.34	172.25	38.98	1,585.95	1,866.29	1,803.69	62.59	29.817	
6,000.00	5,989.93	6,043.51	5,989.93	32.19	33.26	172.43	34.99	1,589.57	1,875.29	1,811.25	64.05	29.280	
6,100.00	6,089.69	6,143.27	6,089.69	32.74	33.75	172.46	34.99	1,589.57	1,882.27	1,817.19	65.08	28.922	
6,200.00	6,189.44	6,243.02	6,189.44	33.30	34.24	172.48	34.99	1,589.57	1,889.24	1,823.12	66.12	28.575	
6,300.00	6,289.19	6,342.77	6,289.19	33.85	34.73	172.51	34.99	1,589.57	1,896.21	1,829.06	67.15	28.237	
6,400.00	6,388.94	6,442.52	6,388.94	34.40	35.22	172.54	34.99	1,589.57	1,903.19	1,835.00	68.19	27.910	
6,500.00	6,488.70	6,542.28	6,488.70	34.96	35.72	172.57	34.99	1,589.57	1,910.16	1,840.93	69.23	27.591	
6,600.00	6,588.45	6,642.03	6,588.45	35.51	36.21	172.59	34.99	1,589.57	1,917.13	1,846.86	70.27	27.282	
6,700.00	6,688.20	6,741.78	6,688.20	36.06	36.71	172.62	34.99	1,589.57	1,924.11	1,852.80	71.31	26.981	
6,800.00	6,787.95	6,841.53	6,787.95	36.62	37.21	172.65	34.99	1,589.57	1,931.08	1,858.73	72.35	26.689	
6,900.00	6,887.70	6,941.29	6,887.70	37.17	37.71	172.67	34.99	1,589.57	1,938.06	1,864.66	73.40	26.405	
7,000.00	6,987.46	7,041.04	6,987.46	37.72	38.20	172.70	34.99	1,589.57	1,945.04	1,870.59	74.44	26.128	
7,100.00	7,087.21	7,140.79	7,087.21	38.28	38.71	172.73	34.99	1,589.57	1,952.01	1,876.52	75.49	25.858	
7,200.00	7,186.96	7,240.54	7,186.96	38.83	39.21	172.75	34.99	1,589.57	1,958.99	1,882.45	76.53	25.596	
7,300.00	7,286.71	7,340.30	7,286.71	39.39	39.71	172.78	34.99	1,589.57	1,965.97	1,888.38	77.58	25.340	
7,400.00	7,386.47	7,440.05	7,386.47	39.94	40.21	172.80	34.99	1,589.57	1,972.94	1,894.31	78.63	25.091	
7,500.00	7,486.22	7,539.80	7,486.22	40.50	40.72	172.83	34.99	1,589.57	1,979.92	1,900.24	79.68	24.849	
7,600.00	7,585.97	7,639.55	7,585.97	41.05	41.22	172.85	34.99	1,589.57	1,986.90	1,906.17	80.73	24.612	
7,700.00	7,685.72	7,739.30	7,685.72	41.60	41.73	172.88	34.99	1,589.57	1,993.88	1,912.10	81.78	24.381	
7,800.00	7,785.48	7,839.06	7,785.48	42.16	42.23	172.90	34.99	1,589.57	2,000.86	1,918.03	82.83	24.156	
7,900.00	7,885.23	7,938.81	7,885.23	42.71	42.74	172.93	34.99	1,589.57	2,007.84	1,923.95	83.88	23.936	
8,000.00	7,984.98	8,038.56	7,984.98	43.27	43.25	172.95	34.99	1,589.57	2,014.82	1,929.88	84.93	23.722	
8,100.00	8,084.73	8,138.31	8,084.73	43.82	43.76	172.98	34.99	1,589.57	2,021.80	1,935.81	85.99	23.513	
8,200.00	8,184.49	8,238.07	8,184.49	44.38	44.27	173.00	34.99	1,589.57	2,028.78	1,941.74	87.04	23.308	
8,300.00	8,284.24	8,337.82	8,284.24	44.93	44.78	173.03	34.99	1,589.57	2,035.76	1,947.66	88.10	23.108	
8,400.00	8,383.99	8,437.57	8,383.99	45.49	45.29	173.05	34.99	1,589.57	2,042.74	1,953.59	89.15	22.913	
8,500.00	8,483.74	8,537.32	8,483.74	46.04	45.80	173.07	34.99	1,589.57	2,049.72	1,959.52	90.21	22.723	
8,600.00	8,583.50	8,637.08	8,583.50	46.60	46.31	173.10	34.99	1,589.57	2,056.70	1,965.44	91.26	22.536	
8,700.00	8,683.24	8,736.82	8,683.24	47.15	46.82	-141.75	34.99	1,589.57	2,063.64	1,971.32	92.32	22.352	
8,800.00	8,781.93	8,835.51	8,781.93	47.67	47.33	-104.73	34.99	1,589.57	2,070.04	1,976.66	93.38	22.168	
8,900.00	8,876.74	8,930.32	8,876.74	48.15	47.82	-97.76	34.99	1,589.57	2,075.93	1,981.54	94.39	21.994	
9,000.00	8,964.80	9,018.38	8,964.80	48.58	48.27	-95.46	34.99	1,589.57	2,081.84	1,986.53	95.32	21.841	
9,100.00	9,043.43	9,097.01	9,043.43	48.96	48.68	-94.64	34.99	1,589.57	2,088.62	1,992.46	96.16	21.719	
9,200.00	9,110.24	9,163.82	9,110.24	49.31	49.02	-94.28	34.99	1,589.57	2,097.24	2,000.31	96.93	21.636	
9,300.00	9,163.20	9,216.78	9,163.20	49.66	49.29	-93.84	34.99	1,589.57	2,108.61	2,010.97	97.65	21.595	
9,400.00	9,200.70	9,254.28	9,200.70	50.06	49.49	-92.98	34.99	1,589.57	2,123.44	2,025.12	98.33	21.596	
9,500.00	9,221.61	9,275.19	9,221.61	50.50	49.60	-91.49	34.99	1,589.57	2,142.05	2,043.10	98.95	21.648	
9,600.00	9,225.90	9,279.48	9,225.90	50.99	49.62	-89.95	34.99	1,589.57	2,164.31	2,064.87	99.44	21.765	
9,700.00	9,225.54	9,279.12	9,225.54	51.54	49.62	-89.94	34.99	1,589.57	2,190.64	2,090.66	99.98	21.911	
9,800.00	9,225.18	9,278.76	9,225.18	52.18	49.61	-89.93	34.99	1,589.57	2,221.15	2,120.55	100.61	22.078	
9,900.00	9,224.82	9,278.40	9,224.82	52.90	49.61	-89.92	34.99	1,589.57	2,255.70	2,154.38	101.32	22.264	
10,000.00	9,224.45	9,278.03	9,224.45	53.69	49.61	-89.91	34.99	1,589.57	2,294.08	2,191.98	102.10	22.468	
10,100.00	9,224.09	10,999.08	10,160.50	54.55	61.58	-114.03	-993.24	1,614.41	2,299.24	2,192.16	107.08	21.472	
10,200.00	9,223.73	11,099.08	10,159.98	55.49	62.68	-114.03	-1,083.21	1,616.82	2,299.16	2,190.13	109.03	21.088	
10,300.00	9,223.37	11,199.08	10,159.45	56.49	63.84	-114.03	-1,193.18	1,619.24	2,299.08	2,187.99	111.09	20.695	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,400.00	9,223.00	11,299.08	10,158.93	57.55	65.06	-114.02	-1,293.15	1,621.65	2,298.99	2,185.73	113.27	20.297		
10,500.00	9,222.64	11,399.08	10,158.40	58.68	66.32	-114.02	-1,393.12	1,624.07	2,298.91	2,183.36	115.55	19.896		
10,600.00	9,222.28	11,499.08	10,157.88	59.86	67.63	-114.02	-1,493.09	1,626.48	2,298.83	2,180.90	117.93	19.494		
10,700.00	9,221.92	11,599.08	10,157.36	61.09	68.99	-114.01	-1,593.06	1,628.89	2,298.75	2,178.35	120.40	19.093		
10,800.00	9,221.55	11,699.08	10,156.83	62.38	70.39	-114.01	-1,693.03	1,631.31	2,298.66	2,175.70	122.96	18.694		
10,900.00	9,221.19	11,799.08	10,156.31	63.71	71.83	-114.01	-1,793.00	1,633.72	2,298.58	2,172.98	125.60	18.300		
11,000.00	9,220.83	11,899.08	10,155.79	65.09	73.31	-114.00	-1,892.97	1,636.14	2,298.50	2,170.17	128.32	17.912		
11,100.00	9,220.47	11,999.08	10,155.26	66.51	74.82	-114.00	-1,992.94	1,638.55	2,298.41	2,167.30	131.11	17.530		
11,200.00	9,220.11	12,099.08	10,154.74	67.97	76.37	-114.00	-2,092.91	1,640.97	2,298.33	2,164.35	133.97	17.155		
11,300.00	9,219.74	12,199.08	10,154.22	69.46	77.95	-113.99	-2,192.88	1,643.38	2,298.25	2,161.35	136.90	16.788		
11,400.00	9,219.38	12,299.08	10,153.69	71.00	79.55	-113.99	-2,292.85	1,645.80	2,298.16	2,158.28	139.88	16.429		
11,500.00	9,219.02	12,399.08	10,153.17	72.56	81.19	-113.99	-2,392.82	1,648.21	2,298.08	2,155.16	142.92	16.079		
11,600.00	9,218.66	12,499.08	10,152.65	74.15	82.85	-113.98	-2,492.78	1,650.63	2,298.00	2,151.99	146.01	15.738		
11,700.00	9,218.29	12,599.08	10,152.12	75.77	84.54	-113.98	-2,592.75	1,653.04	2,297.91	2,148.76	149.15	15.407		
11,800.00	9,217.93	12,699.08	10,151.60	77.42	86.25	-113.97	-2,692.72	1,655.46	2,297.83	2,145.49	152.34	15.084		
11,900.00	9,217.57	12,799.08	10,151.07	79.10	87.98	-113.97	-2,792.69	1,657.87	2,297.75	2,142.18	155.57	14.770		
12,000.00	9,217.21	12,899.08	10,150.55	80.79	89.73	-113.97	-2,892.66	1,660.29	2,297.66	2,138.83	158.84	14.465		
12,100.00	9,216.84	12,999.08	10,150.03	82.51	91.50	-113.96	-2,992.63	1,662.70	2,297.58	2,135.43	162.15	14.170		
12,200.00	9,216.48	13,099.08	10,149.50	84.25	93.29	-113.96	-3,092.60	1,665.12	2,297.50	2,132.01	165.49	13.883		
12,300.00	9,216.12	13,199.08	10,148.98	86.01	95.10	-113.96	-3,192.57	1,667.53	2,297.42	2,128.54	168.87	13.605		
12,400.00	9,215.76	13,299.08	10,148.46	87.79	96.92	-113.95	-3,292.54	1,669.94	2,297.33	2,125.05	172.28	13.335		
12,500.00	9,215.40	13,399.08	10,147.93	89.58	98.76	-113.95	-3,392.51	1,672.36	2,297.25	2,121.53	175.72	13.073		
12,600.00	9,215.03	13,499.08	10,147.41	91.39	100.61	-113.95	-3,492.48	1,674.77	2,297.17	2,117.98	179.19	12.820		
12,700.00	9,214.67	13,599.08	10,146.89	93.22	102.48	-113.94	-3,592.45	1,677.19	2,297.08	2,114.40	182.69	12.574		
12,800.00	9,214.31	13,699.08	10,146.36	95.06	104.36	-113.94	-3,692.42	1,679.60	2,297.00	2,110.79	186.21	12.336		
12,900.00	9,213.95	13,799.08	10,145.84	96.91	106.25	-113.94	-3,792.39	1,682.02	2,296.92	2,107.17	189.75	12.105		
13,000.00	9,213.58	13,899.08	10,145.32	98.78	108.16	-113.93	-3,892.36	1,684.43	2,296.83	2,103.52	193.32	11.881		
13,100.00	9,213.22	13,999.08	10,144.79	100.66	110.07	-113.93	-3,992.32	1,686.85	2,296.75	2,099.85	196.90	11.664		
13,200.00	9,212.86	14,099.08	10,144.27	102.55	112.00	-113.93	-4,092.29	1,689.26	2,296.67	2,096.16	200.51	11.454		
13,300.00	9,212.50	14,199.08	10,143.74	104.45	113.93	-113.92	-4,192.26	1,691.68	2,296.59	2,092.45	204.14	11.250		
13,400.00	9,212.13	14,299.08	10,143.22	106.36	115.88	-113.92	-4,292.23	1,694.09	2,296.50	2,088.72	207.78	11.052		
13,500.00	9,211.77	14,399.08	10,142.70	108.28	117.83	-113.92	-4,392.20	1,696.51	2,296.42	2,084.97	211.45	10.861		
13,600.00	9,211.41	14,499.08	10,142.17	110.21	119.80	-113.91	-4,492.17	1,698.92	2,296.34	2,081.21	215.13	10.674		
13,700.00	9,211.05	14,599.08	10,141.65	112.15	121.77	-113.91	-4,592.14	1,701.34	2,296.25	2,077.43	218.82	10.494		
13,800.00	9,210.68	14,699.08	10,141.13	114.10	123.75	-113.90	-4,692.11	1,703.75	2,296.17	2,073.64	222.53	10.319		
13,900.00	9,210.32	14,799.08	10,140.60	116.05	125.73	-113.90	-4,792.08	1,706.17	2,296.09	2,069.84	226.25	10.148		
14,000.00	9,209.96	14,899.08	10,140.08	118.02	127.73	-113.90	-4,892.05	1,708.58	2,296.01	2,066.02	229.99	9.983		
14,100.00	9,209.60	14,999.08	10,139.56	119.99	129.73	-113.89	-4,992.02	1,710.99	2,295.92	2,062.19	233.74	9.823		
14,200.00	9,209.24	15,099.08	10,139.03	121.96	131.73	-113.89	-5,091.99	1,713.41	2,295.84	2,058.34	237.50	9.667		
14,300.00	9,208.87	15,199.08	10,138.51	123.94	133.74	-113.89	-5,191.96	1,715.82	2,295.76	2,054.49	241.27	9.515		
14,400.00	9,208.51	15,299.08	10,137.98	125.93	135.76	-113.88	-5,291.93	1,718.24	2,295.67	2,050.62	245.05	9.368		
14,500.00	9,208.15	15,399.08	10,137.46	127.93	137.79	-113.88	-5,391.90	1,720.65	2,295.59	2,046.75	248.84	9.225		
14,518.75	9,208.07	15,417.83	10,137.36	128.30	138.17	-113.88	-5,410.64	1,721.11	2,295.61	2,046.05	249.56	9.199		
14,600.00	9,207.67	15,499.07	10,136.94	129.92	139.82	-113.87	-5,491.86	1,723.07	2,296.10	2,043.48	252.62	9.089		
14,700.00	9,206.93	15,637.44	10,136.22	131.92	142.61	-113.87	-5,630.22	1,724.49	2,296.43	2,039.29	257.14	8.931		
14,800.00	9,206.19	15,737.44	10,135.70	133.93	144.64	-113.88	-5,730.22	1,725.07	2,296.52	2,035.59	260.93	8.801		
14,900.00	9,205.45	15,837.44	10,135.19	135.94	146.66	-113.88	-5,830.21	1,725.66	2,296.61	2,031.88	264.73	8.675		
15,000.00	9,204.71	15,937.44	10,134.67	137.95	148.70	-113.89	-5,930.21	1,726.24	2,296.70	2,028.16	268.54	8.553		
15,100.00	9,203.97	16,037.44	10,134.15	139.97	150.73	-113.89	-6,030.21	1,726.83	2,296.79	2,024.44	272.35	8.433		
15,200.00	9,203.23	16,137.44	10,133.63	141.99	152.77	-113.90	-6,130.20	1,727.41	2,296.88	2,020.71	276.17	8.317		
15,300.00	9,202.49	16,237.44	10,133.12	144.02	154.82	-113.90	-6,230.20	1,728.00	2,296.97	2,016.97	280.00	8.204		
15,400.00	9,201.75	16,337.44	10,132.60	146.05	156.86	-113.91	-6,330.20	1,728.58	2,297.06	2,013.23	283.83	8.093		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,500.00	9,201.01	16,437.44	10,132.08	148.08	158.92	-113.91	-6,430.19	1,729.16	2,297.15	2,009.48	287.67	7.985	
15,600.00	9,200.27	16,537.44	10,131.57	150.12	160.97	-113.92	-6,530.19	1,729.75	2,297.24	2,005.72	291.52	7.880	
15,700.00	9,199.53	16,637.44	10,131.05	152.16	163.03	-113.92	-6,630.19	1,730.33	2,297.33	2,001.96	295.38	7.778	
15,800.00	9,198.79	16,737.44	10,130.53	154.20	165.09	-113.93	-6,730.18	1,730.92	2,297.42	1,998.19	299.23	7.678	
15,900.00	9,198.05	16,837.44	10,130.01	156.25	167.16	-113.93	-6,830.18	1,731.50	2,297.51	1,994.41	303.10	7.580	
16,000.00	9,197.31	16,937.44	10,129.50	158.30	169.23	-113.94	-6,930.18	1,732.09	2,297.60	1,990.63	306.97	7.485	
16,100.00	9,196.57	17,037.44	10,128.98	160.35	171.30	-113.94	-7,030.17	1,732.67	2,297.69	1,986.85	310.84	7.392	
16,200.00	9,195.83	17,137.44	10,128.46	162.40	173.37	-113.95	-7,130.17	1,733.26	2,297.78	1,983.06	314.72	7.301	
16,300.00	9,195.09	17,237.44	10,127.95	164.46	175.45	-113.95	-7,230.17	1,733.84	2,297.87	1,979.27	318.61	7.212	
16,400.00	9,194.35	17,337.44	10,127.43	166.52	177.52	-113.96	-7,330.16	1,734.43	2,297.97	1,975.47	322.50	7.126	
16,500.00	9,193.61	17,437.44	10,126.91	168.58	179.61	-113.96	-7,430.16	1,735.01	2,298.06	1,971.67	326.39	7.041	
16,600.00	9,192.87	17,537.44	10,126.39	170.65	181.69	-113.97	-7,530.16	1,735.60	2,298.15	1,967.86	330.29	6.958	
16,700.00	9,192.13	17,637.44	10,125.88	172.72	183.78	-113.97	-7,630.16	1,736.18	2,298.24	1,964.05	334.19	6.877	
16,800.00	9,191.39	17,737.44	10,125.36	174.79	185.87	-113.98	-7,730.15	1,736.76	2,298.33	1,960.24	338.09	6.798	
16,900.00	9,190.65	17,837.44	10,124.84	176.86	187.96	-113.98	-7,830.15	1,737.35	2,298.42	1,956.42	342.00	6.721	
17,000.00	9,189.91	17,937.44	10,124.33	178.93	190.05	-113.99	-7,930.15	1,737.93	2,298.51	1,952.60	345.91	6.645	
17,100.00	9,189.17	18,037.44	10,123.81	181.01	192.14	-113.99	-8,030.14	1,738.52	2,298.60	1,948.77	349.83	6.571	
17,200.00	9,188.44	18,137.44	10,123.29	183.08	194.24	-114.00	-8,130.14	1,739.10	2,298.69	1,944.94	353.75	6.498	
17,300.00	9,187.70	18,237.44	10,122.77	185.16	196.34	-114.00	-8,230.14	1,739.69	2,298.78	1,941.11	357.67	6.427	
17,400.00	9,186.96	18,337.44	10,122.26	187.25	198.44	-114.01	-8,330.13	1,740.27	2,298.87	1,937.28	361.59	6.358	
17,500.00	9,186.22	18,437.44	10,121.74	189.33	200.54	-114.01	-8,430.13	1,740.86	2,298.96	1,933.44	365.52	6.290	
17,600.00	9,185.48	18,537.44	10,121.22	191.41	202.65	-114.02	-8,530.13	1,741.44	2,299.06	1,929.60	369.45	6.223	
17,700.00	9,184.74	18,637.44	10,120.71	193.50	204.75	-114.02	-8,630.12	1,742.03	2,299.15	1,925.76	373.39	6.158	
17,800.00	9,184.00	18,737.44	10,120.19	195.59	206.86	-114.03	-8,730.12	1,742.61	2,299.24	1,921.91	377.32	6.094	
17,900.00	9,183.26	18,837.44	10,119.67	197.68	208.97	-114.03	-8,830.12	1,743.20	2,299.33	1,918.06	381.26	6.031	
18,000.00	9,182.52	18,937.44	10,119.15	199.77	211.08	-114.04	-8,930.11	1,743.78	2,299.42	1,914.21	385.21	5.969	
18,100.00	9,181.78	19,037.44	10,118.64	201.86	213.19	-114.04	-9,030.11	1,744.37	2,299.51	1,910.36	389.15	5.909	
18,200.00	9,181.04	19,137.44	10,118.12	203.95	215.30	-114.05	-9,130.11	1,744.95	2,299.60	1,906.51	393.10	5.850	
18,300.00	9,180.30	19,237.44	10,117.60	206.05	217.42	-114.05	-9,230.10	1,745.53	2,299.69	1,902.65	397.04	5.792	
18,400.00	9,179.56	19,337.44	10,117.09	208.15	219.54	-114.06	-9,330.10	1,746.12	2,299.78	1,898.79	401.00	5.735	
18,500.00	9,178.82	19,437.44	10,116.57	210.24	221.65	-114.06	-9,430.10	1,746.70	2,299.87	1,894.93	404.95	5.679	
18,600.00	9,178.08	19,537.44	10,116.05	212.34	223.77	-114.07	-9,530.09	1,747.29	2,299.97	1,891.06	408.90	5.625	
18,700.00	9,177.34	19,637.44	10,115.54	214.44	225.89	-114.07	-9,630.09	1,747.87	2,300.06	1,887.20	412.86	5.571	
18,800.00	9,176.60	19,737.43	10,115.02	216.54	228.01	-114.08	-9,730.09	1,748.46	2,300.15	1,883.33	416.82	5.518	
18,900.00	9,175.86	19,837.43	10,114.50	218.64	230.14	-114.08	-9,830.08	1,749.04	2,300.24	1,879.46	420.78	5.467	
19,000.00	9,175.12	19,937.43	10,113.98	220.75	232.26	-114.09	-9,930.08	1,749.63	2,300.33	1,875.59	424.74	5.416	
19,100.00	9,174.38	20,037.43	10,113.47	222.85	234.39	-114.09	-10,030.08	1,750.21	2,300.42	1,871.71	428.71	5.366	
19,200.00	9,173.64	20,137.43	10,112.95	224.96	236.51	-114.10	-10,130.07	1,750.80	2,300.51	1,867.84	432.67	5.317	
19,300.00	9,172.90	20,237.43	10,112.43	227.06	238.64	-114.10	-10,230.07	1,751.38	2,300.60	1,863.96	436.64	5.269	
19,400.00	9,172.16	20,337.43	10,111.92	229.17	240.77	-114.11	-10,330.07	1,751.97	2,300.69	1,860.08	440.61	5.222	
19,500.00	9,171.42	20,437.43	10,111.40	231.28	242.90	-114.11	-10,430.06	1,752.55	2,300.79	1,856.20	444.58	5.175	
19,557.33	9,171.00	20,494.76	10,111.10	232.49	244.12	-114.12	-10,487.39	1,752.89	2,300.84	1,853.98	446.86	5.149 SF	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft	
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	10.00	0.00	0.00	0.02	75.41	322.00	1,237.00	1,278.22					
100.00	100.00	110.00	100.00	0.19	0.23	75.41	322.00	1,237.00	1,278.22	1,277.80	0.43	2,990.149		
200.00	200.00	210.00	200.00	0.73	0.77	75.41	322.00	1,237.00	1,278.22	1,276.72	1.50	850.508		
300.00	300.00	310.00	300.00	1.27	1.31	75.41	322.00	1,237.00	1,278.22	1,275.64	2.58	495.760		
400.00	400.00	410.00	400.00	1.81	1.85	75.41	322.00	1,237.00	1,278.22	1,274.57	3.65	349.841		
500.00	500.00	510.00	500.00	2.34	2.38	75.41	322.00	1,237.00	1,278.22	1,273.49	4.73	270.287		
600.00	600.00	610.00	600.00	2.88	2.92	75.41	322.00	1,237.00	1,278.22	1,272.42	5.80	220.210		
700.00	700.00	710.00	700.00	3.42	3.46	75.41	322.00	1,237.00	1,278.22	1,271.34	6.88	185.789		
800.00	800.00	810.00	800.00	3.96	4.00	75.41	322.00	1,237.00	1,278.22	1,270.27	7.96	160.674		
900.00	900.00	910.00	900.00	4.50	4.54	75.41	322.00	1,237.00	1,278.22	1,269.19	9.03	141.540		
1,000.00	1,000.00	1,010.00	1,000.00	5.03	5.07	75.41	322.00	1,237.00	1,278.22	1,268.12	10.11	126.479		
1,100.00	1,100.00	1,110.00	1,100.00	5.57	5.61	75.41	322.00	1,237.00	1,278.22	1,267.04	11.18	114.315		
1,200.00	1,200.00	1,210.00	1,200.00	6.11	6.15	75.41	322.00	1,237.00	1,278.22	1,265.97	12.26	104.285		
1,300.00	1,300.00	1,310.00	1,300.00	6.65	6.69	75.41	322.00	1,237.00	1,278.22	1,264.89	13.33	95.873		
1,400.00	1,400.00	1,410.00	1,400.00	7.18	7.22	75.41	322.00	1,237.00	1,278.22	1,263.81	14.41	88.717		
1,500.00	1,500.00	1,510.00	1,500.00	7.72	7.76	75.41	322.00	1,237.00	1,278.22	1,262.74	15.48	82.555		
1,600.00	1,600.00	1,610.00	1,600.00	8.26	8.30	75.41	322.00	1,237.00	1,278.22	1,261.66	16.56	77.193		
1,700.00	1,700.00	1,710.00	1,700.00	8.80	8.84	75.41	322.00	1,237.00	1,278.22	1,260.59	17.63	72.486		
1,800.00	1,800.00	1,810.00	1,800.00	9.33	9.37	75.41	322.00	1,237.00	1,278.22	1,259.51	18.71	68.319	CC, ES	
1,900.00	1,899.98	1,909.98	1,899.98	9.86	9.91	157.77	322.00	1,237.00	1,279.84	1,260.07	19.76	64.755		
2,000.00	1,999.84	2,009.84	1,999.84	10.38	10.45	157.82	322.00	1,237.00	1,284.68	1,263.90	20.79	61.796		
2,100.00	2,099.59	2,109.59	2,099.59	10.90	10.99	157.94	322.00	1,237.00	1,291.20	1,269.36	21.84	59.117		
2,200.00	2,199.34	2,209.34	2,199.34	11.43	11.52	158.05	322.00	1,237.00	1,297.72	1,274.83	22.90	56.678		
2,300.00	2,299.09	2,306.67	2,296.67	11.96	12.03	158.19	321.47	1,237.19	1,304.31	1,280.38	23.92	54.519		
2,400.00	2,398.85	2,400.00	2,389.93	12.49	12.48	158.44	318.30	1,238.31	1,311.20	1,286.30	24.90	52.658		
2,500.00	2,498.60	2,496.96	2,486.66	13.02	12.96	158.84	311.97	1,240.55	1,318.46	1,292.56	25.90	50.908		
2,600.00	2,598.35	2,596.07	2,585.40	13.56	13.45	159.32	303.98	1,243.38	1,325.97	1,299.05	26.91	49.266		
2,700.00	2,698.10	2,695.19	2,684.15	14.09	13.95	159.79	295.99	1,246.21	1,333.57	1,305.63	27.94	47.735		
2,800.00	2,797.86	2,794.30	2,782.90	14.63	14.45	160.25	288.00	1,249.04	1,341.26	1,312.29	28.96	46.307		
2,900.00	2,897.61	2,893.41	2,881.65	15.17	14.95	160.71	280.01	1,251.87	1,349.04	1,319.04	30.00	44.971		
3,000.00	2,997.36	2,992.52	2,980.40	15.71	15.46	161.16	272.02	1,254.69	1,356.90	1,325.86	31.04	43.720		
3,100.00	3,097.11	3,091.63	3,079.15	16.25	15.97	161.61	264.03	1,257.52	1,364.85	1,332.77	32.08	42.547		
3,200.00	3,196.87	3,190.75	3,177.90	16.80	16.49	162.05	256.03	1,260.35	1,372.87	1,339.75	33.12	41.446		
3,300.00	3,296.62	3,289.86	3,276.65	17.34	17.01	162.49	248.04	1,263.18	1,380.99	1,346.81	34.17	40.410		
3,400.00	3,396.37	3,388.97	3,375.40	17.89	17.53	162.92	240.05	1,266.01	1,389.18	1,353.95	35.23	39.435		
3,500.00	3,496.12	3,488.08	3,474.15	18.43	18.06	163.35	232.06	1,268.84	1,397.44	1,361.16	36.28	38.515		
3,600.00	3,595.88	3,587.20	3,572.90	18.98	18.58	163.77	224.07	1,271.67	1,405.79	1,368.45	37.34	37.647		
3,700.00	3,695.63	3,686.31	3,671.64	19.52	19.11	164.19	216.08	1,274.50	1,414.21	1,375.81	38.40	36.827		
3,800.00	3,795.38	3,785.42	3,770.39	20.07	19.64	164.60	208.09	1,277.33	1,422.71	1,383.24	39.46	36.050		
3,900.00	3,895.13	3,884.53	3,869.14	20.62	20.18	165.01	200.10	1,280.16	1,431.28	1,390.75	40.53	35.314		
4,000.00	3,994.89	3,983.65	3,967.89	21.17	20.71	165.41	192.11	1,282.98	1,439.92	1,398.32	41.60	34.617		
4,100.00	4,094.64	4,082.76	4,066.64	21.71	21.25	165.81	184.11	1,285.81	1,448.63	1,405.97	42.66	33.954		
4,200.00	4,194.39	4,181.87	4,165.39	22.26	21.78	166.20	176.12	1,288.64	1,457.41	1,413.68	43.73	33.324		
4,300.00	4,294.14	4,280.98	4,264.14	22.81	22.32	166.59	168.13	1,291.47	1,466.26	1,421.45	44.81	32.725		
4,400.00	4,393.89	4,380.09	4,362.89	23.36	22.86	166.97	160.14	1,294.30	1,475.18	1,429.30	45.88	32.154		
4,500.00	4,493.65	4,479.21	4,461.64	23.91	23.40	167.35	152.15	1,297.13	1,484.16	1,437.20	46.95	31.610		
4,600.00	4,593.40	4,578.32	4,560.39	24.46	23.94	167.73	144.16	1,299.96	1,493.20	1,445.17	48.03	31.090		
4,700.00	4,693.15	4,677.43	4,659.14	25.01	24.49	168.10	136.17	1,302.79	1,502.31	1,453.21	49.10	30.595		
4,800.00	4,792.90	4,776.54	4,757.89	25.56	25.03	168.46	128.18	1,305.62	1,511.48	1,461.30	50.18	30.121		
4,900.00	4,892.66	4,875.66	4,856.63	26.11	25.58	168.82	120.18	1,308.45	1,520.71	1,469.45	51.26	29.667		
5,000.00	4,992.41	4,974.77	4,955.38	26.67	26.12	169.18	112.19	1,311.27	1,530.00	1,477.67	52.34	29.233		
5,100.00	5,092.16	5,073.88	5,054.13	27.22	26.67	169.53	104.20	1,314.10	1,539.35	1,485.94	53.42	28.818		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16												Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM												Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				
5,200.00	5,191.91	5,172.99	5,152.88	27.77	27.21	169.88	96.21	1,316.93	1,548.76	1,494.26	54.50	28.419
5,300.00	5,291.67	5,272.11	5,251.63	28.32	27.76	170.23	88.22	1,319.76	1,558.23	1,502.65	55.58	28.037
5,400.00	5,391.42	5,371.22	5,350.38	28.87	28.31	170.57	80.23	1,322.59	1,567.75	1,511.09	56.66	27.669
5,500.00	5,491.17	5,470.33	5,449.13	29.43	28.86	170.90	72.24	1,325.42	1,577.32	1,519.58	57.74	27.317
5,600.00	5,590.92	5,569.44	5,547.88	29.98	29.41	171.23	64.25	1,328.25	1,586.95	1,528.12	58.82	26.978
5,700.00	5,690.68	5,668.56	5,646.63	30.53	29.96	171.56	56.26	1,331.08	1,596.63	1,536.72	59.91	26.651
5,800.00	5,790.43	5,767.76	5,745.47	31.08	30.51	171.89	48.26	1,333.91	1,606.36	1,545.37	60.99	26.337
5,900.00	5,890.18	5,869.74	5,847.19	31.64	31.18	172.19	40.88	1,336.52	1,615.44	1,553.25	62.19	25.975
6,000.00	5,989.93	6,012.51	5,989.92	32.19	31.83	172.32	38.40	1,337.40	1,623.12	1,559.74	63.38	25.610
6,100.00	6,089.69	6,112.27	6,089.69	32.74	32.33	172.36	38.40	1,337.40	1,630.09	1,565.67	64.42	25.304
6,200.00	6,189.44	6,212.03	6,189.44	33.30	32.83	172.39	38.40	1,337.40	1,637.06	1,571.60	65.46	25.007
6,300.00	6,289.19	6,311.78	6,289.19	33.85	33.34	172.42	38.40	1,337.40	1,644.03	1,577.52	66.51	24.719
6,400.00	6,388.94	6,411.53	6,388.94	34.40	33.84	172.45	38.40	1,337.40	1,651.00	1,583.45	67.55	24.440
6,500.00	6,488.70	6,511.28	6,488.70	34.96	34.35	172.48	38.40	1,337.40	1,657.98	1,589.38	68.60	24.169
6,600.00	6,588.45	6,611.04	6,588.45	35.51	34.86	172.52	38.40	1,337.40	1,664.95	1,595.30	69.65	23.906
6,700.00	6,688.20	6,710.79	6,688.20	36.06	35.37	172.55	38.40	1,337.40	1,671.92	1,601.23	70.69	23.650
6,800.00	6,787.95	6,810.54	6,787.95	36.62	35.87	172.58	38.40	1,337.40	1,678.90	1,607.15	71.74	23.401
6,900.00	6,887.70	6,910.29	6,887.70	37.17	36.38	172.61	38.40	1,337.40	1,685.87	1,613.08	72.79	23.160
7,000.00	6,987.46	7,010.05	6,987.46	37.72	36.90	172.64	38.40	1,337.40	1,692.85	1,619.00	73.84	22.925
7,100.00	7,087.21	7,109.80	7,087.21	38.28	37.41	172.67	38.40	1,337.40	1,699.82	1,624.93	74.90	22.696
7,200.00	7,186.96	7,209.55	7,186.96	38.83	37.92	172.70	38.40	1,337.40	1,706.80	1,630.85	75.95	22.473
7,300.00	7,286.71	7,309.30	7,286.71	39.39	38.43	172.73	38.40	1,337.40	1,713.78	1,636.78	77.00	22.257
7,400.00	7,386.47	7,409.06	7,386.47	39.94	38.95	172.76	38.40	1,337.40	1,720.75	1,642.70	78.05	22.046
7,500.00	7,486.22	7,508.81	7,486.22	40.50	39.46	172.79	38.40	1,337.40	1,727.73	1,648.62	79.11	21.840
7,600.00	7,585.97	7,608.56	7,585.97	41.05	39.97	172.82	38.40	1,337.40	1,734.71	1,654.54	80.16	21.640
7,700.00	7,685.72	7,708.31	7,685.72	41.60	40.49	172.85	38.40	1,337.40	1,741.69	1,660.47	81.22	21.445
7,800.00	7,785.48	7,808.07	7,785.48	42.16	41.01	172.88	38.40	1,337.40	1,748.66	1,666.39	82.27	21.254
7,900.00	7,885.23	7,907.82	7,885.23	42.71	41.52	172.91	38.40	1,337.40	1,755.64	1,672.31	83.33	21.068
8,000.00	7,984.98	8,007.57	7,984.98	43.27	42.04	172.93	38.40	1,337.40	1,762.62	1,678.23	84.39	20.887
8,100.00	8,084.73	8,107.32	8,084.73	43.82	42.56	172.96	38.40	1,337.40	1,769.60	1,684.16	85.45	20.710
8,200.00	8,184.49	8,207.07	8,184.49	44.38	43.07	172.99	38.40	1,337.40	1,776.58	1,690.08	86.50	20.538
8,300.00	8,284.24	8,306.83	8,284.24	44.93	43.59	173.02	38.40	1,337.40	1,783.56	1,696.00	87.56	20.369
8,400.00	8,383.99	8,406.58	8,383.99	45.49	44.11	173.04	38.40	1,337.40	1,790.55	1,701.92	88.62	20.204
8,500.00	8,483.74	8,506.33	8,483.74	46.04	44.63	173.07	38.40	1,337.40	1,797.53	1,707.85	89.68	20.043
8,600.00	8,583.50	8,606.08	8,583.50	46.60	45.15	173.10	38.40	1,337.40	1,804.51	1,713.77	90.74	19.886
8,700.00	8,683.24	8,695.70	8,672.85	47.15	45.63	-141.56	32.78	1,337.53	1,811.70	1,719.93	91.77	19.743
8,800.00	8,781.93	8,783.17	8,758.19	47.67	46.12	-103.86	14.01	1,337.99	1,818.90	1,726.10	92.80	19.600
8,900.00	8,876.74	8,869.90	8,839.02	48.15	46.63	-95.84	-17.19	1,338.74	1,825.76	1,731.93	93.83	19.459
9,000.00	8,964.80	8,956.17	8,913.84	48.58	47.16	-92.30	-59.97	1,339.78	1,832.04	1,737.21	94.83	19.319
9,100.00	9,043.43	9,042.27	8,981.26	48.96	47.70	-90.27	-113.36	1,341.07	1,837.55	1,741.74	95.81	19.179
9,200.00	9,110.24	9,128.45	9,039.99	49.31	48.28	-89.01	-176.31	1,342.59	1,842.12	1,745.34	96.78	19.033
9,300.00	9,163.20	9,214.98	9,088.78	49.66	48.88	-88.26	-247.65	1,344.31	1,845.62	1,747.84	97.78	18.876
9,400.00	9,200.70	9,300.00	9,125.74	50.06	49.50	-87.89	-324.11	1,346.16	1,847.95	1,749.16	98.79	18.705
9,500.00	9,221.61	9,390.14	9,152.11	50.50	50.18	-87.87	-410.18	1,348.24	1,849.07	1,749.16	99.91	18.507
9,600.00	9,225.90	9,479.35	9,164.62	50.99	50.87	-88.10	-498.39	1,350.38	1,849.03	1,747.95	101.08	18.294
9,666.94	9,225.66	9,542.12	9,165.61	51.36	51.37	-88.14	-561.12	1,351.89	1,848.97	1,747.03	101.94	18.138
9,700.00	9,225.54	9,575.19	9,165.43	51.54	51.64	-88.14	-594.18	1,352.69	1,848.97	1,746.58	102.39	18.059
9,800.00	9,225.18	9,675.19	9,164.89	52.18	52.51	-88.13	-694.15	1,355.11	1,848.96	1,745.07	103.88	17.798
9,900.00	9,224.82	9,775.19	9,164.35	52.90	53.46	-88.13	-794.12	1,357.53	1,848.94	1,743.41	105.54	17.519
10,000.00	9,224.45	9,875.19	9,163.81	53.69	54.48	-88.12	-894.09	1,359.94	1,848.93	1,741.59	107.34	17.225
10,100.00	9,224.09	9,975.19	9,163.27	54.55	55.57	-88.11	-994.06	1,362.36	1,848.92	1,739.63	109.29	16.917
10,200.00	9,223.73	10,075.19	9,162.73	55.49	56.72	-88.11	-1,094.02	1,364.78	1,848.91	1,737.53	111.38	16.600

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
10,300.00	9,223.37	10,175.19	9,162.19	56.49	57.93	-88.10	-1,193.99	1,367.19	1,848.90	1,735.31	113.60	16.276		
10,400.00	9,223.00	10,275.19	9,161.65	57.55	59.20	-88.10	-1,293.96	1,369.61	1,848.89	1,732.96	115.93	15.948		
10,500.00	9,222.64	10,375.19	9,161.10	58.68	60.52	-88.09	-1,393.93	1,372.03	1,848.88	1,730.49	118.39	15.617		
10,600.00	9,222.28	10,475.19	9,160.56	59.86	61.89	-88.09	-1,493.90	1,374.45	1,848.87	1,727.92	120.95	15.286		
10,700.00	9,221.92	10,575.19	9,160.02	61.09	63.31	-88.08	-1,593.87	1,376.86	1,848.86	1,725.25	123.61	14.957		
10,800.00	9,221.55	10,675.19	9,159.48	62.38	64.78	-88.08	-1,693.84	1,379.28	1,848.85	1,722.48	126.37	14.631		
10,900.00	9,221.19	10,775.19	9,158.94	63.71	66.28	-88.07	-1,793.81	1,381.70	1,848.84	1,719.62	129.21	14.308		
11,000.00	9,220.83	10,875.19	9,158.40	65.09	67.82	-88.06	-1,893.78	1,384.11	1,848.82	1,716.68	132.14	13.991		
11,100.00	9,220.47	10,975.19	9,157.86	66.51	69.40	-88.06	-1,993.75	1,386.53	1,848.81	1,713.66	135.15	13.680		
11,200.00	9,220.11	11,075.18	9,157.32	67.97	71.01	-88.05	-2,093.72	1,388.95	1,848.80	1,710.57	138.23	13.375		
11,300.00	9,219.74	11,175.18	9,156.78	69.46	72.65	-88.05	-2,193.69	1,391.36	1,848.79	1,707.42	141.38	13.077		
11,400.00	9,219.38	11,275.18	9,156.23	71.00	74.32	-88.04	-2,293.65	1,393.78	1,848.78	1,704.20	144.59	12.787		
11,500.00	9,219.02	11,375.18	9,155.69	72.56	76.02	-88.04	-2,393.62	1,396.20	1,848.77	1,700.92	147.86	12.504		
11,600.00	9,218.66	11,475.18	9,155.15	74.15	77.74	-88.03	-2,493.59	1,398.62	1,848.76	1,697.58	151.18	12.229		
11,700.00	9,218.29	11,575.18	9,154.61	75.77	79.49	-88.03	-2,593.56	1,401.03	1,848.75	1,694.19	154.56	11.961		
11,800.00	9,217.93	11,675.18	9,154.07	77.42	81.26	-88.02	-2,693.53	1,403.45	1,848.74	1,690.75	157.98	11.702		
11,900.00	9,217.57	11,775.18	9,153.53	79.10	83.05	-88.01	-2,793.50	1,405.87	1,848.73	1,687.27	161.46	11.450		
12,000.00	9,217.21	11,875.18	9,152.99	80.79	84.86	-88.01	-2,893.47	1,408.28	1,848.72	1,683.75	164.97	11.206		
12,100.00	9,216.84	11,975.18	9,152.45	82.51	86.69	-88.00	-2,993.44	1,410.70	1,848.71	1,680.18	168.52	10.970		
12,200.00	9,216.48	12,075.18	9,151.91	84.25	88.53	-88.00	-3,093.41	1,413.12	1,848.70	1,676.58	172.11	10.741		
12,300.00	9,216.12	12,175.18	9,151.37	86.01	90.39	-87.99	-3,193.38	1,415.53	1,848.69	1,672.94	175.74	10.519		
12,400.00	9,215.76	12,275.18	9,150.82	87.79	92.27	-87.99	-3,293.35	1,417.95	1,848.67	1,669.27	179.40	10.305		
12,500.00	9,215.40	12,375.18	9,150.28	89.58	94.15	-87.98	-3,393.32	1,420.37	1,848.66	1,665.57	183.09	10.097		
12,600.00	9,215.03	12,475.18	9,149.74	91.39	96.06	-87.98	-3,493.28	1,422.79	1,848.65	1,661.84	186.81	9.896		
12,700.00	9,214.67	12,575.18	9,149.20	93.22	97.97	-87.97	-3,593.25	1,425.20	1,848.64	1,658.08	190.56	9.701		
12,800.00	9,214.31	12,675.18	9,148.66	95.06	99.90	-87.96	-3,693.22	1,427.62	1,848.63	1,654.30	194.33	9.513		
12,900.00	9,213.95	12,775.18	9,148.12	96.91	101.84	-87.96	-3,793.19	1,430.04	1,848.62	1,650.49	198.13	9.330		
13,000.00	9,213.58	12,875.18	9,147.58	98.78	103.79	-87.95	-3,893.16	1,432.45	1,848.61	1,646.66	201.95	9.154		
13,100.00	9,213.22	12,975.18	9,147.04	100.66	105.74	-87.95	-3,993.13	1,434.87	1,848.60	1,642.81	205.79	8.983		
13,200.00	9,212.86	13,075.18	9,146.50	102.55	107.71	-87.94	-4,093.10	1,437.29	1,848.59	1,638.94	209.65	8.817		
13,300.00	9,212.50	13,175.18	9,145.95	104.45	109.69	-87.94	-4,193.07	1,439.71	1,848.58	1,635.04	213.54	8.657		
13,400.00	9,212.13	13,275.18	9,145.41	106.36	111.67	-87.93	-4,293.04	1,442.12	1,848.57	1,631.13	217.44	8.502		
13,500.00	9,211.77	13,375.18	9,144.87	108.28	113.67	-87.93	-4,393.01	1,444.54	1,848.56	1,627.20	221.36	8.351		
13,600.00	9,211.41	13,475.18	9,144.33	110.21	115.67	-87.92	-4,492.98	1,446.96	1,848.55	1,623.26	225.29	8.205		
13,700.00	9,211.05	13,575.18	9,143.79	112.15	117.68	-87.91	-4,592.95	1,449.37	1,848.54	1,619.30	229.24	8.064		
13,800.00	9,210.68	13,675.18	9,143.25	114.10	119.69	-87.91	-4,692.91	1,451.79	1,848.53	1,615.32	233.21	7.927		
13,900.00	9,210.32	13,775.18	9,142.71	116.05	121.71	-87.90	-4,792.88	1,454.21	1,848.52	1,611.33	237.19	7.794		
14,000.00	9,209.96	13,875.18	9,142.17	118.02	123.74	-87.90	-4,892.85	1,456.62	1,848.51	1,607.33	241.18	7.664		
14,100.00	9,209.60	13,975.18	9,141.63	119.99	125.77	-87.89	-4,992.82	1,459.04	1,848.50	1,603.31	245.18	7.539		
14,200.00	9,209.24	14,075.18	9,141.09	121.96	127.81	-87.89	-5,092.79	1,461.46	1,848.49	1,599.29	249.20	7.418		
14,300.00	9,208.87	14,175.18	9,140.54	123.94	129.85	-87.88	-5,192.76	1,463.88	1,848.48	1,595.25	253.23	7.300		
14,400.00	9,208.51	14,275.18	9,140.00	125.93	131.90	-87.88	-5,292.73	1,466.29	1,848.47	1,591.20	257.27	7.185		
14,500.00	9,208.15	14,375.18	9,139.46	127.93	133.96	-87.87	-5,392.70	1,468.71	1,848.46	1,587.14	261.32	7.074		
14,600.00	9,207.79	14,475.18	9,138.92	129.92	136.01	-87.86	-5,492.66	1,471.13	1,849.03	1,583.58	265.46	6.966		
14,700.00	9,207.43	14,575.18	9,138.38	131.92	138.06	-87.87	-5,592.62	1,473.55	1,849.27	1,579.97	270.20	6.844		
14,800.00	9,207.07	14,675.18	9,137.84	133.93	140.11	-87.88	-5,692.59	1,475.97	1,849.51	1,576.41	274.26	6.743		
14,900.00	9,206.71	14,775.18	9,137.30	135.94	142.17	-87.88	-5,792.56	1,478.39	1,849.75	1,572.85	278.33	6.644		
15,000.00	9,206.35	14,875.18	9,136.76	137.95	144.23	-87.89	-5,892.53	1,480.81	1,849.99	1,569.29	282.41	6.548		
15,100.00	9,205.99	14,975.18	9,136.22	139.96	146.29	-87.90	-5,992.50	1,483.23	1,850.23	1,565.73	286.49	6.455		
15,200.00	9,205.63	15,075.18	9,135.68	141.97	148.35	-87.90	-6,092.47	1,485.65	1,850.47	1,562.17	290.58	6.364		
15,300.00	9,205.27	15,175.18	9,135.14	143.98	150.41	-87.91	-6,192.44	1,488.07	1,850.71	1,558.61	294.68	6.275		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,400.00	9,201.75	15,309.04	9,134.47	146.05	153.20	-87.91	-6,326.49	1,476.56	1,849.22	1,550.44	298.78	6.189	
15,500.00	9,201.01	15,409.04	9,133.94	148.08	155.28	-87.92	-6,426.49	1,477.14	1,849.21	1,546.32	302.90	6.105	
15,600.00	9,200.27	15,509.04	9,133.40	150.12	157.36	-87.93	-6,526.49	1,477.72	1,849.21	1,542.19	307.01	6.023	
15,700.00	9,199.53	15,609.04	9,132.87	152.16	159.44	-87.93	-6,626.48	1,478.31	1,849.20	1,538.06	311.14	5.943	
15,800.00	9,198.79	15,709.04	9,132.34	154.20	161.52	-87.94	-6,726.48	1,478.89	1,849.19	1,533.92	315.27	5.865	
15,900.00	9,198.05	15,809.04	9,131.80	156.25	163.61	-87.95	-6,826.48	1,479.48	1,849.19	1,529.78	319.41	5.789	
16,000.00	9,197.31	15,909.04	9,131.27	158.30	165.70	-87.95	-6,926.47	1,480.06	1,849.18	1,525.63	323.55	5.715	
16,100.00	9,196.57	16,009.04	9,130.74	160.35	167.79	-87.96	-7,026.47	1,480.65	1,849.17	1,521.48	327.69	5.643	
16,200.00	9,195.83	16,109.04	9,130.20	162.40	169.89	-87.97	-7,126.47	1,481.23	1,849.17	1,517.32	331.85	5.572	
16,300.00	9,195.09	16,209.04	9,129.67	164.46	171.98	-87.97	-7,226.46	1,481.82	1,849.16	1,513.16	336.00	5.503	
16,400.00	9,194.35	16,309.04	9,129.13	166.52	174.08	-87.98	-7,326.46	1,482.40	1,849.15	1,508.99	340.16	5.436	
16,500.00	9,193.61	16,409.04	9,128.60	168.58	176.18	-87.99	-7,426.46	1,482.99	1,849.15	1,504.82	344.33	5.370	
16,600.00	9,192.87	16,509.04	9,128.07	170.65	178.29	-87.99	-7,526.45	1,483.57	1,849.14	1,500.64	348.50	5.306	
16,700.00	9,192.13	16,609.04	9,127.53	172.72	180.39	-88.00	-7,626.45	1,484.16	1,849.13	1,496.46	352.67	5.243	
16,800.00	9,191.39	16,709.04	9,127.00	174.79	182.50	-88.00	-7,726.45	1,484.74	1,849.13	1,492.27	356.85	5.182	
16,900.00	9,190.65	16,809.04	9,126.47	176.86	184.61	-88.01	-7,826.44	1,485.33	1,849.12	1,488.08	361.03	5.122	
17,000.00	9,189.91	16,909.04	9,125.93	178.93	186.72	-88.02	-7,926.44	1,485.91	1,849.11	1,483.89	365.22	5.063	
17,100.00	9,189.17	17,009.04	9,125.40	181.01	188.83	-88.02	-8,026.44	1,486.50	1,849.11	1,479.70	369.41	5.006	
17,200.00	9,188.44	17,109.04	9,124.87	183.08	190.94	-88.03	-8,126.43	1,487.08	1,849.10	1,475.50	373.60	4.949	
17,300.00	9,187.70	17,209.04	9,124.33	185.16	193.06	-88.04	-8,226.43	1,487.67	1,849.09	1,471.29	377.80	4.894	
17,400.00	9,186.96	17,309.03	9,123.80	187.25	195.18	-88.04	-8,326.43	1,488.25	1,849.09	1,467.09	382.00	4.841	
17,500.00	9,186.22	17,409.03	9,123.27	189.33	197.29	-88.05	-8,426.42	1,488.84	1,849.08	1,462.88	386.20	4.788	
17,600.00	9,185.48	17,509.03	9,122.73	191.41	199.41	-88.06	-8,526.42	1,489.42	1,849.07	1,458.66	390.41	4.736	
17,700.00	9,184.74	17,609.03	9,122.20	193.50	201.54	-88.06	-8,626.42	1,490.01	1,849.07	1,454.45	394.62	4.686	
17,800.00	9,184.00	17,709.03	9,121.67	195.59	203.66	-88.07	-8,726.41	1,490.59	1,849.06	1,450.23	398.83	4.636	
17,900.00	9,183.26	17,809.03	9,121.13	197.68	205.78	-88.07	-8,826.41	1,491.18	1,849.05	1,446.01	403.05	4.588	
18,000.00	9,182.52	17,909.03	9,120.60	199.77	207.91	-88.08	-8,926.41	1,491.76	1,849.05	1,441.78	407.26	4.540	
18,100.00	9,181.78	18,009.03	9,120.06	201.86	210.03	-88.09	-9,026.40	1,492.35	1,849.04	1,437.56	411.48	4.494	
18,200.00	9,181.04	18,109.03	9,119.53	203.95	212.16	-88.09	-9,126.40	1,492.93	1,849.04	1,433.33	415.71	4.448	
18,300.00	9,180.30	18,209.03	9,119.00	206.05	214.29	-88.10	-9,226.40	1,493.52	1,849.03	1,429.10	419.93	4.403	
18,400.00	9,179.56	18,309.03	9,118.46	208.15	216.42	-88.11	-9,326.39	1,494.10	1,849.02	1,424.86	424.16	4.359	
18,500.00	9,178.82	18,409.03	9,117.93	210.24	218.55	-88.11	-9,426.39	1,494.69	1,849.02	1,420.63	428.39	4.316	
18,600.00	9,178.08	18,509.03	9,117.40	212.34	220.68	-88.12	-9,526.39	1,495.27	1,849.01	1,416.39	432.62	4.274	
18,700.00	9,177.34	18,609.03	9,116.86	214.44	222.82	-88.13	-9,626.38	1,495.86	1,849.00	1,412.15	436.86	4.233	
18,800.00	9,176.60	18,709.03	9,116.33	216.54	224.95	-88.13	-9,726.38	1,496.44	1,849.00	1,407.91	441.09	4.192	
18,900.00	9,175.86	18,809.03	9,115.80	218.64	227.08	-88.14	-9,826.38	1,497.03	1,848.99	1,403.66	445.33	4.152	
19,000.00	9,175.12	18,909.03	9,115.26	220.75	229.22	-88.14	-9,926.37	1,497.61	1,848.99	1,399.41	449.57	4.113	
19,100.00	9,174.38	19,009.03	9,114.73	222.85	231.36	-88.15	-10,026.37	1,498.19	1,848.98	1,395.17	453.81	4.074	
19,200.00	9,173.64	19,109.03	9,114.20	224.96	233.49	-88.16	-10,126.37	1,498.78	1,848.97	1,390.92	458.06	4.037	
19,300.00	9,172.90	19,209.03	9,113.66	227.06	235.63	-88.16	-10,226.36	1,499.36	1,848.97	1,386.66	462.30	3.999	
19,400.00	9,172.16	19,309.03	9,113.13	229.17	237.77	-88.17	-10,326.36	1,499.95	1,848.96	1,382.41	466.55	3.963	
19,500.00	9,171.42	19,409.03	9,112.60	231.28	239.91	-88.18	-10,426.36	1,500.53	1,848.96	1,378.15	470.80	3.927	
19,557.33	9,171.00	19,466.36	9,112.29	232.49	241.14	-88.18	-10,483.69	1,500.87	1,848.95	1,375.71	473.24	3.907 SF	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	11.00	0.00	0.00	0.02	73.28	372.00	1,238.00	1,292.68					
100.00	100.00	111.00	100.00	0.19	0.24	73.28	372.00	1,238.00	1,292.68	1,292.25	0.43	2,986.411		
200.00	200.00	211.00	200.00	0.73	0.78	73.28	372.00	1,238.00	1,292.68	1,291.17	1.51	857.063		
300.00	300.00	311.00	300.00	1.27	1.31	73.28	372.00	1,238.00	1,292.68	1,290.10	2.58	500.325		
400.00	400.00	411.00	400.00	1.81	1.85	73.28	372.00	1,238.00	1,292.68	1,289.02	3.66	353.279		
500.00	500.00	511.00	500.00	2.34	2.39	73.28	372.00	1,238.00	1,292.68	1,287.95	4.73	273.034		
600.00	600.00	611.00	600.00	2.88	2.93	73.28	372.00	1,238.00	1,292.68	1,286.87	5.81	222.495		
700.00	700.00	711.00	700.00	3.42	3.47	73.28	372.00	1,238.00	1,292.68	1,285.80	6.89	187.744		
800.00	800.00	811.00	800.00	3.96	4.00	73.28	372.00	1,238.00	1,292.68	1,284.72	7.96	162.382		
900.00	900.00	911.00	900.00	4.50	4.54	73.28	372.00	1,238.00	1,292.68	1,283.65	9.04	143.056		
1,000.00	1,000.00	1,011.00	1,000.00	5.03	5.08	73.28	372.00	1,238.00	1,292.68	1,282.57	10.11	127.842		
1,100.00	1,100.00	1,111.00	1,100.00	5.57	5.62	73.28	372.00	1,238.00	1,292.68	1,281.50	11.19	115.552		
1,200.00	1,200.00	1,211.00	1,200.00	6.11	6.15	73.28	372.00	1,238.00	1,292.68	1,280.42	12.26	105.418		
1,300.00	1,300.00	1,311.00	1,300.00	6.65	6.69	73.28	372.00	1,238.00	1,292.68	1,279.34	13.34	96.919		
1,400.00	1,400.00	1,411.00	1,400.00	7.18	7.23	73.28	372.00	1,238.00	1,292.68	1,278.27	14.41	89.687		
1,500.00	1,500.00	1,511.00	1,500.00	7.72	7.77	73.28	372.00	1,238.00	1,292.68	1,277.19	15.49	83.460		
1,600.00	1,600.00	1,611.00	1,600.00	8.26	8.30	73.28	372.00	1,238.00	1,292.68	1,276.12	16.56	78.041		
1,700.00	1,700.00	1,711.00	1,700.00	8.80	8.84	73.28	372.00	1,238.00	1,292.68	1,275.04	17.64	73.283		
1,800.00	1,800.00	1,811.00	1,800.00	9.33	9.38	73.28	372.00	1,238.00	1,292.68	1,273.97	18.71	69.072 CC, ES		
1,900.00	1,899.98	1,910.98	1,899.98	9.86	9.92	155.63	372.00	1,238.00	1,294.27	1,274.50	19.77	65.466		
2,000.00	1,999.84	2,010.84	1,999.84	10.38	10.45	155.69	372.00	1,238.00	1,299.04	1,278.25	20.80	62.467		
2,100.00	2,099.59	2,110.59	2,099.59	10.90	10.99	155.82	372.00	1,238.00	1,305.46	1,283.61	21.85	59.752		
2,200.00	2,199.34	2,210.34	2,199.34	11.43	11.53	155.94	372.00	1,238.00	1,311.88	1,288.97	22.90	57.278		
2,300.00	2,299.09	2,310.37	2,346.35	11.96	12.29	156.15	370.90	1,236.31	1,317.23	1,293.05	24.18	54.476		
2,400.00	2,398.85	2,535.74	2,524.27	12.49	13.18	156.53	364.25	1,226.06	1,317.11	1,291.51	25.59	51.461		
2,500.00	2,498.60	2,620.35	2,608.45	13.02	13.61	156.77	358.98	1,219.40	1,314.33	1,287.79	26.54	49.516		
2,600.00	2,598.35	2,700.00	2,687.73	13.56	14.01	157.07	352.79	1,214.99	1,313.35	1,285.88	27.47	47.813		
2,606.45	2,604.78	2,700.00	2,687.73	13.59	14.01	157.07	352.79	1,214.99	1,313.34	1,285.84	27.50	47.754		
2,700.00	2,698.10	2,772.65	2,760.03	14.09	14.38	157.41	346.11	1,212.60	1,314.19	1,285.83	28.36	46.341		
2,800.00	2,797.86	2,863.92	2,850.81	14.63	14.84	157.90	336.72	1,211.17	1,316.53	1,287.19	29.35	44.862		
2,900.00	2,897.61	2,963.13	2,949.47	15.17	15.34	158.43	326.44	1,209.71	1,319.09	1,288.71	30.38	43.422		
3,000.00	2,997.36	3,062.34	3,048.14	15.71	15.85	158.96	316.17	1,208.26	1,321.76	1,290.34	31.42	42.072		
3,100.00	3,097.11	3,161.55	3,146.81	16.25	16.36	159.48	305.89	1,206.81	1,324.54	1,292.08	32.46	40.806		
3,200.00	3,196.87	3,260.76	3,245.47	16.80	16.88	160.01	295.62	1,205.35	1,327.44	1,293.93	33.51	39.616		
3,300.00	3,296.62	3,359.97	3,344.14	17.34	17.40	160.53	285.35	1,203.90	1,330.44	1,295.88	34.56	38.497		
3,400.00	3,396.37	3,459.18	3,442.80	17.89	17.92	161.05	275.07	1,202.45	1,333.56	1,297.95	35.62	37.443		
3,500.00	3,496.12	3,558.39	3,541.47	18.43	18.45	161.56	264.80	1,200.99	1,336.79	1,300.12	36.68	36.448		
3,600.00	3,595.88	3,657.60	3,640.14	18.98	18.98	162.08	254.52	1,199.54	1,340.13	1,302.39	37.74	35.510		
3,700.00	3,695.63	3,756.81	3,738.80	19.52	19.52	162.59	244.25	1,198.09	1,343.58	1,304.77	38.81	34.622		
3,800.00	3,795.38	3,856.02	3,837.47	20.07	20.05	163.10	233.97	1,196.63	1,347.14	1,307.26	39.88	33.783		
3,900.00	3,895.13	3,955.23	3,936.13	20.62	20.59	163.61	223.70	1,195.18	1,350.80	1,309.85	40.95	32.987		
4,000.00	3,994.89	4,054.44	4,034.80	21.17	21.13	164.11	213.42	1,193.73	1,354.57	1,312.54	42.02	32.233		
4,100.00	4,094.64	4,153.65	4,133.47	21.71	21.67	164.61	203.15	1,192.27	1,358.44	1,315.34	43.10	31.517		
4,200.00	4,194.39	4,252.87	4,232.13	22.26	22.22	165.11	192.88	1,190.82	1,362.42	1,318.24	44.18	30.837		
4,300.00	4,294.14	4,352.08	4,330.80	22.81	22.76	165.60	182.60	1,189.37	1,366.50	1,321.24	45.26	30.190		
4,400.00	4,393.89	4,451.29	4,429.46	23.36	23.31	166.09	172.33	1,187.91	1,370.69	1,324.34	46.35	29.575		
4,500.00	4,493.65	4,550.50	4,528.13	23.91	23.86	166.58	162.05	1,186.46	1,374.98	1,327.54	47.43	28.989		
4,600.00	4,593.40	4,649.71	4,626.80	24.46	24.41	167.07	151.78	1,185.01	1,379.36	1,330.84	48.52	28.430		
4,700.00	4,693.15	4,748.92	4,725.46	25.01	24.96	167.55	141.50	1,183.55	1,383.85	1,334.24	49.61	27.896		
4,800.00	4,792.90	4,848.13	4,824.13	25.56	25.52	168.03	131.23	1,182.10	1,388.44	1,337.74	50.70	27.387		
4,900.00	4,892.66	4,947.34	4,922.80	26.11	26.07	168.51	120.95	1,180.65	1,393.12	1,341.33	51.79	26.900		
5,000.00	4,992.41	5,046.55	5,021.46	26.67	26.63	168.98	110.68	1,179.19	1,397.90	1,345.02	52.88	26.435		

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Phoenix Technology Services LP

Anticollision Report



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 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16												Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM												Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,092.16	5,145.76	5,120.13	27.22	27.18	169.45	100.41	1,177.74	1,402.78	1,348.80	53.98	25.989
5,200.00	5,191.91	5,244.97	5,218.79	27.77	27.74	169.92	90.13	1,176.29	1,407.75	1,352.68	55.07	25.563
5,300.00	5,291.67	5,344.18	5,317.46	28.32	28.30	170.38	79.86	1,174.83	1,412.81	1,356.65	56.17	25.154
5,400.00	5,391.42	5,443.39	5,416.13	28.87	28.86	170.84	69.58	1,173.38	1,417.97	1,360.71	57.26	24.762
5,500.00	5,491.17	5,542.60	5,514.79	29.43	29.41	171.30	59.31	1,171.93	1,423.22	1,364.86	58.36	24.386
5,600.00	5,590.92	5,636.94	5,608.68	29.98	29.94	171.70	50.26	1,170.65	1,428.68	1,369.25	59.43	24.040
5,700.00	5,690.68	5,729.59	5,701.13	30.53	30.45	171.98	44.20	1,169.79	1,434.66	1,374.19	60.48	23.723
5,800.00	5,790.43	5,822.54	5,794.03	31.08	30.94	172.14	41.10	1,169.35	1,441.14	1,379.64	61.51	23.430
5,900.00	5,890.18	5,918.70	5,890.18	31.64	31.43	172.20	40.67	1,169.29	1,448.05	1,385.51	62.54	23.155
6,000.00	5,989.93	6,018.45	5,989.93	32.19	31.93	172.23	40.67	1,169.29	1,455.01	1,391.44	63.58	22.886
6,100.00	6,089.69	6,118.20	6,089.69	32.74	32.44	172.27	40.67	1,169.29	1,461.98	1,397.37	64.62	22.625
6,200.00	6,189.44	6,217.96	6,189.44	33.30	32.94	172.31	40.67	1,169.29	1,468.95	1,403.29	65.66	22.372
6,300.00	6,289.19	6,317.71	6,289.19	33.85	33.44	172.34	40.67	1,169.29	1,475.92	1,409.22	66.70	22.127
6,400.00	6,388.94	6,417.46	6,388.94	34.40	33.95	172.38	40.67	1,169.29	1,482.89	1,415.15	67.75	21.889
6,500.00	6,488.70	6,517.21	6,488.70	34.96	34.45	172.42	40.67	1,169.29	1,489.86	1,421.07	68.79	21.657
6,600.00	6,588.45	6,616.97	6,588.45	35.51	34.96	172.45	40.67	1,169.29	1,496.84	1,427.00	69.84	21.433
6,700.00	6,688.20	6,716.72	6,688.20	36.06	35.47	172.49	40.67	1,169.29	1,503.81	1,432.92	70.89	21.214
6,800.00	6,787.95	6,816.47	6,787.95	36.62	35.98	172.52	40.67	1,169.29	1,510.78	1,438.85	71.93	21.002
6,900.00	6,887.70	6,916.22	6,887.70	37.17	36.48	172.56	40.67	1,169.29	1,517.76	1,444.77	72.98	20.796
7,000.00	6,987.46	7,015.98	6,987.46	37.72	36.99	172.59	40.67	1,169.29	1,524.73	1,450.70	74.03	20.595
7,100.00	7,087.21	7,115.73	7,087.21	38.28	37.50	172.62	40.67	1,169.29	1,531.70	1,456.62	75.08	20.400
7,200.00	7,186.96	7,215.48	7,186.96	38.83	38.02	172.66	40.67	1,169.29	1,538.68	1,462.54	76.14	20.210
7,300.00	7,286.71	7,315.23	7,286.71	39.39	38.53	172.69	40.67	1,169.29	1,545.66	1,468.47	77.19	20.025
7,400.00	7,386.47	7,414.99	7,386.47	39.94	39.04	172.72	40.67	1,169.29	1,552.63	1,474.39	78.24	19.844
7,500.00	7,486.22	7,514.74	7,486.22	40.50	39.55	172.76	40.67	1,169.29	1,559.61	1,480.31	79.29	19.669
7,600.00	7,585.97	7,614.49	7,585.97	41.05	40.07	172.79	40.67	1,169.29	1,566.59	1,486.24	80.35	19.497
7,700.00	7,685.72	7,714.24	7,685.72	41.60	40.58	172.82	40.67	1,169.29	1,573.56	1,492.16	81.40	19.330
7,800.00	7,785.48	7,814.00	7,785.48	42.16	41.10	172.85	40.67	1,169.29	1,580.54	1,498.08	82.46	19.168
7,900.00	7,885.23	7,913.75	7,885.23	42.71	41.61	172.88	40.67	1,169.29	1,587.52	1,504.01	83.51	19.009
8,000.00	7,984.98	8,013.50	7,984.98	43.27	42.13	172.92	40.67	1,169.29	1,594.50	1,509.93	84.57	18.854
8,100.00	8,084.73	8,113.25	8,084.73	43.82	42.65	172.95	40.67	1,169.29	1,601.48	1,515.85	85.63	18.703
8,200.00	8,184.49	8,213.00	8,184.49	44.38	43.16	172.98	40.67	1,169.29	1,608.46	1,521.77	86.69	18.555
8,300.00	8,284.24	8,312.76	8,284.24	44.93	43.68	173.01	40.67	1,169.29	1,615.44	1,527.70	87.74	18.411
8,400.00	8,383.99	8,412.51	8,383.99	45.49	44.20	173.04	40.67	1,169.29	1,622.42	1,533.62	88.80	18.270
8,500.00	8,483.74	8,512.26	8,483.74	46.04	44.72	173.07	40.67	1,169.29	1,629.40	1,539.54	89.86	18.132
8,600.00	8,583.50	8,612.01	8,583.50	46.60	45.24	173.10	40.67	1,169.29	1,636.39	1,545.46	90.92	17.998
8,700.00	8,683.24	8,711.76	8,683.24	47.15	45.76	-141.75	40.67	1,169.29	1,643.33	1,551.34	91.99	17.865
8,800.00	8,781.93	8,810.45	8,781.93	47.67	46.27	-104.82	40.67	1,169.29	1,649.74	1,556.71	93.03	17.733
8,900.00	8,876.74	8,905.26	8,876.74	48.15	46.76	-98.05	40.67	1,169.29	1,655.74	1,561.72	94.02	17.611
9,000.00	8,964.80	8,993.32	8,964.80	48.58	47.22	-96.00	40.67	1,169.29	1,662.04	1,567.12	94.92	17.509
9,100.00	9,043.43	9,071.95	9,043.43	48.96	47.63	-95.42	40.67	1,169.29	1,669.73	1,573.98	95.75	17.438
9,200.00	9,110.24	9,138.76	9,110.24	49.31	47.98	-95.23	40.67	1,169.29	1,680.02	1,583.52	96.50	17.409
9,300.00	9,163.20	9,191.72	9,163.20	49.66	48.26	-94.82	40.67	1,169.29	1,694.08	1,596.87	97.21	17.428
9,400.00	9,200.70	9,229.22	9,200.70	50.06	48.46	-93.80	40.67	1,169.29	1,712.72	1,614.83	97.89	17.496
9,500.00	9,221.61	9,250.13	9,221.61	50.50	48.57	-91.92	40.67	1,169.29	1,736.27	1,637.77	98.50	17.627
9,600.00	9,225.90	9,254.42	9,225.90	50.99	48.59	-89.93	40.67	1,169.29	1,764.48	1,665.56	98.92	17.837
9,700.00	9,225.54	10,263.96	9,838.39	51.54	55.27	-110.04	-601.75	1,184.83	1,788.29	1,686.56	101.73	17.578
9,800.00	9,225.18	10,363.96	9,837.86	52.18	56.12	-110.04	-701.72	1,187.25	1,788.22	1,685.03	103.19	17.329
9,900.00	9,224.82	10,463.95	9,837.34	52.90	57.05	-110.03	-801.69	1,189.67	1,788.15	1,683.35	104.80	17.063
10,000.00	9,224.45	10,563.95	9,836.82	53.69	58.04	-110.03	-901.66	1,192.09	1,788.08	1,681.54	106.54	16.783
10,100.00	9,224.09	10,663.95	9,836.29	54.55	59.10	-110.02	-1,001.62	1,194.51	1,788.01	1,679.59	108.42	16.491
10,200.00	9,223.73	10,763.95	9,835.77	55.49	60.22	-110.02	-1,101.59	1,196.92	1,787.94	1,677.51	110.43	16.191

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
10,300.00	9,223.37	10,863.95	9,835.25	56.49	61.40	-110.01	-1,201.56	1,199.34	1,787.87	1,675.32	112.55	15.885		
10,400.00	9,223.00	10,963.95	9,834.72	57.55	62.63	-110.01	-1,301.53	1,201.76	1,787.80	1,673.01	114.79	15.574		
10,500.00	9,222.64	11,063.95	9,834.20	58.68	63.92	-110.00	-1,401.50	1,204.18	1,787.73	1,670.59	117.14	15.262		
10,600.00	9,222.28	11,163.95	9,833.68	59.86	65.25	-110.00	-1,501.47	1,206.60	1,787.66	1,668.08	119.59	14.949		
10,700.00	9,221.92	11,263.95	9,833.15	61.09	66.63	-109.99	-1,601.44	1,209.02	1,787.59	1,665.46	122.13	14.637		
10,800.00	9,221.55	11,363.95	9,832.63	62.38	68.06	-109.99	-1,701.41	1,211.44	1,787.52	1,662.76	124.76	14.328		
10,900.00	9,221.19	11,463.95	9,832.11	63.71	69.52	-109.99	-1,801.38	1,213.85	1,787.45	1,659.98	127.47	14.022		
11,000.00	9,220.83	11,563.95	9,831.58	65.09	71.02	-109.98	-1,901.35	1,216.27	1,787.38	1,657.12	130.26	13.721		
11,100.00	9,220.47	11,663.95	9,831.06	66.51	72.56	-109.98	-2,001.32	1,218.69	1,787.31	1,654.18	133.13	13.425		
11,200.00	9,220.11	11,763.95	9,830.53	67.97	74.13	-109.97	-2,101.29	1,221.11	1,787.24	1,651.18	136.06	13.135		
11,300.00	9,219.74	11,863.95	9,830.01	69.46	75.73	-109.97	-2,201.26	1,223.53	1,787.17	1,648.11	139.06	12.852		
11,400.00	9,219.38	11,963.95	9,829.49	71.00	77.37	-109.96	-2,301.22	1,225.95	1,787.11	1,644.99	142.12	12.575		
11,500.00	9,219.02	12,063.95	9,828.96	72.56	79.03	-109.96	-2,401.19	1,228.37	1,787.04	1,641.80	145.23	12.304		
11,600.00	9,218.66	12,163.95	9,828.44	74.15	80.71	-109.95	-2,501.16	1,230.78	1,786.97	1,638.56	148.40	12.041		
11,700.00	9,218.29	12,263.95	9,827.92	75.77	82.42	-109.95	-2,601.13	1,233.20	1,786.90	1,635.28	151.62	11.785		
11,800.00	9,217.93	12,363.95	9,827.39	77.42	84.16	-109.94	-2,701.10	1,235.62	1,786.83	1,631.94	154.88	11.537		
11,900.00	9,217.57	12,463.95	9,826.87	79.10	85.91	-109.94	-2,801.07	1,238.04	1,786.76	1,628.57	158.19	11.295		
12,000.00	9,217.21	12,563.95	9,826.35	80.79	87.69	-109.93	-2,901.04	1,240.46	1,786.69	1,625.15	161.54	11.060		
12,100.00	9,216.84	12,663.95	9,825.82	82.51	89.48	-109.93	-3,001.01	1,242.88	1,786.62	1,621.69	164.93	10.833		
12,200.00	9,216.48	12,763.95	9,825.30	84.25	91.29	-109.92	-3,100.98	1,245.29	1,786.55	1,618.20	168.35	10.612		
12,300.00	9,216.12	12,863.95	9,824.78	86.01	93.12	-109.92	-3,200.95	1,247.71	1,786.48	1,614.67	171.81	10.398		
12,400.00	9,215.76	12,963.95	9,824.25	87.79	94.96	-109.92	-3,300.92	1,250.13	1,786.41	1,611.11	175.30	10.191		
12,500.00	9,215.40	13,063.95	9,823.73	89.58	96.82	-109.91	-3,400.89	1,252.55	1,786.34	1,607.52	178.82	9.990		
12,600.00	9,215.03	13,163.95	9,823.20	91.39	98.70	-109.91	-3,500.86	1,254.97	1,786.27	1,603.91	182.36	9.795		
12,700.00	9,214.67	13,263.95	9,822.68	93.22	100.58	-109.90	-3,600.83	1,257.39	1,786.20	1,600.26	185.94	9.606		
12,800.00	9,214.31	13,363.95	9,822.16	95.06	102.48	-109.90	-3,700.79	1,259.81	1,786.13	1,596.59	189.54	9.424		
12,900.00	9,213.95	13,463.95	9,821.63	96.91	104.39	-109.89	-3,800.76	1,262.22	1,786.06	1,592.90	193.16	9.246		
13,000.00	9,213.58	13,563.95	9,821.11	98.78	106.32	-109.89	-3,900.73	1,264.64	1,785.99	1,589.18	196.81	9.075		
13,100.00	9,213.22	13,663.95	9,820.59	100.66	108.25	-109.88	-4,000.70	1,267.06	1,785.93	1,585.45	200.48	8.908		
13,200.00	9,212.86	13,763.95	9,820.06	102.55	110.19	-109.88	-4,100.67	1,269.48	1,785.86	1,581.69	204.17	8.747		
13,300.00	9,212.50	13,863.95	9,819.54	104.45	112.14	-109.87	-4,200.64	1,271.90	1,785.79	1,577.91	207.87	8.591		
13,400.00	9,212.13	13,963.95	9,819.02	106.36	114.10	-109.87	-4,300.61	1,274.32	1,785.72	1,574.12	211.60	8.439		
13,500.00	9,211.77	14,063.95	9,818.49	108.28	116.08	-109.86	-4,400.58	1,276.74	1,785.65	1,570.31	215.34	8.292		
13,600.00	9,211.41	14,163.95	9,817.97	110.21	118.05	-109.86	-4,500.55	1,279.15	1,785.58	1,566.48	219.10	8.150		
13,700.00	9,211.05	14,263.95	9,817.44	112.15	120.04	-109.85	-4,600.52	1,281.57	1,785.51	1,562.64	222.87	8.011		
13,800.00	9,210.68	14,363.95	9,816.92	114.10	122.03	-109.85	-4,700.49	1,283.99	1,785.44	1,558.78	226.66	7.877		
13,900.00	9,210.32	14,463.95	9,816.40	116.05	124.03	-109.84	-4,800.46	1,286.41	1,785.37	1,554.90	230.47	7.747		
14,000.00	9,209.96	14,563.95	9,815.87	118.02	126.04	-109.84	-4,900.43	1,288.83	1,785.30	1,551.02	234.28	7.620		
14,100.00	9,209.60	14,663.95	9,815.35	119.99	128.05	-109.84	-5,000.39	1,291.25	1,785.23	1,547.12	238.11	7.497		
14,200.00	9,209.24	14,763.95	9,814.83	121.96	130.07	-109.83	-5,100.36	1,293.66	1,785.16	1,543.21	241.95	7.378		
14,300.00	9,208.87	14,863.95	9,814.30	123.94	132.10	-109.83	-5,200.33	1,296.08	1,785.09	1,539.29	245.81	7.262		
14,400.00	9,208.51	14,963.95	9,813.78	125.93	134.13	-109.82	-5,300.30	1,298.50	1,785.03	1,535.35	249.67	7.150		
14,500.00	9,208.15	15,063.95	9,813.26	127.93	136.17	-109.82	-5,400.27	1,300.92	1,784.96	1,531.41	253.54	7.040		
14,504.14	9,208.13	15,068.09	9,813.23	128.01	136.25	-109.82	-5,404.41	1,301.02	1,784.95	1,531.24	253.71	7.035		
14,600.00	9,207.67	15,171.49	9,812.69	129.92	138.36	-109.80	-5,507.79	1,303.49	1,785.47	1,527.78	257.70	6.929		
14,700.00	9,206.93	15,294.74	9,812.05	131.92	140.87	-109.81	-5,631.03	1,304.49	1,785.66	1,523.64	262.01	6.815		
14,800.00	9,206.19	15,394.74	9,811.53	133.93	142.91	-109.82	-5,731.02	1,305.07	1,785.73	1,519.85	265.88	6.716		
14,900.00	9,205.45	15,494.74	9,811.00	135.94	144.95	-109.82	-5,831.02	1,305.66	1,785.80	1,516.04	269.76	6.620		
15,000.00	9,204.71	15,594.74	9,810.48	137.95	146.99	-109.83	-5,931.02	1,306.24	1,785.88	1,512.23	273.65	6.526		
15,100.00	9,203.97	15,694.74	9,809.96	139.97	149.04	-109.84	-6,031.01	1,306.83	1,785.95	1,508.41	277.54	6.435		
15,200.00	9,203.23	15,794.74	9,809.44	141.99	151.10	-109.84	-6,131.01	1,307.41	1,786.03	1,504.58	281.44	6.346		
15,300.00	9,202.49	15,894.74	9,808.91	144.02	153.15	-109.85	-6,231.01	1,308.00	1,786.10	1,500.75	285.35	6.259		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0021
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,400.00	9,201.75	15,994.74	9,808.39	146.05	155.21	-109.85	-6,331.00	1,308.58	1,786.18	1,496.91	289.27	6.175	
15,500.00	9,201.01	16,094.74	9,807.87	148.08	157.28	-109.86	-6,431.00	1,309.17	1,786.25	1,493.06	293.19	6.092	
15,600.00	9,200.27	16,194.74	9,807.35	150.12	159.34	-109.87	-6,531.00	1,309.75	1,786.33	1,489.21	297.12	6.012	
15,700.00	9,199.53	16,294.74	9,806.83	152.16	161.41	-109.87	-6,630.99	1,310.34	1,786.40	1,485.35	301.05	5.934	
15,800.00	9,198.79	16,394.74	9,806.30	154.20	163.49	-109.88	-6,730.99	1,310.92	1,786.47	1,481.49	304.99	5.858	
15,900.00	9,198.05	16,494.74	9,805.78	156.25	165.56	-109.89	-6,830.99	1,311.51	1,786.55	1,477.62	308.93	5.783	
16,000.00	9,197.31	16,594.74	9,805.26	158.30	167.64	-109.89	-6,930.98	1,312.09	1,786.62	1,473.74	312.88	5.710	
16,100.00	9,196.57	16,694.74	9,804.74	160.35	169.72	-109.90	-7,030.98	1,312.68	1,786.70	1,469.86	316.84	5.639	
16,200.00	9,195.83	16,794.74	9,804.21	162.40	171.81	-109.91	-7,130.98	1,313.26	1,786.77	1,465.98	320.79	5.570	
16,300.00	9,195.09	16,894.74	9,803.69	164.46	173.89	-109.91	-7,230.97	1,313.85	1,786.85	1,462.09	324.76	5.502	
16,400.00	9,194.35	16,994.74	9,803.17	166.52	175.98	-109.92	-7,330.97	1,314.43	1,786.92	1,458.20	328.73	5.436	
16,500.00	9,193.61	17,094.74	9,802.65	168.58	178.07	-109.93	-7,430.97	1,315.02	1,787.00	1,454.30	332.70	5.371	
16,600.00	9,192.87	17,194.74	9,802.12	170.65	180.17	-109.93	-7,530.96	1,315.60	1,787.07	1,450.40	336.68	5.308	
16,700.00	9,192.13	17,294.74	9,801.60	172.72	182.26	-109.94	-7,630.96	1,316.19	1,787.15	1,446.49	340.66	5.246	
16,800.00	9,191.39	17,394.74	9,801.08	174.79	184.36	-109.95	-7,730.96	1,316.77	1,787.22	1,442.58	344.64	5.186	
16,900.00	9,190.65	17,494.74	9,800.56	176.86	186.46	-109.95	-7,830.95	1,317.36	1,787.30	1,438.67	348.63	5.127	
17,000.00	9,189.91	17,594.74	9,800.04	178.93	188.56	-109.96	-7,930.95	1,317.94	1,787.37	1,434.75	352.62	5.069	
17,100.00	9,189.17	17,694.74	9,799.51	181.01	190.66	-109.97	-8,030.95	1,318.53	1,787.45	1,430.83	356.61	5.012	
17,200.00	9,188.44	17,794.74	9,798.99	183.08	192.77	-109.97	-8,130.94	1,319.11	1,787.52	1,426.91	360.61	4.957	
17,300.00	9,187.70	17,894.74	9,798.47	185.16	194.88	-109.98	-8,230.94	1,319.70	1,787.60	1,422.98	364.61	4.903	
17,400.00	9,186.96	17,994.74	9,797.95	187.25	196.98	-109.99	-8,330.94	1,320.28	1,787.67	1,419.05	368.62	4.850	
17,500.00	9,186.22	18,094.74	9,797.42	189.33	199.09	-109.99	-8,430.93	1,320.87	1,787.75	1,415.12	372.63	4.798	
17,600.00	9,185.48	18,194.74	9,796.90	191.41	201.21	-110.00	-8,530.93	1,321.45	1,787.82	1,411.18	376.64	4.747	
17,700.00	9,184.74	18,294.74	9,796.38	193.50	203.32	-110.01	-8,630.93	1,322.04	1,787.90	1,407.25	380.65	4.697	
17,800.00	9,184.00	18,394.74	9,795.86	195.59	205.43	-110.01	-8,730.92	1,322.62	1,787.97	1,403.31	384.66	4.648	
17,900.00	9,183.26	18,494.74	9,795.33	197.68	207.55	-110.02	-8,830.92	1,323.21	1,788.05	1,399.36	388.68	4.600	
18,000.00	9,182.52	18,594.73	9,794.81	199.77	209.67	-110.02	-8,930.92	1,323.79	1,788.12	1,395.42	392.70	4.553	
18,100.00	9,181.78	18,694.73	9,794.29	201.86	211.79	-110.03	-9,030.91	1,324.38	1,788.20	1,391.47	396.73	4.507	
18,200.00	9,181.04	18,794.73	9,793.77	203.95	213.91	-110.04	-9,130.91	1,324.96	1,788.27	1,387.52	400.75	4.462	
18,300.00	9,180.30	18,894.73	9,793.25	206.05	216.03	-110.04	-9,230.91	1,325.55	1,788.35	1,383.57	404.78	4.418	
18,400.00	9,179.56	18,994.73	9,792.72	208.15	218.15	-110.05	-9,330.90	1,326.13	1,788.42	1,379.61	408.81	4.375	
18,500.00	9,178.82	19,094.73	9,792.20	210.24	220.28	-110.06	-9,430.90	1,326.72	1,788.50	1,375.66	412.84	4.332	
18,600.00	9,178.08	19,194.73	9,791.68	212.34	222.40	-110.06	-9,530.90	1,327.30	1,788.57	1,371.70	416.87	4.290	
18,700.00	9,177.34	19,294.73	9,791.16	214.44	224.53	-110.07	-9,630.89	1,327.89	1,788.65	1,367.74	420.91	4.249	
18,800.00	9,176.60	19,394.73	9,790.63	216.54	226.66	-110.08	-9,730.89	1,328.47	1,788.72	1,363.77	424.95	4.209	
18,900.00	9,175.86	19,494.73	9,790.11	218.64	228.78	-110.08	-9,830.89	1,329.06	1,788.80	1,359.81	428.99	4.170	
19,000.00	9,175.12	19,594.73	9,789.59	220.75	230.91	-110.09	-9,930.88	1,329.64	1,788.87	1,355.84	433.03	4.131	
19,100.00	9,174.38	19,694.73	9,789.07	222.85	233.04	-110.10	-10,030.88	1,330.23	1,788.95	1,351.88	437.07	4.093	
19,200.00	9,173.64	19,794.73	9,788.54	224.96	235.18	-110.10	-10,130.88	1,330.81	1,789.02	1,347.91	441.12	4.056	
19,300.00	9,172.90	19,894.73	9,788.02	227.06	237.31	-110.11	-10,230.87	1,331.40	1,789.10	1,343.94	445.16	4.019	
19,400.00	9,172.16	19,994.73	9,787.50	229.17	239.44	-110.12	-10,330.87	1,331.98	1,789.17	1,339.96	449.21	3.983	
19,500.00	9,171.42	20,094.73	9,786.98	231.28	241.58	-110.12	-10,430.87	1,332.57	1,789.25	1,335.99	453.26	3.948	
19,557.33	9,171.00	20,152.06	9,786.68	232.49	242.80	-110.13	-10,488.20	1,332.90	1,789.29	1,333.71	455.58	3.927 SF	

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



Phoenix Technology Services LP

Anticollision Report

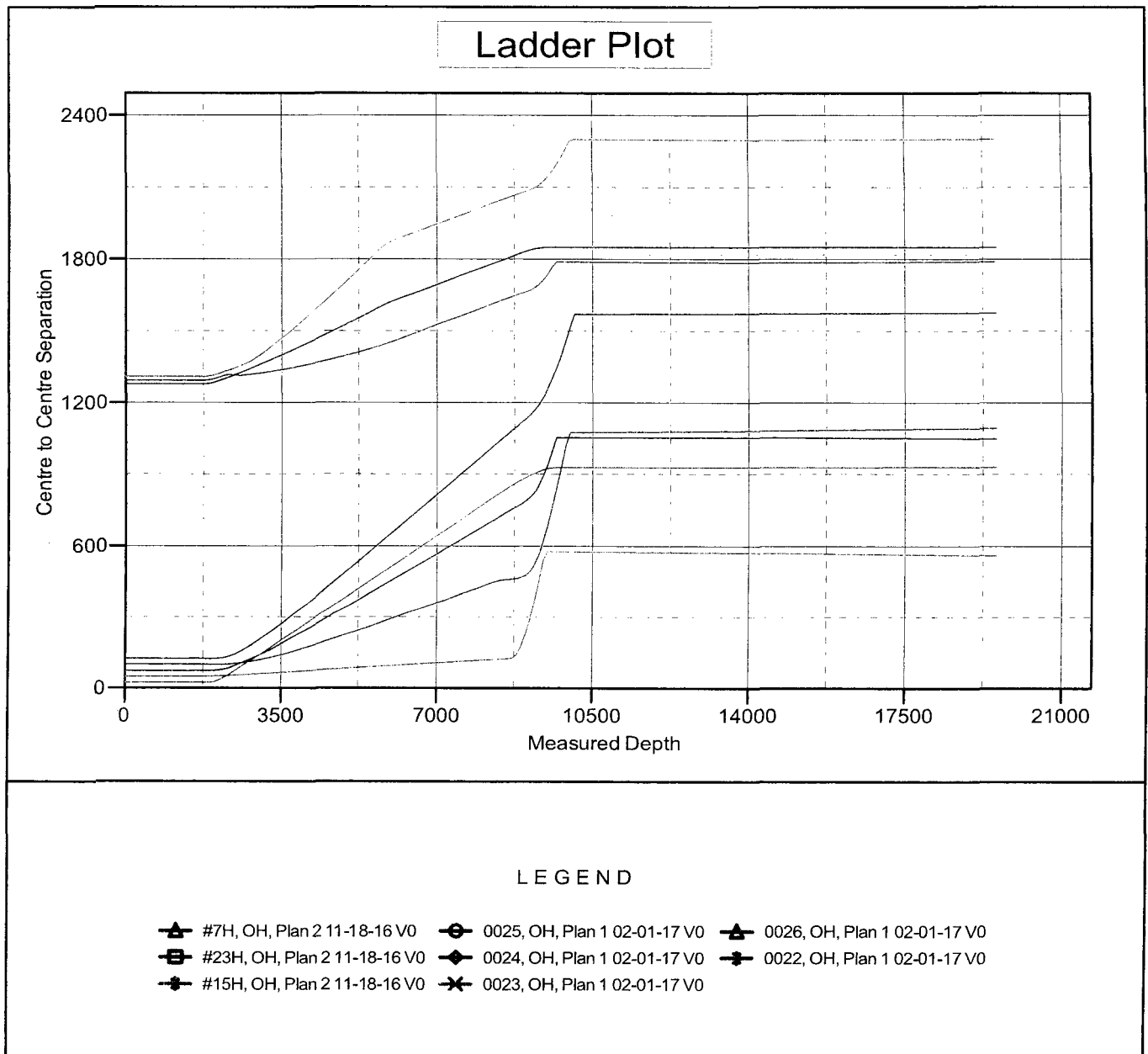


Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0021
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Reference Depths are relative to RKB @ 3301.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 0021
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.08°



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



Phoenix Technology Services LP

Anticollision Report



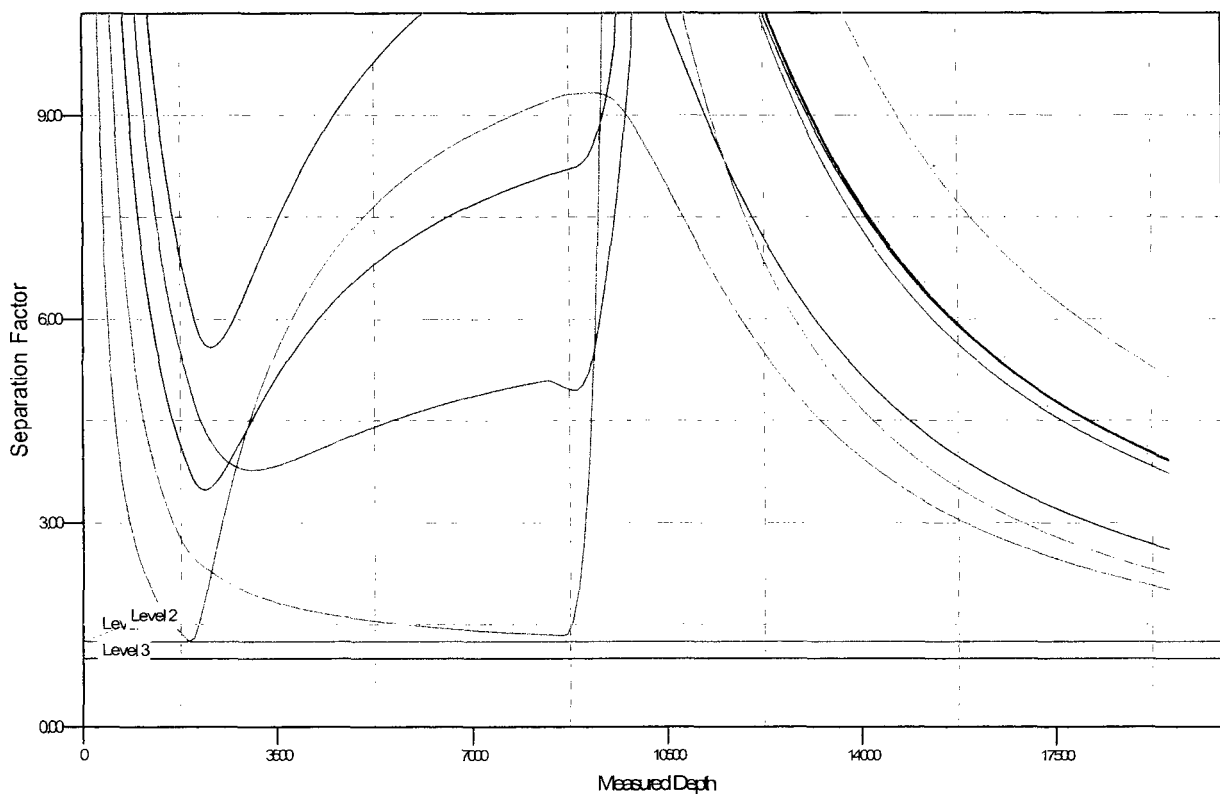
Company: Chevron
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Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Reference Depths are relative to RKB @ 3301.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 0021
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.08°

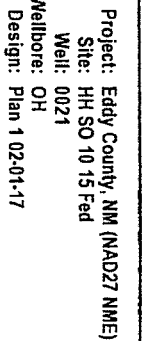
Separation Factor Plot



LEGEND

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| ▲ #7H, OH, Plan 2 11-18-16 V0 | ⊖ 0025, OH, Plan 1 02-01-17 V0 | ▲ 0026, OH, Plan 1 02-01-17 V0 |
| ⊖ #23H, OH, Plan 2 11-18-16 V0 | ⊖ 0024, OH, Plan 1 02-01-17 V0 | ⊖ 0022, OH, Plan 1 02-01-17 V0 |
| ⊖ #15H, OH, Plan 2 11-18-16 V0 | ⊖ 0023, OH, Plan 1 02-01-17 V0 | |

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



Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
11-11-2024

Map System	US State Plane 1927 (Exact solution)
Datum	NAD 1927 (NADCON CONUS)
Ellipsoid	Clarke 1866
Zone Name	New Mexico East 3009
Local Origin	Well 0021 and North

TECHNOLOGY SERVICES
West/East (+) (408) 240-0000

Magnetic Field
Strength: 48056.3mT
Dip Angle: 59.82°
Date: 2/12/2017
Model: HDGM

Latitude 32° 35' 16.6491 N

around level	3273.00	collimato	104° 11' 16.00" W
fasting			
546329.00	32° 3' 51.85491" N		

[illegible]

Sec	IN	He	Ar	VD	ALS	EW	Deg	Trace	VScat	Target	Notes
1	1800.0	0.0	0.0	11	0.00	0.00	0.00	0.00	0.00		100% 2.2
2	1400.0	4.0	0.0	11	0.00	0.00	0.00	0.00	0.00		100% 2.2
3	1000.0	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
4	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
5	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
6	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
7	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
8	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
9	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
10	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
11	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
12	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
13	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
14	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
15	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
16	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
17	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
18	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
19	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
20	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
21	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
22	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
23	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
24	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
25	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
26	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
27	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
28	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
29	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
30	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
31	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
32	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
33	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
34	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
35	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
36	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
37	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
38	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
39	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
40	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
41	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
42	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
43	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
44	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
45	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
46	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
47	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
48	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
49	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
50	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
51	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
52	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
53	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
54	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
55	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
56	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
57	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
58	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
59	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
60	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
61	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
62	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
63	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
64	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
65	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
66	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
67	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
68	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
69	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
70	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
71	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
72	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
73	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
74	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
75	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
76	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
77	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
78	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
79	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
80	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
81	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
82	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
83	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
84	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
85	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
86	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
87	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
88	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
89	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
90	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
91	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
92	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
93	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
94	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
95	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
96	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
97	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
98	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
99	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2
100	565.78	4.0	0.0	27.67	0.00	0.95	7.03	0.00	27.67	0.00	100% 2.2

GeoMagnetic Model: HDGM
Sample Date: 21-Feb-
Magnetic Dec: Horizontal 7.42°
Dip Angle from Horizontal: 59.82°
Magnetic Field Strength: 48065

Magnetic : : section to a Grid Direction: Azcl 7.34°
Magnetic : : section to a True Direction: Add 7.42° East
to obtain a Magnetic Direction to a Grid Direction : Subtract 0.08°

West(-)/East(+) (50 usfl/m)

Name	TVD	+NS	-E/W	E-Range	Unclass	1st-Use
BHP-HN-SO 10 15 62 0071	9171.00	1.494.81	3.27	545891.16	3.27-2.7-2.81 W	104-11-5.601.7 W
BHP-HN-SO 10 15 62 0021	9172.00	1.494.81	3.47	545891.59	3.27-2.6-4.024 W	104-11-5.804.58 W
BHP-HN-SO 10 15 62 0021	9283.00	5.172.65	3.16.93	545891.07	3.27-2.7-4.024 W	104-11-6.063.98 W
FTP-HN-SO 10 15 62 0021	9128.00	5.172.40	4.07.64	545891.16	3.27-2.68.9958 W	104-11-7.303.75 W

274

KOP Begin 2 00°/100° Build
Hold 4.33' Inc at 277.66° Azm

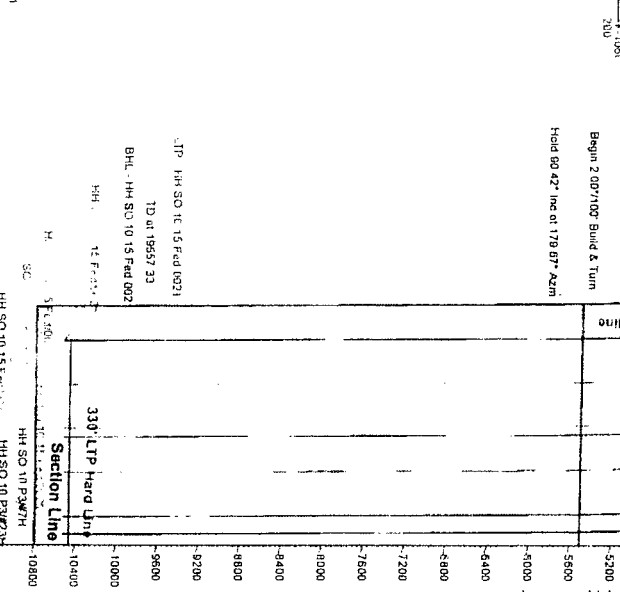
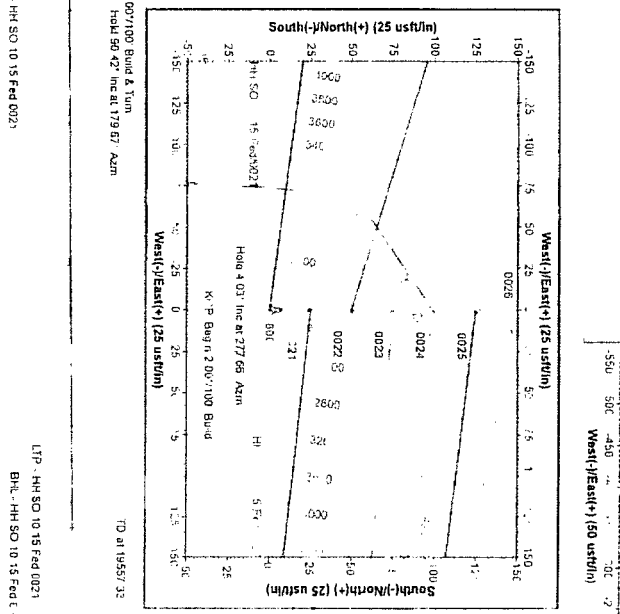
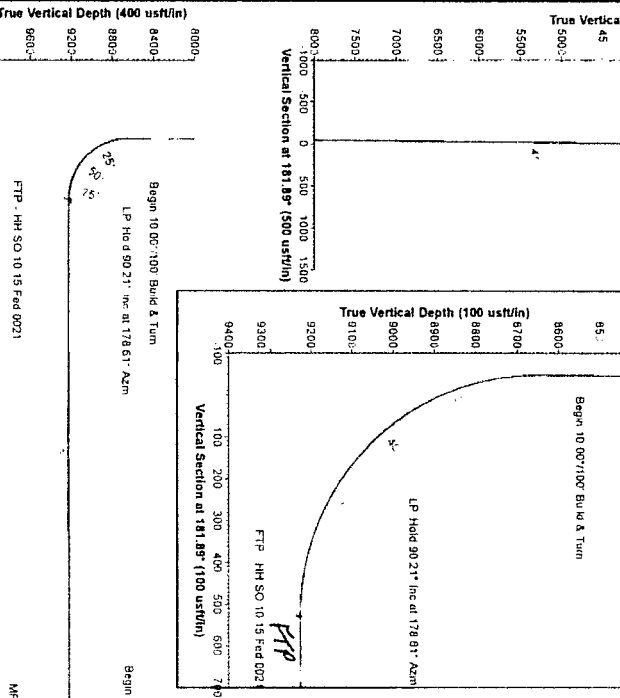
No formation data is available

LEGEND

	#7H, CH Plan 1	11-16-16 VC
	#3H, CH Plan 2	11-18-16 VC
	#15H, CH Plan 2	11-18-16 VC
	72S CH Plan 1	.. 01-17 VC
	0024 OH Plan 1	02-01-17 VC
	0223 OH Plan 1	.. 01-17 VC
	0026 CH Plan 1	02-01-17 VC
	0022 CH Plan 1	02-01-17 VC
	Plan 1	02-01-17

TD at 19557 23
3367
- HH SO 10 15 Fnd 0021
HH SO 10 15 Fnd 0021

Shares Paid with 100 Shares

[illegible]



Chevron

Eddy County, NM (NAD27 NME)
HH SO 10 15 Fed
0021

OH

Plan: Plan 1 02-01-17

Standard Planning Report

01 February, 2017





Phoenix Technology Services LP Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0021
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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 SO 10 15 Fed

Site Position: Northing: 387,187.00 usft Latitude: 32° 3' 51.85491 N
From: Map Easting: 546,329.00 usft Longitude: 104° 11' 1.60017 W
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.08 °

Well 0021

Well Position +N/-S 0.00 usft Northing: 387 187.00 usft Latitude: 32° 3' 51.85491 N
+E/-W 0.00 usft Easting: 546,329.00 usft Longitude: 104° 11' 1.60017 W
Position Uncertainty 0.00 usft Wellhead Elevation: 0 00 usft Ground Level: 3,273.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/1/2017	7.42	59.82	48.056

Design Plan 1 02-01-17

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	181.89

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	
1.800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,001.64	4.03	277.66	2,001.48	0.95	-7.03	2.00	2.00	0.00	277.66	
8,664.78	4.03	277.66	8,648.11	63.40	-471.46	0.00	0.00	0.00	0.00	
9,573.19	90.21	178.61	9,226.00	-512.40	-497.84	10.00	9.49	-10.90	-99.02	FTP - HH SO 10 15
14,540.91	90.21	178.61	9,208.00	-5,478.61	-376.93	0.00	0.00	0.00	0.00	MP - HH SO 10 15
14,594.99	90.42	179.67	9,207.70	-5,532.69	-376.11	2.00	0.40	1.96	78.47	
19,557.33	90.42	179.67	9,171.00	-10,494.81	-347.12	0.00	0.00	0.00	0.00	BHL - HH SO 10 15



Phoenix Technology Services LP Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0021
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
1.800.00	0.00	0.00	1.800.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
1.900.00	2.00	277.66	1.899.98	0.23	-1.73	-0.18	2.00	2.00	0.00
2.000.00	4.00	277.66	1.999.84	0.93	-6.92	-0.70	2.00	2.00	0.00
2.001.64	4.03	277.66	2.001.48	0.95	-7.03	-0.71	2.00	2.00	0.00
Hold 4.03° Inc at 277.66° Azm									
2.100.00	4.03	277.66	2.099.59	1.87	-13.89	-1.41	0.00	0.00	0.00
2.200.00	4.03	277.66	2.199.34	2.80	-20.86	-2.11	0.00	0.00	0.00
2.300.00	4.03	277.66	2.299.09	3.74	-27.83	-2.82	0.00	0.00	0.00
2.400.00	4.03	277.66	2.398.85	4.68	-34.80	-3.53	0.00	0.00	0.00
2.500.00	4.03	277.66	2.498.60	5.62	-41.77	-4.23	0.00	0.00	0.00
2.600.00	4.03	277.66	2.598.35	6.55	-48.74	-4.94	0.00	0.00	0.00
2.700.00	4.03	277.66	2.698.10	7.49	-55.71	-5.65	0.00	0.00	0.00
2.800.00	4.03	277.66	2.797.86	8.43	-62.68	-6.35	0.00	0.00	0.00
2.900.00	4.03	277.66	2.897.61	9.37	-69.65	-7.06	0.00	0.00	0.00
3.000.00	4.03	277.66	2.997.36	10.30	-76.62	-7.77	0.00	0.00	0.00
3.100.00	4.03	277.66	3.097.11	11.24	-83.59	-8.47	0.00	0.00	0.00
3.200.00	4.03	277.66	3.196.87	12.18	-90.56	-9.18	0.00	0.00	0.00
3.300.00	4.03	277.66	3.296.62	13.12	-97.53	-9.88	0.00	0.00	0.00
3.400.00	4.03	277.66	3.396.37	14.05	-104.50	-10.59	0.00	0.00	0.00
3.500.00	4.03	277.66	3.496.12	14.99	-111.47	-11.30	0.00	0.00	0.00
3.600.00	4.03	277.66	3.595.88	15.93	-118.44	-12.00	0.00	0.00	0.00
3.700.00	4.03	277.66	3.695.63	16.87	-125.41	-12.71	0.00	0.00	0.00
3.800.00	4.03	277.66	3.795.38	17.80	-132.38	-13.42	0.00	0.00	0.00
3.900.00	4.03	277.66	3.895.13	18.74	-139.35	-14.12	0.00	0.00	0.00
4.000.00	4.03	277.66	3.994.89	19.68	-146.32	-14.83	0.00	0.00	0.00
4.100.00	4.03	277.66	4.094.64	20.62	-153.29	-15.54	0.00	0.00	0.00
4.200.00	4.03	277.66	4.194.39	21.55	-160.26	-16.24	0.00	0.00	0.00
4.300.00	4.03	277.66	4.294.14	22.49	-167.23	-16.95	0.00	0.00	0.00
4.400.00	4.03	277.66	4.393.89	23.43	-174.20	-17.66	0.00	0.00	0.00
4.500.00	4.03	277.66	4.493.65	24.36	-181.17	-18.36	0.00	0.00	0.00
4.600.00	4.03	277.66	4.593.40	25.30	-188.14	-19.07	0.00	0.00	0.00
4.700.00	4.03	277.66	4.693.15	26.24	-195.11	-19.78	0.00	0.00	0.00
4.800.00	4.03	277.66	4.792.90	27.18	-202.08	-20.48	0.00	0.00	0.00
4.900.00	4.03	277.66	4.892.66	28.11	-209.05	-21.19	0.00	0.00	0.00
5.000.00	4.03	277.66	4.992.41	29.05	-216.02	-21.89	0.00	0.00	0.00
5.100.00	4.03	277.66	5.092.16	29.99	-222.99	-22.60	0.00	0.00	0.00
5.200.00	4.03	277.66	5.191.91	30.93	-229.96	-23.31	0.00	0.00	0.00
5.300.00	4.03	277.66	5.291.67	31.86	-236.93	-24.01	0.00	0.00	0.00
5.400.00	4.03	277.66	5.391.42	32.80	-243.90	-24.72	0.00	0.00	0.00
5.500.00	4.03	277.66	5.491.17	33.74	-250.87	-25.43	0.00	0.00	0.00
5.600.00	4.03	277.66	5.590.92	34.68	-257.84	-26.13	0.00	0.00	0.00
5.700.00	4.03	277.66	5.690.68	35.61	-264.81	-26.84	0.00	0.00	0.00
5.800.00	4.03	277.66	5.790.43	36.55	-271.78	-27.55	0.00	0.00	0.00
5.900.00	4.03	277.66	5.890.18	37.49	-278.75	-28.25	0.00	0.00	0.00
6.000.00	4.03	277.66	5.989.93	38.43	-285.72	-28.96	0.00	0.00	0.00
6.100.00	4.03	277.66	6.089.69	39.36	-292.69	-29.67	0.00	0.00	0.00
6.200.00	4.03	277.66	6.189.44	40.30	-299.66	-30.37	0.00	0.00	0.00
6.300.00	4.03	277.66	6.289.19	41.24	-306.63	-31.08	0.00	0.00	0.00
6.400.00	4.03	277.66	6.388.94	42.18	-313.60	-31.79	0.00	0.00	0.00
6.500.00	4.03	277.66	6.488.70	43.11	-320.57	-32.49	0.00	0.00	0.00
6.600.00	4.03	277.66	6.588.45	44.05	-327.54	-33.20	0.00	0.00	0.00
6.700.00	4.03	277.66	6.688.20	44.99	-334.51	-33.90	0.00	0.00	0.00



Phoenix Technology Services LP Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0021
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
6,800.00	4.03	277.66	6,787.95	45.92	-341.48	-34.61	0.00	0.00	0.00
6,900.00	4.03	277.66	6,887.70	46.86	-348.45	-35.32	0.00	0.00	0.00
7,000.00	4.03	277.66	6,987.46	47.80	-355.42	-36.02	0.00	0.00	0.00
7,100.00	4.03	277.66	7,087.21	48.74	-362.39	-36.73	0.00	0.00	0.00
7,200.00	4.03	277.66	7,186.96	49.67	-369.36	-37.44	0.00	0.00	0.00
7,300.00	4.03	277.66	7,286.71	50.61	-376.33	-38.14	0.00	0.00	0.00
7,400.00	4.03	277.66	7,386.47	51.55	-383.30	-38.85	0.00	0.00	0.00
7,500.00	4.03	277.66	7,486.22	52.49	-390.27	-39.56	0.00	0.00	0.00
7,600.00	4.03	277.66	7,585.97	53.42	-397.24	-40.26	0.00	0.00	0.00
7,700.00	4.03	277.66	7,685.72	54.36	-404.21	-40.97	0.00	0.00	0.00
7,800.00	4.03	277.66	7,785.48	55.30	-411.18	-41.68	0.00	0.00	0.00
7,900.00	4.03	277.66	7,885.23	56.24	-418.15	-42.38	0.00	0.00	0.00
8,000.00	4.03	277.66	7,984.98	57.17	-425.12	-43.09	0.00	0.00	0.00
8,100.00	4.03	277.66	8,084.73	58.11	-432.09	-43.80	0.00	0.00	0.00
8,200.00	4.03	277.66	8,184.49	59.05	-439.07	-44.50	0.00	0.00	0.00
8,300.00	4.03	277.66	8,284.24	59.99	-446.04	-45.21	0.00	0.00	0.00
8,400.00	4.03	277.66	8,383.99	60.92	-453.01	-45.91	0.00	0.00	0.00
8,500.00	4.03	277.66	8,483.74	61.86	-459.98	-46.62	0.00	0.00	0.00
8,600.00	4.03	277.66	8,583.50	62.80	-466.95	-47.33	0.00	0.00	0.00
8,664.78	4.03	277.66	8,648.11	63.40	-471.46	-47.79	0.00	0.00	0.00
Begin 10.00°/100' Build & Turn									
8,700.00	4.92	232.62	8,683.24	62.65	-473.89	-46.95	10.00	2.52	-127.88
8,800.00	13.48	195.51	8,781.93	48.78	-480.43	-32.88	10.00	8.56	-37.12
8,900.00	23.21	187.96	8,876.74	17.96	-486.29	-1.87	10.00	9.73	-7.54
9,000.00	33.10	184.75	8,964.80	-28.90	-491.29	45.12	10.00	9.89	-3.21
9,100.00	43.04	182.90	9,043.43	-90.35	-495.29	106.67	10.00	9.94	-1.85
9,200.00	52.99	181.63	9,110.24	-164.53	-498.16	180.90	10.00	9.96	-1.27
9,300.00	62.96	180.66	9,163.20	-249.18	-499.80	265.57	10.00	9.97	-0.97
9,400.00	72.93	179.84	9,200.70	-341.75	-500.19	358.10	10.00	9.97	-0.81
9,500.00	82.91	179.12	9,221.61	-439.41	-499.29	455.67	10.00	9.97	-0.73
9,573.19	90.21	178.61	9,226.00	-512.40	-497.84	528.58	10.00	9.98	-0.70
LP, Hold 90.21° Inc at 178.61° Azm - FTP - HH SO 10 15 Fed 0021									
9,600.00	90.21	178.61	9,225.90	-539.20	-497.18	555.34	0.00	0.00	0.00
9,700.00	90.21	178.61	9,225.54	-639.17	-494.75	655.18	0.00	0.00	0.00
9,800.00	90.21	178.61	9,225.18	-739.14	-492.32	755.01	0.00	0.00	0.00
9,900.00	90.21	178.61	9,224.82	-839.11	-489.88	854.85	0.00	0.00	0.00
10,000.00	90.21	178.61	9,224.45	-939.08	-487.45	954.68	0.00	0.00	0.00
10,100.00	90.21	178.61	9,224.09	-1,039.05	-485.01	1,054.52	0.00	0.00	0.00
10,200.00	90.21	178.61	9,223.73	-1,139.02	-482.58	1,154.35	0.00	0.00	0.00
10,300.00	90.21	178.61	9,223.37	-1,238.99	-480.15	1,254.18	0.00	0.00	0.00
10,400.00	90.21	178.61	9,223.00	-1,338.96	-477.71	1,354.02	0.00	0.00	0.00
10,500.00	90.21	178.61	9,222.64	-1,438.93	-475.28	1,453.85	0.00	0.00	0.00
10,600.00	90.21	178.61	9,222.28	-1,538.90	-472.84	1,553.69	0.00	0.00	0.00
10,700.00	90.21	178.61	9,221.92	-1,638.87	-470.41	1,653.52	0.00	0.00	0.00
10,800.00	90.21	178.61	9,221.55	-1,738.84	-467.98	1,753.36	0.00	0.00	0.00
10,900.00	90.21	178.61	9,221.19	-1,838.81	-465.54	1,853.19	0.00	0.00	0.00
11,000.00	90.21	178.61	9,220.83	-1,938.78	-463.11	1,953.03	0.00	0.00	0.00
11,100.00	90.21	178.61	9,220.47	-2,038.75	-460.67	2,052.86	0.00	0.00	0.00
11,200.00	90.21	178.61	9,220.11	-2,138.72	-458.24	2,152.70	0.00	0.00	0.00
11,300.00	90.21	178.61	9,219.74	-2,238.69	-455.81	2,252.53	0.00	0.00	0.00
11,400.00	90.21	178.61	9,219.38	-2,338.66	-453.37	2,352.37	0.00	0.00	0.00
11,500.00	90.21	178.61	9,219.02	-2,438.63	-450.94	2,452.20	0.00	0.00	0.00
11,600.00	90.21	178.61	9,218.66	-2,538.60	-448.51	2,552.03	0.00	0.00	0.00
11,700.00	90.21	178.61	9,218.29	-2,638.57	-446.07	2,651.87	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
 Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Site: HH SO 10 15 Fed
 Well: 0021
 Wellbore: OH
 Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
 TVD Reference: RKB @ 3301.00usft
 MD Reference: RKB @ 3301.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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)
11,800.00	90.21	178.61	9,217.93	-2,738.54	-443.64	2,751.70	0.00	0.00	0.00
11,900.00	90.21	178.61	9,217.57	-2,838.51	-441.20	2,851.54	0.00	0.00	0.00
12,000.00	90.21	178.61	9,217.21	-2,938.47	-438.77	2,951.37	0.00	0.00	0.00
12,100.00	90.21	178.61	9,216.84	-3,038.44	-436.34	3,051.21	0.00	0.00	0.00
12,200.00	90.21	178.61	9,216.48	-3,138.41	-433.90	3,151.04	0.00	0.00	0.00
12,300.00	90.21	178.61	9,216.12	-3,238.38	-431.47	3,250.88	0.00	0.00	0.00
12,400.00	90.21	178.61	9,215.76	-3,338.35	-429.03	3,350.71	0.00	0.00	0.00
12,500.00	90.21	178.61	9,215.40	-3,438.32	-426.60	3,450.55	0.00	0.00	0.00
12,600.00	90.21	178.61	9,215.03	-3,538.29	-424.17	3,550.38	0.00	0.00	0.00
12,700.00	90.21	178.61	9,214.67	-3,638.26	-421.73	3,650.22	0.00	0.00	0.00
12,800.00	90.21	178.61	9,214.31	-3,738.23	-419.30	3,750.05	0.00	0.00	0.00
12,900.00	90.21	178.61	9,213.95	-3,838.20	-416.86	3,849.88	0.00	0.00	0.00
13,000.00	90.21	178.61	9,213.58	-3,938.17	-414.43	3,949.72	0.00	0.00	0.00
13,100.00	90.21	178.61	9,213.22	-4,038.14	-412.00	4,049.55	0.00	0.00	0.00
13,200.00	90.21	178.61	9,212.86	-4,138.11	-409.56	4,149.39	0.00	0.00	0.00
13,300.00	90.21	178.61	9,212.50	-4,238.08	-407.13	4,249.22	0.00	0.00	0.00
13,400.00	90.21	178.61	9,212.13	-4,338.05	-404.69	4,349.06	0.00	0.00	0.00
13,500.00	90.21	178.61	9,211.77	-4,438.02	-402.26	4,448.89	0.00	0.00	0.00
13,600.00	90.21	178.61	9,211.41	-4,537.99	-399.83	4,548.73	0.00	0.00	0.00
13,700.00	90.21	178.61	9,211.05	-4,637.96	-397.39	4,648.56	0.00	0.00	0.00
13,800.00	90.21	178.61	9,210.68	-4,737.93	-394.96	4,748.40	0.00	0.00	0.00
13,900.00	90.21	178.61	9,210.32	-4,837.90	-392.53	4,848.23	0.00	0.00	0.00
14,000.00	90.21	178.61	9,209.96	-4,937.87	-390.09	4,948.07	0.00	0.00	0.00
14,100.00	90.21	178.61	9,209.60	-5,037.84	-387.66	5,047.90	0.00	0.00	0.00
14,200.00	90.21	178.61	9,209.24	-5,137.81	-385.22	5,147.74	0.00	0.00	0.00
14,300.00	90.21	178.61	9,208.87	-5,237.78	-382.79	5,247.57	0.00	0.00	0.00
14,400.00	90.21	178.61	9,208.51	-5,337.75	-380.36	5,347.40	0.00	0.00	0.00
14,500.00	90.21	178.61	9,208.15	-5,437.72	-377.92	5,447.24	0.00	0.00	0.00
14,540.91	90.21	178.61	9,208.00	-5,478.61	-376.93	5,488.08	0.00	0.00	0.00
Begin 2.00°/100' Build & Turn - MP - HH SO 10 15 Fed 0021									
14,594.99	90.42	179.67	9,207.70	-5,532.69	-376.11	5,542.10	2.00	0.40	1.96
Hold 90.42° Inc at 179.67° Azm									
14,600.00	90.42	179.67	9,207.67	-5,537.70	-376.08	5,547.10	0.00	0.00	0.00
14,700.00	90.42	179.67	9,206.93	-5,637.69	-375.50	5,647.02	0.00	0.00	0.00
14,800.00	90.42	179.67	9,206.19	-5,737.69	-374.91	5,746.95	0.00	0.00	0.00
14,900.00	90.42	179.67	9,205.45	-5,837.68	-374.33	5,846.87	0.00	0.00	0.00
15,000.00	90.42	179.67	9,204.71	-5,937.68	-373.74	5,946.79	0.00	0.00	0.00
15,100.00	90.42	179.67	9,203.97	-6,037.68	-373.16	6,046.71	0.00	0.00	0.00
15,200.00	90.42	179.67	9,203.23	-6,137.67	-372.57	6,146.63	0.00	0.00	0.00
15,300.00	90.42	179.67	9,202.49	-6,237.67	-371.99	6,246.55	0.00	0.00	0.00
15,400.00	90.42	179.67	9,201.75	-6,337.66	-371.41	6,346.48	0.00	0.00	0.00
15,500.00	90.42	179.67	9,201.01	-6,437.66	-370.82	6,446.40	0.00	0.00	0.00
15,600.00	90.42	179.67	9,200.27	-6,537.65	-370.24	6,546.32	0.00	0.00	0.00
15,700.00	90.42	179.67	9,199.53	-6,637.65	-369.65	6,646.24	0.00	0.00	0.00
15,800.00	90.42	179.67	9,198.79	-6,737.64	-369.07	6,746.16	0.00	0.00	0.00
15,900.00	90.42	179.67	9,198.05	-6,837.64	-368.49	6,846.08	0.00	0.00	0.00
16,000.00	90.42	179.67	9,197.31	-6,937.64	-367.90	6,946.01	0.00	0.00	0.00
16,100.00	90.42	179.67	9,196.57	-7,037.63	-367.32	7,045.93	0.00	0.00	0.00
16,200.00	90.42	179.67	9,195.83	-7,137.63	-366.73	7,145.85	0.00	0.00	0.00
16,300.00	90.42	179.67	9,195.09	-7,237.62	-366.15	7,245.77	0.00	0.00	0.00
16,400.00	90.42	179.67	9,194.35	-7,337.62	-365.56	7,345.69	0.00	0.00	0.00
16,500.00	90.42	179.67	9,193.61	-7,437.61	-364.98	7,445.61	0.00	0.00	0.00
16,600.00	90.42	179.67	9,192.87	-7,537.61	-364.40	7,545.53	0.00	0.00	0.00



Phoenix Technology Services LP Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0021
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
16,700.00	90.42	179.67	9,192.13	-7,637.60	-363.81	7,645.46	0.00	0.00	0.00
16,800.00	90.42	179.67	9,191.39	-7,737.60	-363.23	7,745.38	0.00	0.00	0.00
16,900.00	90.42	179.67	9,190.65	-7,837.60	-362.64	7,845.30	0.00	0.00	0.00
17,000.00	90.42	179.67	9,189.91	-7,937.59	-362.06	7,945.22	0.00	0.00	0.00
17,100.00	90.42	179.67	9,189.17	-8,037.59	-361.47	8,045.14	0.00	0.00	0.00
17,200.00	90.42	179.67	9,188.44	-8,137.58	-360.89	8,145.06	0.00	0.00	0.00
17,300.00	90.42	179.67	9,187.70	-8,237.58	-360.31	8,244.99	0.00	0.00	0.00
17,400.00	90.42	179.67	9,186.96	-8,337.57	-359.72	8,344.91	0.00	0.00	0.00
17,500.00	90.42	179.67	9,186.22	-8,437.57	-359.14	8,444.83	0.00	0.00	0.00
17,600.00	90.42	179.67	9,185.48	-8,537.56	-358.55	8,544.75	0.00	0.00	0.00
17,700.00	90.42	179.67	9,184.74	-8,637.56	-357.97	8,644.67	0.00	0.00	0.00
17,800.00	90.42	179.67	9,184.00	-8,737.56	-357.38	8,744.59	0.00	0.00	0.00
17,900.00	90.42	179.67	9,183.26	-8,837.55	-356.80	8,844.52	0.00	0.00	0.00
18,000.00	90.42	179.67	9,182.52	-8,937.55	-356.22	8,944.44	0.00	0.00	0.00
18,100.00	90.42	179.67	9,181.78	-9,037.54	-355.63	9,044.36	0.00	0.00	0.00
18,200.00	90.42	179.67	9,181.04	-9,137.54	-355.05	9,144.28	0.00	0.00	0.00
18,300.00	90.42	179.67	9,180.30	-9,237.53	-354.46	9,244.20	0.00	0.00	0.00
18,400.00	90.42	179.67	9,179.56	-9,337.53	-353.88	9,344.12	0.00	0.00	0.00
18,500.00	90.42	179.67	9,178.82	-9,437.52	-353.29	9,444.05	0.00	0.00	0.00
18,600.00	90.42	179.67	9,178.08	-9,537.52	-352.71	9,543.97	0.00	0.00	0.00
18,700.00	90.42	179.67	9,177.34	-9,637.52	-352.13	9,643.89	0.00	0.00	0.00
18,800.00	90.42	179.67	9,176.60	-9,737.51	-351.54	9,743.81	0.00	0.00	0.00
18,900.00	90.42	179.67	9,175.86	-9,837.51	-350.96	9,843.73	0.00	0.00	0.00
19,000.00	90.42	179.67	9,175.12	-9,937.50	-350.37	9,943.65	0.00	0.00	0.00
19,100.00	90.42	179.67	9,174.38	-10,037.50	-349.79	10,043.57	0.00	0.00	0.00
19,200.00	90.42	179.67	9,173.64	-10,137.49	-349.20	10,143.50	0.00	0.00	0.00
19,300.00	90.42	179.67	9,172.90	-10,237.49	-348.62	10,243.42	0.00	0.00	0.00
19,400.00	90.42	179.67	9,172.16	-10,337.48	-348.04	10,343.34	0.00	0.00	0.00
19,500.00	90.42	179.67	9,171.42	-10,437.48	-347.45	10,443.26	0.00	0.00	0.00
LTP - HH SO 10 15 Fed 0021									
19,557.33	90.42	179.67	9,171.00	-10,494.81	-347.12	10,500.55	0.00	0.00	0.00
TD at 19557.33 - BHL - HH SO 10 15 Fed 0021									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL - HH SO 10 15 F	0.00	0.00	9,171.00	-10,494.81	-347.12	376,692.19	545,981.89	32° 2' 7.99646 N	104° 11' 5.80171 W
- plan hits target center									
- Point									
LTP - HH SO 10 15 F	0.00	0.00	9,171.00	-10,444.81	-347.41	376,742.19	545,981.59	32° 2' 8.49132 N	104° 11' 5.80436 W
- plan misses target center by 7.34usft at 19500.00usft MD (9171.42 TVD, -10437.48 N, -347.45 E)									
- Point									
MP - HH SO 10 15 Fe	0.00	0.00	9,208.00	-5,478.61	-376.93	381,708.39	545,952.08	32° 2' 57.64034 N	104° 11' 6.06798 W
- plan hits target center									
- Point									
FTP - HH SO 10 15 F	0.00	0.00	9,226.00	-512.40	-497.84	386,674.60	545,831.17	32° 3' 46.79066 N	104° 11' 7.39379 W
- plan hits target center									
- Point									



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0021
Wellbore: OH
Design: Plan 1 02-01-17

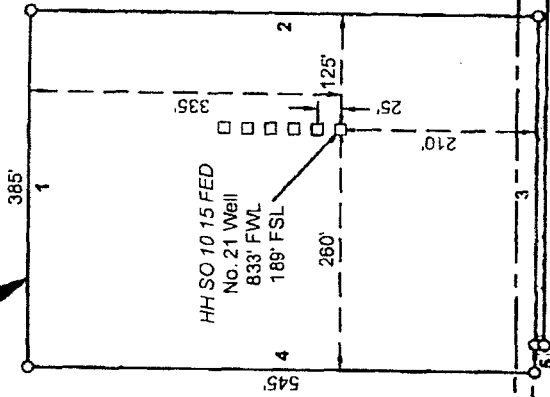
Local Co-ordinate Reference: Well 0021
TVD Reference: RKB @ 3301.00usft
MD Reference: RKB @ 3301.00usft
North Reference: Gnd
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,800.00	1,800.00	0.00	0.00	KOP, Begin 2.00' /100' Build
2,001.64	2,001.48	0.95	-7.03	Hold 4.03' Inc at 277.66° Azm
8,664.78	8,648.11	63.40	-471.46	Begin 10.00' /100' Build & Turn
9,573.19	9,226.00	-512.40	-497.84	LP, Hold 90.21' Inc at 178.61° Azm
14,540.91	9,208.00	-5,478.61	-376.93	Begin 2.00' /100' Build & Turn
14,594.99	9,207.70	-5,532.69	-376.11	Hold 90.42' Inc at 179.67° Azm
19,557.33	9,171.00	-10,494.81	-347.12	TD at 19557.33

R 27 E

PROPOSED PAD
±4.81 Acres



Fnd. 2" Iron Pipe
@ SW Corner of
Section 3

S 87° 16' 22" E 603.33'

T 26 S

Sec. 3
Bureau of Land Management
(Pad- ±4.63 Acres)

Future 30'
Chevron
Flowline ROW

Roadrunner Road

Sec. 10

Bureau of Land Management
(Pad- ±0.18 Acres)
(Access- ±0.57 Acres, 1230.76', ±74.59 Rods)

CENTERLINE
PROPOSED
ACCESS ROAD
20' x 1230.76'
74.54 Rods
±0.57 Acres

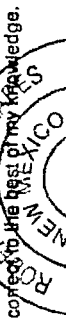
Existing
±50' Frontier Energy
Pipeline ROW

Whites City Road

LEGEND	
---	Future FL ROW
---	Existing PL ROW
---	Existing Road
---	Section Line
●	Fnd. Monument

Scale: 1" = 200'

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



C. H. Fenstermaker & Associates, LLC
135 Regency Sq. Lafayette LA 70506
Ph. 337-237-2200 Fax 337-232-3299
www.fenstermaker.com



SURFACE USE PLAT Page 1 of 2

CHEVRON U.S.A. INC.
PROPOSED PAD & ACCESS ROAD
HH SO 10 15 FED 002 / 44
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

REVISIONS	
DRAWN BY: BOR	DATE:
PROJ. MGR. GDG	DATE:
DATE: 01/11/2017	DATE:
FILENAME: T:\2017\21751\19DWG\HH SO 10 15 FED 21_SUP.dwg	

PROPOSED PAD			
COURSE	BEARING	DISTANCE	
1	S 89° 08' 26" E	385.01'	
2	S 00° 52' 10" W	545.11'	
3	N 89° 07' 37" W	385.03'	
4	N 00° 52' 18" E	545.02'	

CENTERLINE PROPOSED ACCESS ROAD			
COURSE	BEARING	DISTANCE	
5	S 00° 52' 23" W	10.01'	
6	S 89° 07' 37" E	1220.75'	

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

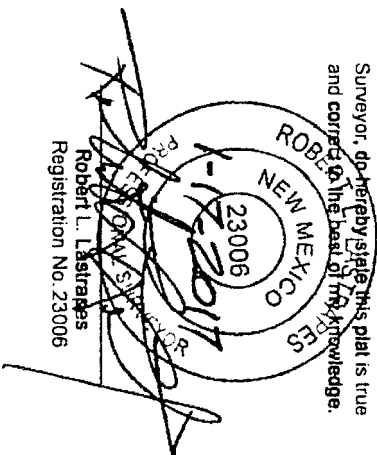
Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards,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

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.



SURFACE USE PLAT

Page 2 of 2

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD

HH SO 10 15 FED 002, 24 ME11

SECTIONS 3 & 10, T26S-R27E

EDDY COUNTY, NEW MEXICO

DRAWN BY BOR

REVISIONS

PROJ. MGR. GDG

No.

DATE:

REVISED BY

DATE: 01/11/2017

No.

DATE:

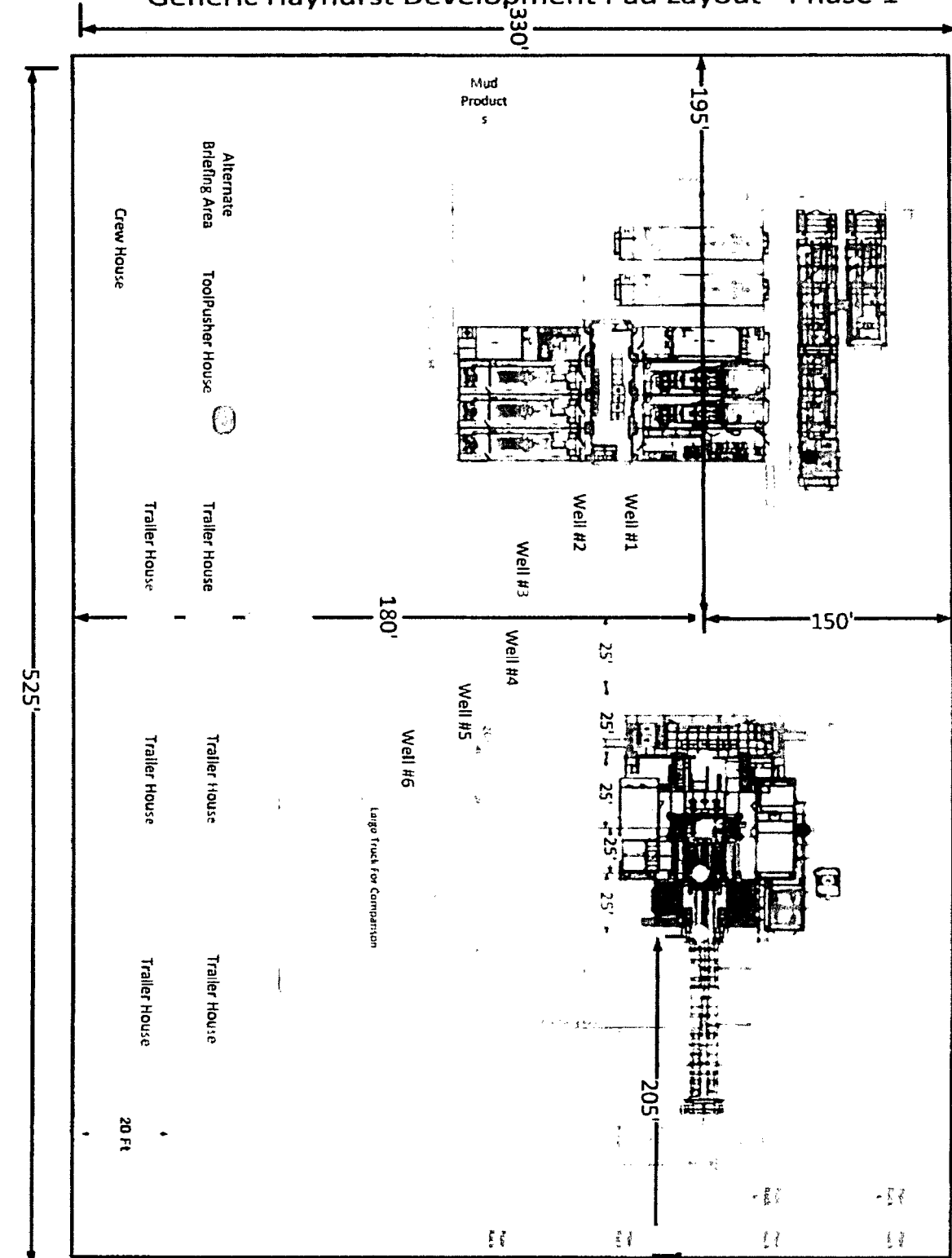
REVISED BY:

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C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph 337-237-2200 Fax 337-232-3298
www.fenstermaker.com

Generic Hayhurst Development Pad Layout - Phase 1



N

Location Entrance

Legend

- H2S Monitor
- Flag

- H2S Monitor Locations**

 - Box/Cellar
 - Rig Floor
 - Shaker/Stk
 - Well Nipple

Flag Locations

 - Sign-in Shack
 - Rig Floor
 - Dog House

10 Minute Escape Packs

 - 1 at Pits
 - 1 at Trip Tank
 - 1 at Accumulator
 - 4 at Rig Floor

45 Minute Escape Packs

 - 2 at Briefing Area
 - 2 at Alternate Briefing Area

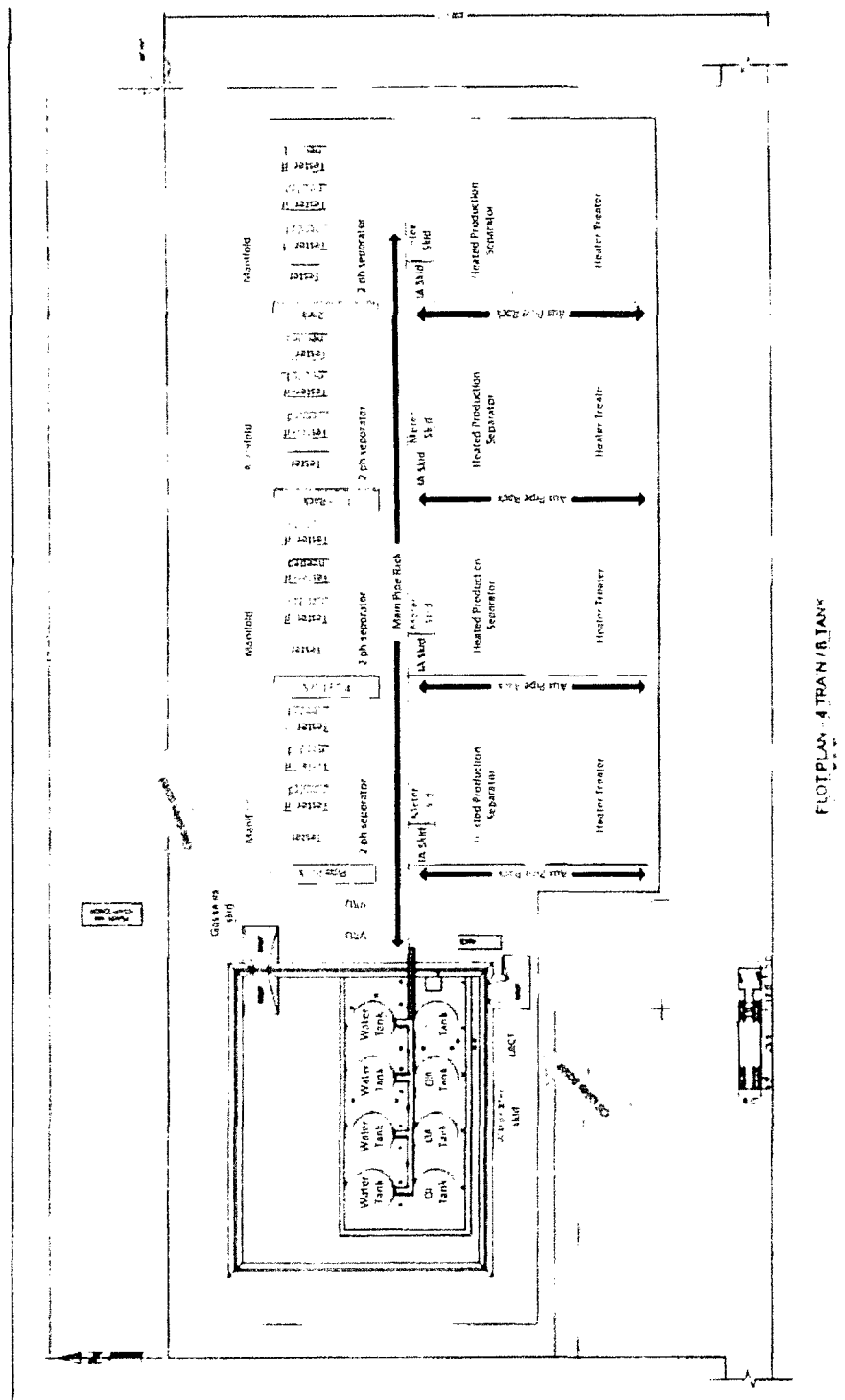
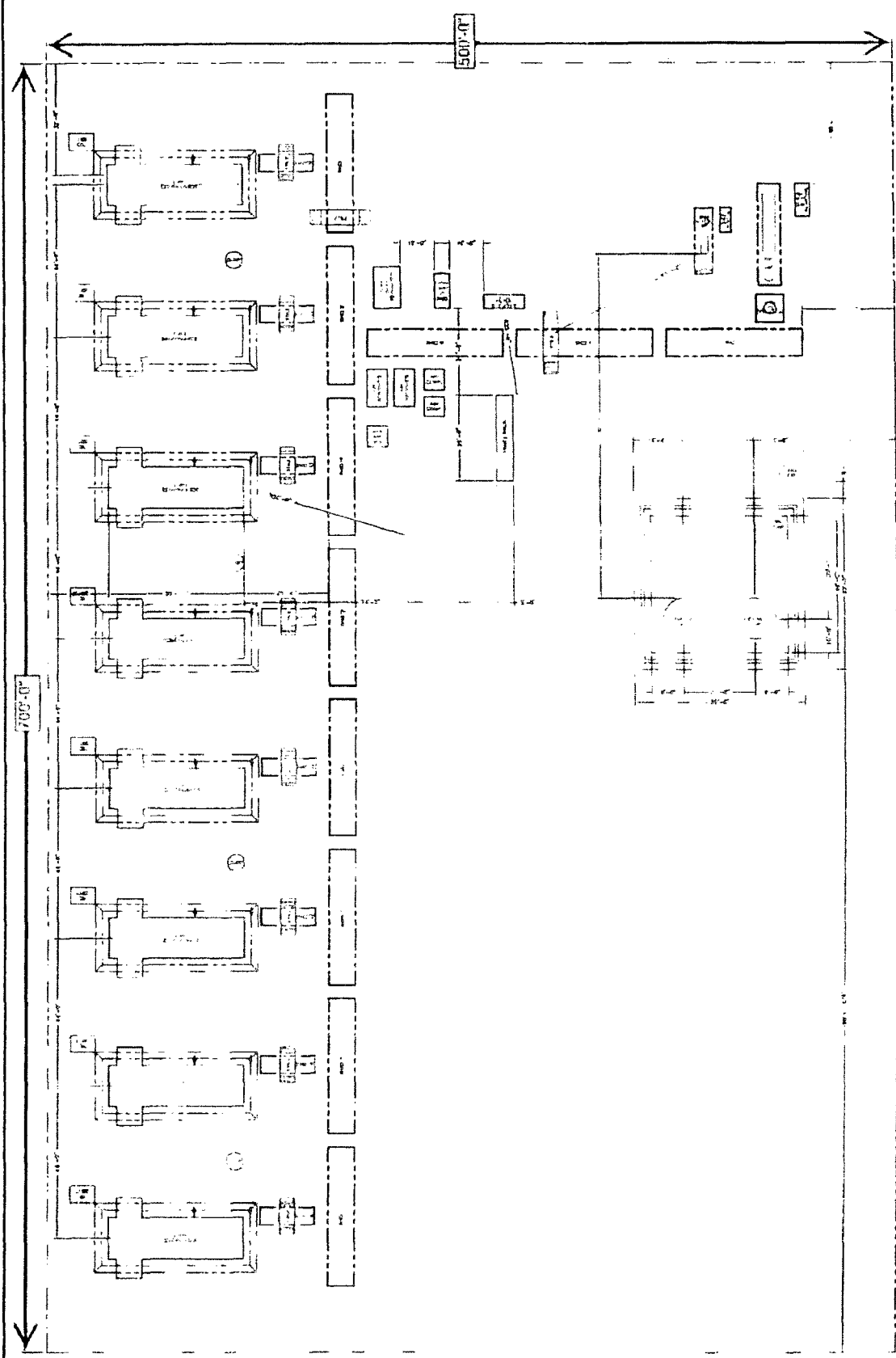


EXHIBIT 4



COMPRESSOR STATION - 8 COMPRESSOR LAYOUT

Chevron U.S.A. Inc.		STANDARD COMPRESSOR GAS-LIFT STATION	
FOR REVIEW		PLOT PLAN - 8 COMPRESSOR LAYOUT	
COMPRESSION PLANT TOTAL PLAN		COMPRESSOR PLOT PLAN TOTAL	

APD ID: 10400010582

Submission Date: 03/09/2017

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

HH_SO_10_15_FED_002_1H_Roads_05-23-2017.pdf

Existing Road Purpose: FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: The operator will improve or maintain existing roads in a condition the same as or better than before operations begin. The Operator will also repair any pot holes, clear ditches, repair crown; etc. All existing structures on the entire access route such as cattle guards, other range improvement project, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use. We will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or other dust suppression chemicals on roadways. Existing lease roads operated by Chevron will be maintained as needed or upon request (based on historical weather data, CVX expects that maintenance will likely occur four to five times annually). Existing lease roads used by multiple operators will be maintained through road maintenance agreements with all parties. (MDP SUPO Pg.1) A complete Surface Use Plan for this APD is attached.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH_SO_10_15_FED_002_1H_New_Roads_05-23-2017.pdf

New road type: LOCAL

Length: 1136.45

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

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

New road access erosion control: Erosion / Drainage: Drainage control system shall be constructed on the entire length of road by the use of any of the following: ditching and will be graveled as needed for drilling, side hill out-sloping and in-sloping, lead-off ditches, culvert installation, or low water crossings, culverts, and water bars where needed: straw wattles will be used on the down-slope side of new roads where undisturbed grades away from the roadway are 5% or greater.

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: Enclosure fencing will be installed around open cellar to prevent livestock or large wildlife from being trapped after installation. Fencing will remain in place while no activity is present and until back-filling takes place. (MDP SUPO Pg. 1)

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT,OTHER

Drainage Control comments: Sediment traps (hay bales suggested by BLM) we don't use every time but keep handy

Road Drainage Control Structures (DCS) description: Ditching will be constructed on both sides of road.

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_SO_10_15_FED_002_1H_Radius_Map_03-08-2017.pdf

Existing Wells description:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

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: The existing production facilities located in the NE corner of Sec. 10, T26S-R27E where oil and gas sales will take place. o The existing facility is 500' X 700' o (MDP SUP Pg. 2) Attached Fac Plat was approved for this facility in the MDP

Production Facilities map:

HH_SO_10_15_FED_002_1H_Fac_Plat_06-01-2017.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING,
SURFACE CASING

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum: NAD83

Water source permit type: PRIVATE CONTRACT

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 716000

Source volume (acre-feet): 92.28746

Source volume (gal): 30072000

Water source and transportation map:

HH_SO_10_15_FED_002_1H_DETAIL_05-23-2017.pdf

Water source comments: private water source with ponds located in corner of Section 9 & 10, T26S-R27E which will be utilized for fresh water or recycled water. A temporary 10" expanding pipe surface transfer line will run along established disturbance corridors, such as along access roads or on top of flowline or pipeline right-of-way. o Water line will run parallel to road and will stay within 10' of access road.

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Caliche 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: o Garbage and Trash o Human waste and grey water o Other waste material i.e. chemicals, salts, frac sand o Drill cutting

Amount of waste: 200 pounds

Waste disposal frequency : Daily

Safe containment description: o collected in a trash container collected for disposal o properly contained and disposed of state approved disposal facility o properly disposed of into steel tanks All to be properly disposed at a State approved disposal facility

Safe containmant attachment:

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

Disposal type description:

Disposal location description: State approved facility: o Carlsbad 6601 Hobbs HWY Carlsbad, NM 575-393-1079 o Eunice Sundance Services 5 miles East of Eunice on HWY 18 and Wallach Ln 575-390-0342 o Seminole Permian Disposal 587 US HWY 385 S 432-955-0322

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.)

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

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_SO_10_15_FED_002_1H_Rig_Pad_Layout_05-23-2017.pdf

HH_SO_10_15_FED_002_1H_Well_Plat_05-23-2017.pdf

Comments: As referenced on the attached APD SUPO o Exterior well pad dimensions are 545' X 385' o Interior well pad dimensions from point of entry (well head) of the westernmost well are N-335', S-210', E-125, W-260'. The length to the east includes 25' spacing for next well on multi-well pad. Total disturbance area needed for construction of well pad will be 4.81 acres. o Topsoil placement is on the west where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices. o Construction methods: Pads would be constructed by clearing vegetation, salvaging and storing topsoil and leveling the drilling area using cut-and-fill which will be minimal.

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

HH_SO_10_15_FED_002_1H_APD_SUP_05-31-2017.pdf

HH_SO_10_15_FED_002_1H_IR_Plat_06-01-2017.pdf

Drainage/Erosion control construction: Proper erosion control methods will be used on the area to control erosion, runoff, and siltation of the surrounding area.

Drainage/Erosion control reclamation: The well pad, road, and surrounding area will be cleared of material, trash, and equipment. All surfacing material will be removed and returned to the original mineral pit or recycled to repair for build roads and well pads.

Wellpad long term disturbance (acres): 1.5

Wellpad short term disturbance (acres): 4.8

Access road long term disturbance (acres): 0.52

Access road short term disturbance (acres): 0.52

Pipeline long term disturbance (acres): 4.275482

Pipeline short term disturbance (acres): 4.275482

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 6.295482

Total short term disturbance: 9.595482

Reconstruction method: see complete surface use plan attached to this APD Reclaimed pad size: 200 x 325' approximately 1.5 acres

Topsoil redistribution: Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful re-vegetation.

Soil treatment: After all the disturbed areas have been properly prepared; the areas will be seeded with the proper BLM seed mixture, free of noxious weeds.

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

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: Treat with BLM seed mixture (BLM #2) free of noxious weeds.

Weed treatment plan attachment:

Monitoring plan description: The interim reclamation will be monitored periodically to ensure that vegetation has re-established.

Monitoring plan attachment:

Success standards: As per BLM requirements

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 1H

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

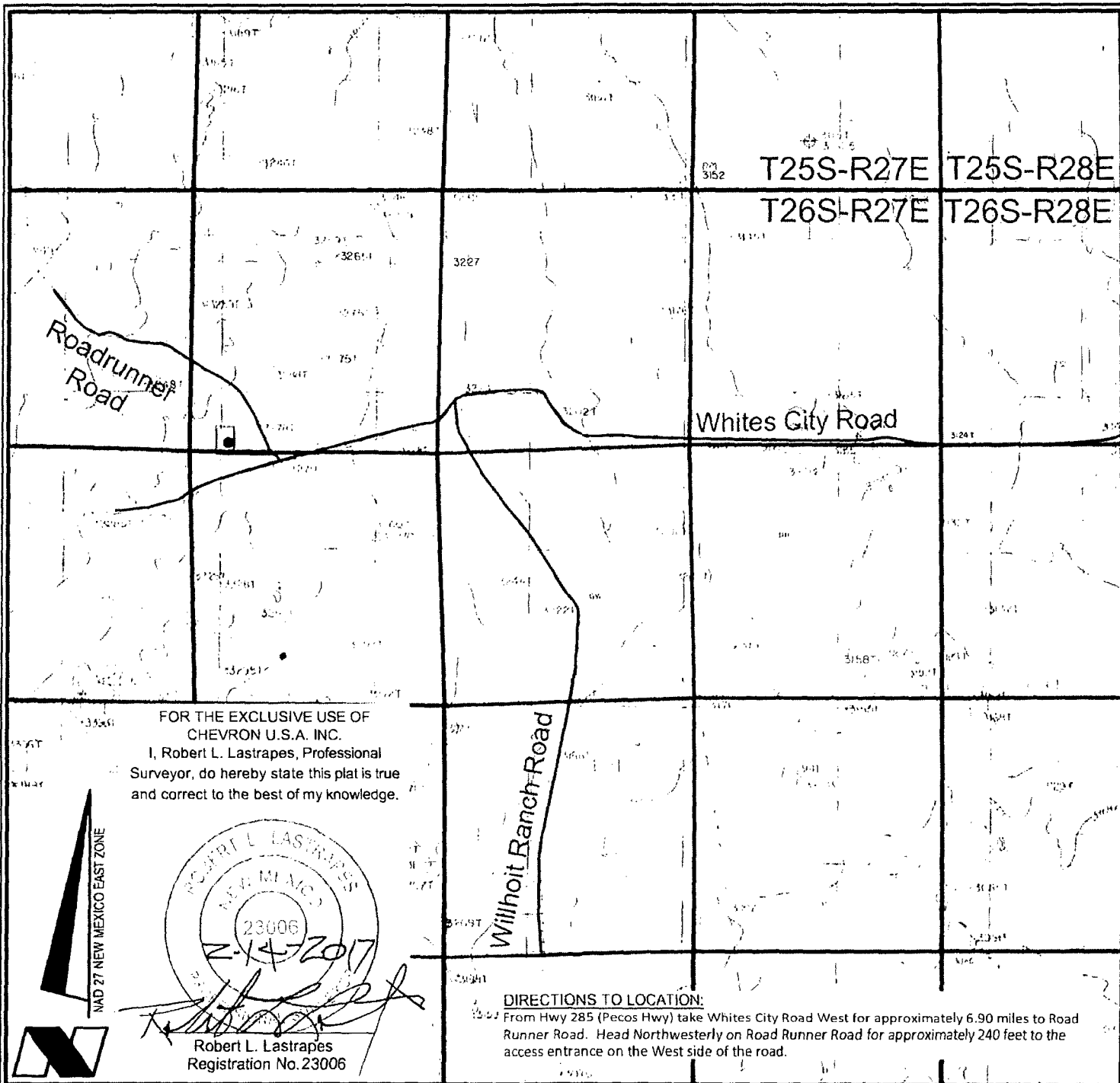
ROW Applications

SUPO Additional Information: Should questions arise, please contact Kevin Dickerson @ 432-687-7104

Use a previously conducted onsite? YES

Previous Onsite information: On-site performed by BLM NRS: Paul Murphy 01/06/2017.

Other SUPO Attachment



VICINITY MAP

SCALE: 1" = 3000'

3000' 0 1500' 3000'

LEGEND

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

CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 NO. 1H WELL
LOCATED 833' FWL AND 189' FSL
SECTION 3, T26S-R27E
EDDY COUNTY, NEW MEXICO



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

DRAWN BY: BOR

REVISIONS

PROJ. MGR.: GDG

No. 1

DATE: 02/13/2017

REVISED BY: TBD

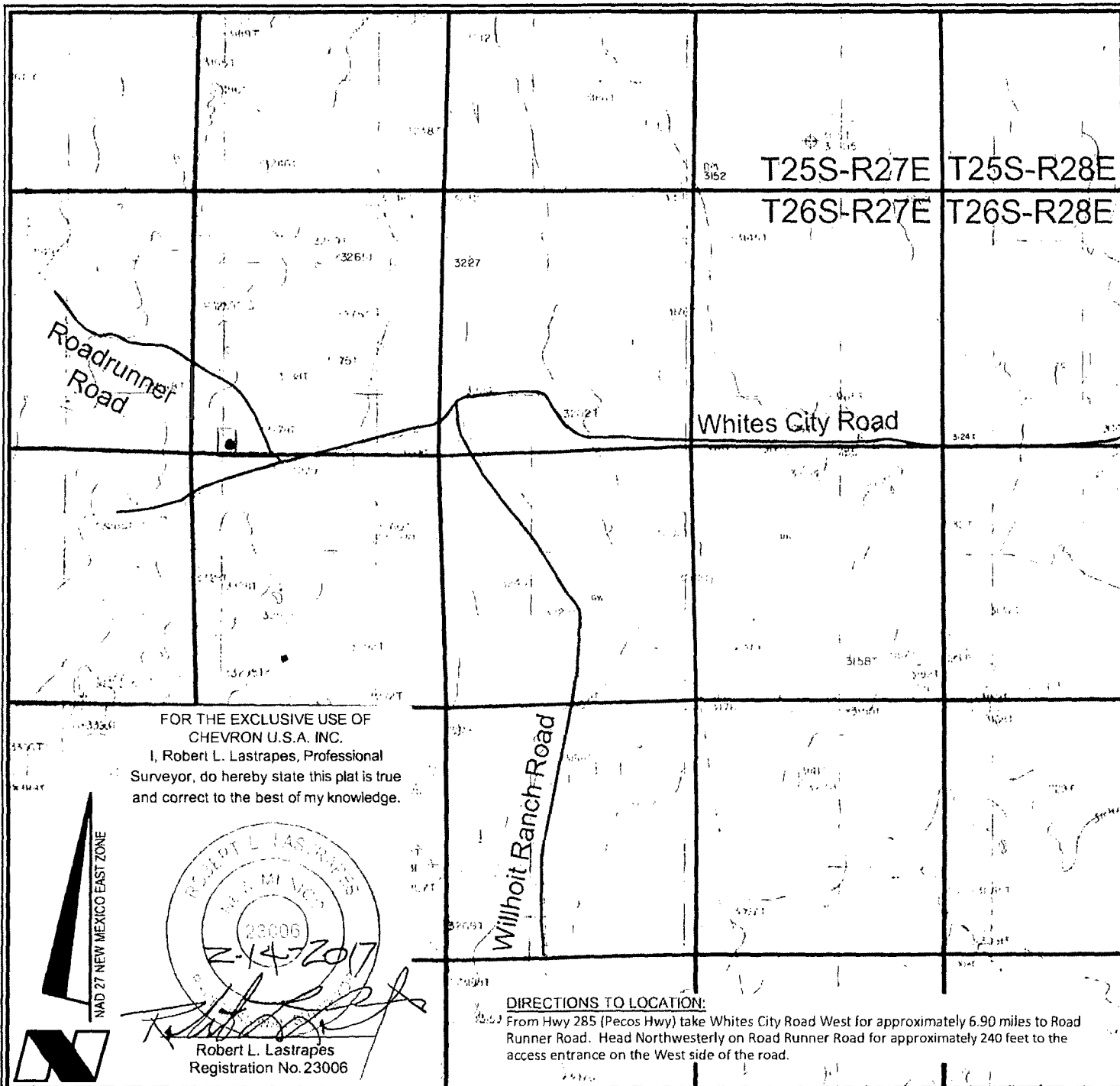
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REVISED BY:

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VICINITY MAP

SCALE: 1" = 3000'

3000' 0 1500' 3000'

LEGEND

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

CHEVRON U.S.A. INC.
 HH SO 10 15 FED 002 NO. 1H WELL
 LOCATED 833' FWL AND 189' FSL
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No. 1

DATE: 02/13/2017

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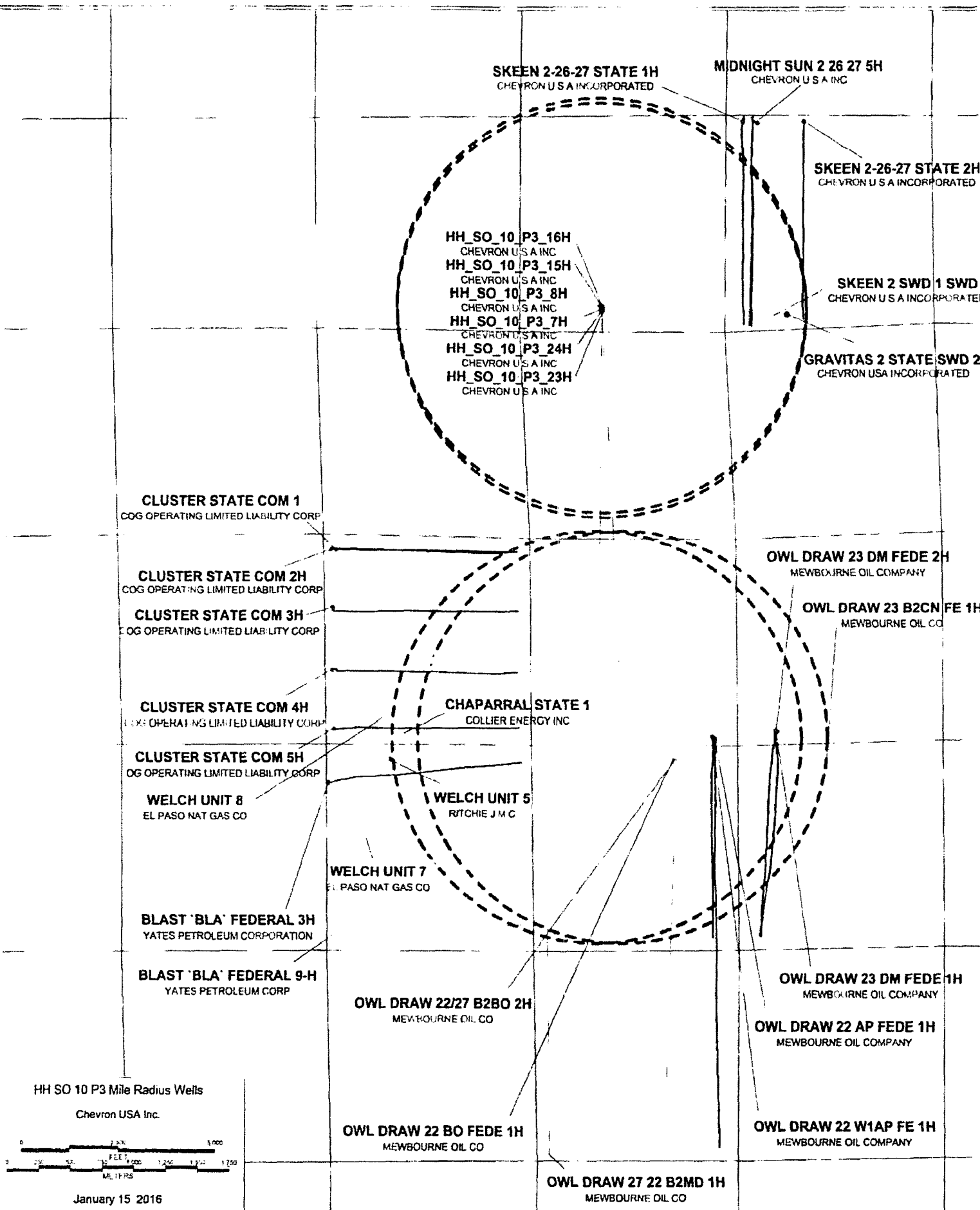
DATE: 01/11/2017

No.

DATE:

REVISED BY:

FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 002 1H_APD.dwg



R 27 E

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

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



Robert L. Lastrapes
Registration No. 23096

Sec. 3

Bureau of Land Management

PROPOSED PAD
±4.82 Acres

CENTERLINE
PROPOSED
ACCESS ROAD (A)
20' x ±234.04'
±14.18 Rods
±0.11 Acres

Road Runner
Road

HH SO 10 P3
No. 15H Well
628' FSL, 2,066' FWL

Fnd. 2" Iron Pipe w/
Cap at the SW corner
of Section 3

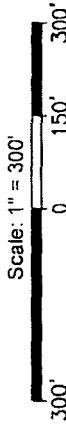
Sec. 4

NAD 27 NEW MEXICO EAST ZONE

Whites City Road

Sec. 10

Bureau of Land Management



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



NW PAD CORNER		NE PAD CORNER		HH SO 10 P3 NO. 15H WELL	
X=	547,311 NAD 27	X=	547,696 NAD 27	X=	547,568 NAD 27
Y=	387,848	Y=	387,842	Y=	387,609
ELEVATION +3281' NAVD 88		ELEVATION +3279' NAVD 88		LAT. 32.065559	
LONG. 104.179777		SE PAD CORNER		X= 588,752 NAD83	
SW PAD CORNER		X= 547,688 NAD 27		Y= 387,666	
X= 547,303 NAD 27		Y= 387,297		LAT. 32.065681	
ELEVATION +3282' NAVD 88		ELEVATION +3276' NAVD 88		LONG. 104.180269	
				ELEVATION +3279' NAVD 88	

LEGEND

- Section Line
- Existing Road
- Centerline Access
- Found Monument

T 26 S

SURFACE USE PLAT

PAGE 1 of 4

CHEVRON U.S.A. INC.
PROPOSED PADS, POND & ACCESS ROADS
HH SO 10 P3 NO. 15H WELL
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LUG

PROJ. MGR.: GDG

DATE: 12/16/2015

FILENAME: T:\2015\2153371\DWG\HH SO 10 P3 15H_SUP.dwg

R 27 E

Whites City Road

Sec. 3

Bureau of Land Management

CENTERLINE PROPOSED
ACCESS ROAD (D)
24' x ±101.00'
±6.12 Rods
±0.06 Acres

PROPOSED 50' x 50'
FRAC PUMP PAD
±0.06 Acres

Fnd 1 1/2" Iron
Pipe w/Cap @ the
SE Corner of
Section 3

Sec. 2

State of New Mexico

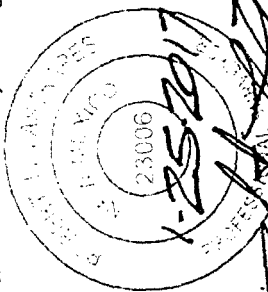
LEGEND

- Section Line
- Existing Road
- Centerline Access
- Fence Line
- Found Monument

Sec. 11

Bureau of Land Management
(Proposed Frac Pond- ±1.93 Acres)
(Proposed Frac Pond Outside of
Existing Fence Line- ±0.78 Acres)
(Proposed Fence Line Re-Route-
±628.17', ±36.07 Rods)

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



Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

PAGE 2 of 4

CHEVRON U.S.A. INC.

PROPOSED PADS, POND & ACCESS ROADS
HH SO 10 P3 NO. 15H WELL
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY:	LJG	DATE:	08/30/2016	REVISOR:	BOR
PROJ. MGR.:	GDG	No. 1		DATE:	11/04/2016
DATE:	12/16/2015	No. 2		REVISOR:	BOR
FILENAME:	T:\2015\2153371\DWG\HH SO 10 P3 15H_RevSUP.dwg				

CENTERLINE PROPOSED
ACCESS ROAD (C)
24' x ±126.19'
±7.65 Rods
±0.07 Acres

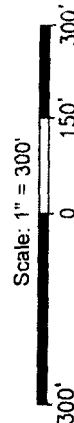
Sec. 10

Bureau of Land Management
(Proposed Frac Pond- ±13.57 Acres)
(Proposed Frac Pond Outside of
Existing Fence Line- ±0.34 Acres)
(Proposed Fence Line Re-Route-
±109.36', ±6.63 Rods)

PROPOSED
CENTRAL TANK
BATTERY
±8.03 Acres

PROPOSED
COMPRESSOR
STATION
±3.44 Acres

CENTERLINE
PROPOSED
ACCESS ROAD (B)
24' x ±1989.02'
±120.55 Rods
±1.10 Acres

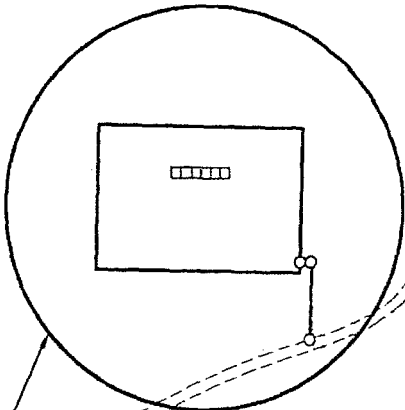


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R 27 E

SEE PAGE
1 OF 4



Sec. 3

Bureau of Land Management

SEE PAGE
2 OF 4

Sec. 2

State of New Mexico

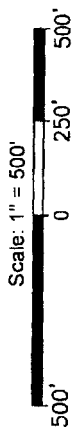
Sec. 10

Bureau of Land Management
(Proposed Frac Pond- ±13.57 Acres)
(Proposed Frac Pond Outside of
Existing Fence Line- ±0.34 Acres)
(Proposed Fence Line Re-Route-
±109.36', ±6.63 Rods)

NW CTB CORNER		NE CTB CORNER		SW CTBNW COMPRESSOR CORNER	
X=	549,484	X=	549,984	X=	549,484
Y=	386,534	Y=	386,534	Y=	386,534
ELEVATION +3249' NAVD 88		ELEVATION +3243' NAVD 88		ELEVATION +3255' NAVD 88	
NW COMPRESSOR CORNER		SE COMPRESSOR CORNER		CORNER	
X=	549,484	X=	549,984	X=	549,984
Y=	386,534	Y=	386,534	Y=	386,534
ELEVATION +3259' NAVD 88		ELEVATION +3252' NAVD 88		ELEVATION +3248' NAVD 88	

LEGEND

Section Line	—
Existing Road	---
Centerline Access	- - -
Fence Line	- X -
Found Monument	•

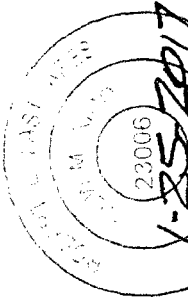


Scale: 1" = 500'

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www.fenstermaker.com



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.



SURFACE USE PLAT

PAGE 3 OF 4

CHEVRON U.S.A. INC.
PROPOSED PADS, POND & ACCESS ROADS
HH SO 10 P3 NO. 15H WELL
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY: LUG		REVISIONS	
PROJ. MGR : GDG	No. 1	DATE: 08/30/2016	REVISED BY: BOR
DATE: 12/16/2015	No. 2	DATE: 11/04/2016	REVISED BY: BOR
FILENAME: T:\2015\2153371\DWG\HH SO 10 P3 15H_RevSUP.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

CENTERLINE PROPOSED ACCESS ROAD (A)		
COURSE	BEARING	DISTANCE
1	S 00° 34' 31" W	29.92'
2	N 89° 08' 18" W	204.12'

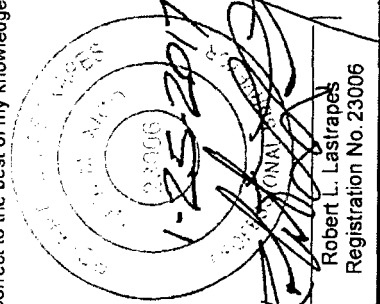
CENTERLINE PROPOSED ACCESS ROAD (B)		
COURSE	BEARING	DISTANCE
3	N 89° 54' 54" E	139.42'
4	N 00° 05' 06" W	1849.60'

CENTERLINE PROPOSED ACCESS ROAD (C)		
COURSE	BEARING	DISTANCE
5	WEST	126.19'

CENTERLINE PROPOSED ACCESS ROAD (D)		
COURSE	BEARING	DISTANCE
6	EAST	101.00'

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



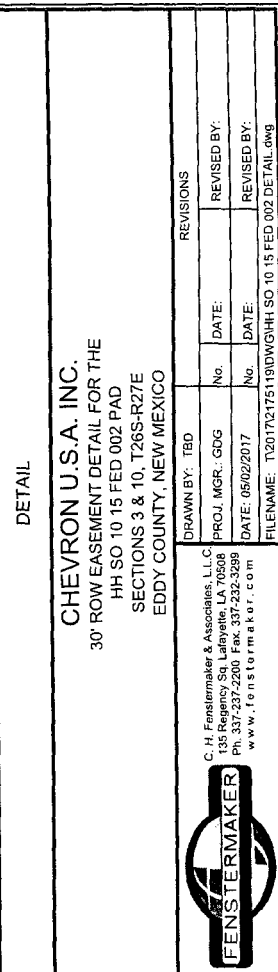
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
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SURFACE USE PLAT PAGE 4 of 4

CHEVRON U.S.A. INC.
PROPOSED PADS, POND & ACCESS ROADS
HH SO 10 P3 NO. 15H WELL
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJG		REVISIONS	
PROJ. MGR.: GDG	No. 1	DATE: 08/30/2016	REVISED BY: BOR
DATE: 12/16/2015	No. 2	DATE: 11/04/2016	REVISED BY: BOR
FILENAME: T:\2015\2153371\DWG\HH SO 10 P3 15H_RevSUP.dwg			



CHEVRON U.S.A. INC.
30' ROW EASEMENT DETAIL FOR THE
HH SO 10 15 FED 002 PAD
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: TBD

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DATE:	REVISED BY:
-------	-------------

DATE:	REVISED BY:
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FILENAME: T2017\2175119\DWG\HH SO 10 15 FED 002 DETAIL.dwg

WFMP FLOWLINE
GAS LIFT LINE
TEMP WATER
UTILITY LINE
ACCESS

«Восемьдесят тысяч человек
закрыли в тюрьмах страны
запрещенные партии и группы»



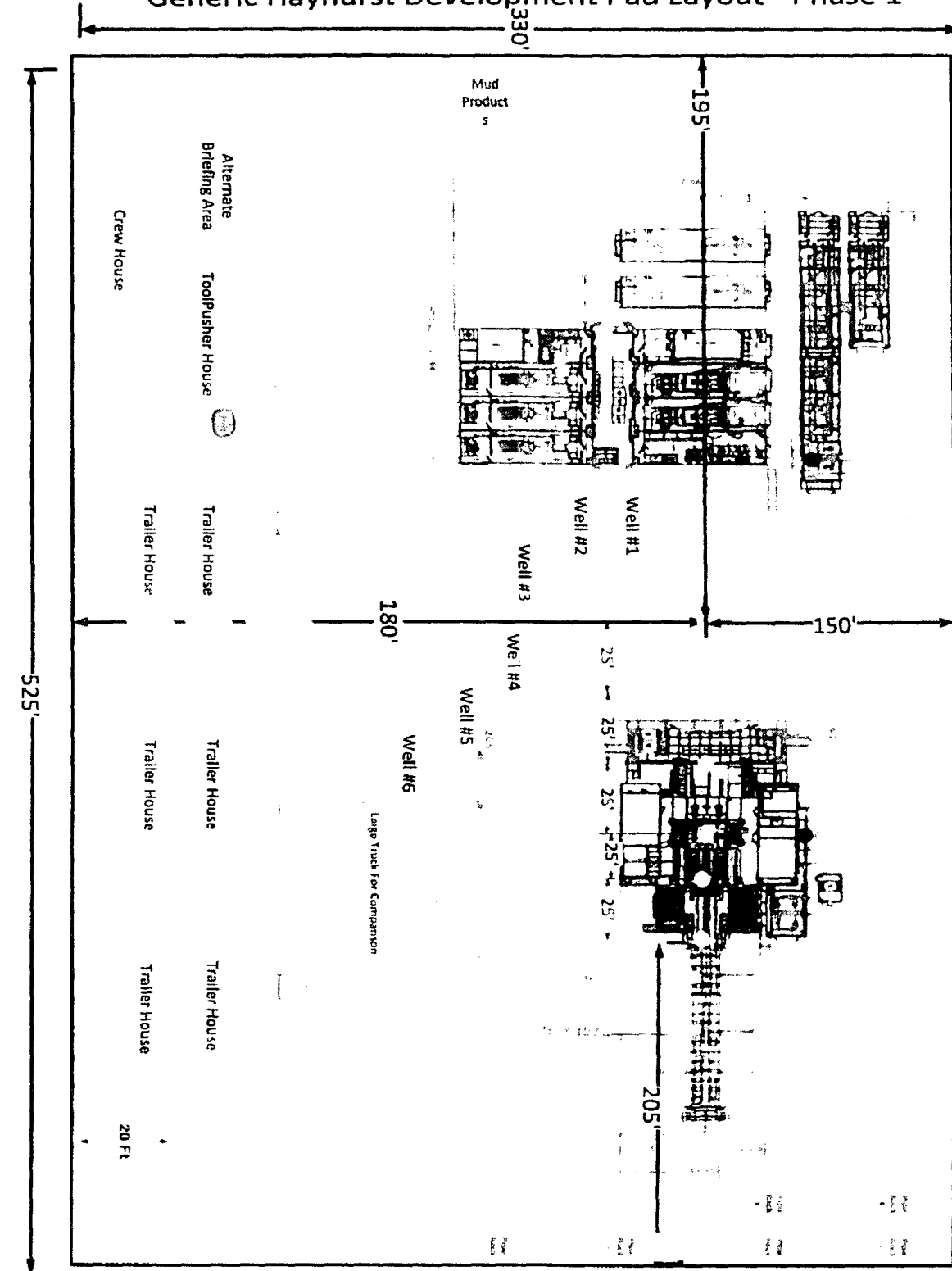
PRELIMINARY

Scale: 1" = 400'

NAD 27 NEW MEXICO EAST ZONE



Generic Hayhurst Development Pad Layout - Phase 1



Legend

- H2S Monitor
- Flag

H2S Monitor Locations

- Dog/Cellar
- Rig Floor
- Shaker S.H.D
- Post Nipple

Flag Locations

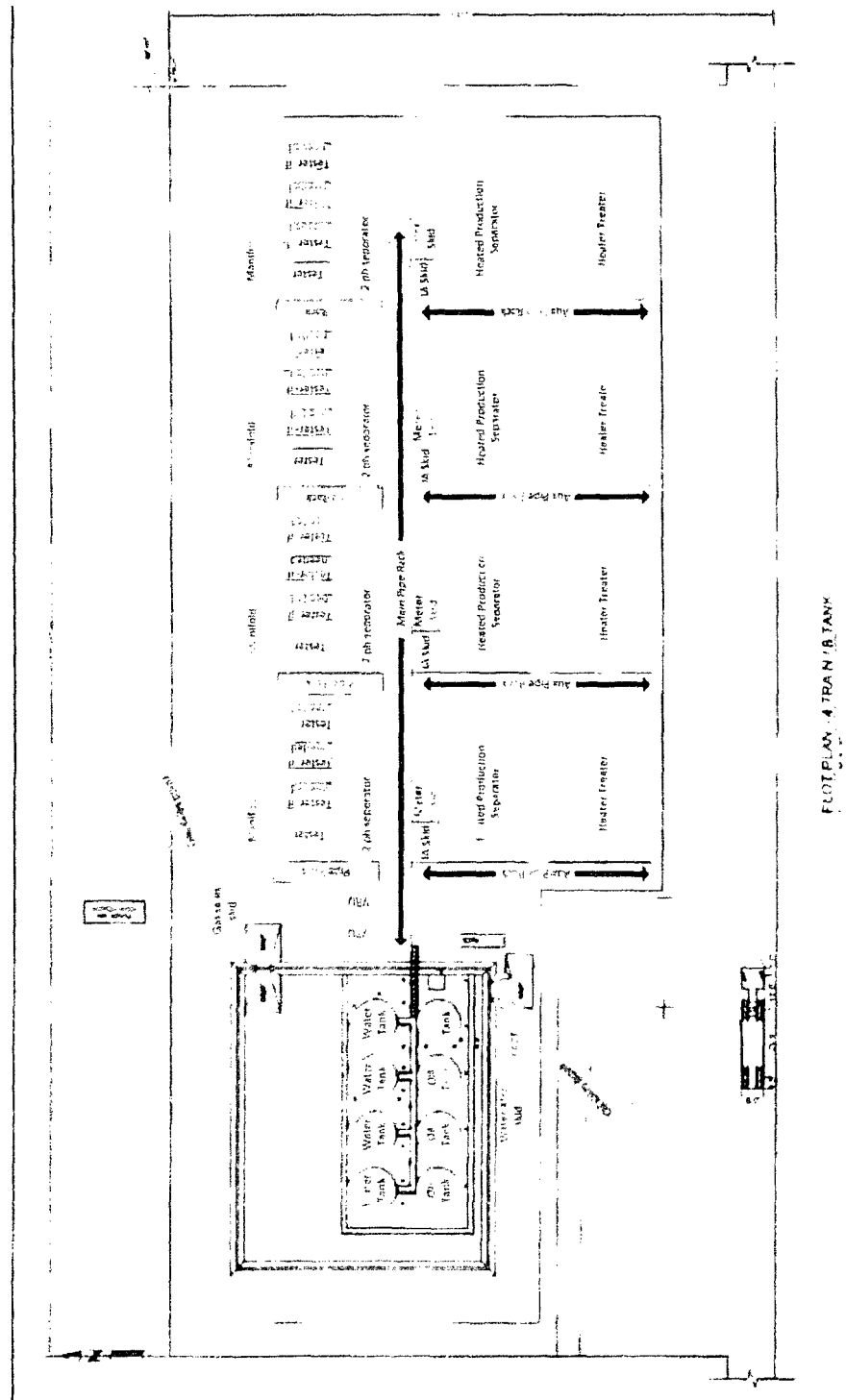
- Sign-In Shack
- Rig floor
- Dog House

10 Minute Escape Packs

- 1 at Pits
- 1 at Trip Tank
- 1 at Accumulator
- 4 at Rig Floor

45 Minute Escape Packs

- 2 at Briefing Area
- 2 at Alternate Briefing Area

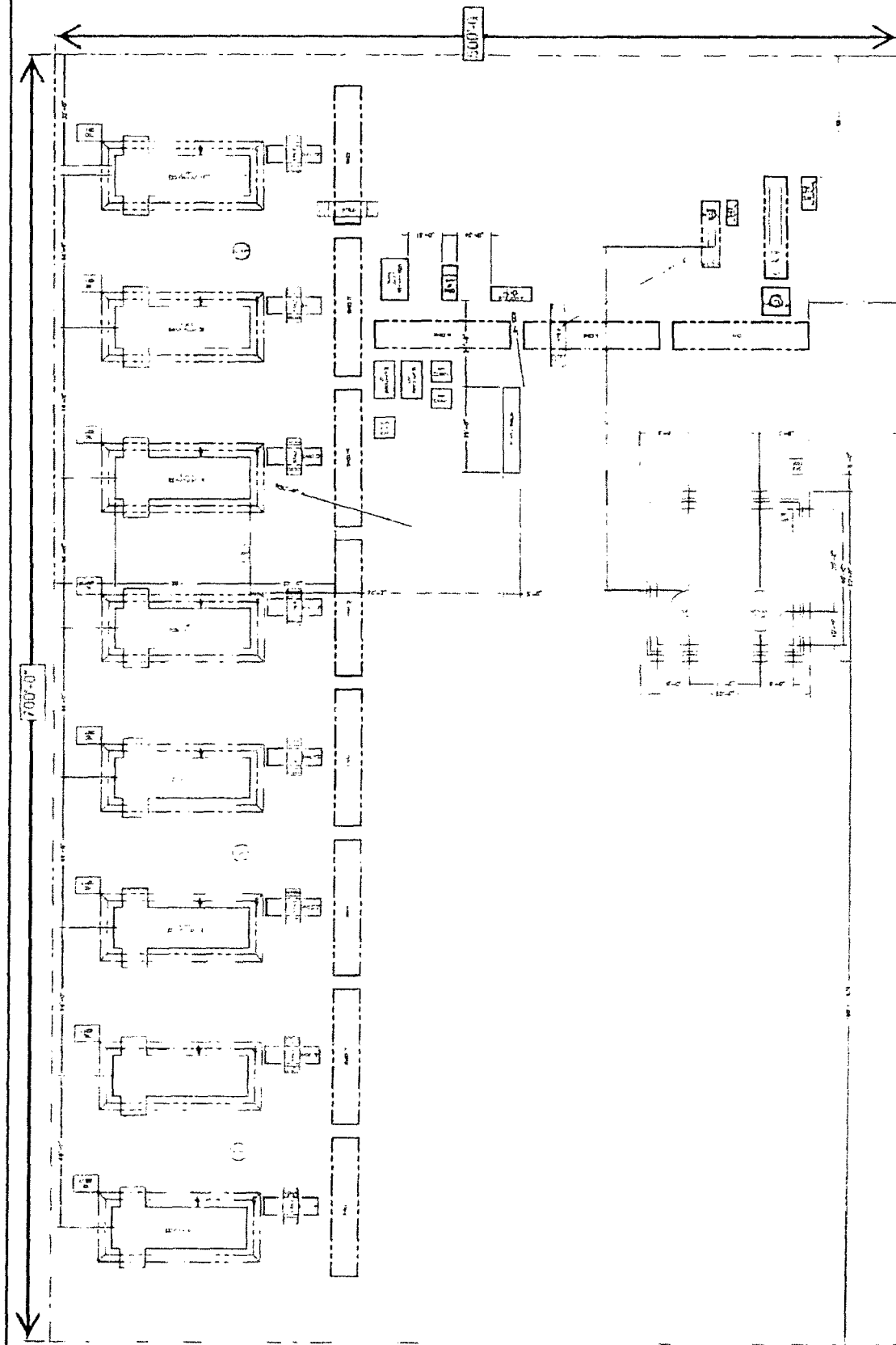


COMPRESSOR_PLOTPLAN_8TOTAL

Asil 4/24/98

FOR REVIEW

15200 FOR ME -



R 27 E

PROPOSED PAD
14.81 Acres

HH SO 10 15 FED 002
No. 1H Well
833' FWL
189' FSL

Sec. 3

Bureau of Land Management
(Pad- ±4.63 Acres)

Sec. 10

Bureau of Land Management
(Pad- ±0.18 Acres)

(Access- ±0.57 Acres, 1230.76', ±74.59 Rods)

Fnd. 2" Iron Pipe
@ SW Corner of
Section 3

S 87° 16' 22" E 603.33'

6

CENTERLINE
PROPOSED
ACCESS ROAD
20' x 1230.76'
74.54 Rods
±0.57 Acres

Future 30'
Chevron
Flowline ROW

Existing
±50' Frontier Energy
Pipeline ROW

Whites City Road

Roadrunner Road

LEGEND

- Future FL ROW
- Existing PL ROW
- Existing Road
- Section Line
- Fnd. Monument

Scale: 1" = 200'

200' 0 100' 200'

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Robert L. Lastapes
Registration No. 23006

SURFACE USE PLAT

Page 1 of 2

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD

HH SO 10 15 FED 002 NO. 1H WELL

SECTIONS 3 & 10, T26S-R27E

EDDY COUNTY, NEW MEXICO

REVISIONS

DRAWN BY: BOR	No. 1	DATE: 02/13/2017	REVISED BY: TBD
PROJ. MGR: GDG	No.	DATE:	REVISED BY:
FILENAME: T201721751191DWGHH SO 10 15 FED 002 1H_SUP.dwg			

PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	S 89° 08' 26" E	385.01'
2	S 00° 52' 10" W	545.11'
3	N 89° 07' 37" W	385.03'
4	N 00° 52' 18" E	545.02'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	S 00° 52' 23" W	10.01'
6	S 89° 07' 37" E	1220.75'

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.

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

[Signature]
Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

CHEVRON U.S.A. INC.
PROPOSED PAD & ACCESS ROAD
HH SO 10 15 FED 002 NO. 1H WELL
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: BOR		REVISIONS	
PROJ. MGR.: GDG	No. 1	DATE: 02/13/2017	REVISED BY: TBD
DATE: 01/11/2017	No.	DATE:	REVISED BY:
FILENAME: T20172175119DWGHH SO 10 15 FED 002 1H_SUP.dwg			

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CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 1H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SHL 189' FSL & 833' FWL

SECTION 15, T26S, R27E

BHL 280' FSL & 330' FWL

APD Surface Use Plan of Operations

This Surface Use Plan of Operations has been assigned to be reviewed in
conjunction with the HDA Master Development Plan (HDA MDP) for
the proposed site.

HDA Master Development Plan Reference Table

The contents referenced below apply to all HDA APD's

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

Driving Directions

- Driving Directions – From Malaga, New Mexico. The location is approximately 11.5 miles from the nearest town, which is Malaga, New Mexico. From Malaga, proceed South on Highway 285 approximately 11.5 miles and turn right (West) onto White City Rd and go approximately 6.8 miles on White City Road until the road reaches an intersection with Roadrunner Rd. Turn right onto this and travel 100 yards, then the access road and well location is on the right.

New or Reconstructed Access Road (MDP SUPO Pg. 2)

- There will be 1,136.45' of new road construction for this proposal (.52 acres)
- Ditches: See MDP
- Culverts: See MDP
- Road Cuts: See MDP

Location of Existing Wells

- 1-Mile radius map is attached

CHEVRON U.S.A. INC.
HH SO 10 15 FED 002 1H
NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL) SECTION 15, T26S, R27E
SHL 189' FSL & 833' FWL BHL 280' FSL & 330' FWL

Location of Existing and/or Proposed Production Facilities (Map Fig. 5)

- **Facilities:** Existing production facilities located in the NE corner of Sec. 10, T26S-R27E where oil and gas sales will take place.
 - The existing facility is 500' X 700'
 - Gas compression will occur within the proposed facility boundaries
 - Gas purchaser pipeline is in place at the tank battery.
 - Open top tanks or open containments will be netted.
 - Open vent exhaust stacks will be modified to prevent birds or bats from entering, discourage perching, roosting, and nesting.
 - Facilities will have a secondary containment 1.5 times the holding capacity of largest storage tank.
 - All above ground structures will be painted non-reflective shale green for blending with surrounding environment.
 - The permanent water disposal system will be determined prior to construction of any water transfer pipeline. Until permanent water takeaway is available, produced water will be hauled off location in trucks.

Notification will be provided to BLM upon site selection and survey – plats (including SWD well information) will be provided.
- **Pipelines:** See Detail
 - Pipelines Include:
 - 4,583' of Flowlines carrying production (buried)
 - 4,600' Gas Lift Line carrying pressurized gas (buried)
 - 4,608' Temporary Water line carrying fresh water (surface)
 - A ROW will be applied for through the State and BLM. (30' wide, 3.2 acres)
 - All construction activity will be confined to the approved ROW.
 - Pipeline will run parallel to the road and will stay within approved ROW.

Location and Types of Water Supply (Map Fig. 5)

- Existing ponds in Section 9 & 10, T26S-R27E will be utilized for fresh water or recycled water.
- Fresh water will be obtained from a private water source.

CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 1H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)
SHL 189' FSL & 833' FWL

SECTION 15, T26S, R27E
BHL 280' FSL & 330' FWL

Caliche Sourcing and Management

- 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.

Methods for Managing Wastes

- Drilling fluids and produced oil and water from the well during drilling and completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility.
- Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around the well site will be collected for disposal.
- Human waste and grey water will be properly contained and disposed of properly at a state approved disposal facility.
- After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a state approved disposal facility.
- The well will be drilled utilizing a closed loop system. Drill cutting will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

Well Site Layout

- Surveyor Plat
 - Exterior well pad dimensions are 545' x 385'
 - Interior well pad dimensions from point of entry (well head) of the well are N-335', S-210', E-125', W-260'. Total disturbance area needed for construction of well pad will be approximately 4.81 acres
 - Topsoil placement is on the west where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices.
 - Cut and fill: will be minimal.
- Rig Layout (see diagram)

Final Well Surface Reclamation and Site Cleanup

Interim Reclamation Procedures

- Reclaimed pad size: 200' x 325' (approximately 1.5 acres)
- Reclaimed pad layout, topsoil location & erosion control features

CHEVRON U.S.A. INC.

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NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SHL 189' FSL & 833' FWL

SECTION 15, T26S, R27E

BHL 280' FSL & 330' FWL

Surface Ownership

- BLM Surface
 - Surface Tenant – Forehand Ranches, Inc.
- **Nearest Post Office:** Malaga Post Office; 11.4 Miles north

Other Information

- On-site performed by BLM NRS: Paul Murphy 1/6/2017
- Cultural report attached: **Yes** Participating Agreement attached: N/A

Chevron Representative

Primary point of contact:

Jennifer Van Curen

Jennifer.VanCuren@arcadis-us.com

M- 432-270-8753

CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 1H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SHL 189' FSL & 833' FWL

SECTION 15, T26S, R27E

BHL 280' FSL & 330' FWL

<i>Project Manager</i> Name: Justin Freeman Address: 1400 Smith Street Houston, TX 77002 Phone: 713-372-2151 Email: FreemJ@chevron.com	<i>Project Manager</i> Name: Roderick Milligan Address: 1400 Smith Street Houston, TX 77002 Phone: (281) 413-9794 Email: RoderickMilligan@chevron.com
<i>Business Development Manager</i> Name: Kevin Dickerson Address: 6301 Deauville BLVD Midland TX 79706 Phone: (432) 687-7104 Email: Kevin.Dickerson@chevron.com	<i>Business Development Manager</i> Name: Angel Bermea Address: 6301 Deauville BLVD Midland TX 79706 Phone: 432-770-7564 Email: Angel.Bermea@chevron.com
<i>Geologist</i> Name: Frank Karmanocky Address: 6301 Deauville BLVD Midland TX 79706 Phone: 432-687-7361 Email: FKarmanocky@chevron.com	<i>Geologist</i> Dorian K. Fuentes Address: 6301 Deauville BLVD Midland TX 79706 Office: (432) 687-7631 Email: djvo@chevron.com

R 27 E

**PROPOSED
TEMPORARY
PAD AREA**
±3.32 Acres

**PROPOSED
PERMANENT
PAD AREA**
±1.49 Acres

NW PAD CORNER		NE PAD CORNER		HH SO 10 15 FED 002 NO. 1H WELL	
X=	546,074	NAD 27	X=	546,459	NAD 27
Y=	387,525		Y=	387,520	
ELEVATION +3261' NAVD 88		ELEVATION +3272' NAVD 88		X=	546,329
				Y=	387,187
				LAT	32.064404
				LONG	104.183778
SW PAD CORNER		SE PAD CORNER		X=	587,513
X=	546,063	NAD 27	X=	546,451	NAD 27
Y=	386,981		Y=	386,975	
ELEVATION +3279' NAVD 88		ELEVATION +3261' NAVD 88		Y=	387,244
				LAT	32.064526
				LONG	104.184271
				ELEVATION +3273' NAVD 88	

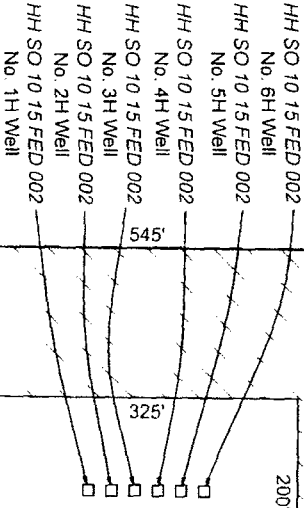
Sec. 3

Bureau of Land Management
(Access: ±0.11 Acres, 237.68' ±14.41' Rods)

Roadrunner Road

Find 2" Iron Pipe
@ SW Corner of
Section 3

S 87° 16' 22" E 603.33'



Sec. 10

Bureau of Land Management
(Access: ±0.41 Acres, 898.77' ±54.47' Rods)

CENTERLINE
PROPOSED
ACCESS ROAD
20' x 1136.45'
68.87 Rods
±0.52 Acres

Whites City Road



NAD 27 NEW MEXICO EAST ZONE

LEGEND

- Future FL ROW
- Existing PL ROW
- Existing Road
- Section Line
- Find Monument

Scale: 1" = 200'



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PRELIMINARY

Robert L. Lastropes
Registration No. 23006

WELL PLAT

Page 1 of 2

CHEVRON U.S.A. INC.

INTERIM RECLAMATION

HH SO 10 15 FED 002
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: BOR

REVISIONS

PROJ. MGR. GDG

REVISED BY:

DATE: MAY 31, 2017

No.

REVISED BY:

FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 002 1H_IR.dwg



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Registration No. 23006

WELL PLAT

Page 2 of 2

CHEVRON U.S.A. INC.
INTERIM RECLAMATION
HH SO 10 15 FED 002
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: BOR

REVISIONS

PROJ. MGR. GDG

No.

DATE:

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FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 002 1H_IR.dwg



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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:

Describe 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:

Describe 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: OFFLEASE

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:

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: