

Carlsbad Field Office OCD Artesia

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM113399
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 8 5 FED 003 4H 322146
3b. Phone No. (include area code) (432)687-7866		9. API Well No. 30-015-45118
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface NENW / 554 FNL / 2309 FWL / LAT 32.048241 / LONG -104.213421 At proposed prod. zone NWNE / 280 FNL / 2010 FEL / LAT 32.078244 / LONG -104.210345		10. Field and Pool, or Exploratory PURPLE SAGE / WOLFCAMP, (GAS)
14. Distance in miles and direction from nearest town or post office* 12.8 miles		11. Sec., T. R. M. or Blk. and Survey or Area SEC 17 / T26S / R27E / NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330 feet	16. No. of acres in lease 480	12. County or Parish EDDY
17. Spacing Unit dedicated to this well 640	18. Distance from proposed location* to nearest well, drilling, completed, 4300 feet applied for, on this lease, ft.	13. State NM
19. Proposed Depth 9741 feet / 20154 feet	20. BLM/BIA Bond No. on file FED: CA0329	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3265 feet	22. Approximate date work will start* 11/01/2017	23. Estimated duration 130 days

24. Attachments

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

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

25. Signature (Electronic Submission)	Name (Printed Typed) Laura Becerra / Ph: (432)687-7665	Date 07/12/2017
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Title
Permitting Specialist

Approved by (Signature) (Electronic Submission)	Name (Printed Typed) Cody Layton / Ph: (575)234-5959	Date 07/13/2018
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Title Assistant Field Manager Lands & Minerals	Office CARLSBAD
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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
Approval Date: 07/13/2018

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 17 2018

RECEIVED

RWP 7-17-18

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

- I. SHL: NENW / 554 FNL / 2309 FWL / TWSP: 26S / RANGE: 27E / SECTION: 17 / LAT: 32.048241 / LONG: -104.213421 (TVD: 0 feet, MD: 0 feet)
PPP: SWSE / 330 FSL / 2010 FEL / TWSP: 26S / RANGE: 27E / SECTION: 8 / LAT: 32.050662 / LONG: -104.210248 (TVD: 9741 feet, MD: 20154 feet)
BHL: NWNE / 280 FNL / 2010 FEL / TWSP: 26S / RANGE: 27E / SECTION: 5 / LAT: 32.078244 / LONG: -104.210345 (TVD: 9741 feet, MD: 20154 feet)

BLM Point of Contact

Name: Judith Yeager

Title: Legal Instruments Examiner

Phone: 5752345936

Email: jyeager@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.

JUL 17 2018

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Incorporated	RECEIVED
LEASE NO.:	NMNM118108	
WELL NAME & NO.:	HH SO 8 5 Fed 003 4H	
SURFACE HOLE FOOTAGE:	554'/N & 2309'/W	
BOTTOM HOLE FOOTAGE:	280'/N & 2010'/E	
LOCATION:	Section 17, T.26 S., R27 E., NMPM	
COUNTY:	Eddy County, New Mexico	

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☐ Low	☐ Medium	☒ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
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

1. The 13-3/8 inch surface casing shall be set at approximately 450 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement maybe required. Excess calculates to 5%.**
- b. Second stage above DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Additional cement maybe required. Excess calculates to 22%.**
- ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
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**.

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties

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

☒ Eddy County

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

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

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

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- 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. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 071218

BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

OPERATION : Intermediate and Production Hole Sections

Minimum System
Pressure Rating : 5,000 psi

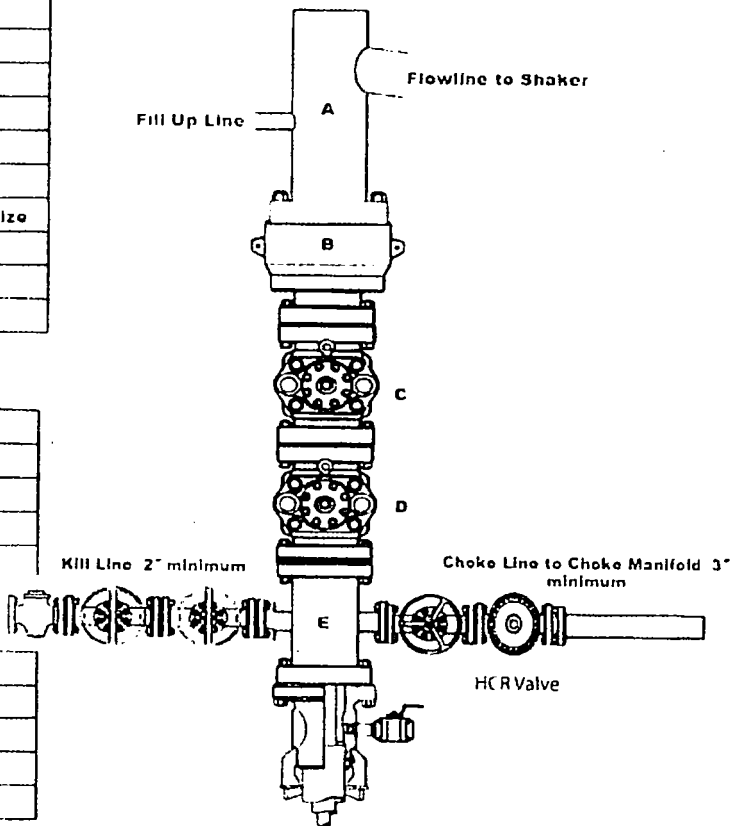
SIZE	PRESSURE	DESCRIPTION
A	N/A	Bell Nipple
B	13 5/8" 5,000 psi	Annular
C	13 5/8" 5,000 psi	Pipe Ram
D	13 5/8" 5,000 psi	Blind Ram
E	13 5/8" 5,000 psi	Mud Cross
F		
DSA	As required for each hole size	
C-Sec		
B-Sec	13-5/8" 5K x 11" 5K	
A-Sec	13-3/8" SOW x 13-5/8" 5K	

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 too blocks or are targeted with running tool, and will be anchored to prevent whip and reduce vibration.
- ☐ Manual (hand wheels) or automatic locking devices will be installed on all ram preventers. Hand wheels will also be 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: _____

Approval Date: 07/13/2018

BOPE Testing

Minimum Requirements

Closing Unit and Accumulator Checklist

The following item must be performed, verified, and checked off at least once per well prior to low/high pressure testing of BOP equipment. This must be repeated after 6 months on the same well.

- ☐ Precharge pressure for each accumulator bottle must fall within the range below. Bottles may be further charged with nitrogen gas only. Tested precharge pressures must be recorded for each individual bottle and kept on location through the end of the well. Test will be conducted prior to connecting unit to BOP stack.

Check one that applies	Accumulator working pressure rating	Minimum acceptable operating pressure	Desired precharge pressure	Maximum acceptable precharge pressure	Minimum acceptable precharge pressure
☐	1500 psi	1500 psi	750 psi	800 psi	700 psi
☐	2000 psi	2000 psi	1000 psi	1100 psi	900 psi
☐	3000 psi	3000 psi	1000 psi	1100 psi	900 psi

- ☐ Accumulator will have sufficient capacity to open the hydraulically-controlled choke line valve (if used), close all rams, close the annular preventer, and retain a minimum of 200 psi above the maximum acceptable precharge pressure (see table above) on the closing manifold without the use of the closing pumps. This test will be performed with test pressure recorded and kept on location through the end of the well.
- ☐ Accumulator fluid reservoir will be double the usable fluid volume of the accumulator system capacity. Fluid level will be maintained at manufacturer's recommendations. Usable fluid volume will be recorded. Reservoir capacity will be recorded. Reservoir fluid level will be recorded along with manufacturer's recommendation. All will be kept on location through the end of the well.
- ☐ Closing unit system will have two independent power sources (not counting accumulator bottles) to close the preventers.
- ☐ Power for the closing unit pumps will be available to the unit at all times so that the pumps will automatically start when the closing valve manifold pressure decreases to the pre-set level. It is recommended to check that air line to accumulator pump is "ON" during each tour change.
- ☐ With accumulator bottles isolated, closing unit will be capable of opening the hydraulically-operated choke line valve (if used) plus close the annular preventer on the smallest size drill pipe within 2 minutes and obtain a minimum of 200 psi above maximum acceptable precharge pressure (see table above) on the closing manifold. Test pressure and closing time will be recorded and kept on location through the end of the well.
- ☐ Master controls for the BOPE system will be located at the accumulator and will be capable of opening and closing all preventer and the choke line valve (if used).
- ☐ Remote controls for the BOPE system will be readily accessible (clear path) to the driller and located on the rig floor (not in the dog house). Remote controls will be capable of closing all preventers.
- ☐ Record accumulator tests in drilling reports and IADC sheet

BOPE Test Checklist

The following item must be checked off prior to beginning test

- ☐ BLM will be given at least 4 hour notice prior to beginning BOPE testing
- ☐ Valve on casing head below test plug will be open
- ☐ Test will be performed using clear water.

The following item must be performed during the BOPE testing and then checked off

- ☐ BOPE will be pressure tested when initially installed, whenever any seal subject to test pressure is broken, following related repairs, and at a minimum of 30 days intervals. Test pressure and times will be recorded by a 3rd party on a test chart and kept on location through the end of the well.
- ☐ Test plug will be used
- ☐ Ram type preventer and all related well control equipment will be tested to 250 psi (low) and 5,000 psi (high).
- ☐ Annular type preventer will be tested to 250 psi (low) and 3,500 psi (high).
- ☐ Valves will be tested from the working pressure side with all down stream valves open. The check valve will be held open to test the kill line valve(s)
- ☐ Each pressure test will be held for 10 minutes with no allowable leak off.
- ☐ Master controls and remote controls to the closing unit (accumulator) must be function tested as part of the BOP testing
- ☐ Record BOP tests and pressures in drilling reports and IADC sheet

After Installation Checklist is complete, fill out the information below and email to Superintendent and Drilling Engineer along with any/all BOP and accumulator test charts and reports from 3rd parties.

Wellname: _____

Representative: _____

Date: _____

Approval Date: 07/13/2018

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUL 17 2018

RECEIVED

OPERATOR'S NAME:	Chevron USA Incorporated
LEASE NO.:	NMNM118108
WELL NAME & NO.:	HH SO 8 5 Fed 003 4H
SURFACE HOLE FOOTAGE:	554'/N & 2309'/W
BOTTOM HOLE FOOTAGE:	280'/N & 2010'/E
LOCATION:	Section 17, T.26 S., R27 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 Conditions of Approval for APDs

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

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, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

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

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

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

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

G. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

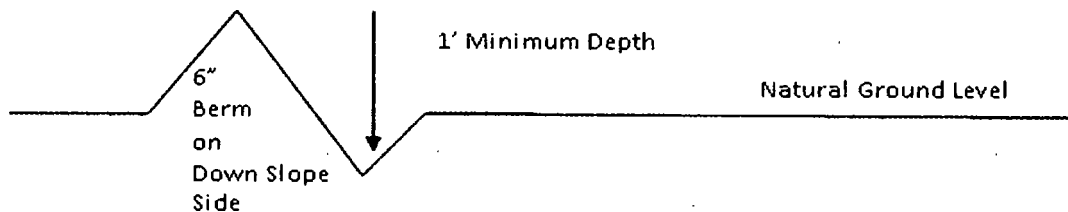
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out sloping and 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

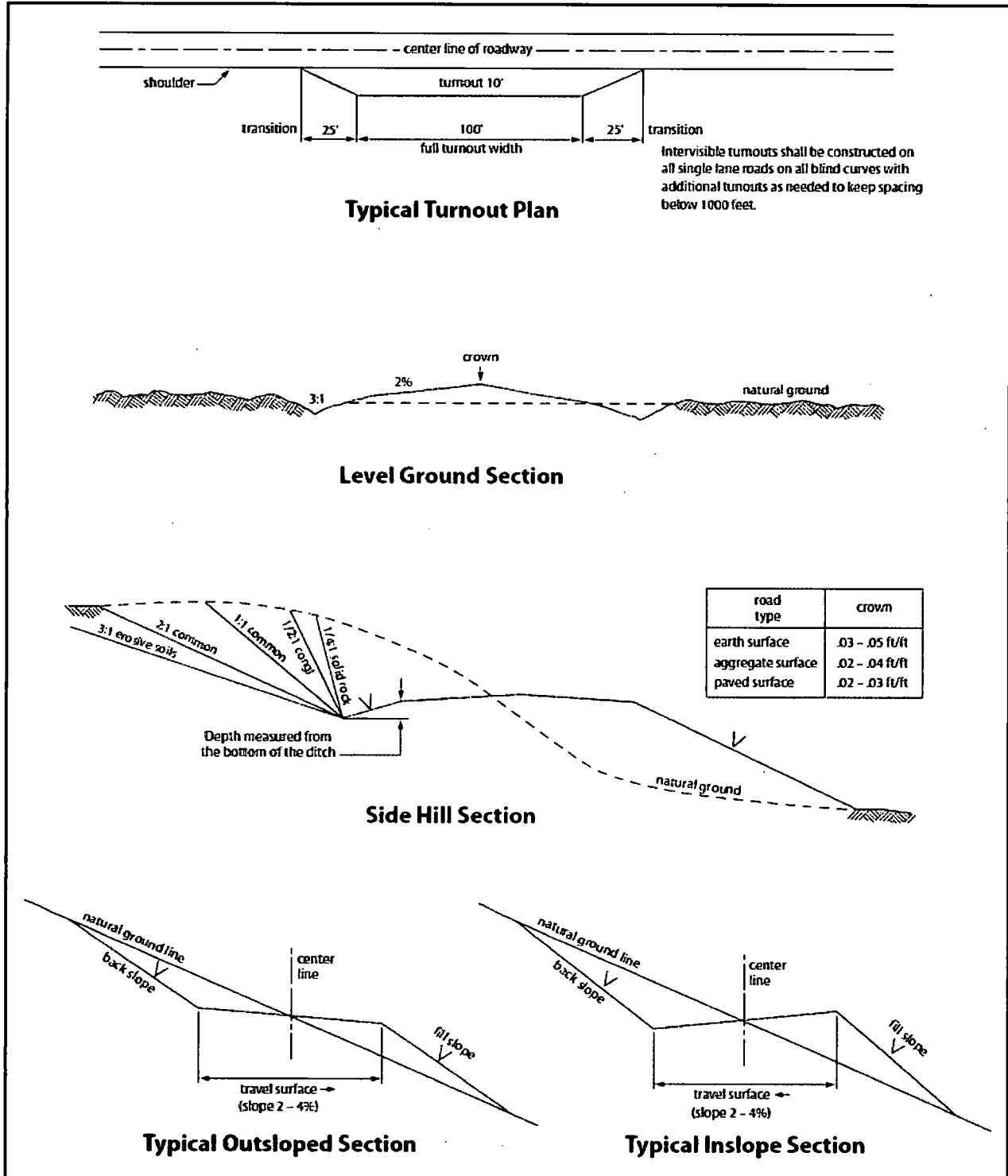


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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.

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

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

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

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

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

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

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

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

VIII. INTERIM RECLAMATION

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

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

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

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

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 1 for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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



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

Operator Certification Data Report

07/16/2018

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: Laura Becerra

Signed on: 07/06/2017

Title: Permitting Specialist

Street Address: 6301 Deauville Blvd., S2211

City: Midland

State: TX

Zip: 79706

Phone: (432)687-7665

Email address: LBecerra@Chevron.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



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

Application Data Report

07/16/2018

APD ID: 10400014952

Submission Date: 07/12/2017

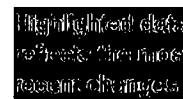
Operator Name: CHEVRON USA INCORPORATED.

Well Name: HH SO 8 5 FED 003

Well Number: 4H

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill



[Show Final Text](#)

Section 1 - General

APD ID: 10400014952

Tie to previous NOS? 10400009708

Submission Date: 07/12/2017

BLM Office: CARLSBAD

User: Laura Becerra

Title: Permitting Specialist

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM113399

Lease Acres: 480

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:

Operator Info

Operator Organization Name: CHEVRON USA INCORPORATED

Operator Address: 6301 Deauville Blvd.

Zip: 79706

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)687-7866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Mater Development Plan name: HAYHURST DEVELOPMENT AREA

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: HH SO 8 5 FED 003

Well Number: 4H

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 8 5 FED 003

Well Number: 4H

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

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: HH SO Number: 1H 2H 3H 4H 5H 6H
8 5 FED 003

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: 12.8 Miles

Distance to nearest well: 4300 FT

Distance to lease line: 330 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: HH_SO_8_5_FED_003_4H_C_102_07-06-2017.pdf

Well work start Date: 11/01/2017

Duration: 130 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

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	554	FNL	230 9	FWL	26S	27E	17	Aliquot NENW 1	32.04824 1	- 104.2134 21	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	326 5	0	0
KOP Leg #1	554	FNL	230 9	FWL	26S	27E	17	Aliquot NENW 1	32.04824 1	- 104.2134 21	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	326 5	0	0
PPP Leg #1	330	FSL	201 0	FEL	26S	27E	8	Aliquot SWSE 2	32.05066 2	- 104.2102 48	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 118108	- 647 6	201 54	974 1



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 GL + KB @ 3293.00usft (Patterson 81) Coordinates are relative to: 4H

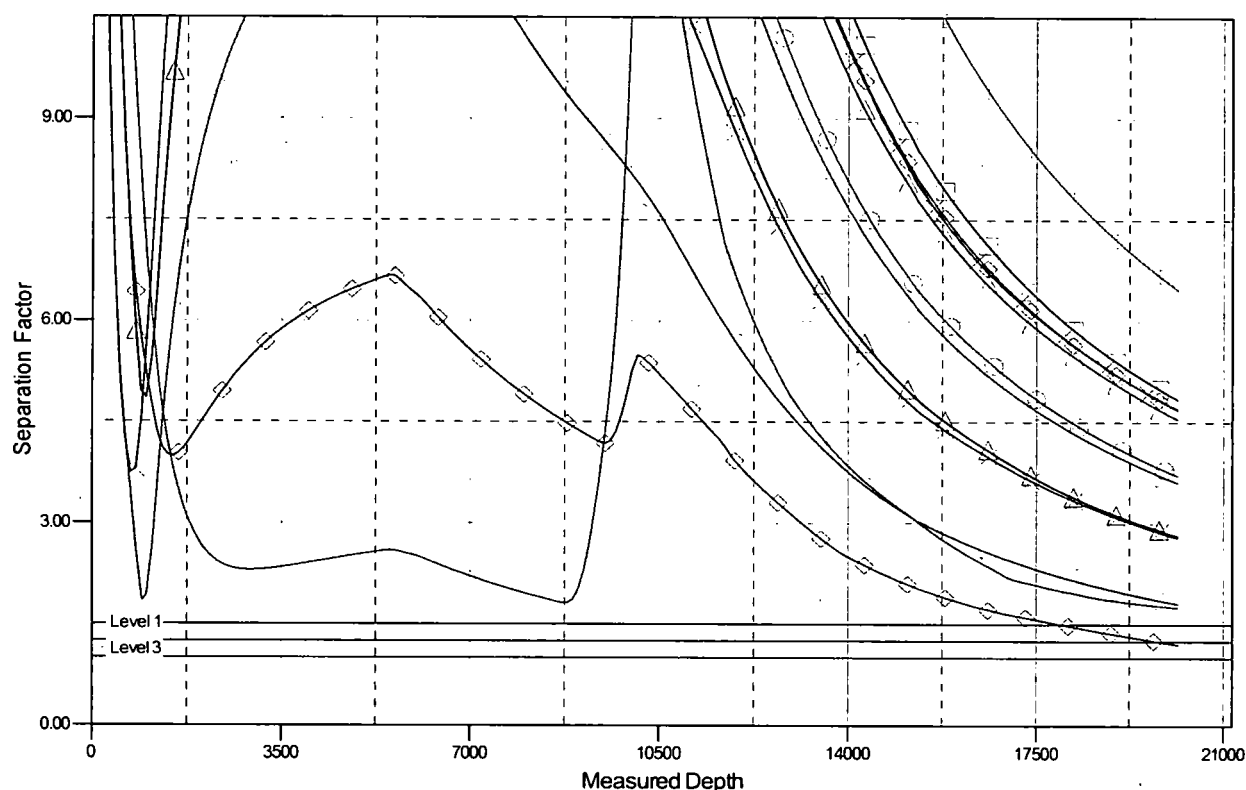
Offset Depths are relative to Offset Datum

Central Meridian is 104° 19' 60.00000 W

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.06°

Separation Factor Plot



LEGEND

- | | | |
|---|--|----------------------------|
| 27H, OH, Plan 2 11-17-16 V0 | 19H, OH, Plan 2 11-17-16 V0 | 6H, OH, Plan 1 06-16-17 V0 |
| 22HA, OH / Job #61217, Plan 4 06-09-17 V0 | 2H, OH, Plan 1 06-16-17 V0 | 5H, OH, Plan 1 06-16-17 V0 |
| 14HD, ST01 / Job #61221, Plan 4 06-09-17 V0 | 3H, OH, Plan 1 06-16-17 V0 | 1H, OH, Plan 1 06-16-17 V0 |
| 14HD, OH / Job #61221, Plan 3 05-10-17 V0 | 28H, OH, Plan 2 11-17-16 V0 | |
| 11H, OH, Plan 1 11-01-16 V0 | 6HC, OH / Job #61219, Plan 3 06-09-17 V0 | |

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 GL + KB @ 3293.00usft (Patterson 815) Coordinates are relative to: 4H

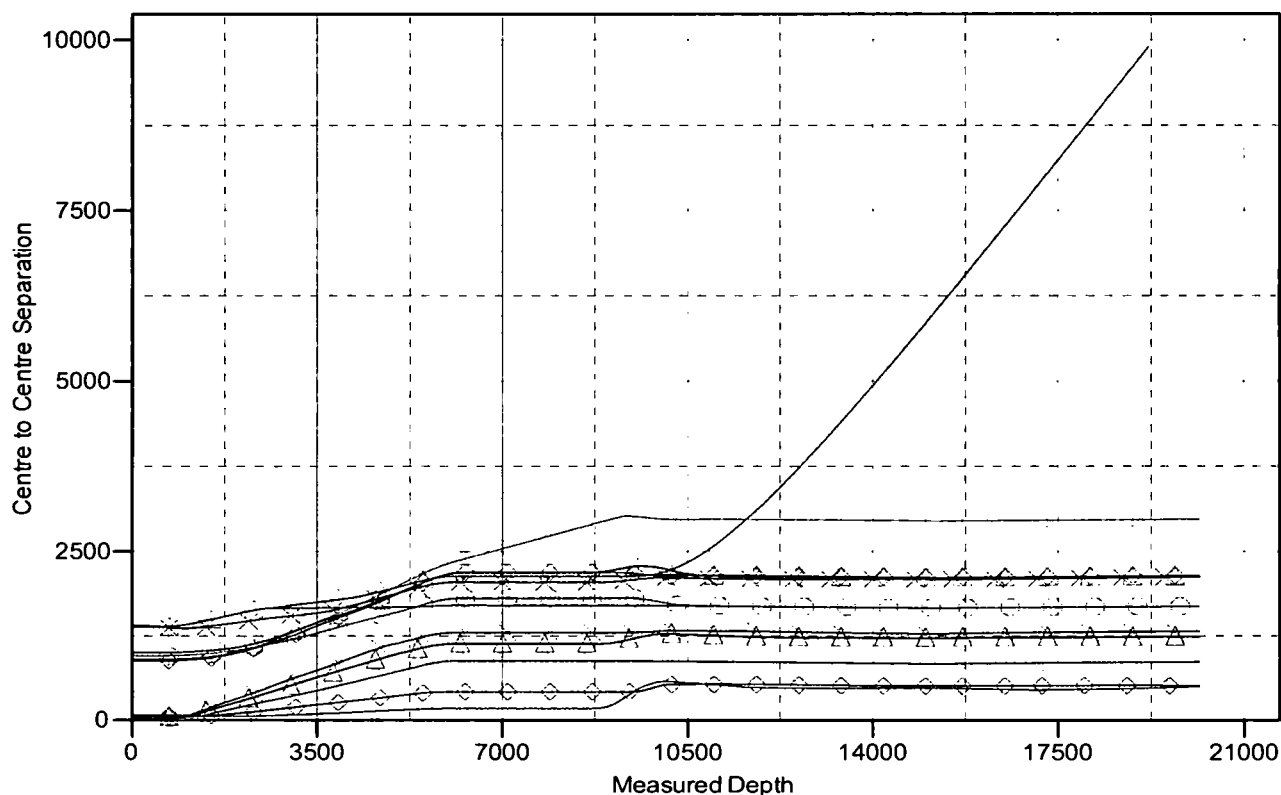
Offset Depths are relative to Offset Datum

Central Meridian is 104° 19' 60.00000 W

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.06°

Ladder Plot



LEGEND

- | | | |
|---|--|----------------------------|
| 27H, OH, Plan 2 11-17-16 V0 | 19H, OH, Plan 2 11-17-16 V0 | 6H, OH, Plan 1 06-16-17 V0 |
| 22HA, OH / Job #61217, Plan 4 06-09-17 V0 | 2H, OH, Plan 1 06-16-17 V0 | 5H, OH, Plan 1 06-16-17 V0 |
| 14HD, ST01 / Job #61221, Plan 4 06-09-17 V0 | 3H, OH, Plan 1 06-16-17 V0 | 1H, OH, Plan 1 06-16-17 V0 |
| 14HD, OH / Job #61221, Plan 3 05-10-17 V0 | 28H, OH, Plan 2 11-17-16 V0 | |
| 11H, OH, Plan 1 11-01-16 V0 | 6HC, OH / Job #61219, Plan 3 06-09-17 V0 | |

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 28H - OH - Plan 2 11-17-16													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)					
15,400.00	9,677.72	15,125.29	9,963.34	141.13	127.04	-97.76	6,113.64	-1,200.16	2,117.73	1,852.38	265.36	7.981	
15,500.00	9,679.86	15,225.29	9,965.64	143.12	128.99	-97.76	6,213.61	-1,199.78	2,118.31	1,849.02	269.29	7.866	
15,600.00	9,682.00	15,325.28	9,967.93	145.12	130.95	-97.76	6,313.58	-1,199.40	2,118.89	1,845.65	273.24	7.755	
15,700.00	9,684.13	15,425.28	9,970.22	147.12	132.91	-97.77	6,413.55	-1,199.02	2,119.46	1,842.27	277.20	7.646	
15,800.00	9,686.27	15,525.28	9,972.51	149.12	134.89	-97.77	6,513.52	-1,198.64	2,120.04	1,838.88	281.16	7.540	
15,900.00	9,688.41	15,625.28	9,974.81	151.13	136.86	-97.77	6,613.49	-1,198.27	2,120.62	1,835.48	285.14	7.437	
16,000.00	9,690.54	15,725.28	9,977.10	153.15	138.84	-97.77	6,713.46	-1,197.89	2,121.20	1,832.07	289.12	7.337	
16,100.00	9,692.68	15,825.28	9,979.39	155.16	140.83	-97.78	6,813.43	-1,197.51	2,121.77	1,828.66	293.11	7.239	
16,200.00	9,694.82	15,925.27	9,981.69	157.18	142.82	-97.78	6,913.41	-1,197.13	2,122.35	1,825.23	297.11	7.143	
16,300.00	9,696.96	16,025.27	9,983.98	159.20	144.82	-97.78	7,013.38	-1,196.75	2,122.93	1,821.80	301.12	7.050	
16,400.00	9,699.09	16,125.27	9,986.27	161.23	146.82	-97.78	7,113.35	-1,196.38	2,123.50	1,818.37	305.14	6.959	
16,500.00	9,701.23	16,225.27	9,988.56	163.26	148.82	-97.78	7,213.32	-1,196.00	2,124.08	1,814.92	309.16	6.871	
16,600.00	9,703.37	16,325.27	9,990.86	165.29	150.83	-97.79	7,313.29	-1,195.62	2,124.66	1,811.47	313.19	6.784	
16,700.00	9,705.41	16,425.27	9,993.15	167.33	152.84	-97.79	7,413.26	-1,195.24	2,125.24	1,808.02	317.22	6.700	
16,800.00	9,706.15	16,525.25	9,995.44	169.36	154.86	-97.82	7,513.22	-1,194.87	2,125.93	1,804.68	321.24	6.618	
16,900.00	9,706.84	16,625.24	9,997.73	171.40	156.88	-97.87	7,613.18	-1,194.49	2,126.62	1,801.35	325.27	6.538	
17,000.00	9,707.52	16,725.22	10,000.03	173.45	158.90	-97.91	7,713.14	-1,194.11	2,127.31	1,798.01	329.30	6.460	
17,100.00	9,708.21	16,825.21	10,002.32	175.49	160.93	-97.95	7,813.10	-1,193.73	2,128.00	1,794.67	333.33	6.384	
17,200.00	9,708.90	16,925.20	10,004.61	177.54	162.96	-97.99	7,913.06	-1,193.35	2,128.70	1,791.32	337.37	6.310	
17,300.00	9,709.58	17,025.18	10,006.90	179.59	164.99	-98.03	8,013.02	-1,192.98	2,129.39	1,787.97	341.42	6.237	
17,400.00	9,710.27	17,125.17	10,009.20	181.64	167.03	-98.07	8,112.98	-1,192.60	2,130.09	1,784.62	345.47	6.166	
17,500.00	9,710.96	17,225.15	10,011.49	183.70	169.07	-98.11	8,212.93	-1,192.22	2,130.78	1,781.26	349.52	6.096	
17,600.00	9,711.64	17,325.14	10,013.78	185.76	171.11	-98.15	8,312.89	-1,191.84	2,131.48	1,777.90	353.58	6.028	
17,700.00	9,712.33	17,425.13	10,016.07	187.82	173.15	-98.19	8,412.85	-1,191.46	2,132.18	1,774.54	357.64	5.962	
17,800.00	9,713.02	17,525.11	10,018.36	189.88	175.20	-98.23	8,512.81	-1,191.09	2,132.88	1,771.18	361.71	5.897	
17,900.00	9,713.70	17,625.10	10,020.66	191.94	177.25	-98.27	8,612.77	-1,190.71	2,133.58	1,767.81	365.77	5.833	
18,000.00	9,714.39	17,725.08	10,022.95	194.01	179.30	-98.32	8,712.73	-1,190.33	2,134.29	1,764.44	369.85	5.771	
18,100.00	9,715.07	17,825.07	10,025.24	196.07	181.36	-98.36	8,812.69	-1,189.95	2,134.99	1,761.07	373.92	5.710	
18,200.00	9,715.76	17,925.06	10,027.53	198.14	183.41	-98.40	8,912.65	-1,189.57	2,135.70	1,757.70	378.00	5.650	
18,300.00	9,716.45	18,025.04	10,029.83	200.21	185.47	-98.44	9,012.61	-1,189.20	2,136.40	1,754.32	382.08	5.591	
18,400.00	9,717.13	18,125.03	10,032.12	202.29	187.53	-98.48	9,112.57	-1,188.82	2,137.11	1,750.94	386.16	5.534	
18,500.00	9,717.82	18,225.01	10,034.41	204.36	189.60	-98.52	9,212.52	-1,188.44	2,137.82	1,747.57	390.25	5.478	
18,600.00	9,718.51	18,325.00	10,036.70	206.44	191.66	-98.56	9,312.48	-1,188.06	2,138.53	1,744.19	394.34	5.423	
18,700.00	9,719.19	18,424.99	10,039.00	208.51	193.73	-98.60	9,412.44	-1,187.68	2,139.24	1,740.80	398.43	5.369	
18,800.00	9,719.88	18,524.97	10,041.29	210.59	195.80	-98.64	9,512.40	-1,187.31	2,139.95	1,737.42	402.53	5.316	
18,900.00	9,721.19	18,624.96	10,043.58	212.67	197.87	-98.67	9,612.37	-1,186.93	2,140.57	1,733.94	406.63	5.264	
19,000.00	9,722.77	18,724.96	10,045.87	214.75	199.94	-98.69	9,712.34	-1,186.55	2,141.15	1,730.40	410.75	5.213	
19,100.00	9,724.35	18,824.96	10,048.17	216.84	202.01	-98.70	9,812.31	-1,186.17	2,141.74	1,726.87	414.87	5.162	
19,200.00	9,725.93	18,924.95	10,050.46	218.92	204.09	-98.72	9,912.28	-1,185.79	2,142.32	1,723.33	418.99	5.113	
19,300.00	9,727.51	19,024.95	10,052.75	221.01	206.16	-98.74	10,012.24	-1,185.42	2,142.90	1,719.79	423.12	5.065	
19,400.00	9,729.09	19,124.95	10,055.04	223.10	208.24	-98.75	10,112.21	-1,185.04	2,143.49	1,716.24	427.25	5.017	
19,500.00	9,730.67	19,224.94	10,057.34	225.18	210.32	-98.77	10,212.18	-1,184.66	2,144.07	1,712.70	431.37	4.970	
19,600.00	9,732.25	19,324.94	10,059.63	227.27	212.40	-98.79	10,312.15	-1,184.28	2,144.66	1,709.15	435.51	4.925	
19,700.00	9,733.83	19,424.93	10,061.92	229.36	214.49	-98.80	10,412.12	-1,183.90	2,145.24	1,705.60	439.64	4.880	
19,800.00	9,735.41	19,524.93	10,064.21	231.46	216.57	-98.82	10,512.09	-1,183.53	2,145.83	1,702.05	443.78	4.835	
19,900.00	9,736.99	19,624.93	10,066.51	233.55	218.66	-98.84	10,612.06	-1,183.15	2,146.41	1,698.50	447.91	4.792	
20,000.00	9,738.57	19,724.92	10,068.80	235.64	220.74	-98.85	10,712.03	-1,182.77	2,147.00	1,694.94	452.05	4.749	
20,100.00	9,740.15	19,824.92	10,071.09	237.74	222.83	-98.87	10,812.00	-1,182.39	2,147.58	1,691.39	456.19	4.708	
20,153.58	9,741.00	19,878.50	10,072.32	238.86	223.95	-98.88	10,865.57	-1,182.19	2,147.90	1,689.48	458.41	4.686 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 28H - OH - Plan 2 11-17-16													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)					
10,300.00	9,700.74	9,869.15	9,778.80	58.44	53.82	-92.01	909.30	-1,151.05	2,134.90	2,027.05	107.85	19.795	
10,400.00	9,696.03	9,965.00	9,843.34	59.17	54.12	-93.82	980.02	-1,151.75	2,139.19	2,030.14	109.04	19.618	
10,500.00	9,691.33	10,098.12	9,911.60	59.97	54.48	-95.79	1,093.95	-1,152.88	2,144.04	2,033.69	110.35	19.430	
10,600.00	9,686.63	10,271.21	9,958.03	60.85	55.01	-97.23	1,260.01	-1,154.53	2,147.15	2,035.27	111.87	19.193	
10,700.00	9,681.92	10,404.62	9,962.21	61.80	55.56	-97.51	1,393.23	-1,155.85	2,147.32	2,033.87	113.46	18.926	
10,800.00	9,677.22	10,504.51	9,962.14	62.82	56.08	-97.64	1,493.12	-1,156.84	2,147.22	2,032.17	115.06	18.662	
10,900.00	9,672.51	10,604.40	9,962.07	63.89	56.68	-97.76	1,593.00	-1,157.84	2,147.14	2,030.35	116.79	18.385	
11,000.00	9,667.81	10,704.29	9,962.00	65.03	57.37	-97.89	1,692.89	-1,158.83	2,147.06	2,028.41	118.65	18.096	
11,100.00	9,663.11	10,804.18	9,961.93	66.22	58.13	-98.01	1,792.77	-1,159.82	2,146.99	2,026.36	120.63	17.798	
11,200.00	9,658.40	10,904.07	9,961.86	67.45	58.97	-98.14	1,892.66	-1,160.81	2,146.93	2,024.21	122.73	17.493	
11,300.00	9,653.70	11,003.96	9,961.79	68.74	59.87	-98.26	1,992.55	-1,161.80	2,146.89	2,021.95	124.94	17.184	
11,400.00	9,649.00	11,103.85	9,961.72	70.07	60.84	-98.39	2,092.43	-1,162.80	2,146.85	2,019.60	127.25	16.871	
11,500.00	9,644.29	11,203.74	9,961.65	71.44	61.87	-98.51	2,192.32	-1,163.79	2,146.82	2,017.16	129.66	16.557	
11,600.00	9,640.05	11,303.64	9,961.58	72.85	62.95	-98.62	2,292.22	-1,164.78	2,146.74	2,014.59	132.15	16.245	
11,700.00	9,638.84	11,403.63	9,961.51	74.29	64.09	-98.65	2,392.20	-1,165.77	2,146.22	2,011.48	134.74	15.929	
11,800.00	9,638.95	11,503.63	9,961.44	75.75	65.29	-98.64	2,492.19	-1,166.77	2,145.51	2,008.08	137.43	15.611	
11,900.00	9,639.05	11,603.63	9,961.37	77.25	66.53	-98.64	2,592.19	-1,167.76	2,144.80	2,004.60	140.21	15.297	
12,000.00	9,639.15	11,703.62	9,961.30	78.78	67.82	-98.64	2,692.18	-1,168.75	2,144.10	2,001.04	143.06	14.988	
12,100.00	9,639.25	11,803.62	9,961.23	80.34	69.15	-98.64	2,792.17	-1,169.74	2,143.39	1,997.41	145.98	14.683	
12,200.00	9,639.36	11,903.62	9,961.16	81.93	70.52	-98.64	2,892.16	-1,170.74	2,142.68	1,993.71	148.97	14.383	
12,300.00	9,639.46	12,003.62	9,961.09	83.55	71.93	-98.64	2,992.16	-1,171.73	2,141.97	1,989.95	152.02	14.090	
12,400.00	9,639.56	12,103.61	9,961.02	85.19	73.38	-98.63	3,092.15	-1,172.72	2,141.26	1,986.13	155.14	13.803	
12,500.00	9,639.66	12,203.61	9,960.95	86.85	74.86	-98.63	3,192.14	-1,173.72	2,140.55	1,982.25	158.30	13.522	
12,600.00	9,639.76	12,303.61	9,960.88	88.53	76.38	-98.63	3,292.13	-1,174.71	2,139.85	1,978.32	161.52	13.248	
12,700.00	9,639.87	12,403.61	9,960.81	90.23	77.92	-98.63	3,392.13	-1,175.70	2,139.14	1,974.34	164.80	12.981	
12,800.00	9,639.97	12,503.60	9,960.74	91.96	79.49	-98.63	3,492.12	-1,176.69	2,138.43	1,970.32	168.11	12.720	
12,900.00	9,640.73	12,603.60	9,960.67	93.70	81.09	-98.60	3,592.11	-1,177.69	2,137.61	1,966.14	171.47	12.466	
13,000.00	9,642.15	12,703.58	9,960.60	95.46	82.72	-98.56	3,692.09	-1,178.68	2,136.68	1,961.80	174.89	12.218	
13,100.00	9,643.58	12,803.57	9,960.53	97.24	84.37	-98.53	3,792.07	-1,179.67	2,135.75	1,957.41	178.34	11.976	
13,200.00	9,645.00	12,903.55	9,960.46	99.03	86.04	-98.49	3,892.05	-1,180.67	2,134.83	1,952.99	181.83	11.741	
13,300.00	9,646.43	13,003.54	9,960.39	100.84	87.73	-98.45	3,992.03	-1,181.66	2,133.90	1,948.54	185.36	11.512	
13,400.00	9,647.85	13,103.53	9,960.32	102.66	89.45	-98.42	4,092.01	-1,182.65	2,132.97	1,944.05	188.92	11.290	
13,500.00	9,649.27	13,203.51	9,960.25	104.50	91.18	-98.38	4,191.99	-1,183.65	2,132.05	1,939.54	192.51	11.075	
13,600.00	9,650.70	13,303.50	9,960.18	106.34	92.93	-98.34	4,291.97	-1,184.64	2,131.13	1,934.99	196.13	10.866	
13,700.00	9,652.12	13,403.49	9,960.11	108.20	94.70	-98.31	4,391.96	-1,185.63	2,130.20	1,930.42	199.78	10.663	
13,800.00	9,653.55	13,503.47	9,960.04	110.07	96.48	-98.27	4,491.94	-1,186.62	2,129.28	1,925.83	203.46	10.466	
13,900.00	9,654.97	13,603.46	9,959.97	111.95	98.28	-98.23	4,591.92	-1,187.62	2,128.36	1,921.21	207.16	10.274	
14,000.00	9,656.40	13,703.45	9,959.90	113.84	100.09	-98.20	4,691.90	-1,188.61	2,127.44	1,916.56	210.88	10.088	
14,100.00	9,657.82	13,803.43	9,959.83	115.75	101.92	-98.16	4,791.88	-1,189.60	2,126.52	1,911.90	214.62	9.908	
14,200.00	9,659.24	13,903.42	9,959.76	117.65	103.76	-98.12	4,891.86	-1,190.60	2,125.60	1,907.21	218.39	9.733	
14,300.00	9,660.67	14,003.40	9,959.70	119.57	105.61	-98.08	4,991.84	-1,191.59	2,124.69	1,902.51	222.18	9.563	
14,400.00	9,662.09	14,103.39	9,959.63	121.50	107.47	-98.05	5,091.83	-1,192.58	2,123.77	1,897.78	225.98	9.398	
14,500.00	9,663.52	14,203.38	9,959.56	123.43	109.34	-98.01	5,191.81	-1,193.57	2,122.85	1,893.04	229.81	9.237	
14,600.00	9,664.94	14,303.36	9,959.49	125.38	111.23	-97.97	5,291.79	-1,194.57	2,121.94	1,888.29	233.65	9.082	
14,700.00	9,666.36	14,403.35	9,959.42	127.32	113.12	-97.94	5,391.77	-1,195.56	2,121.03	1,883.52	237.51	8.930	
14,800.00	9,667.79	14,503.34	9,959.35	129.28	115.02	-97.90	5,491.75	-1,196.55	2,120.11	1,878.73	241.38	8.783	
14,900.00	9,669.21	14,603.32	9,959.28	131.24	116.94	-97.86	5,591.73	-1,197.55	2,119.20	1,873.93	245.27	8.640	
15,000.00	9,670.64	14,703.31	9,959.21	133.21	118.86	-97.82	5,691.71	-1,198.54	2,118.29	1,869.11	249.18	8.501	
15,100.00	9,672.06	14,803.29	9,959.14	135.18	120.79	-97.79	5,791.70	-1,199.53	2,117.38	1,864.28	253.09	8.366	
15,196.56	9,673.58	14,900.33	9,959.07	137.10	122.67	-97.75	5,888.73	-1,200.49	2,117.01	1,860.07	256.94	8.239	
15,200.00	9,673.54	14,905.12	9,959.07	137.16	122.76	-97.75	5,893.52	-1,200.54	2,116.65	1,859.55	257.10	8.233	
15,300.00	9,675.58	15,025.29	9,961.05	139.14	125.09	-97.76	6,013.66	-1,200.53	2,117.16	1,855.73	261.43	8.098	

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 8 P5 - 28H - OH - Plan 2 11-17-16

Survey Program: 0-MWD+HDGM

Offset Site Error: 0.00 usft

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	Warning
5,200.00	5,105.97	4,820.15	4,782.22	33.31	27.64	-147.01	757.43	-978.47	1,945.01	1,889.84	55.17	35.253	
5,300.00	5,203.73	4,912.93	4,873.62	34.00	28.23	-147.47	757.34	-994.49	1,979.08	1,922.85	56.24	35.193	
5,400.00	5,301.48	5,005.72	4,965.01	34.69	28.82	-147.92	757.26	-1,010.52	2,013.27	1,955.97	57.30	35.138	
5,500.00	5,399.24	5,098.51	5,056.40	35.38	29.41	-148.37	757.18	-1,026.55	2,047.56	1,989.20	58.36	35.083	
5,600.00	5,497.37	5,191.95	5,148.44	36.05	30.01	-149.12	757.10	-1,042.69	2,080.48	2,020.88	59.61	34.904	
5,700.00	5,596.10	5,286.57	5,241.63	36.67	30.61	-149.78	757.01	-1,059.03	2,110.64	2,049.83	60.81	34.709	
5,800.00	5,695.33	5,382.24	5,335.87	37.26	31.22	-150.34	756.93	-1,075.55	2,137.96	2,075.99	61.97	34.499	
5,900.00	5,794.93	5,478.86	5,431.04	37.80	31.84	-150.81	756.84	-1,092.24	2,162.39	2,099.31	63.08	34.278	
6,000.00	5,894.77	5,619.95	5,570.10	38.30	32.73	-151.26	756.72	-1,116.02	2,183.73	2,119.36	64.38	33.920	
6,100.00	5,994.75	6,010.19	5,958.63	38.75	34.91	-151.64	756.54	-1,149.12	2,193.72	2,126.80	66.92	32.779	
6,200.00	6,094.75	6,146.31	6,094.75	39.19	35.57	-77.51	756.54	-1,149.53	2,193.83	2,125.64	68.18	32.175	
6,300.00	6,194.75	6,246.31	6,194.75	39.62	36.04	-77.51	756.54	-1,149.53	2,193.83	2,124.67	69.16	31.721	
6,400.00	6,294.75	6,346.31	6,294.75	40.06	36.52	-77.51	756.54	-1,149.53	2,193.83	2,123.69	70.14	31.278	
6,500.00	6,394.75	6,446.31	6,394.75	40.50	37.00	-77.51	756.54	-1,149.53	2,193.83	2,122.70	71.12	30.845	
6,600.00	6,494.75	6,546.31	6,494.75	40.95	37.48	-77.51	756.54	-1,149.53	2,193.83	2,121.72	72.11	30.424	
6,700.00	6,594.75	6,646.31	6,594.75	41.39	37.97	-77.51	756.54	-1,149.53	2,193.83	2,120.73	73.10	30.013	
6,800.00	6,694.75	6,746.31	6,694.75	41.84	38.45	-77.51	756.54	-1,149.53	2,193.83	2,119.74	74.09	29.612	
6,900.00	6,794.75	6,846.31	6,794.75	42.29	38.94	-77.51	756.54	-1,149.53	2,193.83	2,118.75	75.08	29.220	
7,000.00	6,894.75	6,946.31	6,894.75	42.75	39.42	-77.51	756.54	-1,149.53	2,193.83	2,117.75	76.07	28.838	
7,100.00	6,994.75	7,046.31	6,994.75	43.20	39.91	-77.51	756.54	-1,149.53	2,193.83	2,116.76	77.07	28.465	
7,200.00	7,094.75	7,146.31	7,094.75	43.66	40.40	-77.51	756.54	-1,149.53	2,193.83	2,115.76	78.07	28.101	
7,300.00	7,194.75	7,246.31	7,194.75	44.11	40.89	-77.51	756.54	-1,149.53	2,193.83	2,114.76	79.07	27.745	
7,400.00	7,294.75	7,346.31	7,294.75	44.57	41.39	-77.51	756.54	-1,149.53	2,193.83	2,113.75	80.07	27.398	
7,500.00	7,394.75	7,446.31	7,394.75	45.04	41.88	-77.51	756.54	-1,149.53	2,193.83	2,112.75	81.08	27.058	
7,600.00	7,494.75	7,546.31	7,494.75	45.50	42.37	-77.51	756.54	-1,149.53	2,193.83	2,111.74	82.08	26.726	
7,700.00	7,594.75	7,646.31	7,594.75	45.96	42.87	-77.51	756.54	-1,149.53	2,193.83	2,110.73	83.09	26.402	
7,800.00	7,694.75	7,746.31	7,694.75	46.43	43.36	-77.51	756.54	-1,149.53	2,193.83	2,109.73	84.10	26.085	
7,900.00	7,794.75	7,846.31	7,794.75	46.90	43.86	-77.51	756.54	-1,149.53	2,193.83	2,108.71	85.11	25.775	
8,000.00	7,894.75	7,946.31	7,894.75	47.37	44.36	-77.51	756.54	-1,149.53	2,193.83	2,107.70	86.13	25.472	
8,100.00	7,994.75	8,046.31	7,994.75	47.84	44.86	-77.51	756.54	-1,149.53	2,193.83	2,106.69	87.14	25.176	
8,200.00	8,094.75	8,146.31	8,094.75	48.31	45.36	-77.51	756.54	-1,149.53	2,193.83	2,105.67	88.16	24.885	
8,300.00	8,194.75	8,246.31	8,194.75	48.78	45.86	-77.51	756.54	-1,149.53	2,193.83	2,104.65	89.17	24.602	
8,400.00	8,294.75	8,346.31	8,294.75	49.26	46.36	-77.51	756.54	-1,149.53	2,193.83	2,103.63	90.19	24.324	
8,500.00	8,394.75	8,446.31	8,394.75	49.74	46.87	-77.51	756.54	-1,149.53	2,193.83	2,102.61	91.21	24.052	
8,600.00	8,494.75	8,546.31	8,494.75	50.21	47.37	-77.51	756.54	-1,149.53	2,193.83	2,101.59	92.23	23.785	
8,700.00	8,594.75	8,646.31	8,594.75	50.69	47.87	-77.51	756.54	-1,149.53	2,193.83	2,100.57	93.26	23.525	
8,800.00	8,694.75	8,746.31	8,694.75	51.17	48.38	-77.51	756.54	-1,149.53	2,193.83	2,099.55	94.28	23.269	
8,900.00	8,794.75	8,846.31	8,794.75	51.65	48.88	-77.51	756.54	-1,149.53	2,193.83	2,098.52	95.30	23.019	
9,000.00	8,894.75	8,946.31	8,894.75	52.13	49.39	-77.51	756.54	-1,149.53	2,193.83	2,097.50	96.33	22.774	
9,100.00	8,994.75	9,046.31	8,994.75	52.62	49.90	-77.51	756.54	-1,149.53	2,193.83	2,096.47	97.36	22.534	
9,200.00	9,094.75	9,146.31	9,094.75	53.10	50.40	-77.51	756.54	-1,149.53	2,193.83	2,095.44	98.38	22.298	
9,300.00	9,194.64	9,246.20	9,194.64	53.59	50.91	-76.68	756.54	-1,149.53	2,193.10	2,093.82	99.28	22.090	
9,400.00	9,292.68	9,344.23	9,292.68	54.10	51.41	-77.58	756.54	-1,149.53	2,188.76	2,088.69	100.07	21.872	
9,500.00	9,385.91	9,437.47	9,385.91	54.59	51.89	-79.19	756.54	-1,149.53	2,181.04	2,080.24	100.80	21.638	
9,600.00	9,471.51	9,489.83	9,438.22	55.07	52.15	-80.78	758.63	-1,149.55	2,171.56	2,070.17	101.39	21.418	
9,700.00	9,546.88	9,550.00	9,497.78	55.51	52.46	-82.63	766.91	-1,149.63	2,161.89	2,059.73	102.16	21.162	
9,800.00	9,609.72	9,600.00	9,546.41	55.93	52.70	-84.40	778.50	-1,149.75	2,152.58	2,049.59	102.99	20.900	
9,900.00	9,658.13	9,643.31	9,587.57	56.34	52.91	-86.02	791.94	-1,149.88	2,144.34	2,040.47	103.87	20.645	
10,000.00	9,690.63	9,694.92	9,635.12	56.78	53.14	-87.70	811.95	-1,150.08	2,137.86	2,033.03	104.84	20.392	
10,100.00	9,706.24	9,746.92	9,681.01	57.25	53.36	-89.22	836.36	-1,150.32	2,133.81	2,028.01	105.80	20.168	
10,181.91	9,708.03	9,791.61	9,718.55	57.70	53.54	-90.28	860.59	-1,150.56	2,132.73	2,026.13	106.60	20.007	
10,200.00	9,705.44	9,800.40	9,725.70	57.80	53.57	-90.53	865.70	-1,150.61	2,132.80	2,026.03	106.77	19.976	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 28H - OH - Plan 2 11-17-16												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)				
0.00	0.00	0.00	7.00	0.00	0.00	-30.50	760.17	-447.83	882.31			
100.00	100.00	93.00	100.00	0.19	0.18	-30.50	760.17	-447.83	882.28	881.90	0.37	2,361.561
200.00	200.00	193.00	200.00	0.73	0.69	-30.50	760.17	-447.83	882.28	880.85	1.42	619.175
300.00	300.00	293.00	300.00	1.27	1.23	-30.50	760.17	-447.83	882.28	879.78	2.50	352.863
400.00	400.00	393.00	400.00	1.81	1.77	-30.50	760.17	-447.83	882.28	878.70	3.58	246.739
500.00	500.00	493.00	500.00	2.34	2.31	-30.50	760.17	-447.83	882.28	877.63	4.65	189.690
600.00	600.00	593.00	600.00	2.88	2.84	-30.50	760.17	-447.83	882.28	876.55	5.73	154.067 CC
700.00	699.98	692.98	699.98	3.41	3.38	-104.74	760.17	-447.83	882.72	875.93	6.79	129.938 ES
800.00	799.84	792.84	799.84	3.94	3.92	-105.05	760.17	-447.83	884.07	876.21	7.86	112.530
900.00	899.45	892.45	899.45	4.47	4.45	-105.54	760.17	-447.83	886.38	877.45	8.93	99.298
1,000.00	998.70	991.70	998.70	5.02	4.99	-106.23	760.17	-447.83	889.74	879.73	10.01	88.919
1,100.00	1,097.47	1,090.47	1,097.47	5.59	5.52	-107.09	760.17	-447.83	894.27	883.17	11.10	80.576
1,200.00	1,195.62	1,188.62	1,195.62	6.19	6.05	-108.12	760.17	-447.83	900.14	887.94	12.21	73.734
1,300.00	1,293.38	1,286.38	1,293.38	6.80	6.57	-109.35	760.17	-447.83	907.04	893.71	13.33	68.026
1,400.00	1,391.14	1,384.14	1,391.14	7.43	7.10	-110.57	760.17	-447.83	914.38	899.91	14.47	63.188
1,500.00	1,488.90	1,481.90	1,488.90	8.07	7.62	-111.77	760.17	-447.83	922.13	906.52	15.61	59.057
1,600.00	1,586.66	1,566.13	1,573.13	8.72	8.07	-112.83	760.17	-448.59	930.88	914.20	16.68	55.799
1,700.00	1,684.42	1,646.33	1,653.27	9.38	8.49	-113.92	760.15	-451.57	941.80	924.07	17.73	53.130
1,800.00	1,782.18	1,725.37	1,732.14	10.04	8.89	-115.08	760.13	-456.69	955.01	936.25	18.76	50.901
1,900.00	1,879.94	1,800.00	1,806.45	10.70	9.28	-116.23	760.09	-463.52	970.62	950.84	19.78	49.078
2,000.00	1,977.69	1,879.62	1,885.51	11.37	9.71	-117.51	760.04	-472.94	988.66	967.84	20.82	47.491
2,100.00	2,075.45	1,954.68	1,959.77	12.04	10.11	-118.77	759.99	-483.83	1,009.23	987.39	21.84	46.217
2,200.00	2,173.21	2,036.57	2,040.49	12.72	10.56	-120.17	759.92	-497.67	1,032.20	1,009.31	22.89	45.096
2,300.00	2,270.97	2,129.36	2,131.88	13.39	11.08	-121.71	759.83	-513.69	1,056.26	1,032.27	23.99	44.032
2,400.00	2,368.73	2,222.14	2,223.27	14.07	11.61	-123.19	759.75	-529.72	1,081.07	1,055.99	25.09	43.092
2,500.00	2,466.49	2,314.93	2,314.66	14.75	12.14	-124.60	759.67	-545.75	1,106.59	1,080.40	26.19	42.259
2,600.00	2,564.25	2,407.71	2,406.05	15.43	12.68	-125.96	759.58	-561.77	1,132.76	1,105.48	27.28	41.519
2,700.00	2,662.00	2,500.50	2,497.44	16.11	13.23	-127.25	759.50	-577.80	1,159.53	1,131.16	28.38	40.862
2,800.00	2,759.76	2,593.29	2,588.83	16.79	13.78	-128.50	759.42	-593.83	1,186.88	1,157.41	29.47	40.275
2,900.00	2,857.52	2,686.07	2,680.23	17.47	14.33	-129.69	759.34	-609.85	1,214.75	1,184.20	30.56	39.751
3,000.00	2,955.28	2,778.86	2,771.62	18.16	14.89	-130.82	759.25	-625.88	1,243.12	1,211.48	31.65	39.281
3,100.00	3,053.04	2,871.64	2,863.01	18.84	15.45	-131.92	759.17	-641.91	1,271.95	1,239.22	32.73	38.860
3,200.00	3,150.80	2,964.43	2,954.40	19.53	16.02	-132.96	759.09	-657.93	1,301.21	1,267.40	33.81	38.481
3,300.00	3,248.55	3,057.22	3,045.79	20.21	16.58	-133.96	759.00	-673.96	1,330.87	1,295.98	34.89	38.139
3,400.00	3,346.31	3,150.00	3,137.18	20.90	17.15	-134.92	758.92	-689.99	1,360.91	1,324.94	35.97	37.831
3,500.00	3,444.07	3,242.79	3,228.57	21.59	17.73	-135.84	758.84	-706.01	1,391.30	1,354.25	37.05	37.552
3,600.00	3,541.83	3,335.57	3,319.96	22.27	18.30	-136.72	758.75	-722.04	1,422.01	1,383.89	38.12	37.300
3,700.00	3,639.59	3,428.36	3,411.36	22.96	18.87	-137.57	758.67	-738.07	1,453.04	1,413.84	39.20	37.070
3,800.00	3,737.35	3,521.14	3,502.75	23.65	19.45	-138.38	758.59	-754.09	1,484.35	1,444.08	40.27	36.862
3,900.00	3,835.11	3,613.93	3,594.14	24.34	20.03	-139.16	758.51	-770.12	1,515.94	1,474.60	41.34	36.672
4,000.00	3,932.86	3,706.72	3,685.53	25.03	20.61	-139.91	758.42	-786.15	1,547.77	1,505.37	42.41	36.498
4,100.00	4,030.62	3,799.50	3,776.92	25.72	21.19	-140.64	758.34	-802.17	1,579.85	1,536.38	43.47	36.340
4,200.00	4,128.38	3,892.29	3,868.31	26.41	21.77	-141.33	758.26	-818.20	1,612.15	1,567.61	44.54	36.195
4,300.00	4,226.14	3,985.07	3,959.70	27.09	22.36	-142.00	758.17	-834.23	1,644.66	1,599.06	45.61	36.062
4,400.00	4,323.90	4,077.86	4,051.09	27.78	22.94	-142.64	758.09	-850.25	1,677.37	1,630.70	46.67	35.940
4,500.00	4,421.66	4,170.65	4,142.49	28.47	23.52	-143.26	758.01	-866.28	1,710.27	1,662.54	47.74	35.828
4,600.00	4,519.42	4,263.43	4,233.88	29.16	24.11	-143.85	757.93	-882.31	1,743.35	1,694.55	48.80	35.725
4,700.00	4,617.17	4,356.22	4,325.27	29.85	24.70	-144.43	757.84	-898.33	1,776.59	1,726.73	49.86	35.630
4,800.00	4,714.93	4,449.00	4,416.66	30.54	25.28	-144.98	757.76	-914.36	1,809.99	1,759.07	50.93	35.542
4,900.00	4,812.69	4,541.79	4,508.05	31.23	25.87	-145.51	757.68	-930.39	1,843.54	1,791.55	51.99	35.461
5,000.00	4,910.45	4,634.58	4,599.44	31.93	26.46	-146.03	757.59	-946.41	1,877.23	1,824.18	53.05	35.386
5,100.00	5,008.21	4,727.36	4,690.83	32.62	27.05	-146.53	757.51	-962.44	1,911.06	1,856.95	54.11	35.317

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 27H - OH - Plan 2 11-17-16													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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,400.00	9,677.72	15,138.42	9,938.31	141.13	129.85	-95.08	6,118.21	-2,040.05	2,949.81	2,683.46	266.35	11.075		
15,500.00	9,679.86	15,238.42	9,940.31	143.12	131.76	-95.07	6,218.19	-2,039.67	2,950.36	2,680.06	270.29	10.915		
15,600.00	9,682.00	15,338.42	9,942.30	145.12	133.67	-95.07	6,318.17	-2,039.29	2,950.90	2,676.66	274.25	10.760		
15,700.00	9,684.13	15,438.41	9,944.30	147.12	135.59	-95.07	6,418.14	-2,038.91	2,951.45	2,673.24	278.21	10.609		
15,800.00	9,686.27	15,538.41	9,946.30	149.12	137.52	-95.06	6,518.12	-2,038.53	2,951.99	2,669.81	282.18	10.461		
15,900.00	9,688.41	15,638.41	9,948.30	151.13	139.46	-95.06	6,618.10	-2,038.15	2,952.54	2,666.38	286.16	10.318		
16,000.00	9,690.54	15,738.41	9,950.30	153.15	141.40	-95.05	6,718.08	-2,037.77	2,953.08	2,662.93	290.15	10.178		
16,100.00	9,692.68	15,838.41	9,952.30	155.16	143.35	-95.05	6,818.05	-2,037.39	2,953.63	2,659.48	294.14	10.041		
16,200.00	9,694.82	15,938.41	9,954.30	157.18	145.30	-95.05	6,918.03	-2,037.01	2,954.17	2,656.02	298.15	9.908		
16,300.00	9,696.96	16,038.40	9,956.29	159.20	147.26	-95.04	7,018.01	-2,036.63	2,954.71	2,652.55	302.17	9.778		
16,400.00	9,699.09	16,138.40	9,958.29	161.23	149.23	-95.04	7,117.99	-2,036.25	2,955.26	2,649.07	306.19	9.652		
16,500.00	9,701.23	16,238.40	9,960.29	163.26	151.20	-95.04	7,217.97	-2,035.87	2,955.80	2,645.59	310.22	9.528		
16,600.00	9,703.37	16,338.40	9,962.29	165.29	153.17	-95.03	7,317.94	-2,035.49	2,956.35	2,642.10	314.25	9.408		
16,700.00	9,705.41	16,438.40	9,964.29	167.33	155.15	-95.03	7,417.92	-2,035.11	2,956.90	2,638.60	318.29	9.290		
16,800.00	9,706.15	16,538.39	9,966.29	169.36	157.14	-95.05	7,517.89	-2,034.73	2,957.48	2,635.15	322.33	9.175		
16,900.00	9,708.84	16,638.38	9,968.29	171.40	159.13	-95.07	7,617.86	-2,034.35	2,958.07	2,631.70	326.37	9.064		
17,000.00	9,707.52	16,738.37	9,970.28	173.45	161.12	-95.10	7,717.83	-2,033.97	2,958.66	2,628.24	330.42	8.954		
17,100.00	9,708.21	16,838.36	9,972.28	175.49	163.12	-95.12	7,817.80	-2,033.59	2,959.25	2,624.77	334.47	8.848		
17,200.00	9,708.90	16,938.35	9,974.28	177.54	165.12	-95.15	7,917.77	-2,033.21	2,959.84	2,621.30	338.53	8.743		
17,300.00	9,709.58	17,038.34	9,976.28	179.59	167.12	-95.17	8,017.74	-2,032.83	2,960.43	2,617.83	342.60	8.641		
17,400.00	9,710.27	17,138.33	9,978.28	181.64	169.13	-95.20	8,117.71	-2,032.45	2,961.02	2,614.35	346.67	8.541		
17,500.00	9,710.96	17,238.32	9,980.28	183.70	171.14	-95.22	8,217.68	-2,032.07	2,961.61	2,610.87	350.74	8.444		
17,600.00	9,711.64	17,338.31	9,982.27	185.76	173.16	-95.24	8,317.65	-2,031.69	2,962.20	2,607.38	354.82	8.348		
17,700.00	9,712.33	17,438.30	9,984.27	187.82	175.17	-95.27	8,417.62	-2,031.31	2,962.79	2,603.89	358.90	8.255		
17,800.00	9,713.02	17,538.29	9,986.27	189.88	177.20	-95.29	8,517.59	-2,030.93	2,963.38	2,600.39	362.99	8.164		
17,900.00	9,713.70	17,638.28	9,988.27	191.94	179.22	-95.32	8,617.56	-2,030.55	2,963.98	2,596.89	367.09	8.074		
18,000.00	9,714.39	17,738.27	9,990.27	194.01	181.25	-95.34	8,717.53	-2,030.17	2,964.57	2,593.39	371.18	7.987		
18,100.00	9,715.07	17,838.26	9,992.27	196.07	183.28	-95.37	8,817.50	-2,029.79	2,965.17	2,589.88	375.28	7.901		
18,200.00	9,715.76	17,938.25	9,994.27	198.14	185.31	-95.39	8,917.46	-2,029.41	2,965.76	2,586.38	379.39	7.817		
18,300.00	9,716.45	18,038.24	9,996.26	200.21	187.35	-95.42	9,017.43	-2,029.03	2,966.36	2,582.86	383.49	7.735		
18,400.00	9,717.13	18,138.23	9,998.26	202.29	189.39	-95.44	9,117.40	-2,028.65	2,966.95	2,579.35	387.60	7.655		
18,500.00	9,717.82	18,238.22	10,000.26	204.36	191.43	-95.46	9,217.37	-2,028.27	2,967.55	2,575.83	391.72	7.576		
18,600.00	9,718.51	18,338.21	10,002.26	206.44	193.47	-95.49	9,317.34	-2,027.89	2,968.15	2,572.31	395.84	7.498		
18,700.00	9,719.19	18,438.20	10,004.26	208.51	195.51	-95.51	9,417.31	-2,027.51	2,968.74	2,568.79	399.96	7.423		
18,800.00	9,719.88	18,538.19	10,006.26	210.59	197.56	-95.54	9,517.28	-2,027.13	2,969.34	2,565.26	404.08	7.348		
18,900.00	9,721.19	18,638.19	10,008.25	212.67	199.61	-95.55	9,617.26	-2,026.75	2,969.88	2,561.66	408.22	7.275		
19,000.00	9,722.77	18,738.19	10,010.25	214.75	201.67	-95.56	9,717.23	-2,026.37	2,970.40	2,558.04	412.36	7.203		
19,100.00	9,724.35	18,838.19	10,012.25	216.84	203.72	-95.57	9,817.21	-2,025.99	2,970.92	2,554.41	416.51	7.133		
19,200.00	9,725.93	18,938.18	10,014.25	218.92	205.78	-95.57	9,917.19	-2,025.61	2,971.44	2,550.78	420.65	7.064		
19,300.00	9,727.51	19,038.18	10,016.25	221.01	207.83	-95.58	10,017.17	-2,025.23	2,971.95	2,547.15	424.80	6.996		
19,400.00	9,729.09	19,138.18	10,018.25	223.10	209.90	-95.59	10,117.14	-2,024.85	2,972.47	2,543.52	428.95	6.930		
19,500.00	9,730.67	19,238.18	10,020.25	225.18	211.96	-95.60	10,217.12	-2,024.47	2,972.99	2,539.89	433.10	6.864		
19,600.00	9,732.25	19,338.18	10,022.24	227.27	214.02	-95.60	10,317.10	-2,024.09	2,973.51	2,536.25	437.26	6.800		
19,700.00	9,733.83	19,438.17	10,024.24	229.36	216.09	-95.61	10,417.08	-2,023.71	2,974.02	2,532.61	441.42	6.737		
19,800.00	9,735.41	19,538.17	10,026.24	231.46	218.15	-95.62	10,517.05	-2,023.33	2,974.54	2,528.96	445.58	6.676		
19,900.00	9,736.99	19,638.17	10,028.24	233.55	220.22	-95.62	10,617.03	-2,022.95	2,975.06	2,525.32	449.74	6.615		
20,000.00	9,738.57	19,738.17	10,030.24	235.64	222.29	-95.63	10,717.01	-2,022.57	2,975.58	2,521.67	453.91	6.555		
20,100.00	9,740.15	19,838.17	10,032.24	237.74	224.37	-95.64	10,816.98	-2,022.19	2,976.10	2,518.02	458.07	6.497		
20,153.58	9,741.00	19,891.75	10,033.31	238.86	225.48	-95.64	10,870.55	-2,021.98	2,976.37	2,516.07	460.31	6.466 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 27H - OH - Plan 2 11-17-16													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)					
10,300.00	9,700.74	9,929.63	9,730.40	58.44	61.66	-90.56	955.14	-1,991.19	2,971.76	2,861.95	109.80	27.064	
10,400.00	9,696.03	10,013.22	9,785.16	59.17	61.88	-91.67	1,018.20	-1,991.82	2,972.84	2,861.91	110.92	26.801	
10,500.00	9,691.33	10,122.93	9,842.08	59.97	62.13	-92.86	1,111.79	-1,992.76	2,974.76	2,862.58	112.18	26.518	
10,600.00	9,686.63	10,260.93	9,886.71	60.85	62.42	-93.83	1,242.01	-1,994.06	2,976.38	2,862.76	113.62	26.196	
10,700.00	9,681.92	10,402.62	9,899.46	61.80	62.78	-94.20	1,382.82	-1,995.47	2,976.59	2,861.37	115.22	25.834	
10,800.00	9,677.22	10,502.47	9,900.22	62.82	63.11	-94.31	1,482.66	-1,996.47	2,976.29	2,859.49	116.80	25.483	
10,900.00	9,672.51	10,602.32	9,900.99	63.89	63.52	-94.42	1,582.50	-1,997.47	2,976.00	2,857.49	118.51	25.113	
11,000.00	9,667.81	10,702.17	9,901.76	65.03	64.00	-94.52	1,682.34	-1,998.46	2,975.72	2,855.38	120.34	24.727	
11,100.00	9,663.11	10,802.02	9,902.52	66.22	64.57	-94.63	1,782.18	-1,999.46	2,975.45	2,853.15	122.30	24.329	
11,200.00	9,658.40	10,901.86	9,903.29	67.45	65.21	-94.73	1,882.02	-2,000.46	2,975.19	2,850.82	124.37	23.922	
11,300.00	9,653.70	11,001.71	9,904.06	68.74	65.93	-94.84	1,981.86	-2,001.46	2,974.94	2,848.38	126.56	23.507	
11,400.00	9,649.00	11,101.56	9,904.82	70.07	66.72	-94.95	2,081.70	-2,002.46	2,974.70	2,845.86	128.85	23.087	
11,500.00	9,644.29	11,201.41	9,905.59	71.44	67.58	-95.05	2,181.54	-2,003.46	2,974.47	2,843.24	131.23	22.665	
11,600.00	9,640.05	11,301.28	9,906.36	72.85	68.51	-95.15	2,281.40	-2,004.46	2,974.21	2,840.50	133.72	22.243	
11,700.00	9,638.84	11,401.25	9,907.12	74.29	69.51	-95.18	2,381.36	-2,005.46	2,973.70	2,837.40	136.30	21.817	
11,800.00	9,638.95	11,501.25	9,907.89	75.75	70.56	-95.19	2,481.35	-2,006.46	2,973.08	2,834.12	138.97	21.394	
11,900.00	9,639.05	11,601.24	9,908.66	77.25	71.67	-95.20	2,581.34	-2,007.46	2,972.46	2,830.75	141.72	20.974	
12,000.00	9,639.15	11,701.24	9,909.43	78.78	72.83	-95.22	2,681.33	-2,008.46	2,971.84	2,827.30	144.54	20.560	
12,100.00	9,639.25	11,801.23	9,910.20	80.34	74.04	-95.23	2,781.31	-2,009.46	2,971.22	2,823.78	147.44	20.152	
12,200.00	9,639.36	11,901.23	9,910.96	81.93	75.30	-95.25	2,881.30	-2,010.46	2,970.61	2,820.20	150.41	19.750	
12,300.00	9,639.46	12,001.22	9,911.73	83.55	76.60	-95.26	2,981.29	-2,011.46	2,969.99	2,816.55	153.44	19.356	
12,400.00	9,639.56	12,101.22	9,912.50	85.19	77.94	-95.27	3,081.28	-2,012.46	2,969.37	2,812.84	156.53	18.970	
12,500.00	9,639.66	12,201.21	9,913.27	86.85	79.31	-95.29	3,181.26	-2,013.46	2,968.75	2,809.07	159.68	18.592	
12,600.00	9,639.76	12,301.21	9,914.04	88.53	80.73	-95.30	3,281.25	-2,014.46	2,968.13	2,805.25	162.88	18.223	
12,700.00	9,639.87	12,401.21	9,914.80	90.23	82.18	-95.32	3,381.24	-2,015.46	2,967.51	2,801.38	166.13	17.862	
12,800.00	9,639.97	12,501.20	9,915.57	91.96	83.66	-95.33	3,481.23	-2,016.46	2,966.89	2,797.46	169.43	17.511	
12,900.00	9,640.73	12,601.20	9,916.34	93.70	85.17	-95.33	3,581.21	-2,017.46	2,966.20	2,793.41	172.79	17.167	
13,000.00	9,642.15	12,701.19	9,917.11	95.46	86.71	-95.31	3,681.20	-2,018.46	2,965.44	2,789.25	176.18	16.831	
13,100.00	9,643.58	12,801.19	9,917.88	97.24	88.27	-95.30	3,781.19	-2,019.46	2,964.67	2,785.05	179.62	16.505	
13,200.00	9,645.00	12,901.18	9,918.64	99.03	89.86	-95.29	3,881.18	-2,020.46	2,963.91	2,780.81	183.10	16.188	
13,300.00	9,646.43	13,001.18	9,919.41	100.84	91.48	-95.28	3,981.16	-2,021.46	2,963.14	2,776.53	186.61	15.879	
13,400.00	9,647.85	13,101.17	9,920.18	102.66	93.12	-95.27	4,081.15	-2,022.46	2,962.38	2,772.23	190.15	15.579	
13,500.00	9,649.27	13,201.17	9,920.95	104.50	94.77	-95.26	4,181.14	-2,023.46	2,961.61	2,767.89	193.73	15.287	
13,600.00	9,650.70	13,301.16	9,921.71	106.34	96.45	-95.25	4,281.13	-2,024.46	2,960.85	2,763.52	197.33	15.004	
13,700.00	9,652.12	13,401.16	9,922.48	108.20	98.15	-95.23	4,381.11	-2,025.46	2,960.09	2,759.12	200.97	14.729	
13,800.00	9,653.55	13,501.15	9,923.25	110.07	99.87	-95.22	4,481.10	-2,026.46	2,959.32	2,754.69	204.63	14.462	
13,900.00	9,654.97	13,601.15	9,924.02	111.95	101.60	-95.21	4,581.09	-2,027.46	2,958.56	2,750.24	208.32	14.202	
14,000.00	9,656.40	13,701.15	9,924.79	113.84	103.35	-95.20	4,681.08	-2,028.46	2,957.80	2,745.77	212.03	13.950	
14,100.00	9,657.82	13,801.14	9,925.55	115.75	105.11	-95.19	4,781.06	-2,029.46	2,957.03	2,741.27	215.76	13.705	
14,200.00	9,659.24	13,901.14	9,926.32	117.65	106.89	-95.18	4,881.05	-2,030.46	2,956.27	2,736.76	219.52	13.467	
14,300.00	9,660.67	14,001.13	9,927.09	119.57	108.69	-95.17	4,981.04	-2,031.46	2,955.51	2,732.22	223.29	13.236	
14,400.00	9,662.09	14,101.13	9,927.86	121.50	110.49	-95.15	5,081.03	-2,032.46	2,954.74	2,727.66	227.09	13.012	
14,500.00	9,663.52	14,201.12	9,928.63	123.43	112.31	-95.14	5,181.01	-2,033.46	2,953.98	2,723.08	230.90	12.793	
14,600.00	9,664.94	14,301.12	9,929.39	125.38	114.14	-95.13	5,281.00	-2,034.46	2,953.22	2,718.49	234.73	12.581	
14,700.00	9,666.36	14,401.11	9,930.16	127.32	115.98	-95.12	5,380.99	-2,035.46	2,952.46	2,713.88	238.58	12.375	
14,800.00	9,667.79	14,501.11	9,930.93	129.28	117.84	-95.11	5,480.98	-2,036.46	2,951.69	2,709.25	242.44	12.175	
14,900.00	9,669.21	14,601.10	9,931.70	131.24	119.70	-95.10	5,580.96	-2,037.46	2,950.93	2,704.61	246.32	11.980	
15,000.00	9,670.64	14,701.10	9,932.47	133.21	121.57	-95.09	5,680.95	-2,038.46	2,950.17	2,699.95	250.22	11.791	
15,100.00	9,672.06	14,801.09	9,933.23	135.18	123.46	-95.07	5,780.94	-2,039.46	2,949.41	2,695.28	254.12	11.606	
15,188.50	9,673.44	14,889.59	9,933.91	136.94	125.13	-95.07	5,869.42	-2,040.34	2,949.17	2,691.66	257.51	11.453	
15,200.00	9,673.54	14,901.09	9,934.00	137.16	125.35	-95.07	5,880.92	-2,040.46	2,948.84	2,690.89	257.95	11.432	
15,300.00	9,675.58	15,038.42	9,936.31	139.14	127.95	-95.08	6,018.23	-2,040.43	2,949.27	2,686.84	262.43	11.238	

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 8 P5 - 27H - OH - Plan 2 11-17-16												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	
5,200.00	5,105.97	4,738.81	4,680.53	33.31	28.18	-146.64	786.48	-1,074.10	2,062.16	2,007.28	54.88	37.573	
5,300.00	5,203.73	4,829.99	4,769.60	34.00	28.81	-147.11	786.52	-1,093.58	2,099.98	2,044.04	55.94	37.540	
5,400.00	5,301.48	4,921.17	4,858.67	34.69	29.43	-147.56	786.56	-1,113.06	2,137.93	2,080.93	57.00	37.511	
5,500.00	5,399.24	5,012.35	4,947.75	35.38	30.06	-148.01	786.60	-1,132.54	2,175.98	2,117.93	58.06	37.481	
5,600.00	5,497.37	5,104.25	5,037.53	36.05	30.69	-148.82	786.64	-1,152.17	2,212.69	2,153.40	59.30	37.316	
5,700.00	5,596.10	5,197.45	5,128.58	36.67	31.34	-149.53	786.69	-1,172.08	2,246.70	2,186.19	60.50	37.134	
5,800.00	5,695.33	5,291.85	5,220.80	37.26	31.99	-150.14	786.73	-1,192.25	2,277.92	2,216.24	61.67	36.937	
5,900.00	5,794.93	5,387.32	5,314.07	37.80	32.65	-150.66	786.77	-1,212.64	2,306.29	2,243.49	62.79	36.728	
6,000.00	5,894.77	5,483.75	5,408.27	38.30	33.31	-151.10	786.81	-1,233.24	2,331.76	2,267.89	63.87	36.508	
6,100.00	5,994.75	5,581.02	5,503.30	38.75	33.99	-151.46	786.86	-1,254.02	2,354.28	2,289.39	64.89	36.284	
6,200.00	6,094.75	5,678.71	5,598.74	39.19	34.66	-77.44	786.90	-1,274.89	2,375.16	2,309.14	66.02	35.979	
6,300.00	6,194.75	5,776.41	5,694.17	39.62	35.34	-77.55	786.94	-1,295.76	2,396.05	2,329.01	67.04	35.741	
6,400.00	6,294.75	5,874.10	5,789.61	40.06	36.02	-77.66	786.99	-1,316.63	2,416.94	2,348.88	68.06	35.510	
6,500.00	6,394.75	5,971.79	5,885.04	40.50	36.69	-77.77	787.03	-1,337.50	2,437.85	2,368.76	69.09	35.284	
6,600.00	6,494.75	6,069.48	5,980.48	40.95	37.37	-77.87	787.07	-1,358.37	2,458.76	2,388.64	70.12	35.064	
6,700.00	6,594.75	6,167.17	6,075.92	41.39	38.05	-77.97	787.12	-1,379.24	2,479.68	2,408.53	71.15	34.850	
6,800.00	6,694.75	6,264.86	6,171.35	41.84	38.73	-78.08	787.16	-1,400.11	2,500.61	2,428.42	72.19	34.640	
6,900.00	6,794.75	6,362.56	6,266.79	42.29	39.41	-78.17	787.20	-1,420.98	2,521.54	2,448.32	73.22	34.436	
7,000.00	6,894.75	6,460.25	6,362.23	42.75	40.09	-78.27	787.25	-1,441.85	2,542.48	2,468.22	74.26	34.237	
7,100.00	6,994.75	6,557.94	6,457.66	43.20	40.77	-78.37	787.29	-1,462.72	2,563.43	2,488.13	75.30	34.043	
7,200.00	7,094.75	6,655.63	6,553.10	43.66	41.45	-78.46	787.34	-1,483.59	2,584.39	2,508.05	76.34	33.854	
7,300.00	7,194.75	6,753.32	6,648.53	44.11	42.13	-78.56	787.38	-1,504.46	2,605.35	2,527.97	77.38	33.669	
7,400.00	7,294.75	6,851.01	6,743.97	44.57	42.81	-78.65	787.42	-1,525.33	2,626.32	2,547.89	78.43	33.488	
7,500.00	7,394.75	6,948.70	6,839.41	45.04	43.49	-78.74	787.47	-1,546.19	2,647.29	2,567.82	79.47	33.311	
7,600.00	7,494.75	7,046.40	6,934.84	45.50	44.17	-78.83	787.51	-1,567.06	2,668.27	2,587.75	80.52	33.139	
7,700.00	7,594.75	7,144.09	7,030.28	45.96	44.85	-78.91	787.55	-1,587.93	2,689.26	2,607.69	81.57	32.970	
7,800.00	7,694.75	7,241.78	7,125.72	46.43	45.53	-79.00	787.60	-1,608.80	2,710.25	2,627.64	82.62	32.806	
7,900.00	7,794.75	7,339.47	7,221.15	46.90	46.21	-79.08	787.64	-1,629.67	2,731.25	2,647.58	83.67	32.645	
8,000.00	7,894.75	7,437.16	7,316.59	47.37	46.89	-79.17	787.68	-1,650.54	2,752.25	2,667.54	84.72	32.487	
8,100.00	7,994.75	7,534.85	7,412.03	47.84	47.57	-79.25	787.73	-1,671.41	2,773.26	2,687.49	85.77	32.333	
8,200.00	8,094.75	7,632.55	7,507.46	48.31	48.26	-79.33	787.77	-1,692.28	2,794.28	2,707.45	86.83	32.183	
8,300.00	8,194.75	7,730.24	7,602.90	48.78	48.94	-79.41	787.81	-1,713.15	2,815.30	2,727.42	87.88	32.035	
8,400.00	8,294.75	7,827.93	7,698.33	49.26	49.62	-79.49	787.86	-1,734.02	2,836.32	2,747.39	88.94	31.891	
8,500.00	8,394.75	7,925.62	7,793.77	49.74	50.30	-79.56	787.90	-1,754.89	2,857.35	2,767.36	90.00	31.750	
8,600.00	8,494.75	8,023.31	7,889.21	50.21	50.98	-79.64	787.95	-1,775.76	2,878.39	2,787.34	91.05	31.612	
8,700.00	8,594.75	8,121.00	7,984.64	50.69	51.67	-79.72	787.99	-1,796.63	2,899.43	2,807.32	92.11	31.477	
8,800.00	8,694.75	8,218.69	8,080.08	51.17	52.35	-79.79	788.03	-1,817.50	2,920.47	2,827.30	93.17	31.344	
8,900.00	8,794.75	8,316.39	8,175.52	51.65	53.03	-79.86	788.08	-1,838.37	2,941.52	2,847.29	94.24	31.215	
9,000.00	8,894.75	8,414.08	8,270.95	52.13	53.72	-79.93	788.12	-1,859.24	2,962.58	2,867.28	95.30	31.088	
9,100.00	8,994.75	8,511.77	8,366.39	52.62	54.40	-80.00	788.16	-1,880.11	2,983.63	2,887.27	96.36	30.963	
9,200.00	9,094.75	8,609.46	8,461.83	53.10	55.08	-80.07	788.21	-1,900.98	3,004.70	2,907.27	97.42	30.841	
9,300.00	9,194.64	9,349.45	9,194.64	53.59	59.40	-79.50	788.39	-1,989.52	3,023.99	2,922.15	101.85	29.692	
9,400.00	9,292.68	9,447.49	9,292.68	54.10	59.82	-80.18	788.39	-1,989.52	3,020.56	2,917.80	102.76	29.395	
9,500.00	9,385.91	9,513.57	9,358.75	54.59	60.11	-81.18	789.31	-1,989.53	3,014.69	2,911.24	103.44	29.143	
9,600.00	9,471.51	9,563.76	9,408.66	55.07	60.32	-82.26	794.34	-1,989.58	3,007.83	2,903.77	104.06	28.904	
9,700.00	9,546.88	9,613.96	9,457.97	55.51	60.54	-83.47	803.72	-1,989.68	3,000.47	2,895.74	104.73	28.650	
9,800.00	9,609.72	9,664.19	9,506.28	55.93	60.74	-84.77	817.39	-1,989.81	2,993.03	2,887.57	105.46	28.380	
9,900.00	9,658.13	9,714.45	9,553.24	56.34	60.94	-86.09	835.24	-1,989.99	2,986.01	2,879.75	106.26	28.101	
10,000.00	9,690.63	9,764.76	9,598.50	56.78	61.13	-87.39	857.17	-1,990.21	2,979.89	2,872.80	107.09	27.825	
10,100.00	9,706.24	9,815.13	9,641.72	57.25	61.31	-88.60	883.01	-1,990.47	2,975.18	2,867.25	107.94	27.564	
10,200.00	9,705.44	9,866.34	9,683.16	57.80	61.48	-89.62	913.07	-1,990.77	2,972.38	2,863.57	108.81	27.317	
10,280.92	9,701.63	9,916.17	9,720.75	58.31	61.63	-90.37	945.76	-1,991.10	2,971.72	2,862.11	109.61	27.112	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 27H - OH - Plan 2 11-17-16												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	
0.00	0.00	0.00	7.00	0.00	0.00	-29.70	785.17	-447.83	903.93				
100.00	100.00	93.00	100.00	0.19	0.18	-29.70	785.17	-447.83	903.91	903.53	0.37	2,419.455	
200.00	200.00	193.00	200.00	0.73	0.69	-29.70	785.17	-447.83	903.91	902.48	1.42	634.354	
300.00	300.00	293.00	300.00	1.27	1.23	-29.70	785.17	-447.83	903.91	901.41	2.50	361.514	
400.00	400.00	393.00	400.00	1.81	1.77	-29.70	785.17	-447.83	903.91	900.33	3.58	252.788	
500.00	500.00	493.00	500.00	2.34	2.31	-29.70	785.17	-447.83	903.91	899.26	4.65	194.340	
600.00	600.00	593.00	600.00	2.88	2.84	-29.70	785.17	-447.83	903.91	898.18	5.73	157.844 CC	
700.00	699.98	692.98	699.98	3.41	3.38	-103.94	785.17	-447.83	904.33	897.53	6.79	133.119 ES	
800.00	799.84	792.84	799.84	3.94	3.92	-104.23	785.17	-447.83	905.60	897.75	7.86	115.271	
900.00	899.45	892.45	899.45	4.47	4.45	-104.72	785.17	-447.83	907.79	898.86	8.93	101.696	
1,000.00	998.70	991.70	998.70	5.02	4.99	-105.40	785.17	-447.83	910.98	900.97	10.01	91.039	
1,100.00	1,097.47	1,090.47	1,097.47	5.59	5.52	-106.25	785.17	-447.83	915.29	904.19	11.10	82.464	
1,200.00	1,195.62	1,188.62	1,195.62	6.19	6.05	-107.26	785.17	-447.83	920.89	908.68	12.21	75.422	
1,300.00	1,293.38	1,286.38	1,293.38	6.80	6.57	-108.47	785.17	-447.83	927.48	914.14	13.34	69.544	
1,400.00	1,391.14	1,384.14	1,391.14	7.43	7.10	-109.67	785.17	-447.83	934.50	920.02	14.47	64.560	
1,500.00	1,488.90	1,481.90	1,488.90	8.07	7.62	-110.85	785.17	-447.83	941.94	926.32	15.62	60.303	
1,600.00	1,586.66	1,566.03	1,573.03	8.72	8.07	-111.89	785.18	-448.59	950.35	933.66	16.69	56.943	
1,700.00	1,684.42	1,646.11	1,653.05	9.38	8.48	-112.97	785.18	-451.55	960.92	943.18	17.73	54.185	
1,800.00	1,782.18	1,725.04	1,731.81	10.04	8.89	-114.10	785.19	-456.66	973.75	954.98	18.77	51.874	
1,900.00	1,879.94	1,800.00	1,806.45	10.70	9.28	-115.25	785.21	-463.52	988.95	969.16	19.79	49.971	
2,000.00	1,977.69	1,879.08	1,884.97	11.37	9.70	-116.51	785.23	-472.87	1,006.57	985.74	20.83	48.320	
2,100.00	2,075.45	1,954.04	1,959.14	12.04	10.11	-117.75	785.25	-483.73	1,026.69	1,004.84	21.85	46.984	
2,200.00	2,173.21	2,027.54	2,031.57	12.72	10.51	-119.01	785.27	-496.26	1,049.35	1,026.49	22.86	45.895	
2,300.00	2,270.97	2,100.00	2,102.62	13.39	10.92	-120.27	785.30	-510.43	1,074.59	1,050.72	23.87	45.018	
2,400.00	2,368.73	2,185.83	2,186.48	14.07	11.42	-121.76	785.34	-528.72	1,101.93	1,076.99	24.94	44.179	
2,500.00	2,466.49	2,277.01	2,275.55	14.75	11.96	-123.28	785.38	-548.20	1,130.14	1,104.10	26.04	43.407	
2,600.00	2,564.25	2,368.18	2,364.63	15.43	12.50	-124.73	785.42	-567.67	1,159.12	1,131.99	27.13	42.727	
2,700.00	2,662.00	2,459.36	2,453.70	16.11	13.06	-126.12	785.46	-587.15	1,188.81	1,160.59	28.22	42.128	
2,800.00	2,759.76	2,550.54	2,542.77	16.79	13.62	-127.44	785.50	-606.63	1,219.17	1,189.86	29.31	41.598	
2,900.00	2,857.52	2,641.72	2,631.85	17.47	14.19	-128.70	785.55	-626.11	1,250.13	1,219.74	30.39	41.130	
3,000.00	2,955.28	2,732.90	2,720.92	18.16	14.77	-129.91	785.59	-645.59	1,281.67	1,250.19	31.48	40.716	
3,100.00	3,053.04	2,824.07	2,809.99	18.84	15.35	-131.06	785.63	-665.06	1,313.73	1,281.17	32.56	40.349	
3,200.00	3,150.80	2,915.25	2,899.07	19.53	15.94	-132.16	785.67	-684.54	1,346.28	1,312.64	33.64	40.023	
3,300.00	3,248.55	3,006.43	2,988.14	20.21	16.53	-133.21	785.71	-704.02	1,379.28	1,344.57	34.71	39.733	
3,400.00	3,346.31	3,097.61	3,077.21	20.90	17.12	-134.22	785.75	-723.50	1,412.71	1,376.92	35.79	39.474	
3,500.00	3,444.07	3,188.79	3,166.29	21.59	17.72	-135.18	785.79	-742.98	1,446.53	1,409.67	36.86	39.244	
3,600.00	3,541.83	3,279.96	3,255.36	22.27	18.32	-136.10	785.83	-762.46	1,480.72	1,442.79	37.93	39.039	
3,700.00	3,639.59	3,371.14	3,344.43	22.96	18.92	-136.98	785.87	-781.93	1,515.25	1,476.25	39.00	38.855	
3,800.00	3,737.35	3,462.32	3,433.50	23.65	19.53	-137.82	785.91	-801.41	1,550.10	1,510.04	40.06	38.691	
3,900.00	3,835.11	3,553.50	3,522.58	24.34	20.14	-138.63	785.95	-820.89	1,585.25	1,544.12	41.13	38.544	
4,000.00	3,932.86	3,644.68	3,611.65	25.03	20.75	-139.40	785.99	-840.37	1,620.67	1,578.48	42.19	38.413	
4,100.00	4,030.62	3,735.85	3,700.72	25.72	21.36	-140.14	786.03	-859.85	1,656.36	1,613.10	43.25	38.295	
4,200.00	4,128.38	3,827.03	3,789.80	26.41	21.97	-140.86	786.07	-879.32	1,692.29	1,647.97	44.31	38.189	
4,300.00	4,226.14	3,918.21	3,878.87	27.09	22.59	-141.54	786.11	-898.80	1,728.45	1,683.07	45.37	38.094	
4,400.00	4,323.90	4,009.39	3,967.94	27.78	23.21	-142.20	786.16	-918.28	1,764.82	1,718.39	46.43	38.009	
4,500.00	4,421.66	4,100.57	4,057.02	28.47	23.82	-142.83	786.20	-937.76	1,801.39	1,753.90	47.49	37.932	
4,600.00	4,519.42	4,191.74	4,146.09	29.16	24.44	-143.44	786.24	-957.24	1,838.16	1,789.61	48.55	37.863	
4,700.00	4,617.17	4,282.92	4,235.16	29.85	25.06	-144.02	786.28	-976.71	1,875.10	1,825.50	49.60	37.801	
4,800.00	4,714.93	4,374.10	4,324.24	30.54	25.69	-144.59	786.32	-996.19	1,912.21	1,861.55	50.66	37.745	
4,900.00	4,812.69	4,465.28	4,413.31	31.23	26.31	-145.13	786.36	-1,015.67	1,949.49	1,897.77	51.72	37.695	
5,000.00	4,910.45	4,556.45	4,502.38	31.93	26.93	-145.65	786.40	-1,035.15	1,986.91	1,934.13	52.77	37.650	
5,100.00	5,008.21	4,647.63	4,591.46	32.62	27.56	-146.15	786.44	-1,054.63	2,024.47	1,970.64	53.83	37.609	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 19H - OH - Plan 2 11-17-16												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)	
15,500.00	9,679.86	14,701.37	9,599.11	143.12	126.09	-87.25	6,219.58	-779.63	1,680.76	1,412.77	267.99	6.272
15,600.00	9,682.00	14,801.37	9,600.41	145.12	128.06	-87.23	6,319.57	-779.26	1,681.36	1,409.40	271.96	6.182
15,700.00	9,684.13	14,901.36	9,601.72	147.12	130.04	-87.20	6,419.55	-778.88	1,681.96	1,406.02	275.94	6.095
15,800.00	9,686.27	15,001.36	9,603.02	149.12	132.03	-87.17	6,519.54	-778.51	1,682.57	1,402.64	279.93	6.011
15,900.00	9,688.41	15,101.35	9,604.32	151.13	134.02	-87.14	6,619.52	-778.13	1,683.17	1,399.24	283.93	5.928
16,000.00	9,690.54	15,201.35	9,605.62	153.15	136.01	-87.12	6,719.51	-777.76	1,683.78	1,395.84	287.93	5.848
16,100.00	9,692.68	15,301.34	9,606.92	155.16	138.02	-87.09	6,819.49	-777.38	1,684.38	1,392.43	291.95	5.769
16,200.00	9,694.82	15,401.34	9,608.22	157.18	140.02	-87.06	6,919.48	-777.00	1,684.99	1,389.02	295.97	5.693
16,300.00	9,696.96	15,501.33	9,609.52	159.20	142.03	-87.03	7,019.47	-776.63	1,685.59	1,385.59	300.00	5.619
16,400.00	9,699.09	15,601.33	9,610.82	161.23	144.04	-87.01	7,119.45	-776.25	1,686.20	1,382.16	304.04	5.546
16,500.00	9,701.23	15,701.32	9,612.12	163.26	146.06	-86.98	7,219.44	-775.88	1,686.81	1,378.73	308.08	5.475
16,600.00	9,703.37	15,801.32	9,613.43	165.29	148.08	-86.95	7,319.42	-775.50	1,687.41	1,375.28	312.13	5.406
16,700.00	9,705.41	15,901.31	9,614.73	167.33	150.11	-86.92	7,419.41	-775.13	1,688.01	1,371.83	316.18	5.339
16,800.00	9,706.15	16,001.31	9,616.03	169.36	152.14	-86.94	7,519.40	-774.75	1,688.46	1,368.21	320.25	5.272
16,900.00	9,706.84	16,101.31	9,617.33	171.40	154.17	-86.96	7,619.39	-774.38	1,688.91	1,364.57	324.33	5.207
17,000.00	9,707.52	16,201.30	9,618.63	173.45	156.20	-86.99	7,719.37	-774.00	1,689.35	1,360.93	328.42	5.144
17,100.00	9,708.21	16,301.30	9,619.93	175.49	158.24	-87.01	7,819.36	-773.63	1,689.80	1,357.28	332.51	5.082
17,200.00	9,708.90	16,401.30	9,621.23	177.54	160.28	-87.03	7,919.35	-773.25	1,690.24	1,353.63	336.61	5.021
17,300.00	9,709.58	16,501.29	9,622.53	179.59	162.33	-87.05	8,019.34	-772.87	1,690.69	1,349.97	340.72	4.962
17,400.00	9,710.27	16,601.29	9,623.84	181.64	164.38	-87.07	8,119.32	-772.50	1,691.14	1,346.31	344.83	4.904
17,500.00	9,710.96	16,701.29	9,625.14	183.70	166.43	-87.09	8,219.31	-772.12	1,691.58	1,342.64	348.94	4.848
17,600.00	9,711.64	16,801.29	9,626.44	185.76	168.48	-87.12	8,319.30	-771.75	1,692.03	1,338.97	353.06	4.792
17,700.00	9,712.33	16,901.28	9,627.74	187.82	170.53	-87.14	8,419.29	-771.37	1,692.48	1,335.29	357.18	4.738
17,800.00	9,713.02	17,001.28	9,629.04	189.88	172.59	-87.16	8,519.28	-771.00	1,692.92	1,331.61	361.31	4.685
17,900.00	9,713.70	17,101.28	9,630.34	191.94	174.65	-87.18	8,619.26	-770.62	1,693.37	1,327.93	365.44	4.634
18,000.00	9,714.39	17,201.27	9,631.64	194.01	176.71	-87.20	8,719.25	-770.25	1,693.82	1,324.24	369.58	4.583
18,100.00	9,715.07	17,301.27	9,632.94	196.07	178.78	-87.22	8,819.24	-769.87	1,694.27	1,320.55	373.72	4.533
18,200.00	9,715.76	17,401.27	9,634.25	198.14	180.84	-87.24	8,919.23	-769.50	1,694.72	1,316.85	377.87	4.485
18,300.00	9,716.45	17,501.26	9,635.55	200.21	182.91	-87.27	9,019.21	-769.12	1,695.16	1,313.15	382.01	4.437
18,400.00	9,717.13	17,601.26	9,636.85	202.29	184.98	-87.29	9,119.20	-768.74	1,695.61	1,309.45	386.17	4.391
18,500.00	9,717.82	17,701.26	9,638.15	204.36	187.05	-87.31	9,219.19	-768.37	1,696.06	1,305.74	390.32	4.345
18,600.00	9,718.51	17,801.25	9,639.45	206.44	189.13	-87.33	9,319.18	-767.99	1,696.51	1,302.03	394.48	4.301
18,700.00	9,719.19	17,901.25	9,640.75	208.51	191.20	-87.35	9,419.17	-767.62	1,696.96	1,298.32	398.64	4.257
18,800.00	9,719.88	18,001.25	9,642.05	210.59	193.28	-87.37	9,519.15	-767.24	1,697.41	1,294.60	402.81	4.214
18,900.00	9,721.19	18,101.25	9,643.35	212.67	195.36	-87.38	9,619.14	-766.87	1,697.89	1,290.92	406.97	4.172
19,000.00	9,722.77	18,201.25	9,644.66	214.75	197.44	-87.37	9,719.13	-766.49	1,698.39	1,287.26	411.13	4.131
19,100.00	9,724.35	18,301.24	9,645.96	216.84	199.52	-87.36	9,819.12	-766.12	1,698.88	1,283.59	415.29	4.091
19,200.00	9,725.93	18,401.24	9,647.26	218.92	201.60	-87.35	9,919.11	-765.74	1,699.38	1,279.92	419.46	4.051
19,300.00	9,727.51	18,501.24	9,648.56	221.01	203.69	-87.34	10,019.10	-765.37	1,699.88	1,276.25	423.63	4.013
19,400.00	9,729.09	18,601.24	9,649.86	223.10	205.77	-87.33	10,119.09	-764.99	1,700.37	1,272.57	427.80	3.975
19,500.00	9,730.67	18,701.24	9,651.16	225.18	207.86	-87.32	10,219.08	-764.61	1,700.87	1,268.89	431.98	3.937
19,600.00	9,732.25	18,801.24	9,652.46	227.27	209.95	-87.32	10,319.07	-764.24	1,701.37	1,265.21	436.15	3.901
19,700.00	9,733.83	18,901.23	9,653.76	229.36	212.04	-87.31	10,419.06	-763.86	1,701.86	1,261.53	440.33	3.865
19,800.00	9,735.41	19,001.23	9,655.07	231.46	214.13	-87.30	10,519.05	-763.49	1,702.36	1,257.85	444.51	3.830
19,900.00	9,736.99	19,101.23	9,656.37	233.55	216.23	-87.29	10,619.03	-763.11	1,702.86	1,254.16	448.70	3.795
20,000.00	9,738.57	19,201.23	9,657.67	235.64	218.32	-87.28	10,719.02	-762.74	1,703.35	1,250.47	452.88	3.761
20,100.00	9,740.15	19,301.23	9,658.97	237.74	220.42	-87.27	10,819.01	-762.36	1,703.85	1,246.78	457.07	3.728
20,153.58	9,741.00	19,354.81	9,659.67	238.86	221.54	-87.27	10,872.59	-762.16	1,704.12	1,244.80	459.32	3.710 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 19H - OH - Plan 2 11-17-16												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)	
10,400.00	9,696.03	9,650.00	9,526.15	59.17	50.84	-84.48	1,178.04	-733.70	1,721.39	1,614.93	106.46	16.169
10,500.00	9,691.33	9,723.28	9,554.82	59.97	51.19	-85.53	1,245.43	-734.37	1,716.50	1,608.56	107.93	15.903
10,600.00	9,686.63	9,800.00	9,575.36	60.85	51.56	-86.33	1,319.28	-735.10	1,713.43	1,604.01	109.42	15.660
10,700.00	9,681.92	9,884.19	9,586.34	61.80	51.98	-86.83	1,402.67	-735.93	1,711.64	1,600.70	110.94	15.429
10,800.00	9,677.22	9,978.75	9,587.39	62.82	52.48	-87.01	1,497.21	-736.87	1,710.61	1,598.07	112.54	15.200
10,900.00	9,672.51	10,078.63	9,587.57	63.89	53.08	-87.17	1,597.09	-737.87	1,709.65	1,595.36	114.29	14.959
11,000.00	9,667.81	10,178.51	9,587.74	65.03	53.76	-87.34	1,696.96	-738.86	1,708.70	1,592.52	116.18	14.708
11,100.00	9,663.11	10,278.39	9,587.91	66.22	54.51	-87.50	1,796.83	-739.86	1,707.77	1,589.58	118.19	14.449
11,200.00	9,658.40	10,378.27	9,588.09	67.45	55.34	-87.66	1,896.71	-740.85	1,706.85	1,586.52	120.33	14.185
11,300.00	9,653.70	10,478.15	9,588.26	68.74	56.24	-87.82	1,996.58	-741.84	1,705.94	1,583.36	122.58	13.917
11,400.00	9,649.00	10,578.02	9,588.44	70.07	57.20	-87.99	2,096.45	-742.84	1,705.05	1,580.11	124.94	13.647
11,500.00	9,644.29	10,677.90	9,588.61	71.44	58.23	-88.15	2,196.33	-743.83	1,704.17	1,576.76	127.41	13.376
11,600.00	9,640.05	10,777.80	9,588.79	72.85	59.31	-88.29	2,296.22	-744.82	1,703.32	1,573.35	129.97	13.105
11,700.00	9,638.84	10,877.78	9,588.96	74.29	60.46	-88.32	2,396.20	-745.82	1,702.59	1,569.98	132.61	12.839
11,800.00	9,638.95	10,977.78	9,589.13	75.75	61.66	-88.32	2,496.19	-746.81	1,701.90	1,566.58	135.31	12.577
11,900.00	9,639.05	11,077.78	9,589.31	77.25	62.91	-88.32	2,596.18	-747.81	1,701.21	1,563.10	138.10	12.318
12,000.00	9,639.15	11,177.78	9,589.48	78.78	64.21	-88.33	2,696.18	-748.80	1,700.52	1,559.54	140.97	12.063
12,100.00	9,639.25	11,277.78	9,589.66	80.34	65.56	-88.33	2,796.17	-749.80	1,699.83	1,555.91	143.92	11.811
12,200.00	9,639.36	11,377.77	9,589.83	81.93	66.94	-88.33	2,896.16	-750.79	1,699.14	1,552.21	146.93	11.564
12,300.00	9,639.46	11,477.77	9,590.01	83.55	68.37	-88.33	2,996.15	-751.79	1,698.45	1,548.44	150.00	11.323
12,400.00	9,639.56	11,577.77	9,590.18	85.19	69.84	-88.33	3,096.15	-752.78	1,697.76	1,544.61	153.14	11.086
12,500.00	9,639.66	11,677.77	9,590.36	86.85	71.34	-88.33	3,196.14	-753.78	1,697.07	1,540.73	156.34	10.855
12,600.00	9,639.76	11,777.76	9,590.53	88.53	72.87	-88.34	3,296.13	-754.77	1,696.38	1,536.79	159.59	10.630
12,700.00	9,639.87	11,877.76	9,590.71	90.23	74.44	-88.34	3,396.12	-755.77	1,695.69	1,532.80	162.89	10.410
12,800.00	9,639.97	11,977.76	9,590.88	91.96	76.03	-88.34	3,496.12	-756.76	1,694.99	1,528.76	166.24	10.196
12,900.00	9,640.73	12,077.75	9,591.05	93.70	77.65	-88.31	3,596.11	-757.76	1,694.31	1,524.69	169.62	9.989
13,000.00	9,642.15	12,177.74	9,591.23	95.46	79.30	-88.27	3,696.09	-758.75	1,693.64	1,520.58	173.06	9.787
13,100.00	9,643.58	12,277.73	9,591.40	97.24	80.97	-88.23	3,796.07	-759.75	1,692.96	1,516.44	176.53	9.590
13,200.00	9,645.00	12,377.72	9,591.58	99.03	82.66	-88.19	3,896.06	-760.74	1,692.29	1,512.26	180.03	9.400
13,300.00	9,646.43	12,477.71	9,591.75	100.84	84.38	-88.14	3,996.04	-761.74	1,691.62	1,508.05	183.57	9.215
13,400.00	9,647.85	12,577.70	9,591.93	102.66	86.11	-88.10	4,096.03	-762.73	1,690.95	1,503.80	187.15	9.035
13,500.00	9,649.27	12,677.69	9,592.10	104.50	87.87	-88.06	4,196.01	-763.73	1,690.28	1,499.53	190.75	8.861
13,600.00	9,650.70	12,777.68	9,592.28	106.34	89.64	-88.01	4,296.00	-764.72	1,689.61	1,495.22	194.39	8.692
13,700.00	9,652.12	12,877.67	9,592.45	108.20	91.43	-87.97	4,395.98	-765.72	1,688.94	1,490.89	198.05	8.528
13,800.00	9,653.55	12,977.66	9,592.63	110.07	93.23	-87.93	4,495.97	-766.71	1,688.28	1,486.54	201.74	8.369
13,900.00	9,654.97	13,077.65	9,592.80	111.95	95.05	-87.88	4,595.95	-767.71	1,687.61	1,482.16	205.45	8.214
14,000.00	9,656.40	13,177.64	9,592.97	113.84	96.88	-87.84	4,695.94	-768.70	1,686.95	1,477.76	209.19	8.064
14,100.00	9,657.82	13,277.63	9,593.15	115.75	98.73	-87.80	4,795.92	-769.70	1,686.28	1,473.34	212.95	7.919
14,200.00	9,659.24	13,377.62	9,593.32	117.65	100.59	-87.75	4,895.90	-770.69	1,685.62	1,468.90	216.72	7.778
14,300.00	9,660.67	13,477.61	9,593.50	119.57	102.46	-87.71	4,995.89	-771.69	1,684.96	1,464.44	220.52	7.641
14,400.00	9,662.09	13,577.60	9,593.67	121.50	104.34	-87.67	5,095.87	-772.68	1,684.30	1,459.96	224.34	7.508
14,500.00	9,663.52	13,677.59	9,593.85	123.43	106.23	-87.62	5,195.86	-773.68	1,683.64	1,455.46	228.17	7.379
14,600.00	9,664.94	13,777.58	9,594.02	125.38	108.14	-87.58	5,295.84	-774.67	1,682.98	1,450.95	232.02	7.253
14,700.00	9,666.36	13,877.57	9,594.20	127.32	110.05	-87.54	5,395.83	-775.67	1,682.32	1,446.43	235.89	7.132
14,800.00	9,667.79	13,977.56	9,594.37	129.28	111.97	-87.49	5,495.81	-776.66	1,681.66	1,441.89	239.77	7.014
14,900.00	9,669.21	14,077.55	9,594.54	131.24	113.90	-87.45	5,595.80	-777.66	1,681.01	1,437.34	243.67	6.899
15,000.00	9,670.64	14,177.54	9,594.72	133.21	115.84	-87.40	5,695.78	-778.65	1,680.35	1,432.77	247.58	6.787
15,100.00	9,672.06	14,277.53	9,594.89	135.18	117.78	-87.36	5,795.77	-779.65	1,679.70	1,428.20	251.50	6.679
15,200.00	9,673.54	14,386.66	9,595.13	137.16	119.91	-87.32	5,904.90	-780.68	1,679.21	1,423.48	255.73	6.566
15,208.95	9,673.69	14,403.54	9,595.26	137.34	120.24	-87.32	5,921.78	-780.72	1,679.19	1,422.94	256.25	6.553
15,300.00	9,675.58	14,501.38	9,596.51	139.14	122.15	-87.31	6,019.61	-780.38	1,679.55	1,419.47	260.08	6.458
15,400.00	9,677.72	14,601.38	9,597.81	141.13	124.12	-87.28	6,119.59	-780.01	1,680.15	1,416.12	264.03	6.364

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 19H - OH - Plan 2 11-17-16												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
5,200.00	5,105.97	4,995.30	4,994.59	33.31	26.66	-141.41	856.72	-669.81	1,660.07	1,603.68	56.39	29.437
5,300.00	5,203.73	5,091.45	5,090.51	34.00	27.19	-141.92	857.37	-676.49	1,683.37	1,625.90	57.48	29.288
5,400.00	5,301.48	5,187.61	5,186.43	34.69	27.72	-142.41	858.02	-683.17	1,706.79	1,648.24	58.56	29.147
5,500.00	5,399.24	5,283.76	5,282.34	35.38	28.25	-142.90	858.67	-689.85	1,730.34	1,670.69	59.64	29.012
5,600.00	5,497.37	5,380.39	5,378.74	36.05	28.78	-143.60	859.32	-696.56	1,752.56	1,691.71	60.85	28.801
5,700.00	5,596.10	5,477.86	5,475.97	36.67	29.32	-144.19	859.98	-703.33	1,772.12	1,710.11	62.02	28.575
5,800.00	5,695.33	5,576.04	5,573.91	37.26	29.86	-144.68	860.64	-710.15	1,788.95	1,725.82	63.13	28.336
5,900.00	5,794.93	5,674.81	5,672.45	37.80	30.41	-145.05	861.31	-717.02	1,803.00	1,738.80	64.20	28.085
6,000.00	5,894.77	5,781.19	5,778.56	38.30	31.00	-145.34	862.02	-724.38	1,814.22	1,748.98	65.24	27.806
6,100.00	5,994.75	5,997.51	5,994.75	38.75	32.15	-145.51	862.62	-730.56	1,818.13	1,751.32	66.80	27.215
6,200.00	6,094.75	6,097.51	6,094.75	39.19	32.67	-71.37	862.62	-730.56	1,818.13	1,750.25	67.88	26.785
6,300.00	6,194.75	6,197.51	6,194.75	39.62	33.19	-71.37	862.62	-730.56	1,818.13	1,749.26	68.87	26.400
6,400.00	6,294.75	6,297.51	6,294.75	40.06	33.71	-71.37	862.62	-730.56	1,818.13	1,748.27	69.86	26.024
6,500.00	6,394.75	6,397.51	6,394.75	40.50	34.23	-71.37	862.62	-730.56	1,818.13	1,747.27	70.86	25.659
6,600.00	6,494.75	6,497.51	6,494.75	40.95	34.75	-71.37	862.62	-730.56	1,818.13	1,746.28	71.86	25.302
6,700.00	6,594.75	6,597.51	6,594.75	41.39	35.27	-71.37	862.62	-730.56	1,818.13	1,745.28	72.86	24.955
6,800.00	6,694.75	6,697.51	6,694.75	41.84	35.79	-71.37	862.62	-730.56	1,818.13	1,744.27	73.86	24.617
6,900.00	6,794.75	6,797.51	6,794.75	42.29	36.31	-71.37	862.62	-730.56	1,818.13	1,743.27	74.86	24.286
7,000.00	6,894.75	6,897.51	6,894.75	42.75	36.83	-71.37	862.62	-730.56	1,818.13	1,742.26	75.87	23.964
7,100.00	6,994.75	6,997.51	6,994.75	43.20	37.36	-71.37	862.62	-730.56	1,818.13	1,741.26	76.88	23.650
7,200.00	7,094.75	7,097.51	7,094.75	43.66	37.88	-71.37	862.62	-730.56	1,818.13	1,740.25	77.88	23.344
7,300.00	7,194.75	7,197.51	7,194.75	44.11	38.40	-71.37	862.62	-730.56	1,818.13	1,739.24	78.90	23.045
7,400.00	7,294.75	7,297.51	7,294.75	44.57	38.93	-71.37	862.62	-730.56	1,818.13	1,738.22	79.91	22.753
7,500.00	7,394.75	7,397.51	7,394.75	45.04	39.45	-71.37	862.62	-730.56	1,818.13	1,737.21	80.92	22.467
7,600.00	7,494.75	7,497.51	7,494.75	45.50	39.97	-71.37	862.62	-730.56	1,818.13	1,736.19	81.94	22.189
7,700.00	7,594.75	7,597.51	7,594.75	45.96	40.50	-71.37	862.62	-730.56	1,818.13	1,735.18	82.96	21.917
7,800.00	7,694.75	7,697.51	7,694.75	46.43	41.02	-71.37	862.62	-730.56	1,818.13	1,734.16	83.97	21.651
7,900.00	7,794.75	7,797.51	7,794.75	46.90	41.55	-71.37	862.62	-730.56	1,818.13	1,733.14	84.99	21.391
8,000.00	7,894.75	7,897.51	7,894.75	47.37	42.08	-71.37	862.62	-730.56	1,818.13	1,732.12	86.02	21.137
8,100.00	7,994.75	7,997.51	7,994.75	47.84	42.60	-71.37	862.62	-730.56	1,818.13	1,731.09	87.04	20.889
8,200.00	8,094.75	8,097.51	8,094.75	48.31	43.13	-71.37	862.62	-730.56	1,818.13	1,730.07	88.06	20.646
8,300.00	8,194.75	8,197.51	8,194.75	48.78	43.65	-71.37	862.62	-730.56	1,818.13	1,729.05	89.09	20.408
8,400.00	8,294.75	8,297.51	8,294.75	49.26	44.18	-71.37	862.62	-730.56	1,818.13	1,728.02	90.11	20.176
8,500.00	8,394.75	8,397.51	8,394.75	49.74	44.71	-71.37	862.62	-730.56	1,818.13	1,726.99	91.14	19.949
8,600.00	8,494.75	8,497.51	8,494.75	50.21	45.24	-71.37	862.62	-730.56	1,818.13	1,725.96	92.17	19.726
8,700.00	8,594.75	8,597.51	8,594.75	50.69	45.76	-71.37	862.62	-730.56	1,818.13	1,724.93	93.20	19.508
8,800.00	8,694.75	8,697.51	8,694.75	51.17	46.29	-71.37	862.62	-730.56	1,818.13	1,723.90	94.23	19.295
8,900.00	8,794.75	8,797.51	8,794.75	51.65	46.82	-71.37	862.62	-730.56	1,818.13	1,722.87	95.26	19.086
9,000.00	8,894.75	8,897.51	8,894.75	52.13	47.35	-71.37	862.62	-730.56	1,818.13	1,721.84	96.29	18.881
9,100.00	8,994.75	8,997.51	8,994.75	52.62	47.88	-71.37	862.62	-730.56	1,818.13	1,720.81	97.33	18.681
9,200.00	9,094.75	9,050.00	9,047.22	53.10	48.15	-71.35	863.57	-730.57	1,819.06	1,720.96	98.11	18.541
9,300.00	9,194.64	9,100.00	9,096.95	53.59	48.42	-70.11	868.61	-730.62	1,821.67	1,723.00	98.67	18.462
9,400.00	9,292.68	9,150.00	9,146.05	54.10	48.68	-70.09	877.97	-730.71	1,821.65	1,722.71	98.94	18.412
9,500.00	9,385.91	9,200.00	9,194.15	54.59	48.93	-70.51	891.57	-730.85	1,818.53	1,719.58	98.95	18.379
9,600.00	9,471.51	9,250.00	9,240.88	55.07	49.17	-71.34	909.31	-731.02	1,812.46	1,713.59	98.86	18.333
9,700.00	9,546.88	9,300.00	9,285.88	55.51	49.40	-72.57	931.06	-731.24	1,803.72	1,704.81	98.90	18.237
9,800.00	9,609.72	9,350.00	9,328.82	55.93	49.62	-74.17	956.64	-731.49	1,792.72	1,693.46	99.26	18.061
9,900.00	9,658.13	9,400.00	9,369.36	56.34	49.83	-76.10	985.87	-731.79	1,780.03	1,680.01	100.03	17.796
10,000.00	9,690.63	9,450.00	9,407.21	56.78	50.02	-78.28	1,018.53	-732.11	1,766.32	1,665.14	101.18	17.458
10,100.00	9,706.24	9,500.00	9,442.06	57.25	50.21	-80.63	1,054.35	-732.47	1,752.36	1,649.78	102.58	17.084
10,200.00	9,705.44	9,538.19	9,466.50	57.80	50.36	-82.37	1,083.69	-732.76	1,739.08	1,635.24	103.84	16.747
10,300.00	9,700.74	9,591.71	9,497.35	58.44	50.58	-83.45	1,127.40	-733.19	1,728.73	1,623.61	105.12	16.445

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 19H - OH - Plan 2 11-17-16													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	
0.00	0.00	0.00	7.00	0.00	0.00	-28.20	835.17	-447.83	947.69				
100.00	100.00	93.00	100.00	0.19	0.18	-28.20	835.17	-447.83	947.66	947.29	0.37	2,536.575	
200.00	200.00	193.00	200.00	0.73	0.69	-28.20	835.17	-447.83	947.66	946.24	1.42	665.062	
300.00	300.00	293.00	300.00	1.27	1.23	-28.20	835.17	-447.83	947.66	945.16	2.50	379.014	
400.00	400.00	393.00	400.00	1.81	1.77	-28.20	835.17	-447.83	947.66	944.09	3.58	265.025	
500.00	500.00	493.00	500.00	2.34	2.31	-28.20	835.17	-447.83	947.66	943.01	4.65	203.747	
600.00	600.00	593.00	600.00	2.88	2.84	-28.20	835.17	-447.83	947.66	941.94	5.73	165.485 CC	
700.00	699.98	692.98	699.98	3.41	3.38	-102.44	835.17	-447.83	948.04	941.24	6.79	139.554 ES	
800.00	799.84	792.84	799.84	3.94	3.92	-102.72	835.17	-447.83	949.18	941.32	7.86	120.819	
900.00	899.45	892.45	899.45	4.47	4.45	-103.20	835.17	-447.83	951.14	942.21	8.93	106.552	
1,000.00	998.70	991.70	998.70	5.02	4.99	-103.85	835.17	-447.83	954.01	944.00	10.01	95.335	
1,100.00	1,097.47	1,090.47	1,097.47	5.59	5.52	-104.67	835.17	-447.83	957.91	946.81	11.10	86.291	
1,200.00	1,195.62	1,188.62	1,195.62	6.19	6.05	-105.65	835.17	-447.83	962.99	950.77	12.21	78.849	
1,300.00	1,293.38	1,286.38	1,293.38	6.80	6.57	-106.82	835.17	-447.83	968.99	955.65	13.34	72.628	
1,400.00	1,391.14	1,384.14	1,391.14	7.43	7.10	-107.98	835.17	-447.83	975.42	960.94	14.48	67.352	
1,500.00	1,488.90	1,481.90	1,488.90	8.07	7.62	-109.12	835.17	-447.83	982.25	966.62	15.63	62.843	
1,600.00	1,586.66	1,579.66	1,586.66	8.72	8.15	-110.25	835.17	-447.83	989.49	972.71	16.78	58.958	
1,700.00	1,684.42	1,677.42	1,684.42	9.38	8.68	-111.36	835.17	-447.83	997.12	979.18	17.94	55.585	
1,800.00	1,782.18	1,760.37	1,767.36	10.04	9.11	-112.32	835.23	-448.46	1,005.68	986.67	19.01	52.900	
1,900.00	1,879.94	1,838.02	1,844.97	10.70	9.52	-113.29	835.49	-451.14	1,016.49	996.44	20.05	50.694	
2,000.00	1,977.69	1,918.44	1,925.23	11.37	9.94	-114.35	835.97	-456.06	1,029.61	1,008.51	21.10	48.794	
2,100.00	2,075.45	2,014.59	2,021.15	12.04	10.44	-115.62	836.62	-462.74	1,043.89	1,021.66	22.23	46.961	
2,200.00	2,173.21	2,110.74	2,117.07	12.72	10.95	-116.86	837.27	-469.42	1,058.68	1,035.32	23.35	45.331	
2,300.00	2,270.97	2,206.90	2,212.98	13.39	11.45	-118.07	837.92	-476.10	1,073.97	1,049.49	24.48	43.872	
2,400.00	2,368.73	2,303.05	2,308.90	14.07	11.96	-119.25	838.57	-482.78	1,089.74	1,064.14	25.60	42.561	
2,500.00	2,466.49	2,399.20	2,404.82	14.75	12.48	-120.39	839.21	-489.46	1,105.97	1,079.24	26.73	41.379	
2,600.00	2,564.25	2,495.35	2,500.74	15.43	12.99	-121.50	839.86	-496.13	1,122.63	1,094.78	27.85	40.311	
2,700.00	2,662.00	2,591.50	2,596.65	16.11	13.51	-122.58	840.51	-502.81	1,139.72	1,110.75	28.97	39.343	
2,800.00	2,759.76	2,687.66	2,692.57	16.79	14.03	-123.63	841.16	-509.49	1,157.20	1,127.12	30.09	38.462	
2,900.00	2,857.52	2,783.81	2,788.49	17.47	14.54	-124.65	841.81	-516.17	1,175.07	1,143.87	31.20	37.659	
3,000.00	2,955.28	2,879.96	2,884.41	18.16	15.06	-125.64	842.46	-522.85	1,193.30	1,160.98	32.32	36.926	
3,100.00	3,053.04	2,976.11	2,980.32	18.84	15.59	-126.60	843.11	-529.53	1,211.88	1,178.45	33.43	36.254	
3,200.00	3,150.80	3,072.26	3,076.24	19.53	16.11	-127.53	843.75	-536.21	1,230.79	1,196.26	34.54	35.637	
3,300.00	3,248.55	3,168.42	3,172.16	20.21	16.63	-128.43	844.40	-542.89	1,250.02	1,214.38	35.64	35.069	
3,400.00	3,346.31	3,264.57	3,268.08	20.90	17.15	-129.31	845.05	-549.57	1,269.56	1,232.81	36.75	34.546	
3,500.00	3,444.07	3,360.72	3,363.99	21.59	17.68	-130.16	845.70	-556.25	1,289.38	1,251.53	37.85	34.062	
3,600.00	3,541.83	3,456.87	3,459.91	22.27	18.20	-130.99	846.35	-562.93	1,309.48	1,270.53	38.96	33.615	
3,700.00	3,639.59	3,553.02	3,555.83	22.96	18.73	-131.79	847.00	-569.61	1,329.85	1,289.79	40.05	33.201	
3,800.00	3,737.35	3,649.17	3,651.75	23.65	19.25	-132.57	847.64	-576.29	1,350.46	1,309.31	41.15	32.816	
3,900.00	3,835.11	3,745.33	3,747.66	24.34	19.78	-133.33	848.29	-582.97	1,371.32	1,329.07	42.25	32.458	
4,000.00	3,932.86	3,841.48	3,843.58	25.03	20.31	-134.07	848.94	-589.65	1,392.40	1,349.06	43.34	32.124	
4,100.00	4,030.62	3,937.63	3,939.50	25.72	20.84	-134.78	849.59	-596.33	1,413.71	1,369.27	44.44	31.813	
4,200.00	4,128.38	4,033.78	4,035.42	26.41	21.36	-135.47	850.24	-603.01	1,435.22	1,389.69	45.53	31.523	
4,300.00	4,226.14	4,129.93	4,131.33	27.09	21.89	-136.15	850.89	-609.69	1,456.94	1,410.32	46.62	31.251	
4,400.00	4,323.90	4,226.09	4,227.25	27.78	22.42	-136.80	851.54	-616.37	1,478.85	1,431.14	47.71	30.997	
4,500.00	4,421.66	4,322.24	4,323.17	28.47	22.95	-137.43	852.18	-623.05	1,500.94	1,452.14	48.80	30.758	
4,600.00	4,519.42	4,418.39	4,419.09	29.16	23.48	-138.05	852.83	-629.73	1,523.20	1,473.31	49.89	30.534	
4,700.00	4,617.17	4,514.54	4,515.00	29.85	24.01	-138.65	853.48	-636.41	1,545.63	1,494.66	50.97	30.323	
4,800.00	4,714.93	4,610.69	4,610.92	30.54	24.54	-139.23	854.13	-643.09	1,568.23	1,516.17	52.06	30.124	
4,900.00	4,812.69	4,706.85	4,706.84	31.23	25.07	-139.80	854.78	-649.77	1,590.97	1,537.83	53.14	29.938	
5,000.00	4,910.45	4,803.00	4,802.76	31.93	25.60	-140.35	855.43	-656.45	1,613.87	1,559.64	54.23	29.761	
5,100.00	5,008.21	4,899.15	4,898.67	32.62	26.13	-140.89	856.07	-663.13	1,636.90	1,581.59	55.31	29.595	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 11H - OH - Plan 1 11-01-16													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	
15,400.00	9,677.72	13,935.21	9,022.28	141.13	122.39	-71.98	6,129.43	-1,115.87	2,118.13	1,866.16	251.97	8.406	
15,500.00	9,679.86	14,035.21	9,023.74	143.12	124.36	-71.97	6,229.41	-1,115.49	2,118.88	1,863.06	255.81	8.283	
15,600.00	9,682.00	14,135.21	9,025.20	145.12	126.34	-71.95	6,329.40	-1,115.11	2,119.62	1,859.96	259.66	8.163	
15,700.00	9,684.13	14,235.20	9,026.66	147.12	128.33	-71.94	6,429.38	-1,114.74	2,120.36	1,856.85	263.52	8.046	
15,800.00	9,686.27	14,335.20	9,028.13	149.12	130.32	-71.93	6,529.37	-1,114.36	2,121.11	1,853.73	267.38	7.933	
15,900.00	9,688.41	14,435.19	9,029.59	151.13	132.32	-71.92	6,629.35	-1,113.98	2,121.85	1,850.60	271.25	7.822	
16,000.00	9,690.54	14,535.19	9,031.05	153.15	134.32	-71.90	6,729.34	-1,113.61	2,122.59	1,847.46	275.13	7.715	
16,100.00	9,692.68	14,635.19	9,032.51	155.16	136.33	-71.89	6,829.32	-1,113.23	2,123.34	1,844.32	279.02	7.610	
16,200.00	9,694.82	14,735.18	9,033.97	157.18	138.34	-71.88	6,929.31	-1,112.85	2,124.08	1,841.17	282.92	7.508	
16,300.00	9,696.96	14,835.18	9,035.43	159.20	140.35	-71.87	7,029.29	-1,112.47	2,124.83	1,838.01	286.82	7.408	
16,400.00	9,699.09	14,935.18	9,036.89	161.23	142.37	-71.85	7,129.28	-1,112.10	2,125.57	1,834.85	290.72	7.311	
16,500.00	9,701.23	15,035.17	9,038.36	163.26	144.39	-71.84	7,229.26	-1,111.72	2,126.32	1,831.68	294.64	7.217	
16,600.00	9,703.37	15,135.17	9,039.82	165.29	146.42	-71.83	7,329.25	-1,111.34	2,127.06	1,828.51	298.56	7.125	
16,700.00	9,705.41	15,235.16	9,041.28	167.33	148.45	-71.81	7,429.23	-1,110.97	2,127.77	1,825.30	302.47	7.035	
16,800.00	9,706.15	15,335.16	9,042.74	169.36	150.48	-71.84	7,529.22	-1,110.59	2,128.00	1,821.56	306.44	6.944	
16,900.00	9,708.84	15,435.16	9,044.20	171.40	152.52	-71.86	7,629.20	-1,110.21	2,128.21	1,817.79	310.42	6.856	
17,000.00	9,707.52	15,535.15	9,045.66	173.45	154.56	-71.88	7,729.19	-1,109.83	2,128.43	1,814.01	314.41	6.770	
17,100.00	9,708.21	15,635.15	9,047.12	175.49	156.60	-71.91	7,829.17	-1,109.46	2,128.64	1,810.23	318.41	6.685	
17,200.00	9,708.90	15,735.14	9,048.59	177.54	158.65	-71.93	7,929.15	-1,109.08	2,128.85	1,806.45	322.41	6.603	
17,300.00	9,709.58	15,835.14	9,050.05	179.59	160.70	-71.95	8,029.14	-1,108.70	2,129.06	1,802.65	326.41	6.523	
17,400.00	9,710.27	15,935.14	9,051.51	181.64	162.75	-71.98	8,129.12	-1,108.33	2,129.28	1,798.86	330.42	6.444	
17,500.00	9,710.96	16,035.13	9,052.97	183.70	164.80	-72.00	8,229.11	-1,107.95	2,129.49	1,795.06	334.43	6.367	
17,600.00	9,711.64	16,135.13	9,054.43	185.76	166.86	-72.03	8,329.09	-1,107.57	2,129.70	1,791.25	338.45	6.292	
17,700.00	9,712.33	16,235.12	9,055.89	187.82	168.92	-72.05	8,429.08	-1,107.19	2,129.92	1,787.44	342.48	6.219	
17,800.00	9,713.02	16,335.12	9,057.36	189.88	170.98	-72.07	8,529.06	-1,106.82	2,130.13	1,783.63	346.51	6.147	
17,900.00	9,713.70	16,435.11	9,058.82	191.94	173.04	-72.10	8,629.05	-1,106.44	2,130.35	1,779.81	350.54	6.077	
18,000.00	9,714.39	16,535.11	9,060.28	194.01	175.11	-72.12	8,729.03	-1,106.06	2,130.57	1,775.98	354.58	6.009	
18,100.00	9,715.07	16,635.11	9,061.74	196.07	177.18	-72.14	8,829.01	-1,105.69	2,130.78	1,772.16	358.62	5.942	
18,200.00	9,715.76	16,735.10	9,063.20	198.14	179.25	-72.17	8,929.00	-1,105.31	2,131.00	1,768.33	362.67	5.876	
18,300.00	9,716.45	16,835.10	9,064.66	200.21	181.32	-72.19	9,028.98	-1,104.93	2,131.21	1,764.49	366.72	5.812	
18,400.00	9,717.13	16,935.09	9,066.12	202.29	183.39	-72.22	9,128.97	-1,104.56	2,131.43	1,760.66	370.77	5.749	
18,500.00	9,717.82	17,035.09	9,067.59	204.36	185.47	-72.24	9,228.95	-1,104.18	2,131.65	1,756.82	374.83	5.687	
18,600.00	9,718.51	17,135.09	9,069.05	206.44	187.54	-72.26	9,328.94	-1,103.80	2,131.87	1,752.97	378.89	5.627	
18,700.00	9,719.19	17,235.08	9,070.51	208.51	189.62	-72.29	9,428.92	-1,103.42	2,132.08	1,749.13	382.96	5.567	
18,800.00	9,719.88	17,335.08	9,071.97	210.59	191.70	-72.31	9,528.91	-1,103.05	2,132.30	1,745.28	387.03	5.509	
18,900.00	9,721.19	17,435.08	9,073.43	212.67	193.79	-72.32	9,628.89	-1,102.67	2,132.51	1,741.43	391.08	5.453	
19,000.00	9,722.77	17,535.07	9,074.89	214.75	195.87	-72.32	9,728.88	-1,102.29	2,133.21	1,738.09	395.12	5.399	
19,100.00	9,724.35	17,635.07	9,076.36	216.84	197.95	-72.32	9,828.87	-1,101.92	2,133.71	1,734.54	399.16	5.345	
19,200.00	9,725.93	17,735.07	9,077.82	218.92	200.04	-72.32	9,928.85	-1,101.54	2,134.20	1,730.99	403.21	5.293	
19,300.00	9,727.51	17,835.07	9,079.28	221.01	202.13	-72.32	10,028.84	-1,101.16	2,134.70	1,727.44	407.25	5.242	
19,400.00	9,729.09	17,935.07	9,080.74	223.10	204.22	-72.33	10,128.83	-1,100.78	2,135.19	1,723.89	411.30	5.191	
19,500.00	9,730.67	18,035.07	9,082.20	225.18	206.31	-72.33	10,228.82	-1,100.41	2,135.69	1,720.33	415.36	5.142	
19,600.00	9,732.25	18,135.07	9,083.66	227.27	208.40	-72.33	10,328.80	-1,100.03	2,136.18	1,716.77	419.41	5.093	
19,700.00	9,733.83	18,235.07	9,085.12	229.36	210.49	-72.33	10,428.79	-1,099.65	2,136.68	1,713.21	423.47	5.046	
19,800.00	9,735.41	18,335.06	9,086.59	231.46	212.59	-72.33	10,528.78	-1,099.28	2,137.18	1,709.65	427.52	4.999	
19,900.00	9,736.99	18,435.06	9,088.05	233.55	214.68	-72.33	10,628.77	-1,098.90	2,137.67	1,706.09	431.58	4.953	
20,000.00	9,738.57	18,535.06	9,089.51	235.64	216.78	-72.33	10,728.75	-1,098.52	2,138.17	1,702.52	435.65	4.908	
20,100.00	9,740.15	18,635.06	9,090.97	237.74	218.88	-72.33	10,828.74	-1,098.14	2,138.66	1,698.95	439.71	4.864	
20,153.58	9,741.00	18,688.64	9,091.75	238.86	220.00	-72.33	10,882.32	-1,097.94	2,138.93	1,697.04	441.89	4.840 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 11H - OH - Plan 1 11-01-16													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	9,700.74	9,150.00	8,974.45	58.44	49.80	-70.90	1,351.86	-1,070.22	2,200.88	2,102.53	98.34	22.379	
10,400.00	9,696.03	9,177.46	8,985.23	59.17	49.92	-71.19	1,377.11	-1,070.48	2,184.24	2,084.84	99.41	21.973	
10,500.00	9,691.33	9,217.62	8,998.78	59.97	50.10	-71.58	1,414.91	-1,070.86	2,170.52	2,069.85	100.67	21.561	
10,600.00	9,686.63	9,250.00	9,007.76	60.85	50.26	-71.84	1,446.01	-1,071.18	2,159.59	2,057.71	101.89	21.196	
10,700.00	9,681.92	9,300.00	9,018.14	61.80	50.52	-72.16	1,494.90	-1,071.68	2,151.24	2,047.92	103.32	20.822	
10,800.00	9,677.22	9,350.00	9,024.22	62.82	50.79	-72.37	1,544.52	-1,072.18	2,145.49	2,040.74	104.75	20.482	
10,900.00	9,672.51	9,397.67	9,025.97	63.89	51.06	-72.47	1,592.13	-1,072.67	2,142.26	2,036.09	106.17	20.177	
11,000.00	9,667.81	9,497.56	9,025.81	65.03	51.69	-72.58	1,692.02	-1,073.68	2,140.24	2,032.21	108.03	19.811	
11,100.00	9,663.11	9,597.46	9,025.65	66.22	52.40	-72.69	1,791.91	-1,074.70	2,138.22	2,028.20	110.02	19.435	
11,200.00	9,658.40	9,697.35	9,025.50	67.45	53.19	-72.80	1,891.80	-1,075.72	2,136.21	2,024.08	112.13	19.051	
11,300.00	9,653.70	9,797.24	9,025.34	68.74	54.06	-72.91	1,991.69	-1,076.73	2,134.21	2,019.84	114.37	18.661	
11,400.00	9,649.00	9,897.14	9,025.18	70.07	55.00	-73.02	2,091.58	-1,077.75	2,132.21	2,015.50	116.71	18.269	
11,500.00	9,644.29	9,997.03	9,025.02	71.44	56.01	-73.13	2,191.47	-1,078.77	2,130.23	2,011.07	119.16	17.877	
11,600.00	9,640.05	10,096.94	9,024.87	72.85	57.09	-73.22	2,291.37	-1,079.78	2,128.38	2,006.66	121.73	17.485	
11,700.00	9,638.84	10,196.93	9,024.71	74.29	58.22	-73.22	2,391.36	-1,080.80	2,127.44	2,003.08	124.36	17.107	
11,800.00	9,638.95	10,296.93	9,024.55	75.75	59.42	-73.21	2,491.35	-1,081.82	2,126.88	1,999.87	127.01	16.746	
11,900.00	9,639.05	10,396.93	9,024.40	77.25	60.66	-73.20	2,591.34	-1,082.83	2,126.31	1,996.58	129.73	16.390	
12,000.00	9,639.15	10,496.92	9,024.24	78.78	61.96	-73.19	2,691.33	-1,083.85	2,125.75	1,993.21	132.54	16.039	
12,100.00	9,639.25	10,596.92	9,024.08	80.34	63.30	-73.17	2,791.33	-1,084.87	2,125.19	1,989.77	135.41	15.694	
12,200.00	9,639.36	10,696.92	9,023.92	81.93	64.69	-73.16	2,891.32	-1,085.89	2,124.63	1,986.27	138.36	15.356	
12,300.00	9,639.46	10,796.92	9,023.77	83.55	66.12	-73.15	2,991.31	-1,086.90	2,124.06	1,982.69	141.37	15.025	
12,400.00	9,639.56	10,896.91	9,023.61	85.19	67.59	-73.14	3,091.30	-1,087.92	2,123.50	1,979.06	144.44	14.702	
12,500.00	9,639.66	10,996.91	9,023.45	86.85	69.09	-73.13	3,191.29	-1,088.94	2,122.94	1,975.38	147.56	14.387	
12,600.00	9,639.76	11,096.91	9,023.30	88.53	70.63	-73.11	3,291.29	-1,089.96	2,122.38	1,971.64	150.74	14.080	
12,700.00	9,639.87	11,196.91	9,023.14	90.23	72.20	-73.10	3,391.28	-1,090.97	2,121.82	1,967.85	153.96	13.782	
12,800.00	9,639.97	11,296.90	9,022.98	91.96	73.80	-73.09	3,491.27	-1,091.99	2,121.25	1,964.02	157.23	13.491	
12,900.00	9,640.73	11,396.90	9,022.83	93.70	75.43	-73.06	3,591.26	-1,093.01	2,120.87	1,960.32	160.56	13.210	
13,000.00	9,642.15	11,496.88	9,022.67	95.46	77.08	-73.01	3,691.24	-1,094.03	2,120.67	1,956.79	163.89	12.940	
13,100.00	9,643.58	11,596.87	9,022.51	97.24	78.76	-72.97	3,791.22	-1,095.04	2,120.48	1,953.22	167.26	12.678	
13,200.00	9,645.00	11,696.85	9,022.35	99.03	80.46	-72.92	3,891.20	-1,096.06	2,120.28	1,949.62	170.66	12.424	
13,300.00	9,646.43	11,796.84	9,022.20	100.84	82.19	-72.87	3,991.18	-1,097.08	2,120.09	1,945.99	174.09	12.178	
13,400.00	9,647.85	11,896.82	9,022.04	102.66	83.93	-72.83	4,091.16	-1,098.09	2,119.90	1,942.34	177.56	11.939	
13,500.00	9,649.27	11,996.81	9,021.88	104.50	85.69	-72.78	4,191.14	-1,099.11	2,119.70	1,938.65	181.05	11.708	
13,600.00	9,650.70	12,096.79	9,021.73	106.34	87.47	-72.73	4,291.12	-1,100.13	2,119.51	1,934.94	184.57	11.483	
13,700.00	9,652.12	12,196.78	9,021.57	108.20	89.27	-72.69	4,391.10	-1,101.15	2,119.33	1,931.21	188.12	11.266	
13,800.00	9,653.55	12,296.76	9,021.41	110.07	91.08	-72.64	4,491.08	-1,102.16	2,119.14	1,927.45	191.69	11.055	
13,900.00	9,654.97	12,396.75	9,021.25	111.95	92.91	-72.59	4,591.06	-1,103.18	2,118.95	1,923.67	195.28	10.851	
14,000.00	9,656.40	12,496.73	9,021.10	113.84	94.75	-72.55	4,691.04	-1,104.20	2,118.77	1,919.88	198.89	10.653	
14,100.00	9,657.82	12,596.72	9,020.94	115.75	96.61	-72.50	4,791.01	-1,105.22	2,118.59	1,916.06	202.52	10.461	
14,200.00	9,659.24	12,696.70	9,020.78	117.65	98.47	-72.46	4,890.99	-1,106.23	2,118.40	1,912.23	206.17	10.275	
14,300.00	9,660.67	12,796.69	9,020.63	119.57	100.35	-72.41	4,990.97	-1,107.25	2,118.22	1,908.39	209.84	10.095	
14,400.00	9,662.09	12,896.67	9,020.47	121.50	102.24	-72.36	5,090.95	-1,108.27	2,118.05	1,904.52	213.52	9.920	
14,500.00	9,663.52	12,996.66	9,020.31	123.43	104.14	-72.32	5,190.93	-1,109.28	2,117.87	1,900.65	217.22	9.750	
14,600.00	9,664.94	13,096.64	9,020.16	125.38	106.05	-72.27	5,290.91	-1,110.30	2,117.69	1,896.76	220.93	9.585	
14,700.00	9,666.36	13,196.63	9,020.00	127.32	107.97	-72.22	5,390.89	-1,111.32	2,117.52	1,892.86	224.66	9.425	
14,800.00	9,667.79	13,296.61	9,019.84	129.28	109.90	-72.18	5,490.87	-1,112.34	2,117.34	1,888.94	228.40	9.270	
14,900.00	9,669.21	13,396.60	9,019.68	131.24	111.84	-72.13	5,590.85	-1,113.35	2,117.17	1,885.02	232.15	9.120	
15,000.00	9,670.64	13,496.58	9,019.53	133.21	113.79	-72.08	5,690.83	-1,114.37	2,117.00	1,881.09	235.92	8.974	
15,100.00	9,672.06	13,596.57	9,019.37	135.18	115.74	-72.04	5,790.81	-1,115.39	2,116.83	1,877.14	239.69	8.832	
15,158.80	9,672.95	13,655.36	9,019.28	136.35	116.89	-72.02	5,849.60	-1,115.99	2,116.94	1,874.98	241.96	8.749	
15,200.00	9,673.54	13,704.32	9,019.22	137.16	117.85	-72.00	5,898.56	-1,116.47	2,116.86	1,873.17	243.69	8.687	
15,300.00	9,675.58	13,835.22	9,020.82	139.14	120.42	-71.99	6,029.44	-1,116.25	2,117.39	1,869.25	248.14	8.533	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 11H - OH - Plan 1 11-01-16												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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	
5,200.00	5,105.97	4,822.87	4,793.29	33.31	27.18	-139.76	982.81	-908.48	1,950.10	1,894.42	55.68	35.021
5,300.00	5,203.73	4,916.29	4,885.45	34.00	27.76	-140.23	985.96	-923.37	1,982.15	1,925.39	56.76	34.923
5,400.00	5,301.48	5,009.70	4,977.62	34.69	28.34	-140.70	989.12	-938.27	2,014.31	1,956.48	57.83	34.830
5,500.00	5,399.24	5,103.12	5,069.79	35.38	28.92	-141.15	992.28	-953.17	2,046.59	1,987.68	58.91	34.742
5,600.00	5,497.37	5,197.15	5,162.57	36.05	29.51	-141.96	995.46	-968.16	2,077.62	2,017.50	60.12	34.558
5,700.00	5,596.10	5,292.29	5,256.43	36.67	30.10	-142.66	998.67	-983.33	2,106.10	2,044.80	61.30	34.359
5,800.00	5,695.33	5,388.41	5,351.26	37.26	30.70	-143.25	1,001.92	-998.66	2,131.97	2,069.53	62.44	34.147
5,900.00	5,794.93	5,485.39	5,446.94	37.80	31.30	-143.73	1,005.20	-1,014.12	2,155.16	2,091.63	63.53	33.924
6,000.00	5,894.77	5,580.29	5,550.45	38.30	31.96	-144.13	1,008.74	-1,030.83	2,175.62	2,111.00	64.61	33.671
6,100.00	5,994.75	5,679.45	5,649.64	38.75	32.42	-144.51	1,016.26	-1,066.30	2,186.08	2,118.84	67.24	32.511
6,200.00	6,094.75	6,136.56	6,094.75	39.19	34.94	-70.37	1,016.36	-1,066.81	2,186.21	2,117.68	68.53	31.901
6,300.00	6,194.75	6,236.56	6,194.75	39.62	35.43	-70.37	1,016.36	-1,066.81	2,186.21	2,116.70	69.51	31.451
6,400.00	6,294.75	6,336.56	6,294.75	40.06	35.92	-70.37	1,016.36	-1,066.81	2,186.21	2,115.72	70.49	31.013
6,500.00	6,394.75	6,436.56	6,394.75	40.50	36.41	-70.37	1,016.36	-1,066.81	2,186.21	2,114.73	71.48	30.585
6,600.00	6,494.75	6,536.56	6,494.75	40.95	36.90	-70.37	1,016.36	-1,066.81	2,186.21	2,113.74	72.47	30.169
6,700.00	6,594.75	6,636.56	6,594.75	41.39	37.40	-70.37	1,016.36	-1,066.81	2,186.21	2,112.75	73.46	29.762
6,800.00	6,694.75	6,736.56	6,694.75	41.84	37.89	-70.37	1,016.36	-1,066.81	2,186.21	2,111.76	74.45	29.365
6,900.00	6,794.75	6,836.56	6,794.75	42.29	38.39	-70.37	1,016.36	-1,066.81	2,186.21	2,110.77	75.44	28.978
7,000.00	6,894.75	6,936.56	6,894.75	42.75	38.89	-70.37	1,016.36	-1,066.81	2,186.21	2,109.77	76.44	28.600
7,100.00	6,994.75	7,036.56	6,994.75	43.20	39.39	-70.37	1,016.36	-1,066.81	2,186.21	2,108.77	77.44	28.231
7,200.00	7,094.75	7,136.56	7,094.75	43.66	39.89	-70.37	1,016.36	-1,066.81	2,186.21	2,107.77	78.44	27.871
7,300.00	7,194.75	7,236.56	7,194.75	44.11	40.39	-70.37	1,016.36	-1,066.81	2,186.21	2,106.77	79.44	27.519
7,400.00	7,294.75	7,336.56	7,294.75	44.57	40.89	-70.37	1,016.36	-1,066.81	2,186.21	2,105.76	80.45	27.176
7,500.00	7,394.75	7,436.56	7,394.75	45.04	41.39	-70.37	1,016.36	-1,066.81	2,186.21	2,104.76	81.45	26.840
7,600.00	7,494.75	7,536.56	7,494.75	45.50	41.90	-70.37	1,016.36	-1,066.81	2,186.21	2,103.75	82.46	26.512
7,700.00	7,594.75	7,636.56	7,594.75	45.96	42.40	-70.37	1,016.36	-1,066.81	2,186.21	2,102.74	83.47	26.191
7,800.00	7,694.75	7,736.56	7,694.75	46.43	42.90	-70.37	1,016.36	-1,066.81	2,186.21	2,101.73	84.48	25.878
7,900.00	7,794.75	7,836.56	7,794.75	46.90	43.41	-70.37	1,016.36	-1,066.81	2,186.21	2,100.72	85.49	25.571
8,000.00	7,894.75	7,936.56	7,894.75	47.37	43.92	-70.37	1,016.36	-1,066.81	2,186.21	2,099.70	86.51	25.271
8,100.00	7,994.75	8,036.56	7,994.75	47.84	44.43	-70.37	1,016.36	-1,066.81	2,186.21	2,098.69	87.52	24.978
8,200.00	8,094.75	8,136.56	8,094.75	48.31	44.93	-70.37	1,016.36	-1,066.81	2,186.21	2,097.67	88.54	24.691
8,300.00	8,194.75	8,236.56	8,194.75	48.78	45.44	-70.37	1,016.36	-1,066.81	2,186.21	2,096.65	89.56	24.411
8,400.00	8,294.75	8,336.56	8,294.75	49.26	45.95	-70.37	1,016.36	-1,066.81	2,186.21	2,095.63	90.58	24.136
8,500.00	8,394.75	8,436.56	8,394.75	49.74	46.46	-70.37	1,016.36	-1,066.81	2,186.21	2,094.61	91.60	23.867
8,546.64	8,441.39	8,483.20	8,441.39	49.96	46.70	-70.37	1,016.36	-1,066.81	2,186.21	2,094.13	92.08	23.743
8,600.00	8,494.75	8,500.00	8,458.19	50.21	46.79	-70.37	1,016.39	-1,066.81	2,186.52	2,094.09	92.43	23.656
8,700.00	8,594.75	8,550.00	8,508.10	50.69	47.04	-70.30	1,019.02	-1,066.84	2,188.84	2,095.65	93.20	23.486
8,800.00	8,694.75	8,600.00	8,557.60	51.17	47.30	-70.13	1,025.99	-1,066.91	2,193.85	2,098.88	93.97	23.347
8,900.00	8,794.75	8,650.00	8,606.30	51.65	47.56	-69.86	1,037.25	-1,067.02	2,201.59	2,106.85	94.74	23.237
9,000.00	8,894.75	8,678.77	8,633.82	52.13	47.71	-69.65	1,045.64	-1,067.11	2,211.94	2,116.54	95.40	23.185
9,100.00	8,994.75	8,716.70	8,669.38	52.62	47.90	-69.33	1,058.79	-1,067.24	2,225.15	2,129.03	96.12	23.150
9,200.00	9,094.75	8,750.00	8,699.83	53.10	48.06	-69.01	1,072.25	-1,067.38	2,241.21	2,144.41	96.81	23.152
9,300.00	9,194.64	8,800.00	8,743.96	53.59	48.30	-66.53	1,095.73	-1,067.62	2,259.09	2,161.62	97.48	23.176
9,400.00	9,292.68	8,822.18	8,762.85	54.10	48.40	-65.05	1,107.36	-1,067.74	2,273.38	2,175.76	97.62	23.288
9,500.00	9,385.91	8,850.00	8,785.87	54.59	48.53	-63.98	1,122.96	-1,067.89	2,283.35	2,186.14	97.21	23.490
9,600.00	9,471.51	8,900.00	8,825.25	55.07	48.75	-63.38	1,153.75	-1,068.21	2,288.46	2,192.07	96.39	23.741
9,700.00	9,546.88	8,929.67	8,847.30	55.51	48.88	-63.37	1,173.60	-1,068.41	2,288.55	2,193.30	95.25	24.026
9,800.00	9,609.72	8,950.00	8,861.80	55.93	48.96	-63.83	1,187.85	-1,068.55	2,283.81	2,189.62	94.19	24.247
9,900.00	9,658.13	9,000.00	8,895.23	56.34	49.17	-64.93	1,225.00	-1,068.93	2,273.93	2,180.07	93.86	24.227
10,000.00	9,690.63	9,050.00	8,925.30	56.78	49.37	-66.62	1,264.93	-1,069.34	2,259.81	2,165.41	94.40	23.939
10,100.00	9,706.24	9,070.84	8,936.79	57.25	49.46	-68.57	1,282.32	-1,069.52	2,241.50	2,145.98	95.52	23.467
10,200.00	9,705.44	9,100.00	8,951.78	57.80	49.58	-70.28	1,307.32	-1,069.77	2,220.34	2,123.29	97.05	22.879

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P5 - 11H - OH - Plan 1 11-01-16													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	
0.00	0.00	0.00	8.00	0.00	0.00	-26.84	885.17	-447.83	992.04				
100.00	100.00	92.00	100.00	0.19	0.18	-26.84	885.17	-447.83	992.01	991.64	0.37	2,669.105	
200.00	200.00	192.00	200.00	0.73	0.69	-26.84	885.17	-447.83	992.01	990.59	1.42	698.821	
300.00	300.00	292.00	300.00	1.27	1.23	-26.84	885.17	-447.83	992.01	989.51	2.49	397.605	
400.00	400.00	392.00	400.00	1.81	1.76	-26.84	885.17	-447.83	992.01	988.44	3.57	277.844	
500.00	500.00	492.00	500.00	2.34	2.30	-26.84	885.17	-447.83	992.01	987.36	4.65	213.529	
600.00	600.00	592.00	600.00	2.88	2.84	-26.84	885.17	-447.83	992.01	986.29	5.72	173.392 CC	
700.00	699.98	691.98	699.98	3.41	3.38	-101.07	885.17	-447.83	992.34	985.56	6.79	146.193	
800.00	799.84	791.84	799.84	3.94	3.91	-101.34	885.17	-447.83	993.36	985.51	7.85	126.531 ES	
900.00	899.45	891.45	899.45	4.47	4.45	-101.80	885.17	-447.83	995.12	986.20	8.92	111.545	
1,000.00	998.70	990.70	998.70	5.02	4.98	-102.43	885.17	-447.83	997.69	987.69	10.00	99.749	
1,100.00	1,097.47	1,089.47	1,097.47	5.59	5.51	-103.23	885.17	-447.83	1,001.21	990.11	11.10	90.225	
1,200.00	1,195.62	1,187.62	1,195.62	6.19	6.04	-104.18	885.17	-447.83	1,005.81	993.60	12.21	82.373	
1,300.00	1,293.38	1,285.38	1,293.38	6.80	6.57	-105.30	885.17	-447.83	1,011.28	997.94	13.34	75.802	
1,400.00	1,391.14	1,383.14	1,391.14	7.43	7.09	-106.42	885.17	-447.83	1,017.15	1,002.67	14.48	70.228	
1,500.00	1,488.90	1,480.90	1,488.90	8.07	7.62	-107.53	885.17	-447.83	1,023.43	1,007.79	15.63	65.463	
1,600.00	1,586.66	1,578.66	1,586.66	8.72	8.14	-108.62	885.17	-447.83	1,030.10	1,013.31	16.79	61.355	
1,700.00	1,684.42	1,676.42	1,684.42	9.38	8.67	-109.70	885.17	-447.83	1,037.15	1,019.20	17.95	57.788	
1,800.00	1,782.18	1,758.16	1,766.15	10.04	9.10	-110.62	885.30	-448.41	1,045.15	1,026.13	19.02	54.955	
1,900.00	1,879.94	1,834.04	1,841.99	10.70	9.50	-111.52	885.82	-450.90	1,055.46	1,035.41	20.05	52.629	
2,000.00	1,977.69	1,900.00	1,907.84	11.37	9.85	-112.35	886.62	-454.66	1,068.26	1,047.23	21.04	50.777	
2,100.00	2,075.45	1,982.87	1,990.41	12.04	10.28	-113.45	888.07	-461.48	1,083.44	1,061.34	22.11	49.009	
2,200.00	2,173.21	2,055.66	2,062.74	12.72	10.67	-114.45	889.75	-469.40	1,101.19	1,078.07	23.12	47.619	
2,300.00	2,270.97	2,127.27	2,133.69	13.39	11.05	-115.46	891.77	-478.94	1,121.48	1,097.34	24.13	46.467	
2,400.00	2,368.73	2,207.22	2,212.61	14.07	11.49	-116.62	894.41	-491.40	1,144.16	1,118.97	25.19	45.430	
2,500.00	2,466.49	2,300.63	2,304.78	14.75	12.00	-117.93	897.56	-506.29	1,167.81	1,141.52	26.30	44.411	
2,600.00	2,564.25	2,394.05	2,396.95	15.43	12.53	-119.19	900.72	-521.19	1,192.06	1,164.66	27.41	43.497	
2,700.00	2,662.00	2,487.47	2,489.12	16.11	13.06	-120.40	903.88	-536.08	1,216.88	1,188.36	28.51	42.676	
2,800.00	2,759.76	2,580.88	2,581.28	16.79	13.59	-121.57	907.04	-550.98	1,242.22	1,212.60	29.62	41.937	
2,900.00	2,857.52	2,674.30	2,673.45	17.47	14.13	-122.70	910.19	-565.87	1,268.06	1,237.34	30.73	41.270	
3,000.00	2,955.28	2,767.72	2,765.62	18.16	14.68	-123.78	913.35	-580.77	1,294.37	1,262.54	31.83	40.666	
3,100.00	3,053.04	2,861.13	2,857.78	18.84	15.23	-124.82	916.51	-595.67	1,321.12	1,288.19	32.93	40.118	
3,200.00	3,150.80	2,954.55	2,949.95	19.53	15.78	-125.82	919.66	-610.56	1,348.28	1,314.26	34.03	39.621	
3,300.00	3,248.55	3,047.96	3,042.12	20.21	16.33	-126.79	922.82	-625.46	1,375.84	1,340.71	35.13	39.168	
3,400.00	3,346.31	3,141.38	3,134.28	20.90	16.89	-127.72	925.98	-640.35	1,403.76	1,367.54	36.22	38.756	
3,500.00	3,444.07	3,234.80	3,226.45	21.59	17.45	-128.61	929.14	-655.25	1,432.02	1,394.71	37.31	38.378	
3,600.00	3,541.83	3,328.21	3,318.62	22.27	18.01	-129.47	932.29	-670.15	1,460.61	1,422.21	38.40	38.032	
3,700.00	3,639.59	3,421.63	3,410.78	22.96	18.57	-130.30	935.45	-685.04	1,489.50	1,450.01	39.49	37.715	
3,800.00	3,737.35	3,515.04	3,502.95	23.65	19.14	-131.10	938.61	-699.94	1,518.69	1,478.11	40.58	37.424	
3,900.00	3,835.11	3,608.46	3,595.12	24.34	19.70	-131.87	941.76	-714.83	1,548.15	1,506.48	41.67	37.156	
4,000.00	3,932.86	3,701.88	3,687.28	25.03	20.27	-132.61	944.92	-729.73	1,577.86	1,535.11	42.75	36.909	
4,100.00	4,030.62	3,795.29	3,779.45	25.72	20.84	-133.33	948.08	-744.62	1,607.82	1,563.98	43.83	36.680	
4,200.00	4,128.38	3,888.71	3,871.62	26.41	21.41	-134.02	951.23	-759.52	1,638.00	1,593.09	44.92	36.469	
4,300.00	4,226.14	3,982.13	3,963.79	27.09	21.99	-134.68	954.39	-774.42	1,668.40	1,622.41	46.00	36.273	
4,400.00	4,323.90	4,075.54	4,055.95	27.78	22.56	-135.33	957.55	-789.31	1,699.01	1,651.94	47.08	36.092	
4,500.00	4,421.66	4,168.96	4,148.12	28.47	23.13	-135.95	960.71	-804.21	1,729.82	1,681.66	48.15	35.923	
4,600.00	4,519.42	4,262.37	4,240.29	29.16	23.71	-136.55	963.86	-819.10	1,760.80	1,711.57	49.23	35.766	
4,700.00	4,617.17	4,355.79	4,332.45	29.85	24.28	-137.13	967.02	-834.00	1,791.97	1,741.66	50.31	35.620	
4,800.00	4,714.93	4,449.21	4,424.62	30.54	24.86	-137.69	970.18	-848.90	1,823.29	1,771.91	51.38	35.483	
4,900.00	4,812.69	4,542.62	4,516.79	31.23	25.44	-138.23	973.33	-863.79	1,854.78	1,802.32	52.46	35.356	
5,000.00	4,910.45	4,636.04	4,608.95	31.93	26.02	-138.76	976.49	-878.69	1,886.41	1,832.88	53.54	35.237	
5,100.00	5,008.21	4,729.46	4,701.12	32.62	26.60	-139.27	979.65	-893.58	1,918.19	1,863.58	54.61	35.125	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 6HC - OH / Job #61219 - Plan 3 06-09-17												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)					
15,500.00	9,679.86	15,434.48	9,620.65	143.12	138.01	-87.99	6,221.06	-779.59	1,679.83	1,400.01	279.82	6.003	
15,600.00	9,682.00	15,534.47	9,624.11	145.12	140.01	-88.03	6,320.99	-779.19	1,680.32	1,396.48	283.84	5.920	
15,700.00	9,684.13	15,634.46	9,627.56	147.12	142.01	-88.08	6,420.92	-778.79	1,680.81	1,392.94	287.87	5.839	
15,800.00	9,686.27	15,734.45	9,631.02	149.12	144.02	-88.12	6,520.85	-778.38	1,681.30	1,389.39	291.90	5.760	
15,900.00	9,688.41	15,834.44	9,634.48	151.13	146.03	-88.17	6,620.78	-777.98	1,681.79	1,385.84	295.95	5.683	
16,000.00	9,690.54	15,934.43	9,637.94	153.15	148.05	-88.21	6,720.70	-777.58	1,682.28	1,382.28	300.00	5.608	
16,100.00	9,692.68	16,034.42	9,641.40	155.16	150.07	-88.26	6,820.63	-777.17	1,682.78	1,378.72	304.06	5.534	
16,200.00	9,694.82	16,134.41	9,644.85	157.18	152.09	-88.30	6,920.56	-776.77	1,683.27	1,375.15	308.12	5.463	
16,300.00	9,696.96	16,234.40	9,648.31	159.20	154.11	-88.35	7,020.49	-776.36	1,683.77	1,371.57	312.20	5.393	
16,400.00	9,699.09	16,334.39	9,651.77	161.23	156.14	-88.40	7,120.42	-775.96	1,684.26	1,367.99	316.27	5.325	
16,500.00	9,701.23	16,434.38	9,655.23	163.26	158.18	-88.44	7,220.35	-775.56	1,684.76	1,364.40	320.36	5.259	
16,600.00	9,703.37	16,534.37	9,658.68	165.29	160.21	-88.49	7,320.28	-775.15	1,685.26	1,360.81	324.45	5.194	
16,700.00	9,705.41	16,634.36	9,662.14	167.33	162.25	-88.53	7,420.21	-774.75	1,685.75	1,357.22	328.53	5.131	
16,800.00	9,706.15	16,733.95	9,665.54	169.36	164.28	-88.62	7,519.74	-774.35	1,686.14	1,353.51	332.63	5.069	
16,900.00	9,706.84	16,832.24	9,666.73	171.40	166.29	-88.64	7,618.02	-773.98	1,686.61	1,349.92	336.69	5.009	
17,000.00	9,707.52	16,932.23	9,666.83	173.45	168.34	-88.62	7,718.01	-773.62	1,687.11	1,346.34	340.78	4.951	
17,100.00	9,708.21	17,032.23	9,666.93	175.49	170.38	-88.60	7,818.01	-773.26	1,687.62	1,342.75	344.87	4.893	
17,200.00	9,708.90	17,132.23	9,667.03	177.54	172.43	-88.58	7,918.01	-772.89	1,688.13	1,339.16	348.97	4.837	
17,300.00	9,709.58	17,232.22	9,667.13	179.59	174.49	-88.56	8,018.00	-772.53	1,688.63	1,335.56	353.07	4.783	
17,400.00	9,710.27	17,332.22	9,667.24	181.64	176.54	-88.54	8,118.00	-772.17	1,689.14	1,331.96	357.18	4.729	
17,500.00	9,710.96	17,432.22	9,667.34	183.70	178.60	-88.52	8,218.00	-771.81	1,689.65	1,328.36	361.29	4.677	
17,600.00	9,711.64	17,532.22	9,667.44	185.76	180.66	-88.50	8,317.99	-771.45	1,690.16	1,324.75	365.41	4.625	
17,700.00	9,712.33	17,632.21	9,667.54	187.82	182.72	-88.48	8,417.99	-771.09	1,690.67	1,321.13	369.53	4.575	
17,800.00	9,713.02	17,732.21	9,667.64	189.88	184.78	-88.46	8,517.98	-770.73	1,691.17	1,317.52	373.66	4.526	
17,900.00	9,713.70	17,832.21	9,667.74	191.94	186.85	-88.45	8,617.98	-770.37	1,691.68	1,313.90	377.79	4.478	
18,000.00	9,714.39	17,932.20	9,667.84	194.01	188.92	-88.43	8,717.98	-770.01	1,692.19	1,310.27	381.92	4.431	
18,100.00	9,715.07	18,032.20	9,667.94	196.07	190.99	-88.41	8,817.97	-769.64	1,692.70	1,306.65	386.05	4.385	
18,200.00	9,715.76	18,132.20	9,668.04	198.14	193.06	-88.39	8,917.97	-769.28	1,693.21	1,303.02	390.19	4.339	
18,300.00	9,716.45	18,232.20	9,668.14	200.21	195.13	-88.37	9,017.97	-768.92	1,693.72	1,299.38	394.34	4.295	
18,400.00	9,717.13	18,332.19	9,668.24	202.29	197.21	-88.35	9,117.96	-768.56	1,694.23	1,295.75	398.48	4.252	
18,500.00	9,717.82	18,432.19	9,668.34	204.36	199.28	-88.33	9,217.96	-768.20	1,694.74	1,292.11	402.63	4.209	
18,600.00	9,718.51	18,532.19	9,668.45	206.44	201.36	-88.31	9,317.96	-767.84	1,695.25	1,288.46	406.78	4.167	
18,700.00	9,719.19	18,632.18	9,668.55	208.51	203.44	-88.29	9,417.95	-767.48	1,695.76	1,284.82	410.94	4.127	
18,800.00	9,719.88	18,732.18	9,668.65	210.59	205.53	-88.27	9,517.95	-767.12	1,696.27	1,281.17	415.10	4.086	
18,900.00	9,721.19	18,832.17	9,668.75	212.67	207.61	-88.23	9,617.94	-766.76	1,696.80	1,277.55	419.26	4.047	
19,000.00	9,722.77	18,932.16	9,668.85	214.75	209.69	-88.18	9,717.93	-766.39	1,697.35	1,273.94	423.41	4.009	
19,100.00	9,724.35	19,032.15	9,668.95	216.84	211.78	-88.13	9,817.91	-766.03	1,697.89	1,270.33	427.56	3.971	
19,200.00	9,725.93	19,133.32	9,669.49	218.92	213.89	-88.10	9,919.08	-765.67	1,698.42	1,266.67	431.75	3.934	
19,300.00	9,727.51	19,234.76	9,672.91	221.01	216.01	-88.16	10,020.46	-765.28	1,698.84	1,262.86	435.98	3.897	
19,400.00	9,729.09	19,334.73	9,676.95	223.10	218.10	-88.24	10,120.35	-764.89	1,699.24	1,259.04	440.20	3.860	
19,500.00	9,730.67	19,434.70	9,680.99	225.18	220.19	-88.33	10,220.23	-764.51	1,699.63	1,255.22	444.41	3.824	
19,600.00	9,732.25	19,534.67	9,685.02	227.27	222.28	-88.41	10,320.12	-764.12	1,700.04	1,251.41	448.63	3.789	
19,700.00	9,733.83	19,634.64	9,689.06	229.36	224.38	-88.49	10,420.01	-763.73	1,700.44	1,247.60	452.84	3.755	
19,800.00	9,735.41	19,734.61	9,693.10	231.46	226.47	-88.58	10,519.89	-763.35	1,700.85	1,243.79	457.06	3.721	
19,900.00	9,736.99	19,834.57	9,697.14	233.55	228.57	-88.66	10,619.78	-762.96	1,701.27	1,239.98	461.28	3.688	
20,000.00	9,738.57	19,934.54	9,701.18	235.64	230.66	-88.74	10,719.67	-762.58	1,701.68	1,236.18	465.51	3.656	
20,100.00	9,740.15	20,034.51	9,705.22	237.74	232.76	-88.83	10,819.55	-762.19	1,702.11	1,232.38	469.73	3.624	
20,153.58	9,741.00	20,088.08	9,707.38	238.86	233.89	-88.87	10,873.07	-761.98	1,702.33	1,230.34	471.99	3.607 ES, 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 6HC - OH / Job #61219 - Plan 3 06-09-17													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)				Between Centres (usft)	Between Ellipses (usft)	
10,400.00	9,696.03	10,308.39	9,685.29	59.17	54.76	-89.66	1,097.09	-732.90	1,711.14	1,600.53	110.61	15.470		
10,500.00	9,691.33	10,408.39	9,680.32	59.97	55.48	-89.65	1,196.96	-733.89	1,710.42	1,598.21	112.22	15.242		
10,600.00	9,686.63	10,508.39	9,675.35	60.85	56.28	-89.64	1,296.83	-734.88	1,709.71	1,595.74	113.97	15.002		
10,700.00	9,681.92	10,608.39	9,670.38	61.80	57.15	-89.63	1,396.70	-735.86	1,708.99	1,593.14	115.85	14.751		
10,800.00	9,677.22	10,708.38	9,665.41	62.82	58.09	-89.62	1,496.57	-736.85	1,708.27	1,590.41	117.87	14.493		
10,900.00	9,672.51	10,808.38	9,660.43	63.89	59.09	-89.61	1,596.44	-737.84	1,707.56	1,587.55	120.00	14.229		
11,000.00	9,667.81	10,908.38	9,655.46	65.03	60.16	-89.60	1,696.31	-738.83	1,706.84	1,584.58	122.26	13.961		
11,100.00	9,663.11	11,008.37	9,650.49	66.22	61.28	-89.60	1,796.17	-739.82	1,706.13	1,581.51	124.62	13.691		
11,200.00	9,658.40	11,108.37	9,645.52	67.45	62.45	-89.59	1,896.04	-740.80	1,705.41	1,578.33	127.08	13.420		
11,300.00	9,653.70	11,208.37	9,640.55	68.74	63.68	-89.58	1,995.91	-741.79	1,704.69	1,575.05	129.65	13.149		
11,400.00	9,649.00	11,308.36	9,635.57	70.07	64.96	-89.57	2,095.78	-742.78	1,703.98	1,571.68	132.30	12.880		
11,500.00	9,644.29	11,408.47	9,630.74	71.44	66.28	-89.56	2,195.76	-743.77	1,703.26	1,568.22	135.04	12.613		
11,600.00	9,640.05	11,508.71	9,626.34	72.85	67.64	-89.62	2,295.96	-744.77	1,702.53	1,564.66	137.87	12.349		
11,700.00	9,638.84	11,608.70	9,626.81	74.29	69.03	-89.59	2,395.94	-745.76	1,701.84	1,561.09	140.75	12.092		
11,800.00	9,638.95	11,708.68	9,625.27	75.75	70.46	-89.54	2,495.91	-746.75	1,701.16	1,557.48	143.68	11.840		
11,900.00	9,639.05	11,808.67	9,623.74	77.25	71.93	-89.48	2,595.87	-747.75	1,700.49	1,553.81	146.68	11.593		
12,000.00	9,639.15	11,908.65	9,622.21	78.78	73.43	-89.43	2,695.84	-748.74	1,699.82	1,550.07	149.75	11.351		
12,100.00	9,639.25	12,008.64	9,620.68	80.34	74.97	-89.37	2,795.81	-749.74	1,699.14	1,546.27	152.87	11.115		
12,200.00	9,639.36	12,108.62	9,619.15	81.93	76.53	-89.32	2,895.78	-750.73	1,698.47	1,542.42	156.05	10.884		
12,300.00	9,639.46	12,208.61	9,617.62	83.55	78.12	-89.26	2,995.74	-751.72	1,697.80	1,538.52	159.29	10.659		
12,400.00	9,639.56	12,308.59	9,616.09	85.19	79.74	-89.21	3,095.71	-752.72	1,697.14	1,534.56	162.57	10.439		
12,500.00	9,639.66	12,408.57	9,614.56	86.85	81.39	-89.15	3,195.68	-753.71	1,696.47	1,530.57	165.91	10.225		
12,600.00	9,639.76	12,508.56	9,613.03	88.53	83.06	-89.10	3,295.65	-754.71	1,695.81	1,526.53	169.28	10.018		
12,700.00	9,639.87	12,608.54	9,611.50	90.23	84.75	-89.04	3,395.62	-755.70	1,695.15	1,522.44	172.70	9.815		
12,800.00	9,639.97	12,708.53	9,609.97	91.96	86.46	-88.99	3,495.58	-756.69	1,694.49	1,518.33	176.16	9.619		
12,900.00	9,640.73	12,808.50	9,608.44	93.70	88.19	-88.90	3,595.54	-757.69	1,693.83	1,514.18	179.64	9.429		
13,000.00	9,642.15	12,908.45	9,606.91	95.46	89.94	-88.80	3,695.47	-758.68	1,693.17	1,510.01	183.16	9.244		
13,100.00	9,643.58	13,008.40	9,605.38	97.24	91.70	-88.70	3,795.41	-759.68	1,692.52	1,505.81	186.72	9.065		
13,200.00	9,645.00	13,108.36	9,603.85	99.03	93.49	-88.60	3,895.35	-760.67	1,691.88	1,501.58	190.30	8.891		
13,300.00	9,646.43	13,208.31	9,602.32	100.84	95.29	-88.50	3,995.28	-761.66	1,691.24	1,497.34	193.91	8.722		
13,400.00	9,647.85	13,308.27	9,600.79	102.66	97.10	-88.40	4,095.22	-762.66	1,690.61	1,493.07	197.55	8.558		
13,500.00	9,649.27	13,408.22	9,599.26	104.50	98.93	-88.30	4,195.16	-763.65	1,689.98	1,488.77	201.21	8.399		
13,600.00	9,650.70	13,508.17	9,597.73	106.34	100.77	-88.20	4,295.10	-764.64	1,689.36	1,484.47	204.90	8.245		
13,700.00	9,652.12	13,608.13	9,596.20	108.20	102.62	-88.10	4,395.03	-765.64	1,688.75	1,480.14	208.61	8.095		
13,800.00	9,653.55	13,709.63	9,595.97	110.07	104.51	-88.04	4,496.53	-766.65	1,688.09	1,475.71	212.38	7.949		
13,900.00	9,654.97	13,809.63	9,596.98	111.95	106.38	-88.02	4,596.51	-767.64	1,687.38	1,471.23	216.15	7.806		
14,000.00	9,656.40	13,909.62	9,597.99	113.84	108.27	-88.01	4,696.50	-768.63	1,686.68	1,466.73	219.95	7.668		
14,100.00	9,657.82	14,009.62	9,599.00	115.75	110.17	-87.99	4,796.48	-769.62	1,685.98	1,462.21	223.77	7.535		
14,200.00	9,659.24	14,109.62	9,600.01	117.65	112.07	-87.98	4,896.47	-770.61	1,685.28	1,457.68	227.60	7.405		
14,300.00	9,660.67	14,209.61	9,601.02	119.57	113.98	-87.96	4,996.46	-771.60	1,684.58	1,453.12	231.45	7.278		
14,400.00	9,662.09	14,309.61	9,602.03	121.50	115.91	-87.95	5,096.44	-772.59	1,683.88	1,448.56	235.32	7.156		
14,500.00	9,663.52	14,409.61	9,603.04	123.43	117.84	-87.94	5,196.43	-773.58	1,683.17	1,443.97	239.20	7.037		
14,600.00	9,664.94	14,509.60	9,604.05	125.38	119.78	-87.92	5,296.42	-774.57	1,682.47	1,439.37	243.10	6.921		
14,700.00	9,666.36	14,609.60	9,605.06	127.32	121.72	-87.91	5,396.40	-775.56	1,681.77	1,434.76	247.01	6.809		
14,800.00	9,667.79	14,709.60	9,606.08	129.28	123.68	-87.89	5,496.39	-776.55	1,681.07	1,430.14	250.93	6.699		
14,900.00	9,669.21	14,809.59	9,607.09	131.24	125.64	-87.88	5,596.38	-777.54	1,680.37	1,425.50	254.87	6.593		
15,000.00	9,670.64	14,909.59	9,608.10	133.21	127.60	-87.86	5,696.36	-778.53	1,679.67	1,420.85	258.82	6.490		
15,100.00	9,672.06	15,009.58	9,609.11	135.18	129.57	-87.85	5,796.35	-779.52	1,678.97	1,416.19	262.78	6.389		
15,193.30	9,673.52	15,105.05	9,610.08	137.03	131.46	-87.84	5,891.81	-780.46	1,678.81	1,412.04	266.78	6.293		
15,200.00	9,673.54	15,114.75	9,610.21	137.16	131.65	-87.84	5,901.50	-780.53	1,678.45	1,411.33	267.12	6.283		
15,300.00	9,675.58	15,234.50	9,613.73	139.14	134.03	-87.89	6,021.20	-780.40	1,678.85	1,407.05	271.81	6.177		
15,400.00	9,677.72	15,334.49	9,617.19	141.13	136.02	-87.94	6,121.13	-780.00	1,679.34	1,403.53	275.81	6.089		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 6HC - OH / Job #61219 - Plan 3 06-09-17													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	
5,200.00	5,105.97	5,461.62	5,429.35	33.31	30.96	-163.43	277.17	-793.33	1,695.05	1,636.86	58.18	29.134	
5,300.00	5,203.73	5,555.33	5,521.34	34.00	31.56	-163.61	277.17	-775.47	1,696.21	1,636.92	59.29	28.610	
5,400.00	5,301.48	5,600.00	5,565.28	34.69	31.85	-163.70	277.17	-767.45	1,698.97	1,638.85	60.12	28.259	
5,500.00	5,399.24	5,680.57	5,644.83	35.38	32.35	-163.86	277.17	-754.71	1,703.62	1,642.47	61.15	27.858	
5,600.00	5,497.37	5,743.06	5,706.77	36.05	32.72	-164.00	277.17	-746.38	1,708.87	1,646.70	62.16	27.490	
5,700.00	5,596.10	5,800.00	5,763.34	36.67	33.05	-164.10	277.17	-739.97	1,712.97	1,649.90	63.06	27.163	
5,800.00	5,695.33	5,868.06	5,831.11	37.26	33.43	-164.20	277.17	-733.77	1,715.87	1,651.93	63.94	26.837	
5,900.00	5,794.93	5,930.55	5,893.47	37.80	33.77	-164.26	277.17	-729.51	1,717.61	1,652.92	64.69	26.550	
6,000.00	5,894.77	6,000.00	5,962.84	38.30	34.14	-164.29	277.17	-726.36	1,718.20	1,652.80	65.40	26.277	
6,100.00	5,994.75	6,055.57	6,018.39	38.75	34.42	-164.30	277.17	-725.06	1,717.57	1,651.63	65.93	26.050	
6,200.00	6,094.75	6,131.93	6,094.75	39.19	34.80	-90.16	277.17	-724.79	1,717.14	1,650.30	66.84	25.691	
6,300.00	6,194.75	6,231.93	6,194.75	39.62	35.28	-90.16	277.17	-724.79	1,717.14	1,649.30	67.83	25.314	
6,400.00	6,294.75	6,331.93	6,294.75	40.06	35.77	-90.16	277.17	-724.79	1,717.14	1,648.30	68.83	24.946	
6,500.00	6,394.75	6,431.93	6,394.75	40.50	36.27	-90.16	277.17	-724.79	1,717.14	1,647.30	69.83	24.589	
6,600.00	6,494.75	6,531.93	6,494.75	40.95	36.76	-90.16	277.17	-724.79	1,717.14	1,646.30	70.84	24.240	
6,700.00	6,594.75	6,631.93	6,594.75	41.39	37.25	-90.16	277.17	-724.79	1,717.14	1,645.29	71.84	23.901	
6,800.00	6,694.75	6,731.93	6,694.75	41.84	37.75	-90.16	277.17	-724.79	1,717.14	1,644.29	72.85	23.571	
6,900.00	6,794.75	6,831.93	6,794.75	42.29	38.24	-90.16	277.17	-724.79	1,717.14	1,643.28	73.86	23.248	
7,000.00	6,894.75	6,931.93	6,894.75	42.75	38.74	-90.16	277.17	-724.79	1,717.14	1,642.26	74.87	22.934	
7,100.00	6,994.75	7,031.93	6,994.75	43.20	39.24	-90.16	277.17	-724.79	1,717.14	1,641.25	75.88	22.628	
7,200.00	7,094.75	7,131.93	7,094.75	43.66	39.74	-90.16	277.17	-724.79	1,717.14	1,640.24	76.90	22.330	
7,300.00	7,194.75	7,231.93	7,194.75	44.11	40.24	-90.16	277.17	-724.79	1,717.14	1,639.22	77.92	22.039	
7,400.00	7,294.75	7,331.93	7,294.75	44.57	40.74	-90.16	277.17	-724.79	1,717.14	1,638.20	78.93	21.754	
7,500.00	7,394.75	7,431.93	7,394.75	45.04	41.24	-90.16	277.17	-724.79	1,717.14	1,637.18	79.95	21.477	
7,600.00	7,494.75	7,531.93	7,494.75	45.50	41.75	-90.16	277.17	-724.79	1,717.14	1,636.16	80.97	21.206	
7,700.00	7,594.75	7,631.93	7,594.75	45.96	42.25	-90.16	277.17	-724.79	1,717.14	1,635.14	81.99	20.942	
7,800.00	7,694.75	7,731.93	7,694.75	46.43	42.76	-90.16	277.17	-724.79	1,717.14	1,634.12	83.02	20.684	
7,900.00	7,794.75	7,831.93	7,794.75	46.90	43.26	-90.16	277.17	-724.79	1,717.14	1,633.09	84.04	20.432	
8,000.00	7,894.75	7,931.93	7,894.75	47.37	43.77	-90.16	277.17	-724.79	1,717.14	1,632.07	85.07	20.185	
8,100.00	7,994.75	8,031.93	7,994.75	47.84	44.28	-90.16	277.17	-724.79	1,717.14	1,631.04	86.10	19.945	
8,200.00	8,094.75	8,131.93	8,094.75	48.31	44.78	-90.16	277.17	-724.79	1,717.14	1,630.01	87.12	19.709	
8,300.00	8,194.75	8,231.93	8,194.75	48.78	45.29	-90.16	277.17	-724.79	1,717.14	1,628.98	88.15	19.479	
8,400.00	8,294.75	8,331.93	8,294.75	49.26	45.80	-90.16	277.17	-724.79	1,717.14	1,627.95	89.18	19.254	
8,500.00	8,394.75	8,431.93	8,394.75	49.74	46.31	-90.16	277.17	-724.79	1,717.14	1,626.92	90.22	19.034	
8,600.00	8,494.75	8,531.93	8,494.75	50.21	46.82	-90.16	277.17	-724.79	1,717.14	1,625.89	91.25	18.818	
8,700.00	8,594.75	8,631.93	8,594.75	50.69	47.33	-90.16	277.17	-724.79	1,717.14	1,624.86	92.28	18.608	
8,800.00	8,694.75	8,731.93	8,694.75	51.17	47.84	-90.16	277.17	-724.79	1,717.14	1,623.82	93.32	18.401	
8,900.00	8,794.75	8,831.93	8,794.75	51.65	48.36	-90.16	277.17	-724.79	1,717.14	1,622.79	94.35	18.199	
9,000.00	8,894.75	8,931.93	8,894.75	52.13	48.87	-90.16	277.17	-724.79	1,717.14	1,621.75	95.39	18.002	
9,100.00	8,994.75	9,031.93	8,994.75	52.62	49.38	-90.16	277.17	-724.79	1,717.14	1,620.71	96.42	17.808	
9,200.00	9,094.75	9,131.93	9,094.75	53.10	49.90	-90.16	277.17	-724.79	1,717.14	1,619.67	97.46	17.619	
9,300.00	9,194.64	9,230.37	9,193.03	53.59	50.40	-89.14	281.35	-724.83	1,717.12	1,618.67	98.45	17.441	
9,400.00	9,292.68	9,327.96	9,288.43	54.10	50.89	-89.11	301.29	-725.03	1,717.00	1,617.53	99.47	17.262	
9,500.00	9,385.91	9,425.36	9,378.91	54.59	51.34	-89.10	337.03	-725.38	1,716.75	1,616.27	100.48	17.086	
9,600.00	9,471.51	9,522.64	9,461.94	55.07	51.73	-89.13	387.49	-725.88	1,716.38	1,614.91	101.48	16.914	
9,700.00	9,546.88	9,619.87	9,535.22	55.51	52.06	-89.17	451.22	-726.51	1,715.91	1,613.43	102.48	16.744	
9,800.00	9,609.72	9,717.14	9,596.70	55.93	52.34	-89.24	526.45	-727.26	1,715.35	1,611.86	103.49	16.575	
9,900.00	9,658.13	9,814.53	9,644.64	56.34	52.58	-89.34	611.08	-728.09	1,714.71	1,610.18	104.53	16.404	
10,000.00	9,690.63	9,912.10	9,677.62	56.78	52.84	-89.45	702.78	-729.00	1,714.02	1,608.43	105.59	16.232	
10,100.00	9,706.24	10,009.93	9,694.60	57.25	53.17	-89.58	798.99	-729.95	1,713.30	1,606.61	106.69	16.059	
10,200.00	9,705.44	10,108.40	9,695.24	57.80	53.59	-89.68	897.36	-730.93	1,712.57	1,604.74	107.84	15.881	
10,300.00	9,700.74	10,208.40	9,690.27	58.44	54.13	-89.67	997.23	-731.91	1,711.86	1,602.71	109.15	15.684	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 6HC - OH / Job #61219 - Plan 3 06-09-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (°)	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	20.00	0.00	0.00	-78.43	277.17	-1,353.83	1,382.05				
100.00	100.00	80.00	100.00	0.19	0.15	-78.43	277.17	-1,353.83	1,381.91	1,381.56	0.35	3,966.049	
200.00	200.00	180.00	200.00	0.73	0.62	-78.43	277.17	-1,353.83	1,381.91	1,380.55	1.36	1,019.842	
300.00	300.00	280.00	300.00	1.27	1.16	-78.43	277.17	-1,353.83	1,381.91	1,379.48	2.43	568.585	
400.00	400.00	380.00	400.00	1.81	1.70	-78.43	277.17	-1,353.83	1,381.91	1,378.40	3.51	394.172	
500.00	500.00	480.00	500.00	2.34	2.24	-78.43	277.17	-1,353.83	1,381.91	1,377.33	4.58	301.644	
600.00	600.00	580.00	600.00	2.88	2.77	-78.43	277.17	-1,353.83	1,381.91	1,376.25	5.66	244.297 CC	
700.00	699.98	679.98	699.98	3.41	3.31	-152.59	277.17	-1,353.83	1,383.46	1,376.73	6.73	205.642	
800.00	799.84	779.84	799.84	3.94	3.85	-152.65	277.17	-1,353.83	1,388.11	1,380.31	7.79	178.082	
900.00	899.45	879.45	899.45	4.47	4.38	-152.74	277.17	-1,353.83	1,395.86	1,387.00	8.86	157.535	
1,000.00	998.70	978.70	998.70	5.02	4.92	-152.87	277.17	-1,353.83	1,406.71	1,396.79	9.92	141.794	
1,100.00	1,097.47	1,077.47	1,097.47	5.59	5.45	-153.03	277.17	-1,353.83	1,420.68	1,409.71	10.97	129.474	
1,200.00	1,195.62	1,175.62	1,195.62	6.19	5.98	-153.21	277.17	-1,353.83	1,437.76	1,425.75	12.01	119.668	
1,300.00	1,293.38	1,273.38	1,293.38	6.80	6.50	-153.57	277.17	-1,353.83	1,456.66	1,443.59	13.08	111.402	
1,400.00	1,391.14	1,371.14	1,391.14	7.43	7.03	-153.93	277.17	-1,353.83	1,475.63	1,461.48	14.15	104.312	
1,500.00	1,488.90	1,468.90	1,488.90	8.07	7.55	-154.29	277.17	-1,353.83	1,494.65	1,479.43	15.22	98.184	
1,600.00	1,586.66	1,566.66	1,586.66	8.72	8.08	-154.63	277.17	-1,353.83	1,513.72	1,497.42	16.30	92.842	
1,700.00	1,684.42	1,664.42	1,684.42	9.38	8.61	-154.97	277.17	-1,353.83	1,532.85	1,515.46	17.39	88.150	
1,800.00	1,782.18	1,762.18	1,782.18	10.04	9.13	-155.30	277.17	-1,353.83	1,552.03	1,533.55	18.48	83.998	
1,900.00	1,879.94	1,859.94	1,879.94	10.70	9.66	-155.62	277.17	-1,353.83	1,571.25	1,551.69	19.57	80.302	
2,000.00	1,977.69	1,957.69	1,977.69	11.37	10.18	-155.93	277.17	-1,353.83	1,590.53	1,569.87	20.66	76.991	
2,100.00	2,075.45	2,055.45	2,075.45	12.04	10.71	-156.23	277.17	-1,353.83	1,609.84	1,588.09	21.75	74.010	
2,200.00	2,173.21	2,153.21	2,173.21	12.72	11.23	-156.53	277.17	-1,353.83	1,629.20	1,606.36	22.85	71.313	
2,300.00	2,270.97	2,252.26	2,272.26	13.39	11.77	-156.82	277.17	-1,353.83	1,648.60	1,624.65	23.95	68.843	
2,400.00	2,368.73	2,483.67	2,503.41	14.07	12.96	-157.45	277.17	-1,344.30	1,664.04	1,638.35	25.69	64.782	
2,500.00	2,466.49	2,719.77	2,737.67	14.75	14.21	-157.99	277.17	-1,315.40	1,671.47	1,644.01	27.47	60.849	
2,600.00	2,564.25	2,866.12	2,881.54	15.43	15.00	-158.29	277.17	-1,288.58	1,672.54	1,643.73	28.81	58.055	
2,700.00	2,662.00	2,965.95	2,979.53	16.11	15.56	-158.49	277.17	-1,269.53	1,673.15	1,643.23	29.92	55.929	
2,800.00	2,759.76	3,065.78	3,077.52	16.79	16.13	-158.69	277.17	-1,250.48	1,673.78	1,642.76	31.03	53.948	
2,900.00	2,857.52	3,165.60	3,175.51	17.47	16.70	-158.89	277.17	-1,231.43	1,674.44	1,642.30	32.14	52.100	
3,000.00	2,955.28	3,265.43	3,273.51	18.16	17.28	-159.09	277.17	-1,212.39	1,675.11	1,641.85	33.26	50.371	
3,100.00	3,053.04	3,365.26	3,371.50	18.84	17.87	-159.29	277.17	-1,193.34	1,675.80	1,641.43	34.37	48.752	
3,200.00	3,150.80	3,465.08	3,469.49	19.53	18.46	-159.49	277.17	-1,174.29	1,676.52	1,641.02	35.50	47.232	
3,300.00	3,248.55	3,564.91	3,567.49	20.21	19.06	-159.68	277.17	-1,155.24	1,677.25	1,640.64	36.62	45.804	
3,400.00	3,346.31	3,664.74	3,665.48	20.90	19.66	-159.88	277.17	-1,136.20	1,678.01	1,640.27	37.74	44.458	
3,500.00	3,444.07	3,764.57	3,763.47	21.59	20.26	-160.08	277.17	-1,117.15	1,678.79	1,639.91	38.87	43.189	
3,600.00	3,541.83	3,864.39	3,861.46	22.27	20.87	-160.28	277.17	-1,098.10	1,679.58	1,639.58	40.00	41.991	
3,700.00	3,639.59	3,964.22	3,959.46	22.96	21.49	-160.48	277.17	-1,079.05	1,680.40	1,639.27	41.13	40.857	
3,800.00	3,737.35	4,064.05	4,057.45	23.65	22.10	-160.68	277.17	-1,060.00	1,681.23	1,638.97	42.26	39.783	
3,900.00	3,835.11	4,163.87	4,155.44	24.34	22.72	-160.88	277.17	-1,040.96	1,682.09	1,638.70	43.39	38.765	
4,000.00	3,932.86	4,263.70	4,253.43	25.03	23.34	-161.07	277.17	-1,021.91	1,682.97	1,638.44	44.53	37.798	
4,100.00	4,030.62	4,363.53	4,351.43	25.72	23.97	-161.27	277.17	-1,002.86	1,683.86	1,638.20	45.66	36.879	
4,200.00	4,128.38	4,463.35	4,449.42	26.41	24.60	-161.47	277.17	-983.81	1,684.78	1,637.99	46.79	36.004	
4,300.00	4,226.14	4,563.18	4,547.41	27.09	25.22	-161.66	277.17	-964.76	1,685.72	1,637.79	47.93	35.170	
4,400.00	4,323.90	4,663.01	4,645.41	27.78	25.86	-161.86	277.17	-945.72	1,686.67	1,637.61	49.07	34.375	
4,500.00	4,421.66	4,762.83	4,743.40	28.47	26.49	-162.06	277.17	-926.67	1,687.65	1,637.45	50.20	33.616	
4,600.00	4,519.42	4,862.66	4,841.39	29.16	27.12	-162.25	277.17	-907.62	1,688.65	1,637.31	51.34	32.890	
4,700.00	4,617.17	4,962.49	4,939.38	29.85	27.76	-162.45	277.17	-888.57	1,689.66	1,637.18	52.48	32.196	
4,800.00	4,714.93	5,062.31	5,037.38	30.54	28.40	-162.65	277.17	-869.53	1,690.70	1,637.08	53.62	31.531	
4,900.00	4,812.69	5,162.14	5,135.37	31.23	29.04	-162.84	277.17	-850.48	1,691.76	1,637.00	54.76	30.894	
5,000.00	4,910.45	5,261.97	5,233.36	31.93	29.68	-163.04	277.17	-831.43	1,692.83	1,636.93	55.90	30.284	
5,100.00	5,008.21	5,361.79	5,331.35	32.62	30.32	-163.23	277.17	-812.38	1,693.93	1,636.89	57.04	29.697	

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 8 P2 - 22HA - OH / Job #61217 - Plan 4 06-09-17													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 532-MWD+HDGM, 5040-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	
15,233.71	9,674.14	14,568.19	9,118.69	137.83	130.01	-74.57	5,964.70	-1,116.51	2,088.40	1,830.87	257.53	8.109	
15,300.00	9,675.58	14,634.48	9,119.98	139.14	131.35	-74.58	6,030.98	-1,116.25	2,088.87	1,828.58	260.29	8.025	
15,400.00	9,677.72	14,734.48	9,121.93	141.13	133.37	-74.58	6,130.96	-1,115.86	2,089.45	1,825.24	264.21	7.908	
15,500.00	9,679.86	14,834.48	9,123.88	143.12	135.40	-74.58	6,230.93	-1,115.47	2,090.03	1,821.89	268.13	7.795	
15,600.00	9,682.00	14,934.48	9,125.83	145.12	137.43	-74.58	6,330.91	-1,115.08	2,090.61	1,818.53	272.07	7.684	
15,700.00	9,684.13	15,034.48	9,127.78	147.12	139.46	-74.57	6,430.89	-1,114.69	2,091.18	1,815.17	276.02	7.576	
15,800.00	9,686.27	15,134.48	9,129.73	149.12	141.50	-74.57	6,530.87	-1,114.30	2,091.76	1,811.80	279.97	7.471	
15,900.00	9,688.41	15,234.47	9,131.68	151.13	143.54	-74.57	6,630.85	-1,113.90	2,092.34	1,808.42	283.93	7.369	
16,000.00	9,690.54	15,334.47	9,133.62	153.15	145.58	-74.57	6,730.83	-1,113.51	2,092.92	1,805.03	287.89	7.270	
16,100.00	9,692.68	15,434.47	9,135.57	155.16	147.62	-74.57	6,830.81	-1,113.12	2,093.50	1,801.64	291.86	7.173	
16,200.00	9,694.82	15,534.47	9,137.52	157.18	149.67	-74.57	6,930.78	-1,112.73	2,094.08	1,798.24	295.84	7.078	
16,300.00	9,696.96	15,634.47	9,139.47	159.20	151.73	-74.57	7,030.76	-1,112.34	2,094.66	1,794.83	299.82	6.986	
16,400.00	9,699.09	15,734.47	9,141.42	161.23	153.78	-74.57	7,130.74	-1,111.95	2,095.23	1,791.42	303.81	6.896	
16,500.00	9,701.23	15,834.46	9,143.37	163.26	155.84	-74.57	7,230.72	-1,111.56	2,095.81	1,788.01	307.81	6.809	
16,600.00	9,703.37	15,931.74	9,145.23	165.29	157.84	-74.56	7,327.97	-1,111.18	2,096.40	1,784.65	311.75	6.725	
16,700.00	9,705.41	16,015.01	9,145.25	167.33	159.56	-74.52	7,411.24	-1,110.87	2,097.48	1,782.16	315.32	6.652	
16,800.00	9,706.15	16,112.94	9,143.52	169.36	161.58	-74.45	7,509.16	-1,110.51	2,098.63	1,779.45	319.18	6.575	
16,900.00	9,706.84	16,212.91	9,141.73	171.40	163.65	-74.39	7,609.12	-1,110.15	2,099.76	1,776.65	323.11	6.499	
17,000.00	9,707.52	16,312.88	9,139.95	173.45	165.72	-74.33	7,709.07	-1,109.79	2,100.90	1,773.86	327.05	6.424	
17,100.00	9,708.21	16,412.85	9,138.16	175.49	167.79	-74.27	7,809.02	-1,109.43	2,102.05	1,771.06	330.99	6.351	
17,200.00	9,708.90	16,512.82	9,136.38	177.54	169.86	-74.21	7,908.97	-1,109.07	2,103.19	1,768.26	334.93	6.279	
17,300.00	9,709.58	16,612.79	9,134.59	179.59	171.94	-74.15	8,008.92	-1,108.70	2,104.34	1,765.46	338.88	6.210	
17,400.00	9,710.27	16,712.75	9,132.81	181.64	174.02	-74.09	8,108.87	-1,108.34	2,105.49	1,762.66	342.83	6.142	
17,500.00	9,710.96	16,812.72	9,131.02	183.70	176.10	-74.02	8,208.82	-1,107.98	2,106.64	1,759.87	346.78	6.075	
17,600.00	9,711.64	16,912.69	9,129.24	185.76	178.18	-73.96	8,308.78	-1,107.62	2,107.80	1,757.07	350.73	6.010	
17,700.00	9,712.33	17,012.66	9,127.45	187.82	180.26	-73.90	8,408.73	-1,107.26	2,108.96	1,754.28	354.68	5.946	
17,800.00	9,713.02	17,112.63	9,125.67	189.88	182.35	-73.84	8,508.68	-1,106.90	2,110.11	1,751.48	358.63	5.884	
17,900.00	9,713.70	17,212.60	9,123.88	191.94	184.43	-73.78	8,608.63	-1,106.53	2,111.28	1,748.69	362.59	5.823	
18,000.00	9,714.39	17,312.56	9,122.10	194.01	186.52	-73.72	8,708.58	-1,106.17	2,112.44	1,745.89	366.55	5.763	
18,100.00	9,715.07	17,412.53	9,120.31	196.07	188.61	-73.66	8,808.53	-1,105.81	2,113.61	1,743.10	370.51	5.705	
18,200.00	9,715.76	17,512.44	9,119.59	198.14	190.95	-73.63	8,920.23	-1,105.39	2,114.44	1,739.70	374.74	5.642	
18,300.00	9,716.45	17,612.43	9,119.71	200.21	193.04	-73.61	9,020.23	-1,105.01	2,115.05	1,736.28	378.78	5.584	
18,400.00	9,717.13	17,712.43	9,119.83	202.29	195.13	-73.60	9,120.23	-1,104.63	2,115.67	1,732.85	382.82	5.527	
18,500.00	9,717.82	17,812.43	9,119.96	204.36	197.22	-73.59	9,220.22	-1,104.25	2,116.28	1,729.43	386.86	5.470	
18,600.00	9,718.51	17,912.43	9,120.08	206.44	199.32	-73.58	9,320.22	-1,103.88	2,116.90	1,726.00	390.90	5.415	
18,700.00	9,719.19	18,012.42	9,120.20	208.51	201.41	-73.57	9,420.22	-1,103.50	2,117.51	1,722.57	394.94	5.362	
18,800.00	9,719.88	18,112.42	9,120.32	210.59	203.51	-73.56	9,520.21	-1,103.12	2,118.13	1,719.14	398.99	5.309	
18,900.00	9,721.19	18,212.41	9,120.44	212.67	205.61	-73.54	9,620.20	-1,102.74	2,118.92	1,715.87	403.06	5.257	
19,000.00	9,722.77	18,312.40	9,120.56	214.75	207.71	-73.50	9,720.19	-1,102.36	2,119.80	1,712.73	407.07	5.207	
19,100.00	9,724.35	18,412.49	9,120.68	216.84	209.81	-73.47	9,820.18	-1,101.98	2,120.67	1,709.59	411.08	5.159	
19,200.00	9,725.93	18,512.48	9,120.80	218.92	211.91	-73.43	9,920.17	-1,101.60	2,121.55	1,706.45	415.10	5.111	
19,300.00	9,727.51	18,612.47	9,120.92	221.01	214.01	-73.40	10,020.15	-1,101.22	2,122.42	1,703.31	419.12	5.064	
19,400.00	9,729.09	18,712.45	9,121.04	223.10	216.11	-73.36	10,120.14	-1,100.84	2,123.30	1,700.17	423.13	5.018	
19,500.00	9,730.67	18,812.44	9,121.16	225.18	218.22	-73.33	10,220.13	-1,100.46	2,124.18	1,697.03	427.15	4.973	
19,600.00	9,732.25	18,912.43	9,121.28	227.27	220.32	-73.30	10,320.12	-1,100.08	2,125.06	1,693.89	431.17	4.929	
19,700.00	9,733.83	19,012.42	9,121.41	229.36	222.43	-73.26	10,420.10	-1,099.70	2,125.94	1,690.74	435.19	4.885	
19,800.00	9,735.41	19,112.41	9,121.53	231.46	224.54	-73.23	10,520.09	-1,099.32	2,126.82	1,687.60	439.21	4.842	
19,900.00	9,736.99	19,212.40	9,121.65	233.55	226.65	-73.20	10,620.08	-1,098.94	2,127.70	1,684.46	443.24	4.800	
20,000.00	9,738.57	19,312.40	9,121.77	235.64	228.75	-73.16	10,720.06	-1,098.56	2,128.58	1,681.32	447.26	4.759	
20,100.00	9,740.15	19,412.47	9,121.89	237.74	230.86	-73.13	10,820.05	-1,098.18	2,129.46	1,678.18	451.28	4.719	
20,153.58	9,741.00	19,477.65	9,121.95	238.86	232.00	-73.11	10,873.63	-1,097.98	2,129.94	1,676.50	453.44	4.697 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 22HA - OH / Job #61217 - Plan 4 06-09-17													Offset Site Error: 0.00 usft	
Survey Program: 174-MWD, 532-MWD+HDGM, 5040-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)						
10,200.00	9,705.44	9,491.88	9,164.30	57.80	47.28	-75.21	889.51	-1,064.59	2,116.62	2,019.38	97.24	21.768		
10,300.00	9,700.74	9,589.35	9,163.40	58.44	47.87	-75.31	986.97	-1,065.68	2,115.08	2,016.57	98.51	21.471		
10,400.00	9,696.03	9,689.27	9,162.48	59.17	48.55	-75.40	1,086.88	-1,066.79	2,113.55	2,013.59	99.96	21.144		
10,500.00	9,691.33	9,789.20	9,161.55	59.97	49.32	-75.50	1,186.80	-1,067.90	2,112.02	2,010.45	101.57	20.794		
10,600.00	9,686.63	9,889.13	9,160.63	60.85	50.17	-75.59	1,286.71	-1,069.01	2,110.50	2,007.17	103.33	20.425		
10,700.00	9,681.92	9,989.06	9,159.71	61.80	51.09	-75.69	1,386.63	-1,070.12	2,108.98	2,003.75	105.23	20.041		
10,800.00	9,677.22	10,088.98	9,158.78	62.82	52.09	-75.78	1,486.55	-1,071.23	2,107.47	2,000.20	107.27	19.646		
10,900.00	9,672.51	10,188.91	9,157.86	63.89	53.16	-75.88	1,586.46	-1,072.34	2,105.97	1,996.52	109.45	19.242		
11,000.00	9,667.81	10,288.84	9,156.93	65.03	54.29	-75.97	1,686.38	-1,073.45	2,104.47	1,992.73	111.74	18.834		
11,100.00	9,663.11	10,388.76	9,156.01	66.22	55.48	-76.07	1,786.30	-1,074.56	2,102.97	1,988.83	114.15	18.423		
11,200.00	9,658.40	10,488.69	9,155.08	67.45	56.72	-76.17	1,886.21	-1,075.67	2,101.49	1,984.82	116.67	18.013		
11,300.00	9,653.70	10,588.62	9,154.16	68.74	58.02	-76.26	1,986.13	-1,076.79	2,100.01	1,980.72	119.28	17.605		
11,400.00	9,649.00	10,688.54	9,153.24	70.07	59.38	-76.36	2,086.05	-1,077.90	2,098.53	1,976.54	122.00	17.201		
11,500.00	9,644.29	10,788.47	9,152.31	71.44	60.77	-76.46	2,185.96	-1,079.01	2,097.06	1,972.26	124.80	16.803		
11,600.00	9,640.05	10,888.41	9,151.39	72.85	62.21	-76.53	2,285.89	-1,080.12	2,095.71	1,967.98	127.73	16.408		
11,700.00	9,638.84	10,988.40	9,150.46	74.29	63.70	-76.52	2,385.88	-1,081.23	2,095.08	1,964.36	130.73	16.027		
11,800.00	9,638.95	11,088.40	9,149.54	75.75	65.22	-76.49	2,485.86	-1,082.34	2,094.77	1,961.10	133.67	15.671		
11,900.00	9,639.05	11,188.39	9,148.61	77.25	66.77	-76.46	2,585.84	-1,083.45	2,094.45	1,957.77	136.69	15.323		
12,000.00	9,639.15	11,288.38	9,147.69	78.78	68.36	-76.43	2,685.82	-1,084.57	2,094.14	1,954.37	139.76	14.984		
12,100.00	9,639.25	11,388.38	9,146.76	80.34	69.98	-76.40	2,785.81	-1,085.68	2,093.82	1,950.93	142.90	14.653		
12,200.00	9,639.36	11,486.79	9,145.81	81.93	71.60	-76.36	2,884.21	-1,086.77	2,093.52	1,947.46	146.06	14.333		
12,300.00	9,639.46	11,584.94	9,143.78	83.55	73.25	-76.30	2,982.34	-1,087.74	2,093.36	1,944.11	149.25	14.026		
12,400.00	9,639.56	11,684.91	9,141.65	85.19	74.95	-76.24	3,082.28	-1,088.73	2,093.21	1,940.69	152.52	13.724		
12,500.00	9,639.66	11,784.89	9,139.52	86.85	76.67	-76.18	3,182.23	-1,089.72	2,093.07	1,937.24	155.83	13.432		
12,600.00	9,639.76	11,884.86	9,137.40	88.53	78.42	-76.11	3,282.17	-1,090.70	2,092.92	1,933.74	159.18	13.148		
12,700.00	9,639.87	11,984.83	9,135.27	90.23	80.19	-76.05	3,382.12	-1,091.69	2,092.78	1,930.21	162.57	12.873		
12,800.00	9,639.97	12,084.81	9,133.14	91.96	81.97	-75.98	3,482.06	-1,092.68	2,092.65	1,926.65	166.00	12.607		
12,844.97	9,640.15	12,129.76	9,132.19	92.74	82.78	-75.95	3,527.00	-1,093.12	2,092.62	1,925.05	167.57	12.488		
12,900.00	9,640.73	12,184.76	9,131.02	93.70	83.77	-75.90	3,581.99	-1,093.66	2,092.66	1,923.17	169.49	12.347		
13,000.00	9,642.15	12,284.69	9,128.89	95.46	85.59	-75.80	3,681.89	-1,094.65	2,092.83	1,919.87	172.96	12.100		
13,100.00	9,643.58	12,384.63	9,126.76	97.24	87.43	-75.70	3,781.80	-1,095.63	2,093.01	1,916.56	176.45	11.861		
13,200.00	9,645.00	12,484.56	9,124.64	99.03	89.28	-75.61	3,881.71	-1,096.62	2,093.19	1,913.22	179.98	11.630		
13,300.00	9,646.43	12,584.50	9,122.51	100.84	91.14	-75.51	3,981.62	-1,097.61	2,093.38	1,909.86	183.52	11.407		
13,400.00	9,647.85	12,684.43	9,120.38	102.66	93.02	-75.41	4,081.52	-1,098.59	2,093.58	1,906.49	187.09	11.190		
13,500.00	9,649.27	12,784.37	9,118.26	104.50	94.90	-75.31	4,181.43	-1,099.58	2,093.78	1,903.10	190.68	10.981		
13,600.00	9,650.70	12,884.30	9,116.13	106.34	96.80	-75.21	4,281.34	-1,100.57	2,093.99	1,899.70	194.29	10.778		
13,700.00	9,652.12	12,984.23	9,114.01	108.20	98.71	-75.11	4,381.24	-1,101.55	2,094.20	1,896.29	197.92	10.581		
13,800.00	9,653.55	13,084.17	9,111.88	110.07	100.63	-75.01	4,481.15	-1,102.54	2,094.42	1,892.86	201.56	10.391		
13,900.00	9,654.97	13,184.10	9,109.75	111.95	102.56	-74.91	4,581.06	-1,103.52	2,094.65	1,889.42	205.22	10.207		
14,000.00	9,656.40	13,284.04	9,107.63	113.84	104.50	-74.81	4,680.96	-1,104.51	2,094.88	1,885.98	208.90	10.028		
14,100.00	9,657.82	13,383.97	9,105.50	115.75	106.45	-74.72	4,780.87	-1,105.50	2,095.12	1,882.53	212.59	9.855		
14,200.00	9,659.24	13,483.91	9,103.37	117.65	108.40	-74.62	4,880.78	-1,106.48	2,095.36	1,879.07	216.30	9.687		
14,300.00	9,660.67	13,583.84	9,101.25	119.57	110.37	-74.52	4,980.68	-1,107.47	2,095.62	1,875.60	220.01	9.525		
14,400.00	9,662.09	13,683.78	9,099.12	121.50	112.34	-74.42	5,080.59	-1,108.46	2,095.87	1,872.13	223.74	9.367		
14,500.00	9,663.52	13,806.59	9,098.90	123.43	114.76	-74.36	5,203.39	-1,109.67	2,095.62	1,867.66	227.96	9.193		
14,600.00	9,664.94	13,910.50	9,101.59	125.38	116.83	-74.39	5,307.26	-1,110.71	2,094.62	1,862.71	231.91	9.032		
14,700.00	9,666.36	14,010.49	9,104.25	127.32	118.82	-74.41	5,407.21	-1,111.71	2,093.61	1,857.81	235.80	8.879		
14,800.00	9,667.79	14,110.48	9,106.91	129.28	120.81	-74.44	5,507.16	-1,112.71	2,092.60	1,852.89	239.70	8.730		
14,900.00	9,669.21	14,210.47	9,109.57	131.24	122.81	-74.47	5,607.11	-1,113.71	2,091.59	1,847.97	243.62	8.586		
15,000.00	9,670.64	14,310.46	9,112.23	133.21	124.82	-74.50	5,707.06	-1,114.71	2,090.58	1,843.03	247.54	8.445		
15,100.00	9,672.06	14,410.45	9,114.89	135.18	126.83	-74.52	5,807.01	-1,115.71	2,089.56	1,838.08	251.48	8.309		
15,200.00	9,673.54	14,534.49	9,118.03	137.16	129.33	-74.56	5,931.00	-1,116.64	2,088.64	1,832.51	256.12	8.155		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 22HA - OH / Job #61217 - Plan 4 06-09-17												Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 532-MWD+HDGM, 5040-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	5,008.21	4,973.20	4,978.01	32.62	24.49	-161.55	312.76	-1,056.49	1,908.12	1,855.60	52.52	36.331
5,200.00	5,105.97	5,096.69	5,101.48	33.31	25.09	-161.85	311.30	-1,058.15	1,929.53	1,875.83	53.70	35.930
5,300.00	5,203.73	5,198.94	5,203.73	34.00	25.60	-162.05	311.29	-1,058.16	1,949.60	1,894.81	54.79	35.583
5,400.00	5,301.48	5,296.70	5,301.48	34.69	26.09	-162.24	311.29	-1,058.16	1,969.68	1,913.82	55.86	35.263
5,500.00	5,399.24	5,394.46	5,399.24	35.38	26.58	-162.43	311.29	-1,058.16	1,989.78	1,932.85	56.93	34.952
5,600.00	5,497.37	5,492.58	5,497.37	36.05	27.08	-162.70	311.29	-1,058.16	2,008.19	1,950.08	58.11	34.560
5,700.00	5,596.10	5,591.31	5,596.10	36.67	27.58	-162.93	311.29	-1,058.16	2,023.32	1,964.10	59.22	34.165
5,800.00	5,695.33	5,690.54	5,695.33	37.26	28.08	-163.10	311.29	-1,058.16	2,035.16	1,974.89	60.27	33.768
5,900.00	5,794.93	5,790.14	5,794.93	37.80	28.58	-163.22	311.29	-1,058.16	2,043.67	1,982.43	61.24	33.370
6,000.00	5,894.77	5,889.99	5,894.77	38.30	29.09	-163.29	311.29	-1,058.16	2,048.86	1,986.72	62.14	32.969
6,100.00	5,994.75	5,989.96	5,994.75	38.75	29.60	-163.32	311.29	-1,058.16	2,050.71	1,987.75	62.96	32.570
6,200.00	6,094.75	6,089.96	6,094.75	39.19	30.11	-89.18	311.29	-1,058.16	2,050.71	1,986.72	63.99	32.046
6,300.00	6,194.75	6,189.96	6,194.75	39.62	30.62	-89.18	311.29	-1,058.16	2,050.71	1,985.72	64.99	31.553
6,400.00	6,294.75	6,289.96	6,294.75	40.06	31.14	-89.18	311.29	-1,058.16	2,050.71	1,984.72	65.99	31.074
6,500.00	6,394.75	6,389.96	6,394.75	40.50	31.65	-89.18	311.29	-1,058.16	2,050.71	1,983.72	67.00	30.609
6,600.00	6,494.75	6,489.96	6,494.75	40.95	32.16	-89.18	311.29	-1,058.16	2,050.71	1,982.71	68.00	30.156
6,700.00	6,594.75	6,589.96	6,594.75	41.39	32.68	-89.18	311.29	-1,058.16	2,050.71	1,981.70	69.01	29.716
6,800.00	6,694.75	6,689.96	6,694.75	41.84	33.19	-89.18	311.29	-1,058.16	2,050.71	1,980.69	70.02	29.288
6,900.00	6,794.75	6,789.96	6,794.75	42.29	33.71	-89.18	311.29	-1,058.16	2,050.71	1,979.68	71.03	28.871
7,000.00	6,894.75	6,889.96	6,894.75	42.75	34.23	-89.18	311.29	-1,058.16	2,050.71	1,978.67	72.04	28.465
7,100.00	6,994.75	6,989.96	6,994.75	43.20	34.74	-89.18	311.29	-1,058.16	2,050.71	1,977.65	73.06	28.069
7,200.00	7,094.75	7,089.96	7,094.75	43.66	35.26	-89.18	311.29	-1,058.16	2,050.71	1,976.64	74.08	27.684
7,300.00	7,194.75	7,189.96	7,194.75	44.11	35.78	-89.18	311.29	-1,058.16	2,050.71	1,975.62	75.09	27.309
7,400.00	7,294.75	7,289.96	7,294.75	44.57	36.30	-89.18	311.29	-1,058.16	2,050.71	1,974.60	76.11	26.943
7,500.00	7,394.75	7,389.96	7,394.75	45.04	36.82	-89.18	311.29	-1,058.16	2,050.71	1,973.58	77.13	26.586
7,600.00	7,494.75	7,489.96	7,494.75	45.50	37.34	-89.18	311.29	-1,058.16	2,050.71	1,972.56	78.16	26.238
7,700.00	7,594.75	7,589.96	7,594.75	45.96	37.86	-89.18	311.29	-1,058.16	2,050.71	1,971.53	79.18	25.899
7,800.00	7,694.75	7,689.96	7,694.75	46.43	38.38	-89.18	311.29	-1,058.16	2,050.71	1,970.51	80.21	25.568
7,900.00	7,794.75	7,789.96	7,794.75	46.90	38.90	-89.18	311.29	-1,058.16	2,050.71	1,969.48	81.23	25.245
8,000.00	7,894.75	7,889.96	7,894.75	47.37	39.42	-89.18	311.29	-1,058.16	2,050.71	1,968.45	82.26	24.929
8,100.00	7,994.75	7,989.96	7,994.75	47.84	39.95	-89.18	311.29	-1,058.16	2,050.71	1,967.42	83.29	24.622
8,200.00	8,094.75	8,089.96	8,094.75	48.31	40.47	-89.18	311.29	-1,058.16	2,050.71	1,966.39	84.32	24.321
8,300.00	8,194.75	8,189.96	8,194.75	48.78	40.99	-89.18	311.29	-1,058.16	2,050.71	1,965.36	85.35	24.027
8,400.00	8,294.75	8,289.96	8,294.75	49.26	41.52	-89.18	311.29	-1,058.16	2,050.71	1,964.33	86.38	23.740
8,500.00	8,394.75	8,389.96	8,394.75	49.74	42.04	-89.18	311.29	-1,058.16	2,050.71	1,963.30	87.42	23.459
8,600.00	8,494.75	8,489.96	8,494.75	50.21	42.56	-89.18	311.29	-1,058.16	2,050.71	1,962.26	88.45	23.185
8,665.50	8,560.25	8,555.46	8,560.25	50.53	42.91	-89.18	311.29	-1,058.16	2,050.71	1,961.59	89.13	23.009
8,700.00	8,594.75	8,589.96	8,594.75	50.69	43.09	-89.18	311.30	-1,058.16	2,050.71	1,961.23	89.48	22.917
8,800.00	8,694.75	8,689.96	8,694.75	51.17	43.56	-88.96	318.97	-1,058.25	2,050.95	1,960.47	90.48	22.669
8,900.00	8,794.75	8,789.96	8,794.75	51.65	43.99	-88.39	339.40	-1,058.48	2,051.79	1,960.34	91.45	22.437
9,000.00	8,894.75	8,889.96	8,894.75	52.13	44.36	-87.57	368.78	-1,058.80	2,053.67	1,961.29	92.38	22.230
9,100.00	8,994.75	8,989.96	8,994.75	52.62	44.66	-86.63	402.81	-1,059.18	2,057.17	1,963.90	93.27	22.056
9,200.00	9,094.75	9,089.96	9,094.75	53.10	44.89	-85.65	437.98	-1,059.57	2,062.87	1,968.76	94.12	21.918
9,300.00	9,194.64	9,189.96	9,194.64	53.59	45.08	-83.23	472.95	-1,059.96	2,070.94	1,976.12	94.82	21.840
9,400.00	9,292.68	9,287.96	9,292.68	54.10	45.27	-81.51	510.72	-1,060.38	2,079.90	1,984.45	95.45	21.791
9,500.00	9,385.91	9,381.40	9,385.91	54.59	45.47	-79.88	551.37	-1,060.83	2,088.99	1,993.07	95.91	21.780
9,600.00	9,471.51	9,466.96	9,471.51	55.07	45.69	-78.42	594.59	-1,061.31	2,097.60	2,001.43	96.17	21.811
9,700.00	9,546.88	9,542.34	9,546.88	55.51	45.93	-77.18	640.05	-1,061.82	2,105.23	2,009.00	96.23	21.877
9,800.00	9,609.72	9,605.16	9,609.72	55.93	46.19	-76.19	687.39	-1,062.35	2,111.41	2,015.25	96.16	21.958
9,900.00	9,658.13	9,653.53	9,658.13	56.34	46.45	-75.49	736.26	-1,062.89	2,115.80	2,019.73	96.08	22.022
10,000.00	9,690.63	9,686.00	9,690.63	56.78	46.78	-75.08	797.96	-1,063.57	2,118.23	2,022.04	96.19	22.021
10,100.00	9,706.24	9,701.66	9,706.24	57.25	47.05	-75.05	847.66	-1,064.13	2,118.42	2,021.88	96.54	21.943

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 22HA - OH / Job #61217 - Plan 4 06-09-17												Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 532-MWD+HDGM, 5040-MWD+HDGM												Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	0.00	20.00	0.00	0.00	-76.41	327.17	-1,353.83	1,392.94			
100.00	100.00	83.42	103.42	0.19	0.12	-76.41	327.23	-1,353.71	1,392.70	1,392.39	0.31	4,459.209
200.00	200.00	191.39	211.38	0.73	0.31	-76.39	327.52	-1,353.17	1,392.29	1,391.25	1.04	1,343.131
300.00	300.00	310.42	330.40	1.27	0.70	-76.36	327.82	-1,350.98	1,390.51	1,388.55	1.97	707.033
400.00	400.00	413.55	433.50	1.81	1.03	-76.38	326.86	-1,348.77	1,388.21	1,385.38	2.83	490.002
500.00	500.00	526.00	545.90	2.34	1.27	-76.42	325.11	-1,345.95	1,385.42	1,381.81	3.61	384.060
600.00	600.00	761.59	780.74	2.88	2.00	-76.48	319.67	-1,329.69	1,379.47	1,374.59	4.88	282.698
700.00	699.98	872.00	890.05	3.41	2.54	-150.80	315.51	-1,314.66	1,366.79	1,360.88	5.90	231.469
800.00	799.84	950.37	967.71	3.94	2.96	-151.00	312.40	-1,304.61	1,357.99	1,351.19	6.80	199.628
900.00	899.45	1,035.83	1,052.57	4.47	3.42	-151.23	309.42	-1,295.02	1,353.87	1,346.11	7.76	174.433
955.82	954.91	1,085.60	1,102.04	4.78	3.70	-151.35	308.15	-1,289.65	1,353.27	1,344.95	8.32	162.666 CC
1,000.00	998.70	1,125.04	1,141.25	5.02	3.91	-151.44	307.54	-1,285.46	1,353.64	1,344.88	8.76	154.537 ES
1,100.00	1,097.47	1,234.21	1,249.78	5.59	4.52	-151.67	307.01	-1,273.67	1,356.80	1,346.94	9.86	137.595
1,200.00	1,195.62	1,323.28	1,338.28	6.19	5.01	-151.87	306.88	-1,263.64	1,362.69	1,351.82	10.87	125.354
1,300.00	1,293.38	1,417.69	1,432.15	6.80	5.54	-152.13	307.72	-1,253.63	1,371.20	1,359.28	11.92	115.028
1,400.00	1,391.14	1,513.17	1,527.08	7.43	6.08	-152.38	309.24	-1,243.54	1,379.95	1,366.97	12.99	106.262
1,500.00	1,488.90	1,599.08	1,612.58	8.07	6.55	-152.61	310.20	-1,235.05	1,389.31	1,375.30	14.01	99.170
1,600.00	1,586.66	1,708.43	1,721.44	8.72	7.16	-152.94	311.03	-1,224.91	1,399.24	1,384.07	15.16	92.289
1,700.00	1,684.42	1,830.82	1,843.08	9.38	7.86	-153.26	312.29	-1,211.39	1,407.45	1,391.06	16.39	85.869
1,800.00	1,782.18	1,913.00	1,924.78	10.04	8.33	-153.48	312.93	-1,202.59	1,415.96	1,398.55	17.41	81.323
1,900.00	1,879.94	1,978.19	1,989.72	10.70	8.69	-153.68	313.19	-1,196.85	1,426.26	1,407.91	18.34	77.758
2,000.00	1,977.69	2,062.11	2,073.42	11.37	9.16	-153.94	313.42	-1,190.88	1,438.29	1,418.92	19.37	74.247
2,100.00	2,075.45	2,159.04	2,170.13	12.04	9.68	-154.25	313.65	-1,184.41	1,450.83	1,430.36	20.47	70.882
2,200.00	2,173.21	2,260.17	2,271.04	12.72	10.24	-154.55	314.06	-1,177.59	1,463.36	1,441.77	21.59	67.785
2,300.00	2,270.97	2,362.25	2,372.86	13.39	10.80	-154.84	314.70	-1,170.45	1,475.73	1,453.01	22.71	64.968
2,400.00	2,368.73	2,464.42	2,474.76	14.07	11.36	-155.12	315.60	-1,163.06	1,487.92	1,464.08	23.84	62.407
2,500.00	2,466.49	2,564.94	2,575.00	14.75	11.92	-155.38	316.72	-1,155.57	1,499.98	1,475.02	24.96	60.088
2,600.00	2,564.25	2,690.72	2,700.33	15.43	12.62	-155.68	318.26	-1,145.13	1,511.27	1,485.04	26.22	57.634
2,700.00	2,662.00	2,809.59	2,818.58	16.11	13.30	-155.96	319.39	-1,133.11	1,520.69	1,493.24	27.45	55.401
2,800.00	2,759.76	2,907.51	2,915.96	16.79	13.86	-156.20	320.14	-1,122.82	1,529.76	1,501.19	28.57	53.551
2,900.00	2,857.52	3,002.55	3,010.49	17.47	14.41	-156.42	321.02	-1,113.03	1,539.09	1,509.42	29.67	51.876
3,000.00	2,955.28	3,101.66	3,109.09	18.16	14.97	-156.64	322.15	-1,103.01	1,548.65	1,517.86	30.79	50.292
3,100.00	3,053.04	3,204.92	3,211.79	18.84	15.57	-156.86	323.52	-1,092.36	1,558.06	1,526.12	31.94	48.780
3,200.00	3,150.80	3,309.15	3,315.42	19.53	16.17	-157.07	325.11	-1,081.31	1,567.22	1,534.13	33.09	47.357
3,300.00	3,248.55	3,405.42	3,411.12	20.21	16.72	-157.26	326.57	-1,070.97	1,576.28	1,542.07	34.20	46.084
3,400.00	3,346.31	3,483.36	3,488.67	20.90	17.17	-157.43	327.11	-1,063.21	1,586.07	1,550.85	35.21	45.040
3,500.00	3,444.07	3,550.98	3,556.07	21.59	17.54	-157.63	326.68	-1,057.74	1,597.57	1,561.41	36.17	44.174
3,600.00	3,541.83	3,619.00	3,623.97	22.27	17.91	-157.84	325.64	-1,053.94	1,611.36	1,574.25	37.11	43.416
3,700.00	3,639.59	3,678.89	3,683.82	22.96	18.22	-158.04	324.56	-1,051.91	1,627.28	1,589.27	38.01	42.809
3,800.00	3,737.35	3,756.44	3,761.34	23.65	18.62	-158.30	323.30	-1,050.57	1,644.99	1,605.99	39.00	42.182
3,900.00	3,835.11	3,841.33	3,846.22	24.34	19.04	-158.57	322.16	-1,049.71	1,663.53	1,623.52	40.01	41.578
4,000.00	3,932.86	3,926.06	3,930.94	25.03	19.45	-158.82	321.55	-1,049.63	1,683.03	1,642.02	41.01	41.037
4,100.00	4,030.62	4,025.07	4,029.95	25.72	19.92	-159.10	320.93	-1,049.76	1,702.81	1,660.73	42.08	40.467
4,200.00	4,128.38	4,123.04	4,127.92	26.41	20.39	-159.37	320.19	-1,049.83	1,722.56	1,679.42	43.14	39.929
4,300.00	4,226.14	4,218.82	4,223.70	27.09	20.86	-159.63	319.47	-1,049.96	1,742.42	1,698.23	44.19	39.427
4,400.00	4,323.90	4,314.01	4,318.88	27.78	21.32	-159.89	318.79	-1,050.20	1,762.43	1,717.18	45.24	38.955
4,500.00	4,421.66	4,408.95	4,413.83	28.47	21.77	-160.14	318.05	-1,050.61	1,782.63	1,736.35	46.29	38.512
4,600.00	4,519.42	4,505.07	4,509.94	29.16	22.24	-160.39	317.15	-1,051.12	1,802.97	1,755.63	47.34	38.086
4,700.00	4,617.17	4,599.59	4,604.45	29.85	22.69	-160.64	316.29	-1,051.74	1,823.46	1,775.07	48.38	37.689
4,800.00	4,714.93	4,692.50	4,697.35	30.54	23.14	-160.87	315.55	-1,052.53	1,844.18	1,794.77	49.41	37.321
4,900.00	4,812.69	4,784.10	4,788.95	31.23	23.58	-161.09	314.77	-1,053.59	1,865.22	1,814.78	50.44	36.979
5,000.00	4,910.45	4,876.94	4,881.77	31.93	24.02	-161.32	313.88	-1,054.95	1,886.60	1,835.12	51.47	36.653

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - ST01 / Job #61221 - Plan 4 06-09-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM, 9445-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	9,677.72	15,664.14	9,963.18	141.13	136.57	-97.75	6,117.02	-1,200.16	2,117.72	1,841.45	276.27	7.665	
15,500.00	9,679.86	15,764.14	9,964.45	143.12	138.57	-97.73	6,217.00	-1,199.76	2,118.14	1,837.88	280.26	7.558	
15,600.00	9,682.00	15,864.13	9,965.73	145.12	140.58	-97.70	6,316.99	-1,199.36	2,118.56	1,834.30	284.25	7.453	
15,700.00	9,684.13	15,964.13	9,967.00	147.12	142.60	-97.68	6,416.98	-1,198.96	2,118.98	1,830.72	288.26	7.351	
15,800.00	9,686.27	16,064.12	9,968.27	149.12	144.62	-97.65	6,516.96	-1,198.56	2,119.39	1,827.12	292.27	7.251	
15,900.00	9,688.41	16,164.12	9,969.55	151.13	146.64	-97.63	6,616.95	-1,198.16	2,119.81	1,823.52	296.29	7.154	
16,000.00	9,690.54	16,264.11	9,970.82	153.15	148.66	-97.60	6,716.93	-1,197.76	2,120.23	1,819.91	300.32	7.060	
16,100.00	9,692.68	16,364.11	9,972.09	155.16	150.69	-97.58	6,816.92	-1,197.36	2,120.65	1,816.29	304.36	6.968	
16,200.00	9,694.82	16,464.10	9,973.37	157.18	152.73	-97.55	6,916.91	-1,196.96	2,121.07	1,812.67	308.40	6.878	
16,300.00	9,696.96	16,564.09	9,974.64	159.20	154.76	-97.53	7,016.89	-1,196.56	2,121.49	1,809.04	312.45	6.790	
16,400.00	9,699.09	16,664.09	9,975.91	161.23	156.80	-97.50	7,116.88	-1,196.16	2,121.91	1,805.40	316.51	6.704	
16,500.00	9,701.23	16,764.08	9,977.19	163.26	158.84	-97.48	7,216.86	-1,195.76	2,122.34	1,801.76	320.57	6.620	
16,600.00	9,703.37	16,864.08	9,978.46	165.29	160.89	-97.45	7,316.85	-1,195.36	2,122.76	1,798.12	324.64	6.539	
16,700.00	9,705.41	16,964.07	9,979.73	167.33	162.94	-97.43	7,416.84	-1,194.96	2,123.19	1,794.46	328.72	6.459	
16,800.00	9,706.15	17,064.07	9,981.01	169.36	164.99	-97.44	7,516.82	-1,194.56	2,123.71	1,790.91	332.79	6.381	
16,900.00	9,706.84	17,164.12	9,982.32	171.40	167.00	-97.45	7,616.86	-1,194.17	2,124.25	1,787.43	336.82	6.307	
17,000.00	9,707.52	17,258.33	9,985.14	173.45	168.98	-97.51	7,711.03	-1,193.80	2,125.01	1,784.21	340.80	6.235	
17,100.00	9,708.21	17,358.30	9,988.26	175.49	171.03	-97.57	7,810.95	-1,193.43	2,125.81	1,780.96	344.85	6.164	
17,200.00	9,708.90	17,458.27	9,991.38	177.54	173.09	-97.64	7,910.87	-1,193.06	2,126.61	1,777.70	348.91	6.095	
17,300.00	9,709.58	17,558.24	9,994.50	179.59	175.15	-97.70	8,010.79	-1,192.69	2,127.41	1,774.44	352.97	6.027	
17,400.00	9,710.27	17,658.21	9,997.62	181.64	177.21	-97.76	8,110.71	-1,192.32	2,128.22	1,771.19	357.03	5.961	
17,500.00	9,710.96	17,758.18	10,000.74	183.70	179.28	-97.83	8,210.63	-1,191.95	2,129.03	1,767.93	361.10	5.896	
17,600.00	9,711.64	17,858.15	10,003.86	185.76	181.35	-97.89	8,310.55	-1,191.58	2,129.84	1,764.67	365.17	5.832	
17,700.00	9,712.33	17,958.11	10,006.98	187.82	183.41	-97.95	8,410.47	-1,191.21	2,130.65	1,761.41	369.24	5.770	
17,800.00	9,713.02	18,058.08	10,010.10	189.88	185.48	-98.02	8,510.39	-1,190.84	2,131.47	1,758.15	373.32	5.710	
17,900.00	9,713.70	18,158.05	10,013.22	191.94	187.56	-98.08	8,610.31	-1,190.47	2,132.29	1,754.89	377.40	5.650	
18,000.00	9,714.39	18,258.02	10,016.34	194.01	189.63	-98.14	8,710.23	-1,190.10	2,133.11	1,751.63	381.48	5.592	
18,100.00	9,715.07	18,357.99	10,019.46	196.07	191.71	-98.20	8,810.15	-1,189.73	2,133.94	1,748.38	385.56	5.535	
18,200.00	9,715.76	18,457.96	10,022.58	198.14	193.78	-98.27	8,910.07	-1,189.36	2,134.76	1,745.12	389.64	5.479	
18,300.00	9,716.45	18,557.93	10,025.70	200.21	195.86	-98.33	9,009.99	-1,188.99	2,135.59	1,741.86	393.73	5.424	
18,400.00	9,717.13	18,657.90	10,028.82	202.29	197.94	-98.39	9,109.91	-1,188.61	2,136.42	1,738.60	397.82	5.370	
18,500.00	9,717.82	18,757.87	10,031.94	204.36	200.03	-98.46	9,209.83	-1,188.24	2,137.26	1,735.35	401.91	5.318	
18,600.00	9,718.51	18,857.84	10,035.06	206.44	202.11	-98.52	9,309.75	-1,187.87	2,138.10	1,732.09	406.00	5.266	
18,700.00	9,719.19	18,957.81	10,038.18	208.51	204.19	-98.58	9,409.67	-1,187.50	2,138.93	1,728.84	410.09	5.216	
18,800.00	9,719.88	19,057.78	10,041.30	210.59	206.39	-98.64	9,510.11	-1,187.11	2,139.73	1,725.42	414.30	5.165	
18,900.00	9,721.19	19,157.75	10,044.42	212.67	208.63	-98.69	9,622.00	-1,186.71	2,139.99	1,721.39	418.60	5.112	
19,000.00	9,722.77	19,257.72	10,047.54	214.75	210.72	-98.74	9,721.97	-1,186.33	2,140.13	1,717.34	422.79	5.062	
19,100.00	9,724.35	19,357.69	10,050.66	216.84	212.82	-98.79	9,821.93	-1,185.95	2,140.27	1,713.29	426.98	5.013	
19,200.00	9,725.93	19,457.66	10,053.78	218.92	214.91	-98.84	9,921.90	-1,185.57	2,140.41	1,709.24	431.17	4.964	
19,300.00	9,727.51	19,557.63	10,056.90	221.01	217.01	-98.89	10,021.87	-1,185.20	2,140.55	1,705.19	435.36	4.917	
19,400.00	9,729.09	19,657.60	10,060.02	223.10	219.10	-98.94	10,121.84	-1,184.82	2,140.70	1,701.14	439.56	4.870	
19,500.00	9,730.67	19,757.57	10,063.14	225.18	221.20	-98.99	10,221.81	-1,184.44	2,140.85	1,697.09	443.76	4.824	
19,600.00	9,732.25	19,857.54	10,066.26	227.27	223.30	-99.04	10,321.78	-1,184.06	2,141.00	1,693.04	447.96	4.779	
19,700.00	9,733.83	19,957.51	10,069.38	229.36	225.40	-99.09	10,421.75	-1,183.68	2,141.15	1,688.98	452.17	4.735	
19,800.00	9,735.41	20,057.48	10,072.50	231.46	227.50	-99.14	10,521.72	-1,183.31	2,141.31	1,684.93	456.38	4.692	
19,900.00	9,736.99	20,157.45	10,075.62	233.55	229.60	-99.19	10,621.69	-1,182.93	2,141.47	1,680.88	460.59	4.649	
20,000.00	9,738.57	20,257.42	10,078.74	235.64	231.70	-99.24	10,721.66	-1,182.55	2,141.63	1,676.83	464.80	4.608	
20,100.00	9,740.15	20,357.39	10,081.86	237.74	233.81	-99.29	10,821.63	-1,182.17	2,141.80	1,672.78	469.02	4.567	
20,153.58	9,741.00	20,423.42	10,082.26	238.86	234.94	-99.30	10,875.20	-1,181.97	2,141.89	1,670.61	471.28	4.545 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - ST01 / Job #61221 - Plan 4 06-09-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM, 9445-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	9,700.74	10,549.22	10,018.81	58.44	52.79	-98.51	1,004.49	-1,152.37	2,155.81	2,047.20	108.62	19.848		
10,400.00	9,696.03	10,649.21	10,015.48	59.17	53.51	-98.55	1,104.42	-1,153.35	2,155.29	2,045.14	110.16	19.566		
10,500.00	9,691.33	10,749.19	10,012.15	59.97	54.30	-98.59	1,204.34	-1,154.32	2,154.77	2,042.93	111.84	19.267		
10,600.00	9,686.63	10,849.18	10,008.81	60.85	55.16	-98.63	1,304.27	-1,155.30	2,154.25	2,040.59	113.66	18.953		
10,700.00	9,681.92	10,949.17	10,005.48	61.80	56.10	-98.66	1,404.20	-1,156.27	2,153.74	2,038.12	115.61	18.629		
10,800.00	9,677.22	11,049.16	10,002.14	62.82	57.10	-98.70	1,504.13	-1,157.25	2,153.22	2,035.53	117.69	18.296		
10,900.00	9,672.51	11,149.15	9,998.81	63.89	58.17	-98.74	1,604.05	-1,158.22	2,152.70	2,032.82	119.88	17.957		
11,000.00	9,667.81	11,249.13	9,995.48	65.03	59.29	-98.78	1,703.98	-1,159.20	2,152.19	2,030.00	122.19	17.614		
11,100.00	9,663.11	11,349.12	9,992.14	66.22	60.47	-98.82	1,803.91	-1,160.17	2,151.67	2,027.08	124.60	17.269		
11,200.00	9,658.40	11,449.11	9,988.81	67.45	61.71	-98.86	1,903.84	-1,161.15	2,151.16	2,024.05	127.11	16.924		
11,300.00	9,653.70	11,549.10	9,985.47	68.74	62.99	-98.90	2,003.76	-1,162.12	2,150.65	2,020.94	129.71	16.580		
11,400.00	9,649.00	11,649.09	9,982.14	70.07	64.33	-98.94	2,103.69	-1,163.10	2,150.14	2,017.74	132.40	16.240		
11,500.00	9,644.29	11,749.07	9,978.81	71.44	65.70	-98.98	2,203.62	-1,164.07	2,149.63	2,014.46	135.17	15.903		
11,600.00	9,640.05	11,849.07	9,975.47	72.85	67.12	-99.00	2,303.55	-1,165.05	2,149.05	2,011.07	137.98	15.575		
11,700.00	9,638.84	11,949.04	9,972.14	74.29	68.58	-98.93	2,403.46	-1,166.02	2,148.01	2,007.16	140.85	15.250		
11,800.00	9,638.95	12,048.97	9,968.81	75.75	70.07	-98.84	2,503.34	-1,167.00	2,146.78	2,002.94	143.85	14.924		
11,900.00	9,639.05	12,148.91	9,965.47	77.25	71.59	-98.75	2,603.22	-1,167.97	2,145.56	1,998.66	146.90	14.605		
12,000.00	9,639.15	12,244.40	9,963.13	78.78	73.08	-98.69	2,698.67	-1,168.91	2,144.47	1,994.52	149.95	14.301		
12,100.00	9,639.25	12,344.37	9,961.14	80.34	74.67	-98.64	2,798.62	-1,169.89	2,143.46	1,990.34	153.12	13.999		
12,200.00	9,639.36	12,444.35	9,959.16	81.93	76.28	-98.58	2,898.57	-1,170.86	2,142.45	1,986.11	156.34	13.703		
12,300.00	9,639.46	12,544.32	9,957.18	83.55	77.92	-98.53	2,998.52	-1,171.84	2,141.45	1,981.82	159.62	13.416		
12,400.00	9,639.56	12,644.30	9,955.19	85.19	79.59	-98.48	3,098.47	-1,172.82	2,140.44	1,977.50	162.95	13.136		
12,500.00	9,639.66	12,744.28	9,953.21	86.85	81.28	-98.43	3,198.42	-1,173.80	2,139.44	1,973.12	166.32	12.864		
12,600.00	9,639.76	12,844.25	9,951.23	88.53	82.99	-98.37	3,298.37	-1,174.78	2,138.44	1,968.71	169.73	12.599		
12,700.00	9,639.87	12,944.23	9,949.24	90.23	84.72	-98.32	3,398.33	-1,175.76	2,137.44	1,964.26	173.18	12.342		
12,800.00	9,639.97	13,044.20	9,947.26	91.96	86.48	-98.27	3,498.28	-1,176.74	2,136.44	1,959.77	176.67	12.093		
12,900.00	9,640.73	13,144.16	9,945.28	93.70	88.24	-98.19	3,598.21	-1,177.72	2,135.34	1,955.17	180.17	11.852		
13,000.00	9,642.15	13,244.10	9,943.29	95.46	90.03	-98.10	3,698.13	-1,178.70	2,134.14	1,950.40	183.74	11.615		
13,100.00	9,643.58	13,344.04	9,941.31	97.24	91.83	-98.02	3,798.04	-1,179.68	2,132.94	1,945.60	187.34	11.385		
13,200.00	9,645.00	13,443.98	9,939.33	99.03	93.65	-97.93	3,897.96	-1,180.65	2,131.74	1,940.77	190.97	11.163		
13,300.00	9,646.43	13,543.92	9,937.34	100.84	95.48	-97.84	3,997.87	-1,181.63	2,130.56	1,935.92	194.63	10.947		
13,400.00	9,647.85	13,643.86	9,935.36	102.66	97.33	-97.75	4,097.79	-1,182.61	2,129.37	1,931.05	198.32	10.737		
13,500.00	9,649.27	13,743.80	9,933.38	104.50	99.19	-97.66	4,197.70	-1,183.59	2,128.19	1,926.16	202.03	10.534		
13,600.00	9,650.70	13,843.74	9,931.40	106.34	101.06	-97.57	4,297.61	-1,184.57	2,127.02	1,921.25	205.77	10.337		
13,700.00	9,652.12	13,943.68	9,929.41	108.20	102.94	-97.49	4,397.53	-1,185.55	2,125.85	1,916.33	209.53	10.146		
13,800.00	9,653.55	14,043.62	9,927.43	110.07	104.83	-97.40	4,497.44	-1,186.53	2,124.69	1,911.38	213.31	9.961		
13,900.00	9,654.97	14,143.55	9,925.45	111.95	106.73	-97.31	4,597.36	-1,187.50	2,123.53	1,906.42	217.11	9.781		
14,000.00	9,656.40	14,243.49	9,923.46	113.84	108.64	-97.22	4,697.27	-1,188.48	2,122.38	1,901.45	220.93	9.607		
14,100.00	9,657.82	14,343.43	9,921.48	115.75	110.56	-97.13	4,797.19	-1,189.46	2,121.23	1,896.46	224.77	9.437		
14,200.00	9,659.24	14,436.80	9,920.46	117.65	112.37	-97.07	4,890.54	-1,190.38	2,120.20	1,891.71	228.49	9.279		
14,300.00	9,660.67	14,528.10	9,922.31	119.57	114.13	-97.09	4,981.82	-1,191.30	2,119.58	1,887.40	232.17	9.129		
14,400.00	9,662.09	14,626.86	9,926.29	121.50	116.05	-97.16	5,080.49	-1,192.29	2,119.21	1,883.21	236.00	8.980		
14,500.00	9,663.52	14,726.83	9,930.34	123.43	118.00	-97.23	5,180.37	-1,193.30	2,118.85	1,879.00	239.86	8.834		
14,600.00	9,664.94	14,826.79	9,934.39	125.38	119.95	-97.31	5,280.24	-1,194.32	2,118.50	1,874.77	243.73	8.692		
14,700.00	9,666.36	14,926.75	9,938.45	127.32	121.92	-97.38	5,380.12	-1,195.33	2,118.14	1,870.53	247.62	8.554		
14,800.00	9,667.79	15,026.71	9,942.50	129.28	123.89	-97.45	5,480.00	-1,196.34	2,117.80	1,866.28	251.51	8.420		
14,900.00	9,669.21	15,126.68	9,946.55	131.24	125.86	-97.52	5,579.87	-1,197.35	2,117.45	1,862.03	255.42	8.290		
15,000.00	9,670.64	15,226.64	9,950.61	133.21	127.84	-97.60	5,679.75	-1,198.36	2,117.11	1,857.77	259.34	8.164		
15,100.00	9,672.06	15,326.60	9,954.66	135.18	129.83	-97.67	5,779.62	-1,199.37	2,116.77	1,853.50	263.27	8.040		
15,171.16	9,673.15	15,397.74	9,957.55	136.59	131.25	-97.73	5,850.70	-1,200.09	2,116.81	1,850.61	266.20	7.952		
15,200.00	9,673.54	15,426.57	9,958.72	137.16	131.82	-97.75	5,879.50	-1,200.38	2,116.62	1,849.23	267.39	7.916		
15,300.00	9,675.58	15,564.15	9,961.91	139.14	134.57	-97.78	6,017.03	-1,200.56	2,117.30	1,845.01	272.29	7.776		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - ST01 / Job #61221 - Plan 4 06-09-17											Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM, 9445-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	5,105.97	5,098.32	5,105.97	33.31	27.08	-164.38	227.17	-1,144.79	2,015.20	1,959.54	55.65	36.210
5,300.00	5,203.73	5,196.08	5,203.73	34.00	27.60	-164.54	227.17	-1,144.79	2,035.51	1,978.77	56.74	35.873
5,400.00	5,301.48	5,293.84	5,301.48	34.69	28.11	-164.69	227.17	-1,144.79	2,055.85	1,998.01	57.83	35.549
5,500.00	5,399.24	5,391.60	5,399.24	35.38	28.63	-164.85	227.17	-1,144.79	2,076.19	2,017.27	58.92	35.235
5,600.00	5,497.37	5,489.72	5,497.37	36.05	29.14	-165.08	227.17	-1,144.79	2,094.81	2,034.66	60.16	34.822
5,700.00	5,596.10	5,588.45	5,596.10	36.67	29.66	-165.27	227.17	-1,144.79	2,110.12	2,048.80	61.32	34.410
5,800.00	5,695.33	5,687.68	5,695.33	37.26	30.19	-165.42	227.17	-1,144.79	2,122.10	2,059.68	62.42	33.999
5,900.00	5,794.93	5,787.28	5,794.93	37.80	30.71	-165.52	227.17	-1,144.79	2,130.71	2,067.28	63.43	33.590
6,000.00	5,894.77	5,887.13	5,894.77	38.30	31.24	-165.59	227.17	-1,144.79	2,135.96	2,071.59	64.37	33.181
6,100.00	5,994.75	5,987.10	5,994.75	38.75	31.77	-165.61	227.17	-1,144.79	2,137.83	2,072.60	65.22	32.778
6,200.00	6,094.75	6,087.10	6,094.75	39.19	32.30	-91.47	227.17	-1,144.79	2,137.83	2,071.56	66.27	32.262
6,300.00	6,194.75	6,187.10	6,194.75	39.62	32.83	-91.47	227.17	-1,144.79	2,137.83	2,070.55	67.28	31.774
6,400.00	6,294.75	6,287.10	6,294.75	40.06	33.36	-91.47	227.17	-1,144.79	2,137.83	2,069.53	68.30	31.301
6,500.00	6,394.75	6,387.10	6,394.75	40.50	33.89	-91.47	227.17	-1,144.79	2,137.83	2,068.51	69.32	30.840
6,600.00	6,494.75	6,487.10	6,494.75	40.95	34.42	-91.47	227.17	-1,144.79	2,137.83	2,067.49	70.34	30.392
6,700.00	6,594.75	6,587.10	6,594.75	41.39	34.95	-91.47	227.17	-1,144.79	2,137.83	2,066.47	71.36	29.957
6,800.00	6,694.75	6,687.10	6,694.75	41.84	35.48	-91.47	227.17	-1,144.79	2,137.83	2,065.44	72.39	29.533
6,900.00	6,794.75	6,787.10	6,794.75	42.29	36.01	-91.47	227.17	-1,144.79	2,137.83	2,064.42	73.41	29.120
7,000.00	6,894.75	6,887.10	6,894.75	42.75	36.54	-91.47	227.17	-1,144.79	2,137.83	2,063.39	74.44	28.718
7,100.00	6,994.75	6,987.10	6,994.75	43.20	37.08	-91.47	227.17	-1,144.79	2,137.83	2,062.36	75.47	28.327
7,200.00	7,094.75	7,087.10	7,094.75	43.66	37.61	-91.47	227.17	-1,144.79	2,137.83	2,061.33	76.50	27.946
7,300.00	7,194.75	7,187.10	7,194.75	44.11	38.14	-91.47	227.17	-1,144.79	2,137.83	2,060.30	77.53	27.574
7,400.00	7,294.75	7,287.10	7,294.75	44.57	38.67	-91.47	227.17	-1,144.79	2,137.83	2,059.27	78.56	27.212
7,500.00	7,394.75	7,387.10	7,394.75	45.04	39.20	-91.47	227.17	-1,144.79	2,137.83	2,058.23	79.60	26.859
7,600.00	7,494.75	7,487.10	7,494.75	45.50	39.73	-91.47	227.17	-1,144.79	2,137.83	2,057.20	80.63	26.514
7,700.00	7,594.75	7,587.10	7,594.75	45.96	40.27	-91.47	227.17	-1,144.79	2,137.83	2,056.16	81.66	26.178
7,800.00	7,694.75	7,687.10	7,694.75	46.43	40.80	-91.47	227.17	-1,144.79	2,137.83	2,055.13	82.70	25.850
7,900.00	7,794.75	7,787.10	7,794.75	46.90	41.33	-91.47	227.17	-1,144.79	2,137.83	2,054.09	83.74	25.530
8,000.00	7,894.75	7,887.10	7,894.75	47.37	41.87	-91.47	227.17	-1,144.79	2,137.83	2,053.05	84.78	25.217
8,100.00	7,994.75	7,987.10	7,994.75	47.84	42.40	-91.47	227.17	-1,144.79	2,137.83	2,052.01	85.82	24.912
8,200.00	8,094.75	8,087.10	8,094.75	48.31	42.93	-91.47	227.17	-1,144.79	2,137.83	2,050.97	86.86	24.614
8,300.00	8,194.75	8,187.10	8,194.75	48.78	43.46	-91.47	227.17	-1,144.79	2,137.83	2,049.93	87.90	24.322
8,400.00	8,294.75	8,287.10	8,294.75	49.26	44.00	-91.47	227.17	-1,144.79	2,137.83	2,048.89	88.94	24.037
8,500.00	8,394.75	8,387.10	8,394.75	49.74	44.53	-91.47	227.17	-1,144.79	2,137.83	2,047.85	89.98	23.759
8,600.00	8,494.75	8,487.10	8,494.75	50.21	45.06	-91.47	227.17	-1,144.79	2,137.83	2,046.81	91.02	23.487
8,700.00	8,594.75	8,587.10	8,594.75	50.69	45.60	-91.47	227.17	-1,144.79	2,137.83	2,045.76	92.07	23.220
8,800.00	8,694.75	8,687.10	8,694.75	51.17	46.13	-91.47	227.17	-1,144.79	2,137.83	2,044.72	93.11	22.960
8,900.00	8,794.75	8,787.10	8,794.75	51.65	46.67	-91.47	227.17	-1,144.79	2,137.83	2,043.67	94.16	22.705
9,000.00	8,894.75	8,887.10	8,894.75	52.13	47.20	-91.47	227.17	-1,144.79	2,137.83	2,042.63	95.20	22.456
9,100.00	8,994.75	8,987.10	8,994.75	52.62	47.73	-91.47	227.17	-1,144.79	2,137.83	2,041.58	96.25	22.212
9,200.00	9,094.75	9,087.10	9,094.75	53.10	48.27	-91.47	227.17	-1,144.79	2,137.83	2,040.53	97.30	21.973
9,219.19	9,113.94	9,106.29	9,113.94	53.20	48.37	-90.49	227.17	-1,144.79	2,137.83	2,040.36	97.47	21.933
9,300.00	9,194.64	9,186.99	9,194.64	53.59	48.80	-90.57	227.17	-1,144.79	2,137.86	2,039.54	98.32	21.743
9,400.00	9,292.68	9,285.03	9,292.68	54.10	49.32	-91.04	227.17	-1,144.79	2,138.13	2,038.74	99.40	21.511
9,500.00	9,385.91	9,378.27	9,385.91	54.59	49.82	-91.84	227.17	-1,144.79	2,139.11	2,038.64	100.47	21.291
9,600.00	9,471.51	9,470.24	9,477.88	55.07	50.19	-92.85	227.73	-1,144.79	2,141.53	2,040.09	101.44	21.111
9,700.00	9,546.88	9,590.25	9,596.34	55.51	50.20	-94.20	245.55	-1,144.97	2,145.33	2,043.27	102.05	21.022
9,800.00	9,609.72	9,732.54	9,728.23	55.93	50.25	-95.61	297.95	-1,145.48	2,149.85	2,047.18	102.66	20.941
9,900.00	9,658.13	9,904.16	9,864.13	56.34	50.36	-97.01	401.71	-1,146.49	2,154.23	2,050.89	103.33	20.847
10,000.00	9,690.63	10,107.58	9,976.94	56.78	50.70	-98.11	569.69	-1,148.13	2,157.17	2,052.88	104.28	20.686
10,100.00	9,706.24	10,331.14	10,025.15	57.25	51.52	-98.47	786.53	-1,150.25	2,157.37	2,051.55	105.82	20.387
10,200.00	9,705.44	10,449.23	10,022.15	57.80	52.16	-98.47	904.56	-1,151.40	2,156.34	2,049.11	107.22	20.110

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - ST01 / Job #61221 - Plan 4 06-09-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM, 9445-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	18.00	0.00	0.00	-80.47	227.17	-1,352.83	1,371.89				
100.00	100.00	82.00	100.00	0.19	0.16	-80.47	227.17	-1,352.83	1,371.77	1,371.42	0.35	3,893.684	
200.00	200.00	182.00	200.00	0.73	0.63	-80.47	227.17	-1,352.83	1,371.77	1,370.40	1.37	1,004.387	
300.00	300.00	282.00	300.00	1.27	1.17	-80.47	227.17	-1,352.83	1,371.77	1,369.33	2.44	561.926	
400.00	400.00	382.00	400.00	1.81	1.71	-80.47	227.17	-1,352.83	1,371.77	1,368.25	3.52	390.083	
500.00	500.00	482.00	500.00	2.34	2.25	-80.47	227.17	-1,352.83	1,371.77	1,367.18	4.59	298.729	
600.00	600.00	582.00	600.00	2.88	2.79	-80.47	227.17	-1,352.83	1,371.77	1,366.10	5.67	242.044 CC, ES	
700.00	699.98	681.98	699.98	3.41	3.32	-154.63	227.17	-1,352.83	1,373.35	1,366.61	6.74	203.809	
800.00	799.84	781.84	799.84	3.94	3.86	-154.68	227.17	-1,352.83	1,378.08	1,370.27	7.81	176.544	
900.00	899.45	881.45	899.45	4.47	4.40	-154.77	227.17	-1,352.83	1,385.96	1,377.09	8.87	156.225	
1,000.00	998.70	980.70	998.70	5.02	4.93	-154.88	227.17	-1,352.83	1,397.01	1,387.08	9.93	140.671	
1,100.00	1,097.47	1,079.47	1,097.47	5.59	5.46	-155.03	227.17	-1,352.83	1,411.21	1,400.23	10.98	128.508	
1,200.00	1,195.62	1,177.62	1,195.62	6.19	5.99	-155.21	227.17	-1,352.83	1,428.58	1,416.56	12.02	118.841	
1,300.00	1,293.38	1,275.38	1,293.38	6.80	6.51	-155.54	227.17	-1,352.83	1,447.78	1,434.70	13.08	110.690	
1,400.00	1,391.14	1,373.14	1,391.14	7.43	7.04	-155.88	227.17	-1,352.83	1,467.04	1,452.89	14.15	103.693	
1,500.00	1,488.90	1,470.90	1,488.90	8.07	7.57	-156.21	227.17	-1,352.83	1,486.35	1,471.13	15.22	97.644	
1,600.00	1,586.66	1,568.66	1,586.66	8.72	8.09	-156.53	227.17	-1,352.83	1,505.71	1,489.41	16.30	92.368	
1,700.00	1,684.42	1,666.42	1,684.42	9.38	8.62	-156.85	227.17	-1,352.83	1,525.12	1,507.73	17.38	87.731	
1,800.00	1,782.18	1,764.18	1,782.18	10.04	9.14	-157.15	227.17	-1,352.83	1,544.56	1,526.09	18.47	83.628	
1,900.00	1,879.94	1,861.94	1,879.94	10.70	9.67	-157.45	227.17	-1,352.83	1,564.05	1,544.49	19.56	79.973	
2,000.00	1,977.69	1,959.69	1,977.69	11.37	10.19	-157.74	227.17	-1,352.83	1,583.58	1,562.93	20.65	76.698	
2,100.00	2,075.45	2,057.45	2,075.45	12.04	10.72	-158.03	227.17	-1,352.83	1,603.14	1,581.41	21.74	73.749	
2,200.00	2,173.21	2,155.21	2,173.21	12.72	11.24	-158.31	227.17	-1,352.83	1,622.75	1,599.92	22.83	71.079	
2,300.00	2,270.97	2,252.97	2,270.97	13.39	11.79	-158.59	227.17	-1,352.82	1,642.38	1,618.44	23.94	68.596	
2,400.00	2,368.73	2,488.19	2,505.91	14.07	12.99	-159.17	227.17	-1,342.93	1,657.89	1,632.21	25.68	64.560	
2,500.00	2,466.49	2,623.17	2,640.22	14.75	13.69	-159.48	227.17	-1,329.49	1,667.58	1,640.63	26.95	61.887	
2,600.00	2,564.25	2,722.51	2,739.02	15.43	14.22	-159.71	227.17	-1,319.10	1,677.02	1,648.98	28.04	59.811	
2,700.00	2,662.00	2,821.85	2,837.81	16.11	14.74	-159.93	227.17	-1,308.72	1,686.48	1,657.34	29.13	57.887	
2,800.00	2,759.76	2,921.19	2,936.61	16.79	15.27	-160.15	227.17	-1,298.34	1,695.96	1,665.73	30.23	56.099	
2,900.00	2,857.52	3,020.53	3,035.40	17.47	15.81	-160.36	227.17	-1,287.95	1,705.47	1,674.14	31.33	54.434	
3,000.00	2,955.28	3,119.87	3,134.20	18.16	16.35	-160.58	227.17	-1,277.57	1,715.01	1,682.58	32.43	52.880	
3,100.00	3,053.04	3,219.21	3,233.00	18.84	16.89	-160.79	227.17	-1,267.18	1,724.57	1,691.03	33.54	51.426	
3,200.00	3,150.80	3,318.55	3,331.79	19.53	17.43	-161.00	227.17	-1,256.80	1,734.15	1,699.51	34.64	50.063	
3,300.00	3,248.55	3,417.89	3,430.59	20.21	17.97	-161.21	227.17	-1,246.42	1,743.75	1,708.01	35.74	48.783	
3,400.00	3,346.31	3,517.23	3,529.38	20.90	18.52	-161.41	227.17	-1,236.03	1,753.38	1,716.53	36.85	47.580	
3,500.00	3,444.07	3,616.57	3,628.18	21.59	19.06	-161.62	227.17	-1,225.65	1,763.03	1,725.07	37.96	46.446	
3,600.00	3,541.83	3,715.91	3,726.98	22.27	19.61	-161.82	227.17	-1,215.26	1,772.70	1,733.63	39.07	45.375	
3,700.00	3,639.59	3,815.25	3,825.77	22.96	20.16	-162.01	227.17	-1,204.88	1,782.39	1,742.21	40.18	44.363	
3,800.00	3,737.35	3,914.59	3,924.57	23.65	20.72	-162.21	227.17	-1,194.50	1,792.10	1,750.82	41.29	43.406	
3,900.00	3,835.11	4,013.93	4,023.36	24.34	21.27	-162.40	227.17	-1,184.11	1,801.84	1,759.44	42.40	42.498	
4,000.00	3,932.86	4,113.27	4,122.16	25.03	21.82	-162.60	227.17	-1,173.73	1,811.59	1,768.08	43.51	41.637	
4,100.00	4,030.62	4,212.61	4,220.95	25.72	22.38	-162.79	227.17	-1,163.35	1,821.36	1,776.74	44.62	40.818	
4,200.00	4,128.38	4,283.89	4,291.88	26.41	22.77	-162.92	227.17	-1,156.23	1,831.71	1,786.12	45.59	40.182	
4,300.00	4,226.14	4,344.24	4,352.04	27.09	23.11	-163.04	227.17	-1,151.47	1,844.09	1,797.60	46.49	39.666	
4,400.00	4,323.90	4,400.00	4,407.70	27.78	23.41	-163.14	227.17	-1,148.21	1,858.57	1,811.20	47.37	39.235	
4,500.00	4,421.66	4,463.84	4,471.50	28.47	23.75	-163.26	227.17	-1,145.80	1,875.11	1,826.82	48.29	38.830	
4,600.00	4,519.42	4,523.00	4,530.65	29.16	24.06	-163.37	227.17	-1,144.84	1,893.72	1,844.54	49.18	38.502	
4,700.00	4,617.17	4,609.53	4,617.17	29.85	24.52	-163.53	227.17	-1,144.79	1,913.86	1,863.64	50.22	38.113	
4,800.00	4,714.93	4,707.29	4,714.93	30.54	25.03	-163.71	227.17	-1,144.79	1,934.09	1,882.79	51.30	37.700	
4,900.00	4,812.69	4,805.05	4,812.69	31.23	25.54	-163.88	227.17	-1,144.79	1,954.34	1,901.95	52.39	37.304	
5,000.00	4,910.45	4,902.80	4,910.45	31.93	26.05	-164.05	227.17	-1,144.79	1,974.61	1,921.13	53.48	36.924	
5,100.00	5,008.21	5,000.56	5,008.21	32.62	26.57	-164.22	227.17	-1,144.79	1,994.90	1,940.33	54.57	36.560	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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												Offset Site Error: 0.00 usft		
Survey Program: 0-MWD+HDGM												Offset Well Error: 0.00 usft		
Reference				Offset		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	9,679.86	9,672.21	9,679.86	143.12	51.39	-93.69	227.17	-1,144.79	6,324.45	6,130.56	193.89	32.619		
15,600.00	9,682.00	9,674.35	9,682.00	145.12	51.40	-93.76	227.17	-1,144.79	6,419.44	6,223.54	195.90	32.769		
15,700.00	9,684.13	9,676.49	9,684.13	147.12	51.42	-93.82	227.17	-1,144.79	6,514.58	6,316.67	197.91	32.917		
15,800.00	9,686.27	9,678.62	9,686.27	149.12	51.43	-93.88	227.17	-1,144.79	6,609.86	6,409.93	199.93	33.061		
15,900.00	9,688.41	9,680.76	9,688.41	151.13	51.44	-93.94	227.17	-1,144.79	6,705.27	6,503.32	201.95	33.203		
16,000.00	9,690.54	9,682.90	9,690.54	153.15	51.45	-94.00	227.17	-1,144.79	6,800.82	6,596.85	203.97	33.342		
16,100.00	9,692.68	9,685.04	9,692.68	155.16	51.46	-94.06	227.17	-1,144.79	6,896.50	6,690.49	206.00	33.478		
16,200.00	9,694.82	9,687.17	9,694.82	157.18	51.47	-94.12	227.17	-1,144.79	6,992.29	6,784.26	208.03	33.612		
16,300.00	9,696.96	9,689.31	9,696.96	159.20	51.48	-94.18	227.17	-1,144.79	7,088.20	6,878.14	210.06	33.743		
16,400.00	9,699.09	9,691.45	9,699.09	161.23	51.50	-94.25	227.17	-1,144.79	7,184.22	6,972.12	212.10	33.872		
16,500.00	9,701.23	9,693.58	9,701.23	163.26	51.51	-94.31	227.17	-1,144.79	7,280.35	7,066.21	214.14	33.998		
16,600.00	9,703.37	9,695.72	9,703.37	165.29	51.52	-94.37	227.17	-1,144.79	7,376.58	7,160.40	216.18	34.122		
16,700.00	9,705.41	9,697.76	9,705.41	167.33	51.53	-92.72	227.17	-1,144.79	7,472.91	7,254.61	218.29	34.234		
16,800.00	9,706.15	9,698.50	9,706.15	169.36	51.53	-91.44	227.17	-1,144.79	7,569.33	7,349.04	220.29	34.361		
16,900.00	9,706.84	9,699.19	9,706.84	171.40	51.54	-91.46	227.17	-1,144.79	7,665.84	7,443.50	222.34	34.478		
17,000.00	9,707.52	9,699.88	9,707.52	173.45	51.54	-91.48	227.17	-1,144.79	7,762.44	7,538.04	224.39	34.593		
17,100.00	9,708.21	9,700.56	9,708.21	175.49	51.54	-91.50	227.17	-1,144.79	7,859.12	7,632.67	226.45	34.706		
17,200.00	9,708.90	9,701.25	9,708.90	177.54	51.55	-91.52	227.17	-1,144.79	7,955.89	7,727.38	228.51	34.817		
17,300.00	9,709.58	9,701.94	9,709.58	179.59	51.55	-91.54	227.17	-1,144.79	8,052.73	7,822.17	230.57	34.926		
17,400.00	9,710.27	9,702.62	9,710.27	181.64	51.56	-91.56	227.17	-1,144.79	8,149.66	7,917.03	232.63	35.033		
17,500.00	9,710.96	9,703.31	9,710.96	183.70	51.56	-91.58	227.17	-1,144.79	8,246.65	8,011.96	234.69	35.138		
17,600.00	9,711.64	9,704.00	9,711.64	185.76	51.56	-91.60	227.17	-1,144.79	8,343.72	8,106.96	236.76	35.241		
17,700.00	9,712.33	9,704.68	9,712.33	187.82	51.57	-91.62	227.17	-1,144.79	8,440.85	8,202.02	238.83	35.343		
17,800.00	9,713.02	9,705.37	9,713.02	189.88	51.57	-91.64	227.17	-1,144.79	8,538.05	8,297.16	240.90	35.443		
17,900.00	9,713.70	9,706.06	9,713.70	191.94	51.57	-91.66	227.17	-1,144.79	8,635.32	8,392.35	242.97	35.541		
18,000.00	9,714.39	9,706.74	9,714.39	194.01	51.58	-91.68	227.17	-1,144.79	8,732.64	8,487.60	245.04	35.637		
18,100.00	9,715.07	9,707.43	9,715.07	196.07	51.58	-91.70	227.17	-1,144.79	8,830.03	8,582.91	247.12	35.732		
18,200.00	9,715.76	9,708.11	9,715.76	198.14	51.58	-91.72	227.17	-1,144.79	8,927.47	8,678.28	249.20	35.825		
18,300.00	9,716.45	9,708.80	9,716.45	200.21	51.59	-91.74	227.17	-1,144.79	9,024.97	8,773.70	251.27	35.917		
18,400.00	9,717.13	9,709.49	9,717.13	202.29	51.59	-91.76	227.17	-1,144.79	9,122.53	8,869.17	253.36	36.007		
18,500.00	9,717.82	9,710.17	9,717.82	204.36	51.60	-91.78	227.17	-1,144.79	9,220.13	8,964.70	255.44	36.096		
18,600.00	9,718.51	9,710.86	9,718.51	206.44	51.60	-91.79	227.17	-1,144.79	9,317.79	9,060.27	257.52	36.183		
18,700.00	9,719.19	9,711.55	9,719.19	208.51	51.60	-91.81	227.17	-1,144.79	9,415.50	9,155.89	259.61	36.269		
18,800.00	9,719.88	9,712.23	9,719.88	210.59	51.61	-91.83	227.17	-1,144.79	9,513.25	9,251.56	261.69	36.353		
18,900.00	9,721.19	9,713.54	9,721.19	212.67	51.61	-94.26	227.17	-1,144.79	9,611.04	9,347.37	263.67	36.451		
19,000.00	9,722.77	9,715.12	9,722.77	214.75	51.62	-94.31	227.17	-1,144.79	9,708.88	9,443.12	265.75	36.533		
19,100.00	9,724.35	9,716.70	9,724.35	216.84	51.63	-94.35	227.17	-1,144.79	9,806.76	9,538.92	267.84	36.614		
19,200.00	9,725.93	9,718.28	9,725.93	218.92	51.64	-94.40	227.17	-1,144.79	9,904.68	9,634.75	269.93	36.694		



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - OH / Job #61221 - Plan 3 05-10-17												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)					
10,300.00	9,700.74	9,693.09	9,700.74	58.44	51.50	-89.05	227.17	-1,144.79	2,265.87	2,158.90	106.96	21.184	
10,400.00	9,696.03	9,688.39	9,696.03	59.17	51.48	-88.93	227.17	-1,144.79	2,300.91	2,193.18	107.73	21.358	
10,500.00	9,691.33	9,683.68	9,691.33	59.97	51.45	-88.80	227.17	-1,144.79	2,339.69	2,231.13	108.56	21.551	
10,600.00	9,686.63	9,678.98	9,686.63	60.85	51.43	-88.68	227.17	-1,144.79	2,382.04	2,272.58	109.46	21.761	
10,700.00	9,681.92	9,674.28	9,681.92	61.80	51.40	-88.55	227.17	-1,144.79	2,427.76	2,317.33	110.43	21.985	
10,800.00	9,677.22	9,669.57	9,677.22	62.82	51.38	-88.42	227.17	-1,144.79	2,476.67	2,365.22	111.45	22.222	
10,900.00	9,672.51	9,664.87	9,672.51	63.89	51.35	-88.30	227.17	-1,144.79	2,528.57	2,416.05	112.53	22.471	
11,000.00	9,667.81	9,660.16	9,667.81	65.03	51.33	-88.17	227.17	-1,144.79	2,583.30	2,469.64	113.66	22.728	
11,100.00	9,663.11	9,655.46	9,663.11	66.22	51.30	-88.05	227.17	-1,144.79	2,640.68	2,525.84	114.84	22.994	
11,200.00	9,658.40	9,650.76	9,658.40	67.45	51.28	-87.92	227.17	-1,144.79	2,700.53	2,584.46	116.07	23.266	
11,300.00	9,653.70	9,646.05	9,653.70	68.74	51.25	-87.79	227.17	-1,144.79	2,762.70	2,645.35	117.35	23.543	
11,400.00	9,649.00	9,641.35	9,649.00	70.07	51.23	-87.67	227.17	-1,144.79	2,827.03	2,708.36	118.66	23.824	
11,500.00	9,644.29	9,636.65	9,644.29	71.44	51.20	-87.54	227.17	-1,144.79	2,893.38	2,773.36	120.02	24.107	
11,600.00	9,640.05	9,632.40	9,640.05	72.85	51.18	-88.40	227.17	-1,144.79	2,961.62	2,839.99	121.64	24.348	
11,700.00	9,638.84	9,631.20	9,638.84	74.29	51.17	-90.06	227.17	-1,144.79	3,031.70	2,908.30	123.40	24.569	
11,800.00	9,638.95	9,631.30	9,638.95	75.75	51.17	-90.06	227.17	-1,144.79	3,103.42	2,978.52	124.90	24.847	
11,900.00	9,639.05	9,631.40	9,639.05	77.25	51.17	-90.06	227.17	-1,144.79	3,176.68	3,050.23	126.44	25.124	
12,000.00	9,639.15	9,631.51	9,639.15	78.78	51.18	-90.07	227.17	-1,144.79	3,251.35	3,123.34	128.01	25.399	
12,100.00	9,639.25	9,631.61	9,639.25	80.34	51.18	-90.07	227.17	-1,144.79	3,327.36	3,197.76	129.61	25.673	
12,200.00	9,639.36	9,631.71	9,639.36	81.93	51.18	-90.07	227.17	-1,144.79	3,404.61	3,273.38	131.23	25.944	
12,300.00	9,639.46	9,631.81	9,639.46	83.55	51.18	-90.08	227.17	-1,144.79	3,483.02	3,350.14	132.88	26.212	
12,400.00	9,639.56	9,631.91	9,639.56	85.19	51.18	-90.08	227.17	-1,144.79	3,562.51	3,427.96	134.55	26.477	
12,500.00	9,639.66	9,632.02	9,639.66	86.85	51.18	-90.08	227.17	-1,144.79	3,643.01	3,506.76	136.24	26.739	
12,600.00	9,639.76	9,632.12	9,639.76	88.53	51.18	-90.08	227.17	-1,144.79	3,724.45	3,586.49	137.96	26.997	
12,700.00	9,639.87	9,632.22	9,639.87	90.23	51.18	-90.09	227.17	-1,144.79	3,806.78	3,667.09	139.69	27.251	
12,800.00	9,639.97	9,632.32	9,639.97	91.96	51.18	-90.09	227.17	-1,144.79	3,889.94	3,748.49	141.45	27.501	
12,900.00	9,640.73	9,633.08	9,640.73	93.70	51.18	-91.28	227.17	-1,144.79	3,973.86	3,830.50	143.36	27.719	
13,000.00	9,642.15	9,634.51	9,642.15	95.46	51.19	-91.32	227.17	-1,144.79	4,058.51	3,913.34	145.16	27.958	
13,100.00	9,643.58	9,635.93	9,643.58	97.24	51.20	-91.35	227.17	-1,144.79	4,143.83	3,996.85	146.98	28.193	
13,200.00	9,645.00	9,637.36	9,645.00	99.03	51.21	-91.39	227.17	-1,144.79	4,229.80	4,080.99	148.81	28.424	
13,300.00	9,646.43	9,638.78	9,646.43	100.84	51.21	-91.43	227.17	-1,144.79	4,316.37	4,165.72	150.65	28.651	
13,400.00	9,647.85	9,640.20	9,647.85	102.66	51.22	-91.47	227.17	-1,144.79	4,403.51	4,251.00	152.51	28.874	
13,500.00	9,649.27	9,641.63	9,649.27	104.50	51.23	-91.51	227.17	-1,144.79	4,491.19	4,336.81	154.38	29.092	
13,600.00	9,650.70	9,643.05	9,650.70	106.34	51.24	-91.55	227.17	-1,144.79	4,579.37	4,423.11	156.26	29.306	
13,700.00	9,652.12	9,644.48	9,652.12	108.20	51.24	-91.58	227.17	-1,144.79	4,668.02	4,509.87	158.15	29.516	
13,800.00	9,653.55	9,645.90	9,653.55	110.07	51.25	-91.62	227.17	-1,144.79	4,757.13	4,597.08	160.05	29.722	
13,900.00	9,654.97	9,647.33	9,654.97	111.95	51.26	-91.66	227.17	-1,144.79	4,846.66	4,684.70	161.96	29.924	
14,000.00	9,656.40	9,648.75	9,656.40	113.84	51.27	-91.70	227.17	-1,144.79	4,936.59	4,772.71	163.89	30.122	
14,100.00	9,657.82	9,650.17	9,657.82	115.75	51.28	-91.74	227.17	-1,144.79	5,026.90	4,861.09	165.82	30.316	
14,200.00	9,659.24	9,651.60	9,659.24	117.65	51.28	-91.77	227.17	-1,144.79	5,117.58	4,949.82	167.75	30.507	
14,300.00	9,660.67	9,653.02	9,660.67	119.57	51.29	-91.81	227.17	-1,144.79	5,208.59	5,038.89	169.70	30.693	
14,400.00	9,662.09	9,654.45	9,662.09	121.50	51.30	-91.85	227.17	-1,144.79	5,299.93	5,128.27	171.65	30.876	
14,500.00	9,663.52	9,655.87	9,663.52	123.43	51.31	-91.89	227.17	-1,144.79	5,391.57	5,217.96	173.61	31.055	
14,600.00	9,664.94	9,657.29	9,664.94	125.38	51.31	-91.93	227.17	-1,144.79	5,483.51	5,307.92	175.58	31.230	
14,700.00	9,666.36	9,658.72	9,666.36	127.32	51.32	-91.96	227.17	-1,144.79	5,575.72	5,398.16	177.56	31.403	
14,800.00	9,667.79	9,660.14	9,667.79	129.28	51.33	-92.00	227.17	-1,144.79	5,668.19	5,488.66	179.54	31.571	
14,900.00	9,669.21	9,661.57	9,669.21	131.24	51.34	-92.04	227.17	-1,144.79	5,760.92	5,579.40	181.52	31.737	
15,000.00	9,670.64	9,662.99	9,670.64	133.21	51.34	-92.08	227.17	-1,144.79	5,853.89	5,670.37	183.52	31.899	
15,100.00	9,672.06	9,664.41	9,672.06	135.18	51.35	-92.12	227.17	-1,144.79	5,947.08	5,761.57	185.51	32.057	
15,200.00	9,673.54	9,665.89	9,673.54	137.16	51.36	-92.16	227.17	-1,144.79	6,040.56	5,852.87	187.69	32.183	
15,300.00	9,675.58	9,667.94	9,675.58	139.14	51.37	-92.19	227.17	-1,144.79	6,134.95	5,945.07	189.88	32.310	
15,400.00	9,677.72	9,670.08	9,677.72	141.13	51.38	-92.22	227.17	-1,144.79	6,229.62	6,037.74	191.88	32.466	

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 8 P2 - 14HD - OH / Job #61221 - Plan 3 05-10-17												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)	
5,200.00	5,105.97	5,098.32	5,105.97	33.31	27.08	-164.38	227.17	-1,144.79	2,015.20	1,959.54	55.65	36.210
5,300.00	5,203.73	5,196.08	5,203.73	34.00	27.60	-164.54	227.17	-1,144.79	2,035.51	1,978.77	56.74	35.873
5,400.00	5,301.48	5,293.84	5,301.48	34.69	28.11	-164.69	227.17	-1,144.79	2,055.85	1,998.01	57.83	35.549
5,500.00	5,399.24	5,391.60	5,399.24	35.38	28.63	-164.85	227.17	-1,144.79	2,076.19	2,017.27	58.92	35.235
5,600.00	5,497.37	5,489.72	5,497.37	36.05	29.14	-165.08	227.17	-1,144.79	2,094.81	2,034.66	60.16	34.822
5,700.00	5,596.10	5,588.45	5,596.10	36.67	29.66	-165.27	227.17	-1,144.79	2,110.12	2,048.80	61.32	34.410
5,800.00	5,695.33	5,687.68	5,695.33	37.26	30.19	-165.42	227.17	-1,144.79	2,122.10	2,059.68	62.42	33.999
5,900.00	5,794.93	5,787.28	5,794.93	37.80	30.71	-165.52	227.17	-1,144.79	2,130.71	2,067.28	63.43	33.590
6,000.00	5,894.77	5,887.13	5,894.77	38.30	31.24	-165.59	227.17	-1,144.79	2,135.96	2,071.59	64.37	33.181
6,100.00	5,994.75	5,987.10	5,994.75	38.75	31.77	-165.61	227.17	-1,144.79	2,137.83	2,072.60	65.22	32.778
6,200.00	6,094.75	6,087.10	6,094.75	39.19	32.30	-91.47	227.17	-1,144.79	2,137.83	2,071.56	66.27	32.262
6,300.00	6,194.75	6,187.10	6,194.75	39.62	32.83	-91.47	227.17	-1,144.79	2,137.83	2,070.55	67.28	31.774
6,400.00	6,294.75	6,287.10	6,294.75	40.06	33.36	-91.47	227.17	-1,144.79	2,137.83	2,069.53	68.30	31.301
6,500.00	6,394.75	6,387.10	6,394.75	40.50	33.89	-91.47	227.17	-1,144.79	2,137.83	2,068.51	69.32	30.840
6,600.00	6,494.75	6,487.10	6,494.75	40.95	34.42	-91.47	227.17	-1,144.79	2,137.83	2,067.49	70.34	30.392
6,700.00	6,594.75	6,587.10	6,594.75	41.39	34.95	-91.47	227.17	-1,144.79	2,137.83	2,066.47	71.36	29.957
6,800.00	6,694.75	6,687.10	6,694.75	41.84	35.48	-91.47	227.17	-1,144.79	2,137.83	2,065.44	72.39	29.533
6,900.00	6,794.75	6,787.10	6,794.75	42.29	36.01	-91.47	227.17	-1,144.79	2,137.83	2,064.42	73.41	29.120
7,000.00	6,894.75	6,887.10	6,894.75	42.75	36.54	-91.47	227.17	-1,144.79	2,137.83	2,063.39	74.44	28.718
7,100.00	6,994.75	6,987.10	6,994.75	43.20	37.08	-91.47	227.17	-1,144.79	2,137.83	2,062.36	75.47	28.327
7,200.00	7,094.75	7,087.10	7,094.75	43.66	37.61	-91.47	227.17	-1,144.79	2,137.83	2,061.33	76.50	27.946
7,300.00	7,194.75	7,187.10	7,194.75	44.11	38.14	-91.47	227.17	-1,144.79	2,137.83	2,060.30	77.53	27.574
7,400.00	7,294.75	7,287.10	7,294.75	44.57	38.67	-91.47	227.17	-1,144.79	2,137.83	2,059.27	78.56	27.212
7,500.00	7,394.75	7,387.10	7,394.75	45.04	39.20	-91.47	227.17	-1,144.79	2,137.83	2,058.23	79.60	26.859
7,600.00	7,494.75	7,487.10	7,494.75	45.50	39.73	-91.47	227.17	-1,144.79	2,137.83	2,057.20	80.63	26.514
7,700.00	7,594.75	7,587.10	7,594.75	45.96	40.27	-91.47	227.17	-1,144.79	2,137.83	2,056.16	81.66	26.178
7,800.00	7,694.75	7,687.10	7,694.75	46.43	40.80	-91.47	227.17	-1,144.79	2,137.83	2,055.13	82.70	25.850
7,900.00	7,794.75	7,787.10	7,794.75	46.90	41.33	-91.47	227.17	-1,144.79	2,137.83	2,054.09	83.74	25.530
8,000.00	7,894.75	7,887.10	7,894.75	47.37	41.87	-91.47	227.17	-1,144.79	2,137.83	2,053.05	84.78	25.217
8,100.00	7,994.75	7,987.10	7,994.75	47.84	42.40	-91.47	227.17	-1,144.79	2,137.83	2,052.01	85.82	24.912
8,200.00	8,094.75	8,087.10	8,094.75	48.31	42.93	-91.47	227.17	-1,144.79	2,137.83	2,050.97	86.86	24.614
8,300.00	8,194.75	8,187.10	8,194.75	48.78	43.46	-91.47	227.17	-1,144.79	2,137.83	2,049.93	87.90	24.322
8,400.00	8,294.75	8,287.10	8,294.75	49.26	44.00	-91.47	227.17	-1,144.79	2,137.83	2,048.89	88.94	24.037
8,500.00	8,394.75	8,387.10	8,394.75	49.74	44.53	-91.47	227.17	-1,144.79	2,137.83	2,047.85	89.98	23.759
8,600.00	8,494.75	8,487.10	8,494.75	50.21	45.06	-91.47	227.17	-1,144.79	2,137.83	2,046.81	91.02	23.487
8,700.00	8,594.75	8,587.10	8,594.75	50.69	45.60	-91.47	227.17	-1,144.79	2,137.83	2,045.76	92.07	23.220
8,800.00	8,694.75	8,687.10	8,694.75	51.17	46.13	-91.47	227.17	-1,144.79	2,137.83	2,044.72	93.11	22.960
8,900.00	8,794.75	8,787.10	8,794.75	51.65	46.67	-91.47	227.17	-1,144.79	2,137.83	2,043.67	94.16	22.705
9,000.00	8,894.75	8,887.10	8,894.75	52.13	47.20	-91.47	227.17	-1,144.79	2,137.83	2,042.63	95.20	22.456
9,100.00	8,994.75	8,987.10	8,994.75	52.62	47.73	-91.47	227.17	-1,144.79	2,137.83	2,041.58	96.25	22.212
9,200.00	9,094.75	9,087.10	9,094.75	53.10	48.27	-91.47	227.17	-1,144.79	2,137.83	2,040.53	97.30	21.973
9,219.19	9,113.94	9,106.29	9,113.94	53.20	48.37	-90.49	227.17	-1,144.79	2,137.83	2,040.36	97.47	21.933
9,300.00	9,194.64	9,186.99	9,194.64	53.59	48.80	-90.57	227.17	-1,144.79	2,137.86	2,039.54	98.32	21.743
9,400.00	9,292.68	9,285.03	9,292.68	54.10	49.32	-91.04	227.17	-1,144.79	2,138.13	2,038.74	99.40	21.511
9,500.00	9,385.91	9,378.27	9,385.91	54.59	49.82	-91.84	227.17	-1,144.79	2,139.11	2,038.64	100.47	21.291
9,600.00	9,471.51	9,463.87	9,471.51	55.07	50.28	-92.77	227.17	-1,144.79	2,141.56	2,040.04	101.53	21.093
9,700.00	9,546.88	9,539.23	9,546.88	55.51	50.68	-93.59	227.17	-1,144.79	2,146.47	2,043.93	102.53	20.934
9,800.00	9,609.72	9,602.07	9,609.72	55.93	51.02	-94.05	227.17	-1,144.79	2,154.84	2,051.36	103.48	20.824
9,900.00	9,658.13	9,650.48	9,658.13	56.34	51.28	-93.90	227.17	-1,144.79	2,167.56	2,063.19	104.37	20.768 SF
10,000.00	9,690.63	9,682.99	9,690.63	56.78	51.45	-92.93	227.17	-1,144.79	2,185.15	2,079.96	105.19	20.774
10,100.00	9,706.24	9,698.60	9,706.24	57.25	51.53	-91.03	227.17	-1,144.79	2,207.69	2,101.86	105.83	20.861
10,200.00	9,705.44	9,697.79	9,705.44	57.80	51.53	-89.18	227.17	-1,144.79	2,234.74	2,128.47	106.27	21.029

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 P2 - 14HD - OH / Job #61221 - Plan 3 05-10-17											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	18.00	0.00	0.00	-80.47	227.17	-1,352.83	1,371.89		
100.00	100.00	82.00	100.00	0.19	0.16	-80.47	227.17	-1,352.83	1,371.77	1,371.42	0.35 3,893.684
200.00	200.00	182.00	200.00	0.73	0.63	-80.47	227.17	-1,352.83	1,371.77	1,370.40	1.37 1,004.387
300.00	300.00	282.00	300.00	1.27	1.17	-80.47	227.17	-1,352.83	1,371.77	1,369.33	2.44 561.926
400.00	400.00	382.00	400.00	1.81	1.71	-80.47	227.17	-1,352.83	1,371.77	1,368.25	3.52 390.083
500.00	500.00	482.00	500.00	2.34	2.25	-80.47	227.17	-1,352.83	1,371.77	1,367.18	4.59 298.729
600.00	600.00	582.00	600.00	2.88	2.79	-80.47	227.17	-1,352.83	1,371.77	1,366.10	5.67 242.044 CC, ES
700.00	699.98	681.98	699.98	3.41	3.32	-154.63	227.17	-1,352.83	1,373.35	1,366.61	6.74 203.809
800.00	799.84	781.84	799.84	3.94	3.86	-154.68	227.17	-1,352.83	1,378.08	1,370.27	7.81 176.544
900.00	899.45	881.45	899.45	4.47	4.40	-154.77	227.17	-1,352.83	1,385.96	1,377.09	8.87 156.225
1,000.00	998.70	980.70	998.70	5.02	4.93	-154.88	227.17	-1,352.83	1,397.01	1,387.08	9.93 140.671
1,100.00	1,097.47	1,079.47	1,097.47	5.59	5.46	-155.03	227.17	-1,352.83	1,411.21	1,400.23	10.98 128.508
1,200.00	1,195.62	1,177.62	1,195.62	6.19	5.99	-155.21	227.17	-1,352.83	1,428.58	1,416.56	12.02 118.841
1,300.00	1,293.38	1,275.38	1,293.38	6.80	6.51	-155.54	227.17	-1,352.83	1,447.78	1,434.70	13.08 110.690
1,400.00	1,391.14	1,373.14	1,391.14	7.43	7.04	-155.88	227.17	-1,352.83	1,467.04	1,452.89	14.15 103.693
1,500.00	1,488.90	1,470.90	1,488.90	8.07	7.57	-156.21	227.17	-1,352.83	1,486.35	1,471.13	15.22 97.644
1,600.00	1,586.66	1,568.66	1,586.66	8.72	8.09	-156.53	227.17	-1,352.83	1,505.71	1,489.41	16.30 92.368
1,700.00	1,684.42	1,666.42	1,684.42	9.38	8.62	-156.85	227.17	-1,352.83	1,525.12	1,507.73	17.38 87.731
1,800.00	1,782.18	1,764.18	1,782.18	10.04	9.14	-157.15	227.17	-1,352.83	1,544.56	1,526.09	18.47 83.628
1,900.00	1,879.94	1,861.94	1,879.94	10.70	9.67	-157.45	227.17	-1,352.83	1,564.05	1,544.49	19.56 79.973
2,000.00	1,977.69	1,959.69	1,977.69	11.37	10.19	-157.74	227.17	-1,352.83	1,583.58	1,562.93	20.65 76.698
2,100.00	2,075.45	2,057.45	2,075.45	12.04	10.72	-158.03	227.17	-1,352.83	1,603.14	1,581.41	21.74 73.749
2,200.00	2,173.21	2,155.21	2,173.21	12.72	11.24	-158.31	227.17	-1,352.83	1,622.75	1,599.92	22.83 71.079
2,300.00	2,270.97	2,252.92	2,270.97	13.39	11.79	-158.59	227.17	-1,352.82	1,642.38	1,618.44	23.94 68.596
2,400.00	2,368.73	2,488.19	2,505.91	14.07	12.99	-159.17	227.17	-1,342.93	1,657.89	1,632.21	25.68 64.560
2,500.00	2,466.49	2,623.17	2,640.22	14.75	13.69	-159.48	227.17	-1,329.49	1,667.58	1,640.63	26.95 61.887
2,600.00	2,564.25	2,722.51	2,739.02	15.43	14.22	-159.71	227.17	-1,319.10	1,677.02	1,648.98	28.04 59.811
2,700.00	2,662.00	2,821.85	2,837.81	16.11	14.74	-159.93	227.17	-1,308.72	1,686.48	1,657.34	29.13 57.887
2,800.00	2,759.76	2,921.19	2,936.61	16.79	15.27	-160.15	227.17	-1,298.34	1,695.96	1,665.73	30.23 56.099
2,900.00	2,857.52	3,020.53	3,035.40	17.47	15.81	-160.36	227.17	-1,287.95	1,705.47	1,674.14	31.33 54.434
3,000.00	2,955.28	3,119.87	3,134.20	18.16	16.35	-160.58	227.17	-1,277.57	1,715.01	1,682.58	32.43 52.880
3,100.00	3,053.04	3,219.21	3,233.00	18.84	16.89	-160.79	227.17	-1,267.18	1,724.57	1,691.03	33.54 51.426
3,200.00	3,150.80	3,318.55	3,331.79	19.53	17.43	-161.00	227.17	-1,256.80	1,734.15	1,699.51	34.64 50.063
3,300.00	3,248.55	3,417.89	3,430.59	20.21	17.97	-161.21	227.17	-1,246.42	1,743.75	1,708.01	35.74 48.783
3,400.00	3,346.31	3,517.23	3,529.38	20.90	18.52	-161.41	227.17	-1,236.03	1,753.38	1,716.53	36.85 47.580
3,500.00	3,444.07	3,616.57	3,628.18	21.59	19.06	-161.62	227.17	-1,225.65	1,763.03	1,725.07	37.96 46.446
3,600.00	3,541.83	3,715.91	3,726.98	22.27	19.61	-161.82	227.17	-1,215.26	1,772.70	1,733.63	39.07 45.375
3,700.00	3,639.59	3,815.25	3,825.77	22.96	20.16	-162.01	227.17	-1,204.88	1,782.39	1,742.21	40.18 44.363
3,800.00	3,737.35	3,914.59	3,924.57	23.65	20.72	-162.21	227.17	-1,194.50	1,792.10	1,750.82	41.29 43.406
3,900.00	3,835.11	4,013.93	4,023.36	24.34	21.27	-162.40	227.17	-1,184.11	1,801.84	1,759.44	42.40 42.498
4,000.00	3,932.86	4,113.27	4,122.16	25.03	21.82	-162.60	227.17	-1,173.73	1,811.59	1,768.08	43.51 41.637
4,100.00	4,030.62	4,212.61	4,220.95	25.72	22.38	-162.79	227.17	-1,163.35	1,821.36	1,776.74	44.62 40.818
4,200.00	4,128.38	4,283.89	4,291.88	26.41	22.77	-162.92	227.17	-1,156.23	1,831.71	1,786.12	45.59 40.182
4,300.00	4,226.14	4,344.24	4,352.04	27.09	23.11	-163.04	227.17	-1,151.47	1,844.09	1,797.60	46.49 39.666
4,400.00	4,323.90	4,400.00	4,407.70	27.78	23.41	-163.14	227.17	-1,148.21	1,858.57	1,811.20	47.37 39.235
4,500.00	4,421.66	4,463.84	4,471.50	28.47	23.75	-163.26	227.17	-1,145.80	1,875.11	1,826.82	48.29 38.830
4,600.00	4,519.42	4,523.00	4,530.65	29.16	24.06	-163.37	227.17	-1,144.84	1,893.72	1,844.54	49.18 38.502
4,700.00	4,617.17	4,609.53	4,617.17	29.85	24.52	-163.53	227.17	-1,144.79	1,913.86	1,863.64	50.22 38.113
4,800.00	4,714.93	4,707.29	4,714.93	30.54	25.03	-163.71	227.17	-1,144.79	1,934.09	1,882.79	51.30 37.700
4,900.00	4,812.69	4,805.05	4,812.69	31.23	25.54	-163.88	227.17	-1,144.79	1,954.34	1,901.95	52.39 37.304
5,000.00	4,910.45	4,902.80	4,910.45	31.93	26.05	-164.05	227.17	-1,144.79	1,974.61	1,921.13	53.48 36.924
5,100.00	5,008.21	5,000.56	5,008.21	32.62	26.57	-164.22	227.17	-1,144.79	1,994.90	1,940.33	54.57 36.560

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 6H - OH - Plan 1 06-16-17													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	
15,400.00	9,677.72	15,646.42	9,959.48	141.13	140.32	-123.85	6,110.18	478.06	505.89	253.61	252.28	2.005	
15,500.00	9,679.86	15,746.42	9,961.58	143.12	142.30	-123.85	6,210.15	478.98	505.89	250.06	255.83	1.977	
15,600.00	9,682.00	15,846.42	9,963.67	145.12	144.30	-123.84	6,310.12	479.89	505.89	246.50	259.39	1.950	
15,700.00	9,684.13	15,946.42	9,965.77	147.12	146.30	-123.84	6,410.10	480.81	505.89	242.94	262.95	1.924	
15,800.00	9,686.27	16,046.42	9,967.87	149.12	148.30	-123.83	6,510.07	481.72	505.89	239.37	266.52	1.898	
15,900.00	9,688.41	16,146.42	9,969.97	151.13	150.31	-123.83	6,610.05	482.63	505.89	235.79	270.10	1.873	
16,000.00	9,690.54	16,246.42	9,972.07	153.15	152.32	-123.82	6,710.02	483.55	505.89	232.20	273.69	1.848	
16,100.00	9,692.68	16,346.42	9,974.17	155.16	154.33	-123.82	6,809.99	484.46	505.89	228.61	277.28	1.824	
16,200.00	9,694.82	16,446.42	9,976.27	157.18	156.35	-123.81	6,909.97	485.38	505.89	225.01	280.87	1.801	
16,300.00	9,696.96	16,546.42	9,978.37	159.20	158.37	-123.81	7,009.94	486.29	505.89	221.41	284.48	1.778	
16,400.00	9,699.09	16,646.42	9,980.47	161.23	160.39	-123.80	7,109.92	487.20	505.89	217.80	288.09	1.756	
16,500.00	9,701.23	16,746.42	9,982.57	163.26	162.42	-123.80	7,209.89	488.12	505.89	214.19	291.70	1.734	
16,600.00	9,703.37	16,846.42	9,984.67	165.29	164.45	-123.79	7,309.86	489.03	505.89	210.57	295.32	1.713	
16,656.43	9,704.44	16,902.86	9,985.85	166.44	165.60	-123.80	7,366.28	489.55	505.95	208.58	297.38	1.701	
16,700.00	9,705.41	16,946.42	9,986.77	167.33	166.49	-123.79	7,409.84	489.95	505.94	206.95	298.99	1.692	
16,800.00	9,706.15	17,046.41	9,988.86	169.36	168.52	-123.92	7,509.80	490.86	506.64	204.26	302.38	1.676	
16,900.00	9,706.84	17,146.40	9,990.96	171.40	170.56	-124.06	7,609.76	491.78	507.38	201.68	305.70	1.660	
17,000.00	9,707.52	17,246.39	9,993.06	173.45	172.61	-124.20	7,709.73	492.69	508.13	199.10	309.03	1.644	
17,100.00	9,708.21	17,346.38	9,995.16	175.49	174.65	-124.33	7,809.69	493.60	508.87	196.53	312.34	1.629	
17,200.00	9,708.90	17,446.37	9,997.26	177.54	176.70	-124.47	7,909.66	494.52	509.62	193.96	315.66	1.614	
17,300.00	9,709.58	17,546.36	9,999.36	179.59	178.75	-124.60	8,009.62	495.43	510.37	191.40	318.97	1.600	
17,400.00	9,710.27	17,646.35	10,001.46	181.64	180.80	-124.74	8,109.58	496.34	511.13	188.85	322.28	1.586	
17,500.00	9,710.96	17,749.11	10,003.47	183.70	182.91	-124.86	8,212.32	497.28	511.81	186.15	325.66	1.572	
17,600.00	9,711.64	17,849.32	10,004.47	185.76	184.97	-124.89	8,312.51	498.13	511.99	182.77	329.22	1.555	
17,700.00	9,712.33	17,949.32	10,005.47	187.82	187.03	-124.92	8,412.50	498.99	512.17	179.39	332.77	1.539	
17,800.00	9,713.02	18,049.32	10,006.47	189.88	189.09	-124.95	8,512.50	499.85	512.35	176.01	336.33	1.523	
17,900.00	9,713.70	18,149.32	10,007.47	191.94	191.15	-124.97	8,612.49	500.70	512.52	172.63	339.89	1.508	
18,000.00	9,714.39	18,249.32	10,008.47	194.01	193.22	-125.00	8,712.48	501.56	512.70	169.25	343.45	1.493 Level 3	
18,100.00	9,715.07	18,349.32	10,009.47	196.07	195.28	-125.03	8,812.47	502.42	512.88	165.86	347.01	1.478 Level 3	
18,200.00	9,715.76	18,449.31	10,010.47	198.14	197.35	-125.06	8,912.46	503.27	513.06	162.48	350.58	1.463 Level 3	
18,300.00	9,716.45	18,549.31	10,011.47	200.21	199.42	-125.09	9,012.45	504.13	513.23	159.09	354.14	1.449 Level 3	
18,400.00	9,717.13	18,649.31	10,012.47	202.29	201.49	-125.12	9,112.44	504.99	513.41	155.70	357.71	1.435 Level 3	
18,500.00	9,717.82	18,749.31	10,013.47	204.36	203.57	-125.15	9,212.43	505.84	513.59	152.32	361.28	1.422 Level 3	
18,600.00	9,718.51	18,849.31	10,014.47	206.44	205.64	-125.18	9,312.42	506.70	513.77	148.93	364.84	1.408 Level 3	
18,700.00	9,719.19	18,949.31	10,015.47	208.51	207.72	-125.20	9,412.41	507.56	513.95	145.53	368.41	1.395 Level 3	
18,800.00	9,719.88	19,049.31	10,016.47	210.59	209.79	-125.23	9,512.40	508.41	514.13	142.14	371.98	1.382 Level 3	
18,900.00	9,721.19	19,149.31	10,017.47	212.67	211.87	-125.21	9,612.39	509.27	513.95	138.32	375.63	1.368 Level 3	
19,000.00	9,722.77	19,249.31	10,018.47	214.75	213.96	-125.15	9,712.38	510.13	513.62	134.18	379.44	1.354 Level 3	
19,100.00	9,724.35	19,349.31	10,019.47	216.84	216.04	-125.10	9,812.37	510.98	513.29	130.04	383.24	1.339 Level 3	
19,200.00	9,725.93	19,449.31	10,020.47	218.92	218.12	-125.05	9,912.36	511.84	512.96	125.90	387.06	1.325 Level 3	
19,300.00	9,727.51	19,549.30	10,021.47	221.01	220.21	-124.99	10,012.35	512.70	512.63	121.75	390.88	1.311 Level 3	
19,400.00	9,729.09	19,649.30	10,022.47	223.10	222.29	-124.94	10,112.34	513.55	512.30	117.60	394.70	1.298 Level 3	
19,500.00	9,730.67	19,749.30	10,023.47	225.18	224.38	-124.89	10,212.33	514.41	511.97	113.44	398.53	1.285 Level 3	
19,600.00	9,732.25	19,849.30	10,024.47	227.27	226.47	-124.83	10,312.32	515.27	511.64	109.28	402.36	1.272 Level 3	
19,700.00	9,733.83	19,949.30	10,025.48	229.36	228.56	-124.78	10,412.31	516.12	511.31	105.11	406.20	1.259 Level 3	
19,800.00	9,735.41	20,049.30	10,026.48	231.46	230.65	-124.73	10,512.30	516.98	510.98	100.94	410.04	1.246 Level 2	
19,900.00	9,736.99	20,149.29	10,027.48	233.55	232.74	-124.67	10,612.29	517.84	510.65	96.77	413.88	1.234 Level 2	
20,000.00	9,738.57	20,249.29	10,028.48	235.64	234.83	-124.62	10,712.28	518.69	510.32	92.59	417.74	1.222 Level 2	
20,100.00	9,740.15	20,349.29	10,029.48	237.74	236.93	-124.56	10,812.27	519.55	510.00	88.40	421.59	1.210 Level 2	
20,153.58	9,741.00	20,401.69	10,030.00	238.86	238.03	-124.54	10,864.66	520.00	509.82	86.19	423.64	1.203 Level 2, 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 6H - OH - Plan 1 06-16-17											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)				Between Centres (usft)
10,300.00	9,700.74	10,555.08	10,023.17	58.44	57.48	-127.54	1,021.16	559.63	529.68	431.08	98.61	5.372
10,400.00	9,696.03	10,655.08	10,018.96	59.17	58.25	-127.58	1,121.06	557.94	529.97	429.87	100.11	5.294
10,500.00	9,691.33	10,755.08	10,014.75	59.97	59.10	-127.62	1,220.96	556.25	530.26	428.54	101.72	5.213
10,600.00	9,686.63	10,855.08	10,010.54	60.85	60.01	-127.67	1,320.85	554.56	530.55	427.11	103.44	5.129
10,700.00	9,681.92	10,955.08	10,006.32	61.80	60.98	-127.71	1,420.75	552.87	530.83	425.58	105.26	5.043
10,800.00	9,677.22	11,055.07	10,002.11	62.82	62.01	-127.75	1,520.64	551.18	531.12	423.95	107.17	4.956
10,900.00	9,672.51	11,155.07	9,997.90	63.89	63.10	-127.80	1,620.54	549.49	531.41	422.23	109.18	4.867
11,000.00	9,667.81	11,255.07	9,993.69	65.03	64.25	-127.84	1,720.44	547.80	531.70	420.43	111.27	4.778
11,100.00	9,663.11	11,355.07	9,989.48	66.22	65.44	-127.88	1,820.33	546.11	531.99	418.55	113.44	4.690
11,200.00	9,658.40	11,455.07	9,985.27	67.45	66.69	-127.93	1,920.23	544.42	532.28	416.59	115.69	4.601
11,300.00	9,653.70	11,555.07	9,981.06	68.74	67.98	-127.97	2,020.12	542.73	532.57	414.56	118.01	4.513
11,400.00	9,649.00	11,655.07	9,976.85	70.07	69.31	-128.01	2,120.02	541.05	532.86	412.47	120.39	4.426
11,500.00	9,644.29	11,755.07	9,972.64	71.44	70.69	-128.05	2,219.91	539.36	533.15	410.31	122.84	4.340
11,600.00	9,640.05	11,855.06	9,968.43	72.85	72.10	-128.06	2,319.81	537.67	533.16	407.91	125.25	4.257
11,700.00	9,638.84	11,955.01	9,964.22	74.29	73.55	-127.78	2,419.66	535.98	531.31	403.39	127.92	4.153
11,800.00	9,638.95	12,054.92	9,960.01	75.75	75.03	-127.41	2,519.46	534.29	528.69	397.72	130.97	4.037
11,900.00	9,639.05	12,151.99	9,956.04	77.25	76.50	-127.05	2,616.44	532.65	526.16	392.14	134.01	3.926
12,000.00	9,639.15	12,243.88	9,954.40	78.78	77.91	-126.90	2,708.29	531.09	525.02	388.20	136.82	3.837
12,100.00	9,639.25	12,343.87	9,953.63	80.34	79.47	-126.83	2,808.27	529.39	524.51	384.81	139.71	3.754
12,200.00	9,639.36	12,443.87	9,952.87	81.93	81.06	-126.75	2,908.25	527.70	524.00	381.37	142.63	3.674
12,300.00	9,639.46	12,543.87	9,952.10	83.55	82.68	-126.67	3,008.23	526.00	523.49	377.89	145.61	3.595
12,400.00	9,639.56	12,643.86	9,951.33	85.19	84.32	-126.59	3,108.21	524.30	522.99	374.36	148.62	3.519
12,500.00	9,639.66	12,743.86	9,950.56	86.85	85.98	-126.52	3,208.19	522.60	522.48	370.80	151.68	3.445
12,600.00	9,639.76	12,843.86	9,949.80	88.53	87.66	-126.44	3,308.17	520.90	521.98	367.21	154.77	3.373
12,700.00	9,639.87	12,943.85	9,949.03	90.23	89.37	-126.36	3,408.14	519.21	521.47	363.57	157.90	3.303
12,800.00	9,639.97	13,043.85	9,948.26	91.96	91.09	-126.28	3,508.12	517.51	520.97	359.91	161.06	3.235
12,900.00	9,640.73	13,143.84	9,947.49	93.70	92.84	-126.14	3,608.09	515.81	520.07	355.86	164.21	3.167
13,000.00	9,642.15	13,243.81	9,946.73	95.46	94.60	-125.95	3,708.05	514.11	518.77	351.19	167.58	3.096
13,100.00	9,643.58	13,343.79	9,945.96	97.24	96.37	-125.75	3,808.01	512.42	517.48	346.49	170.99	3.026
13,200.00	9,645.00	13,443.76	9,945.19	99.03	98.17	-125.55	3,907.97	510.72	516.20	341.76	174.44	2.959
13,300.00	9,646.43	13,543.74	9,944.43	100.84	99.97	-125.36	4,007.93	509.02	514.92	337.00	177.91	2.894
13,400.00	9,647.85	13,643.72	9,943.66	102.66	101.79	-125.16	4,107.89	507.32	513.64	332.22	181.42	2.831
13,500.00	9,649.27	13,743.69	9,942.89	104.50	103.63	-124.96	4,207.84	505.63	512.38	327.42	184.96	2.770
13,600.00	9,650.70	13,843.67	9,942.12	106.34	105.47	-124.76	4,307.80	503.93	511.12	322.59	188.52	2.711
13,700.00	9,652.12	13,943.64	9,941.36	108.20	107.33	-124.56	4,407.76	502.23	509.86	317.75	192.12	2.654
13,800.00	9,653.55	14,043.62	9,940.59	110.07	109.20	-124.35	4,507.72	500.53	508.62	312.88	195.74	2.598
13,900.00	9,654.97	14,141.49	9,939.92	111.95	111.04	-124.16	4,605.57	498.87	507.42	308.09	199.33	2.546
14,000.00	9,656.40	14,237.91	9,940.85	113.84	112.86	-124.12	4,701.98	497.22	507.17	304.46	202.71	2.502
14,100.00	9,657.82	14,337.91	9,942.05	115.75	114.76	-124.10	4,801.96	495.50	507.05	300.92	206.13	2.460
14,200.00	9,659.24	14,437.91	9,943.26	117.65	116.67	-124.08	4,901.94	493.79	506.93	297.36	209.58	2.419
14,300.00	9,660.67	14,537.91	9,944.46	119.57	118.59	-124.05	5,001.91	492.07	506.81	293.78	213.03	2.379
14,400.00	9,662.09	14,637.91	9,945.66	121.50	120.52	-124.03	5,101.89	490.36	506.70	290.19	216.50	2.340
14,500.00	9,663.52	14,737.91	9,946.86	123.43	122.45	-124.01	5,201.87	488.64	506.58	286.59	219.99	2.303
14,600.00	9,664.94	14,837.91	9,948.06	125.38	124.39	-123.99	5,301.85	486.93	506.46	282.98	223.48	2.266
14,700.00	9,666.36	14,937.91	9,949.26	127.32	126.34	-123.97	5,401.82	485.21	506.34	279.35	226.99	2.231
14,800.00	9,667.79	15,037.91	9,950.46	129.28	128.30	-123.95	5,501.80	483.50	506.22	275.71	230.52	2.196
14,900.00	9,669.21	15,137.91	9,951.66	131.24	130.26	-123.93	5,601.78	481.78	506.11	272.06	234.05	2.162
15,000.00	9,670.64	15,237.91	9,952.86	133.21	132.23	-123.90	5,701.76	480.06	505.99	268.40	237.59	2.130
15,100.00	9,672.06	15,337.91	9,954.06	135.18	134.20	-123.88	5,801.74	478.35	505.87	264.72	241.15	2.098
15,170.50	9,673.14	15,408.42	9,954.91	136.58	135.60	-123.85	5,872.22	477.14	505.98	262.18	243.81	2.075
15,200.00	9,673.54	15,440.51	9,955.33	137.16	136.23	-123.86	5,904.31	476.69	505.83	260.91	244.92	2.065
15,300.00	9,675.58	15,546.42	9,957.38	139.14	138.33	-123.86	6,010.20	477.15	505.89	257.15	248.74	2.034

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 6H - OH - Plan 1 06-16-17												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	
5,200.00	5,105.97	5,179.35	5,148.11	33.31	29.43	-163.13	254.11	495.29	377.44	320.19	57.25	6.593	
5,300.00	5,203.73	5,278.92	5,246.94	34.00	30.02	-163.32	258.73	506.48	386.55	328.16	58.38	6.621	
5,400.00	5,301.48	5,378.50	5,345.78	34.69	30.61	-163.51	263.34	517.67	395.66	336.15	59.51	6.648	
5,500.00	5,399.24	5,478.08	5,444.62	35.38	31.19	-163.69	267.96	528.86	404.77	344.13	60.64	6.675	
5,600.00	5,497.37	5,577.80	5,543.60	36.05	31.78	-163.83	272.59	540.07	412.13	350.26	61.87	6.661	
5,700.00	5,596.10	5,677.71	5,642.77	36.67	32.37	-163.81	277.22	551.30	416.15	353.12	63.03	6.603	
5,800.00	5,695.33	5,767.04	5,731.56	37.26	32.89	-163.72	280.94	560.33	417.97	353.92	64.05	6.526	
5,900.00	5,794.93	5,855.16	5,819.41	37.80	33.38	-163.66	283.59	566.74	419.26	354.30	64.97	6.454	
6,000.00	5,894.77	5,943.27	5,907.41	38.30	33.85	-163.63	285.21	570.65	420.03	354.24	65.79	6.384	
6,100.00	5,994.75	6,031.37	5,995.49	38.75	34.30	-163.61	285.79	572.06	420.29	353.78	66.51	6.319	
6,200.00	6,094.75	6,130.63	6,094.75	39.19	34.78	-89.47	285.79	572.07	420.29	352.74	67.55	6.222	
6,300.00	6,194.75	6,230.63	6,194.75	39.62	35.27	-89.47	285.79	572.07	420.29	351.75	68.54	6.132	
6,400.00	6,294.75	6,330.63	6,294.75	40.06	35.76	-89.47	285.79	572.07	420.29	350.76	69.53	6.044	
6,500.00	6,394.75	6,430.63	6,394.75	40.50	36.26	-89.47	285.79	572.07	420.29	349.76	70.53	5.959	
6,600.00	6,494.75	6,530.63	6,494.75	40.95	36.75	-89.47	285.79	572.07	420.29	348.76	71.53	5.876	
6,700.00	6,594.75	6,630.63	6,594.75	41.39	37.25	-89.47	285.79	572.07	420.29	347.76	72.53	5.795	
6,800.00	6,694.75	6,730.63	6,694.75	41.84	37.75	-89.47	285.79	572.07	420.29	346.76	73.53	5.716	
6,900.00	6,794.75	6,830.63	6,794.75	42.29	38.24	-89.47	285.79	572.07	420.29	345.76	74.53	5.639	
7,000.00	6,894.75	6,930.63	6,894.75	42.75	38.74	-89.47	285.79	572.07	420.29	344.75	75.54	5.564	
7,100.00	6,994.75	7,030.63	6,994.75	43.20	39.24	-89.47	285.79	572.07	420.29	343.74	76.55	5.491	
7,200.00	7,094.75	7,130.63	7,094.75	43.66	39.74	-89.47	285.79	572.07	420.29	342.73	77.56	5.419	
7,300.00	7,194.75	7,230.63	7,194.75	44.11	40.25	-89.47	285.79	572.07	420.29	341.72	78.57	5.349	
7,400.00	7,294.75	7,330.63	7,294.75	44.57	40.75	-89.47	285.79	572.07	420.29	340.71	79.58	5.281	
7,500.00	7,394.75	7,430.63	7,394.75	45.04	41.25	-89.47	285.79	572.07	420.29	339.70	80.60	5.215	
7,600.00	7,494.75	7,530.63	7,494.75	45.50	41.76	-89.47	285.79	572.07	420.29	338.68	81.61	5.150	
7,700.00	7,594.75	7,630.63	7,594.75	45.96	42.26	-89.47	285.79	572.07	420.29	337.66	82.63	5.086	
7,800.00	7,694.75	7,730.63	7,694.75	46.43	42.77	-89.47	285.79	572.07	420.29	336.64	83.65	5.024	
7,900.00	7,794.75	7,830.63	7,794.75	46.90	43.28	-89.47	285.79	572.07	420.29	335.62	84.67	4.964	
8,000.00	7,894.75	7,930.63	7,894.75	47.37	43.78	-89.47	285.79	572.07	420.29	334.60	85.69	4.905	
8,100.00	7,994.75	8,030.63	7,994.75	47.84	44.29	-89.47	285.79	572.07	420.29	333.58	86.71	4.847	
8,200.00	8,094.75	8,130.63	8,094.75	48.31	44.80	-89.47	285.79	572.07	420.29	332.55	87.74	4.790	
8,300.00	8,194.75	8,230.63	8,194.75	48.78	45.31	-89.47	285.79	572.07	420.29	331.53	88.77	4.735	
8,400.00	8,294.75	8,330.63	8,294.75	49.26	45.82	-89.47	285.79	572.07	420.29	330.50	89.79	4.681	
8,500.00	8,394.75	8,430.63	8,394.75	49.74	46.33	-89.47	285.79	572.07	420.29	329.47	90.82	4.628	
8,600.00	8,494.75	8,530.63	8,494.75	50.21	46.85	-89.47	285.79	572.07	420.29	328.44	91.85	4.576	
8,700.00	8,594.75	8,630.63	8,594.75	50.69	47.36	-89.47	285.79	572.07	420.29	327.41	92.88	4.525	
8,800.00	8,694.75	8,730.63	8,694.75	51.17	47.87	-89.47	285.79	572.07	420.29	326.38	93.91	4.475	
8,900.00	8,794.75	8,830.63	8,794.75	51.65	48.38	-89.47	285.79	572.07	420.29	325.35	94.94	4.427	
9,000.00	8,894.75	8,930.63	8,894.75	52.13	48.90	-89.47	285.79	572.07	420.29	324.32	95.98	4.379	
9,100.00	8,994.75	9,030.63	8,994.75	52.62	49.41	-89.47	285.79	572.07	420.29	323.28	97.01	4.332	
9,200.00	9,094.75	9,130.63	9,094.75	53.10	49.93	-89.47	285.79	572.07	420.29	322.25	98.04	4.287	
9,300.00	9,194.64	9,230.52	9,194.64	53.59	50.44	-88.93	285.79	572.07	420.22	321.22	99.00	4.245	
9,352.66	9,246.69	9,282.56	9,246.69	53.86	50.71	-90.00	285.79	572.07	420.15	320.62	99.52	4.222	
9,400.00	9,292.68	9,328.55	9,292.68	54.10	50.95	-91.46	285.79	572.07	420.29	320.28	100.01	4.202	
9,500.00	9,385.91	9,421.79	9,385.91	54.59	51.43	-95.74	285.79	572.07	422.76	321.63	101.13	4.180	
9,600.00	9,471.51	9,510.49	9,474.61	55.07	51.89	-100.94	286.07	572.06	431.46	329.33	102.13	4.225	
9,700.00	9,546.88	9,616.98	9,580.13	55.51	52.45	-107.00	299.27	571.84	447.51	344.95	102.56	4.364	
9,800.00	9,609.72	9,740.54	9,696.98	55.93	53.09	-112.94	338.67	571.17	468.75	366.89	101.86	4.602	
9,900.00	9,658.13	9,888.09	9,821.51	56.34	53.81	-118.66	417.04	569.85	492.20	392.31	99.90	4.927	
10,000.00	9,690.63	10,066.74	9,939.41	56.78	54.63	-123.66	550.28	567.59	513.42	416.14	97.28	5.278	
10,100.00	9,706.24	10,277.26	10,017.97	57.25	55.71	-126.90	744.29	564.31	526.93	431.04	95.89	5.495	
10,200.00	9,705.44	10,455.08	10,027.38	57.80	56.78	-127.49	921.27	561.32	529.40	432.18	97.22	5.445	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 6H - OH - Plan 1 06-16-17													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)				Between Centres (usft)	Between Ellipses (usft)	
0.00	0.00	0.00	1.00	0.00	0.00	0.29	49.84	0.25	49.85					
100.00	100.00	99.00	100.00	0.19	0.19	0.29	49.84	0.25	49.84	49.45	0.39	129.372		
200.00	200.00	199.00	200.00	0.73	0.73	0.29	49.84	0.25	49.84	48.38	1.46	34.200		
300.00	300.00	299.00	300.00	1.27	1.26	0.29	49.84	0.25	49.84	47.30	2.53	19.678		
400.00	400.00	399.00	400.00	1.81	1.80	0.29	49.84	0.25	49.84	46.23	3.61	13.813		
500.00	500.00	499.00	500.00	2.34	2.34	0.29	49.84	0.25	49.84	45.15	4.68	10.641		
600.00	600.00	599.00	600.00	2.88	2.88	0.29	49.84	0.25	49.84	44.08	5.76	8.654 CC		
700.00	699.98	698.34	699.32	3.41	3.40	-73.97	50.48	1.81	50.01	43.19	6.82	7.337		
800.00	799.84	797.67	798.52	3.94	3.93	-74.25	52.44	6.56	50.55	42.68	7.87	6.425		
900.00	899.45	897.00	897.47	4.47	4.46	-74.69	55.70	14.47	51.46	42.52	8.94	5.758		
1,000.00	998.70	996.64	996.43	5.02	5.01	-75.67	60.14	25.24	52.60	42.57	10.03	5.243		
1,100.00	1,097.47	1,096.56	1,095.61	5.59	5.57	-79.78	64.78	36.46	53.19	42.03	11.16	4.768		
1,200.00	1,195.62	1,196.30	1,194.60	6.19	6.13	-87.46	69.40	47.67	53.79	41.47	12.31	4.368 ES		
1,300.00	1,293.38	1,295.87	1,293.44	6.80	6.69	-96.89	74.02	58.86	55.53	42.05	13.48	4.118		
1,400.00	1,391.14	1,395.45	1,392.28	7.43	7.26	-105.54	78.64	70.05	58.69	44.04	14.65	4.006		
1,500.00	1,488.90	1,495.03	1,491.11	8.07	7.83	-113.16	83.26	81.24	63.03	47.23	15.80	3.990		
1,600.00	1,586.66	1,594.60	1,589.95	8.72	8.41	-119.70	87.87	92.43	68.35	51.41	16.93	4.036		
1,700.00	1,684.42	1,694.18	1,688.79	9.38	8.98	-125.25	92.49	103.62	74.42	56.37	18.05	4.122		
1,800.00	1,782.18	1,793.76	1,787.63	10.04	9.56	-129.93	97.11	114.82	81.09	61.92	19.17	4.230		
1,900.00	1,879.94	1,893.33	1,886.46	10.70	10.14	-133.87	101.73	126.01	88.21	67.93	20.28	4.350		
2,000.00	1,977.69	1,992.91	1,985.30	11.37	10.72	-137.22	106.34	137.20	95.69	74.30	21.38	4.474		
2,100.00	2,075.45	2,092.48	2,084.14	12.04	11.30	-140.07	110.96	148.39	103.44	80.95	22.49	4.599		
2,200.00	2,173.21	2,192.06	2,182.98	12.72	11.88	-142.52	115.58	159.58	111.41	87.81	23.60	4.721		
2,300.00	2,270.97	2,291.64	2,281.82	13.39	12.46	-144.64	120.20	170.77	119.56	94.86	24.71	4.839		
2,400.00	2,368.73	2,391.21	2,380.65	14.07	13.05	-146.49	124.81	181.96	127.85	102.04	25.82	4.952		
2,500.00	2,466.49	2,490.79	2,479.49	14.75	13.63	-148.11	129.43	193.15	136.26	109.33	26.93	5.060		
2,600.00	2,564.25	2,590.37	2,578.33	15.43	14.21	-149.55	134.05	204.34	144.77	116.73	28.04	5.163		
2,700.00	2,662.00	2,689.94	2,677.17	16.11	14.79	-150.82	138.67	215.53	153.35	124.20	29.15	5.260		
2,800.00	2,759.76	2,789.52	2,776.00	16.79	15.38	-151.96	143.28	226.72	162.00	131.73	30.27	5.352		
2,900.00	2,857.52	2,889.09	2,874.84	17.47	15.96	-152.98	147.90	237.91	170.71	139.32	31.38	5.439		
3,000.00	2,955.28	2,988.67	2,973.68	18.16	16.55	-153.90	152.52	249.10	179.46	146.96	32.50	5.522		
3,100.00	3,053.04	3,088.25	3,072.52	18.84	17.13	-154.74	157.14	260.29	188.26	154.64	33.62	5.600		
3,200.00	3,150.80	3,187.82	3,171.35	19.53	17.72	-155.50	161.75	271.48	197.10	162.36	34.74	5.673		
3,300.00	3,248.55	3,287.40	3,270.19	20.21	18.30	-156.20	166.37	282.67	205.96	170.10	35.86	5.743		
3,400.00	3,346.31	3,386.98	3,369.03	20.90	18.89	-156.84	170.99	293.86	214.86	177.88	36.98	5.810		
3,500.00	3,444.07	3,486.55	3,467.87	21.59	19.47	-157.43	175.61	305.05	223.78	185.67	38.10	5.873		
3,600.00	3,541.83	3,586.13	3,566.70	22.27	20.06	-157.97	180.23	316.24	232.72	193.49	39.23	5.933		
3,700.00	3,639.59	3,685.70	3,665.54	22.96	20.64	-158.47	184.84	327.43	241.68	201.33	40.35	5.990		
3,800.00	3,737.35	3,785.28	3,764.38	23.65	21.23	-158.94	189.46	338.62	250.65	209.18	41.47	6.044		
3,900.00	3,835.11	3,884.86	3,863.22	24.34	21.81	-159.37	194.08	349.82	259.65	217.05	42.60	6.095		
4,000.00	3,932.86	3,984.43	3,962.06	25.03	22.40	-159.78	198.70	361.01	268.65	224.93	43.72	6.144		
4,100.00	4,030.62	4,084.01	4,060.89	25.72	22.99	-160.16	203.31	372.20	277.67	232.82	44.85	6.191		
4,200.00	4,128.38	4,183.59	4,159.73	26.41	23.57	-160.51	207.93	383.39	286.70	240.73	45.97	6.236		
4,300.00	4,226.14	4,283.16	4,258.57	27.09	24.16	-160.85	212.55	394.58	295.74	248.64	47.10	6.279		
4,400.00	4,323.90	4,382.74	4,357.41	27.78	24.74	-161.16	217.17	405.77	304.79	256.56	48.23	6.320		
4,500.00	4,421.66	4,482.31	4,456.24	28.47	25.33	-161.46	221.78	416.96	313.85	264.49	49.35	6.359		
4,600.00	4,519.42	4,581.89	4,555.08	29.16	25.92	-161.74	226.40	428.15	322.91	272.43	50.48	6.397		
4,700.00	4,617.17	4,681.47	4,653.92	29.85	26.50	-162.00	231.02	439.34	331.99	280.38	51.61	6.433		
4,800.00	4,714.93	4,781.04	4,752.76	30.54	27.09	-162.25	235.64	450.53	341.07	288.33	52.74	6.467		
4,900.00	4,812.69	4,880.62	4,851.59	31.23	27.68	-162.49	240.25	461.72	350.15	296.29	53.87	6.500		
5,000.00	4,910.45	4,980.20	4,950.43	31.93	28.26	-162.71	244.87	472.91	359.24	304.25	54.99	6.532		
5,100.00	5,008.21	5,079.77	5,049.27	32.62	28.85	-162.93	249.49	484.10	368.34	312.22	56.12	6.563		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 5H - OH - Plan 1 06-16-17												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)	
15,400.00	9,677.72	15,573.69	9,912.16	141.13	140.43	-100.57	6,103.76	-360.47	1,280.37	1,002.23	278.14	4.603
15,500.00	9,679.86	15,673.62	9,918.19	143.12	142.42	-100.74	6,203.50	-360.02	1,281.57	999.58	281.99	4.545
15,600.00	9,682.00	15,773.54	9,924.23	145.12	144.42	-100.90	6,303.24	-359.57	1,282.79	996.94	285.84	4.488
15,700.00	9,684.13	15,873.46	9,930.26	147.12	146.42	-101.07	6,402.98	-359.12	1,284.01	994.31	289.70	4.432
15,800.00	9,686.27	15,973.38	9,936.29	149.12	148.42	-101.24	6,502.72	-358.67	1,285.24	991.68	293.56	4.378
15,900.00	9,688.41	16,073.31	9,942.32	151.13	150.43	-101.40	6,602.46	-358.22	1,286.48	989.06	297.42	4.325
16,000.00	9,690.54	16,173.23	9,948.35	153.15	152.44	-101.57	6,702.20	-357.77	1,287.74	986.45	301.29	4.274
16,100.00	9,692.68	16,273.15	9,954.38	155.16	154.46	-101.73	6,801.94	-357.32	1,289.00	983.85	305.15	4.224
16,200.00	9,694.82	16,373.07	9,960.42	157.18	156.48	-101.90	6,901.68	-356.86	1,290.28	981.26	309.02	4.175
16,300.00	9,696.96	16,473.00	9,966.45	159.20	158.50	-102.06	7,001.42	-356.41	1,291.56	978.67	312.89	4.128
16,400.00	9,699.09	16,572.92	9,972.48	161.23	160.53	-102.23	7,101.16	-355.96	1,292.86	976.10	316.76	4.081
16,500.00	9,701.23	16,672.84	9,978.51	163.26	162.56	-102.39	7,200.90	-355.51	1,294.17	973.54	320.63	4.036
16,600.00	9,703.37	16,772.77	9,984.17	165.29	164.71	-102.53	7,306.48	-355.05	1,295.36	970.72	324.64	3.990
16,700.00	9,705.41	16,872.70	9,989.85	167.33	166.91	-102.52	7,414.89	-354.64	1,295.87	967.04	328.84	3.941
16,800.00	9,706.15	16,972.62	9,995.53	169.36	168.95	-102.50	7,514.89	-354.29	1,296.32	963.45	332.87	3.894
16,900.00	9,706.84	17,072.54	9,998.30	171.40	170.99	-102.49	7,614.88	-353.94	1,296.77	959.87	336.90	3.849
17,000.00	9,707.52	17,172.46	9,999.82	173.45	173.03	-102.48	7,714.88	-353.59	1,297.23	956.29	340.94	3.805
17,100.00	9,708.21	17,272.38	9,999.33	175.49	175.08	-102.47	7,814.88	-353.23	1,297.68	952.70	344.98	3.762
17,200.00	9,708.90	17,372.30	9,998.85	177.54	177.13	-102.46	7,914.87	-352.88	1,298.13	949.11	349.03	3.719
17,300.00	9,709.58	17,472.22	9,998.37	179.59	179.18	-102.44	8,014.87	-352.53	1,298.59	945.51	353.08	3.678
17,400.00	9,710.27	17,572.14	9,997.89	181.64	181.23	-102.43	8,114.87	-352.18	1,299.04	941.91	357.13	3.637
17,500.00	9,710.96	17,672.06	9,997.40	183.70	183.29	-102.42	8,214.86	-351.83	1,299.50	938.30	361.20	3.598
17,600.00	9,711.64	17,771.98	9,996.92	185.76	185.34	-102.41	8,314.86	-351.48	1,299.95	934.69	365.26	3.559
17,700.00	9,712.33	17,871.90	9,996.44	187.82	187.40	-102.40	8,414.86	-351.13	1,300.41	931.07	369.33	3.521
17,800.00	9,713.02	17,971.82	9,995.96	189.88	189.47	-102.38	8,514.85	-350.77	1,300.86	927.46	373.41	3.484
17,900.00	9,713.70	18,071.74	9,995.48	191.94	191.53	-102.37	8,614.85	-350.42	1,301.32	923.83	377.49	3.447
18,000.00	9,714.39	18,171.66	9,995.00	194.01	193.60	-102.36	8,714.85	-350.07	1,301.77	920.20	381.57	3.412
18,100.00	9,715.07	18,271.58	9,994.51	196.07	195.66	-102.35	8,814.84	-349.72	1,302.23	916.57	385.65	3.377
18,200.00	9,715.76	18,371.50	9,994.03	198.14	197.73	-102.34	8,914.84	-349.37	1,302.68	912.94	389.74	3.342
18,300.00	9,716.45	18,471.42	9,993.55	200.21	199.80	-102.32	9,014.84	-349.02	1,303.14	909.30	393.84	3.309
18,400.00	9,717.13	18,571.34	9,993.08	202.29	201.86	-102.31	9,114.82	-348.67	1,303.60	905.68	397.91	3.276
18,500.00	9,717.82	18,671.26	9,992.60	204.36	203.92	-102.33	9,213.10	-348.31	1,304.18	902.21	401.97	3.244
18,600.00	9,718.51	18,771.18	9,992.12	206.44	205.99	-102.35	9,313.09	-347.94	1,304.77	898.73	406.04	3.213
18,700.00	9,719.19	18,871.10	9,991.65	208.51	208.07	-102.36	9,413.08	-347.58	1,305.36	895.24	410.12	3.183
18,800.00	9,719.88	18,971.02	9,991.17	210.59	210.15	-102.38	9,513.07	-347.21	1,305.94	891.75	414.20	3.153
18,900.00	9,721.19	19,070.94	9,990.69	212.67	212.23	-102.38	9,613.06	-346.85	1,306.40	888.10	418.30	3.123
19,000.00	9,722.77	19,170.86	9,990.21	214.75	214.32	-102.35	9,713.05	-346.49	1,306.80	884.38	422.42	3.094
19,100.00	9,724.35	19,270.78	9,989.73	216.84	216.40	-102.33	9,813.04	-346.12	1,307.20	880.65	426.55	3.065
19,200.00	9,725.93	19,370.70	9,989.25	218.92	218.49	-102.31	9,913.03	-345.76	1,307.61	876.92	430.68	3.036
19,300.00	9,727.51	19,470.62	9,988.77	221.01	220.57	-102.29	10,013.02	-345.39	1,308.01	873.19	434.82	3.008
19,400.00	9,729.09	19,570.54	9,988.29	223.10	222.66	-102.27	10,113.01	-345.03	1,308.41	869.46	438.95	2.981
19,500.00	9,730.67	19,670.46	9,987.81	225.18	224.75	-102.25	10,213.00	-344.66	1,308.81	865.72	443.09	2.954
19,600.00	9,732.25	19,770.38	9,987.33	227.27	226.84	-102.23	10,312.99	-344.30	1,309.21	861.98	447.24	2.927
19,700.00	9,733.83	19,870.30	9,986.85	229.36	228.93	-102.21	10,412.98	-343.93	1,309.62	858.24	451.38	2.901
19,800.00	9,735.41	19,970.22	9,986.37	231.46	231.03	-102.19	10,512.97	-343.57	1,310.02	854.49	455.53	2.876
19,900.00	9,736.99	20,070.14	9,985.89	233.55	233.12	-102.16	10,612.96	-343.21	1,310.42	850.75	459.68	2.851
20,000.00	9,738.57	20,170.06	9,985.41	235.64	235.21	-102.14	10,712.95	-342.84	1,310.83	847.00	463.83	2.826
20,100.00	9,740.15	20,270.00	9,984.93	237.74	237.31	-102.12	10,812.94	-342.48	1,311.23	843.25	467.98	2.802
20,153.58	9,741.00	20,336.04	9,984.01	238.86	238.38	-102.11	10,863.74	-342.29	1,311.45	841.30	470.15	2.789 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 5H - OH - Plan 1 06-16-17													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)					
10,300.00	9,700.74	10,477.38	9,985.66	58.44	56.97	-102.46	1,009.60	-312.04	1,322.91	1,211.64	111.28	11.889	
10,400.00	9,696.03	10,577.36	9,982.98	59.17	57.76	-102.55	1,109.53	-313.02	1,322.65	1,209.79	112.85	11.720	
10,500.00	9,691.33	10,677.34	9,980.31	59.97	58.61	-102.64	1,209.47	-314.00	1,322.38	1,207.82	114.56	11.543	
10,600.00	9,686.63	10,777.31	9,977.63	60.85	59.54	-102.74	1,309.41	-314.99	1,322.12	1,205.72	116.40	11.358	
10,700.00	9,681.92	10,877.29	9,974.96	61.80	60.52	-102.83	1,409.34	-315.97	1,321.86	1,203.50	118.37	11.167	
10,800.00	9,677.22	10,977.27	9,972.29	62.82	61.57	-102.92	1,509.28	-316.95	1,321.61	1,201.16	120.45	10.973	
10,900.00	9,672.51	11,077.24	9,969.61	63.89	62.67	-103.02	1,609.22	-317.93	1,321.36	1,198.72	122.64	10.775	
11,000.00	9,667.81	11,177.22	9,966.94	65.03	63.83	-103.11	1,709.15	-318.92	1,321.11	1,196.18	124.93	10.575	
11,100.00	9,663.11	11,277.20	9,964.26	66.22	65.04	-103.20	1,809.09	-319.90	1,320.87	1,193.55	127.32	10.374	
11,200.00	9,658.40	11,377.17	9,961.59	67.45	66.29	-103.29	1,909.02	-320.88	1,320.63	1,190.83	129.80	10.174	
11,300.00	9,653.70	11,477.15	9,958.92	68.74	67.59	-103.39	2,008.96	-321.87	1,320.39	1,188.02	132.37	9.975	
11,400.00	9,649.00	11,577.13	9,956.24	70.07	68.94	-103.48	2,108.90	-322.85	1,320.16	1,185.14	135.03	9.777	
11,500.00	9,644.29	11,677.10	9,953.57	71.44	70.32	-103.57	2,208.83	-323.83	1,319.93	1,182.18	137.75	9.582	
11,600.00	9,640.05	11,777.08	9,950.88	72.85	71.75	-103.66	2,309.25	-324.82	1,319.60	1,179.06	140.54	9.390	
11,700.00	9,638.84	11,880.44	9,947.11	74.29	73.26	-103.75	2,410.06	-325.84	1,318.34	1,174.85	143.48	9.188	
11,800.00	9,638.95	11,980.36	9,943.31	75.75	74.76	-103.84	2,511.90	-326.83	1,316.76	1,170.25	146.51	8.988	
11,900.00	9,639.05	12,080.29	9,939.52	77.25	76.29	-103.93	2,611.75	-327.81	1,315.19	1,165.59	149.59	8.792	
12,000.00	9,639.15	12,180.21	9,935.73	78.78	77.85	-104.02	2,711.59	-328.80	1,313.62	1,160.89	152.74	8.600	
12,100.00	9,639.25	12,280.13	9,931.94	80.34	79.43	-104.11	2,811.44	-329.79	1,312.07	1,156.13	155.94	8.414	
12,200.00	9,639.36	12,380.05	9,928.15	81.93	81.05	-104.20	2,911.28	-330.78	1,310.53	1,151.34	159.20	8.232	
12,300.00	9,639.46	12,479.97	9,924.35	83.55	82.69	-104.29	3,011.13	-331.77	1,309.00	1,146.50	162.50	8.055	
12,400.00	9,639.56	12,579.89	9,920.56	85.19	84.35	-104.38	3,110.97	-332.76	1,307.48	1,141.63	165.85	7.883	
12,500.00	9,639.66	12,679.82	9,916.77	86.85	86.03	-104.47	3,210.82	-333.75	1,305.97	1,136.72	169.25	7.716	
12,600.00	9,639.76	12,779.74	9,912.98	88.53	87.74	-104.56	3,310.66	-334.74	1,304.47	1,131.78	172.69	7.554	
12,700.00	9,639.87	12,879.66	9,909.19	90.23	89.46	-104.65	3,410.50	-335.73	1,302.98	1,126.81	176.17	7.396	
12,800.00	9,639.97	12,979.58	9,905.39	91.96	91.21	-104.74	3,510.35	-336.71	1,301.51	1,121.82	179.69	7.243	
12,900.00	9,640.73	13,079.47	9,901.60	93.70	92.97	-104.83	3,610.16	-337.70	1,299.89	1,116.66	183.23	7.094	
13,000.00	9,642.15	13,179.33	9,897.81	95.46	94.74	-104.92	3,709.95	-338.69	1,298.15	1,111.31	186.85	6.948	
13,100.00	9,643.58	13,279.20	9,894.02	97.24	96.53	-105.01	3,809.73	-339.68	1,296.43	1,105.94	190.49	6.806	
13,200.00	9,645.00	13,377.45	9,890.35	99.03	98.31	-105.10	3,907.92	-340.65	1,294.74	1,100.61	194.13	6.669	
13,300.00	9,646.43	13,469.52	9,888.94	100.84	99.98	-105.19	3,999.96	-341.57	1,293.48	1,095.84	197.65	6.544	
13,400.00	9,647.85	13,567.85	9,889.61	102.66	101.78	-105.28	4,098.28	-342.55	1,292.65	1,091.38	201.26	6.423	
13,500.00	9,649.27	13,667.84	9,890.36	104.50	103.62	-105.37	4,198.27	-343.54	1,291.82	1,086.89	204.93	6.304	
13,600.00	9,650.70	13,767.84	9,891.11	106.34	105.47	-105.46	4,298.26	-344.54	1,291.00	1,082.38	208.62	6.188	
13,700.00	9,652.12	13,867.83	9,891.86	108.20	107.33	-105.55	4,398.25	-345.53	1,290.17	1,077.84	212.33	6.076	
13,800.00	9,653.55	13,967.83	9,892.61	110.07	109.21	-105.64	4,498.23	-346.53	1,289.35	1,073.28	216.07	5.967	
13,900.00	9,654.97	14,067.82	9,893.36	111.95	111.09	-105.73	4,598.22	-347.53	1,288.53	1,068.71	219.82	5.862	
14,000.00	9,656.40	14,167.82	9,894.11	113.84	112.99	-105.82	4,698.21	-348.52	1,287.70	1,064.11	223.59	5.759	
14,100.00	9,657.82	14,267.81	9,894.86	115.75	114.89	-105.91	4,798.20	-349.52	1,286.88	1,059.49	227.39	5.659	
14,200.00	9,659.24	14,367.81	9,895.61	117.65	116.80	-106.00	4,898.18	-350.51	1,286.06	1,054.86	231.20	5.563	
14,300.00	9,660.67	14,467.80	9,896.36	119.57	118.72	-106.09	4,998.17	-351.51	1,285.24	1,050.21	235.02	5.469	
14,400.00	9,662.09	14,567.80	9,897.11	121.50	120.65	-106.18	5,098.16	-352.51	1,284.41	1,045.55	238.87	5.377	
14,500.00	9,663.52	14,667.79	9,897.86	123.43	122.59	-106.27	5,198.14	-353.50	1,283.59	1,040.87	242.72	5.288	
14,600.00	9,664.94	14,767.79	9,898.61	125.38	124.53	-106.36	5,298.13	-354.50	1,282.77	1,036.18	246.59	5.202	
14,700.00	9,666.36	14,867.78	9,899.36	127.32	126.48	-106.45	5,398.12	-355.49	1,281.95	1,031.47	250.48	5.118	
14,800.00	9,667.79	14,967.78	9,900.11	129.28	128.44	-106.54	5,498.11	-356.49	1,281.13	1,026.75	254.38	5.036	
14,900.00	9,669.21	15,067.77	9,900.86	131.24	130.41	-106.63	5,598.09	-357.49	1,280.31	1,022.02	258.29	4.957	
15,000.00	9,670.64	15,167.77	9,901.61	133.21	132.38	-106.72	5,698.08	-358.48	1,279.49	1,017.27	262.21	4.880	
15,100.00	9,672.06	15,267.76	9,902.36	135.18	134.35	-106.81	5,798.07	-359.48	1,278.67	1,012.52	266.15	4.804	
15,192.86	9,673.52	15,360.91	9,903.07	137.02	136.20	-106.90	5,891.21	-360.40	1,278.37	1,008.46	269.91	4.736	
15,200.00	9,673.54	15,368.34	9,903.15	137.16	136.35	-106.99	5,898.64	-360.47	1,278.02	1,007.83	270.20	4.730	
15,300.00	9,675.58	15,472.32	9,906.29	139.14	138.41	-107.08	6,002.57	-360.86	1,279.16	1,004.90	274.27	4.664	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 5H - OH - Plan 1 06-16-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	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	5,105.97	5,126.83	5,105.97	33.31	28.31	-161.35	296.45	-305.02	1,176.36	1,120.21	56.16	20.948	
5,300.00	5,203.73	5,224.59	5,203.73	34.00	28.81	-161.68	296.45	-305.02	1,196.37	1,139.14	57.23	20.904	
5,400.00	5,301.48	5,322.35	5,301.48	34.69	29.31	-161.99	296.45	-305.02	1,216.42	1,158.11	58.31	20.861	
5,500.00	5,399.24	5,420.11	5,399.24	35.38	29.81	-162.29	296.45	-305.02	1,236.50	1,177.11	59.40	20.818	
5,600.00	5,497.37	5,518.23	5,497.37	36.05	30.31	-162.67	296.45	-305.02	1,254.90	1,194.19	60.71	20.671	
5,700.00	5,596.10	5,616.97	5,596.10	36.67	30.82	-162.97	296.45	-305.02	1,270.03	1,208.08	61.95	20.500	
5,800.00	5,695.33	5,716.20	5,695.33	37.26	31.33	-163.20	296.45	-305.02	1,281.87	1,218.75	63.13	20.307	
5,900.00	5,794.93	5,815.79	5,794.93	37.80	31.84	-163.37	296.45	-305.02	1,290.40	1,226.18	64.22	20.093	
6,000.00	5,894.77	5,915.64	5,894.77	38.30	32.36	-163.46	296.45	-305.02	1,295.59	1,230.35	65.24	19.859	
6,100.00	5,994.75	6,015.62	5,994.75	38.75	32.87	-163.50	296.45	-305.02	1,297.44	1,231.27	66.17	19.608	
6,200.00	6,094.75	6,115.62	6,094.75	39.19	33.39	-89.36	296.45	-305.02	1,297.44	1,230.24	67.20	19.307	
6,300.00	6,194.75	6,215.62	6,194.75	39.62	33.91	-89.36	296.45	-305.02	1,297.44	1,229.24	68.21	19.022	
6,400.00	6,294.75	6,315.62	6,294.75	40.06	34.42	-89.36	296.45	-305.02	1,297.44	1,228.23	69.22	18.745	
6,500.00	6,394.75	6,415.62	6,394.75	40.50	34.94	-89.36	296.45	-305.02	1,297.44	1,227.22	70.23	18.475	
6,600.00	6,494.75	6,515.62	6,494.75	40.95	35.46	-89.36	296.45	-305.02	1,297.44	1,226.21	71.24	18.213	
6,700.00	6,594.75	6,615.62	6,594.75	41.39	35.98	-89.36	296.45	-305.02	1,297.44	1,225.19	72.25	17.958	
6,800.00	6,694.75	6,715.62	6,694.75	41.84	36.50	-89.36	296.45	-305.02	1,297.44	1,224.18	73.27	17.709	
6,900.00	6,794.75	6,815.62	6,794.75	42.29	37.02	-89.36	296.45	-305.02	1,297.44	1,223.16	74.28	17.466	
7,000.00	6,894.75	6,915.62	6,894.75	42.75	37.54	-89.36	296.45	-305.02	1,297.44	1,222.14	75.30	17.230	
7,100.00	6,994.75	7,015.62	6,994.75	43.20	38.07	-89.36	296.45	-305.02	1,297.44	1,221.12	76.32	17.000	
7,200.00	7,094.75	7,115.62	7,094.75	43.66	38.59	-89.36	296.45	-305.02	1,297.44	1,220.10	77.34	16.775	
7,300.00	7,194.75	7,215.62	7,194.75	44.11	39.11	-89.36	296.45	-305.02	1,297.44	1,219.08	78.37	16.556	
7,400.00	7,294.75	7,315.62	7,294.75	44.57	39.63	-89.36	296.45	-305.02	1,297.44	1,218.05	79.39	16.343	
7,500.00	7,394.75	7,415.62	7,394.75	45.04	40.16	-89.36	296.45	-305.02	1,297.44	1,217.03	80.42	16.134	
7,600.00	7,494.75	7,515.62	7,494.75	45.50	40.68	-89.36	296.45	-305.02	1,297.44	1,216.00	81.44	15.931	
7,700.00	7,594.75	7,615.62	7,594.75	45.96	41.21	-89.36	296.45	-305.02	1,297.44	1,214.97	82.47	15.732	
7,800.00	7,694.75	7,715.62	7,694.75	46.43	41.73	-89.36	296.45	-305.02	1,297.44	1,213.94	83.50	15.538	
7,900.00	7,794.75	7,815.62	7,794.75	46.90	42.25	-89.36	296.45	-305.02	1,297.44	1,212.91	84.53	15.349	
8,000.00	7,894.75	7,915.62	7,894.75	47.37	42.78	-89.36	296.45	-305.02	1,297.44	1,211.88	85.56	15.164	
8,100.00	7,994.75	8,015.62	7,994.75	47.84	43.31	-89.36	296.45	-305.02	1,297.44	1,210.85	86.60	14.983	
8,200.00	8,094.75	8,115.62	8,094.75	48.31	43.83	-89.36	296.45	-305.02	1,297.44	1,209.82	87.63	14.806	
8,300.00	8,194.75	8,215.62	8,194.75	48.78	44.36	-89.36	296.45	-305.02	1,297.44	1,208.78	88.66	14.633	
8,400.00	8,294.75	8,315.62	8,294.75	49.26	44.88	-89.36	296.45	-305.02	1,297.44	1,207.75	89.70	14.464	
8,500.00	8,394.75	8,415.62	8,394.75	49.74	45.41	-89.36	296.45	-305.02	1,297.44	1,206.71	90.74	14.299	
8,600.00	8,494.75	8,515.62	8,494.75	50.21	45.94	-89.36	296.45	-305.02	1,297.44	1,205.67	91.77	14.138	
8,700.00	8,594.75	8,615.62	8,594.75	50.69	46.46	-89.36	296.45	-305.02	1,297.44	1,204.63	92.81	13.979	
8,800.00	8,694.75	8,715.62	8,694.75	51.17	46.99	-89.36	296.45	-305.02	1,297.44	1,203.59	93.85	13.825	
8,900.00	8,794.75	8,815.62	8,794.75	51.65	47.52	-89.36	296.45	-305.02	1,297.44	1,202.55	94.89	13.673	
9,000.00	8,894.75	8,915.62	8,894.75	52.13	48.05	-89.36	296.45	-305.02	1,297.44	1,201.51	95.93	13.525	
9,100.00	8,994.75	9,015.62	8,994.75	52.62	48.57	-89.36	296.45	-305.02	1,297.44	1,200.47	96.97	13.380	
9,200.00	9,094.75	9,115.62	9,094.75	53.10	49.10	-89.36	296.45	-305.02	1,297.44	1,199.43	98.01	13.237	
9,300.00	9,194.64	9,215.51	9,194.64	53.59	49.63	-88.53	296.45	-305.02	1,297.36	1,198.34	99.02	13.101	
9,400.00	9,292.68	9,313.54	9,292.68	54.10	50.15	-89.39	296.45	-305.02	1,297.01	1,196.94	100.06	12.962	
9,446.11	9,336.43	9,357.30	9,336.43	54.33	50.38	-90.00	296.45	-305.02	1,296.93	1,196.38	100.55	12.899	
9,500.00	9,385.91	9,406.78	9,385.91	54.59	50.64	-90.85	296.45	-305.02	1,297.10	1,195.99	101.11	12.829	
9,600.00	9,471.51	9,501.36	9,480.36	55.07	51.15	-92.70	300.05	-305.06	1,298.77	1,196.58	102.19	12.709	
9,700.00	9,546.88	9,607.88	9,584.49	55.51	51.74	-94.65	321.71	-305.27	1,302.20	1,198.88	103.33	12.603	
9,800.00	9,609.72	9,728.09	9,694.88	55.93	52.40	-96.64	368.76	-305.73	1,307.11	1,202.64	104.47	12.512	
9,900.00	9,658.13	9,866.13	9,806.28	56.34	53.15	-98.62	449.70	-306.53	1,312.86	1,207.25	105.60	12.432	
10,000.00	9,690.63	10,025.61	9,906.59	56.78	54.05	-100.45	573.02	-307.74	1,318.38	1,211.59	106.79	12.345	
10,100.00	9,706.24	10,206.64	9,974.41	57.25	55.15	-101.84	740.04	-309.39	1,322.27	1,214.07	108.19	12.222	
10,200.00	9,705.44	10,377.41	9,988.33	57.80	56.25	-102.37	909.66	-311.05	1,323.19	1,213.35	109.84	12.047	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 5H - OH - Plan 1 06-16-17													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	0.00	0.00	0.00	-0.06	24.74	-0.03	24.74					
100.00	100.00	100.00	100.00	0.19	0.19	-0.06	24.74	-0.03	24.74	24.35	0.39	63.892		
200.00	200.00	200.00	200.00	0.73	0.73	-0.06	24.74	-0.03	24.74	23.27	1.46	16.913		
300.00	300.00	300.00	300.00	1.27	1.27	-0.06	24.74	-0.03	24.74	22.20	2.54	9.746		
400.00	400.00	400.00	400.00	1.81	1.81	-0.06	24.74	-0.03	24.74	21.12	3.61	6.846		
500.00	500.00	500.00	500.00	2.34	2.34	-0.06	24.74	-0.03	24.74	20.05	4.69	5.275		
600.00	600.00	600.00	600.00	2.88	2.88	-0.06	24.74	-0.03	24.74	18.97	5.76	4.291 CC		
700.00	699.98	699.34	699.32	3.41	3.41	-80.81	25.88	-1.31	25.59	18.76	6.82	3.750 ES		
800.00	799.84	798.12	797.96	3.94	3.94	-97.28	29.29	-5.14	29.90	22.02	7.88	3.794		
900.00	899.45	895.82	895.29	4.47	4.47	-114.37	34.89	-11.42	40.70	31.76	8.95	4.550		
1,000.00	998.70	993.78	992.72	5.02	5.01	-126.60	41.70	-19.07	57.47	47.46	10.01	5.742		
1,100.00	1,097.47	1,091.12	1,089.53	5.59	5.54	-134.89	48.47	-26.67	78.09	67.03	11.05	7.064		
1,200.00	1,195.62	1,187.67	1,185.55	6.19	6.08	-140.81	55.19	-34.21	102.31	90.23	12.09	8.465		
1,300.00	1,293.38	1,283.72	1,281.06	6.80	6.62	-145.16	61.87	-41.71	128.84	115.71	13.13	9.813		
1,400.00	1,391.14	1,379.76	1,376.58	7.43	7.16	-148.04	68.55	-49.21	155.83	141.65	14.18	10.987		
1,500.00	1,488.90	1,475.80	1,472.09	8.07	7.70	-150.07	75.23	-56.71	183.09	167.84	15.24	12.010		
1,600.00	1,586.66	1,571.84	1,567.61	8.72	8.25	-151.58	81.91	-64.21	210.50	194.19	16.31	12.905		
1,700.00	1,684.42	1,667.88	1,663.12	9.38	8.79	-152.73	88.59	-71.70	238.01	220.63	17.38	13.691		
1,800.00	1,782.18	1,763.92	1,758.64	10.04	9.34	-153.65	95.27	-79.20	265.60	247.14	18.46	14.387		
1,900.00	1,879.94	1,859.96	1,854.15	10.70	9.89	-154.40	101.95	-86.70	293.24	273.70	19.54	15.006		
2,000.00	1,977.69	1,956.00	1,949.67	11.37	10.43	-155.02	108.63	-94.20	320.91	300.29	20.62	15.560		
2,100.00	2,075.45	2,052.05	2,045.18	12.04	10.98	-155.54	115.32	-101.70	348.62	326.91	21.71	16.058		
2,200.00	2,173.21	2,148.09	2,140.70	12.72	11.53	-155.98	122.00	-109.20	376.35	353.55	22.80	16.508		
2,300.00	2,270.97	2,244.13	2,236.21	13.39	12.08	-156.36	128.68	-116.70	404.09	380.20	23.89	16.916		
2,400.00	2,368.73	2,340.17	2,331.73	14.07	12.63	-156.69	135.36	-124.20	431.85	406.87	24.98	17.288		
2,500.00	2,466.49	2,436.21	2,427.24	14.75	13.18	-156.99	142.04	-131.70	459.62	433.55	26.07	17.629		
2,600.00	2,564.25	2,532.25	2,522.76	15.43	13.73	-157.25	148.72	-139.20	487.40	460.24	27.17	17.941		
2,700.00	2,662.00	2,628.29	2,618.27	16.11	14.28	-157.48	155.40	-146.70	515.19	486.93	28.26	18.229		
2,800.00	2,759.76	2,724.34	2,713.78	16.79	14.83	-157.68	162.08	-154.20	542.99	513.63	29.36	18.495		
2,900.00	2,857.52	2,820.38	2,809.30	17.47	15.38	-157.87	168.76	-161.70	570.79	540.34	30.46	18.742		
3,000.00	2,955.28	2,916.42	2,904.81	18.16	15.93	-158.04	175.44	-169.20	598.60	567.05	31.55	18.971		
3,100.00	3,053.04	3,012.46	3,000.33	18.84	16.48	-158.20	182.13	-176.69	626.41	593.76	32.65	19.184		
3,200.00	3,150.80	3,108.50	3,095.84	19.53	17.03	-158.34	188.81	-184.19	654.23	620.48	33.75	19.383		
3,300.00	3,248.55	3,204.54	3,191.36	20.21	17.59	-158.47	195.49	-191.69	682.05	647.20	34.85	19.570		
3,400.00	3,346.31	3,300.58	3,286.87	20.90	18.14	-158.59	202.17	-199.19	709.87	673.92	35.95	19.744		
3,500.00	3,444.07	3,396.63	3,382.39	21.59	18.69	-158.70	208.85	-206.69	737.70	700.64	37.05	19.908		
3,600.00	3,541.83	3,492.67	3,477.90	22.27	19.24	-158.80	215.53	-214.19	765.52	727.37	38.16	20.063		
3,700.00	3,639.59	3,588.71	3,573.42	22.96	19.79	-158.90	222.21	-221.69	793.35	754.10	39.26	20.209		
3,800.00	3,737.35	3,684.75	3,668.93	23.65	20.34	-158.99	228.89	-229.19	821.19	780.83	40.36	20.346		
3,900.00	3,835.11	3,780.79	3,764.45	24.34	20.90	-159.07	235.57	-236.69	849.02	807.56	41.46	20.476		
4,000.00	3,932.86	3,876.83	3,859.96	25.03	21.45	-159.15	242.25	-244.19	876.85	834.29	42.57	20.600		
4,100.00	4,030.62	3,972.87	3,955.48	25.72	22.00	-159.22	248.94	-251.69	904.69	861.02	43.67	20.716		
4,200.00	4,128.38	4,068.92	4,050.99	26.41	22.55	-159.29	255.62	-259.19	932.53	887.75	44.77	20.827		
4,300.00	4,226.14	4,164.96	4,146.51	27.09	23.10	-159.36	262.30	-266.69	960.37	914.49	45.88	20.933		
4,400.00	4,323.90	4,261.00	4,242.02	27.78	23.66	-159.42	268.98	-274.18	988.21	941.22	46.98	21.034		
4,500.00	4,421.66	4,357.04	4,337.54	28.47	24.21	-159.48	275.66	-281.68	1,016.05	967.96	48.09	21.129		
4,600.00	4,519.42	4,453.08	4,433.05	29.16	24.76	-159.53	282.34	-289.18	1,043.89	994.70	49.19	21.221		
4,700.00	4,617.17	4,567.34	4,546.74	29.85	25.41	-159.61	289.85	-297.61	1,071.36	1,020.97	50.39	21.261		
4,800.00	4,714.93	4,705.53	4,684.68	30.54	26.17	-159.89	295.28	-303.71	1,095.74	1,044.04	51.70	21.195		
4,900.00	4,812.69	4,833.56	4,812.69	31.23	26.83	-160.32	296.45	-305.02	1,116.56	1,063.63	52.93	21.096		
5,000.00	4,910.45	4,931.32	4,910.45	31.93	27.32	-160.68	296.45	-305.02	1,136.45	1,082.45	54.00	21.044		
5,100.00	5,008.21	5,029.08	5,008.21	32.62	27.82	-161.02	296.45	-305.02	1,156.39	1,101.31	55.08	20.995		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 3H - OH - Plan 1 06-16-17													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)					
15,400.00	9,677.72	15,295.72	9,633.51	141.13	140.89	-86.99	6,116.09	60.35	839.06	558.35	280.71	2.989	
15,500.00	9,679.86	15,395.71	9,635.03	143.12	142.89	-86.95	6,216.07	60.72	839.65	554.95	284.70	2.949	
15,600.00	9,682.00	15,495.71	9,636.54	145.12	144.90	-86.91	6,316.06	61.10	840.24	551.55	288.69	2.911	
15,700.00	9,684.13	15,595.70	9,638.05	147.12	146.91	-86.86	6,416.04	61.48	840.84	548.14	292.69	2.873	
15,800.00	9,686.27	15,695.70	9,639.57	149.12	148.93	-86.82	6,516.03	61.86	841.43	544.73	296.70	2.836	
15,900.00	9,688.41	15,795.70	9,641.08	151.13	150.95	-86.78	6,616.01	62.24	842.03	541.30	300.72	2.800	
16,000.00	9,690.54	15,895.69	9,642.59	153.15	152.97	-86.74	6,716.00	62.61	842.62	537.88	304.75	2.765	
16,100.00	9,692.68	15,995.69	9,644.11	155.16	155.00	-86.70	6,815.98	62.99	843.22	534.44	308.78	2.731	
16,200.00	9,694.82	16,095.69	9,645.62	157.18	157.03	-86.66	6,915.96	63.37	843.81	531.00	312.81	2.697	
16,300.00	9,696.96	16,195.68	9,647.13	159.20	159.06	-86.62	7,015.95	63.75	844.41	527.55	316.86	2.665	
16,400.00	9,699.09	16,295.68	9,648.65	161.23	161.10	-86.58	7,115.93	64.13	845.01	524.10	320.91	2.633	
16,500.00	9,701.23	16,395.68	9,650.16	163.26	163.14	-86.54	7,215.92	64.51	845.60	520.64	324.96	2.602	
16,600.00	9,703.37	16,495.67	9,651.67	165.29	165.18	-86.50	7,315.90	64.88	846.20	517.18	329.02	2.572	
16,700.00	9,705.41	16,595.67	9,653.19	167.33	167.22	-86.47	7,415.89	65.26	846.79	513.71	333.08	2.542	
16,800.00	9,706.15	16,695.67	9,654.70	169.36	169.27	-86.52	7,515.87	65.64	847.22	510.04	337.18	2.513	
16,900.00	9,706.84	16,795.66	9,656.21	171.40	171.32	-86.58	7,615.85	66.02	847.64	506.35	341.29	2.484	
17,000.00	9,707.52	16,895.66	9,657.73	173.45	173.38	-86.64	7,715.84	66.40	848.07	502.66	345.41	2.455	
17,100.00	9,708.21	16,995.65	9,659.24	175.49	175.43	-86.69	7,815.82	66.77	848.50	498.96	349.54	2.427	
17,200.00	9,708.90	17,095.65	9,660.75	177.54	177.49	-86.75	7,915.80	67.15	848.93	495.26	353.67	2.400	
17,300.00	9,709.58	17,195.64	9,662.27	179.59	179.55	-86.81	8,015.79	67.53	849.35	491.55	357.80	2.374	
17,400.00	9,710.27	17,295.64	9,663.78	181.64	181.61	-86.87	8,115.77	67.91	849.78	487.84	361.94	2.348	
17,500.00	9,710.96	17,395.63	9,665.29	183.70	183.68	-86.92	8,215.75	68.29	850.21	484.13	366.09	2.322	
17,600.00	9,711.64	17,495.63	9,666.81	185.76	185.74	-86.98	8,315.74	68.66	850.65	480.41	370.23	2.298	
17,700.00	9,712.33	17,595.62	9,668.32	187.82	187.81	-87.04	8,415.72	69.04	851.08	476.69	374.38	2.273	
17,800.00	9,713.02	17,695.62	9,669.83	189.88	189.88	-87.09	8,515.70	69.42	851.51	472.97	378.54	2.249	
17,900.00	9,713.70	17,795.44	9,671.37	191.94	191.95	-87.15	8,615.51	69.79	851.95	469.25	382.69	2.226	
18,000.00	9,714.39	17,895.43	9,673.00	194.01	194.02	-87.22	8,715.49	70.14	852.40	465.54	386.86	2.203	
18,100.00	9,715.07	17,995.43	9,674.63	196.07	196.10	-87.28	8,815.47	70.50	852.86	461.83	391.03	2.181	
18,200.00	9,715.76	18,095.42	9,676.25	198.14	198.18	-87.35	8,915.45	70.85	853.32	458.12	395.20	2.159	
18,300.00	9,716.45	18,195.42	9,677.88	200.21	200.25	-87.41	9,015.43	71.20	853.78	454.40	399.38	2.138	
18,400.00	9,717.13	18,295.41	9,679.51	202.29	202.33	-87.48	9,115.41	71.55	854.24	450.68	403.55	2.117	
18,500.00	9,717.82	18,395.41	9,681.14	204.36	204.42	-87.54	9,215.39	71.90	854.70	446.96	407.74	2.096	
18,600.00	9,718.51	18,495.40	9,682.77	206.44	206.50	-87.61	9,315.37	72.25	855.16	443.24	411.92	2.076	
18,700.00	9,719.19	18,595.39	9,684.40	208.51	208.59	-87.67	9,415.35	72.61	855.62	439.51	416.11	2.056	
18,800.00	9,719.88	18,695.39	9,686.03	210.59	210.67	-87.74	9,515.33	72.96	856.09	435.79	420.30	2.037	
18,900.00	9,721.19	18,795.39	9,687.66	212.67	212.76	-87.76	9,615.32	73.31	856.58	432.10	424.48	2.018	
19,000.00	9,722.77	18,895.39	9,689.28	214.75	214.85	-87.77	9,715.30	73.66	857.08	428.43	428.65	1.999	
19,100.00	9,724.35	18,995.38	9,690.91	216.84	216.94	-87.77	9,815.29	74.01	857.59	424.76	432.83	1.981	
19,200.00	9,725.93	19,095.38	9,692.54	218.92	219.03	-87.77	9,915.27	74.36	858.10	421.09	437.01	1.964	
19,300.00	9,727.51	19,195.38	9,694.17	221.01	221.12	-87.78	10,015.26	74.72	858.60	417.41	441.19	1.946	
19,400.00	9,729.09	19,295.38	9,695.80	223.10	223.22	-87.78	10,115.24	75.07	859.11	413.73	445.38	1.929	
19,500.00	9,730.67	19,395.38	9,697.43	225.18	225.31	-87.79	10,215.23	75.42	859.61	410.05	449.56	1.912	
19,600.00	9,732.25	19,495.38	9,699.06	227.27	227.41	-87.79	10,315.21	75.77	860.12	406.37	453.75	1.896	
19,700.00	9,733.83	19,595.38	9,700.69	229.36	229.50	-87.80	10,415.20	76.12	860.62	402.68	457.94	1.879	
19,800.00	9,735.41	19,695.38	9,702.31	231.46	231.60	-87.80	10,515.18	76.47	861.13	398.99	462.13	1.863	
19,900.00	9,736.99	19,795.37	9,703.94	233.55	233.70	-87.81	10,615.17	76.83	861.63	395.30	466.33	1.848	
20,000.00	9,738.57	19,895.37	9,705.57	235.64	235.80	-87.81	10,715.15	77.18	862.14	391.61	470.53	1.832	
20,100.00	9,740.15	19,995.37	9,707.20	237.74	237.90	-87.82	10,815.14	77.53	862.64	387.92	474.72	1.817	
20,153.58	9,741.00	20,044.41	9,708.00	238.86	238.80	-87.82	10,864.16	77.70	862.93	386.18	476.74	1.810 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 3H - OH - Plan 1 06-16-17													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
10,300.00	9,700.74	10,182.79	9,687.02	58.44	55.70	-89.12	1,005.51	108.11	871.87	760.48	111.39	7.827	
10,400.00	9,696.03	10,282.78	9,682.94	59.17	56.54	-89.16	1,105.42	107.12	871.14	758.10	113.04	7.706	
10,500.00	9,691.33	10,382.78	9,678.85	59.97	57.45	-89.20	1,205.33	106.13	870.41	755.57	114.84	7.579	
10,600.00	9,686.63	10,482.77	9,674.77	60.85	58.42	-89.24	1,305.23	105.15	869.68	752.91	116.77	7.448	
10,700.00	9,681.92	10,582.77	9,670.68	61.80	59.46	-89.28	1,405.14	104.16	868.96	750.13	118.83	7.313	
10,800.00	9,677.22	10,682.76	9,666.60	62.82	60.56	-89.32	1,505.05	103.17	868.23	747.22	121.00	7.175	
10,900.00	9,672.51	10,782.76	9,662.52	63.89	61.71	-89.36	1,604.95	102.19	867.50	744.21	123.29	7.036	
11,000.00	9,667.81	10,882.76	9,658.43	65.03	62.92	-89.40	1,704.86	101.20	866.77	741.08	125.69	6.896	
11,100.00	9,663.11	10,982.75	9,654.35	66.22	64.18	-89.44	1,804.77	100.21	866.05	737.86	128.19	6.756	
11,200.00	9,658.40	11,082.75	9,650.26	67.45	65.48	-89.48	1,904.68	99.23	865.32	734.53	130.79	6.616	
11,300.00	9,653.70	11,182.74	9,646.18	68.74	66.83	-89.52	2,004.58	98.24	864.60	731.12	133.47	6.478	
11,400.00	9,649.00	11,282.74	9,642.09	70.07	68.22	-89.56	2,104.49	97.25	863.87	727.63	136.24	6.341	
11,500.00	9,644.29	11,382.73	9,638.01	71.44	69.65	-89.60	2,204.40	96.27	863.15	724.05	139.09	6.206	
11,600.00	9,640.05	11,482.73	9,633.92	72.85	71.12	-89.60	2,304.30	95.28	862.43	720.42	142.01	6.073	
11,700.00	9,638.84	11,582.68	9,629.84	74.29	72.62	-89.40	2,404.17	94.29	861.75	716.79	144.96	5.945	
11,800.00	9,638.95	11,682.59	9,625.76	75.75	74.15	-89.12	2,503.99	93.31	861.11	713.16	147.95	5.820	
11,900.00	9,639.05	11,782.50	9,621.68	77.25	75.71	-88.84	2,603.81	92.32	860.49	709.49	150.99	5.699	
12,000.00	9,639.15	11,882.41	9,617.60	78.78	77.31	-88.56	2,703.63	91.34	859.89	705.79	154.10	5.580	
12,100.00	9,639.25	11,982.32	9,613.52	80.34	78.93	-88.28	2,803.45	90.35	859.31	702.05	157.25	5.465	
12,200.00	9,639.36	12,082.23	9,609.44	81.93	80.57	-88.00	2,903.28	89.37	858.75	698.29	160.46	5.352	
12,300.00	9,639.46	12,182.14	9,605.36	83.55	82.24	-87.72	3,003.10	88.38	858.21	694.50	163.70	5.242	
12,400.00	9,639.56	12,282.05	9,601.27	85.19	83.93	-87.44	3,102.92	87.39	857.69	690.70	166.99	5.136	
12,500.00	9,639.66	12,382.25	9,597.25	86.85	85.64	-87.16	3,203.03	86.41	857.19	686.86	170.33	5.033	
12,600.00	9,639.76	12,483.72	9,593.61	88.53	87.39	-87.04	3,304.48	85.40	856.58	682.83	173.76	4.930	
12,700.00	9,639.87	12,584.22	9,589.76	90.23	89.15	-87.11	3,404.97	84.40	855.84	678.59	177.26	4.828	
12,800.00	9,639.97	12,684.21	9,586.10	91.96	90.91	-87.19	3,504.94	83.40	855.10	674.30	180.79	4.730	
12,900.00	9,640.73	12,784.20	9,582.44	93.70	92.69	-87.22	3,604.93	82.41	854.37	670.02	184.35	4.634	
13,000.00	9,642.15	12,884.20	9,578.79	95.46	94.48	-87.22	3,704.91	81.41	853.66	665.73	187.93	4.542	
13,100.00	9,643.58	12,984.20	9,575.13	97.24	96.29	-87.21	3,804.89	80.42	852.96	661.42	191.54	4.453	
13,200.00	9,645.00	13,084.20	9,571.47	99.03	98.11	-87.20	3,904.88	79.42	852.25	657.07	195.18	4.367	
13,300.00	9,646.43	13,184.19	9,567.81	100.84	99.95	-87.19	4,004.86	78.42	851.54	652.70	198.84	4.282	
13,400.00	9,647.85	13,284.19	9,564.15	102.66	101.80	-87.18	4,104.84	77.43	850.84	648.30	202.53	4.201	
13,500.00	9,649.27	13,384.19	9,560.49	104.50	103.66	-87.18	4,204.83	76.43	850.13	643.88	206.25	4.122	
13,600.00	9,650.70	13,484.19	9,556.84	106.34	105.54	-87.17	4,304.81	75.44	849.43	639.44	209.99	4.045	
13,700.00	9,652.12	13,584.18	9,553.18	108.20	107.42	-87.16	4,404.79	74.44	848.72	634.97	213.75	3.971	
13,800.00	9,653.55	13,684.18	9,549.52	110.07	109.31	-87.15	4,504.78	73.45	848.01	630.48	217.53	3.898	
13,900.00	9,654.97	13,784.18	9,545.86	111.95	111.22	-87.15	4,604.76	72.45	847.31	625.98	221.33	3.828	
14,000.00	9,656.40	13,884.18	9,542.20	113.84	113.13	-87.14	4,704.74	71.45	846.60	621.45	225.15	3.760	
14,100.00	9,657.82	13,984.17	9,538.55	115.75	115.05	-87.13	4,804.73	70.46	845.90	616.91	228.99	3.694	
14,200.00	9,659.24	14,084.17	9,534.89	117.65	116.98	-87.12	4,904.71	69.46	845.19	612.35	232.84	3.630	
14,300.00	9,660.67	14,184.17	9,531.23	119.57	118.92	-87.11	5,004.69	68.47	844.48	607.78	236.71	3.568	
14,400.00	9,662.09	14,284.17	9,527.57	121.50	120.87	-87.11	5,104.68	67.47	843.78	603.19	240.59	3.507	
14,500.00	9,663.52	14,384.16	9,523.91	123.43	122.82	-87.10	5,204.66	66.48	843.07	598.58	244.49	3.448	
14,600.00	9,664.94	14,484.16	9,520.26	125.38	124.78	-87.09	5,304.64	65.48	842.37	593.96	248.41	3.391	
14,700.00	9,666.36	14,584.16	9,516.60	127.32	126.75	-87.08	5,404.63	64.48	841.66	589.33	252.33	3.336	
14,800.00	9,667.79	14,684.16	9,512.94	129.28	128.72	-87.07	5,504.61	63.49	840.96	584.69	256.27	3.282	
14,900.00	9,669.21	14,784.15	9,509.28	131.24	130.70	-87.07	5,604.59	62.49	840.25	580.03	260.22	3.229	
15,000.00	9,670.64	14,884.15	9,505.62	133.21	132.68	-87.06	5,704.58	61.50	839.54	575.36	264.18	3.178	
15,100.00	9,672.06	14,984.15	9,501.96	135.18	134.67	-87.05	5,804.56	60.50	838.84	570.68	268.15	3.128	
15,200.00	9,673.54	15,084.15	9,498.30	137.16	136.65	-87.05	5,904.54	59.50	838.14	565.99	272.11	3.076	
15,300.00	9,675.02	15,184.15	9,494.64	139.14	138.63	-87.04	6,004.53	58.50	837.44	561.30	276.07	3.024	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 3H - OH - Plan 1 06-16-17													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	5,008.21	5,026.10	5,008.21	32.62	27.33	-160.16	287.33	115.20	736.29	680.61	55.67	13.226	
5,200.00	5,105.97	5,123.86	5,105.97	33.31	27.84	-160.70	287.33	115.20	756.17	699.44	56.73	13.328	
5,300.00	5,203.73	5,221.62	5,203.73	34.00	28.35	-161.21	287.33	115.20	776.12	718.32	57.80	13.428	
5,400.00	5,301.48	5,319.38	5,301.48	34.69	28.86	-161.70	287.33	115.20	796.13	737.26	58.87	13.524	
5,500.00	5,399.24	5,417.14	5,399.24	35.38	29.37	-162.17	287.33	115.20	816.19	756.25	59.94	13.617	
5,600.00	5,497.37	5,515.26	5,497.37	36.05	29.88	-162.68	287.33	115.20	834.58	773.41	61.17	13.644	
5,700.00	5,596.10	5,613.99	5,596.10	36.67	30.40	-163.09	287.33	115.20	849.72	787.38	62.34	13.631	
5,800.00	5,695.33	5,713.22	5,695.33	37.26	30.92	-163.40	287.33	115.20	861.57	798.14	63.43	13.583	
5,900.00	5,794.93	5,812.82	5,794.93	37.80	31.44	-163.61	287.33	115.20	870.10	805.65	64.46	13.499	
6,000.00	5,894.77	5,912.67	5,894.77	38.30	31.96	-163.74	287.33	115.20	875.30	809.90	65.40	13.383	
6,100.00	5,994.75	6,012.64	5,994.75	38.75	32.49	-163.79	287.33	115.20	877.15	810.89	66.26	13.238	
6,200.00	6,094.75	6,112.64	6,094.75	39.19	33.01	-89.65	287.33	115.20	877.16	809.85	67.31	13.031	
6,300.00	6,194.75	6,212.64	6,194.75	39.62	33.54	-89.65	287.33	115.20	877.16	808.84	68.32	12.839	
6,400.00	6,294.75	6,312.64	6,294.75	40.06	34.06	-89.65	287.33	115.20	877.16	807.83	69.33	12.652	
6,500.00	6,394.75	6,412.64	6,394.75	40.50	34.59	-89.65	287.33	115.20	877.16	806.81	70.34	12.469	
6,600.00	6,494.75	6,512.64	6,494.75	40.95	35.12	-89.65	287.33	115.20	877.16	805.80	71.36	12.292	
6,700.00	6,594.75	6,612.64	6,594.75	41.39	35.64	-89.65	287.33	115.20	877.16	804.78	72.38	12.120	
6,800.00	6,694.75	6,712.64	6,694.75	41.84	36.17	-89.65	287.33	115.20	877.16	803.76	73.39	11.951	
6,900.00	6,794.75	6,812.64	6,794.75	42.29	36.70	-89.65	287.33	115.20	877.16	802.74	74.41	11.788	
7,000.00	6,894.75	6,912.64	6,894.75	42.75	37.23	-89.65	287.33	115.20	877.16	801.72	75.43	11.628	
7,100.00	6,994.75	7,012.64	6,994.75	43.20	37.75	-89.65	287.33	115.20	877.16	800.70	76.46	11.473	
7,200.00	7,094.75	7,112.64	7,094.75	43.66	38.28	-89.65	287.33	115.20	877.16	799.68	77.48	11.321	
7,300.00	7,194.75	7,212.64	7,194.75	44.11	38.81	-89.65	287.33	115.20	877.16	798.65	78.51	11.173	
7,400.00	7,294.75	7,312.64	7,294.75	44.57	39.34	-89.65	287.33	115.20	877.16	797.62	79.53	11.029	
7,500.00	7,394.75	7,412.64	7,394.75	45.04	39.87	-89.65	287.33	115.20	877.16	796.60	80.56	10.888	
7,600.00	7,494.75	7,512.64	7,494.75	45.50	40.40	-89.65	287.33	115.20	877.16	795.57	81.59	10.751	
7,700.00	7,594.75	7,612.64	7,594.75	45.96	40.93	-89.65	287.33	115.20	877.16	794.54	82.62	10.617	
7,800.00	7,694.75	7,712.64	7,694.75	46.43	41.46	-89.65	287.33	115.20	877.16	793.50	83.65	10.486	
7,900.00	7,794.75	7,812.64	7,794.75	46.90	41.99	-89.65	287.33	115.20	877.16	792.47	84.68	10.358	
8,000.00	7,894.75	7,912.64	7,894.75	47.37	42.52	-89.65	287.33	115.20	877.16	791.44	85.72	10.233	
8,100.00	7,994.75	8,012.64	7,994.75	47.84	43.05	-89.65	287.33	115.20	877.16	790.40	86.75	10.111	
8,200.00	8,094.75	8,112.64	8,094.75	48.31	43.58	-89.65	287.33	115.20	877.16	789.37	87.79	9.992	
8,300.00	8,194.75	8,212.64	8,194.75	48.78	44.11	-89.65	287.33	115.20	877.16	788.33	88.82	9.875	
8,400.00	8,294.75	8,312.64	8,294.75	49.26	44.64	-89.65	287.33	115.20	877.16	787.30	89.86	9.761	
8,500.00	8,394.75	8,412.64	8,394.75	49.74	45.17	-89.65	287.33	115.20	877.16	786.26	90.90	9.650	
8,600.00	8,494.75	8,512.64	8,494.75	50.21	45.70	-89.65	287.33	115.20	877.16	785.22	91.94	9.541	
8,700.00	8,594.75	8,612.64	8,594.75	50.69	46.23	-89.65	287.33	115.20	877.16	784.18	92.98	9.434	
8,800.00	8,694.75	8,712.64	8,694.75	51.17	46.76	-89.65	287.33	115.20	877.16	783.14	94.02	9.330	
8,900.00	8,794.75	8,812.64	8,794.75	51.65	47.30	-89.65	287.33	115.20	877.16	782.10	95.06	9.227	
9,000.00	8,894.75	8,912.64	8,894.75	52.13	47.83	-89.65	287.33	115.20	877.16	781.05	96.10	9.127	
9,100.00	8,994.75	9,012.64	8,994.75	52.62	48.36	-89.65	287.33	115.20	877.16	780.01	97.15	9.029	
9,200.00	9,094.75	9,112.64	9,094.75	53.10	48.89	-89.65	287.33	115.20	877.16	778.97	98.19	8.933	
9,300.00	9,194.64	9,210.72	9,192.63	53.59	49.42	-88.56	292.01	115.15	877.16	777.97	99.19	8.843	
9,400.00	9,292.68	9,307.85	9,287.46	54.10	49.97	-88.44	312.49	114.95	877.06	776.81	100.26	8.748	
9,500.00	9,385.91	9,404.69	9,377.21	54.59	50.54	-88.36	348.54	114.60	876.84	775.49	101.35	8.652	
9,600.00	9,471.51	9,501.33	9,459.46	55.07	51.11	-88.34	399.06	114.10	876.49	774.03	102.46	8.555	
9,700.00	9,546.88	9,597.87	9,531.99	55.51	51.71	-88.36	462.59	113.47	876.03	772.43	103.59	8.456	
9,800.00	9,609.72	9,694.40	9,592.83	55.93	52.31	-88.43	537.38	112.73	875.46	770.70	104.76	8.357	
9,900.00	9,658.13	9,791.01	9,640.31	56.34	52.94	-88.55	621.38	111.90	874.81	768.84	105.97	8.255	
10,000.00	9,690.63	9,887.79	9,673.06	56.78	53.58	-88.71	712.33	111.00	874.10	766.87	107.23	8.152	
10,100.00	9,706.24	9,984.85	9,690.07	57.25	54.24	-88.91	807.76	110.06	873.35	764.83	108.52	8.048	
10,200.00	9,705.44	10,082.79	9,691.11	57.80	54.92	-89.08	905.60	109.09	872.60	762.73	109.87	7.942	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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													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	
0.00	0.00	1.00	0.00	0.00	0.00	179.94	-25.10	0.03	25.10					
100.00	100.00	101.00	100.00	0.19	0.20	179.94	-25.10	0.03	25.10	24.71	0.39	63.943		
200.00	200.00	201.00	200.00	0.73	0.74	179.94	-25.10	0.03	25.10	23.63	1.47	17.098		
300.00	300.00	301.00	300.00	1.27	1.27	179.94	-25.10	0.03	25.10	22.56	2.54	9.869		
400.00	400.00	401.00	400.00	1.81	1.81	179.94	-25.10	0.03	25.10	21.48	3.62	6.936		
500.00	500.00	501.00	500.00	2.34	2.35	179.94	-25.10	0.03	25.10	20.41	4.69	5.347		
600.00	600.00	601.01	600.01	2.88	2.89	179.94	-25.10	0.03	25.10	19.33	5.77	4.350		
700.00	699.98	701.81	700.79	3.41	3.43	108.37	-23.40	0.65	23.91	17.07	6.84	3.496		
800.00	799.84	802.46	801.29	3.94	3.97	117.77	-18.39	2.50	20.78	12.87	7.91	2.627		
900.00	899.45	902.78	901.22	4.47	4.52	139.64	-10.10	5.56	17.36	8.37	8.99	1.931		
927.08	926.37	929.73	928.02	4.62	4.66	148.29	-7.46	6.53	17.05	7.77	9.28	1.838	CC, ES	
1,000.00	998.70	1,002.24	1,000.13	5.02	5.06	171.58	-0.35	9.15	19.44	9.39	10.05	1.934		
1,100.00	1,097.47	1,101.42	1,098.77	5.59	5.60	-169.02	9.37	12.73	29.27	18.16	11.11	2.635		
1,200.00	1,195.62	1,200.22	1,197.03	6.19	6.15	-161.35	19.05	16.30	43.98	31.81	12.17	3.614		
1,300.00	1,293.38	1,298.74	1,295.01	6.80	6.71	-158.30	28.71	19.86	60.90	47.64	13.26	4.593		
1,400.00	1,391.14	1,397.26	1,392.99	7.43	7.26	-156.59	38.37	23.42	77.93	63.56	14.36	5.426		
1,500.00	1,488.90	1,495.78	1,490.97	8.07	7.81	-155.49	48.02	26.98	94.99	79.52	15.47	6.139		
1,600.00	1,586.66	1,594.30	1,588.95	8.72	8.37	-154.73	57.68	30.54	112.08	95.49	16.59	6.755		
1,700.00	1,684.42	1,692.82	1,686.93	9.38	8.93	-154.17	67.34	34.10	129.19	111.47	17.72	7.292		
1,800.00	1,782.18	1,791.34	1,784.91	10.04	9.49	-153.74	77.00	37.66	146.30	127.46	18.85	7.763		
1,900.00	1,879.94	1,889.86	1,882.89	10.70	10.04	-153.40	86.65	41.22	163.42	143.44	19.98	8.179		
2,000.00	1,977.69	1,988.37	1,980.87	11.37	10.60	-153.13	96.31	44.78	180.55	159.43	21.12	8.549		
2,100.00	2,075.45	2,086.89	2,078.85	12.04	11.16	-152.90	105.97	48.34	197.68	175.42	22.26	8.881		
2,200.00	2,173.21	2,185.41	2,176.83	12.72	11.72	-152.71	115.62	51.90	214.81	191.41	23.40	9.180		
2,300.00	2,270.97	2,283.93	2,274.81	13.39	12.29	-152.55	125.28	55.46	231.94	207.40	24.54	9.450		
2,400.00	2,368.73	2,382.45	2,372.79	14.07	12.85	-152.40	134.94	59.02	249.08	223.38	25.69	9.695		
2,500.00	2,466.49	2,480.97	2,470.77	14.75	13.41	-152.28	144.59	62.58	266.21	239.37	26.84	9.919		
2,600.00	2,564.25	2,579.49	2,568.75	15.43	13.97	-152.17	154.25	66.14	283.35	255.36	27.99	10.124		
2,700.00	2,662.00	2,678.01	2,666.73	16.11	14.53	-152.08	163.91	69.70	300.49	271.35	29.14	10.313		
2,800.00	2,759.76	2,776.53	2,764.71	16.79	15.09	-151.99	173.56	73.26	317.62	287.34	30.29	10.486		
2,900.00	2,857.52	2,875.05	2,862.69	17.47	15.66	-151.92	183.22	76.82	334.76	303.32	31.44	10.647		
3,000.00	2,955.28	2,973.57	2,960.67	18.16	16.22	-151.85	192.88	80.38	351.90	319.31	32.59	10.796		
3,100.00	3,053.04	3,072.09	3,058.65	18.84	16.78	-151.79	202.54	83.94	369.04	335.29	33.75	10.935		
3,200.00	3,150.80	3,170.61	3,156.63	19.53	17.35	-151.73	212.19	87.50	386.18	351.28	34.90	11.064		
3,300.00	3,248.55	3,269.13	3,254.62	20.21	17.91	-151.68	221.85	91.06	403.32	367.27	36.06	11.185		
3,400.00	3,346.31	3,367.65	3,352.60	20.90	18.47	-151.63	231.51	94.62	420.46	383.25	37.21	11.299		
3,500.00	3,444.07	3,466.17	3,450.58	21.59	19.03	-151.59	241.16	98.18	437.61	399.24	38.37	11.405		
3,600.00	3,541.83	3,564.68	3,548.56	22.27	19.60	-151.54	250.82	101.74	454.75	415.22	39.53	11.505		
3,700.00	3,639.59	3,663.20	3,646.54	22.96	20.16	-151.51	260.48	105.30	471.89	431.20	40.68	11.599		
3,800.00	3,737.35	3,761.72	3,744.52	23.65	20.72	-151.47	270.13	108.86	489.03	447.19	41.84	11.688		
3,900.00	3,835.11	3,858.46	3,840.81	24.34	21.27	-151.54	278.79	112.05	506.30	463.32	42.98	11.781		
4,000.00	3,932.86	3,954.31	3,936.47	25.03	21.80	-151.95	284.45	114.14	524.04	479.96	44.08	11.889		
4,100.00	4,030.62	4,049.65	4,031.76	25.72	22.30	-152.66	287.10	115.12	542.32	497.18	45.14	12.014		
4,200.00	4,128.38	4,146.27	4,128.38	26.41	22.80	-153.61	287.33	115.20	561.14	514.96	46.18	12.150		
4,300.00	4,226.14	4,244.03	4,226.14	27.09	23.30	-154.53	287.33	115.20	580.16	532.93	47.23	12.284		
4,400.00	4,323.90	4,341.79	4,323.90	27.78	23.80	-155.39	287.33	115.20	599.31	551.03	48.28	12.414		
4,500.00	4,421.66	4,439.55	4,421.66	28.47	24.30	-156.20	287.33	115.20	618.58	569.26	49.33	12.540		
4,600.00	4,519.42	4,537.31	4,519.42	29.16	24.80	-156.96	287.33	115.20	637.97	587.59	50.38	12.663		
4,700.00	4,617.17	4,635.07	4,617.17	29.85	25.31	-157.68	287.33	115.20	657.46	606.03	51.43	12.782		
4,800.00	4,714.93	4,732.83	4,714.93	30.54	25.81	-158.35	287.33	115.20	677.05	624.55	52.49	12.898		
4,900.00	4,812.69	4,830.58	4,812.69	31.23	26.32	-158.99	287.33	115.20	696.72	643.17	53.55	13.011		
5,000.00	4,910.45	4,928.34	4,910.45	31.93	26.83	-159.59	287.33	115.20	716.46	661.85	54.61	13.120		

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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 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 2H - OH - Plan 1 06-16-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
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
15,400.00	9,677.72	14,676.60	9,132.21	141.13	140.28	-63.42	6,123.90	-191.82	1,218.99	962.81	256.17	4.758	
15,500.00	9,679.86	14,776.59	9,133.60	143.12	142.30	-63.40	6,223.88	-191.45	1,219.83	959.95	259.88	4.694	
15,600.00	9,682.00	14,876.59	9,134.99	145.12	144.33	-63.38	6,323.87	-191.07	1,220.67	957.07	263.59	4.631	
15,700.00	9,684.13	14,976.58	9,136.37	147.12	146.36	-63.36	6,423.85	-190.70	1,221.51	954.19	267.32	4.570	
15,800.00	9,686.27	15,076.58	9,137.76	149.12	148.39	-63.34	6,523.84	-190.33	1,222.35	951.31	271.04	4.510	
15,900.00	9,688.41	15,176.57	9,139.15	151.13	150.43	-63.32	6,623.82	-189.95	1,223.19	948.42	274.77	4.452	
16,000.00	9,690.54	15,276.57	9,140.54	153.15	152.47	-63.30	6,723.81	-189.58	1,224.03	945.52	278.51	4.395	
16,100.00	9,692.68	15,376.56	9,141.93	155.16	154.51	-63.28	6,823.79	-189.21	1,224.88	942.62	282.25	4.340	
16,200.00	9,694.82	15,476.56	9,143.31	157.18	156.56	-63.26	6,923.78	-188.83	1,225.72	939.72	286.00	4.286	
16,300.00	9,696.96	15,576.56	9,144.70	159.20	158.61	-63.24	7,023.77	-188.46	1,226.56	936.81	289.75	4.233	
16,400.00	9,699.09	15,676.55	9,146.09	161.23	160.66	-63.23	7,123.75	-188.09	1,227.40	933.89	293.51	4.182	
16,500.00	9,701.23	15,776.55	9,147.48	163.26	162.71	-63.21	7,223.74	-187.71	1,228.24	930.97	297.27	4.132	
16,600.00	9,703.37	15,876.54	9,148.87	165.29	164.77	-63.19	7,323.72	-187.34	1,229.09	928.05	301.04	4.083	
16,700.00	9,705.41	15,976.54	9,150.25	167.33	166.83	-63.17	7,423.71	-186.96	1,229.88	925.11	304.77	4.035	
16,800.00	9,706.15	16,076.54	9,151.64	169.36	168.89	-63.20	7,523.69	-186.59	1,230.02	921.41	308.62	3.986	
16,900.00	9,706.84	16,176.53	9,153.03	171.40	170.95	-63.24	7,623.68	-186.22	1,230.13	917.62	312.51	3.936	
17,000.00	9,707.52	16,276.53	9,154.42	173.45	173.02	-63.28	7,723.67	-185.84	1,230.25	913.84	316.41	3.888	
17,100.00	9,708.21	16,376.52	9,155.80	175.49	175.09	-63.32	7,823.65	-185.47	1,230.36	910.05	320.31	3.841	
17,200.00	9,708.90	16,476.52	9,157.19	177.54	177.16	-63.36	7,923.64	-185.10	1,230.48	906.25	324.22	3.795	
17,300.00	9,709.58	16,576.52	9,158.58	179.59	179.23	-63.40	8,023.62	-184.72	1,230.59	902.45	328.14	3.750	
17,400.00	9,710.27	16,676.51	9,159.97	181.64	181.30	-63.44	8,123.61	-184.35	1,230.71	898.64	332.06	3.706	
17,500.00	9,710.96	16,776.51	9,161.36	183.70	183.38	-63.48	8,223.60	-183.97	1,230.82	894.83	335.99	3.663	
17,600.00	9,711.64	16,876.51	9,162.74	185.76	185.45	-63.52	8,323.58	-183.60	1,230.94	891.02	339.92	3.621	
17,700.00	9,712.33	16,976.50	9,164.13	187.82	187.53	-63.56	8,423.57	-183.23	1,231.06	887.20	343.86	3.580	
17,800.00	9,713.02	17,076.50	9,165.52	189.88	189.61	-63.60	8,523.55	-182.85	1,231.17	883.38	347.80	3.540	
17,900.00	9,713.70	17,176.50	9,166.91	191.94	191.70	-63.64	8,623.54	-182.48	1,231.29	879.55	351.74	3.501	
18,000.00	9,714.39	17,276.49	9,168.30	194.01	193.78	-63.67	8,723.53	-182.11	1,231.41	875.72	355.69	3.462	
18,100.00	9,715.07	17,376.49	9,169.68	196.07	195.87	-63.71	8,823.51	-181.73	1,231.53	871.89	359.65	3.424	
18,200.00	9,715.76	17,476.49	9,171.07	198.14	197.95	-63.75	8,923.50	-181.36	1,231.65	868.05	363.60	3.387	
18,300.00	9,716.45	17,576.48	9,172.46	200.21	200.04	-63.79	9,023.48	-180.99	1,231.77	864.21	367.57	3.351	
18,400.00	9,717.13	17,676.48	9,173.85	202.29	202.13	-63.83	9,123.47	-180.61	1,231.89	860.36	371.53	3.316	
18,500.00	9,717.82	17,776.47	9,175.23	204.36	204.22	-63.87	9,223.46	-180.24	1,232.02	856.51	375.51	3.281	
18,600.00	9,718.51	17,876.47	9,176.62	206.44	206.31	-63.91	9,323.44	-179.86	1,232.14	852.66	379.48	3.247	
18,700.00	9,719.19	17,976.47	9,178.01	208.51	208.41	-63.95	9,423.43	-179.49	1,232.26	848.80	383.46	3.214	
18,800.00	9,719.88	18,076.46	9,179.40	210.59	210.50	-63.99	9,523.41	-179.12	1,232.39	844.94	387.44	3.181	
18,900.00	9,721.19	18,176.46	9,180.79	212.67	212.60	-64.00	9,623.40	-178.74	1,232.79	841.38	391.41	3.150	
19,000.00	9,722.77	18,276.46	9,182.17	214.75	214.69	-64.00	9,723.39	-178.37	1,233.31	838.00	395.31	3.120	
19,100.00	9,724.35	18,376.46	9,183.56	216.84	216.79	-64.01	9,823.38	-178.00	1,233.83	834.61	399.22	3.091	
19,200.00	9,725.93	18,476.46	9,184.95	218.92	218.89	-64.01	9,923.37	-177.62	1,234.35	831.23	403.12	3.062	
19,300.00	9,727.51	18,576.46	9,186.34	221.01	220.99	-64.01	10,023.36	-177.25	1,234.87	827.84	407.03	3.034	
19,400.00	9,729.09	18,676.45	9,187.73	223.10	223.09	-64.01	10,123.34	-176.88	1,235.39	824.45	410.94	3.006	
19,500.00	9,730.67	18,776.45	9,189.11	225.18	225.20	-64.01	10,223.33	-176.50	1,235.91	821.06	414.85	2.979	
19,600.00	9,732.25	18,876.45	9,190.50	227.27	227.30	-64.02	10,323.32	-176.13	1,236.43	817.67	418.76	2.953	
19,700.00	9,733.83	18,976.45	9,191.89	229.36	229.40	-64.02	10,423.31	-175.75	1,236.95	814.28	422.68	2.926	
19,800.00	9,735.41	19,076.45	9,193.28	231.46	231.51	-64.02	10,523.30	-175.38	1,237.48	810.88	426.60	2.901	
19,900.00	9,736.99	19,176.45	9,194.67	233.55	233.61	-64.02	10,623.29	-175.01	1,238.00	807.48	430.51	2.876	
20,000.00	9,738.57	19,276.45	9,196.05	235.64	235.72	-64.02	10,723.27	-174.63	1,238.52	804.08	434.43	2.851	
20,100.00	9,740.15	19,376.45	9,197.44	237.74	237.83	-64.02	10,823.26	-174.26	1,239.04	800.68	438.36	2.827	
20,153.58	9,741.00	19,416.71	9,198.00	238.86	238.68	-64.03	10,863.52	-174.11	1,239.39	799.19	440.20	2.816 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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 2H - OH - Plan 1 06-16-17												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)	
10,300.00	9,700.74	9,560.34	9,092.92	58.44	53.01	-61.64	1,008.04	-144.11	1,277.78	1,183.07	94.71	13.491
10,400.00	9,696.03	9,660.19	9,093.66	59.17	53.91	-61.84	1,107.88	-145.10	1,274.57	1,178.18	96.39	13.224
10,500.00	9,691.33	9,760.04	9,094.40	59.97	54.87	-62.05	1,207.72	-146.09	1,271.37	1,173.17	98.20	12.947
10,600.00	9,686.63	9,859.89	9,095.13	60.85	55.90	-62.25	1,307.56	-147.08	1,268.19	1,168.04	100.15	12.663
10,700.00	9,681.92	9,959.74	9,095.87	61.80	56.99	-62.45	1,407.41	-148.07	1,265.03	1,162.80	102.23	12.374
10,800.00	9,677.22	10,059.59	9,096.61	62.82	58.15	-62.65	1,507.25	-149.06	1,261.88	1,157.45	104.43	12.083
10,900.00	9,672.51	10,159.44	9,097.35	63.89	59.36	-62.86	1,607.09	-150.05	1,258.75	1,152.00	106.75	11.792
11,000.00	9,667.81	10,259.29	9,098.09	65.03	60.62	-63.06	1,706.93	-151.04	1,255.63	1,146.45	109.18	11.501
11,100.00	9,663.11	10,359.13	9,098.83	66.22	61.93	-63.27	1,806.77	-152.03	1,252.53	1,140.82	111.71	11.213
11,200.00	9,658.40	10,458.98	9,099.57	67.45	63.29	-63.48	1,906.61	-153.02	1,249.45	1,135.11	114.34	10.928
11,300.00	9,653.70	10,558.83	9,100.31	68.74	64.69	-63.69	2,006.46	-154.01	1,246.38	1,129.33	117.06	10.648
11,400.00	9,649.00	10,658.68	9,101.05	70.07	66.13	-63.90	2,106.30	-155.00	1,243.33	1,123.47	119.86	10.373
11,500.00	9,644.29	10,758.53	9,101.79	71.44	67.61	-64.11	2,206.14	-155.99	1,240.30	1,117.55	122.75	10.104
11,600.00	9,640.05	10,858.40	9,102.53	72.85	69.12	-64.28	2,306.00	-156.98	1,237.48	1,111.72	125.76	9.840
11,700.00	9,638.84	10,958.38	9,103.27	74.29	70.68	-64.32	2,405.97	-157.97	1,236.01	1,107.22	128.79	9.597
11,800.00	9,638.95	11,058.37	9,104.01	75.75	72.26	-64.33	2,505.96	-158.96	1,235.11	1,103.42	131.69	9.379
11,900.00	9,639.05	11,158.37	9,104.75	77.25	73.87	-64.35	2,605.94	-159.95	1,234.21	1,099.56	134.65	9.166
12,000.00	9,639.15	11,258.36	9,105.49	78.78	75.51	-64.36	2,705.93	-160.94	1,233.31	1,095.65	137.66	8.959
12,100.00	9,639.25	11,358.36	9,106.23	80.34	77.17	-64.37	2,805.92	-161.93	1,232.41	1,091.69	140.72	8.758
12,200.00	9,639.36	11,458.35	9,106.97	81.93	78.86	-64.38	2,905.91	-162.93	1,231.51	1,087.67	143.84	8.562
12,300.00	9,639.46	11,558.35	9,107.71	83.55	80.57	-64.40	3,005.90	-163.92	1,230.61	1,083.61	146.99	8.372
12,400.00	9,639.56	11,658.35	9,108.45	85.19	82.31	-64.41	3,105.88	-164.91	1,229.71	1,079.51	150.20	8.187
12,500.00	9,639.66	11,758.34	9,109.19	86.85	84.06	-64.42	3,205.87	-165.90	1,228.81	1,075.37	153.44	8.009
12,600.00	9,639.76	11,858.34	9,109.93	88.53	85.83	-64.44	3,305.86	-166.89	1,227.91	1,071.19	156.72	7.835
12,700.00	9,639.87	11,958.33	9,110.67	90.23	87.62	-64.45	3,405.85	-167.88	1,227.01	1,066.98	160.03	7.667
12,800.00	9,639.97	12,058.33	9,111.41	91.96	89.42	-64.46	3,505.84	-168.87	1,226.11	1,062.73	163.38	7.505
12,900.00	9,640.73	12,158.32	9,112.15	93.70	91.24	-64.44	3,605.82	-169.86	1,225.48	1,058.69	166.80	7.347
13,000.00	9,642.15	12,258.32	9,112.89	95.46	93.08	-64.40	3,705.81	-170.85	1,225.13	1,054.99	170.14	7.201
13,100.00	9,643.58	12,358.31	9,113.63	97.24	94.92	-64.36	3,805.80	-171.84	1,224.78	1,051.27	173.51	7.059
13,200.00	9,645.00	12,458.31	9,114.37	99.03	96.79	-64.31	3,905.79	-172.84	1,224.43	1,047.53	176.91	6.921
13,300.00	9,646.43	12,558.30	9,115.11	100.84	98.66	-64.27	4,005.77	-173.83	1,224.09	1,043.76	180.32	6.788
13,400.00	9,647.85	12,658.30	9,115.85	102.66	100.54	-64.23	4,105.76	-174.82	1,223.74	1,039.98	183.76	6.659
13,500.00	9,649.27	12,758.29	9,116.59	104.50	102.44	-64.18	4,205.75	-175.81	1,223.39	1,036.17	187.22	6.535
13,600.00	9,650.70	12,858.29	9,117.33	106.34	104.35	-64.14	4,305.74	-176.80	1,223.05	1,032.35	190.70	6.414
13,700.00	9,652.12	12,958.29	9,118.07	108.20	106.26	-64.10	4,405.72	-177.79	1,222.70	1,028.51	194.19	6.296
13,800.00	9,653.55	13,058.28	9,118.81	110.07	108.19	-64.05	4,505.71	-178.78	1,222.36	1,024.66	197.70	6.183
13,900.00	9,654.97	13,158.28	9,119.55	111.95	110.12	-64.01	4,605.70	-179.77	1,222.01	1,020.79	201.22	6.073
14,000.00	9,656.40	13,258.27	9,120.29	113.84	112.06	-63.96	4,705.69	-180.76	1,221.67	1,016.91	204.76	5.966
14,100.00	9,657.82	13,358.27	9,121.03	115.75	114.01	-63.92	4,805.67	-181.76	1,221.33	1,013.01	208.32	5.863
14,200.00	9,659.24	13,458.26	9,121.77	117.65	115.97	-63.88	4,905.66	-182.75	1,220.98	1,009.10	211.88	5.763
14,300.00	9,660.67	13,558.26	9,122.51	119.57	117.93	-63.83	5,005.65	-183.74	1,220.64	1,005.18	215.46	5.665
14,400.00	9,662.09	13,658.25	9,123.25	121.50	119.91	-63.79	5,105.64	-184.73	1,220.30	1,001.25	219.05	5.571
14,500.00	9,663.52	13,758.25	9,123.99	123.43	121.88	-63.75	5,205.62	-185.72	1,219.96	997.31	222.65	5.479
14,600.00	9,664.94	13,858.24	9,124.73	125.38	123.87	-63.70	5,305.61	-186.71	1,219.62	993.36	226.26	5.390
14,700.00	9,666.36	13,958.24	9,125.47	127.32	125.86	-63.66	5,405.60	-187.70	1,219.29	989.41	229.88	5.304
14,800.00	9,667.79	14,058.23	9,126.21	129.28	127.85	-63.62	5,505.59	-188.69	1,218.95	985.44	233.51	5.220
14,900.00	9,669.21	14,158.23	9,126.95	131.24	129.85	-63.57	5,605.57	-189.68	1,218.61	981.47	237.14	5.139
15,000.00	9,670.64	14,258.22	9,127.69	133.21	131.86	-63.53	5,705.56	-190.67	1,218.27	977.49	240.79	5.060
15,100.00	9,672.06	14,358.22	9,128.43	135.18	133.87	-63.48	5,805.55	-191.67	1,217.94	973.50	244.44	4.983
15,200.00	9,673.54	14,458.22	9,129.17	137.16	135.88	-63.44	5,905.54	-192.66	1,217.60	969.51	248.08	4.906
15,222.66	9,673.94	14,499.26	9,129.75	137.61	136.71	-63.44	5,946.58	-192.48	1,217.53	968.05	249.48	4.880
15,300.00	9,675.58	14,576.60	9,130.82	139.14	138.26	-63.44	6,023.91	-192.20	1,218.14	965.67	252.47	4.825

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 2H - OH - Plan 1 06-16-17													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)					
5,100.00	5,008.21	5,030.14	5,008.21	32.62	27.68	-159.41	315.77	-137.25	990.10	934.44	55.66	17.789	
5,200.00	5,105.97	5,127.90	5,105.97	33.31	28.18	-159.83	315.77	-137.25	1,009.89	953.16	56.73	17.802	
5,300.00	5,203.73	5,225.66	5,203.73	34.00	28.68	-160.24	315.77	-137.25	1,029.73	971.93	57.80	17.815	
5,400.00	5,301.48	5,323.42	5,301.48	34.69	29.18	-160.62	315.77	-137.25	1,049.62	990.74	58.88	17.828	
5,500.00	5,399.24	5,421.18	5,399.24	35.38	29.69	-161.00	315.77	-137.25	1,069.55	1,009.59	59.96	17.839	
5,600.00	5,497.37	5,519.30	5,497.37	36.05	30.20	-161.45	315.77	-137.25	1,087.82	1,026.58	61.24	17.764	
5,700.00	5,596.10	5,618.03	5,596.10	36.67	30.71	-161.81	315.77	-137.25	1,102.85	1,040.40	62.45	17.660	
5,800.00	5,695.33	5,717.26	5,695.33	37.26	31.22	-162.08	315.77	-137.25	1,114.62	1,051.03	63.59	17.527	
5,900.00	5,794.93	5,816.86	5,794.93	37.80	31.74	-162.27	315.77	-137.25	1,123.10	1,058.43	64.66	17.369	
6,000.00	5,894.77	5,916.71	5,894.77	38.30	32.26	-162.38	315.77	-137.25	1,128.26	1,062.61	65.65	17.186	
6,100.00	5,994.75	6,016.68	5,994.75	38.75	32.78	-162.42	315.77	-137.25	1,130.09	1,063.54	66.55	16.980	
6,200.00	6,094.75	6,116.68	6,094.75	39.19	33.30	-88.28	315.77	-137.25	1,130.10	1,062.51	67.59	16.720	
6,300.00	6,194.75	6,216.68	6,194.75	39.62	33.82	-88.28	315.77	-137.25	1,130.10	1,061.51	68.59	16.475	
6,400.00	6,294.75	6,316.68	6,294.75	40.06	34.34	-88.28	315.77	-137.25	1,130.10	1,060.50	69.60	16.237	
6,500.00	6,394.75	6,416.68	6,394.75	40.50	34.86	-88.28	315.77	-137.25	1,130.10	1,059.49	70.61	16.005	
6,600.00	6,494.75	6,516.68	6,494.75	40.95	35.38	-88.28	315.77	-137.25	1,130.10	1,058.48	71.62	15.779	
6,700.00	6,594.75	6,616.68	6,594.75	41.39	35.91	-88.28	315.77	-137.25	1,130.10	1,057.47	72.63	15.559	
6,800.00	6,694.75	6,716.68	6,694.75	41.84	36.43	-88.28	315.77	-137.25	1,130.10	1,056.45	73.65	15.345	
6,900.00	6,794.75	6,816.68	6,794.75	42.29	36.96	-88.28	315.77	-137.25	1,130.10	1,055.44	74.66	15.136	
7,000.00	6,894.75	6,916.68	6,894.75	42.75	37.48	-88.28	315.77	-137.25	1,130.10	1,054.42	75.68	14.933	
7,100.00	6,994.75	7,016.68	6,994.75	43.20	38.00	-88.28	315.77	-137.25	1,130.10	1,053.40	76.70	14.734	
7,200.00	7,094.75	7,116.68	7,094.75	43.66	38.53	-88.28	315.77	-137.25	1,130.10	1,052.38	77.72	14.541	
7,300.00	7,194.75	7,216.68	7,194.75	44.11	39.05	-88.28	315.77	-137.25	1,130.10	1,051.36	78.74	14.352	
7,400.00	7,294.75	7,316.68	7,294.75	44.57	39.58	-88.28	315.77	-137.25	1,130.10	1,050.33	79.76	14.168	
7,500.00	7,394.75	7,416.68	7,394.75	45.04	40.11	-88.28	315.77	-137.25	1,130.10	1,049.31	80.79	13.988	
7,600.00	7,494.75	7,516.68	7,494.75	45.50	40.63	-88.28	315.77	-137.25	1,130.10	1,048.28	81.82	13.813	
7,700.00	7,594.75	7,616.68	7,594.75	45.96	41.16	-88.28	315.77	-137.25	1,130.10	1,047.26	82.84	13.642	
7,800.00	7,694.75	7,716.68	7,694.75	46.43	41.69	-88.28	315.77	-137.25	1,130.10	1,046.23	83.87	13.474	
7,900.00	7,794.75	7,816.68	7,794.75	46.90	42.21	-88.28	315.77	-137.25	1,130.10	1,045.20	84.90	13.311	
8,000.00	7,894.75	7,916.68	7,894.75	47.37	42.74	-88.28	315.77	-137.25	1,130.10	1,044.17	85.93	13.151	
8,100.00	7,994.75	8,016.68	7,994.75	47.84	43.27	-88.28	315.77	-137.25	1,130.10	1,043.14	86.96	12.995	
8,200.00	8,094.75	8,116.68	8,094.75	48.31	43.80	-88.28	315.77	-137.25	1,130.10	1,042.10	88.00	12.843	
8,300.00	8,194.75	8,216.68	8,194.75	48.78	44.32	-88.28	315.77	-137.25	1,130.10	1,041.07	89.03	12.694	
8,400.00	8,294.75	8,316.68	8,294.75	49.26	44.85	-88.28	315.77	-137.25	1,130.10	1,040.04	90.06	12.548	
8,500.00	8,394.75	8,416.68	8,394.75	49.74	45.38	-88.28	315.77	-137.25	1,130.10	1,039.00	91.10	12.405	
8,600.00	8,494.75	8,516.68	8,494.75	50.21	45.91	-88.28	315.77	-137.25	1,130.10	1,037.96	92.14	12.266	
8,700.00	8,594.75	8,616.82	8,588.71	50.69	46.42	-88.07	320.02	-137.29	1,130.29	1,037.13	93.16	12.133	
8,800.00	8,694.75	8,700.00	8,676.03	51.17	46.93	-87.17	337.69	-137.47	1,131.34	1,037.13	94.21	12.008	
8,900.00	8,794.75	8,781.41	8,752.48	51.65	47.43	-85.77	365.47	-137.74	1,133.96	1,038.69	95.26	11.903	
9,000.00	8,894.75	8,850.00	8,813.30	52.13	47.85	-84.18	397.09	-138.06	1,139.17	1,042.91	96.26	11.835	
9,100.00	8,994.75	8,916.85	8,868.54	52.62	48.28	-82.31	434.69	-138.43	1,148.00	1,050.74	97.26	11.803	
9,200.00	9,094.75	8,970.69	8,909.59	53.10	48.63	-80.58	469.48	-138.78	1,161.42	1,063.23	98.19	11.829	
9,300.00	9,194.64	9,017.93	8,942.80	53.59	48.94	-78.90	503.07	-139.11	1,179.41	1,080.44	98.97	11.917	
9,400.00	9,292.68	9,064.98	8,973.00	54.10	49.27	-73.56	539.12	-139.47	1,198.98	1,099.44	99.54	12.045	
9,500.00	9,385.91	9,112.36	9,000.33	54.59	49.60	-70.45	577.81	-139.85	1,218.55	1,118.92	99.63	12.231	
9,600.00	9,471.51	9,150.00	9,019.70	55.07	49.86	-67.87	610.07	-140.17	1,237.06	1,138.02	99.04	12.490	
9,700.00	9,546.88	9,200.00	9,042.08	55.51	50.22	-65.47	654.76	-140.61	1,253.31	1,155.46	97.85	12.809	
9,800.00	9,609.72	9,250.00	9,060.48	55.93	50.59	-63.58	701.23	-141.07	1,266.62	1,170.44	96.18	13.169	
9,900.00	9,658.13	9,300.00	9,074.76	56.34	50.96	-62.24	749.13	-141.55	1,276.36	1,181.95	94.41	13.519	
10,000.00	9,690.63	9,350.00	9,084.81	56.78	51.34	-61.45	798.09	-142.03	1,282.08	1,189.06	93.03	13.782	
10,100.00	9,706.24	9,400.00	9,090.55	57.25	51.72	-61.23	847.74	-142.52	1,283.54	1,191.05	92.49	13.877	
10,200.00	9,705.44	9,460.49	9,092.18	57.80	52.19	-61.45	908.20	-143.12	1,281.01	1,187.82	93.19	13.747	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 2H - OH - Plan 1 06-16-17													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	2.00	0.00	0.00	0.00	179.94	-50.20	0.06	50.20				
100.00	100.00	102.00	100.00	0.19	0.20	179.94	-50.20	0.06	50.20	49.80	0.40	126.158	
200.00	200.00	202.00	200.00	0.73	0.74	179.94	-50.20	0.06	50.20	48.73	1.47	34.072	
300.00	300.00	302.00	300.00	1.27	1.28	179.94	-50.20	0.06	50.20	47.65	2.55	19.696	
400.00	400.00	402.00	400.00	1.81	1.82	179.94	-50.20	0.06	50.20	46.57	3.62	13.851	
500.00	500.00	502.00	500.00	2.34	2.36	179.94	-50.20	0.06	50.20	45.50	4.70	10.682	
600.00	600.00	602.03	600.03	2.88	2.89	179.94	-50.20	0.06	50.20	44.42	5.78	8.692	
700.00	699.98	703.63	701.61	3.41	3.44	108.58	-48.44	-0.60	49.00	42.15	6.85	7.153	
800.00	799.84	804.81	802.64	3.94	3.99	117.54	-43.35	-2.51	46.27	38.35	7.92	5.839	
896.34	895.81	901.51	898.95	4.46	4.51	133.12	-35.36	-5.51	44.53	35.57	8.96	4.969 CC	
900.00	899.45	905.13	902.55	4.47	4.53	133.83	-35.00	-5.65	44.54	35.54	9.00	4.947 ES	
1,000.00	998.70	1,003.73	1,000.61	5.02	5.07	153.35	-25.36	-9.26	48.92	38.84	10.07	4.856	
1,100.00	1,097.47	1,101.82	1,098.17	5.59	5.61	168.91	-15.76	-12.87	61.32	50.20	11.13	5.512	
1,200.00	1,195.62	1,199.28	1,195.09	6.19	6.15	178.91	-6.22	-16.44	80.14	67.98	12.16	6.592	
1,300.00	1,293.38	1,296.32	1,291.60	6.80	6.70	-175.04	3.27	-20.01	102.38	89.16	13.21	7.749	
1,400.00	1,391.14	1,393.36	1,388.11	7.43	7.24	-171.17	12.77	-23.57	125.33	111.05	14.28	8.776	
1,500.00	1,488.90	1,490.41	1,484.62	8.07	7.79	-168.49	22.26	-27.13	148.65	133.29	15.36	9.679	
1,600.00	1,586.66	1,587.45	1,581.14	8.72	8.34	-166.54	31.76	-30.69	172.21	155.76	16.45	10.471	
1,700.00	1,684.42	1,684.49	1,677.65	9.38	8.89	-165.06	41.25	-34.26	195.90	178.36	17.54	11.169	
1,800.00	1,782.18	1,781.53	1,774.16	10.04	9.44	-163.90	50.75	-37.82	219.69	201.05	18.64	11.787	
1,900.00	1,879.94	1,878.58	1,870.67	10.70	9.99	-162.97	60.24	-41.38	243.55	223.81	19.74	12.337	
2,000.00	1,977.69	1,975.62	1,967.18	11.37	10.54	-162.20	69.74	-44.94	267.46	246.61	20.85	12.829	
2,100.00	2,075.45	2,072.66	2,063.69	12.04	11.09	-161.56	79.23	-48.51	291.41	269.45	21.96	13.271	
2,200.00	2,173.21	2,169.70	2,160.20	12.72	11.65	-161.02	88.73	-52.07	315.39	292.32	23.07	13.670	
2,300.00	2,270.97	2,266.75	2,256.72	13.39	12.20	-160.55	98.22	-55.63	339.39	315.20	24.19	14.032	
2,400.00	2,368.73	2,363.79	2,353.23	14.07	12.75	-160.15	107.72	-59.19	363.41	338.10	25.30	14.362	
2,500.00	2,466.49	2,460.83	2,449.74	14.75	13.31	-159.79	117.22	-62.76	387.44	361.02	26.42	14.663	
2,600.00	2,564.25	2,557.88	2,546.25	15.43	13.86	-159.48	126.71	-66.32	411.49	383.94	27.54	14.940	
2,700.00	2,662.00	2,654.92	2,642.76	16.11	14.41	-159.20	136.21	-69.88	435.54	406.88	28.66	15.195	
2,800.00	2,759.76	2,751.96	2,739.27	16.79	14.97	-158.95	145.70	-73.44	459.61	429.82	29.79	15.430	
2,900.00	2,857.52	2,849.00	2,835.78	17.47	15.52	-158.73	155.20	-77.01	483.68	452.77	30.91	15.648	
3,000.00	2,955.28	2,946.05	2,932.30	18.16	16.08	-158.52	164.69	-80.57	507.76	475.72	32.04	15.850	
3,100.00	3,053.04	3,043.09	3,028.81	18.84	16.63	-158.34	174.19	-84.13	531.84	498.68	33.16	16.038	
3,200.00	3,150.80	3,140.13	3,125.32	19.53	17.19	-158.17	183.68	-87.69	555.93	521.64	34.29	16.214	
3,300.00	3,248.55	3,237.17	3,221.83	20.21	17.74	-158.01	193.18	-91.26	580.02	544.61	35.41	16.379	
3,400.00	3,346.31	3,334.22	3,318.34	20.90	18.30	-157.87	202.67	-94.82	604.12	567.58	36.54	16.533	
3,500.00	3,444.07	3,431.26	3,414.85	21.59	18.85	-157.74	212.17	-98.38	628.22	590.55	37.67	16.677	
3,600.00	3,541.83	3,528.30	3,511.36	22.27	19.41	-157.62	221.66	-101.94	652.32	613.53	38.80	16.813	
3,700.00	3,639.59	3,625.35	3,607.87	22.96	19.96	-157.50	231.16	-105.51	676.43	636.50	39.93	16.942	
3,800.00	3,737.35	3,722.39	3,704.39	23.65	20.52	-157.40	240.65	-109.07	700.54	659.48	41.06	17.063	
3,900.00	3,835.11	3,819.43	3,800.90	24.34	21.08	-157.30	250.15	-112.63	724.65	682.46	42.19	17.177	
4,000.00	3,932.86	3,916.47	3,897.41	25.03	21.63	-157.21	259.64	-116.19	748.76	705.44	43.32	17.286	
4,100.00	4,030.62	4,013.52	3,993.92	25.72	22.19	-157.12	269.14	-119.76	772.87	728.43	44.45	17.388	
4,200.00	4,128.38	4,110.56	4,090.43	26.41	22.74	-157.04	278.63	-123.32	796.99	751.41	45.58	17.486	
4,300.00	4,226.14	4,207.60	4,186.94	27.09	23.30	-156.96	288.13	-126.88	821.11	774.40	46.71	17.579	
4,400.00	4,323.90	4,304.64	4,283.45	27.78	23.86	-156.89	297.62	-130.44	845.22	797.38	47.84	17.667	
4,500.00	4,421.66	4,411.65	4,389.96	28.47	24.46	-156.87	307.26	-134.06	868.99	819.97	49.02	17.727	
4,600.00	4,519.42	4,525.05	4,503.15	29.16	25.08	-157.09	313.61	-136.44	891.12	840.91	50.21	17.748	
4,700.00	4,617.17	4,638.97	4,617.04	29.85	25.68	-157.56	315.77	-137.25	911.51	860.13	51.37	17.743	
4,800.00	4,714.93	4,736.87	4,714.93	30.54	26.18	-158.05	315.77	-137.25	931.06	878.62	52.44	17.754	
4,900.00	4,812.69	4,834.62	4,812.69	31.23	26.67	-158.52	315.77	-137.25	950.68	897.17	53.51	17.765	
5,000.00	4,910.45	4,932.38	4,910.45	31.93	27.17	-158.98	315.77	-137.25	970.36	915.78	54.59	17.777	

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 8 5 Fed 003
Site Error: 0.00 usft
Reference Well: 4H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
MD Reference: GL + KB @ 3293.00usft (Patterson 815)
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 8 5 Fed 003 - 1H - OH - Plan 1 06-16-17													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		
18,300.00	9,716.45	17,695.24	9,287.13	200.21	200.51	-21.36	9,010.90	756.19	460.98	224.59	236.39	1.950		
18,400.00	9,717.13	17,795.23	9,286.59	202.29	202.59	-21.30	9,110.89	757.05	462.13	223.24	238.88	1.935		
18,500.00	9,717.82	17,895.22	9,286.04	204.36	204.68	-21.25	9,210.87	757.91	463.27	221.89	241.38	1.919		
18,600.00	9,718.51	17,995.22	9,285.50	206.44	206.76	-21.19	9,310.86	758.77	464.42	220.54	243.88	1.904		
18,700.00	9,719.19	18,095.21	9,284.95	208.51	208.85	-21.14	9,410.85	759.62	465.57	219.20	246.37	1.890		
18,800.00	9,719.88	18,195.20	9,284.40	210.59	210.94	-21.08	9,510.84	760.48	466.72	217.85	248.87	1.875		
18,900.00	9,721.19	18,295.18	9,283.86	212.67	213.03	-21.00	9,610.81	761.34	468.45	216.97	251.48	1.863		
19,000.00	9,722.77	18,395.16	9,283.31	214.75	215.12	-20.91	9,710.78	762.20	470.44	216.57	253.87	1.853		
19,100.00	9,724.35	18,495.14	9,282.76	216.84	217.21	-20.82	9,810.76	763.06	472.42	216.17	256.25	1.844		
19,200.00	9,725.93	18,595.11	9,282.22	218.92	219.30	-20.73	9,910.73	763.92	474.41	215.78	258.63	1.834		
19,300.00	9,727.51	18,695.09	9,281.67	221.01	221.40	-20.64	10,010.70	764.78	476.40	215.38	261.02	1.825		
19,400.00	9,729.09	18,795.07	9,281.12	223.10	223.49	-20.55	10,110.67	765.64	478.39	215.00	263.40	1.816		
19,500.00	9,730.67	18,895.05	9,280.58	225.18	225.59	-20.46	10,210.65	766.50	480.39	214.61	265.78	1.807		
19,600.00	9,732.25	18,995.02	9,280.03	227.27	227.69	-20.37	10,310.62	767.36	482.38	214.22	268.16	1.799		
19,700.00	9,733.83	19,095.00	9,279.48	229.36	229.78	-20.28	10,410.59	768.22	484.37	213.84	270.53	1.790		
19,800.00	9,735.41	19,194.98	9,278.94	231.46	231.88	-20.19	10,510.56	769.08	486.37	213.46	272.91	1.782		
19,900.00	9,736.99	19,294.96	9,278.39	233.55	233.98	-20.11	10,610.53	769.94	488.37	213.08	275.29	1.774		
20,000.00	9,738.57	19,394.93	9,277.84	235.64	236.09	-20.02	10,710.51	770.80	490.36	212.70	277.66	1.766		
20,100.00	9,740.15	19,494.91	9,277.30	237.74	238.19	-19.94	10,810.48	771.65	492.36	212.33	280.03	1.758		
20,153.58	9,741.00	19,548.48	9,277.01	238.86	239.31	-19.89	10,864.05	772.11	493.43	212.13	281.31	1.754 SF		



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 1H - OH - Plan 1 06-16-17													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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
13,200.00	9,645.00	12,598.43	9,201.68	99.03	98.24	-20.75	3,915.88	762.56	474.12	370.57	103.55	4.579		
13,300.00	9,646.43	12,698.43	9,203.02	100.84	100.10	-20.75	4,015.86	760.86	474.20	368.21	105.99	4.474		
13,400.00	9,647.85	12,798.43	9,204.36	102.66	101.96	-20.74	4,115.83	759.16	474.27	365.83	108.44	4.373		
13,500.00	9,649.27	12,898.43	9,205.70	104.50	103.84	-20.74	4,215.81	757.46	474.35	363.44	110.91	4.277		
13,600.00	9,650.70	12,998.43	9,207.04	106.34	105.72	-20.73	4,315.79	755.76	474.43	361.05	113.38	4.184		
13,700.00	9,652.12	13,098.43	9,208.38	108.20	107.62	-20.73	4,415.76	754.06	474.50	358.64	115.86	4.095		
13,800.00	9,653.55	13,198.43	9,209.72	110.07	109.53	-20.73	4,515.74	752.36	474.58	356.23	118.35	4.010		
13,900.00	9,654.97	13,298.43	9,211.06	111.95	111.45	-20.72	4,615.72	750.66	474.65	353.81	120.85	3.928		
14,000.00	9,656.40	13,398.43	9,212.40	113.84	113.37	-20.72	4,715.69	748.96	474.73	351.38	123.35	3.849		
14,100.00	9,657.82	13,498.43	9,213.74	115.75	115.31	-20.71	4,815.67	747.25	474.80	348.94	125.86	3.772		
14,200.00	9,659.24	13,598.43	9,215.08	117.65	117.25	-20.71	4,915.65	745.55	474.88	346.50	128.38	3.699		
14,300.00	9,660.67	13,698.43	9,216.42	119.57	119.20	-20.70	5,015.62	743.85	474.96	344.06	130.90	3.628		
14,400.00	9,662.09	13,798.43	9,217.77	121.50	121.16	-20.70	5,115.60	742.15	475.03	341.60	133.43	3.560		
14,500.00	9,663.52	13,898.43	9,219.11	123.43	123.12	-20.70	5,215.58	740.45	475.11	339.14	135.96	3.494		
14,600.00	9,664.94	13,998.43	9,220.45	125.38	125.09	-20.69	5,315.55	738.75	475.18	336.68	138.50	3.431		
14,700.00	9,666.36	14,098.43	9,221.79	127.32	127.07	-20.69	5,415.53	737.05	475.26	334.21	141.05	3.370		
14,800.00	9,667.79	14,198.43	9,223.13	129.28	129.05	-20.68	5,515.51	735.35	475.34	331.74	143.60	3.310		
14,900.00	9,669.21	14,298.43	9,224.47	131.24	131.04	-20.68	5,615.48	733.65	475.41	329.26	146.15	3.253		
15,000.00	9,670.64	14,398.43	9,225.81	133.21	133.03	-20.67	5,715.46	731.95	475.49	326.78	148.70	3.198		
15,100.00	9,672.06	14,498.43	9,227.15	135.18	135.03	-20.67	5,815.44	730.25	475.56	324.30	151.27	3.144		
15,200.00	9,673.54	14,604.72	9,228.79	137.16	137.16	-20.68	5,921.70	728.68	475.52	321.42	154.10	3.086		
15,300.00	9,675.58	14,713.19	9,232.38	139.14	139.33	-20.77	6,030.11	729.26	474.33	317.20	157.13	3.019		
15,400.00	9,677.72	14,813.18	9,236.04	141.13	141.34	-20.84	6,130.03	730.19	472.90	313.07	159.83	2.959		
15,500.00	9,679.86	14,913.17	9,239.71	143.12	143.36	-20.90	6,229.94	731.13	471.47	308.94	162.54	2.901		
15,600.00	9,682.00	15,013.16	9,243.37	145.12	145.38	-20.97	6,329.86	732.07	470.04	304.80	165.25	2.844		
15,700.00	9,684.13	15,113.14	9,247.04	147.12	147.40	-21.04	6,429.78	733.00	468.62	300.65	167.97	2.790		
15,800.00	9,686.27	15,213.13	9,250.70	149.12	149.42	-21.10	6,529.69	733.94	467.19	296.49	170.70	2.737		
15,900.00	9,688.41	15,313.12	9,254.36	151.13	151.45	-21.17	6,629.61	734.88	465.77	292.33	173.43	2.686		
16,000.00	9,690.54	15,413.11	9,258.03	153.15	153.48	-21.24	6,729.53	735.81	464.34	288.17	176.18	2.636		
16,100.00	9,692.68	15,513.10	9,261.69	155.16	155.52	-21.31	6,829.44	736.75	462.92	283.99	178.93	2.587		
16,200.00	9,694.82	15,613.09	9,265.36	157.18	157.56	-21.38	6,929.36	737.68	461.50	279.81	181.68	2.540		
16,300.00	9,696.96	15,713.07	9,269.02	159.20	159.60	-21.45	7,029.28	738.62	460.08	275.63	184.45	2.494		
16,400.00	9,699.09	15,813.06	9,272.69	161.23	161.64	-21.52	7,129.19	739.56	458.65	271.44	187.22	2.450		
16,500.00	9,701.23	15,913.05	9,276.35	163.26	163.69	-21.59	7,229.11	740.49	457.23	267.24	190.00	2.407		
16,600.00	9,703.37	16,013.04	9,280.02	165.29	165.73	-21.66	7,329.03	741.43	455.81	263.03	192.78	2.364		
16,700.00	9,705.41	16,113.03	9,283.68	167.33	167.79	-21.74	7,428.94	742.37	454.30	258.89	195.41	2.325		
16,800.00	9,706.15	16,212.98	9,287.34	169.36	169.84	-21.87	7,528.83	743.30	451.56	253.36	198.20	2.278		
16,900.00	9,706.84	16,312.94	9,291.01	171.40	171.89	-22.00	7,628.71	744.24	448.76	247.62	201.14	2.231		
17,000.00	9,707.52	16,400.00	9,293.57	173.45	173.68	-22.09	7,715.73	745.04	446.74	242.92	203.82	2.192		
17,003.66	9,707.55	16,406.84	9,293.67	173.52	173.82	-22.09	7,722.56	745.10	446.70	242.74	203.96	2.190		
17,100.00	9,708.21	16,495.33	9,293.69	175.49	175.65	-22.06	7,811.05	745.87	447.26	240.92	206.34	2.168		
17,200.00	9,708.90	16,595.32	9,293.15	177.54	177.71	-22.00	7,911.04	746.73	448.40	239.55	208.85	2.147		
17,300.00	9,709.58	16,695.31	9,292.60	179.59	179.77	-21.94	8,011.03	747.59	449.54	238.18	211.36	2.127		
17,400.00	9,710.27	16,795.31	9,292.05	181.64	181.84	-21.88	8,111.01	748.45	450.68	236.82	213.86	2.107		
17,500.00	9,710.96	16,895.30	9,291.51	183.70	183.90	-21.82	8,211.00	749.31	451.83	235.46	216.37	2.088		
17,600.00	9,711.64	16,995.29	9,290.96	185.76	185.97	-21.76	8,310.99	750.17	452.97	234.09	218.87	2.070		
17,700.00	9,712.33	17,095.28	9,290.41	187.82	188.05	-21.70	8,410.98	751.03	454.11	232.73	221.38	2.051		
17,800.00	9,713.02	17,195.28	9,289.87	189.88	190.12	-21.65	8,510.96	751.89	455.26	231.37	223.88	2.033		
17,900.00	9,713.70	17,295.27	9,289.32	191.94	192.19	-21.59	8,610.95	752.75	456.40	230.02	226.38	2.016		
18,000.00	9,714.39	17,395.26	9,288.77	194.01	194.27	-21.53	8,710.94	753.61	457.54	228.66	228.89	1.999		
18,100.00	9,715.07	17,495.25	9,288.23	196.07	196.35	-21.47	8,810.93	754.47	458.69	227.30	231.39	1.982		
18,200.00	9,715.76	17,595.25	9,287.68	198.14	198.43	-21.42	8,910.91	755.33	459.83	225.95	233.89	1.966		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 1H - OH - Plan 1 06-16-17													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	
8,200.00	8,094.75	8,178.50	8,094.75	48.31	47.09	-78.20	317.12	823.78	172.19	82.42	89.77	1.918	
8,300.00	8,194.75	8,278.50	8,194.75	48.78	47.57	-78.20	317.12	823.78	172.19	81.42	90.78	1.897	
8,400.00	8,294.75	8,378.50	8,294.75	49.26	48.06	-78.20	317.12	823.78	172.19	80.41	91.78	1.876	
8,500.00	8,394.75	8,478.50	8,394.75	49.74	48.55	-78.20	317.12	823.78	172.19	79.41	92.79	1.856	
8,600.00	8,494.75	8,578.50	8,494.75	50.21	49.04	-78.20	317.12	823.78	172.19	78.40	93.80	1.836	
8,664.29	8,559.04	8,642.79	8,559.04	50.52	49.36	-78.20	317.12	823.78	172.19	77.75	94.45	1.823	
8,700.00	8,594.75	8,678.08	8,594.34	50.69	49.53	-78.19	317.16	823.78	172.20	77.40	94.81	1.816	
8,800.00	8,694.75	8,770.85	8,686.61	51.17	50.01	-75.46	325.66	823.64	174.47	78.35	96.12	1.815	
8,900.00	8,794.75	8,858.70	8,771.66	51.65	50.48	-68.85	347.32	823.27	182.75	84.83	97.92	1.866	
9,000.00	8,894.75	8,938.35	8,845.09	52.13	50.91	-60.47	377.99	822.75	201.14	101.20	99.94	2.013	
9,100.00	8,994.75	9,008.29	8,905.53	52.62	51.28	-52.38	413.09	822.15	232.66	130.84	101.82	2.285	
9,200.00	9,094.75	9,068.49	8,953.81	53.10	51.60	-45.63	449.01	821.54	277.41	174.04	103.38	2.683	
9,300.00	9,194.64	9,121.21	8,992.79	53.59	51.88	-37.06	484.47	820.94	331.47	227.27	104.20	3.181	
9,400.00	9,292.68	9,172.99	9,027.74	54.10	52.16	-30.43	522.64	820.29	383.95	281.07	102.88	3.732	
9,500.00	9,385.91	9,224.56	9,058.98	54.59	52.43	-25.82	563.64	819.59	431.78	332.88	98.90	4.366	
9,600.00	9,471.51	9,275.98	9,086.34	55.07	52.71	-22.60	607.16	818.85	473.68	381.32	92.36	5.129	
9,700.00	9,546.88	9,327.29	9,109.65	55.51	53.00	-20.35	652.84	818.07	508.83	425.24	83.59	6.087	
9,800.00	9,609.72	9,378.52	9,128.74	55.93	53.29	-18.80	700.36	817.27	536.66	463.52	73.14	7.337	
9,900.00	9,658.13	9,429.69	9,143.50	56.34	53.61	-17.79	749.33	816.43	556.80	494.95	61.84	9.003	
10,000.00	9,690.63	9,480.83	9,153.83	56.78	53.93	-17.22	799.39	815.58	568.98	517.94	51.04	11.147	
10,100.00	9,706.24	9,531.95	9,159.66	57.25	54.27	-17.04	850.15	814.72	573.06	530.11	42.95	13.342	
10,200.00	9,705.44	9,601.09	9,161.49	57.80	54.75	-17.18	919.24	813.54	569.32	528.49	40.83	13.944	
10,300.00	9,700.74	9,700.90	9,162.83	58.44	55.51	-17.36	1,019.04	811.84	563.54	521.73	41.82	13.477	
10,400.00	9,696.03	9,800.72	9,164.17	59.17	56.35	-17.55	1,118.83	810.15	557.78	514.83	42.95	12.987	
10,500.00	9,691.33	9,900.54	9,165.51	59.97	57.26	-17.73	1,218.62	808.45	552.01	507.80	44.21	12.485	
10,600.00	9,686.63	10,000.36	9,166.84	60.85	58.24	-17.93	1,318.42	806.75	546.26	500.66	45.60	11.978	
10,700.00	9,681.92	10,100.17	9,168.18	61.80	59.29	-18.12	1,418.21	805.05	540.51	493.40	47.11	11.473	
10,800.00	9,677.22	10,199.99	9,169.52	62.82	60.39	-18.32	1,518.01	803.36	534.77	486.04	48.73	10.975	
10,900.00	9,672.51	10,299.81	9,170.86	63.89	61.56	-18.53	1,617.80	801.66	529.03	478.59	50.44	10.488	
11,000.00	9,667.81	10,399.63	9,172.20	65.03	62.78	-18.74	1,717.59	799.96	523.30	471.05	52.25	10.015	
11,100.00	9,663.11	10,499.44	9,173.53	66.22	64.04	-18.95	1,817.39	798.26	517.58	463.43	54.15	9.559	
11,200.00	9,658.40	10,599.26	9,174.87	67.45	65.36	-19.17	1,917.18	796.56	511.86	455.74	56.12	9.120	
11,300.00	9,653.70	10,699.08	9,176.21	68.74	66.72	-19.39	2,016.98	794.87	506.16	447.98	58.17	8.701	
11,400.00	9,649.00	10,798.89	9,177.55	70.07	68.12	-19.62	2,116.77	793.17	500.46	440.17	60.29	8.300	
11,500.00	9,644.29	10,898.71	9,178.89	71.44	69.56	-19.86	2,216.56	791.47	494.77	432.29	62.48	7.919	
11,600.00	9,640.05	10,998.55	9,180.23	72.85	71.04	-20.06	2,316.38	789.77	489.52	424.42	65.10	7.520	
11,700.00	9,638.84	11,098.52	9,181.57	74.29	72.56	-20.15	2,416.32	788.07	487.13	419.11	68.02	7.162	
11,800.00	9,638.95	11,198.51	9,182.91	75.75	74.10	-20.20	2,516.29	786.37	485.98	415.79	70.19	6.924	
11,900.00	9,639.05	11,298.50	9,184.25	77.25	75.68	-20.26	2,616.26	784.67	484.82	412.43	72.39	6.697	
12,000.00	9,639.15	11,398.49	9,185.59	78.78	77.29	-20.31	2,716.23	782.97	483.66	409.04	74.63	6.481	
12,100.00	9,639.25	11,498.49	9,186.93	80.34	78.92	-20.36	2,816.20	781.27	482.51	405.61	76.90	6.275	
12,200.00	9,639.36	11,598.48	9,188.27	81.93	80.58	-20.41	2,916.17	779.57	481.35	402.15	79.20	6.078	
12,300.00	9,639.46	11,698.47	9,189.61	83.55	82.26	-20.47	3,016.13	777.87	480.20	398.67	81.53	5.890	
12,400.00	9,639.56	11,798.46	9,190.95	85.19	83.96	-20.52	3,116.10	776.17	479.05	395.16	83.88	5.711	
12,500.00	9,639.66	11,898.46	9,192.29	86.85	85.69	-20.58	3,216.07	774.47	477.89	391.63	86.26	5.540	
12,600.00	9,639.76	11,998.45	9,193.63	88.53	87.43	-20.63	3,316.04	772.77	476.74	388.08	88.66	5.377	
12,700.00	9,639.87	12,098.44	9,194.97	90.23	89.19	-20.68	3,416.01	771.07	475.59	384.50	91.09	5.221	
12,800.00	9,639.97	12,198.43	9,196.31	91.96	90.97	-20.74	3,515.98	769.37	474.43	380.91	93.53	5.073	
12,893.82	9,640.65	12,292.25	9,197.57	93.59	92.66	-20.76	3,609.77	767.77	473.89	377.76	96.13	4.930	
12,900.00	9,640.73	12,298.43	9,197.65	93.70	92.77	-20.76	3,615.95	767.66	473.89	377.59	96.30	4.921	
13,000.00	9,642.15	12,398.43	9,198.99	95.46	94.58	-20.76	3,715.93	765.96	473.97	375.27	98.70	4.802	
13,100.00	9,643.58	12,498.43	9,200.34	97.24	96.40	-20.75	3,815.91	764.26	474.05	372.92	101.12	4.688	

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 8 5 Fed 003 - 1H - OH - Plan 1 06-16-17													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)				Between Centres (usft)	Between Ellipses (usft)
3,000.00	2,955.28	3,006.15	2,969.00	18.16	17.66	175.15	94.60	356.08	74.72	42.25	2.301		
3,100.00	3,053.04	3,106.06	3,067.20	18.84	18.31	177.60	102.51	372.71	77.46	43.85	2.305		
3,200.00	3,150.80	3,205.97	3,165.40	19.53	18.96	179.87	110.41	389.33	80.32	45.57	2.311		
3,300.00	3,248.55	3,305.88	3,263.60	20.21	19.61	-178.02	118.32	405.96	83.31	47.40	2.320		
3,400.00	3,346.31	3,405.79	3,361.80	20.90	20.26	-176.05	126.23	422.58	86.39	49.32	2.330		
3,500.00	3,444.07	3,505.70	3,460.00	21.59	20.91	-174.22	134.14	439.20	89.58	51.32	2.341		
3,600.00	3,541.83	3,605.61	3,558.20	22.27	21.56	-172.52	142.05	455.83	92.85	53.40	2.354		
3,700.00	3,639.59	3,705.52	3,656.40	22.96	22.21	-170.94	149.96	472.45	96.19	55.55	2.367		
3,800.00	3,737.35	3,805.43	3,754.60	23.65	22.86	-169.46	157.87	489.07	99.60	57.76	2.380		
3,900.00	3,835.11	3,905.34	3,852.80	24.34	23.51	-168.08	165.78	505.70	103.08	60.02	2.394		
4,000.00	3,932.86	4,005.25	3,951.00	25.03	24.16	-166.79	173.69	522.32	106.61	62.33	2.408		
4,100.00	4,030.62	4,105.16	4,049.20	25.72	24.81	-165.59	181.60	538.95	110.19	64.69	2.422		
4,200.00	4,128.38	4,205.07	4,147.39	26.41	25.47	-164.46	189.51	555.57	113.81	67.09	2.436		
4,300.00	4,226.14	4,304.98	4,245.59	27.09	26.12	-163.40	197.42	572.19	117.48	69.53	2.450		
4,400.00	4,323.90	4,404.89	4,343.79	27.78	26.77	-162.41	205.33	588.82	121.19	72.00	2.464		
4,500.00	4,421.66	4,504.80	4,441.99	28.47	27.42	-161.47	213.24	605.44	124.93	74.50	2.477		
4,600.00	4,519.42	4,604.71	4,540.19	29.16	28.08	-160.59	221.15	622.06	128.70	77.03	2.491		
4,700.00	4,617.17	4,704.62	4,638.39	29.85	28.73	-159.76	229.06	638.69	132.50	79.58	2.504		
4,800.00	4,714.93	4,804.52	4,736.59	30.54	29.38	-158.98	236.97	655.31	136.32	82.16	2.517		
4,900.00	4,812.69	4,904.43	4,834.79	31.23	30.03	-158.24	244.88	671.94	140.17	84.76	2.530		
5,000.00	4,910.45	5,004.34	4,932.99	31.93	30.69	-157.54	252.79	688.56	144.04	87.39	2.542		
5,100.00	5,008.21	5,104.25	5,031.19	32.62	31.34	-156.87	260.69	705.18	147.94	90.03	2.555		
5,200.00	5,105.97	5,204.16	5,129.39	33.31	31.99	-156.24	268.60	721.81	151.85	92.69	2.567		
5,300.00	5,203.73	5,304.07	5,227.59	34.00	32.65	-155.64	276.51	738.43	155.78	95.36	2.578		
5,400.00	5,301.48	5,403.98	5,325.78	34.69	33.30	-155.07	284.42	755.05	159.72	98.05	2.590		
5,500.00	5,399.24	5,503.89	5,423.98	35.38	33.95	-154.53	292.33	771.68	163.68	100.75	2.601		
5,600.00	5,497.37	5,600.00	5,518.52	36.05	34.58	-153.89	299.76	787.29	166.40	102.17	2.591		
5,700.00	5,596.10	5,696.89	5,614.30	36.67	35.18	-153.31	306.03	800.48	168.40	102.97	2.574		
5,800.00	5,695.33	5,792.34	5,709.08	37.26	35.73	-152.87	310.85	810.60	169.99	103.48	2.556		
5,900.00	5,794.93	5,887.78	5,804.18	37.80	36.25	-152.57	314.30	817.86	171.16	103.67	2.536		
6,000.00	5,894.77	5,983.21	5,899.48	38.30	36.73	-152.39	316.40	822.25	171.90	103.55	2.515		
6,100.00	5,994.75	6,078.65	5,994.90	38.75	37.19	-152.34	317.12	823.78	172.19	103.11	2.492		
6,200.00	6,094.75	6,178.50	6,094.75	39.19	37.64	-78.20	317.12	823.78	172.19	102.03	2.454		
6,300.00	6,194.75	6,278.50	6,194.75	39.62	38.10	-78.20	317.12	823.78	172.19	101.08	2.421		
6,400.00	6,294.75	6,378.50	6,294.75	40.06	38.55	-78.20	317.12	823.78	172.19	100.12	2.389		
6,500.00	6,394.75	6,478.50	6,394.75	40.50	39.01	-78.20	317.12	823.78	172.19	99.16	2.358		
6,600.00	6,494.75	6,578.50	6,494.75	40.95	39.48	-78.20	317.12	823.78	172.19	98.19	2.327		
6,700.00	6,594.75	6,678.50	6,594.75	41.39	39.94	-78.20	317.12	823.78	172.19	97.23	2.297		
6,800.00	6,694.75	6,778.50	6,694.75	41.84	40.40	-78.20	317.12	823.78	172.19	96.26	2.268		
6,900.00	6,794.75	6,878.50	6,794.75	42.29	40.87	-78.20	317.12	823.78	172.19	95.28	2.239		
7,000.00	6,894.75	6,978.50	6,894.75	42.75	41.34	-78.20	317.12	823.78	172.19	94.31	2.211		
7,100.00	6,994.75	7,078.50	6,994.75	43.20	41.81	-78.20	317.12	823.78	172.19	93.33	2.183		
7,200.00	7,094.75	7,178.50	7,094.75	43.66	42.28	-78.20	317.12	823.78	172.19	92.35	2.157		
7,300.00	7,194.75	7,278.50	7,194.75	44.11	42.76	-78.20	317.12	823.78	172.19	91.36	2.130		
7,400.00	7,294.75	7,378.50	7,294.75	44.57	43.23	-78.20	317.12	823.78	172.19	90.38	2.105		
7,500.00	7,394.75	7,478.50	7,394.75	45.04	43.71	-78.20	317.12	823.78	172.19	89.39	2.080		
7,600.00	7,494.75	7,578.50	7,494.75	45.50	44.19	-78.20	317.12	823.78	172.19	88.40	2.055		
7,700.00	7,594.75	7,678.50	7,594.75	45.96	44.67	-78.20	317.12	823.78	172.19	87.41	2.031		
7,800.00	7,694.75	7,778.50	7,694.75	46.43	45.15	-78.20	317.12	823.78	172.19	86.41	2.007		
7,900.00	7,794.75	7,878.50	7,794.75	46.90	45.63	-78.20	317.12	823.78	172.19	85.42	1.984		
8,000.00	7,894.75	7,978.50	7,894.75	47.37	46.12	-78.20	317.12	823.78	172.19	84.42	1.962		
8,100.00	7,994.75	8,078.50	7,994.75	47.84	46.60	-78.20	317.12	823.78	172.19	83.42	1.940		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

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 8 P5						
11H - OH - Plan 1 11-01-16	600.00	592.00	992.01	986.29	173.392	CC
11H - OH - Plan 1 11-01-16	800.00	791.84	993.36	985.51	126.531	ES
11H - OH - Plan 1 11-01-16	20,153.58	18,688.64	2,138.93	1,697.04	4.840	SF
19H - OH - Plan 2 11-17-16	600.00	593.00	947.66	941.94	165.485	CC
19H - OH - Plan 2 11-17-16	700.00	692.98	948.04	941.24	139.554	ES
19H - OH - Plan 2 11-17-16	20,153.58	19,354.81	1,704.12	1,244.80	3.710	SF
27H - OH - Plan 2 11-17-16	600.00	593.00	903.91	898.18	157.844	CC
27H - OH - Plan 2 11-17-16	700.00	692.98	904.33	897.53	133.119	ES
27H - OH - Plan 2 11-17-16	20,153.58	19,891.75	2,976.37	2,516.07	6.466	SF
28H - OH - Plan 2 11-17-16	600.00	593.00	882.28	876.55	154.067	CC
28H - OH - Plan 2 11-17-16	700.00	692.98	882.72	875.93	129.938	ES
28H - OH - Plan 2 11-17-16	20,153.58	19,878.50	2,147.90	1,689.48	4.686	SF

Offset Design											HH SO 8 5 Fed 003 - 1H - OH - Plan 1 06-16-17		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	
0.00	0.00	2.00	0.00	0.00	0.00	-179.83	-74.93	-0.23	74.94					
100.00	100.00	102.00	100.00	0.19	0.20	-179.83	-74.93	-0.23	74.94	74.54	0.40	188.325		
200.00	200.00	202.00	200.00	0.73	0.74	-179.83	-74.93	-0.23	74.94	73.46	1.47	50.861		
300.00	300.00	302.00	300.00	1.27	1.28	-179.83	-74.93	-0.23	74.94	72.39	2.55	29.401		
400.00	400.00	402.00	400.00	1.81	1.82	-179.83	-74.93	-0.23	74.94	71.31	3.62	20.677		
500.00	500.00	502.00	500.00	2.34	2.36	-179.83	-74.93	-0.23	74.94	70.24	4.70	15.945		
600.00	600.00	602.02	600.02	2.88	2.89	-179.83	-74.93	-0.23	74.93	69.16	5.77	12.976		
700.00	699.98	703.16	701.14	3.41	3.43	106.05	-74.14	1.45	74.62	67.78	6.84	10.907		
800.00	799.84	804.30	802.12	3.94	3.97	106.22	-71.81	6.35	73.75	65.85	7.90	9.331		
900.00	899.45	905.41	902.83	4.47	4.51	106.55	-67.95	14.46	72.32	63.33	8.98	8.049		
1,000.00	998.70	1,006.51	1,003.14	5.02	5.07	107.04	-62.56	25.77	70.33	60.24	10.09	6.971		
1,100.00	1,097.47	1,107.57	1,102.92	5.59	5.64	107.73	-55.67	40.27	67.80	56.57	11.23	6.039		
1,200.00	1,195.62	1,207.77	1,201.42	6.19	6.23	109.45	-47.77	56.86	65.23	52.83	12.40	5.262		
1,300.00	1,293.38	1,307.68	1,299.62	6.80	6.84	112.86	-39.87	73.48	63.42	49.83	13.58	4.668		
1,400.00	1,391.14	1,407.59	1,397.82	7.43	7.45	116.47	-31.96	90.11	61.85	47.07	14.78	4.185		
1,500.00	1,488.90	1,507.50	1,496.02	8.07	8.06	120.24	-24.05	106.73	60.54	44.57	15.97	3.791		
1,600.00	1,586.66	1,607.41	1,594.22	8.72	8.69	124.17	-16.14	123.35	59.51	42.36	17.15	3.470		
1,700.00	1,684.42	1,707.32	1,692.41	9.38	9.32	128.22	-8.23	139.98	58.76	40.45	18.31	3.209		
1,800.00	1,782.18	1,807.23	1,790.61	10.04	9.95	132.34	-0.32	156.60	58.31	38.86	19.45	2.998		
1,894.95	1,875.00	1,902.09	1,883.85	10.67	10.55	136.30	7.19	172.38	58.17	37.66	20.52	2.835 CC		
1,900.00	1,879.94	1,907.14	1,888.81	10.70	10.58	136.51	7.59	173.22	58.18	37.60	20.58	2.827		
2,000.00	1,977.69	2,007.05	1,987.01	11.37	11.22	140.68	15.50	189.85	58.35	36.67	21.68	2.692		
2,100.00	2,075.45	2,106.96	2,085.21	12.04	11.86	144.80	23.41	206.47	58.82	36.06	22.76	2.584		
2,200.00	2,173.21	2,206.87	2,183.41	12.72	12.50	148.84	31.32	223.10	59.60	35.77	23.83	2.501 ES		
2,300.00	2,270.97	2,306.78	2,281.61	13.39	13.14	152.75	39.23	239.72	60.66	35.77	24.89	2.437		
2,400.00	2,368.73	2,406.69	2,379.81	14.07	13.78	156.51	47.14	256.34	62.00	36.04	25.96	2.389		
2,500.00	2,466.49	2,506.60	2,478.01	14.75	14.43	160.10	55.05	272.97	63.59	36.57	27.02	2.354		
2,600.00	2,564.25	2,606.51	2,576.21	15.43	15.07	163.50	62.96	289.59	65.42	37.33	28.09	2.329		
2,700.00	2,662.00	2,706.42	2,674.41	16.11	15.72	166.71	70.87	306.21	67.47	38.30	29.17	2.313		
2,800.00	2,759.76	2,806.33	2,772.61	16.79	16.36	169.71	78.78	322.84	69.71	39.45	30.26	2.304		
2,900.00	2,857.52	2,906.24	2,870.80	17.47	17.01	172.53	86.69	339.46	72.14	40.78	31.36	2.300		

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 8 5 Fed 003
 Site Error: 0.00 usft
 Reference Well: 4H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 06-16-17

Local Co-ordinate Reference: Well 4H
 TVD Reference: GL + KB @ 3293.00usft (Patterson 815)
 MD Reference: GL + KB @ 3293.00usft (Patterson 815)
 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 06-16-17		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 u	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	3.00 Sigma	Casing Method:	Not applied

Survey Tool Program Date 6/15/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	20,153.58	Plan 1 06-16-17 (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 8 5 Fed 003						
1H - OH - Plan 1 06-16-17	1,894.95	1,902.09	58.17	37.66	2.835	CC
1H - OH - Plan 1 06-16-17	2,200.00	2,206.87	59.60	35.77	2.501	ES
1H - OH - Plan 1 06-16-17	20,153.58	19,548.48	493.43	212.13	1.754	SF
2H - OH - Plan 1 06-16-17	896.34	901.51	44.53	35.57	4.969	CC
2H - OH - Plan 1 06-16-17	900.00	905.13	44.54	35.54	4.947	ES
2H - OH - Plan 1 06-16-17	20,153.58	19,416.71	1,239.39	799.19	2.816	SF
3H - OH - Plan 1 06-16-17	927.08	929.73	17.05	7.77	1.838	CC, ES
3H - OH - Plan 1 06-16-17	20,153.58	20,044.41	862.93	386.18	1.810	SF
5H - OH - Plan 1 06-16-17	600.00	600.00	24.74	18.97	4.291	CC
5H - OH - Plan 1 06-16-17	700.00	699.34	25.59	18.76	3.750	ES
5H - OH - Plan 1 06-16-17	20,153.58	20,336.04	1,311.45	841.30	2.789	SF
6H - OH - Plan 1 06-16-17	600.00	599.00	49.84	44.08	8.654	CC
6H - OH - Plan 1 06-16-17	1,200.00	1,196.30	53.79	41.47	4.368	ES
OH - OH - Plan 1 06-16-17	20,153.58	20,401.69	605.82	301.19	1.203	ES, SF
HH SO 8 P2						
14HD - OH / Job #61221 - Plan 3 05-10-17	600.00	582.00	1,371.77	1,366.10	242.044	CC, ES
14HD - OH / Job #61221 - Plan 3 05-10-17	9,900.00	9,650.48	2,167.56	2,063.19	20.768	SF
14HD - ST01 / Job #61221 - Plan 4 06-09-17	600.00	582.00	1,371.77	1,366.10	242.044	CC, ES
14HD - ST01 / Job #61221 - Plan 4 06-09-17	20,153.58	20,423.42	2,141.89	1,670.61	4.545	SF
22HA - OH / Job #61217 - Plan 4 06-09-17	955.82	1,085.60	1,353.27	1,344.95	162.666	CC
22HA - OH / Job #61217 - Plan 4 06-09-17	1,000.00	1,125.04	1,353.64	1,344.88	154.537	ES
22HA - OH / Job #61217 - Plan 4 06-09-17	20,153.58	19,477.65	2,129.94	1,676.50	4.697	SF
6HC - OH / Job #61219 - Plan 3 06-09-17	600.00	580.00	1,381.91	1,376.25	244.297	CC
6HC - OH / Job #61219 - Plan 3 06-09-17	20,153.58	20,088.08	1,702.33	1,230.34	3.607	ES, SF

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



NM OIL CONSERVATION

ARTESIA DISTRICT

JUL 17 2018

RECEIVED

Chevron

Eddy County, NM (NAD27 NME)

HH SO 8 5 Fed 003

4H

OH

Plan 1 06-16-17

Anticollision Report

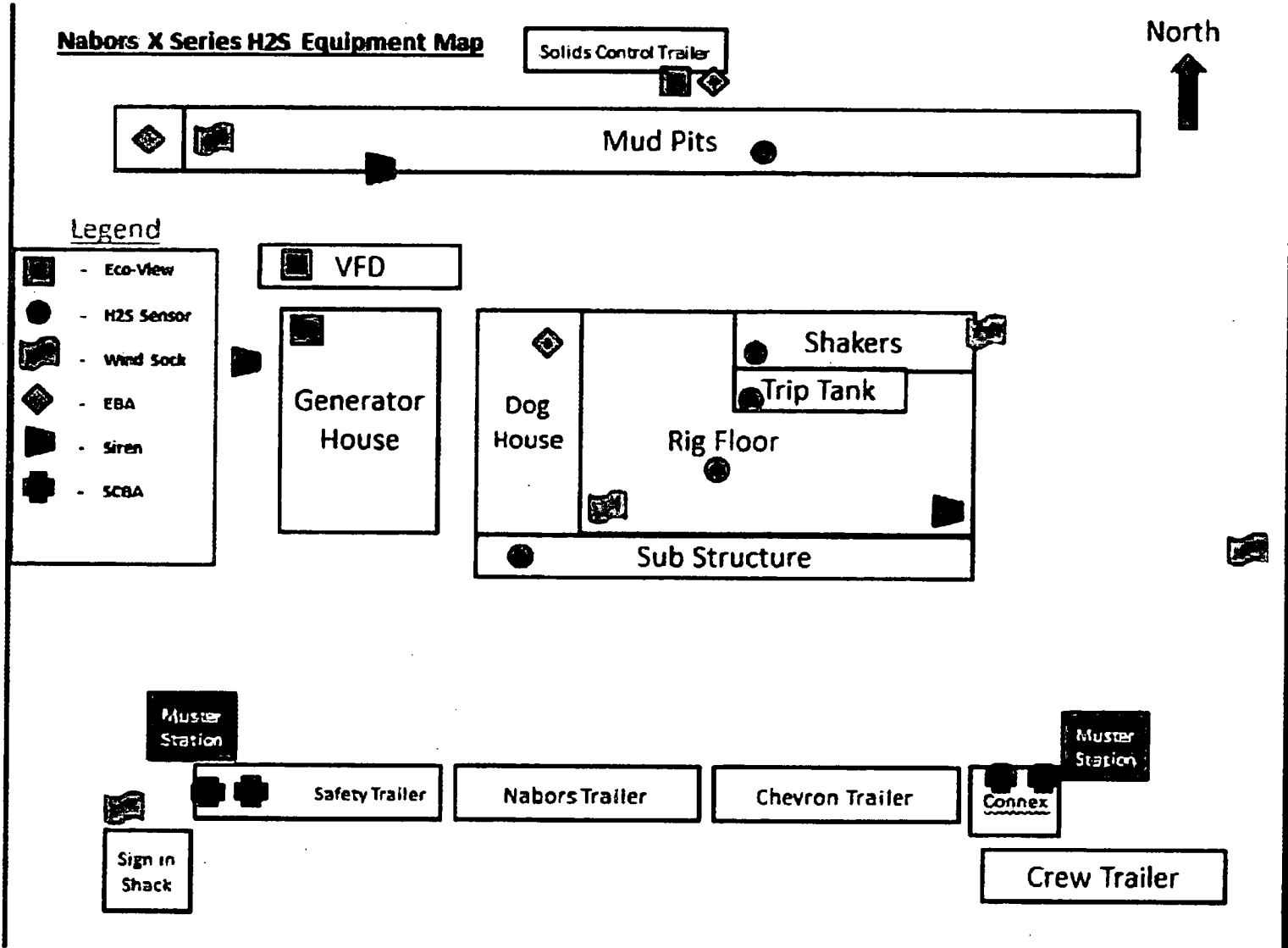
16 June, 2017



H₂S Preparedness and Contingency Plan Summary



Nabors X Series H₂S Equipment Map





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

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

- 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

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

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
Nominal ID	4.778 in.	Wall Thickness	0.361 in.
Plain End Weight	19.83 lbs/ft	Standard Drift Diameter	4.653 in.
		Special Drift Diameter	N/A
PERFORMANCE			
Body Yield Strength	641 x 1000 lbs	Internal Yield	12630 psi
Collapse	11100 psi	SMYS	110000 psi
TENARISXP™ BTC CONNECTION DATA			
GEOMETRY			
Connection OD	6.100 in.	Coupling Length	9.450 in.
Critical Section Area	5.828 sq. in.	Threads per in.	5.00
		Connection ID	4.766 in.
		Make-Up Loss	4.204 in.
PERFORMANCE			
Tension Efficiency	100 %	Joint Yield Strength	641 x 1000 lbs
Structural Compression Efficiency	100 %	Structural Compression Strength	641 x 1000 lbs
External Pressure Capacity	11100 psi	Internal Pressure Capacity ⁽¹⁾	12630 psi
		Structural Bending ⁽²⁾	92 °/100 ft
ESTIMATED MAKE-UP TORQUES ⁽³⁾			
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs
		Maximum	13770 ft-lbs
OPERATIONAL LIMIT TORQUES			
Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs

BLANKING DIMENSIONS

Blanking Dimensions

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

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

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

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

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

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KB TVD	MD
Caselle		505	
Limes		2285	
Boil		2310	
Cherry		3208	
Shelly		4450	
Bone Spring Limestone		5299	
First Bone Spring Sand		5888	
First Bone Spring Shale		5914	
Second Bone Spring Sand		7821	
Harkley Sand		8123	
Third Bone Spring Sand		8817	
Wellsboro A		9242	
Wellsboro C		9741	
Lateral TVD Wellsboro C		-9381	-9381-2065

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
Water	Deepest Expected Range of Fresh Water	450
Water	Caselle	505
Water	Cherry Canyon	3208
Oil/Gas	Shelly Chevron	4450
Oil/Gas	Bone Spring Limestone	5299
Oil/Gas	First Bone Spring Shale	5914
Oil/Gas	Second Bone Spring Sand	7821
Oil/Gas	Harkley Sand	8123
Oil/Gas	Wellsboro A	9242
Oil/Gas	Wellsboro C	9741

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

3. BOPE EQUIPMENT

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

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

4. CASING PROGRAM

Purpose	From	To	Hole Size	Cas Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediates	0'	5200'	12-1/4"	9-5/8"	43.5 #	L-80	TXP	New
Production	0'	9741'	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:	8015'			
Production Casing:	9741'			
Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.82	5.11	3.97	2.31
Intermediate	1.45	1.32	1.78	1.84
Production	1.28	1.5	2.43	1.35

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

Burst Design	Surf	Int	Prod
Pressure Test: Surface, Int, Prod Csg		X	X
P internal Water		X	X
P internal Test only - next section harvest mud in csg	X		
Duplicate to Gas: Surf Csg	X		
P internal Water		X	
P internal Dry Gas from Next Cas Point		X	
Fract at Shear: Gas to Surf-Int Csg		X	
P internal Water		X	
P internal Dry Gas 15 spp Frac Gradient		X	
Simulation (Frac) Pressure- Prod Csg		X	
P internal Water		X	
P internal Maximum pressure of heaviest injected fluid		X	
Tubing Head: Prod Csg (packer at KOP)		X	
P internal Water		X	
P internal Leak test below surf. 8.7 spp packer fluid		X	
Collapse Design			
Full Evacuation	X	X	X
P internal Water gradient in cement, must above TOC		X	X
P internal none	X	X	X
Cementing: Surf, Int, Prod Csg	X	X	X
P internal Wet cement		X	X
P internal water		X	X
Tension Design	X	X	X
100% In excess	X	X	X

5. CEMENTING PROGRAM

Slurry	Type	Cement Top	Cement Bottom	Weight (cpg)	Yield (cu ft)	% excess	Sacks	Water (gal)
Surface	Test	Class C	0'	450'	14.8	1.33	61	537
Intermediates								
Stage 2 Lead	50 50 Poz. Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	60	1421	
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	61	537	
Prod 100%			2,100'					
Stage 1 Lead	50 50 Poz. Class C + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	60	1378	
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	8,200'	15.6	1.21	48	554	
Production								
Lead	50 50 Poz. Class H + Extender, Antifoam, Dispersant, Retarder	7,015'	8,015'	14.5	1.21	48	554	
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss Retarder, Expanding Agent	8,015'	9,741'	15.6	1.2	55	530	

6. MUD PROGRAM

From	To	Type	Weight	F Vts	Filtrate
0'	450'	Smart Mud	8.3 - 8.7	32 - 34	NG - NC
450'	8015'	OBM	9.0 - 9.5	50 - 70	5.0 - 10
8015'	9741'	OBM	10.0 - 10.0	50 - 70	5.0 - 10

7. TESTING, LOGGING, AND CORING

TYPE	Tools	Interval	Turns	Vendor
Methods	12 min rotation	Int. Csg to TD	Onload of Int. Csg	TBD
LWD	IMWD Gamma	Int. and Prod. Hole	Whole Depth	TBD

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

PLEASE REFERENCE MDP

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

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

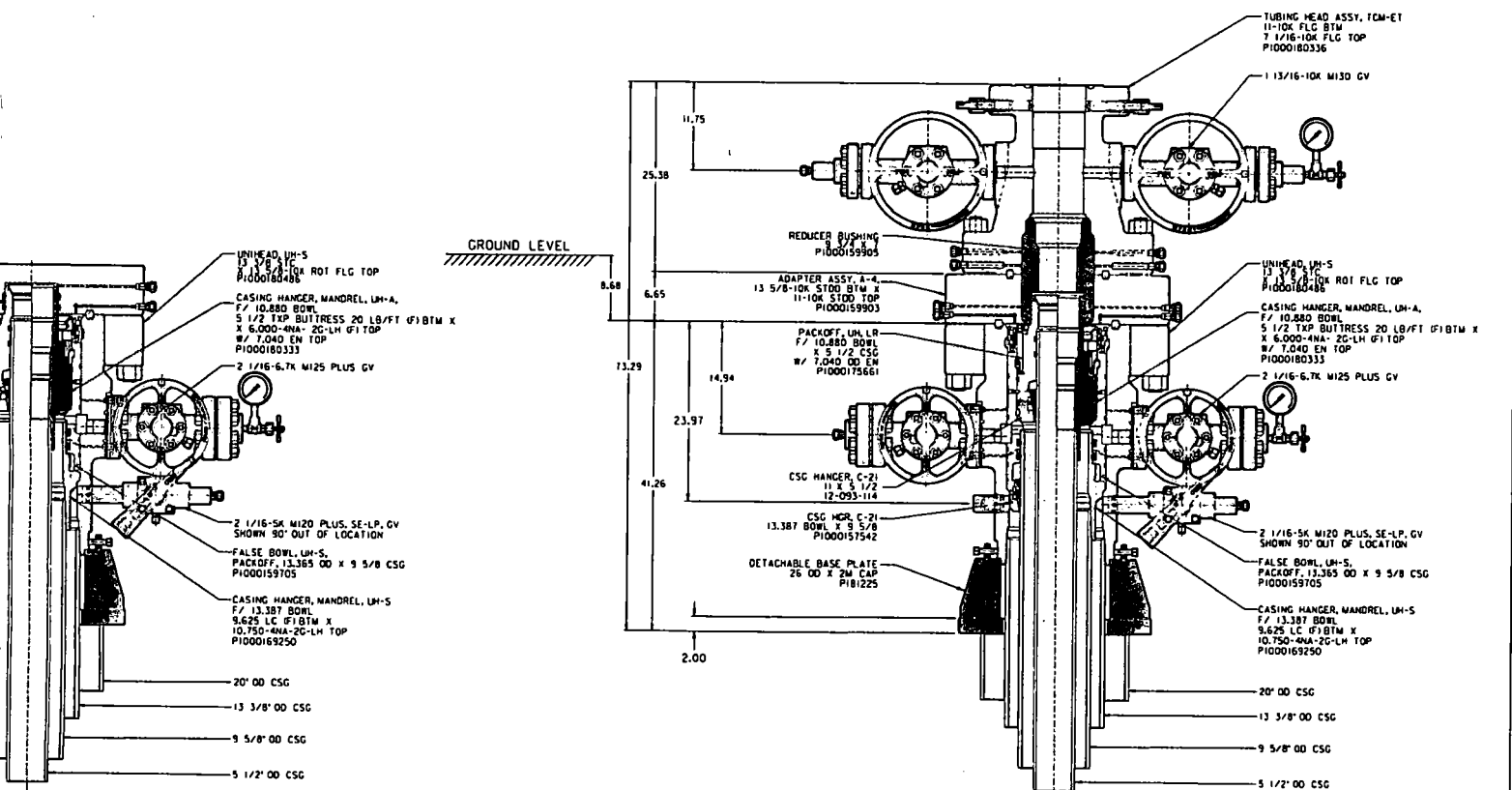
February 08 2017



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



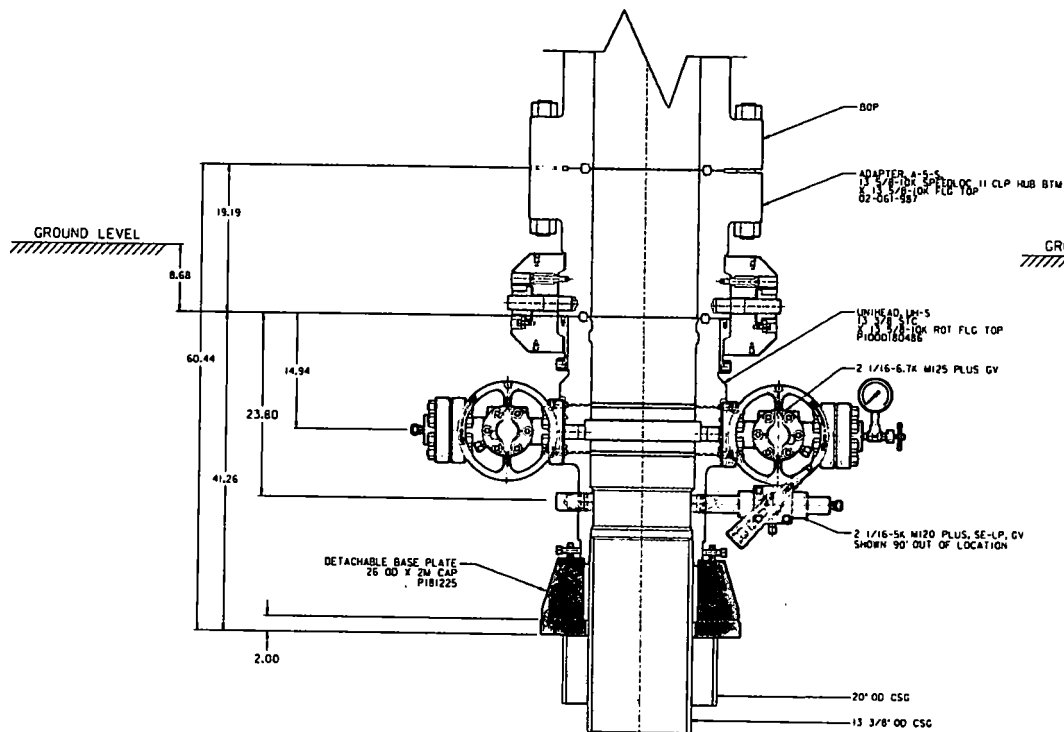
ING MODE

COMPLETION MODE

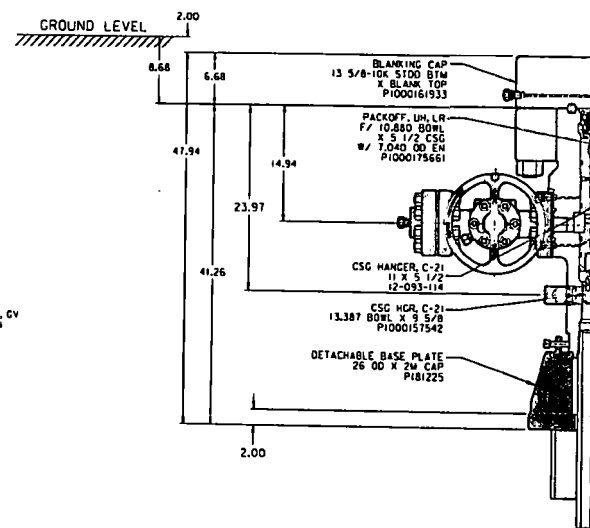
PSI UH-S
VRON
9 5/8 X 5 1/2

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				MANUFACTURING APPROVAL:		DATE: 08-25-17		SHEET TOTAL: 8	
				APPROVED BY: J. GARZA		DATE: 08-25-17		SHEET NUMBER: 00100233441	
								SHEET TOTAL: 1/2	

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DRILLING MODE



CAP

6650

CHE

20 X 13 3/8 X

CHOKE MANIFOLD SCHEMATIC

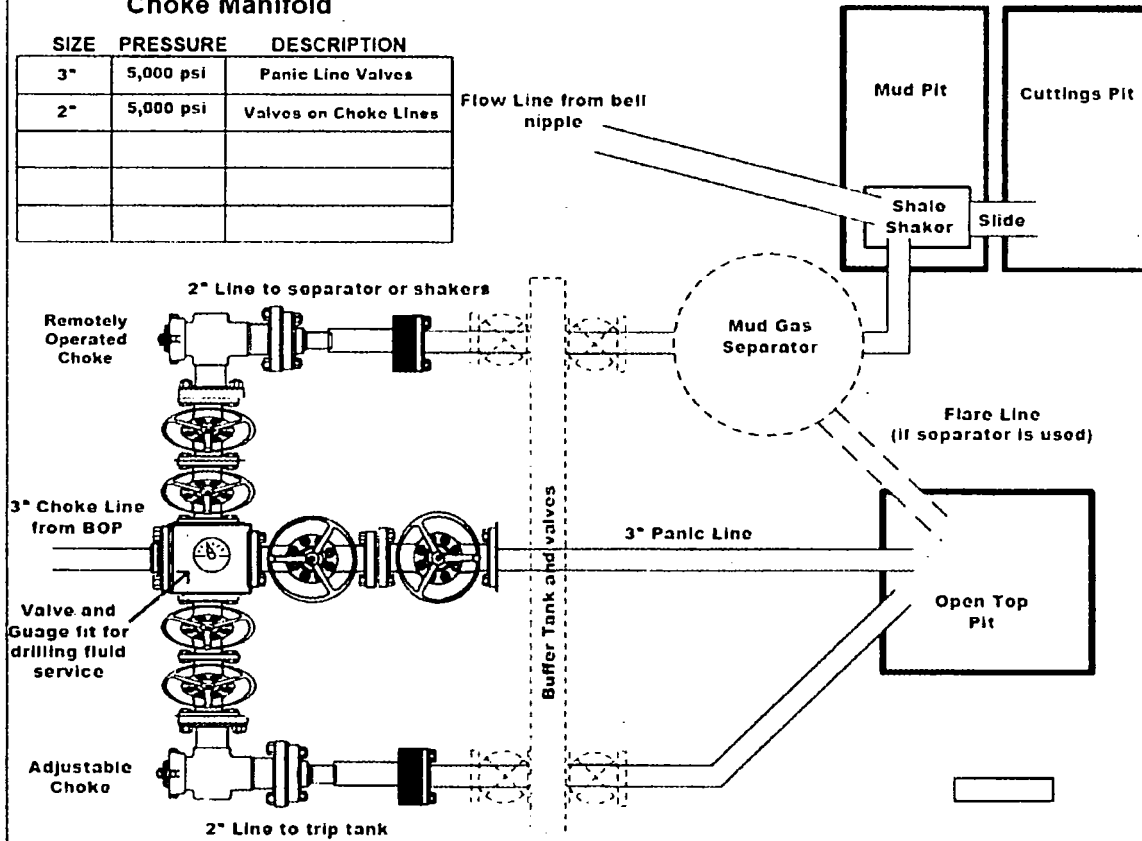
Minimum Requirements

OPERATION : Intermediate and Production Hole Sections

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 items 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 supported with running tees, 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: _____

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

HH_SO_8_5_FED_003_4H_H2S_07-10-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH_SO_8_5_FED_003_4H_AC_Report_07-10-2017.pdf

HH_SO_8_5_FED_003_4H_Drilling_plan_07-10-2017.pdf

HH_SO_8_5_FED_003_4H_Rig_Layout_07-10-2017.pdf

Other proposed operations facets description:

Hi 7, the FTP on the drilling plan reflects the FTP on the C-102.

Other proposed operations facets attachment:

Other Variance attachment:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

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
9300	2015 4	OIL-BASED MUD	10	13							The mud weight 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 13.0 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

Logs

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

Type: LWD Logs: MWD Gamma Interval: Int. & Prod. Hole Timing: While drilling Vendor: TBD

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

GR,MWD

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: 6585

Anticipated Surface Pressure: 4605

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											Retarder, Salt, Viscosifier
INTERMEDIATE	Tail		8015	9300	285	1.21	15.6	5.54	10	H	Class H + Retarder, Extender, Dispersant
PRODUCTION	Lead		7015	8015	237	1.21	14.5	5.54	10	H	50/50 Poz: Class H + Extender, Antifoam, Dispersant, Retarder
PRODUCTION	Tail		8015	2015 4	2547	1.2	15.6	5.3	10	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, diltration, 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
0	450	SPUD MUD	8.3	8.7							
450	9300	OIL-BASED MUD	9	9.5							

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

Casing Attachments

Casing ID: 2 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

HH_SO_8_5_FED_003_4H_9.625_TXP_07-10-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH_SO_8_5_FED_003_4H_9.625_TXP_07-10-2017.pdf

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_8_5_FED_003_4H_P110_TXP_07-10-2017.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	1.33	50	C	Class C

INTERMEDIATE	Lead	2100	0	1100	213	2.43	11.9	14.21	50	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
INTERMEDIATE	Lead	2100	2100	8015	838	2.43	11.9	13.76	10	H	50/50 Poz Class H + Extender. Antifoam.

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

HH_SO_8_5_FED_003_4H_Choke_Diagram_07-10-2017.pdf

BOP Diagram Attachment:

10K_UHS_Wellhead_schematics_20180713064628.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	-5735	-6185	450	K-55	54.5	STC	5.11	1.82	DRY	3.97	DRY	2.31
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	9300	0	9300	-5735	-14750	9300	L-80	43.5	OTHER - TXP	1.32	1.45	DRY	1.84	DRY	1.78
3	PRODUCTION	8.5	5.5	NEW	API	N	0	20154	0	20154	-5735	-24454	20154	P-110	20	OTHER - TXP	1.5	1.26	DRY	1.35	DRY	2.43

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_8_5_FED_003_4H_9pt_plan_07-10-2017.pdf



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

Drilling Plan Data Report

07/16/2018

APD ID: 10400014952

Submission Date: 07/12/2017

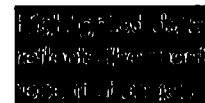
Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 8 5 FED 003

Well Number: 4H

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill



[Show Final Text](#)

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	CASTILE	-3626	505	505	LIMESTONE, ANHYDRITE, GYPSUM	NONE	No
2	BELL CANYON	-5936	2310	2310	SANDSTONE	NONE	No
3	LAMAR	-6021	2395	2395	LIMESTONE	NONE	No
4	CHERRY CANYON	-6834	3208	3208	SANDSTONE	NONE	No
5	BRUSHY CANYON	-8076	4450	4450	SANDSTONE	NONE	No
6	BONE SPRING	-9925	6299	6299	LIMESTONE	NONE	No
7	BONE SPRING 1ST	-10514	6888	6888	SANDSTONE	NONE	No
8	BONE SPRING 1ST	-10540	6914	6914	SHALE	NONE	No
9	BONE SPRING 2ND	-11247	7621	7621	SANDSTONE	NONE	No
10	BONE SPRING 3RD	-12243	8617	8617	LIMESTONE	NONE	No
11	WOLFCAMP	-12710	9084	9084	MUDSTONE	NATURAL GAS, OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 9741

Equipment: Minimum of 5000 psi rig stack (please refer to the HDA - all attachments are included in the MDP).

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. 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.

Choke Diagram Attachment: