

Carlsbad Field Office OCD Artesia

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM118108
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator CHEVRON USA INCORPORATED		7. If Unit or CA Agreement, Name and No.
3a. Address 6301 Deauville Blvd. Midland TX 79706		8. Lease Name and Well No. HH SO 17 20 FED 001 2H 321649
3b. Phone No. (include area code) (432)687-7866		9. API Well No. 30-015-45101
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SESW / 305 FSL / 1873 FWL / LAT 32.050606 / LONG -104.214862 At proposed prod. zone SESW / 280 FSL / 1590 FWL / LAT 32.02124 / LONG -104.215501		10. Field and Pool, or Exploratory PURPLE SAGE / WOLFCAMP, (GAS)
11. Sec., T. R. M. or Blk. and Survey or Area SEC 8 / T26S / R27E / NMP		12. County or Parish EDDY
13. State NM		
14. Distance in miles and direction from nearest town or post office* 11.5 miles	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 1120
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.	19. Proposed Depth 10029 feet / 20402 feet
20. BLM/BIA Bond No. on file FED: CA0329	21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3257 feet	22. Approximate date work will start* 12/28/2017
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:

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

25. Signature (Electronic Submission)	Name (Printed/Typed) Dorian K Fuentes / Ph: (432)687-7631	Date 08/17/2017
Title Permitting Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 07/06/2018
Title Supervisor Multiple Resources		
Office CARLSBAD		

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS
Approval Date: 07/06/2018

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUL 11 2018

RECEIVED

RW 7-12-18

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

1. SHL: SESW / 305 FSL / 1873 FWL / TWSP: 26S / RANGE: 27E / SECTION: 8 / LAT: 32.050606 / LONG: -104.214862 (TVD: 0 feet, MD: 0 feet)

PPP: NENW / 330 FNL / 1590 FWL / TWSP: 26S / RANGE: 27E / SECTION: 17 / LAT: 32.048863 / LONG: -104.215752 (TVD: 9000 feet, MD: 12000 feet)

BHL: SESW / 280 FSL / 1590 FWL / TWSP: 26S / RANGE: 27E / SECTION: 20 / LAT: 32.02124 / LONG: -104.215501 (TVD: 10029 feet, MD: 20402 feet)

BLM Point of Contact

Name: Tenille Ortiz

Title: Legal Instruments Examiner

Phone: 5752342224

Email: tortiz@blm.gov

Review and Appeal Rights

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

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHEVRON USA INCORPORATED
LEASE NO.:	NMNM118108
WELL NAME & NO.:	HH SO 17 20 FED 001 2H
SURFACE HOLE FOOTAGE:	305'/S & 1873'W
BOTTOM HOLE FOOTAGE:	280'/S & 1590'W
LOCATION:	SECTION 8, T26S, R37E
COUNTY:	EDDY

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 of intermediate casing with fluid to maintain collapse safety factor.

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is: Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.
 - a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement maybe required. Excess calculates to 14%.**
 - 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)

☒ Eddy County

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

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 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 010818



Project: Eddy County, NM (NAD27 NME)
Site: HH SO 17 20 FED 001
Well: 2H
Wellbore: OH
Design: Plan 1 12-21-17
Rig:



PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: -0.06°
Magnetic North: 7.24°
Magnetic Field
Strength: 47957.8nT
Dip Angle: 59.73°
Date: 2/20/2018
Model: HDGM

WELL DETAILS

+N-S	+E-W	Northing	Ground Level	Easting	Latitude	Longitude
0.00	0.00	382112.00	3257.00	536858.00	32° 3' 1.74614 N	104° 12' 51.72958 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	YSec	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2200.00	8.00	214.56	2198.70	-22.96	-15.82	2.00	214.56	23.23		KOP1, Begin 2.00°/100' Build
5333.09	0.00	214.56	5301.30	-382.04	-283.18	0.00	0.00	388.56		Hold 8.00° Inc at 214.56° Azm
5733.09	0.00	0.00	5700.00	-405.00	-278.00	2.00	180.00	409.80		Begin 2.00°/100' Drop
9300.59	0.00	0.00	9287.50	-405.00	-278.00	0.00	0.00	409.80		Begin Vertical Hold
10212.60	91.20	179.16	9840.33	-389.90	-270.39	10.00	179.16	994.48		KOP2, Begin 10.00°/100' Build
14857.22	91.20	179.16	9743.00	-5633.00	-202.00	0.00	0.00	5635.66		LP, Hold 91.20° Inc at 179.16° Azm
14936.01	89.77	179.82	9742.33	-5711.78	-201.30	2.00	154.94	5714.42		Begin 2.00°/100' Drop & Turn
19907.29	89.77	179.82	9762.00	-10683.00	-186.00	0.00	0.00	10684.62		Hold 89.77° Inc at 179.82° Azm
										TD at 19907.29

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

Local Origin: Well 2H, Grid North
Latitude: 32° 3' 1.74614 N
Longitude: 104° 12' 51.72958 W

Grid East: 536858.00
Grid North: 382112.00
Scale Factor: 1.000

Geomagnetic Model: HDGM
Sample Date: 20-Feb-18
Magnetic Declination: 7.30°
Dip Angle from Horizontal: 59.73°
Magnetic Field Strength: 47958

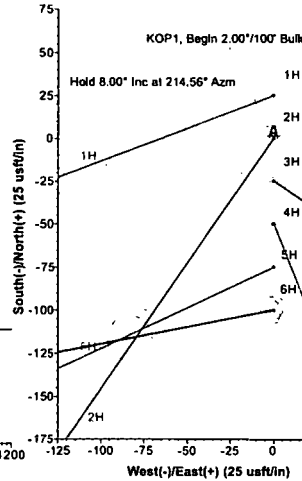
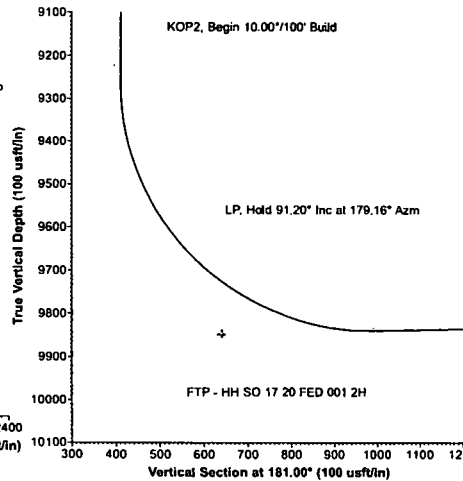
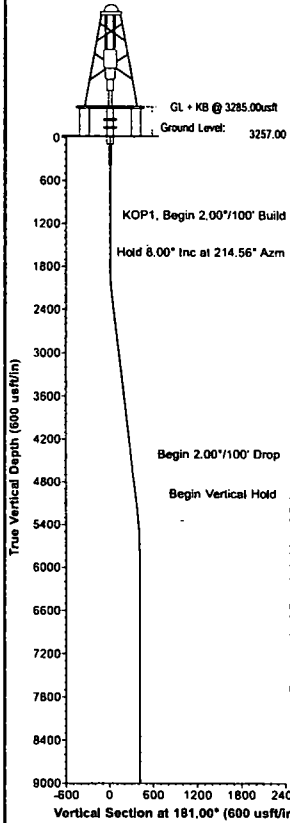
To convert a Magnetic Direction to a Grid Direction, Add 7.24°
To convert a Magnetic Direction to a True Direction, Add 7.30° East
To convert a True Direction to a Grid Direction, Subtract 0.06°

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
MPT - HH SO 17 20 FED 001 2H	9743.00	-5633.00	-202.00	370479.00	536858.00	32° 3' 1.74614 N	104° 12' 51.72958 W
LTP - HH SO 17 20 FED 001 2H	9761.80	-10683.00	-186.00	371479.00	536872.00	32° 3' 18.51658 N	104° 12' 54.02614 W
BHL - HH SO 17 20 FED 001 2H	9762.00	-10683.00	-186.00	371429.00	536872.00	32° 3' 18.02214 N	104° 12' 54.02678 W
FTP - HH SO 17 20 FED 001 2H	9848.00	-635.00	-275.00	381477.00	536883.00	32° 2' 55.46476 N	104° 12' 54.93300 W

LEGEND

- 1H, OH, Plan 1 12-21-17 V0
- 5HC, OH / Job #81218, Surveys (Patterson 815) V0
- 22HA, OH / Job #81217, Surveys (Patterson 815) V0
- 5H, OH, Plan 1 12-21-17 V0
- 14HD, ST01 / Job #81221, Surveys (Patterson 815) V0
- 14HD, OH / Job #81221, Surveys (Patterson 815) V0
- 2H, OH, Plan 1 06-16-17 V0
- 3H, OH, Plan 1 12-20-17 V0
- 6H, OH, Plan 1 12-21-17 V0
- 4H, OH, Plan 1 12-21-17 V0
- 5H, OH, Plan 1 12-20-17 V0
- 4H, OH, Plan 1 12-20-17 V0
- 3H, OH, Plan 1 06-16-17 V0
- 6HC, OH / Job #81219, Surveys (Patterson 815) V0
- 3H, OH, Plan 1 12-21-17 V0
- 5H, OH, Plan 1 06-16-17 V0
- Plan 1 12-21-17





Chevron

**Eddy County, NM (NAD27 NME)
HH SO 17 20 FED 001
2H**

OH

Plan: Plan 1 12-21-17

Standard Planning Report

21 December, 2017



Approval Date: 07/06/2018



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 17 20 FED 001
Well: 2H
Wellbore: OH
Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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

Site	HH SO 17 20 FED 001			
Site Position:		Northing:	382,137.00 usft	Latitude: 32° 3' 1.99355 N
From: Map		Easting:	536,858.00 usft	Longitude: 104° 12' 51.72926 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.06 °

Well	2H			
Well Position	+N/-S	-25.00 usft	Northing:	382,112.00 usft
	+E/-W	0.00 usft	Easting:	536,858.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3,257.00 usft

Wellbore	OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	HDGM	2/20/2018	7.30	59.73
				Field Strength (nT) 47,958

Design	Plan 1 12-21-17			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	181.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	8.00	214.56	2,198.70	-22.96	-15.82	2.00	2.00	0.00	214.56	
5,333.09	8.00	214.56	5,301.30	-382.04	-263.18	0.00	0.00	0.00	0.00	
5,733.09	0.00	0.00	5,700.00	-405.00	-279.00	2.00	-2.00	0.00	180.00	
9,300.59	0.00	0.00	9,267.50	-405.00	-279.00	0.00	0.00	0.00	0.00	
10,212.60	91.20	179.16	9,840.33	-989.90	-270.39	10.00	10.00	19.64	179.16	
14,857.22	91.20	179.16	9,743.00	-5,633.00	-202.00	0.00	0.00	0.00	0.00	MPT - HH SO 17 20
14,936.01	89.77	179.82	9,742.33	-5,711.78	-201.30	2.00	-1.81	0.85	154.94	
19,907.29	89.77	179.82	9,762.00	-10,683.00	-186.00	0.00	0.00	0.00	0.00	BHL - HH SO 17 20



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
 Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Site: HH SO 17 20 FED 001
 Well: 2H
 Wellbore: OH
 Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP1, Begin 2.00°/100' Build									
1,900.00	2.00	214.56	1,899.98	-1.44	-0.99	1.45	2.00	2.00	0.00
2,000.00	4.00	214.56	1,999.84	-5.75	-3.96	5.81	2.00	2.00	0.00
2,100.00	6.00	214.56	2,099.45	-12.92	-8.90	13.08	2.00	2.00	0.00
2,200.00	8.00	214.56	2,198.70	-22.96	-15.82	23.23	2.00	2.00	0.00
Hold 8.00° Inc at 214.56° Azm									
2,300.00	8.00	214.56	2,297.73	-34.42	-23.71	34.83	0.00	0.00	0.00
2,400.00	8.00	214.56	2,396.76	-45.88	-31.61	46.42	0.00	0.00	0.00
2,500.00	8.00	214.56	2,495.78	-57.34	-39.50	58.02	0.00	0.00	0.00
2,600.00	8.00	214.56	2,594.81	-68.80	-47.40	69.62	0.00	0.00	0.00
2,700.00	8.00	214.56	2,693.84	-80.26	-55.29	81.21	0.00	0.00	0.00
2,800.00	8.00	214.56	2,792.86	-91.72	-63.19	92.81	0.00	0.00	0.00
2,900.00	8.00	214.56	2,891.89	-103.19	-71.08	104.41	0.00	0.00	0.00
3,000.00	8.00	214.56	2,990.92	-114.65	-78.98	116.00	0.00	0.00	0.00
3,100.00	8.00	214.56	3,089.94	-126.11	-86.87	127.60	0.00	0.00	0.00
3,200.00	8.00	214.56	3,188.97	-137.57	-94.77	139.20	0.00	0.00	0.00
3,300.00	8.00	214.56	3,288.00	-149.03	-102.66	150.79	0.00	0.00	0.00
3,400.00	8.00	214.56	3,387.02	-160.49	-110.56	162.39	0.00	0.00	0.00
3,500.00	8.00	214.56	3,486.05	-171.95	-118.46	173.99	0.00	0.00	0.00
3,600.00	8.00	214.56	3,585.08	-183.41	-126.35	185.58	0.00	0.00	0.00
3,700.00	8.00	214.56	3,684.10	-194.87	-134.25	197.18	0.00	0.00	0.00
3,800.00	8.00	214.56	3,783.13	-206.33	-142.14	208.78	0.00	0.00	0.00
3,900.00	8.00	214.56	3,882.16	-217.80	-150.04	220.37	0.00	0.00	0.00
4,000.00	8.00	214.56	3,981.18	-229.26	-157.93	231.97	0.00	0.00	0.00
4,100.00	8.00	214.56	4,080.21	-240.72	-165.83	243.57	0.00	0.00	0.00
4,200.00	8.00	214.56	4,179.24	-252.18	-173.72	255.16	0.00	0.00	0.00
4,300.00	8.00	214.56	4,278.26	-263.64	-181.62	266.76	0.00	0.00	0.00
4,400.00	8.00	214.56	4,377.29	-275.10	-189.51	278.36	0.00	0.00	0.00
4,500.00	8.00	214.56	4,476.32	-286.56	-197.41	289.95	0.00	0.00	0.00
4,600.00	8.00	214.56	4,575.35	-298.02	-205.30	301.55	0.00	0.00	0.00
4,700.00	8.00	214.56	4,674.37	-309.48	-213.20	313.15	0.00	0.00	0.00
4,800.00	8.00	214.56	4,773.40	-320.94	-221.09	324.74	0.00	0.00	0.00
4,900.00	8.00	214.56	4,872.43	-332.40	-228.99	336.34	0.00	0.00	0.00
5,000.00	8.00	214.56	4,971.45	-343.87	-236.89	347.94	0.00	0.00	0.00
5,100.00	8.00	214.56	5,070.48	-355.33	-244.78	359.53	0.00	0.00	0.00
5,200.00	8.00	214.56	5,169.51	-366.79	-252.68	371.13	0.00	0.00	0.00
5,300.00	8.00	214.56	5,268.53	-378.25	-260.57	382.73	0.00	0.00	0.00
5,333.09	8.00	214.56	5,301.30	-382.04	-263.18	386.56	0.00	0.00	0.00
Begin 2.00°/100' Drop									
5,400.00	6.66	214.56	5,367.66	-389.07	-268.03	393.68	2.00	-2.00	0.00
5,500.00	4.66	214.56	5,467.17	-397.20	-273.62	401.90	2.00	-2.00	0.00
5,600.00	2.66	214.56	5,566.96	-402.45	-277.25	407.22	2.00	-2.00	0.00
5,700.00	0.66	214.56	5,666.91	-404.84	-278.89	409.64	2.00	-2.00	0.00
5,733.09	0.00	0.00	5,700.00	-405.00	-279.00	409.80	2.00	-2.00	0.00
Begin Vertical Hold									
5,800.00	0.00	0.00	5,766.91	-405.00	-279.00	409.80	0.00	0.00	0.00
5,900.00	0.00	0.00	5,866.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,000.00	0.00	0.00	5,966.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,100.00	0.00	0.00	6,066.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,200.00	0.00	0.00	6,166.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,300.00	0.00	0.00	6,266.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,400.00	0.00	0.00	6,366.91	-405.00	-279.00	409.80	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
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Site: HH SO 17 20 FED 001
Well: 2H
Wellbore: OH
Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,500.00	0.00	0.00	6,466.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,600.00	0.00	0.00	6,566.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,700.00	0.00	0.00	6,666.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,800.00	0.00	0.00	6,766.91	-405.00	-279.00	409.80	0.00	0.00	0.00
6,900.00	0.00	0.00	6,866.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,000.00	0.00	0.00	6,966.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,100.00	0.00	0.00	7,066.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,200.00	0.00	0.00	7,166.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,300.00	0.00	0.00	7,266.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,400.00	0.00	0.00	7,366.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,500.00	0.00	0.00	7,466.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,600.00	0.00	0.00	7,566.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,700.00	0.00	0.00	7,666.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,800.00	0.00	0.00	7,766.91	-405.00	-279.00	409.80	0.00	0.00	0.00
7,900.00	0.00	0.00	7,866.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,000.00	0.00	0.00	7,966.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,100.00	0.00	0.00	8,066.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,200.00	0.00	0.00	8,166.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,300.00	0.00	0.00	8,266.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,400.00	0.00	0.00	8,366.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,500.00	0.00	0.00	8,466.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,600.00	0.00	0.00	8,566.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,700.00	0.00	0.00	8,666.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,800.00	0.00	0.00	8,766.91	-405.00	-279.00	409.80	0.00	0.00	0.00
8,900.00	0.00	0.00	8,866.91	-405.00	-279.00	409.80	0.00	0.00	0.00
9,000.00	0.00	0.00	8,966.91	-405.00	-279.00	409.80	0.00	0.00	0.00
9,100.00	0.00	0.00	9,066.91	-405.00	-279.00	409.80	0.00	0.00	0.00
9,200.00	0.00	0.00	9,166.91	-405.00	-279.00	409.80	0.00	0.00	0.00
9,300.00	0.00	0.00	9,266.91	-405.00	-279.00	409.80	0.00	0.00	0.00
9,300.59	0.00	0.00	9,267.50	-405.00	-279.00	409.80	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
9,400.00	9.94	179.16	9,366.41	-413.60	-278.87	418.39	10.00	10.00	0.00
9,500.00	19.94	179.16	9,462.91	-439.35	-278.49	444.13	10.00	10.00	0.00
9,600.00	29.94	179.16	9,553.47	-481.46	-277.87	486.22	10.00	10.00	0.00
9,700.00	39.94	179.16	9,635.34	-538.65	-277.03	543.40	10.00	10.00	0.00
9,800.00	49.94	179.16	9,706.03	-609.20	-275.99	613.91	10.00	10.00	0.00
9,900.00	59.94	179.16	9,763.40	-690.94	-274.79	695.62	10.00	10.00	0.00
10,000.00	69.94	179.16	9,805.70	-781.40	-273.46	786.04	10.00	10.00	0.00
10,100.00	79.94	179.16	9,831.65	-877.83	-272.04	882.44	10.00	10.00	0.00
10,200.00	89.94	179.16	9,840.46	-977.31	-270.57	981.87	10.00	10.00	0.00
10,212.60	91.20	179.16	9,840.33	-989.90	-270.39	994.46	10.00	10.00	0.00
LP, Hold 91.20° Inc at 179.16° Azm									
10,300.00	91.20	179.16	9,838.50	-1,077.28	-269.10	1,081.80	0.00	0.00	0.00
10,400.00	91.20	179.16	9,836.40	-1,177.24	-267.63	1,181.72	0.00	0.00	0.00
10,500.00	91.20	179.16	9,834.31	-1,277.21	-266.15	1,281.65	0.00	0.00	0.00
10,600.00	91.20	179.16	9,832.21	-1,377.18	-264.68	1,381.58	0.00	0.00	0.00
10,700.00	91.20	179.16	9,830.12	-1,477.15	-263.21	1,481.50	0.00	0.00	0.00
10,800.00	91.20	179.16	9,828.02	-1,577.11	-261.74	1,581.43	0.00	0.00	0.00
10,900.00	91.20	179.16	9,825.93	-1,677.08	-260.26	1,681.36	0.00	0.00	0.00
11,000.00	91.20	179.16	9,823.83	-1,777.05	-258.79	1,781.28	0.00	0.00	0.00
11,100.00	91.20	179.16	9,821.74	-1,877.01	-257.32	1,881.21	0.00	0.00	0.00
11,200.00	91.20	179.16	9,819.64	-1,976.98	-255.85	1,981.14	0.00	0.00	0.00
11,300.00	91.20	179.16	9,817.54	-2,076.95	-254.37	2,081.06	0.00	0.00	0.00



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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,400.00	91.20	179.16	9,815.45	-2,176.92	-252.90	2,180.99	0.00	0.00	0.00
11,500.00	91.20	179.16	9,813.35	-2,276.88	-251.43	2,280.92	0.00	0.00	0.00
11,600.00	91.20	179.16	9,811.26	-2,376.85	-249.96	2,380.84	0.00	0.00	0.00
11,700.00	91.20	179.16	9,809.16	-2,476.82	-248.49	2,480.77	0.00	0.00	0.00
11,800.00	91.20	179.16	9,807.07	-2,576.79	-247.01	2,580.69	0.00	0.00	0.00
11,900.00	91.20	179.16	9,804.97	-2,676.75	-245.54	2,680.62	0.00	0.00	0.00
12,000.00	91.20	179.16	9,802.88	-2,776.72	-244.07	2,780.55	0.00	0.00	0.00
12,100.00	91.20	179.16	9,800.78	-2,876.69	-242.60	2,880.47	0.00	0.00	0.00
12,200.00	91.20	179.16	9,798.68	-2,976.65	-241.12	2,980.40	0.00	0.00	0.00
12,300.00	91.20	179.16	9,796.59	-3,076.62	-239.65	3,080.33	0.00	0.00	0.00
12,400.00	91.20	179.16	9,794.49	-3,176.59	-238.18	3,180.25	0.00	0.00	0.00
12,500.00	91.20	179.16	9,792.40	-3,276.56	-236.71	3,280.18	0.00	0.00	0.00
12,600.00	91.20	179.16	9,790.30	-3,376.52	-235.23	3,380.11	0.00	0.00	0.00
12,700.00	91.20	179.16	9,788.21	-3,476.49	-233.76	3,480.03	0.00	0.00	0.00
12,800.00	91.20	179.16	9,786.11	-3,576.46	-232.29	3,579.96	0.00	0.00	0.00
12,900.00	91.20	179.16	9,784.02	-3,676.42	-230.82	3,679.89	0.00	0.00	0.00
13,000.00	91.20	179.16	9,781.92	-3,776.39	-229.34	3,779.81	0.00	0.00	0.00
13,100.00	91.20	179.16	9,779.82	-3,876.36	-227.87	3,879.74	0.00	0.00	0.00
13,200.00	91.20	179.16	9,777.73	-3,976.33	-226.40	3,979.66	0.00	0.00	0.00
13,300.00	91.20	179.16	9,775.63	-4,076.29	-224.93	4,079.59	0.00	0.00	0.00
13,400.00	91.20	179.16	9,773.54	-4,176.26	-223.46	4,179.52	0.00	0.00	0.00
13,500.00	91.20	179.16	9,771.44	-4,276.23	-221.98	4,279.44	0.00	0.00	0.00
13,600.00	91.20	179.16	9,769.35	-4,376.19	-220.51	4,379.37	0.00	0.00	0.00
13,700.00	91.20	179.16	9,767.25	-4,476.16	-219.04	4,479.30	0.00	0.00	0.00
13,800.00	91.20	179.16	9,765.16	-4,576.13	-217.57	4,579.22	0.00	0.00	0.00
13,900.00	91.20	179.16	9,763.06	-4,676.10	-216.09	4,679.15	0.00	0.00	0.00
14,000.00	91.20	179.16	9,760.96	-4,776.06	-214.62	4,779.08	0.00	0.00	0.00
14,100.00	91.20	179.16	9,758.87	-4,876.03	-213.15	4,879.00	0.00	0.00	0.00
14,200.00	91.20	179.16	9,756.77	-4,976.00	-211.68	4,978.93	0.00	0.00	0.00
14,300.00	91.20	179.16	9,754.68	-5,075.97	-210.20	5,078.86	0.00	0.00	0.00
14,400.00	91.20	179.16	9,752.58	-5,175.93	-208.73	5,178.78	0.00	0.00	0.00
14,500.00	91.20	179.16	9,750.49	-5,275.90	-207.26	5,278.71	0.00	0.00	0.00
14,600.00	91.20	179.16	9,748.39	-5,375.87	-205.79	5,378.63	0.00	0.00	0.00
14,700.00	91.20	179.16	9,746.29	-5,475.83	-204.31	5,478.56	0.00	0.00	0.00
14,800.00	91.20	179.16	9,744.20	-5,575.80	-202.84	5,578.49	0.00	0.00	0.00
14,857.22	91.20	179.16	9,743.00	-5,633.00	-202.00	5,635.66	0.00	0.00	0.00
Begin 2.00°/100' Drop & Turn									
14,900.00	90.43	179.52	9,742.39	-5,675.77	-201.51	5,678.42	2.00	-1.81	0.85
14,936.01	89.77	179.82	9,742.33	-5,711.78	-201.30	5,714.42	2.00	-1.81	0.85
Hold 89.77° Inc at 179.82° Azm									
15,000.00	89.77	179.82	9,742.58	-5,775.77	-201.10	5,778.40	0.00	0.00	0.00
15,100.00	89.77	179.82	9,742.98	-5,875.77	-200.79	5,878.38	0.00	0.00	0.00
15,200.00	89.77	179.82	9,743.38	-5,975.77	-200.49	5,978.36	0.00	0.00	0.00
15,300.00	89.77	179.82	9,743.77	-6,075.77	-200.18	6,078.33	0.00	0.00	0.00
15,400.00	89.77	179.82	9,744.17	-6,175.77	-199.87	6,178.31	0.00	0.00	0.00
15,500.00	89.77	179.82	9,744.56	-6,275.77	-199.56	6,278.29	0.00	0.00	0.00
15,600.00	89.77	179.82	9,744.96	-6,375.77	-199.26	6,378.27	0.00	0.00	0.00
15,700.00	89.77	179.82	9,745.35	-6,475.76	-198.95	6,478.25	0.00	0.00	0.00
15,800.00	89.77	179.82	9,745.75	-6,575.76	-198.64	6,578.22	0.00	0.00	0.00
15,900.00	89.77	179.82	9,746.14	-6,675.76	-198.33	6,678.20	0.00	0.00	0.00
16,000.00	89.77	179.82	9,746.54	-6,775.76	-198.02	6,778.18	0.00	0.00	0.00
16,100.00	89.77	179.82	9,746.94	-6,875.76	-197.72	6,878.16	0.00	0.00	0.00
16,200.00	89.77	179.82	9,747.33	-6,975.76	-197.41	6,978.14	0.00	0.00	0.00
16,300.00	89.77	179.82	9,747.73	-7,075.76	-197.10	7,078.12	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
 Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Site: HH SO 17 20 FED 001
 Well: 2H
 Wellbore: OH
 Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,400.00	89.77	179.82	9,748.12	-7,175.76	-196.79	7,178.09	0.00	0.00	0.00
16,500.00	89.77	179.82	9,748.52	-7,275.75	-196.49	7,278.07	0.00	0.00	0.00
16,600.00	89.77	179.82	9,748.91	-7,375.75	-196.18	7,378.05	0.00	0.00	0.00
16,700.00	89.77	179.82	9,749.31	-7,475.75	-195.87	7,478.03	0.00	0.00	0.00
16,800.00	89.77	179.82	9,749.71	-7,575.75	-195.56	7,578.01	0.00	0.00	0.00
16,900.00	89.77	179.82	9,750.10	-7,675.75	-195.25	7,677.99	0.00	0.00	0.00
17,000.00	89.77	179.82	9,750.50	-7,775.75	-194.95	7,777.96	0.00	0.00	0.00
17,100.00	89.77	179.82	9,750.89	-7,875.75	-194.64	7,877.94	0.00	0.00	0.00
17,200.00	89.77	179.82	9,751.29	-7,975.75	-194.33	7,977.92	0.00	0.00	0.00
17,300.00	89.77	179.82	9,751.68	-8,075.74	-194.02	8,077.90	0.00	0.00	0.00
17,400.00	89.77	179.82	9,752.08	-8,175.74	-193.72	8,177.88	0.00	0.00	0.00
17,500.00	89.77	179.82	9,752.48	-8,275.74	-193.41	8,277.85	0.00	0.00	0.00
17,600.00	89.77	179.82	9,752.87	-8,375.74	-193.10	8,377.83	0.00	0.00	0.00
17,700.00	89.77	179.82	9,753.27	-8,475.74	-192.79	8,477.81	0.00	0.00	0.00
17,800.00	89.77	179.82	9,753.66	-8,575.74	-192.49	8,577.79	0.00	0.00	0.00
17,900.00	89.77	179.82	9,754.06	-8,675.74	-192.18	8,677.77	0.00	0.00	0.00
18,000.00	89.77	179.82	9,754.45	-8,775.74	-191.87	8,777.75	0.00	0.00	0.00
18,100.00	89.77	179.82	9,754.85	-8,875.73	-191.56	8,877.72	0.00	0.00	0.00
18,200.00	89.77	179.82	9,755.25	-8,975.73	-191.25	8,977.70	0.00	0.00	0.00
18,300.00	89.77	179.82	9,755.64	-9,075.73	-190.95	9,077.68	0.00	0.00	0.00
18,400.00	89.77	179.82	9,756.04	-9,175.73	-190.64	9,177.66	0.00	0.00	0.00
18,500.00	89.77	179.82	9,756.43	-9,275.73	-190.33	9,277.64	0.00	0.00	0.00
18,600.00	89.77	179.82	9,756.83	-9,375.73	-190.02	9,377.62	0.00	0.00	0.00
18,700.00	89.77	179.82	9,757.22	-9,475.73	-189.72	9,477.59	0.00	0.00	0.00
18,800.00	89.77	179.82	9,757.62	-9,575.73	-189.41	9,577.57	0.00	0.00	0.00
18,900.00	89.77	179.82	9,758.01	-9,675.72	-189.10	9,677.55	0.00	0.00	0.00
19,000.00	89.77	179.82	9,758.41	-9,775.72	-188.79	9,777.53	0.00	0.00	0.00
19,100.00	89.77	179.82	9,758.81	-9,875.72	-188.48	9,877.51	0.00	0.00	0.00
19,200.00	89.77	179.82	9,759.20	-9,975.72	-188.18	9,977.48	0.00	0.00	0.00
19,300.00	89.77	179.82	9,759.60	-10,075.72	-187.87	10,077.46	0.00	0.00	0.00
19,400.00	89.77	179.82	9,759.99	-10,175.72	-187.56	10,177.44	0.00	0.00	0.00
19,500.00	89.77	179.82	9,760.39	-10,275.72	-187.25	10,277.42	0.00	0.00	0.00
19,600.00	89.77	179.82	9,760.78	-10,375.72	-186.95	10,377.40	0.00	0.00	0.00
19,700.00	89.77	179.82	9,761.18	-10,475.71	-186.64	10,477.38	0.00	0.00	0.00
19,800.00	89.77	179.82	9,761.58	-10,575.71	-186.33	10,577.35	0.00	0.00	0.00
19,900.00	89.77	179.82	9,761.97	-10,675.71	-186.02	10,677.33	0.00	0.00	0.00
19,907.29	89.77	179.82	9,762.00	-10,683.00	-186.00	10,684.62	0.00	0.00	0.00

TD at 19907.29



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 17 20 FED 001
Well: 2H
Wellbore: OH
Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MPT - HH SO 17 20 F - plan hits target center - Point	0.00	0.00	9,743.00	-5,633.00	-202.00	376,479.00	536,656.00	32° 2' 6.00051 N 04° 12' 54.14841 W	
LTP - HH SO 17 20 F - plan misses target center by 0.15usft at 19857.29usft MD (9761.80 TVD, -10633.00 N, -186.15 E) - Point	0.00	0.00	9,761.80	-10,633.00	-186.00	371,479.00	536,672.00	32° 1' 16.51698 N 04° 12' 54.02615 W	
BHL - HH SO 17 20 F - plan hits target center - Point	0.00	0.00	9,762.00	-10,683.00	-186.00	371,429.00	536,672.00	32° 1' 16.02214 N 04° 12' 54.02678 W	
FTP - HH SO 17 20 F - plan misses target center by 101.42usft at 9900.00usft MD (9763.40 TVD, -690.94 N, -274.79 E) - Point	0.00	0.00	9,848.00	-635.00	-275.00	381,477.00	536,583.00	32° 2' 55.46476 N 04° 12' 54.93300 W	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,800.00	1,800.00	0.00	0.00	KOP1, Begin 2.00°/100' Build
2,200.00	2,198.70	-22.96	-15.82	Hold 8.00° Inc at 214.56° Azm
5,333.09	5,301.30	-382.04	-263.18	Begin 2.00°/100' Drop
5,733.09	5,700.00	-405.00	-279.00	Begin Vertical Hold
9,300.59	9,267.50	-405.00	-279.00	KOP2, Begin 10.00°/100' Build
10,212.60	9,840.33	-989.90	-270.39	LP, Hold 91.20° Inc at 179.16° Azm
14,857.22	9,743.00	-5,633.00	-202.00	Begin 2.00°/100' Drop & Turn
14,936.01	9,742.33	-5,711.78	-201.30	Hold 89.77° Inc at 179.82° Azm
19,907.29	9,762.00	-10,683.00	-186.00	TD at 19907.29



Chevron

Eddy County, NM (NAD27 NME)

HH SO 17 20 FED 001

2H

OH

Plan 1 12-21-17

Anticollision Report

21 December, 2017



Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Reference	Plan 1 12-21-17
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 10,000.00 u
Warning Levels Evaluated at:	3.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program Date 12/20/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	19,907.29	Plan 1 12-21-17 (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
HH SO 17 20 FED 001						
1H - OH - Plan 1 12-21-17	1,800.00	1,800.00	25.00	6.33	1,338 Level 3, CC	
1H - OH - Plan 1 12-21-17	1,900.00	1,900.30	25.82	8.12	1,311 Level 3, ES, SF	
3H - OH - Plan 1 12-21-17	1,936.14	1,936.31	24.59	4.64	1,227 Level 2, CC	
3H - OH - Plan 1 12-21-17	2,000.00	1,999.53	25.16	4.47	1,218 Level 2, ES, SF	
4H - OH - Plan 1 12-21-17	1,766.33	1,767.33	50.00	31.69	2,730 CC	
4H - OH - Plan 1 12-21-17	2,000.00	1,997.58	51.11	30.47	2,476 ES	
4H - OH - Plan 1 12-21-17	19,907.29	19,894.16	643.53	149.38	1,379 Level 3, SF	
5H - OH - Plan 1 12-21-17	2,356.26	2,349.72	60.31	36.19	2,500 CC	
5H - OH - Plan 1 12-21-17	2,400.00	2,392.56	60.71	36.15	2,472 ES	
5H - OH - Plan 1 12-21-17	19,907.29	19,894.98	622.61	115.38	1,283 Level 3, SF	
6H - OH - Plan 1 12-21-17	2,436.55	2,429.05	71.97	46.99	2,881 CC, ES	
6H - OH - Plan 1 12-21-17	2,500.00	2,490.60	73.12	47.49	2,854 SF	
HH SO 17 20 FED 002						
3H - OH - Plan 1 12-20-17	14,916.40	14,995.07	1,694.53	1,438.90	6,629 CC	
3H - OH - Plan 1 12-20-17	19,907.29	19,985.69	1,710.07	1,249.44	3,712 ES, SF	
4H - OH - Plan 1 12-20-17	14,910.29	14,780.82	1,276.73	1,023.65	5,045 CC	
4H - OH - Plan 1 12-20-17	19,907.29	19,777.53	1,302.56	846.78	2,858 ES, SF	
5H - OH - Plan 1 12-20-17	1,800.00	1,792.60	1,895.99	1,877.36	101,783 CC	
5H - OH - Plan 1 12-20-17	19,907.29	19,665.95	2,140.54	1,682.28	4,671 ES, SF	
HH SO 8 5 Fed 003						
2H - OH - Plan 1 06-16-17	4,544.20	4,561.45	571.43	522.01	11,564 CC	
2H - OH - Plan 1 06-16-17	8,925.38	8,958.10	588.17	492.51	6,149 ES	
2H - OH - Plan 1 06-16-17	9,000.00	9,009.23	590.47	494.11	6,128 SF	
3H - OH - Plan 1 06-16-17	3,782.90	3,803.18	796.45	755.35	19,376 CC	
3H - OH - Plan 1 06-16-17	9,521.19	9,539.72	840.13	738.46	8,264 ES	
3H - OH - Plan 1 06-16-17	9,600.00	9,567.81	843.26	740.96	8,243 SF	
5H - OH - Plan 1 06-16-17	9,683.07	9,655.80	419.63	316.64	4,075 CC, ES	
5H - OH - Plan 1 06-16-17	9,700.00	9,663.78	419.89	316.73	4,070 SF	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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 P2						
14HD - OH / Job #61221 - Surveys (Patterson 815)	9,882.01	9,762.72	449.45	347.83	4.423	CC, ES
14HD - OH / Job #61221 - Surveys (Patterson 815)	9,900.00	9,771.99	449.71	347.91	4.418	SF
14HD - ST01 / Job #61221 - Surveys (Patterson 815)	9,744.23	9,706.76	427.65	330.43	4.399	CC, ES, SF
22HA - OH / Job #61217 - Surveys (Patterson 815)	8,984.24	8,998.99	338.72	246.70	3.681	CC, ES
22HA - OH / Job #61217 - Surveys (Patterson 815)	9,000.00	9,007.00	338.96	246.81	3.678	SF
5HC - OH / Job #61218 - Surveys (Patterson 815)	9,477.19	9,506.87	823.64	726.12	8.446	CC, ES
5HC - OH / Job #61218 - Surveys (Patterson 815)	9,500.00	9,510.53	823.98	726.33	8.438	SF
6HC - OH / Job #61219 - Surveys (Patterson 815)	9,524.07	9,601.91	27.00	-71.10	0.275	Level 1, CC, ES, SF

Offset Design HH SO 17 20 FED 001 - 1H - OH - Plan 1 12-21-17

Survey Program: 0-MWD+HDGM

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Survey Program: U-MWD+HDM				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 +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.00	25.00						
100.00	100.00	100.00	100.00	0.19	0.19	0.00	25.00	0.00	25.00	24.61	0.39	64.574			
200.00	200.00	200.00	200.00	0.73	0.73	0.00	25.00	0.00	25.00	23.54	1.46	17.093			
300.00	300.00	300.00	300.00	1.27	1.27	0.00	25.00	0.00	25.00	22.46	2.54	9.850			
400.00	400.00	400.00	400.00	1.81	1.81	0.00	25.00	0.00	25.00	21.39	3.61	6.919			
500.00	500.00	500.00	500.00	2.34	2.34	0.00	25.00	0.00	25.00	20.31	4.69	5.332			
600.00	600.00	600.00	600.00	2.88	2.88	0.00	25.00	0.00	25.00	19.24	5.76	4.337			
700.00	700.00	700.00	700.00	3.42	3.42	0.00	25.00	0.00	25.00	18.16	6.84	3.655			
800.00	800.00	800.00	800.00	3.96	3.96	0.00	25.00	0.00	25.00	17.08	7.92	3.159			
900.00	900.00	900.00	900.00	4.50	4.50	0.00	25.00	0.00	25.00	16.01	8.99	2.781			
1,000.00	1,000.00	1,000.00	1,000.00	5.03	5.03	0.00	25.00	0.00	25.00	14.93	10.07	2.484			
1,100.00	1,100.00	1,100.00	1,100.00	5.57	5.57	0.00	25.00	0.00	25.00	13.86	11.14	2.244			
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	0.00	25.00	0.00	25.00	12.78	12.22	2.046			
1,300.00	1,300.00	1,300.00	1,300.00	6.65	6.65	0.00	25.00	0.00	25.00	11.71	13.29	1.881			
1,400.00	1,400.00	1,400.00	1,400.00	7.18	7.18	0.00	25.00	0.00	25.00	10.63	14.37	1.740			
1,500.00	1,500.00	1,500.00	1,500.00	7.72	7.72	0.00	25.00	0.00	25.00	9.56	15.44	1.619			
1,600.00	1,600.00	1,600.00	1,600.00	8.26	8.26	0.00	25.00	0.00	25.00	8.48	16.52	1.513			
1,700.00	1,700.00	1,700.00	1,700.00	8.80	8.80	0.00	25.00	0.00	25.00	7.41	17.59	1.421 Level 3			
1,800.00	1,800.00	1,800.00	1,800.00	9.33	9.33	0.00	25.00	0.00	25.00	6.33	18.67	1.339 Level 3, CC			
1,900.00	1,899.98	1,900.30	1,900.28	9.85	9.86	143.99	24.37	-1.64	25.82	6.12	19.70	1.311 Level 3, ES, SF			
2,000.00	1,999.84	2,000.54	2,000.38	10.34	10.36	140.17	22.49	-6.55	28.36	7.69	20.68	1.372 Level 3			
2,100.00	2,099.45	2,100.65	2,100.09	10.84	10.88	135.15	19.37	-14.72	32.82	11.16	21.66	1.515			
2,200.00	2,198.70	2,200.56	2,199.25	11.34	11.40	130.08	15.01	-26.11	39.35	16.69	22.66	1.736			
2,300.00	2,297.73	2,300.23	2,297.70	11.86	11.93	124.01	9.44	-40.69	47.03	23.31	23.72	1.983			
2,400.00	2,396.76	2,399.50	2,395.13	12.38	12.47	116.14	2.67	-58.37	55.47	30.66	24.80	2.236			
2,500.00	2,495.78	2,498.11	2,491.22	12.92	13.03	107.54	-5.24	-79.06	65.58	39.67	25.90	2.531			
2,600.00	2,594.81	2,595.86	2,585.67	13.46	13.61	99.08	-14.24	-102.59	78.15	51.14	27.01	2.894			
2,700.00	2,693.84	2,692.53	2,678.16	14.00	14.21	91.35	-24.27	-128.81	93.74	65.63	28.11	3.335			
2,800.00	2,792.86	2,787.92	2,768.46	14.55	14.83	84.61	-35.25	-157.53	112.63	83.43	29.20	3.857			
2,900.00	2,891.89	2,882.92	2,857.38	15.11	15.49	78.90	-47.19	-188.74	134.79	104.51	30.28	4.451			
3,000.00	2,990.92	2,979.48	2,947.53	15.67	16.19	74.57	-59.55	-221.06	158.45	127.07	31.38	5.049			
3,100.00	3,089.94	3,076.04	3,037.68	16.23	16.91	71.36	-71.91	-253.38	182.74	150.25	32.48	5.625			
3,200.00	3,188.97	3,172.60	3,127.82	16.80	17.66	68.91	-84.28	-285.70	207.45	173.85	33.60	6.174			
3,300.00	3,288.00	3,269.16	3,217.97	17.37	18.42	66.97	-96.64	-318.02	232.44	197.72	34.72	6.695			
3,400.00	3,387.02	3,365.72	3,308.12	17.94	19.19	65.42	-109.00	-350.34	257.63	221.78	35.85	7.186			

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 1H - OH - Plan 1 12-21-17													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)		+N/-S (usft)	+E/-W (usft)					
3,500.00	3,486.05	3,462.28	3,398.26	18.52	19.98	64.14	-121.36	-382.66	282.97	245.98	36.99	7.651	
3,600.00	3,585.08	3,558.84	3,488.41	19.10	20.78	63.07	-133.72	-414.98	308.42	270.29	38.13	8.088	
3,700.00	3,684.10	3,655.40	3,578.56	19.68	21.59	62.16	-146.09	-447.30	333.95	294.67	39.28	8.502	
3,800.00	3,783.13	3,751.96	3,668.70	20.26	22.42	61.38	-158.45	-479.62	359.55	319.12	40.44	8.892	
3,900.00	3,882.16	3,848.52	3,758.85	20.84	23.25	60.71	-170.81	-511.94	385.21	343.61	41.60	9.260	
4,000.00	3,981.18	3,945.08	3,848.99	21.43	24.08	60.12	-183.17	-544.26	410.91	368.15	42.77	9.608	
4,100.00	4,080.21	4,041.64	3,939.14	22.02	24.93	59.59	-195.53	-576.58	436.65	392.71	43.94	9.938	
4,200.00	4,179.24	4,138.20	4,029.29	22.60	25.78	59.13	-207.89	-608.90	462.41	417.30	45.11	10.250	
4,300.00	4,278.26	4,234.76	4,119.43	23.19	26.63	58.72	-220.26	-641.22	488.20	441.91	46.29	10.546	
4,400.00	4,377.29	4,331.32	4,209.58	23.79	27.50	58.34	-232.62	-673.54	514.02	466.54	47.47	10.827	
4,500.00	4,476.32	4,427.88	4,299.73	24.38	28.36	58.01	-244.98	-705.86	539.85	491.19	48.66	11.094	
4,600.00	4,575.35	4,524.44	4,389.87	24.97	29.23	57.70	-257.34	-738.18	565.70	515.85	49.85	11.348	
4,700.00	4,674.37	4,621.00	4,480.02	25.56	30.11	57.42	-269.70	-770.50	591.56	540.52	51.04	11.590	
4,800.00	4,773.40	4,717.56	4,570.17	26.16	30.98	57.16	-282.07	-802.82	617.43	565.20	52.23	11.820	
4,900.00	4,872.43	4,814.12	4,660.31	26.76	31.87	56.93	-294.43	-835.14	643.31	589.88	53.43	12.040	
5,000.00	4,971.45	4,910.68	4,750.46	27.35	32.75	56.71	-306.79	-867.46	669.21	614.58	54.63	12.250	
5,100.00	5,070.48	5,007.23	4,840.61	27.95	33.64	56.51	-319.15	-899.78	695.11	639.28	55.83	12.450	
5,200.00	5,169.51	5,103.79	4,930.75	28.55	34.52	56.32	-331.51	-932.10	721.02	663.98	57.03	12.642	
5,300.00	5,268.53	5,222.30	5,041.89	29.15	35.59	56.15	-346.20	-970.50	745.92	687.54	58.38	12.777	
5,400.00	5,367.66	5,351.55	5,164.89	29.74	36.68	56.32	-360.38	-1,007.57	767.38	707.62	59.76	12.842	
5,500.00	5,467.17	5,482.59	5,291.28	30.31	37.70	56.46	-372.72	-1,039.83	786.52	725.46	61.06	12.881	
5,600.00	5,566.96	5,615.24	5,420.70	30.86	38.64	56.46	-383.09	-1,066.95	803.37	741.08	62.29	12.898	
5,700.00	5,666.91	5,749.33	5,552.75	31.39	39.49	56.31	-391.39	-1,088.65	817.88	754.45	63.43	12.894	
5,800.00	5,766.91	5,884.79	5,687.11	31.87	40.27	-89.48	-397.53	-1,104.69	829.57	764.89	64.68	12.826	
5,900.00	5,866.91	6,021.57	5,823.43	32.36	40.96	-89.75	-401.41	-1,114.85	836.98	771.15	65.84	12.713	
6,000.00	5,966.91	6,159.07	5,960.85	32.84	41.57	-89.86	-402.97	-1,118.92	839.94	772.96	66.98	12.540	
6,100.00	6,066.91	6,265.13	6,066.91	33.33	41.99	-89.86	-403.00	-1,119.00	840.00	772.04	67.96	12.360	
6,200.00	6,166.91	6,365.13	6,166.91	33.82	42.39	-89.86	-403.00	-1,119.00	840.00	771.09	68.91	12.190	
6,300.00	6,266.91	6,465.13	6,266.91	34.31	42.80	-89.86	-403.00	-1,119.00	840.00	770.14	69.87	12.023	
6,400.00	6,366.91	6,565.13	6,366.91	34.80	43.20	-89.86	-403.00	-1,119.00	840.00	769.18	70.82	11.860	
6,500.00	6,466.91	6,665.13	6,466.91	35.29	43.61	-89.86	-403.00	-1,119.00	840.00	768.22	71.79	11.702	
6,600.00	6,566.91	6,765.13	6,566.91	35.78	44.02	-89.86	-403.00	-1,119.00	840.00	767.25	72.75	11.546	
6,700.00	6,666.91	6,865.13	6,666.91	36.28	44.43	-89.86	-403.00	-1,119.00	840.00	766.28	73.72	11.395	
6,800.00	6,766.91	6,965.13	6,766.91	36.78	44.85	-89.86	-403.00	-1,119.00	840.00	765.31	74.69	11.247	
6,900.00	6,866.91	7,065.13	6,866.91	37.27	45.27	-89.86	-403.00	-1,119.00	840.00	764.34	75.66	11.102	
7,000.00	6,966.91	7,165.13	6,966.91	37.77	45.69	-89.86	-403.00	-1,119.00	840.00	763.36	76.64	10.961	
7,100.00	7,066.91	7,265.13	7,066.91	38.27	46.11	-89.86	-403.00	-1,119.00	840.00	762.39	77.62	10.823	
7,200.00	7,166.91	7,365.13	7,166.91	38.77	46.54	-89.86	-403.00	-1,119.00	840.00	761.41	78.60	10.687	
7,300.00	7,266.91	7,465.13	7,266.91	39.27	46.97	-89.86	-403.00	-1,119.00	840.00	760.42	79.58	10.555	
7,400.00	7,366.91	7,565.13	7,366.91	39.78	47.40	-89.86	-403.00	-1,119.00	840.00	759.44	80.57	10.426	
7,500.00	7,466.91	7,665.13	7,466.91	40.28	47.83	-89.86	-403.00	-1,119.00	840.00	758.45	81.55	10.300	
7,600.00	7,566.91	7,765.13	7,566.91	40.78	48.27	-89.86	-403.00	-1,119.00	840.00	757.46	82.55	10.176	
7,700.00	7,666.91	7,865.13	7,666.91	41.29	48.71	-89.86	-403.00	-1,119.00	840.00	756.46	83.54	10.055	
7,800.00	7,766.91	7,965.13	7,766.91	41.79	49.14	-89.86	-403.00	-1,119.00	840.00	755.47	84.53	9.937	
7,900.00	7,866.91	8,065.13	7,866.91	42.30	49.59	-89.86	-403.00	-1,119.00	840.00	754.47	85.53	9.821	
8,000.00	7,966.91	8,165.13	7,966.91	42.81	50.03	-89.86	-403.00	-1,119.00	840.00	753.48	86.53	9.708	
8,100.00	8,066.91	8,265.13	8,066.91	43.32	50.47	-89.86	-403.00	-1,119.00	840.00	752.48	87.53	9.597	
8,200.00	8,166.91	8,365.13	8,166.91	43.83	50.92	-89.86	-403.00	-1,119.00	840.00	751.47	88.53	9.489	
8,300.00	8,266.91	8,465.13	8,266.91	44.34	51.37	-89.86	-403.00	-1,119.00	840.00	750.47	89.53	9.382	
8,400.00	8,366.91	8,565.13	8,366.91	44.85	51.82	-89.86	-403.00	-1,119.00	840.00	749.47	90.54	9.278	
8,500.00	8,466.91	8,665.13	8,466.91	45.36	52.27	-89.86	-403.00	-1,119.00	840.00	748.46	91.54	9.176	
8,600.00	8,566.91	8,765.13	8,566.91	45.87	52.72	-89.86	-403.00	-1,119.00	840.00	747.45	92.55	9.076	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 1H - OH - Plan 1 12-21-17													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)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centro +N/-S (usft)	Offset Wellbore Centro +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,700.00	8,666.91	8,665.13	8,666.91	46.38	53.18	-89.86	-89.86	-403.00	-1,119.00	840.00	746.44	93.56	8.978	
8,800.00	8,766.91	8,665.13	8,766.91	46.89	53.63	-89.86	-89.86	-403.00	-1,119.00	840.00	745.43	94.57	8.882	
8,900.00	8,866.91	9,065.13	8,866.91	47.41	54.09	-89.86	-89.86	-403.00	-1,119.00	840.00	744.42	95.59	8.788	
9,000.00	8,966.91	9,165.13	8,966.91	47.92	54.55	-89.86	-89.86	-403.00	-1,119.00	840.00	743.40	96.60	8.696	
9,100.00	9,066.91	9,265.13	9,066.91	48.44	55.01	-89.86	-89.86	-403.00	-1,119.00	840.00	742.39	97.61	8.605	
9,200.00	9,166.91	9,365.13	9,166.91	48.95	55.47	-89.86	-89.86	-403.00	-1,119.00	840.00	741.37	98.63	8.517	
9,300.00	9,266.91	9,465.13	9,266.91	49.47	55.94	-89.86	-89.86	-403.00	-1,119.00	840.00	740.35	99.65	8.430	
9,400.00	9,366.91	9,566.66	9,366.91	50.00	56.41	91.39	91.39	-405.58	-1,118.96	840.13	739.51	100.62	8.349	
9,500.00	9,462.91	9,670.79	9,470.56	50.57	56.91	91.90	91.90	-424.80	-1,118.68	840.35	738.61	101.74	8.260	
9,600.00	9,553.47	9,776.35	9,568.88	51.18	57.43	92.36	92.36	-462.81	-1,118.12	840.59	737.69	102.90	8.169	
9,700.00	9,635.34	9,883.19	9,659.60	51.81	57.96	92.74	92.74	-518.95	-1,117.29	840.84	736.74	104.10	8.077	
9,800.00	9,706.03	9,991.10	9,739.04	52.48	58.49	93.03	93.03	-591.73	-1,116.22	841.06	735.71	105.35	7.984	
9,900.00	9,763.40	10,099.79	9,803.87	53.18	59.02	93.22	93.22	-678.76	-1,114.94	841.21	734.56	106.65	7.888	
10,000.00	9,805.70	10,208.95	9,851.28	53.92	59.57	93.31	93.31	-776.89	-1,113.49	841.29	733.27	108.02	7.788	
10,100.00	9,831.65	10,318.21	9,879.26	54.69	60.14	93.29	93.29	-882.32	-1,111.94	841.27	731.81	109.46	7.686	
10,200.00	9,840.46	10,426.78	9,886.79	55.48	60.77	93.16	93.16	-990.46	-1,110.35	841.16	730.21	110.95	7.581	
10,233.40	9,840.37	10,460.18	9,886.23	55.76	60.97	93.13	93.13	-1,023.85	-1,109.86	841.13	729.65	111.48	7.545	
10,300.00	9,838.50	10,526.78	9,885.10	56.31	61.41	93.18	93.18	-1,090.43	-1,108.88	841.17	728.64	112.54	7.475	
10,400.00	9,836.40	10,626.78	9,883.40	57.22	62.12	93.20	93.20	-1,190.41	-1,107.40	841.20	726.93	114.27	7.361	
10,500.00	9,834.31	10,726.78	9,881.70	58.19	62.90	93.23	93.23	-1,290.38	-1,105.93	841.22	725.08	116.14	7.243	
10,600.00	9,832.21	10,826.78	9,880.00	59.22	63.75	93.26	93.26	-1,390.36	-1,104.46	841.24	723.11	118.13	7.121	
10,700.00	9,830.12	10,926.78	9,878.31	60.31	64.66	93.28	93.28	-1,490.33	-1,102.99	841.26	721.01	120.25	6.996	
10,800.00	9,828.02	11,026.78	9,876.61	61.46	65.64	93.31	93.31	-1,590.30	-1,101.52	841.29	718.81	122.48	6.869	
10,900.00	9,825.93	11,126.78	9,874.91	62.66	66.69	93.34	93.34	-1,690.28	-1,100.04	841.31	716.49	124.82	6.740	
11,000.00	9,823.83	11,226.78	9,873.22	63.91	67.78	93.37	93.37	-1,790.25	-1,098.57	841.33	714.07	127.27	6.611	
11,100.00	9,821.74	11,326.78	9,871.52	65.21	68.94	93.39	93.39	-1,890.23	-1,097.10	841.36	711.55	129.81	6.482	
11,200.00	9,819.64	11,426.78	9,869.82	66.55	70.14	93.42	93.42	-1,990.20	-1,095.63	841.38	708.94	132.44	6.353	
11,300.00	9,817.54	11,526.77	9,868.12	67.93	71.39	93.45	93.45	-2,090.17	-1,094.16	841.41	706.25	135.16	6.225	
11,400.00	9,815.45	11,626.77	9,866.43	69.36	72.69	93.47	93.47	-2,190.15	-1,092.68	841.43	703.48	137.95	6.099	
11,500.00	9,813.35	11,726.77	9,864.73	70.82	74.03	93.50	93.50	-2,290.12	-1,091.21	841.46	700.63	140.83	5.975	
11,600.00	9,811.26	11,826.77	9,863.03	72.32	75.42	93.53	93.53	-2,390.10	-1,089.74	841.48	697.70	143.78	5.853	
11,700.00	9,809.16	11,926.77	9,861.34	73.85	76.83	93.56	93.56	-2,490.07	-1,088.27	841.50	694.72	146.79	5.733	
11,800.00	9,807.07	12,026.77	9,859.64	75.41	78.29	93.58	93.58	-2,590.04	-1,086.79	841.53	691.66	149.87	5.615	
11,900.00	9,804.97	12,126.77	9,857.94	77.00	79.78	93.61	93.61	-2,690.02	-1,085.32	841.56	688.55	153.00	5.500	
12,000.00	9,802.88	12,226.77	9,856.25	78.61	81.30	93.64	93.64	-2,789.99	-1,083.85	841.58	685.39	156.19	5.388	
12,100.00	9,800.78	12,326.77	9,854.55	80.25	82.85	93.66	93.66	-2,889.97	-1,082.38	841.61	682.17	159.44	5.279	
12,200.00	9,798.68	12,426.77	9,852.85	81.92	84.42	93.69	93.69	-2,989.94	-1,080.91	841.63	678.90	162.73	5.172	
12,300.00	9,796.59	12,526.77	9,851.15	83.61	86.03	93.72	93.72	-3,089.91	-1,079.43	841.66	675.59	166.07	5.068	
12,400.00	9,794.49	12,626.77	9,849.46	85.32	87.66	93.74	93.74	-3,189.89	-1,077.96	841.68	672.23	169.45	4.967	
12,500.00	9,792.40	12,726.77	9,847.76	87.05	89.31	93.77	93.77	-3,289.86	-1,076.49	841.71	668.83	172.88	4.869	
12,600.00	9,790.30	12,826.76	9,846.06	88.80	90.98	93.80	93.80	-3,389.84	-1,075.02	841.74	665.40	176.34	4.773	
12,700.00	9,788.21	12,926.76	9,844.37	90.56	92.68	93.83	93.83	-3,489.81	-1,073.54	841.76	661.93	179.84	4.681	
12,800.00	9,786.11	13,026.76	9,842.67	92.35	94.39	93.85	93.85	-3,589.78	-1,072.07	841.79	658.42	183.37	4.591	
12,900.00	9,784.02	13,126.76	9,840.97	94.15	96.12	93.88	93.88	-3,689.76	-1,070.60	841.82	654.88	186.93	4.503	
13,000.00	9,781.92	13,226.76	9,839.27	95.96	97.87	93.91	93.91	-3,789.73	-1,069.13	841.85	651.32	190.53	4.418	
13,100.00	9,779.82	13,326.76	9,837.58	97.79	99.64	93.93	93.93	-3,889.71	-1,067.66	841.87	647.72	194.15	4.336	
13,200.00	9,777.73	13,426.76	9,835.88	99.63	101.42	93.96	93.96	-3,989.68	-1,066.18	841.90	644.09	197.81	4.256	
13,300.00	9,775.63	13,526.76	9,834.18	101.48	103.22	93.99	93.99	-4,089.65	-1,064.71	841.93	640.45	201.48	4.179	
13,400.00	9,773.54	13,626.76	9,832.49	103.35	105.03	94.02	94.02	-4,189.63	-1,063.24	841.96	636.77	205.18	4.103	
13,500.00	9,771.44	13,726.76	9,830.79	105.22	106.85	94.04	94.04	-4,289.60	-1,061.77	841.99	633.08	208.91	4.030	
13,600.00	9,769.35	13,826.76	9,829.09	107.11	108.69	94.07	94.07	-4,389.58	-1,060.30	842.01	629.36	212.65	3.960	
13,700.00	9,767.25	13,926.76	9,827.39	109.01	110.53	94.10	94.10	-4,489.55	-1,058.82	842.04	625.62	216.42	3.891	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 1H - OH - Plan 1 12-21-17														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		
13,800.00	9,765.16	14,026.76	9,825.70	110.92	112.39	94.12	-4,589.52	-1,057.35	842.07	621.86	220.21	3.824		
13,900.00	9,763.06	14,126.75	9,824.00	112.83	114.26	94.15	-4,689.50	-1,055.88	842.10	618.09	224.01	3.759		
14,000.00	9,760.96	14,226.75	9,822.30	114.76	116.15	94.18	-4,789.47	-1,054.41	842.13	614.30	227.83	3.696		
14,100.00	9,758.87	14,326.75	9,820.61	116.69	118.04	94.20	-4,889.45	-1,052.93	842.16	610.49	231.67	3.635		
14,200.00	9,756.77	14,426.75	9,818.91	118.63	119.93	94.23	-4,989.42	-1,051.46	842.19	606.66	235.53	3.576		
14,300.00	9,754.68	14,526.75	9,817.21	120.58	121.84	94.26	-5,089.39	-1,049.99	842.22	602.82	239.40	3.518		
14,400.00	9,752.58	14,626.75	9,815.51	122.54	123.76	94.29	-5,189.37	-1,048.52	842.25	598.97	243.28	3.462		
14,500.00	9,750.49	14,726.75	9,813.82	124.50	125.68	94.31	-5,289.34	-1,047.05	842.28	595.10	247.18	3.408		
14,600.00	9,748.39	14,826.75	9,812.12	126.47	127.62	94.34	-5,389.32	-1,045.57	842.31	591.22	251.09	3.355		
14,700.00	9,746.29	14,926.75	9,810.42	128.44	129.56	94.37	-5,489.29	-1,044.10	842.34	587.33	255.01	3.303		
14,800.00	9,744.20	15,026.75	9,808.73	130.42	131.50	94.39	-5,589.26	-1,042.63	842.37	583.43	258.94	3.253		
14,900.00	9,742.39	15,119.22	9,807.54	132.41	133.31	94.43	-5,681.72	-1,041.46	842.50	579.60	262.90	3.205		
15,000.00	9,742.58	15,215.45	9,808.05	134.39	135.19	94.46	-5,777.95	-1,041.12	842.56	575.66	266.91	3.157		
15,100.00	9,742.98	15,315.45	9,808.68	136.38	137.15	94.47	-5,877.95	-1,040.81	842.58	571.72	270.87	3.111		
15,200.00	9,743.38	15,415.45	9,809.32	138.38	139.12	94.49	-5,977.94	-1,040.50	842.60	567.76	274.84	3.066		
15,300.00	9,743.77	15,515.45	9,809.95	140.38	141.10	94.50	-6,077.94	-1,040.19	842.62	563.80	278.82	3.022		
15,400.00	9,744.17	15,615.45	9,810.58	142.39	143.08	94.52	-6,177.94	-1,039.88	842.64	559.83	282.81	2.980		
15,500.00	9,744.56	15,715.45	9,811.21	144.40	145.06	94.54	-6,277.94	-1,039.57	842.65	555.85	286.81	2.938		
15,600.00	9,744.96	15,815.45	9,811.84	146.41	147.05	94.55	-6,377.93	-1,039.27	842.67	551.86	290.81	2.898		
15,700.00	9,745.35	15,915.45	9,812.47	148.43	149.05	94.57	-6,477.93	-1,038.96	842.69	547.86	294.83	2.858		
15,800.00	9,745.75	16,015.45	9,813.10	150.45	151.05	94.58	-6,577.93	-1,038.65	842.71	543.86	298.85	2.820		
15,900.00	9,746.14	16,115.45	9,813.73	152.48	153.05	94.60	-6,677.92	-1,038.34	842.73	539.85	302.88	2.782		
16,000.00	9,746.54	16,215.45	9,814.36	154.51	155.06	94.62	-6,777.92	-1,038.03	842.75	535.83	306.92	2.746		
16,100.00	9,746.94	16,315.45	9,814.99	156.54	157.07	94.63	-6,877.92	-1,037.73	842.76	531.80	310.96	2.710		
16,200.00	9,747.33	16,415.45	9,815.63	158.58	159.09	94.65	-6,977.92	-1,037.42	842.78	527.77	315.01	2.675		
16,300.00	9,747.73	16,515.45	9,816.26	160.61	161.11	94.66	-7,077.91	-1,037.11	842.80	523.73	319.07	2.641		
16,400.00	9,748.12	16,615.45	9,816.89	162.66	163.13	94.68	-7,177.91	-1,036.80	842.82	519.69	323.13	2.608		
16,500.00	9,748.52	16,715.45	9,817.52	164.70	165.16	94.70	-7,277.91	-1,036.49	842.84	515.64	327.20	2.576		
16,600.00	9,748.91	16,815.45	9,818.15	166.75	167.18	94.71	-7,377.91	-1,036.18	842.86	511.58	331.27	2.544		
16,700.00	9,749.31	16,915.45	9,818.78	168.80	169.22	94.73	-7,477.90	-1,035.88	842.88	507.52	335.35	2.513		
16,800.00	9,749.71	17,015.45	9,819.41	170.85	171.25	94.74	-7,577.90	-1,035.57	842.90	503.46	339.44	2.483		
16,900.00	9,750.10	17,115.45	9,820.04	172.91	173.29	94.76	-7,677.90	-1,035.26	842.91	499.39	343.53	2.454		
17,000.00	9,750.50	17,215.45	9,820.67	174.97	175.33	94.78	-7,777.89	-1,034.95	842.93	495.31	347.62	2.425		
17,100.00	9,750.89	17,315.45	9,821.30	177.03	177.38	94.79	-7,877.89	-1,034.64	842.95	491.23	351.72	2.397		
17,200.00	9,751.29	17,415.45	9,821.94	179.09	179.42	94.81	-7,977.89	-1,034.34	842.97	487.15	355.83	2.369		
17,300.00	9,751.68	17,515.45	9,822.57	181.15	181.47	94.82	-8,077.89	-1,034.03	842.99	483.06	359.93	2.342		
17,400.00	9,752.08	17,615.45	9,823.20	183.22	183.53	94.84	-8,177.88	-1,033.72	843.01	478.96	364.05	2.316		
17,500.00	9,752.48	17,715.45	9,823.83	185.29	185.58	94.86	-8,277.88	-1,033.41	843.03	474.87	368.16	2.290		
17,600.00	9,752.87	17,815.44	9,824.46	187.36	187.64	94.87	-8,377.88	-1,033.10	843.05	470.77	372.28	2.265		
17,700.00	9,753.27	17,915.44	9,825.09	189.43	189.69	94.89	-8,477.88	-1,032.79	843.07	466.66	376.41	2.240		
17,800.00	9,753.66	18,015.44	9,825.72	191.51	191.76	94.90	-8,577.87	-1,032.49	843.09	462.56	380.53	2.216		
17,900.00	9,754.06	18,115.44	9,826.35	193.59	193.82	94.92	-8,677.87	-1,032.18	843.11	458.44	384.66	2.192		
18,000.00	9,754.45	18,215.44	9,826.98	195.66	195.88	94.94	-8,777.87	-1,031.87	843.13	454.33	388.80	2.169		
18,100.00	9,754.85	18,315.44	9,827.62	197.74	197.95	94.95	-8,877.86	-1,031.56	843.15	450.21	392.93	2.146		
18,200.00	9,755.25	18,415.44	9,828.25	199.82	200.02	94.97	-8,977.86	-1,031.25	843.17	446.09	397.08	2.123		
18,300.00	9,755.64	18,515.44	9,828.88	201.91	202.09	94.98	-9,077.86	-1,030.94	843.19	441.97	401.22	2.102		
18,400.00	9,756.04	18,615.44	9,829.51	203.99	204.16	95.00	-9,177.86	-1,030.64	843.21	437.84	405.37	2.080		
18,500.00	9,756.43	18,715.44	9,830.14	206.08	206.24	95.01	-9,277.85	-1,030.33	843.23	433.71	409.51	2.059		
18,600.00	9,756.83	18,815.44	9,830.77	208.17	208.31	95.03	-9,377.85	-1,030.02	843.25	429.58	413.67	2.038		
18,700.00	9,757.22	18,915.44	9,831.40	210.26	210.39	95.05	-9,477.85	-1,029.71	843.27	425.45	417.82	2.018		
18,800.00	9,757.62	19,015.44	9,832.03	212.35	212.47	95.06	-9,577.85	-1,029.40	843.29	421.31	421.98	1.998		
18,900.00	9,758.01	19,115.44	9,832.66	214.44	214.55	95.08	-9,677.84	-1,029.10	843.31	417.17	426.14	1.979		

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 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset 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							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			
19,000.00	9,758.41	19,215.44	9,833.29	216.53	216.63	95.09	-9,777.84	-1,028.79	843.33	413.03	430.30	1.960			
19,100.00	9,758.81	19,315.44	9,833.93	218.62	218.72	95.11	-9,877.84	-1,028.48	843.35	408.88	434.47	1.941			
19,200.00	9,759.20	19,415.44	9,834.56	220.72	220.80	95.13	-9,977.83	-1,028.17	843.37	404.74	438.63	1.923			
19,300.00	9,759.60	19,515.44	9,835.19	222.82	222.89	95.14	-10,077.83	-1,027.86	843.39	400.59	442.80	1.905			
19,400.00	9,759.99	19,615.44	9,835.82	224.91	224.98	95.16	-10,177.83	-1,027.55	843.41	396.44	446.97	1.887			
19,500.00	9,760.39	19,715.44	9,836.45	227.01	227.06	95.17	-10,277.83	-1,027.25	843.43	392.29	451.15	1.870			
19,600.00	9,760.78	19,815.44	9,837.08	229.11	229.15	95.19	-10,377.82	-1,026.94	843.45	388.13	455.32	1.852			
19,700.00	9,761.18	19,915.44	9,837.71	231.21	231.25	95.21	-10,477.82	-1,026.63	843.47	383.97	459.50	1.836			
19,800.00	9,761.58	20,015.44	9,838.34	233.31	233.34	95.22	-10,577.82	-1,026.32	843.49	379.82	463.68	1.819			
19,900.00	9,761.97	20,115.44	9,838.97	235.42	235.43	95.24	-10,677.82	-1,026.01	843.52	375.66	467.86	1.803			
19,907.29	9,762.00	20,119.62	9,839.00	235.57	235.52	95.24	-10,682.00	-1,026.00	843.52	375.42	468.10	1.802			

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 3H - OH - Plan 1 12-21-17														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 Toeface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	1.00	1.00	0.00	0.00	180.00	-25.00	0.00	25.00					
100.00	100.00	101.00	101.00	0.19	0.20	180.00	-25.00	0.00	25.00	24.61	0.39	63.690		
200.00	200.00	201.00	201.00	0.73	0.74	180.00	-25.00	0.00	25.00	23.53	1.47	17.031		
300.00	300.00	301.00	301.00	1.27	1.27	180.00	-25.00	0.00	25.00	22.46	2.54	9.830		
400.00	400.00	401.00	401.00	1.81	1.81	180.00	-25.00	0.00	25.00	21.38	3.62	6.908		
500.00	500.00	501.00	501.00	2.34	2.35	180.00	-25.00	0.00	25.00	20.31	4.69	5.326		
600.00	600.00	601.00	601.00	2.88	2.89	180.00	-25.00	0.00	25.00	19.23	5.77	4.333		
700.00	700.00	701.00	701.00	3.42	3.43	180.00	-25.00	0.00	25.00	18.15	6.85	3.652		
800.00	800.00	801.00	801.00	3.96	3.96	180.00	-25.00	0.00	25.00	17.08	7.92	3.156		
900.00	900.00	901.00	901.00	4.50	4.50	180.00	-25.00	0.00	25.00	16.00	9.00	2.779		
1,000.00	1,000.00	1,001.00	1,001.00	5.03	5.04	180.00	-25.00	0.00	25.00	14.93	10.07	2.482		
1,100.00	1,100.00	1,101.00	1,101.00	5.57	5.58	180.00	-25.00	0.00	25.00	13.85	11.15	2.243		
1,200.00	1,200.00	1,201.00	1,201.00	6.11	6.11	180.00	-25.00	0.00	25.00	12.78	12.22	2.045		
1,300.00	1,300.00	1,301.00	1,301.00	6.65	6.65	180.00	-25.00	0.00	25.00	11.70	13.30	1.880		
1,400.00	1,400.00	1,401.00	1,401.00	7.18	7.19	180.00	-25.00	0.00	25.00	10.63	14.37	1.739		
1,500.00	1,500.00	1,501.00	1,501.00	7.72	7.73	180.00	-25.00	0.00	25.00	9.55	15.45	1.618		
1,600.00	1,600.00	1,601.00	1,601.00	8.26	8.26	180.00	-25.00	0.00	25.00	8.48	16.52	1.513		
1,700.00	1,700.00	1,701.00	1,701.00	8.80	8.80	180.00	-25.00	0.00	25.00	7.40	17.60	1.421 Level 3		
1,766.33	1,766.33	1,767.33	1,767.33	9.15	9.16	180.00	-25.00	0.00	25.00	6.69	18.31	1.365 Level 3		
1,800.00	1,800.00	1,801.00	1,801.00	9.33	9.34	180.00	-25.00	0.00	25.00	6.33	18.67	1.339 Level 3		
1,900.00	1,899.98	1,900.45	1,900.42	9.85	9.85	-40.24	-25.99	1.46	24.68	4.98	19.70	1.253 Level 3		
1,936.14	1,936.09	1,936.31	1,936.26	10.03	10.03	-45.12	-26.82	2.68	24.59	4.54	20.05	1.227 Level 2, CC		
2,000.00	1,999.84	1,999.53	1,999.37	10.34	10.35	-57.17	-28.90	5.75	25.15	4.47	20.68	1.216 Level 2, ES, SF		
2,100.00	2,099.45	2,097.90	2,097.36	10.84	10.85	-80.26	-33.69	12.80	30.20	8.52	21.68	1.393 Level 3		
2,200.00	2,198.70	2,195.20	2,193.95	11.34	11.35	-99.06	-40.29	22.51	42.46	19.79	22.67	1.873		
2,300.00	2,297.73	2,291.37	2,288.97	11.86	11.86	-109.51	-48.62	34.78	60.97	37.32	23.65	2.578		
2,400.00	2,396.76	2,387.39	2,383.33	12.38	12.37	-114.16	-58.58	49.45	83.30	58.65	24.65	3.380		
2,500.00	2,495.78	2,484.58	2,478.74	12.92	12.91	-116.72	-69.00	64.79	106.48	80.82	25.66	4.150		
2,600.00	2,594.81	2,581.77	2,574.14	13.46	13.46	-118.37	-79.42	80.13	129.79	103.10	26.69	4.863		
2,700.00	2,693.84	2,678.96	2,669.54	14.00	14.01	-119.52	-89.84	95.48	153.18	125.45	27.73	5.524		
2,800.00	2,792.86	2,776.15	2,764.95	14.55	14.58	-120.36	-100.26	110.82	176.60	147.82	28.78	6.136		
2,900.00	2,891.89	2,873.34	2,860.35	15.11	15.15	-121.00	-110.68	126.16	200.05	170.21	29.84	6.703		
3,000.00	2,990.92	2,970.53	2,955.75	15.67	15.73	-121.51	-121.10	141.51	223.52	192.61	30.92	7.230		
3,100.00	3,089.94	3,067.72	3,051.15	16.23	16.31	-121.93	-131.52	156.85	247.01	215.01	31.99	7.720		
3,200.00	3,188.97	3,164.91	3,146.56	16.80	16.90	-122.27	-141.94	172.19	270.50	237.42	33.08	8.177		
3,300.00	3,288.00	3,262.10	3,241.96	17.37	17.50	-122.55	-152.36	187.54	294.01	259.83	34.17	8.604		
3,400.00	3,387.02	3,359.28	3,337.36	17.94	18.09	-122.80	-162.78	202.88	317.52	282.25	35.27	9.002		
3,500.00	3,486.05	3,456.47	3,432.77	18.52	18.70	-123.01	-173.20	218.22	341.03	304.66	36.37	9.376		
3,600.00	3,585.08	3,553.66	3,528.17	19.10	19.30	-123.19	-183.62	233.57	364.55	327.07	37.48	9.726		
3,700.00	3,684.10	3,650.85	3,623.57	19.68	19.91	-123.35	-194.05	248.91	388.07	349.47	38.59	10.056		
3,800.00	3,783.13	3,748.04	3,718.98	20.26	20.52	-123.49	-204.47	264.25	411.59	371.88	39.71	10.366		
3,900.00	3,882.16	3,845.23	3,814.38	20.84	21.13	-123.62	-214.89	279.60	435.11	394.29	40.83	10.658		
4,000.00	3,981.18	3,942.42	3,909.78	21.43	21.75	-123.74	-225.31	294.94	458.64	416.69	41.95	10.933		
4,100.00	4,080.21	4,039.61	4,005.18	22.02	22.37	-123.84	-235.73	310.28	482.17	439.09	43.07	11.194		
4,200.00	4,179.24	4,136.80	4,100.59	22.60	22.99	-123.93	-246.15	325.63	505.70	461.49	44.20	11.440		
4,300.00	4,278.26	4,233.99	4,195.99	23.19	23.61	-124.02	-256.57	340.97	529.23	483.89	45.33	11.674		
4,400.00	4,377.29	4,331.18	4,291.39	23.79	24.23	-124.10	-266.99	356.31	552.76	506.29	46.47	11.896		
4,500.00	4,476.32	4,428.37	4,386.80	24.38	24.86	-124.17	-277.41	371.66	576.29	528.69	47.60	12.107		
4,600.00	4,575.35	4,525.56	4,482.20	24.97	25.49	-124.23	-287.83	387.00	599.83	551.09	48.74	12.307		
4,700.00	4,674.37	4,622.75	4,577.60	25.56	26.11	-124.29	-298.25	402.34	623.36	573.48	49.88	12.497		
4,800.00	4,773.40	4,719.93	4,673.01	26.16	26.74	-124.35	-308.67	417.69	646.89	595.87	51.02	12.679		
4,900.00	4,872.43	4,817.12	4,768.41	26.76	27.37	-124.40	-319.09	433.03	670.43	618.27	52.16	12.853		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 3H - OH - Plan 1 12-21-17													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
5,000.00	4,971.45	4,914.31	4,863.81	27.35	28.01	-124.45	-329.51	448.37	693.97	640.66	53.31	13.018	
5,100.00	5,070.48	5,011.50	4,959.22	27.95	28.64	-124.50	-339.93	463.72	717.50	663.05	54.45	13.176	
5,200.00	5,169.51	5,108.69	5,054.62	28.55	29.27	-124.54	-350.35	479.06	741.04	685.44	55.60	13.328	
5,300.00	5,268.53	5,205.88	5,150.02	29.15	29.91	-124.58	-360.77	494.40	764.58	707.82	56.75	13.473	
5,400.00	5,367.66	5,303.17	5,245.52	29.74	30.54	-124.83	-371.20	509.76	787.68	729.71	57.97	13.587	
5,500.00	5,467.17	5,415.62	5,356.04	30.31	31.27	-124.96	-382.87	526.94	808.50	749.22	59.28	13.638	
5,600.00	5,566.96	5,544.53	5,483.54	30.86	32.06	-124.94	-393.49	542.58	824.21	763.58	60.63	13.594	
5,700.00	5,666.91	5,675.13	5,613.46	31.39	32.81	-124.79	-400.96	553.58	834.26	772.34	61.92	13.473	
5,800.00	5,766.91	5,806.75	5,744.85	31.87	33.51	90.01	-405.11	559.69	839.01	775.91	63.10	13.296	
5,900.00	5,866.91	5,929.83	5,867.91	32.36	34.10	90.07	-406.00	561.00	840.00	775.80	64.20	13.084	
6,000.00	5,966.91	6,029.83	5,967.91	32.84	34.57	90.07	-406.00	561.00	840.00	774.82	65.18	12.887	
6,100.00	6,066.91	6,129.83	6,067.91	33.33	35.04	90.07	-406.00	561.00	840.00	773.84	66.16	12.697	
6,200.00	6,166.91	6,229.83	6,167.91	33.82	35.52	90.07	-406.00	561.00	840.00	772.86	67.14	12.511	
6,300.00	6,266.91	6,329.83	6,267.91	34.31	35.99	90.07	-406.00	561.00	840.00	771.87	68.13	12.330	
6,400.00	6,366.91	6,429.83	6,367.91	34.80	36.47	90.07	-406.00	561.00	840.00	770.88	69.12	12.153	
6,500.00	6,466.91	6,529.83	6,467.91	35.29	36.94	90.07	-406.00	561.00	840.00	769.89	70.11	11.982	
6,600.00	6,566.91	6,629.83	6,567.91	35.78	37.42	90.07	-406.00	561.00	840.00	768.90	71.10	11.814	
6,700.00	6,666.91	6,729.83	6,667.91	36.28	37.90	90.07	-406.00	561.00	840.00	767.90	72.10	11.651	
6,800.00	6,766.91	6,829.83	6,767.91	36.78	38.39	90.07	-406.00	561.00	840.00	766.91	73.09	11.492	
6,900.00	6,866.91	6,929.83	6,867.91	37.27	38.87	90.07	-406.00	561.00	840.00	765.91	74.09	11.337	
7,000.00	6,966.91	7,029.83	6,967.91	37.77	39.35	90.07	-406.00	561.00	840.00	764.90	75.10	11.186	
7,100.00	7,066.91	7,129.83	7,067.91	38.27	39.84	90.07	-406.00	561.00	840.00	763.90	76.10	11.038	
7,200.00	7,166.91	7,229.83	7,167.91	38.77	40.33	90.07	-406.00	561.00	840.00	762.89	77.11	10.894	
7,300.00	7,266.91	7,329.83	7,267.91	39.27	40.82	90.07	-406.00	561.00	840.00	761.89	78.12	10.753	
7,400.00	7,366.91	7,429.83	7,367.91	39.78	41.31	90.07	-406.00	561.00	840.00	760.88	79.12	10.616	
7,500.00	7,466.91	7,529.83	7,467.91	40.28	41.80	90.07	-406.00	561.00	840.00	759.86	80.14	10.482	
7,600.00	7,566.91	7,629.83	7,567.91	40.78	42.29	90.07	-406.00	561.00	840.00	758.85	81.15	10.351	
7,700.00	7,666.91	7,729.83	7,667.91	41.29	42.79	90.07	-406.00	561.00	840.00	757.84	82.16	10.223	
7,800.00	7,766.91	7,829.83	7,767.91	41.79	43.28	90.07	-406.00	561.00	840.00	756.82	83.18	10.099	
7,900.00	7,866.91	7,929.83	7,867.91	42.30	43.78	90.07	-406.00	561.00	840.00	755.80	84.20	9.976	
8,000.00	7,966.91	8,029.83	7,967.91	42.81	44.27	90.07	-406.00	561.00	840.00	754.78	85.22	9.857	
8,100.00	8,066.91	8,129.83	8,067.91	43.32	44.77	90.07	-406.00	561.00	840.00	753.76	86.24	9.741	
8,200.00	8,166.91	8,229.83	8,167.91	43.83	45.27	90.07	-406.00	561.00	840.00	752.74	87.26	9.626	
8,300.00	8,266.91	8,329.83	8,267.91	44.34	45.77	90.07	-406.00	561.00	840.00	751.72	88.28	9.515	
8,400.00	8,366.91	8,429.83	8,367.91	44.85	46.27	90.07	-406.00	561.00	840.00	750.69	89.31	9.406	
8,500.00	8,466.91	8,529.83	8,467.91	45.36	46.77	90.07	-406.00	561.00	840.00	749.67	90.33	9.299	
8,600.00	8,566.91	8,629.83	8,567.91	45.87	47.27	90.07	-406.00	561.00	840.00	748.64	91.36	9.194	
8,700.00	8,666.91	8,729.83	8,667.91	46.38	47.77	90.07	-406.00	561.00	840.00	747.61	92.39	9.092	
8,800.00	8,766.91	8,829.83	8,767.91	46.89	48.28	90.07	-406.00	561.00	840.00	746.58	93.42	8.992	
8,900.00	8,866.91	8,929.83	8,867.91	47.41	48.78	90.07	-406.00	561.00	840.00	745.56	94.45	8.894	
9,000.00	8,966.91	9,029.83	8,967.91	47.92	49.29	90.07	-406.00	561.00	840.00	744.52	95.48	8.798	
9,100.00	9,066.91	9,129.83	9,067.91	48.44	49.79	90.07	-406.00	561.00	840.00	743.49	96.51	8.704	
9,200.00	9,166.91	9,229.83	9,167.91	48.95	50.30	90.07	-406.00	561.00	840.00	742.46	97.54	8.612	
9,300.00	9,266.91	9,329.83	9,267.91	49.47	50.81	90.07	-406.00	561.00	840.00	741.43	98.57	8.521	
9,400.00	9,366.41	9,429.08	9,367.16	50.00	51.31	-89.63	-406.64	561.01	839.91	740.26	99.65	8.429	
9,442.90	9,408.36	9,471.44	9,409.36	50.25	51.53	-90.00	-410.21	561.06	839.89	739.77	100.12	8.389	
9,500.00	9,462.91	9,528.44	9,465.50	50.57	51.83	-90.49	-419.91	561.20	839.93	739.16	100.77	8.335	
9,600.00	9,553.47	9,630.05	9,562.16	51.18	52.39	-91.34	-450.82	561.66	840.13	738.17	101.96	8.240	
9,700.00	9,635.34	9,734.03	9,653.83	51.81	52.99	-92.16	-499.58	562.38	840.50	737.28	103.22	8.143	
9,800.00	9,706.03	9,840.39	9,736.91	52.48	53.62	-92.92	-565.73	563.35	841.00	736.47	104.53	8.045	
9,900.00	9,763.40	9,949.04	9,807.68	53.18	54.29	-93.60	-647.94	564.56	841.57	735.66	105.91	7.946	
10,000.00	9,805.70	10,059.77	9,862.55	53.92	55.01	-94.16	-743.92	565.98	842.12	734.78	107.34	7.845	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 3H - OH - Plan 1 12-21-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HODGM												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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.00	9,831.65	10,172.24	9,898.35	54.69	55.79	-94.58	-850.34	567.54	842.60	733.75	108.84	7.741	
10,200.00	9,840.46	10,285.97	9,912.74	55.48	56.63	-94.85	-962.96	569.20	842.92	732.52	110.39	7.635	
10,300.00	9,838.50	10,388.95	9,911.80	56.31	57.43	-94.92	-1,065.92	570.72	843.00	730.99	112.01	7.526	
10,400.00	9,836.40	10,488.95	9,910.40	57.22	58.27	-94.97	-1,165.89	572.19	843.06	729.30	113.76	7.411	
10,500.00	9,834.31	10,588.95	9,909.01	58.19	59.19	-95.01	-1,265.87	573.66	843.12	727.49	115.64	7.291	
10,600.00	9,832.21	10,688.95	9,907.61	59.22	60.16	-95.06	-1,365.85	575.14	843.18	725.54	117.64	7.167	
10,700.00	9,830.12	10,788.95	9,906.21	60.31	61.20	-95.11	-1,465.83	576.61	843.25	723.48	119.77	7.041	
10,800.00	9,828.02	10,888.94	9,904.82	61.46	62.30	-95.16	-1,565.80	578.08	843.31	721.30	122.01	6.912	
10,900.00	9,825.93	10,988.94	9,903.42	62.66	63.45	-95.20	-1,665.78	579.55	843.37	719.01	124.36	6.782	
11,000.00	9,823.83	11,088.94	9,902.02	63.91	64.65	-95.25	-1,765.76	581.03	843.43	716.63	126.81	6.651	
11,100.00	9,821.74	11,188.94	9,900.63	65.21	65.90	-95.30	-1,865.73	582.50	843.50	714.14	129.36	6.521	
11,200.00	9,819.64	11,288.93	9,899.23	66.55	67.19	-95.35	-1,965.71	583.97	843.56	711.57	131.99	6.391	
11,300.00	9,817.54	11,388.93	9,897.84	67.93	68.53	-95.39	-2,065.69	585.44	843.63	708.91	134.72	6.262	
11,400.00	9,815.45	11,488.93	9,896.44	69.36	69.91	-95.44	-2,165.66	586.92	843.70	706.17	137.52	6.135	
11,500.00	9,813.35	11,588.93	9,895.04	70.82	71.33	-95.49	-2,265.64	588.39	843.76	703.36	140.40	6.010	
11,600.00	9,811.26	11,688.92	9,893.65	72.32	72.79	-95.54	-2,365.62	589.86	843.83	700.48	143.35	5.887	
11,700.00	9,809.16	11,788.92	9,892.25	73.85	74.28	-95.58	-2,465.60	591.33	843.90	697.53	146.36	5.766	
11,800.00	9,807.07	11,888.92	9,890.85	75.41	75.80	-95.63	-2,565.57	592.81	843.97	694.52	149.44	5.647	
11,900.00	9,804.97	11,988.92	9,889.46	77.00	77.35	-95.68	-2,665.55	594.28	844.03	691.45	152.58	5.532	
12,000.00	9,802.88	12,088.91	9,888.06	78.61	78.94	-95.72	-2,765.53	595.75	844.10	688.33	155.77	5.419	
12,100.00	9,800.78	12,188.91	9,886.67	80.25	80.54	-95.77	-2,865.50	597.22	844.17	685.16	159.01	5.309	
12,200.00	9,798.68	12,288.91	9,885.27	81.92	82.18	-95.82	-2,965.48	598.70	844.24	681.94	162.31	5.202	
12,300.00	9,796.59	12,388.91	9,883.87	83.61	83.83	-95.87	-3,065.46	600.17	844.32	678.67	165.64	5.097	
12,400.00	9,794.49	12,488.90	9,882.48	85.32	85.51	-95.91	-3,165.43	601.64	844.39	675.36	169.02	4.996	
12,500.00	9,792.40	12,588.90	9,881.08	87.05	87.21	-95.96	-3,265.41	603.11	844.46	672.02	172.44	4.897	
12,600.00	9,790.30	12,688.90	9,879.68	88.80	88.94	-96.01	-3,365.39	604.59	844.53	668.63	175.90	4.801	
12,700.00	9,788.21	12,788.90	9,878.29	90.56	90.68	-96.05	-3,465.36	606.06	844.61	665.21	179.39	4.708	
12,800.00	9,786.11	12,888.89	9,876.89	92.35	92.43	-96.10	-3,565.34	607.53	844.68	661.76	182.92	4.618	
12,900.00	9,784.02	12,988.89	9,875.50	94.15	94.21	-96.15	-3,665.32	609.00	844.75	658.27	186.48	4.530	
13,000.00	9,781.92	13,088.89	9,874.10	95.96	96.00	-96.20	-3,765.30	610.48	844.83	654.76	190.07	4.445	
13,100.00	9,779.82	13,188.89	9,872.70	97.79	97.80	-96.24	-3,865.27	611.95	844.91	651.22	193.68	4.362	
13,200.00	9,777.73	13,288.88	9,871.31	99.63	99.62	-96.29	-3,965.25	613.42	844.98	647.65	197.33	4.282	
13,300.00	9,775.63	13,388.88	9,869.91	101.48	101.45	-96.34	-4,065.23	614.89	845.06	644.06	200.99	4.204	
13,400.00	9,773.54	13,488.88	9,868.51	103.35	103.30	-96.38	-4,165.20	616.37	845.14	640.45	204.69	4.129	
13,500.00	9,771.44	13,588.88	9,867.12	105.22	105.16	-96.43	-4,265.18	617.84	845.21	636.82	208.40	4.056	
13,600.00	9,769.35	13,688.87	9,865.72	107.11	107.02	-96.48	-4,365.16	619.31	845.29	633.16	212.13	3.985	
13,700.00	9,767.25	13,788.87	9,864.32	109.01	108.90	-96.53	-4,465.13	620.78	845.37	629.48	215.89	3.916	
13,800.00	9,765.16	13,888.87	9,862.93	110.92	110.79	-96.57	-4,565.11	622.26	845.45	625.79	219.66	3.849	
13,900.00	9,763.06	13,988.87	9,861.53	112.83	112.69	-96.62	-4,665.09	623.73	845.53	622.08	223.45	3.784	
14,000.00	9,760.96	14,088.86	9,860.14	114.76	114.60	-96.67	-4,765.07	625.20	845.61	618.35	227.26	3.721	
14,100.00	9,758.87	14,188.86	9,858.74	116.69	116.52	-96.71	-4,865.04	626.67	845.69	614.61	231.08	3.660	
14,200.00	9,756.77	14,288.86	9,857.34	118.63	118.44	-96.76	-4,965.02	628.15	845.78	610.85	234.92	3.600	
14,300.00	9,754.68	14,388.86	9,855.95	120.58	120.38	-96.81	-5,065.00	629.62	845.86	607.08	238.78	3.542	
14,400.00	9,752.58	14,488.85	9,854.55	122.54	122.32	-96.86	-5,164.97	631.09	845.94	603.30	242.64	3.486	
14,500.00	9,750.49	14,588.85	9,853.15	124.50	124.27	-96.90	-5,264.95	632.56	846.03	599.50	246.53	3.432	
14,600.00	9,748.39	14,688.85	9,851.76	126.47	126.22	-96.95	-5,364.93	634.04	846.11	595.69	250.42	3.379	
14,700.00	9,746.29	14,788.85	9,850.36	128.44	128.19	-97.00	-5,464.90	635.51	846.20	591.87	254.32	3.327	
14,800.00	9,744.20	14,888.85	9,848.97	130.42	130.15	-97.04	-5,564.88	636.98	846.28	588.04	258.24	3.277	
14,900.00	9,742.39	14,993.73	9,847.68	132.41	132.22	-97.08	-5,664.85	638.40	846.38	584.14	262.23	3.228	
15,000.00	9,742.58	15,096.85	9,847.91	134.39	134.26	-97.08	-5,772.87	638.77	846.33	580.12	266.21	3.179	
15,100.00	9,742.98	15,196.85	9,848.19	136.38	136.23	-97.07	-5,872.87	639.08	846.32	576.15	270.17	3.133	
15,200.00	9,743.38	15,296.85	9,848.48	138.38	138.22	-97.07	-5,972.87	639.39	846.31	572.17	274.14	3.087	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 3H - OH - Plan 1 12-21-17													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	Offset	Highside Toolface (°)	Offset Wellbore Centro +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,300.00	9,743.77	15,396.85	9,848.77	140.38	140.20	-97.06	-6,072.87	639.70	846.30	568.18	278.12	3.043	
15,400.00	9,744.17	15,496.85	9,849.05	142.39	142.20	-97.05	-6,172.87	640.01	846.29	564.18	282.11	3.000	
15,500.00	9,744.56	15,596.85	9,849.34	144.40	144.20	-97.04	-6,272.86	640.32	846.28	560.17	286.11	2.958	
15,600.00	9,744.96	15,696.85	9,849.63	146.41	146.20	-97.04	-6,372.86	640.63	846.27	556.15	290.12	2.917	
15,700.00	9,745.35	15,796.85	9,849.91	148.43	148.20	-97.03	-6,472.86	640.94	846.26	552.12	294.13	2.877	
15,800.00	9,745.75	15,896.85	9,850.20	150.45	150.21	-97.02	-6,572.86	641.25	846.24	548.09	298.16	2.838	
15,900.00	9,746.14	15,996.85	9,850.49	152.48	152.23	-97.01	-6,672.86	641.56	846.23	544.05	302.19	2.800	
16,000.00	9,746.54	16,096.85	9,850.78	154.51	154.25	-97.01	-6,772.86	641.87	846.22	540.00	306.22	2.763	
16,100.00	9,746.94	16,196.85	9,851.06	156.54	156.27	-97.00	-6,872.86	642.18	846.21	535.94	310.27	2.727	
16,200.00	9,747.33	16,296.85	9,851.35	158.58	158.30	-96.99	-6,972.86	642.49	846.20	531.88	314.32	2.692	
16,300.00	9,747.73	16,396.85	9,851.64	160.61	160.32	-96.99	-7,072.86	642.80	846.19	527.81	318.38	2.658	
16,400.00	9,748.12	16,496.85	9,851.92	162.66	162.36	-96.98	-7,172.86	643.11	846.18	523.74	322.44	2.624	
16,500.00	9,748.52	16,596.85	9,852.21	164.70	164.39	-96.97	-7,272.85	643.42	846.17	519.66	326.51	2.592	
16,600.00	9,748.91	16,696.85	9,852.50	166.75	166.43	-96.96	-7,372.85	643.73	846.16	515.57	330.59	2.560	
16,700.00	9,749.31	16,796.85	9,852.79	168.80	168.47	-96.96	-7,472.85	644.04	846.15	511.48	334.67	2.528	
16,800.00	9,749.71	16,896.85	9,853.07	170.85	170.52	-96.95	-7,572.85	644.35	846.14	507.38	338.75	2.498	
16,900.00	9,750.10	16,996.85	9,853.36	172.91	172.56	-96.94	-7,672.85	644.66	846.13	503.28	342.85	2.468	
17,000.00	9,750.50	17,096.85	9,853.65	174.97	174.61	-96.93	-7,772.85	644.97	846.11	499.17	346.94	2.439	
17,100.00	9,750.89	17,196.85	9,853.93	177.03	176.67	-96.93	-7,872.85	645.28	846.10	495.06	351.04	2.410	
17,200.00	9,751.29	17,296.85	9,854.22	179.09	178.72	-96.92	-7,972.85	645.59	846.09	490.94	355.15	2.382	
17,300.00	9,751.68	17,396.85	9,854.51	181.15	180.78	-96.91	-8,072.85	645.90	846.08	486.82	359.26	2.355	
17,400.00	9,752.08	17,496.85	9,854.79	183.22	182.84	-96.90	-8,172.85	646.21	846.07	482.70	363.38	2.328	
17,500.00	9,752.48	17,596.85	9,855.08	185.29	184.90	-96.90	-8,272.85	646.52	846.06	478.57	367.49	2.302	
17,600.00	9,752.87	17,696.85	9,855.37	187.36	186.96	-96.89	-8,372.84	646.84	846.05	474.43	371.62	2.277	
17,700.00	9,753.27	17,796.85	9,855.66	189.43	189.03	-96.88	-8,472.84	647.15	846.04	470.29	375.75	2.252	
17,800.00	9,753.66	17,896.85	9,855.94	191.51	191.10	-96.88	-8,572.84	647.46	846.03	466.15	379.88	2.227	
17,900.00	9,754.06	17,996.85	9,856.23	193.59	193.17	-96.87	-8,672.84	647.77	846.02	462.01	384.01	2.203	
18,000.00	9,754.45	18,096.85	9,856.52	195.66	195.24	-96.86	-8,772.84	648.08	846.01	457.86	388.15	2.180	
18,100.00	9,754.85	18,196.85	9,856.80	197.74	197.31	-96.85	-8,872.84	648.39	846.00	453.71	392.29	2.157	
18,200.00	9,755.25	18,296.85	9,857.09	199.82	199.39	-96.85	-8,972.84	648.70	845.99	449.55	396.44	2.134	
18,300.00	9,755.64	18,396.85	9,857.38	201.91	201.46	-96.84	-9,072.84	649.01	845.98	445.39	400.58	2.112	
18,400.00	9,756.04	18,496.85	9,857.67	203.99	203.54	-96.83	-9,172.84	649.32	845.97	441.23	404.74	2.090	
18,500.00	9,756.43	18,596.85	9,857.95	206.08	205.62	-96.82	-9,272.84	649.63	845.96	437.07	408.89	2.069	
18,600.00	9,756.83	18,696.85	9,858.24	208.17	207.70	-96.82	-9,372.83	649.94	845.95	432.90	413.05	2.048	
18,700.00	9,757.22	18,796.85	9,858.53	210.26	209.79	-96.81	-9,472.83	650.25	845.93	428.73	417.21	2.028	
18,800.00	9,757.62	18,896.85	9,858.81	212.35	211.87	-96.80	-9,572.83	650.56	845.92	424.55	421.37	2.008	
18,900.00	9,758.01	18,996.85	9,859.10	214.44	213.96	-96.80	-9,672.83	650.87	845.91	420.38	425.54	1.988	
19,000.00	9,758.41	19,096.85	9,859.39	216.53	216.04	-96.79	-9,772.83	651.18	845.90	416.20	429.71	1.969	
19,100.00	9,758.81	19,196.85	9,859.67	218.62	218.13	-96.78	-9,872.83	651.49	845.89	412.02	433.88	1.950	
19,200.00	9,759.20	19,296.85	9,859.96	220.72	220.22	-96.77	-9,972.83	651.80	845.88	407.83	438.05	1.931	
19,300.00	9,759.60	19,396.85	9,860.25	222.82	222.31	-96.77	-10,072.83	652.11	845.87	403.65	442.23	1.913	
19,400.00	9,759.99	19,496.85	9,860.54	224.91	224.41	-96.76	-10,172.83	652.42	845.86	399.46	446.40	1.895	
19,500.00	9,760.39	19,596.85	9,860.82	227.01	226.50	-96.75	-10,272.83	652.73	845.85	395.27	450.59	1.877	
19,600.00	9,760.78	19,696.85	9,861.11	229.11	228.60	-96.74	-10,372.83	653.04	845.84	391.07	454.77	1.860	
19,700.00	9,761.18	19,796.85	9,861.40	231.21	230.69	-96.74	-10,472.82	653.35	845.83	386.88	458.95	1.843	
19,800.00	9,761.58	19,896.85	9,861.68	233.31	232.79	-96.73	-10,572.82	653.66	845.82	382.68	463.14	1.826	
19,900.00	9,761.97	19,996.85	9,861.97	235.42	234.89	-96.72	-10,672.82	653.97	845.81	378.48	467.33	1.810	
19,907.29	9,762.00	20,004.14	9,861.99	235.57	235.04	-96.72	-10,680.11	653.99	845.81	378.17	467.64	1.809	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 4H - OH - Plan 1 12-21-17														Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		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		
0.00	0.00	1.00	1.00	0.00	0.00	180.00	-50.00	0.00	50.00	49.61	0.39	127.380		
100.00	100.00	101.00	101.00	0.19	0.20	180.00	-50.00	0.00	50.00	48.53	1.47	34.061		
200.00	200.00	201.00	201.00	0.73	0.74	180.00	-50.00	0.00	50.00	47.46	2.54	19.659		
300.00	300.00	301.00	301.00	1.27	1.27	180.00	-50.00	0.00	50.00	46.38	3.62	13.817		
400.00	400.00	401.00	401.00	1.81	1.81	180.00	-50.00	0.00	50.00	45.31	4.69	10.651		
500.00	500.00	501.00	501.00	2.34	2.35	180.00	-50.00	0.00	50.00	44.23	5.77	8.666		
600.00	600.00	601.00	601.00	2.88	2.89	180.00	-50.00	0.00	50.00	43.15	6.85	7.305		
700.00	700.00	701.00	701.00	3.42	3.43	180.00	-50.00	0.00	50.00	42.08	7.92	6.313		
800.00	800.00	801.00	801.00	3.96	3.96	180.00	-50.00	0.00	50.00	41.00	9.00	5.558		
900.00	900.00	901.00	901.00	4.50	4.50	180.00	-50.00	0.00	50.00	39.93	10.07	4.965		
1,000.00	1,000.00	1,001.00	1,001.00	5.03	5.04	180.00	-50.00	0.00	50.00	38.85	11.15	4.486		
1,100.00	1,100.00	1,101.00	1,101.00	5.57	5.58	180.00	-50.00	0.00	50.00	37.78	12.22	4.091		
1,200.00	1,200.00	1,201.00	1,201.00	6.11	6.11	180.00	-50.00	0.00	50.00	36.70	13.30	3.760		
1,300.00	1,300.00	1,301.00	1,301.00	6.65	6.65	180.00	-50.00	0.00	50.00	35.63	14.37	3.479		
1,400.00	1,400.00	1,401.00	1,401.00	7.18	7.19	180.00	-50.00	0.00	50.00	34.55	15.45	3.237		
1,500.00	1,500.00	1,501.00	1,501.00	7.72	7.73	180.00	-50.00	0.00	50.00	33.48	16.52	3.026		
1,600.00	1,600.00	1,601.00	1,601.00	8.26	8.26	180.00	-50.00	0.00	50.00	32.40	17.60	2.841		
1,700.00	1,700.00	1,701.00	1,701.00	8.80	8.80	180.00	-50.00	0.00	50.00	31.69	18.31	2.730 CC		
1,766.33	1,766.33	1,767.33	1,767.33	9.15	9.16	180.00	-50.00	0.00	50.00	31.33	18.67	2.677		
1,800.00	1,800.00	1,800.98	1,800.98	9.33	9.34	180.00	-50.00	0.00	50.00	30.53	19.69	2.551		
1,900.00	1,899.98	1,900.00	1,899.98	9.85	9.85	-36.42	-51.62	0.64	50.22	30.48	19.78	2.541		
1,910.44	1,910.42	1,909.63	1,909.60	9.90	9.89	-36.80	-51.95	0.77	50.27	30.47	20.64	2.476 ES		
2,000.00	1,999.84	1,997.58	1,997.43	10.34	10.32	-41.75	-56.33	2.51	51.11	31.92	21.60	2.478		
2,100.00	2,099.45	2,095.49	2,094.97	10.84	10.81	-50.07	-64.15	5.62	53.53	34.48	22.60	2.526		
2,200.00	2,198.70	2,194.82	2,193.75	11.34	11.31	-60.50	-73.80	9.45	57.08	38.09	23.64	2.611		
2,300.00	2,297.73	2,294.12	2,292.51	11.86	11.81	-71.01	-83.44	13.28	61.73	43.47	24.68	2.761		
2,400.00	2,396.76	2,393.41	2,391.26	12.38	12.32	-79.81	-93.09	17.11	68.15	50.17	25.72	2.951		
2,500.00	2,495.78	2,492.70	2,490.00	12.92	12.84	-86.97	-102.73	20.94	75.89	57.83	26.77	3.160		
2,600.00	2,594.81	2,592.00	2,588.75	13.46	13.36	-92.74	-112.37	24.77	84.60	66.17	27.83	3.378		
2,700.00	2,693.84	2,691.29	2,687.50	14.00	13.89	-97.41	-122.02	28.60	94.00	75.02	28.89	3.596		
2,800.00	2,792.86	2,790.58	2,786.25	14.55	14.42	-101.21	-131.66	32.44	103.91	84.23	29.96	3.811		
2,900.00	2,891.89	2,889.88	2,885.00	15.11	14.96	-104.34	-141.31	36.27	114.19	93.71	31.04	4.019		
3,000.00	2,990.92	2,989.17	2,983.75	15.67	15.49	-106.94	-150.85	40.10	124.76	103.41	32.13	4.219		
3,100.00	3,089.94	3,088.46	3,082.50	16.23	16.03	-109.14	-160.60	43.93	135.54	113.27	33.21	4.410		
3,200.00	3,188.97	3,187.75	3,181.25	16.80	16.58	-111.02	-170.24	47.76	146.48	123.26	34.31	4.593		
3,300.00	3,288.00	3,287.05	3,280.00	17.37	17.12	-112.63	-179.89	51.59	157.57	133.35	35.41	4.766		
3,400.00	3,387.02	3,386.34	3,378.75	17.94	17.67	-114.02	-189.53	55.42	168.76	143.52	36.51	4.931		
3,500.00	3,486.05	3,485.63	3,477.50	18.52	18.22	-115.25	-199.18	59.25	180.03	153.76	37.62	5.087		
3,600.00	3,585.08	3,584.93	3,576.25	19.10	18.77	-116.33	-208.82	63.08	191.38	164.06	38.73	5.236		
3,700.00	3,684.10	3,684.22	3,675.00	19.68	19.32	-117.29	-218.47	66.91	202.79	174.40	39.84	5.377		
3,800.00	3,783.13	3,783.51	3,773.75	20.26	19.88	-118.14	-228.11	70.74	214.25	184.79	40.96	5.512		
3,900.00	3,882.16	3,882.81	3,872.50	20.84	20.43	-118.91	-237.75	74.57	225.75	195.21	42.08	5.639		
4,000.00	3,981.18	3,982.10	3,971.24	21.43	20.99	-119.61	-247.40	78.40	237.28	205.65	43.20	5.761		
4,100.00	4,080.21	4,081.39	4,069.99	22.02	21.55	-120.24	-257.04	82.23	248.85	216.12	44.32	5.876		
4,200.00	4,179.24	4,180.69	4,168.74	22.60	22.10	-120.81	-266.69	86.07	260.45	226.62	45.45	5.986		
4,300.00	4,278.26	4,279.98	4,267.49	23.19	22.66	-121.34	-276.33	89.90	272.07	237.13	46.58	6.091		
4,400.00	4,377.29	4,379.27	4,366.24	23.79	23.22	-121.82	-285.98	93.73	283.70	247.66	47.70	6.191		
4,500.00	4,476.32	4,478.57	4,464.99	24.38	23.79	-122.27	-295.62	97.56	295.36	258.20	48.84	6.287		
4,600.00	4,575.35	4,577.86	4,563.74	24.97	24.35	-122.68	-305.27	101.39	307.04	268.76	49.97	6.379		
4,700.00	4,674.37	4,677.15	4,662.49	25.56	24.91	-123.06	-314.91	105.22	318.72	279.32	51.10	6.466		
4,800.00	4,773.40	4,776.44	4,761.24	26.16	25.48	-123.41	-324.56	109.05	330.43	289.90	52.24	6.550		
4,900.00	4,872.43	4,875.74	4,859.99	26.76	26.04	-123.74	-334.20	112.88	342.14					

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 4H - OH - Plan 1 12-21-17													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		
5,000.00	4,971.45	4,975.03	4,958.74	27.35	26.60	-124.05	-343.85	116.71	353.86	300.49	53.37	6.630		
5,100.00	5,070.48	5,074.32	5,057.49	27.95	27.17	-124.34	-353.49	120.54	365.59	311.08	54.51	6.707		
5,200.00	5,169.51	5,173.62	5,156.24	28.55	27.74	-124.61	-363.13	124.37	377.34	321.69	55.65	6.780		
5,300.00	5,268.53	5,272.91	5,254.99	29.15	28.30	-124.86	-372.78	128.20	389.08	332.29	56.79	6.851		
5,400.00	5,367.66	5,372.26	5,353.79	29.74	28.87	-125.13	-382.43	132.04	400.39	342.42	57.97	6.907		
5,500.00	5,467.17	5,472.73	5,453.72	30.31	29.44	-125.05	-392.14	135.89	409.80	350.65	59.15	6.928		
5,600.00	5,566.96	5,577.98	5,558.63	30.86	30.03	-124.83	-399.95	138.99	416.35	356.04	60.31	6.904		
5,700.00	5,666.91	5,683.55	5,664.09	31.39	30.60	-124.65	-404.18	140.68	419.59	358.17	61.41	6.832		
5,800.00	5,766.91	5,787.38	5,767.91	31.87	31.13	90.00	-405.00	141.00	420.00	357.56	62.44	6.727		
5,900.00	5,866.91	5,887.38	5,867.91	32.36	31.62	90.00	-405.00	141.00	420.00	356.58	63.42	6.622		
6,000.00	5,966.91	5,987.38	5,967.91	32.84	32.11	90.00	-405.00	141.00	420.00	355.59	64.41	6.521		
6,100.00	6,066.91	6,087.38	6,067.91	33.33	32.61	90.00	-405.00	141.00	420.00	354.61	65.39	6.423		
6,200.00	6,166.91	6,187.38	6,167.91	33.82	33.11	90.00	-405.00	141.00	420.00	353.62	66.38	6.327		
6,300.00	6,266.91	6,287.38	6,267.91	34.31	33.60	90.00	-405.00	141.00	420.00	352.62	67.38	6.233		
6,400.00	6,366.91	6,387.38	6,367.91	34.80	34.10	90.00	-405.00	141.00	420.00	351.63	68.37	6.143		
6,500.00	6,466.91	6,487.38	6,467.91	35.29	34.60	90.00	-405.00	141.00	420.00	350.63	69.37	6.054		
6,600.00	6,566.91	6,587.38	6,567.91	35.78	35.11	90.00	-405.00	141.00	420.00	349.63	70.37	5.968		
6,700.00	6,666.91	6,687.38	6,667.91	36.28	35.61	90.00	-405.00	141.00	420.00	348.63	71.37	5.884		
6,800.00	6,766.91	6,787.38	6,767.91	36.78	36.11	90.00	-405.00	141.00	420.00	347.62	72.38	5.803		
6,900.00	6,866.91	6,887.38	6,867.91	37.27	36.62	90.00	-405.00	141.00	420.00	346.61	73.39	5.723		
7,000.00	6,966.91	6,987.38	6,967.91	37.77	37.12	90.00	-405.00	141.00	420.00	345.61	74.39	5.646		
7,100.00	7,066.91	7,087.38	7,067.91	38.27	37.63	90.00	-405.00	141.00	420.00	344.59	75.41	5.570		
7,200.00	7,166.91	7,187.38	7,167.91	38.77	38.14	90.00	-405.00	141.00	420.00	343.58	76.42	5.496		
7,300.00	7,266.91	7,287.38	7,267.91	39.27	38.64	90.00	-405.00	141.00	420.00	342.57	77.43	5.424		
7,400.00	7,366.91	7,387.38	7,367.91	39.78	39.15	90.00	-405.00	141.00	420.00	341.55	78.45	5.354		
7,500.00	7,466.91	7,487.38	7,467.91	40.28	39.66	90.00	-405.00	141.00	420.00	340.54	79.46	5.285		
7,600.00	7,566.91	7,587.38	7,567.91	40.78	40.17	90.00	-405.00	141.00	420.00	339.52	80.48	5.219		
7,700.00	7,666.91	7,687.38	7,667.91	41.29	40.68	90.00	-405.00	141.00	420.00	338.50	81.50	5.153		
7,800.00	7,766.91	7,787.38	7,767.91	41.79	41.20	90.00	-405.00	141.00	420.00	337.48	82.52	5.089		
7,900.00	7,866.91	7,887.38	7,867.91	42.30	41.71	90.00	-405.00	141.00	420.00	336.45	83.55	5.027		
8,000.00	7,966.91	7,987.38	7,967.91	42.81	42.22	90.00	-405.00	141.00	420.00	335.43	84.57	4.966		
8,100.00	8,066.91	8,087.38	8,067.91	43.32	42.74	90.00	-405.00	141.00	420.00	334.40	85.60	4.907		
8,200.00	8,166.91	8,187.38	8,167.91	43.83	43.25	90.00	-405.00	141.00	420.00	333.38	86.62	4.849		
8,300.00	8,266.91	8,287.38	8,267.91	44.34	43.76	90.00	-405.00	141.00	420.00	332.35	87.65	4.792		
8,400.00	8,366.91	8,387.38	8,367.91	44.85	44.28	90.00	-405.00	141.00	420.00	331.32	88.68	4.736		
8,500.00	8,466.91	8,487.38	8,467.91	45.36	44.80	90.00	-405.00	141.00	420.00	330.29	89.71	4.682		
8,600.00	8,566.91	8,587.38	8,567.91	45.87	45.31	90.00	-405.00	141.00	420.00	329.26	90.74	4.629		
8,700.00	8,666.91	8,687.38	8,667.91	46.38	45.83	90.00	-405.00	141.00	420.00	328.23	91.77	4.577		
8,800.00	8,766.91	8,787.38	8,767.91	46.89	46.35	90.00	-405.00	141.00	420.00	327.19	92.81	4.526		
8,900.00	8,866.91	8,887.38	8,867.91	47.41	46.86	90.00	-405.00	141.00	420.00	326.16	93.84	4.476		
9,000.00	8,966.91	8,987.38	8,967.91	47.92	47.38	90.00	-405.00	141.00	420.00	325.13	94.87	4.427		
9,100.00	9,066.91	9,085.43	9,065.51	48.44	47.91	91.09	-413.02	141.12	420.20	324.27	95.93	4.380		
9,200.00	9,166.91	9,178.14	9,155.28	48.95	48.45	94.19	-435.78	141.45	421.77	324.77	97.00	4.348		
9,300.00	9,266.91	9,261.68	9,232.09	49.47	48.95	98.57	-468.45	141.93	427.19	329.15	98.04	4.357		
9,400.00	9,366.41	9,338.06	9,297.48	50.00	49.44	-75.20	-507.80	142.51	437.41	338.43	98.99	4.419		
9,500.00	9,462.91	9,411.42	9,354.84	50.57	49.92	-70.31	-553.46	143.19	450.26	350.69	99.57	4.522		
9,600.00	9,553.47	9,482.50	9,404.40	51.18	50.41	-66.03	-604.33	143.94	464.27	364.80	99.47	4.667		
9,700.00	9,635.34	9,550.00	9,445.30	51.81	50.89	-62.47	-657.98	144.73	478.13	379.65	98.49	4.855		
9,800.00	9,706.03	9,619.85	9,480.68	52.48	51.41	-59.50	-718.14	145.61	490.77	394.07	96.70	5.075		
9,900.00	9,763.40	9,666.90	9,507.52	53.18	51.92	-57.28	-779.55	146.52	501.33	406.87	94.46	5.307		
10,000.00	9,805.70	9,750.00	9,526.07	53.92	52.41	-55.77	-839.82	147.40	509.21	416.88	92.32	5.515		
10,100.00	9,831.65	9,819.25	9,538.66	54.69	52.95	-54.84	-907.86	148.40	513.91	422.99	90.92	5.653		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



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 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 4H - OH - Plan 1 12-21-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
10,200.00	9,840.46	9,885.02	9,542.94	55.48	53.48	-54.59	-973.44	149.37	515.25	424.46	90.78	5.676	
10,243.43	9,840.29	9,919.06	9,542.42	55.84	53.76	-54.56	-1,007.48	149.87	515.50	424.24	91.26	5.649	
10,300.00	9,838.50	9,975.64	9,541.08	56.31	54.24	-54.59	-1,064.04	150.70	515.23	423.16	92.07	5.596	
10,400.00	9,836.40	10,075.64	9,538.72	57.22	55.14	-54.57	-1,164.00	152.18	515.39	421.80	93.59	5.507	
10,500.00	9,834.31	10,175.64	9,536.35	58.19	56.11	-54.55	-1,263.96	153.65	515.54	420.31	95.23	5.414	
10,600.00	9,832.21	10,275.64	9,533.99	59.22	57.15	-54.52	-1,363.92	155.12	515.70	418.71	96.99	5.317	
10,700.00	9,830.12	10,375.64	9,531.62	60.31	58.24	-54.50	-1,463.88	156.59	515.85	416.99	98.86	5.218	
10,800.00	9,828.02	10,475.64	9,529.26	61.46	59.40	-54.47	-1,563.84	158.06	516.01	415.18	100.83	5.117	
10,900.00	9,825.93	10,575.64	9,526.90	62.66	60.61	-54.45	-1,663.80	159.54	516.17	413.26	102.91	5.016	
11,000.00	9,823.83	10,675.64	9,524.53	63.91	61.87	-54.42	-1,763.76	161.01	516.32	411.25	105.08	4.914	
11,100.00	9,821.74	10,775.64	9,522.17	65.21	63.18	-54.40	-1,863.72	162.48	516.48	409.15	107.33	4.812	
11,200.00	9,819.64	10,875.64	9,519.80	66.55	64.53	-54.38	-1,963.69	163.95	516.63	406.97	109.67	4.711	
11,300.00	9,817.54	10,975.64	9,517.44	67.93	65.93	-54.35	-2,063.65	165.42	516.79	404.71	112.08	4.611	
11,400.00	9,815.45	11,075.64	9,515.08	69.36	67.37	-54.33	-2,163.61	166.90	516.95	402.39	114.56	4.512	
11,500.00	9,813.35	11,175.64	9,512.71	70.82	68.85	-54.30	-2,263.57	168.37	517.10	399.99	117.11	4.416	
11,600.00	9,811.26	11,275.64	9,510.35	72.32	70.36	-54.28	-2,363.53	169.84	517.26	397.54	119.72	4.320	
11,700.00	9,809.16	11,375.64	9,507.98	73.85	71.91	-54.26	-2,463.49	171.31	517.42	395.02	122.39	4.228	
11,800.00	9,807.07	11,475.63	9,505.62	75.41	73.48	-54.23	-2,563.45	172.78	517.57	392.46	125.12	4.137	
11,900.00	9,804.97	11,575.63	9,503.26	77.00	75.09	-54.21	-2,663.41	174.26	517.73	389.84	127.89	4.048	
12,000.00	9,802.88	11,675.63	9,500.89	78.61	76.72	-54.18	-2,763.37	175.73	517.89	387.17	130.71	3.962	
12,100.00	9,800.78	11,775.63	9,498.53	80.25	78.38	-54.16	-2,863.33	177.20	518.04	384.46	133.58	3.878	
12,200.00	9,798.68	11,875.63	9,496.16	81.92	80.06	-54.13	-2,963.29	178.67	518.20	381.71	136.49	3.797	
12,300.00	9,796.59	11,975.63	9,493.80	83.61	81.76	-54.11	-3,063.25	180.14	518.36	378.92	139.44	3.718	
12,400.00	9,794.49	12,075.63	9,491.43	85.32	83.49	-54.09	-3,163.22	181.62	518.52	376.10	142.42	3.641	
12,500.00	9,792.40	12,175.63	9,489.07	87.05	85.23	-54.06	-3,263.18	183.09	518.67	373.24	145.44	3.566	
12,600.00	9,790.30	12,275.63	9,486.71	88.80	86.99	-54.04	-3,363.14	184.56	518.83	370.35	148.49	3.494	
12,700.00	9,788.21	12,375.63	9,484.34	90.56	88.78	-54.01	-3,463.10	186.03	518.99	367.42	151.56	3.424	
12,800.00	9,786.11	12,475.63	9,481.98	92.35	90.57	-53.99	-3,563.06	187.50	519.15	364.48	154.67	3.356	
12,900.00	9,784.02	12,575.63	9,479.61	94.15	92.39	-53.97	-3,663.02	188.98	519.30	361.50	157.80	3.291	
13,000.00	9,781.92	12,675.63	9,477.25	95.96	94.21	-53.94	-3,762.98	190.45	519.46	358.50	160.96	3.227	
13,100.00	9,779.82	12,775.63	9,474.89	97.79	96.06	-53.92	-3,862.94	191.92	519.62	355.48	164.14	3.166	
13,200.00	9,777.73	12,875.63	9,472.52	99.63	97.91	-53.89	-3,962.90	193.39	519.78	352.44	167.34	3.106	
13,300.00	9,775.63	12,975.63	9,470.16	101.48	99.78	-53.87	-4,062.86	194.86	519.94	349.38	170.56	3.048	
13,400.00	9,773.54	13,075.63	9,467.79	103.35	101.66	-53.85	-4,162.82	196.34	520.09	346.30	173.80	2.993	
13,500.00	9,771.44	13,175.63	9,465.43	105.22	103.54	-53.82	-4,262.79	197.81	520.25	343.20	177.06	2.938	
13,600.00	9,769.35	13,275.63	9,463.07	107.11	105.44	-53.80	-4,362.75	199.28	520.41	340.08	180.33	2.886	
13,700.00	9,767.25	13,375.63	9,460.70	109.01	107.35	-53.77	-4,462.71	200.75	520.57	336.95	183.62	2.835	
13,800.00	9,765.16	13,475.63	9,458.34	110.92	109.27	-53.75	-4,562.67	202.22	520.73	333.80	186.93	2.786	
13,900.00	9,763.06	13,575.63	9,455.97	112.83	111.20	-53.73	-4,662.63	203.70	520.89	330.64	190.25	2.738	
14,000.00	9,760.96	13,675.63	9,453.61	114.76	113.14	-53.70	-4,762.59	205.17	521.04	327.47	193.58	2.692	
14,100.00	9,758.87	13,775.63	9,451.25	116.69	115.08	-53.68	-4,862.55	206.64	521.20	324.28	196.92	2.647	
14,200.00	9,756.77	13,875.63	9,448.88	118.63	117.03	-53.66	-4,962.51	208.11	521.36	321.08	200.28	2.603	
14,300.00	9,754.68	13,975.63	9,446.52	120.58	118.99	-53.63	-5,062.47	209.58	521.52	317.87	203.65	2.561	
14,400.00	9,752.58	14,075.63	9,444.15	122.54	120.96	-53.61	-5,162.43	211.06	521.68	314.65	207.03	2.520	
14,500.00	9,750.49	14,175.63	9,441.79	124.50	122.93	-53.58	-5,262.39	212.53	521.84	311.42	210.42	2.480	
14,600.00	9,748.39	14,275.62	9,439.42	126.47	124.91	-53.56	-5,362.35	214.00	522.00	308.19	213.81	2.441	
14,700.00	9,746.29	14,375.62	9,437.06	128.44	126.89	-53.54	-5,462.32	215.47	522.16	304.94	217.22	2.404	
14,800.00	9,744.20	14,475.62	9,434.70	130.42	128.88	-53.51	-5,562.28	216.94	522.32	301.68	220.64	2.367	
14,900.00	9,742.39	14,581.26	9,432.37	132.41	130.99	-53.47	-5,667.87	218.40	522.61	298.40	224.21	2.331	
15,000.00	9,742.58	14,686.98	9,431.89	134.39	133.09	-53.42	-5,773.59	218.83	522.97	295.26	227.71	2.297	
15,100.00	9,742.98	14,786.98	9,431.61	136.38	135.09	-53.36	-5,873.59	219.14	523.37	292.31	231.06	2.265	
15,200.00	9,743.38	14,886.98	9,431.33	138.38	137.09	-53.30	-5,973.59	219.45	523.78	289.36	234.42	2.234	

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Phoenix Technology Services LP

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Offset Design HH SO 17 20 FED 001 - 4H - OH - Plan 1 12-21-17													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 +N/-S (usft)	Centro +E/-W (usft)						
15,300.00	9,743.77	14,986.97	9,431.05	140.38	139.10	-53.24	-6,073.58	219.76	524.19	288.41	237.78	2.204		
15,400.00	9,744.17	15,086.97	9,430.76	142.39	141.11	-53.18	-6,173.58	220.06	524.60	283.44	241.15	2.175		
15,500.00	9,744.56	15,186.97	9,430.48	144.40	143.13	-53.12	-6,273.58	220.37	525.00	280.48	244.52	2.147		
15,600.00	9,744.96	15,286.97	9,430.20	146.41	145.15	-53.06	-6,373.57	220.68	525.41	277.51	247.90	2.119		
15,700.00	9,745.35	15,386.96	9,429.91	148.43	147.17	-53.00	-6,473.57	220.99	525.82	274.54	251.28	2.093		
15,800.00	9,745.75	15,486.96	9,429.63	150.45	149.20	-52.94	-6,573.57	221.30	526.23	271.57	254.66	2.066		
15,900.00	9,746.14	15,586.96	9,429.35	152.48	151.23	-52.88	-6,673.56	221.61	526.64	268.60	258.04	2.041		
16,000.00	9,746.54	15,686.96	9,429.06	154.51	153.26	-52.82	-6,773.56	221.92	527.05	265.62	261.43	2.016		
16,100.00	9,746.94	15,786.95	9,428.78	156.54	155.30	-52.77	-6,873.56	222.23	527.46	262.64	264.82	1.992		
16,200.00	9,747.33	15,886.95	9,428.50	158.58	157.34	-52.71	-6,973.56	222.54	527.88	259.66	268.21	1.968		
16,300.00	9,747.73	15,986.95	9,428.22	160.61	159.39	-52.65	-7,073.55	222.85	528.29	256.68	271.61	1.945		
16,400.00	9,748.12	16,086.95	9,427.93	162.66	161.43	-52.59	-7,173.55	223.15	528.70	253.70	275.00	1.923		
16,500.00	9,748.52	16,186.95	9,427.65	164.70	163.48	-52.53	-7,273.55	223.46	529.11	250.71	278.40	1.901		
16,600.00	9,748.91	16,286.94	9,427.37	166.75	165.54	-52.47	-7,373.54	223.77	529.53	247.73	281.80	1.879		
16,700.00	9,749.31	16,386.94	9,427.08	168.80	167.59	-52.42	-7,473.54	224.08	529.94	244.74	285.20	1.858		
16,800.00	9,749.71	16,486.94	9,426.80	170.85	169.65	-52.36	-7,573.54	224.39	530.36	241.76	288.60	1.838		
16,900.00	9,750.10	16,586.94	9,426.52	172.91	171.71	-52.30	-7,673.53	224.70	530.77	238.77	292.00	1.818		
17,000.00	9,750.50	16,686.93	9,426.23	174.97	173.77	-52.24	-7,773.53	225.01	531.19	235.79	295.40	1.798		
17,100.00	9,750.89	16,786.93	9,425.95	177.03	175.83	-52.18	-7,873.53	225.32	531.61	232.80	298.81	1.779		
17,200.00	9,751.29	16,886.93	9,425.67	179.09	177.90	-52.13	-7,973.52	225.63	532.03	229.82	302.21	1.760		
17,300.00	9,751.68	16,986.93	9,425.39	181.15	179.97	-52.07	-8,073.52	225.94	532.44	226.83	305.61	1.742		
17,400.00	9,752.08	17,086.92	9,425.10	183.22	182.04	-52.01	-8,173.52	226.25	532.86	223.85	309.02	1.724		
17,500.00	9,752.48	17,186.92	9,424.82	185.29	184.11	-51.95	-8,273.51	226.55	533.28	220.86	312.42	1.707		
17,600.00	9,752.87	17,286.92	9,424.54	187.36	186.19	-51.90	-8,373.51	226.86	533.70	217.88	315.82	1.690		
17,700.00	9,753.27	17,386.92	9,424.25	189.43	188.26	-51.84	-8,473.51	227.17	534.12	214.89	319.23	1.673		
17,800.00	9,753.66	17,486.92	9,423.97	191.51	190.34	-51.78	-8,573.50	227.48	534.54	211.91	322.63	1.657		
17,900.00	9,754.06	17,586.91	9,423.69	193.59	192.42	-51.73	-8,673.50	227.79	534.96	208.93	326.03	1.641		
18,000.00	9,754.45	17,686.91	9,423.40	195.66	194.50	-51.67	-8,773.50	228.10	535.38	205.95	329.44	1.625		
18,100.00	9,754.85	17,786.91	9,423.12	197.74	196.59	-51.61	-8,873.49	228.41	535.81	202.97	332.84	1.610		
18,200.00	9,755.25	17,886.91	9,422.84	199.82	198.67	-51.56	-8,973.49	228.72	536.23	199.99	336.24	1.595		
18,300.00	9,755.64	17,986.90	9,422.56	201.91	200.76	-51.50	-9,073.49	229.03	536.65	197.01	339.64	1.580		
18,400.00	9,756.04	18,086.90	9,422.27	203.99	202.84	-51.44	-9,173.49	229.34	537.08	194.04	343.04	1.566		
18,500.00	9,756.43	18,186.90	9,421.99	206.08	204.93	-51.39	-9,273.48	229.64	537.50	191.06	346.44	1.552		
18,600.00	9,756.83	18,286.90	9,421.71	208.17	207.02	-51.33	-9,373.48	229.95	537.92	188.09	349.84	1.538		
18,700.00	9,757.22	18,386.90	9,421.42	210.26	209.11	-51.27	-9,473.48	230.26	538.35	185.12	353.23	1.524		
18,800.00	9,757.62	18,486.89	9,421.14	212.35	211.21	-51.22	-9,573.47	230.57	538.78	182.15	356.63	1.511		
18,900.00	9,758.01	18,586.89	9,420.86	214.44	213.30	-51.16	-9,673.47	230.88	539.20	179.18	360.02	1.498 Level 3		
19,000.00	9,758.41	18,686.89	9,420.57	216.53	215.40	-51.10	-9,773.47	231.19	539.63	176.21	363.42	1.485 Level 3		
19,100.00	9,758.81	18,786.89	9,420.29	218.62	217.49	-51.05	-9,873.46	231.50	540.06	173.25	366.81	1.472 Level 3		
19,200.00	9,759.20	18,886.88	9,420.01	220.72	219.59	-50.99	-9,973.46	231.81	540.48	170.28	370.20	1.460 Level 3		
19,300.00	9,759.60	18,986.88	9,419.73	222.82	221.69	-50.94	-10,073.46	232.12	540.91	167.32	373.59	1.448 Level 3		
19,400.00	9,759.99	19,086.88	9,419.44	224.91	223.79	-50.88	-10,173.45	232.43	541.34	164.36	376.98	1.436 Level 3		
19,500.00	9,760.39	19,186.88	9,419.16	227.01	225.89	-50.83	-10,273.45	232.73	541.77	161.40	380.37	1.424 Level 3		
19,600.00	9,760.78	19,286.87	9,418.88	229.11	227.99	-50.77	-10,373.45	233.04	542.20	158.45	383.75	1.413 Level 3		
19,700.00	9,761.18	19,386.87	9,418.59	231.21	230.10	-50.71	-10,473.44	233.35	542.63	155.49	387.14	1.402 Level 3		
19,800.00	9,761.58	19,486.87	9,418.31	233.31	232.20	-50.66	-10,573.44	233.66	543.06	152.54	390.52	1.391 Level 3		
19,900.00	9,761.97	19,586.87	9,418.03	235.42	234.31	-50.60	-10,673.44	233.97	543.49	149.59	393.90	1.380 Level 3		
19,907.29	9,762.00	19,594.16	9,418.01	235.57	234.46	-50.60	-10,680.73	233.99	543.53	149.38	394.15	1.379 Level 3, SF		

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

12/21/2017 8:53:47AM

Page 15

COMPASS 5000.1 Build 74

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 5H - OH - Plan 1 12-21-17													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	1.00	1.00	0.00	0.00	180.00	-75.00	0.00	75.00				
100.00	100.00	101.00	101.00	0.19	0.20	180.00	-75.00	0.00	75.00	74.61	0.39	191.070	
200.00	200.00	201.00	201.00	0.73	0.74	180.00	-75.00	0.00	75.00	73.53	1.47	51.092	
300.00	300.00	301.00	301.00	1.27	1.27	180.00	-75.00	0.00	75.00	72.46	2.54	29.489	
400.00	400.00	401.00	401.00	1.81	1.81	180.00	-75.00	0.00	75.00	71.38	3.62	20.725	
500.00	500.00	501.00	501.00	2.34	2.35	180.00	-75.00	0.00	75.00	70.31	4.69	15.977	
600.00	600.00	601.00	601.00	2.88	2.89	180.00	-75.00	0.00	75.00	69.23	5.77	12.999	
700.00	700.00	701.00	701.00	3.42	3.43	180.00	-75.00	0.00	75.00	68.15	6.85	10.957	
800.00	800.00	801.00	801.00	3.96	3.96	180.00	-75.00	0.00	75.00	67.08	7.92	9.469	
900.00	900.00	901.00	901.00	4.50	4.50	180.00	-75.00	0.00	75.00	66.00	9.00	8.337	
1,000.00	1,000.00	1,001.00	1,001.00	5.03	5.04	180.00	-75.00	0.00	75.00	64.93	10.07	7.447	
1,100.00	1,100.00	1,101.00	1,101.00	5.57	5.58	180.00	-75.00	0.00	75.00	63.85	11.15	6.728	
1,200.00	1,200.00	1,201.00	1,201.00	6.11	6.11	180.00	-75.00	0.00	75.00	62.78	12.22	6.136	
1,300.00	1,300.00	1,301.00	1,301.00	6.65	6.65	180.00	-75.00	0.00	75.00	61.70	13.30	5.640	
1,400.00	1,400.00	1,401.00	1,401.00	7.18	7.19	180.00	-75.00	0.00	75.00	60.63	14.37	5.218	
1,500.00	1,500.00	1,501.00	1,501.00	7.72	7.73	180.00	-75.00	0.00	75.00	59.55	15.45	4.855	
1,600.00	1,600.00	1,601.00	1,601.00	8.26	8.26	180.00	-75.00	0.00	75.00	58.48	16.52	4.539	
1,700.00	1,700.00	1,701.00	1,701.00	8.80	8.80	180.00	-75.00	0.00	75.00	57.40	17.60	4.262	
1,766.33	1,766.33	1,767.33	1,767.33	9.15	9.16	180.00	-75.00	0.00	75.00	56.69	18.31	4.096	
1,800.00	1,800.00	1,800.99	1,800.99	9.33	9.34	-180.00	-75.00	0.00	75.00	56.33	18.67	4.016	
1,900.00	1,899.98	1,900.00	1,899.98	9.85	9.85	-34.11	-75.74	-1.58	74.32	54.62	19.69	3.773	
2,000.00	1,999.84	1,998.72	1,998.56	10.34	10.35	-32.75	-77.93	-6.23	72.26	51.60	20.66	3.497	
2,100.00	2,099.45	2,097.46	2,096.93	10.84	10.85	-30.33	-81.57	-13.96	68.92	47.31	21.62	3.189	
2,200.00	2,198.70	2,196.06	2,194.80	11.34	11.37	-26.54	-86.64	-24.73	64.49	41.94	22.55	2.859	
2,300.00	2,297.73	2,294.49	2,292.03	11.86	11.89	-20.28	-93.13	-38.52	60.92	37.36	23.56	2.586	
2,356.26	2,353.44	2,349.72	2,346.35	12.15	12.19	-15.46	-97.39	-47.57	60.31	36.19	24.12	2.500 CC	
2,400.00	2,396.76	2,392.56	2,388.34	12.38	12.42	-11.21	-101.00	-55.25	60.71	36.15	24.56	2.472 ES	
2,500.00	2,495.78	2,490.84	2,484.23	12.92	12.97	-0.85	-110.18	-74.74	64.74	39.16	25.58	2.531	
2,600.00	2,594.81	2,590.03	2,580.88	13.46	13.55	8.32	-119.68	-94.93	71.20	44.60	26.61	2.676	
2,700.00	2,693.84	2,689.23	2,677.54	14.00	14.13	15.82	-129.18	-115.11	79.18	51.53	27.66	2.863	
2,800.00	2,792.86	2,788.42	2,774.19	14.55	14.73	21.88	-138.68	-135.29	88.26	59.55	28.72	3.074	
2,900.00	2,891.89	2,887.62	2,870.84	15.11	15.34	26.77	-148.18	-155.48	98.14	68.35	29.79	3.294	
3,000.00	2,990.92	2,986.81	2,967.50	15.67	15.95	30.75	-157.68	-175.66	108.60	77.73	30.88	3.517	
3,100.00	3,089.94	3,086.01	3,064.15	16.23	16.58	34.02	-167.18	-195.84	119.49	87.52	31.98	3.737	
3,200.00	3,188.97	3,185.20	3,160.81	16.80	17.21	36.73	-176.68	-216.02	130.70	97.62	33.08	3.951	
3,300.00	3,288.00	3,284.39	3,257.46	17.37	17.85	39.02	-186.18	-236.21	142.16	107.96	34.20	4.157	
3,400.00	3,387.02	3,383.59	3,354.11	17.94	18.49	40.96	-195.68	-256.39	153.80	118.48	35.32	4.354	
3,500.00	3,486.05	3,482.78	3,450.77	18.52	19.14	42.63	-205.18	-276.57	165.59	129.14	36.45	4.543	
3,600.00	3,585.08	3,581.98	3,547.42	19.10	19.80	44.08	-214.68	-296.76	177.51	139.92	37.59	4.722	
3,700.00	3,684.10	3,681.17	3,644.07	19.68	20.45	45.34	-224.17	-316.94	189.52	150.79	38.74	4.893	
3,800.00	3,783.13	3,780.37	3,740.73	20.26	21.11	46.45	-233.67	-337.12	201.62	161.73	39.88	5.055	
3,900.00	3,882.16	3,879.56	3,837.38	20.84	21.78	47.44	-243.17	-357.31	213.78	172.74	41.04	5.209	
4,000.00	3,981.18	3,978.76	3,934.04	21.43	22.45	48.32	-252.67	-377.49	225.99	183.79	42.20	5.356	
4,100.00	4,080.21	4,077.95	4,030.69	22.02	23.12	49.11	-262.17	-397.67	238.25	194.90	43.36	5.495	
4,200.00	4,179.24	4,177.14	4,127.34	22.60	23.79	49.82	-271.67	-417.86	250.56	206.03	44.52	5.627	
4,300.00	4,278.26	4,276.34	4,224.00	23.19	24.47	50.47	-281.17	-438.04	262.89	217.20	45.69	5.753	
4,400.00	4,377.29	4,375.53	4,320.65	23.79	25.14	51.06	-290.67	-458.22	275.26	228.40	46.87	5.873	
4,500.00	4,476.32	4,474.73	4,417.30	24.38	25.82	51.60	-300.17	-478.40	287.66	239.61	48.04	5.988	
4,600.00	4,575.35	4,573.92	4,513.96	24.97	26.51	52.09	-309.67	-498.59	300.07	250.85	49.22	6.097	
4,700.00	4,674.37	4,673.12	4,610.61	25.56	27.19	52.54	-319.17	-518.77	312.51	262.11	50.40	6.201	
4,800.00	4,773.40	4,772.31	4,707.26	26.16	27.87	52.96	-328.67	-538.95	324.96	273.38	51.58	6.300	
4,900.00	4,872.43	4,871.50	4,803.92	26.76	28.56	53.35	-338.17	-559.14	337.43	284.66	52.77	6.395	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 5H - OH - Plan 1 12-21-17													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	
5,000.00	4,971.45	4,970.70	4,900.57	27.35	29.25	53.71	-347.67	-579.32	349.92	295.96	53.96	6.485	
5,100.00	5,070.48	5,069.89	4,997.23	27.95	29.94	54.05	-357.17	-599.50	362.42	307.27	55.14	6.572	
5,200.00	5,169.51	5,169.09	5,093.88	28.55	30.63	54.36	-366.67	-619.69	374.92	318.59	56.34	6.655	
5,300.00	5,268.53	5,273.27	5,195.45	29.15	31.35	54.69	-376.53	-640.63	387.21	329.65	57.56	6.727	
5,400.00	5,367.66	5,366.81	5,306.89	29.74	32.10	55.23	-385.79	-660.31	397.13	338.31	58.82	6.751	
5,500.00	5,467.17	5,500.89	5,419.62	30.31	32.81	55.63	-393.20	-676.05	405.36	345.34	60.02	6.754	
5,600.00	5,566.96	5,615.40	5,533.39	30.86	33.48	55.80	-398.71	-687.75	411.97	350.82	61.15	6.737	
5,700.00	5,666.91	5,730.26	5,647.94	31.39	34.09	55.77	-402.28	-695.35	416.94	354.74	62.21	6.703	
5,800.00	5,766.91	5,845.41	5,763.01	31.87	34.67	-89.85	-403.90	-698.78	419.81	356.51	63.31	6.631	
5,900.00	5,866.91	5,950.31	5,867.91	32.36	35.15	-89.86	-404.00	-699.00	420.00	355.69	64.31	6.531	
6,000.00	5,966.91	6,050.31	5,967.91	32.84	35.61	-89.86	-404.00	-699.00	420.00	354.72	65.28	6.433	
6,100.00	6,066.91	6,150.31	6,067.91	33.33	36.07	-89.86	-404.00	-699.00	420.00	353.74	66.26	6.338	
6,200.00	6,166.91	6,250.31	6,167.91	33.82	36.53	-89.86	-404.00	-699.00	420.00	352.76	67.25	6.246	
6,300.00	6,266.91	6,350.31	6,267.91	34.31	37.00	-89.86	-404.00	-699.00	420.00	351.77	68.23	6.156	
6,400.00	6,366.91	6,450.31	6,367.91	34.80	37.46	-89.86	-404.00	-699.00	420.00	350.78	69.22	6.068	
6,500.00	6,466.91	6,550.31	6,467.91	35.29	37.93	-89.86	-404.00	-699.00	420.00	349.79	70.21	5.982	
6,600.00	6,566.91	6,650.31	6,567.91	35.78	38.40	-89.86	-404.00	-699.00	420.00	348.80	71.20	5.899	
6,700.00	6,666.91	6,750.31	6,667.91	36.28	38.87	-89.86	-404.00	-699.00	420.00	347.80	72.20	5.817	
6,800.00	6,766.91	6,850.31	6,767.91	36.78	39.34	-89.86	-404.00	-699.00	420.00	346.81	73.19	5.738	
6,900.00	6,866.91	6,950.31	6,867.91	37.27	39.82	-89.86	-404.00	-699.00	420.00	345.81	74.19	5.661	
7,000.00	6,966.91	7,050.31	6,967.91	37.77	40.30	-89.86	-404.00	-699.00	420.00	344.81	75.19	5.586	
7,100.00	7,066.91	7,150.31	7,067.91	38.27	40.77	-89.86	-404.00	-699.00	420.00	343.80	76.20	5.512	
7,200.00	7,166.91	7,250.31	7,167.91	38.77	41.25	-89.86	-404.00	-699.00	420.00	342.80	77.20	5.440	
7,300.00	7,266.91	7,350.31	7,267.91	39.27	41.73	-89.86	-404.00	-699.00	420.00	341.79	78.21	5.370	
7,400.00	7,366.91	7,450.31	7,367.91	39.78	42.22	-89.86	-404.00	-699.00	420.00	340.78	79.22	5.302	
7,500.00	7,466.91	7,550.31	7,467.91	40.28	42.70	-89.86	-404.00	-699.00	420.00	339.77	80.23	5.235	
7,600.00	7,566.91	7,650.31	7,567.91	40.78	43.18	-89.86	-404.00	-699.00	420.00	338.76	81.24	5.170	
7,700.00	7,666.91	7,750.31	7,667.91	41.29	43.67	-89.86	-404.00	-699.00	420.00	337.74	82.26	5.106	
7,800.00	7,766.91	7,850.31	7,767.91	41.79	44.16	-89.86	-404.00	-699.00	420.00	336.73	83.27	5.044	
7,900.00	7,866.91	7,950.31	7,867.91	42.30	44.65	-89.86	-404.00	-699.00	420.00	335.71	84.29	4.983	
8,000.00	7,966.91	8,050.31	7,967.91	42.81	45.14	-89.86	-404.00	-699.00	420.00	334.69	85.31	4.923	
8,100.00	8,066.91	8,150.31	8,067.91	43.32	45.63	-89.86	-404.00	-699.00	420.00	333.67	86.33	4.865	
8,200.00	8,166.91	8,250.31	8,167.91	43.83	46.12	-89.86	-404.00	-699.00	420.00	332.65	87.35	4.808	
8,300.00	8,266.91	8,350.31	8,267.91	44.34	46.61	-89.86	-404.00	-699.00	420.00	331.63	88.37	4.753	
8,400.00	8,366.91	8,450.31	8,367.91	44.85	47.10	-89.86	-404.00	-699.00	420.00	330.60	89.40	4.698	
8,500.00	8,466.91	8,550.31	8,467.91	45.36	47.60	-89.86	-404.00	-699.00	420.00	329.58	90.42	4.645	
8,600.00	8,566.91	8,650.31	8,567.91	45.87	48.09	-89.86	-404.00	-699.00	420.00	328.55	91.45	4.593	
8,700.00	8,666.91	8,750.31	8,667.91	46.38	48.59	-89.86	-404.00	-699.00	420.00	327.53	92.48	4.542	
8,800.00	8,766.91	8,850.31	8,767.91	46.89	49.09	-89.86	-404.00	-699.00	420.00	326.50	93.50	4.492	
8,900.00	8,866.91	8,950.31	8,867.91	47.41	49.59	-89.86	-404.00	-699.00	420.00	325.47	94.53	4.443	
9,000.00	8,966.91	9,050.31	8,967.91	47.92	50.09	-89.86	-404.00	-699.00	420.00	324.44	95.56	4.395	
9,100.00	9,066.91	9,150.84	9,068.32	48.44	50.58	-90.35	-407.56	-698.95	419.96	323.39	96.57	4.349	
9,127.03	9,093.95	9,177.72	9,094.95	48.58	50.72	-90.84	-411.18	-698.89	419.94	323.11	96.83	4.337	
9,200.00	9,166.91	9,248.00	9,163.49	48.95	51.08	-92.93	-426.50	-698.67	420.24	322.77	97.47	4.311	
9,300.00	9,266.91	9,336.55	9,246.33	49.47	51.54	-97.14	-457.53	-698.21	423.04	324.77	98.27	4.305	
9,400.00	9,366.41	9,417.68	9,317.21	50.00	51.97	78.61	-496.85	-697.63	429.90	330.77	99.13	4.337	
9,500.00	9,462.91	9,495.33	9,379.21	50.57	52.37	73.93	-543.50	-696.95	439.46	339.50	99.96	4.396	
9,600.00	9,553.47	9,570.30	9,432.56	51.18	52.76	69.76	-596.09	-696.17	450.53	350.13	100.39	4.488	
9,700.00	9,635.34	9,643.22	9,477.44	51.81	53.14	66.19	-653.50	-695.33	461.96	361.77	100.19	4.611	
9,800.00	9,706.03	9,714.57	9,513.95	52.48	53.53	63.24	-714.74	-694.42	472.76	373.39	99.37	4.757	
9,900.00	9,763.40	9,784.75	9,542.17	53.18	53.92	60.94	-778.94	-693.48	482.11	383.91	98.20	4.909	
10,000.00	9,805.70	9,850.00	9,561.18	53.92	54.31	59.33	-841.32	-692.56	489.41	392.25	97.16	5.037	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 5H - OH - Plan 1 12-21-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,100.00	9,831.65	9,922.90	9,573.89	54.69	54.78	58.25	-913.04	-691.50	494.12	397.37	96.75	5.107	
10,200.00	9,840.46	9,991.41	9,577.44	55.48	55.23	57.84	-981.41	-690.50	496.04	398.62	97.43	5.091	
10,300.00	9,838.50	10,086.99	9,575.17	56.31	55.93	57.80	-1,076.95	-689.09	496.25	397.35	98.90	5.018	
10,400.00	9,836.40	10,186.99	9,572.71	57.22	56.72	57.77	-1,176.91	-687.62	496.45	395.94	100.50	4.940	
10,500.00	9,834.31	10,286.99	9,570.25	58.19	57.60	57.73	-1,276.87	-686.15	496.64	394.42	102.22	4.858	
10,600.00	9,832.21	10,386.99	9,567.79	59.22	58.54	57.70	-1,376.83	-684.67	496.84	392.78	104.06	4.775	
10,700.00	9,830.12	10,486.99	9,565.32	60.31	59.54	57.66	-1,476.79	-683.20	497.03	391.03	106.00	4.689	
10,800.00	9,828.02	10,586.99	9,562.86	61.46	60.61	57.63	-1,576.75	-681.73	497.23	389.19	108.04	4.602	
10,900.00	9,825.93	10,686.99	9,560.40	62.66	61.73	57.59	-1,676.70	-680.26	497.42	387.25	110.18	4.515	
11,000.00	9,823.83	10,786.99	9,557.94	63.91	62.91	57.55	-1,776.66	-678.79	497.62	385.22	112.40	4.427	
11,100.00	9,821.74	10,886.98	9,555.48	65.21	64.14	57.52	-1,876.62	-677.31	497.82	383.10	114.71	4.340	
11,200.00	9,819.64	10,986.98	9,553.02	66.55	65.42	57.48	-1,976.58	-675.84	498.01	380.91	117.10	4.253	
11,300.00	9,817.54	11,086.98	9,550.56	67.93	66.75	57.45	-2,076.54	-674.37	498.21	378.64	119.57	4.167	
11,400.00	9,815.45	11,186.98	9,548.10	69.36	68.12	57.41	-2,176.49	-672.90	498.41	376.30	122.10	4.082	
11,500.00	9,813.35	11,286.98	9,545.64	70.82	69.53	57.38	-2,276.45	-671.43	498.60	373.90	124.70	3.998	
11,600.00	9,811.26	11,386.98	9,543.18	72.32	70.98	57.34	-2,376.41	-669.96	498.80	371.44	127.36	3.916	
11,700.00	9,809.16	11,486.98	9,540.72	73.85	72.46	57.31	-2,476.37	-668.48	499.00	368.92	130.08	3.836	
11,800.00	9,807.07	11,586.98	9,538.25	75.41	73.97	57.27	-2,576.33	-667.01	499.20	366.35	132.85	3.758	
11,900.00	9,804.97	11,686.98	9,535.79	77.00	75.52	57.24	-2,676.29	-665.54	499.39	363.73	135.67	3.681	
12,000.00	9,802.88	11,786.98	9,533.33	78.61	77.10	57.20	-2,776.24	-664.07	499.59	361.06	138.53	3.606	
12,100.00	9,800.78	11,886.98	9,530.87	80.25	78.70	57.17	-2,876.20	-662.60	499.79	358.35	141.44	3.534	
12,200.00	9,798.68	11,986.98	9,528.41	81.92	80.33	57.13	-2,976.16	-661.12	499.99	355.60	144.39	3.463	
12,300.00	9,796.59	12,086.98	9,525.95	83.61	81.99	57.10	-3,076.12	-659.65	500.19	352.80	147.38	3.394	
12,400.00	9,794.49	12,186.98	9,523.49	85.32	83.67	57.06	-3,176.08	-658.18	500.39	349.98	150.41	3.327	
12,500.00	9,792.40	12,286.98	9,521.03	87.05	85.37	57.03	-3,276.03	-656.71	500.59	347.12	153.47	3.262	
12,600.00	9,790.30	12,386.97	9,518.57	88.80	87.09	56.99	-3,375.99	-655.24	500.79	344.23	156.56	3.199	
12,700.00	9,788.21	12,486.97	9,516.11	90.56	88.83	56.96	-3,475.95	-653.76	500.98	341.31	159.68	3.137	
12,800.00	9,786.11	12,586.97	9,513.64	92.35	90.59	56.92	-3,575.91	-652.29	501.18	338.36	162.83	3.078	
12,900.00	9,784.02	12,686.97	9,511.18	94.15	92.36	56.89	-3,675.87	-650.82	501.38	335.39	166.00	3.020	
13,000.00	9,781.92	12,786.97	9,508.72	95.96	94.15	56.85	-3,775.83	-649.35	501.58	332.39	169.20	2.964	
13,100.00	9,779.82	12,886.97	9,506.26	97.79	95.96	56.82	-3,875.78	-647.88	501.78	329.37	172.42	2.910	
13,200.00	9,777.73	12,986.97	9,503.80	99.63	97.78	56.78	-3,975.74	-646.40	501.98	326.32	175.66	2.858	
13,300.00	9,775.63	13,086.97	9,501.34	101.48	99.61	56.75	-4,075.70	-644.93	502.19	323.28	178.92	2.807	
13,400.00	9,773.54	13,186.97	9,498.88	103.35	101.46	56.71	-4,175.66	-643.46	502.39	320.18	182.20	2.757	
13,500.00	9,771.44	13,286.97	9,496.42	105.22	103.32	56.68	-4,275.62	-641.99	502.59	317.08	185.50	2.709	
13,600.00	9,769.35	13,386.97	9,493.96	107.11	105.19	56.64	-4,375.58	-640.52	502.79	313.97	188.82	2.663	
13,700.00	9,767.25	13,486.97	9,491.50	109.01	107.07	56.61	-4,475.53	-639.04	502.99	310.84	192.15	2.618	
13,800.00	9,765.16	13,586.97	9,489.04	110.92	108.96	56.57	-4,575.49	-637.57	503.19	307.69	195.50	2.574	
13,900.00	9,763.06	13,686.97	9,486.57	112.83	110.86	56.54	-4,675.45	-636.10	503.39	304.53	198.86	2.531	
14,000.00	9,760.96	13,786.97	9,484.11	114.76	112.77	56.50	-4,775.41	-634.63	503.59	301.36	202.24	2.490	
14,100.00	9,758.87	13,886.96	9,481.65	116.69	114.69	56.47	-4,875.37	-633.16	503.80	298.17	205.62	2.450	
14,200.00	9,756.77	13,986.96	9,479.19	118.63	116.62	56.43	-4,975.32	-631.68	504.00	294.98	209.02	2.411	
14,300.00	9,754.68	14,086.96	9,476.73	120.58	118.56	56.40	-5,075.28	-630.21	504.20	291.77	212.43	2.373	
14,400.00	9,752.58	14,186.96	9,474.27	122.54	120.50	56.36	-5,175.24	-628.74	504.40	288.55	215.85	2.337	
14,500.00	9,750.49	14,286.96	9,471.81	124.50	122.45	56.33	-5,275.20	-627.27	504.61	285.32	219.28	2.301	
14,600.00	9,748.39	14,386.96	9,469.35	126.47	124.41	56.30	-5,375.16	-625.80	504.81	282.09	222.72	2.267	
14,700.00	9,746.29	14,486.96	9,466.89	128.44	126.37	56.26	-5,475.12	-624.32	505.01	278.84	226.17	2.233	
14,800.00	9,744.20	14,586.96	9,464.43	130.42	128.35	56.23	-5,575.07	-622.85	505.22	275.59	229.63	2.200	
14,900.00	9,742.39	14,687.82	9,462.23	132.41	130.34	56.20	-5,675.00	-621.52	505.43	272.35	233.08	2.168	
15,000.00	9,742.58	14,788.42	9,461.89	134.39	132.33	56.15	-5,776.50	-621.13	505.75	269.24	236.51	2.138	
15,100.00	9,742.98	14,888.42	9,461.69	136.38	134.31	56.10	-5,876.50	-620.83	506.08	266.14	239.94	2.109	
15,200.00	9,743.38	14,988.42	9,461.49	138.38	136.30	56.04	-5,976.50	-620.52	506.41	263.04	243.37	2.081	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 5H - OH - Plan 1 12-21-17													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 +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
15,300.00	9,743.77	15,088.42	9,461.28	140.38	138.29	55.98	-6,076.49	-620.21	506.74	259.93	246.81	2.053		
15,400.00	9,744.17	15,188.42	9,461.08	142.39	140.29	55.93	-6,176.49	-619.90	507.08	256.82	250.26	2.026		
15,500.00	9,744.56	15,288.41	9,460.88	144.40	142.29	55.87	-6,276.49	-619.59	507.41	253.71	253.71	2.000		
15,600.00	9,744.96	15,388.41	9,460.68	146.41	144.30	55.82	-6,376.49	-619.28	507.75	250.59	257.16	1.974		
15,700.00	9,745.35	15,488.41	9,460.48	148.43	146.31	55.76	-6,476.48	-618.97	508.08	247.46	260.62	1.950		
15,800.00	9,745.75	15,588.41	9,460.28	150.45	148.32	55.71	-6,576.48	-618.67	508.42	244.34	264.08	1.925		
15,900.00	9,746.14	15,688.41	9,460.07	152.48	150.34	55.65	-6,676.48	-618.36	508.75	241.21	267.55	1.902		
16,000.00	9,746.54	15,788.41	9,459.87	154.51	152.37	55.59	-6,776.48	-618.05	509.09	238.08	271.01	1.878		
16,100.00	9,746.94	15,888.40	9,459.67	156.54	154.39	55.54	-6,876.47	-617.74	509.43	234.94	274.49	1.856		
16,200.00	9,747.33	15,988.40	9,459.47	158.58	156.42	55.48	-6,976.47	-617.43	509.77	231.81	277.96	1.834		
16,300.00	9,747.73	16,088.40	9,459.27	160.61	158.46	55.43	-7,076.47	-617.12	510.10	228.67	281.44	1.813		
16,400.00	9,748.12	16,188.40	9,459.07	162.66	160.49	55.37	-7,176.47	-616.82	510.44	225.53	284.91	1.792		
16,500.00	9,748.52	16,288.40	9,458.87	164.70	162.53	55.32	-7,276.46	-616.51	510.78	222.39	288.40	1.771		
16,600.00	9,748.91	16,388.39	9,458.66	166.75	164.57	55.26	-7,376.46	-616.20	511.12	219.24	291.88	1.751		
16,700.00	9,749.31	16,488.39	9,458.46	168.80	166.62	55.21	-7,476.46	-615.89	511.46	216.10	295.36	1.732		
16,800.00	9,749.71	16,588.39	9,458.26	170.85	168.67	55.15	-7,576.46	-615.58	511.80	212.95	298.85	1.713		
16,900.00	9,750.10	16,688.39	9,458.06	172.91	170.72	55.10	-7,676.45	-615.27	512.14	209.81	302.34	1.694		
17,000.00	9,750.50	16,788.39	9,457.86	174.97	172.77	55.04	-7,776.45	-614.97	512.48	206.66	305.82	1.676		
17,100.00	9,750.89	16,888.39	9,457.66	177.03	174.83	54.99	-7,876.45	-614.66	512.83	203.51	309.31	1.658		
17,200.00	9,751.29	16,988.38	9,457.45	179.09	176.89	54.93	-7,976.45	-614.35	513.17	200.36	312.80	1.641		
17,300.00	9,751.68	17,088.38	9,457.25	181.15	178.95	54.88	-8,076.44	-614.04	513.51	197.22	316.30	1.624		
17,400.00	9,752.08	17,188.38	9,457.05	183.22	181.01	54.82	-8,176.44	-613.73	513.85	194.07	319.79	1.607		
17,500.00	9,752.48	17,288.38	9,456.85	185.29	183.07	54.77	-8,276.44	-613.42	514.20	190.92	323.28	1.591		
17,600.00	9,752.87	17,388.38	9,456.65	187.36	185.14	54.72	-8,376.44	-613.11	514.54	187.77	326.77	1.575		
17,700.00	9,753.27	17,488.37	9,456.45	189.43	187.21	54.66	-8,476.43	-612.81	514.89	184.62	330.27	1.559		
17,800.00	9,753.66	17,588.37	9,456.25	191.51	189.28	54.61	-8,576.43	-612.50	515.23	181.47	333.76	1.544		
17,900.00	9,754.06	17,688.37	9,456.04	193.59	191.35	54.55	-8,676.43	-612.19	515.58	178.32	337.25	1.529		
18,000.00	9,754.45	17,788.37	9,455.84	195.66	193.43	54.50	-8,776.43	-611.88	515.92	175.18	340.75	1.514		
18,100.00	9,754.85	17,888.37	9,455.64	197.74	195.50	54.44	-8,876.42	-611.57	516.27	172.03	344.24	1.500 Level 3		
18,200.00	9,755.25	17,988.37	9,455.44	199.82	197.58	54.39	-8,976.42	-611.26	516.62	168.88	347.73	1.486 Level 3		
18,300.00	9,755.64	18,088.36	9,455.24	201.91	199.66	54.34	-9,076.42	-610.96	516.96	165.74	351.23	1.472 Level 3		
18,400.00	9,756.04	18,188.36	9,455.04	203.99	201.74	54.28	-9,176.42	-610.65	517.31	162.59	354.72	1.458 Level 3		
18,500.00	9,756.43	18,288.36	9,454.83	206.08	203.83	54.23	-9,276.42	-610.34	517.66	159.45	358.21	1.445 Level 3		
18,600.00	9,756.83	18,388.36	9,454.63	208.17	205.91	54.18	-9,376.41	-610.03	518.01	156.31	361.70	1.432 Level 3		
18,700.00	9,757.22	18,488.36	9,454.43	210.26	208.00	54.12	-9,476.41	-609.72	518.36	153.17	365.19	1.419 Level 3		
18,800.00	9,757.62	18,588.36	9,454.23	212.35	210.08	54.07	-9,576.41	-609.41	518.71	150.02	368.68	1.407 Level 3		
18,900.00	9,758.01	18,688.35	9,454.03	214.44	212.17	54.02	-9,676.41	-609.10	519.06	146.89	372.17	1.395 Level 3		
19,000.00	9,758.41	18,788.35	9,453.83	216.53	214.26	53.96	-9,776.40	-608.80	519.41	143.75	375.66	1.383 Level 3		
19,100.00	9,758.81	18,888.35	9,453.63	218.62	216.35	53.91	-9,876.40	-608.49	519.76	140.61	379.15	1.371 Level 3		
19,200.00	9,759.20	18,988.35	9,453.42	220.72	218.45	53.86	-9,976.40	-608.18	520.11	137.47	382.64	1.359 Level 3		
19,300.00	9,759.60	19,088.35	9,453.22	222.82	220.54	53.80	-10,076.40	-607.87	520.46	134.34	386.12	1.348 Level 3		
19,400.00	9,759.99	19,188.34	9,453.02	224.91	222.63	53.75	-10,176.39	-607.56	520.82	131.21	389.61	1.337 Level 3		
19,500.00	9,760.39	19,288.34	9,452.82	227.01	224.73	53.70	-10,276.39	-607.25	521.17	128.08	393.09	1.326 Level 3		
19,600.00	9,760.78	19,388.34	9,452.62	229.11	226.83	53.64	-10,376.39	-606.95	521.52	124.95	396.57	1.315 Level 3		
19,700.00	9,761.18	19,488.34	9,452.42	231.21	228.93	53.59	-10,476.39	-606.64	521.87	121.82	400.06	1.305 Level 3		
19,800.00	9,761.58	19,588.34	9,452.22	233.31	231.03	53.54	-10,576.38	-606.33	522.23	118.69	403.54	1.294 Level 3		
19,900.00	9,761.97	19,688.34	9,452.01	235.42	233.13	53.48	-10,676.38	-606.02	522.58	115.57	407.02	1.284 Level 3		
19,907.29	9,762.00	19,694.96	9,452.00	235.57	233.26	53.48	-10,683.00	-606.00	522.61	115.35	407.26	1.283 Level 3, SF		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 6H - OH - Plan 1 12-21-17												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	Offset	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	1.00	1.00	0.00	0.00	180.00	-100.00	0.00	100.00				
100.00	100.00	101.00	101.00	0.19	0.20	180.00	-100.00	0.00	100.00	99.61	0.39	254.760	
200.00	200.00	201.00	201.00	0.73	0.74	180.00	-100.00	0.00	100.00	98.53	1.47	68.123	
300.00	300.00	301.00	301.00	1.27	1.27	180.00	-100.00	0.00	100.00	97.46	2.54	39.318	
400.00	400.00	401.00	401.00	1.81	1.81	180.00	-100.00	0.00	100.00	96.38	3.62	27.634	
500.00	500.00	501.00	501.00	2.34	2.35	180.00	-100.00	0.00	100.00	95.31	4.69	21.303	
600.00	600.00	601.00	601.00	2.88	2.89	180.00	-100.00	0.00	100.00	94.23	5.77	17.332	
700.00	700.00	701.00	701.00	3.42	3.43	180.00	-100.00	0.00	100.00	93.15	6.85	14.609	
800.00	800.00	801.00	801.00	3.96	3.96	180.00	-100.00	0.00	100.00	92.08	7.92	12.626	
900.00	900.00	901.00	901.00	4.50	4.50	180.00	-100.00	0.00	100.00	91.00	9.00	11.116	
1,000.00	1,000.00	1,001.00	1,001.00	5.03	5.04	180.00	-100.00	0.00	100.00	89.93	10.07	9.929	
1,100.00	1,100.00	1,101.00	1,101.00	5.57	5.58	180.00	-100.00	0.00	100.00	88.85	11.15	8.971	
1,200.00	1,200.00	1,201.00	1,201.00	6.11	6.11	180.00	-100.00	0.00	100.00	87.78	12.22	8.182	
1,300.00	1,300.00	1,301.00	1,301.00	6.65	6.65	180.00	-100.00	0.00	100.00	86.70	13.30	7.520	
1,400.00	1,400.00	1,401.00	1,401.00	7.18	7.19	180.00	-100.00	0.00	100.00	85.63	14.37	6.958	
1,500.00	1,500.00	1,501.00	1,501.00	7.72	7.73	180.00	-100.00	0.00	100.00	84.55	15.45	6.473	
1,600.00	1,600.00	1,601.00	1,601.00	8.26	8.26	180.00	-100.00	0.00	100.00	83.48	16.52	6.052	
1,700.00	1,700.00	1,701.00	1,701.00	8.80	8.80	180.00	-100.00	0.00	100.00	82.40	17.60	5.682	
1,766.33	1,766.33	1,767.33	1,767.33	9.15	9.16	180.00	-100.00	0.00	100.00	81.69	18.31	5.461	
1,800.00	1,800.00	1,800.99	1,800.99	9.33	9.34	-180.00	-100.00	0.00	100.00	81.33	18.67	5.355	
1,900.00	1,899.98	1,900.00	1,899.98	9.85	9.86	-34.15	-100.34	-1.71	98.91	79.21	19.70	5.021	
2,000.00	1,999.84	1,999.52	1,999.36	10.34	10.36	-32.88	-101.34	-6.82	95.64	74.97	20.67	4.626	
2,100.00	2,099.45	2,098.53	2,097.99	10.84	10.88	-30.59	-102.99	-15.25	90.33	68.69	21.64	4.175	
2,200.00	2,198.70	2,197.23	2,195.96	11.34	11.39	-26.90	-105.29	-26.98	83.17	60.59	22.58	3.683	
2,300.00	2,297.73	2,295.58	2,293.12	11.86	11.92	-20.65	-108.23	-41.96	76.24	52.65	23.59	3.232	
2,400.00	2,396.76	2,393.45	2,389.21	12.38	12.46	-11.11	-111.79	-60.10	72.31	47.71	24.60	2.939	
2,436.55	2,432.95	2,429.05	2,424.00	12.58	12.66	-6.91	-113.25	-67.50	71.97	46.99	24.98	2.881 CC, ES	
2,500.00	2,495.78	2,490.60	2,483.93	12.92	13.01	0.91	-115.95	-81.29	73.12	47.49	25.62	2.854 SF	
2,600.00	2,594.81	2,586.82	2,576.97	13.46	13.58	13.29	-120.68	-105.36	80.04	53.38	26.65	3.003	
2,700.00	2,693.84	2,681.92	2,668.06	14.00	14.17	23.96	-125.93	-132.16	93.33	65.64	27.69	3.370	
2,800.00	2,792.86	2,775.71	2,756.95	14.55	14.79	32.09	-131.69	-161.48	112.34	83.60	28.74	3.909	
2,900.00	2,891.89	2,868.02	2,843.45	15.11	15.43	37.91	-137.89	-193.10	136.15	106.37	29.79	4.571	
3,000.00	2,990.92	2,958.69	2,927.36	15.67	16.11	42.00	-144.51	-226.82	164.06	133.23	30.84	5.320	
3,100.00	3,089.94	3,047.60	3,008.53	16.23	16.81	44.86	-151.49	-262.39	195.55	163.67	31.88	6.134	
3,200.00	3,188.97	3,134.62	3,086.87	16.80	17.54	46.87	-158.79	-299.58	230.28	197.36	32.92	6.995	
3,300.00	3,288.00	3,219.67	3,162.27	17.37	18.30	48.29	-166.36	-338.17	268.00	234.05	33.95	7.893	
3,400.00	3,387.02	3,302.66	3,234.70	17.94	19.10	49.30	-174.16	-377.93	308.52	273.54	34.98	8.820	
3,500.00	3,486.05	3,387.60	3,307.70	18.52	19.96	50.06	-182.52	-420.53	351.46	315.44	36.02	9.756	
3,600.00	3,585.08	3,477.60	3,384.85	19.10	20.92	50.68	-191.45	-466.02	394.89	357.79	37.10	10.644	
3,700.00	3,684.10	3,567.61	3,462.00	19.68	21.91	51.18	-200.38	-511.52	438.34	400.15	38.19	11.479	
3,800.00	3,783.13	3,657.62	3,539.15	20.26	22.92	51.59	-209.30	-557.01	481.81	442.53	39.28	12.265	
3,900.00	3,882.16	3,747.63	3,616.30	20.84	23.95	51.93	-218.23	-602.50	525.30	484.91	40.39	13.006	
4,000.00	3,981.18	3,837.63	3,693.45	21.43	25.00	52.22	-227.16	-648.00	568.80	527.30	41.50	13.705	
4,100.00	4,080.21	3,927.64	3,770.60	22.02	26.07	52.46	-236.08	-693.49	612.31	569.69	42.63	14.365	
4,200.00	4,179.24	4,017.65	3,847.75	22.60	27.16	52.68	-245.01	-738.98	655.84	612.08	43.76	14.989	
4,300.00	4,278.26	4,107.66	3,924.90	23.19	28.25	52.87	-253.94	-784.48	699.36	654.47	44.89	15.578	
4,400.00	4,377.29	4,197.66	4,002.05	23.79	29.36	53.03	-262.87	-829.97	742.90	696.86	46.04	16.137	
4,500.00	4,476.32	4,287.67	4,079.20	24.38	30.48	53.18	-271.79	-875.46	786.43	739.24	47.19	16.666	
4,600.00	4,575.35	4,377.68	4,156.35	24.97	31.61	53.31	-280.72	-920.96	829.97	781.63	48.34	17.168	
4,700.00	4,674.37	4,467.69	4,233.49	25.56	32.75	53.43	-289.65	-966.45	873.52	824.01	49.51	17.645	
4,800.00	4,773.40	4,557.69	4,310.64	26.16	33.89	53.54	-298.57	-1,011.94	917.06	866.39	50.67	18.098	
4,900.00	4,872.43	4,647.70	4,387.79	26.76	35.05	53.64	-307.50	-1,057.43	960.61	908.77	51.84	18.529	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 6H - OH - Plan 1 12-21-17													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	
5,000.00	4,971.45	4,737.71	4,464.94	27.35	36.20	53.73	-316.43	-1,102.93	1,004.17	951.15	53.02	18.940	
5,100.00	5,070.48	4,839.91	4,552.64	27.95	37.52	53.82	-326.53	-1,154.41	1,047.59	993.31	54.28	19.300	
5,200.00	5,169.51	4,984.17	4,678.95	28.55	39.29	54.00	-339.95	-1,222.78	1,087.86	1,032.04	55.82	19.488	
5,300.00	5,268.53	5,134.45	4,814.08	29.15	40.98	54.25	-352.60	-1,287.27	1,123.47	1,066.06	57.41	19.569	
5,400.00	5,367.66	5,290.08	4,957.46	29.74	42.59	54.86	-364.25	-1,346.63	1,154.59	1,095.62	58.98	19.577	
5,500.00	5,467.17	5,450.06	5,108.03	30.31	44.05	55.44	-374.64	-1,399.59	1,182.37	1,121.91	60.47	19.554	
5,600.00	5,566.96	5,614.02	5,265.23	30.86	45.39	55.82	-383.60	-1,445.22	1,206.72	1,144.83	61.88	19.500	
5,700.00	5,666.91	5,781.56	5,428.35	31.39	46.57	55.99	-390.94	-1,482.66	1,227.46	1,164.25	63.21	19.418	
5,800.00	5,766.91	5,952.34	5,596.62	31.87	47.59	-89.61	-396.53	-1,511.13	1,244.01	1,179.33	64.68	19.233	
5,900.00	5,866.91	6,126.01	5,769.20	32.36	48.46	-89.78	-400.22	-1,529.94	1,254.84	1,188.80	66.04	19.001	
6,000.00	5,966.91	6,301.39	5,944.34	32.84	49.19	-89.86	-401.90	-1,538.49	1,259.71	1,192.34	67.37	18.699	
6,100.00	6,066.91	6,424.97	6,067.91	33.33	49.62	-89.86	-402.00	-1,539.00	1,260.00	1,191.59	68.41	18.417	
6,200.00	6,166.91	6,524.97	6,167.91	33.82	49.96	-89.86	-402.00	-1,539.00	1,260.00	1,190.65	69.35	18.168	
6,300.00	6,266.91	6,624.97	6,267.91	34.31	50.31	-89.86	-402.00	-1,539.00	1,260.00	1,189.71	70.29	17.925	
6,400.00	6,366.91	6,724.97	6,367.91	34.80	50.66	-89.86	-402.00	-1,539.00	1,260.00	1,188.76	71.24	17.687	
6,500.00	6,466.91	6,824.97	6,467.91	35.29	51.01	-89.86	-402.00	-1,539.00	1,260.00	1,187.81	72.19	17.454	
6,600.00	6,566.91	6,924.97	6,567.91	35.78	51.37	-89.86	-402.00	-1,539.00	1,260.00	1,186.86	73.14	17.227	
6,700.00	6,666.91	7,024.97	6,667.91	36.28	51.73	-89.86	-402.00	-1,539.00	1,260.00	1,185.91	74.10	17.005	
6,800.00	6,766.91	7,124.97	6,767.91	36.78	52.09	-89.86	-402.00	-1,539.00	1,260.00	1,184.95	75.06	16.787	
6,900.00	6,866.91	7,224.97	6,867.91	37.27	52.45	-89.86	-402.00	-1,539.00	1,260.00	1,183.98	76.02	16.575	
7,000.00	6,966.91	7,324.97	6,967.91	37.77	52.82	-89.86	-402.00	-1,539.00	1,260.00	1,183.02	76.98	16.367	
7,100.00	7,066.91	7,424.97	7,067.91	38.27	53.19	-89.86	-402.00	-1,539.00	1,260.00	1,182.05	77.95	16.164	
7,200.00	7,166.91	7,524.97	7,167.91	38.77	53.57	-89.86	-402.00	-1,539.00	1,260.00	1,181.08	78.92	15.965	
7,300.00	7,266.91	7,624.97	7,267.91	39.27	53.94	-89.86	-402.00	-1,539.00	1,260.00	1,180.11	79.90	15.770	
7,400.00	7,366.91	7,724.97	7,367.91	39.78	54.32	-89.86	-402.00	-1,539.00	1,260.00	1,179.13	80.87	15.580	
7,500.00	7,466.91	7,824.97	7,467.91	40.28	54.71	-89.86	-402.00	-1,539.00	1,260.00	1,178.15	81.85	15.394	
7,600.00	7,566.91	7,924.97	7,567.91	40.78	55.09	-89.86	-402.00	-1,539.00	1,260.00	1,177.17	82.83	15.212	
7,700.00	7,666.91	8,024.97	7,667.91	41.29	55.48	-89.86	-402.00	-1,539.00	1,260.00	1,176.19	83.81	15.033	
7,800.00	7,766.91	8,124.97	7,767.91	41.79	55.87	-89.86	-402.00	-1,539.00	1,260.00	1,175.20	84.80	14.859	
7,900.00	7,866.91	8,224.97	7,867.91	42.30	56.26	-89.86	-402.00	-1,539.00	1,260.00	1,174.22	85.79	14.688	
8,000.00	7,966.91	8,324.97	7,967.91	42.81	56.66	-89.86	-402.00	-1,539.00	1,260.00	1,173.23	86.78	14.520	
8,100.00	8,066.91	8,424.97	8,067.91	43.32	57.05	-89.86	-402.00	-1,539.00	1,260.00	1,172.24	87.77	14.356	
8,200.00	8,166.91	8,524.97	8,167.91	43.83	57.45	-89.86	-402.00	-1,539.00	1,260.00	1,171.24	88.76	14.195	
8,300.00	8,266.91	8,624.97	8,267.91	44.34	57.85	-89.86	-402.00	-1,539.00	1,260.00	1,170.25	89.76	14.038	
8,400.00	8,366.91	8,724.97	8,367.91	44.85	58.26	-89.86	-402.00	-1,539.00	1,260.00	1,169.25	90.75	13.884	
8,500.00	8,466.91	8,824.97	8,467.91	45.36	58.66	-89.86	-402.00	-1,539.00	1,260.00	1,168.25	91.75	13.733	
8,600.00	8,566.91	8,924.97	8,567.91	45.87	59.07	-89.86	-402.00	-1,539.00	1,260.00	1,167.25	92.75	13.584	
8,700.00	8,666.91	9,024.97	8,667.91	46.38	59.48	-89.86	-402.00	-1,539.00	1,260.00	1,166.25	93.76	13.439	
8,800.00	8,766.91	9,124.97	8,767.91	46.89	59.89	-89.86	-402.00	-1,539.00	1,260.00	1,165.24	94.76	13.297	
8,900.00	8,866.91	9,224.97	8,867.91	47.41	60.31	-89.86	-402.00	-1,539.00	1,260.00	1,164.24	95.76	13.157	
9,000.00	8,966.91	9,325.66	8,968.60	47.92	60.72	-89.88	-402.30	-1,539.00	1,260.00	1,163.23	96.77	13.020	
9,100.00	9,066.91	9,427.76	9,069.81	48.44	61.14	-90.44	-414.67	-1,538.81	1,259.85	1,162.13	97.73	12.892	
9,137.74	9,104.65	9,464.69	9,105.65	48.63	61.29	-90.84	-423.55	-1,538.68	1,259.82	1,161.76	98.06	12.847	
9,200.00	9,166.91	9,522.69	9,160.58	48.95	61.53	-91.69	-442.10	-1,538.41	1,259.98	1,161.39	98.59	12.780	
9,300.00	9,266.91	9,606.71	9,236.18	49.47	61.87	-93.35	-478.58	-1,537.87	1,261.42	1,162.05	99.37	12.694	
9,400.00	9,366.41	9,682.66	9,299.27	50.00	62.17	85.50	-520.75	-1,537.25	1,264.77	1,164.58	100.18	12.624	
9,500.00	9,462.91	9,750.00	9,350.12	50.57	62.43	83.69	-564.84	-1,536.60	1,269.46	1,168.28	101.18	12.546	
9,600.00	9,553.47	9,825.48	9,400.53	51.18	62.69	81.80	-620.95	-1,535.78	1,274.94	1,172.65	102.29	12.464	
9,700.00	9,635.34	9,900.00	9,442.63	51.81	62.95	80.08	-682.36	-1,534.87	1,280.76	1,177.37	103.38	12.388	
9,800.00	9,706.03	9,960.68	9,470.80	52.48	63.15	78.75	-736.07	-1,534.08	1,286.35	1,181.96	104.38	12.323	
9,900.00	9,763.40	10,026.53	9,494.75	53.18	63.36	77.58	-797.36	-1,533.18	1,291.35	1,185.95	105.40	12.251	
10,000.00	9,805.70	10,100.00	9,512.99	53.92	63.61	76.63	-868.47	-1,532.13	1,295.42	1,188.89	106.53	12.160	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 6H - OH - Plan 1 12-21-17														Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDM														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 Centra +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,100.00	9,831.65	10,150.00	9,520.12	54.69	63.78	76.11	-917.94	-1,531.40	1,298.19	1,190.49	107.70	12.054		
10,200.00	9,840.46	10,221.51	9,522.78	55.48	64.04	75.80	-989.35	-1,530.35	1,299.52	1,190.31	109.21	11.899		
10,300.00	9,838.50	10,321.51	9,520.74	56.31	64.44	75.80	-1,089.32	-1,528.88	1,299.54	1,188.69	110.85	11.723		
10,400.00	9,836.40	10,421.51	9,518.70	57.22	64.90	75.80	-1,189.29	-1,527.41	1,299.53	1,186.95	112.57	11.544		
10,500.00	9,834.31	10,521.51	9,516.66	58.19	65.42	75.80	-1,289.25	-1,525.94	1,299.51	1,185.09	114.43	11.357		
10,600.00	9,832.21	10,621.51	9,514.62	59.22	66.00	75.81	-1,389.22	-1,524.47	1,299.50	1,183.10	116.40	11.164		
10,700.00	9,830.12	10,721.51	9,512.58	60.31	66.65	75.81	-1,489.19	-1,522.99	1,299.49	1,180.99	118.50	10.966		
10,800.00	9,828.02	10,821.51	9,510.54	61.46	67.36	75.81	-1,589.16	-1,521.52	1,299.48	1,178.77	120.70	10.766		
10,900.00	9,825.93	10,921.51	9,508.50	62.66	68.15	75.81	-1,689.13	-1,520.05	1,299.46	1,176.45	123.02	10.563		
11,000.00	9,823.83	11,021.51	9,506.46	63.91	69.00	75.81	-1,789.10	-1,518.58	1,299.45	1,174.02	125.43	10.360		
11,100.00	9,821.74	11,121.51	9,504.41	65.21	69.91	75.82	-1,889.06	-1,517.11	1,299.44	1,171.50	127.93	10.157		
11,200.00	9,819.64	11,221.51	9,502.37	66.55	70.90	75.82	-1,989.03	-1,515.63	1,299.42	1,168.89	130.53	9.955		
11,300.00	9,817.54	11,321.51	9,500.33	67.93	71.94	75.82	-2,089.00	-1,514.16	1,299.41	1,166.20	133.21	9.755		
11,400.00	9,815.45	11,421.51	9,498.29	69.36	73.05	75.82	-2,188.97	-1,512.69	1,299.40	1,163.43	135.97	9.557		
11,500.00	9,813.35	11,521.51	9,496.25	70.82	74.21	75.83	-2,288.94	-1,511.22	1,299.39	1,160.59	138.80	9.362		
11,600.00	9,811.26	11,621.51	9,494.21	72.32	75.43	75.83	-2,388.91	-1,509.75	1,299.37	1,157.67	141.70	9.170		
11,700.00	9,809.16	11,721.51	9,492.17	73.85	76.69	75.83	-2,488.87	-1,508.28	1,299.36	1,154.69	144.67	8.982		
11,800.00	9,807.07	11,821.51	9,490.13	75.41	78.01	75.83	-2,588.84	-1,506.80	1,299.35	1,151.65	147.69	8.798		
11,900.00	9,804.97	11,921.51	9,488.09	77.00	79.37	75.84	-2,688.81	-1,505.33	1,299.33	1,148.55	150.78	8.617		
12,000.00	9,802.88	12,021.51	9,486.05	78.61	80.77	75.84	-2,788.78	-1,503.86	1,299.32	1,145.40	153.92	8.442		
12,100.00	9,800.78	12,121.51	9,484.01	80.25	82.20	75.84	-2,888.75	-1,502.39	1,299.31	1,142.20	157.11	8.270		
12,200.00	9,798.68	12,221.51	9,481.96	81.92	83.68	75.84	-2,988.72	-1,500.92	1,299.30	1,138.95	160.35	8.103		
12,300.00	9,796.59	12,321.51	9,479.92	83.61	85.19	75.85	-3,088.68	-1,499.44	1,299.28	1,135.65	163.63	7.940		
12,400.00	9,794.49	12,421.51	9,477.88	85.32	86.73	75.85	-3,188.65	-1,497.97	1,299.27	1,132.31	166.96	7.782		
12,500.00	9,792.40	12,521.51	9,475.84	87.05	88.30	75.85	-3,288.62	-1,496.50	1,299.26	1,128.93	170.33	7.628		
12,600.00	9,790.30	12,621.51	9,473.80	88.80	89.90	75.85	-3,388.59	-1,495.03	1,299.24	1,125.51	173.73	7.478		
12,700.00	9,788.21	12,721.51	9,471.76	90.56	91.53	75.85	-3,488.56	-1,493.56	1,299.23	1,122.06	177.17	7.333		
12,800.00	9,786.11	12,821.51	9,469.72	92.35	93.17	75.86	-3,588.53	-1,492.09	1,299.22	1,118.57	180.65	7.192		
12,900.00	9,784.02	12,921.51	9,467.68	94.15	94.85	75.86	-3,688.49	-1,490.61	1,299.21	1,115.05	184.15	7.055		
13,000.00	9,781.92	13,021.51	9,465.64	95.96	96.54	75.86	-3,788.46	-1,489.14	1,299.19	1,111.51	187.69	6.922		
13,100.00	9,779.82	13,121.51	9,463.60	97.79	98.25	75.86	-3,888.43	-1,487.67	1,299.18	1,107.93	191.25	6.793		
13,200.00	9,777.73	13,221.51	9,461.56	99.63	99.99	75.87	-3,988.40	-1,486.20	1,299.17	1,104.33	194.84	6.668		
13,300.00	9,775.63	13,321.51	9,459.51	101.48	101.74	75.87	-4,088.37	-1,484.73	1,299.15	1,100.70	198.46	6.546		
13,400.00	9,773.54	13,421.51	9,457.47	103.35	103.50	75.87	-4,188.34	-1,483.25	1,299.14	1,097.05	202.09	6.428		
13,500.00	9,771.44	13,521.51	9,455.43	105.22	105.29	75.87	-4,288.30	-1,481.78	1,299.13	1,093.37	205.76	6.314		
13,600.00	9,769.35	13,621.51	9,453.39	107.11	107.08	75.88	-4,388.27	-1,480.31	1,299.12	1,089.68	209.44	6.203		
13,700.00	9,767.25	13,721.51	9,451.35	109.01	108.90	75.88	-4,488.24	-1,478.84	1,299.10	1,085.96	213.14	6.095		
13,800.00	9,765.16	13,821.51	9,449.31	110.92	110.72	75.88	-4,588.21	-1,477.37	1,299.09	1,082.23	216.86	5.990		
13,900.00	9,763.06	13,921.51	9,447.27	112.83	112.56	75.88	-4,688.18	-1,475.90	1,299.08	1,078.47	220.61	5.889		
14,000.00	9,760.96	14,021.51	9,445.23	114.76	114.41	75.88	-4,788.15	-1,474.42	1,299.07	1,074.70	224.36	5.790		
14,100.00	9,758.87	14,121.51	9,443.19	116.69	116.27	75.89	-4,888.11	-1,472.95	1,299.05	1,070.91	228.14	5.694		
14,200.00	9,756.77	14,221.51	9,441.15	118.63	118.14	75.89	-4,988.08	-1,471.48	1,299.04	1,067.11	231.93	5.601		
14,300.00	9,754.68	14,321.51	9,439.11	120.58	120.03	75.89	-5,088.05	-1,470.01	1,299.03	1,063.29	235.73	5.511		
14,400.00	9,752.58	14,421.51	9,437.06	122.54	121.92	75.89	-5,188.02	-1,468.54	1,299.01	1,059.46	239.55	5.423		
14,500.00	9,750.49	14,521.51	9,435.02	124.50	123.82	75.90	-5,287.99	-1,467.06	1,299.00	1,055.61	243.39	5.337		
14,600.00	9,748.39	14,621.51	9,432.98	126.47	125.73	75.90	-5,387.96	-1,465.59	1,298.99	1,051.75	247.23	5.254		
14,700.00	9,746.29	14,721.51	9,430.94	128.44	127.65	75.90	-5,487.92	-1,464.12	1,298.98	1,047.88	251.09	5.173		
14,800.00	9,744.20	14,821.51	9,428.90	130.42	129.58	75.90	-5,587.89	-1,462.65	1,298.96	1,044.00	254.96	5.095		
14,824.97	9,743.72	14,846.48	9,428.39	130.92	130.06	75.90	-5,612.85	-1,462.28	1,298.95	1,043.00	255.95	5.075		
14,900.00	9,742.39	14,912.33	9,427.34	132.41	131.33	75.92	-5,678.69	-1,461.56	1,299.09	1,040.35	258.74	5.021		
15,000.00	9,742.58	15,011.29	9,426.70	134.39	133.25	75.89	-5,777.64	-1,461.25	1,299.38	1,036.74	262.63	4.947		
15,100.00	9,742.98	15,111.28	9,426.05	136.38	135.20	75.84	-5,877.63	-1,460.93	1,299.63	1,033.13	266.50	4.877		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 001 - 6H - OH - Plan 1 12-21-17													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 Centro +N/-S (usft)	+E/-W (usft)					
15,200.00	9,743.38	15,211.27	9,425.40	138.38	137.15	75.80	-5,977.63	-1,460.62	1,299.88	1,029.52	270.37	4.808	
15,300.00	9,743.77	15,311.27	9,424.76	140.38	139.11	75.75	-6,077.62	-1,460.31	1,300.13	1,025.89	274.24	4.741	
15,400.00	9,744.17	15,411.26	9,424.11	142.39	141.08	75.71	-6,177.61	-1,460.00	1,300.39	1,022.26	278.13	4.675	
15,500.00	9,744.56	15,511.26	9,423.47	144.40	143.05	75.66	-6,277.60	-1,459.69	1,300.64	1,018.62	282.02	4.612	
15,600.00	9,744.96	15,611.25	9,422.82	146.41	145.02	75.62	-6,377.59	-1,459.38	1,300.90	1,014.97	285.93	4.550	
15,700.00	9,745.35	15,711.25	9,422.17	148.43	147.00	75.57	-6,477.59	-1,459.07	1,301.15	1,011.32	289.83	4.489	
15,800.00	9,745.75	15,811.24	9,421.53	150.45	148.99	75.53	-6,577.58	-1,458.76	1,301.41	1,007.66	293.75	4.430	
15,900.00	9,746.14	15,911.24	9,420.88	152.48	150.98	75.48	-6,677.57	-1,458.45	1,301.67	1,004.00	297.67	4.373	
16,000.00	9,746.54	16,011.23	9,420.23	154.51	152.98	75.44	-6,777.56	-1,458.14	1,301.93	1,000.33	301.60	4.317	
16,100.00	9,746.94	16,111.23	9,419.59	156.54	154.98	75.40	-6,877.55	-1,457.83	1,302.19	996.66	305.53	4.262	
16,200.00	9,747.33	16,211.22	9,418.94	158.58	156.98	75.35	-6,977.55	-1,457.52	1,302.45	992.98	309.47	4.209	
16,300.00	9,747.73	16,311.21	9,418.30	160.61	158.99	75.31	-7,077.54	-1,457.20	1,302.71	989.30	313.41	4.157	
16,400.00	9,748.12	16,411.21	9,417.65	162.66	161.01	75.26	-7,177.53	-1,456.89	1,302.97	985.61	317.36	4.106	
16,500.00	9,748.52	16,511.20	9,417.00	164.70	163.02	75.22	-7,277.52	-1,456.58	1,303.23	981.92	321.31	4.056	
16,600.00	9,748.91	16,611.20	9,416.36	166.75	165.04	75.17	-7,377.51	-1,456.27	1,303.50	978.23	325.26	4.007	
16,700.00	9,749.31	16,711.19	9,415.71	168.80	167.07	75.13	-7,477.51	-1,455.96	1,303.76	974.53	329.23	3.960	
16,800.00	9,749.71	16,811.19	9,415.06	170.85	169.09	75.09	-7,577.50	-1,455.65	1,304.02	970.83	333.19	3.914	
16,900.00	9,750.10	16,911.18	9,414.42	172.91	171.12	75.04	-7,677.49	-1,455.34	1,304.29	967.13	337.16	3.868	
17,000.00	9,750.50	17,011.18	9,413.77	174.97	173.15	75.00	-7,777.48	-1,455.03	1,304.56	963.43	341.13	3.824	
17,100.00	9,750.89	17,111.17	9,413.13	177.03	175.19	74.95	-7,877.47	-1,454.72	1,304.82	959.72	345.11	3.781	
17,200.00	9,751.29	17,211.17	9,412.48	179.09	177.23	74.91	-7,977.47	-1,454.41	1,305.09	956.01	349.08	3.739	
17,300.00	9,751.68	17,311.16	9,411.83	181.15	179.27	74.86	-8,077.46	-1,454.10	1,305.36	952.29	353.07	3.697	
17,400.00	9,752.08	17,411.16	9,411.19	183.22	181.32	74.82	-8,177.45	-1,453.79	1,305.63	948.58	357.05	3.657	
17,500.00	9,752.48	17,511.15	9,410.54	185.29	183.36	74.78	-8,277.44	-1,453.47	1,305.90	944.86	361.04	3.617	
17,600.00	9,752.87	17,611.14	9,409.89	187.36	185.41	74.73	-8,377.43	-1,453.16	1,306.17	941.14	365.03	3.578	
17,700.00	9,753.27	17,711.14	9,409.25	189.43	187.46	74.69	-8,477.43	-1,452.85	1,306.44	937.42	369.02	3.540	
17,800.00	9,753.66	17,811.13	9,408.60	191.51	189.52	74.64	-8,577.42	-1,452.54	1,306.72	933.70	373.02	3.503	
17,900.00	9,754.06	17,911.13	9,407.96	193.59	191.57	74.60	-8,677.41	-1,452.23	1,306.99	929.98	377.01	3.467	
18,000.00	9,754.45	18,011.12	9,407.31	195.66	193.63	74.56	-8,777.40	-1,451.92	1,307.26	926.25	381.01	3.431	
18,100.00	9,754.85	18,111.12	9,406.66	197.74	195.69	74.51	-8,877.39	-1,451.61	1,307.54	922.52	385.01	3.396	
18,200.00	9,755.25	18,211.11	9,406.02	199.82	197.76	74.47	-8,977.39	-1,451.30	1,307.81	918.80	389.02	3.362	
18,300.00	9,755.64	18,311.11	9,405.37	201.91	199.82	74.42	-9,077.38	-1,450.99	1,308.09	915.07	393.02	3.328	
18,400.00	9,756.04	18,411.10	9,404.72	203.99	201.89	74.38	-9,177.37	-1,450.68	1,308.37	911.34	397.03	3.295	
18,500.00	9,756.43	18,511.10	9,404.08	206.08	203.96	74.34	-9,277.36	-1,450.37	1,308.64	907.61	401.04	3.263	
18,600.00	9,756.83	18,611.09	9,403.43	208.17	206.03	74.29	-9,377.35	-1,450.06	1,308.92	903.88	405.05	3.232	
18,700.00	9,757.22	18,711.08	9,402.79	210.26	208.10	74.25	-9,477.35	-1,449.74	1,309.20	900.14	409.06	3.201	
18,800.00	9,757.62	18,811.08	9,402.14	212.35	210.17	74.20	-9,577.34	-1,449.43	1,309.48	896.41	413.07	3.170	
18,900.00	9,758.01	18,911.07	9,401.49	214.44	212.25	74.16	-9,677.33	-1,449.12	1,309.76	892.68	417.08	3.140	
19,000.00	9,758.41	19,011.07	9,400.85	216.53	214.33	74.12	-9,777.32	-1,448.81	1,310.05	888.95	421.10	3.111	
19,100.00	9,758.81	19,111.06	9,400.20	218.62	216.41	74.07	-9,877.31	-1,448.50	1,310.33	885.21	425.12	3.082	
19,200.00	9,759.20	19,211.06	9,399.55	220.72	218.49	74.03	-9,977.31	-1,448.19	1,310.61	881.48	429.13	3.054	
19,300.00	9,759.60	19,311.05	9,398.91	222.82	220.57	73.98	-10,077.30	-1,447.88	1,310.90	877.74	433.15	3.026	
19,400.00	9,759.99	19,411.05	9,398.26	224.91	222.65	73.94	-10,177.29	-1,447.57	1,311.18	874.01	437.17	2.999	
19,500.00	9,760.39	19,511.04	9,397.62	227.01	224.74	73.90	-10,277.28	-1,447.26	1,311.47	870.28	441.19	2.973	
19,600.00	9,760.78	19,611.04	9,396.97	229.11	226.82	73.85	-10,377.27	-1,446.95	1,311.75	866.54	445.21	2.946	
19,700.00	9,761.18	19,711.03	9,396.32	231.21	228.91	73.81	-10,477.27	-1,446.64	1,312.04	862.81	449.23	2.921	
19,800.00	9,761.58	19,811.03	9,395.68	233.31	231.00	73.77	-10,577.26	-1,446.33	1,312.33	859.07	453.25	2.895	
19,900.00	9,761.97	19,911.02	9,395.03	235.42	233.09	73.72	-10,677.25	-1,446.01	1,312.62	855.34	457.28	2.871	
19,907.29	9,762.00	19,915.77	9,395.00	235.57	233.19	73.72	-10,682.00	-1,446.00	1,312.64	855.12	457.52	2.869	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 3H - OH - Plan 1 12-20-17													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	
0.00	0.00	0.00	0.00	0.00	0.00	106.38	-521.00	1,773.00	1,847.98				
100.00	100.00	91.60	91.60	0.19	0.18	106.38	-521.00	1,773.00	1,847.96	1,847.59	0.37	5,002.448	
200.00	200.00	191.60	191.60	0.73	0.68	106.38	-521.00	1,773.00	1,847.96	1,846.55	1.42	1,305.258	
300.00	300.00	291.60	291.60	1.27	1.22	106.38	-521.00	1,773.00	1,847.96	1,845.47	2.49	741.797	
400.00	400.00	391.60	391.60	1.81	1.76	106.38	-521.00	1,773.00	1,847.96	1,844.40	3.57	518.128	
500.00	500.00	491.60	491.60	2.34	2.30	106.38	-521.00	1,773.00	1,847.96	1,843.32	4.64	398.094	
600.00	600.00	591.60	591.60	2.88	2.84	106.38	-521.00	1,773.00	1,847.96	1,842.25	5.72	323.215	
700.00	700.00	691.60	691.60	3.42	3.37	106.38	-521.00	1,773.00	1,847.96	1,841.17	6.79	272.045	
800.00	800.00	791.60	791.60	3.96	3.91	106.38	-521.00	1,773.00	1,847.96	1,840.10	7.87	234.863	
900.00	900.00	891.60	891.60	4.50	4.45	106.38	-521.00	1,773.00	1,847.96	1,839.02	8.94	206.622	
1,000.00	1,000.00	991.60	991.60	5.03	4.99	106.38	-521.00	1,773.00	1,847.96	1,837.94	10.02	184.444	
1,100.00	1,100.00	1,091.60	1,091.60	5.57	5.52	106.38	-521.00	1,773.00	1,847.96	1,836.87	11.09	166.566	
1,200.00	1,200.00	1,191.60	1,191.60	6.11	6.06	106.38	-521.00	1,773.00	1,847.96	1,835.79	12.17	151.847	
1,300.00	1,300.00	1,291.60	1,291.60	6.65	6.60	106.38	-521.00	1,773.00	1,847.96	1,834.72	13.25	139.518	
1,400.00	1,400.00	1,391.60	1,391.60	7.18	7.14	106.38	-521.00	1,773.00	1,847.96	1,833.64	14.32	129.041	
1,500.00	1,500.00	1,491.60	1,491.60	7.72	7.67	106.38	-521.00	1,773.00	1,847.96	1,832.57	15.40	120.027	
1,600.00	1,600.00	1,591.60	1,591.60	8.26	8.21	106.38	-521.00	1,773.00	1,847.96	1,831.49	16.47	112.191	
1,700.00	1,700.00	1,691.60	1,691.60	8.80	8.75	106.38	-521.00	1,773.00	1,847.96	1,830.42	17.55	105.315	
1,800.00	1,800.00	1,791.60	1,791.60	9.33	9.29	106.38	-521.00	1,773.00	1,847.96	1,829.34	18.62	99.233	
1,900.00	1,899.98	2,057.10	2,056.75	9.85	10.69	-108.41	-517.33	1,762.07	1,844.40	1,823.87	20.53	89.852	
2,000.00	1,999.84	2,184.04	2,183.03	10.34	11.36	-108.78	-513.20	1,749.80	1,835.73	1,814.05	21.68	84.682	
2,100.00	2,099.45	2,283.36	2,281.81	10.84	11.89	-109.20	-509.89	1,739.97	1,828.09	1,805.40	22.69	80.573	
2,200.00	2,198.70	2,382.41	2,380.32	11.34	12.43	-109.70	-506.59	1,730.16	1,821.66	1,797.96	23.70	76.848	
2,300.00	2,297.73	2,481.30	2,478.67	11.86	12.97	-110.12	-503.30	1,720.37	1,815.91	1,791.17	24.74	73.401	
2,400.00	2,396.76	2,580.18	2,577.01	12.38	13.51	-110.56	-500.01	1,710.58	1,810.26	1,784.47	25.78	70.208	
2,500.00	2,495.78	2,679.07	2,675.35	12.92	14.05	-110.99	-496.71	1,700.79	1,804.72	1,777.88	26.84	67.245	
2,600.00	2,594.81	2,777.95	2,773.70	13.46	14.59	-111.43	-493.42	1,691.00	1,799.28	1,771.38	27.90	64.493	
2,700.00	2,693.84	2,876.84	2,872.04	14.00	15.14	-111.87	-490.13	1,681.21	1,793.95	1,764.98	28.97	61.931	
2,800.00	2,792.86	2,975.72	2,970.39	14.55	15.69	-112.31	-486.84	1,671.42	1,788.72	1,758.68	30.04	59.544	
2,900.00	2,891.89	3,074.61	3,068.73	15.11	16.24	-112.76	-483.54	1,661.63	1,783.61	1,752.49	31.12	57.315	
3,000.00	2,890.92	3,173.50	3,167.07	15.67	16.79	-113.20	-480.25	1,651.83	1,778.61	1,746.40	32.20	55.231	
3,100.00	3,089.94	3,272.38	3,265.42	16.23	17.34	-113.65	-476.96	1,642.04	1,773.71	1,740.42	33.29	53.280	
3,200.00	3,188.97	3,371.27	3,363.76	16.80	17.90	-114.10	-473.67	1,632.25	1,768.93	1,734.55	34.38	51.450	
3,300.00	3,288.00	3,470.15	3,462.11	17.37	18.45	-114.56	-470.37	1,622.46	1,764.27	1,728.79	35.48	49.731	
3,400.00	3,387.02	3,569.04	3,560.45	17.94	19.01	-115.02	-467.08	1,612.67	1,759.71	1,723.14	36.57	48.114	
3,500.00	3,486.05	3,667.92	3,658.79	18.52	19.56	-115.47	-463.79	1,602.88	1,755.27	1,717.60	37.67	46.592	
3,600.00	3,585.08	3,766.81	3,757.14	19.10	20.12	-115.94	-460.49	1,593.09	1,750.95	1,712.17	38.78	45.156	
3,700.00	3,684.10	3,865.69	3,855.48	19.68	20.68	-116.40	-457.20	1,583.30	1,746.74	1,706.86	39.88	43.800	
3,800.00	3,783.13	3,964.58	3,953.83	20.26	21.24	-116.87	-453.91	1,573.51	1,742.65	1,701.66	40.99	42.518	
3,900.00	3,882.16	4,063.46	4,052.17	20.84	21.80	-117.33	-450.62	1,563.72	1,738.67	1,696.58	42.09	41.305	
4,000.00	3,981.18	4,162.35	4,150.51	21.43	22.36	-117.80	-447.32	1,553.93	1,734.82	1,691.62	43.20	40.156	
4,100.00	4,080.21	4,261.23	4,248.86	22.02	22.92	-118.28	-444.03	1,544.13	1,731.08	1,686.77	44.31	39.066	
4,200.00	4,179.24	4,360.12	4,347.20	22.60	23.48	-118.75	-440.74	1,534.34	1,727.47	1,682.05	45.42	38.030	
4,300.00	4,278.26	4,459.00	4,445.55	23.19	24.04	-119.22	-437.44	1,524.55	1,723.98	1,677.44	46.54	37.046	
4,400.00	4,377.29	4,557.89	4,543.89	23.79	24.61	-119.70	-434.15	1,514.76	1,720.60	1,672.95	47.65	36.110	
4,500.00	4,476.32	4,656.77	4,642.24	24.38	25.17	-120.18	-430.86	1,504.97	1,717.35	1,668.59	48.76	35.219	
4,600.00	4,575.35	4,755.66	4,740.58	24.97	25.73	-120.66	-427.57	1,495.18	1,714.23	1,664.35	49.88	34.369	
4,700.00	4,674.37	4,854.54	4,838.92	25.56	26.30	-121.15	-424.27	1,485.39	1,711.22	1,660.23	50.99	33.559	
4,800.00	4,773.40	4,953.43	4,937.27	26.16	26.86	-121.63	-420.98	1,475.60	1,708.35	1,656.24	52.11	32.785	
4,900.00	4,872.43	5,052.31	5,035.61	26.76	27.42	-122.12	-417.69	1,465.81	1,705.59	1,652.37	53.22	32.046	
5,000.00	4,971.45	5,151.20	5,133.96	27.35	27.99	-122.60	-414.40	1,456.02	1,702.97	1,648.63	54.34	31.339	
5,100.00	5,070.48	5,229.46	5,211.81	27.95	28.43	-122.99	-411.86	1,448.48	1,700.81	1,645.47	55.34	30.732	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 3H - OH - Plan 1 12-20-17													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)					
5,154.46	5,124.41	5,263.83	5,246.06	28.28	28.63	-123.15	-410.92	1,445.68	1,700.46	1,644.62	55.85	30.449	
5,200.00	5,169.51	5,300.00	5,282.13	28.55	28.83	-123.32	-410.07	1,443.16	1,700.70	1,644.39	56.31	30.205	
5,300.00	5,268.53	5,355.83	5,337.86	29.15	29.13	-123.57	-409.05	1,440.11	1,702.74	1,645.55	57.19	29.775	
5,400.00	5,367.66	5,419.14	5,401.13	29.74	29.47	-123.87	-408.30	1,437.90	1,706.55	1,648.44	58.11	29.366	
5,500.00	5,467.17	5,493.02	5,475.00	30.31	29.86	-124.15	-408.00	1,437.00	1,710.73	1,651.67	59.06	28.965	
5,600.00	5,566.96	5,576.58	5,558.56	30.86	30.29	-124.35	-408.00	1,437.00	1,714.26	1,654.24	60.02	28.561	
5,700.00	5,666.91	5,676.53	5,658.51	31.39	30.80	-124.46	-408.00	1,437.00	1,715.89	1,654.87	61.02	28.118	
5,800.00	5,766.91	5,776.53	5,758.51	31.87	31.32	90.10	-408.00	1,437.00	1,716.00	1,653.97	62.04	27.661	
5,900.00	5,866.91	5,876.53	5,858.51	32.36	31.84	90.10	-408.00	1,437.00	1,716.00	1,652.95	63.05	27.217	
6,000.00	5,966.91	5,976.53	5,958.51	32.84	32.36	90.10	-408.00	1,437.00	1,716.00	1,651.94	64.06	26.786	
6,100.00	6,066.91	6,076.53	6,058.51	33.33	32.87	90.10	-408.00	1,437.00	1,716.00	1,650.92	65.08	26.367	
6,200.00	6,166.91	6,176.53	6,158.51	33.82	33.39	90.10	-408.00	1,437.00	1,716.00	1,649.90	66.10	25.961	
6,300.00	6,266.91	6,276.53	6,258.51	34.31	33.91	90.10	-408.00	1,437.00	1,716.00	1,648.88	67.12	25.566	
6,400.00	6,366.91	6,376.53	6,358.51	34.80	34.43	90.10	-408.00	1,437.00	1,716.00	1,647.86	68.14	25.183	
6,500.00	6,466.91	6,476.53	6,458.51	35.29	34.95	90.10	-408.00	1,437.00	1,716.00	1,646.84	69.17	24.810	
6,600.00	6,566.91	6,576.53	6,558.51	35.78	35.47	90.10	-408.00	1,437.00	1,716.00	1,645.81	70.19	24.448	
6,700.00	6,666.91	6,676.53	6,658.51	36.28	35.99	90.10	-408.00	1,437.00	1,716.00	1,644.79	71.22	24.095	
6,800.00	6,766.91	6,776.53	6,758.51	36.78	36.52	90.10	-408.00	1,437.00	1,716.00	1,643.76	72.24	23.753	
6,900.00	6,866.91	6,876.53	6,858.51	37.27	37.04	90.10	-408.00	1,437.00	1,716.00	1,642.73	73.27	23.419	
7,000.00	6,966.91	6,976.53	6,958.51	37.77	37.56	90.10	-408.00	1,437.00	1,716.00	1,641.70	74.30	23.094	
7,100.00	7,066.91	7,076.53	7,058.51	38.27	38.09	90.10	-408.00	1,437.00	1,716.00	1,640.67	75.34	22.778	
7,200.00	7,166.91	7,176.53	7,158.51	38.77	38.61	90.10	-408.00	1,437.00	1,716.00	1,639.63	76.37	22.470	
7,300.00	7,266.91	7,276.53	7,258.51	39.27	39.13	90.10	-408.00	1,437.00	1,716.00	1,638.60	77.40	22.169	
7,400.00	7,366.91	7,376.53	7,358.51	39.78	39.66	90.10	-408.00	1,437.00	1,716.00	1,637.56	78.44	21.877	
7,500.00	7,466.91	7,476.53	7,458.51	40.28	40.18	90.10	-408.00	1,437.00	1,716.00	1,636.53	79.48	21.592	
7,600.00	7,566.91	7,576.53	7,558.51	40.78	40.71	90.10	-408.00	1,437.00	1,716.00	1,635.49	80.51	21.313	
7,700.00	7,666.91	7,676.53	7,658.51	41.29	41.23	90.10	-408.00	1,437.00	1,716.00	1,634.45	81.55	21.042	
7,800.00	7,766.91	7,776.53	7,758.51	41.79	41.76	90.10	-408.00	1,437.00	1,716.00	1,633.41	82.59	20.777	
7,900.00	7,866.91	7,876.53	7,858.51	42.30	42.29	90.10	-408.00	1,437.00	1,716.00	1,632.37	83.63	20.519	
8,000.00	7,966.91	7,976.53	7,958.51	42.81	42.81	90.10	-408.00	1,437.00	1,716.00	1,631.33	84.67	20.266	
8,100.00	8,066.91	8,076.53	8,058.51	43.32	43.34	90.10	-408.00	1,437.00	1,716.00	1,630.29	85.71	20.020	
8,200.00	8,166.91	8,176.53	8,158.51	43.83	43.87	90.10	-408.00	1,437.00	1,716.00	1,629.25	86.76	19.779	
8,300.00	8,266.91	8,276.53	8,258.51	44.34	44.39	90.10	-408.00	1,437.00	1,716.00	1,628.20	87.80	19.544	
8,400.00	8,366.91	8,376.53	8,358.51	44.85	44.92	90.10	-408.00	1,437.00	1,716.00	1,627.16	88.84	19.315	
8,500.00	8,466.91	8,476.53	8,458.51	45.36	45.45	90.10	-408.00	1,437.00	1,716.00	1,626.11	89.89	19.090	
8,600.00	8,566.91	8,576.53	8,558.51	45.87	45.98	90.10	-408.00	1,437.00	1,716.00	1,625.07	90.94	18.871	
8,700.00	8,666.91	8,676.53	8,658.51	46.38	46.50	90.10	-408.00	1,437.00	1,716.00	1,624.02	91.98	18.656	
8,800.00	8,766.91	8,776.53	8,758.51	46.89	47.03	90.10	-408.00	1,437.00	1,716.00	1,622.97	93.03	18.446	
8,900.00	8,866.91	8,876.53	8,858.51	47.41	47.56	90.10	-408.00	1,437.00	1,716.00	1,621.93	94.08	18.241	
9,000.00	8,966.91	8,976.53	8,958.51	47.92	48.09	90.10	-408.00	1,437.00	1,716.00	1,620.88	95.12	18.039	
9,100.00	9,066.91	9,076.53	9,058.51	48.44	48.62	90.10	-408.00	1,437.00	1,716.00	1,619.83	96.17	17.843	
9,200.00	9,166.91	9,176.53	9,158.51	48.95	49.15	90.10	-408.00	1,437.00	1,716.00	1,618.78	97.22	17.650	
9,300.00	9,266.91	9,276.53	9,258.51	49.47	49.68	90.10	-408.00	1,437.00	1,716.00	1,617.73	98.27	17.462	
9,400.00	9,366.41	9,376.03	9,358.01	50.00	50.20	-89.35	-408.00	1,437.00	1,715.88	1,616.56	99.32	17.276	
9,500.00	9,462.91	9,474.15	9,455.87	50.57	50.68	-90.03	-413.59	1,437.05	1,715.74	1,615.36	100.38	17.092	
9,540.11	9,500.11	9,514.37	9,495.47	50.81	50.87	-90.31	-420.59	1,437.12	1,715.73	1,614.91	100.82	17.018	
9,600.00	9,553.47	9,575.57	9,554.53	51.18	51.15	-90.73	-436.52	1,437.27	1,715.76	1,614.29	101.47	16.909	
9,700.00	9,635.34	9,681.01	9,651.14	51.81	51.58	-91.42	-478.38	1,437.66	1,715.92	1,613.34	102.58	16.727	
9,800.00	9,706.03	9,790.71	9,741.75	52.48	51.95	-92.07	-539.92	1,438.24	1,716.20	1,612.48	103.72	16.547	
9,900.00	9,763.40	9,904.78	9,821.75	53.18	52.26	-92.68	-620.97	1,439.00	1,716.51	1,611.64	104.87	16.368	
10,000.00	9,805.70	10,023.00	9,886.05	53.92	52.54	-93.20	-719.92	1,439.92	1,716.78	1,610.71	106.07	16.186	
10,100.00	9,831.65	10,144.83	9,929.64	54.69	52.98	-93.61	-833.43	1,440.99	1,716.90	1,609.59	107.31	15.999	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MTD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 3H - OH - Plan 1 12-20-17													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
10,200.00	9,840.46	10,269.31	9,948.43	55.48	53.49	-93.89	-956.23	1,442.14	1,716.79	1,608.18	108.61	15.807	
10,300.00	9,838.50	10,375.93	9,947.90	56.31	53.98	-93.94	-1,062.83	1,443.14	1,716.35	1,606.43	109.92	15.615	
10,400.00	9,836.40	10,475.92	9,946.53	57.22	54.51	-93.97	-1,162.81	1,444.08	1,715.86	1,604.52	111.35	15.410	
10,500.00	9,834.31	10,575.92	9,945.17	58.19	55.12	-93.99	-1,262.80	1,445.01	1,715.38	1,602.46	112.92	15.192	
10,600.00	9,832.21	10,675.92	9,943.81	59.22	55.81	-94.02	-1,362.78	1,445.95	1,714.90	1,600.27	114.63	14.961	
10,700.00	9,830.12	10,775.91	9,942.45	60.31	56.56	-94.04	-1,462.76	1,446.89	1,714.41	1,597.94	116.47	14.719	
10,800.00	9,828.02	10,875.91	9,941.08	61.46	57.39	-94.07	-1,562.74	1,447.83	1,713.93	1,595.49	118.45	14.470	
10,900.00	9,825.93	10,975.90	9,939.72	62.66	58.28	-94.10	-1,662.72	1,448.76	1,713.45	1,592.91	120.54	14.215	
11,000.00	9,823.83	11,075.90	9,938.36	63.91	59.24	-94.12	-1,762.71	1,449.70	1,712.97	1,590.22	122.75	13.955	
11,100.00	9,821.74	11,175.89	9,937.00	65.21	60.26	-94.15	-1,862.69	1,450.64	1,712.49	1,587.42	125.07	13.693	
11,200.00	9,819.64	11,275.89	9,935.64	66.55	61.33	-94.17	-1,962.67	1,451.57	1,712.01	1,584.52	127.49	13.429	
11,300.00	9,817.54	11,375.89	9,934.27	67.93	62.47	-94.20	-2,062.65	1,452.51	1,711.53	1,581.52	130.01	13.165	
11,400.00	9,815.45	11,475.88	9,932.91	69.36	63.65	-94.23	-2,162.64	1,453.45	1,711.05	1,578.43	132.62	12.902	
11,500.00	9,813.35	11,575.88	9,931.55	70.82	64.89	-94.25	-2,262.62	1,454.39	1,710.57	1,575.25	135.32	12.641	
11,600.00	9,811.26	11,675.87	9,930.19	72.32	66.17	-94.28	-2,362.60	1,455.32	1,710.09	1,571.99	138.10	12.383	
11,700.00	9,809.16	11,775.87	9,928.82	73.85	67.50	-94.30	-2,462.58	1,456.26	1,709.61	1,568.65	140.96	12.129	
11,800.00	9,807.07	11,875.87	9,927.46	75.41	68.87	-94.33	-2,562.56	1,457.20	1,709.13	1,565.24	143.89	11.878	
11,900.00	9,804.97	11,975.86	9,926.10	77.00	70.28	-94.35	-2,662.55	1,458.14	1,708.65	1,561.77	146.88	11.633	
12,000.00	9,802.88	12,075.86	9,924.74	78.61	71.72	-94.38	-2,762.53	1,459.07	1,708.17	1,558.23	149.95	11.392	
12,100.00	9,800.78	12,175.85	9,923.37	80.25	73.20	-94.41	-2,862.51	1,460.01	1,707.70	1,554.63	153.07	11.156	
12,200.00	9,798.68	12,275.85	9,922.01	81.92	74.72	-94.43	-2,962.49	1,460.95	1,707.22	1,550.97	156.25	10.926	
12,300.00	9,796.59	12,375.85	9,920.65	83.61	76.26	-94.46	-3,062.48	1,461.88	1,706.74	1,547.26	159.48	10.702	
12,400.00	9,794.49	12,475.84	9,919.29	85.32	77.84	-94.48	-3,162.46	1,462.82	1,706.27	1,543.51	162.76	10.483	
12,500.00	9,792.40	12,575.84	9,917.93	87.05	79.44	-94.51	-3,262.44	1,463.76	1,705.79	1,539.70	166.09	10.270	
12,600.00	9,790.30	12,675.83	9,916.56	88.80	81.06	-94.54	-3,362.42	1,464.70	1,705.31	1,535.86	169.46	10.063	
12,700.00	9,788.21	12,775.83	9,915.20	90.56	82.71	-94.56	-3,462.40	1,465.63	1,704.84	1,531.97	172.87	9.862	
12,800.00	9,786.11	12,875.82	9,913.84	92.35	84.39	-94.59	-3,562.39	1,466.57	1,704.36	1,528.04	176.33	9.666	
12,900.00	9,784.02	12,975.82	9,912.48	94.15	86.08	-94.61	-3,662.37	1,467.51	1,703.89	1,524.07	179.82	9.476	
13,000.00	9,781.92	13,075.82	9,911.11	95.96	87.80	-94.64	-3,762.35	1,468.45	1,703.41	1,520.07	183.34	9.291	
13,100.00	9,779.82	13,175.81	9,909.75	97.79	89.53	-94.67	-3,862.33	1,469.38	1,702.94	1,516.04	186.90	9.112	
13,200.00	9,777.73	13,275.81	9,908.39	99.63	91.29	-94.69	-3,962.32	1,470.32	1,702.47	1,511.98	190.48	8.938	
13,300.00	9,775.63	13,375.80	9,907.03	101.48	93.06	-94.72	-4,062.30	1,471.26	1,701.99	1,507.89	194.10	8.769	
13,400.00	9,773.54	13,475.80	9,905.67	103.35	94.84	-94.74	-4,162.28	1,472.19	1,701.52	1,503.77	197.75	8.605	
13,500.00	9,771.44	13,575.80	9,904.30	105.22	96.65	-94.77	-4,262.26	1,473.13	1,701.05	1,499.63	201.42	8.445	
13,600.00	9,769.35	13,675.79	9,902.94	107.11	98.46	-94.80	-4,362.24	1,474.07	1,700.58	1,495.46	205.11	8.291	
13,700.00	9,767.25	13,775.79	9,901.58	109.01	100.29	-94.82	-4,462.23	1,475.01	1,700.10	1,491.27	208.83	8.141	
13,800.00	9,765.16	13,875.78	9,900.22	110.92	102.13	-94.85	-4,562.21	1,475.94	1,699.63	1,487.06	212.57	7.996	
13,900.00	9,763.06	13,975.78	9,898.85	112.83	103.99	-94.87	-4,662.19	1,476.88	1,699.16	1,482.83	216.33	7.854	
14,000.00	9,760.96	14,075.78	9,897.49	114.76	105.85	-94.90	-4,762.17	1,477.82	1,698.69	1,478.58	220.11	7.717	
14,100.00	9,758.87	14,175.77	9,896.13	116.69	107.73	-94.93	-4,862.15	1,478.76	1,698.22	1,474.31	223.91	7.584	
14,200.00	9,756.77	14,275.77	9,894.77	118.63	109.61	-94.95	-4,962.14	1,479.69	1,697.75	1,470.02	227.73	7.455	
14,300.00	9,754.68	14,375.76	9,893.41	120.58	111.51	-94.98	-5,062.12	1,480.63	1,697.28	1,465.72	231.56	7.330	
14,400.00	9,752.58	14,475.76	9,892.04	122.54	113.42	-95.01	-5,162.10	1,481.57	1,696.81	1,461.40	235.41	7.208	
14,500.00	9,750.49	14,575.75	9,890.68	124.50	115.33	-95.03	-5,262.08	1,482.50	1,696.34	1,457.06	239.28	7.089	
14,600.00	9,748.39	14,675.75	9,889.32	126.47	117.26	-95.06	-5,362.07	1,483.44	1,695.87	1,452.72	243.16	6.974	
14,700.00	9,746.29	14,775.75	9,887.96	128.44	119.19	-95.08	-5,462.05	1,484.38	1,695.40	1,448.35	247.05	6.863	
14,800.00	9,744.20	14,875.74	9,886.59	130.42	121.13	-95.11	-5,562.03	1,485.32	1,694.94	1,443.98	250.96	6.754	
14,900.00	9,742.39	14,978.67	9,885.34	132.41	123.13	-95.12	-5,664.95	1,486.24	1,694.55	1,439.57	254.98	6.646	
14,916.40	9,742.29	14,995.07	9,885.24	132.73	123.45	-95.12	-5,681.35	1,486.35	1,694.53	1,438.90	255.63	6.629 CC	
15,000.00	9,742.58	15,078.67	9,884.76	134.39	125.08	-95.10	-5,764.94	1,486.93	1,694.77	1,435.82	258.95	6.545	
15,100.00	9,742.98	15,178.66	9,884.19	136.38	127.04	-95.06	-5,864.93	1,487.62	1,695.07	1,432.17	262.90	6.448	
15,200.00	9,743.38	15,278.66	9,883.62	138.38	129.00	-95.03	-5,964.92	1,488.31	1,695.36	1,428.51	266.86	6.353	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 3H - OH - Plan 1 12-20-17													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 Centro +N/-S (usft)	Offset Wellbore Centro +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,300.00	9,743.77	15,378.65	9,883.04	140.38	130.97	-95.00	-6,064.91	1,489.01	1,695.66	1,424.84	270.83	6.261		
15,400.00	9,744.17	15,478.65	9,882.47	142.39	132.95	-94.96	-6,164.90	1,489.70	1,695.96	1,421.16	274.81	6.171		
15,500.00	9,744.56	15,578.64	9,881.90	144.40	134.93	-94.93	-6,264.89	1,490.39	1,696.26	1,417.46	278.80	6.084		
15,600.00	9,744.96	15,678.64	9,881.33	146.41	136.92	-94.90	-6,364.88	1,491.09	1,696.56	1,413.76	282.80	5.999		
15,700.00	9,745.35	15,778.63	9,880.75	148.43	138.91	-94.86	-6,464.88	1,491.78	1,696.86	1,410.06	286.81	5.916		
15,800.00	9,745.75	15,878.63	9,880.18	150.45	140.91	-94.83	-6,564.87	1,492.47	1,697.17	1,406.34	290.83	5.836		
15,900.00	9,746.14	15,978.62	9,879.61	152.48	142.91	-94.79	-6,664.86	1,493.16	1,697.47	1,402.61	294.85	5.757		
16,000.00	9,746.54	16,078.62	9,879.04	154.51	144.91	-94.76	-6,764.85	1,493.86	1,697.77	1,398.88	298.89	5.680		
16,100.00	9,746.94	16,178.61	9,878.46	156.54	146.92	-94.73	-6,864.84	1,494.55	1,698.08	1,395.14	302.93	5.605		
16,200.00	9,747.33	16,278.60	9,877.89	158.58	148.94	-94.69	-6,964.83	1,495.24	1,698.38	1,391.40	306.98	5.532		
16,300.00	9,747.73	16,378.60	9,877.32	160.61	150.96	-94.66	-7,064.82	1,495.93	1,698.68	1,387.64	311.04	5.461		
16,400.00	9,748.12	16,478.59	9,876.75	162.66	152.98	-94.63	-7,164.81	1,496.63	1,698.99	1,383.88	315.11	5.392		
16,500.00	9,748.52	16,578.59	9,876.17	164.70	155.00	-94.59	-7,264.80	1,497.32	1,699.30	1,380.12	319.18	5.324		
16,600.00	9,748.91	16,678.58	9,875.60	166.75	157.03	-94.56	-7,364.79	1,498.01	1,699.60	1,376.35	323.25	5.258		
16,700.00	9,749.31	16,778.58	9,875.03	168.80	159.07	-94.53	-7,464.78	1,498.71	1,699.91	1,372.57	327.34	5.193		
16,800.00	9,749.71	16,878.57	9,874.46	170.85	161.10	-94.49	-7,564.77	1,499.40	1,700.22	1,368.79	331.43	5.130		
16,900.00	9,750.10	16,978.57	9,873.88	172.91	163.14	-94.46	-7,664.76	1,500.09	1,700.53	1,365.00	335.52	5.068		
17,000.00	9,750.50	17,078.56	9,873.31	174.97	165.18	-94.43	-7,764.75	1,500.78	1,700.83	1,361.21	339.63	5.008		
17,100.00	9,750.89	17,178.56	9,872.74	177.03	167.23	-94.39	-7,864.74	1,501.48	1,701.14	1,357.41	343.73	4.949		
17,200.00	9,751.29	17,278.55	9,872.17	179.09	169.28	-94.36	-7,964.73	1,502.17	1,701.45	1,353.61	347.84	4.891		
17,300.00	9,751.68	17,378.54	9,871.59	181.15	171.33	-94.32	-8,064.72	1,502.86	1,701.76	1,349.80	351.96	4.835		
17,400.00	9,752.08	17,478.54	9,871.02	183.22	173.38	-94.29	-8,164.71	1,503.55	1,702.08	1,345.99	356.08	4.780		
17,500.00	9,752.48	17,578.53	9,870.45	185.29	175.44	-94.26	-8,264.70	1,504.25	1,702.39	1,342.18	360.21	4.726		
17,600.00	9,752.87	17,678.53	9,869.88	187.36	177.49	-94.22	-8,364.70	1,504.94	1,702.70	1,338.36	364.34	4.673		
17,700.00	9,753.27	17,778.52	9,869.30	189.43	179.55	-94.19	-8,464.69	1,505.63	1,703.01	1,334.54	368.48	4.622		
17,800.00	9,753.66	17,878.52	9,868.73	191.51	181.62	-94.16	-8,564.68	1,506.32	1,703.33	1,330.71	372.62	4.571		
17,900.00	9,754.06	17,978.51	9,868.16	193.59	183.68	-94.12	-8,664.67	1,507.02	1,703.64	1,326.88	376.76	4.522		
18,000.00	9,754.45	18,078.51	9,867.59	195.66	185.75	-94.09	-8,764.66	1,507.71	1,703.96	1,323.05	380.91	4.473		
18,100.00	9,754.85	18,178.50	9,867.01	197.74	187.82	-94.06	-8,864.65	1,508.40	1,704.27	1,319.21	385.06	4.426		
18,200.00	9,755.25	18,278.50	9,866.44	199.82	189.89	-94.02	-8,964.64	1,509.10	1,704.59	1,315.37	389.21	4.380		
18,300.00	9,755.64	18,378.49	9,865.87	201.91	191.96	-93.99	-9,064.63	1,509.79	1,704.90	1,311.53	393.37	4.334		
18,400.00	9,756.04	18,478.49	9,865.29	203.99	194.04	-93.96	-9,164.62	1,510.48	1,705.22	1,307.69	397.53	4.290		
18,500.00	9,756.43	18,578.48	9,864.72	206.08	196.11	-93.92	-9,264.61	1,511.17	1,705.54	1,303.84	401.70	4.246		
18,600.00	9,756.83	18,678.47	9,864.15	208.17	198.19	-93.89	-9,364.60	1,511.87	1,705.86	1,299.99	405.87	4.203		
18,700.00	9,757.22	18,778.47	9,863.58	210.26	200.27	-93.86	-9,464.59	1,512.56	1,706.17	1,296.13	410.04	4.161		
18,800.00	9,757.62	18,878.46	9,863.00	212.35	202.35	-93.82	-9,564.58	1,513.25	1,706.49	1,292.28	414.21	4.120		
18,900.00	9,758.01	18,978.46	9,862.43	214.44	204.44	-93.79	-9,664.57	1,513.94	1,706.81	1,288.42	418.39	4.079		
19,000.00	9,758.41	19,078.45	9,861.86	216.53	206.52	-93.76	-9,764.56	1,514.64	1,707.13	1,284.56	422.57	4.040		
19,100.00	9,758.81	19,178.45	9,861.29	218.62	208.61	-93.72	-9,864.55	1,515.33	1,707.46	1,280.70	426.76	4.001		
19,200.00	9,759.20	19,278.44	9,860.71	220.72	210.69	-93.69	-9,964.54	1,516.02	1,707.78	1,276.83	430.94	3.963		
19,300.00	9,759.60	19,378.44	9,860.14	222.82	212.78	-93.66	-10,064.53	1,516.72	1,708.10	1,272.97	435.13	3.925		
19,400.00	9,759.99	19,478.43	9,859.57	224.91	214.87	-93.62	-10,164.52	1,517.41	1,708.42	1,269.10	439.32	3.889		
19,500.00	9,760.39	19,578.43	9,859.00	227.01	216.96	-93.59	-10,264.52	1,518.10	1,708.74	1,265.23	443.52	3.853		
19,600.00	9,760.78	19,678.42	9,858.42	229.11	219.06	-93.56	-10,364.51	1,518.79	1,709.07	1,261.35	447.72	3.817		
19,700.00	9,761.18	19,778.41	9,857.85	231.21	221.15	-93.52	-10,464.50	1,519.49	1,709.39	1,257.48	451.91	3.783		
19,800.00	9,761.58	19,878.41	9,857.28	233.31	223.25	-93.49	-10,564.49	1,520.18	1,709.72	1,253.60	456.12	3.748		
19,900.00	9,761.97	19,978.40	9,856.71	235.42	225.34	-93.46	-10,664.48	1,520.87	1,710.04	1,249.72	460.32	3.715		
19,907.29	9,762.00	19,985.69	9,856.66	235.57	225.50	-93.46	-10,671.77	1,520.92	1,710.07	1,249.44	460.63	3.712 ES, SF		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 4H - OH - Plan 1 12-20-17													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 +N/-S (usft)	Centro +E/-W (usft)	Between Centros (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	106.16	-521.00	1,798.00	1,871.98					
100.00	100.00	91.60	91.60	0.19	0.18	106.16	-521.00	1,798.00	1,871.96	1,871.59	0.37	5,067.414		
200.00	200.00	191.60	191.60	0.73	0.68	106.16	-521.00	1,798.00	1,871.96	1,870.55	1.42	1,322.210		
300.00	300.00	291.60	291.60	1.27	1.22	106.16	-521.00	1,798.00	1,871.96	1,869.47	2.49	751.431		
400.00	400.00	391.60	391.60	1.81	1.76	106.16	-521.00	1,798.00	1,871.96	1,868.40	3.57	524.857		
500.00	500.00	491.60	491.60	2.34	2.30	106.16	-521.00	1,798.00	1,871.96	1,867.32	4.64	403.264		
600.00	600.00	591.60	591.60	2.88	2.84	106.16	-521.00	1,798.00	1,871.96	1,866.25	5.72	327.413		
700.00	700.00	691.60	691.60	3.42	3.37	106.16	-521.00	1,798.00	1,871.96	1,865.17	6.79	275.578		
800.00	800.00	791.60	791.60	3.96	3.91	106.16	-521.00	1,798.00	1,871.96	1,864.09	7.87	237.913		
900.00	900.00	891.60	891.60	4.50	4.45	106.16	-521.00	1,798.00	1,871.96	1,863.02	8.94	209.306		
1,000.00	1,000.00	991.60	991.60	5.03	4.99	106.16	-521.00	1,798.00	1,871.96	1,861.94	10.02	186.839		
1,100.00	1,100.00	1,091.60	1,091.60	5.57	5.52	106.16	-521.00	1,798.00	1,871.96	1,860.87	11.09	168.729		
1,200.00	1,200.00	1,191.60	1,191.60	6.11	6.06	106.16	-521.00	1,798.00	1,871.96	1,859.79	12.17	153.819		
1,300.00	1,300.00	1,291.60	1,291.60	6.65	6.60	106.16	-521.00	1,798.00	1,871.96	1,858.72	13.25	141.330		
1,400.00	1,400.00	1,391.60	1,391.60	7.18	7.14	106.16	-521.00	1,798.00	1,871.96	1,857.64	14.32	130.717		
1,500.00	1,500.00	1,491.60	1,491.60	7.72	7.67	106.16	-521.00	1,798.00	1,871.96	1,856.57	15.40	121.586		
1,600.00	1,600.00	1,591.60	1,591.60	8.26	8.21	106.16	-521.00	1,798.00	1,871.96	1,855.49	16.47	113.648		
1,700.00	1,700.00	1,691.60	1,691.60	8.80	8.75	106.16	-521.00	1,798.00	1,871.96	1,854.42	17.55	106.683		
1,800.00	1,800.00	1,791.60	1,791.60	9.33	9.29	106.16	-521.00	1,798.00	1,871.96	1,853.34	18.62	100.522		
1,900.00	1,899.98	2,059.15	2,058.79	9.85	10.69	-108.56	-519.31	1,786.41	1,868.41	1,847.88	20.53	91.012		
2,000.00	1,999.84	2,338.04	2,334.88	10.34	12.19	-109.06	-513.72	1,748.15	1,856.31	1,833.84	22.47	82.613		
2,100.00	2,099.45	2,507.94	2,500.89	10.84	13.15	-109.70	-508.51	1,712.45	1,837.56	1,813.71	23.85	77.040		
2,200.00	2,198.70	2,605.86	2,596.30	11.34	13.73	-110.32	-505.33	1,690.65	1,819.21	1,794.35	24.86	73.172		
2,300.00	2,297.73	2,703.73	2,691.67	11.86	14.32	-110.65	-502.15	1,668.86	1,801.51	1,775.61	25.89	69.574		
2,400.00	2,396.76	2,801.61	2,787.03	12.38	14.92	-110.99	-498.97	1,647.07	1,783.86	1,756.93	26.94	66.224		
2,500.00	2,495.78	2,899.48	2,882.39	12.92	15.53	-111.34	-495.79	1,625.28	1,766.28	1,738.29	27.99	63.102		
2,600.00	2,594.81	2,997.35	2,977.76	13.46	16.14	-111.69	-492.61	1,603.49	1,748.77	1,719.71	29.05	60.189		
2,700.00	2,693.84	3,095.23	3,073.12	14.00	16.76	-112.05	-489.43	1,581.70	1,731.31	1,701.19	30.13	57.469		
2,800.00	2,792.86	3,193.10	3,168.48	14.55	17.39	-112.41	-486.25	1,559.91	1,713.93	1,682.73	31.21	54.924		
2,900.00	2,891.89	3,290.97	3,263.85	15.11	18.03	-112.78	-483.07	1,538.12	1,696.62	1,664.33	32.29	52.541		
3,000.00	2,990.92	3,388.85	3,359.21	15.67	18.67	-113.17	-479.89	1,516.33	1,679.38	1,645.99	33.38	50.307		
3,100.00	3,089.94	3,486.72	3,454.57	16.23	19.31	-113.55	-476.70	1,494.54	1,662.21	1,627.73	34.48	48.209		
3,200.00	3,188.97	3,584.59	3,549.94	16.80	19.96	-113.95	-473.52	1,472.75	1,645.12	1,609.54	35.58	46.237		
3,300.00	3,288.00	3,682.46	3,645.30	17.37	20.61	-114.35	-470.34	1,450.96	1,628.11	1,591.42	36.69	44.380		
3,400.00	3,387.02	3,780.34	3,740.67	17.94	21.27	-114.77	-467.16	1,429.17	1,611.18	1,573.38	37.79	42.630		
3,500.00	3,486.05	3,878.21	3,836.03	18.52	21.93	-115.19	-463.98	1,407.38	1,594.33	1,555.42	38.91	40.979		
3,600.00	3,585.08	3,976.08	3,931.39	19.10	22.59	-115.62	-460.80	1,385.59	1,577.57	1,537.55	40.02	39.418		
3,700.00	3,684.10	4,073.96	4,026.76	19.68	23.25	-116.06	-457.62	1,363.80	1,560.90	1,519.76	41.14	37.942		
3,800.00	3,783.13	4,171.83	4,122.12	20.26	23.92	-116.51	-454.44	1,342.01	1,544.33	1,502.07	42.26	36.544		
3,900.00	3,882.16	4,269.70	4,217.48	20.84	24.59	-116.97	-451.26	1,320.22	1,527.84	1,484.46	43.38	35.218		
4,000.00	3,981.18	4,367.58	4,312.85	21.43	25.26	-117.43	-448.08	1,298.43	1,511.46	1,466.96	44.51	33.960		
4,100.00	4,080.21	4,465.45	4,408.21	22.02	25.93	-117.91	-444.90	1,276.64	1,495.18	1,449.55	45.63	32.765		
4,200.00	4,179.24	4,563.32	4,503.58	22.60	26.61	-118.40	-441.72	1,254.85	1,479.01	1,432.25	46.76	31.629		
4,300.00	4,278.26	4,661.20	4,598.94	23.19	27.28	-118.90	-438.54	1,233.06	1,462.94	1,415.05	47.89	30.547		
4,400.00	4,377.29	4,759.07	4,694.30	23.79	27.96	-119.41	-435.36	1,211.27	1,446.99	1,397.96	49.02	29.516		
4,500.00	4,476.32	4,856.94	4,789.67	24.38	28.64	-119.93	-432.18	1,189.48	1,431.15	1,380.99	50.16	28.534		
4,600.00	4,575.35	4,954.82	4,885.03	24.97	29.32	-120.46	-429.00	1,167.69	1,415.43	1,364.14	51.29	27.596		
4,700.00	4,674.37	5,052.69	4,980.39	25.56	30.00	-121.01	-425.82	1,145.90	1,399.84	1,347.41	52.43	26.701		
4,800.00	4,773.40	5,150.56	5,075.76	26.16	30.68	-121.57	-422.63	1,124.11	1,384.37	1,330.81	53.56	25.846		
4,900.00	4,872.43	5,248.44	5,171.12	26.76	31.36	-122.13	-419.45	1,102.32	1,369.04	1,314.34	54.70	25.028		
5,000.00	4,971.45	5,333.15	5,253.70	27.35	31.95	-122.64	-416.72	1,083.59	1,354.05	1,298.28	55.76	24.281		
5,100.00	5,070.48	5,400.00	5,319.14	27.95	32.41	-123.03	-414.75	1,070.09	1,341.08	1,284.36	56.73	23.641		

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 4H - OH - Plan 1 12-20-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,200.00	5,169.51	5,467.33	5,385.35	28.55	32.84	-123.43	-412.99	1,058.03	1,330.55	1,272.87	57.69	23.065	
5,300.00	5,268.53	5,534.97	5,452.14	29.15	33.26	-123.83	-411.45	1,047.46	1,322.47	1,263.82	58.65	22.550	
5,400.00	5,367.66	5,600.00	5,516.58	29.74	33.66	-124.12	-410.18	1,038.78	1,316.41	1,256.84	59.57	22.100	
5,500.00	5,467.17	5,671.24	5,587.37	30.31	34.07	-124.33	-409.03	1,030.93	1,310.93	1,250.46	60.47	21.678	
5,600.00	5,566.96	5,739.86	5,655.73	30.86	34.45	-124.45	-408.17	1,025.01	1,305.89	1,244.58	61.32	21.297	
5,700.00	5,666.91	5,800.00	5,715.74	31.39	34.77	-124.46	-407.61	1,021.17	1,301.32	1,239.25	62.07	20.964	
5,800.00	5,766.91	5,877.66	5,793.33	31.87	35.16	90.10	-407.15	1,018.04	1,297.51	1,234.57	62.95	20.613	
5,900.00	5,866.91	5,946.71	5,862.37	32.36	35.49	90.09	-407.00	1,017.01	1,296.02	1,232.23	63.79	20.318	
5,938.09	5,905.00	5,980.94	5,896.60	32.54	35.65	90.09	-407.00	1,017.00	1,296.00	1,231.85	64.15	20.203	
6,000.00	5,966.91	6,042.85	5,958.51	32.84	35.94	90.09	-407.00	1,017.00	1,296.00	1,231.24	64.76	20.012	
6,100.00	6,066.91	6,142.85	6,058.51	33.33	36.40	90.09	-407.00	1,017.00	1,296.00	1,230.24	65.76	19.708	
6,200.00	6,166.91	6,242.85	6,158.51	33.82	36.87	90.09	-407.00	1,017.00	1,296.00	1,229.24	66.76	19.414	
6,300.00	6,266.91	6,342.85	6,258.51	34.31	37.34	90.09	-407.00	1,017.00	1,296.00	1,228.24	67.76	19.127	
6,400.00	6,366.91	6,442.85	6,358.51	34.80	37.82	90.09	-407.00	1,017.00	1,296.00	1,227.24	68.76	18.848	
6,500.00	6,466.91	6,542.85	6,458.51	35.29	38.29	90.09	-407.00	1,017.00	1,296.00	1,226.24	69.77	18.576	
6,600.00	6,566.91	6,642.85	6,558.51	35.78	38.76	90.09	-407.00	1,017.00	1,296.00	1,225.23	70.77	18.312	
6,700.00	6,666.91	6,742.85	6,658.51	36.28	39.24	90.09	-407.00	1,017.00	1,296.00	1,224.22	71.78	18.055	
6,800.00	6,766.91	6,842.85	6,758.51	36.78	39.72	90.09	-407.00	1,017.00	1,296.00	1,223.21	72.79	17.804	
6,900.00	6,866.91	6,942.85	6,858.51	37.27	40.20	90.09	-407.00	1,017.00	1,296.00	1,222.20	73.81	17.560	
7,000.00	6,966.91	7,042.85	6,958.51	37.77	40.68	90.09	-407.00	1,017.00	1,296.00	1,221.18	74.82	17.321	
7,100.00	7,066.91	7,142.85	7,058.51	38.27	41.16	90.09	-407.00	1,017.00	1,296.00	1,220.16	75.84	17.089	
7,200.00	7,166.91	7,242.85	7,158.51	38.77	41.65	90.09	-407.00	1,017.00	1,296.00	1,219.15	76.85	16.863	
7,300.00	7,266.91	7,342.85	7,258.51	39.27	42.13	90.09	-407.00	1,017.00	1,296.00	1,218.13	77.87	16.642	
7,400.00	7,366.91	7,442.85	7,358.51	39.78	42.62	90.09	-407.00	1,017.00	1,296.00	1,217.11	78.90	16.427	
7,500.00	7,466.91	7,542.85	7,458.51	40.28	43.11	90.09	-407.00	1,017.00	1,296.00	1,216.08	79.92	16.217	
7,600.00	7,566.91	7,642.85	7,558.51	40.78	43.60	90.09	-407.00	1,017.00	1,296.00	1,215.06	80.94	16.012	
7,700.00	7,666.91	7,742.85	7,658.51	41.29	44.09	90.09	-407.00	1,017.00	1,296.00	1,214.04	81.97	15.811	
7,800.00	7,766.91	7,842.85	7,758.51	41.79	44.58	90.09	-407.00	1,017.00	1,296.00	1,213.01	82.99	15.616	
7,900.00	7,866.91	7,942.85	7,858.51	42.30	45.07	90.09	-407.00	1,017.00	1,296.00	1,211.98	84.02	15.425	
8,000.00	7,966.91	8,042.85	7,958.51	42.81	45.57	90.09	-407.00	1,017.00	1,296.00	1,210.95	85.05	15.238	
8,100.00	8,066.91	8,142.85	8,058.51	43.32	46.06	90.09	-407.00	1,017.00	1,296.00	1,209.92	86.08	15.056	
8,200.00	8,166.91	8,242.85	8,158.51	43.83	46.56	90.09	-407.00	1,017.00	1,296.00	1,208.89	87.11	14.878	
8,300.00	8,266.91	8,342.85	8,258.51	44.34	47.05	90.09	-407.00	1,017.00	1,296.00	1,207.86	88.14	14.704	
8,400.00	8,366.91	8,442.85	8,358.51	44.85	47.55	90.09	-407.00	1,017.00	1,296.00	1,206.83	89.17	14.533	
8,500.00	8,466.91	8,542.85	8,458.51	45.36	48.05	90.09	-407.00	1,017.00	1,296.00	1,205.79	90.21	14.367	
8,600.00	8,566.91	8,642.85	8,558.51	45.87	48.55	90.09	-407.00	1,017.00	1,296.00	1,204.76	91.24	14.204	
8,700.00	8,666.91	8,742.85	8,658.51	46.38	49.05	90.09	-407.00	1,017.00	1,296.00	1,203.72	92.28	14.044	
8,800.00	8,766.91	8,842.85	8,758.51	46.89	49.55	90.09	-407.00	1,017.00	1,296.00	1,202.68	93.32	13.888	
8,900.00	8,866.91	8,942.85	8,858.51	47.41	50.05	90.09	-407.00	1,017.00	1,296.00	1,201.65	94.35	13.735	
9,000.00	8,966.91	9,042.85	8,958.51	47.92	50.55	90.09	-407.00	1,017.00	1,296.00	1,200.61	95.39	13.586	
9,100.00	9,066.91	9,142.85	9,058.51	48.44	51.05	90.09	-407.00	1,017.00	1,296.00	1,199.57	96.43	13.439	
9,126.85	9,093.76	9,169.69	9,085.36	48.57	51.19	90.09	-407.00	1,017.00	1,296.00	1,199.29	96.71	13.401	
9,200.00	9,166.91	9,241.22	9,156.78	48.95	51.52	90.22	-409.92	1,017.03	1,296.04	1,198.59	97.44	13.300	
9,300.00	9,266.91	9,335.33	9,249.22	49.47	51.94	90.97	-427.04	1,017.19	1,296.41	1,198.01	98.40	13.174	
9,400.00	9,366.41	9,424.53	9,333.14	50.00	52.30	-87.09	-457.02	1,017.47	1,297.31	1,198.02	99.29	13.066	
9,500.00	9,462.91	9,510.81	9,408.94	50.57	52.61	-86.08	-498.06	1,017.85	1,298.48	1,198.33	100.14	12.966	
9,600.00	9,553.47	9,594.73	9,475.94	51.18	52.87	-85.19	-548.45	1,018.33	1,299.77	1,198.81	100.96	12.874	
9,700.00	9,635.34	9,676.75	9,533.65	51.81	53.07	-84.41	-606.64	1,018.87	1,301.03	1,199.30	101.74	12.788	
9,800.00	9,706.03	9,757.30	9,581.67	52.48	53.24	-83.79	-671.23	1,019.48	1,302.13	1,199.63	102.49	12.704	
9,900.00	9,763.40	9,836.76	9,619.71	53.18	53.38	-83.31	-740.91	1,020.13	1,302.92	1,199.67	103.26	12.618	
10,000.00	9,805.70	9,915.46	9,647.54	53.92	53.50	-83.01	-814.45	1,020.82	1,303.33	1,199.26	104.07	12.524	
10,100.00	9,831.65	9,993.71	9,664.96	54.69	53.64	-82.88	-890.68	1,021.53	1,303.28	1,198.32	104.96	12.417	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 4H - OH - Plan 1 12-20-17													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	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,200.00	9,840.46	10,071.81	9,671.84	55.48	53.82	-82.94	-968.41	1,022.26	1,302.75	1,196.80	105.95	12.296	
10,300.00	9,838.50	10,165.55	9,670.50	56.31	54.12	-82.96	-1,062.13	1,023.14	1,302.15	1,194.96	107.18	12.149	
10,400.00	9,836.40	10,265.55	9,668.60	57.22	54.55	-82.97	-1,162.11	1,024.08	1,301.59	1,193.00	108.59	11.986	
10,500.00	9,834.31	10,365.55	9,666.70	58.19	55.09	-82.98	-1,262.08	1,025.01	1,301.03	1,190.89	110.14	11.812	
10,600.00	9,832.21	10,465.55	9,664.80	59.22	55.73	-82.98	-1,362.06	1,025.95	1,300.48	1,188.64	111.84	11.628	
10,700.00	9,830.12	10,565.55	9,662.90	60.31	56.46	-82.99	-1,462.04	1,026.89	1,299.92	1,186.25	113.68	11.435	
10,800.00	9,828.02	10,665.54	9,661.00	61.46	57.27	-82.99	-1,562.01	1,027.83	1,299.37	1,183.73	115.64	11.236	
10,900.00	9,825.93	10,765.54	9,659.10	62.66	58.16	-83.00	-1,661.99	1,028.76	1,298.81	1,181.08	117.73	11.032	
11,000.00	9,823.83	10,865.54	9,657.20	63.91	59.11	-83.00	-1,761.96	1,029.70	1,298.26	1,178.32	119.94	10.824	
11,100.00	9,821.74	10,965.54	9,655.30	65.21	60.13	-83.01	-1,861.94	1,030.64	1,297.70	1,175.45	122.26	10.615	
11,200.00	9,819.64	11,065.54	9,653.40	66.55	61.21	-83.02	-1,961.92	1,031.57	1,297.15	1,172.47	124.68	10.404	
11,300.00	9,817.54	11,165.54	9,651.50	67.93	62.35	-83.02	-2,061.89	1,032.51	1,296.59	1,169.39	127.20	10.193	
11,400.00	9,815.45	11,265.53	9,649.60	69.36	63.54	-83.03	-2,161.87	1,033.45	1,296.04	1,166.22	129.82	9.983	
11,500.00	9,813.35	11,365.53	9,647.70	70.82	64.78	-83.03	-2,261.84	1,034.38	1,295.48	1,162.96	132.52	9.775	
11,600.00	9,811.26	11,465.53	9,645.80	72.32	66.07	-83.04	-2,361.82	1,035.32	1,294.93	1,159.62	135.31	9.570	
11,700.00	9,809.16	11,565.53	9,643.90	73.85	67.40	-83.04	-2,461.80	1,036.26	1,294.37	1,156.20	138.18	9.368	
11,800.00	9,807.07	11,665.53	9,642.00	75.41	68.78	-83.05	-2,561.77	1,037.20	1,293.82	1,152.70	141.12	9.169	
11,900.00	9,804.97	11,765.53	9,640.10	77.00	70.19	-83.06	-2,661.75	1,038.13	1,293.26	1,149.14	144.12	8.973	
12,000.00	9,802.88	11,865.52	9,638.20	78.61	71.65	-83.06	-2,761.72	1,039.07	1,292.71	1,145.51	147.19	8.782	
12,100.00	9,800.78	11,965.52	9,636.30	80.25	73.13	-83.07	-2,861.70	1,040.01	1,292.15	1,141.83	150.33	8.596	
12,200.00	9,798.68	12,065.52	9,634.40	81.92	74.65	-83.07	-2,961.68	1,040.94	1,291.60	1,138.08	153.52	8.413	
12,300.00	9,796.59	12,165.52	9,632.50	83.61	76.20	-83.08	-3,061.65	1,041.88	1,291.04	1,134.28	156.76	8.236	
12,400.00	9,794.49	12,265.52	9,630.60	85.32	77.78	-83.08	-3,161.63	1,042.82	1,290.49	1,130.44	160.05	8.063	
12,500.00	9,792.40	12,365.52	9,628.70	87.05	79.39	-83.09	-3,261.60	1,043.76	1,289.93	1,126.54	163.39	7.895	
12,600.00	9,790.30	12,465.51	9,626.80	88.80	81.02	-83.10	-3,361.58	1,044.69	1,289.38	1,122.60	166.77	7.731	
12,700.00	9,788.21	12,565.51	9,624.90	90.56	82.67	-83.10	-3,461.56	1,045.63	1,288.82	1,118.62	170.20	7.572	
12,800.00	9,786.11	12,665.51	9,623.00	92.35	84.35	-83.11	-3,561.53	1,046.57	1,288.27	1,114.60	173.66	7.418	
12,900.00	9,784.02	12,765.51	9,621.10	94.15	86.05	-83.11	-3,661.51	1,047.50	1,287.71	1,110.55	177.16	7.268	
13,000.00	9,781.92	12,865.51	9,619.20	95.96	87.77	-83.12	-3,761.48	1,048.44	1,287.16	1,106.46	180.70	7.123	
13,100.00	9,779.82	12,965.51	9,617.30	97.79	89.51	-83.13	-3,861.46	1,049.38	1,286.60	1,102.33	184.27	6.982	
13,200.00	9,777.73	13,065.50	9,615.40	99.63	91.27	-83.13	-3,961.43	1,050.31	1,286.05	1,098.18	187.87	6.845	
13,300.00	9,775.63	13,165.50	9,613.50	101.48	93.04	-83.14	-4,061.41	1,051.25	1,285.49	1,093.99	191.50	6.713	
13,400.00	9,773.54	13,265.50	9,611.60	103.35	94.83	-83.14	-4,161.39	1,052.19	1,284.94	1,089.78	195.15	6.584	
13,500.00	9,771.44	13,365.50	9,609.70	105.22	96.63	-83.15	-4,261.36	1,053.13	1,284.38	1,085.55	198.83	6.460	
13,600.00	9,769.35	13,465.50	9,607.80	107.11	98.45	-83.15	-4,361.34	1,054.06	1,283.83	1,081.29	202.54	6.339	
13,700.00	9,767.25	13,565.50	9,605.90	109.01	100.28	-83.16	-4,461.31	1,055.00	1,283.27	1,077.00	206.27	6.221	
13,800.00	9,765.16	13,665.50	9,604.00	110.92	102.13	-83.17	-4,561.29	1,055.94	1,282.72	1,072.69	210.02	6.108	
13,900.00	9,763.06	13,765.49	9,602.10	112.83	103.98	-83.17	-4,661.27	1,056.87	1,282.16	1,068.37	213.79	5.997	
14,000.00	9,760.96	13,865.49	9,600.20	114.76	105.85	-83.18	-4,761.24	1,057.81	1,281.61	1,064.02	217.59	5.890	
14,100.00	9,758.87	13,965.49	9,598.30	116.69	107.73	-83.18	-4,861.22	1,058.75	1,281.05	1,059.65	221.40	5.786	
14,200.00	9,756.77	14,065.49	9,596.40	118.63	109.62	-83.19	-4,961.19	1,059.68	1,280.50	1,055.27	225.23	5.685	
14,300.00	9,754.68	14,165.49	9,594.50	120.58	111.52	-83.20	-5,061.17	1,060.62	1,279.94	1,050.87	229.07	5.588	
14,400.00	9,752.58	14,265.49	9,592.60	122.54	113.43	-83.20	-5,161.15	1,061.56	1,279.39	1,046.46	232.93	5.493	
14,500.00	9,750.49	14,365.48	9,590.71	124.50	115.34	-83.21	-5,261.12	1,062.50	1,278.83	1,042.02	236.81	5.400	
14,600.00	9,748.39	14,465.48	9,588.81	126.47	117.27	-83.21	-5,361.10	1,063.43	1,278.28	1,037.58	240.70	5.311	
14,700.00	9,746.29	14,565.48	9,586.91	128.44	119.20	-83.22	-5,461.07	1,064.37	1,277.72	1,033.12	244.60	5.224	
14,800.00	9,744.20	14,665.48	9,585.01	130.42	121.14	-83.22	-5,561.05	1,065.31	1,277.17	1,028.65	248.52	5.139	
14,900.00	9,742.39	14,769.51	9,583.18	132.41	123.17	-83.22	-5,665.06	1,066.25	1,276.74	1,024.09	252.65	5.053	
14,910.29	9,742.32	14,780.82	9,583.11	132.61	123.39	-83.22	-5,676.37	1,066.33	1,276.73	1,023.65	253.08	5.045 CC	
15,000.00	9,742.58	14,870.52	9,582.56	134.39	125.14	-83.18	-5,766.07	1,066.95	1,277.13	1,020.45	256.68	4.976	
15,100.00	9,742.98	14,970.52	9,581.95	136.38	127.10	-83.14	-5,866.06	1,067.65	1,277.63	1,017.03	260.60	4.903	
15,200.00	9,743.38	15,070.51	9,581.34	138.38	129.06	-83.10	-5,966.05	1,068.34	1,278.13	1,013.60	264.53	4.832	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
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 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
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 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 4H - OH - Plan 1 12-20-17													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
15,300.00	9,743.77	15,170.51	9,580.73	140.38	131.03	-83.05	-6,066.04	1,069.03	1,278.63	1,010.17	268.47	4.763	
15,400.00	9,744.17	15,270.50	9,580.12	142.39	133.01	-83.01	-6,166.03	1,069.72	1,279.14	1,006.72	272.41	4.696	
15,500.00	9,744.56	15,370.49	9,579.51	144.40	134.99	-82.97	-6,266.02	1,070.42	1,279.64	1,003.27	276.37	4.630	
15,600.00	9,744.96	15,470.49	9,578.90	146.41	136.98	-82.93	-6,366.01	1,071.11	1,280.15	999.81	280.34	4.566	
15,700.00	9,745.35	15,570.48	9,578.29	148.43	138.97	-82.88	-6,466.00	1,071.80	1,280.65	996.34	284.31	4.504	
15,800.00	9,745.75	15,670.48	9,577.68	150.45	140.97	-82.84	-6,565.99	1,072.49	1,281.16	992.86	288.30	4.444	
15,900.00	9,746.14	15,770.47	9,577.08	152.48	142.98	-82.80	-6,665.98	1,073.18	1,281.67	989.38	292.29	4.385	
16,000.00	9,746.54	15,870.47	9,576.47	154.51	144.98	-82.76	-6,765.97	1,073.88	1,282.17	985.89	296.28	4.328	
16,100.00	9,746.94	15,970.46	9,575.86	156.54	146.99	-82.71	-6,865.96	1,074.57	1,282.68	982.39	300.29	4.271	
16,200.00	9,747.33	16,070.45	9,575.25	158.58	149.01	-82.67	-6,965.95	1,075.26	1,283.19	978.89	304.30	4.217	
16,300.00	9,747.73	16,170.45	9,574.64	160.61	151.03	-82.63	-7,065.94	1,075.95	1,283.70	975.39	308.32	4.164	
16,400.00	9,748.12	16,270.44	9,574.03	162.66	153.05	-82.59	-7,165.93	1,076.65	1,284.21	971.87	312.34	4.112	
16,500.00	9,748.52	16,370.44	9,573.42	164.70	155.08	-82.55	-7,265.92	1,077.34	1,284.72	968.36	316.37	4.061	
16,600.00	9,748.91	16,470.43	9,572.81	166.75	157.11	-82.50	-7,365.91	1,078.03	1,285.24	964.83	320.40	4.011	
16,700.00	9,749.31	16,570.42	9,572.20	168.80	159.14	-82.46	-7,465.90	1,078.72	1,285.75	961.31	324.44	3.963	
16,800.00	9,749.71	16,670.42	9,571.59	170.85	161.18	-82.42	-7,565.89	1,079.42	1,286.26	957.78	328.49	3.916	
16,900.00	9,750.10	16,770.41	9,570.98	172.91	163.22	-82.38	-7,665.88	1,080.11	1,286.78	954.24	332.53	3.870	
17,000.00	9,750.50	16,870.41	9,570.37	174.97	165.26	-82.33	-7,765.87	1,080.80	1,287.29	950.70	336.59	3.825	
17,100.00	9,750.89	16,970.40	9,569.76	177.03	167.30	-82.29	-7,865.86	1,081.49	1,287.81	947.16	340.65	3.780	
17,200.00	9,751.29	17,070.40	9,569.16	179.09	169.35	-82.25	-7,965.85	1,082.19	1,288.32	943.62	344.71	3.737	
17,300.00	9,751.68	17,170.39	9,568.55	181.15	171.40	-82.21	-8,065.84	1,082.88	1,288.84	940.07	348.77	3.695	
17,400.00	9,752.08	17,270.38	9,567.94	183.22	173.46	-82.17	-8,165.83	1,083.57	1,289.36	936.51	352.84	3.654	
17,500.00	9,752.48	17,370.38	9,567.33	185.29	175.51	-82.13	-8,265.82	1,084.26	1,289.88	932.96	356.92	3.614	
17,600.00	9,752.87	17,470.37	9,566.72	187.36	177.57	-82.08	-8,365.81	1,084.96	1,290.40	929.40	361.00	3.575	
17,700.00	9,753.27	17,570.37	9,566.11	189.43	179.63	-82.04	-8,465.80	1,085.65	1,290.92	925.84	365.08	3.536	
17,800.00	9,753.66	17,670.36	9,565.50	191.51	181.70	-82.00	-8,565.79	1,086.34	1,291.44	922.28	369.16	3.498	
17,900.00	9,754.06	17,770.36	9,564.89	193.59	183.76	-81.96	-8,665.78	1,087.03	1,291.96	918.71	373.25	3.461	
18,000.00	9,754.45	17,870.35	9,564.28	195.66	185.83	-81.92	-8,765.77	1,087.72	1,292.48	915.14	377.34	3.425	
18,100.00	9,754.85	17,970.34	9,563.67	197.74	187.90	-81.87	-8,865.76	1,088.42	1,293.00	911.57	381.43	3.390	
18,200.00	9,755.25	18,070.34	9,563.06	199.82	189.97	-81.83	-8,965.75	1,089.11	1,293.52	908.00	385.53	3.355	
18,300.00	9,755.64	18,170.33	9,562.45	201.91	192.04	-81.79	-9,065.74	1,089.80	1,294.05	904.42	389.62	3.321	
18,400.00	9,756.04	18,270.33	9,561.84	203.99	194.12	-81.75	-9,165.73	1,090.49	1,294.57	900.85	393.73	3.288	
18,500.00	9,756.43	18,370.32	9,561.24	206.08	196.19	-81.71	-9,265.72	1,091.19	1,295.10	897.27	397.83	3.255	
18,600.00	9,756.83	18,470.31	9,560.63	208.17	198.27	-81.67	-9,365.71	1,091.88	1,295.62	893.69	401.93	3.223	
18,700.00	9,757.22	18,570.31	9,560.02	210.26	200.35	-81.63	-9,465.70	1,092.57	1,296.15	890.11	406.04	3.192	
18,800.00	9,757.62	18,670.30	9,559.41	212.35	202.43	-81.58	-9,565.69	1,093.26	1,296.68	886.53	410.15	3.161	
18,900.00	9,758.01	18,770.30	9,558.80	214.44	204.52	-81.54	-9,665.68	1,093.96	1,297.21	882.94	414.26	3.131	
19,000.00	9,758.41	18,870.29	9,558.19	216.53	206.60	-81.50	-9,765.67	1,094.65	1,297.73	879.36	418.38	3.102	
19,100.00	9,758.81	18,970.29	9,557.58	218.62	208.69	-81.46	-9,865.66	1,095.34	1,298.26	875.77	422.49	3.073	
19,200.00	9,759.20	19,070.28	9,556.97	220.72	210.78	-81.42	-9,965.65	1,096.03	1,298.79	872.18	426.61	3.044	
19,300.00	9,759.60	19,170.27	9,556.36	222.82	212.86	-81.38	-10,065.64	1,096.73	1,299.32	868.59	430.73	3.017	
19,400.00	9,759.99	19,270.27	9,555.75	224.91	214.96	-81.34	-10,165.63	1,097.42	1,299.86	865.00	434.85	2.989	
19,500.00	9,760.39	19,370.26	9,555.14	227.01	217.05	-81.29	-10,265.62	1,098.11	1,300.39	861.41	438.97	2.962	
19,600.00	9,760.78	19,470.26	9,554.53	229.11	219.14	-81.25	-10,365.61	1,098.80	1,300.92	857.82	443.10	2.936	
19,700.00	9,761.18	19,570.25	9,553.92	231.21	221.23	-81.21	-10,465.60	1,099.49	1,301.45	854.23	447.22	2.910	
19,800.00	9,761.58	19,670.25	9,553.32	233.31	223.33	-81.17	-10,565.59	1,100.19	1,301.99	850.64	451.35	2.885	
19,900.00	9,761.97	19,770.24	9,552.71	235.42	225.43	-81.13	-10,665.58	1,100.88	1,302.52	847.04	455.48	2.860	
19,907.29	9,762.00	19,777.53	9,552.66	235.57	225.58	-81.13	-10,672.86	1,100.93	1,302.56	846.78	455.78	2.858 ES, SF	

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

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Page 31

COMPASS 5000.1 Build 74

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 5H - OH - Plan 1 12-20-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	105.95	-521.00	1,823.00	1,896.00				
100.00	100.00	92.60	92.60	0.19	0.18	105.95	-521.00	1,823.00	1,895.99	1,895.62	0.37	5,105.917	
200.00	200.00	192.60	192.60	0.73	0.69	105.95	-521.00	1,823.00	1,895.99	1,894.57	1.42	1,334.112	
300.00	300.00	292.60	292.60	1.27	1.23	105.95	-521.00	1,823.00	1,895.99	1,893.49	2.50	759.435	
400.00	400.00	392.60	392.60	1.81	1.77	105.95	-521.00	1,823.00	1,895.99	1,892.42	3.57	530.793	
500.00	500.00	492.60	492.60	2.34	2.30	105.95	-521.00	1,823.00	1,895.99	1,891.34	4.65	407.967	
600.00	600.00	592.60	592.60	2.88	2.84	105.95	-521.00	1,823.00	1,895.99	1,890.27	5.72	331.303	
700.00	700.00	692.60	692.60	3.42	3.38	105.95	-521.00	1,823.00	1,895.99	1,889.19	6.80	278.894	
800.00	800.00	792.60	792.60	3.96	3.92	105.95	-521.00	1,823.00	1,895.99	1,888.11	7.87	240.802	
900.00	900.00	892.60	892.60	4.50	4.45	105.95	-521.00	1,823.00	1,895.99	1,887.04	8.95	211.864	
1,000.00	1,000.00	992.60	992.60	5.03	4.99	105.95	-521.00	1,823.00	1,895.99	1,885.96	10.02	189.136	
1,100.00	1,100.00	1,092.60	1,092.60	5.57	5.53	105.95	-521.00	1,823.00	1,895.99	1,884.89	11.10	170.811	
1,200.00	1,200.00	1,192.60	1,192.60	6.11	6.07	105.95	-521.00	1,823.00	1,895.99	1,883.81	12.18	155.724	
1,300.00	1,300.00	1,292.60	1,292.60	6.65	6.60	105.95	-521.00	1,823.00	1,895.99	1,882.74	13.25	143.086	
1,400.00	1,400.00	1,392.60	1,392.60	7.18	7.14	105.95	-521.00	1,823.00	1,895.99	1,881.66	14.33	132.345	
1,500.00	1,500.00	1,492.60	1,492.60	7.72	7.68	105.95	-521.00	1,823.00	1,895.99	1,880.59	15.40	123.104	
1,600.00	1,600.00	1,592.60	1,592.60	8.26	8.22	105.95	-521.00	1,823.00	1,895.99	1,879.51	16.48	115.069	
1,700.00	1,700.00	1,692.60	1,692.60	8.80	8.76	105.95	-521.00	1,823.00	1,895.99	1,878.44	17.55	108.019	
1,800.00	1,800.00	1,792.60	1,792.60	9.33	9.29	105.95	-521.00	1,823.00	1,895.99	1,877.36	18.63	101.783 CC	
1,900.00	1,899.98	1,891.50	1,891.49	9.85	9.82	-108.70	-519.80	1,823.42	1,896.57	1,876.90	19.67	96.421	
2,000.00	1,999.84	1,990.27	1,990.15	10.34	10.36	-108.95	-515.23	1,824.75	1,898.36	1,877.67	20.69	91.773	
2,100.00	2,099.45	2,089.32	2,089.06	10.84	10.89	-109.29	-510.27	1,826.26	1,901.36	1,879.66	21.71	87.597	
2,200.00	2,198.70	2,187.82	2,187.43	11.34	11.41	-109.71	-505.34	1,827.75	1,905.64	1,882.91	22.73	83.847	
2,300.00	2,297.73	2,286.02	2,285.49	11.86	11.94	-110.24	-500.43	1,829.25	1,910.66	1,886.90	23.77	80.393	
2,400.00	2,396.76	2,384.22	2,383.56	12.38	12.47	-110.78	-495.51	1,830.74	1,915.86	1,891.05	24.81	77.207	
2,500.00	2,495.78	2,482.42	2,481.62	12.92	13.00	-111.31	-490.60	1,832.23	1,921.23	1,895.36	25.87	74.265	
2,600.00	2,594.81	2,580.61	2,579.68	13.46	13.53	-111.84	-485.69	1,833.72	1,926.77	1,899.84	26.93	71.541	
2,700.00	2,693.84	2,678.81	2,677.75	14.00	14.06	-112.37	-480.77	1,835.21	1,932.48	1,904.48	28.00	69.016	
2,800.00	2,792.86	2,777.01	2,775.81	14.55	14.59	-112.89	-475.86	1,836.70	1,938.36	1,909.29	29.07	66.671	
2,900.00	2,891.89	2,875.21	2,873.87	15.11	15.12	-113.41	-470.94	1,838.20	1,944.40	1,914.25	30.15	64.488	
3,000.00	2,990.92	2,973.41	2,971.94	15.67	15.65	-113.93	-466.03	1,839.69	1,950.61	1,919.38	31.23	62.454	
3,100.00	3,089.94	3,071.60	3,070.00	16.23	16.18	-114.45	-461.12	1,841.18	1,956.98	1,924.66	32.32	60.554	
3,200.00	3,188.97	3,169.80	3,168.06	16.80	16.71	-114.96	-456.20	1,842.67	1,963.51	1,930.11	33.41	58.778	
3,300.00	3,288.00	3,268.00	3,266.13	17.37	17.24	-115.47	-451.29	1,844.16	1,970.20	1,935.71	34.50	57.114	
3,400.00	3,387.02	3,366.20	3,364.19	17.94	17.78	-115.97	-446.37	1,845.65	1,977.05	1,941.47	35.59	55.553	
3,500.00	3,486.05	3,464.40	3,462.25	18.52	18.31	-116.47	-441.46	1,847.15	1,984.06	1,947.38	36.68	54.086	
3,600.00	3,585.08	3,562.59	3,560.32	19.10	18.84	-116.97	-436.55	1,848.64	1,991.22	1,953.44	37.78	52.707	
3,700.00	3,684.10	3,660.79	3,658.38	19.68	19.37	-117.46	-431.63	1,850.13	1,998.53	1,959.66	38.88	51.406	
3,800.00	3,783.13	3,758.99	3,756.45	20.26	19.91	-117.95	-426.72	1,851.62	2,006.00	1,966.02	39.98	50.180	
3,900.00	3,882.16	3,857.19	3,854.51	20.84	20.44	-118.44	-421.80	1,853.11	2,013.61	1,972.54	41.08	49.022	
4,000.00	3,981.18	3,955.38	3,952.57	21.43	20.97	-118.92	-416.89	1,854.60	2,021.38	1,979.20	42.18	47.926	
4,100.00	4,080.21	4,056.27	4,053.32	22.02	21.52	-119.42	-411.90	1,856.12	2,029.27	1,985.98	43.29	46.874	
4,200.00	4,179.24	4,172.45	4,169.45	22.60	22.15	-119.89	-409.04	1,856.99	2,036.76	1,992.27	44.49	45.784	
4,300.00	4,278.26	4,273.86	4,270.86	23.19	22.69	-120.24	-409.00	1,857.00	2,043.79	1,998.19	45.60	44.819	
4,400.00	4,377.29	4,372.89	4,369.89	23.79	23.22	-120.57	-409.00	1,857.00	2,050.89	2,004.19	46.70	43.914	
4,500.00	4,476.32	4,471.91	4,468.92	24.38	23.75	-120.90	-409.00	1,857.00	2,058.05	2,010.25	47.81	43.050	
4,600.00	4,575.35	4,570.94	4,567.95	24.97	24.28	-121.23	-409.00	1,857.00	2,065.29	2,016.38	48.91	42.227	
4,700.00	4,674.37	4,669.97	4,666.97	25.56	24.81	-121.56	-409.00	1,857.00	2,072.59	2,022.58	50.01	41.441	
4,800.00	4,773.40	4,768.99	4,766.00	26.16	25.34	-121.88	-409.00	1,857.00	2,079.96	2,028.84	51.12	40.690	
4,900.00	4,872.43	4,868.02	4,865.03	26.76	25.87	-122.21	-409.00	1,857.00	2,087.40	2,035.17	52.22	39.972	
5,000.00	4,971.45	4,967.05	4,964.05	27.35	26.40	-122.53	-409.00	1,857.00	2,094.90	2,041.57	53.33	39.284	
5,100.00	5,070.48	5,066.07	5,063.08	27.95	26.93	-122.84	-409.00	1,857.00	2,102.47	2,048.03	54.43	38.626	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 5H - OH - Plan 1 12-20-17													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	5,169.51	5,165.10	5,162.11	28.55	27.46	-123.16	-409.00	1,857.00	2,110.10	2,054.56	55.54	37.994	
5,300.00	5,268.53	5,264.13	5,261.13	29.15	27.99	-123.47	-409.00	1,857.00	2,117.79	2,061.15	56.64	37.389	
5,400.00	5,367.66	5,363.26	5,360.26	29.74	28.52	-123.85	-409.00	1,857.00	2,125.12	2,067.34	57.78	36.781	
5,500.00	5,467.17	5,462.76	5,459.77	30.31	29.05	-124.16	-409.00	1,857.00	2,130.66	2,071.76	58.90	36.173	
5,600.00	5,566.96	5,562.55	5,559.56	30.86	29.59	-124.36	-409.00	1,857.00	2,134.26	2,074.27	59.99	35.576	
5,700.00	5,666.91	5,662.51	5,659.51	31.39	30.12	-124.45	-409.00	1,857.00	2,135.90	2,074.85	61.04	34.990	
5,800.00	5,766.91	5,762.51	5,759.51	31.87	30.66	90.11	-409.00	1,857.00	2,136.00	2,073.92	62.08	34.405	
5,900.00	5,866.91	5,862.51	5,859.51	32.36	31.19	90.11	-409.00	1,857.00	2,136.00	2,072.90	63.11	33.846	
6,000.00	5,966.91	5,962.51	5,959.51	32.84	31.73	90.11	-409.00	1,857.00	2,136.00	2,071.87	64.13	33.305	
6,100.00	6,066.91	6,062.51	6,059.51	33.33	32.26	90.11	-409.00	1,857.00	2,136.00	2,070.84	65.16	32.780	
6,200.00	6,166.91	6,162.51	6,159.51	33.82	32.80	90.11	-409.00	1,857.00	2,136.00	2,069.81	66.19	32.271	
6,300.00	6,266.91	6,262.51	6,259.51	34.31	33.34	90.11	-409.00	1,857.00	2,136.00	2,068.78	67.22	31.776	
6,400.00	6,366.91	6,362.51	6,359.51	34.80	33.87	90.11	-409.00	1,857.00	2,136.00	2,067.75	68.25	31.296	
6,500.00	6,466.91	6,462.51	6,459.51	35.29	34.41	90.11	-409.00	1,857.00	2,136.00	2,066.72	69.28	30.829	
6,600.00	6,566.91	6,562.51	6,559.51	35.78	34.95	90.11	-409.00	1,857.00	2,136.00	2,065.68	70.32	30.376	
6,700.00	6,666.91	6,662.51	6,659.51	36.28	35.48	90.11	-409.00	1,857.00	2,136.00	2,064.65	71.35	29.935	
6,800.00	6,766.91	6,762.51	6,759.51	36.78	36.02	90.11	-409.00	1,857.00	2,136.00	2,063.61	72.39	29.507	
6,900.00	6,866.91	6,862.51	6,859.51	37.27	36.56	90.11	-409.00	1,857.00	2,136.00	2,062.58	73.43	29.090	
7,000.00	6,966.91	6,962.51	6,959.51	37.77	37.09	90.11	-409.00	1,857.00	2,136.00	2,061.54	74.47	28.684	
7,100.00	7,066.91	7,062.51	7,059.51	38.27	37.63	90.11	-409.00	1,857.00	2,136.00	2,060.50	75.51	28.289	
7,200.00	7,166.91	7,162.51	7,159.51	38.77	38.16	90.11	-409.00	1,857.00	2,136.00	2,059.46	76.55	27.905	
7,300.00	7,266.91	7,262.51	7,259.51	39.27	38.70	90.11	-409.00	1,857.00	2,136.00	2,058.42	77.59	27.530	
7,400.00	7,366.91	7,362.51	7,359.51	39.78	39.24	90.11	-409.00	1,857.00	2,136.00	2,057.37	78.63	27.165	
7,500.00	7,466.91	7,462.51	7,459.51	40.28	39.77	90.11	-409.00	1,857.00	2,136.00	2,056.33	79.67	26.809	
7,600.00	7,566.91	7,562.51	7,559.51	40.78	40.31	90.11	-409.00	1,857.00	2,136.00	2,055.29	80.72	26.463	
7,700.00	7,666.91	7,662.51	7,659.51	41.29	40.85	90.11	-409.00	1,857.00	2,136.00	2,054.24	81.76	26.124	
7,800.00	7,766.91	7,762.51	7,759.51	41.79	41.39	90.11	-409.00	1,857.00	2,136.00	2,053.20	82.81	25.794	
7,900.00	7,866.91	7,862.51	7,859.51	42.30	41.92	90.11	-409.00	1,857.00	2,136.00	2,052.15	83.86	25.473	
8,000.00	7,966.91	7,962.51	7,959.51	42.81	42.46	90.11	-409.00	1,857.00	2,136.00	2,051.10	84.90	25.158	
8,100.00	8,066.91	8,062.51	8,059.51	43.32	43.00	90.11	-409.00	1,857.00	2,136.00	2,050.05	85.95	24.852	
8,200.00	8,166.91	8,162.51	8,159.51	43.83	43.53	90.11	-409.00	1,857.00	2,136.00	2,049.01	87.00	24.552	
8,300.00	8,266.91	8,262.51	8,259.51	44.34	44.07	90.11	-409.00	1,857.00	2,136.00	2,047.96	88.05	24.260	
8,400.00	8,366.91	8,362.51	8,359.51	44.85	44.61	90.11	-409.00	1,857.00	2,136.00	2,046.91	89.10	23.974	
8,500.00	8,466.91	8,462.51	8,459.51	45.36	45.14	90.11	-409.00	1,857.00	2,136.00	2,045.86	90.15	23.695	
8,600.00	8,566.91	8,562.51	8,559.51	45.87	45.68	90.11	-409.00	1,857.00	2,136.00	2,044.81	91.20	23.421	
8,700.00	8,666.91	8,662.51	8,659.51	46.38	46.22	90.11	-409.00	1,857.00	2,136.00	2,043.75	92.25	23.154	
8,800.00	8,766.91	8,762.51	8,759.51	46.89	46.75	90.11	-409.00	1,857.00	2,136.00	2,042.70	93.30	22.893	
8,900.00	8,866.91	8,862.51	8,859.51	47.41	47.29	90.11	-409.00	1,857.00	2,136.00	2,041.65	94.35	22.638	
9,000.00	8,966.91	8,962.51	8,959.51	47.92	47.83	90.11	-409.00	1,857.00	2,136.00	2,040.60	95.41	22.388	
9,100.00	9,066.91	9,062.51	9,059.51	48.44	48.37	90.11	-409.00	1,857.00	2,136.00	2,039.54	96.46	22.144	
9,200.00	9,166.91	9,162.51	9,159.51	48.95	48.84	90.25	-414.27	1,857.05	2,136.07	2,038.62	97.45	21.919	
9,300.00	9,266.91	9,262.51	9,259.51	49.47	49.26	90.77	-433.74	1,857.23	2,136.48	2,038.09	98.39	21.714	
9,400.00	9,366.91	9,362.51	9,359.51	50.00	49.63	-87.66	-464.94	1,857.52	2,137.29	2,038.00	99.28	21.527	
9,500.00	9,466.91	9,462.51	9,459.51	50.57	49.94	-86.99	-506.17	1,857.91	2,138.24	2,038.06	100.18	21.343	
9,600.00	9,566.91	9,562.51	9,559.51	51.18	50.26	-86.41	-555.50	1,858.37	2,139.24	2,038.16	101.08	21.164	
9,700.00	9,666.91	9,662.51	9,659.51	51.81	50.56	-85.91	-612.79	1,858.91	2,140.15	2,038.18	101.97	20.988	
9,800.00	9,766.91	9,762.51	9,759.51	52.48	50.85	-85.52	-675.55	1,859.50	2,140.88	2,038.01	102.87	20.812	
9,900.00	9,866.91	9,862.51	9,859.51	53.18	51.15	-85.23	-743.05	1,860.13	2,141.34	2,037.55	103.79	20.632	
10,000.00	9,966.91	9,962.51	9,959.51	53.92	51.45	-85.07	-814.20	1,860.80	2,141.46	2,036.71	104.75	20.444	
10,100.00	10,066.91	10,062.51	10,059.51	54.69	51.75	-85.03	-887.94	1,861.49	2,141.22	2,035.46	105.76	20.246	
10,200.00	10,166.91	10,162.51	10,159.51	55.48	52.06	-85.11	-963.26	1,862.20	2,140.60	2,033.77	106.83	20.038	
10,300.00	10,266.91	10,262.51	10,259.51	56.31	52.48	-85.15	-1,054.15	1,863.05	2,139.97	2,031.90	108.07	19.802	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 5H - OH - Plan 1 12-20-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance				Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)					
10,400.00	9,836.40	10,153.22	9,648.07	57.22	53.00	-85.15	-1,154.13	1,863.99	2,139.40	2,029.91	109.49	19.539	
10,500.00	9,834.31	10,253.22	9,646.34	58.19	53.61	-85.16	-1,254.11	1,864.92	2,138.84	2,027.77	111.06	19.258	
10,600.00	9,832.21	10,353.22	9,644.61	59.22	54.30	-85.17	-1,354.09	1,865.86	2,138.27	2,025.50	112.78	18.960	
10,700.00	9,830.12	10,453.22	9,642.88	60.31	55.06	-85.18	-1,454.07	1,866.80	2,137.71	2,023.08	114.63	18.649	
10,800.00	9,828.02	10,553.22	9,641.15	61.46	55.89	-85.19	-1,554.04	1,867.74	2,137.15	2,020.54	116.61	18.327	
10,900.00	9,825.93	10,653.21	9,639.42	62.66	56.80	-85.20	-1,654.02	1,868.67	2,136.58	2,017.87	118.71	17.998	
11,000.00	9,823.83	10,753.21	9,637.70	63.91	57.77	-85.21	-1,754.00	1,869.61	2,136.02	2,015.09	120.93	17.663	
11,100.00	9,821.74	10,853.21	9,635.97	65.21	58.81	-85.21	-1,853.98	1,870.55	2,135.46	2,012.19	123.26	17.324	
11,200.00	9,819.64	10,953.21	9,634.24	66.55	59.90	-85.22	-1,953.96	1,871.49	2,134.89	2,009.19	125.70	16.984	
11,300.00	9,817.54	11,053.21	9,632.51	67.93	61.05	-85.23	-2,053.94	1,872.42	2,134.33	2,006.09	128.24	16.644	
11,400.00	9,815.45	11,153.20	9,630.78	69.36	62.26	-85.24	-2,153.92	1,873.36	2,133.76	2,002.90	130.86	16.305	
11,500.00	9,813.35	11,253.20	9,629.05	70.82	63.51	-85.25	-2,253.89	1,874.30	2,133.20	1,999.62	133.58	15.970	
11,600.00	9,811.26	11,353.20	9,627.33	72.32	64.81	-85.26	-2,353.87	1,875.24	2,132.64	1,996.26	136.38	15.638	
11,700.00	9,809.16	11,453.20	9,625.60	73.85	66.16	-85.27	-2,453.85	1,876.17	2,132.07	1,992.82	139.25	15.311	
11,800.00	9,807.07	11,553.19	9,623.87	75.41	67.55	-85.27	-2,553.83	1,877.11	2,131.51	1,989.31	142.20	14.989	
11,900.00	9,804.97	11,653.19	9,622.14	77.00	68.98	-85.28	-2,653.81	1,878.05	2,130.95	1,985.73	145.22	14.674	
12,000.00	9,802.88	11,753.19	9,620.41	78.61	70.45	-85.29	-2,753.79	1,878.99	2,130.38	1,982.08	148.30	14.365	
12,100.00	9,800.78	11,853.19	9,618.68	80.25	71.95	-85.30	-2,853.77	1,879.92	2,129.82	1,978.38	151.44	14.064	
12,200.00	9,798.68	11,953.19	9,616.95	81.92	73.48	-85.31	-2,953.74	1,880.86	2,129.26	1,974.62	154.64	13.769	
12,300.00	9,796.59	12,053.18	9,615.23	83.61	75.05	-85.32	-3,053.72	1,881.80	2,128.69	1,970.80	157.89	13.482	
12,400.00	9,794.49	12,153.18	9,613.50	85.32	76.64	-85.33	-3,153.70	1,882.73	2,128.13	1,966.94	161.19	13.203	
12,500.00	9,792.40	12,253.18	9,611.77	87.05	78.26	-85.34	-3,253.68	1,883.67	2,127.57	1,963.03	164.54	12.931	
12,600.00	9,790.30	12,353.18	9,610.04	88.80	79.90	-85.34	-3,353.66	1,884.61	2,127.00	1,959.07	167.93	12.666	
12,700.00	9,788.21	12,453.18	9,608.31	90.56	81.57	-85.35	-3,453.64	1,885.55	2,126.44	1,955.08	171.36	12.409	
12,800.00	9,786.11	12,553.17	9,606.58	92.35	83.27	-85.36	-3,553.62	1,886.48	2,125.88	1,951.04	174.84	12.159	
12,900.00	9,784.02	12,653.17	9,604.86	94.15	84.98	-85.37	-3,653.59	1,887.42	2,125.31	1,946.97	178.35	11.917	
13,000.00	9,781.92	12,753.17	9,603.13	95.96	86.71	-85.38	-3,753.57	1,888.36	2,124.75	1,942.86	181.89	11.681	
13,100.00	9,779.82	12,853.17	9,601.40	97.79	88.46	-85.39	-3,853.55	1,889.30	2,124.19	1,938.72	185.47	11.453	
13,200.00	9,777.73	12,953.17	9,599.67	99.63	90.23	-85.40	-3,953.53	1,890.23	2,123.63	1,934.55	189.08	11.232	
13,300.00	9,775.63	13,053.16	9,597.94	101.48	92.02	-85.41	-4,053.51	1,891.17	2,123.06	1,930.35	192.71	11.017	
13,400.00	9,773.54	13,153.16	9,596.21	103.35	93.82	-85.41	-4,153.49	1,892.11	2,122.50	1,926.12	196.38	10.808	
13,500.00	9,771.44	13,253.16	9,594.48	105.22	95.64	-85.42	-4,253.47	1,893.05	2,121.94	1,921.87	200.07	10.606	
13,600.00	9,769.35	13,353.16	9,592.76	107.11	97.47	-85.43	-4,353.44	1,893.98	2,121.37	1,917.59	203.78	10.410	
13,700.00	9,767.25	13,453.15	9,591.03	109.01	99.31	-85.44	-4,453.42	1,894.92	2,120.81	1,913.29	207.52	10.220	
13,800.00	9,765.16	13,553.15	9,589.30	110.92	101.17	-85.45	-4,553.40	1,895.86	2,120.25	1,908.97	211.28	10.035	
13,900.00	9,763.06	13,653.15	9,587.57	112.83	103.03	-85.46	-4,653.38	1,896.80	2,119.69	1,904.63	215.06	9.856	
14,000.00	9,760.96	13,753.15	9,585.84	114.76	104.91	-85.47	-4,753.36	1,897.73	2,119.12	1,900.26	218.86	9.683	
14,100.00	9,758.87	13,853.15	9,584.11	116.69	106.80	-85.47	-4,853.34	1,898.67	2,118.56	1,895.88	222.68	9.514	
14,200.00	9,756.77	13,953.14	9,582.39	118.63	108.70	-85.48	-4,953.32	1,899.61	2,118.00	1,891.48	226.52	9.350	
14,300.00	9,754.68	14,053.14	9,580.66	120.58	110.61	-85.49	-5,053.29	1,900.55	2,117.44	1,887.07	230.37	9.191	
14,400.00	9,752.58	14,153.14	9,578.93	122.54	112.53	-85.50	-5,153.27	1,901.48	2,116.88	1,882.63	234.24	9.037	
14,500.00	9,750.49	14,253.14	9,577.20	124.50	114.45	-85.51	-5,253.25	1,902.42	2,116.31	1,878.19	238.13	8.887	
14,600.00	9,748.39	14,353.14	9,575.47	126.47	116.39	-85.52	-5,353.23	1,903.36	2,115.75	1,873.73	242.03	8.742	
14,700.00	9,746.29	14,453.13	9,573.74	128.44	118.33	-85.53	-5,453.21	1,904.30	2,115.19	1,869.25	245.94	8.600	
14,800.00	9,744.20	14,553.13	9,572.01	130.42	120.28	-85.54	-5,553.19	1,905.23	2,114.63	1,864.76	249.87	8.463	
14,900.00	9,742.39	14,659.28	9,570.27	132.41	122.35	-85.53	-5,659.31	1,906.19	2,114.19	1,860.23	253.95	8.325	
14,911.79	9,742.31	14,671.07	9,570.14	132.64	122.58	-85.53	-5,671.11	1,906.27	2,114.18	1,859.76	254.42	8.310	
15,000.00	9,742.58	14,759.27	9,569.14	134.39	124.31	-85.50	-5,759.29	1,906.88	2,114.58	1,856.67	257.91	8.199	
15,100.00	9,742.98	14,859.25	9,568.01	136.38	126.28	-85.46	-5,859.27	1,907.58	2,115.08	1,853.24	261.85	8.078	
15,200.00	9,743.38	14,959.24	9,566.89	138.38	128.26	-85.42	-5,959.25	1,908.27	2,115.59	1,849.79	265.80	7.959	
15,300.00	9,743.77	15,059.23	9,565.76	140.38	130.24	-85.38	-6,059.23	1,908.96	2,116.09	1,846.34	269.76	7.844	
15,400.00	9,744.17	15,159.22	9,564.63	142.39	132.22	-85.34	-6,159.21	1,909.65	2,116.60	1,842.87	273.73	7.732	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 17 20 FED 002 - 5H - OH - Plan 1 12-20-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,500.00	9,744.56	15,259.20	9,563.50	144.40	134.21	-85.30	-6,259.19	1,910.35	2,117.11	1,839.40	277.71	7.623	
15,600.00	9,744.96	15,359.19	9,562.38	146.41	136.21	-85.26	-6,359.17	1,911.04	2,117.62	1,835.92	281.70	7.517	
15,700.00	9,745.35	15,459.18	9,561.25	148.43	138.21	-85.22	-6,459.15	1,911.73	2,118.13	1,832.44	285.69	7.414	
15,800.00	9,745.75	15,559.17	9,560.12	150.45	140.21	-85.18	-6,559.13	1,912.43	2,118.64	1,828.94	289.70	7.313	
15,900.00	9,746.14	15,659.16	9,558.99	152.48	142.22	-85.14	-6,659.10	1,913.12	2,119.15	1,825.44	293.71	7.215	
16,000.00	9,746.54	15,759.14	9,557.86	154.51	144.24	-85.10	-6,759.08	1,913.81	2,119.67	1,821.94	297.73	7.119	
16,100.00	9,746.94	15,859.13	9,556.74	156.54	146.25	-85.05	-6,859.06	1,914.50	2,120.18	1,818.42	301.76	7.026	
16,200.00	9,747.33	15,959.12	9,555.61	158.58	148.28	-85.01	-6,959.04	1,915.20	2,120.70	1,814.91	305.79	6.935	
16,300.00	9,747.73	16,059.11	9,554.48	160.61	150.30	-84.97	-7,059.02	1,915.89	2,121.21	1,811.38	309.83	6.846	
16,400.00	9,748.12	16,159.09	9,553.35	162.66	152.33	-84.93	-7,159.00	1,916.58	2,121.73	1,807.85	313.88	6.760	
16,500.00	9,748.52	16,259.08	9,552.23	164.70	154.36	-84.89	-7,258.98	1,917.28	2,122.25	1,804.32	317.93	6.675	
16,600.00	9,748.91	16,359.07	9,551.10	166.75	156.40	-84.85	-7,358.96	1,917.97	2,122.77	1,800.78	321.99	6.593	
16,700.00	9,749.31	16,459.06	9,549.97	168.80	158.44	-84.81	-7,458.94	1,918.66	2,123.29	1,797.24	326.05	6.512	
16,800.00	9,749.71	16,559.04	9,548.84	170.85	160.48	-84.77	-7,558.91	1,919.35	2,123.81	1,793.69	330.12	6.433	
16,900.00	9,750.10	16,659.03	9,547.71	172.91	162.52	-84.73	-7,658.89	1,920.05	2,124.34	1,790.14	334.19	6.357	
17,000.00	9,750.50	16,759.02	9,546.59	174.97	164.57	-84.69	-7,758.87	1,920.74	2,124.86	1,786.59	338.27	6.282	
17,100.00	9,750.89	16,859.01	9,545.46	177.03	166.62	-84.65	-7,858.85	1,921.43	2,125.38	1,783.03	342.35	6.208	
17,200.00	9,751.29	16,959.99	9,544.33	179.09	168.68	-84.61	-7,958.83	1,922.12	2,125.91	1,779.47	346.44	6.136	
17,300.00	9,751.68	17,059.98	9,543.20	181.15	170.73	-84.57	-8,058.81	1,922.82	2,126.44	1,775.91	350.53	6.066	
17,400.00	9,752.08	17,159.97	9,542.07	183.22	172.79	-84.54	-8,158.79	1,923.51	2,126.97	1,772.34	354.63	5.998	
17,500.00	9,752.48	17,259.96	9,540.95	185.29	174.85	-84.50	-8,258.77	1,924.20	2,127.49	1,768.77	358.73	5.931	
17,600.00	9,752.87	17,359.95	9,539.82	187.36	176.91	-84.46	-8,358.75	1,924.90	2,128.02	1,765.19	362.83	5.865	
17,700.00	9,753.27	17,459.93	9,538.69	189.43	178.98	-84.42	-8,458.72	1,925.59	2,128.56	1,761.62	366.94	5.801	
17,800.00	9,753.66	17,559.92	9,537.56	191.51	181.05	-84.38	-8,558.70	1,926.28	2,129.09	1,758.04	371.05	5.738	
17,900.00	9,754.06	17,659.91	9,536.44	193.59	183.12	-84.34	-8,658.68	1,926.97	2,129.62	1,754.46	375.16	5.677	
18,000.00	9,754.45	17,759.90	9,535.31	195.66	185.19	-84.30	-8,758.66	1,927.67	2,130.16	1,750.88	379.28	5.616	
18,100.00	9,754.85	17,859.88	9,534.18	197.74	187.26	-84.26	-8,858.64	1,928.36	2,130.69	1,747.29	383.40	5.557	
18,200.00	9,755.25	17,959.87	9,533.05	199.82	189.34	-84.22	-8,958.62	1,929.05	2,131.23	1,743.71	387.52	5.500	
18,300.00	9,755.64	18,059.86	9,531.92	201.91	191.41	-84.18	-9,058.60	1,929.74	2,131.76	1,740.12	391.64	5.443	
18,400.00	9,756.04	18,159.85	9,530.80	203.99	193.49	-84.14	-9,158.58	1,930.44	2,132.30	1,736.53	395.77	5.388	
18,500.00	9,756.43	18,259.83	9,529.67	206.08	195.57	-84.10	-9,258.56	1,931.13	2,132.84	1,732.94	399.90	5.333	
18,600.00	9,756.83	18,359.82	9,528.54	208.17	197.66	-84.06	-9,358.53	1,931.82	2,133.38	1,729.35	404.04	5.280	
18,700.00	9,757.22	18,459.81	9,527.41	210.26	199.74	-84.02	-9,458.51	1,932.52	2,133.92	1,725.75	408.17	5.228	
18,800.00	9,757.62	18,559.80	9,526.29	212.35	201.82	-83.98	-9,558.49	1,933.21	2,134.47	1,722.16	412.31	5.177	
18,900.00	9,758.01	18,659.79	9,525.16	214.44	203.91	-83.94	-9,658.47	1,933.90	2,135.01	1,718.56	416.45	5.127	
19,000.00	9,758.41	18,759.77	9,524.03	216.53	206.00	-83.90	-9,758.45	1,934.59	2,135.55	1,714.96	420.59	5.077	
19,100.00	9,758.81	18,859.76	9,522.90	218.62	208.09	-83.86	-9,858.43	1,935.29	2,136.10	1,711.36	424.74	5.029	
19,200.00	9,759.20	18,959.75	9,521.77	220.72	210.18	-83.82	-9,958.41	1,935.98	2,136.64	1,707.76	428.88	4.982	
19,300.00	9,759.60	19,059.74	9,520.65	222.82	212.27	-83.78	-10,058.39	1,936.67	2,137.19	1,704.16	433.03	4.935	
19,400.00	9,759.99	19,159.72	9,519.52	224.91	214.37	-83.74	-10,158.37	1,937.36	2,137.74	1,700.56	437.18	4.890	
19,500.00	9,760.39	19,259.71	9,518.39	227.01	216.46	-83.70	-10,258.34	1,938.06	2,138.29	1,696.96	441.33	4.845	
19,600.00	9,760.78	19,359.70	9,517.26	229.11	218.56	-83.66	-10,358.32	1,938.75	2,138.84	1,693.35	445.49	4.801	
19,700.00	9,761.18	19,459.69	9,516.13	231.21	220.65	-83.62	-10,458.30	1,939.44	2,139.39	1,689.75	449.64	4.758	
19,800.00	9,761.58	19,559.67	9,515.01	233.31	222.75	-83.58	-10,558.28	1,940.14	2,139.94	1,686.15	453.80	4.716	
19,900.00	9,761.97	19,659.66	9,513.88	235.42	224.85	-83.54	-10,658.26	1,940.83	2,140.50	1,682.54	457.96	4.674	
19,907.29	9,762.00	19,665.95	9,513.80	235.57	225.00	-83.54	-10,665.55	1,940.88	2,140.54	1,682.28	458.26	4.671 ES, SF	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset 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							
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	10.00	10.00	0.00	0.02	153.80	-910.37	447.89	1,014.58				
100.00	100.00	110.00	110.00	0.19	0.25	153.80	-910.37	447.89	1,014.58	1,014.14	0.44	2,301.056	
200.00	200.00	210.00	210.00	0.73	0.79	153.80	-910.37	447.89	1,014.58	1,013.07	1.52	669.102	
300.00	300.00	310.00	310.00	1.27	1.32	153.80	-910.37	447.89	1,014.58	1,011.99	2.59	391.466	
400.00	400.00	410.00	410.00	1.81	1.86	153.80	-910.37	447.89	1,014.58	1,010.92	3.67	276.667	
500.00	500.00	510.00	510.00	2.34	2.40	153.80	-910.37	447.89	1,014.58	1,009.84	4.74	213.931	
600.00	600.00	615.44	615.44	2.88	2.97	153.80	-910.33	447.87	1,014.56	1,008.71	5.85	173.514	
700.00	700.00	769.67	769.57	3.42	3.80	153.78	-905.67	446.12	1,011.34	1,004.13	7.21	140.196	
800.00	800.00	914.92	914.29	3.96	4.59	153.71	-894.22	441.82	1,002.85	994.32	8.54	117.476	
900.00	900.00	1,014.37	1,013.19	4.50	5.13	153.65	-884.49	438.17	992.45	982.84	9.61	103.236	
1,000.00	1,000.00	1,113.82	1,112.10	5.03	5.68	153.58	-874.76	434.52	982.06	971.37	10.69	91.857	
1,100.00	1,100.00	1,213.27	1,211.01	5.57	6.23	153.52	-865.03	430.87	971.66	959.89	11.77	82.544	
1,200.00	1,200.00	1,312.73	1,309.92	6.11	6.79	153.46	-855.30	427.22	961.27	948.41	12.85	74.786	
1,300.00	1,300.00	1,412.18	1,408.83	6.65	7.35	153.39	-845.56	423.57	950.87	936.93	13.94	68.225	
1,400.00	1,400.00	1,511.63	1,507.73	7.18	7.91	153.33	-835.83	419.92	940.48	925.46	15.02	62.607	
1,500.00	1,500.00	1,611.08	1,606.64	7.72	8.47	153.26	-826.10	416.27	930.09	913.98	16.11	57.741	
1,600.00	1,600.00	1,710.54	1,705.55	8.26	9.04	153.19	-816.37	412.62	919.70	902.50	17.19	53.488	
1,700.00	1,700.00	1,809.99	1,804.46	8.80	9.60	153.12	-806.64	408.97	909.31	891.03	18.28	49.738	
1,800.00	1,800.00	1,909.44	1,903.36	9.33	10.16	153.04	-796.91	405.32	898.92	879.55	19.37	46.409	
1,900.00	1,899.98	2,008.77	2,002.15	9.85	10.73	-61.89	-787.19	401.67	887.71	867.38	20.34	43.645	
2,000.00	1,999.84	2,107.77	2,100.61	10.34	11.29	-62.50	-777.50	398.03	874.90	853.55	21.35	40.976	
2,100.00	2,099.45	2,206.31	2,198.61	10.84	11.85	-63.36	-767.86	394.42	860.55	838.19	22.36	38.482	
2,200.00	2,198.70	2,304.29	2,296.05	11.34	12.41	-64.48	-758.28	390.82	844.79	821.42	23.37	36.142	
2,300.00	2,297.73	2,401.95	2,393.17	11.86	12.97	-65.45	-748.72	387.23	828.49	804.07	24.42	33.923	
2,400.00	2,396.76	2,499.60	2,490.29	12.38	13.53	-66.45	-739.17	383.65	812.44	786.96	25.48	31.884	
2,500.00	2,495.78	2,597.25	2,587.41	12.92	14.09	-67.50	-729.61	380.06	796.65	770.10	26.55	30.008	
2,600.00	2,594.81	2,694.90	2,684.53	13.46	14.64	-68.58	-720.06	376.48	781.13	753.50	27.62	28.279	
2,700.00	2,693.84	2,792.56	2,781.65	14.00	15.20	-69.71	-710.50	372.90	765.90	737.19	28.71	26.682	
2,800.00	2,792.86	2,890.21	2,878.77	14.55	15.76	-70.88	-700.95	369.31	750.98	721.18	29.79	25.205	
2,900.00	2,891.89	2,987.86	2,975.88	15.11	16.32	-72.10	-691.39	365.73	736.38	705.49	30.89	23.838	
3,000.00	2,990.92	3,085.52	3,073.00	15.67	16.88	-73.36	-681.84	362.14	722.14	690.15	31.99	22.571	
3,100.00	3,089.94	3,183.17	3,170.12	16.23	17.43	-74.68	-672.28	358.56	708.26	675.16	33.10	21.396	
3,200.00	3,188.97	3,280.82	3,267.24	16.80	17.99	-76.04	-662.73	354.97	694.78	660.56	34.22	20.304	
3,300.00	3,288.00	3,378.48	3,364.36	17.37	18.55	-77.46	-653.17	351.39	681.71	646.37	35.34	19.290	
3,400.00	3,387.02	3,476.13	3,461.47	17.94	19.11	-78.93	-643.62	347.80	669.07	632.61	36.47	18.348	
3,500.00	3,486.05	3,573.78	3,558.59	18.52	19.67	-80.45	-634.06	344.22	656.90	619.31	37.60	17.472	
3,600.00	3,585.08	3,671.44	3,655.71	19.10	20.23	-82.03	-624.51	340.63	645.22	606.49	38.73	16.658	
3,700.00	3,684.10	3,769.09	3,752.83	19.68	20.79	-83.66	-614.95	337.05	634.06	594.18	39.88	15.901	
3,800.00	3,783.13	3,866.74	3,849.95	20.26	21.35	-85.34	-605.40	333.46	623.44	582.42	41.02	15.198	
3,900.00	3,882.16	3,964.39	3,947.07	20.84	21.91	-87.09	-595.84	329.88	613.39	571.22	42.17	14.545	
4,000.00	3,981.18	4,062.05	4,044.18	21.43	22.47	-88.88	-586.29	326.29	603.95	560.62	43.33	13.940	
4,100.00	4,080.21	4,159.70	4,141.30	22.02	23.03	-90.73	-576.73	322.71	595.13	550.65	44.48	13.379	
4,200.00	4,179.24	4,257.35	4,238.42	22.60	23.58	-92.63	-567.18	319.12	586.97	541.33	45.64	12.861	
4,300.00	4,278.26	4,355.96	4,333.51	23.19	24.13	-94.53	-557.85	315.62	579.53	532.74	46.79	12.386	
4,400.00	4,377.29	4,437.80	4,418.03	23.79	24.61	-96.16	-551.08	313.08	574.20	526.33	47.87	11.995	
4,500.00	4,476.32	4,523.40	4,503.50	24.38	25.07	-97.66	-546.62	311.41	571.68	522.74	48.94	11.681	
4,544.20	4,520.09	4,561.45	4,541.53	24.64	25.27	-98.27	-545.41	310.95	571.43	522.01	49.41	11.564 CC	
4,600.00	4,575.35	4,609.63	4,589.70	24.97	25.53	-99.00	-544.55	310.63	571.83	521.82	50.01	11.435	
4,700.00	4,674.37	4,704.30	4,684.37	25.56	26.01	-100.31	-544.40	310.58	574.05	522.94	51.11	11.233	
4,800.00	4,773.40	4,803.33	4,783.40	26.16	26.51	-101.65	-544.40	310.58	576.72	524.50	52.22	11.043	
4,900.00	4,872.43	4,902.36	4,882.43	26.76	27.02	-102.99	-544.40	310.58	579.72	526.38	53.34	10.868	
5,000.00	4,971.45	5,001.38	4,981.45	27.35	27.53	-104.31	-544.40	310.58	583.04	528.58	54.45	10.707	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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
5,100.00	5,070.48	5,100.41	5,080.48	27.95	28.04	-105.62	-544.40	310.58	586.66	531.10	55.57	10.558	
5,200.00	5,169.51	5,199.44	5,179.51	28.55	28.55	-106.90	-544.40	310.58	590.59	533.92	56.68	10.420	
5,300.00	5,268.53	5,298.47	5,278.53	29.15	29.06	-108.18	-544.40	310.58	594.83	537.04	57.79	10.294	
5,400.00	5,367.66	5,397.59	5,377.66	29.74	29.57	-109.41	-544.40	310.58	599.09	540.20	58.89	10.173	
5,500.00	5,467.17	5,497.10	5,477.17	30.31	30.08	-110.36	-544.40	310.58	602.46	542.49	59.97	10.045	
5,600.00	5,566.96	5,596.89	5,576.96	30.86	30.60	-110.97	-544.40	310.58	604.72	543.69	61.03	9.909	
5,700.00	5,666.91	5,696.85	5,676.91	31.39	31.12	-111.24	-544.40	310.58	605.76	543.71	62.06	9.761	
5,800.00	5,766.91	5,796.84	5,776.91	31.87	31.63	103.30	-544.40	310.58	605.83	542.77	63.06	9.607	
5,900.00	5,866.91	5,896.84	5,876.91	32.36	32.15	103.30	-544.40	310.58	605.83	541.76	64.07	9.456	
6,000.00	5,966.91	5,996.84	5,976.91	32.84	32.67	103.30	-544.40	310.58	605.83	540.75	65.08	9.309	
6,100.00	6,066.91	6,096.84	6,076.91	33.33	33.19	103.30	-544.40	310.58	605.83	539.74	66.09	9.166	
6,200.00	6,166.91	6,196.84	6,176.91	33.82	33.71	103.30	-544.40	310.58	605.83	538.73	67.11	9.028	
6,300.00	6,266.91	6,296.84	6,276.91	34.31	34.24	103.30	-544.40	310.58	605.83	537.71	68.12	8.893	
6,400.00	6,366.91	6,396.84	6,376.91	34.80	34.76	103.30	-544.40	310.58	605.83	536.69	69.14	8.763	
6,500.00	6,466.91	6,496.84	6,476.91	35.29	35.28	103.30	-544.40	310.58	605.83	535.68	70.16	8.635	
6,600.00	6,566.91	6,596.84	6,576.91	35.78	35.80	103.30	-544.40	310.58	605.83	534.66	71.18	8.511	
6,700.00	6,666.91	6,696.84	6,676.91	36.28	36.33	103.30	-544.40	310.58	605.83	533.63	72.20	8.391	
6,800.00	6,766.91	6,796.84	6,776.91	36.78	36.85	103.30	-544.40	310.58	605.83	532.61	73.22	8.274	
6,900.00	6,866.91	6,896.84	6,876.91	37.27	37.38	103.30	-544.40	310.58	605.83	531.58	74.25	8.159	
7,000.00	6,966.91	6,996.84	6,976.91	37.77	37.90	103.30	-544.40	310.58	605.83	530.56	75.28	8.048	
7,100.00	7,066.91	7,096.84	7,076.91	38.27	38.42	103.30	-544.40	310.58	605.83	529.53	76.30	7.940	
7,200.00	7,166.91	7,196.84	7,176.91	38.77	38.95	103.30	-544.40	310.58	605.83	528.50	77.33	7.834	
7,300.00	7,266.91	7,296.84	7,276.91	39.27	39.48	103.30	-544.40	310.58	605.83	527.47	78.36	7.731	
7,400.00	7,366.91	7,396.84	7,376.91	39.78	40.00	103.30	-544.40	310.58	605.83	526.44	79.39	7.631	
7,500.00	7,466.91	7,496.84	7,476.91	40.28	40.53	103.30	-544.40	310.58	605.83	525.41	80.43	7.533	
7,600.00	7,566.91	7,596.84	7,576.91	40.78	41.05	103.30	-544.40	310.58	605.83	524.37	81.46	7.437	
7,700.00	7,666.91	7,696.84	7,676.91	41.29	41.58	103.30	-544.40	310.58	605.83	523.34	82.50	7.344	
7,800.00	7,766.91	7,796.84	7,776.91	41.79	42.11	103.30	-544.40	310.58	605.83	522.30	83.53	7.253	
7,900.00	7,866.91	7,896.84	7,876.91	42.30	42.64	103.30	-544.40	310.58	605.83	521.26	84.57	7.164	
8,000.00	7,966.91	7,996.84	7,976.91	42.81	43.18	103.30	-544.40	310.58	605.83	520.23	85.61	7.077	
8,100.00	8,066.91	8,096.84	8,076.91	43.32	43.69	103.30	-544.40	310.58	605.83	519.19	86.65	6.992	
8,200.00	8,166.91	8,196.84	8,176.91	43.83	44.22	103.30	-544.40	310.58	605.83	518.15	87.69	6.909	
8,300.00	8,266.91	8,296.84	8,276.91	44.34	44.75	103.30	-544.40	310.58	605.83	517.11	88.73	6.828	
8,400.00	8,366.91	8,396.84	8,376.91	44.85	45.28	103.30	-544.40	310.58	605.83	516.07	89.77	6.749	
8,500.00	8,466.91	8,496.84	8,476.91	45.36	45.81	103.30	-544.40	310.58	605.83	515.02	90.81	6.672	
8,600.00	8,566.91	8,596.84	8,576.91	45.87	46.45	102.86	-539.58	310.53	604.97	513.01	91.96	6.579	
8,700.00	8,666.91	8,741.20	8,717.22	46.38	47.18	100.08	-509.78	310.23	599.83	506.64	93.19	6.437	
8,800.00	8,766.91	8,849.86	8,815.19	46.89	47.85	95.64	-463.15	309.77	592.87	498.52	94.35	6.284	
8,900.00	8,866.91	8,938.59	8,887.51	47.41	48.42	90.67	-411.90	309.26	588.40	492.99	95.41	6.167	
8,925.38	8,892.29	8,958.10	8,902.29	47.54	48.55	89.43	-399.17	309.14	588.17	492.51	95.66	6.149 ES	
9,000.00	8,966.91	9,009.23	8,938.89	47.92	48.89	85.96	-363.50	308.78	590.47	494.11	96.36	6.128 SF	
9,100.00	9,066.91	9,065.22	8,975.15	48.44	49.27	81.85	-320.87	308.36	602.02	504.80	97.22	6.192	
9,200.00	9,166.91	9,109.89	9,000.98	48.95	49.58	78.39	-284.44	308.00	624.54	526.54	98.01	6.372	
9,300.00	9,266.91	9,150.00	9,021.70	49.47	49.86	75.21	-250.10	307.66	658.25	559.49	98.76	6.665	
9,400.00	9,366.41	9,170.73	9,031.45	50.00	50.01	-100.67	-231.81	307.48	704.17	604.67	99.50	7.077	
9,500.00	9,462.91	9,182.05	9,036.50	50.57	50.09	-94.62	-221.68	307.38	762.29	662.04	100.25	7.604	
9,600.00	9,553.47	9,182.87	9,036.85	51.18	50.10	-85.67	-220.94	307.37	829.28	728.52	100.76	8.230	
9,700.00	9,635.34	9,175.65	9,033.67	51.81	50.05	-74.74	-227.42	307.44	901.45	801.62	99.83	9.030	
9,800.00	9,706.03	9,150.00	9,021.70	52.48	49.86	-62.55	-250.10	307.66	975.55	880.16	95.39	10.227	
9,900.00	9,763.40	9,150.00	9,021.70	53.18	49.86	-53.60	-250.10	307.66	1,048.16	959.39	88.77	11.808	
10,000.00	9,805.70	9,122.53	9,007.77	53.92	49.67	-45.05	-273.77	307.89	1,117.32	1,038.04	79.28	14.093	
10,100.00	9,831.65	9,100.00	8,995.51	54.69	49.51	-38.79	-292.67	308.08	1,181.06	1,110.71	70.36	16.787	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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)	Separation Factor	
10,200.00	9,840.46	9,071.46	8,978.92	55.48	49.31	-34.05	-315.90	308.31	1,237.80	1,174.09	63.71	19.429	
10,300.00	9,838.50	9,050.00	8,965.71	56.31	49.16	-33.24	-332.80	308.48	1,291.19	1,228.05	63.13	20.451	
10,400.00	9,836.40	9,019.40	8,945.78	57.22	48.95	-32.67	-356.02	308.71	1,348.22	1,285.32	62.90	21.436	
10,500.00	9,834.31	9,000.00	8,932.52	58.19	48.82	-32.31	-370.18	308.85	1,408.79	1,345.79	63.00	22.362	
10,600.00	9,832.21	8,974.40	8,914.30	59.22	48.65	-31.81	-388.16	309.03	1,472.52	1,409.55	62.97	23.384	
10,700.00	9,830.12	8,950.00	8,896.21	60.31	48.49	-31.33	-404.52	309.19	1,539.20	1,476.19	63.01	24.427	
10,800.00	9,828.02	8,950.00	8,896.21	61.46	48.49	-31.33	-404.52	309.19	1,608.71	1,544.92	63.79	25.217	
10,900.00	9,825.93	8,900.00	8,857.03	62.66	48.17	-30.34	-435.57	309.50	1,680.54	1,617.37	63.17	26.603	
11,000.00	9,823.83	8,900.00	8,857.03	63.91	48.17	-30.34	-435.57	309.50	1,754.04	1,690.01	64.03	27.393	
11,100.00	9,821.74	8,900.00	8,857.03	65.21	48.17	-30.34	-435.57	309.50	1,830.06	1,765.13	64.93	28.185	
11,200.00	9,819.64	8,872.97	8,834.78	66.55	48.00	-29.80	-450.89	309.65	1,907.48	1,842.42	65.07	29.315	
11,300.00	9,817.54	8,850.00	8,815.30	67.93	47.85	-29.34	-463.08	309.77	1,986.82	1,921.47	65.35	30.401	
11,400.00	9,815.45	8,850.00	8,815.30	69.36	47.85	-29.34	-463.08	309.77	2,067.42	2,001.07	66.35	31.161	
11,500.00	9,813.35	8,850.00	8,815.30	70.82	47.85	-29.34	-463.08	309.77	2,149.65	2,082.28	67.37	31.909	
11,600.00	9,811.26	8,825.48	8,794.00	72.32	47.70	-28.86	-475.22	309.89	2,232.69	2,165.01	67.68	32.988	
11,700.00	9,809.16	8,800.00	8,771.34	73.85	47.54	-28.35	-486.85	310.01	2,317.29	2,249.29	67.99	34.082	
11,800.00	9,807.07	8,800.00	8,771.34	75.41	47.54	-28.35	-486.85	310.01	2,402.42	2,333.35	69.08	34.779	
11,900.00	9,804.97	8,800.00	8,771.34	77.00	47.54	-28.35	-486.85	310.01	2,488.67	2,418.48	70.18	35.459	
12,000.00	9,802.88	8,800.00	8,771.34	78.61	47.54	-28.35	-486.85	310.01	2,575.91	2,504.59	71.31	36.122	
12,100.00	9,800.78	8,800.00	8,771.34	80.25	47.54	-28.35	-486.85	310.01	2,664.04	2,591.58	72.46	36.767	
12,200.00	9,798.68	8,773.31	8,747.07	81.92	47.38	-27.83	-497.95	310.12	2,752.25	2,679.44	72.81	37.801	
12,300.00	9,796.59	8,750.00	8,725.46	83.61	47.23	-27.38	-506.70	310.20	2,841.77	2,768.49	73.28	38.781	
12,400.00	9,794.49	8,750.00	8,725.46	85.32	47.23	-27.38	-506.70	310.20	2,931.44	2,856.97	74.46	39.369	
12,500.00	9,792.40	8,750.00	8,725.46	87.05	47.23	-27.38	-506.70	310.20	3,021.75	2,946.09	75.66	39.941	
12,600.00	9,790.30	8,750.00	8,725.46	88.80	47.23	-27.38	-506.70	310.20	3,112.66	3,035.79	76.86	40.495	
12,700.00	9,788.21	8,750.00	8,725.46	90.56	47.23	-27.38	-506.70	310.20	3,204.11	3,126.02	78.08	41.034	
12,800.00	9,786.11	8,750.00	8,725.46	92.35	47.23	-27.38	-506.70	310.20	3,296.05	3,216.74	79.32	41.556	
12,900.00	9,784.02	8,750.00	8,725.46	94.15	47.23	-27.38	-506.70	310.20	3,388.46	3,307.90	80.56	42.063	
13,000.00	9,781.92	8,725.94	8,702.81	95.96	47.09	-26.92	-514.81	310.28	3,480.70	3,399.64	81.06	42.942	
13,100.00	9,779.82	8,700.00	8,678.03	97.79	46.93	-26.44	-522.48	310.36	3,574.11	3,492.60	81.51	43.847	
13,200.00	9,777.73	8,700.00	8,678.03	99.63	46.93	-26.44	-522.48	310.36	3,667.23	3,584.46	82.77	44.307	
13,300.00	9,775.63	8,700.00	8,678.03	101.48	46.93	-26.44	-522.48	310.36	3,760.70	3,676.67	84.03	44.753	
13,400.00	9,773.54	8,700.00	8,678.03	103.35	46.93	-26.44	-522.48	310.36	3,854.50	3,769.20	85.30	45.185	
13,500.00	9,771.44	8,700.00	8,678.03	105.22	46.93	-26.44	-522.48	310.36	3,948.61	3,862.03	86.58	45.605	
13,600.00	9,769.35	8,700.00	8,678.03	107.11	46.93	-26.44	-522.48	310.36	4,043.00	3,955.13	87.87	46.013	
13,700.00	9,767.25	8,700.00	8,678.03	109.01	46.93	-26.44	-522.48	310.36	4,137.65	4,048.49	89.16	46.409	
13,800.00	9,765.16	8,700.00	8,678.03	110.92	46.93	-26.44	-522.48	310.36	4,232.55	4,142.09	90.45	46.793	
13,900.00	9,763.06	8,700.00	8,678.03	112.83	46.93	-26.44	-522.48	310.36	4,327.67	4,235.92	91.75	47.166	
14,000.00	9,760.96	8,700.00	8,678.03	114.76	46.93	-26.44	-522.48	310.36	4,423.02	4,329.96	93.06	47.529	
14,100.00	9,758.87	8,700.00	8,678.03	116.69	46.93	-26.44	-522.48	310.36	4,518.56	4,424.19	94.37	47.881	
14,200.00	9,756.77	8,700.00	8,678.03	118.63	46.93	-26.44	-522.48	310.36	4,614.29	4,518.60	95.69	48.223	
14,300.00	9,754.68	8,700.00	8,678.03	120.58	46.93	-26.44	-522.48	310.36	4,710.20	4,613.20	97.01	48.556	
14,400.00	9,752.58	8,675.30	8,654.14	122.54	46.79	-25.99	-528.73	310.42	4,805.69	4,708.17	97.51	49.283	
14,500.00	9,750.49	8,672.64	8,651.55	124.50	46.78	-25.94	-529.35	310.43	4,901.79	4,803.04	98.75	49.640	
14,600.00	9,748.39	8,650.00	8,629.41	126.47	46.64	-25.53	-534.07	310.47	4,998.42	4,899.09	99.33	50.322	
14,700.00	9,746.29	8,650.00	8,629.41	128.44	46.64	-25.53	-534.07	310.47	5,094.70	4,994.05	100.65	50.617	
14,800.00	9,744.20	8,650.00	8,629.41	130.42	46.64	-25.53	-534.07	310.47	5,191.12	5,089.14	101.98	50.905	
14,900.00	9,742.39	8,650.00	8,629.41	132.41	46.64	-25.55	-534.07	310.47	5,287.76	5,184.36	103.39	51.142	
15,000.00	9,742.58	8,650.00	8,629.41	134.39	46.64	-25.58	-534.07	310.47	5,385.05	5,280.24	104.81	51.380	
15,100.00	9,742.98	8,650.00	8,629.41	136.38	46.64	-25.58	-534.07	310.47	5,482.48	5,376.34	106.14	51.652	
15,200.00	9,743.38	8,650.00	8,629.41	138.38	46.64	-25.58	-534.07	310.47	5,580.01	5,472.53	107.48	51.918	
15,300.00	9,743.77	8,650.00	8,629.41	140.38	46.64	-25.58	-534.07	310.47	5,677.63	5,568.81	108.82	52.176	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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)	Separation Factor	
15,400.00	9,744.17	8,650.00	8,629.41	142.39	46.64	-25.58	-534.07	310.47	5,775.32	5,665.16	110.16	52.428	
15,500.00	9,744.56	8,650.00	8,629.41	144.40	46.64	-25.58	-534.07	310.47	5,873.09	5,761.59	111.50	52.673	
15,600.00	9,744.96	8,650.00	8,629.41	146.41	46.64	-25.58	-534.07	310.47	5,970.94	5,858.10	112.85	52.912	
15,700.00	9,745.35	8,650.00	8,629.41	148.43	46.64	-25.58	-534.07	310.47	6,068.86	5,954.66	114.19	53.145	
15,800.00	9,745.75	8,650.00	8,629.41	150.45	46.64	-25.58	-534.07	310.47	6,166.84	6,051.30	115.54	53.373	
15,900.00	9,746.14	8,650.00	8,629.41	152.48	46.64	-25.58	-534.07	310.47	6,264.89	6,148.00	116.89	53.594	
16,000.00	9,746.54	8,650.00	8,629.41	154.51	46.64	-25.58	-534.07	310.47	6,363.00	6,244.75	118.25	53.811	
16,100.00	9,746.94	8,650.00	8,629.41	156.54	46.64	-25.58	-534.07	310.47	6,461.17	6,341.56	119.60	54.022	
16,200.00	9,747.33	8,650.00	8,629.41	158.58	46.64	-25.58	-534.07	310.47	6,559.39	6,438.43	120.96	54.228	
16,300.00	9,747.73	8,650.00	8,629.41	160.61	46.64	-25.58	-534.07	310.47	6,657.66	6,535.35	122.32	54.430	
16,400.00	9,748.12	8,650.00	8,629.41	162.66	46.64	-25.58	-534.07	310.47	6,755.99	6,632.31	123.68	54.626	
16,500.00	9,748.52	8,650.00	8,629.41	164.70	46.64	-25.58	-534.07	310.47	6,854.36	6,729.32	125.04	54.818	
16,600.00	9,748.91	8,650.00	8,629.41	166.75	46.64	-25.58	-534.07	310.47	6,952.78	6,826.38	126.40	55.006	
16,700.00	9,749.31	8,650.00	8,629.41	168.80	46.64	-25.58	-534.07	310.47	7,051.25	6,923.48	127.76	55.190	
16,800.00	9,749.71	8,650.00	8,629.41	170.85	46.64	-25.58	-534.07	310.47	7,149.75	7,020.62	129.13	55.369	
16,900.00	9,750.10	8,650.00	8,629.41	172.91	46.64	-25.58	-534.07	310.47	7,248.30	7,117.81	130.49	55.545	
17,000.00	9,750.50	8,650.00	8,629.41	174.97	46.64	-25.58	-534.07	310.47	7,346.89	7,215.03	131.86	55.716	
17,100.00	9,750.89	8,650.00	8,629.41	177.03	46.64	-25.58	-534.07	310.47	7,445.51	7,312.28	133.23	55.884	
17,200.00	9,751.29	8,650.00	8,629.41	179.09	46.64	-25.58	-534.07	310.47	7,544.18	7,409.57	134.60	56.048	
17,300.00	9,751.68	8,650.00	8,629.41	181.15	46.64	-25.58	-534.07	310.47	7,642.87	7,506.90	135.97	56.209	
17,400.00	9,752.08	8,650.00	8,629.41	183.22	46.64	-25.58	-534.07	310.47	7,741.60	7,604.26	137.34	56.367	
17,500.00	9,752.48	8,626.07	8,605.82	185.29	46.51	-25.11	-538.10	310.51	7,839.83	7,702.14	137.68	56.941	
17,600.00	9,752.87	8,625.10	8,604.86	187.36	46.50	-25.09	-538.24	310.52	7,938.58	7,799.57	139.01	57.108	
17,700.00	9,753.27	8,624.15	8,603.92	189.43	46.50	-25.07	-538.38	310.52	8,037.36	7,897.02	140.34	57.272	
17,800.00	9,753.66	8,600.00	8,579.96	191.51	46.36	-24.62	-541.37	310.55	8,136.66	7,995.99	140.68	57.839	
17,900.00	9,754.06	8,600.00	8,579.96	193.59	46.36	-24.62	-541.37	310.55	8,235.46	8,093.42	142.04	57.980	
18,000.00	9,754.45	8,600.00	8,579.96	195.66	46.36	-24.62	-541.37	310.55	8,334.28	8,190.88	143.40	58.118	
18,100.00	9,754.85	8,600.00	8,579.96	197.74	46.36	-24.62	-541.37	310.55	8,433.13	8,288.37	144.77	58.253	
18,200.00	9,755.25	8,600.00	8,579.96	199.82	46.36	-24.62	-541.37	310.55	8,532.01	8,385.88	146.13	58.385	
18,300.00	9,755.64	8,600.00	8,579.96	201.91	46.36	-24.62	-541.37	310.55	8,630.92	8,483.42	147.50	58.515	
18,400.00	9,756.04	8,600.00	8,579.96	203.99	46.36	-24.62	-541.37	310.55	8,729.84	8,580.98	148.86	58.643	
18,500.00	9,756.43	8,600.00	8,579.96	206.08	46.36	-24.62	-541.37	310.55	8,828.80	8,678.57	150.23	58.768	
18,600.00	9,756.83	8,600.00	8,579.96	208.17	46.36	-24.62	-541.37	310.55	8,927.77	8,776.18	151.60	58.891	
18,700.00	9,757.22	8,600.00	8,579.96	210.26	46.36	-24.62	-541.37	310.55	9,026.77	8,873.81	152.97	59.011	
18,800.00	9,757.62	8,600.00	8,579.96	212.35	46.36	-24.62	-541.37	310.55	9,125.79	8,971.46	154.34	59.129	
18,900.00	9,758.01	8,600.00	8,579.96	214.44	46.36	-24.62	-541.37	310.55	9,224.84	9,069.13	155.71	59.245	
19,000.00	9,758.41	8,600.00	8,579.96	216.53	46.36	-24.62	-541.37	310.55	9,323.90	9,166.82	157.08	59.359	
19,100.00	9,758.81	8,600.00	8,579.96	218.62	46.36	-24.62	-541.37	310.55	9,422.98	9,264.53	158.45	59.471	
19,200.00	9,759.20	8,600.00	8,579.96	220.72	46.36	-24.62	-541.37	310.55	9,522.08	9,362.26	159.82	59.581	
19,300.00	9,759.60	8,600.00	8,579.96	222.82	46.36	-24.62	-541.37	310.55	9,621.20	9,460.01	161.19	59.689	
19,400.00	9,759.99	8,600.00	8,579.96	224.91	46.36	-24.62	-541.37	310.55	9,720.34	9,557.78	162.56	59.795	
19,500.00	9,760.39	8,600.00	8,579.96	227.01	46.36	-24.62	-541.37	310.55	9,819.49	9,655.56	163.93	59.899	
19,600.00	9,760.78	8,600.00	8,579.96	229.11	46.36	-24.62	-541.37	310.55	9,918.67	9,753.36	165.31	60.001	

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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	Offset	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	9.00	9.00	0.00	0.02	153.17	-885.27	447.86	992.11				
100.00	100.00	109.00	109.00	0.19	0.24	153.17	-885.27	447.86	992.11	991.68	0.44	2,277.869	
200.00	200.00	209.00	209.00	0.73	0.78	153.17	-885.27	447.86	992.11	990.60	1.51	656.610	
300.00	300.00	309.00	309.00	1.27	1.32	153.17	-885.27	447.86	992.11	989.52	2.59	383.592	
400.00	400.00	409.00	409.00	1.81	1.86	153.17	-885.27	447.86	992.11	988.45	3.66	270.936	
500.00	500.00	509.00	509.00	2.34	2.39	153.17	-885.27	447.86	992.11	987.37	4.74	209.430	
600.00	600.00	611.78	611.78	2.88	2.95	153.16	-885.25	447.87	992.10	986.27	5.83	170.247	
700.00	700.00	742.53	742.47	3.42	3.65	153.02	-881.95	449.08	990.27	983.20	7.07	140.135	
800.00	800.00	872.69	872.28	3.96	4.36	152.61	-873.11	452.34	985.36	977.05	8.31	118.636	
900.00	900.00	978.45	977.47	4.50	4.93	152.14	-862.86	456.12	978.40	968.98	9.42	103.856	
1,000.00	1,000.00	1,077.90	1,076.38	5.03	5.47	151.68	-853.11	459.71	971.43	960.92	10.51	92.452	
1,100.00	1,100.00	1,177.35	1,175.29	5.57	6.03	151.22	-843.36	463.31	964.52	952.93	11.60	83.163	
1,200.00	1,200.00	1,276.81	1,274.20	6.11	6.58	150.75	-833.61	466.90	957.68	944.99	12.69	75.458	
1,300.00	1,300.00	1,376.26	1,373.11	6.65	7.14	150.27	-823.86	470.49	950.91	937.12	13.79	68.970	
1,400.00	1,400.00	1,475.71	1,472.01	7.18	7.70	149.79	-814.12	474.09	944.20	929.32	14.88	63.434	
1,500.00	1,500.00	1,575.17	1,570.92	7.72	8.26	149.30	-804.37	477.68	937.56	921.58	15.98	58.657	
1,600.00	1,600.00	1,674.62	1,669.83	8.26	8.82	148.80	-794.62	481.28	930.99	913.91	17.08	54.495	
1,700.00	1,700.00	1,774.07	1,768.74	8.80	9.39	148.29	-784.87	484.87	924.49	906.31	18.18	50.839	
1,800.00	1,800.00	1,873.52	1,867.65	9.33	9.95	147.78	-775.12	488.46	918.07	898.78	19.29	47.601	
1,900.00	1,899.98	1,972.78	1,966.36	9.85	10.52	-67.53	-765.39	492.05	911.05	890.76	20.29	44.896	
2,000.00	1,999.84	2,071.56	2,064.60	10.34	11.08	-68.51	-755.71	495.62	902.85	881.52	21.33	42.323	
2,100.00	2,099.45	2,169.75	2,162.25	10.84	11.64	-69.73	-746.09	499.17	893.62	871.25	22.37	39.939	
2,200.00	2,198.70	2,267.22	2,259.19	11.34	12.19	-71.18	-736.53	502.69	883.56	860.14	23.42	37.722	
2,300.00	2,297.73	2,364.30	2,355.74	11.86	12.74	-72.57	-727.02	506.20	873.44	848.94	24.49	35.659	
2,400.00	2,396.76	2,461.37	2,452.28	12.38	13.30	-74.00	-717.50	509.70	863.86	838.28	25.58	33.776	
2,500.00	2,495.78	2,558.45	2,548.83	12.92	13.85	-75.45	-707.99	513.21	854.85	828.18	26.67	32.057	
2,600.00	2,594.81	2,655.53	2,645.37	13.46	14.40	-76.93	-698.47	516.72	846.43	818.66	27.77	30.485	
2,700.00	2,693.84	2,752.60	2,741.92	14.00	14.96	-78.44	-688.95	520.23	838.60	809.73	28.87	29.046	
2,800.00	2,792.86	2,849.68	2,838.46	14.55	15.51	-79.97	-679.44	523.74	831.40	801.42	29.98	27.728	
2,900.00	2,891.89	2,946.76	2,935.01	15.11	16.07	-81.53	-669.92	527.24	824.83	793.73	31.10	26.520	
3,000.00	2,990.92	3,043.83	3,031.55	15.67	16.62	-83.11	-660.41	530.75	818.92	786.69	32.23	25.412	
3,100.00	3,089.94	3,140.91	3,128.10	16.23	17.18	-84.71	-650.89	534.26	813.67	780.31	33.35	24.396	
3,200.00	3,188.97	3,237.98	3,224.64	16.80	17.73	-86.33	-641.38	537.77	809.10	774.61	34.48	23.463	
3,300.00	3,288.00	3,335.06	3,321.19	17.37	18.29	-87.96	-631.86	541.27	805.21	769.60	35.62	22.607	
3,400.00	3,387.02	3,432.14	3,417.73	17.94	18.84	-89.61	-622.35	544.78	802.03	765.28	36.75	21.822	
3,500.00	3,486.05	3,529.21	3,514.28	18.52	19.40	-91.27	-612.83	548.29	799.56	761.67	37.89	21.102	
3,600.00	3,585.08	3,626.29	3,610.82	19.10	19.95	-92.94	-603.31	551.80	797.80	758.77	39.03	20.442	
3,700.00	3,684.10	3,723.37	3,707.37	19.68	20.51	-94.61	-593.80	555.31	796.76	756.59	40.17	19.837	
3,782.90	3,766.19	3,803.18	3,786.75	20.16	20.96	-95.99	-586.02	558.17	796.45	755.35	41.10	19.376 CC	
3,800.00	3,783.13	3,819.18	3,802.67	20.26	21.05	-96.25	-584.58	558.71	796.47	755.18	41.29	19.288	
3,900.00	3,882.16	3,913.50	3,896.72	20.84	21.58	-97.70	-577.77	561.21	797.18	754.78	42.40	18.802	
4,000.00	3,981.18	4,009.08	3,992.20	21.43	22.09	-98.94	-573.84	562.66	798.75	755.25	43.49	18.365	
4,100.00	4,080.21	4,106.10	4,089.21	22.02	22.59	-99.97	-572.85	563.03	800.96	756.39	44.58	17.968	
4,200.00	4,179.24	4,205.13	4,188.24	22.60	23.10	-100.94	-572.85	563.03	803.51	757.85	45.67	17.595	
4,300.00	4,278.26	4,304.16	4,287.26	23.19	23.60	-101.90	-572.85	563.03	806.29	759.54	46.75	17.245	
4,400.00	4,377.29	4,403.18	4,386.29	23.79	24.11	-102.85	-572.85	563.03	809.30	761.46	47.84	16.915	
4,500.00	4,476.32	4,502.21	4,485.32	24.38	24.62	-103.80	-572.85	563.03	812.54	763.61	48.93	16.605	
4,600.00	4,575.35	4,601.24	4,584.35	24.97	25.13	-104.74	-572.85	563.03	816.01	765.98	50.02	16.312	
4,700.00	4,674.37	4,700.26	4,683.37	25.56	25.64	-105.67	-572.85	563.03	819.69	768.58	51.11	16.036	
4,800.00	4,773.40	4,799.29	4,782.40	26.16	26.16	-106.60	-572.85	563.03	823.59	771.39	52.20	15.776	
4,900.00	4,872.43	4,898.32	4,881.43	26.76	26.67	-107.51	-572.85	563.03	827.71	774.42	53.30	15.531	
5,000.00	4,971.45	4,997.35	4,980.45	27.35	27.18	-108.42	-572.85	563.03	832.04	777.66	54.39	15.299	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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 (°)	Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
5,100.00	5,070.48	5,096.37	5,079.48	27.95	27.70	-109.32	-572.85	563.03	836.58	781.11	55.48	15.080	
5,200.00	5,169.51	5,185.40	5,178.51	28.55	28.21	-110.20	-572.85	563.03	841.33	784.76	56.56	14.874	
5,300.00	5,268.53	5,294.43	5,277.53	29.15	28.73	-111.08	-572.85	563.03	846.28	788.62	57.65	14.679	
5,400.00	5,367.66	5,393.56	5,376.66	29.74	29.25	-111.96	-572.85	563.03	851.13	792.38	58.75	14.486	
5,500.00	5,467.17	5,493.06	5,476.17	30.31	29.77	-112.64	-572.85	563.03	854.89	795.05	59.84	14.285	
5,600.00	5,566.96	5,592.85	5,575.96	30.86	30.29	-113.08	-572.85	563.03	857.38	796.47	60.91	14.076	
5,700.00	5,666.91	5,692.81	5,675.91	31.39	30.81	-113.28	-572.85	563.03	858.52	796.56	61.95	13.857	
5,800.00	5,766.91	5,792.81	5,775.91	31.87	31.33	101.27	-572.85	563.03	858.60	795.61	62.98	13.632	
5,900.00	5,866.91	5,892.81	5,875.91	32.36	31.86	101.27	-572.85	563.03	858.60	794.60	63.99	13.417	
6,000.00	5,966.91	5,992.81	5,975.91	32.84	32.38	101.27	-572.85	563.03	858.60	793.59	65.00	13.209	
6,100.00	6,066.91	6,092.81	6,075.91	33.33	32.91	101.27	-572.85	563.03	858.60	792.58	66.02	13.006	
6,200.00	6,166.91	6,192.81	6,175.91	33.82	33.43	101.27	-572.85	563.03	858.60	791.56	67.03	12.809	
6,300.00	6,266.91	6,292.81	6,275.91	34.31	33.96	101.27	-572.85	563.03	858.60	790.55	68.05	12.617	
6,400.00	6,366.91	6,392.81	6,375.91	34.80	34.48	101.27	-572.85	563.03	858.60	789.53	69.07	12.431	
6,500.00	6,466.91	6,492.81	6,475.91	35.29	35.01	101.27	-572.85	563.03	858.60	788.51	70.09	12.250	
6,600.00	6,566.91	6,592.81	6,575.91	35.78	35.54	101.27	-572.85	563.03	858.60	787.48	71.11	12.074	
6,700.00	6,666.91	6,692.81	6,675.91	36.28	36.07	101.27	-572.85	563.03	858.60	786.46	72.13	11.903	
6,800.00	6,766.91	6,792.81	6,775.91	36.78	36.59	101.27	-572.85	563.03	858.60	785.44	73.16	11.736	
6,900.00	6,866.91	6,892.81	6,875.91	37.27	37.12	101.27	-572.85	563.03	858.60	784.41	74.19	11.574	
7,000.00	6,966.91	6,992.81	6,975.91	37.77	37.65	101.27	-572.85	563.03	858.60	783.38	75.21	11.415	
7,100.00	7,066.91	7,092.81	7,075.91	38.27	38.18	101.27	-572.85	563.03	858.60	782.35	76.24	11.261	
7,200.00	7,166.91	7,192.81	7,175.91	38.77	38.71	101.27	-572.85	563.03	858.60	781.32	77.27	11.111	
7,300.00	7,266.91	7,292.81	7,275.91	39.27	39.23	101.27	-572.85	563.03	858.60	780.29	78.31	10.965	
7,400.00	7,366.91	7,392.81	7,375.91	39.78	39.76	101.27	-572.85	563.03	858.60	779.26	79.34	10.822	
7,500.00	7,466.91	7,492.81	7,475.91	40.28	40.29	101.27	-572.85	563.03	858.60	778.22	80.37	10.683	
7,600.00	7,566.91	7,592.81	7,575.91	40.78	40.82	101.27	-572.85	563.03	858.60	777.19	81.41	10.547	
7,700.00	7,666.91	7,692.81	7,675.91	41.29	41.35	101.27	-572.85	563.03	858.60	776.15	82.44	10.414	
7,800.00	7,766.91	7,792.81	7,775.91	41.79	41.88	101.27	-572.85	563.03	858.60	775.11	83.48	10.285	
7,900.00	7,866.91	7,892.81	7,875.91	42.30	42.41	101.27	-572.85	563.03	858.60	774.08	84.52	10.159	
8,000.00	7,966.91	7,992.81	7,975.91	42.81	42.94	101.27	-572.85	563.03	858.60	773.04	85.56	10.035	
8,100.00	8,066.91	8,092.81	8,075.91	43.32	43.47	101.27	-572.85	563.03	858.60	772.00	86.60	9.915	
8,200.00	8,166.91	8,192.81	8,175.91	43.83	44.00	101.27	-572.85	563.03	858.60	770.96	87.64	9.797	
8,300.00	8,266.91	8,292.81	8,275.91	44.34	44.53	101.27	-572.85	563.03	858.60	769.92	88.68	9.682	
8,400.00	8,366.91	8,392.81	8,375.91	44.85	45.07	101.27	-572.85	563.03	858.60	768.87	89.72	9.570	
8,500.00	8,466.91	8,492.81	8,475.91	45.36	45.60	101.27	-572.85	563.03	858.60	767.83	90.76	9.460	
8,600.00	8,566.91	8,592.81	8,575.91	45.87	46.13	101.27	-572.85	563.03	858.60	766.79	91.81	9.352	
8,700.00	8,666.91	8,692.81	8,675.91	46.38	46.66	101.27	-572.85	563.03	858.60	765.74	92.85	9.247	
8,800.00	8,766.91	8,792.81	8,775.91	46.89	47.19	101.27	-572.85	563.03	858.60	764.70	93.90	9.144	
8,900.00	8,866.91	8,892.81	8,875.91	47.41	47.72	101.27	-572.85	563.03	858.60	763.65	94.94	9.043	
9,000.00	8,966.91	8,992.81	8,975.91	47.92	48.25	101.27	-572.85	563.03	858.60	762.60	95.99	8.945	
9,100.00	9,066.91	9,092.81	9,075.91	48.44	48.79	101.27	-572.85	563.03	858.60	761.56	97.04	8.848	
9,200.00	9,166.91	9,216.88	9,199.73	48.95	49.46	100.91	-567.35	562.97	857.81	759.59	98.22	8.734	
9,300.00	9,266.91	9,351.27	9,329.45	49.47	50.23	98.67	-533.40	562.64	853.06	753.59	99.47	8.576	
9,400.00	9,366.41	9,459.00	9,425.49	50.00	50.86	-84.98	-484.95	562.16	845.54	745.00	100.54	8.410	
9,500.00	9,462.91	9,529.21	9,482.49	50.57	51.28	-89.15	-444.03	561.76	840.33	738.85	101.48	8.281	
9,521.19	9,482.69	9,539.72	9,490.57	50.70	51.35	-89.80	-437.32	561.69	840.13	738.46	101.67	8.264 ES	
9,600.00	9,553.47	9,567.81	9,511.57	51.18	51.52	-91.25	-418.66	561.51	843.26	740.96	102.30	8.243 SF	
9,700.00	9,635.34	9,583.80	9,523.10	51.81	51.62	-90.90	-407.59	561.40	857.23	754.17	103.06	8.318	
9,800.00	9,706.03	9,584.30	9,523.45	52.48	51.62	-88.32	-407.24	561.39	882.44	778.69	103.75	8.505	
9,900.00	9,763.40	9,574.16	9,516.18	53.18	51.56	-83.93	-414.31	561.46	917.33	813.28	104.05	8.817	
10,000.00	9,805.70	9,550.00	9,498.36	53.92	51.41	-77.84	-430.61	561.62	959.42	856.26	103.15	9.301	
10,100.00	9,831.65	9,533.68	9,485.94	54.69	51.31	-71.87	-441.20	561.73	1,005.80	904.73	101.07	9.952	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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	
10,200.00	9,840.46	9,500.00	9,459.39	55.48	51.11	-65.12	-461.90	561.93	1,053.97	956.73	97.24	10.839	
10,300.00	9,838.50	9,479.56	9,442.69	56.31	50.98	-63.59	-473.70	562.05	1,104.08	1,007.32	96.75	11.411	
10,400.00	9,836.40	9,450.00	9,417.83	57.22	50.81	-62.26	-489.68	562.21	1,159.39	1,063.00	96.39	12.028	
10,500.00	9,834.31	9,434.04	9,404.08	58.19	50.71	-61.54	-497.77	562.29	1,219.33	1,122.73	96.61	12.622	
10,600.00	9,832.21	9,400.00	9,374.01	59.22	50.51	-59.99	-513.73	562.45	1,283.73	1,187.66	96.08	13.362	
10,700.00	9,830.12	9,400.00	9,374.01	60.31	50.51	-59.99	-513.73	562.45	1,351.37	1,254.32	97.05	13.925	
10,800.00	9,828.02	9,382.86	9,358.52	61.46	50.41	-59.22	-521.08	562.52	1,422.52	1,325.21	97.31	14.618	
10,900.00	9,825.93	9,369.15	9,345.99	62.66	50.33	-58.59	-526.62	562.57	1,496.55	1,398.79	97.76	15.308	
11,000.00	9,823.83	9,350.00	9,328.26	63.91	50.22	-57.73	-533.86	562.64	1,573.17	1,475.18	97.99	16.055	
11,100.00	9,821.74	9,350.00	9,328.26	65.21	50.22	-57.73	-533.86	562.64	1,651.93	1,552.79	99.14	16.662	
11,200.00	9,819.64	9,350.00	9,328.26	66.55	50.22	-57.73	-533.86	562.64	1,732.89	1,632.55	100.34	17.270	
11,300.00	9,817.54	9,325.84	9,305.57	67.93	50.08	-56.84	-542.14	562.73	1,815.13	1,714.72	100.41	18.077	
11,400.00	9,815.45	9,300.00	9,280.93	69.36	49.93	-55.49	-549.94	562.80	1,899.43	1,799.03	100.40	18.918	
11,500.00	9,813.35	9,300.00	9,280.93	70.82	49.93	-55.49	-549.94	562.80	1,984.56	1,882.86	101.69	19.515	
11,600.00	9,811.26	9,300.00	9,280.93	72.32	49.93	-55.49	-549.94	562.80	2,071.01	1,967.99	103.01	20.104	
11,700.00	9,809.16	9,300.00	9,280.93	73.85	49.93	-55.49	-549.94	562.80	2,158.63	2,054.27	104.36	20.684	
11,800.00	9,807.07	9,300.00	9,280.93	75.41	49.93	-55.49	-549.94	562.80	2,247.29	2,141.54	105.74	21.253	
11,900.00	9,804.97	9,300.00	9,280.93	77.00	49.93	-55.49	-549.94	562.80	2,336.86	2,229.71	107.15	21.810	
12,000.00	9,802.88	9,277.62	9,259.33	78.61	49.80	-54.51	-555.78	562.86	2,426.73	2,319.32	107.41	22.593	
12,100.00	9,800.78	9,272.52	9,254.38	80.25	49.77	-54.28	-556.99	562.87	2,517.58	2,409.00	108.59	23.185	
12,200.00	9,798.68	9,250.00	9,232.38	81.92	49.64	-53.31	-561.82	562.92	2,609.38	2,500.53	108.85	23.972	
12,300.00	9,796.59	9,250.00	9,232.38	83.61	49.64	-53.31	-561.82	562.92	2,701.28	2,590.96	110.32	24.485	
12,400.00	9,794.49	9,250.00	9,232.38	85.32	49.64	-53.31	-561.82	562.92	2,793.73	2,681.92	111.81	24.986	
12,500.00	9,792.40	9,250.00	9,232.38	87.05	49.64	-53.31	-561.82	562.92	2,886.69	2,773.36	113.32	25.473	
12,600.00	9,790.30	9,250.00	9,232.38	88.80	49.64	-53.31	-561.82	562.92	2,980.10	2,865.25	114.85	25.948	
12,700.00	9,788.21	9,250.00	9,232.38	90.56	49.64	-53.31	-561.82	562.92	3,073.93	2,957.54	116.39	26.411	
12,800.00	9,786.11	9,250.00	9,232.38	92.35	49.64	-53.31	-561.82	562.92	3,168.13	3,050.18	117.95	26.861	
12,900.00	9,784.02	9,250.00	9,232.38	94.15	49.64	-53.31	-561.82	562.92	3,262.68	3,143.16	119.52	27.299	
13,000.00	9,781.92	9,250.00	9,232.38	95.96	49.64	-53.31	-561.82	562.92	3,357.54	3,236.45	121.10	27.726	
13,100.00	9,779.82	9,250.00	9,232.38	97.79	49.64	-53.31	-561.82	562.92	3,452.70	3,330.01	122.69	28.141	
13,200.00	9,777.73	9,250.00	9,232.38	99.63	49.64	-53.31	-561.82	562.92	3,548.12	3,423.82	124.30	28.545	
13,300.00	9,775.63	9,250.00	9,232.38	101.48	49.64	-53.31	-561.82	562.92	3,643.79	3,517.87	125.92	28.938	
13,400.00	9,773.54	9,227.66	9,210.39	103.35	49.52	-52.36	-565.76	562.96	3,739.19	3,612.97	126.22	29.624	
13,500.00	9,771.44	9,225.30	9,208.07	105.22	49.51	-52.26	-566.12	562.96	3,835.19	3,707.48	127.71	30.031	
13,600.00	9,769.35	9,223.05	9,205.84	107.11	49.49	-52.17	-566.46	562.97	3,931.37	3,802.17	129.21	30.427	
13,700.00	9,767.25	9,200.00	9,182.98	109.01	49.36	-51.21	-569.43	563.00	4,028.16	3,898.71	129.45	31.117	
13,800.00	9,765.16	9,200.00	9,182.98	110.92	49.36	-51.21	-569.43	563.00	4,124.61	3,993.52	131.09	31.465	
13,900.00	9,763.06	9,200.00	9,182.98	112.83	49.36	-51.21	-569.43	563.00	4,221.22	4,088.49	132.73	31.803	
14,000.00	9,760.96	9,200.00	9,182.98	114.76	49.36	-51.21	-569.43	563.00	4,317.98	4,183.60	134.38	32.132	
14,100.00	9,758.87	9,200.00	9,182.98	116.69	49.36	-51.21	-569.43	563.00	4,414.89	4,278.85	136.04	32.453	
14,200.00	9,756.77	9,200.00	9,182.98	118.63	49.36	-51.21	-569.43	563.00	4,511.94	4,374.23	137.71	32.765	
14,300.00	9,754.68	9,200.00	9,182.98	120.58	49.36	-51.21	-569.43	563.00	4,609.11	4,469.73	139.38	33.069	
14,400.00	9,752.58	9,200.00	9,182.98	122.54	49.36	-51.21	-569.43	563.00	4,706.40	4,565.34	141.05	33.366	
14,500.00	9,750.49	9,200.00	9,182.98	124.50	49.36	-51.21	-569.43	563.00	4,803.80	4,661.06	142.74	33.655	
14,600.00	9,748.39	9,200.00	9,182.98	126.47	49.36	-51.21	-569.43	563.00	4,901.30	4,756.88	144.42	33.937	
14,700.00	9,746.29	9,200.00	9,182.98	128.44	49.36	-51.21	-569.43	563.00	4,998.91	4,852.79	146.12	34.212	
14,800.00	9,744.20	9,200.00	9,182.98	130.42	49.36	-51.21	-569.43	563.00	5,096.60	4,948.79	147.81	34.480	
14,900.00	9,742.39	9,200.00	9,182.98	132.41	49.36	-53.10	-569.43	563.00	5,194.45	5,042.05	152.39	34.086	
15,000.00	9,742.58	9,200.00	9,182.98	134.39	49.36	-54.91	-569.43	563.00	5,292.74	5,135.94	156.80	33.754	
15,100.00	9,742.98	9,200.00	9,182.98	136.38	49.36	-54.91	-569.43	563.00	5,391.14	5,232.58	158.56	34.001	
15,200.00	9,743.38	9,200.00	9,182.98	138.38	49.36	-54.91	-569.43	563.00	5,489.59	5,329.27	160.32	34.242	
15,300.00	9,743.77	9,200.00	9,182.98	140.38	49.36	-54.91	-569.43	563.00	5,588.10	5,426.02	162.08	34.477	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset 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)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,400.00	9,744.17	9,200.00	9,182.98	142.39	49.36	-54.91	-569.43	563.00	5,686.66	5,522.81	163.85	34.707		
15,500.00	9,744.56	9,200.00	9,182.98	144.40	49.36	-54.91	-569.43	563.00	5,785.27	5,619.65	165.62	34.931		
15,600.00	9,744.96	9,200.00	9,182.98	146.41	49.36	-54.91	-569.43	563.00	5,883.92	5,716.53	167.39	35.150		
15,700.00	9,745.35	9,200.00	9,182.98	148.43	49.36	-54.91	-569.43	563.00	5,982.62	5,813.45	169.17	35.365		
15,800.00	9,745.75	9,200.00	9,182.98	150.45	49.36	-54.91	-569.43	563.00	6,081.37	5,910.42	170.95	35.574		
15,900.00	9,746.14	9,200.00	9,182.98	152.48	49.36	-54.91	-569.43	563.00	6,180.15	6,007.42	172.73	35.778		
16,000.00	9,746.54	9,200.00	9,182.98	154.51	49.36	-54.91	-569.43	563.00	6,278.97	6,104.45	174.52	35.978		
16,100.00	9,746.94	9,200.00	9,182.98	156.54	49.36	-54.91	-569.43	563.00	6,377.83	6,201.52	176.31	36.174		
16,200.00	9,747.33	9,200.00	9,182.98	158.58	49.36	-54.91	-569.43	563.00	6,476.72	6,298.62	178.10	36.365		
16,300.00	9,747.73	9,200.00	9,182.98	160.61	49.36	-54.91	-569.43	563.00	6,575.65	6,395.75	179.90	36.552		
16,400.00	9,748.12	9,200.00	9,182.98	162.66	49.36	-54.91	-569.43	563.00	6,674.61	6,492.92	181.69	36.735		
16,500.00	9,748.52	9,200.00	9,182.98	164.70	49.36	-54.91	-569.43	563.00	6,773.60	6,590.11	183.49	36.914		
16,600.00	9,748.91	9,200.00	9,182.98	166.75	49.36	-54.91	-569.43	563.00	6,872.62	6,687.32	185.30	37.090		
16,700.00	9,749.31	9,200.00	9,182.98	168.80	49.36	-54.91	-569.43	563.00	6,971.67	6,784.56	187.10	37.261		
16,800.00	9,749.71	9,200.00	9,182.98	170.85	49.36	-54.91	-569.43	563.00	7,070.74	6,881.83	188.91	37.430		
16,900.00	9,750.10	9,200.00	9,182.98	172.91	49.36	-54.91	-569.43	563.00	7,169.84	6,979.12	190.72	37.594		
17,000.00	9,750.50	9,200.00	9,182.98	174.97	49.36	-54.91	-569.43	563.00	7,268.96	7,076.44	192.53	37.756		
17,100.00	9,750.89	9,200.00	9,182.98	177.03	49.36	-54.91	-569.43	563.00	7,368.11	7,173.77	194.34	37.914		
17,200.00	9,751.29	9,200.00	9,182.98	179.09	49.36	-54.91	-569.43	563.00	7,467.28	7,271.13	196.15	38.068		
17,300.00	9,751.68	9,200.00	9,182.98	181.15	49.36	-54.91	-569.43	563.00	7,566.47	7,368.50	197.97	38.220		
17,400.00	9,752.08	9,200.00	9,182.98	183.22	49.36	-54.91	-569.43	563.00	7,665.69	7,465.90	199.79	38.369		
17,500.00	9,752.48	9,200.00	9,182.98	185.29	49.36	-54.91	-569.43	563.00	7,764.92	7,563.31	201.61	38.515		
17,600.00	9,752.87	9,200.00	9,182.98	187.36	49.36	-54.91	-569.43	563.00	7,864.17	7,660.74	203.43	38.658		
17,700.00	9,753.27	9,200.00	9,182.98	189.43	49.36	-54.91	-569.43	563.00	7,963.45	7,758.19	205.25	38.798		
17,800.00	9,753.66	9,200.00	9,182.98	191.51	49.36	-54.91	-569.43	563.00	8,062.74	7,855.66	207.08	38.936		
17,900.00	9,754.06	9,200.00	9,182.98	193.59	49.36	-54.91	-569.43	563.00	8,162.04	7,953.14	208.90	39.071		
18,000.00	9,754.45	9,200.00	9,182.98	195.66	49.36	-54.91	-569.43	563.00	8,261.37	8,050.64	210.73	39.204		
18,100.00	9,754.85	9,200.00	9,182.98	197.74	49.36	-54.91	-569.43	563.00	8,360.71	8,148.15	212.56	39.334		
18,200.00	9,755.25	9,200.00	9,182.98	199.82	49.36	-54.91	-569.43	563.00	8,460.06	8,245.67	214.39	39.461		
18,300.00	9,755.64	9,200.00	9,182.98	201.91	49.36	-54.91	-569.43	563.00	8,559.43	8,343.21	216.22	39.587		
18,400.00	9,756.04	9,200.00	9,182.98	203.99	49.36	-54.91	-569.43	563.00	8,658.82	8,440.76	218.05	39.710		
18,500.00	9,756.43	9,200.00	9,182.98	206.08	49.36	-54.91	-569.43	563.00	8,758.22	8,538.33	219.89	39.831		
18,600.00	9,756.83	9,200.00	9,182.98	208.17	49.36	-54.91	-569.43	563.00	8,857.63	8,635.91	221.72	39.949		
18,700.00	9,757.22	9,176.43	9,159.51	210.26	49.24	-53.78	-571.52	563.02	8,956.54	8,735.29	221.25	40.481		
18,800.00	9,757.62	9,176.05	9,159.13	212.35	49.23	-53.76	-571.55	563.02	9,055.96	8,832.93	223.04	40.603		
18,900.00	9,758.01	9,175.67	9,158.75	214.44	49.23	-53.74	-571.57	563.02	9,155.40	8,930.58	224.82	40.723		
19,000.00	9,758.41	9,175.31	9,158.39	216.53	49.23	-53.72	-571.59	563.02	9,254.84	9,028.23	226.61	40.841		
19,100.00	9,758.81	9,174.95	9,158.03	218.62	49.23	-53.70	-571.62	563.02	9,354.30	9,125.90	228.40	40.957		
19,200.00	9,759.20	9,174.59	9,157.67	220.72	49.23	-53.69	-571.64	563.02	9,453.77	9,223.58	230.18	41.070		
19,300.00	9,759.60	9,174.25	9,157.33	222.82	49.22	-53.67	-571.66	563.02	9,553.25	9,321.27	231.97	41.182		
19,400.00	9,759.99	9,173.91	9,156.99	224.91	49.22	-53.66	-571.69	563.02	9,652.74	9,418.97	233.77	41.292		
19,500.00	9,760.39	9,150.00	9,133.11	227.01	49.09	-52.53	-572.71	563.03	9,752.75	9,519.61	233.14	41.832		
19,600.00	9,760.78	9,150.00	9,133.11	229.11	49.09	-52.53	-572.71	563.03	9,852.25	9,617.29	234.95	41.933		
19,700.00	9,761.18	9,150.00	9,133.11	231.21	49.09	-52.53	-572.71	563.03	9,951.75	9,714.99	236.76	42.032		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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 Centro +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	8.00	8.00	0.00	0.02	151.81	-835.44	447.80	947.88					
100.00	100.00	108.00	108.00	0.19	0.24	151.81	-835.44	447.80	947.88	947.45	0.43	2,203.527		
200.00	200.00	208.00	208.00	0.73	0.77	151.81	-835.44	447.80	947.88	946.38	1.51	629.580		
300.00	300.00	308.00	308.00	1.27	1.31	151.81	-835.44	447.80	947.88	945.30	2.58	367.255		
400.00	400.00	408.00	408.00	1.81	1.85	151.81	-835.44	447.80	947.88	944.23	3.66	259.239		
500.00	500.00	508.00	508.00	2.34	2.39	151.81	-835.44	447.80	947.88	943.15	4.73	200.321		
600.00	600.00	611.61	611.61	2.88	2.94	151.81	-835.42	447.78	947.87	942.04	5.83	162.691		
700.00	700.00	756.52	756.45	3.42	3.72	151.90	-832.59	444.61	945.11	937.97	7.14	132.405		
800.00	800.00	900.49	899.94	3.96	4.50	152.14	-824.96	436.05	937.63	929.18	8.45	110.978		
900.00	900.00	999.94	998.85	4.50	5.04	152.37	-818.05	428.28	927.83	918.31	9.52	97.464		
1,000.00	1,000.00	1,099.39	1,097.75	5.03	5.59	152.60	-811.13	420.51	918.05	907.46	10.59	86.697		
1,100.00	1,100.00	1,198.85	1,196.66	5.57	6.15	152.83	-804.21	412.75	908.28	896.62	11.66	77.893		
1,200.00	1,200.00	1,298.30	1,295.57	6.11	6.70	153.07	-797.29	404.98	898.53	885.79	12.73	70.562		
1,300.00	1,300.00	1,397.75	1,394.47	6.65	7.26	153.32	-790.37	397.22	888.79	874.98	13.81	64.366		
1,400.00	1,400.00	1,497.20	1,493.38	7.18	7.83	153.57	-783.46	389.45	879.07	864.19	14.88	59.063		
1,500.00	1,500.00	1,596.65	1,592.28	7.72	8.39	153.82	-776.54	381.69	869.37	853.41	15.96	54.472		
1,600.00	1,600.00	1,696.10	1,691.19	8.26	8.95	154.09	-769.62	373.92	859.68	842.64	17.04	50.461		
1,700.00	1,700.00	1,795.56	1,790.10	8.80	9.52	154.36	-762.70	366.16	850.01	831.90	18.11	46.926		
1,800.00	1,800.00	1,895.01	1,889.00	9.33	10.09	154.63	-755.78	358.39	840.36	821.17	19.19	43.789		
1,900.00	1,899.98	1,994.42	1,987.87	9.85	10.65	-59.94	-748.87	350.63	829.86	809.57	20.29	40.900		
2,000.00	1,999.84	2,093.66	2,086.57	10.34	11.22	-60.18	-741.96	342.88	817.62	796.32	21.31	38.376		
2,100.00	2,099.45	2,192.61	2,184.98	10.84	11.79	-60.68	-735.08	335.15	803.67	781.36	22.32	36.012		
2,200.00	2,198.70	2,291.16	2,282.98	11.34	12.35	-61.44	-728.22	327.46	788.07	764.74	23.33	33.785		
2,300.00	2,297.73	2,389.46	2,380.75	11.86	12.91	-62.05	-721.39	319.78	771.71	747.34	24.37	31.660		
2,400.00	2,396.76	2,487.77	2,478.51	12.38	13.47	-62.70	-714.55	312.10	755.44	730.01	25.43	29.704		
2,500.00	2,495.78	2,586.07	2,576.28	12.92	14.04	-63.37	-707.71	304.43	739.27	712.77	26.50	27.901		
2,600.00	2,594.81	2,684.37	2,674.04	13.46	14.60	-64.07	-700.87	296.75	723.20	695.64	27.57	26.234		
2,700.00	2,693.84	2,782.68	2,771.81	14.00	15.16	-64.80	-694.03	289.08	707.25	678.60	28.64	24.691		
2,800.00	2,792.86	2,880.98	2,869.57	14.55	15.73	-65.56	-687.19	281.40	691.41	661.68	29.73	23.260		
2,900.00	2,891.89	2,979.28	2,967.33	15.11	16.29	-66.36	-680.36	273.73	675.70	644.89	30.81	21.929		
3,000.00	2,890.92	3,077.59	3,065.10	15.67	16.86	-67.20	-673.52	266.05	660.12	628.22	31.90	20.691		
3,100.00	3,089.94	3,175.89	3,162.86	16.23	17.42	-68.08	-666.68	258.37	644.69	611.69	33.00	19.537		
3,200.00	3,188.97	3,274.19	3,260.63	16.80	17.99	-69.00	-659.84	250.70	629.42	595.32	34.10	18.459		
3,300.00	3,288.00	3,372.49	3,358.39	17.37	18.55	-69.96	-653.00	243.02	614.31	579.11	35.20	17.451		
3,400.00	3,387.02	3,470.80	3,456.15	17.94	19.11	-70.97	-646.16	235.35	599.39	563.08	36.31	16.508		
3,500.00	3,486.05	3,569.10	3,553.92	18.52	19.68	-72.04	-639.33	227.67	584.66	547.24	37.42	15.625		
3,600.00	3,585.08	3,667.40	3,651.68	19.10	20.24	-73.16	-632.49	219.99	570.14	531.61	38.53	14.796		
3,700.00	3,684.10	3,765.71	3,749.45	19.68	20.81	-74.33	-625.65	212.32	555.84	516.20	39.65	14.019		
3,800.00	3,783.13	3,864.01	3,847.21	20.26	21.37	-75.56	-618.81	204.64	541.79	501.03	40.77	13.289		
3,900.00	3,882.16	3,962.31	3,944.97	20.84	21.94	-76.86	-611.97	196.97	528.01	486.12	41.89	12.604		
4,000.00	3,981.18	4,060.62	4,042.74	21.43	22.50	-78.23	-605.13	189.29	514.51	471.49	43.02	11.960		
4,100.00	4,080.21	4,158.92	4,140.50	22.02	23.07	-79.67	-598.30	181.61	501.31	457.17	44.15	11.356		
4,200.00	4,179.24	4,257.22	4,238.27	22.60	23.63	-81.18	-591.46	173.94	488.45	443.17	45.28	10.788		
4,300.00	4,278.26	4,355.53	4,336.03	23.19	24.20	-82.78	-584.62	166.26	475.95	429.54	46.41	10.255		
4,400.00	4,377.29	4,453.83	4,433.79	23.79	24.76	-84.45	-577.78	158.59	463.83	416.29	47.55	9.755		
4,500.00	4,476.32	4,545.81	4,525.30	24.38	25.29	-86.10	-571.57	151.61	452.47	403.81	48.65	9.300		
4,600.00	4,575.35	4,631.10	4,610.34	24.97	25.76	-87.67	-567.27	146.79	444.06	394.34	49.72	8.932		
4,700.00	4,674.37	4,716.80	4,695.94	25.56	26.22	-89.27	-564.64	143.84	439.05	388.27	50.78	8.646		
4,800.00	4,773.40	4,805.87	4,785.00	26.16	26.69	-90.91	-563.72	142.81	437.47	385.61	51.86	8.436		
4,813.68	4,786.94	4,815.81	4,794.94	26.24	26.74	-91.09	-563.72	142.81	437.49	385.50	51.99	8.415		
4,900.00	4,872.43	4,901.29	4,880.43	26.76	27.17	-92.65	-563.72	142.81	437.88	384.92	52.96	8.268		
5,000.00	4,971.45	5,000.32	4,979.45	27.35	27.67	-94.45	-563.72	142.81	438.75	384.67	54.08	8.113		

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,070.48	5,099.35	5,078.48	27.95	28.17	-98.24	-563.72	142.81	440.06	384.86	55.20	7.972	
5,200.00	5,169.51	5,198.37	5,177.51	28.55	28.68	-98.01	-563.72	142.81	441.80	385.48	56.33	7.844	
5,300.00	5,268.53	5,297.40	5,276.53	29.15	29.18	-99.78	-563.72	142.81	443.97	386.53	57.45	7.729	
5,400.00	5,367.66	5,396.53	5,375.66	29.74	29.69	-101.46	-563.72	142.81	446.42	387.86	58.55	7.624	
5,500.00	5,467.17	5,496.04	5,475.17	30.31	30.20	-102.73	-563.72	142.81	448.49	388.86	59.64	7.521	
5,600.00	5,566.96	5,595.83	5,574.96	30.86	30.71	-103.55	-563.72	142.81	449.95	389.25	60.69	7.414	
5,700.00	5,666.91	5,695.78	5,674.91	31.39	31.22	-103.92	-563.72	142.81	450.63	388.91	61.72	7.301	
5,800.00	5,766.91	5,795.78	5,774.91	31.87	31.74	-110.62	-563.72	142.81	450.68	387.95	62.73	7.185	
5,900.00	5,866.91	5,895.78	5,874.91	32.36	32.25	-110.62	-563.72	142.81	450.68	386.94	63.74	7.071	
6,000.00	5,966.91	5,995.78	5,974.91	32.84	32.77	-110.62	-563.72	142.81	450.68	385.93	64.75	6.961	
6,100.00	6,066.91	6,095.78	6,074.91	33.33	33.29	-110.62	-563.72	142.81	450.68	384.92	65.76	6.853	
6,200.00	6,166.91	6,195.78	6,174.91	33.82	33.80	-110.62	-563.72	142.81	450.68	383.91	66.78	6.749	
6,300.00	6,266.91	6,295.78	6,274.91	34.31	34.32	-110.62	-563.72	142.81	450.68	382.89	67.79	6.648	
6,400.00	6,366.91	6,395.78	6,374.91	34.80	34.84	-110.62	-563.72	142.81	450.68	381.87	68.81	6.550	
6,500.00	6,466.91	6,495.78	6,474.91	35.29	35.36	-110.62	-563.72	142.81	450.68	380.85	69.83	6.454	
6,600.00	6,566.91	6,595.78	6,574.91	35.78	35.88	-110.62	-563.72	142.81	450.68	379.83	70.85	6.361	
6,700.00	6,666.91	6,695.78	6,674.91	36.28	36.40	-110.62	-563.72	142.81	450.68	378.81	71.87	6.270	
6,800.00	6,766.91	6,795.78	6,774.91	36.78	36.92	-110.62	-563.72	142.81	450.68	377.78	72.90	6.182	
6,900.00	6,866.91	6,895.78	6,874.91	37.27	37.44	-110.62	-563.72	142.81	450.68	376.76	73.93	6.096	
7,000.00	6,966.91	6,995.78	6,974.91	37.77	37.96	-110.62	-563.72	142.81	450.68	375.73	74.95	6.013	
7,100.00	7,066.91	7,095.78	7,074.91	38.27	38.48	-110.62	-563.72	142.81	450.68	374.70	75.98	5.931	
7,200.00	7,166.91	7,195.78	7,174.91	38.77	39.01	-110.62	-563.72	142.81	450.68	373.67	77.01	5.852	
7,300.00	7,266.91	7,295.78	7,274.91	39.27	39.53	-110.62	-563.72	142.81	450.68	372.64	78.04	5.775	
7,400.00	7,366.91	7,395.78	7,374.91	39.78	40.05	-110.62	-563.72	142.81	450.68	371.61	79.07	5.699	
7,500.00	7,466.91	7,495.78	7,474.91	40.28	40.58	-110.62	-563.72	142.81	450.68	370.57	80.11	5.626	
7,600.00	7,566.91	7,595.78	7,574.91	40.78	41.10	-110.62	-563.72	142.81	450.68	369.54	81.14	5.554	
7,700.00	7,666.91	7,695.78	7,674.91	41.29	41.63	-110.62	-563.72	142.81	450.68	368.50	82.18	5.484	
7,800.00	7,766.91	7,795.78	7,774.91	41.79	42.15	-110.62	-563.72	142.81	450.68	367.47	83.21	5.416	
7,900.00	7,866.91	7,895.78	7,874.91	42.30	42.68	-110.62	-563.72	142.81	450.68	366.43	84.25	5.349	
8,000.00	7,966.91	7,995.78	7,974.91	42.81	43.20	-110.62	-563.72	142.81	450.68	365.39	85.29	5.284	
8,100.00	8,066.91	8,095.78	8,074.91	43.32	43.73	-110.62	-563.72	142.81	450.68	364.35	86.33	5.220	
8,200.00	8,166.91	8,195.78	8,174.91	43.83	44.25	-110.62	-563.72	142.81	450.68	363.31	87.37	5.158	
8,300.00	8,266.91	8,295.78	8,274.91	44.34	44.78	-110.62	-563.72	142.81	450.68	362.27	88.41	5.098	
8,400.00	8,366.91	8,395.78	8,374.91	44.85	45.31	-110.62	-563.72	142.81	450.68	361.23	89.45	5.038	
8,500.00	8,466.91	8,495.78	8,474.91	45.36	45.83	-110.62	-563.72	142.81	450.68	360.18	90.50	4.980	
8,600.00	8,566.91	8,595.78	8,574.91	45.87	46.36	-110.62	-563.72	142.81	450.68	359.14	91.54	4.923	
8,700.00	8,666.91	8,695.78	8,674.91	46.38	46.89	-110.62	-563.72	142.81	450.68	358.10	92.58	4.868	
8,800.00	8,766.91	8,795.78	8,774.91	46.89	47.41	-110.62	-563.72	142.81	450.68	357.05	93.63	4.814	
8,900.00	8,866.91	8,895.78	8,874.91	47.41	47.94	-110.62	-563.72	142.81	450.68	356.01	94.67	4.760	
9,000.00	8,966.91	8,995.78	8,974.91	47.92	48.47	-110.62	-563.72	142.81	450.68	354.96	95.72	4.708	
9,100.00	9,066.91	9,095.78	9,074.91	48.44	49.00	-110.62	-563.72	142.81	450.68	353.91	96.77	4.657	
9,200.00	9,166.91	9,195.78	9,174.91	48.95	49.53	-110.62	-563.72	142.81	450.68	352.87	97.81	4.608	
9,300.00	9,266.91	9,295.78	9,274.91	49.47	50.06	-110.62	-563.72	142.81	450.68	351.82	98.86	4.559	
9,400.00	9,366.41	9,395.28	9,374.41	50.00	50.58	-69.84	-563.72	142.81	447.60	347.99	99.61	4.493	
9,500.00	9,462.91	9,507.23	9,486.19	50.57	51.18	-74.86	-559.44	142.76	438.31	337.81	100.49	4.362	
9,600.00	9,553.47	9,603.30	9,580.11	51.18	51.71	-83.66	-539.79	142.57	424.88	322.98	101.90	4.170	
9,683.07	9,622.20	9,655.80	9,629.66	51.70	52.00	-89.88	-522.49	142.40	419.63	316.64	102.98	4.075 CC, ES	
9,700.00	9,635.34	9,663.78	9,637.05	51.81	52.04	-90.81	-519.47	142.37	419.89	316.73	103.16	4.070 SF	
9,800.00	9,706.03	9,695.73	9,666.17	52.48	52.22	-93.49	-506.34	142.24	433.35	329.32	104.03	4.166	
9,900.00	9,763.40	9,707.44	9,676.65	53.18	52.29	-91.36	-501.13	142.19	467.84	383.01	104.83	4.463	
10,000.00	9,805.70	9,700.00	9,670.01	53.92	52.24	-84.27	-504.47	142.22	519.74	414.88	104.86	4.957	
10,100.00	9,831.65	9,700.00	9,670.01	54.69	52.24	-76.22	-504.47	142.22	582.92	479.87	103.05	5.657	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



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 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
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Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	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)			
10,200.00	9,840.46	9,674.57	9,646.97	55.48	52.10	-64.40	-515.22	142.33	651.62	555.13	96.49	6.753	
10,300.00	9,838.50	9,650.00	9,624.27	56.31	51.97	-60.89	-524.63	142.42	723.99	629.67	94.32	7.676	
10,400.00	9,836.40	9,636.17	9,611.32	57.22	51.89	-59.57	-529.49	142.47	801.31	707.39	93.92	8.532	
10,500.00	9,834.31	9,620.90	9,596.90	58.19	51.81	-58.14	-534.50	142.52	882.53	789.12	93.42	9.447	
10,600.00	9,832.21	9,600.00	9,576.95	59.22	51.69	-56.22	-540.72	142.58	966.86	874.43	92.43	10.460	
10,700.00	9,830.12	9,600.00	9,576.95	60.31	51.69	-56.22	-540.72	142.58	1,053.45	960.08	93.37	11.282	
10,800.00	9,828.02	9,600.00	9,576.95	61.46	51.69	-56.22	-540.72	142.58	1,142.23	1,047.86	94.37	12.103	
10,900.00	9,825.93	9,576.55	9,554.31	62.66	51.56	-54.15	-546.84	142.64	1,232.06	1,138.82	93.24	13.214	
11,000.00	9,823.83	9,568.37	9,546.35	63.91	51.52	-53.45	-548.75	142.66	1,323.39	1,229.84	93.55	14.146	
11,100.00	9,821.74	9,550.00	9,528.40	65.21	51.42	-51.90	-552.64	142.70	1,415.91	1,322.97	92.94	15.235	
11,200.00	9,819.64	9,550.00	9,528.40	66.55	51.42	-51.90	-552.64	142.70	1,509.02	1,414.94	94.08	16.039	
11,300.00	9,817.54	9,550.00	9,528.40	67.93	51.42	-51.90	-552.64	142.70	1,602.96	1,507.70	95.27	16.826	
11,400.00	9,815.45	9,550.00	9,528.40	69.36	51.42	-51.90	-552.64	142.70	1,697.60	1,601.11	96.49	17.594	
11,500.00	9,813.35	9,550.00	9,528.40	70.82	51.42	-51.90	-552.64	142.70	1,792.81	1,695.07	97.74	18.343	
11,600.00	9,811.26	9,550.00	9,528.40	72.32	51.42	-51.90	-552.64	142.70	1,888.53	1,789.50	99.02	19.071	
11,700.00	9,809.16	9,528.86	9,507.61	73.85	51.30	-50.19	-556.39	142.73	1,984.17	1,885.90	98.27	20.192	
11,800.00	9,807.07	9,524.92	9,503.70	75.41	51.28	-49.88	-557.01	142.74	2,080.47	1,981.27	99.20	20.972	
11,900.00	9,804.97	9,521.25	9,500.08	77.00	51.26	-49.59	-557.56	142.75	2,177.08	2,076.89	100.19	21.730	
12,000.00	9,802.88	9,500.00	9,479.01	78.61	51.14	-47.97	-560.27	142.77	2,274.29	2,174.83	99.47	22.865	
12,100.00	9,800.78	9,500.00	9,479.01	80.25	51.14	-47.97	-560.27	142.77	2,371.29	2,270.45	100.84	23.516	
12,200.00	9,798.68	9,500.00	9,479.01	81.92	51.14	-47.97	-560.27	142.77	2,468.53	2,366.30	102.23	24.147	
12,300.00	9,796.59	9,500.00	9,479.01	83.61	51.14	-47.97	-560.27	142.77	2,565.98	2,462.34	103.64	24.758	
12,400.00	9,794.49	9,500.00	9,479.01	85.32	51.14	-47.97	-560.27	142.77	2,663.62	2,558.55	105.07	25.350	
12,500.00	9,792.40	9,500.00	9,479.01	87.05	51.14	-47.97	-560.27	142.77	2,761.43	2,654.91	106.52	25.924	
12,600.00	9,790.30	9,500.00	9,479.01	88.80	51.14	-47.97	-560.27	142.77	2,859.39	2,751.40	107.98	26.480	
12,700.00	9,788.21	9,500.00	9,479.01	90.56	51.14	-47.97	-560.27	142.77	2,957.48	2,848.02	109.46	27.019	
12,800.00	9,786.11	9,500.00	9,479.01	92.35	51.14	-47.97	-560.27	142.77	3,055.70	2,944.75	110.95	27.540	
12,900.00	9,784.02	9,500.00	9,479.01	94.15	51.14	-47.97	-560.27	142.77	3,154.03	3,041.58	112.46	28.046	
13,000.00	9,781.92	9,500.00	9,479.01	95.96	51.14	-47.97	-560.27	142.77	3,252.47	3,138.49	113.98	28.536	
13,100.00	9,779.82	9,500.00	9,479.01	97.79	51.14	-47.97	-560.27	142.77	3,350.99	3,235.49	115.51	29.012	
13,200.00	9,777.73	9,500.00	9,479.01	99.63	51.14	-47.97	-560.27	142.77	3,449.61	3,332.56	117.05	29.472	
13,300.00	9,775.63	9,500.00	9,479.01	101.48	51.14	-47.97	-560.27	142.77	3,548.29	3,429.70	118.60	29.919	
13,400.00	9,773.54	9,500.00	9,479.01	103.35	51.14	-47.97	-560.27	142.77	3,647.05	3,526.90	120.16	30.353	
13,500.00	9,771.44	9,500.00	9,479.01	105.22	51.14	-47.97	-560.27	142.77	3,745.88	3,624.15	121.73	30.773	
13,600.00	9,769.35	9,500.00	9,479.01	107.11	51.14	-47.97	-560.27	142.77	3,844.77	3,721.46	123.30	31.181	
13,700.00	9,767.25	9,500.00	9,479.01	109.01	51.14	-47.97	-560.27	142.77	3,943.71	3,818.82	124.89	31.577	
13,800.00	9,765.16	9,500.00	9,479.01	110.92	51.14	-47.97	-560.27	142.77	4,042.70	3,916.22	126.48	31.962	
13,900.00	9,763.06	9,500.00	9,479.01	112.83	51.14	-47.97	-560.27	142.77	4,141.75	4,013.66	128.09	32.336	
14,000.00	9,760.96	9,500.00	9,479.01	114.76	51.14	-47.97	-560.27	142.77	4,240.84	4,111.14	129.69	32.699	
14,100.00	9,758.87	9,500.00	9,479.01	116.69	51.14	-47.97	-560.27	142.77	4,339.97	4,208.66	131.31	33.051	
14,200.00	9,756.77	9,477.13	9,456.23	118.63	51.02	-46.30	-562.32	142.79	4,438.62	4,308.36	130.27	34.074	
14,300.00	9,754.68	9,476.11	9,455.21	120.58	51.01	-46.23	-562.40	142.79	4,537.78	4,406.03	131.75	34.442	
14,400.00	9,752.58	9,475.13	9,454.24	122.54	51.01	-46.16	-562.46	142.79	4,636.97	4,503.73	133.25	34.800	
14,500.00	9,750.49	9,474.19	9,453.29	124.50	51.00	-46.09	-562.52	142.79	4,736.20	4,601.45	134.75	35.149	
14,600.00	9,748.39	9,473.28	9,452.39	126.47	51.00	-46.02	-562.58	142.79	4,835.46	4,699.20	136.26	35.488	
14,700.00	9,746.29	9,472.40	9,451.51	128.44	50.99	-45.96	-562.64	142.80	4,934.74	4,796.97	137.77	35.818	
14,800.00	9,744.20	9,450.00	9,429.13	130.42	50.87	-44.43	-563.58	142.80	5,034.50	4,897.75	136.75	36.815	
14,900.00	9,742.39	9,450.00	9,429.13	132.41	50.87	-47.15	-563.58	142.80	5,133.84	4,990.89	142.95	35.914	
15,000.00	9,742.58	9,450.00	9,429.13	134.39	50.87	-50.11	-563.58	142.80	5,233.41	5,083.99	149.42	35.025	
15,100.00	9,742.98	9,450.00	9,429.13	136.38	50.87	-50.11	-563.58	142.80	5,333.02	5,181.90	151.11	35.292	
15,200.00	9,743.38	9,450.00	9,429.13	138.38	50.87	-50.11	-563.58	142.80	5,432.64	5,279.83	152.81	35.552	
15,300.00	9,743.77	9,450.00	9,429.13	140.38	50.87	-50.11	-563.58	142.80	5,532.27	5,377.76	154.51	35.806	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset 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)	Separation Factor	
15,400.00	9,744.17	9,450.00	9,429.13	142.39	50.87	-50.11	-563.58	142.80	5,631.92	5,475.71	156.21	36.054	
15,500.00	9,744.56	9,450.00	9,429.13	144.40	50.87	-50.11	-563.58	142.80	5,731.57	5,573.66	157.92	36.295	
15,600.00	9,744.96	9,450.00	9,429.13	146.41	50.87	-50.11	-563.58	142.80	5,831.24	5,671.62	159.63	36.531	
15,700.00	9,745.35	9,450.00	9,429.13	148.43	50.87	-50.11	-563.58	142.80	5,930.93	5,769.59	161.34	36.761	
15,800.00	9,745.75	9,450.00	9,429.13	150.45	50.87	-50.11	-563.58	142.80	6,030.62	5,867.56	163.05	36.985	
15,900.00	9,746.14	9,450.00	9,429.13	152.48	50.87	-50.11	-563.58	142.80	6,130.32	5,965.55	164.77	37.204	
16,000.00	9,746.54	9,450.00	9,429.13	154.51	50.87	-50.11	-563.58	142.80	6,230.03	6,063.54	166.50	37.419	
16,100.00	9,746.94	9,450.00	9,429.13	156.54	50.87	-50.11	-563.58	142.80	6,329.75	6,161.53	168.22	37.628	
16,200.00	9,747.33	9,450.00	9,429.13	158.58	50.87	-50.11	-563.58	142.80	6,429.48	6,259.53	169.95	37.832	
16,300.00	9,747.73	9,450.00	9,429.13	160.61	50.87	-50.11	-563.58	142.80	6,529.22	6,357.54	171.68	38.032	
16,400.00	9,748.12	9,450.00	9,429.13	162.66	50.87	-50.11	-563.58	142.80	6,628.96	6,455.56	173.41	38.228	
16,500.00	9,748.52	9,450.00	9,429.13	164.70	50.87	-50.11	-563.58	142.80	6,728.72	6,553.57	175.14	38.419	
16,600.00	9,748.91	9,450.00	9,429.13	166.75	50.87	-50.11	-563.58	142.80	6,828.48	6,651.60	176.88	38.606	
16,700.00	9,749.31	9,450.00	9,429.13	168.80	50.87	-50.11	-563.58	142.80	6,928.24	6,749.63	178.62	38.788	
16,800.00	9,749.71	9,450.00	9,429.13	170.85	50.87	-50.11	-563.58	142.80	7,028.02	6,847.66	180.36	38.967	
16,900.00	9,750.10	9,450.00	9,429.13	172.91	50.87	-50.11	-563.58	142.80	7,127.80	6,945.70	182.10	39.142	
17,000.00	9,750.50	9,450.00	9,429.13	174.97	50.87	-50.11	-563.58	142.80	7,227.58	7,043.74	183.84	39.314	
17,100.00	9,750.89	9,450.00	9,429.13	177.03	50.87	-50.11	-563.58	142.80	7,327.38	7,141.79	185.59	39.481	
17,200.00	9,751.29	9,450.00	9,429.13	179.09	50.87	-50.11	-563.58	142.80	7,427.17	7,239.84	187.34	39.646	
17,300.00	9,751.68	9,450.00	9,429.13	181.15	50.87	-50.11	-563.58	142.80	7,526.98	7,337.89	189.09	39.807	
17,400.00	9,752.08	9,450.00	9,429.13	183.22	50.87	-50.11	-563.58	142.80	7,626.78	7,435.95	190.84	39.964	
17,500.00	9,752.48	9,450.00	9,429.13	185.29	50.87	-50.11	-563.58	142.80	7,726.60	7,534.01	192.59	40.119	
17,600.00	9,752.87	9,450.00	9,429.13	187.36	50.87	-50.11	-563.58	142.80	7,826.42	7,632.07	194.35	40.270	
17,700.00	9,753.27	9,450.00	9,429.13	189.43	50.87	-50.11	-563.58	142.80	7,926.24	7,730.14	196.10	40.419	
17,800.00	9,753.66	9,450.00	9,429.13	191.51	50.87	-50.11	-563.58	142.80	8,026.07	7,828.21	197.86	40.564	
17,900.00	9,754.06	9,450.00	9,429.13	193.59	50.87	-50.11	-563.58	142.80	8,125.90	7,926.28	199.62	40.707	
18,000.00	9,754.45	9,450.00	9,429.13	195.66	50.87	-50.11	-563.58	142.80	8,225.73	8,024.35	201.38	40.847	
18,100.00	9,754.85	9,450.00	9,429.13	197.74	50.87	-50.11	-563.58	142.80	8,325.57	8,122.43	203.14	40.984	
18,200.00	9,755.25	9,450.00	9,429.13	199.82	50.87	-50.11	-563.58	142.80	8,425.41	8,220.51	204.90	41.119	
18,300.00	9,755.64	9,450.00	9,429.13	201.91	50.87	-50.11	-563.58	142.80	8,525.26	8,318.59	206.67	41.251	
18,400.00	9,756.04	9,450.00	9,429.13	203.99	50.87	-50.11	-563.58	142.80	8,625.11	8,416.68	208.43	41.381	
18,500.00	9,756.43	9,450.00	9,429.13	206.08	50.87	-50.11	-563.58	142.80	8,724.96	8,514.77	210.20	41.508	
18,600.00	9,756.83	9,450.00	9,429.13	208.17	50.87	-50.11	-563.58	142.80	8,824.82	8,612.86	211.97	41.633	
18,700.00	9,757.22	9,450.00	9,429.13	210.26	50.87	-50.11	-563.58	142.80	8,924.68	8,710.95	213.73	41.756	
18,800.00	9,757.62	9,450.00	9,429.13	212.35	50.87	-50.11	-563.58	142.80	9,024.54	8,809.04	215.50	41.877	
18,900.00	9,758.01	9,450.00	9,429.13	214.44	50.87	-50.11	-563.58	142.80	9,124.41	8,907.14	217.27	41.995	
19,000.00	9,758.41	9,450.00	9,429.13	216.53	50.87	-50.11	-563.58	142.80	9,224.28	9,005.24	219.04	42.111	
19,100.00	9,758.81	9,450.00	9,429.13	218.62	50.87	-50.11	-563.58	142.80	9,324.15	9,103.33	220.82	42.226	
19,200.00	9,759.20	9,450.00	9,429.13	220.72	50.87	-50.11	-563.58	142.80	9,424.03	9,201.44	222.59	42.338	
19,300.00	9,759.60	9,450.00	9,429.13	222.82	50.87	-50.11	-563.58	142.80	9,523.90	9,299.54	224.36	42.448	
19,400.00	9,759.99	9,450.00	9,429.13	224.91	50.87	-50.11	-563.58	142.80	9,623.78	9,397.64	226.14	42.557	
19,500.00	9,760.39	9,450.00	9,429.13	227.01	50.87	-50.11	-563.58	142.80	9,723.67	9,495.75	227.92	42.663	
19,600.00	9,760.78	9,450.00	9,429.13	229.11	50.87	-50.11	-563.58	142.80	9,823.55	9,593.86	229.69	42.768	
19,700.00	9,761.18	9,450.00	9,429.13	231.21	50.87	-50.11	-563.58	142.80	9,923.44	9,691.97	231.47	42.871	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO.17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - OH / Job #61221 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 497-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)		+N-S (usft)	+E-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	-124.97	-633.01	-905.00	1,104.46				
100.00	100.00	93.16	93.16	0.19	0.13	-124.97	-632.93	-904.89	1,104.28	0.33	3,395.052		
200.00	200.00	200.50	200.50	0.73	0.34	-124.97	-632.62	-904.46	1,103.79	1.07	1,028.102		
300.00	300.00	308.84	308.82	1.27	0.70	-125.00	-632.05	-902.79	1,102.21	1.97	559.727		
400.00	400.00	410.33	410.28	1.81	0.97	-125.10	-632.68	-900.31	1,100.57	2.77	397.086		
500.00	500.00	517.31	517.21	2.34	1.21	-125.22	-633.24	-897.05	1,098.38	3.55	309.054		
600.00	600.00	620.68	620.50	2.88	1.55	-125.37	-634.05	-893.15	1,095.75	4.43	247.070		
700.00	700.00	724.78	724.48	3.42	1.95	-125.58	-635.52	-888.33	1,092.80	5.37	203.525		
800.00	800.00	823.95	823.45	3.96	2.42	-125.87	-638.05	-882.54	1,089.54	6.38	170.798		
900.00	900.00	914.39	913.64	4.50	2.88	-126.19	-641.63	-876.95	1,086.87	7.37	147.403		
1,000.00	1,000.00	1,002.31	1,001.32	5.03	3.33	-126.52	-645.83	-872.10	1,085.25	8.37	129.718		
1,070.37	1,070.37	1,061.00	1,059.88	5.41	3.64	-126.73	-648.74	-869.45	1,084.81	9.05	119.860		
1,100.00	1,100.00	1,085.30	1,084.14	5.57	3.77	-126.81	-649.93	-868.60	1,084.86	9.33	116.233		
1,200.00	1,200.00	1,156.00	1,154.76	6.11	4.13	-126.97	-653.12	-867.72	1,086.63	10.23	106.212		
1,300.00	1,300.00	1,230.21	1,228.89	6.65	4.49	-127.02	-655.84	-869.62	1,090.92	11.13	98.055		
1,400.00	1,400.00	1,297.81	1,296.32	7.18	4.82	-126.98	-658.06	-873.87	1,097.94	11.99	91.599		
1,500.00	1,500.00	1,376.68	1,374.78	7.72	5.20	-126.93	-662.04	-880.75	1,107.83	12.90	85.849		
1,600.00	1,600.00	1,472.00	1,469.60	8.26	5.68	-126.91	-667.50	-888.75	1,118.00	13.91	80.349		
1,700.00	1,700.00	1,550.99	1,548.02	8.80	6.08	-126.98	-674.30	-895.41	1,129.87	14.85	76.067		
1,800.00	1,800.00	1,721.53	1,717.15	9.33	7.02	-127.57	-694.45	-902.66	1,141.21	16.28	70.078		
1,900.00	1,899.98	1,908.22	1,903.20	9.85	8.04	17.22	-707.85	-897.56	1,141.50	17.84	63.967		
2,000.00	1,999.84	2,095.27	2,090.01	10.34	8.97	17.38	-703.42	-890.36	1,132.47	19.27	58.770		
2,100.00	2,099.45	2,246.55	2,240.17	10.84	9.73	17.53	-694.94	-874.19	1,112.02	20.49	54.264		
2,200.00	2,198.70	2,349.98	2,342.56	11.34	10.25	17.73	-688.50	-861.05	1,086.75	21.45	50.673		
2,300.00	2,297.73	2,450.05	2,441.54	11.86	10.77	17.80	-682.02	-847.83	1,059.35	22.45	47.186		
2,400.00	2,396.76	2,548.15	2,538.52	12.38	11.29	17.82	-676.16	-834.22	1,031.73	23.45	43.992		
2,500.00	2,495.78	2,645.07	2,634.26	12.92	11.82	17.79	-671.05	-820.06	1,003.96	24.46	41.044		
2,600.00	2,594.81	2,733.19	2,721.29	13.46	12.32	17.71	-667.18	-806.86	976.46	25.43	38.394		
2,700.00	2,693.84	2,816.27	2,803.51	14.00	12.78	17.64	-663.95	-795.31	950.07	26.38	36.010		
2,800.00	2,792.86	2,902.05	2,888.57	14.55	13.27	17.59	-661.07	-784.60	925.08	27.36	33.815		
2,900.00	2,891.89	2,992.24	2,978.11	15.11	13.77	17.56	-658.27	-774.13	900.91	28.36	31.770		
3,000.00	2,990.92	3,084.62	3,069.90	15.67	14.29	17.55	-655.56	-764.11	877.44	29.37	29.875		
3,100.00	3,089.94	3,180.29	3,164.99	16.23	14.83	17.55	-652.80	-754.04	854.26	30.41	28.094		
3,200.00	3,188.97	3,278.71	3,262.85	16.80	15.39	17.55	-649.97	-743.84	831.20	31.46	26.420		
3,300.00	3,288.00	3,380.82	3,364.30	17.37	15.96	17.54	-646.95	-732.71	807.67	32.54	24.821		
3,400.00	3,387.02	3,480.99	3,463.77	17.94	16.53	17.50	-643.85	-721.24	783.64	33.61	23.315		
3,500.00	3,486.05	3,571.37	3,553.51	18.52	17.05	17.47	-641.07	-710.89	759.64	34.63	21.936		
3,600.00	3,585.08	3,653.19	3,634.91	19.10	17.51	17.50	-638.79	-703.04	737.24	35.60	20.707		
3,700.00	3,684.10	3,732.75	3,714.27	19.68	17.94	17.65	-636.55	-697.86	717.19	36.56	19.617		
3,800.00	3,783.13	3,813.92	3,795.36	20.26	18.37	17.98	-633.97	-695.41	699.62	37.52	18.648		
3,900.00	3,882.16	3,905.40	3,886.78	20.84	18.84	18.52	-630.56	-694.97	683.77	38.52	17.751		
4,000.00	3,981.18	4,001.99	3,983.30	21.43	19.33	19.14	-627.10	-695.17	668.62	39.55	16.906		
4,100.00	4,080.21	4,097.36	4,078.64	22.02	19.81	19.68	-624.81	-695.04	653.96	40.58	16.115		
4,200.00	4,179.24	4,196.22	4,177.48	22.60	20.32	20.23	-622.86	-694.86	639.57	41.63	15.362		
4,300.00	4,278.26	4,293.96	4,275.20	23.19	20.82	20.83	-620.71	-694.96	625.35	42.68	14.651		
4,400.00	4,377.29	4,393.06	4,374.28	23.79	21.32	21.46	-618.67	-694.97	611.20	43.74	13.973		
4,500.00	4,476.32	4,489.97	4,471.17	24.38	21.82	22.11	-616.67	-695.21	597.33	44.79	13.336		
4,600.00	4,575.35	4,589.11	4,570.28	24.97	22.32	22.83	-614.48	-695.66	583.62	45.86	12.727		
4,700.00	4,674.37	4,687.97	4,669.12	25.56	22.83	23.55	-612.48	-695.94	569.97	46.92	12.147		
4,800.00	4,773.40	4,786.65	4,767.78	26.16	23.34	24.33	-610.36	-696.31	556.43	47.99	11.594		
4,900.00	4,872.43	4,884.63	4,865.73	26.76	23.84	25.17	-608.03	-696.86	543.03	49.06	11.069		
5,000.00	4,971.45	4,979.72	4,960.79	27.35	24.33	26.02	-605.98	-697.67	530.12	50.11	10.578		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - OH / Job #61221 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 497-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 Centro +N/-S (usft)	Offset Wellbore Centro +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,070.48	5,074.45	5,055.49	27.95	24.81	26.90	-604.46	-699.27	518.32	467.15	51.17	10.130	
5,200.00	5,169.51	5,172.89	5,153.90	28.55	25.30	27.89	-602.68	-701.33	506.92	454.68	52.24	9.703	
5,300.00	5,268.53	5,270.09	5,251.07	29.15	25.80	28.90	-601.18	-703.52	495.94	442.62	53.32	9.302	
5,400.00	5,367.66	5,368.77	5,347.70	29.74	26.28	29.81	-600.06	-705.96	486.21	431.73	54.48	8.925	
5,500.00	5,467.17	5,465.09	5,445.98	30.31	26.78	30.58	-599.07	-708.91	479.96	424.31	55.65	8.625	
5,600.00	5,566.96	5,564.38	5,545.21	30.86	27.28	31.21	-598.00	-711.95	476.81	420.05	56.76	8.401	
5,644.89	5,611.82	5,608.50	5,589.30	31.10	27.50	31.43	-597.60	-713.36	476.47	419.24	57.23	8.325	
5,700.00	5,666.91	5,664.21	5,644.99	31.39	27.78	31.63	-597.22	-715.09	476.89	419.08	57.81	8.250	
5,800.00	5,766.91	5,762.97	5,743.71	31.87	28.28	-113.60	-596.82	-718.00	479.26	420.44	58.82	8.147	
5,900.00	5,866.91	5,859.99	5,840.67	32.36	28.77	-113.40	-596.41	-721.41	482.31	422.49	59.82	8.063	
6,000.00	5,966.91	5,957.91	5,938.50	32.84	29.27	-113.16	-595.97	-725.45	485.93	425.10	60.82	7.989	
6,100.00	6,066.91	6,057.89	6,038.38	33.33	29.78	-112.90	-595.41	-729.85	489.76	427.92	61.84	7.920	
6,200.00	6,166.91	6,158.15	6,138.55	33.82	30.29	-112.67	-595.04	-734.07	493.50	430.65	62.85	7.851	
6,300.00	6,266.91	6,270.38	6,250.72	34.31	30.86	-112.61	-595.78	-737.04	496.22	432.28	63.93	7.782	
6,400.00	6,366.91	6,368.97	6,349.29	34.80	31.36	-112.85	-598.17	-737.50	497.59	432.65	64.94	7.662	
6,500.00	6,466.91	6,469.46	6,449.74	35.29	31.87	-113.09	-600.71	-738.05	499.08	433.13	65.95	7.567	
6,600.00	6,566.91	6,571.49	6,551.75	35.78	32.39	-113.31	-602.98	-738.44	500.31	433.33	66.98	7.469	
6,700.00	6,666.91	6,672.86	6,653.09	36.28	32.91	-113.56	-605.30	-738.43	501.20	433.19	68.01	7.370	
6,800.00	6,766.91	6,774.31	6,754.51	36.78	33.43	-113.84	-607.84	-738.01	501.84	432.80	69.04	7.269	
6,900.00	6,866.91	6,875.95	6,856.11	37.27	33.95	-114.17	-610.60	-737.11	502.13	432.06	70.07	7.166	
7,000.00	6,966.91	6,976.01	6,956.12	37.77	34.47	-114.52	-613.42	-735.96	502.24	431.15	71.10	7.064	
7,100.00	7,066.91	7,074.85	7,054.93	38.27	34.98	-114.83	-615.99	-735.08	502.52	430.40	72.12	6.968	
7,200.00	7,166.91	7,174.10	7,154.14	38.77	35.49	-115.09	-618.33	-734.53	503.01	429.87	73.14	6.877	
7,300.00	7,266.91	7,274.71	7,254.72	39.27	36.01	-115.38	-620.84	-733.94	503.55	429.37	74.18	6.788	
7,400.00	7,366.91	7,376.45	7,356.42	39.78	36.54	-115.69	-623.44	-733.01	503.83	428.61	75.22	6.698	
7,500.00	7,466.91	7,477.68	7,457.62	40.28	37.06	-115.99	-625.74	-731.85	503.78	427.52	76.26	6.606	
7,600.00	7,566.91	7,578.47	7,558.37	40.78	37.59	-116.33	-628.34	-730.33	503.56	426.27	77.30	6.515	
7,700.00	7,666.91	7,678.86	7,658.70	41.29	38.11	-116.74	-631.41	-728.42	503.23	424.90	78.34	6.424	
7,793.06	7,759.97	7,770.21	7,749.97	41.76	38.59	-117.16	-634.59	-726.59	503.04	423.74	79.29	6.344	
7,800.00	7,766.91	7,777.00	7,756.75	41.79	38.62	-117.19	-634.85	-726.46	503.04	423.67	79.37	6.338	
7,900.00	7,866.91	7,875.59	7,855.26	42.30	39.14	-117.65	-638.56	-724.75	503.23	422.84	80.40	6.259	
8,000.00	7,966.91	7,974.68	7,954.27	42.81	39.66	-118.10	-642.20	-723.30	503.66	422.23	81.43	6.185	
8,100.00	8,066.91	8,074.02	8,053.54	43.32	40.17	-118.50	-645.64	-722.12	504.26	421.79	82.47	6.115	
8,200.00	8,166.91	8,173.42	8,152.89	43.83	40.69	-118.86	-648.75	-721.26	505.00	421.49	83.51	6.047	
8,300.00	8,266.91	8,273.62	8,253.04	44.34	41.22	-119.18	-651.61	-720.55	505.77	421.22	84.55	5.982	
8,400.00	8,366.91	8,372.04	8,351.42	44.85	41.73	-119.49	-654.44	-719.99	506.68	421.09	85.58	5.920	
8,500.00	8,466.91	8,469.67	8,448.99	45.36	42.24	-119.83	-657.68	-719.65	508.02	421.40	86.61	5.865	
8,600.00	8,566.91	8,568.54	8,547.80	45.87	42.75	-120.21	-661.41	-719.41	509.69	422.04	87.65	5.815	
8,700.00	8,666.91	8,667.63	8,646.81	46.38	43.27	-120.60	-665.35	-719.27	511.59	422.90	88.69	5.768	
8,800.00	8,766.91	8,766.81	8,745.91	46.89	43.79	-121.00	-669.47	-719.14	513.61	423.88	89.73	5.724	
8,900.00	8,866.91	8,864.65	8,843.65	47.41	44.30	-121.41	-673.82	-719.20	515.96	425.20	90.77	5.685	
9,000.00	8,966.91	8,963.08	8,941.96	47.92	44.81	-121.84	-678.56	-719.47	518.72	426.92	91.80	5.650	
9,100.00	9,066.91	9,062.36	9,041.11	48.44	45.33	-122.30	-683.66	-719.74	521.68	428.84	92.85	5.619	
9,200.00	9,166.91	9,165.93	9,144.59	48.95	45.87	-122.61	-687.65	-720.73	524.56	430.65	93.91	5.586	
9,300.00	9,266.91	9,272.95	9,251.60	49.47	46.42	-122.55	-688.11	-722.55	526.23	431.24	94.99	5.540	
9,400.00	9,366.41	9,384.44	9,363.04	50.00	47.00	59.89	-685.73	-724.03	521.79	425.87	95.91	5.440	
9,500.00	9,462.91	9,477.86	9,456.45	50.57	47.49	63.55	-684.63	-723.47	508.11	411.70	96.42	5.270	
9,600.00	9,553.47	9,565.05	9,543.64	51.18	47.94	69.26	-684.09	-723.40	489.44	392.25	97.19	5.036	
9,700.00	9,635.34	9,644.66	9,623.25	51.81	48.35	76.50	-683.99	-723.62	469.65	370.96	98.68	4.759	
9,800.00	9,706.03	9,714.51	9,693.10	52.48	48.71	84.14	-683.93	-724.07	454.27	353.79	100.49	4.521	
9,882.01	9,754.15	9,762.72	9,741.30	53.05	48.96	89.57	-683.91	-724.38	449.45	347.83	101.62	4.423 CC, ES	
9,900.00	9,763.40	9,771.99	9,750.58	53.18	49.01	90.56	-683.90	-724.44	449.71	347.91	101.80	4.418 SF	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - OH / Job #61221 - Surveys (Patterson 815)														Offset Site Error:	0.00 usft
Survey Program: 170-MWD, 497-MWD+HOGM														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 Centres +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
10,000.00	9,805.70	9,813.90	9,792.48	53.92	49.23	94.16	-683.90	-724.72	461.69	359.12	102.57	4.501			
10,100.00	9,831.65	9,839.61	9,818.20	54.69	49.36	94.02	-683.90	-724.91	492.66	389.21	103.45	4.762			
10,200.00	9,840.46	9,848.35	9,826.93	55.48	49.40	89.59	-683.90	-724.98	540.91	436.39	104.52	5.175			
10,300.00	9,838.50	9,846.41	9,824.99	56.31	49.39	88.49	-683.90	-724.96	602.13	496.81	105.33	5.717			
10,400.00	9,836.40	9,844.33	9,822.91	57.22	49.38	88.22	-683.90	-724.95	672.71	566.50	106.21	6.333			
10,500.00	9,834.31	9,842.25	9,820.83	58.19	49.37	87.96	-683.90	-724.93	750.00	642.84	107.16	6.999			
10,600.00	9,832.21	9,840.17	9,818.75	59.22	49.36	87.69	-683.90	-724.91	832.14	723.96	108.18	7.692			
10,700.00	9,830.12	9,838.08	9,816.67	60.31	49.35	87.43	-683.90	-724.90	917.83	808.58	109.25	8.402			
10,800.00	9,828.02	9,836.00	9,814.58	61.46	49.34	87.16	-683.90	-724.88	1,006.15	895.78	110.37	9.116			
10,900.00	9,825.93	9,833.91	9,812.50	62.66	49.33	86.90	-683.90	-724.87	1,096.48	984.94	111.54	9.830			
11,000.00	9,823.83	9,831.82	9,810.41	63.91	49.32	86.63	-683.90	-724.85	1,188.36	1,075.59	112.77	10.538			
11,100.00	9,821.74	9,829.73	9,808.32	65.21	49.31	86.37	-683.90	-724.83	1,281.44	1,167.41	114.04	11.237			
11,200.00	9,819.64	9,827.64	9,806.23	66.55	49.30	86.10	-683.90	-724.82	1,375.50	1,260.16	115.35	11.925			
11,300.00	9,817.54	9,825.55	9,804.14	67.93	49.29	85.84	-683.90	-724.80	1,470.34	1,353.64	116.70	12.600			
11,400.00	9,815.45	9,823.46	9,802.04	69.36	49.28	85.57	-683.90	-724.79	1,565.82	1,447.73	118.08	13.260			
11,500.00	9,813.35	9,821.36	9,799.95	70.82	49.26	85.31	-683.90	-724.77	1,661.82	1,542.32	119.50	13.906			
11,600.00	9,811.26	9,819.27	9,797.85	72.32	49.25	85.04	-683.90	-724.76	1,758.27	1,637.32	120.96	14.536			
11,700.00	9,809.16	9,817.17	9,795.76	73.85	49.24	84.78	-683.90	-724.74	1,855.10	1,732.66	122.44	15.151			
11,800.00	9,807.07	9,815.07	9,793.66	75.41	49.23	84.51	-683.90	-724.73	1,952.24	1,828.29	123.95	15.750			
11,900.00	9,804.97	9,812.97	9,791.56	77.00	49.22	84.25	-683.90	-724.71	2,049.65	1,924.17	125.48	16.334			
12,000.00	9,802.88	9,810.87	9,789.46	78.61	49.21	83.98	-683.90	-724.70	2,147.30	2,020.26	127.04	16.902			
12,100.00	9,800.78	9,808.77	9,787.35	80.25	49.20	83.72	-683.90	-724.68	2,245.16	2,116.53	128.63	17.455			
12,200.00	9,798.68	9,806.66	9,785.25	81.92	49.19	83.45	-683.90	-724.67	2,343.19	2,212.96	130.23	17.993			
12,300.00	9,796.59	9,804.56	9,783.14	83.61	49.18	83.19	-683.90	-724.65	2,441.38	2,309.53	131.85	18.517			
12,400.00	9,794.49	9,802.45	9,781.03	85.32	49.17	82.92	-683.90	-724.64	2,539.71	2,406.23	133.49	19.026			
12,500.00	9,792.40	9,800.34	9,778.92	87.05	49.16	82.66	-683.90	-724.62	2,638.17	2,503.03	135.14	19.522			
12,600.00	9,790.30	9,798.23	9,776.81	88.80	49.14	82.39	-683.90	-724.61	2,736.73	2,599.92	136.81	20.004			
12,700.00	9,788.21	9,796.12	9,774.70	90.56	49.13	82.13	-683.90	-724.60	2,835.40	2,696.90	138.49	20.473			
12,800.00	9,786.11	9,794.00	9,772.59	92.35	49.12	81.86	-683.90	-724.58	2,934.15	2,793.96	140.19	20.930			
12,900.00	9,784.02	9,791.89	9,770.47	94.15	49.11	81.60	-683.90	-724.57	3,032.98	2,891.09	141.90	21.375			
13,000.00	9,781.92	9,789.77	9,768.36	95.96	49.10	81.34	-683.90	-724.55	3,131.89	2,988.28	143.61	21.808			
13,100.00	9,779.82	9,787.65	9,766.24	97.79	49.09	81.07	-683.90	-724.54	3,230.86	3,085.52	145.34	22.230			
13,200.00	9,777.73	9,785.54	9,764.12	99.63	49.08	80.81	-683.90	-724.52	3,329.89	3,182.82	147.08	22.641			
13,300.00	9,775.63	9,783.41	9,762.00	101.48	49.07	80.55	-683.90	-724.51	3,428.98	3,280.16	148.82	23.041			
13,400.00	9,773.54	9,781.29	9,759.88	103.35	49.06	80.28	-683.90	-724.50	3,528.12	3,377.55	150.57	23.431			
13,500.00	9,771.44	9,779.17	9,757.76	105.22	49.05	80.02	-683.90	-724.48	3,627.30	3,474.97	152.33	23.812			
13,600.00	9,769.35	9,777.04	9,755.63	107.11	49.04	79.76	-683.90	-724.47	3,726.53	3,572.43	154.09	24.183			
13,700.00	9,767.25	9,774.92	9,753.50	109.01	49.02	79.49	-683.90	-724.46	3,825.79	3,669.93	155.86	24.546			
13,800.00	9,765.16	9,772.79	9,751.38	110.92	49.01	79.23	-683.90	-724.44	3,925.09	3,767.46	157.64	24.900			
13,900.00	9,763.06	9,770.61	9,749.20	112.83	49.00	78.96	-683.90	-724.43	4,024.43	3,865.01	159.41	25.245			
14,000.00	9,760.96	9,768.40	9,746.99	114.76	48.99	78.69	-683.91	-724.42	4,123.79	3,962.60	161.19	25.584			
14,100.00	9,758.87	9,766.19	9,744.77	116.69	48.98	78.42	-683.91	-724.40	4,223.19	4,060.22	162.97	25.914			
14,200.00	9,756.77	9,763.97	9,742.56	118.63	48.97	78.15	-683.91	-724.39	4,322.61	4,157.86	164.75	26.237			
14,300.00	9,754.68	9,761.75	9,740.33	120.58	48.96	77.88	-683.91	-724.37	4,422.05	4,255.52	166.53	26.553			
14,400.00	9,752.58	9,759.52	9,738.11	122.54	48.94	77.61	-683.91	-724.36	4,521.52	4,353.20	168.32	26.863			
14,500.00	9,750.49	9,757.29	9,735.87	124.50	48.93	77.34	-683.91	-724.34	4,621.02	4,450.91	170.11	27.166			
14,600.00	9,748.39	9,755.05	9,733.64	126.47	48.92	77.06	-683.91	-724.33	4,720.53	4,548.64	171.89	27.462			
14,700.00	9,746.29	9,752.81	9,731.40	128.44	48.91	76.79	-683.91	-724.32	4,820.06	4,646.38	173.68	27.753			
14,800.00	9,744.20	9,750.57	9,729.15	130.42	48.90	76.52	-683.91	-724.30	4,919.61	4,744.14	175.46	28.038			
14,900.00	9,742.39	9,748.62	9,727.21	132.41	48.89	76.25	-683.91	-724.29	5,019.17	4,838.53	180.63	27.786			
15,000.00	9,742.58	9,748.78	9,727.37	134.39	48.89	91.69	-683.91	-724.29	5,118.67	4,935.67	183.00	27.970			
15,100.00	9,742.98	9,749.16	9,727.75	136.38	48.89	91.73	-683.91	-724.29	5,218.19	5,033.20	184.99	28.207			

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - OH / Job #61221 - Surveys (Patterson 815)													Offset Site Error:	0.00 usft
Survey Program: 170-MWD, 497-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centros (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)						
15,200.00	9,743.38	9,749.54	9,728.12	138.38	48.89	91.77	-683.91	-724.29	5,317.72	5,130.74	186.99	28.439		
15,300.00	9,743.77	9,749.91	9,728.50	140.38	48.89	91.81	-683.91	-724.30	5,417.28	5,228.29	188.99	28.665		
15,400.00	9,744.17	9,750.29	9,728.88	142.39	48.90	91.86	-683.91	-724.30	5,516.84	5,325.85	190.99	28.885		
15,500.00	9,744.56	9,750.67	9,729.26	144.40	48.90	91.90	-683.91	-724.30	5,616.43	5,423.43	193.00	29.101		
15,600.00	9,744.96	9,751.05	9,729.64	146.41	48.90	91.94	-683.91	-724.30	5,716.02	5,521.01	195.01	29.311		
15,700.00	9,745.35	9,751.43	9,730.02	148.43	48.90	91.98	-683.91	-724.31	5,815.64	5,618.61	197.03	29.517		
15,800.00	9,745.75	9,751.81	9,730.40	150.45	48.90	92.03	-683.91	-724.31	5,915.26	5,716.21	199.05	29.718		
15,900.00	9,746.14	9,752.20	9,730.78	152.48	48.91	92.07	-683.91	-724.31	6,014.90	5,813.83	201.07	29.915		
16,000.00	9,746.54	9,752.58	9,731.17	154.51	48.91	92.11	-683.91	-724.31	6,114.55	5,911.45	203.09	30.107		
16,100.00	9,746.94	9,752.96	9,731.55	156.54	48.91	92.16	-683.91	-724.32	6,214.21	6,009.08	205.12	30.295		
16,200.00	9,747.33	9,753.35	9,731.93	158.58	48.91	92.20	-683.91	-724.32	6,313.88	6,106.72	207.16	30.479		
16,300.00	9,747.73	9,753.73	9,732.32	160.61	48.91	92.24	-683.91	-724.32	6,413.56	6,204.37	209.19	30.659		
16,400.00	9,748.12	9,754.12	9,732.71	162.66	48.92	92.29	-683.91	-724.32	6,513.25	6,302.02	211.23	30.835		
16,500.00	9,748.52	9,754.50	9,733.09	164.70	48.92	92.33	-683.91	-724.33	6,612.95	6,399.68	213.27	31.007		
16,600.00	9,748.91	9,754.89	9,733.48	166.75	48.92	92.37	-683.91	-724.33	6,712.66	6,497.34	215.31	31.176		
16,700.00	9,749.31	9,755.28	9,733.87	168.80	48.92	92.42	-683.91	-724.33	6,812.37	6,595.01	217.36	31.341		
16,800.00	9,749.71	9,755.67	9,734.26	170.85	48.92	92.46	-683.91	-724.33	6,912.10	6,692.69	219.41	31.503		
16,900.00	9,750.10	9,756.06	9,734.65	172.91	48.93	92.51	-683.91	-724.34	7,011.83	6,790.37	221.46	31.662		
17,000.00	9,750.50	9,756.45	9,735.04	174.97	48.93	92.55	-683.91	-724.34	7,111.57	6,888.06	223.51	31.817		
17,100.00	9,750.89	9,756.84	9,735.43	177.03	48.93	92.59	-683.91	-724.34	7,211.32	6,985.76	225.57	31.970		
17,200.00	9,751.29	9,757.23	9,735.82	179.09	48.93	92.64	-683.91	-724.34	7,311.08	7,083.45	227.62	32.119		
17,300.00	9,751.68	9,757.62	9,736.21	181.15	48.93	92.68	-683.91	-724.35	7,410.84	7,181.16	229.68	32.266		
17,400.00	9,752.08	9,758.02	9,736.60	183.22	48.94	92.73	-683.91	-724.35	7,510.61	7,278.86	231.74	32.409		
17,500.00	9,752.48	9,758.41	9,737.00	185.29	48.94	92.77	-683.91	-724.35	7,610.38	7,376.57	233.81	32.550		
17,600.00	9,752.87	9,758.81	9,737.39	187.36	48.94	92.82	-683.91	-724.35	7,710.16	7,474.29	235.87	32.688		
17,700.00	9,753.27	9,759.20	9,737.79	189.43	48.94	92.86	-683.91	-724.36	7,809.94	7,572.01	237.94	32.824		
17,800.00	9,753.66	9,759.60	9,738.19	191.51	48.94	92.90	-683.91	-724.36	7,909.74	7,669.73	240.00	32.957		
17,900.00	9,754.06	9,760.00	9,738.58	193.59	48.95	92.95	-683.91	-724.36	8,009.53	7,767.46	242.07	33.087		
18,000.00	9,754.45	9,760.39	9,738.98	195.66	48.95	92.99	-683.91	-724.36	8,109.33	7,865.19	244.14	33.215		
18,100.00	9,754.85	9,760.79	9,739.38	197.74	48.95	93.04	-683.91	-724.37	8,209.14	7,962.92	246.22	33.341		
18,200.00	9,755.25	9,761.19	9,739.78	199.82	48.95	93.08	-683.91	-724.37	8,308.95	8,060.66	248.29	33.465		
18,300.00	9,755.64	9,761.59	9,740.18	201.91	48.96	93.13	-683.91	-724.37	8,408.76	8,158.40	250.37	33.586		
18,400.00	9,756.04	9,761.99	9,740.58	203.99	48.96	93.17	-683.91	-724.37	8,508.58	8,256.14	252.44	33.705		
18,500.00	9,756.43	9,762.39	9,740.98	206.08	48.96	93.22	-683.91	-724.38	8,608.41	8,353.89	254.52	33.822		
18,600.00	9,756.83	9,762.80	9,741.38	208.17	48.96	93.26	-683.91	-724.38	8,708.23	8,451.64	256.60	33.937		
18,700.00	9,757.22	9,763.20	9,741.79	210.26	48.96	93.31	-683.91	-724.38	8,808.06	8,549.39	258.68	34.050		
18,800.00	9,757.62	9,763.60	9,742.19	212.35	48.97	93.36	-683.91	-724.38	8,907.90	8,647.14	260.76	34.162		
18,900.00	9,758.01	9,764.01	9,742.60	214.44	48.97	93.40	-683.91	-724.39	9,007.74	8,744.90	262.84	34.271		
19,000.00	9,758.41	9,764.42	9,743.00	216.53	48.97	93.45	-683.91	-724.39	9,107.58	8,842.66	264.92	34.378		
19,100.00	9,758.81	9,764.82	9,743.41	218.62	48.97	93.49	-683.91	-724.39	9,207.43	8,940.42	267.01	34.484		
19,200.00	9,759.20	9,765.23	9,743.82	220.72	48.97	93.54	-683.91	-724.39	9,307.28	9,038.19	269.09	34.588		
19,300.00	9,759.60	9,765.64	9,744.22	222.82	48.98	93.58	-683.91	-724.40	9,407.13	9,135.95	271.18	34.690		
19,400.00	9,759.99	9,766.05	9,744.63	224.91	48.98	93.63	-683.91	-724.40	9,506.98	9,233.72	273.26	34.791		
19,500.00	9,760.39	9,766.46	9,745.04	227.01	48.98	93.68	-683.91	-724.40	9,606.84	9,331.49	275.35	34.890		
19,600.00	9,760.78	9,766.87	9,745.45	229.11	48.98	93.72	-683.91	-724.41	9,706.70	9,429.27	277.44	34.987		
19,700.00	9,761.18	9,767.28	9,745.87	231.21	48.98	93.77	-683.91	-724.41	9,806.57	9,527.04	279.52	35.083		
19,800.00	9,761.58	9,767.69	9,746.28	233.31	48.99	93.81	-683.91	-724.41	9,906.43	9,624.82	281.61	35.177		

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - ST01 / Job #61221 - Surveys (Patterson 815)												Offset Site Error:	0.00 usft
Survey Program: 170-MWD, 497-MWD+HDGM, 9131-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 +N/-S (usft)	Centra +E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	-124.97	-633.01	-905.00	1,104.46				
100.00	100.00	93.16	93.16	0.19	0.13	-124.97	-632.93	-904.89	1,104.28	1,103.96	0.33	3,395.052	
200.00	200.00	200.50	200.50	0.73	0.34	-124.97	-632.62	-904.46	1,103.79	1,102.72	1.07	1,028.102	
300.00	300.00	308.84	308.82	1.27	0.70	-125.00	-632.05	-902.79	1,102.21	1,100.24	1.97	559.727	
400.00	400.00	410.33	410.28	1.81	0.97	-125.10	-632.68	-900.31	1,100.57	1,097.80	2.77	397.086	
500.00	500.00	517.31	517.21	2.34	1.21	-125.22	-633.24	-897.05	1,098.38	1,094.82	3.55	309.054	
600.00	600.00	620.68	620.50	2.88	1.55	-125.37	-634.05	-893.15	1,095.75	1,091.31	4.43	247.070	
700.00	700.00	724.78	724.48	3.42	1.95	-125.58	-635.52	-888.33	1,092.80	1,087.43	5.37	203.525	
800.00	800.00	823.95	823.45	3.96	2.42	-125.87	-638.05	-882.54	1,089.54	1,083.16	6.38	170.798	
900.00	900.00	914.39	913.64	4.50	2.88	-126.19	-641.63	-876.95	1,086.87	1,079.49	7.37	147.403	
1,000.00	1,000.00	1,002.31	1,001.32	5.03	3.33	-126.52	-645.83	-872.10	1,085.25	1,076.89	8.37	129.718	
1,070.37	1,070.37	1,061.00	1,059.88	5.41	3.64	-126.73	-648.74	-869.45	1,084.81	1,075.76	9.05	119.860	
1,100.00	1,100.00	1,085.30	1,084.14	5.57	3.77	-126.81	-649.93	-868.60	1,084.86	1,075.52	9.33	116.233	
1,200.00	1,200.00	1,156.00	1,154.76	6.11	4.13	-126.97	-653.12	-867.72	1,086.63	1,076.39	10.23	106.212	
1,300.00	1,300.00	1,230.21	1,228.89	6.65	4.49	-127.02	-655.84	-869.62	1,090.92	1,079.79	11.13	98.055	
1,400.00	1,400.00	1,297.81	1,296.32	7.18	4.82	-126.98	-658.06	-873.87	1,097.94	1,085.95	11.99	91.599	
1,500.00	1,500.00	1,376.68	1,374.78	7.72	5.20	-126.93	-662.04	-880.75	1,107.83	1,094.92	12.90	85.849	
1,600.00	1,600.00	1,472.00	1,469.60	8.26	5.68	-126.91	-667.50	-888.75	1,118.00	1,104.09	13.91	80.349	
1,700.00	1,700.00	1,550.99	1,548.02	8.80	6.08	-126.98	-674.30	-895.41	1,129.87	1,115.02	14.85	76.067	
1,800.00	1,800.00	1,721.53	1,717.15	9.33	7.02	-127.57	-694.45	-902.66	1,141.21	1,124.93	16.28	70.078	
1,900.00	1,899.98	1,908.22	1,903.20	9.85	8.04	17.22	-707.85	-897.56	1,141.50	1,123.65	17.84	63.967	
2,000.00	1,999.84	2,095.27	2,090.01	10.34	8.97	17.38	-703.42	-890.36	1,132.47	1,113.20	19.27	58.770	
2,100.00	2,099.45	2,246.55	2,240.17	10.84	9.73	17.53	-694.94	-874.19	1,112.02	1,091.52	20.49	54.264	
2,200.00	2,198.70	2,349.98	2,342.56	11.34	10.25	17.73	-688.50	-861.05	1,086.75	1,065.31	21.45	50.673	
2,300.00	2,297.73	2,450.05	2,441.54	11.86	10.77	17.80	-682.02	-847.83	1,059.35	1,036.90	22.45	47.186	
2,400.00	2,396.76	2,548.15	2,538.52	12.38	11.29	17.82	-676.16	-834.22	1,031.73	1,008.28	23.45	43.992	
2,500.00	2,495.78	2,645.07	2,634.26	12.92	11.82	17.79	-671.05	-820.06	1,003.96	979.50	24.46	41.044	
2,600.00	2,594.81	2,733.19	2,721.29	13.46	12.32	17.71	-667.18	-806.86	976.46	951.02	25.43	38.394	
2,700.00	2,693.84	2,816.27	2,803.51	14.00	12.78	17.64	-663.95	-795.31	950.07	923.69	26.38	36.010	
2,800.00	2,792.86	2,902.05	2,888.57	14.55	13.27	17.59	-661.07	-784.60	925.08	897.72	27.36	33.815	
2,900.00	2,891.89	2,992.24	2,978.11	15.11	13.77	17.56	-658.27	-774.13	900.91	872.56	28.36	31.770	
3,000.00	2,990.92	3,084.62	3,069.90	15.67	14.29	17.55	-655.56	-764.11	877.44	848.07	29.37	29.875	
3,100.00	3,089.94	3,180.29	3,164.99	16.23	14.83	17.55	-652.80	-754.04	854.26	823.85	30.41	28.094	
3,200.00	3,188.97	3,278.71	3,262.85	16.80	15.39	17.55	-649.97	-743.84	831.20	799.74	31.46	26.420	
3,300.00	3,288.00	3,380.82	3,364.30	17.37	15.96	17.54	-646.95	-732.71	807.67	775.13	32.54	24.821	
3,400.00	3,387.02	3,480.99	3,463.77	17.94	16.53	17.50	-643.85	-721.24	783.64	750.03	33.61	23.315	
3,500.00	3,486.05	3,571.37	3,553.51	18.52	17.05	17.47	-641.07	-710.89	759.64	725.01	34.63	21.936	
3,600.00	3,585.08	3,653.19	3,634.91	19.10	17.51	17.50	-638.79	-703.04	737.24	701.63	35.60	20.707	
3,700.00	3,684.10	3,732.75	3,714.27	19.68	17.94	17.65	-636.55	-697.86	717.19	680.63	36.56	19.617	
3,800.00	3,783.13	3,813.92	3,795.36	20.26	18.37	17.98	-633.97	-695.41	699.62	662.11	37.52	18.648	
3,900.00	3,882.16	3,905.40	3,886.78	20.84	18.84	18.52	-630.56	-694.97	683.77	645.25	38.52	17.751	
4,000.00	3,981.18	4,001.99	3,983.30	21.43	19.33	19.14	-627.10	-695.17	668.62	629.07	39.55	16.906	
4,100.00	4,080.21	4,097.36	4,078.64	22.02	19.81	19.68	-624.81	-695.04	653.96	613.38	40.58	16.115	
4,200.00	4,179.24	4,196.22	4,177.48	22.60	20.32	20.23	-622.86	-694.86	639.57	597.94	41.63	15.362	
4,300.00	4,278.26	4,293.96	4,275.20	23.19	20.82	20.83	-620.71	-694.96	625.35	582.67	42.68	14.651	
4,400.00	4,377.29	4,393.06	4,374.28	23.79	21.32	21.46	-618.67	-694.97	611.20	567.46	43.74	13.973	
4,500.00	4,476.32	4,489.97	4,471.17	24.38	21.82	22.11	-616.67	-695.21	597.33	552.54	44.79	13.336	
4,600.00	4,575.35	4,589.11	4,570.28	24.97	22.32	22.83	-614.48	-695.66	583.62	537.77	45.86	12.727	
4,700.00	4,674.37	4,687.97	4,669.12	25.56	22.83	23.55	-612.48	-695.94	569.97	523.05	46.92	12.147	
4,800.00	4,773.40	4,786.65	4,767.78	26.16	23.34	24.33	-610.36	-696.31	556.43	508.44	47.99	11.594	
4,900.00	4,872.43	4,884.63	4,865.73	26.76	23.84	25.17	-608.03	-696.86	543.03	493.97	49.06	11.069	
5,000.00	4,971.45	4,979.72	4,960.79	27.35	24.33	26.02	-605.98	-697.67	530.12	480.00	50.11	10.578	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - ST01 / Job #61221 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 497-MWD+HDGM, 9131-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,070.48	5,074.45	5,055.49	27.95	24.81	26.90	-604.46	-699.27	518.32	467.15	51.17	10.130	
5,200.00	5,169.51	5,172.89	5,153.90	28.55	25.30	27.89	-602.68	-701.33	506.92	454.68	52.24	9.703	
5,300.00	5,268.53	5,270.09	5,251.07	29.15	25.80	28.90	-601.18	-703.52	495.94	442.62	53.32	9.302	
5,400.00	5,367.66	5,366.77	5,347.70	29.74	26.28	29.81	-600.06	-705.96	486.21	431.73	54.48	8.925	
5,500.00	5,467.17	5,465.09	5,445.98	30.31	26.78	30.58	-599.07	-708.91	479.96	424.31	55.65	8.625	
5,600.00	5,566.96	5,564.38	5,545.21	30.86	27.28	31.21	-598.00	-711.95	476.81	420.05	56.76	8.401	
5,644.89	5,611.82	5,608.50	5,589.30	31.10	27.50	31.43	-597.60	-713.36	476.47	419.24	57.23	8.325	
5,700.00	5,666.91	5,664.21	5,644.99	31.39	27.78	31.63	-597.22	-715.09	476.89	419.08	57.81	8.250	
5,800.00	5,766.91	5,762.97	5,743.71	31.87	28.28	-113.60	-596.82	-718.00	479.26	420.44	58.82	8.147	
5,900.00	5,866.91	5,859.99	5,840.67	32.36	28.77	-113.40	-596.41	-721.41	482.31	422.49	59.82	8.063	
6,000.00	5,966.91	5,957.91	5,938.50	32.84	29.27	-113.16	-595.97	-725.45	485.93	425.10	60.82	7.989	
6,100.00	6,066.91	6,057.89	6,038.38	33.33	29.78	-112.90	-595.41	-729.85	489.76	427.92	61.84	7.920	
6,200.00	6,166.91	6,158.15	6,138.55	33.82	30.29	-112.67	-595.04	-734.07	493.50	430.65	62.85	7.851	
6,300.00	6,266.91	6,270.38	6,250.72	34.31	30.86	-112.61	-595.78	-737.04	496.22	432.28	63.93	7.762	
6,400.00	6,366.91	6,368.97	6,349.29	34.80	31.36	-112.85	-598.17	-737.50	497.59	432.65	64.94	7.662	
6,500.00	6,466.91	6,469.46	6,449.74	35.29	31.87	-113.09	-600.71	-738.05	499.08	433.13	65.95	7.567	
6,600.00	6,566.91	6,571.49	6,551.75	35.78	32.39	-113.31	-602.98	-738.44	500.31	433.33	66.98	7.469	
6,700.00	6,666.91	6,672.86	6,653.09	36.28	32.91	-113.56	-605.30	-738.43	501.20	433.19	68.01	7.370	
6,800.00	6,766.91	6,774.31	6,754.51	36.78	33.43	-113.84	-607.84	-738.01	501.84	432.80	69.04	7.269	
6,900.00	6,866.91	6,875.95	6,856.11	37.27	33.95	-114.17	-610.60	-737.11	502.13	432.06	70.07	7.166	
7,000.00	6,966.91	6,976.01	6,956.12	37.77	34.47	-114.52	-613.42	-735.96	502.24	431.15	71.10	7.064	
7,100.00	7,066.91	7,074.85	7,054.93	38.27	34.98	-114.83	-615.99	-735.08	502.52	430.40	72.12	6.968	
7,200.00	7,166.91	7,174.10	7,154.14	38.77	35.49	-115.09	-618.33	-734.53	503.01	429.87	73.14	6.877	
7,300.00	7,266.91	7,274.71	7,254.72	39.27	36.01	-115.38	-620.84	-733.94	503.55	429.37	74.18	6.788	
7,400.00	7,366.91	7,376.45	7,356.42	39.78	36.54	-115.69	-623.44	-733.01	503.83	428.61	75.22	6.698	
7,500.00	7,466.91	7,477.68	7,457.62	40.28	37.06	-115.99	-625.74	-731.85	503.78	427.52	76.26	6.606	
7,600.00	7,566.91	7,578.47	7,558.37	40.78	37.59	-116.33	-628.34	-730.33	503.56	426.27	77.30	6.515	
7,700.00	7,666.91	7,678.86	7,658.70	41.29	38.11	-116.74	-631.41	-728.42	503.23	424.90	78.34	6.424	
7,793.06	7,759.97	7,770.21	7,749.97	41.76	38.59	-117.16	-634.59	-726.59	503.04	423.74	79.29	6.344	
7,800.00	7,766.91	7,777.00	7,756.75	41.79	38.62	-117.19	-634.85	-726.46	503.04	423.67	79.37	6.338	
7,900.00	7,866.91	7,875.59	7,855.26	42.30	39.14	-117.65	-638.56	-724.75	503.23	422.84	80.40	6.259	
8,000.00	7,966.91	7,974.68	7,954.27	42.81	39.66	-118.10	-642.20	-723.30	503.66	422.23	81.43	6.185	
8,100.00	8,066.91	8,074.02	8,053.54	43.32	40.17	-118.50	-645.64	-722.12	504.26	421.79	82.47	6.115	
8,200.00	8,166.91	8,173.42	8,152.89	43.83	40.69	-118.86	-648.75	-721.26	505.00	421.49	83.51	6.047	
8,300.00	8,266.91	8,273.62	8,253.04	44.34	41.22	-119.18	-651.61	-720.55	505.77	421.22	84.55	5.982	
8,400.00	8,366.91	8,372.04	8,351.42	44.85	41.73	-119.49	-654.44	-719.99	506.68	421.09	85.58	5.920	
8,500.00	8,466.91	8,469.67	8,448.99	45.36	42.24	-119.83	-657.68	-719.65	508.02	421.40	86.61	5.865	
8,600.00	8,566.91	8,568.54	8,547.80	45.87	42.75	-120.21	-661.41	-719.41	509.69	422.04	87.65	5.815	
8,700.00	8,666.91	8,667.63	8,646.81	46.38	43.27	-120.60	-665.35	-719.27	511.59	422.90	88.69	5.768	
8,800.00	8,766.91	8,766.81	8,745.91	46.89	43.79	-121.00	-669.47	-719.14	513.61	423.88	89.73	5.724	
8,900.00	8,866.91	8,864.65	8,843.65	47.41	44.30	-121.41	-673.82	-719.20	515.96	425.20	90.77	5.685	
9,000.00	8,966.91	8,963.08	8,941.96	47.92	44.81	-121.84	-678.56	-719.47	518.72	426.92	91.80	5.650	
9,100.00	9,066.91	9,106.66	9,085.41	48.44	45.33	-122.16	-681.18	-718.32	519.70	426.86	92.84	5.598	
9,200.00	9,166.91	9,232.32	9,210.09	48.95	45.41	-120.98	-666.52	-714.51	510.77	417.33	93.44	5.466	
9,300.00	9,266.91	9,327.57	9,304.10	49.47	45.43	-119.61	-651.31	-712.49	500.81	406.83	93.98	5.329	
9,400.00	9,366.41	9,416.45	9,392.01	50.00	45.45	64.39	-638.23	-711.24	488.53	394.11	94.43	5.174	
9,500.00	9,462.91	9,504.42	9,479.16	50.57	45.48	69.71	-626.32	-710.69	471.63	376.86	94.78	4.976	
9,600.00	9,553.47	9,638.70	9,608.81	51.18	45.56	82.24	-593.12	-706.55	447.77	351.82	95.95	4.667	
9,700.00	9,635.34	9,693.96	9,658.54	51.81	45.60	90.37	-569.19	-704.45	429.80	332.89	96.91	4.435	
9,744.23	9,668.13	9,706.76	9,669.64	52.10	45.62	92.21	-562.85	-704.05	427.65	330.43	97.21	4.399 CC, ES, SF	
9,800.00	9,706.03	9,717.29	9,678.72	52.48	45.63	93.23	-557.51	-703.75	431.22	333.65	97.56	4.420	
9,900.00	9,763.40	9,723.20	9,683.79	53.18	45.63	91.51	-554.47	-703.60	455.35	357.03	98.32	4.631	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - ST01 / Job #61221 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 497-MWD+HDGM, 9131-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	
10,000.00	9,805.70	9,715.57	9,677.24	53.92	45.63	85.63	-558.39	-703.80	498.96	400.09	98.87	5.046	
10,100.00	9,831.65	9,696.00	9,660.32	54.69	45.61	76.38	-568.19	-704.39	555.73	458.11	97.62	5.693	
10,200.00	9,840.46	9,696.00	9,660.32	55.48	45.61	68.36	-568.19	-704.39	620.10	525.26	94.84	6.539	
10,300.00	9,838.50	9,656.21	9,624.88	56.31	45.57	63.51	-586.20	-705.83	688.00	595.29	92.71	7.421	
10,400.00	9,836.40	9,638.74	9,608.85	57.22	45.56	61.89	-593.10	-706.55	762.37	669.93	92.44	8.247	
10,500.00	9,834.31	9,603.00	9,575.28	58.19	45.53	58.65	-605.23	-708.19	842.00	751.08	90.92	9.260	
10,600.00	9,832.21	9,603.00	9,575.28	59.22	45.53	58.65	-605.23	-708.19	923.89	832.02	91.87	10.057	
10,700.00	9,830.12	9,603.00	9,575.28	60.31	45.53	58.65	-605.23	-708.19	1,009.05	916.19	92.87	10.866	
10,800.00	9,828.02	9,603.00	9,575.28	61.46	45.53	58.65	-605.23	-708.19	1,096.72	1,002.81	93.91	11.678	
10,900.00	9,825.93	9,603.00	9,575.28	62.66	45.53	58.65	-605.23	-708.19	1,186.34	1,091.33	95.01	12.486	
11,000.00	9,823.83	9,567.99	9,541.61	63.91	45.51	55.62	-614.72	-709.61	1,276.07	1,182.50	93.57	13.637	
11,100.00	9,821.74	9,559.78	9,533.63	65.21	45.51	54.93	-616.62	-709.66	1,367.74	1,273.63	94.11	14.533	
11,200.00	9,819.64	9,552.45	9,526.48	66.55	45.50	54.32	-618.23	-710.06	1,460.38	1,365.63	94.74	15.414	
11,300.00	9,817.54	9,545.86	9,520.03	67.93	45.50	53.78	-619.58	-710.21	1,553.82	1,458.37	95.46	16.278	
11,400.00	9,815.45	9,508.00	9,482.71	69.36	45.48	50.75	-625.85	-710.67	1,649.09	1,555.38	93.71	17.597	
11,500.00	9,813.35	9,508.00	9,482.71	70.82	45.48	50.75	-625.85	-710.67	1,743.45	1,648.48	94.97	18.358	
11,600.00	9,811.26	9,508.00	9,482.71	72.32	45.48	50.75	-625.85	-710.67	1,838.40	1,742.14	96.26	19.099	
11,700.00	9,809.16	9,508.00	9,482.71	73.85	45.48	50.75	-625.85	-710.67	1,933.86	1,836.29	97.57	19.819	
11,800.00	9,807.07	9,508.00	9,482.71	75.41	45.48	50.75	-625.85	-710.67	2,029.76	1,930.85	98.92	20.520	
11,900.00	9,804.97	9,508.00	9,482.71	77.00	45.48	50.75	-625.85	-710.67	2,126.04	2,025.76	100.28	21.201	
12,000.00	9,802.88	9,508.00	9,482.71	78.61	45.48	50.75	-625.85	-710.67	2,222.64	2,120.98	101.67	21.862	
12,100.00	9,800.78	9,508.00	9,482.71	80.25	45.48	50.75	-625.85	-710.67	2,319.54	2,216.46	103.08	22.503	
12,200.00	9,798.68	9,503.62	9,478.37	81.92	45.48	50.41	-626.43	-710.69	2,416.68	2,312.55	104.13	23.208	
12,300.00	9,796.59	9,484.92	9,459.83	83.61	45.48	49.00	-628.90	-710.76	2,513.97	2,409.99	103.97	24.179	
12,400.00	9,794.49	9,465.82	9,440.91	85.32	45.47	47.63	-631.46	-710.86	2,611.35	2,507.55	103.80	25.158	
12,500.00	9,792.40	9,446.31	9,421.58	87.05	45.46	46.28	-634.11	-710.99	2,708.81	2,605.20	103.61	26.145	
12,600.00	9,790.30	9,426.37	9,401.83	88.80	45.46	44.97	-636.85	-711.15	2,806.34	2,702.93	103.40	27.139	
12,700.00	9,788.21	9,401.86	9,377.55	90.56	45.45	43.44	-640.28	-711.38	2,903.92	2,801.05	102.87	28.229	
12,800.00	9,786.11	9,369.12	9,345.16	92.35	45.44	41.54	-645.01	-711.80	3,001.50	2,899.74	101.76	29.495	
12,900.00	9,784.02	9,333.86	9,310.31	94.15	45.43	39.65	-650.34	-712.38	3,099.05	2,998.46	100.59	30.810	
13,000.00	9,781.92	9,305.97	9,282.78	95.96	45.43	38.27	-654.70	-712.93	3,196.57	3,096.53	100.04	31.952	
13,100.00	9,779.82	9,283.28	9,260.38	97.79	45.42	37.21	-658.30	-713.40	3,294.11	3,194.20	99.91	32.970	
13,200.00	9,777.73	9,260.19	9,237.59	99.63	45.42	36.19	-662.00	-713.89	3,391.67	3,291.87	99.80	33.984	
13,300.00	9,775.63	9,236.69	9,214.41	101.48	45.41	35.20	-665.81	-714.41	3,489.25	3,389.54	99.71	34.993	
13,400.00	9,773.54	9,225.00	9,202.87	103.35	45.41	34.72	-667.71	-714.68	3,586.86	3,486.48	100.38	35.733	
13,500.00	9,771.44	9,225.00	9,202.87	105.22	45.41	34.72	-667.71	-714.68	3,684.58	3,582.82	101.76	36.208	
13,600.00	9,769.35	9,225.00	9,202.87	107.11	45.41	34.72	-667.71	-714.68	3,782.42	3,679.27	103.15	36.669	
13,700.00	9,767.25	9,225.00	9,202.87	109.01	45.41	34.72	-667.71	-714.68	3,880.37	3,775.82	104.55	37.116	
13,800.00	9,765.16	9,225.00	9,202.87	110.92	45.41	34.72	-667.71	-714.68	3,978.42	3,872.47	105.95	37.550	
13,900.00	9,763.06	9,225.00	9,202.87	112.83	45.41	34.72	-667.71	-714.68	4,076.57	3,969.21	107.36	37.971	
14,000.00	9,760.96	9,225.00	9,202.87	114.76	45.41	34.72	-667.71	-714.68	4,174.81	4,066.03	108.77	38.380	
14,100.00	9,758.87	9,225.00	9,202.87	116.69	45.41	34.72	-667.71	-714.68	4,273.12	4,162.93	110.20	38.778	
14,200.00	9,756.77	9,225.00	9,202.87	118.63	45.41	34.72	-667.71	-714.68	4,371.52	4,259.90	111.62	39.164	
14,300.00	9,754.68	9,225.00	9,202.87	120.58	45.41	34.72	-667.71	-714.68	4,469.98	4,356.93	113.05	39.540	
14,400.00	9,752.58	9,185.17	9,163.49	122.54	45.40	33.20	-673.57	-715.71	4,567.67	4,455.72	111.95	40.802	
14,500.00	9,750.49	9,182.11	9,160.46	124.50	45.40	33.08	-673.97	-715.80	4,666.14	4,552.96	113.18	41.229	
14,600.00	9,748.39	9,179.15	9,157.52	126.47	45.40	32.98	-674.34	-715.89	4,764.65	4,650.24	114.41	41.644	
14,700.00	9,746.29	9,176.28	9,154.68	128.44	45.40	32.87	-674.70	-715.97	4,863.22	4,747.57	115.66	42.048	
14,800.00	9,744.20	9,173.51	9,151.93	130.42	45.40	32.77	-675.04	-716.06	4,961.84	4,844.93	116.91	42.442	
14,900.00	9,742.39	9,170.87	9,149.31	132.41	45.40	32.71	-675.36	-716.14	5,060.54	4,934.53	126.00	40.163	
15,000.00	9,742.58	9,131.00	9,109.68	134.39	45.40	39.72	-679.44	-717.51	5,160.16	5,028.65	131.52	39.236	
15,100.00	9,742.98	9,131.00	9,109.68	136.38	45.40	39.72	-679.44	-717.51	5,259.03	5,125.98	133.05	39.527	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 14HD - ST01 / Job #61221 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 497-MWD+HDGM, 9131-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	
15,200.00	9,743.38	9,131.00	9,109.68	138.38	45.40	39.72	-679.44	-717.51	5,357.93	5,223.34	134.59	39.810	
15,300.00	9,743.77	9,131.00	9,109.68	140.38	45.40	39.72	-679.44	-717.51	5,456.87	5,320.74	136.13	40.086	
15,400.00	9,744.17	9,131.00	9,109.68	142.39	45.40	39.72	-679.44	-717.51	5,555.86	5,418.18	137.68	40.355	
15,500.00	9,744.56	9,131.00	9,109.68	144.40	45.40	39.72	-679.44	-717.51	5,654.87	5,515.65	139.22	40.617	
15,600.00	9,744.96	9,131.00	9,109.68	146.41	45.40	39.72	-679.44	-717.51	5,753.93	5,613.15	140.77	40.874	
15,700.00	9,745.35	9,131.00	9,109.68	148.43	45.40	39.72	-679.44	-717.51	5,853.01	5,710.68	142.33	41.124	
15,800.00	9,745.75	9,131.00	9,109.68	150.45	45.40	39.72	-679.44	-717.51	5,952.13	5,808.24	143.88	41.368	
15,900.00	9,746.14	9,131.00	9,109.68	152.48	45.40	39.72	-679.44	-717.51	6,051.27	5,905.83	145.44	41.606	
16,000.00	9,746.54	9,131.00	9,109.68	154.51	45.40	39.72	-679.44	-717.51	6,150.44	6,003.44	147.00	41.839	
16,100.00	9,746.94	9,131.00	9,109.68	156.54	45.40	39.72	-679.44	-717.51	6,249.64	6,101.07	148.57	42.066	
16,200.00	9,747.33	9,131.00	9,109.68	158.58	45.40	39.72	-679.44	-717.51	6,348.86	6,198.73	150.13	42.288	
16,300.00	9,747.73	9,131.00	9,109.68	160.61	45.40	39.72	-679.44	-717.51	6,448.11	6,296.41	151.70	42.505	
16,400.00	9,748.12	9,131.00	9,109.68	162.66	45.40	39.72	-679.44	-717.51	6,547.38	6,394.11	153.27	42.718	
16,500.00	9,748.52	9,131.00	9,109.68	164.70	45.40	39.72	-679.44	-717.51	6,646.67	6,491.83	154.84	42.925	
16,600.00	9,748.91	9,131.00	9,109.68	166.75	45.40	39.72	-679.44	-717.51	6,745.98	6,589.57	156.42	43.128	
16,700.00	9,749.31	9,131.00	9,109.68	168.80	45.40	39.72	-679.44	-717.51	6,845.32	6,687.32	157.99	43.327	
16,800.00	9,749.71	9,131.00	9,109.68	170.85	45.40	39.72	-679.44	-717.51	6,944.67	6,785.10	159.57	43.521	
16,900.00	9,750.10	9,131.00	9,109.68	172.91	45.40	39.72	-679.44	-717.51	7,044.04	6,882.89	161.15	43.711	
17,000.00	9,750.50	9,131.00	9,109.68	174.97	45.40	39.72	-679.44	-717.51	7,143.43	6,980.70	162.73	43.897	
17,100.00	9,750.89	9,131.00	9,109.68	177.03	45.40	39.72	-679.44	-717.51	7,242.83	7,078.52	164.31	44.079	
17,200.00	9,751.29	9,131.00	9,109.68	179.09	45.40	39.72	-679.44	-717.51	7,342.25	7,176.36	165.90	44.257	
17,300.00	9,751.68	9,131.00	9,109.68	181.15	45.40	39.72	-679.44	-717.51	7,441.69	7,274.21	167.49	44.432	
17,400.00	9,752.08	9,131.00	9,109.68	183.22	45.40	39.72	-679.44	-717.51	7,541.14	7,372.07	169.07	44.603	
17,500.00	9,752.48	9,131.00	9,109.68	185.29	45.40	39.72	-679.44	-717.51	7,640.61	7,469.95	170.66	44.771	
17,600.00	9,752.87	9,131.00	9,109.68	187.36	45.40	39.72	-679.44	-717.51	7,740.09	7,567.84	172.25	44.935	
17,700.00	9,753.27	9,131.00	9,109.68	189.43	45.40	39.72	-679.44	-717.51	7,839.58	7,665.74	173.84	45.096	
17,800.00	9,753.66	9,131.00	9,109.68	191.51	45.40	39.72	-679.44	-717.51	7,939.09	7,763.65	175.44	45.254	
17,900.00	9,754.06	9,131.00	9,109.68	193.59	45.40	39.72	-679.44	-717.51	8,038.60	7,861.57	177.03	45.408	
18,000.00	9,754.45	9,131.00	9,109.68	195.66	45.40	39.72	-679.44	-717.51	8,138.13	7,959.51	178.62	45.560	
18,100.00	9,754.85	9,131.00	9,109.68	197.74	45.40	39.72	-679.44	-717.51	8,237.67	8,057.45	180.22	45.709	
18,200.00	9,755.25	9,131.00	9,109.68	199.82	45.40	39.72	-679.44	-717.51	8,337.23	8,155.41	181.82	45.855	
18,300.00	9,755.64	9,131.00	9,109.68	201.91	45.40	39.72	-679.44	-717.51	8,436.79	8,253.37	183.42	45.998	
18,400.00	9,756.04	9,131.00	9,109.68	203.99	45.40	39.72	-679.44	-717.51	8,536.36	8,351.35	185.02	46.139	
18,500.00	9,756.43	9,131.00	9,109.68	206.08	45.40	39.72	-679.44	-717.51	8,635.94	8,449.33	186.62	46.277	
18,600.00	9,756.83	9,131.00	9,109.68	208.17	45.40	39.72	-679.44	-717.51	8,735.54	8,547.32	188.22	46.412	
18,700.00	9,757.22	9,131.00	9,109.68	210.26	45.40	39.72	-679.44	-717.51	8,835.14	8,645.32	189.82	46.545	
18,800.00	9,757.62	9,131.00	9,109.68	212.35	45.40	39.72	-679.44	-717.51	8,934.75	8,743.33	191.42	46.675	
18,900.00	9,758.01	9,131.00	9,109.68	214.44	45.40	39.72	-679.44	-717.51	9,034.37	8,841.34	193.03	46.804	
19,000.00	9,758.41	9,131.00	9,109.68	216.53	45.40	39.72	-679.44	-717.51	9,133.99	8,939.36	194.63	46.930	
19,100.00	9,758.81	9,131.00	9,109.68	218.62	45.40	39.72	-679.44	-717.51	9,233.63	9,037.39	196.24	47.053	
19,200.00	9,759.20	9,131.00	9,109.68	220.72	45.40	39.72	-679.44	-717.51	9,333.27	9,135.43	197.84	47.175	
19,300.00	9,759.60	9,131.00	9,109.68	222.82	45.40	39.72	-679.44	-717.51	9,432.92	9,233.47	199.45	47.294	
19,400.00	9,759.99	9,131.00	9,109.68	224.91	45.40	39.72	-679.44	-717.51	9,532.58	9,331.52	201.06	47.412	
19,500.00	9,760.39	9,131.00	9,109.68	227.01	45.40	39.72	-679.44	-717.51	9,632.25	9,429.58	202.67	47.527	
19,600.00	9,760.78	9,131.00	9,109.68	229.11	45.40	39.72	-679.44	-717.51	9,731.92	9,527.64	204.28	47.640	
19,700.00	9,761.18	9,131.00	9,109.68	231.21	45.40	39.72	-679.44	-717.51	9,831.60	9,625.71	205.89	47.752	
19,800.00	9,761.58	9,131.00	9,109.68	233.31	45.40	39.72	-679.44	-717.51	9,931.28	9,723.78	207.50	47.861	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 22HA - OH / Job #61217 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 434-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	
0.00	0.00	0.00	0.00	0.00	0.00	-120.47	-533.01	-906.00	1,051.23				
100.00	100.00	91.86	91.86	0.19	0.13	-120.47	-532.93	-905.85	1,051.00	1,050.67	0.32	3,241.026	
200.00	200.00	199.67	199.67	0.73	0.33	-120.47	-532.62	-905.25	1,050.39	1,049.32	1.06	986.809	
300.00	300.00	306.76	306.74	1.27	0.69	-120.51	-532.35	-903.23	1,048.80	1,046.65	1.95	536.376	
400.00	400.00	399.46	399.42	1.81	0.98	-120.61	-533.10	-901.24	1,047.16	1,044.38	2.79	375.548	
500.00	500.00	507.32	507.22	2.34	1.23	-120.76	-534.83	-898.68	1,045.97	1,042.39	3.57	292.740	
600.00	600.00	627.84	627.65	2.88	1.49	-120.97	-536.55	-894.13	1,043.52	1,039.14	4.37	238.617	
700.00	700.00	789.86	788.75	3.42	2.13	-121.66	-541.51	-878.11	1,036.56	1,031.02	5.55	186.908	
800.00	800.00	885.93	883.84	3.96	2.62	-122.23	-545.23	-864.92	1,026.91	1,020.34	6.57	156.223	
900.00	900.00	967.04	964.25	4.50	3.05	-122.68	-548.42	-854.85	1,018.50	1,010.96	7.55	134.983	
1,000.00	1,000.00	1,069.33	1,065.87	5.03	3.61	-123.18	-551.66	-843.56	1,010.94	1,002.30	8.64	117.009	
1,100.00	1,100.00	1,179.86	1,175.76	5.57	4.21	-123.61	-552.94	-831.85	1,002.71	992.92	9.79	102.473	
1,200.00	1,200.00	1,284.79	1,280.03	6.11	4.80	-124.01	-553.34	-820.05	993.55	982.64	10.91	91.095	
1,300.00	1,300.00	1,385.65	1,380.30	6.65	5.36	-124.34	-552.87	-809.20	984.38	972.37	12.01	81.983	
1,400.00	1,400.00	1,486.51	1,480.58	7.18	5.93	-124.62	-551.32	-798.49	974.73	961.63	13.11	74.371	
1,500.00	1,500.00	1,576.09	1,569.68	7.72	6.43	-124.88	-550.18	-789.39	965.67	951.52	14.14	68.285	
1,600.00	1,600.00	1,673.04	1,666.23	8.26	6.97	-125.14	-549.43	-780.51	957.71	942.49	15.22	62.932	
1,700.00	1,700.00	1,790.00	1,782.54	8.80	7.63	-125.51	-548.36	-768.36	948.68	932.27	16.42	57.789	
1,800.00	1,800.00	1,880.16	1,872.11	9.33	8.14	-125.83	-547.44	-758.09	938.86	921.39	17.47	53.748	
1,900.00	1,899.98	1,961.30	1,952.89	9.85	8.60	19.44	-547.04	-750.39	929.25	911.04	18.21	51.040	
2,000.00	1,999.84	2,048.71	2,040.05	10.34	9.08	19.39	-546.79	-743.97	918.18	899.06	19.12	48.019	
2,100.00	2,099.45	2,146.48	2,137.60	10.84	9.62	19.42	-546.56	-737.42	904.44	884.37	20.07	45.063	
2,200.00	2,198.70	2,247.27	2,238.16	11.34	10.17	19.57	-546.18	-730.64	887.35	866.33	21.01	42.225	
2,300.00	2,297.73	2,348.46	2,339.11	11.86	10.72	19.64	-545.57	-723.60	868.32	846.26	22.05	39.372	
2,400.00	2,396.76	2,449.51	2,439.89	12.38	11.28	19.72	-544.72	-716.32	848.95	825.85	23.10	36.753	
2,500.00	2,495.78	2,549.77	2,539.87	12.92	11.83	19.80	-543.64	-708.88	829.27	805.13	24.15	34.346	
2,600.00	2,594.81	2,656.03	2,645.79	13.46	12.42	19.88	-542.32	-700.42	809.09	783.86	25.23	32.069	
2,700.00	2,693.84	2,763.45	2,752.70	14.00	13.03	19.88	-541.17	-690.12	787.70	761.37	26.33	29.914	
2,800.00	2,792.86	2,860.81	2,849.51	14.55	13.59	19.82	-540.40	-679.88	765.72	738.34	27.39	27.960	
2,900.00	2,891.89	2,957.74	2,945.92	15.11	14.15	19.77	-539.60	-669.78	743.81	715.37	28.44	26.153	
3,000.00	2,990.92	3,054.86	3,042.53	15.67	14.71	19.73	-538.58	-659.92	721.98	692.48	29.50	24.476	
3,100.00	3,089.94	3,154.69	3,141.83	16.23	15.28	19.71	-537.34	-649.75	700.02	669.45	30.57	22.898	
3,200.00	3,188.97	3,254.49	3,241.08	16.80	15.85	19.68	-535.93	-639.32	677.74	646.10	31.65	21.416	
3,300.00	3,288.00	3,353.17	3,339.17	17.37	16.42	19.65	-534.33	-628.71	655.11	622.39	32.72	20.022	
3,400.00	3,387.02	3,443.70	3,429.18	17.94	16.94	19.61	-533.20	-619.17	632.88	599.13	33.75	18.752	
3,500.00	3,486.05	3,524.00	3,509.16	18.52	17.40	19.56	-533.23	-611.92	612.59	577.87	34.72	17.642	
3,600.00	3,585.08	3,605.00	3,589.99	19.10	17.84	19.55	-534.27	-606.75	595.12	559.42	35.70	16.671	
3,700.00	3,684.10	3,691.73	3,676.65	19.68	18.29	19.65	-535.84	-603.78	580.29	543.60	36.69	15.815	
3,800.00	3,783.13	3,786.73	3,771.63	20.26	18.77	19.90	-537.31	-602.37	566.88	529.16	37.72	15.027	
3,900.00	3,882.16	3,883.29	3,868.18	20.84	19.24	20.25	-538.38	-601.75	553.91	515.17	38.75	14.295	
4,000.00	3,981.18	3,981.78	3,966.66	21.43	19.72	20.71	-538.96	-601.88	541.31	501.53	39.78	13.609	
4,100.00	4,080.21	4,080.78	4,065.66	22.02	20.19	21.18	-539.65	-601.97	528.76	487.96	40.80	12.958	
4,200.00	4,179.24	4,179.57	4,164.45	22.60	20.67	21.68	-540.41	-602.07	516.30	474.46	41.84	12.340	
4,300.00	4,278.26	4,278.34	4,263.22	23.19	21.14	22.20	-541.13	-602.27	503.94	461.06	42.88	11.754	
4,400.00	4,377.29	4,376.35	4,361.22	23.79	21.62	22.76	-541.86	-602.62	491.77	447.86	43.91	11.200	
4,500.00	4,476.32	4,474.76	4,459.63	24.38	22.09	23.34	-542.73	-603.12	479.84	434.90	44.94	10.677	
4,600.00	4,575.35	4,573.58	4,558.44	24.97	22.57	23.96	-543.66	-603.72	468.08	422.10	45.98	10.179	
4,700.00	4,674.37	4,672.08	4,656.93	25.56	23.04	24.62	-544.46	-604.51	456.47	409.45	47.02	9.708	
4,800.00	4,773.40	4,769.70	4,754.55	26.16	23.51	25.34	-545.28	-605.58	445.19	397.14	48.06	9.263	
4,900.00	4,872.43	4,867.52	4,852.35	26.76	23.98	26.10	-546.20	-606.98	434.34	385.24	49.10	8.846	
5,000.00	4,971.45	4,965.99	4,950.80	27.35	24.45	26.89	-547.32	-608.54	423.79	373.64	50.15	8.451	
5,100.00	5,070.48	5,064.22	5,049.01	27.95	24.93	27.69	-548.75	-610.19	413.55	362.35	51.20	8.077	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 22HA - OH / Job #61217 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 434-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,169.51	5,162.58	5,147.33	28.55	25.41	28.51	-550.39	-612.00	403.65	351.38	52.26	7.723	
5,300.00	5,268.53	5,261.36	5,246.09	29.15	25.89	29.38	-552.15	-614.02	394.05	340.72	53.33	7.389	
5,400.00	5,367.66	5,361.49	5,346.18	29.74	26.38	30.28	-553.29	-616.35	385.21	330.71	54.50	7.068	
5,500.00	5,467.17	5,460.87	5,445.52	30.31	26.86	31.06	-553.73	-618.74	379.08	323.42	55.66	6.810	
5,600.00	5,566.96	5,558.58	5,543.20	30.86	27.34	31.61	-554.36	-621.53	376.49	319.73	56.76	6.633	
5,624.19	5,591.13	5,582.36	5,566.96	30.99	27.46	31.71	-554.55	-622.27	376.39	319.37	57.01	6.602	
5,700.00	5,666.91	5,663.01	5,647.58	31.39	27.85	31.93	-555.12	-624.53	376.97	319.14	57.83	6.519	
5,800.00	5,766.91	5,778.46	5,763.02	31.87	28.43	-113.42	-554.77	-624.80	376.93	318.01	58.92	6.397	
5,900.00	5,866.91	5,880.34	5,864.86	32.36	28.97	-113.40	-553.53	-622.28	374.17	314.22	59.95	6.241	
6,000.00	5,966.91	5,979.01	5,963.49	32.84	29.49	-113.36	-552.36	-620.12	371.69	310.72	60.97	6.096	
6,100.00	6,066.91	6,077.37	6,061.84	33.33	30.00	-113.29	-551.09	-618.42	369.59	307.61	61.98	5.963	
6,200.00	6,166.91	6,176.00	6,160.45	33.82	30.51	-113.20	-549.96	-617.13	367.93	304.93	63.00	5.840	
6,300.00	6,266.91	6,275.39	6,259.83	34.31	31.03	-113.19	-549.32	-615.89	366.53	302.51	64.02	5.725	
6,400.00	6,366.91	6,374.29	6,358.72	34.80	31.55	-113.18	-548.81	-614.83	365.34	300.30	65.05	5.617	
6,500.00	6,466.91	6,473.46	6,457.89	35.29	32.07	-113.14	-548.21	-614.10	364.43	298.36	66.07	5.516	
6,600.00	6,566.91	6,573.39	6,557.81	35.78	32.59	-113.08	-547.53	-613.49	363.60	296.50	67.10	5.419	
6,700.00	6,666.91	6,672.42	6,656.84	36.28	33.10	-113.01	-546.88	-613.06	362.94	294.82	68.12	5.328	
6,800.00	6,766.91	6,771.15	6,755.57	36.78	33.61	-112.93	-546.25	-612.89	362.54	293.40	69.14	5.244	
6,825.50	6,792.41	6,795.98	6,780.40	36.90	33.73	-112.91	-546.13	-612.91	362.51	293.12	69.39	5.224	
6,900.00	6,866.91	6,869.41	6,853.83	37.27	34.10	-112.87	-545.93	-613.18	362.68	292.54	70.14	5.171	
7,000.00	6,966.91	6,969.64	6,954.06	37.77	34.60	-112.83	-545.81	-613.50	362.93	291.78	71.16	5.101	
7,100.00	7,066.91	7,070.39	7,054.81	38.27	35.11	-112.79	-545.65	-613.78	363.13	290.95	72.18	5.031	
7,200.00	7,166.91	7,171.29	7,155.71	38.77	35.63	-112.73	-545.23	-613.78	362.96	289.76	73.21	4.958	
7,300.00	7,266.91	7,271.29	7,255.71	39.27	36.14	-112.65	-544.69	-613.78	362.75	288.52	74.23	4.887	
7,400.00	7,366.91	7,371.83	7,356.24	39.78	36.66	-112.58	-544.16	-613.70	362.48	287.22	75.27	4.816	
7,500.00	7,466.91	7,471.81	7,456.22	40.28	37.18	-112.57	-543.94	-613.35	362.08	285.77	76.30	4.745	
7,600.00	7,566.91	7,571.80	7,556.21	40.78	37.71	-112.70	-544.59	-612.72	361.74	284.40	77.34	4.677	
7,700.00	7,666.91	7,673.33	7,657.73	41.29	38.24	-112.96	-545.92	-611.59	361.22	282.83	78.39	4.608	
7,800.00	7,766.91	7,773.59	7,757.94	41.79	38.77	-113.40	-548.09	-609.72	360.36	280.93	79.43	4.537	
7,900.00	7,866.91	7,872.00	7,856.28	42.30	39.28	-113.97	-551.12	-607.70	359.72	279.25	80.46	4.471	
8,000.00	7,966.91	7,970.89	7,955.09	42.81	39.80	-114.63	-554.80	-605.82	359.52	278.02	81.50	4.411	
8,012.75	7,979.66	7,983.47	7,967.67	42.87	39.87	-114.71	-555.31	-605.58	359.51	277.88	81.63	4.404	
8,100.00	8,066.91	8,068.99	8,053.07	43.32	40.32	-115.37	-559.11	-604.05	359.73	277.20	82.53	4.359	
8,200.00	8,166.91	8,167.44	8,151.40	43.83	40.84	-116.16	-563.95	-602.53	360.48	276.92	83.56	4.314	
8,300.00	8,266.91	8,255.58	8,239.47	44.34	41.28	-116.43	-566.48	-603.83	363.08	278.55	84.53	4.295	
8,400.00	8,366.91	8,366.19	8,349.99	44.85	41.85	-116.67	-569.26	-606.08	366.04	280.43	85.62	4.275	
8,500.00	8,466.91	8,464.31	8,447.98	45.36	42.36	-117.41	-574.23	-605.26	367.61	280.96	86.65	4.243	
8,600.00	8,566.91	8,564.41	8,547.97	45.87	42.88	-118.04	-578.72	-605.22	369.66	281.97	87.69	4.216	
8,700.00	8,666.91	8,679.53	8,662.94	46.38	43.46	-117.40	-575.36	-607.64	370.26	281.46	88.80	4.170	
8,800.00	8,766.91	8,833.42	8,810.35	46.89	44.18	-111.15	-533.47	-611.06	360.33	270.23	90.11	3.999	
8,900.00	8,866.91	8,941.39	8,899.85	47.41	44.59	-101.63	-473.87	-613.72	344.68	253.45	91.22	3.778	
8,984.24	8,951.16	8,998.99	8,939.16	47.84	44.76	-94.56	-431.95	-616.65	338.72	246.70	92.02	3.681 CC, ES	
9,000.00	8,966.91	9,007.00	8,944.07	47.92	44.78	-93.49	-425.65	-617.16	338.96	246.81	92.15	3.678 SF	
9,100.00	9,066.91	9,007.00	8,944.07	48.44	44.78	-93.49	-425.65	-617.16	356.46	263.79	92.67	3.847	
9,200.00	9,166.91	9,007.00	8,944.07	48.95	44.78	-93.49	-425.65	-617.16	399.04	305.85	93.18	4.282	
9,300.00	9,266.91	9,007.00	8,944.07	49.47	44.78	-93.49	-425.65	-617.16	459.78	366.08	93.70	4.907	
9,400.00	9,366.41	9,007.00	8,944.07	50.00	44.78	77.05	-425.65	-617.16	531.94	437.94	94.00	5.659	
9,500.00	9,462.91	9,007.00	8,944.07	50.57	44.78	65.35	-425.65	-617.16	609.73	516.04	93.69	6.508	
9,600.00	9,553.47	9,007.00	8,944.07	51.18	44.78	54.04	-425.65	-617.16	689.29	597.79	91.50	7.533	
9,700.00	9,635.34	9,007.00	8,944.07	51.81	44.78	44.40	-425.65	-617.16	768.03	681.40	86.63	8.866	
9,800.00	9,706.03	9,007.00	8,944.07	52.48	44.78	36.78	-425.65	-617.16	844.12	764.82	79.30	10.645	
9,900.00	9,763.40	9,007.00	8,944.07	53.18	44.78	30.99	-425.65	-617.16	916.18	845.80	70.38	13.017	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 22HA - OH / Job #61217 - Surveys (Patterson 815)														Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 434-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		
10,000.00	9,805.70	9,007.00	8,944.07	53.92	44.78	26.65	-425.65	-617.16	983.14	922.02	61.12	16.085		
10,100.00	9,831.65	9,007.00	8,944.07	54.69	44.78	23.39	-425.65	-617.16	1,044.14	991.01	53.13	19.654		
10,200.00	9,840.46	9,007.00	8,944.07	55.48	44.78	20.95	-425.65	-617.16	1,098.45	1,050.07	48.38	22.704		
10,300.00	9,838.50	9,007.00	8,944.07	56.31	44.78	20.69	-425.65	-617.16	1,150.85	1,102.31	48.54	23.708		
10,400.00	9,836.40	9,007.00	8,944.07	57.22	44.78	20.69	-425.65	-617.16	1,209.16	1,160.07	49.09	24.631		
10,500.00	9,834.31	8,969.83	8,920.10	58.19	44.67	20.11	-453.95	-615.00	1,270.21	1,221.21	49.00	25.924		
10,600.00	9,832.21	8,928.00	8,889.79	59.22	44.55	19.46	-482.69	-613.24	1,336.90	1,288.04	48.86	27.359		
10,700.00	9,830.12	8,928.00	8,889.79	60.31	44.55	19.46	-482.69	-613.24	1,404.73	1,355.19	49.55	28.352		
10,800.00	9,828.02	8,928.00	8,889.79	61.46	44.55	19.46	-482.69	-613.24	1,476.22	1,425.95	50.27	29.366		
10,900.00	9,825.93	8,928.00	8,889.79	62.66	44.55	19.46	-482.69	-613.24	1,550.87	1,499.84	51.03	30.390		
11,000.00	9,823.83	8,928.00	8,889.79	63.91	44.55	19.46	-482.69	-613.24	1,628.24	1,576.41	51.83	31.414		
11,100.00	9,821.74	8,928.00	8,889.79	65.21	44.55	19.46	-482.69	-613.24	1,707.96	1,655.30	52.66	32.432		
11,200.00	9,819.64	8,881.96	8,852.80	66.55	44.37	18.75	-510.02	-611.93	1,786.20	1,733.56	52.64	33.934		
11,300.00	9,817.54	8,834.00	8,810.88	67.93	44.18	18.01	-533.22	-611.07	1,870.75	1,818.13	52.62	35.552		
11,400.00	9,815.45	8,834.00	8,810.88	69.36	44.18	18.01	-533.22	-611.07	1,953.26	1,899.73	53.53	36.490		
11,500.00	9,813.35	8,834.00	8,810.88	70.82	44.18	18.01	-533.22	-611.07	2,037.34	1,982.88	54.46	37.410		
11,600.00	9,811.26	8,834.00	8,810.88	72.32	44.18	18.01	-533.22	-611.07	2,122.80	2,067.38	55.42	38.307		
11,700.00	9,809.16	8,834.00	8,810.88	73.85	44.18	18.01	-533.22	-611.07	2,209.48	2,153.09	56.39	39.181		
11,800.00	9,807.07	8,834.00	8,810.88	75.41	44.18	18.01	-533.22	-611.07	2,297.24	2,239.86	57.39	40.031		
11,900.00	9,804.97	8,834.00	8,810.88	77.00	44.18	18.01	-533.22	-611.07	2,385.97	2,327.57	58.40	40.856		
12,000.00	9,802.88	8,834.00	8,810.88	78.61	44.18	18.01	-533.22	-611.07	2,475.56	2,416.13	59.43	41.656		
12,100.00	9,800.78	8,834.00	8,810.88	80.25	44.18	18.01	-533.22	-611.07	2,565.91	2,505.44	60.47	42.431		
12,200.00	9,798.68	8,834.00	8,810.88	81.92	44.18	18.01	-533.22	-611.07	2,656.96	2,595.43	61.53	43.181		
12,300.00	9,796.59	8,834.00	8,810.88	83.61	44.18	18.01	-533.22	-611.07	2,748.63	2,686.03	62.60	43.906		
12,400.00	9,794.49	8,834.00	8,810.88	85.32	44.18	18.01	-533.22	-611.07	2,840.86	2,777.17	63.69	44.607		
12,500.00	9,792.40	8,834.00	8,810.88	87.05	44.18	18.01	-533.22	-611.07	2,933.60	2,868.82	64.78	45.284		
12,600.00	9,790.30	8,834.00	8,810.88	88.80	44.18	18.01	-533.22	-611.07	3,026.80	2,960.92	65.89	45.939		
12,700.00	9,788.21	8,789.35	8,769.50	90.56	43.98	17.34	-549.92	-610.34	3,117.70	3,051.62	66.08	47.181		
12,800.00	9,786.11	8,785.44	8,765.80	92.35	43.96	17.28	-551.17	-610.26	3,211.22	3,144.10	67.12	47.845		
12,900.00	9,784.02	8,781.73	8,762.27	94.15	43.94	17.23	-552.32	-610.19	3,305.08	3,236.91	68.17	48.485		
13,000.00	9,781.92	8,739.00	8,720.98	95.96	43.75	16.59	-563.20	-609.13	3,401.34	3,332.92	68.42	49.711		
13,100.00	9,779.82	8,739.00	8,720.98	97.79	43.75	16.59	-563.20	-609.13	3,495.47	3,425.91	69.56	50.252		
13,200.00	9,777.73	8,739.00	8,720.98	99.63	43.75	16.59	-563.20	-609.13	3,589.91	3,519.21	70.70	50.776		
13,300.00	9,775.63	8,739.00	8,720.98	101.48	43.75	16.59	-563.20	-609.13	3,684.64	3,612.79	71.85	51.283		
13,400.00	9,773.54	8,739.00	8,720.98	103.35	43.75	16.59	-563.20	-609.13	3,779.65	3,706.64	73.00	51.773		
13,500.00	9,771.44	8,739.00	8,720.98	105.22	43.75	16.59	-563.20	-609.13	3,874.91	3,800.74	74.17	52.247		
13,600.00	9,769.35	8,730.00	8,712.30	107.11	43.71	16.46	-565.55	-608.92	3,970.39	3,895.24	75.15	52.832		
13,700.00	9,767.25	8,730.00	8,712.30	109.01	43.71	16.46	-565.55	-608.92	4,066.04	3,989.72	76.32	53.276		
13,800.00	9,765.16	8,730.00	8,712.30	110.92	43.71	16.46	-565.55	-608.92	4,161.89	4,084.39	77.49	53.706		
13,900.00	9,763.06	8,730.00	8,712.30	112.83	43.71	16.46	-565.55	-608.92	4,257.93	4,179.26	78.67	54.122		
14,000.00	9,760.96	8,730.00	8,712.30	114.76	43.71	16.46	-565.55	-608.92	4,354.15	4,274.29	79.86	54.525		
14,100.00	9,758.87	8,730.00	8,712.30	116.69	43.71	16.46	-565.55	-608.92	4,450.53	4,369.49	81.04	54.916		
14,200.00	9,756.77	8,730.00	8,712.30	118.63	43.71	16.46	-565.55	-608.92	4,547.08	4,464.84	82.23	55.295		
14,300.00	9,754.68	8,730.00	8,712.30	120.58	43.71	16.46	-565.55	-608.92	4,643.76	4,560.34	83.43	55.663		
14,400.00	9,752.58	8,710.54	8,693.57	122.54	43.61	16.19	-570.78	-608.49	4,739.56	4,655.34	84.22	56.273		
14,500.00	9,750.49	8,691.00	8,674.33	124.50	43.51	15.91	-574.09	-607.97	4,837.36	4,752.34	85.02	56.898		
14,600.00	9,748.39	8,691.00	8,674.33	126.47	43.51	15.91	-574.09	-607.97	4,934.25	4,848.03	86.22	57.232		
14,700.00	9,746.29	8,691.00	8,674.33	128.44	43.51	15.91	-574.09	-607.97	5,031.26	4,943.84	87.42	57.555		
14,800.00	9,744.20	8,691.00	8,674.33	130.42	43.51	15.91	-574.09	-607.97	5,128.39	5,039.77	88.62	57.870		
14,900.00	9,742.39	8,691.00	8,674.33	132.41	43.51	18.38	-574.09	-607.97	5,225.68	5,132.50	93.17	56.086		
15,000.00	9,742.58	8,691.00	8,674.33	134.39	43.51	20.68	-574.09	-607.97	5,323.41	5,225.64	97.78	54.444		
15,100.00	9,742.98	8,691.00	8,674.33	136.38	43.51	20.68	-574.09	-607.97	5,421.27	5,322.23	99.04	54.737		

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 22HA - OH / Job #61217 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 434-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centros (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 +N/-S (usft)	Centre +E/-W (usft)					
15,200.00	9,743.38	8,691.00	8,674.33	138.38	43.51	20.68	-574.09	-607.97	5,519.20	5,418.89	100.31	55.023	
15,300.00	9,743.77	8,691.00	8,674.33	140.38	43.51	20.68	-574.09	-607.97	5,617.20	5,515.63	101.57	55.301	
15,400.00	9,744.17	8,691.00	8,674.33	142.39	43.51	20.68	-574.09	-607.97	5,715.28	5,612.43	102.84	55.572	
15,500.00	9,744.56	8,691.00	8,674.33	144.40	43.51	20.68	-574.09	-607.97	5,813.41	5,709.30	104.12	55.836	
15,600.00	9,744.96	8,691.00	8,674.33	146.41	43.51	20.68	-574.09	-607.97	5,911.62	5,806.23	105.39	56.093	
15,700.00	9,745.35	8,691.00	8,674.33	148.43	43.51	20.68	-574.09	-607.97	6,009.88	5,903.21	106.67	56.343	
15,800.00	9,745.75	8,691.00	8,674.33	150.45	43.51	20.68	-574.09	-607.97	6,108.19	6,000.25	107.94	56.587	
15,900.00	9,746.14	8,691.00	8,674.33	152.48	43.51	20.68	-574.09	-607.97	6,206.56	6,097.34	109.22	56.825	
16,000.00	9,746.54	8,691.00	8,674.33	154.51	43.51	20.68	-574.09	-607.97	6,304.99	6,194.48	110.50	57.057	
16,100.00	9,746.94	8,691.00	8,674.33	156.54	43.51	20.68	-574.09	-607.97	6,403.46	6,291.67	111.79	57.283	
16,200.00	9,747.33	8,691.00	8,674.33	158.58	43.51	20.68	-574.09	-607.97	6,501.97	6,388.90	113.07	57.504	
16,300.00	9,747.73	8,691.00	8,674.33	160.61	43.51	20.68	-574.09	-607.97	6,600.54	6,486.18	114.36	57.719	
16,400.00	9,748.12	8,691.00	8,674.33	162.66	43.51	20.68	-574.09	-607.97	6,699.14	6,583.50	115.64	57.929	
16,500.00	9,748.52	8,691.00	8,674.33	164.70	43.51	20.68	-574.09	-607.97	6,797.79	6,680.85	116.93	58.134	
16,600.00	9,748.91	8,691.00	8,674.33	166.75	43.51	20.68	-574.09	-607.97	6,896.47	6,778.25	118.22	58.335	
16,700.00	9,749.31	8,691.00	8,674.33	168.80	43.51	20.68	-574.09	-607.97	6,995.19	6,875.68	119.51	58.531	
16,800.00	9,749.71	8,691.00	8,674.33	170.85	43.51	20.68	-574.09	-607.97	7,093.95	6,973.14	120.81	58.722	
16,900.00	9,750.10	8,691.00	8,674.33	172.91	43.51	20.68	-574.09	-607.97	7,192.74	7,070.64	122.10	58.909	
17,000.00	9,750.50	8,691.00	8,674.33	174.97	43.51	20.68	-574.09	-607.97	7,291.57	7,168.17	123.39	59.092	
17,100.00	9,750.89	8,691.00	8,674.33	177.03	43.51	20.68	-574.09	-607.97	7,390.42	7,265.73	124.69	59.271	
17,200.00	9,751.29	8,691.00	8,674.33	179.09	43.51	20.68	-574.09	-607.97	7,489.31	7,363.32	125.99	59.445	
17,300.00	9,751.68	8,691.00	8,674.33	181.15	43.51	20.68	-574.09	-607.97	7,588.23	7,460.94	127.28	59.616	
17,400.00	9,752.08	8,691.00	8,674.33	183.22	43.51	20.68	-574.09	-607.97	7,687.17	7,558.59	128.58	59.784	
17,500.00	9,752.48	8,691.00	8,674.33	185.29	43.51	20.68	-574.09	-607.97	7,786.14	7,656.26	129.88	59.948	
17,600.00	9,752.87	8,691.00	8,674.33	187.36	43.51	20.68	-574.09	-607.97	7,885.14	7,753.95	131.18	60.108	
17,700.00	9,753.27	8,691.00	8,674.33	189.43	43.51	20.68	-574.09	-607.97	7,984.16	7,851.68	132.48	60.265	
17,800.00	9,753.66	8,691.00	8,674.33	191.51	43.51	20.68	-574.09	-607.97	8,083.21	7,949.42	133.79	60.418	
17,900.00	9,754.06	8,691.00	8,674.33	193.59	43.51	20.68	-574.09	-607.97	8,182.28	8,047.19	135.09	60.569	
18,000.00	9,754.45	8,691.00	8,674.33	195.66	43.51	20.68	-574.09	-607.97	8,281.37	8,144.97	136.39	60.716	
18,100.00	9,754.85	8,691.00	8,674.33	197.74	43.51	20.68	-574.09	-607.97	8,380.48	8,242.78	137.70	60.861	
18,200.00	9,755.25	8,691.00	8,674.33	199.82	43.51	20.68	-574.09	-607.97	8,479.61	8,340.61	139.00	61.003	
18,300.00	9,755.64	8,691.00	8,674.33	201.91	43.51	20.68	-574.09	-607.97	8,578.77	8,438.46	140.31	61.141	
18,400.00	9,756.04	8,691.00	8,674.33	203.99	43.51	20.68	-574.09	-607.97	8,677.94	8,536.33	141.62	61.277	
18,500.00	9,756.43	8,691.00	8,674.33	206.08	43.51	20.68	-574.09	-607.97	8,777.13	8,634.21	142.92	61.411	
18,600.00	9,756.83	8,691.00	8,674.33	208.17	43.51	20.68	-574.09	-607.97	8,876.35	8,732.11	144.23	61.542	
18,700.00	9,757.22	8,691.00	8,674.33	210.26	43.51	20.68	-574.09	-607.97	8,975.57	8,830.03	145.54	61.670	
18,800.00	9,757.62	8,691.00	8,674.33	212.35	43.51	20.68	-574.09	-607.97	9,074.82	8,927.97	146.85	61.796	
18,900.00	9,758.01	8,691.00	8,674.33	214.44	43.51	20.68	-574.09	-607.97	9,174.08	9,025.92	148.16	61.920	
19,000.00	9,758.41	8,691.00	8,674.33	216.53	43.51	20.68	-574.09	-607.97	9,273.36	9,123.89	149.47	62.041	
19,100.00	9,758.81	8,691.00	8,674.33	218.62	43.51	20.68	-574.09	-607.97	9,372.65	9,221.87	150.78	62.160	
19,200.00	9,759.20	8,691.00	8,674.33	220.72	43.51	20.68	-574.09	-607.97	9,471.96	9,319.86	152.09	62.277	
19,300.00	9,759.60	8,691.00	8,674.33	222.82	43.51	20.68	-574.09	-607.97	9,571.28	9,417.87	153.41	62.392	
19,400.00	9,759.99	8,691.00	8,674.33	224.91	43.51	20.68	-574.09	-607.97	9,670.61	9,515.90	154.72	62.504	
19,500.00	9,760.39	8,691.00	8,674.33	227.01	43.51	20.68	-574.09	-607.97	9,769.96	9,613.93	156.03	62.615	
19,600.00	9,760.78	8,691.00	8,674.33	229.11	43.51	20.68	-574.09	-607.97	9,869.33	9,711.98	157.35	62.724	
19,700.00	9,761.18	8,691.00	8,674.33	231.21	43.51	20.68	-574.09	-607.97	9,968.70	9,810.04	158.66	62.830	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 5HC - OH / Job #61218 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 262-MWD, 430-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-121.63	-558.01	-906.00	1,064.12				
100.00	100.00	86.91	86.91	0.19	0.13	-121.63	-557.98	-906.07	1,064.10	1,063.77	0.32	3,278.987	
200.00	200.00	185.66	185.66	0.73	0.28	-121.61	-557.88	-906.32	1,064.26	1,063.25	1.01	1,052.650	
300.00	300.00	285.20	285.20	1.27	0.47	-121.60	-557.73	-906.73	1,064.53	1,062.80	1.73	613.879	
400.00	400.00	387.49	387.49	1.81	0.78	-121.63	-558.28	-906.58	1,064.68	1,062.10	2.59	411.812	
500.00	500.00	501.96	501.94	2.34	1.04	-121.72	-559.58	-905.21	1,064.29	1,060.91	3.38	314.793	
600.00	600.00	605.87	605.82	2.88	1.33	-121.83	-560.45	-902.81	1,062.77	1,058.56	4.21	252.259	
700.00	700.00	703.66	703.56	3.42	1.64	-121.97	-561.71	-899.98	1,061.00	1,055.94	5.06	209.801	
773.91	773.91	762.04	761.92	3.82	1.89	-122.04	-562.66	-898.88	1,060.46	1,054.75	5.71	185.792	
800.00	800.00	783.25	783.12	3.96	1.98	-122.07	-563.05	-898.70	1,060.53	1,054.58	5.94	178.494	
900.00	900.00	879.85	879.70	4.50	2.44	-122.17	-564.98	-898.19	1,061.14	1,054.21	6.93	153.062	
1,000.00	1,000.00	973.84	973.69	5.03	2.89	-122.21	-566.17	-898.62	1,062.20	1,054.28	7.92	134.124	
1,100.00	1,100.00	1,068.21	1,068.04	5.57	3.34	-122.15	-566.01	-900.54	1,063.83	1,054.92	8.91	119.409	
1,200.00	1,200.00	1,168.61	1,168.40	6.11	3.83	-122.04	-565.27	-903.21	1,065.69	1,055.75	9.94	107.215	
1,300.00	1,300.00	1,266.49	1,266.24	6.65	4.32	-121.94	-564.66	-905.71	1,067.53	1,056.57	10.96	97.395	
1,400.00	1,400.00	1,354.04	1,353.73	7.18	4.76	-121.81	-563.88	-908.96	1,070.21	1,058.26	11.94	89.612	
1,500.00	1,500.00	1,454.61	1,454.19	7.72	5.28	-121.63	-562.55	-913.43	1,073.30	1,060.30	13.00	82.576	
1,600.00	1,600.00	1,544.00	1,543.43	8.26	5.74	-121.41	-560.84	-918.31	1,076.94	1,062.94	14.00	76.923	
1,700.00	1,700.00	1,630.00	1,629.22	8.80	6.20	-121.18	-559.13	-923.95	1,081.56	1,066.57	14.99	72.151	
1,800.00	1,800.00	1,714.54	1,713.48	9.33	6.65	-120.93	-557.67	-930.68	1,087.53	1,071.55	15.98	68.064	
1,900.00	1,899.98	1,819.00	1,817.54	9.85	7.21	24.83	-555.80	-939.66	1,092.42	1,075.39	17.03	64.144	
2,000.00	1,999.84	1,899.64	1,897.85	10.34	7.65	25.14	-554.71	-946.84	1,094.75	1,076.81	17.93	61.044	
2,100.00	2,099.45	1,988.26	1,986.04	10.84	8.03	25.47	-554.61	-954.46	1,096.47	1,077.71	18.76	58.436	
2,200.00	2,198.70	2,051.33	2,048.34	11.34	8.49	25.94	-555.54	-965.73	1,097.78	1,078.12	19.66	55.839	
2,291.58	2,289.40	2,144.51	2,140.67	11.82	9.02	26.49	-556.82	-978.20	1,097.69	1,077.07	20.63	53.215	
2,300.00	2,297.73	2,152.49	2,148.58	11.86	9.06	26.54	-556.94	-979.27	1,097.69	1,076.98	20.71	52.994	
2,400.00	2,396.76	2,247.62	2,242.82	12.38	9.61	27.10	-558.59	-992.11	1,097.99	1,076.25	21.74	50.505	
2,500.00	2,495.78	2,351.52	2,345.73	12.92	10.20	27.71	-560.41	-1,006.31	1,098.57	1,075.74	22.82	48.134	
2,600.00	2,594.81	2,465.18	2,458.39	13.46	10.86	28.43	-560.91	-1,021.33	1,098.27	1,074.30	23.97	45.825	
2,700.00	2,693.84	2,581.95	2,574.29	14.00	11.53	29.21	-560.12	-1,035.56	1,096.70	1,071.57	25.13	43.637	
2,800.00	2,792.86	2,716.25	2,708.04	14.55	12.29	30.01	-559.22	-1,047.52	1,092.13	1,065.74	26.39	41.381	
2,900.00	2,891.89	2,815.18	2,806.69	15.11	12.84	30.56	-558.76	-1,055.01	1,086.74	1,059.28	27.46	39.575	
3,000.00	2,990.92	2,913.56	2,904.77	15.67	13.38	31.12	-558.37	-1,062.56	1,081.58	1,053.05	28.53	37.912	
3,100.00	3,089.94	3,011.30	3,002.23	16.23	13.93	31.66	-558.34	-1,069.96	1,076.58	1,046.98	29.60	36.374	
3,200.00	3,188.97	3,108.72	3,099.36	16.80	14.47	32.19	-558.57	-1,077.45	1,071.88	1,041.22	30.67	34.953	
3,300.00	3,288.00	3,217.99	3,208.33	17.37	15.08	32.79	-558.83	-1,085.61	1,067.10	1,035.29	31.80	33.553	
3,400.00	3,387.02	3,362.47	3,352.63	17.94	15.86	33.58	-557.54	-1,092.32	1,059.25	1,026.12	33.13	31.976	
3,500.00	3,486.05	3,456.96	3,447.06	18.52	16.36	34.10	-556.25	-1,095.22	1,049.99	1,015.81	34.18	30.719	
3,600.00	3,585.08	3,552.58	3,542.63	19.10	16.88	34.63	-555.26	-1,098.47	1,041.25	1,006.01	35.24	29.545	
3,700.00	3,684.10	3,650.67	3,640.65	19.68	17.40	35.18	-554.29	-1,101.94	1,032.76	996.44	36.32	28.433	
3,800.00	3,783.13	3,747.70	3,737.61	20.26	17.93	35.74	-553.41	-1,105.53	1,024.55	987.15	37.40	27.395	
3,900.00	3,882.16	3,845.47	3,835.30	20.84	18.45	36.30	-552.57	-1,109.31	1,016.60	978.12	38.48	26.417	
4,000.00	3,981.18	3,950.18	3,939.93	21.43	19.02	36.91	-551.81	-1,113.28	1,008.75	969.15	39.61	25.470	
4,100.00	4,080.21	4,060.30	4,050.02	22.02	19.60	37.50	-551.62	-1,115.99	999.90	959.14	40.76	24.533	
4,200.00	4,179.24	4,160.26	4,149.96	22.60	20.13	38.01	-551.88	-1,117.66	990.53	948.67	41.86	23.666	
4,300.00	4,278.26	4,258.25	4,247.94	23.19	20.65	38.52	-552.11	-1,119.46	981.38	938.43	42.94	22.853	
4,400.00	4,377.29	4,355.80	4,345.47	23.79	21.17	39.04	-552.40	-1,121.35	972.43	928.39	44.03	22.084	
4,500.00	4,476.32	4,454.18	4,443.83	24.38	21.70	39.57	-552.65	-1,123.43	963.71	918.58	45.13	21.354	
4,600.00	4,575.35	4,556.23	4,545.86	24.97	22.29	40.21	-552.45	-1,125.31	954.56	908.26	46.30	20.617	
4,700.00	4,674.37	4,667.02	4,656.64	25.56	22.82	40.83	-551.56	-1,126.25	944.62	897.21	47.41	19.925	
4,800.00	4,773.40	4,763.58	4,753.19	26.16	23.33	41.44	-550.70	-1,127.25	934.86	886.36	48.50	19.277	
4,900.00	4,872.43	4,867.77	4,857.37	26.76	23.87	42.12	-549.54	-1,128.19	925.05	875.42	49.63	18.641	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 5HC - OH / Job #61218 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 262-MWD, 430-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)					
5,000.00	4,971.45	4,971.53	4,961.11	27.35	24.41	42.84	-547.83	-1,128.62	914.76	864.01	50.75	18.025	
5,100.00	5,070.48	5,070.88	5,060.45	27.95	24.92	43.56	-545.92	-1,128.81	904.35	852.50	51.85	17.442	
5,200.00	5,169.51	5,171.96	5,161.51	28.55	25.43	44.31	-544.01	-1,128.99	894.06	841.10	52.96	16.883	
5,300.00	5,268.53	5,278.08	5,267.62	29.15	25.96	45.02	-543.19	-1,128.20	883.23	829.15	54.08	16.332	
5,400.00	5,367.66	5,378.91	5,368.43	29.74	26.45	45.48	-543.92	-1,126.56	872.48	817.29	55.19	15.809	
5,500.00	5,467.17	5,477.56	5,467.07	30.31	26.93	45.73	-544.98	-1,124.97	864.16	807.90	56.26	15.360	
5,600.00	5,566.96	5,576.24	5,565.72	30.86	27.41	45.85	-546.17	-1,123.43	858.37	801.08	57.29	14.984	
5,700.00	5,666.91	5,675.69	5,665.16	31.39	27.90	45.84	-547.54	-1,121.98	855.14	796.88	58.27	14.677	
5,800.00	5,766.91	5,774.34	5,763.78	31.87	28.39	-99.72	-549.08	-1,120.58	853.87	794.62	59.25	14.411	
5,900.00	5,866.91	5,873.73	5,863.15	32.36	28.88	-99.86	-551.06	-1,119.25	852.89	792.64	60.24	14.158	
6,000.00	5,966.91	5,974.42	5,963.81	32.84	29.38	-100.01	-553.07	-1,117.88	851.89	790.65	61.24	13.910	
6,100.00	6,066.91	6,075.33	6,064.69	33.33	29.88	-100.15	-554.97	-1,116.42	850.79	788.55	62.24	13.669	
6,200.00	6,166.91	6,179.95	6,169.27	33.82	30.40	-100.31	-557.04	-1,114.54	849.38	786.11	63.27	13.426	
6,300.00	6,266.91	6,279.57	6,268.85	34.31	30.90	-100.47	-559.08	-1,112.48	847.72	783.45	64.26	13.191	
6,400.00	6,366.91	6,380.14	6,369.38	34.80	31.40	-100.62	-560.92	-1,110.41	846.02	780.75	65.27	12.962	
6,500.00	6,466.91	6,478.64	6,467.86	35.29	31.90	-100.72	-562.11	-1,108.56	844.40	778.14	66.27	12.743	
6,600.00	6,566.91	6,574.42	6,563.63	35.78	32.38	-100.78	-562.61	-1,107.08	842.99	775.74	67.25	12.534	
6,661.23	6,628.14	6,626.94	6,616.14	36.09	32.65	-100.80	-562.88	-1,106.75	842.68	774.84	67.83	12.423	
6,700.00	6,666.91	6,661.26	6,650.46	36.28	32.83	-100.81	-563.13	-1,106.82	842.80	774.59	68.20	12.357	
6,800.00	6,766.91	6,757.65	6,746.85	36.78	33.33	-100.86	-563.95	-1,107.42	843.57	774.36	69.22	12.188	
6,900.00	6,866.91	6,858.90	6,848.09	37.27	33.86	-100.86	-564.03	-1,108.29	844.43	774.18	70.25	12.020	
7,000.00	6,966.91	6,956.47	6,945.64	37.77	34.38	-100.75	-562.60	-1,109.45	845.32	774.04	71.28	11.860	
7,100.00	7,066.91	7,050.94	7,040.07	38.27	34.88	-100.59	-560.61	-1,111.27	846.82	774.53	72.28	11.715	
7,200.00	7,166.91	7,151.29	7,140.38	38.77	35.41	-100.41	-558.32	-1,113.45	848.55	775.22	73.33	11.572	
7,300.00	7,266.91	7,250.90	7,239.93	39.27	35.94	-100.22	-555.88	-1,115.64	850.27	775.90	74.36	11.434	
7,400.00	7,366.91	7,352.48	7,341.46	39.78	36.48	-100.03	-553.45	-1,117.91	852.05	776.63	75.41	11.298	
7,500.00	7,466.91	7,459.36	7,448.31	40.28	37.04	-99.88	-551.37	-1,119.55	853.22	776.73	76.49	11.155	
7,600.00	7,566.91	7,561.93	7,550.86	40.78	37.58	-99.77	-549.84	-1,120.35	853.74	776.20	77.54	11.010	
7,700.00	7,666.91	7,663.19	7,652.10	41.29	38.11	-99.66	-548.38	-1,121.06	854.19	775.60	78.59	10.869	
7,800.00	7,766.91	7,763.55	7,752.45	41.79	38.64	-99.55	-546.81	-1,121.60	854.46	774.83	79.63	10.731	
7,900.00	7,866.91	7,865.14	7,854.02	42.30	39.17	-99.43	-544.97	-1,122.15	854.69	774.01	80.67	10.594	
8,000.00	7,966.91	7,964.60	7,953.46	42.81	39.69	-99.30	-543.08	-1,122.56	854.79	773.08	81.71	10.461	
8,100.00	8,066.91	8,063.31	8,052.15	43.32	40.21	-99.16	-541.07	-1,123.13	855.03	772.29	82.75	10.333	
8,200.00	8,166.91	8,162.03	8,150.85	43.83	40.73	-99.01	-539.00	-1,123.86	855.43	771.65	83.78	10.210	
8,300.00	8,266.91	8,260.76	8,249.55	44.34	41.25	-98.87	-536.94	-1,124.74	855.98	771.16	84.82	10.092	
8,400.00	8,366.91	8,359.37	8,348.13	44.85	41.77	-98.73	-534.98	-1,125.75	856.69	770.83	85.86	9.978	
8,500.00	8,466.91	8,458.10	8,446.84	45.36	42.30	-98.59	-533.08	-1,126.90	857.56	770.66	86.90	9.869	
8,600.00	8,566.91	8,556.28	8,545.00	45.87	42.82	-98.46	-531.25	-1,128.22	858.61	770.67	87.94	9.764	
8,700.00	8,666.91	8,655.58	8,644.26	46.38	43.35	-98.32	-529.47	-1,129.68	859.81	770.82	88.98	9.663	
8,800.00	8,766.91	8,754.69	8,743.35	46.89	43.88	-98.20	-527.80	-1,131.21	861.09	771.06	90.03	9.565	
8,900.00	8,866.91	8,852.67	8,841.31	47.41	44.40	-98.09	-526.40	-1,132.84	862.53	771.46	91.07	9.471	
9,000.00	8,966.91	8,950.24	8,938.85	47.92	44.92	-98.01	-525.46	-1,134.70	864.29	772.18	92.11	9.383	
9,100.00	9,066.91	9,086.05	9,074.61	48.44	45.64	-97.84	-523.06	-1,136.05	865.37	772.02	93.35	9.270	
9,200.00	9,166.91	9,247.12	9,234.38	48.95	46.45	-96.79	-505.94	-1,126.56	857.24	762.53	94.71	9.051	
9,300.00	9,266.91	9,438.64	9,403.96	49.47	47.29	-91.42	-425.55	-1,106.98	841.54	745.29	96.25	8.743	
9,400.00	9,366.41	9,483.00	9,435.24	50.00	47.43	93.11	-394.49	-1,102.12	827.43	730.43	97.00	8.530	
9,477.19	9,441.32	9,506.87	9,450.83	50.44	47.50	94.94	-376.53	-1,100.09	823.64	726.12	97.52	8.446 CC, ES	
9,500.00	9,462.91	9,510.53	9,453.16	50.57	47.51	95.14	-373.72	-1,099.85	823.98	726.33	97.65	8.438 SF	
9,600.00	9,553.47	9,530.00	9,465.24	51.18	47.58	95.51	-358.48	-1,098.88	833.66	735.40	98.26	8.484	
9,700.00	9,635.34	9,530.00	9,465.24	51.81	47.58	93.21	-358.48	-1,098.88	856.09	757.15	98.94	8.652	
9,800.00	9,706.03	9,530.00	9,465.24	52.48	47.58	89.58	-358.48	-1,098.88	890.14	790.40	99.74	8.925	
9,900.00	9,763.40	9,509.35	9,452.41	53.18	47.51	83.44	-374.63	-1,099.92	932.90	832.79	100.11	9.319	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 5HC - OH / Job #61218 - Surveys (Patterson 815)												Offset Site Error:	0.00 usft
Survey Program: 262-MWD, 430-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	
10,000.00	9,805.70	9,483.00	9,435.24	53.92	47.43	76.35	-394.49	-1,102.12	982.29	883.01	99.28	9.894	
10,100.00	9,831.65	9,483.00	9,435.24	54.69	47.43	70.47	-394.49	-1,102.12	1,034.62	936.98	97.64	10.596	
10,200.00	9,840.46	9,454.81	9,415.73	55.48	47.34	63.49	-414.62	-1,105.13	1,087.87	993.59	94.28	11.539	
10,300.00	9,838.50	9,436.00	9,402.00	56.31	47.28	62.12	-427.28	-1,107.29	1,142.48	1,048.40	94.08	12.144	
10,400.00	9,836.40	9,412.02	9,383.65	57.22	47.20	61.25	-442.45	-1,110.14	1,201.67	1,107.45	94.22	12.755	
10,500.00	9,834.31	9,389.00	9,365.17	58.19	47.11	60.38	-455.89	-1,112.91	1,265.12	1,170.73	94.40	13.402	
10,600.00	9,832.21	9,389.00	9,365.17	59.22	47.11	60.38	-455.89	-1,112.91	1,332.41	1,237.06	95.35	13.974	
10,700.00	9,830.12	9,367.95	9,347.50	60.31	47.02	59.56	-467.03	-1,115.42	1,402.88	1,307.23	95.65	14.666	
10,800.00	9,828.02	9,342.00	9,324.67	61.46	46.91	58.52	-478.98	-1,118.40	1,476.89	1,381.10	95.79	15.418	
10,900.00	9,825.93	9,342.00	9,324.67	62.66	46.91	58.52	-478.98	-1,118.40	1,552.81	1,455.92	96.88	16.027	
11,000.00	9,823.83	9,342.00	9,324.67	63.91	46.91	58.52	-478.98	-1,118.40	1,631.33	1,533.30	98.03	16.642	
11,100.00	9,821.74	9,342.00	9,324.67	65.21	46.91	58.52	-478.98	-1,118.40	1,712.09	1,612.88	99.21	17.257	
11,200.00	9,819.64	9,342.00	9,324.67	66.55	46.91	58.52	-478.98	-1,118.40	1,794.79	1,694.35	100.43	17.871	
11,300.00	9,817.54	9,317.82	9,302.50	67.93	46.80	57.53	-488.29	-1,120.91	1,878.24	1,777.49	100.75	18.642	
11,400.00	9,815.45	9,295.00	9,280.91	69.36	46.69	56.57	-495.40	-1,122.91	1,964.04	1,862.94	101.11	19.426	
11,500.00	9,813.35	9,295.00	9,280.91	70.82	46.69	56.57	-495.40	-1,122.91	2,050.37	1,947.95	102.42	20.020	
11,600.00	9,811.26	9,295.00	9,280.91	72.32	46.69	56.57	-495.40	-1,122.91	2,137.89	2,034.13	103.76	20.604	
11,700.00	9,809.16	9,295.00	9,280.91	73.85	46.69	56.57	-495.40	-1,122.91	2,226.47	2,121.33	105.13	21.178	
11,800.00	9,807.07	9,295.00	9,280.91	75.41	46.69	56.57	-495.40	-1,122.91	2,315.97	2,209.44	106.53	21.740	
11,900.00	9,804.97	9,295.00	9,280.91	77.00	46.69	56.57	-495.40	-1,122.91	2,406.30	2,298.34	107.96	22.289	
12,000.00	9,802.88	9,295.00	9,280.91	78.61	46.69	56.57	-495.40	-1,122.91	2,497.37	2,387.96	109.41	22.827	
12,100.00	9,800.78	9,295.00	9,280.91	80.25	46.69	56.57	-495.40	-1,122.91	2,589.09	2,478.22	110.88	23.351	
12,200.00	9,798.68	9,295.00	9,280.91	81.92	46.69	56.57	-495.40	-1,122.91	2,681.41	2,569.05	112.37	23.863	
12,300.00	9,796.59	9,272.83	9,259.52	83.61	46.58	55.63	-500.94	-1,124.64	2,773.63	2,660.77	112.86	24.575	
12,400.00	9,794.49	9,269.52	9,256.30	85.32	46.56	55.49	-501.67	-1,124.89	2,866.76	2,752.53	114.23	25.096	
12,500.00	9,792.40	9,247.00	9,234.26	87.05	46.45	54.55	-505.96	-1,126.57	2,960.80	2,846.10	114.70	25.813	
12,600.00	9,790.30	9,247.00	9,234.26	88.80	46.45	54.55	-505.96	-1,126.57	3,054.60	2,938.36	116.24	26.278	
12,700.00	9,788.21	9,247.00	9,234.26	90.56	46.45	54.55	-505.96	-1,126.57	3,148.79	3,030.99	117.80	26.730	
12,800.00	9,786.11	9,247.00	9,234.26	92.35	46.45	54.55	-505.96	-1,126.57	3,243.32	3,123.95	119.37	27.170	
12,900.00	9,784.02	9,247.00	9,234.26	94.15	46.45	54.55	-505.96	-1,126.57	3,338.17	3,217.22	120.95	27.599	
13,000.00	9,781.92	9,247.00	9,234.26	95.96	46.45	54.55	-505.96	-1,126.57	3,433.32	3,310.77	122.55	28.015	
13,100.00	9,779.82	9,247.00	9,234.26	97.79	46.45	54.55	-505.96	-1,126.57	3,528.73	3,404.57	124.16	28.421	
13,200.00	9,777.73	9,247.00	9,234.26	99.63	46.45	54.55	-505.96	-1,126.57	3,624.39	3,498.61	125.78	28.816	
13,300.00	9,775.63	9,247.00	9,234.26	101.48	46.45	54.55	-505.96	-1,126.57	3,720.28	3,592.87	127.41	29.199	
13,400.00	9,773.54	9,247.00	9,234.26	103.35	46.45	54.55	-505.96	-1,126.57	3,816.38	3,687.33	129.05	29.573	
13,500.00	9,771.44	9,247.00	9,234.26	105.22	46.45	54.55	-505.96	-1,126.57	3,912.67	3,781.97	130.70	29.936	
13,600.00	9,769.35	9,247.00	9,234.26	107.11	46.45	54.55	-505.96	-1,126.57	4,009.15	3,876.79	132.36	30.290	
13,700.00	9,767.25	9,247.00	9,234.26	109.01	46.45	54.55	-505.96	-1,126.57	4,105.80	3,971.77	134.03	30.634	
13,800.00	9,765.16	9,226.59	9,214.15	110.92	46.35	53.72	-509.13	-1,128.05	4,202.38	4,067.77	134.61	31.220	
13,900.00	9,763.06	9,222.95	9,210.56	112.83	46.33	53.57	-509.66	-1,128.32	4,299.24	4,163.16	136.08	31.593	
14,000.00	9,760.96	9,219.43	9,207.09	114.76	46.32	53.43	-510.17	-1,128.58	4,396.23	4,258.66	137.57	31.956	
14,100.00	9,758.87	9,200.00	9,187.88	116.69	46.22	52.65	-512.75	-1,130.00	4,493.47	4,355.29	138.19	32.517	
14,200.00	9,756.77	9,200.00	9,187.88	118.63	46.22	52.65	-512.75	-1,130.00	4,590.65	4,450.78	139.87	32.822	
14,300.00	9,754.68	9,200.00	9,187.88	120.58	46.22	52.65	-512.75	-1,130.00	4,687.94	4,546.39	141.55	33.118	
14,400.00	9,752.58	9,200.00	9,187.88	122.54	46.22	52.65	-512.75	-1,130.00	4,785.34	4,642.10	143.24	33.407	
14,500.00	9,750.49	9,200.00	9,187.88	124.50	46.22	52.65	-512.75	-1,130.00	4,882.85	4,737.91	144.94	33.688	
14,600.00	9,748.39	9,200.00	9,187.88	126.47	46.22	52.65	-512.75	-1,130.00	4,980.46	4,833.81	146.64	33.963	
14,700.00	9,746.29	9,200.00	9,187.88	128.44	46.22	52.65	-512.75	-1,130.00	5,078.16	4,929.80	148.35	34.230	
14,800.00	9,744.20	9,200.00	9,187.88	130.42	46.22	52.65	-512.75	-1,130.00	5,175.94	5,025.88	150.07	34.491	
14,900.00	9,742.39	9,200.00	9,187.88	132.41	46.22	56.72	-512.75	-1,130.00	5,273.83	5,116.68	151.75	34.750	
15,000.00	9,742.58	9,200.00	9,187.88	134.39	46.22	60.24	-512.75	-1,130.00	5,371.85	5,208.66	163.19	32.918	
15,100.00	9,742.98	9,181.06	9,169.13	136.38	46.12	59.40	-515.03	-1,131.38	5,469.84	5,305.92	163.92	33.369	

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 5HC - OH / Job #61218 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 262-MWD, 430-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	
15,200.00	9,743.38	9,177.76	9,165.86	138.38	46.11	59.25	-515.41	-1,131.62	5,567.97	5,402.43	165.54	33.635	
15,300.00	9,743.77	9,174.55	9,162.68	140.38	46.09	59.11	-515.78	-1,131.85	5,666.16	5,498.99	167.17	33.896	
15,400.00	9,744.17	9,171.42	9,159.58	142.39	46.07	58.98	-516.13	-1,132.07	5,764.40	5,595.61	168.80	34.150	
15,500.00	9,744.56	9,153.00	9,141.31	144.40	45.98	58.18	-518.12	-1,133.38	5,862.77	5,693.25	169.52	34.586	
15,600.00	9,744.96	9,153.00	9,141.31	146.41	45.98	58.18	-518.12	-1,133.38	5,961.09	5,789.77	171.33	34.794	
15,700.00	9,745.35	9,153.00	9,141.31	148.43	45.98	58.18	-518.12	-1,133.38	6,059.47	5,886.33	173.14	34.997	
15,800.00	9,745.75	9,153.00	9,141.31	150.45	45.98	58.18	-518.12	-1,133.38	6,157.90	5,982.94	174.96	35.196	
15,900.00	9,746.14	9,153.00	9,141.31	152.48	45.98	58.18	-518.12	-1,133.38	6,256.38	6,079.60	176.78	35.391	
16,000.00	9,746.54	9,153.00	9,141.31	154.51	45.98	58.18	-518.12	-1,133.38	6,354.91	6,176.31	178.60	35.581	
16,100.00	9,746.94	9,153.00	9,141.31	156.54	45.98	58.18	-518.12	-1,133.38	6,453.48	6,273.05	180.43	35.767	
16,200.00	9,747.33	9,153.00	9,141.31	158.58	45.98	58.18	-518.12	-1,133.38	6,552.10	6,369.84	182.26	35.949	
16,300.00	9,747.73	9,153.00	9,141.31	160.61	45.98	58.18	-518.12	-1,133.38	6,650.75	6,466.66	184.09	36.127	
16,400.00	9,748.12	9,153.00	9,141.31	162.66	45.98	58.18	-518.12	-1,133.38	6,749.45	6,563.52	185.93	36.302	
16,500.00	9,748.52	9,153.00	9,141.31	164.70	45.98	58.18	-518.12	-1,133.38	6,848.19	6,660.42	187.76	36.472	
16,600.00	9,748.91	9,153.00	9,141.31	166.75	45.98	58.18	-518.12	-1,133.38	6,946.96	6,757.35	189.60	36.639	
16,700.00	9,749.31	9,153.00	9,141.31	168.80	45.98	58.18	-518.12	-1,133.38	7,045.76	6,854.32	191.45	36.803	
16,800.00	9,749.71	9,153.00	9,141.31	170.85	45.98	58.18	-518.12	-1,133.38	7,144.60	6,951.31	193.29	36.963	
16,900.00	9,750.10	9,153.00	9,141.31	172.91	45.98	58.18	-518.12	-1,133.38	7,243.47	7,048.33	195.14	37.120	
17,000.00	9,750.50	9,153.00	9,141.31	174.97	45.98	58.18	-518.12	-1,133.38	7,342.37	7,145.39	196.99	37.274	
17,100.00	9,750.89	9,153.00	9,141.31	177.03	45.98	58.18	-518.12	-1,133.38	7,441.30	7,242.47	198.84	37.424	
17,200.00	9,751.29	9,153.00	9,141.31	179.09	45.98	58.18	-518.12	-1,133.38	7,540.26	7,339.57	200.69	37.572	
17,300.00	9,751.68	9,153.00	9,141.31	181.15	45.98	58.18	-518.12	-1,133.38	7,639.25	7,436.70	202.54	37.716	
17,400.00	9,752.08	9,153.00	9,141.31	183.22	45.98	58.18	-518.12	-1,133.38	7,738.26	7,533.86	204.40	37.858	
17,500.00	9,752.48	9,153.00	9,141.31	185.29	45.98	58.18	-518.12	-1,133.38	7,837.30	7,631.04	206.26	37.997	
17,600.00	9,752.87	9,132.35	9,120.79	187.36	45.88	57.30	-520.07	-1,134.62	7,936.16	7,729.51	206.65	38.405	
17,700.00	9,753.27	9,131.29	9,119.74	189.43	45.87	57.25	-520.16	-1,134.67	8,035.22	7,826.80	208.42	38.553	
17,800.00	9,753.66	9,130.26	9,118.71	191.51	45.87	57.21	-520.24	-1,134.72	8,134.30	7,924.11	210.20	38.699	
17,900.00	9,754.06	9,129.25	9,117.70	193.59	45.86	57.17	-520.32	-1,134.77	8,233.41	8,021.44	211.97	38.842	
18,000.00	9,754.45	9,128.26	9,116.72	195.66	45.86	57.12	-520.41	-1,134.82	8,332.54	8,118.78	213.75	38.982	
18,100.00	9,754.85	9,127.30	9,115.76	197.74	45.85	57.08	-520.48	-1,134.86	8,431.68	8,216.15	215.54	39.120	
18,200.00	9,755.25	9,106.00	9,094.53	199.82	45.74	56.18	-521.97	-1,135.63	8,531.05	8,315.27	215.77	39.537	
18,300.00	9,755.64	9,106.00	9,094.53	201.91	45.74	56.18	-521.97	-1,135.63	8,630.21	8,412.59	217.62	39.657	
18,400.00	9,756.04	9,106.00	9,094.53	203.99	45.74	56.18	-521.97	-1,135.63	8,729.40	8,509.93	219.47	39.776	
18,500.00	9,756.43	9,106.00	9,094.53	206.08	45.74	56.18	-521.97	-1,135.63	8,828.60	8,607.29	221.31	39.892	
18,600.00	9,756.83	9,106.00	9,094.53	208.17	45.74	56.18	-521.97	-1,135.63	8,927.82	8,704.66	223.16	40.006	
18,700.00	9,757.22	9,106.00	9,094.53	210.26	45.74	56.18	-521.97	-1,135.63	9,027.06	8,802.05	225.01	40.118	
18,800.00	9,757.62	9,106.00	9,094.53	212.35	45.74	56.18	-521.97	-1,135.63	9,126.32	8,899.46	226.86	40.229	
18,900.00	9,758.01	9,106.00	9,094.53	214.44	45.74	56.18	-521.97	-1,135.63	9,225.59	8,996.88	228.71	40.337	
19,000.00	9,758.41	9,106.00	9,094.53	216.53	45.74	56.18	-521.97	-1,135.63	9,324.88	9,094.31	230.57	40.443	
19,100.00	9,758.81	9,106.00	9,094.53	218.62	45.74	56.18	-521.97	-1,135.63	9,424.18	9,191.76	232.42	40.548	
19,200.00	9,759.20	9,106.00	9,094.53	220.72	45.74	56.18	-521.97	-1,135.63	9,523.50	9,289.22	234.28	40.651	
19,300.00	9,759.60	9,106.00	9,094.53	222.82	45.74	56.18	-521.97	-1,135.63	9,622.83	9,386.70	236.13	40.752	
19,400.00	9,759.99	9,106.00	9,094.53	224.91	45.74	56.18	-521.97	-1,135.63	9,722.17	9,484.18	237.99	40.851	
19,500.00	9,760.39	9,106.00	9,094.53	227.01	45.74	56.18	-521.97	-1,135.63	9,821.53	9,581.68	239.85	40.949	
19,600.00	9,760.78	9,106.00	9,094.53	229.11	45.74	56.18	-521.97	-1,135.63	9,920.90	9,679.20	241.71	41.045	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 6HC - OH / Job #61219 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 427-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	0.00	0.00	0.00	0.00	-122.76	-583.01	-906.00	1,077.44				
100.00	100.00	88.77	88.77	0.19	0.13	-122.77	-583.12	-905.89	1,077.34	1,077.02	0.32	3,378.215	
200.00	200.00	188.44	188.44	0.73	0.30	-122.80	-583.52	-905.51	1,077.24	1,076.21	1.03	1,047.995	
207.96	207.96	195.99	195.99	0.77	0.32	-122.80	-583.55	-905.49	1,077.24	1,076.15	1.09	984.882	
300.00	300.00	290.99	290.99	1.27	0.61	-122.80	-583.68	-905.55	1,077.36	1,075.49	1.88	573.372	
400.00	400.00	397.34	397.33	1.81	0.94	-122.78	-582.74	-904.79	1,076.25	1,073.50	2.75	391.818	
500.00	500.00	507.90	507.88	2.34	1.18	-122.81	-582.59	-903.63	1,075.34	1,071.82	3.53	304.861	
600.00	600.00	610.17	610.12	2.88	1.40	-122.87	-582.41	-901.39	1,073.40	1,069.12	4.28	250.566	
700.00	700.00	718.55	718.45	3.42	1.80	-123.00	-583.10	-897.90	1,071.06	1,065.84	5.22	205.226	
800.00	800.00	835.09	834.81	3.96	2.32	-123.25	-584.75	-891.80	1,067.44	1,061.16	6.28	170.061	
900.00	900.00	944.26	943.67	4.50	2.85	-123.59	-587.05	-883.86	1,062.52	1,055.17	7.34	144.707	
1,000.00	1,000.00	1,048.94	1,047.95	5.03	3.39	-123.98	-589.81	-875.15	1,057.05	1,048.63	8.42	125.484	
1,100.00	1,100.00	1,204.02	1,201.94	5.57	4.25	-124.69	-593.60	-857.44	1,049.07	1,039.26	9.82	106.862	
1,200.00	1,200.00	1,331.41	1,327.52	6.11	5.00	-125.48	-596.17	-836.27	1,036.45	1,025.35	11.10	93.337	
1,300.00	1,300.00	1,454.61	1,448.54	6.65	5.76	-126.32	-597.74	-813.22	1,021.96	1,009.56	12.40	82.414	
1,400.00	1,400.00	1,573.74	1,565.07	7.18	6.52	-127.15	-597.38	-788.45	1,004.92	991.22	13.70	73.358	
1,500.00	1,500.00	1,674.98	1,663.93	7.72	7.18	-127.89	-596.63	-766.68	987.27	972.38	14.90	66.270	
1,600.00	1,600.00	1,782.97	1,769.19	8.26	7.91	-128.74	-595.72	-742.59	969.10	952.94	16.16	59.981	
1,700.00	1,700.00	1,872.29	1,856.15	8.80	8.52	-129.47	-594.73	-722.18	950.54	933.24	17.30	54.953	
1,800.00	1,800.00	1,951.92	1,934.04	9.33	9.05	-130.09	-594.00	-705.68	933.89	915.52	18.36	50.854	
1,900.00	1,899.98	2,034.21	2,014.92	9.85	9.58	-14.88	-593.31	-690.54	917.55	898.57	18.98	48.331	
2,000.00	1,999.84	2,127.04	2,106.41	10.34	10.17	14.41	-592.84	-674.81	899.32	879.35	19.97	45.030	
2,100.00	2,099.45	2,247.24	2,224.57	10.84	10.96	13.78	-591.76	-652.84	876.64	855.54	21.11	41.530	
2,200.00	2,198.70	2,354.91	2,329.95	11.34	11.68	13.21	-589.76	-630.81	848.53	826.38	22.15	38.303	
2,300.00	2,297.73	2,454.16	2,426.96	11.86	12.35	12.53	-587.46	-609.98	818.23	794.97	23.26	35.176	
2,400.00	2,396.76	2,555.64	2,525.98	12.38	13.05	11.75	-584.96	-587.93	787.43	763.04	24.40	32.275	
2,500.00	2,495.78	2,654.22	2,621.91	12.92	13.75	10.85	-582.68	-565.35	756.02	730.48	25.54	29.605	
2,600.00	2,594.81	2,749.17	2,714.19	13.46	14.42	9.86	-580.63	-543.04	724.49	697.82	26.67	27.167	
2,700.00	2,693.84	2,845.48	2,807.80	14.00	15.11	8.81	-578.17	-520.58	693.02	665.20	27.82	24.912	
2,800.00	2,792.86	2,937.24	2,897.00	14.55	15.77	7.71	-575.75	-499.19	661.71	632.76	28.95	22.858	
2,900.00	2,891.89	3,029.69	2,987.04	15.11	16.42	6.57	-573.13	-478.35	631.03	600.94	30.09	20.972	
3,000.00	2,990.92	3,121.68	3,076.71	15.67	17.07	5.35	-570.54	-458.00	600.88	569.65	31.24	19.237	
3,100.00	3,089.94	3,213.27	3,165.87	16.23	17.72	3.89	-569.06	-437.10	571.49	539.08	32.41	17.633	
3,200.00	3,188.97	3,308.52	3,258.33	16.80	18.42	2.03	-568.78	-414.25	542.80	509.15	33.65	16.131	
3,300.00	3,288.00	3,400.85	3,347.91	17.37	19.09	0.02	-568.54	-391.85	514.58	479.68	34.89	14.747	
3,400.00	3,387.02	3,485.35	3,430.06	17.94	19.70	-1.98	-568.87	-372.10	488.06	451.98	36.09	13.524	
3,500.00	3,486.05	3,575.44	3,518.06	18.52	20.33	-4.19	-570.35	-352.84	464.32	426.99	37.33	12.438	
3,600.00	3,585.08	3,666.61	3,607.24	19.10	20.96	-6.57	-571.78	-333.98	441.71	403.12	38.59	11.447	
3,700.00	3,684.10	3,752.49	3,691.68	19.68	21.52	-8.77	-573.71	-318.48	421.71	381.93	39.78	10.601	
3,800.00	3,783.13	3,839.61	3,777.81	20.26	22.05	-10.86	-576.80	-305.77	405.04	364.09	40.96	9.890	
3,900.00	3,882.16	3,934.16	3,871.59	20.84	22.60	-13.01	-580.83	-294.38	390.68	348.53	42.15	9.269	
4,000.00	3,981.18	4,035.44	3,972.36	21.43	23.15	-15.03	-583.80	-284.80	376.57	333.23	43.34	8.689	
4,100.00	4,080.21	4,135.68	4,072.46	22.02	23.65	-16.42	-584.44	-279.63	362.10	317.65	44.45	8.146	
4,200.00	4,179.24	4,234.44	4,171.18	22.60	24.12	-17.46	-584.06	-277.04	347.62	302.11	45.51	7.639	
4,300.00	4,278.26	4,332.87	4,269.59	23.19	24.58	-18.48	-583.56	-275.03	333.30	286.74	46.56	7.159	
4,400.00	4,377.29	4,431.80	4,368.50	23.79	25.04	-19.55	-583.07	-273.28	319.17	271.56	47.61	6.704	
4,500.00	4,476.32	4,529.38	4,466.07	24.38	25.50	-20.70	-582.60	-271.55	305.19	256.53	48.66	6.272	
4,600.00	4,575.35	4,625.34	4,562.02	24.97	25.94	-21.83	-582.74	-270.59	292.11	242.41	49.70	5.878	
4,700.00	4,674.37	4,722.89	4,659.57	25.56	26.37	-22.95	-583.62	-270.38	280.06	229.34	50.72	5.522	
4,800.00	4,773.40	4,822.29	4,758.97	26.16	26.80	-24.16	-584.64	-270.36	268.27	216.52	51.75	5.184	
4,900.00	4,872.43	4,921.17	4,857.84	26.76	27.23	-25.44	-585.54	-270.44	256.52	203.74	52.78	4.860	
5,000.00	4,971.45	5,019.77	4,956.43	27.35	27.66	-26.87	-586.66	-270.45	245.12	191.30	53.82	4.555	

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Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
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Survey Program: 170-MWD, 427-MWD+HDGM													Offset Well Error: 0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Minimum	Separation	Warning
Depth	Depth	Depth	Depth			Tooface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
5,100.00	5,070.48	5,118.41	5,055.06	27.95	28.10	-28.43	-587.99	-270.52	234.11	179.24	54.87	4.267	
5,200.00	5,169.51	5,217.49	5,154.14	28.55	28.53	-30.10	-589.46	-270.77	223.43	167.51	55.92	3.996	
5,300.00	5,268.53	5,316.27	5,252.90	29.15	28.97	-31.94	-591.02	-271.00	213.06	156.09	56.97	3.740	
5,400.00	5,367.66	5,415.30	5,351.91	29.74	29.42	-33.77	-592.78	-271.23	203.77	145.66	58.11	3.507	
5,500.00	5,467.17	5,514.00	5,450.59	30.31	29.86	-35.20	-594.70	-271.53	197.57	138.36	59.21	3.337	
5,600.00	5,566.96	5,613.35	5,549.91	30.86	30.31	-36.14	-597.05	-271.85	194.74	134.50	60.24	3.233	
5,650.79	5,617.71	5,664.67	5,601.22	31.13	30.55	-36.41	-598.32	-272.01	194.45	133.71	60.74	3.201	
5,700.00	5,666.91	5,714.83	5,651.37	31.39	30.77	-36.54	-599.40	-272.15	194.71	133.49	61.21	3.181	
5,800.00	5,766.91	5,819.17	5,755.70	31.87	31.25	-37.08	-600.04	-272.45	195.16	133.00	62.15	3.140	
5,900.00	5,866.91	5,920.73	5,857.25	32.36	31.71	-37.17	-599.09	-272.80	194.20	131.09	63.11	3.077	
6,000.00	5,966.91	6,020.37	5,956.89	32.84	32.16	-37.34	-598.01	-273.39	193.11	129.04	64.06	3.014	
6,100.00	6,066.91	6,120.22	6,056.74	33.33	32.61	-37.55	-597.04	-274.13	192.11	127.10	65.01	2.955	
6,200.00	6,166.91	6,219.90	6,156.41	33.82	33.07	-37.76	-596.18	-274.87	191.23	125.26	65.97	2.899	
6,300.00	6,266.91	6,319.53	6,256.02	34.31	33.52	-37.95	-595.53	-275.86	190.56	123.64	66.92	2.848	
6,400.00	6,366.91	6,419.51	6,355.99	34.80	33.97	-37.94	-595.00	-277.16	190.01	122.14	67.87	2.800	
6,500.00	6,466.91	6,519.20	6,455.66	35.29	34.42	-37.96	-594.47	-279.14	189.47	120.66	68.82	2.753	
6,577.81	6,544.73	6,596.29	6,532.73	35.67	34.77	-37.92	-594.29	-281.25	189.30	119.75	69.55	2.722	
6,600.00	6,566.91	6,618.22	6,554.65	35.78	34.87	-37.92	-594.29	-281.90	189.32	119.56	69.76	2.714	
6,700.00	6,666.91	6,717.23	6,653.61	36.28	35.32	-37.92	-594.65	-284.93	189.74	119.05	70.69	2.684	
6,800.00	6,766.91	6,817.35	6,753.68	36.78	35.77	-37.92	-595.27	-287.97	190.49	118.85	71.64	2.659	
6,900.00	6,866.91	6,917.54	6,853.82	37.27	36.22	-37.92	-595.68	-291.19	191.08	118.49	72.58	2.633	
7,000.00	6,966.91	7,017.01	6,953.24	37.77	36.68	-37.92	-596.14	-294.47	191.77	118.24	73.53	2.608	
7,100.00	7,066.91	7,116.67	7,052.85	38.27	37.14	-37.92	-596.86	-297.42	192.75	118.28	74.48	2.588	
7,200.00	7,166.91	7,217.26	7,153.40	38.77	37.60	-37.92	-597.55	-300.00	193.70	118.25	75.44	2.567	
7,300.00	7,266.91	7,316.27	7,252.36	39.27	38.06	-37.92	-598.24	-302.90	194.73	118.33	76.40	2.549	
7,400.00	7,366.91	7,414.68	7,350.71	39.78	38.52	-37.92	-599.53	-306.14	196.46	119.11	77.35	2.540	
7,500.00	7,466.91	7,513.64	7,449.61	40.28	38.99	-37.92	-601.53	-308.98	198.88	120.56	78.31	2.540	
7,600.00	7,566.91	7,613.08	7,548.99	40.78	39.46	-37.92	-603.94	-311.44	201.66	122.37	79.29	2.543	
7,700.00	7,666.91	7,711.72	7,647.57	41.29	39.93	-37.92	-606.82	-313.57	204.89	124.63	80.27	2.553	
7,800.00	7,766.91	7,809.93	7,745.69	41.79	40.40	-37.92	-610.48	-315.68	208.93	127.68	81.25	2.572	
7,900.00	7,866.91	7,908.80	7,844.44	42.30	40.87	-37.92	-614.67	-318.33	213.59	131.36	82.23	2.598	
8,000.00	7,966.91	8,008.28	7,943.75	42.81	41.35	-37.92	-619.20	-321.71	218.70	135.50	83.20	2.628	
8,100.00	8,066.91	8,109.87	8,045.19	43.32	41.83	-37.92	-623.39	-325.42	223.48	139.29	84.19	2.654	
8,200.00	8,166.91	8,211.57	8,146.77	43.83	42.32	-37.92	-626.66	-328.96	227.36	142.18	85.18	2.669	
8,300.00	8,266.91	8,312.47	8,247.57	44.34	42.80	-37.92	-629.35	-332.48	230.75	144.58	86.17	2.678	
8,400.00	8,366.91	8,413.33	8,348.34	44.85	43.29	-37.92	-631.49	-336.37	233.73	146.58	87.16	2.682	
8,500.00	8,466.91	8,513.61	8,448.52	45.36	43.77	-37.92	-633.24	-340.46	236.45	148.31	88.14	2.683	
8,600.00	8,566.91	8,613.31	8,548.12	45.87	44.25	-37.92	-634.93	-344.62	239.21	150.08	89.12	2.684	
8,700.00	8,666.91	8,712.89	8,647.59	46.38	44.73	-37.92	-636.72	-348.90	242.14	152.04	90.11	2.687	
8,800.00	8,766.91	8,812.09	8,746.68	46.89	45.21	-37.92	-638.68	-353.19	245.31	154.22	91.09	2.693	
8,900.00	8,866.91	8,911.59	8,846.07	47.41	45.69	-37.92	-640.93	-357.44	248.79	156.71	92.08	2.702	
9,000.00	8,966.91	9,011.20	8,945.56	47.92	46.18	-37.92	-643.32	-361.66	252.42	159.35	93.07	2.712	
9,100.00	9,066.91	9,129.03	9,063.29	48.44	46.76	-37.92	-644.85	-365.14	254.98	160.82	94.16	2.708	
9,200.00	9,166.91	9,333.98	9,259.59	48.95	47.86	-37.92	-599.92	-338.79	229.19	133.39	95.80	2.392	
9,300.00	9,266.91	9,443.88	9,354.02	49.47	48.38	-37.92	-546.13	-322.83	177.93	81.17	96.76	1.839	
9,400.00	9,366.41	9,535.97	9,426.26	50.00	48.77	28.29	-490.32	-311.48	110.05	13.64	96.41	1.142 Level 2	
9,500.00	9,462.91	9,591.75	9,467.18	50.57	48.99	76.47	-452.79	-306.15	34.79	-62.28	97.07	0.358 Level 1	
9,524.07	9,485.36	9,601.91	9,474.46	50.72	49.03	96.15	-445.75	-305.25	27.00	-71.10	98.10	0.275 Level 1, CC, ES, SF	
9,600.00	9,553.47	9,624.81	9,490.51	51.18	49.12	128.92	-429.54	-303.25	77.05	-18.95	96.00	0.803 Level 1	
9,700.00	9,635.34	9,641.00	9,501.54	51.81	49.18	122.61	-417.78	-301.87	173.39	77.83	95.55	1.815	
9,800.00	9,706.03	9,641.00	9,501.54	52.48	49.18	43.96	-417.78	-301.87	272.70	187.78	84.92	3.211	
9,900.00	9,763.40	9,621.10	9,487.94	53.18	49.10	14.26	-432.20	-303.57	370.39	307.09	63.30	5.851	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 6HC - OH / Job #61219 - Surveys (Patterson 815)													Offset Site Error:	0.00 usft
Survey Program: 170-MWD, 427-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)						
10,000.00	9,805.70	9,594.00	9,468.80	53.92	49.00	8.20	-451.24	-305.95	464.35	412.91	51.44	9.027		
10,100.00	9,831.65	9,566.39	9,448.76	54.69	48.89	5.91	-470.07	-308.48	552.41	510.15	42.26	13.071		
10,200.00	9,840.46	9,527.38	9,419.82	55.48	48.73	4.87	-495.92	-312.41	632.83	595.11	37.72	16.777		
10,300.00	9,838.50	9,500.00	9,399.00	56.31	48.62	4.98	-513.38	-315.70	709.16	671.21	37.95	18.685		
10,400.00	9,836.40	9,467.25	9,373.18	57.22	48.48	5.26	-533.09	-319.89	788.21	749.80	38.41	20.523		
10,500.00	9,834.31	9,452.00	9,360.73	58.19	48.41	5.37	-541.69	-321.80	870.14	831.23	38.92	22.359		
10,600.00	9,832.21	9,405.00	9,321.29	59.22	48.20	5.70	-566.45	-328.09	954.06	914.60	39.46	24.181		
10,700.00	9,830.12	9,392.59	9,310.67	60.31	48.14	5.79	-572.62	-329.88	1,039.28	999.22	40.07	25.938		
10,800.00	9,828.02	9,358.00	9,280.75	61.46	47.98	6.04	-589.17	-335.10	1,126.03	1,085.31	40.72	27.653		
10,900.00	9,825.93	9,358.00	9,280.75	62.66	47.98	6.04	-589.17	-335.10	1,213.85	1,172.43	41.42	29.306		
11,000.00	9,823.83	9,332.57	9,258.34	63.91	47.85	6.21	-600.53	-339.01	1,302.68	1,260.53	42.15	30.904		
11,100.00	9,821.74	9,311.00	9,238.98	65.21	47.74	6.33	-609.46	-342.23	1,392.72	1,349.81	42.91	32.455		
11,200.00	9,819.64	9,311.00	9,238.98	66.55	47.74	6.33	-609.46	-342.23	1,483.56	1,439.85	43.71	33.938		
11,300.00	9,817.54	9,311.00	9,238.98	67.93	47.74	6.33	-609.46	-342.23	1,575.51	1,530.97	44.54	35.369		
11,400.00	9,815.45	9,311.00	9,238.98	69.36	47.74	6.33	-609.46	-342.23	1,668.39	1,622.99	45.40	36.748		
11,500.00	9,813.35	9,286.15	9,216.19	70.82	47.61	6.46	-618.60	-346.04	1,761.04	1,714.78	46.26	38.065		
11,600.00	9,811.26	9,264.00	9,195.44	72.32	47.49	6.59	-625.43	-349.69	1,855.27	1,808.11	47.16	39.344		
11,700.00	9,809.16	9,264.00	9,195.44	73.85	47.49	6.59	-625.43	-349.69	1,949.35	1,901.27	48.08	40.547		
11,800.00	9,807.07	9,264.00	9,195.44	75.41	47.49	6.59	-625.43	-349.69	2,043.99	1,994.97	49.01	41.701		
11,900.00	9,804.97	9,264.00	9,195.44	77.00	47.49	6.59	-625.43	-349.69	2,139.11	2,089.14	49.97	42.808		
12,000.00	9,802.88	9,264.00	9,195.44	78.61	47.49	6.59	-625.43	-349.69	2,234.67	2,183.73	50.94	43.869		
12,100.00	9,800.78	9,264.00	9,195.44	80.25	47.49	6.59	-625.43	-349.69	2,330.60	2,278.67	51.92	44.886		
12,200.00	9,798.68	9,264.00	9,195.44	81.92	47.49	6.59	-625.43	-349.69	2,426.85	2,373.93	52.92	45.859		
12,300.00	9,796.59	9,264.00	9,195.44	83.61	47.49	6.59	-625.43	-349.69	2,523.40	2,469.47	53.93	46.793		
12,400.00	9,794.49	9,264.00	9,195.44	85.32	47.49	6.59	-625.43	-349.69	2,620.20	2,565.26	54.95	47.687		
12,500.00	9,792.40	9,241.67	9,174.17	87.05	47.37	6.70	-631.09	-353.43	2,716.54	2,660.58	55.96	48.545		
12,600.00	9,790.30	9,238.55	9,171.17	88.80	47.35	6.72	-631.79	-353.94	2,813.58	2,756.59	56.99	49.366		
12,700.00	9,788.21	9,217.00	9,150.32	90.56	47.23	6.81	-635.97	-357.41	2,911.28	2,853.27	58.02	50.181		
12,800.00	9,786.11	9,217.00	9,150.32	92.35	47.23	6.81	-635.97	-357.41	3,008.52	2,949.45	59.07	50.931		
12,900.00	9,784.02	9,217.00	9,150.32	94.15	47.23	6.81	-635.97	-357.41	3,105.94	3,045.81	60.13	51.652		
13,000.00	9,781.92	9,217.00	9,150.32	95.96	47.23	6.81	-635.97	-357.41	3,203.52	3,142.32	61.20	52.344		
13,100.00	9,779.82	9,217.00	9,150.32	97.79	47.23	6.81	-635.97	-357.41	3,301.24	3,238.96	62.28	53.010		
13,200.00	9,777.73	9,217.00	9,150.32	99.63	47.23	6.81	-635.97	-357.41	3,399.09	3,335.74	63.36	53.650		
13,300.00	9,775.63	9,217.00	9,150.32	101.48	47.23	6.81	-635.97	-357.41	3,497.07	3,432.63	64.44	54.266		
13,400.00	9,773.54	9,217.00	9,150.32	103.35	47.23	6.81	-635.97	-357.41	3,595.16	3,529.62	65.53	54.859		
13,500.00	9,771.44	9,217.00	9,150.32	105.22	47.23	6.81	-635.97	-357.41	3,693.35	3,626.72	66.63	55.430		
13,600.00	9,769.35	9,217.00	9,150.32	107.11	47.23	6.81	-635.97	-357.41	3,791.63	3,723.90	67.73	55.981		
13,700.00	9,767.25	9,217.00	9,150.32	109.01	47.23	6.81	-635.97	-357.41	3,890.00	3,821.17	68.84	56.511		
13,800.00	9,765.16	9,217.00	9,150.32	110.92	47.23	6.81	-635.97	-357.41	3,988.46	3,918.51	69.94	57.023		
13,900.00	9,763.06	9,217.00	9,150.32	112.83	47.23	6.81	-635.97	-357.41	4,086.99	4,015.93	71.06	57.517		
14,000.00	9,760.96	9,217.00	9,150.32	114.76	47.23	6.81	-635.97	-357.41	4,185.58	4,113.41	72.17	57.994		
14,100.00	9,758.87	9,217.00	9,150.32	116.69	47.23	6.81	-635.97	-357.41	4,284.25	4,210.95	73.29	58.455		
14,200.00	9,756.77	9,217.00	9,150.32	118.63	47.23	6.81	-635.97	-357.41	4,382.97	4,308.56	74.41	58.900		
14,300.00	9,754.68	9,217.00	9,150.32	120.58	47.23	6.81	-635.97	-357.41	4,481.75	4,406.21	75.54	59.330		
14,400.00	9,752.58	9,195.72	9,129.51	122.54	47.11	6.85	-639.22	-360.43	4,580.20	4,503.58	76.62	59.779		
14,500.00	9,750.49	9,193.77	9,127.59	124.50	47.10	6.86	-639.48	-360.67	4,679.01	4,601.26	77.74	60.185		
14,600.00	9,748.39	9,191.89	9,125.74	126.47	47.09	6.86	-639.73	-360.89	4,777.86	4,698.99	78.87	60.579		
14,700.00	9,746.29	9,169.00	9,103.12	128.44	46.96	6.83	-642.33	-363.20	4,877.13	4,797.22	79.91	61.033		
14,800.00	9,744.20	9,169.00	9,103.12	130.42	46.96	6.83	-642.33	-363.20	4,976.00	4,894.96	81.05	61.397		
14,900.00	9,742.39	9,169.00	9,103.12	132.41	46.96	10.18	-642.33	-363.20	5,074.96	4,990.29	84.67	59.938		
15,000.00	9,742.58	9,169.00	9,103.12	134.39	46.96	13.55	-642.33	-363.20	5,174.19	5,084.96	89.23	57.989		
15,100.00	9,742.98	9,169.00	9,103.12	136.38	46.96	13.55	-642.33	-363.20	5,273.47	5,183.06	90.42	58.325		

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 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 2H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
 TVD Reference: GL + KB @ 3285.00usft
 MD Reference: GL + KB @ 3285.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Offset Datum

Offset Design HH SO 8 P2 - 6HC - OH / Job #61219 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 170-MWD, 427-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	
15,200.00	9,743.38	9,169.00	9,103.12	138.38	46.96	13.55	-642.33	-363.20	5,372.78	5,281.18	91.61	58.651	
15,300.00	9,743.77	9,169.00	9,103.12	140.38	46.96	13.55	-642.33	-363.20	5,472.12	5,379.32	92.80	58.968	
15,400.00	9,744.17	9,169.00	9,103.12	142.39	46.96	13.55	-642.33	-363.20	5,571.47	5,477.48	93.99	59.276	
15,500.00	9,744.56	9,169.00	9,103.12	144.40	46.96	13.55	-642.33	-363.20	5,670.86	5,575.67	95.19	59.575	
15,600.00	9,744.96	9,169.00	9,103.12	146.41	46.96	13.55	-642.33	-363.20	5,770.26	5,673.87	96.39	59.866	
15,700.00	9,745.35	9,169.00	9,103.12	148.43	46.96	13.55	-642.33	-363.20	5,869.68	5,772.09	97.59	60.149	
15,800.00	9,745.75	9,169.00	9,103.12	150.45	46.96	13.55	-642.33	-363.20	5,969.12	5,870.34	98.79	60.425	
15,900.00	9,746.14	9,169.00	9,103.12	152.48	46.96	13.55	-642.33	-363.20	6,068.58	5,968.59	99.99	60.693	
16,000.00	9,746.54	9,169.00	9,103.12	154.51	46.96	13.55	-642.33	-363.20	6,168.06	6,066.87	101.19	60.954	
16,100.00	9,746.94	9,169.00	9,103.12	156.54	46.96	13.55	-642.33	-363.20	6,267.55	6,165.16	102.40	61.208	
16,200.00	9,747.33	9,169.00	9,103.12	158.58	46.96	13.55	-642.33	-363.20	6,367.06	6,263.46	103.60	61.456	
16,300.00	9,747.73	9,169.00	9,103.12	160.61	46.96	13.55	-642.33	-363.20	6,466.59	6,361.78	104.81	61.698	
16,400.00	9,748.12	9,169.00	9,103.12	162.66	46.96	13.55	-642.33	-363.20	6,566.13	6,460.11	106.02	61.933	
16,500.00	9,748.52	9,169.00	9,103.12	164.70	46.96	13.55	-642.33	-363.20	6,665.68	6,558.45	107.23	62.163	
16,600.00	9,748.91	9,169.00	9,103.12	166.75	46.96	13.55	-642.33	-363.20	6,765.25	6,656.81	108.44	62.387	
16,700.00	9,749.31	9,169.00	9,103.12	168.80	46.96	13.55	-642.33	-363.20	6,864.83	6,755.18	109.65	62.605	
16,800.00	9,749.71	9,169.00	9,103.12	170.85	46.96	13.55	-642.33	-363.20	6,964.42	6,853.55	110.87	62.819	
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17,000.00	9,750.50	9,169.00	9,103.12	174.97	46.96	13.55	-642.33	-363.20	7,163.64	7,050.34	113.29	63.230	
17,100.00	9,750.89	9,169.00	9,103.12	177.03	46.96	13.55	-642.33	-363.20	7,263.26	7,148.75	114.51	63.429	
17,200.00	9,751.29	9,169.00	9,103.12	179.09	46.96	13.55	-642.33	-363.20	7,362.90	7,247.17	115.73	63.623	
17,300.00	9,751.68	9,169.00	9,103.12	181.15	46.96	13.55	-642.33	-363.20	7,462.54	7,345.60	116.94	63.813	
17,400.00	9,752.08	9,169.00	9,103.12	183.22	46.96	13.55	-642.33	-363.20	7,562.19	7,444.03	118.16	63.998	
17,500.00	9,752.48	9,169.00	9,103.12	185.29	46.96	13.55	-642.33	-363.20	7,661.86	7,542.47	119.38	64.179	
17,600.00	9,752.87	9,169.00	9,103.12	187.36	46.96	13.55	-642.33	-363.20	7,761.53	7,640.93	120.60	64.357	
17,700.00	9,753.27	9,169.00	9,103.12	189.43	46.96	13.55	-642.33	-363.20	7,861.21	7,739.39	121.82	64.530	
17,800.00	9,753.66	9,169.00	9,103.12	191.51	46.96	13.55	-642.33	-363.20	7,960.90	7,837.85	123.04	64.700	
17,900.00	9,754.06	9,169.00	9,103.12	193.59	46.96	13.55	-642.33	-363.20	8,060.59	7,936.33	124.27	64.866	
18,000.00	9,754.45	9,169.00	9,103.12	195.66	46.96	13.55	-642.33	-363.20	8,160.29	8,034.81	125.49	65.028	
18,100.00	9,754.85	9,169.00	9,103.12	197.74	46.96	13.55	-642.33	-363.20	8,260.00	8,133.29	126.71	65.187	
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18,300.00	9,755.64	9,169.00	9,103.12	201.91	46.96	13.55	-642.33	-363.20	8,459.45	8,330.29	129.16	65.496	
18,400.00	9,756.04	9,169.00	9,103.12	203.99	46.96	13.55	-642.33	-363.20	8,559.18	8,428.79	130.39	65.645	
18,500.00	9,756.43	9,169.00	9,103.12	206.08	46.96	13.55	-642.33	-363.20	8,658.91	8,527.30	131.61	65.792	
18,600.00	9,756.83	9,169.00	9,103.12	208.17	46.96	13.55	-642.33	-363.20	8,758.66	8,625.82	132.84	65.935	
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18,800.00	9,757.62	9,169.00	9,103.12	212.35	46.96	13.55	-642.33	-363.20	8,958.16	8,822.87	135.29	66.214	
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19,000.00	9,758.41	9,169.00	9,103.12	216.53	46.96	13.55	-642.33	-363.20	9,157.68	9,019.94	137.75	66.482	
19,100.00	9,758.81	9,169.00	9,103.12	218.62	46.96	13.55	-642.33	-363.20	9,257.45	9,118.48	138.97	66.613	
19,200.00	9,759.20	9,169.00	9,103.12	220.72	46.96	13.55	-642.33	-363.20	9,357.23	9,217.02	140.20	66.740	
19,300.00	9,759.60	9,169.00	9,103.12	222.82	46.96	13.55	-642.33	-363.20	9,457.01	9,315.57	141.43	66.866	
19,400.00	9,759.99	9,169.00	9,103.12	224.91	46.96	13.55	-642.33	-363.20	9,556.79	9,414.13	142.66	66.989	
19,500.00	9,760.39	9,169.00	9,103.12	227.01	46.96	13.55	-642.33	-363.20	9,656.58	9,512.68	143.89	67.109	
19,600.00	9,760.78	9,169.00	9,103.12	229.11	46.96	13.55	-642.33	-363.20	9,756.37	9,611.25	145.12	67.228	
19,700.00	9,761.18	9,169.00	9,103.12	231.21	46.96	13.55	-642.33	-363.20	9,856.17	9,709.81	146.35	67.344	
19,800.00	9,761.58	9,169.00	9,103.12	233.31	46.96	13.55	-642.33	-363.20	9,955.97	9,808.38	147.59	67.459	

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

Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report

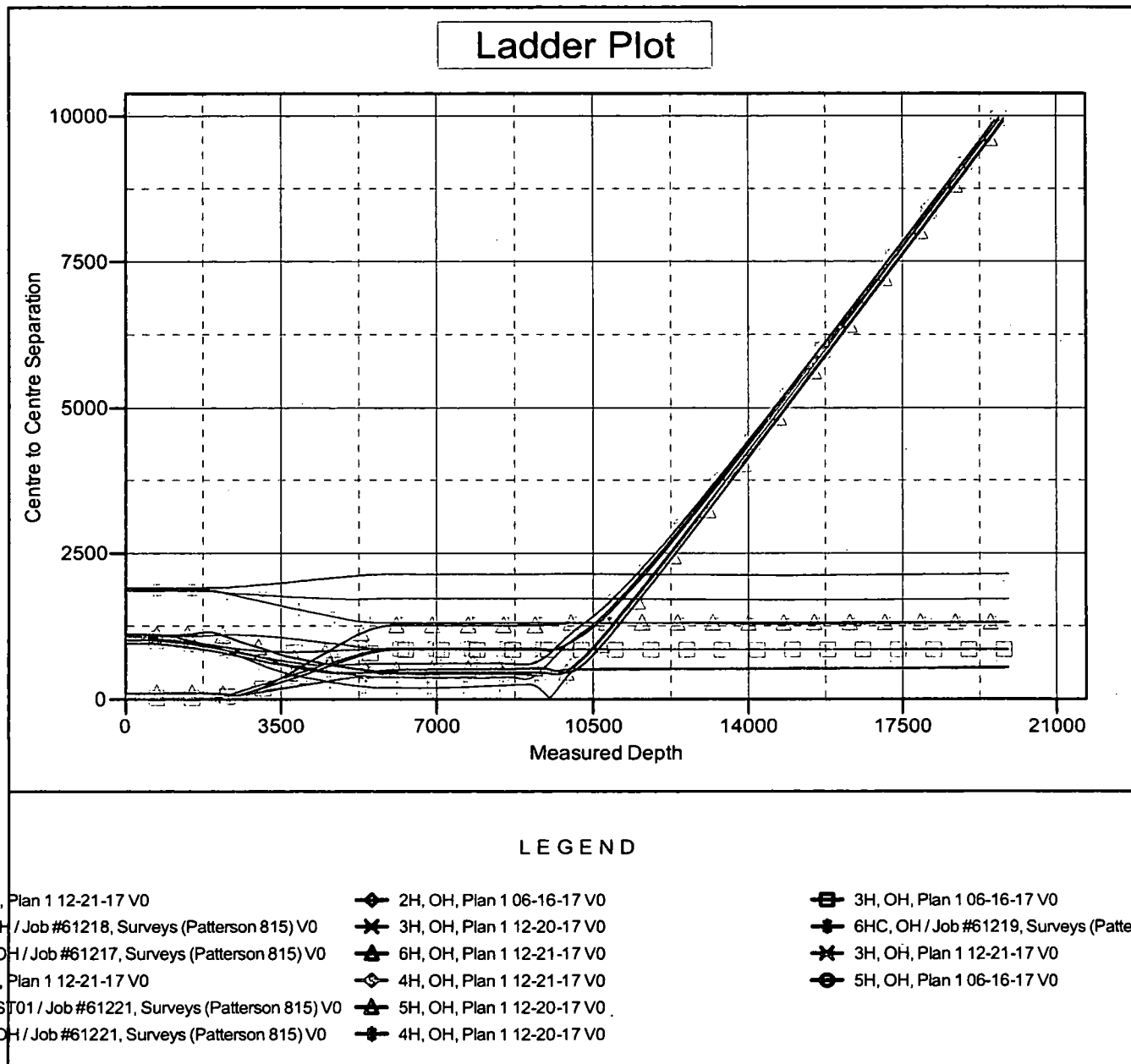


Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 2H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 12-21-17

Local Co-ordinate Reference: Well 2H
TVD Reference: GL + KB @ 3285.00usft
MD Reference: GL + KB @ 3285.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Reference Depths are relative to GL + KB @ 3285.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 2H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.06°



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Phoenix Technology Services LP

Anticollision Report



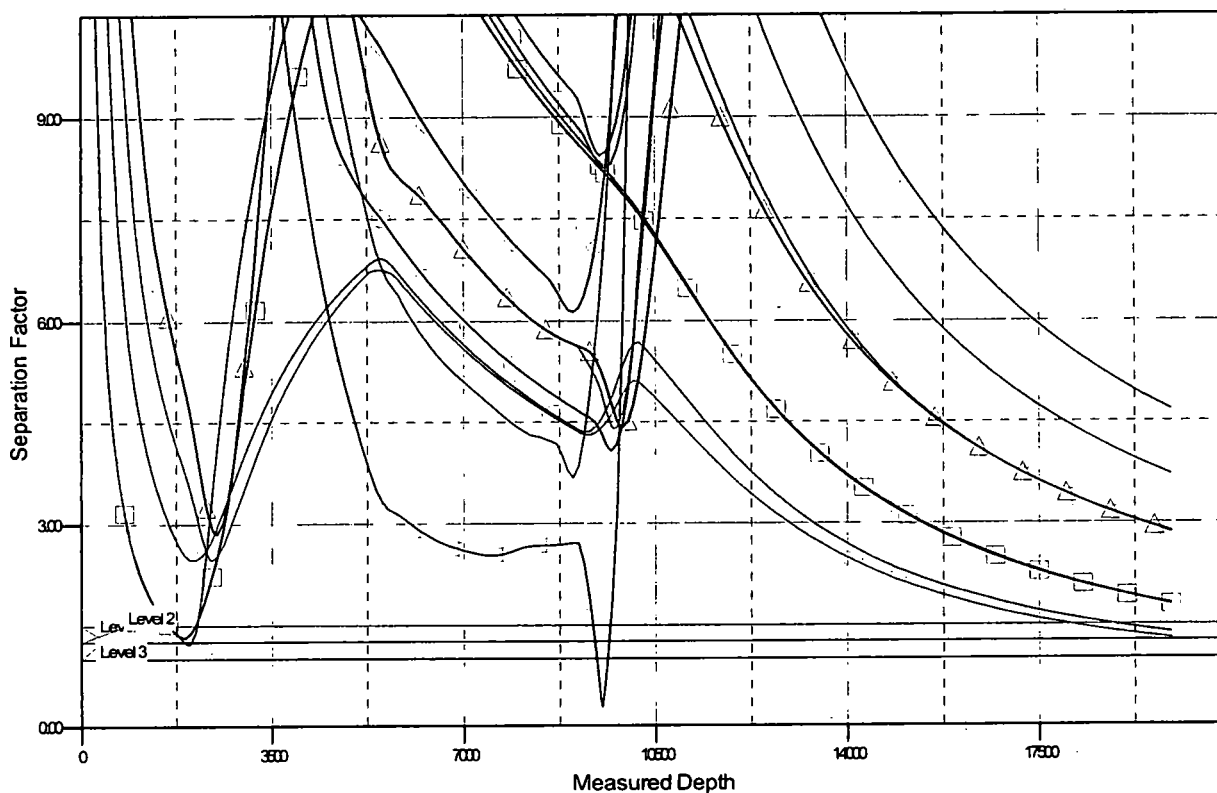
Company: Chevron
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Site Error: 0.00 usft
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Reference Depths are relative to GL + KB @ 3285.00usft
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Central Meridian is 104° 19' 60.00000 W

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Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.06°

Separation Factor Plot



LEGEND

- | | | |
|---|----------------------------|--|
| 1, Plan 1 12-21-17 V0 | 2H, OH, Plan 1 06-16-17 V0 | 3H, OH, Plan 1 06-16-17 V0 |
| 2H / Job #61218, Surveys (Patterson 815) V0 | 3H, OH, Plan 1 12-20-17 V0 | 6HC, OH / Job #61219, Surveys (Patterson 815) V0 |
| OH / Job #61217, Surveys (Patterson 815) V0 | 6H, OH, Plan 1 12-21-17 V0 | 3H, OH, Plan 1 12-21-17 V0 |
| 1, Plan 1 12-21-17 V0 | 4H, OH, Plan 1 12-21-17 V0 | 5H, OH, Plan 1 06-16-17 V0 |
| ST01 / Job #61221, Surveys (Patterson 815) V0 | 5H, OH, Plan 1 12-20-17 V0 | |
| OH / Job #61221, Surveys (Patterson 815) V0 | 4H, OH, Plan 1 12-20-17 V0 | |

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

Approval Date: 07/06/2018

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	CHEVRON USA INCORPORATED
LEASE NO.:	NMNM118108
WELL NAME & NO.:	HH SO 17 20 FED 001 2H
SURFACE HOLE FOOTAGE:	305'/S & 1873'W
BOTTOM HOLE FOOTAGE	280'/S & 1590'W
LOCATION:	SECTION 8, T26S, R37E
COUNTY:	EDDY

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.

VI. CONSTRUCTION**A. NOTIFICATION**

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

G. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the

event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

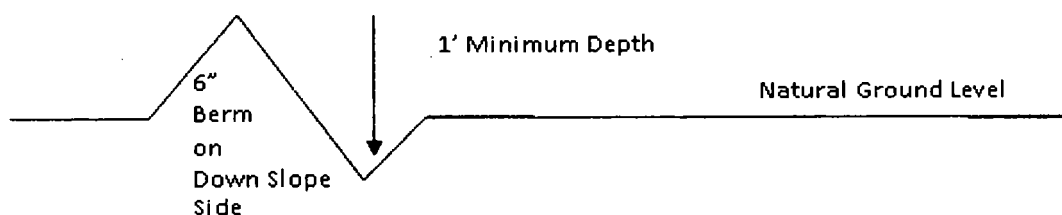
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

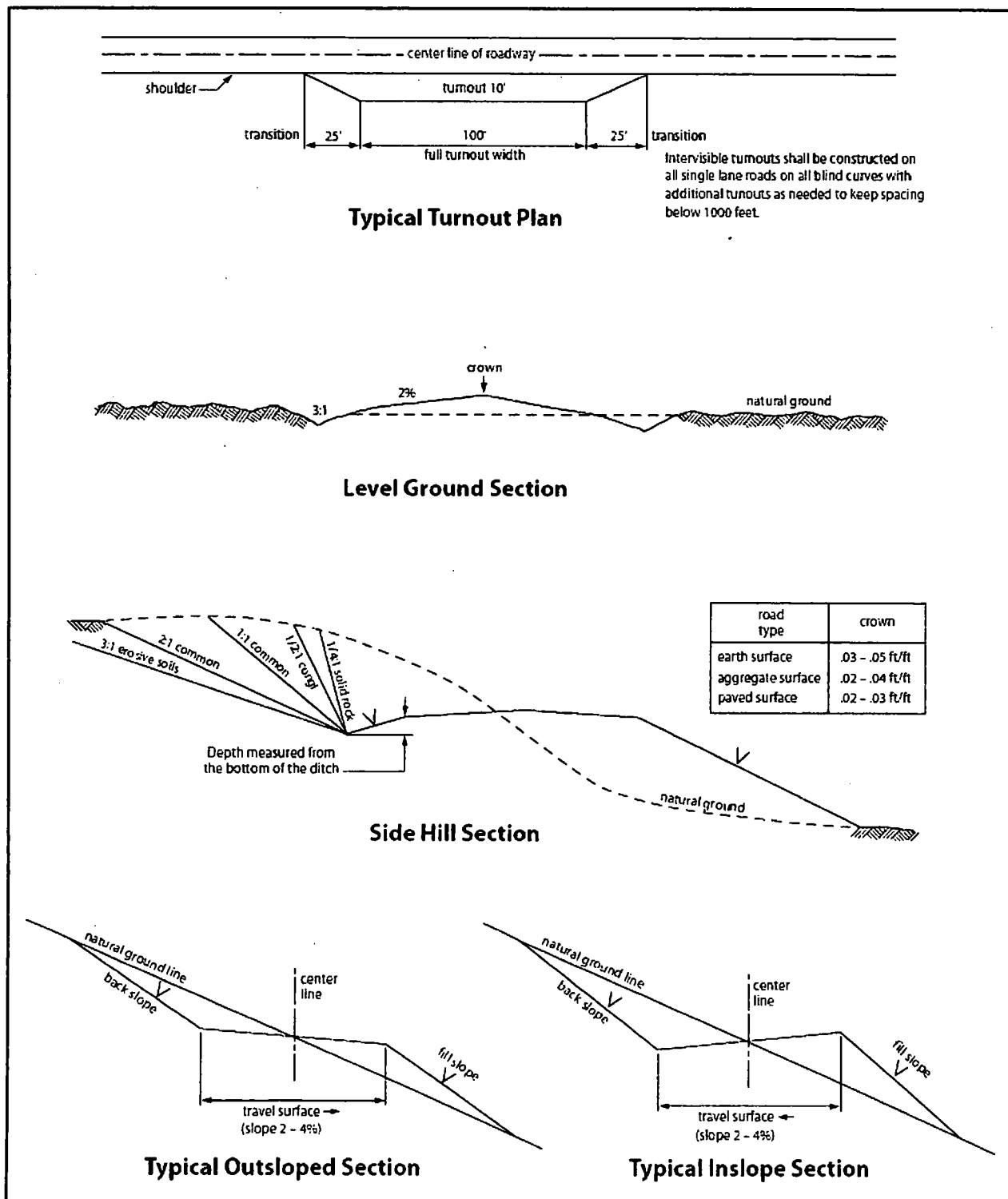


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

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

Containment Structures

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

Painting Requirement

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

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

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

c. Acts of God.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STANDARD STIPULATIONS FOR BURIED PIPELINE STIPULATIONS

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

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

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

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

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

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

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

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

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

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

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

intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.)

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

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

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

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

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

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

(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

07/09/2018

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: Dorian K Fuentes

Signed on: 08/14/2017

Title: Permitting Specialist

Street Address: 6301 Deauville Blvd

City: Midland

State: TX

Zip: 79706

Phone: (432)687-7631

Email address: djvo@chevron.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



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

Application Data Report

07/09/2018

APD ID: 10400019490

Submission Date: 08/17/2017

Highlighted data
reflects the most
recent changes

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400019490

Tie to previous NOS?

Submission Date: 08/17/2017

BLM Office: CARLSBAD

User: Dorian K Fuentes

Title: Permitting Specialist

Federal/Indian APD: FED

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

Lease number: NMNM118108

Lease Acres: 1120

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: CHEVRON USA INCORPORATED

Operator letter of designation:

Operator Info

Operator Organization Name: CHEVRON USA INCORPORATED

Operator Address: 6301 Deauville Blvd.

Zip: 79706

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)687-7866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Master Development Plan name: HAYHURST DEVELOPMENT
AREA

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: HH SO 17 20 FED 001

Well Number: 2H

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 17 20 FED 001

Well Number: 2H

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
17 20 FED 001

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: 11.5 Miles

Distance to nearest well: 4300 FT

Distance to lease line: 330 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: HH_SO_17_20_FED_001_2H_C_102_08-14-2017.pdf

Well work start Date: 12/28/2017

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	305	FSL	187 3	FWL	26S	27E	8	Aliquot SESW 6	32.05060 6	- 104.2148 62	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 118108	325 7	0	0
KOP Leg #1	305	FSL	187 3	FWL	26S	27E	8	Aliquot SESW 6	32.05060 6	- 104.2148 62	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 118108	325 7	0	0
PPP Leg #1	330	FNL	159 0	FWL	26S	27E	17	Aliquot NENW 3	32.04886 3	- 104.2157 52	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	- 574 3	120 00	900 0

APD ID: 10400019490

Submission Date: 08/17/2017

Highlighted data
reflects the most
recent changes

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Show Final Text

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	CASTILE	3626	505	505	LIMESTONE, ANHYDRITE, GYPSUM	NONE	No
2	BELL CANYON	1316	2310	2310	SANDSTONE	NONE	No
3	LAMAR LS	1231	2395	2395	LIMESTONE	NONE	No
4	CHERRY CANYON	418	3208	3208	SANDSTONE	NONE	No
5	BRUSHY CANYON	-824	4450	4450	SANDSTONE	NONE	No
6	BONE SPRING	-2673	6299	6299	LIMESTONE	NONE	No
7	BONE SPRING 1ST	-3262	6888	6888	SANDSTONE	NONE	No
8	BONE SPRING 1ST	-3288	6914	6914	SHALE, SANDSTONE	NONE	No
9	2ND BONE SPRING CARB	-3995	7621	7621	SANDSTONE	NONE	No
10	3RD BONE SPRING CARB	-4991	8617	8617	LIMESTONE	NONE	No
11	WOLFCAMP	-6403	10029	10029	MUDSTONE	NATURAL GAS, OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10029

Equipment: Will have a minimum of 5000 PSI rig stack for drill out below surface casing. Stack will be treated as specified in the attached requirements.

Requesting Variance? YES

Variance request: Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold and Chevron would also like to request another variance to use a FMC technologies conventional well head 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

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Choke Diagram Attachment:

HH_SO_17_20_FED_001_2H_Choke_Diagram_08-17-2017.pdf

BOP Diagram Attachment:

HH_SO_17_20_FED_001_2H_BOP_Diagram_08-17-2017.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	450	0	450	-5743	-6193	450	K-55	54.5	STC	5.11	1.82	DRY	2.31	DRY	3.97
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	8700	0	8700	-5743	-14443	8700	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	20402	0	20402	-5743	-26145	20402	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_17_20_FED_001_2H_9_Pt_08-14-2017.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Casing Attachments

Casing ID: 2 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

HH_SO_17_20_FED_001_2H_9.625_TXP_08-14-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH_SO_17_20_FED_001_2H_9.625_TXP_08-14-2017.pdf

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_17_20_FED_001_2H_P110_TXP_08-14-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	450	356	1.33	14.8	6.37	50	C	CLASS C

INTERMEDIATE	Lead	2100	0	1100	213	2.43	11.9	14.21	50	50:50 POZ: C	CLASS C + ANTIFOAM, EXTENDER, SALT, RETARDER
INTERMEDIATE	Tail		1100	2100	235	1.33	14.8	6.37	0	CLASS C	CLASS C + ANTIFOAM, RETARDER,

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											VISCOSIFIER
INTERMEDIATE	Lead	2100	2100	8015	838	2.43	11.9	13.76	10	H	50:50 POZ: CLASS H + EXTENDER, ANTIFOAM, RETARDER, SALT, VISCOSIFIER
INTERMEDIATE	Tail		8015	8700	389	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	2040 2	2643	1.2	15.6	5.3	10	H	CL 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 muddling up to determine, as applicable density, viscosity, gel strength, filtration, and pH. Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated a PVT, stroke counter, flow sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume in compliance with Onshore Order #2.

Circulating Medium Table

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

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	9	9.5							
450	8700	OIL-BASED MUD	9	9.5							
8700	20402	OIL-BASED MUD	10	13							The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 9.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure. To control pressure we are using 13.5 and may end up using heavier mud weight to 14.0.

Section 6 - Test, Logging, Coring

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

Drill stem tests are not planned

The logging program will be as follows:

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

Type: LWD Logs: MWD gamma Interval: Int. and Prod. Hole Timing: while drilling Vendor: TBD

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

GR,MWD,MUDLOG

Coring operation description for the well:

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

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6780

Anticipated Surface Pressure: 4573.62

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

HH_SO_17_20_FED_001_2H_H2S_08-14-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH_SO_17_20_FED_001_2H_Rig_Pad_Layout_08-14-2017.pdf

HH_SO_17_20_FED_001_2H_Directional_Plan_08-14-2017.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

CHOKE MANIFOLD SCHEMATIC

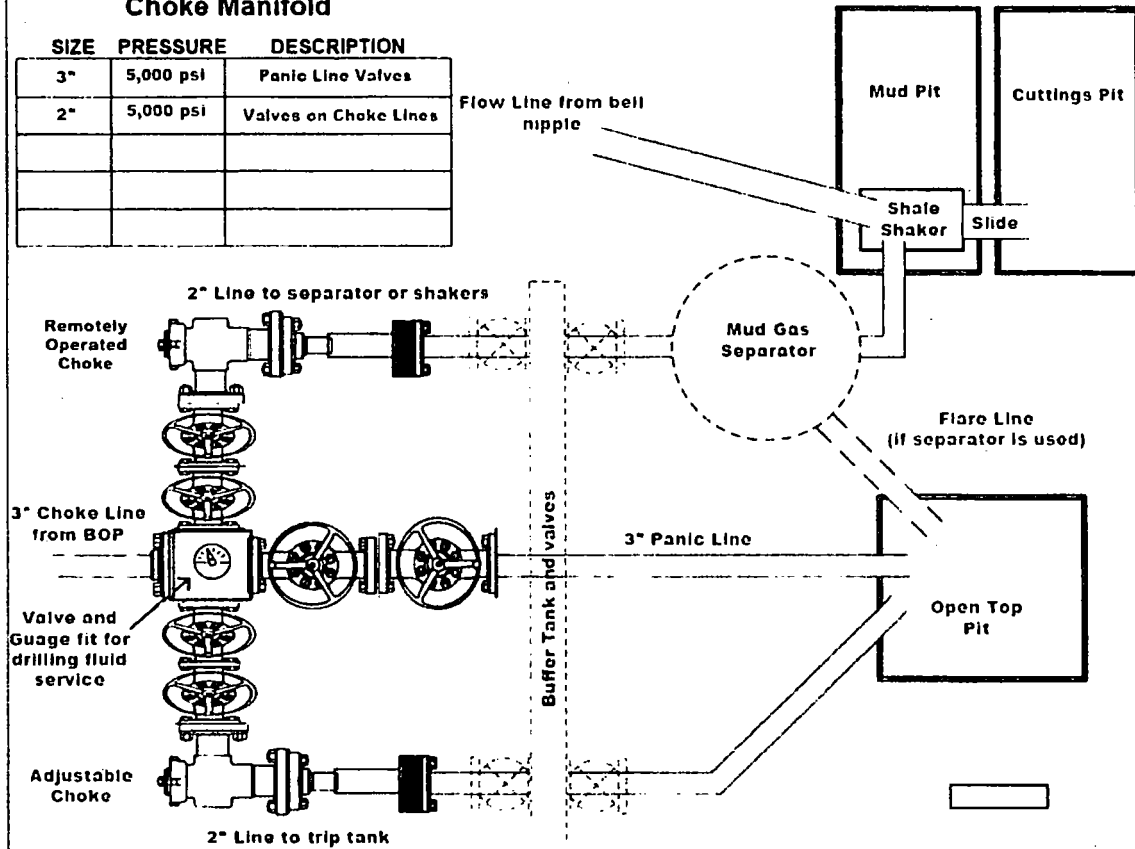
Minimum Requirements

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 item must be verified and checked off prior to pressure testing of BOP equipment.

- ☐ The installed BOP equipment meets at least the minimum requirements (rating, type, size, configuration) as shown on this schematic. Components may be substituted for equivalent equipment rated to higher pressures. Additional components may be put into place as long as they meet or exceed the minimum pressure rating of the system.
- ☐ Adjustable Chokes may be Remotely Operated but will have backup hand pump for hydraulic actuation in case of loss of rig air pressure or power.
- ☐ Flare and Panic lines will terminate a minimum of 150' from the wellhead. These lines will terminate at a location as per approved APD.
- ☐ The choke line, kill line, and choke manifold lines will be straight unless turns use toe blocks or are targeted with running tool, and will be anchored to prevent whip and reduce vibration. This excludes the line between mud gas separator and shale shaker.
- ☐ All valves (except chokes) on choke line, kill line, and choke manifold will be full opening and will allow straight through flow. This excludes any valves between mud gas separator and shale shakers.
- ☐ All manual valves will have hand wheels installed.
- ☐ If used, flare system will have effective method for ignition
- ☐ All connections will be flanged, welded, or clamped (no threaded connections like hammer unions)
- ☐ If buffer tank is used, a valve will be used on all lines at any entry or exit point to or from the buffer tank.

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

Wellname: _____

Representative: _____

Date: _____

BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

OPERATION : Intermediate and Production Hole Sections

Minimum System Pressure Rating : 5,000 psi

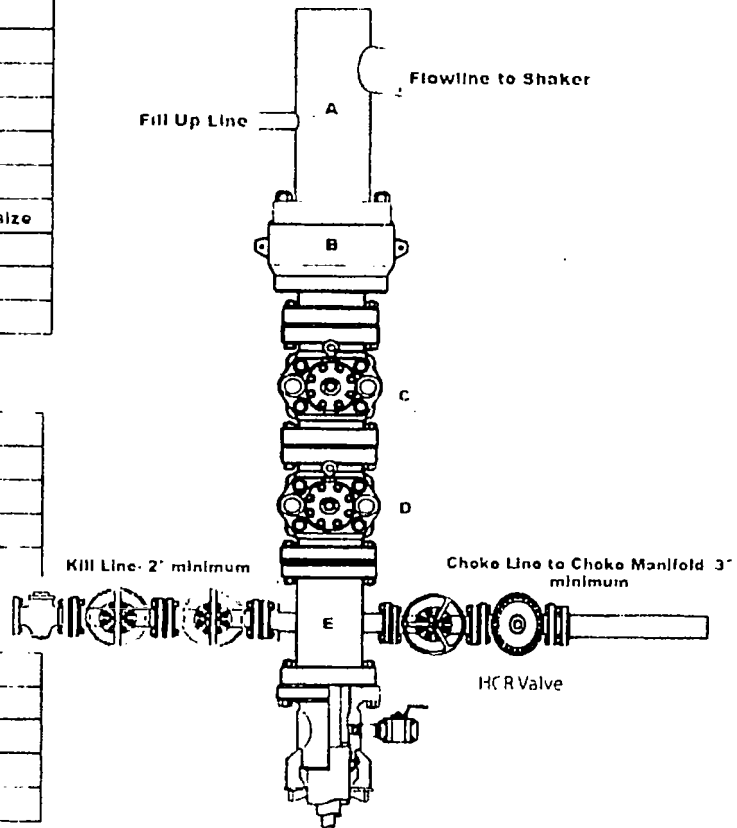
SIZE	PRESSURE	DESCRIPTION
A	N/A	Bell Nipple
B	13 5/8"	5,000 psi Annular
C	13 5/8"	5,000 psi Pipe Ram
D	13 5/8"	5,000 psi Blind Ram
E	13 5/8"	5,000 psi Mud Cross
F		
DSA	As required for each hole size	
C-Sec		
B-Sec	13-5/8" 5K x 11" 5K	
A-Sec	13-3/8" SOW x 13-5/8" 5K	

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 preventors. Hand wheels will also be installed on all manual valves on the choke line and kill line.
- ☐ A valve will be installed in the closing line as close as possible to the annular preventor 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: _____

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 seal and 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: _____

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

February 08 2017



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

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

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

BLANKING DIMENSIONS

Blanking Dimensions

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

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

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

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

17 NOV

828

Out:

[illegible]

2.1.1

One

Q4Gm	Wofcamo A	9742
Q4Gm	Wofcamo D	10028

123456789101112131415161718192021222324252627282930313233343536373839404142434445464748495051525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899100

8

2

KEY

Process	Q	450	12-1/2"	13-3/8"	54.5 #	K-65	51C	New
Surface	0	450	12-1/2"	13-3/8"	54.5 #	K-65	51C	New
Intermediary	0	6700	12-1/4"	9-5/8"	43.5 #	L-80	12P	New
Production	0	4000000	8-1/2"	5-1/2"	20.0 #	P-110	12P	New

Item:

Casting Storing	Min SF Burst	Min SF Collapse	Min SF Tension	Min BF Tm-Aval
Surface	1.82	5.11	3.97	2.31
Intermediate	1.43	3.32	1.78	1.84
Production	1.26	1.5	2.43	1.35

Notes:

	P external water
	P internal water

2

NOTE

[illegible]

REV

T	450°	500 Mod	0	0	0
450°	0.700°	0.8M	9.0-9.5	50-70	6.0-10
9.300°	9.400-10.0°	0.8M	10.0-13.0	50-70	9.0-10

OHIO

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

February 08 2017



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

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

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

BLANKING DIMENSIONS

Blanking Dimensions

- (1) Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.
- (2) Structural rating, pure bending to yield (i.e no other loads applied)
- (3) Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed. For additional information, please contact us at contact-tenarishydril@tenaris.com

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



H₂S Preparedness and Contingency Plan Summary

Hayhurst Eddy County, New Mexico

Training

MCBU Drilling and Completions H₂S training requirements are intended to define the minimum level of training required for employees, contractors and visitors to enter or perform work at MCBU Drilling and Completions locations that have known concentrations of H₂S.

Awareness Level

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

1. Physical and chemical properties of H₂S
2. Health hazards of H₂S
3. Personal protective equipment
4. Information regarding potential sources of H₂S
5. Alarms and emergency evacuation procedures

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

Advanced Level H₂S Training

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

1. H₂S safe work practice procedures;
2. Emergency contingency plan procedures;
3. Methods to detect the presence or release of H₂S (e.g., alarms, monitoring equipment), including hands-on training with direct reading and personal monitoring H₂S equipment.
4. Basic overview of respiratory protective equipment suitable for use in H₂S environments. Note: Employees who work at sites that participate in the Chevron Respirator User program will require separate respirator training as required by the MCBU Respiratory Protection Program;
5. Basic overview of emergency rescue techniques, first aid, CPR and medical evaluation procedures. Employees who may be required to perform "standby" duties are required to receive additional first aid and CPR training, which is not covered in the Advanced Level H₂S training;
6. Proficiency examination covering all course material

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



H₂S Training Certification

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

Briefing Area

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

H₂S Equipment

Respiratory Protection

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

Visual Warning System

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

H₂S Detection and Monitoring System

- a) H₂S monitoring system (sensor head, warning light and siren) placed throughout rig.
 - Drilling Rig Locations: at a minimum, in the area of the Shale shaker, rig floor, and bell nipple.
 - Workover Rig Locations: at a minimum, in the area of the Cellar, rig floor and circulating tanks or shale shaker.

H₂S Preparedness and Contingency Plan Summary



Well Control Equipment

- a) Flare Line 150' from wellhead with igniter.
- b) Choke manifold with a remotely operated choke.
- c) Mud / gas separator

Mud Program

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

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

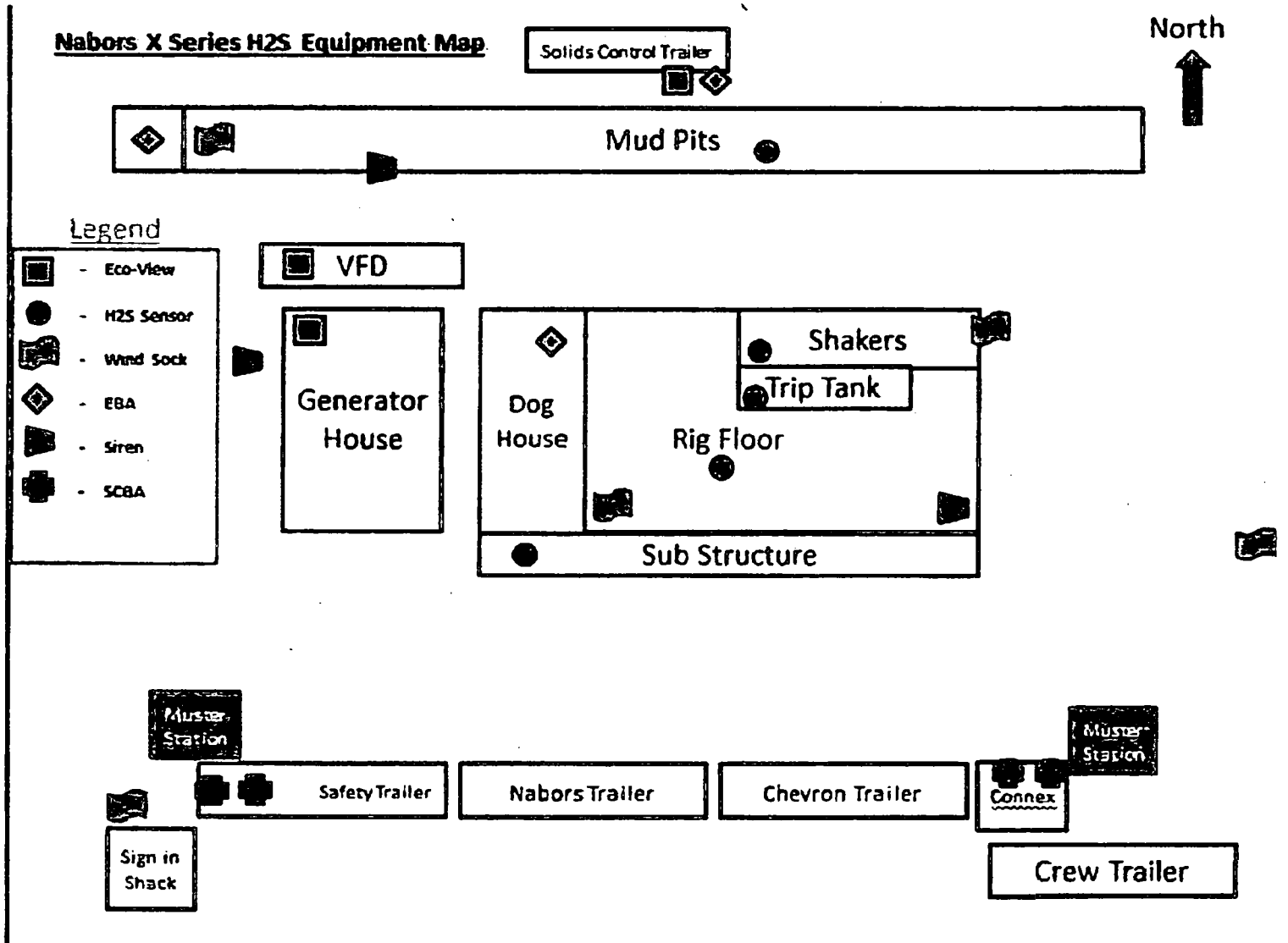
Public Safety - Emergency Assistance

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

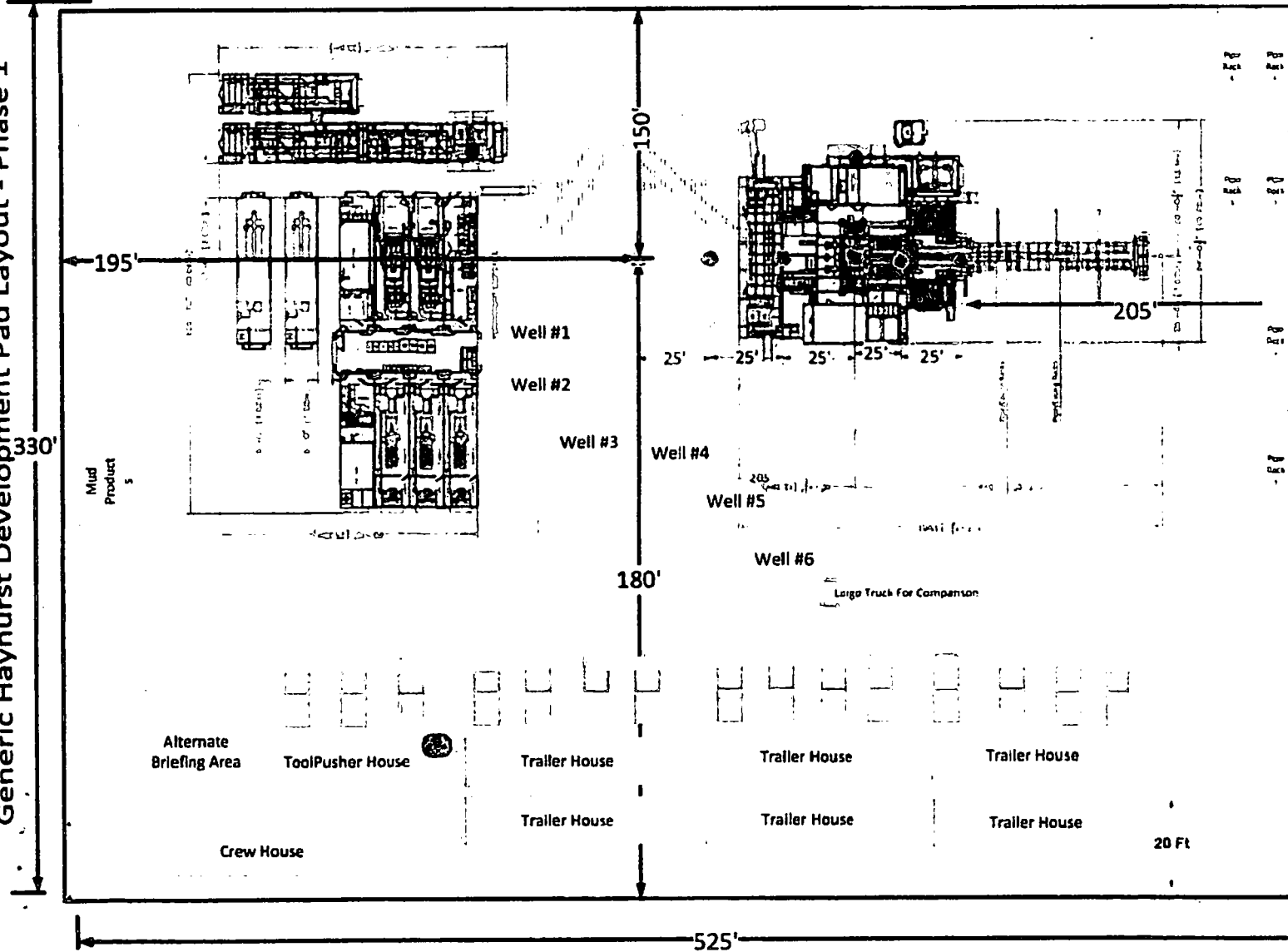
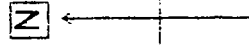
H₂S Preparedness and Contingency Plan Summary



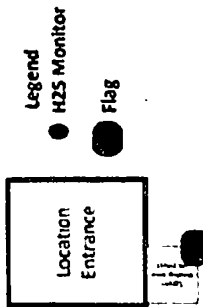
Nabors X Series H₂S Equipment Map

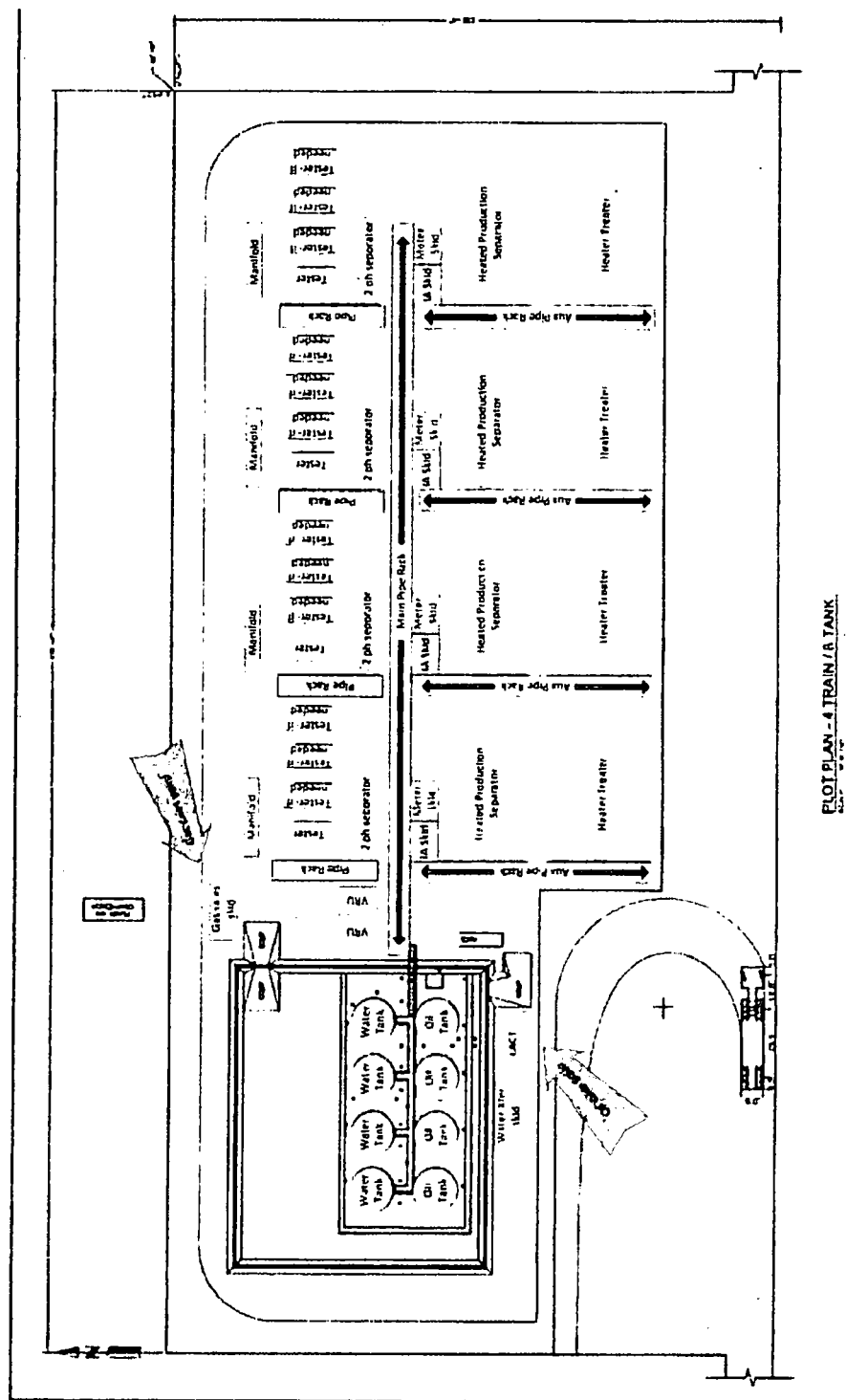


Generic Hayhurst Development Pad Layout - Phase 1



- H2S Monitor Locations**
- Bop/Celer
 - Rig Floor
 - Shaker Sld
 - Bad Nipple
- Flag Location**
- Sign-in Shack
 - Rig Floor
 - Dog House
- 10 Minute Escape Pads**
- 1 at Pits
 - 1 at Trip Tank
 - 1 at Accumulator
 - 6 at Rig Floor
- 45 Minute Escape Pads**
- 2 at Briefing Area
 - 2 at Alternate Briefing Area





FLOT PLAN - 4 TRAIN / R TANK

Directional Survey

Well Name HH 50 17 20 FED 001 2H
Ground Level (ft) 3257
KB (ft) 3285

Comments	Measured Depth (ft)	Inclination (°)	Azimuth (ON)	Azimuth (TN)	Total Vertical Depth (ft)	DX	DY	DTN	DYTN	DLS (°/100ft)	X	Y	Z
KOP	0.00	0.00	259.67	260.09	-89.35	-0.36	12.32	-0.27	12.33	0.0	1883752.71	11634207.84	3285.58
	98.43	0.00	259.67	260.09	9.08	-0.36	12.32	-0.27	12.33	0.0	1883752.71	11634207.84	3187.58
	123.30	0.75	259.67	260.09	33.95	-0.52	12.29	-0.43	12.30	3.0	1883752.55	11634207.81	3162.70
	148.17	1.49	259.67	260.09	58.82	-1.00	12.20	-0.91	12.21	3.0	1883752.07	11634207.72	3137.83
	173.05	2.24	259.67	260.09	83.68	-1.79	12.06	-1.71	12.08	3.0	1883751.28	11634207.58	3112.97
	9288.38	2.24	259.67	260.09	9192.06	-351.97	-51.75	-352.45	-49.20	0.0	1883401.10	11634143.77	-5595.95
	9314.85	3.76	215.83	216.24	9218.49	-352.98	-52.55	-353.47	-49.99	10.0	1883400.09	11634142.97	-6021.84
	9341.32	6.11	201.09	201.50	9244.86	-354.00	-54.56	-354.50	-52.00	10.0	1883399.07	11634140.96	-6048.21
	9367.78	8.63	194.70	195.12	9271.11	-355.01	-57.80	-355.53	-55.23	10.0	1883397.06	11634133.28	-6100.53
	9394.25	11.20	191.21	191.63	9297.18	-356.01	-62.24	-356.57	-59.66	10.0	1883397.06	11634133.28	-6100.53
	9420.72	13.81	189.02	189.43	9323.01	-357.00	-67.88	-357.61	-65.30	10.0	1883396.07	11634127.64	-6126.36
	9447.19	16.43	187.51	187.93	9348.56	-357.99	-74.71	-358.64	-72.12	10.0	1883394.11	11634112.81	-6177.12
	9473.66	19.05	186.41	186.83	9373.77	-358.96	-82.71	-359.67	-80.12	10.0	1883393.15	11634103.65	-6201.93
	9500.12	21.68	185.57	185.98	9398.58	-359.92	-91.87	-360.69	-89.28	10.0	1883393.15	11634103.65	-6201.93
	9526.59	24.32	184.90	185.31	9422.94	-360.85	-102.16	-361.71	-99.57	10.0	1883391.30	11634093.36	-6226.29
	9553.06	26.95	184.35	184.77	9446.80	-361.77	-113.57	-362.71	-110.97	10.0	1883389.44	11634081.95	-6250.15
	9579.53	29.59	183.90	184.31	9470.11	-362.67	-126.07	-363.70	-123.47	10.0	1883389.44	11634076.45	-6273.46
	9605.99	32.23	183.51	183.93	9492.82	-363.55	-139.63	-364.68	-137.03	10.0	1883389.44	11634065.89	-6296.17
	9632.46	34.87	183.18	183.60	9514.87	-364.40	-154.23	-365.64	-151.62	10.0	1883387.84	11634041.29	-6318.22
	9658.93	37.51	182.89	183.30	9536.26	-365.23	-166.83	-366.58	-167.22	10.0	1883387.84	11634026.69	-6339.58
	9685.40	40.15	182.63	183.04	9556.85	-366.02	-186.40	-367.49	-183.79	10.0	1883387.05	11634009.12	-6360.20
	9711.87	42.80	182.40	182.81	9576.68	-366.79	-204.91	-368.39	-201.30	10.0	1883386.28	11633991.61	-6380.03
	9738.33	45.44	182.19	182.60	9595.68	-367.53	-222.31	-369.26	-219.70	10.0	1883385.54	11633973.21	-6399.03
	9764.80	48.08	181.99	182.41	9613.03	-368.23	-241.57	-370.10	-238.96	10.0	1883384.17	11633955.95	-6417.16
	9791.27	50.73	181.82	182.23	9631.03	-368.90	-261.65	-370.91	-259.04	10.0	1883384.17	11633933.87	-6434.38
	9817.74	53.37	181.65	182.07	9647.31	-369.53	-282.50	-371.70	-279.90	10.0	1883383.94	11633913.02	-6450.66
	9844.20	56.01	181.50	181.92	9662.60	-370.12	-304.08	-372.45	-301.48	10.0	1883382.99	11633891.44	-6466.95
	9870.67	58.66	181.36	181.77	9676.89	-370.68	-326.35	-373.16	-323.75	10.0	1883382.99	11633868.17	-6480.24
	9897.14	61.30	181.22	181.64	9690.13	-371.19	-349.25	-373.85	-346.65	10.0	1883381.68	11633846.27	-6493.48
	9923.61	63.95	181.09	181.51	9702.30	-371.66	-372.74	-374.49	-370.15	10.0	1883381.41	11633822.78	-6505.85
	9950.08	66.59	180.97	181.39	9713.37	-372.10	-396.76	-375.10	-394.18	10.0	1883380.97	11633798.76	-6516.72
	9976.54	69.23	180.85	181.27	9723.32	-372.48	-421.27	-375.67	-418.69	10.0	1883380.24	11633774.25	-6526.67
	10003.01	71.88	180.74	181.15	9732.13	-372.83	-446.22	-376.19	-443.64	10.0	1883380.24	11633749.30	-6535.48
	10029.48	74.52	180.62	181.04	9739.78	-373.13	-471.55	-376.68	-468.97	10.0	1883379.94	11633723.97	-6543.13
	10055.95	77.17	180.52	180.93	9746.25	-373.39	-497.20	-377.12	-494.63	10.0	1883379.68	11633698.32	-6549.60
	10082.42	79.81	180.41	180.83	9751.53	-373.60	-523.12	-377.52	-520.56	10.0	1883379.47	11633674.25	-6554.88
	10108.88	82.46	180.31	180.72	9755.61	-373.76	-549.26	-377.87	-546.71	10.0	1883379.31	11633646.26	-6558.96
	10135.35	85.10	180.20	180.62	9758.48	-373.86	-575.56	-378.16	-573.02	10.0	1883379.19	11633619.96	-6561.83
	10161.82	87.75	180.10	180.52	9760.13	-373.95	-601.97	-378.44	-599.43	10.0	1883379.12	11633593.55	-6563.48
First Take Point	10188.29	90.39	180.00	180.42	9760.56	-373.97	-628.42	-378.66	-625.89	10.0	1883379.10	11633567.10	-6563.91
	10239.74	90.69	179.58	180.00	9760.07	-373.78	-679.86	-378.84	-677.34	1.0	1883379.29	11633515.66	-6563.42
	10291.20	90.99	179.16	179.58	9759.32	-373.22	-731.29	-378.65	-728.80	1.0	1883379.85	11633464.23	-6562.67
	10342.66	91.28	178.74	179.16	9758.30	-372.77	-782.71	-378.08	-780.24	1.0	1883380.80	11633412.81	-6561.65
	15193.03	91.28	178.74	179.16	9649.70	-265.59	-562.08	-306.64	-562.87	0.0	1883487.68	11628566.44	-6453.05
	15236.74	90.89	178.92	179.34	9648.87	-264.70	-567.76	-306.06	-567.57	1.0	1883488.37	11628522.76	-6452.22
	15280.45	90.49	179.11	179.53	9648.35	-263.95	-571.645	-305.63	-571.627	1.0	1883489.12	11628479.07	-6451.70
	15324.16	90.10	179.30	179.71	9648.12	-263.34	-576.014	-305.34	-575.98	1.0	1883489.73	11628435.38	-6451.47
	15367.87	89.70	179.48	179.90	9648.20	-262.88	-5803.83	-305.19	-5803.69	1.0	1883490.19	11628391.69	-6451.55
Last Take Point	20377.08	89.70	179.48	179.90	9673.50	-219.16	-10631.17	-296.58	-10632.83	0.0	1883593.91	11623564.35	-6476.85
Bottom Hole Location	20377.08	89.70	179.48	179.90	9674.45	-217.53	-10811.10	-296.26	-10812.83	0.0	1883595.54	11623584.42	-6477.80



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

SUPO Data Report

07/09/2018

APD ID: 10400019490

Submission Date: 08/17/2017

Highlighted data
reflects the most
recent changes

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Show Final Text

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

HH_SO_17_20_FED_001_2H_Roads_08-14-2017.pdf

Existing Road Purpose: ACCESS, FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

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

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH_SO_17_20_FED_001_2H_New_Roads_08-14-2017.pdf

New road type: LOCAL

Length: 5148

Feet

Width (ft.): 24

Max slope (%): 2

Max grade (%): 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 24

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

New road access erosion control: Erosion / Drainage: Drainage control system shall be constructed on the entire length of road by the use of any of the following: ditching and will be graveled as needed for drilling, side hill out-sloping and in-sloping, lead-off ditches, culvert installation, or low water crossings, culverts, and water bars where needed: straw waddles will be used on the down-slope side of new roads where undisturbed grades away from the roadway are 5% or greater.
New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: NONE

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: NONE NEEDED

Access other construction information: Enclosure fencing will be installed around open cellar to prevent livestock or large wildlife from being trapped after installation. Fencing will remain in place while no activity is present and until back-filling takes place.

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CROSSING,CULVERT,OTHER

Drainage Control comments: SEDIMENT TRAPS (HAY BALES SUGGESTED BY BLM) we don't use every time but keep handy.

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

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH_SO_17_20_FED_001_2H_New_Roads_08-14-2017.pdf

New road type:

Length:

Width (ft.):

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Max slope (%):

Max grade (%):

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

New road access plan or profile prepared?

New road access plan attachment:

Access road engineering design?

Access road engineering design attachment:

Access surfacing type:

Access topsoil source:

Access surfacing type description:

Access onsite topsoil source depth:

Offsite topsoil source description:

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing:

Drainage Control comments:

Road Drainage Control Structures (DCS) description:

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH_SO_17_20_FED_001_2H_New_Roads_08-14-2017.pdf

New road type:

Length:

Width (ft.):

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Max slope (%):

Max grade (%):

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

New road access plan or profile prepared?

New road access plan attachment:

Access road engineering design?

Access road engineering design attachment:

Access surfacing type:

Access topsoil source:

Access surfacing type description:

Access onsite topsoil source depth:

Offsite topsoil source description:

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing:

Drainage Control comments:

Road Drainage Control Structures (DCS) description:

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

HH_SO_17_20_FED_001_2H_Radius_Map_08-14-2017.pdf

Existing Wells description:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Existing production facilities located in the SW corner of section 9, T26S, R27E where oil and gas sales will take place. The existing facility is 500' X 700'. Gas compression will occur within the EXISTING facility boundaries, Gas purchaser pipeline is in place at the tank battery, open top tanks or open containment WILL be netted, open vent exhaust stacks will be modified to prevent birds or bats from entering, discourage perching, roosting, and nesting. Facilities will have a secondary containment 1.5 times the holding capacity of largest storage tank. All above ground structures will be painted non-reflective shale green for blending with surrounding environment. Pipelines Include: 4943 of flowlines carrying production (buried), 107' Gas lift line carrying pressurized gas (buried), 107' temporary water line carrying fresh water (surface). A ROW will be applied for through the State and BLM. (30' wide, 3.2 acres). All construction activity will be confined to the approved ROW. Pipeline will run parallel to the road and will stay within approved ROW.

Section 5 - Location and Types of Water Supply

Water Source Table

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

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 716000

Source volume (acre-feet): 92.28746

Source volume (gal): 30072000

Water source and transportation map:

HH_SO_17_20_FED_001_2H_aerial_08-14-2017.pdf

HH_SO_17_20_FED_001_2H_Fac_Layout_08-17-2017.pdf

Water source comments: private source with ponds located in SW4 Section 9 T26S R27E. A temporary 10" expanding pipe surface transfer line will run along established disturbance corridors, such as along access roads or on top of flowline or pipeline right of way. o water line will run parallel to road and will stay within 10' of access road. o temporary BLM ROWs will be applied for as needed for the water transfer lines.

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

Well depth (ft):

Well casing type:

Well casing outside diameter (in.):

Well casing inside diameter (in.):

New water well casing?

Used casing source:

Drilling method:

Drill material:

Grout material:

Grout depth:

Casing length (ft.):

Casing top depth (ft.):

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: CALICHE WILL BE SOURCED FROM A CHEVRON OPERATED NMSLO PIT IN S2 NW4 SECTION 16 T26S R27E OR AN ALTERNATE PRIVATE PIN IN SECTION 13 T24S R27E, EDDY COUNTY NM.
Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: GARBAGE

Waste content description: o Garbage and Trash o Human waste and grey water o Other wastes material i.e. chemicals, salts, frac sand o Drill cutting

Amount of waste: 200 pounds

Waste disposal frequency : Daily

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

Safe containmant attachment:

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

Disposal type description:

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

Reserve Pit

Reserve Pit being used? NO

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.)

Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

HH_SO_17_20_FED_001_2H_Well_Plat_08-14-2017.pdf

Comments: As referenced on the attached APD SUPO o Exterior well pad dimensions are 540' X 380' o Interior well pad dimensions from point of entry (well head) of the westernmost well are N-235', S-305', E-120', W-260'. The length to the east includes 25' spacing for next well on multi-well pad (six wells). Total disturbance area needed for construction of well pad will be 4.71 acres. o Topsoil placement is on the up-slope edge of each pad (unless otherwise directed by BLM - final placement to be included in APD's SUPO) no higher than 3 feet where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices. o Construction methods: Pads would be constructed by clearing vegetation, salvaging and storing topsoil and leveling the drilling area cut-and-fill techniques where appropriate.

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: HH SO 17 20 FED 001

Multiple Well Pad Number: 1H 2H 3H 4H 5H 6H

Recontouring attachment:

HH_SO_17_20_FED_001_2H_SUP_08-17-2017.pdf

HH_SO_17_20_FED_001_2H_CutFill_08-17-2017.pdf

HH_SO_17_20_FED_001_2H_IR_08-17-2017.pdf

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

Drainage/Erosion control reclamation: The well pad, road, and surrounding area will be cleared of material, trash, and equipment. All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads. All disturbed areas will be re-contoured to the contour existing prior to initial construction. The areas will be seeded with the proper BLM seed mixture (BLM #2), free of noxious weeds.

Wellpad long term disturbance (acres): 1.49

Wellpad short term disturbance (acres): 3.22

Access road long term disturbance (acres): 0.06

Access road short term disturbance (acres): 0.06

Pipeline long term disturbance (acres): 0.08953168

Pipeline short term disturbance (acres): 0.08953168

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 1.6395317

Total short term disturbance: 3.3695316

Disturbance Comments: All disturbed area, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be re-contoured to the contour existing prior to initial construction or a contour that blends in distinguishably with the surrounding landscape.

Reconstruction method: All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads. Reducing the pad size to approximately to 200' X 325' within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of all materials, trash, and equipment not required for production.

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

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

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

Existing Vegetation at the well pad attachment:

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

Existing Vegetation Community at the road attachment:

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

Existing Vegetation Community at the pipeline attachment:

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

Existing Vegetation Community at other disturbances attachment:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre
------------------	--------------------

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Kevin

Last Name: Dickerson

Phone:

Email: lfuh@chevron.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Treat with BLM seed mixture (BLM #2) free of noxious weeds.

Weed treatment plan attachment:

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

Monitoring plan attachment:

Success standards: As per BLM requirements.

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? YES

Use APD as ROW? YES

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

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 2H

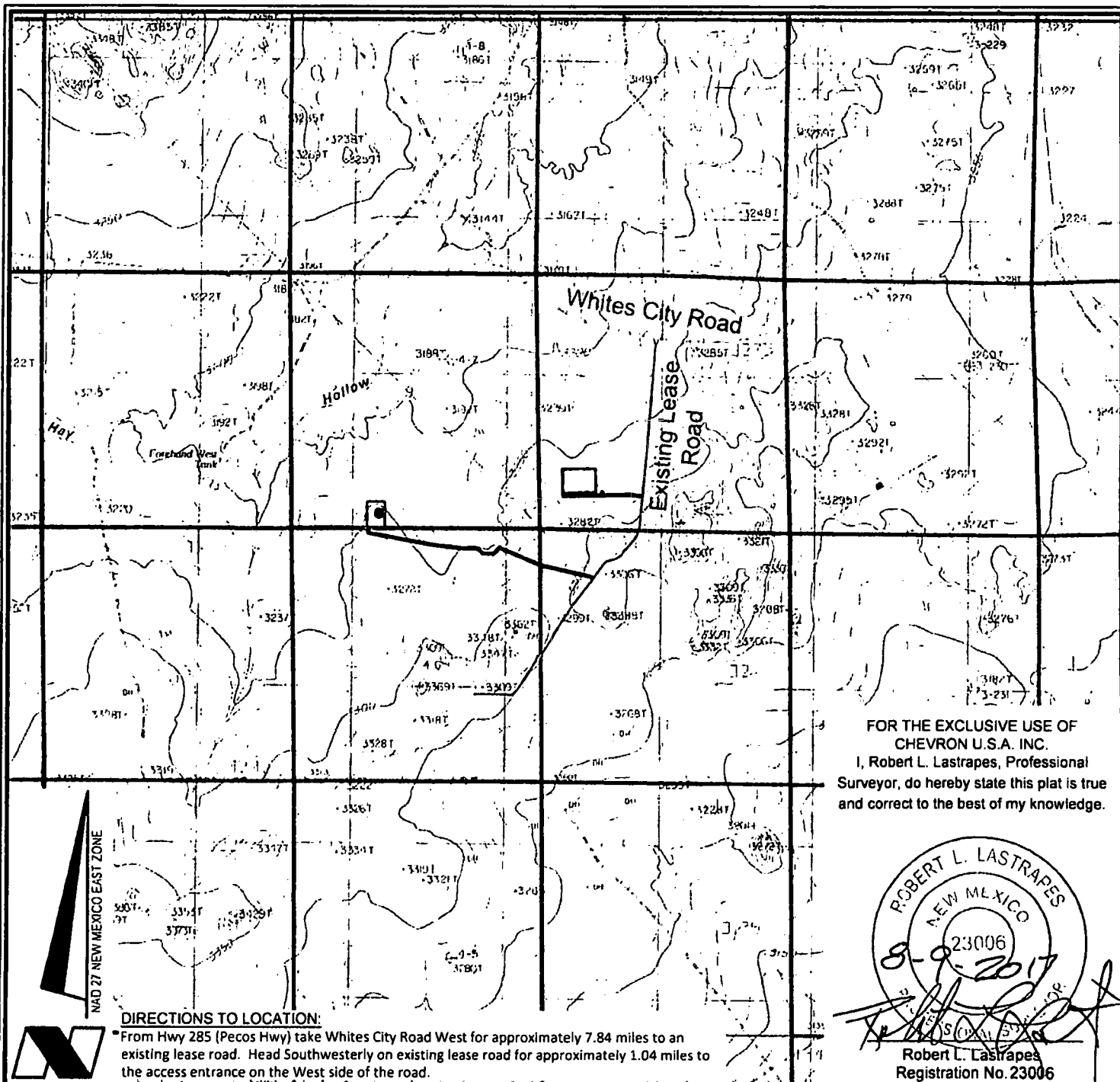
ROW Applications

SUPO Additional Information: o Recycle containment pond design feature - four permanent recycle containment ponds will be required - permanent buried pipelines will be installed to transport water - all wells covered by the MDP will require hydraulic fracturing - the ponds will be designed as "multiwell fluid management pits o Berms - berms shall be sloped at 3:1 - berm top will have at least 12' of working area - berm height, thickness, and depth will be determined based on-site specific information o Liners - ponds shall be double lined and have a method of leak detection - an 8 oz geotextile fabric shall be used to line the soil prior to installation - primary liner should be 60-mil smooth - minimum 200-mil geonet shall be installed between primary and secondary liner o Fencing - ponds shall have eight game fencing installed - the fence bottom shall be keyed-in around the perimeter of the pond site o Wildlife Protection - typical bird deterrent options include molded decoy owls and noise-making streamers - wildlife protection measure, including those for migratory birds, shall be monitored at least monthly to ensure deterrents are effective

Use a previously conducted onsite? YES

Previous Onsite information: On-site performed by BLM NRS: Paul Murphy 10/18/2016.

Other SUPO Attachment



DIRECTIONS TO LOCATION:

From Hwy 285 (Pecos Hwy) take Whites City Road West for approximately 7.84 miles to an existing lease road. Head Southwesterly on existing lease road for approximately 1.04 miles to the access entrance on the West side of the road.

VICINITY MAP

SCALE: 1" = 3000'

3000' 0 1500' 3000'

LEGEND

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

CHEVRON U.S.A. INC.
HH SO 17 20 FED 001 NO. 2H WELL
LOCATED 305' FSL AND 1,873' FWL
SECTION 8, T26S-R27E
EDDY COUNTY, NEW MEXICO

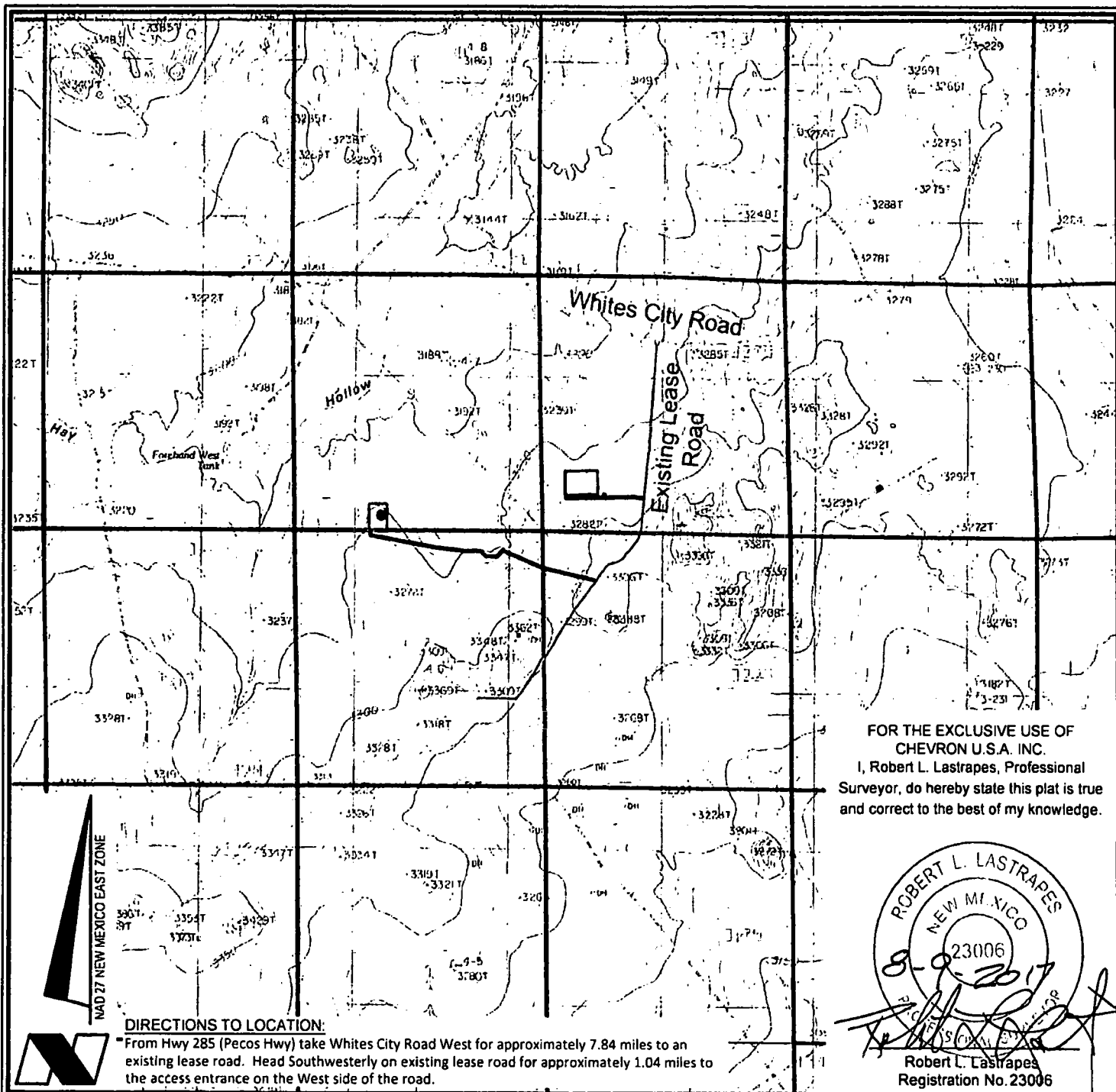


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www.fenstermaker.com

DRAWN BY: VHV

REVISIONS

PROJ. MGR.: GDG	No. 1	DATE: 05/26/2016	REVISED BY: BOR
DATE: 12/23/2015	No. 2	DATE: 10/25/2016	REVISED BY: BOR
FILENAME: T:\2015\2153437\DWG\HH SO 17 20 FED 001 NO. 2H WELL ROAD.dwg			



VICINITY MAP

SCALE: 1" = 3000'

3000' 0 1500' 3000'

LEGEND

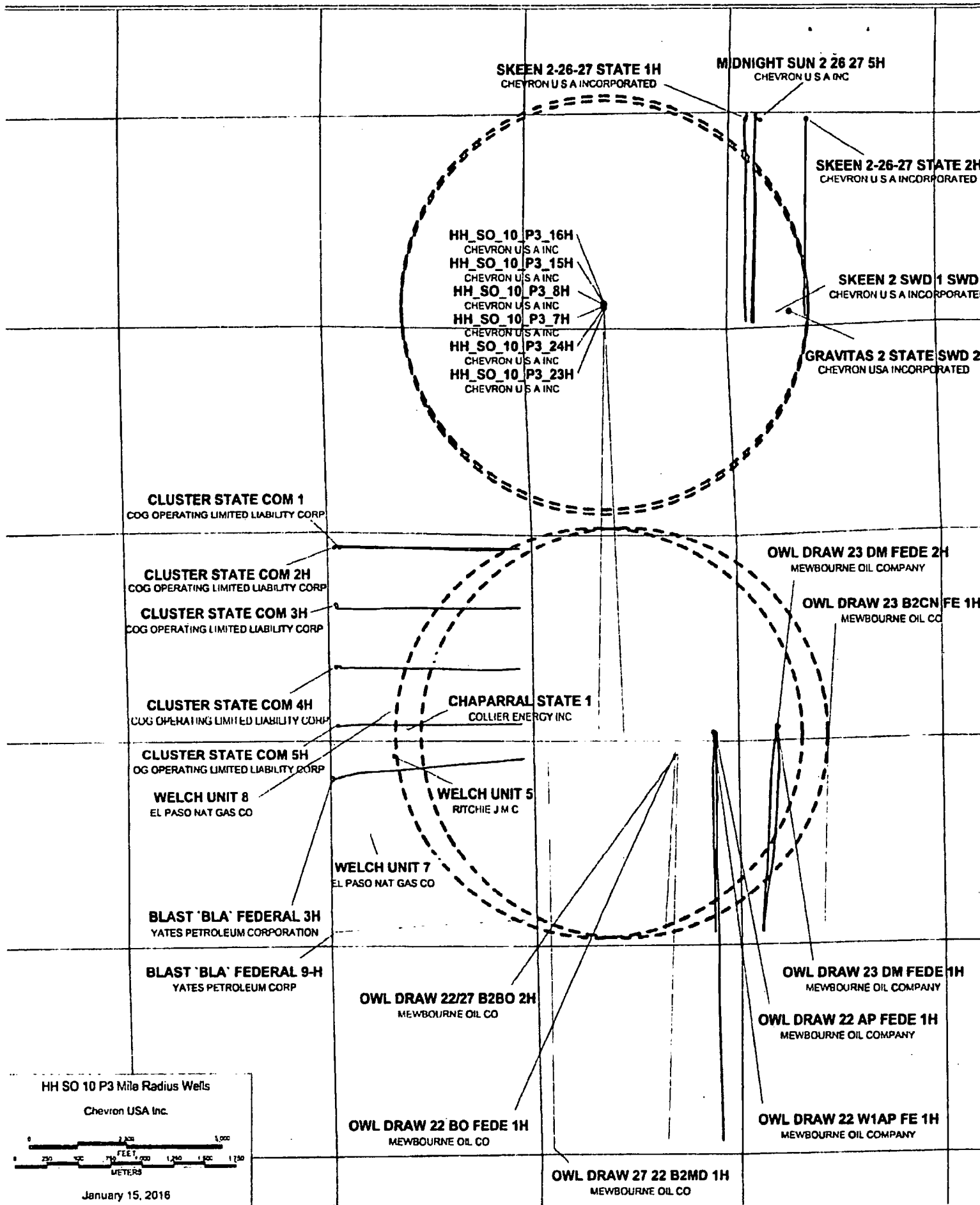
- Proposed Well
- Proposed Access Road
- Proposed Drillsite
- Existing Road
- Section Line
- Proposed Frac Pond
- Proposed Facility

CHEVRON U.S.A. INC.
HH SO 17 20 FED 001 NO. 2H WELL
LOCATED 305' FSL AND 1,873' FWL
SECTION 8, T26S-R27E
EDDY COUNTY, NEW MEXICO



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PROJ. MGR.: GDG	No. 1	DATE: 05/26/2016	REVISED BY: BOR
DATE: 12/23/2015	No. 2	DATE: 10/25/2016	REVISED BY: BOR
FILENAME: T:\2015\2153437\DWG\HH SO 17 20 FED 001 NO. 2H WELL ROAD.dwg			



LEGEND

Section Line
80' Right of Way
WFMP Flowline
Gas Lift Flowline
SWD Flowlines
Centerline Access
Utility Line
Hi Pressure Flowline
Low Pressure Flowline
Frac Water Flowline
Fence Line
Lease Road/Pads
Found Monument

Bureau of Land Management
 Proposed 80' ROW $\pm 940'$, ± 56.97 Rods, ± 1.72 Acres
 Proposed WFMP Flowline(Cluster) $\pm 931'$, ± 56.42 Rods
 Proposed Gas Lift Flowline $\pm 914'$, ± 55.39 Rods
 Proposed SWD Flowline $\pm 911'$, ± 55.21 Rods
 Proposed Utility Line $\pm 891'$, ± 54.00 Rods

Bureau of Land Management
 Proposed 80' ROW $\pm 2,202'$, ± 133.45 Rods, ± 4.98 Acres
 Proposed WFMP Flowline(Cluster) $\pm 614'$, ± 37.21 Rods
 Proposed Gas Lift Flowline $\pm 614'$, ± 37.21 Rods
 Proposed SWD (1) Flowline $\pm 1,059'$, ± 64.18 Rods
 Proposed SWD (2) Flowline $\pm 2,177'$, ± 131.94 Rods
 Proposed Utility Line $\pm 2,199'$, ± 133.27 Rods
 Proposed Hi Pressure Flowline $\pm 1,646'$, ± 99.76 Rods
 Proposed Low Pressure Flowline $\pm 1,661'$, ± 100.67 Rods
 Proposed Frac Water Flowline $\pm 853'$, ± 51.70 Rods

Proposed
 HH SO 17 20
 FED 001 PAD

PROPOSED 80' ROW
 $\pm 6,606'$, ± 400.36 Rods, ± 13.06 Acres
PROPOSED WFMP FLOWLINE(CLUSTER)
 $\pm 4,943'$, ± 299.57 Rods
PROPOSED GAS LIFT FLOWLINE
 $\pm 4,962'$, ± 300.72 Rods
PROPOSED SWD (1) FLOWLINE
 $\pm 5,417'$, ± 328.30 Rods
PROPOSED SWD (2) FLOWLINE
 $\pm 2,177'$, ± 131.94 Rods
LOW PRESSURE GAS FLOWLINE
 $\pm 1,661'$, ± 100.67 Rods
HI PRESSURE GAS FLOWLINE
 $\pm 1,646'$, ± 99.76 Rods
FRAC WATER FLOWLINE
 $\pm 853'$, ± 51.70 Rods
PROPOSED UTILITY LINE
 $\pm 6,652'$, ± 403.15 Rods

Bureau of Land Management
 Proposed 80' ROW $\pm 3,464'$, ± 209.94 Rods, ± 6.36 Acres
 Proposed WFMP Flowline(Cluster) $\pm 3,398'$, ± 205.94 Rods
 Proposed Gas Lift Flowline $\pm 3,434'$, ± 208.12 Rods
 Proposed SWD Flowline $\pm 3,447'$, ± 208.91 Rods
 Proposed Utility Line $\pm 3,562'$, ± 215.88 Rods
 Proposed Access Road $\pm 3,744'$, ± 226.89 Rods

State of New Mexico
 Proposed Access Road, $\pm 1,155'$, ± 69.97 Rods

CHEVRON U.S.A. INC.
 PROPOSED SITE DETAIL
 HH SO 17 20 FED 001 1H-6H
 SECTIONS 8, 9, 16 AND 17, T26S-R27E
 EDDY COUNTY, NEW MEXICO

DRAWN BY: TBD		REVISIONS	
PROJ. MGR.: GDG	No. 2	DATE: 10/31/2016	REVISED BY: GDG
DATE: 10/11/2016	No. 3	DATE: 08/09/2017	REVISED BY: GDG
FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 Detail.dwg			

Not to be used for construction or other purposes without the approval of the engineer.

PRELIMINARY

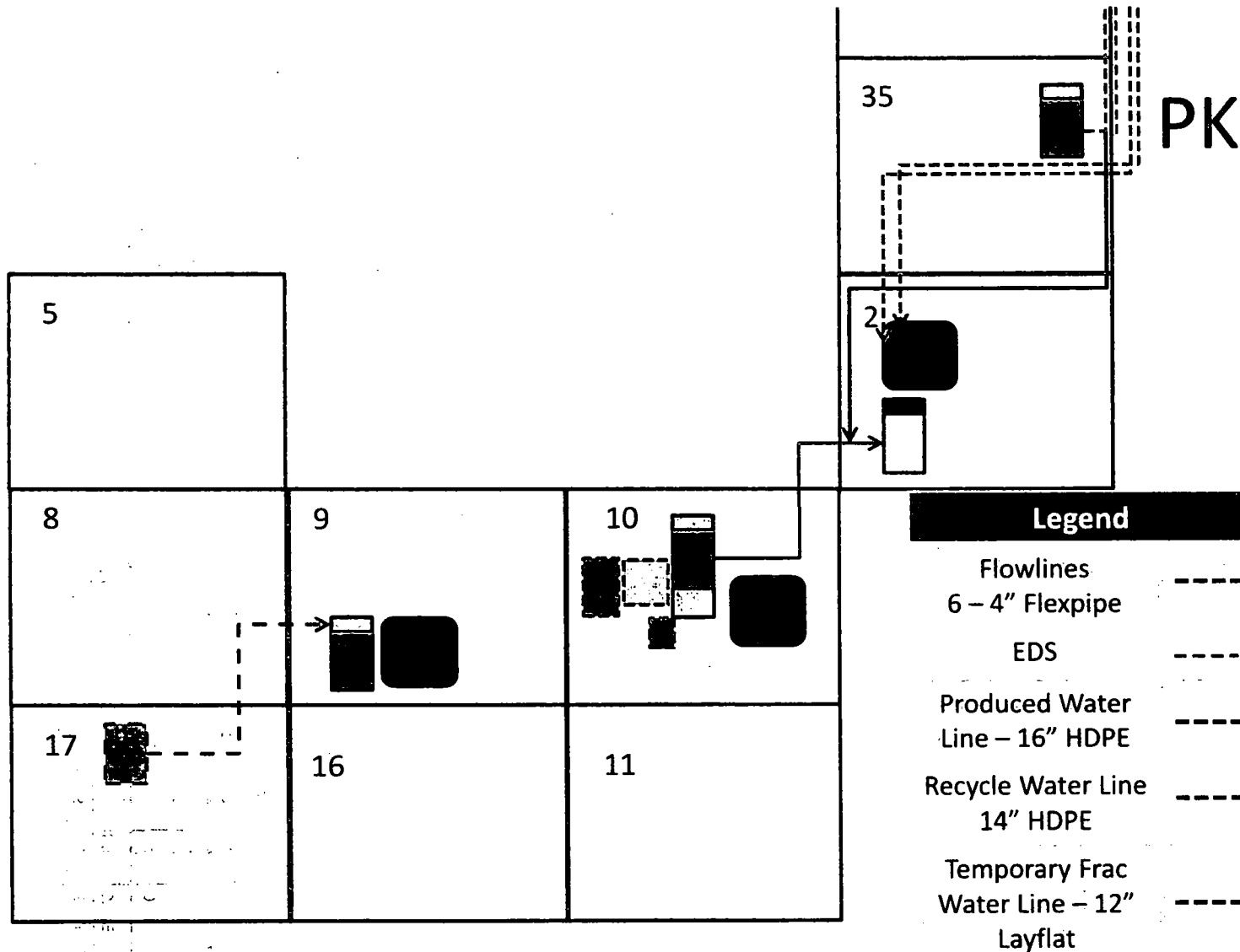
Scale: 1" = 500'

500' 0 250' 500'

C. H. Fenstermaker & Associates, L.L.C.
 135 Regency Sq. Lafayette, LA 70508
 Ph. 337-237-2200 Fax. 337-232-3299
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PKG 5 DETAILS



Legend

- Wellpad
- Gravitas SWD wellpad
- IT Tower
- CTB 35

Legend

- Flowlines
- 6 – 4" Flexpipe
- EDS
- Produced Water Line – 16" HDPE
- Recycle Water Line 14" HDPE
- Temporary Frac Water Line – 12" Layflat

- Electric Compressor
- Electric Sub-station
- Gravitas SWD Facility
- Recycle

HHNM Rig 2/3

Facilities Scope – 2017/8

HH SO 8/5 P3 (6 wells x 10,000 ft) PKG 6

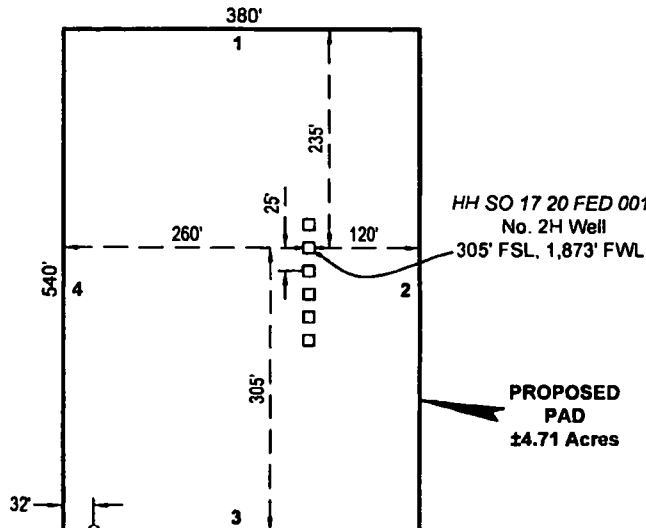
- SPUD:
- CTB 9: *Upgrade Adding HP Header, LP Header VRU, LACT, LP Tester*
- New SWD Sec 26:
 - 2-Trains; 7 H-pumps
 - 10,000 BBL recycle Train ~ \$850,000
 - SWD WellPad
 - SWD Injection Line
 - Recycle Water P/L from SWD 26 to Pond 4
 - EDS from CTB 35 to SWD 26
 - P/L: 1.0 Mile (Produced Water from CTB 35 to SWD 26)
- Electrical Compressor
 - Sub-Station
 - Sub-Station Transformer Upgrade for EDS
 - Compressor Pad
- Well: Pad, 2.0 mi F/L x 6 well
- Gas Lift: 0.5 mi
- IT Towers (2)
 - Pad Locations
 - Fiber Optic Cable ROW ~ 1.5 miles



R 27 E

NW PAD CORNER		NE PAD CORNER		HH SO 17 20 FED 001 NO. 2H WELL	
X=	536,599 NAD 27	X=	536,979 NAD 27	X=	536,858 NAD 27
Y=	382,347	Y=	382,347	Y=	382,112
ELEVATION +3251' NAVD 88		ELEVATION +3249' NAVD 88		LAT. 32.050485	
SW PAD CORNER		SE PAD CORNER		LONG. 104.214368	
X=	536,598 NAD 27	X=	536,978 NAD 27	X=	578,042 NAD83
Y=	381,808	Y=	381,807	Y=	382,169
ELEVATION +3255' NAVD 88		ELEVATION +3261' NAVD 88		LAT. 32.050808	
				LONG. 104.214862	
				ELEVATION +3257' NAVD 88	

T
26
S



Sec. 8

Bureau of Land Management
±4.71 Acres- Proposed Pad

LEGEND	
---	Section Line
---	Centerline Access
---	Proposed Pad

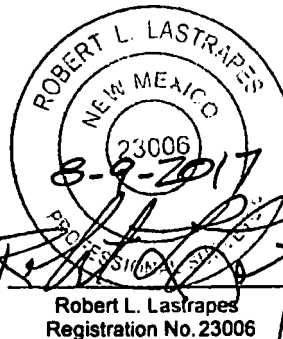
Sec. 17

Bureau of Land Management
± 3,994.26', ±242.07 Rods, ±2.20 Acres-
Proposed Access Road (A)

CENTERLINE
PROPOSED
ACCESS ROAD (A)
24' X ±5,148.78'
±312.04 Rods
±2.84 Acres

PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	S 89° 52' 09" E	380.00'
2	S 00° 07' 17" W	540.00'
3	N 89° 51' 50" W	380.00'
4	N 00° 07' 30" E	540.00'

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



SURFACE USE PLAT

PAGE 1 OF 3

CHEVRON U.S.A. INC.
PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 2H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: L.J.G		REVISIONS	
PROJ. MGR.: GDG	No. 5	DATE: 10/25/2016	REVISED BY: BOR
DATE: 12/22/2015	No. 6	DATE: 11/15/2016	REVISED BY: KJD
FILENAME: T:\2015\2153437\DWG\HH SO 17 20 FED 001 NO. 2H WELL_SUP.dwg			



Scale: 1" = 200'



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CENTERLINE PROPOSED ACCESS ROADS (A, B & C)

COURSE	BEARING	DISTANCE
1	S 00° 11' 15" E	107.17'
2	S 79° 37' 12" E	1369.04'
3	S 82° 59' 20" E	623.79'
4	S 89° 50' 47" E	381.31'
5	S 42° 37' 55" E	150.63'
6	S 89° 58' 57" E	233.42'
7	N 44° 06' 16" E	178.79'
8	S 66° 53' 45" E	944.02'
9	S 77° 07' 23" E	6.09'
10	S 77° 07' 39" E	1154.50'
11	S 00° 54' 03" E	67.85'
12	N 89° 01' 22" E	1448.01'
13	S 84° 54' 27" E	215.40'
14	S 00° 54' 03" E	55.84'

R 27 E

NW FRAC POND CORNER	NE FRAC POND CORNER	NW FACILITY CORNER	NE FACILITY CORNER
X= 541,525 NAD 27 Y= 383,458	X= 542,275 NAD 27 Y= 383,471	X= 540,782 NAD 27 Y= 383,045	X= 541,482 NAD 27 Y= 383,057
ELEVATION +7777' NAVD 88	ELEVATION +7777' NAVD 88	ELEVATION +3263' NAVD 88	ELEVATION +3265' NAVD 88
SW FRAC POND CORNER	SE FRAC POND CORNER	SW FACILITY CORNER	SE FACILITY CORNER
X= 541,540 NAD 27 Y= 382,558	X= 542,290 NAD 27 Y= 382,571	X= 540,790 NAD 27 Y= 382,545	X= 541,490 NAD 27 Y= 382,557
ELEVATION +7777' NAVD 88	ELEVATION +7777' NAVD 88	ELEVATION +3274' NAVD 88	ELEVATION +3276' NAVD 88

Note: No Elevations
for Frac Pond as of
November 15, 2016

Sec. 8

Bureau of Land Management
±4.71 Acres- Proposed Pad

SEE PAGE
1 OF 3

CENTERLINE PROPOSED ACCESS ROAD (C)

24' X ±55.83'
±3.38 Rods
±0.03 Acres

750'
700'
Proposed
Frac Pond
±15.50 Acres

CENTERLINE PROPOSED ACCESS ROAD (B)

24' X ±1731.26'
±104.92 Rods
±0.95 Acres

Sec. 9

Bureau of Land Management
±1787.09', ±108.30 Rods,
±0.98 Acres-Proposed
Access Roads (B & C)

T
26
S

Fnd. 2" Iron Pipe
w/ Cap at the
NW Corner of
Section 17

Sec. 17

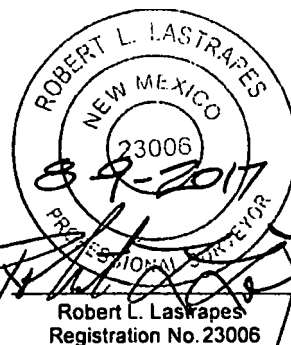
Bureau of Land Management
± 3,994.26', ±242.07 Rods, ±2.20 Acres-
Proposed Access Road (A)

CENTERLINE PROPOSED ACCESS ROAD (A)

24' X ±5,148.76'
±312.04 Rods
±2.84 Acres

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

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



LEGEND

—	Section Line
---	Centerline Access
---	Proposed Pad
---	Section Break
---	Existing Road
●	Found Monument

Scale: 1" = 1000'

1000' 0 500' 1000'



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SURFACE USE PLAT

PAGE 2 OF 3

CHEVRON U.S.A. INC.

PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 2H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJC	REVISIONS		
PROJ. MGR.: GDG	No. 5	DATE: 10/25/2016	REVISED BY: BOR
DATE: 12/22/2015	No. 6	DATE: 11/15/2016	REVISED BY: KJD
FILENAME: T:\2015\2153437\DWG\HH SO 17 20 FED 001 NO. 2H WELL_SUP.dwg			

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

NOTE:

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

NOTE:

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

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



Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

PAGE 3 OF 3

CHEVRON U.S.A. INC.

PROPOSED PADS, FRAC POND & ACCESS ROADS

HH SO 17 20 FED 001 NO. 2H WELL

SECTIONS 8, 9, 16 & 17, T26S-R27E

EDDY COUNTY, NEW MEXICO

DRAWN BY: LJJ

REVISIONS

PROJ. MGR.: GDG

No. 5

DATE: 10/25/2016

REVISED BY: BOR

DATE: 12/22/2015

No. 6

DATE: 11/15/2016

REVISED BY: KJD

FILENAME: T:\2015\2153437\DWG\HH SO 17 20 FED 001 NO. 2H WELL_SUP.dwg



C. H. Fenstermaker & Associates, L.L.C.
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APD Surface Use Plan of Operations

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

HDA Master Development Plan Reference Table

The contents referenced below apply to all HDA APD's

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

Driving Directions

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

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

- There will be 107' of new road construction for this proposal.
- Ditches: See MDP; Per BLM Gold Book
- Culverts: See MDP; Per BLM Gold Book
- Road Cuts: See MDP; Per BLM Gold Book

Location of Existing Wells

- 1-Mile radius map submitted

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

- Facilities: Existing production facilities are located in the SW corner of Sec. 9, T26S-R27E where oil and gas sales will take place. (Detail Submitted)
 - The facilities and frac pond are in Sec. 9, T26S-R27E
 - Gas purchaser pipeline is in place at the tank battery.
- Pipelines: See Detail
 - Pipelines Include (to be run in existing 80' ROW):
 - 4,943' of Flowlines carrying production (buried)
 - 107' Temporary Water Line (Drilling and Completions)
 - 107' Gas Lift Line carrying pressurized gas (buried)
 - This line to connect to riser in ROW
 - A ROW will be applied for through the State and BLM.
 - All construction activity will be confined to the approved ROW.
 - Pipeline will run parallel to the road and will stay within approved ROW.

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

- Pond in SW4/SW4 Section 9, T26S-R27E will be utilized for fresh water.
- Fresh water will be obtained from a private water source.
- A temporary surface laid lay-flat line will be utilized for drilling and completions

Construction Materials (MDP SUP Pg. 6)

- CALICHE WILL BE SOURCED FROM A CHEVRON OPERATED NMSLO PIT IN S2 NW4 SECTION 16 T26S R27E
- AN ALTERNATE PRIVATE PIT IN SECTION 13 T24S R27E, EDDY COUNTY NM.
-

Well Site Layout

- Well Plat
 - Exterior well pad dimensions are 540' x 380'
 - Interior well pad dimensions from point of entry (well head) of the well are N-235', S-305', E-120', W-260'. Total disturbance area needed for construction of well pad will be approximately 4 acres
 - Topsoil placement is on the west where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices.
 - Cut and fill: will be minimal.
- Rig Layout submitted

CHEVRON U.S.A. Inc

HH SO 17 20 FED 001 2H

NMNM 118108

SECTION 8, T26S-R27E

SHL 305' FSL & 1873' FWL

SECTION 20, T26S, R27E

BHL 280' FSL & 1590' FWL

Plans for Surface Reclamation (MDP SUPA Pg. 8)

Interim Reclamation Procedures

- Reclaimed pad size: 200' x 325'
- See Exhibit for reclaimed pad layout, topsoil location & erosion control features

Surface Ownership

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

Other Information

- On-site performed by BLM NRS: Paul Murphy 10/18/2016
- Cultural report attached: Yes Participating Agreement attached: N/A

Chevron Representatives

Primary point of contact:

Kevin Dickerson

Kevin.dickerson@chevron.com

M- 432-250-4489

CHEVRON U.S.A. Inc
HH SO 17 20 FED 001 2H
NMNM 118108
SECTION 8, T26S-R27E
SHL 305' FSL & 1873' FWL

SECTION 20, T26S, R27E
BHL 280' FSL & 1590' FWL

Chevron Functional Contacts

Project Manager Name: Justin Freeman Address: 1400 Smith Street Houston, TX 77002 Phone: (713) 372-2159 Email: FreemJ@chevron.com	Drilling Engineer Name: Roderick Milligan Address: 1400 Smith Street Houston, TX 77002 Phone: (281) 413-9794 Email: RoderickMilligan@chevron.com
Surface Land Representative Name: Kevin Dickerson Address: 6301 Deauville Blvd Midland, TX 79706 Phone: (432) 687-7104 Email: Kevin.Dickerson@chevron.com	Facility Lead Name: Angel Bermea Address: 6301 Deauville Blvd Midland, TX 79706 Phone: (432) 687-7804 Email: angel.bermea@chevron.com
Geologist Name: Frank Karmanocky Address: 6301 Deauville Blvd Midland, TX 79706 Phone: (432) 687-7361 Email: fkarmanocky@chevron.com	Regulatory Specialist Dorian Fuentes Address: 6301 Deauville Blvd Midland, TX 79706 Office: (432) 687-7631 Email: dorian.k.fuentes@chevron.com

PAD DESIGN TABLE

PT	NATURAL GROUND ELEV.	DESIGN ELEV.	CUT / FILL
A	3250.50	3255.34	4.84
B	3249.92	3255.34	5.42
C	3249.35	3255.34	5.99
D	3256.53	3255.34	-1.19
E	3260.74	3255.34	-5.40
F	3259.50	3255.34	-4.16
G	3255.33	3255.34	0.01
H	3253.07	3255.34	2.27
I	3255.29	3255.34	0.05
J	3255.53	3255.34	-0.19
K	3255.76	3255.34	-0.42
L	3255.99	3255.34	-0.65
M	3256.23	3255.34	-0.89
N	3256.46	3255.34	-1.12

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

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



Robert L. Lastrapes
Registration No. 23006

CUT & FILL PLAT

PAGE 1 OF 3

CHEVRON U.S.A. INC.

PROPOSED PAD

HH SO 17 20 FED 001 NOS. 1H-6H WELLS
SECTION 8, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: BOR

REVISIONS

PROJ. MGR.: GDG

No.

DATE:

REVISED BY:

DATE: AUGUST 14, 2017

No.

DATE:

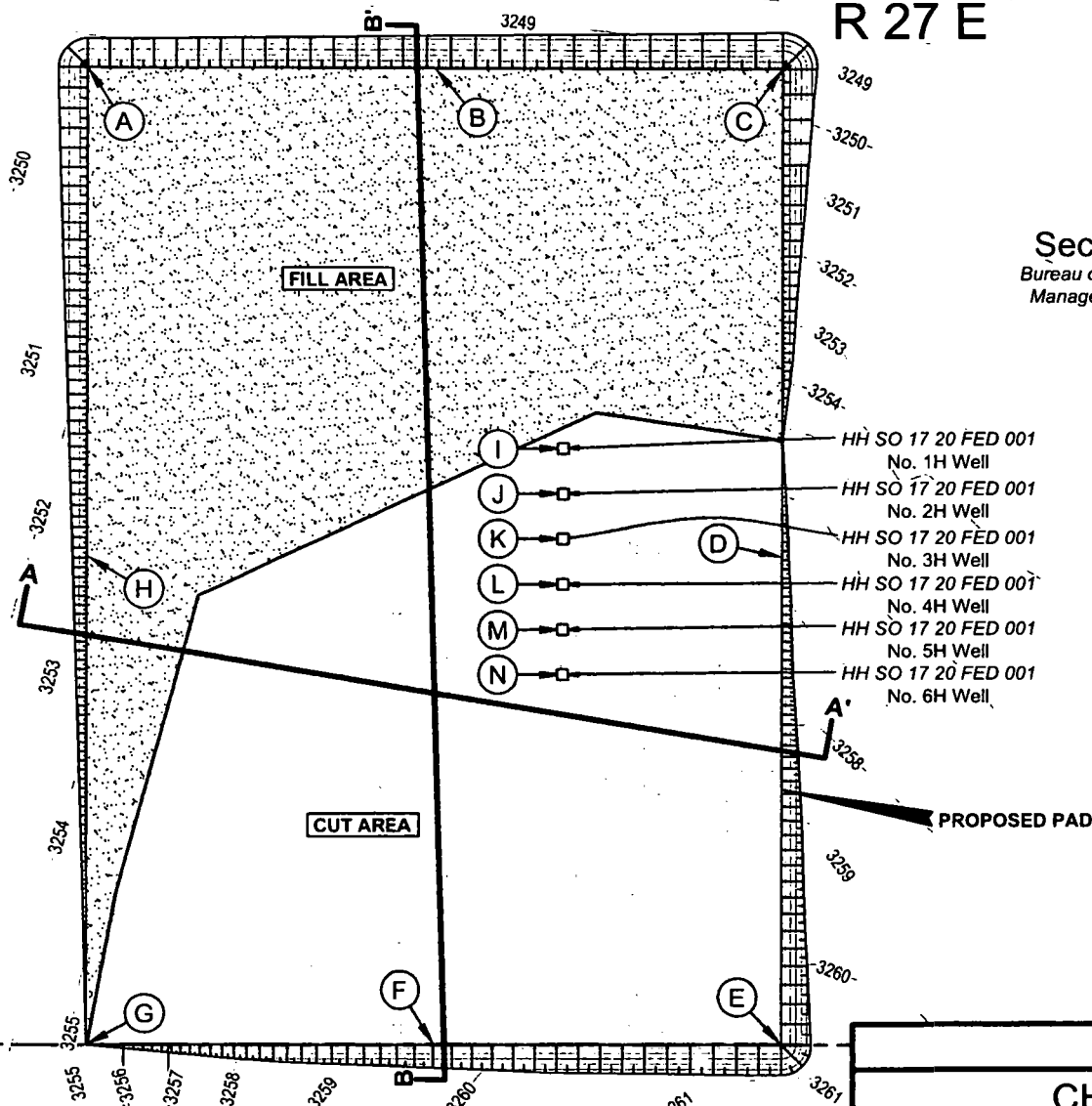
REVISED BY:

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001_CutFill.dwg

T
26
S

R 27 E

Sec. 8
Bureau of Land
Management



NAD 27 NEW MEXICO EAST ZONE



Scale: 1" = 100'
100' 0 50' 100'

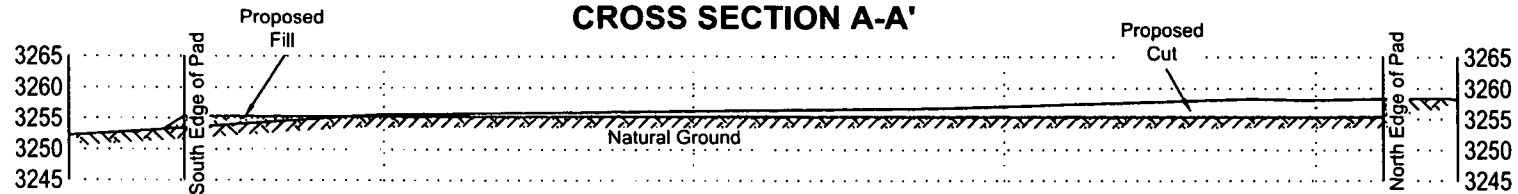
Sec. 17
Bureau of Land
Management



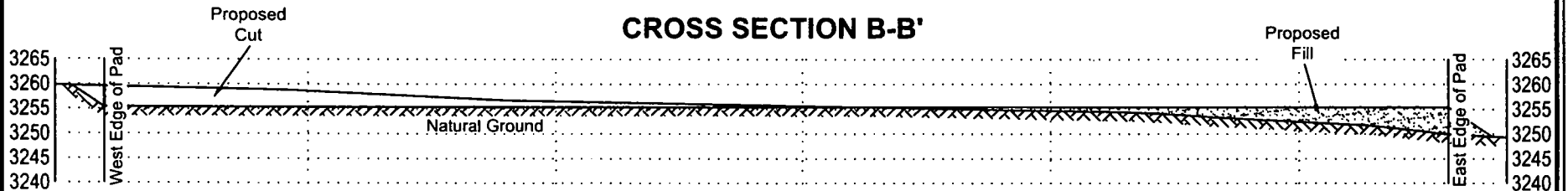
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

CUT VOLUME = 8,644.22 Cu. Yd.
FILL VOLUME = 8,644.22 Cu. Yd.
NET VOL = 0.00 Cu. Yd.

CROSS SECTION A-A'



CROSS SECTION B-B'



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



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Robert L. Lastrapes
Registration No. 23006

CUT & FILL PLAT

PAGE 2 OF 3

CHEVRON U.S.A. INC.

PROPOSED PAD

HH SO 17 20 FED 001 NOS. 1H-6H WELLS

SECTION 8, T26S-R27E

EDDY COUNTY, NEW MEXICO

DRAWN BY: BOR

REVISIONS

PROJ. MGR.: GDG

No.

DATE:

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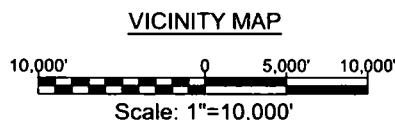
DATE: AUGUST 14, 2017

No.

DATE:

REVISED BY:

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001_CutFill.dwg



AREA OF
WORK



Roadrunner
Road

Existing
Lease Road

Whites City Road

Williford Ranch Road
Dusty Trail

Hwy 285 (Pecos Hwy)

NOTE:

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

2. The design pad elevation recommendation is based solely on a cut and fill (1:1 ratio) balance of the pad and does not include material required for the access roads. A detailed soil test and slope stability analysis shall be performed prior to construction to ensure proper compaction and working performance of the pad under the anticipated loadings. This material balance sheet does not constitute a foundation design and C. H. Fenstermaker & Associates, L.L.C. makes no warranty to the structural integrity of the site layout as shown. Fenstermaker also makes no recommendation or warranty about the layout relative to flood hazards, erosion control, or soil stability issues. Elevations refer to the North American Vertical Datum of 1988.

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

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

CUT & FILL PLAT

PAGE 3 OF 3

CHEVRON U.S.A. INC.

PROPOSED PAD

HH SO 17 20 FED 001 NOS. 1H-6H WELLS

SECTION 8, T26S-R27E

EDDY COUNTY, NEW MEXICO

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PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	S 89° 52' 09" E	380'
2	S 00° 07' 17" W	540'
3	N 89° 51' 50" W	380'
4	N 00° 07' 30" E	540'

R 27 E

NW PAD CORNER		NE PAD CORNER	
X=	536,599 NAD 27	X=	536,979 NAD 27
Y=	382,347	Y=	382,347
ELEVATION +3251' NAVD 88		ELEVATION +3249' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	536,598 NAD 27	X=	536,978 NAD 27
Y=	381,808	Y=	381,807
ELEVATION +3255' NAVD 88		ELEVATION +3261' NAVD 88	

HH SO 17 20 FED 001 NO. 1H WELL		
X=	536,858	NAD 27
Y=	382,137	
LAT.	32.050553	
LONG.	104.214368	
X=	578,042	NAD83
Y=	382,194	
LAT.	32.050675	
LONG.	104.214862	
ELEVATION +3257' NAVD 88		

T
26
S

Sec. 8

Bureau of Land Management
±4.71 Acres- Proposed Pad

PROPOSED
TEMPORARY
PAD AREA
±3.22 Acres

PROPOSED
PERMANENT
PAD AREA
±1.49 Acres

HH SO 17 20 FED 001
No. 1H Well

HH SO 17 20 FED 001
No. 2H Well

HH SO 17 20 FED 001
No. 3H Well

HH SO 17 20 FED 001
No. 4H Well

HH SO 17 20 FED 001
No. 5H Well

HH SO 17 20 FED 001
No. 6H Well

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CENTERLINE
PROPOSED
ACCESS ROAD (A)
24' X ±5,148.76'
±312.04 Rods
±2.84 Acres

Sec. 17

Bureau of Land Management
± 3,994.26', ±242.07 Rods, ±2.20 Acres-
Proposed Access Road (A)

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LEGEND

	Proposed Pad
	Section Line
	Centerline Access

Scale: 1" = 200'

200' 0 100' 200'

PAGE 1 OF 2

WELL PLAT

CHEVRON U.S.A. INC.

INTERIM RECLAMATION

HH SO 17 20 FED 001 NOS. 1H-6H

SECTION 17 T26S-R27E

EDDY COUNTY, NEW MEXICO



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No.

DATE:

REVISED BY:

DATE: AUGUST 11, 2017

No.

DATE:

REVISED BY:

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 Reclamation.dwg

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Registration No. 23006

PAGE 2 OF 2

WELL PLAT

CHEVRON U.S.A. INC.
INTERIM RECLAMATION
HH SO 17 20 FED 001 NOS. 1H-6H
SECTION 17 T26S-R27E
EDDY COUNTY, NEW MEXICO



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

PWD Data Report

07/09/2018

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3¹ - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Assigned injection well API number?

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Injection well name:

Injection well API number:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

07/09/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: CA0329

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: