

Carlsbad Field Office

OCD Artesia

Form 3160-3
(March 2012)

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

5. Lease Serial No.
NMNM118108

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
HH SO 17 20 FED 001 5H 321649

9. API Well No.
30-015-45102

1a. Type of work: ☒ DRILL ☐ REENTER

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

2. Name of Operator
CHEVRON USA INCORPORATED

3a. Address
6301 Deauville Blvd. Midland TX 79706

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

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

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

At surface SESW / 230 FSL / 1872 FWL / LAT 32.0504 / LONG -104.214863

At proposed prod. zone SWSW / 280 FSL / 1170 FWL / LAT 32.021242 / LONG -104.216857

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 8 / T26S / R27E / NMP

14. Distance in miles and direction from nearest town or post office*
11.5 miles

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed*
location to nearest 330 feet
property or lease line, ft.
(Also to nearest drig. unit line, if any)

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
9709 feet / 20044 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3258 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

RUP 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 / 230 FSL / 1872 FWL / TWSP: 26S / RANGE: 27E / SECTION: 8 / LAT: 32.0504 / LONG: -104.214863 (TVD: 0 feet, MD: 0 feet)

PPP: NWNW / 330 FNL / 1170 FWL / TWSP: 26S / RANGE: 27E / SECTION: 17 / LAT: 32.048745 / LONG: -104.216614 (TVD: 9000 feet, MD: 12000 feet)

BHL: SWSW / 280 FSL / 1170 FWL / TWSP: 26S / RANGE: 27E / SECTION: 20 / LAT: 32.021242 / LONG: -104.216857 (TVD: 9709 feet, MD: 20044 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.

Approval Date: 07/06/2018

(Form 3160-3, page 4)

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHEVRON USA INCORPERATED
LEASE NO.:	NMNM118108
WELL NAME & NO.:	HH SO 17 20 FED 001 5H
SURFACE HOLE FOOTAGE:	230'/S & 1872'/W
BOTTOM HOLE FOOTAGE:	280'/S & 1170'/W
LOCATION:	SECTION 8, T26S, R27E , NMPM
COUNTY:	EDDY, NEW MEXICO

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☐ Low	☐ Medium	☒ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

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

B. CASING

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

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

Operator shall filled 1/3rd 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.

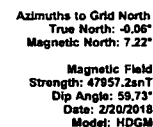
Waste Minimization Plan (WMP)

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: 5H
Wellbore: OH
Design: Plan 2 12-22-17
Rig:



WELL DETAILS					
			Ground Level:	3258.00	
• N+ S	• E+ W	Northing	Easting	Latitude	Longitude
0.00	0.00	382037.00	536658.00	32° 3' 1.00389 N	104° 12' 51.73954 W

[illegible]

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BTL - HH SO 17 20 FED 001 5H	9452.00	-10608.00	-606.00	371429.00	536252.00	32° 1' 18.02667 N	104° 12' 59.90539 W
LPH - HH SO 17 20 FED 001 5H	9452.10	-10658.00	-606.00	371479.00	536252.00	32° 1' 16.52150 N	104° 12' 59.90478 W
MPT - HH SO 17 20 FED 001 5H	9463.00	-5558.00	-622.00	376479.00	536236.00	32° 2' 8.00504 N	104° 12' 59.02775 W
FTP - HH SO 17 20 FED 001 5H	9598.00	-559.00	-695.00	381478.00	536163.00	32° 2' 55.47918 N	104° 12' 59.81306 W

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 5H, Grid North

Latitude: 32° 3' 1.00389 N
Longitude: 104° 12' 51.73054 W

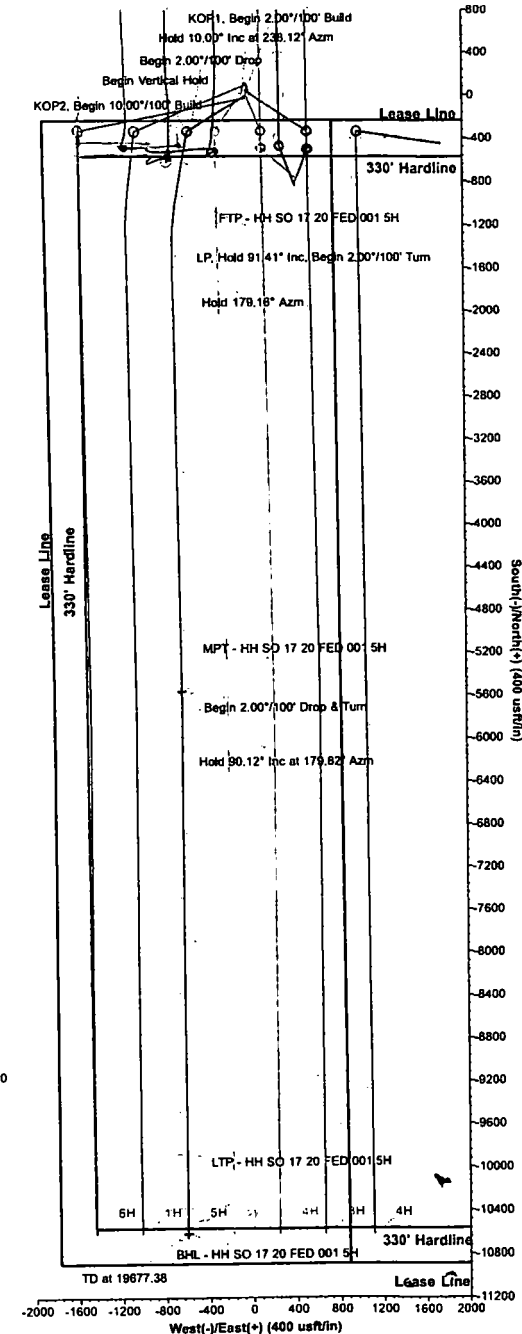
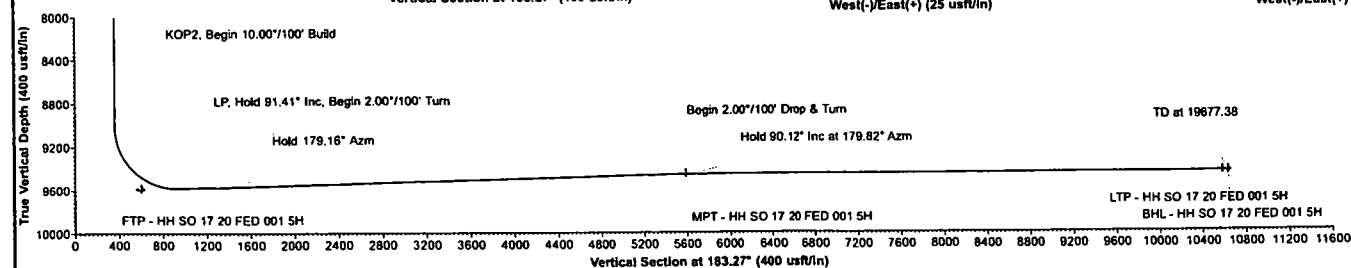
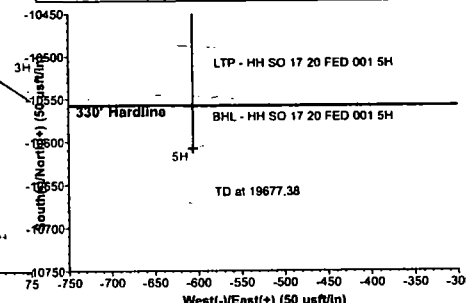
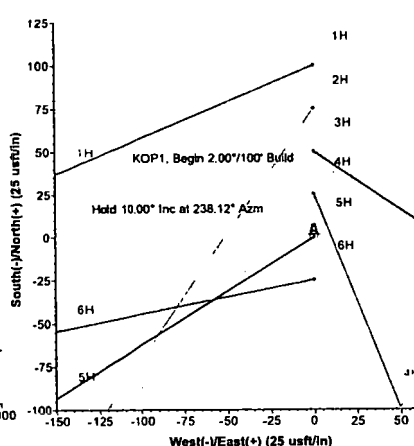
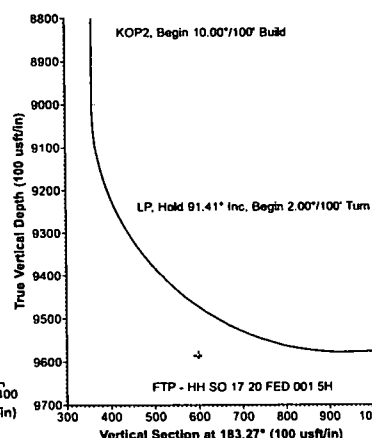
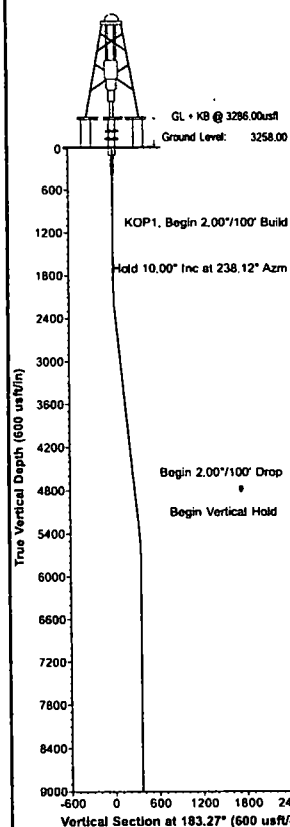
Grid East: 536858.00
Grid North: 382037.00
Scale Factor: 1.000

Geomagnetic Model: HDGM
Sample Date: 20-Feb-18
Magnetic Declination: 7.28°
Dip Angle from Horizontal: 59.73°
Magnetic Field Strength: 47957

To convert a Magnetic Direction to a Grid Direction, Add 7.22°
To convert a Magnetic Direction to a True Direction, Add 7.28° East
To convert a True Direction to a Grid Direction, Subtract 0.06°

LEGEND

- 1H, OH, Plan 2 12-22-17 V0
 --- 5HC, OH / Job #61218, Surveys (Patterson 815) V0
 --- 22HA, OH / Job #61217, Surveys (Patterson 815) V0
 --- 13HD, OH / Job #61220, Surveys (Patterson 815) V0
 --- 14HD, ST01 / Job #61221, Surveys (Patterson 815) V0
 --- 14HD, OH / Job #61221, Surveys (Patterson 815) V0
 --- 2H, OH, Plan 1 12-21-17 V0
 --- 2H, OH, Plan 1 06-16-17 V0
 --- 6H, OH, Plan 1 12-21-17 V0
 --- 4H, OH, Plan 1 12-21-17 V0
 --- 4H, OH, Plan 1 12-20-17 V0
 --- 3H, OH, Plan 1 06-16-17 V0
 --- 6HC, OH / Job #61219, Surveys (Patterson 815) V0
 --- 3H, OH, Plan 1 12-21-17 V0
 --- 21HA, OH / Job #61210, Surveys (Patterson 815) V0
 --- 5H, OH, Plan 1 06-16-17 V0
 Plan 2 12-22-17





Chevron

**Eddy County, NM (NAD27 NME)
HH SO 17 20 FED 001
5H**

OH

Plan: Plan 2 12-22-17

Standard Planning Report

22 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: 5H
Wellbore: OH
Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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	5H					
Well Position	+N/-S	-100.00 usft	Northing:	382,037.00 usft	Latitude:	32° 3' 1.00389 N
	+E/-W	0.00 usft	Easting:	536,858.00 usft	Longitude:	104° 12' 51.73054 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,258.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/20/2018	7.28	59.73	47,957

Design	Plan 2 12-22-17				
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	183.27	

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	
2,299.88	10.00	238.12	2,297.35	-22.97	-36.94	2.00	2.00	0.00	238.12	
5,387.06	10.00	238.12	5,337.65	-306.03	-492.06	0.00	0.00	0.00	0.00	
5,886.94	0.00	0.01	5,835.00	-329.00	-529.00	2.00	-2.00	0.00	180.00	
9,056.95	0.00	0.01	9,005.00	-329.00	-529.00	0.00	0.00	0.00	0.01	
9,971.05	91.41	190.40	9,577.78	-906.41	-634.97	10.00	10.00	0.00	190.40	
10,532.66	91.41	179.16	9,563.91	-1,465.01	-681.71	2.00	0.00	-2.00	-89.85	
14,627.33	91.41	179.16	9,463.00	-5,558.00	-622.00	0.00	0.00	0.00	0.00	MPT - HH SO 17 20
14,700.06	90.12	179.82	9,462.03	-5,630.71	-621.36	2.00	-1.78	0.91	153.06	
19,677.38	90.12	179.82	9,452.00	-10,608.00	-606.00	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: 5H
 Wellbore: OH
 Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	238.12	1,899.98	-0.92	-1.48	1.00	2.00	2.00	0.00
2,000.00	4.00	238.12	1,999.84	-3.69	-5.93	4.02	2.00	2.00	0.00
2,100.00	6.00	238.12	2,099.45	-8.29	-13.33	9.03	2.00	2.00	0.00
2,200.00	8.00	238.12	2,198.70	-14.72	-23.67	16.05	2.00	2.00	0.00
2,299.88	10.00	238.12	2,297.35	-22.97	-36.94	25.04	2.00	2.00	0.00
Hold 10.00° Inc at 238.12° Azm									
2,300.00	10.00	238.12	2,297.47	-22.99	-36.96	25.06	0.00	0.00	0.00
2,400.00	10.00	238.12	2,395.95	-32.15	-51.70	35.05	0.00	0.00	0.00
2,500.00	10.00	238.12	2,494.43	-41.32	-66.44	45.04	0.00	0.00	0.00
2,600.00	10.00	238.12	2,592.91	-50.49	-81.18	55.04	0.00	0.00	0.00
2,700.00	10.00	238.12	2,691.39	-59.66	-95.93	65.03	0.00	0.00	0.00
2,800.00	10.00	238.12	2,789.87	-68.83	-110.67	75.03	0.00	0.00	0.00
2,900.00	10.00	238.12	2,888.35	-78.00	-125.41	85.02	0.00	0.00	0.00
3,000.00	10.00	238.12	2,986.84	-87.17	-140.15	95.02	0.00	0.00	0.00
3,100.00	10.00	238.12	3,085.32	-96.33	-154.90	105.01	0.00	0.00	0.00
3,200.00	10.00	238.12	3,183.80	-105.50	-169.64	115.01	0.00	0.00	0.00
3,300.00	10.00	238.12	3,282.28	-114.67	-184.38	125.00	0.00	0.00	0.00
3,400.00	10.00	238.12	3,380.76	-123.84	-199.12	134.99	0.00	0.00	0.00
3,500.00	10.00	238.12	3,479.24	-133.01	-213.86	144.99	0.00	0.00	0.00
3,600.00	10.00	238.12	3,577.72	-142.18	-228.61	154.98	0.00	0.00	0.00
3,700.00	10.00	238.12	3,676.21	-151.35	-243.35	164.98	0.00	0.00	0.00
3,800.00	10.00	238.12	3,774.69	-160.51	-258.09	174.97	0.00	0.00	0.00
3,900.00	10.00	238.12	3,873.17	-169.68	-272.83	184.97	0.00	0.00	0.00
4,000.00	10.00	238.12	3,971.65	-178.85	-287.58	194.96	0.00	0.00	0.00
4,100.00	10.00	238.12	4,070.13	-188.02	-302.32	204.96	0.00	0.00	0.00
4,200.00	10.00	238.12	4,168.61	-197.19	-317.06	214.95	0.00	0.00	0.00
4,300.00	10.00	238.12	4,267.10	-206.36	-331.80	224.94	0.00	0.00	0.00
4,400.00	10.00	238.12	4,365.58	-215.53	-346.54	234.94	0.00	0.00	0.00
4,500.00	10.00	238.12	4,464.06	-224.69	-361.29	244.93	0.00	0.00	0.00
4,600.00	10.00	238.12	4,562.54	-233.86	-376.03	254.93	0.00	0.00	0.00
4,700.00	10.00	238.12	4,661.02	-243.03	-390.77	264.92	0.00	0.00	0.00
4,800.00	10.00	238.12	4,759.50	-252.20	-405.51	274.92	0.00	0.00	0.00
4,900.00	10.00	238.12	4,857.98	-261.37	-420.26	284.91	0.00	0.00	0.00
5,000.00	10.00	238.12	4,956.47	-270.54	-435.00	294.91	0.00	0.00	0.00
5,100.00	10.00	238.12	5,054.95	-279.71	-449.74	304.90	0.00	0.00	0.00
5,200.00	10.00	238.12	5,153.43	-288.87	-464.48	314.89	0.00	0.00	0.00
5,300.00	10.00	238.12	5,251.91	-298.04	-479.22	324.89	0.00	0.00	0.00
5,387.06	10.00	238.12	5,337.65	-306.03	-492.06	333.59	0.00	0.00	0.00
Begin 2.00°/100' Drop									
5,400.00	9.74	238.12	5,350.40	-307.20	-493.94	334.87	2.00	-2.00	0.00
5,500.00	7.74	238.12	5,449.23	-315.22	-506.84	343.61	2.00	-2.00	0.00
5,600.00	5.74	238.12	5,548.53	-321.42	-516.81	350.37	2.00	-2.00	0.00
5,700.00	3.74	238.12	5,648.19	-325.78	-523.82	355.12	2.00	-2.00	0.00
5,800.00	1.74	238.12	5,748.07	-328.30	-527.88	357.87	2.00	-2.00	0.00
5,886.94	0.00	0.01	5,835.00	-329.00	-529.00	358.63	2.00	-2.00	0.00
Begin Vertical Hold									
9,056.95	0.00	0.00	9,005.00	-329.00	-529.00	358.63	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
9,100.00	4.31	190.40	9,048.01	-330.59	-529.29	360.24	10.00	10.00	0.00
9,200.00	14.31	190.40	9,146.57	-346.47	-532.21	376.26	10.00	10.00	0.00
9,300.00	24.31	190.40	9,240.83	-378.95	-538.17	409.03	10.00	10.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well 5H
Company:	Chevron	TVD Reference:	GL + KB @ 3286.00usft
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	GL + KB @ 3286.00usft
Site:	HH SO 17 20 FED 001	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 12-22-17		

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)
9,400.00	34.31	190.40	9,327.92	-427.03	-546.99	457.53	10.00	10.00	0.00
9,500.00	44.31	190.40	9,405.20	-489.26	-558.41	520.31	10.00	10.00	0.00
9,600.00	54.31	190.40	9,470.32	-563.74	-572.08	595.45	10.00	10.00	0.00
9,700.00	64.31	190.40	9,521.30	-648.21	-587.59	680.66	10.00	10.00	0.00
9,800.00	74.31	190.40	9,556.60	-740.10	-604.45	773.37	10.00	10.00	0.00
9,900.00	84.31	190.40	9,575.13	-836.63	-622.17	870.75	10.00	10.00	0.00
9,971.05	91.41	190.40	9,577.78	-906.41	-634.97	941.15	10.00	10.00	0.00
LP, Hold 91.41° Inc, Begin 2.00°/100° Turn									
10,000.00	91.41	189.82	9,577.07	-934.91	-640.06	969.89	2.00	0.00	-2.00
10,100.00	91.42	187.82	9,574.60	-1,033.69	-655.38	1,069.39	2.00	0.00	-2.00
10,200.00	91.42	185.82	9,572.13	-1,132.95	-667.26	1,169.16	2.00	0.00	-2.00
10,300.00	91.42	183.82	9,569.66	-1,232.56	-675.65	1,269.09	2.00	0.00	-2.00
10,400.00	91.42	181.82	9,567.19	-1,332.40	-680.57	1,369.05	2.00	0.00	-2.00
10,500.00	91.41	179.82	9,564.72	-1,432.36	-682.00	1,468.92	2.00	0.00	-2.00
10,532.66	91.41	179.16	9,563.91	-1,465.01	-681.71	1,501.50	2.00	0.00	-2.00
Hold 179.16° Azm									
10,600.00	91.41	179.16	9,562.25	-1,532.32	-680.72	1,568.65	0.00	0.00	0.00
10,700.00	91.41	179.16	9,559.79	-1,632.28	-679.27	1,668.36	0.00	0.00	0.00
10,800.00	91.41	179.16	9,557.32	-1,732.24	-677.81	1,768.07	0.00	0.00	0.00
10,900.00	91.41	179.16	9,554.86	-1,832.19	-676.35	1,867.79	0.00	0.00	0.00
11,000.00	91.41	179.16	9,552.39	-1,932.15	-674.89	1,967.50	0.00	0.00	0.00
11,100.00	91.41	179.16	9,549.93	-2,032.11	-673.43	2,067.21	0.00	0.00	0.00
11,200.00	91.41	179.16	9,547.46	-2,132.07	-671.98	2,166.92	0.00	0.00	0.00
11,300.00	91.41	179.16	9,545.00	-2,232.03	-670.52	2,266.64	0.00	0.00	0.00
11,400.00	91.41	179.16	9,542.54	-2,331.99	-669.06	2,366.35	0.00	0.00	0.00
11,500.00	91.41	179.16	9,540.07	-2,431.95	-667.60	2,466.06	0.00	0.00	0.00
11,600.00	91.41	179.16	9,537.61	-2,531.91	-666.14	2,565.78	0.00	0.00	0.00
11,700.00	91.41	179.16	9,535.14	-2,631.87	-664.68	2,665.49	0.00	0.00	0.00
11,800.00	91.41	179.16	9,532.68	-2,731.83	-663.23	2,765.20	0.00	0.00	0.00
11,900.00	91.41	179.16	9,530.21	-2,831.78	-661.77	2,864.92	0.00	0.00	0.00
12,000.00	91.41	179.16	9,527.75	-2,931.74	-660.31	2,964.63	0.00	0.00	0.00
12,100.00	91.41	179.16	9,525.28	-3,031.70	-658.85	3,064.34	0.00	0.00	0.00
12,200.00	91.41	179.16	9,522.82	-3,131.66	-657.39	3,164.06	0.00	0.00	0.00
12,300.00	91.41	179.16	9,520.36	-3,231.62	-655.94	3,263.77	0.00	0.00	0.00
12,400.00	91.41	179.16	9,517.89	-3,331.58	-654.48	3,363.48	0.00	0.00	0.00
12,500.00	91.41	179.16	9,515.43	-3,431.54	-653.02	3,463.20	0.00	0.00	0.00
12,600.00	91.41	179.16	9,512.96	-3,531.50	-651.56	3,562.91	0.00	0.00	0.00
12,700.00	91.41	179.16	9,510.50	-3,631.46	-650.10	3,662.62	0.00	0.00	0.00
12,800.00	91.41	179.16	9,508.03	-3,731.42	-648.65	3,762.34	0.00	0.00	0.00
12,900.00	91.41	179.16	9,505.57	-3,831.37	-647.19	3,862.05	0.00	0.00	0.00
13,000.00	91.41	179.16	9,503.10	-3,931.33	-645.73	3,961.76	0.00	0.00	0.00
13,100.00	91.41	179.16	9,500.64	-4,031.29	-644.27	4,061.47	0.00	0.00	0.00
13,200.00	91.41	179.16	9,498.18	-4,131.25	-642.81	4,161.19	0.00	0.00	0.00
13,300.00	91.41	179.16	9,495.71	-4,231.21	-641.35	4,260.90	0.00	0.00	0.00
13,400.00	91.41	179.16	9,493.25	-4,331.17	-639.90	4,360.61	0.00	0.00	0.00
13,500.00	91.41	179.16	9,490.78	-4,431.13	-638.44	4,460.33	0.00	0.00	0.00
13,600.00	91.41	179.16	9,488.32	-4,531.09	-636.98	4,560.04	0.00	0.00	0.00
13,700.00	91.41	179.16	9,485.85	-4,631.05	-635.52	4,659.75	0.00	0.00	0.00
13,800.00	91.41	179.16	9,483.39	-4,731.01	-634.06	4,759.47	0.00	0.00	0.00
13,900.00	91.41	179.16	9,480.92	-4,830.96	-632.61	4,859.18	0.00	0.00	0.00
14,000.00	91.41	179.16	9,478.46	-4,930.92	-631.15	4,958.89	0.00	0.00	0.00
14,100.00	91.41	179.16	9,476.00	-5,030.88	-629.69	5,058.61	0.00	0.00	0.00
14,200.00	91.41	179.16	9,473.53	-5,130.84	-628.23	5,158.32	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



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 Site: HH SO 17 20 FED 001
 Well: 5H
 Wellbore: OH
 Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
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 MD Reference: GL + KB @ 3286.00usft
 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)
14,300.00	91.41	179.16	9,471.07	-5,230.80	-626.77	5,258.03	0.00	0.00	0.00
14,400.00	91.41	179.16	9,468.60	-5,330.76	-625.31	5,357.75	0.00	0.00	0.00
14,500.00	91.41	179.16	9,466.14	-5,430.72	-623.86	5,457.46	0.00	0.00	0.00
14,600.00	91.41	179.16	9,463.67	-5,530.68	-622.40	5,557.17	0.00	0.00	0.00
14,627.33	91.41	179.16	9,463.00	-5,558.00	-622.00	5,584.43	0.00	0.00	0.00
Begin 2.00°/100' Drop & Turn									
14,700.00	90.12	179.82	9,462.03	-5,630.65	-621.36	5,656.93	2.00	-1.78	0.91
14,700.06	90.12	179.82	9,462.03	-5,630.71	-621.36	5,656.98	2.00	-1.78	0.91
Hold 90.12° Inc at 179.82° Azm									
14,800.00	90.12	179.82	9,461.83	-5,730.65	-621.05	5,756.75	0.00	0.00	0.00
14,900.00	90.12	179.82	9,461.63	-5,830.65	-620.74	5,856.57	0.00	0.00	0.00
15,000.00	90.12	179.82	9,461.43	-5,930.65	-620.43	5,956.38	0.00	0.00	0.00
15,100.00	90.12	179.82	9,461.22	-6,030.65	-620.12	6,056.20	0.00	0.00	0.00
15,200.00	90.12	179.82	9,461.02	-6,130.65	-619.82	6,156.02	0.00	0.00	0.00
15,300.00	90.12	179.82	9,460.82	-6,230.65	-619.51	6,255.84	0.00	0.00	0.00
15,400.00	90.12	179.82	9,460.62	-6,330.65	-619.20	6,355.66	0.00	0.00	0.00
15,500.00	90.12	179.82	9,460.42	-6,430.65	-618.89	6,455.48	0.00	0.00	0.00
15,600.00	90.12	179.82	9,460.22	-6,530.65	-618.58	6,555.30	0.00	0.00	0.00
15,700.00	90.12	179.82	9,460.02	-6,630.65	-618.27	6,655.12	0.00	0.00	0.00
15,800.00	90.12	179.82	9,459.81	-6,730.65	-617.96	6,754.94	0.00	0.00	0.00
15,900.00	90.12	179.82	9,459.61	-6,830.65	-617.66	6,854.75	0.00	0.00	0.00
16,000.00	90.12	179.82	9,459.41	-6,930.65	-617.35	6,954.57	0.00	0.00	0.00
16,100.00	90.12	179.82	9,459.21	-7,030.65	-617.04	7,054.39	0.00	0.00	0.00
16,200.00	90.12	179.82	9,459.01	-7,130.64	-616.73	7,154.21	0.00	0.00	0.00
16,300.00	90.12	179.82	9,458.81	-7,230.64	-616.42	7,254.03	0.00	0.00	0.00
16,400.00	90.12	179.82	9,458.60	-7,330.64	-616.11	7,353.85	0.00	0.00	0.00
16,500.00	90.12	179.82	9,458.40	-7,430.64	-615.80	7,453.67	0.00	0.00	0.00
16,600.00	90.12	179.82	9,458.20	-7,530.64	-615.50	7,553.49	0.00	0.00	0.00
16,700.00	90.12	179.82	9,458.00	-7,630.64	-615.19	7,653.31	0.00	0.00	0.00
16,800.00	90.12	179.82	9,457.80	-7,730.64	-614.88	7,753.13	0.00	0.00	0.00
16,900.00	90.12	179.82	9,457.60	-7,830.64	-614.57	7,852.94	0.00	0.00	0.00
17,000.00	90.12	179.82	9,457.40	-7,930.64	-614.26	7,952.76	0.00	0.00	0.00
17,100.00	90.12	179.82	9,457.19	-8,030.64	-613.95	8,052.58	0.00	0.00	0.00
17,200.00	90.12	179.82	9,456.99	-8,130.64	-613.64	8,152.40	0.00	0.00	0.00
17,300.00	90.12	179.82	9,456.79	-8,230.64	-613.34	8,252.22	0.00	0.00	0.00
17,400.00	90.12	179.82	9,456.59	-8,330.64	-613.03	8,352.04	0.00	0.00	0.00
17,500.00	90.12	179.82	9,456.39	-8,430.64	-612.72	8,451.86	0.00	0.00	0.00
17,600.00	90.12	179.82	9,456.19	-8,530.64	-612.41	8,551.68	0.00	0.00	0.00
17,700.00	90.12	179.82	9,455.99	-8,630.63	-612.10	8,651.50	0.00	0.00	0.00
17,800.00	90.12	179.82	9,455.78	-8,730.63	-611.79	8,751.32	0.00	0.00	0.00
17,900.00	90.12	179.82	9,455.58	-8,830.63	-611.48	8,851.13	0.00	0.00	0.00
18,000.00	90.12	179.82	9,455.38	-8,930.63	-611.18	8,950.95	0.00	0.00	0.00
18,100.00	90.12	179.82	9,455.18	-9,030.63	-610.87	9,050.77	0.00	0.00	0.00
18,200.00	90.12	179.82	9,454.98	-9,130.63	-610.56	9,150.59	0.00	0.00	0.00
18,300.00	90.12	179.82	9,454.78	-9,230.63	-610.25	9,250.41	0.00	0.00	0.00
18,400.00	90.12	179.82	9,454.57	-9,330.63	-609.94	9,350.23	0.00	0.00	0.00
18,500.00	90.12	179.82	9,454.37	-9,430.63	-609.63	9,450.05	0.00	0.00	0.00
18,600.00	90.12	179.82	9,454.17	-9,530.63	-609.32	9,549.87	0.00	0.00	0.00
18,700.00	90.12	179.82	9,453.97	-9,630.63	-609.02	9,649.69	0.00	0.00	0.00
18,800.00	90.12	179.82	9,453.77	-9,730.63	-608.71	9,749.50	0.00	0.00	0.00
18,900.00	90.12	179.82	9,453.57	-9,830.63	-608.40	9,849.32	0.00	0.00	0.00
19,000.00	90.12	179.82	9,453.37	-9,930.63	-608.09	9,949.14	0.00	0.00	0.00
19,100.00	90.12	179.82	9,453.16	-10,030.63	-607.78	10,048.96	0.00	0.00	0.00
19,200.00	90.12	179.82	9,452.96	-10,130.62	-607.47	10,148.78	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well 5H
Company:	Chevron	TVD Reference:	GL + KB @ 3286.00usft
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	GL + KB @ 3286.00usft
Site:	HH SO 17 20 FED 001	North Reference:	Grid
Well:	5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 12-22-17		

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)
19,300.00	90.12	179.82	9,452.76	-10,230.62	-607.16	10,248.60	0.00	0.00	0.00
19,400.00	90.12	179.82	9,452.56	-10,330.62	-606.86	10,348.42	0.00	0.00	0.00
19,500.00	90.12	179.82	9,452.36	-10,430.62	-606.55	10,448.24	0.00	0.00	0.00
19,600.00	90.12	179.82	9,452.16	-10,530.62	-606.24	10,548.06	0.00	0.00	0.00
19,677.38	90.12	179.82	9,452.00	-10,608.00	-606.00	10,625.30	0.00	0.00	0.00
TD at 19677.38									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL - HH SO 17 20 F	0.00	0.00	9,452.00	-10,608.00	-606.00	371,429.00	536,252.00	32° 1' 16.02667 N	04° 12' 58.90539 W
- plan hits target center									
- Point									
LTP - HH SO 17 20 FI	0.00	0.00	9,452.10	-10,558.00	-606.00	371,479.00	536,252.00	32° 1' 16.52150 N	04° 12' 58.90476 W
- plan misses target center by 27.38usft at 19600.00usft MD (9452.16 TVD, -10530.62 N, -606.24 E)									
- Point									
MPT - HH SO 17 20 F	0.00	0.00	9,463.00	-5,558.00	-622.00	376,479.00	536,236.00	32° 2' 6.00504 N	04° 12' 59.02775 W
- plan hits target center									
- Point									
FTP - HH SO 17 20 F	0.00	0.00	9,586.00	-559.00	-695.00	381,478.00	536,163.00	32° 2' 55.47918 N	04° 12' 59.81306 W
- plan misses target center by 150.73usft at 9674.22usft MD (9509.61 TVD, -625.61 N, -583.44 E)									
- Point									

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
2,299.88	2,297.35	-22.97	-36.94	Hold 10.00° Inc at 238.12° Azm
5,387.06	5,337.65	-306.03	-492.06	Begin 2.00°/100' Drop
5,886.94	5,835.00	-329.00	-529.00	Begin Vertical Hold
9,056.95	9,005.00	-329.00	-529.00	KOP2, Begin 10.00°/100' Build
9,971.05	9,577.78	-906.41	-634.97	LP, Hold 91.41° Inc, Begin 2.00°/100' Turn
10,532.66	9,563.91	-1,465.01	-681.71	Hold 179.16° Azm
14,627.33	9,463.00	-5,558.00	-622.00	Begin 2.00°/100' Drop & Turn
14,700.06	9,462.03	-5,630.71	-621.36	Hold 90.12° Inc at 179.82° Azm
19,677.38	9,452.00	-10,608.00	-606.00	TD at 19677.38



Chevron

**Eddy County, NM (NAD27 NME)
HH SO 17 20 FED 001
5H**

**OH
Plan 2 12-22-17**

Anticollision Report

22 December, 2017



Approval Date: 07/06/2018



Phoenix Technology Services LP

Anticollision Report



Company:	Chevron	Local Co-ordinate Reference:	Well 5H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	GL + KB @ 3286.00usft
Reference Site:	HH SO 17 20 FED 001	MD Reference:	GL + KB @ 3286.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	5H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	OH	Database:	Compass 5000 GCR
Reference Design:	Plan 2 12-22-17	Offset TVD Reference:	Offset Datum

Reference	Plan 2 12-22-17
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** 12/22/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	19,677.38	Plan 2 12-22-17 (OH)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
HH SO 17 20 FED 001						
1H - OH - Plan 2 12-22-17	1,800.00	1,799.00	100.00	81.34	5.358 CC	
1H - OH - Plan 2 12-22-17	2,000.00	2,001.72	100.97	80.27	4.876 ES	
1H - OH - Plan 2 12-22-17	19,677.89	20,093.27	571.79	196.65	1.524 SF	
2H - OH - Plan 1 12-21-17	2,400.21	2,407.02	64.15	39.51	2.604 CC	
2H - OH - Plan 1 12-21-17	2,500.00	2,506.56	64.55	38.92	2.519 ES	
2H - OH - Plan 1 12-21-17	19,877.89	19,905.29	622.61	116.17	1.286 Level 3, SF	
3H - OH - Plan 1 12-21-17	1,862.65	1,863.25	49.99	30.67	2.587 CC	
3H - OH - Plan 1 12-21-17	1,900.00	1,900.90	50.02	30.31	2.538 ES	
3H - OH - Plan 1 12-21-17	2,000.00	2,001.28	51.11	30.42	2.470 SF	
4H - OH - Plan 1 12-21-17	1,987.42	1,988.62	23.72	3.17	1.154 Level 2, CC	
4H - OH - Plan 1 12-21-17	2,000.00	2,001.28	23.74	3.07	1.149 Level 2, ES, SF	
6H - OH - Plan 1 12-21-17	2,366.88	2,385.33	10.30	-13.88	0.428 Level 1, CC, ES, SF	
HH SO 17 20 FED 002						
4H - OH - Plan 1 12-20-17	5,283.64	5,533.70	1,541.42	1,482.87	26.327 CC	
4H - OH - Plan 1 12-20-17	19,677.89	19,777.03	1,710.51	1,252.64	3.736 ES, SF	
HH SO 8 5 Fed 003						
2H - OH - Plan 1 06-16-17	3,887.28	3,943.92	700.51	658.15	16.540 CC	
2H - OH - Plan 1 06-16-17	4,100.00	4,151.51	702.05	657.27	15.680 ES	
2H - OH - Plan 1 06-16-17	9,100.00	9,056.31	845.84	748.63	8.701 SF	
3H - OH - Plan 1 06-16-17	2,583.28	2,629.73	829.25	801.60	29.994 CC	
3H - OH - Plan 1 06-16-17	2,700.00	2,742.38	829.81	800.87	28.670 ES	
3H - OH - Plan 1 06-16-17	9,400.00	9,374.20	1,109.87	1,009.70	11.079 SF	
5H - OH - Plan 1 06-16-17	4,501.80	4,544.86	583.02	533.93	11.876 CC, ES	
5H - OH - Plan 1 06-16-17	9,400.00	9,355.79	692.55	592.51	6.923 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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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						
13HD - OH / Job #61220 - Surveys (Patterson 815)	9,726.11	9,548.79	956.03	855.62	9.521	CC, ES
13HD - OH / Job #61220 - Surveys (Patterson 815)	9,800.00	9,551.42	958.62	857.60	9.490	SF
14HD - OH / Job #61221 - Surveys (Patterson 815)	9,684.56	9,524.77	140.81	40.79	1.408	Level 3, CC, ES, SF
14HD - ST01 / Job #61221 - Surveys (Patterson 815)	9,615.68	9,490.90	138.33	41.32	1.428	Level 3, CC, ES, SF
21HA - OH / Job #61216 - Surveys (Patterson 815)	3,255.74	3,079.19	937.06	906.56	30.721	CC
21HA - OH / Job #61216 - Surveys (Patterson 815)	5,000.00	4,821.24	943.37	893.38	18.873	ES
21HA - OH / Job #61216 - Surveys (Patterson 815)	9,000.00	8,919.55	1,012.13	920.30	11.022	SF
22HA - OH / Job #61217 - Surveys (Patterson 815)	9,009.27	9,007.00	90.78	-1.20	0.987	Level 1, CC, ES, SF
5HC - OH / Job #61218 - Surveys (Patterson 815)	9,479.49	9,408.55	564.70	467.01	5.780	CC, ES
5HC - OH / Job #61218 - Surveys (Patterson 815)	9,500.00	9,410.99	565.07	467.23	5.775	SF
6HC - OH / Job #61219 - Surveys (Patterson 815)	9,421.01	9,409.59	227.45	130.30	2.341	CC, ES, SF

Offset Design HH SO 17 20 FED 001 - 1H - OH - Plan 2 12-22-17

Survey Program: 0-MWD+HDCM

Offset Site Error: 0.00 usft
 Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.01				
100.00	100.00	99.00	0.19	0.19	0.00	100.00	0.00	100.00	99.61	0.39	259.596	
200.00	200.00	199.00	0.73	0.73	0.00	100.00	0.00	100.00	98.54	1.46	68.625	
300.00	300.00	299.00	1.27	1.26	0.00	100.00	0.00	100.00	97.47	2.53	39.485	
400.00	400.00	399.00	1.81	1.80	0.00	100.00	0.00	100.00	96.39	3.61	27.716	
500.00	500.00	499.00	2.34	2.34	0.00	100.00	0.00	100.00	95.32	4.68	21.352	
600.00	600.00	599.00	2.88	2.88	0.00	100.00	0.00	100.00	94.24	5.76	17.365	
700.00	700.00	699.00	3.42	3.41	0.00	100.00	0.00	100.00	93.17	6.83	14.632	
800.00	800.00	799.00	3.96	3.95	0.00	100.00	0.00	100.00	92.09	7.91	12.643	
900.00	900.00	899.00	4.50	4.49	0.00	100.00	0.00	100.00	91.01	8.99	11.130	
1,000.00	1,000.00	999.00	5.03	5.03	0.00	100.00	0.00	100.00	89.94	10.06	9.940	
1,100.00	1,100.00	1,099.00	5.57	5.57	0.00	100.00	0.00	100.00	88.86	11.14	8.980	
1,200.00	1,200.00	1,199.00	6.11	6.10	0.00	100.00	0.00	100.00	87.79	12.21	8.189	
1,300.00	1,300.00	1,299.00	6.65	6.64	0.00	100.00	0.00	100.00	86.71	13.29	7.526	
1,400.00	1,400.00	1,399.00	7.18	7.18	0.00	100.00	0.00	100.00	85.64	14.36	6.963	
1,500.00	1,500.00	1,499.00	7.72	7.72	0.00	100.00	0.00	100.00	84.56	15.44	6.478	
1,600.00	1,600.00	1,599.00	8.26	8.25	0.00	100.00	0.00	100.00	83.49	16.51	6.056	
1,700.00	1,700.00	1,699.00	8.80	8.79	0.00	100.00	0.00	100.00	82.41	17.59	5.686	
1,800.00	1,800.00	1,799.00	9.33	9.33	0.00	100.00	0.00	100.00	81.34	18.66	5.358	CC
1,900.00	1,899.98	1,900.36	9.85	9.86	121.81	99.32	-1.62	100.25	80.55	19.71	5.088	
2,000.00	1,999.84	2,001.72	10.35	10.37	121.56	97.25	-6.55	100.97	80.27	20.71	4.876	ES
2,100.00	2,099.45	2,103.07	10.86	10.89	121.14	93.80	-14.77	102.18	80.46	21.72	4.705	
2,200.00	2,198.70	2,204.41	11.38	11.41	120.55	88.96	-26.27	103.86	81.12	22.74	4.568	
2,300.00	2,297.47	2,305.72	11.90	11.95	119.83	82.76	-41.05	106.03	82.26	23.77	4.460	
2,400.00	2,395.95	2,406.96	12.44	12.51	118.21	75.19	-59.06	107.86	82.99	24.87	4.337	
2,500.00	2,494.43	2,507.92	12.99	13.08	114.86	66.30	-80.23	108.75	82.75	26.00	4.183	
2,600.00	2,592.91	2,608.34	13.55	13.68	109.79	56.13	-104.45	109.28	82.10	27.18	4.021	
2,700.00	2,691.39	2,708.00	14.12	14.30	103.06	44.74	-131.56	110.34	81.95	28.39	3.887	
2,800.00	2,789.87	2,806.82	14.69	14.95	95.16	32.39	-160.96	113.05	83.42	29.63	3.816	
2,900.00	2,888.35	2,905.51	15.27	15.62	87.62	19.95	-190.59	117.90	87.03	30.86	3.820	
3,000.00	2,986.84	3,004.21	15.85	16.32	80.76	7.50	-220.22	124.65	92.57	32.08	3.885	
3,100.00	3,085.32	3,102.90	16.45	17.03	74.68	-4.94	-249.86	133.01	99.74	33.28	3.997	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 2 12-22-17													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)					
3,200.00	3,183.80	3,201.60	3,159.67	17.04	17.76	69.35	-17.39	-279.49	142.71	108.26	34.45	4.142	
3,300.00	3,282.28	3,300.30	3,252.98	17.64	18.50	64.73	-29.84	-309.12	153.49	117.87	35.61	4.310	
3,400.00	3,380.76	3,398.99	3,346.30	18.24	19.26	60.73	-42.28	-338.75	165.13	128.37	36.76	4.492	
3,500.00	3,479.24	3,497.69	3,439.62	18.85	20.02	57.26	-54.73	-368.39	177.47	139.57	37.91	4.682	
3,600.00	3,577.72	3,596.38	3,532.93	19.45	20.80	54.25	-67.18	-398.02	190.38	151.33	39.05	4.876	
3,700.00	3,676.21	3,695.08	3,626.25	20.07	21.58	51.62	-79.62	-427.65	203.74	163.55	40.18	5.070	
3,800.00	3,774.69	3,793.77	3,719.56	20.68	22.37	49.32	-92.07	-457.28	217.47	176.14	41.32	5.262	
3,900.00	3,873.17	3,892.47	3,812.88	21.30	23.17	47.29	-104.51	-486.92	231.50	189.04	42.47	5.451	
4,000.00	3,971.65	3,991.17	3,906.20	21.91	23.98	45.50	-116.96	-516.55	245.79	202.18	43.61	5.636	
4,100.00	4,070.13	4,089.86	3,999.51	22.53	24.79	43.90	-129.41	-546.18	260.29	215.54	44.76	5.816	
4,200.00	4,168.61	4,188.56	4,092.83	23.15	25.60	42.47	-141.85	-575.81	274.97	229.07	45.90	5.990	
4,300.00	4,267.10	4,287.25	4,186.14	23.78	26.42	41.19	-154.30	-605.45	289.80	242.74	47.06	6.159	
4,400.00	4,365.58	4,385.95	4,279.46	24.40	27.25	40.03	-166.75	-635.08	304.76	256.55	48.21	6.321	
4,500.00	4,464.06	4,484.65	4,372.78	25.03	28.07	38.98	-179.19	-664.71	319.82	270.46	49.37	6.479	
4,600.00	4,562.54	4,583.34	4,466.09	25.66	28.90	38.03	-191.64	-694.34	334.99	284.46	50.53	6.630	
4,700.00	4,661.02	4,682.04	4,559.41	26.28	29.74	37.15	-204.08	-723.98	350.24	298.55	51.69	6.776	
4,800.00	4,759.50	4,780.73	4,652.72	26.91	30.58	36.35	-216.53	-753.61	365.56	312.70	52.85	6.917	
4,900.00	4,857.98	4,879.43	4,746.04	27.54	31.42	35.62	-228.98	-783.24	380.94	326.92	54.02	7.052	
5,000.00	4,956.47	4,978.12	4,839.35	28.17	32.26	34.94	-241.42	-812.87	396.38	341.19	55.19	7.182	
5,100.00	5,054.95	5,076.82	4,932.67	28.81	33.11	34.31	-253.87	-842.51	411.87	355.51	56.36	7.308	
5,200.00	5,153.43	5,175.52	5,025.99	29.44	33.95	33.73	-266.31	-872.14	427.41	369.88	57.53	7.429	
5,300.00	5,251.91	5,288.80	5,133.68	30.07	34.90	33.21	-279.91	-904.51	441.52	382.72	58.80	7.509	
5,400.00	5,350.40	5,404.73	5,245.24	30.71	35.81	32.97	-292.11	-933.56	452.04	391.95	60.08	7.523	
5,500.00	5,449.23	5,521.32	5,358.63	31.33	36.65	32.88	-302.61	-958.56	460.69	399.35	61.34	7.511	
5,600.00	5,548.53	5,638.38	5,473.48	31.91	37.43	32.76	-311.35	-979.35	468.54	406.05	62.50	7.497	
5,700.00	5,648.19	5,755.85	5,589.58	32.47	38.15	32.60	-318.28	-995.86	475.59	412.03	63.56	7.483	
5,800.00	5,748.07	5,873.72	5,706.70	33.00	38.81	32.40	-323.38	-1,007.99	481.83	417.30	64.53	7.467	
5,900.00	5,848.06	5,991.94	5,824.61	33.49	39.42	-89.72	-326.61	-1,015.69	487.21	422.99	64.22	7.586	
6,000.00	5,948.06	6,110.52	5,943.14	33.97	39.96	-89.88	-327.96	-1,018.90	489.92	424.62	65.30	7.503	
6,100.00	6,048.06	6,214.44	6,047.06	34.44	40.38	-89.88	-328.00	-1,019.00	490.00	423.71	66.29	7.392	
6,200.00	6,148.06	6,314.44	6,147.06	34.92	40.80	-89.88	-328.00	-1,019.00	490.00	422.73	67.27	7.284	
6,300.00	6,248.06	6,414.44	6,247.06	35.40	41.21	-89.88	-328.00	-1,019.00	490.00	421.76	68.24	7.180	
6,400.00	6,348.06	6,514.44	6,347.06	35.88	41.63	-89.88	-328.00	-1,019.00	490.00	420.78	69.22	7.078	
6,500.00	6,448.06	6,614.44	6,447.06	36.37	42.05	-89.88	-328.00	-1,019.00	490.00	419.79	70.21	6.979	
6,600.00	6,548.06	6,714.44	6,547.06	36.85	42.48	-89.88	-328.00	-1,019.00	490.00	418.81	71.19	6.883	
6,700.00	6,648.06	6,814.44	6,647.06	37.34	42.90	-89.88	-328.00	-1,019.00	490.00	417.82	72.18	6.788	
6,800.00	6,748.06	6,914.44	6,747.06	37.83	43.33	-89.88	-328.00	-1,019.00	490.00	416.83	73.17	6.697	
6,900.00	6,848.06	7,014.44	6,847.06	38.31	43.76	-89.88	-328.00	-1,019.00	490.00	415.84	74.17	6.607	
7,000.00	6,948.06	7,114.44	6,947.06	38.80	44.20	-89.88	-328.00	-1,019.00	490.00	414.84	75.16	6.519	
7,100.00	7,048.06	7,214.44	7,047.06	39.30	44.63	-89.88	-328.00	-1,019.00	490.00	413.84	76.16	6.434	
7,200.00	7,148.06	7,314.44	7,147.06	39.79	45.07	-89.88	-328.00	-1,019.00	490.00	412.84	77.16	6.351	
7,300.00	7,248.06	7,414.44	7,247.06	40.28	45.51	-89.88	-328.00	-1,019.00	490.00	411.84	78.16	6.269	
7,400.00	7,348.06	7,514.44	7,347.06	40.78	45.95	-89.88	-328.00	-1,019.00	490.00	410.84	79.16	6.190	
7,500.00	7,448.06	7,614.44	7,447.06	41.27	46.40	-89.88	-328.00	-1,019.00	490.00	409.83	80.17	6.112	
7,600.00	7,548.06	7,714.44	7,547.06	41.77	46.84	-89.88	-328.00	-1,019.00	490.00	408.83	81.17	6.036	
7,700.00	7,648.06	7,814.44	7,647.06	42.27	47.29	-89.88	-328.00	-1,019.00	490.00	407.82	82.18	5.962	
7,800.00	7,748.06	7,914.44	7,747.06	42.77	47.74	-89.88	-328.00	-1,019.00	490.00	406.81	83.19	5.890	
7,900.00	7,848.06	8,014.44	7,847.06	43.27	48.19	-89.88	-328.00	-1,019.00	490.00	405.79	84.21	5.819	
8,000.00	7,948.06	8,114.44	7,947.06	43.77	48.64	-89.88	-328.00	-1,019.00	490.00	404.78	85.22	5.750	
8,100.00	8,048.06	8,214.44	8,047.06	44.27	49.10	-89.88	-328.00	-1,019.00	490.00	403.77	86.24	5.682	
8,200.00	8,148.06	8,314.44	8,147.06	44.77	49.56	-89.88	-328.00	-1,019.00	490.00	402.75	87.25	5.616	
8,300.00	8,248.06	8,414.44	8,247.06	45.28	50.02	-89.88	-328.00	-1,019.00	490.00	401.73	88.27	5.551	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 2 12-22-17												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)				
8,400.00	8,348.06	8,514.44	8,347.06	45.78	50.48	-89.88	-328.00	-1,019.00	490.00	400.71	89.29	5.488
8,500.00	8,448.06	8,614.44	8,447.06	46.29	50.94	-89.88	-328.00	-1,019.00	490.00	399.69	90.31	5.426
8,600.00	8,548.06	8,714.44	8,547.06	46.79	51.40	-89.88	-328.00	-1,019.00	490.00	398.67	91.33	5.365
8,700.00	8,648.06	8,814.44	8,647.06	47.30	51.86	-89.88	-328.00	-1,019.00	490.00	397.65	92.35	5.306
8,800.00	8,748.06	8,914.44	8,747.06	47.81	52.33	-89.88	-328.00	-1,019.00	490.00	396.62	93.38	5.247
8,900.00	8,848.06	9,014.44	8,847.06	48.31	52.80	-89.88	-328.00	-1,019.00	490.00	395.60	94.40	5.190
9,000.00	8,948.06	9,114.44	8,947.06	48.82	53.27	-89.88	-328.00	-1,019.00	490.00	394.57	95.43	5.135
9,100.00	9,048.01	9,214.40	9,047.01	49.33	53.74	79.93	-328.00	-1,019.00	489.71	392.31	97.41	5.028
9,200.00	9,146.57	9,312.96	9,145.57	49.87	54.20	82.03	-328.00	-1,019.00	487.14	388.35	98.79	4.931
9,300.00	9,240.83	9,407.21	9,239.83	50.45	54.64	86.03	-328.00	-1,019.00	483.52	383.27	100.26	4.823
9,377.72	9,309.27	9,475.66	9,308.27	50.92	54.97	90.00	-328.00	-1,019.00	482.13	380.79	101.34	4.758
9,400.00	9,327.92	9,495.38	9,328.00	51.06	55.06	91.25	-328.17	-1,019.02	482.27	380.66	101.61	4.746
9,500.00	9,405.20	9,591.00	9,422.95	51.69	55.53	97.06	-338.38	-1,020.20	486.17	383.69	102.48	4.744
9,600.00	9,470.32	9,698.46	9,525.92	52.36	56.11	102.98	-368.36	-1,023.67	495.28	392.90	102.39	4.837
9,700.00	9,521.30	9,822.60	9,635.40	53.06	56.82	109.01	-425.98	-1,030.34	508.59	407.73	100.86	5.043
9,800.00	9,556.60	9,969.74	9,745.34	53.81	57.70	115.04	-522.53	-1,041.51	523.79	426.10	97.69	5.362
9,900.00	9,575.13	10,146.01	9,839.29	54.59	58.82	120.66	-669.86	-1,058.56	537.17	443.75	93.42	5.750
10,000.00	9,577.07	10,351.62	9,886.19	55.39	60.26	124.80	-867.61	-1,081.43	543.61	453.45	90.16	6.029
10,100.00	9,574.60	10,487.86	9,885.24	56.24	61.31	125.35	-1,003.09	-1,095.47	540.11	449.41	90.71	5.955
10,200.00	9,572.13	10,605.73	9,883.24	57.14	62.27	125.76	-1,120.72	-1,102.63	535.82	444.48	91.34	5.866
10,300.00	9,569.66	10,723.26	9,881.24	58.09	63.26	126.21	-1,238.20	-1,104.95	531.07	439.09	91.98	5.774
10,400.00	9,567.19	10,829.00	9,879.45	59.08	64.20	126.60	-1,343.91	-1,103.68	526.58	433.93	92.65	5.684
10,500.00	9,564.72	10,928.95	9,877.75	60.11	65.15	126.78	-1,443.83	-1,102.21	524.72	431.18	93.54	5.610
10,523.97	9,564.12	10,952.91	9,877.35	60.36	65.38	126.81	-1,467.80	-1,101.86	524.64	430.75	93.89	5.588
10,600.00	9,562.25	11,028.94	9,876.06	61.18	66.15	126.85	-1,543.80	-1,100.75	525.03	429.95	95.08	5.522
10,700.00	9,559.79	11,128.94	9,874.36	62.30	67.21	126.91	-1,643.78	-1,099.29	525.49	428.55	96.94	5.421
10,800.00	9,557.32	11,228.94	9,872.67	63.48	68.33	126.98	-1,743.75	-1,097.82	525.95	427.04	98.90	5.318
10,900.00	9,554.86	11,328.93	9,870.97	64.71	69.49	127.05	-1,843.72	-1,096.36	526.40	425.45	100.96	5.214
11,000.00	9,552.39	11,428.93	9,869.28	65.98	70.71	127.12	-1,943.69	-1,094.90	526.86	423.76	103.10	5.110
11,100.00	9,549.93	11,528.93	9,867.58	67.30	71.97	127.18	-2,043.66	-1,093.43	527.32	422.00	105.33	5.006
11,200.00	9,547.46	11,628.93	9,865.89	68.67	73.27	127.25	-2,143.64	-1,091.97	527.79	420.15	107.63	4.904
11,300.00	9,545.00	11,728.92	9,864.19	70.07	74.62	127.32	-2,243.61	-1,090.51	528.25	418.24	110.01	4.802
11,400.00	9,542.54	11,828.92	9,862.49	71.51	76.00	127.38	-2,343.58	-1,089.04	528.71	416.26	112.45	4.702
11,500.00	9,540.07	11,928.92	9,860.80	72.99	77.42	127.45	-2,443.55	-1,087.58	529.17	414.22	114.96	4.603
11,600.00	9,537.61	12,028.91	9,859.10	74.50	78.88	127.52	-2,543.52	-1,086.11	529.64	412.12	117.52	4.507
11,700.00	9,535.14	12,128.91	9,857.41	76.04	80.36	127.58	-2,643.50	-1,084.65	530.10	409.96	120.14	4.412
11,800.00	9,532.68	12,228.91	9,855.71	77.61	81.88	127.65	-2,743.47	-1,083.19	530.57	407.76	122.81	4.320
11,900.00	9,530.21	12,328.90	9,854.02	79.21	83.43	127.71	-2,843.44	-1,081.72	531.03	405.51	125.52	4.231
12,000.00	9,527.75	12,428.90	9,852.32	80.83	85.01	127.78	-2,943.41	-1,080.26	531.50	403.22	128.28	4.143
12,100.00	9,525.28	12,528.90	9,850.63	82.48	86.61	127.85	-3,043.38	-1,078.80	531.97	400.89	131.07	4.059
12,200.00	9,522.82	12,628.90	9,848.93	84.15	88.24	127.91	-3,143.36	-1,077.33	532.44	398.53	133.91	3.976
12,300.00	9,520.36	12,728.89	9,847.24	85.85	89.89	127.98	-3,243.33	-1,075.87	532.91	396.13	136.78	3.896
12,400.00	9,517.89	12,828.89	9,845.54	87.56	91.56	128.04	-3,343.30	-1,074.41	533.37	393.69	139.68	3.819
12,500.00	9,515.43	12,928.89	9,843.85	89.29	93.25	128.11	-3,443.27	-1,072.94	533.84	391.23	142.61	3.743
12,600.00	9,512.96	13,028.88	9,842.15	91.05	94.96	128.17	-3,543.24	-1,071.48	534.32	388.74	145.57	3.670
12,700.00	9,510.50	13,128.88	9,840.45	92.82	96.69	128.24	-3,643.22	-1,070.02	534.79	386.23	148.56	3.600
12,800.00	9,508.03	13,228.88	9,838.76	94.60	98.43	128.30	-3,743.19	-1,068.55	535.26	383.69	151.57	3.531
12,900.00	9,505.57	13,328.87	9,837.06	96.40	100.20	128.37	-3,843.16	-1,067.09	535.73	381.13	154.60	3.465
13,000.00	9,503.10	13,428.87	9,835.37	98.22	101.98	128.43	-3,943.13	-1,065.63	536.21	378.55	157.66	3.401
13,100.00	9,500.64	13,528.87	9,833.67	100.05	103.77	128.50	-4,043.10	-1,064.16	536.68	375.95	160.73	3.339
13,200.00	9,498.18	13,628.87	9,831.98	101.89	105.58	128.56	-4,143.08	-1,062.70	537.16	373.33	163.82	3.279
13,300.00	9,495.71	13,728.86	9,830.28	103.74	107.40	128.63	-4,243.05	-1,061.24	537.63	370.70	166.93	3.221

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 2 12-22-17														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)						
13,400.00	9,493.25	13,828.86	9,828.59	105.61	109.23	128.69	-4,343.02	-1,059.77	538.11	368.05	170.06	3.164		
13,500.00	9,490.78	13,928.86	9,826.89	107.49	111.08	128.76	-4,442.99	-1,058.31	538.59	365.39	173.20	3.110		
13,600.00	9,488.32	14,028.85	9,825.20	109.37	112.93	128.82	-4,542.96	-1,056.84	539.06	362.71	176.35	3.057		
13,700.00	9,485.85	14,128.85	9,823.50	111.27	114.80	128.88	-4,642.94	-1,055.38	539.54	360.03	179.52	3.006		
13,800.00	9,483.39	14,228.85	9,821.81	113.18	116.68	128.95	-4,742.91	-1,053.92	540.02	357.33	182.69	2.956		
13,900.00	9,480.92	14,328.85	9,820.11	115.09	118.56	129.01	-4,842.88	-1,052.45	540.50	354.62	185.88	2.908		
14,000.00	9,478.46	14,428.84	9,818.42	117.02	120.46	129.07	-4,942.85	-1,050.99	540.98	351.90	189.08	2.861		
14,100.00	9,476.00	14,528.84	9,816.72	118.95	122.37	129.14	-5,042.82	-1,049.53	541.46	349.17	192.29	2.816		
14,200.00	9,473.53	14,628.84	9,815.02	120.89	124.28	129.20	-5,142.80	-1,048.06	541.94	346.44	195.51	2.772		
14,300.00	9,471.07	14,728.83	9,813.33	122.84	126.20	129.26	-5,242.77	-1,046.60	542.43	343.69	198.73	2.729		
14,400.00	9,468.60	14,828.83	9,811.63	124.79	128.13	129.33	-5,342.74	-1,045.14	542.91	340.94	201.97	2.688		
14,500.00	9,466.14	14,928.83	9,809.94	126.75	130.07	129.39	-5,442.71	-1,043.67	543.39	338.19	205.21	2.648		
14,600.00	9,463.67	15,028.82	9,808.24	128.72	132.01	129.45	-5,542.68	-1,042.21	543.88	335.43	208.45	2.609		
14,700.00	9,462.03	15,116.21	9,807.60	130.69	133.71	129.53	-5,630.06	-1,041.35	544.52	332.28	212.23	2.566		
14,800.00	9,461.83	15,215.91	9,808.22	132.67	135.66	129.60	-5,729.76	-1,041.04	545.05	329.57	215.47	2.530		
14,900.00	9,461.63	15,315.91	9,808.86	134.65	137.63	129.66	-5,829.75	-1,040.73	545.58	326.86	218.72	2.494		
15,000.00	9,461.43	15,415.90	9,809.49	136.63	139.59	129.73	-5,929.75	-1,040.42	546.11	324.14	221.97	2.460		
15,100.00	9,461.22	15,515.90	9,810.12	138.63	141.57	129.80	-6,029.74	-1,040.11	546.64	321.42	225.23	2.427		
15,200.00	9,461.02	15,615.90	9,810.75	140.62	143.54	129.86	-6,129.73	-1,039.80	547.17	318.69	228.49	2.395		
15,300.00	9,460.82	15,715.89	9,811.38	142.62	145.53	129.93	-6,229.73	-1,039.50	547.71	315.96	231.75	2.363		
15,400.00	9,460.62	15,815.89	9,812.01	144.63	147.52	130.00	-6,329.72	-1,039.19	548.24	313.23	235.02	2.333		
15,500.00	9,460.42	15,915.89	9,812.64	146.64	149.51	130.06	-6,429.72	-1,038.88	548.78	310.49	238.28	2.303		
15,600.00	9,460.22	16,015.88	9,813.27	148.65	151.51	130.13	-6,529.71	-1,038.57	549.32	307.76	241.56	2.274		
15,700.00	9,460.02	16,115.88	9,813.90	150.67	153.51	130.20	-6,629.70	-1,038.26	549.85	305.02	244.83	2.246		
15,800.00	9,459.81	16,215.88	9,814.53	152.69	155.51	130.26	-6,729.70	-1,037.95	550.39	302.28	248.11	2.218		
15,900.00	9,459.61	16,315.87	9,815.17	154.71	157.52	130.33	-6,829.69	-1,037.65	550.93	299.54	251.39	2.192		
16,000.00	9,459.41	16,415.87	9,815.80	156.74	159.54	130.40	-6,929.69	-1,037.34	551.47	296.80	254.67	2.165		
16,100.00	9,459.21	16,515.87	9,816.43	158.77	161.56	130.46	-7,029.68	-1,037.03	552.01	294.06	257.95	2.140		
16,200.00	9,459.01	16,615.86	9,817.06	160.81	163.58	130.53	-7,129.67	-1,036.72	552.55	291.32	261.23	2.115		
16,300.00	9,458.81	16,715.86	9,817.69	162.85	165.60	130.59	-7,229.67	-1,036.41	553.09	288.58	264.51	2.091		
16,400.00	9,458.60	16,815.86	9,818.32	164.89	167.63	130.66	-7,329.66	-1,036.10	553.63	285.84	267.80	2.067		
16,500.00	9,458.40	16,915.85	9,818.95	166.93	169.66	130.72	-7,429.66	-1,035.80	554.18	283.09	271.08	2.044		
16,600.00	9,458.20	17,015.85	9,819.58	168.98	171.69	130.79	-7,529.65	-1,035.49	554.72	280.35	274.37	2.022		
16,700.00	9,458.00	17,115.84	9,820.21	171.03	173.73	130.85	-7,629.64	-1,035.18	555.26	277.61	277.66	2.000		
16,800.00	9,457.80	17,215.84	9,820.84	173.08	175.77	130.92	-7,729.64	-1,034.87	555.81	274.87	280.94	1.978		
16,900.00	9,457.60	17,315.84	9,821.47	175.14	177.81	130.98	-7,829.63	-1,034.56	556.36	272.13	284.23	1.957		
17,000.00	9,457.40	17,415.83	9,822.11	177.19	179.86	131.05	-7,929.63	-1,034.25	556.90	269.39	287.51	1.937		
17,100.00	9,457.19	17,515.83	9,822.74	179.25	181.91	131.11	-8,029.62	-1,033.95	557.45	266.65	290.80	1.917		
17,200.00	9,456.99	17,615.83	9,823.37	181.31	183.96	131.18	-8,129.61	-1,033.64	558.00	263.91	294.09	1.897		
17,300.00	9,456.79	17,715.82	9,824.00	183.38	186.01	131.24	-8,229.61	-1,033.33	558.55	261.17	297.37	1.878		
17,400.00	9,456.59	17,815.82	9,824.63	185.44	188.07	131.30	-8,329.60	-1,033.02	559.10	258.44	300.66	1.860		
17,500.00	9,456.39	17,915.82	9,825.26	187.51	190.12	131.37	-8,429.60	-1,032.71	559.65	255.70	303.94	1.841		
17,600.00	9,456.19	18,015.81	9,825.89	189.58	192.18	131.43	-8,529.59	-1,032.41	560.20	252.97	307.22	1.823		
17,700.00	9,455.99	18,115.81	9,826.52	191.65	194.25	131.50	-8,629.59	-1,032.10	560.75	250.24	310.51	1.806		
17,800.00	9,455.78	18,215.81	9,827.15	193.73	196.31	131.56	-8,729.58	-1,031.79	561.30	247.51	313.79	1.789		
17,900.00	9,455.58	18,315.80	9,827.78	195.80	198.38	131.62	-8,829.57	-1,031.48	561.85	244.78	317.07	1.772		
18,000.00	9,455.38	18,415.80	9,828.42	197.88	200.44	131.69	-8,929.57	-1,031.17	562.41	242.06	320.35	1.756		
18,100.00	9,455.18	18,515.80	9,829.05	199.96	202.51	131.75	-9,029.56	-1,030.86	562.96	239.33	323.63	1.740		
18,200.00	9,454.98	18,615.79	9,829.68	202.04	204.58	131.81	-9,129.56	-1,030.56	563.51	236.61	326.90	1.724		
18,300.00	9,454.78	18,715.79	9,830.31	204.12	206.66	131.88	-9,229.55	-1,030.25	564.07	233.89	330.18	1.708		
18,400.00	9,454.57	18,815.79	9,830.94	206.20	208.73	131.94	-9,329.54	-1,029.94	564.63	231.17	333.45	1.693		
18,500.00	9,454.37	18,915.78	9,831.57	208.29	210.81	132.00	-9,429.54	-1,029.63	565.18	228.46	336.73	1.678		

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 2 12-22-17													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		
18,600.00	9,454.17	19,015.78	9,832.20	210.38	212.89	132.06	-9,529.53	-1,029.32	565.74	225.74	340.00	1.664		
18,700.00	9,453.97	19,115.78	9,832.83	212.46	214.97	132.13	-9,629.53	-1,029.01	566.30	223.03	343.27	1.650		
18,800.00	9,453.77	19,215.77	9,833.46	214.55	217.05	132.19	-9,729.52	-1,028.71	566.86	220.32	346.54	1.636		
18,900.00	9,453.57	19,315.77	9,834.09	216.64	219.13	132.25	-9,829.51	-1,028.40	567.42	217.61	349.80	1.622		
19,000.00	9,453.37	19,415.77	9,834.73	218.74	221.21	132.31	-9,929.51	-1,028.09	567.98	214.91	353.07	1.609		
19,100.00	9,453.16	19,515.76	9,835.36	220.83	223.30	132.38	-10,029.50	-1,027.78	568.54	212.21	356.33	1.596		
19,200.00	9,452.96	19,615.76	9,835.99	222.92	225.39	132.44	-10,129.50	-1,027.47	569.10	209.51	359.59	1.583		
19,300.00	9,452.76	19,715.75	9,836.62	225.02	227.47	132.50	-10,229.49	-1,027.16	569.66	206.81	362.85	1.570		
19,400.00	9,452.56	19,815.75	9,837.25	227.11	229.56	132.56	-10,329.48	-1,026.86	570.23	204.12	366.11	1.558		
19,500.00	9,452.36	19,915.75	9,837.88	229.21	231.65	132.62	-10,429.48	-1,026.55	570.79	201.42	369.37	1.545		
19,600.00	9,452.16	20,015.74	9,838.51	231.31	233.75	132.68	-10,529.47	-1,026.24	571.35	198.73	372.62	1.533		
19,677.89	9,452.00	20,093.27	9,839.00	232.95	235.37	132.73	-10,607.00	-1,026.00	571.79	196.65	375.14	1.524 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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 2H - 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		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	75.01					
100.00	100.00	99.00	99.00	0.19	0.19	0.00	75.00	0.00	75.00	74.61	0.39	194.697		
200.00	200.00	199.00	199.00	0.73	0.73	0.00	75.00	0.00	75.00	73.54	1.46	51.469		
300.00	300.00	299.00	299.00	1.27	1.26	0.00	75.00	0.00	75.00	72.47	2.53	29.614		
400.00	400.00	399.00	399.00	1.81	1.80	0.00	75.00	0.00	75.00	71.39	3.61	20.787		
500.00	500.00	499.00	499.00	2.34	2.34	0.00	75.00	0.00	75.00	70.32	4.68	16.014		
600.00	600.00	599.00	599.00	2.88	2.88	0.00	75.00	0.00	75.00	69.24	5.76	13.023		
700.00	700.00	699.00	699.00	3.42	3.41	0.00	75.00	0.00	75.00	68.17	6.83	10.974		
800.00	800.00	799.00	799.00	3.96	3.95	0.00	75.00	0.00	75.00	67.09	7.91	9.482		
900.00	900.00	899.00	899.00	4.50	4.49	0.00	75.00	0.00	75.00	66.01	8.99	8.347		
1,000.00	1,000.00	999.00	999.00	5.03	5.03	0.00	75.00	0.00	75.00	64.94	10.06	7.455		
1,100.00	1,100.00	1,099.00	1,099.00	5.57	5.57	0.00	75.00	0.00	75.00	63.86	11.14	6.735		
1,200.00	1,200.00	1,199.00	1,199.00	6.11	6.10	0.00	75.00	0.00	75.00	62.79	12.21	6.142		
1,300.00	1,300.00	1,299.00	1,299.00	6.65	6.64	0.00	75.00	0.00	75.00	61.71	13.29	5.645		
1,400.00	1,400.00	1,399.00	1,399.00	7.18	7.18	0.00	75.00	0.00	75.00	60.64	14.36	5.222		
1,500.00	1,500.00	1,499.00	1,499.00	7.72	7.72	0.00	75.00	0.00	75.00	59.56	15.44	4.858		
1,600.00	1,600.00	1,599.00	1,599.00	8.26	8.25	0.00	75.00	0.00	75.00	58.49	16.51	4.542		
1,700.00	1,700.00	1,699.00	1,699.00	8.80	8.79	0.00	75.00	0.00	75.00	57.41	17.59	4.264		
1,800.00	1,800.00	1,799.00	1,799.00	9.33	9.33	0.00	75.00	0.00	75.00	56.34	18.66	4.018		
1,900.00	1,899.98	1,901.18	1,901.16	9.85	9.85	122.27	73.53	-1.01	74.48	54.78	19.70	3.780		
2,000.00	1,999.84	2,003.34	2,003.17	10.35	10.36	123.46	69.06	-4.09	72.90	52.20	20.70	3.522		
2,100.00	2,099.45	2,105.44	2,104.86	10.86	10.87	125.53	61.60	-9.23	70.30	48.61	21.69	3.241		
2,200.00	2,198.70	2,207.28	2,205.91	11.38	11.38	128.68	51.21	-16.39	66.84	44.16	22.68	2.947		
2,300.00	2,297.47	2,307.08	2,304.74	11.90	11.90	133.81	39.77	-24.27	64.56	40.92	23.64	2.731		
2,400.00	2,395.95	2,406.82	2,403.51	12.44	12.42	140.22	28.34	-32.15	64.15	39.52	24.63	2.604		
2,400.21	2,396.15	2,407.02	2,403.71	12.44	12.42	140.24	28.31	-32.16	64.15	39.51	24.63	2.604 CC		
2,500.00	2,494.43	2,506.56	2,502.27	12.99	12.95	146.64	16.91	-40.02	64.55	38.92	25.63	2.519 ES		
2,600.00	2,592.91	2,608.29	2,601.04	13.55	13.49	152.91	5.48	-47.89	65.76	39.12	26.64	2.469		
2,700.00	2,691.39	2,706.03	2,699.81	14.12	14.03	158.88	-5.96	-55.77	67.72	40.07	27.65	2.449		
2,800.00	2,789.87	2,805.77	2,798.58	14.69	14.58	164.46	-17.39	-63.64	70.37	41.70	28.67	2.454		
2,900.00	2,888.35	2,905.51	2,897.34	15.27	15.14	169.59	-28.82	-71.52	73.64	43.93	29.71	2.479		
3,000.00	2,986.84	3,005.25	2,996.11	15.85	15.70	174.25	-40.25	-79.39	77.45	46.69	30.76	2.518		
3,100.00	3,085.32	3,104.98	3,094.88	16.45	16.26	178.45	-51.68	-87.27	81.73	49.89	31.83	2.567		
3,200.00	3,183.80	3,204.72	3,193.64	17.04	16.83	-177.78	-63.11	-95.14	86.40	53.48	32.92	2.625		
3,300.00	3,282.28	3,304.46	3,292.41	17.64	17.39	-174.41	-74.54	-103.02	91.40	57.39	34.01	2.687		
3,400.00	3,380.76	3,404.20	3,391.18	18.24	17.97	-171.40	-85.97	-110.89	96.69	61.57	35.12	2.753		
3,500.00	3,479.24	3,503.93	3,489.95	18.85	18.54	-168.71	-97.40	-118.77	102.22	65.97	36.25	2.820		
3,600.00	3,577.72	3,603.67	3,588.71	19.45	19.12	-166.29	-108.83	-126.64	107.95	70.57	37.38	2.888		
3,700.00	3,676.21	3,703.41	3,687.48	20.07	19.70	-164.13	-120.26	-134.52	113.85	75.33	38.51	2.956		
3,800.00	3,774.69	3,803.15	3,786.25	20.68	20.28	-162.18	-131.70	-142.39	119.90	80.23	39.66	3.023		
3,900.00	3,873.17	3,902.89	3,885.02	21.30	20.86	-160.41	-143.13	-150.26	126.07	85.26	40.81	3.089		
4,000.00	3,971.65	4,002.62	3,983.78	21.91	21.44	-158.82	-154.56	-158.14	132.35	90.38	41.97	3.153		
4,100.00	4,070.13	4,102.36	4,082.55	22.53	22.03	-157.37	-165.99	-166.01	138.72	95.59	43.14	3.216		
4,200.00	4,168.61	4,202.10	4,181.32	23.15	22.62	-156.04	-177.42	-173.89	145.18	100.87	44.30	3.277		
4,300.00	4,267.10	4,301.84	4,280.08	23.78	23.20	-154.83	-188.85	-181.76	151.70	106.23	45.48	3.336		
4,400.00	4,365.58	4,401.57	4,378.85	24.40	23.79	-153.72	-200.28	-189.64	158.29	111.64	46.65	3.393		
4,500.00	4,464.06	4,501.31	4,477.62	25.03	24.39	-152.70	-211.71	-197.51	164.93	117.10	47.83	3.448		
4,600.00	4,562.54	4,601.05	4,576.39	25.66	24.98	-151.76	-223.14	-205.39	171.62	122.61	49.01	3.502		
4,700.00	4,661.02	4,700.79	4,675.15	26.28	25.57	-150.89	-234.57	-213.26	178.35	128.16	50.20	3.553		
4,800.00	4,759.50	4,800.53	4,773.92	26.91	26.16	-150.08	-246.00	-221.14	185.12	133.74	51.38	3.603		
4,900.00	4,857.98	4,900.26	4,872.69	27.54	26.76	-149.33	-257.44	-229.01	191.93	139.36	52.57	3.651		
5,000.00	4,956.47	5,000.00	4,971.45	28.17	27.35	-148.64	-268.87	-236.89	198.76	145.00	53.76	3.697		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 2H - 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)	Centre +E/-W (usft)					
5,100.00	5,054.95	5,099.74	5,070.22	28.81	27.95	-147.98	-280.30	-244.76	205.63	150.67	54.96	3.742	
5,200.00	5,153.43	5,199.48	5,168.99	29.44	28.54	-147.37	-291.73	-252.63	212.51	156.36	56.15	3.785	
5,300.00	5,251.91	5,299.22	5,267.76	30.07	29.14	-146.80	-303.16	-260.51	219.42	162.08	57.35	3.826	
5,400.00	5,350.40	5,396.23	5,363.92	30.71	29.72	-146.44	-313.71	-267.78	226.72	168.19	58.53	3.874	
5,500.00	5,449.23	5,491.78	5,458.97	31.33	30.27	-146.50	-321.64	-273.24	233.94	174.21	59.73	3.916	
5,600.00	5,548.53	5,587.26	5,554.24	31.91	30.79	-146.76	-326.94	-276.89	240.07	179.22	60.85	3.945	
5,700.00	5,648.19	5,682.66	5,649.58	32.47	31.29	-147.18	-329.63	-278.75	245.12	183.25	61.87	3.962	
5,800.00	5,748.07	5,780.16	5,747.07	33.00	31.78	-147.72	-330.00	-279.00	248.89	186.08	62.81	3.963	
5,900.00	5,848.06	5,880.14	5,847.06	33.49	32.26	90.23	-330.00	-279.00	250.00	186.90	63.10	3.962	
6,000.00	5,948.06	5,980.14	5,947.06	33.97	32.74	90.23	-330.00	-279.00	250.00	185.91	64.09	3.901	
6,100.00	6,048.06	6,080.14	6,047.06	34.44	33.23	90.23	-330.00	-279.00	250.00	184.92	65.08	3.841	
6,200.00	6,148.06	6,180.14	6,147.06	34.92	33.72	90.23	-330.00	-279.00	250.00	183.92	66.08	3.783	
6,300.00	6,248.06	6,280.14	6,247.06	35.40	34.21	90.23	-330.00	-279.00	250.00	182.93	67.08	3.727	
6,400.00	6,348.06	6,380.14	6,347.06	35.88	34.70	90.23	-330.00	-279.00	250.00	181.93	68.08	3.672	
6,500.00	6,448.06	6,480.14	6,447.06	36.37	35.19	90.23	-330.00	-279.00	250.00	180.92	69.08	3.619	
6,600.00	6,548.06	6,580.14	6,547.06	36.85	35.69	90.23	-330.00	-279.00	250.00	179.92	70.08	3.567	
6,700.00	6,648.06	6,680.14	6,647.06	37.34	36.18	90.23	-330.00	-279.00	250.00	178.91	71.09	3.517	
6,800.00	6,748.06	6,780.14	6,747.06	37.83	36.68	90.23	-330.00	-279.00	250.00	177.90	72.10	3.467	
6,900.00	6,848.06	6,880.14	6,847.06	38.31	37.17	90.23	-330.00	-279.00	250.00	176.89	73.11	3.420	
7,000.00	6,948.06	6,980.14	6,947.06	38.80	37.67	90.23	-330.00	-279.00	250.00	175.88	74.12	3.373	
7,100.00	7,048.06	7,080.14	7,047.06	39.30	38.17	90.23	-330.00	-279.00	250.00	174.87	75.14	3.327	
7,200.00	7,148.06	7,180.14	7,147.06	39.79	38.67	90.23	-330.00	-279.00	250.00	173.85	76.15	3.283	
7,300.00	7,248.06	7,280.14	7,247.06	40.28	39.17	90.23	-330.00	-279.00	250.00	172.83	77.17	3.240	
7,400.00	7,348.06	7,380.14	7,347.06	40.78	39.68	90.23	-330.00	-279.00	250.00	171.81	78.19	3.197	
7,500.00	7,448.06	7,480.14	7,447.06	41.27	40.18	90.23	-330.00	-279.00	250.00	170.79	79.21	3.156	
7,600.00	7,548.06	7,580.14	7,547.06	41.77	40.68	90.23	-330.00	-279.00	250.00	169.77	80.23	3.116	
7,700.00	7,648.06	7,680.14	7,647.06	42.27	41.19	90.23	-330.00	-279.00	250.00	168.75	81.26	3.077	
7,800.00	7,748.06	7,780.14	7,747.06	42.77	41.69	90.23	-330.00	-279.00	250.00	167.72	82.28	3.038	
7,900.00	7,848.06	7,880.14	7,847.06	43.27	42.20	90.23	-330.00	-279.00	250.00	166.70	83.31	3.001	
8,000.00	7,948.06	7,980.14	7,947.06	43.77	42.71	90.23	-330.00	-279.00	250.00	165.67	84.33	2.964	
8,100.00	8,048.06	8,080.14	8,047.06	44.27	43.22	90.23	-330.00	-279.00	250.00	164.64	85.36	2.929	
8,200.00	8,148.06	8,180.14	8,147.06	44.77	43.73	90.23	-330.00	-279.00	250.00	163.61	86.39	2.894	
8,300.00	8,248.06	8,280.14	8,247.06	45.28	44.24	90.23	-330.00	-279.00	250.00	162.58	87.42	2.860	
8,400.00	8,348.06	8,380.14	8,347.06	45.78	44.75	90.23	-330.00	-279.00	250.00	161.55	88.45	2.826	
8,500.00	8,448.06	8,480.14	8,447.06	46.29	45.26	90.23	-330.00	-279.00	250.00	160.51	89.49	2.794	
8,600.00	8,548.06	8,580.14	8,547.06	46.79	45.77	90.23	-330.00	-279.00	250.00	159.48	90.52	2.762	
8,700.00	8,648.06	8,680.14	8,647.06	47.30	46.28	90.23	-330.00	-279.00	250.00	158.45	91.56	2.731	
8,800.00	8,748.06	8,780.14	8,747.06	47.81	46.79	90.23	-330.00	-279.00	250.00	157.41	92.59	2.700	
8,900.00	8,848.06	8,880.14	8,847.06	48.31	47.31	90.23	-330.00	-279.00	250.00	156.37	93.63	2.670	
9,000.00	8,948.06	8,980.14	8,947.06	48.82	47.82	90.23	-330.00	-279.00	250.00	155.34	94.67	2.641	
9,036.64	8,984.69	9,016.77	8,983.69	49.01	48.01	-100.28	-330.00	-279.00	250.09	154.62	95.47	2.619	
9,100.00	9,048.01	9,080.10	9,047.01	49.33	48.33	-100.51	-330.00	-279.00	250.29	154.14	96.15	2.603	
9,200.00	9,146.57	9,178.66	9,145.57	49.87	48.84	-103.70	-330.00	-279.00	253.74	156.61	97.13	2.612	
9,300.00	9,240.83	9,272.92	9,239.83	50.45	49.33	-109.37	-330.00	-279.00	263.75	166.05	97.70	2.700	
9,400.00	9,327.92	9,371.18	9,337.91	51.06	49.84	-116.19	-334.34	-278.94	283.84	186.59	97.25	2.919	
9,500.00	9,405.20	9,481.75	9,445.66	51.69	50.47	-122.00	-358.40	-278.58	311.69	216.17	95.51	3.263	
9,600.00	9,470.32	9,604.90	9,557.71	52.36	51.21	-126.24	-408.93	-277.84	344.03	251.20	92.84	3.706	
9,700.00	9,521.30	9,743.29	9,667.45	53.06	52.09	-128.79	-492.67	-276.60	377.56	287.36	90.20	4.186	
9,800.00	9,556.60	9,898.56	9,762.68	53.81	53.17	-129.52	-614.70	-274.81	408.99	319.99	89.00	4.595	
9,900.00	9,575.13	10,069.44	9,825.51	54.59	54.46	-128.31	-772.90	-272.48	435.36	344.81	90.55	4.808	
10,000.00	9,577.07	10,232.69	9,839.91	55.39	55.75	-125.73	-934.99	-270.09	454.41	359.88	94.53	4.807	
10,100.00	9,574.60	10,331.27	9,837.85	56.24	56.59	-124.45	-1,033.53	-268.64	468.40	371.15	97.24	4.817	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 2H - 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	
10,200.00	9,572.13	10,430.37	9,835.77	57.14	57.51	-123.51	-1,132.60	-267.18	479.68	379.95	99.73	4.810	
10,300.00	9,569.66	10,529.88	9,833.68	58.09	58.49	-122.87	-1,232.08	-265.71	488.15	386.11	102.04	4.784	
10,400.00	9,567.19	10,629.67	9,831.59	59.08	59.54	-122.49	-1,331.83	-264.24	493.73	389.55	104.18	4.739	
10,500.00	9,564.72	10,729.62	9,829.50	60.11	60.65	-122.37	-1,431.75	-262.77	496.38	390.21	106.16	4.676	
10,600.00	9,562.25	10,829.62	9,827.40	61.18	61.81	-122.41	-1,531.72	-261.30	496.74	388.58	108.16	4.593	
10,700.00	9,559.79	10,929.62	9,825.31	62.30	63.03	-122.44	-1,631.69	-259.83	496.95	386.64	110.31	4.505	
10,800.00	9,557.32	11,029.61	9,823.21	63.48	64.29	-122.48	-1,731.65	-258.36	497.16	384.62	112.55	4.417	
10,900.00	9,554.86	11,129.61	9,821.12	64.71	65.60	-122.51	-1,831.62	-256.88	497.37	382.51	114.86	4.330	
11,000.00	9,552.39	11,229.61	9,819.02	65.98	66.96	-122.55	-1,931.59	-255.41	497.58	380.32	117.26	4.243	
11,100.00	9,549.93	11,329.61	9,816.92	67.30	68.36	-122.58	-2,031.55	-253.94	497.79	378.06	119.73	4.157	
11,200.00	9,547.46	11,429.61	9,814.83	68.67	69.79	-122.62	-2,131.52	-252.47	498.00	375.73	122.27	4.073	
11,300.00	9,545.00	11,529.61	9,812.73	70.07	71.26	-122.65	-2,231.49	-250.99	498.21	373.34	124.88	3.990	
11,400.00	9,542.54	11,629.61	9,810.64	71.51	72.77	-122.68	-2,331.45	-249.52	498.43	370.88	127.54	3.908	
11,500.00	9,540.07	11,729.61	9,808.54	72.99	74.31	-122.72	-2,431.42	-248.05	498.64	368.37	130.27	3.828	
11,600.00	9,537.61	11,829.61	9,806.45	74.50	75.88	-122.75	-2,531.38	-246.58	498.85	365.81	133.04	3.750	
11,700.00	9,535.14	11,929.61	9,804.35	76.04	77.47	-122.79	-2,631.35	-245.10	499.06	363.19	135.87	3.673	
11,800.00	9,532.68	12,029.61	9,802.26	77.61	79.10	-122.82	-2,731.32	-243.63	499.27	360.53	138.74	3.599	
11,900.00	9,530.21	12,129.61	9,800.16	79.21	80.75	-122.86	-2,831.28	-242.16	499.48	357.83	141.65	3.526	
12,000.00	9,527.75	12,229.61	9,798.06	80.83	82.42	-122.89	-2,931.25	-240.69	499.70	355.09	144.61	3.456	
12,100.00	9,525.28	12,329.61	9,795.97	82.48	84.12	-122.93	-3,031.22	-239.22	499.91	352.31	147.60	3.387	
12,200.00	9,522.82	12,429.61	9,793.87	84.15	85.83	-122.96	-3,131.18	-237.74	500.12	349.49	150.63	3.320	
12,300.00	9,520.36	12,529.60	9,791.78	85.85	87.57	-123.00	-3,231.15	-236.27	500.33	346.64	153.69	3.255	
12,400.00	9,517.89	12,629.60	9,789.68	87.56	89.32	-123.03	-3,331.12	-234.80	500.55	343.76	156.79	3.193	
12,500.00	9,515.43	12,729.60	9,787.59	89.29	91.09	-123.07	-3,431.08	-233.33	500.76	340.85	159.91	3.132	
12,600.00	9,512.96	12,829.60	9,785.49	91.05	92.88	-123.10	-3,531.05	-231.85	500.97	337.91	163.06	3.072	
12,700.00	9,510.50	12,929.60	9,783.40	92.82	94.68	-123.14	-3,631.02	-230.38	501.18	334.95	166.24	3.015	
12,800.00	9,508.03	13,029.60	9,781.30	94.60	96.50	-123.17	-3,730.98	-228.91	501.40	331.96	169.44	2.959	
12,900.00	9,505.57	13,129.60	9,779.20	96.40	98.33	-123.20	-3,830.95	-227.44	501.61	328.95	172.66	2.905	
13,000.00	9,503.10	13,229.60	9,777.11	98.22	100.18	-123.24	-3,930.92	-225.96	501.83	325.92	175.90	2.853	
13,100.00	9,500.64	13,329.60	9,775.01	100.05	102.03	-123.27	-4,030.88	-224.49	502.04	322.87	179.17	2.802	
13,200.00	9,498.18	13,429.60	9,772.92	101.89	103.90	-123.31	-4,130.85	-223.02	502.25	319.80	182.45	2.753	
13,300.00	9,495.71	13,529.60	9,770.82	103.74	105.78	-123.34	-4,230.82	-221.55	502.47	316.71	185.75	2.705	
13,400.00	9,493.25	13,629.60	9,768.73	105.61	107.67	-123.38	-4,330.78	-220.07	502.68	313.61	189.07	2.659	
13,500.00	9,490.78	13,729.60	9,766.63	107.49	109.57	-123.41	-4,430.75	-218.60	502.90	310.49	192.41	2.614	
13,600.00	9,488.32	13,829.60	9,764.53	109.37	111.48	-123.44	-4,530.71	-217.13	503.11	307.36	195.76	2.570	
13,700.00	9,485.85	13,929.60	9,762.44	111.27	113.40	-123.48	-4,630.68	-215.66	503.33	304.21	199.12	2.528	
13,800.00	9,483.39	14,029.59	9,760.34	113.18	115.33	-123.51	-4,730.65	-214.19	503.54	301.05	202.50	2.487	
13,900.00	9,480.92	14,129.59	9,758.25	115.09	117.27	-123.55	-4,830.61	-212.71	503.76	297.88	205.88	2.447	
14,000.00	9,478.46	14,229.59	9,756.15	117.02	119.21	-123.58	-4,930.58	-211.24	503.98	294.69	209.28	2.408	
14,100.00	9,476.00	14,329.59	9,754.06	118.95	121.16	-123.61	-5,030.55	-209.77	504.19	291.50	212.70	2.370	
14,200.00	9,473.53	14,429.59	9,751.96	120.89	123.12	-123.65	-5,130.51	-208.30	504.41	288.29	216.12	2.334	
14,300.00	9,471.07	14,529.59	9,749.87	122.84	125.08	-123.68	-5,230.48	-206.82	504.62	285.07	219.55	2.298	
14,400.00	9,468.60	14,629.59	9,747.77	124.79	127.05	-123.72	-5,330.45	-205.35	504.84	281.85	222.99	2.264	
14,500.00	9,466.14	14,729.59	9,745.67	126.75	129.03	-123.75	-5,430.41	-203.88	505.06	278.62	226.44	2.230	
14,600.00	9,463.67	14,829.59	9,743.58	128.72	131.01	-123.78	-5,530.38	-202.41	505.27	275.37	229.90	2.198	
14,700.00	9,461.20	14,929.59	9,741.48	130.69	132.96	-123.81	-5,630.35	-200.94	505.48	272.22	233.29	2.167	
14,800.00	9,458.73	15,029.59	9,739.39	132.67	134.94	-123.84	-5,730.32	-199.47	505.69	269.07	236.71	2.137	
14,900.00	9,456.26	15,129.59	9,737.29	134.65	136.93	-123.87	-5,830.29	-198.00	505.90	265.84	240.14	2.108	
15,000.00	9,453.79	15,229.59	9,735.20	136.63	138.93	-123.90	-5,930.26	-196.53	506.11	262.61	243.58	2.079	
15,100.00	9,451.32	15,329.59	9,733.11	138.63	140.93	-123.93	-6,030.23	-195.06	506.32	259.38	247.02	2.052	
15,200.00	9,448.85	15,429.59	9,731.02	140.62	142.94	-123.96	-6,130.20	-193.59	506.53	256.15	250.46	2.025	
15,300.00	9,446.38	15,529.59	9,728.93	142.62	144.95	-123.99	-6,230.17	-192.12	506.74	252.92	253.91	1.999	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 2H - 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		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
15,400.00	9,460.62	15,627.46	9,745.07	144.63	146.97	-124.20	-6,328.23	-199.17	507.85	250.48	1.973		
15,500.00	9,460.42	15,727.46	9,745.46	146.64	148.99	-124.25	-6,428.23	-198.86	508.18	247.36	1.948		
15,600.00	9,460.22	15,827.46	9,745.86	148.65	151.01	-124.31	-6,528.22	-198.56	508.52	244.23	1.924		
15,700.00	9,460.02	15,927.46	9,746.25	150.67	153.04	-124.37	-6,628.22	-198.25	508.85	241.10	1.900		
15,800.00	9,459.81	16,027.46	9,746.65	152.69	155.07	-124.42	-6,728.22	-197.94	509.19	237.97	1.877		
15,900.00	9,459.61	16,127.45	9,747.04	154.71	157.10	-124.48	-6,828.21	-197.63	509.53	234.84	1.855		
16,000.00	9,459.41	16,227.45	9,747.44	156.74	159.14	-124.53	-6,928.21	-197.32	509.87	231.70	1.833		
16,100.00	9,459.21	16,327.45	9,747.84	158.77	161.18	-124.59	-7,028.21	-197.02	510.20	228.56	1.812		
16,200.00	9,459.01	16,427.45	9,748.23	160.81	163.22	-124.64	-7,128.20	-196.71	510.54	225.42	1.791		
16,300.00	9,458.81	16,527.45	9,748.63	162.85	165.26	-124.70	-7,228.20	-196.40	510.88	222.28	1.770		
16,400.00	9,458.60	16,627.45	9,749.02	164.89	167.31	-124.75	-7,328.20	-196.09	511.22	219.14	1.750		
16,500.00	9,458.40	16,727.44	9,749.42	166.93	169.36	-124.81	-7,428.19	-195.79	511.56	215.99	1.731		
16,600.00	9,458.20	16,827.44	9,749.81	168.98	171.42	-124.86	-7,528.19	-195.48	511.90	212.85	1.712		
16,700.00	9,458.00	16,927.44	9,750.21	171.03	173.47	-124.92	-7,628.19	-195.17	512.24	209.70	1.693		
16,800.00	9,457.80	17,027.44	9,750.61	173.08	175.53	-124.97	-7,728.19	-194.86	512.58	206.56	1.675		
16,900.00	9,457.60	17,127.44	9,751.00	175.14	177.59	-125.03	-7,828.18	-194.55	512.93	203.41	1.657		
17,000.00	9,457.40	17,227.43	9,751.40	177.19	179.66	-125.08	-7,928.18	-194.25	513.27	200.26	1.640		
17,100.00	9,457.19	17,327.43	9,751.79	179.25	181.72	-125.14	-8,028.18	-193.94	513.61	197.11	1.623		
17,200.00	9,456.99	17,427.43	9,752.19	181.31	183.79	-125.19	-8,128.17	-193.63	513.95	193.96	1.606		
17,300.00	9,456.79	17,527.43	9,752.58	183.38	185.86	-125.25	-8,228.17	-193.32	514.30	190.82	1.590		
17,400.00	9,456.59	17,627.43	9,752.98	185.44	187.93	-125.30	-8,328.17	-193.02	514.64	187.67	1.574		
17,500.00	9,456.39	17,727.43	9,753.38	187.51	190.00	-125.35	-8,428.16	-192.71	514.99	184.52	1.558		
17,600.00	9,456.19	17,827.42	9,753.77	189.58	192.08	-125.41	-8,528.16	-192.40	515.33	181.37	1.543		
17,700.00	9,455.99	17,927.42	9,754.17	191.65	194.16	-125.46	-8,628.16	-192.09	515.68	178.22	1.528		
17,800.00	9,455.78	18,027.42	9,754.56	193.73	196.23	-125.52	-8,728.16	-191.79	516.02	175.08	1.514		
17,900.00	9,455.58	18,127.42	9,754.96	195.80	198.31	-125.57	-8,828.15	-191.48	516.37	171.93	1.499 Level 3		
18,000.00	9,455.38	18,227.42	9,755.35	197.88	200.40	-125.62	-8,928.15	-191.17	516.72	168.78	1.485 Level 3		
18,100.00	9,455.18	18,327.42	9,755.75	199.96	202.48	-125.68	-9,028.15	-190.86	517.06	165.64	1.471 Level 3		
18,200.00	9,454.98	18,427.41	9,756.14	202.04	204.56	-125.73	-9,128.14	-190.55	517.41	162.50	1.458 Level 3		
18,300.00	9,454.78	18,527.41	9,756.54	204.12	206.65	-125.79	-9,228.14	-190.25	517.76	159.35	1.445 Level 3		
18,400.00	9,454.57	18,627.41	9,756.94	206.20	208.74	-125.84	-9,328.14	-189.94	518.11	156.21	1.432 Level 3		
18,500.00	9,454.37	18,727.41	9,757.33	208.29	210.83	-125.89	-9,428.13	-189.63	518.46	153.07	1.419 Level 3		
18,600.00	9,454.17	18,827.41	9,757.73	210.38	212.92	-125.95	-9,528.13	-189.32	518.81	149.93	1.406 Level 3		
18,700.00	9,453.97	18,927.40	9,758.12	212.46	215.01	-126.00	-9,628.13	-189.02	519.16	146.79	1.394 Level 3		
18,800.00	9,453.77	19,027.40	9,758.52	214.55	217.10	-126.05	-9,728.12	-188.71	519.51	143.65	1.382 Level 3		
18,900.00	9,453.57	19,127.40	9,758.91	216.64	219.20	-126.11	-9,828.12	-188.40	519.86	140.52	1.370 Level 3		
19,000.00	9,453.37	19,227.40	9,759.31	218.74	221.29	-126.16	-9,928.12	-188.09	520.21	137.38	1.359 Level 3		
19,100.00	9,453.16	19,327.40	9,759.71	220.83	223.39	-126.21	-10,028.12	-187.78	520.56	134.25	1.348 Level 3		
19,200.00	9,452.96	19,427.40	9,760.10	222.92	225.49	-126.27	-10,128.11	-187.48	520.92	131.12	1.336 Level 3		
19,300.00	9,452.76	19,527.39	9,760.50	225.02	227.59	-126.32	-10,228.11	-187.17	521.27	127.99	1.325 Level 3		
19,400.00	9,452.56	19,627.39	9,760.89	227.11	229.69	-126.37	-10,328.11	-186.86	521.62	124.86	1.315 Level 3		
19,500.00	9,452.36	19,727.39	9,761.29	229.21	231.79	-126.42	-10,428.10	-186.55	521.98	121.73	1.304 Level 3		
19,600.00	9,452.16	19,827.39	9,761.68	231.31	233.89	-126.48	-10,528.10	-186.25	522.33	118.61	1.294 Level 3		
19,677.89	9,452.00	19,905.28	9,761.99	232.95	235.53	-126.52	-10,605.99	-186.01	522.61	116.17	1.286 Level 3, SF		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00				
100.00	100.00	100.00	100.00	0.19	0.19	0.00	50.00	0.00	50.00	49.61	0.39	129.149	
200.00	200.00	200.00	200.00	0.73	0.73	0.00	50.00	0.00	50.00	48.54	1.46	34.187	
300.00	300.00	300.00	300.00	1.27	1.27	0.00	50.00	0.00	50.00	47.46	2.54	19.701	
400.00	400.00	400.00	400.00	1.81	1.81	0.00	50.00	0.00	50.00	46.39	3.61	13.837	
500.00	500.00	500.00	500.00	2.34	2.34	0.00	50.00	0.00	50.00	45.31	4.69	10.664	
600.00	600.00	600.00	600.00	2.88	2.88	0.00	50.00	0.00	50.00	44.24	5.76	8.674	
700.00	700.00	700.00	700.00	3.42	3.42	0.00	50.00	0.00	50.00	43.16	6.84	7.310	
800.00	800.00	800.00	800.00	3.96	3.96	0.00	50.00	0.00	50.00	42.08	7.92	6.317	
900.00	900.00	900.00	900.00	4.50	4.50	0.00	50.00	0.00	50.00	41.01	8.99	5.561	
1,000.00	1,000.00	1,000.00	1,000.00	5.03	5.03	0.00	50.00	0.00	50.00	39.93	10.07	4.967	
1,100.00	1,100.00	1,100.00	1,100.00	5.57	5.57	0.00	50.00	0.00	50.00	38.86	11.14	4.488	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	0.00	50.00	0.00	50.00	37.78	12.22	4.093	
1,300.00	1,300.00	1,300.00	1,300.00	6.65	6.65	0.00	50.00	0.00	50.00	36.71	13.29	3.762	
1,400.00	1,400.00	1,400.00	1,400.00	7.18	7.18	0.00	50.00	0.00	50.00	35.63	14.37	3.480	
1,500.00	1,500.00	1,500.00	1,500.00	7.72	7.72	0.00	50.00	0.00	50.00	34.56	15.44	3.238	
1,600.00	1,600.00	1,600.00	1,600.00	8.26	8.26	0.00	50.00	0.00	50.00	33.48	16.52	3.027	
1,700.00	1,700.00	1,700.00	1,700.00	8.80	8.80	0.00	50.00	0.00	50.00	32.41	17.59	2.842	
1,800.00	1,800.00	1,800.00	1,800.00	9.33	9.33	0.00	50.00	0.00	50.00	31.33	18.67	2.678	
1,862.65	1,862.65	1,863.25	1,863.25	9.66	9.66	123.21	49.61	0.58	49.99	30.67	19.32	2.587 CC	
1,900.00	1,899.98	1,900.90	1,900.88	9.85	9.86	125.28	49.00	1.47	50.02	30.31	19.70	2.538 ES	
2,000.00	1,999.84	2,001.28	2,001.12	10.35	10.36	135.20	46.03	5.85	51.11	30.42	20.69	2.470 SF	
2,100.00	2,099.45	2,100.63	2,100.08	10.86	10.86	149.85	41.15	13.04	56.03	34.39	21.64	2.589	
2,200.00	2,198.70	2,198.46	2,197.18	11.38	11.37	165.13	34.46	22.89	67.74	45.19	22.55	3.004	
2,300.00	2,297.47	2,294.32	2,291.87	11.90	11.87	177.59	26.10	35.19	87.44	64.03	23.42	3.734	
2,400.00	2,395.95	2,389.01	2,384.93	12.44	12.38	-173.43	16.25	49.70	112.90	88.49	24.41	4.625	
2,500.00	2,494.43	2,484.34	2,478.50	12.99	12.91	-167.54	6.02	64.75	140.38	114.96	25.43	5.521	
2,600.00	2,592.91	2,579.67	2,572.08	13.55	13.45	-163.58	-4.20	79.80	168.80	142.35	26.45	6.382	
2,700.00	2,691.39	2,675.00	2,665.65	14.12	13.99	-160.76	-14.42	94.85	197.75	170.26	27.49	7.195	
2,800.00	2,789.87	2,770.32	2,759.23	14.69	14.55	-158.66	-24.64	109.90	227.03	198.50	28.53	7.958	
2,900.00	2,888.35	2,865.65	2,852.80	15.27	15.11	-157.04	-34.86	124.95	256.52	226.95	29.58	8.673	
3,000.00	2,986.84	2,960.98	2,946.38	15.85	15.67	-155.75	-45.08	140.00	286.17	255.54	30.63	9.342	
3,100.00	3,085.32	3,056.31	3,039.95	16.45	16.25	-154.71	-55.30	155.05	315.92	284.23	31.70	9.967	
3,200.00	3,183.80	3,151.63	3,133.53	17.04	16.82	-153.84	-65.52	170.10	345.75	312.99	32.77	10.552	
3,300.00	3,282.28	3,246.96	3,227.10	17.64	17.40	-153.11	-75.74	185.15	375.65	341.81	33.84	11.101	
3,400.00	3,380.76	3,342.29	3,320.68	18.24	17.99	-152.49	-85.96	200.20	405.59	370.67	34.92	11.615	
3,500.00	3,479.24	3,437.61	3,414.25	18.85	18.58	-151.96	-96.18	215.24	435.56	399.56	36.00	12.098	
3,600.00	3,577.72	3,532.94	3,507.83	19.45	19.17	-151.49	-106.40	230.29	465.57	428.48	37.09	12.552	
3,700.00	3,676.21	3,628.27	3,601.40	20.07	19.77	-151.08	-116.62	245.34	495.60	457.42	38.18	12.980	
3,800.00	3,774.69	3,723.60	3,694.98	20.68	20.37	-150.72	-126.84	260.39	525.66	486.38	39.28	13.383	
3,900.00	3,873.17	3,818.92	3,788.55	21.30	20.97	-150.39	-137.07	275.44	555.73	515.35	40.38	13.764	
4,000.00	3,971.65	3,914.25	3,882.13	21.91	21.57	-150.10	-147.29	290.49	585.81	544.33	41.48	14.124	
4,100.00	4,070.13	4,009.58	3,975.70	22.53	22.18	-149.84	-157.51	305.54	615.91	573.33	42.58	14.464	
4,200.00	4,168.61	4,104.90	4,069.28	23.15	22.79	-149.60	-167.73	320.59	646.01	602.33	43.69	14.787	
4,300.00	4,267.10	4,200.23	4,162.86	23.78	23.39	-149.38	-177.95	335.64	676.13	631.33	44.80	15.093	
4,400.00	4,365.58	4,295.56	4,256.43	24.40	24.01	-149.18	-188.17	350.69	706.26	660.35	45.91	15.384	
4,500.00	4,464.06	4,390.89	4,350.01	25.03	24.62	-149.00	-198.39	365.74	736.39	689.37	47.02	15.660	
4,600.00	4,562.54	4,486.21	4,443.58	25.66	25.23	-148.83	-208.61	380.79	766.53	718.39	48.14	15.924	
4,700.00	4,661.02	4,581.54	4,537.16	26.28	25.85	-148.68	-218.83	395.84	796.67	747.41	49.26	16.174	
4,800.00	4,759.50	4,676.87	4,630.73	26.91	26.46	-148.53	-229.05	410.89	826.82	776.44	50.37	16.413	
4,900.00	4,857.98	4,772.20	4,724.31	27.54	27.08	-148.40	-239.27	425.94	856.97	805.48	51.50	16.642	
5,000.00	4,956.47	4,867.52	4,817.88	28.17	27.70	-148.28	-249.49	440.99	887.13	834.51	52.62	16.860	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centras (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,054.95	4,962.85	4,911.46	28.81	28.32	-148.16	-259.71	456.04	917.29	863.55	53.74	17.069		
5,200.00	5,153.43	5,058.18	5,005.03	29.44	28.94	-148.05	-269.93	471.09	947.45	892.59	54.87	17.268		
5,300.00	5,251.91	5,153.50	5,098.61	30.07	29.56	-147.95	-280.16	486.13	977.62	921.63	55.99	17.460		
5,400.00	5,350.40	5,248.84	5,192.19	30.71	30.19	-147.89	-290.38	501.19	1,007.77	950.61	57.15	17.633		
5,500.00	5,449.23	5,344.68	5,286.27	31.33	30.81	-148.05	-300.65	516.32	1,036.16	977.66	58.49	17.714		
5,600.00	5,548.53	5,480.65	5,420.25	31.91	31.68	-148.05	-313.63	535.42	1,060.05	1,000.05	60.00	17.667		
5,700.00	5,648.19	5,623.07	5,561.60	32.47	32.52	-148.03	-323.38	549.78	1,077.09	1,015.63	61.46	17.524		
5,800.00	5,748.07	5,767.81	5,705.95	33.00	33.31	-148.02	-329.24	558.40	1,087.10	1,024.25	62.85	17.297		
5,900.00	5,848.06	5,909.97	5,848.06	33.49	34.01	90.11	-331.00	561.00	1,090.00	1,025.76	64.24	16.967		
6,000.00	5,948.06	6,009.97	5,948.06	33.97	34.48	90.11	-331.00	561.00	1,090.00	1,024.78	65.22	16.713		
6,100.00	6,048.06	6,109.97	6,048.06	34.44	34.95	90.11	-331.00	561.00	1,090.00	1,023.80	66.20	16.465		
6,200.00	6,148.06	6,209.97	6,148.06	34.92	35.42	90.11	-331.00	561.00	1,090.00	1,022.82	67.18	16.224		
6,300.00	6,248.06	6,309.97	6,248.06	35.40	35.89	90.11	-331.00	561.00	1,090.00	1,021.83	68.17	15.990		
6,400.00	6,348.06	6,409.97	6,348.06	35.88	36.37	90.11	-331.00	561.00	1,090.00	1,020.84	69.16	15.761		
6,500.00	6,448.06	6,509.97	6,448.06	36.37	36.85	90.11	-331.00	561.00	1,090.00	1,019.85	70.15	15.538		
6,600.00	6,548.06	6,609.97	6,548.06	36.85	37.33	90.11	-331.00	561.00	1,090.00	1,018.86	71.14	15.321		
6,700.00	6,648.06	6,709.97	6,648.06	37.34	37.81	90.11	-331.00	561.00	1,090.00	1,017.86	72.14	15.110		
6,800.00	6,748.06	6,809.97	6,748.06	37.83	38.29	90.11	-331.00	561.00	1,090.00	1,016.86	73.14	14.904		
6,900.00	6,848.06	6,909.97	6,848.06	38.31	38.77	90.11	-331.00	561.00	1,090.00	1,015.86	74.14	14.702		
7,000.00	6,948.06	7,009.97	6,948.06	38.80	39.26	90.11	-331.00	561.00	1,090.00	1,014.86	75.14	14.506		
7,100.00	7,048.06	7,109.97	7,048.06	39.30	39.74	90.11	-331.00	561.00	1,090.00	1,013.86	76.14	14.315		
7,200.00	7,148.06	7,209.97	7,148.06	39.79	40.23	90.11	-331.00	561.00	1,090.00	1,012.85	77.15	14.128		
7,300.00	7,248.06	7,309.97	7,248.06	40.28	40.72	90.11	-331.00	561.00	1,090.00	1,011.84	78.16	13.946		
7,400.00	7,348.06	7,409.97	7,348.06	40.78	41.21	90.11	-331.00	561.00	1,090.00	1,010.83	79.17	13.768		
7,500.00	7,448.06	7,509.97	7,448.06	41.27	41.70	90.11	-331.00	561.00	1,090.00	1,009.82	80.18	13.594		
7,600.00	7,548.06	7,609.97	7,548.06	41.77	42.19	90.11	-331.00	561.00	1,090.00	1,008.81	81.19	13.425		
7,700.00	7,648.06	7,709.97	7,648.06	42.27	42.69	90.11	-331.00	561.00	1,090.00	1,007.79	82.21	13.259		
7,800.00	7,748.06	7,809.97	7,748.06	42.77	43.18	90.11	-331.00	561.00	1,090.00	1,006.78	83.23	13.097		
7,900.00	7,848.06	7,909.97	7,848.06	43.27	43.68	90.11	-331.00	561.00	1,090.00	1,005.76	84.24	12.939		
8,000.00	7,948.06	8,009.97	7,948.06	43.77	44.17	90.11	-331.00	561.00	1,090.00	1,004.74	85.26	12.784		
8,100.00	8,048.06	8,109.97	8,048.06	44.27	44.67	90.11	-331.00	561.00	1,090.00	1,003.72	86.28	12.633		
8,200.00	8,148.06	8,209.97	8,148.06	44.77	45.17	90.11	-331.00	561.00	1,090.00	1,002.70	87.31	12.485		
8,300.00	8,248.06	8,309.97	8,248.06	45.28	45.67	90.11	-331.00	561.00	1,090.00	1,001.67	88.33	12.340		
8,400.00	8,348.06	8,409.97	8,348.06	45.78	46.17	90.11	-331.00	561.00	1,090.00	1,000.65	89.35	12.199		
8,500.00	8,448.06	8,509.97	8,448.06	46.29	46.67	90.11	-331.00	561.00	1,090.00	999.62	90.38	12.060		
8,600.00	8,548.06	8,609.97	8,548.06	46.79	47.17	90.11	-331.00	561.00	1,090.00	998.60	91.41	11.925		
8,700.00	8,648.06	8,709.97	8,648.06	47.30	47.67	90.11	-331.00	561.00	1,090.00	997.57	92.43	11.792		
8,800.00	8,748.06	8,809.97	8,748.06	47.81	48.18	90.11	-331.00	561.00	1,090.00	996.54	93.46	11.662		
8,900.00	8,848.06	8,909.97	8,848.06	48.31	48.68	90.11	-331.00	561.00	1,090.00	995.51	94.49	11.535		
9,000.00	8,948.06	9,009.97	8,948.06	48.82	49.19	90.11	-331.00	561.00	1,090.00	994.48	95.52	11.411		
9,036.07	8,984.12	9,046.03	8,984.12	49.01	49.37	-100.32	-331.00	561.00	1,090.09	994.31	95.78	11.381		
9,100.00	9,048.01	9,109.93	9,048.01	49.33	49.69	-100.35	-331.00	561.00	1,090.29	993.86	96.43	11.306		
9,200.00	9,146.57	9,208.49	9,146.57	49.87	50.19	-100.87	-331.00	561.00	1,093.32	995.92	97.40	11.226		
9,300.00	9,240.83	9,302.75	9,240.83	50.45	50.67	-101.79	-331.00	561.00	1,100.21	1,001.97	98.24	11.199		
9,400.00	9,327.92	9,389.84	9,327.92	51.06	51.11	-102.78	-331.00	561.00	1,112.15	1,013.22	98.93	11.242		
9,500.00	9,405.20	9,487.90	9,425.66	51.69	51.61	-103.90	-337.44	561.09	1,129.94	1,030.43	99.51	11.355		
9,600.00	9,470.32	9,602.49	9,536.51	52.36	52.24	-104.88	-365.75	561.51	1,152.66	1,052.54	100.11	11.514		
9,700.00	9,521.30	9,738.09	9,657.22	53.06	53.01	-105.71	-426.82	562.41	1,178.97	1,078.12	100.85	11.690		
9,800.00	9,556.60	9,902.98	9,779.59	53.81	54.00	-106.33	-536.46	564.03	1,206.87	1,104.97	101.90	11.843		
9,900.00	9,575.13	10,103.58	9,878.97	54.59	55.31	-106.34	-709.52	566.57	1,233.52	1,129.94	103.59	11.908		
10,000.00	9,577.07	10,319.80	9,912.76	55.39	56.88	-105.51	-921.78	569.70	1,255.54	1,149.53	106.01	11.844		
10,100.00	9,574.60	10,418.37	9,911.39	56.24	57.67	-105.31	-1,020.33	571.15	1,272.00	1,164.28	107.73	11.808		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Toolface (°)	Offset Wellbore +N/-S (usft)	Offset Wellbore +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
10,200.00	9,572.13	10,517.47	9,910.00	57.14	58.53	-105.18	-1,119.41	572.61	1,285.15	1,175.60	109.55	11.731	
10,300.00	9,569.66	10,616.97	9,908.61	58.09	59.46	-105.11	-1,218.89	574.08	1,294.95	1,183.48	111.47	11.617	
10,400.00	9,567.19	10,716.76	9,907.22	59.08	60.45	-105.10	-1,318.65	575.55	1,301.40	1,187.92	113.48	11.468	
10,500.00	9,564.72	10,816.70	9,905.83	60.11	61.50	-105.14	-1,418.58	577.02	1,304.48	1,188.92	115.55	11.289	
10,600.00	9,562.25	10,916.70	9,904.43	61.18	62.61	-105.20	-1,518.55	578.49	1,304.95	1,187.25	117.70	11.087	
10,700.00	9,559.79	11,016.69	9,903.03	62.30	63.77	-105.25	-1,618.52	579.96	1,305.25	1,185.28	119.96	10.880	
10,800.00	9,557.32	11,116.68	9,901.64	63.48	64.99	-105.29	-1,718.50	581.44	1,305.54	1,183.22	122.32	10.673	
10,900.00	9,554.86	11,216.68	9,900.24	64.71	66.25	-105.34	-1,818.47	582.91	1,305.84	1,181.05	124.78	10.465	
11,000.00	9,552.39	11,316.67	9,898.84	65.98	67.56	-105.38	-1,918.45	584.38	1,306.13	1,178.80	127.33	10.258	
11,100.00	9,549.93	11,416.67	9,897.45	67.30	68.91	-105.43	-2,018.42	585.85	1,306.43	1,176.47	129.96	10.052	
11,200.00	9,547.46	11,516.66	9,896.05	68.67	70.30	-105.47	-2,118.39	587.33	1,306.73	1,174.05	132.67	9.849	
11,300.00	9,545.00	11,616.66	9,894.66	70.07	71.73	-105.52	-2,218.37	588.80	1,307.03	1,171.57	135.46	9.649	
11,400.00	9,542.54	11,716.65	9,893.26	71.51	73.20	-105.56	-2,318.34	590.27	1,307.33	1,169.01	138.32	9.452	
11,500.00	9,540.07	11,816.64	9,891.86	72.99	74.70	-105.61	-2,418.31	591.74	1,307.63	1,166.39	141.24	9.258	
11,600.00	9,537.61	11,916.64	9,890.47	74.50	76.23	-105.65	-2,518.29	593.22	1,307.93	1,163.70	144.23	9.069	
11,700.00	9,535.14	12,016.63	9,889.07	76.04	77.79	-105.70	-2,618.26	594.69	1,308.23	1,160.96	147.27	8.883	
11,800.00	9,532.68	12,116.63	9,887.67	77.61	79.38	-105.74	-2,718.23	596.16	1,308.53	1,158.17	150.37	8.702	
11,900.00	9,530.21	12,216.62	9,886.28	79.21	80.99	-105.79	-2,818.21	597.63	1,308.84	1,155.33	153.51	8.526	
12,000.00	9,527.75	12,316.62	9,884.88	80.83	82.63	-105.83	-2,918.18	599.11	1,309.14	1,152.44	156.71	8.354	
12,100.00	9,525.28	12,416.61	9,883.49	82.48	84.30	-105.88	-3,018.16	600.58	1,309.45	1,149.50	159.95	8.187	
12,200.00	9,522.82	12,516.60	9,882.09	84.15	85.98	-105.92	-3,118.13	602.05	1,309.75	1,146.53	163.23	8.024	
12,300.00	9,520.36	12,616.60	9,880.69	85.85	87.69	-105.97	-3,218.10	603.52	1,310.06	1,143.51	166.55	7.866	
12,400.00	9,517.89	12,716.59	9,879.30	87.56	89.42	-106.01	-3,318.08	604.99	1,310.37	1,140.46	169.91	7.712	
12,500.00	9,515.43	12,816.59	9,877.90	89.29	91.16	-106.06	-3,418.05	606.47	1,310.68	1,137.38	173.30	7.563	
12,600.00	9,512.96	12,916.58	9,876.50	91.05	92.92	-106.10	-3,518.02	607.94	1,310.99	1,134.26	176.72	7.418	
12,700.00	9,510.50	13,016.58	9,875.11	92.82	94.70	-106.14	-3,618.00	609.41	1,311.30	1,131.12	180.18	7.278	
12,800.00	9,508.03	13,116.57	9,873.71	94.60	96.50	-106.19	-3,717.97	610.88	1,311.61	1,127.94	183.66	7.141	
12,900.00	9,505.57	13,216.56	9,872.32	96.40	98.30	-106.23	-3,817.95	612.36	1,311.92	1,124.75	187.18	7.009	
13,000.00	9,503.10	13,316.56	9,870.92	98.22	100.13	-106.28	-3,917.92	613.83	1,312.23	1,121.52	190.71	6.881	
13,100.00	9,500.64	13,416.55	9,869.52	100.05	101.96	-106.32	-4,017.89	615.30	1,312.55	1,118.27	194.27	6.756	
13,200.00	9,498.18	13,516.55	9,868.13	101.89	103.81	-106.37	-4,117.87	616.77	1,312.86	1,115.00	197.86	6.635	
13,300.00	9,495.71	13,616.54	9,866.73	103.74	105.67	-106.41	-4,217.84	618.25	1,313.18	1,111.71	201.46	6.518	
13,400.00	9,493.25	13,716.54	9,865.33	105.61	107.54	-106.46	-4,317.81	619.72	1,313.49	1,108.41	205.09	6.405	
13,500.00	9,490.78	13,816.53	9,863.94	107.49	109.43	-106.50	-4,417.79	621.19	1,313.81	1,105.08	208.73	6.294	
13,600.00	9,488.32	13,916.52	9,862.54	109.37	111.32	-106.55	-4,517.76	622.66	1,314.13	1,101.73	212.39	6.187	
13,700.00	9,485.85	14,016.52	9,861.15	111.27	113.22	-106.59	-4,617.74	624.14	1,314.44	1,098.37	216.07	6.083	
13,800.00	9,483.39	14,116.51	9,859.75	113.18	115.13	-106.63	-4,717.71	625.61	1,314.76	1,095.00	219.77	5.983	
13,900.00	9,480.92	14,216.51	9,858.35	115.09	117.05	-106.68	-4,817.68	627.08	1,315.08	1,091.61	223.47	5.885	
14,000.00	9,478.46	14,316.50	9,856.96	117.02	118.98	-106.72	-4,917.66	628.55	1,315.40	1,088.20	227.20	5.790	
14,100.00	9,476.00	14,416.50	9,855.56	118.95	120.91	-106.77	-5,017.63	630.03	1,315.72	1,084.79	230.94	5.697	
14,200.00	9,473.53	14,516.49	9,854.16	120.89	122.86	-106.81	-5,117.60	631.50	1,316.05	1,081.36	234.69	5.608	
14,300.00	9,471.07	14,616.49	9,852.77	122.84	124.81	-106.86	-5,217.58	632.97	1,316.37	1,077.92	238.45	5.521	
14,400.00	9,468.60	14,716.48	9,851.37	124.79	126.77	-106.90	-5,317.55	634.44	1,316.69	1,074.47	242.22	5.436	
14,500.00	9,466.14	14,816.47	9,849.98	126.75	128.73	-106.95	-5,417.52	635.92	1,317.02	1,071.01	246.01	5.354	
14,600.00	9,463.67	14,916.47	9,848.58	128.72	130.70	-106.99	-5,517.50	637.39	1,317.34	1,067.54	249.80	5.274	
14,700.00	9,462.03	15,024.68	9,847.70	130.69	132.83	-107.02	-5,625.70	638.55	1,317.62	1,063.86	253.76	5.192	
14,800.00	9,461.83	15,124.62	9,847.99	132.67	134.81	-107.04	-5,725.64	638.86	1,317.77	1,060.18	257.59	5.116	
14,900.00	9,461.63	15,224.62	9,848.27	134.65	136.78	-107.06	-5,825.64	639.17	1,317.91	1,056.48	261.43	5.041	
15,000.00	9,461.43	15,324.62	9,848.56	136.63	138.77	-107.08	-5,925.63	639.48	1,318.06	1,052.78	265.27	4.969	
15,100.00	9,461.22	15,424.62	9,848.85	138.63	140.76	-107.10	-6,025.63	639.79	1,318.20	1,049.07	269.13	4.898	
15,200.00	9,461.02	15,524.62	9,849.13	140.62	142.75	-107.12	-6,125.63	640.10	1,318.35	1,045.36	272.99	4.829	
15,300.00	9,460.82	15,624.62	9,849.42	142.62	144.75	-107.14	-6,225.63	640.41	1,318.49	1,041.63	276.86	4.762	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,400.00	9,460.62	15,724.61	9,849.71	144.63	146.75	-107.16	-6,325.63	640.72	1,318.64	1,037.90	280.74	4.697		
15,500.00	9,460.42	15,824.61	9,849.99	146.64	148.76	-107.18	-6,425.62	641.03	1,318.78	1,034.16	284.62	4.633		
15,600.00	9,460.22	15,924.61	9,850.28	148.65	150.77	-107.20	-6,525.62	641.34	1,318.93	1,030.41	288.52	4.571		
15,700.00	9,460.02	16,024.61	9,850.57	150.67	152.79	-107.22	-6,625.62	641.65	1,319.07	1,026.66	292.42	4.511		
15,800.00	9,459.81	16,124.61	9,850.86	152.69	154.81	-107.24	-6,725.62	641.96	1,319.22	1,022.90	296.32	4.452		
15,900.00	9,459.61	16,224.61	9,851.14	154.71	156.83	-107.26	-6,825.62	642.27	1,319.37	1,019.13	300.23	4.394		
16,000.00	9,459.41	16,324.61	9,851.43	156.74	158.86	-107.28	-6,925.61	642.58	1,319.51	1,015.36	304.15	4.338		
16,100.00	9,459.21	16,424.61	9,851.72	158.77	160.89	-107.30	-7,025.61	642.89	1,319.66	1,011.59	308.08	4.284		
16,200.00	9,459.01	16,524.60	9,852.00	160.81	162.92	-107.32	-7,125.61	643.20	1,319.81	1,007.80	312.00	4.230		
16,300.00	9,458.81	16,624.60	9,852.29	162.85	164.96	-107.34	-7,225.61	643.51	1,319.95	1,004.02	315.94	4.178		
16,400.00	9,458.60	16,724.60	9,852.58	164.89	167.00	-107.36	-7,325.60	643.82	1,320.10	1,000.23	319.88	4.127		
16,500.00	9,458.40	16,824.60	9,852.87	166.93	169.04	-107.38	-7,425.60	644.13	1,320.25	996.43	323.82	4.077		
16,600.00	9,458.20	16,924.60	9,853.15	168.98	171.08	-107.40	-7,525.60	644.44	1,320.40	992.63	327.77	4.028		
16,700.00	9,458.00	17,024.60	9,853.44	171.03	173.13	-107.42	-7,625.60	644.75	1,320.54	988.83	331.72	3.981		
16,800.00	9,457.80	17,124.60	9,853.73	173.08	175.18	-107.44	-7,725.60	645.06	1,320.69	985.02	335.67	3.934		
16,900.00	9,457.60	17,224.60	9,854.01	175.14	177.24	-107.46	-7,825.59	645.37	1,320.84	981.21	339.64	3.889		
17,000.00	9,457.40	17,324.60	9,854.30	177.19	179.29	-107.49	-7,925.59	645.68	1,320.99	977.39	343.60	3.845		
17,100.00	9,457.19	17,424.59	9,854.59	179.25	181.35	-107.51	-8,025.59	645.99	1,321.14	973.57	347.57	3.801		
17,200.00	9,456.99	17,524.59	9,854.87	181.31	183.41	-107.53	-8,125.59	646.30	1,321.29	969.75	351.54	3.759		
17,300.00	9,456.79	17,624.59	9,855.16	183.38	185.47	-107.55	-8,225.59	646.61	1,321.43	965.92	355.51	3.717		
17,400.00	9,456.59	17,724.59	9,855.45	185.44	187.54	-107.57	-8,325.58	646.92	1,321.58	962.09	359.49	3.676		
17,500.00	9,456.39	17,824.59	9,855.74	187.51	189.60	-107.59	-8,425.58	647.23	1,321.73	958.26	363.47	3.636		
17,600.00	9,456.19	17,924.59	9,856.02	189.58	191.67	-107.61	-8,525.58	647.54	1,321.88	954.43	367.45	3.597		
17,700.00	9,455.99	18,024.59	9,856.31	191.65	193.74	-107.63	-8,625.58	647.85	1,322.03	950.59	371.44	3.559		
17,800.00	9,455.78	18,124.59	9,856.60	193.73	195.81	-107.65	-8,725.58	648.16	1,322.18	946.75	375.43	3.522		
17,900.00	9,455.58	18,224.58	9,856.88	195.80	197.89	-107.67	-8,825.57	648.47	1,322.33	942.91	379.42	3.485		
18,000.00	9,455.38	18,324.58	9,857.17	197.88	199.96	-107.69	-8,925.57	648.78	1,322.48	939.06	383.42	3.449		
18,100.00	9,455.18	18,424.58	9,857.46	199.96	202.04	-107.71	-9,025.57	649.09	1,322.63	935.22	387.41	3.414		
18,200.00	9,454.98	18,524.58	9,857.74	202.04	204.12	-107.73	-9,125.57	649.40	1,322.78	931.37	391.41	3.380		
18,300.00	9,454.78	18,624.58	9,858.03	204.12	206.20	-107.75	-9,225.57	649.71	1,322.93	927.52	395.41	3.346		
18,400.00	9,454.57	18,724.58	9,858.32	206.20	208.28	-107.77	-9,325.56	650.02	1,323.08	923.66	399.42	3.313		
18,500.00	9,454.37	18,824.58	9,858.61	208.29	210.36	-107.79	-9,425.56	650.33	1,323.23	919.81	403.42	3.280		
18,600.00	9,454.17	18,924.58	9,858.89	210.38	212.45	-107.81	-9,525.56	650.64	1,323.38	915.95	407.43	3.248		
18,700.00	9,453.97	19,024.58	9,859.18	212.46	214.54	-107.83	-9,625.56	650.95	1,323.53	912.09	411.44	3.217		
18,800.00	9,453.77	19,124.57	9,859.47	214.55	216.62	-107.85	-9,725.55	651.26	1,323.69	908.23	415.45	3.186		
18,900.00	9,453.57	19,224.57	9,859.75	216.64	218.71	-107.87	-9,825.55	651.57	1,323.84	904.37	419.46	3.156		
19,000.00	9,453.37	19,324.57	9,860.04	218.74	220.80	-107.89	-9,925.55	651.88	1,323.99	900.51	423.48	3.126		
19,100.00	9,453.16	19,424.57	9,860.33	220.83	222.89	-107.91	-10,025.55	652.19	1,324.14	896.64	427.50	3.097		
19,200.00	9,452.96	19,524.57	9,860.62	222.92	224.99	-107.93	-10,125.55	652.50	1,324.29	892.78	431.51	3.069		
19,300.00	9,452.76	19,624.57	9,860.90	225.02	227.08	-107.95	-10,225.54	652.81	1,324.44	888.91	435.53	3.041		
19,400.00	9,452.56	19,724.57	9,861.19	227.11	229.18	-107.97	-10,325.54	653.12	1,324.60	885.04	439.55	3.013		
19,500.00	9,452.36	19,824.57	9,861.48	229.21	231.27	-107.99	-10,425.54	653.43	1,324.75	881.17	443.58	2.987		
19,600.00	9,452.16	19,924.56	9,861.76	231.31	233.37	-108.01	-10,525.54	653.74	1,324.90	877.30	447.60	2.960		
19,677.89	9,452.00	20,002.45	9,861.99	232.95	235.01	-108.02	-10,603.43	653.99	1,325.02	874.29	450.73	2.940		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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
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	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	
1,900.00	1,899.98	1,900.77	1,900.75	9.85	9.85	126.94	23.35	0.65	24.38	4.68	19.70	1.238 Level 2	
1,987.42	1,987.28	1,988.62	1,988.48	10.29	10.28	140.39	18.23	2.29	23.72	3.17	20.55	1.154 Level 2, CC	
2,000.00	1,999.84	2,001.23	2,001.06	10.35	10.34	143.03	18.43	2.61	23.74	3.07	20.67	1.149 Level 2, ES, SF	
2,100.00	2,099.45	2,101.08	2,100.53	10.86	10.84	167.72	10.31	5.83	26.72	5.13	21.59	1.238 Level 2	
2,200.00	2,198.70	2,200.01	2,198.92	11.38	11.33	-172.89	0.70	9.65	36.72	14.22	22.50	1.632	
2,300.00	2,297.47	2,298.52	2,296.89	11.90	11.83	-163.50	-8.87	13.45	52.35	28.94	23.41	2.236	
2,400.00	2,395.95	2,396.79	2,394.61	12.44	12.34	-159.03	-18.41	17.24	70.31	45.87	24.44	2.877	
2,500.00	2,494.43	2,495.05	2,492.34	12.99	12.85	-156.39	-27.96	21.03	88.52	63.04	25.47	3.475	
2,600.00	2,592.91	2,593.32	2,590.07	13.55	13.37	-154.66	-37.50	24.82	106.84	80.32	26.52	4.029	
2,700.00	2,691.39	2,691.58	2,687.79	14.12	13.89	-153.43	-47.05	28.62	125.23	97.67	27.57	4.543	
2,800.00	2,789.87	2,789.84	2,785.52	14.69	14.42	-152.51	-56.59	32.41	143.66	115.04	28.62	5.019	
2,900.00	2,888.35	2,888.11	2,883.24	15.27	14.95	-151.81	-66.14	36.20	162.12	132.44	29.69	5.461	
3,000.00	2,986.84	2,986.37	2,980.97	15.85	15.48	-151.24	-75.68	39.99	180.60	149.84	30.76	5.872	
3,100.00	3,085.32	3,084.64	3,078.70	16.45	16.01	-150.79	-85.23	43.78	199.10	167.26	31.84	6.254	
3,200.00	3,183.80	3,182.90	3,176.42	17.04	16.55	-150.41	-94.77	47.57	217.60	184.68	32.92	6.610	
3,300.00	3,282.28	3,281.16	3,274.15	17.64	17.09	-150.09	-104.32	51.36	236.11	202.10	34.00	6.943	
3,400.00	3,380.76	3,379.43	3,371.87	18.24	17.63	-149.81	-113.86	55.15	254.63	219.53	35.10	7.255	
3,500.00	3,479.24	3,477.69	3,469.60	18.85	18.17	-149.58	-123.40	58.94	273.15	236.96	36.19	7.547	
3,600.00	3,577.72	3,575.96	3,567.32	19.45	18.72	-149.37	-132.95	62.73	291.67	254.38	37.29	7.822	
3,700.00	3,676.21	3,674.22	3,665.05	20.07	19.27	-149.19	-142.49	66.53	310.20	271.81	38.39	8.080	
3,800.00	3,774.69	3,772.48	3,762.78	20.68	19.81	-149.03	-152.04	70.32	328.73	289.23	39.50	8.323	
3,900.00	3,873.17	3,870.75	3,860.50	21.30	20.36	-148.88	-161.58	74.11	347.27	306.66	40.61	8.552	
4,000.00	3,971.65	3,969.01	3,958.23	21.91	20.91	-148.75	-171.13	77.90	365.80	324.08	41.72	8.768	
4,100.00	4,070.13	4,067.28	4,055.95	22.53	21.47	-148.64	-180.67	81.69	384.34	341.51	42.83	8.973	
4,200.00	4,168.61	4,165.54	4,153.68	23.15	22.02	-148.53	-190.22	85.48	402.88	358.93	43.95	9.167	
4,300.00	4,267.10	4,263.80	4,251.41	23.78	22.57	-148.43	-199.76	89.27	421.42	376.35	45.07	9.351	
4,400.00	4,365.58	4,362.07	4,349.13	24.40	23.13	-148.35	-209.31	93.06	439.96	393.77	46.18	9.526	
4,500.00	4,464.06	4,460.33	4,446.86	25.03	23.68	-148.26	-218.85	96.85	458.50	411.19	47.31	9.692	
4,600.00	4,562.54	4,558.60	4,544.58	25.66	24.24	-148.19	-228.40	100.64	477.04	428.61	48.43	9.850	
4,700.00	4,661.02	4,656.86	4,642.31	26.28	24.80	-148.12	-237.94	104.44	495.59	446.03	49.55	10.001	
4,800.00	4,759.50	4,755.12	4,740.03	26.91	25.35	-148.05	-247.49	108.23	514.13	463.45	50.68	10.144	
4,900.00	4,857.98	4,853.39	4,837.76	27.54	25.91	-147.99	-257.03	112.02	532.67	480.87	51.81	10.281	
5,000.00	4,956.47	4,951.65	4,935.49	28.17	26.47	-147.94	-266.57	115.81	551.22	498.28	52.94	10.413	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Centro +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,054.95	5,049.92	5,033.21	28.81	27.03	-147.89	-276.12	119.60	569.77	515.70	54.07	10.538	
5,200.00	5,153.43	5,148.18	5,130.94	29.44	27.59	-147.84	-285.66	123.39	588.31	533.11	55.20	10.658	
5,300.00	5,251.91	5,246.44	5,228.66	30.07	28.15	-147.79	-295.21	127.18	606.86	550.53	56.33	10.773	
5,400.00	5,350.40	5,344.71	5,326.39	30.71	28.71	-147.77	-304.75	130.97	625.38	567.89	57.49	10.878	
5,500.00	5,449.23	5,443.29	5,424.43	31.33	29.28	-147.81	-314.33	134.78	642.10	583.33	58.77	10.926	
5,600.00	5,548.53	5,550.46	5,531.16	31.91	29.88	-147.75	-323.25	138.32	655.36	595.32	60.04	10.916	
5,700.00	5,648.19	5,659.41	5,639.96	32.47	30.47	-147.80	-328.53	140.42	664.30	603.07	61.23	10.849	
5,800.00	5,748.07	5,767.54	5,748.07	33.00	31.03	-147.96	-330.00	141.00	668.88	606.56	62.33	10.732	
5,900.00	5,848.06	5,867.52	5,848.06	33.49	31.52	90.09	-330.00	141.00	670.00	606.98	63.02	10.631	
6,000.00	5,948.06	5,967.52	5,948.06	33.97	32.02	90.09	-330.00	141.00	670.00	605.98	64.02	10.466	
6,100.00	6,048.06	6,067.52	6,048.06	34.44	32.51	90.09	-330.00	141.00	670.00	604.99	65.01	10.306	
6,200.00	6,148.06	6,167.52	6,148.06	34.92	33.01	90.09	-330.00	141.00	670.00	603.99	66.01	10.151	
6,300.00	6,248.06	6,267.52	6,248.06	35.40	33.51	90.09	-330.00	141.00	670.00	603.00	67.00	9.999	
6,400.00	6,348.06	6,367.52	6,348.06	35.88	34.00	90.09	-330.00	141.00	670.00	601.99	68.01	9.852	
6,500.00	6,448.06	6,467.52	6,448.06	36.37	34.50	90.09	-330.00	141.00	670.00	600.99	69.01	9.709	
6,600.00	6,548.06	6,567.52	6,548.06	36.85	35.01	90.09	-330.00	141.00	670.00	599.99	70.01	9.569	
6,700.00	6,648.06	6,667.52	6,648.06	37.34	35.51	90.09	-330.00	141.00	670.00	598.98	71.02	9.434	
6,800.00	6,748.06	6,767.52	6,748.06	37.83	36.01	90.09	-330.00	141.00	670.00	597.97	72.03	9.301	
6,900.00	6,848.06	6,867.52	6,848.06	38.31	36.52	90.09	-330.00	141.00	670.00	596.96	73.04	9.173	
7,000.00	6,948.06	6,967.52	6,948.06	38.80	37.02	90.09	-330.00	141.00	670.00	595.94	74.06	9.047	
7,100.00	7,048.06	7,067.52	7,048.06	39.30	37.53	90.09	-330.00	141.00	670.00	594.93	75.07	8.925	
7,200.00	7,148.06	7,167.52	7,148.06	39.79	38.04	90.09	-330.00	141.00	670.00	593.91	76.09	8.806	
7,300.00	7,248.06	7,267.52	7,248.06	40.28	38.54	90.09	-330.00	141.00	670.00	592.89	77.11	8.689	
7,400.00	7,348.06	7,367.52	7,348.06	40.78	39.05	90.09	-330.00	141.00	670.00	591.87	78.13	8.576	
7,500.00	7,448.06	7,467.52	7,448.06	41.27	39.56	90.09	-330.00	141.00	670.00	590.85	79.15	8.465	
7,600.00	7,548.06	7,567.52	7,548.06	41.77	40.07	90.09	-330.00	141.00	670.00	589.83	80.17	8.357	
7,700.00	7,648.06	7,667.52	7,648.06	42.27	40.58	90.09	-330.00	141.00	670.00	588.81	81.19	8.252	
7,800.00	7,748.06	7,767.52	7,748.06	42.77	41.09	90.09	-330.00	141.00	670.00	587.78	82.22	8.149	
7,900.00	7,848.06	7,867.52	7,848.06	43.27	41.61	90.09	-330.00	141.00	670.00	586.76	83.25	8.048	
8,000.00	7,948.06	7,967.52	7,948.06	43.77	42.12	90.09	-330.00	141.00	670.00	585.73	84.27	7.950	
8,100.00	8,048.06	8,067.52	8,048.06	44.27	42.63	90.09	-330.00	141.00	670.00	584.70	85.30	7.854	
8,200.00	8,148.06	8,167.52	8,148.06	44.77	43.15	90.09	-330.00	141.00	670.00	583.67	86.33	7.761	
8,300.00	8,248.06	8,267.52	8,248.06	45.28	43.66	90.09	-330.00	141.00	670.00	582.64	87.36	7.669	
8,400.00	8,348.06	8,367.52	8,348.06	45.78	44.18	90.09	-330.00	141.00	670.00	581.61	88.40	7.580	
8,500.00	8,448.06	8,467.52	8,448.06	46.29	44.69	90.09	-330.00	141.00	670.00	580.57	89.43	7.492	
8,600.00	8,548.06	8,567.52	8,548.06	46.79	45.21	90.09	-330.00	141.00	670.00	579.54	90.46	7.406	
8,700.00	8,648.06	8,667.52	8,648.06	47.30	45.73	90.09	-330.00	141.00	670.00	578.50	91.50	7.323	
8,800.00	8,748.06	8,767.52	8,748.06	47.81	46.24	90.09	-330.00	141.00	670.00	577.47	92.53	7.241	
8,900.00	8,848.06	8,867.52	8,848.06	48.31	46.76	90.09	-330.00	141.00	670.00	576.43	93.57	7.160	
9,000.00	8,948.06	8,967.52	8,948.06	48.82	47.28	90.09	-330.00	141.00	670.00	575.39	94.61	7.082	
9,030.10	8,978.15	8,997.47	8,978.01	48.98	47.44	-100.34	-330.06	141.00	670.06	574.96	95.10	7.046	
9,100.00	9,048.01	9,065.78	9,046.09	49.33	47.80	-99.98	-335.07	141.07	670.38	574.53	95.85	6.994	
9,200.00	9,146.57	9,162.62	9,140.52	49.87	48.35	-99.18	-355.96	141.38	673.68	576.73	96.96	6.948	
9,300.00	9,240.83	9,258.39	9,229.16	50.45	48.93	-98.09	-391.95	141.91	680.30	582.20	98.10	6.935	
9,400.00	9,327.92	9,353.13	9,309.74	51.06	49.54	-96.76	-441.58	142.64	690.03	590.71	99.32	6.947	
9,500.00	9,405.20	9,446.93	9,380.38	51.69	50.17	-95.24	-503.11	143.55	702.54	601.89	100.65	6.980	
9,600.00	9,470.32	9,539.92	9,439.60	52.36	50.82	-93.58	-574.66	144.60	717.43	615.36	102.06	7.029	
9,700.00	9,521.30	9,632.31	9,486.21	53.06	51.50	-91.84	-654.31	145.78	734.23	630.69	103.53	7.092	
9,800.00	9,556.60	9,724.36	9,519.33	53.81	52.21	-90.06	-740.08	147.04	752.41	647.42	105.00	7.166	
9,900.00	9,575.13	9,816.37	9,538.30	54.59	52.93	-88.32	-830.01	148.36	771.44	665.04	106.40	7.250	
10,000.00	9,577.07	9,909.04	9,542.66	55.39	53.67	-87.19	-922.46	149.72	790.63	682.85	107.78	7.336	
10,100.00	9,574.60	10,007.62	9,540.32	56.24	54.52	-87.32	-1,021.00	151.18	807.39	698.00	109.39	7.381	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,200.00	9,572.13	10,106.72	9,537.98	57.14	55.43	-87.43	-1,120.07	152.63	820.70	709.58	111.12	7.386		
10,300.00	9,569.66	10,206.23	9,535.63	58.09	56.42	-87.53	-1,219.54	154.10	830.55	717.60	112.95	7.353		
10,400.00	9,567.19	10,306.02	9,533.27	59.08	57.47	-87.61	-1,319.29	155.57	836.93	722.06	114.87	7.286		
10,500.00	9,564.72	10,405.97	9,530.91	60.11	58.58	-87.68	-1,419.20	157.04	839.82	722.96	116.86	7.187		
10,600.00	9,562.25	10,505.97	9,528.54	61.18	59.76	-87.70	-1,519.16	158.51	840.01	720.95	119.06	7.055		
10,700.00	9,559.79	10,605.97	9,526.18	62.30	60.98	-87.71	-1,619.12	159.98	840.02	718.58	121.44	6.917		
10,800.00	9,557.32	10,705.97	9,523.82	63.48	62.26	-87.71	-1,719.08	161.46	840.03	716.11	123.93	6.779		
10,900.00	9,554.86	10,805.97	9,521.45	64.71	63.58	-87.72	-1,819.05	162.93	840.04	713.54	126.51	6.640		
11,000.00	9,552.39	10,905.97	9,519.09	65.98	64.95	-87.73	-1,919.01	164.40	840.05	710.87	129.18	6.503		
11,100.00	9,549.93	11,005.97	9,516.72	67.30	66.36	-87.73	-2,018.97	165.87	840.06	708.12	131.94	6.367		
11,200.00	9,547.46	11,105.97	9,514.36	68.67	67.81	-87.74	-2,118.93	167.34	840.07	705.29	134.79	6.233		
11,300.00	9,545.00	11,205.97	9,511.99	70.07	69.30	-87.75	-2,218.89	168.81	840.08	702.37	137.71	6.100		
11,400.00	9,542.54	11,305.97	9,509.63	71.51	70.82	-87.75	-2,318.85	170.29	840.09	699.39	140.70	5.971		
11,500.00	9,540.07	11,405.97	9,507.27	72.99	72.38	-87.76	-2,418.81	171.76	840.10	696.34	143.76	5.844		
11,600.00	9,537.61	11,505.97	9,504.90	74.50	73.96	-87.77	-2,518.77	173.23	840.11	693.23	146.88	5.720		
11,700.00	9,535.14	11,605.97	9,502.54	76.04	75.58	-87.78	-2,618.74	174.70	840.12	690.06	150.07	5.598		
11,800.00	9,532.68	11,705.97	9,500.17	77.61	77.22	-87.78	-2,718.70	176.17	840.13	686.83	153.30	5.480		
11,900.00	9,530.21	11,805.97	9,497.81	79.21	78.88	-87.79	-2,818.66	177.65	840.14	683.55	156.59	5.365		
12,000.00	9,527.75	11,905.97	9,495.45	80.83	80.57	-87.80	-2,918.62	179.12	840.15	680.22	159.93	5.253		
12,100.00	9,525.28	12,005.97	9,493.08	82.48	82.28	-87.80	-3,018.58	180.59	840.16	676.84	163.32	5.144		
12,200.00	9,522.82	12,105.97	9,490.72	84.15	84.01	-87.81	-3,118.54	182.06	840.17	673.43	166.75	5.039		
12,300.00	9,520.36	12,205.97	9,488.35	85.85	85.76	-87.82	-3,218.50	183.53	840.18	669.97	170.22	4.936		
12,400.00	9,517.89	12,305.97	9,485.99	87.56	87.53	-87.82	-3,318.46	185.01	840.19	666.47	173.72	4.836		
12,500.00	9,515.43	12,405.97	9,483.63	89.29	89.32	-87.83	-3,418.42	186.48	840.20	662.94	177.26	4.740		
12,600.00	9,512.96	12,505.97	9,481.26	91.05	91.12	-87.84	-3,518.39	187.95	840.21	659.37	180.84	4.646		
12,700.00	9,510.50	12,605.97	9,478.90	92.82	92.94	-87.84	-3,618.35	189.42	840.22	655.77	184.45	4.555		
12,800.00	9,508.03	12,705.97	9,476.53	94.60	94.77	-87.85	-3,718.31	190.89	840.23	652.15	188.09	4.467		
12,900.00	9,505.57	12,805.97	9,474.17	96.40	96.62	-87.86	-3,818.27	192.37	840.24	648.49	191.75	4.382		
13,000.00	9,503.10	12,905.97	9,471.80	98.22	98.47	-87.86	-3,918.23	193.84	840.25	644.81	195.45	4.299		
13,100.00	9,500.64	13,005.97	9,469.44	100.05	100.34	-87.87	-4,018.19	195.31	840.26	641.10	199.16	4.219		
13,200.00	9,498.18	13,105.97	9,467.08	101.89	102.23	-87.88	-4,118.15	196.78	840.27	637.37	202.91	4.141		
13,300.00	9,495.71	13,205.97	9,464.71	103.74	104.12	-87.89	-4,218.11	198.25	840.28	633.61	206.67	4.066		
13,400.00	9,493.25	13,305.97	9,462.35	105.61	106.02	-87.89	-4,318.07	199.73	840.29	629.84	210.46	3.993		
13,500.00	9,490.78	13,405.97	9,459.98	107.49	107.93	-87.90	-4,418.04	201.20	840.30	626.04	214.26	3.922		
13,600.00	9,488.32	13,505.97	9,457.62	109.37	109.86	-87.91	-4,518.00	202.67	840.31	622.23	218.09	3.853		
13,700.00	9,485.85	13,605.97	9,455.26	111.27	111.79	-87.91	-4,617.96	204.14	840.32	618.39	221.93	3.786		
13,800.00	9,483.39	13,705.97	9,452.89	113.18	113.72	-87.92	-4,717.92	205.61	840.33	614.54	225.79	3.722		
13,900.00	9,480.92	13,805.97	9,450.53	115.09	115.67	-87.93	-4,817.88	207.09	840.34	610.68	229.67	3.659		
14,000.00	9,478.46	13,905.97	9,448.16	117.02	117.62	-87.93	-4,917.84	208.56	840.35	606.80	233.56	3.598		
14,100.00	9,476.00	14,005.97	9,445.80	118.95	119.59	-87.94	-5,017.80	210.03	840.36	602.90	237.47	3.539		
14,200.00	9,473.53	14,105.97	9,443.44	120.89	121.55	-87.95	-5,117.76	211.50	840.37	598.99	241.39	3.481		
14,300.00	9,471.07	14,205.97	9,441.07	122.84	123.53	-87.95	-5,217.73	212.97	840.38	595.06	245.32	3.426		
14,400.00	9,468.60	14,305.97	9,438.71	124.79	125.51	-87.96	-5,317.69	214.45	840.40	591.13	249.27	3.371		
14,500.00	9,466.14	14,405.97	9,436.34	126.75	127.49	-87.97	-5,417.65	215.92	840.41	587.18	253.23	3.319		
14,600.00	9,463.67	14,505.97	9,433.98	128.72	129.48	-87.97	-5,517.61	217.39	840.42	583.22	257.20	3.268		
14,700.00	9,461.20	14,605.97	9,431.61	130.69	131.69	-87.96	-5,617.57	218.86	840.43	579.26	261.19	3.214		
14,800.00	9,458.73	14,705.97	9,429.24	132.67	133.68	-87.95	-5,717.53	220.33	840.44	575.31	265.16	3.166		
14,900.00	9,456.26	14,805.97	9,426.87	134.65	135.68	-87.95	-5,817.49	221.80	840.45	571.36	269.15	3.119		
15,000.00	9,453.79	14,905.97	9,424.50	136.63	137.68	-87.94	-5,917.45	223.27	840.46	567.41	273.14	3.074		
15,100.00	9,451.32	15,005.97	9,422.13	138.61	139.69	-87.94	-6,017.41	224.74	840.47	563.46	277.13	3.029		
15,200.00	9,448.85	15,105.97	9,419.76	140.60	141.70	-87.93	-6,117.37	226.21	840.48	559.51	281.12	2.986		
15,300.00	9,446.38	15,205.97	9,417.39	142.62	143.72	-87.93	-6,217.33	227.68	840.49	555.56	285.11	2.944		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,400.00	9,460.62	15,316.36	9,430.11	144.63	145.74	-87.92	-6,327.97	220.77	840.53	551.00	289.52	2.903		
15,500.00	9,460.42	15,416.36	9,429.83	146.64	147.77	-87.91	-6,427.97	221.08	840.53	546.97	293.56	2.863		
15,600.00	9,460.22	15,516.36	9,429.55	148.65	149.80	-87.91	-6,527.97	221.39	840.54	542.92	297.61	2.824		
15,700.00	9,460.02	15,616.36	9,429.26	150.67	151.83	-87.90	-6,627.97	221.70	840.54	538.87	301.67	2.786		
15,800.00	9,459.81	15,716.36	9,428.98	152.69	153.86	-87.90	-6,727.96	222.01	840.54	534.81	305.73	2.749		
15,900.00	9,459.61	15,816.36	9,428.70	154.71	155.90	-87.89	-6,827.96	222.32	840.55	530.75	309.80	2.713		
16,000.00	9,459.41	15,916.36	9,428.42	156.74	157.94	-87.89	-6,927.96	222.63	840.55	526.68	313.87	2.678		
16,100.00	9,459.21	16,016.36	9,428.13	158.77	159.99	-87.88	-7,027.96	222.94	840.55	522.60	317.95	2.644		
16,200.00	9,459.01	16,116.36	9,427.85	160.81	162.04	-87.88	-7,127.96	223.25	840.56	518.52	322.04	2.610		
16,300.00	9,458.81	16,216.36	9,427.57	162.85	164.09	-87.87	-7,227.96	223.55	840.56	514.43	326.13	2.577		
16,400.00	9,458.60	16,316.36	9,427.28	164.89	166.14	-87.86	-7,327.96	223.86	840.56	510.33	330.23	2.545		
16,500.00	9,458.40	16,416.36	9,427.00	166.93	168.20	-87.86	-7,427.96	224.17	840.57	506.23	334.33	2.514		
16,600.00	9,458.20	16,516.36	9,426.72	168.98	170.25	-87.85	-7,527.96	224.48	840.57	502.13	338.44	2.484		
16,700.00	9,458.00	16,616.36	9,426.43	171.03	172.31	-87.85	-7,627.96	224.79	840.57	498.02	342.55	2.454		
16,800.00	9,457.80	16,716.36	9,426.15	173.08	174.38	-87.84	-7,727.96	225.10	840.58	493.91	346.67	2.425		
16,900.00	9,457.60	16,816.36	9,425.87	175.14	176.44	-87.84	-7,827.95	225.41	840.58	489.79	350.79	2.396		
17,000.00	9,457.40	16,916.36	9,425.59	177.19	178.51	-87.83	-7,927.95	225.72	840.59	485.66	354.92	2.368		
17,100.00	9,457.19	17,016.36	9,425.30	179.25	180.58	-87.83	-8,027.95	226.03	840.59	481.54	359.05	2.341		
17,200.00	9,456.99	17,116.36	9,425.02	181.31	182.65	-87.82	-8,127.95	226.34	840.59	477.40	363.19	2.314		
17,300.00	9,456.79	17,216.36	9,424.74	183.38	184.72	-87.81	-8,227.95	226.65	840.60	473.27	367.33	2.288		
17,400.00	9,456.59	17,316.36	9,424.45	185.44	186.80	-87.81	-8,327.95	226.95	840.60	469.13	371.47	2.263		
17,500.00	9,456.39	17,416.36	9,424.17	187.51	188.87	-87.80	-8,427.95	227.26	840.60	464.99	375.62	2.238		
17,600.00	9,456.19	17,516.36	9,423.89	189.58	190.95	-87.80	-8,527.95	227.57	840.61	460.84	379.77	2.213		
17,700.00	9,455.99	17,616.36	9,423.60	191.65	193.03	-87.79	-8,627.95	227.88	840.61	456.69	383.92	2.190		
17,800.00	9,455.78	17,716.36	9,423.32	193.73	195.12	-87.79	-8,727.95	228.19	840.61	452.54	388.08	2.166		
17,900.00	9,455.58	17,816.36	9,423.04	195.80	197.20	-87.78	-8,827.95	228.50	840.62	448.38	392.24	2.143		
18,000.00	9,455.38	17,916.36	9,422.75	197.88	199.28	-87.78	-8,927.94	228.81	840.62	444.22	396.40	2.121		
18,100.00	9,455.18	18,016.36	9,422.47	199.96	201.37	-87.77	-9,027.94	229.12	840.63	440.06	400.57	2.099		
18,200.00	9,454.98	18,116.36	9,422.19	202.04	203.46	-87.76	-9,127.94	229.43	840.63	435.89	404.74	2.077		
18,300.00	9,454.78	18,216.36	9,421.91	204.12	205.55	-87.76	-9,227.94	229.74	840.63	431.72	408.91	2.056		
18,400.00	9,454.57	18,316.36	9,421.62	206.20	207.64	-87.75	-9,327.94	230.04	840.64	427.55	413.09	2.035		
18,500.00	9,454.37	18,416.36	9,421.34	208.29	209.73	-87.75	-9,427.94	230.35	840.64	423.38	417.26	2.015		
18,600.00	9,454.17	18,516.36	9,421.06	210.38	211.82	-87.74	-9,527.94	230.66	840.64	419.20	421.44	1.995		
18,700.00	9,453.97	18,616.36	9,420.77	212.46	213.92	-87.74	-9,627.94	230.97	840.65	415.02	425.63	1.975		
18,800.00	9,453.77	18,716.36	9,420.49	214.55	216.02	-87.73	-9,727.94	231.28	840.65	410.84	429.81	1.956		
18,900.00	9,453.57	18,816.36	9,420.21	216.64	218.11	-87.73	-9,827.94	231.59	840.65	406.65	434.00	1.937		
19,000.00	9,453.37	18,916.36	9,419.92	218.74	220.21	-87.72	-9,927.94	231.90	840.66	402.47	438.19	1.918		
19,100.00	9,453.16	19,016.36	9,419.64	220.83	222.31	-87.71	-10,027.93	232.21	840.66	398.28	442.38	1.900		
19,200.00	9,452.96	19,116.36	9,419.36	222.92	224.41	-87.71	-10,127.93	232.52	840.67	394.09	446.58	1.882		
19,300.00	9,452.76	19,216.36	9,419.08	225.02	226.51	-87.70	-10,227.93	232.83	840.67	389.90	450.77	1.865		
19,400.00	9,452.56	19,316.36	9,418.79	227.11	228.61	-87.70	-10,327.93	233.13	840.67	385.70	454.97	1.848		
19,500.00	9,452.36	19,416.36	9,418.51	229.21	230.72	-87.69	-10,427.93	233.44	840.68	381.50	459.17	1.831		
19,600.00	9,452.16	19,516.36	9,418.23	231.31	232.82	-87.69	-10,527.93	233.75	840.68	377.30	463.38	1.814		
19,677.89	9,452.00	19,594.25	9,418.01	232.95	234.46	-87.68	-10,605.82	233.99	840.68	374.03	466.65	1.802		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		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)	+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	180.00	-25.00	0.00	25.00				
100.00	100.00	100.00	100.00	0.19	0.19	180.00	-25.00	0.00	25.00	24.61	0.39	64.574	
200.00	200.00	200.00	200.00	0.73	0.73	180.00	-25.00	0.00	25.00	23.54	1.46	17.093	
300.00	300.00	300.00	300.00	1.27	1.27	180.00	-25.00	0.00	25.00	22.46	2.54	9.850	
400.00	400.00	400.00	400.00	1.81	1.81	180.00	-25.00	0.00	25.00	21.39	3.61	6.919	
500.00	500.00	500.00	500.00	2.34	2.34	180.00	-25.00	0.00	25.00	20.31	4.69	5.332	
600.00	600.00	600.00	600.00	2.88	2.88	180.00	-25.00	0.00	25.00	19.24	5.76	4.337	
700.00	700.00	700.00	700.00	3.42	3.42	180.00	-25.00	0.00	25.00	18.16	6.84	3.655	
800.00	800.00	800.00	800.00	3.96	3.96	180.00	-25.00	0.00	25.00	17.08	7.92	3.159	
900.00	900.00	900.00	900.00	4.50	4.50	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-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	180.00	-25.00	0.00	25.00	6.33	18.67	1.339 Level 3	
1,900.00	1,899.98	1,899.83	1,899.81	9.85	9.86	-57.60	-25.33	-1.71	24.41	4.71	19.71	1.239 Level 2	
2,000.00	1,999.84	1,999.63	1,999.47	10.35	10.37	-55.87	-26.34	-6.82	22.67	1.97	20.70	1.095 Level 2	
2,100.00	2,099.45	2,099.39	2,098.85	10.86	10.88	-52.31	-28.01	-15.34	19.83	-1.87	21.70	0.914 Level 1	
2,200.00	2,198.70	2,199.08	2,197.79	11.38	11.40	-45.25	-30.34	-27.23	16.05	-6.63	22.68	0.708 Level 1	
2,300.00	2,297.47	2,298.68	2,296.16	11.90	11.94	-29.86	-33.34	-42.48	11.81	-11.77	23.58	0.501 Level 1	
2,366.98	2,363.43	2,365.33	2,361.66	12.26	12.30	-8.41	-35.71	-54.56	10.30	-13.88	24.18	0.426 Level 1, CC, ES, SF	
2,400.00	2,395.95	2,398.14	2,393.81	12.44	12.48	4.49	-36.98	-61.05	10.74	-13.77	24.51	0.438 Level 1	
2,500.00	2,494.43	2,497.29	2,490.43	12.99	13.05	31.22	-41.26	-82.86	16.90	-8.74	25.64	0.659 Level 1	
2,600.00	2,592.91	2,595.90	2,585.70	13.55	13.64	39.85	-46.15	-107.79	27.91	1.14	26.77	1.043 Level 2	
2,700.00	2,691.39	2,693.73	2,679.31	14.12	14.25	41.75	-51.63	-135.69	42.33	14.47	27.86	1.519	
2,800.00	2,789.87	2,790.57	2,770.95	14.69	14.89	41.45	-57.65	-166.39	59.89	30.95	28.94	2.069	
2,900.00	2,888.35	2,886.22	2,860.38	15.27	15.56	40.45	-64.18	-199.66	80.54	50.52	30.02	2.683	
3,000.00	2,986.84	2,980.49	2,947.37	15.85	16.27	39.25	-71.18	-235.31	104.25	73.16	31.09	3.353	
3,100.00	3,085.32	3,073.21	3,031.71	16.45	17.02	38.07	-78.59	-273.10	131.00	98.83	32.16	4.073	
3,200.00	3,183.80	3,164.23	3,113.25	17.04	17.80	36.97	-86.38	-312.77	160.72	127.48	33.23	4.836	
3,300.00	3,282.28	3,253.42	3,191.87	17.64	18.63	35.97	-94.48	-354.09	193.35	159.06	34.30	5.638	
3,400.00	3,380.76	3,340.66	3,267.46	18.24	19.48	35.07	-102.87	-396.82	228.83	193.47	35.35	6.472	
3,500.00	3,479.24	3,432.70	3,346.36	18.85	20.44	34.27	-112.00	-443.33	265.99	229.55	36.45	7.298	
3,600.00	3,577.72	3,525.48	3,425.89	19.45	21.44	33.66	-121.20	-490.22	303.21	265.66	37.55	8.075	
3,700.00	3,676.21	3,618.25	3,505.41	20.07	22.47	33.18	-130.40	-537.11	340.45	301.79	38.67	8.805	
3,800.00	3,774.69	3,711.02	3,584.93	20.68	23.53	32.80	-139.60	-584.00	377.71	337.92	39.80	9.491	
3,900.00	3,873.17	3,803.80	3,664.45	21.30	24.60	32.49	-148.80	-630.89	414.98	374.05	40.93	10.138	
4,000.00	3,971.65	3,896.57	3,743.97	21.91	25.70	32.23	-158.00	-677.79	452.26	410.18	42.08	10.748	
4,100.00	4,070.13	3,989.35	3,823.49	22.53	26.81	32.00	-167.20	-724.68	489.55	446.31	43.23	11.323	
4,200.00	4,168.61	4,082.12	3,903.01	23.15	27.94	31.81	-176.41	-771.57	526.84	482.44	44.40	11.867	
4,300.00	4,267.10	4,174.89	3,982.53	23.78	29.08	31.65	-185.61	-818.46	564.13	518.57	45.56	12.381	
4,400.00	4,365.58	4,267.67	4,062.05	24.40	30.23	31.50	-194.81	-865.35	601.43	554.69	46.74	12.868	
4,500.00	4,464.06	4,360.44	4,141.57	25.03	31.40	31.37	-204.01	-912.24	638.73	590.81	47.92	13.330	
4,600.00	4,562.54	4,453.21	4,221.09	25.66	32.57	31.26	-213.21	-959.13	676.04	626.93	49.10	13.768	
4,700.00	4,661.02	4,545.99	4,300.61	26.28	33.75	31.16	-222.41	-1,006.02	713.34	663.05	50.29	14.184	
4,800.00	4,759.50	4,638.76	4,380.13	26.91	34.93	31.07	-231.61	-1,052.91	750.65	699.16	51.49	14.579	
4,900.00	4,857.98	4,731.53	4,459.65	27.54	36.13	30.98	-240.82	-1,099.81	787.96	735.28	52.69	14.956	
5,000.00	4,956.47	4,831.55	4,545.44	28.17	37.41	30.90	-250.72	-1,150.26	825.19	771.26	53.94	15.299	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	
5,100.00	5,054.95	4,963.58	4,660.71	28.81	39.04	30.86	-263.11	-1,213.40	859.58	804.18	55.40	15.515	
5,200.00	5,153.43	5,099.80	4,782.62	29.44	40.61	30.91	-274.81	-1,273.01	889.62	832.71	56.91	15.633	
5,300.00	5,251.91	5,239.77	4,910.75	30.07	42.08	31.03	-285.65	-1,328.27	915.11	856.68	58.43	15.662	
5,400.00	5,350.40	5,382.96	5,044.51	30.71	43.46	31.26	-295.48	-1,378.38	935.91	875.96	59.95	15.611	
5,500.00	5,449.23	5,528.39	5,182.81	31.33	44.71	31.63	-304.14	-1,422.49	953.69	892.34	61.35	15.545	
5,600.00	5,548.53	5,675.58	5,324.91	31.91	45.84	31.89	-311.51	-1,460.07	969.46	906.81	62.65	15.475	
5,700.00	5,648.19	5,824.34	5,470.34	32.47	46.84	32.06	-317.53	-1,490.72	983.15	919.32	63.83	15.403	
5,800.00	5,748.07	5,974.49	5,618.56	33.00	47.71	32.13	-322.11	-1,514.10	994.71	929.81	64.90	15.327	
5,900.00	5,848.06	6,125.81	5,769.00	33.49	48.46	-89.78	-325.22	-1,529.93	1,004.05	939.30	64.75	15.507	
6,000.00	5,948.06	6,278.20	5,921.15	33.97	49.10	-89.87	-326.80	-1,537.96	1,009.32	943.33	65.99	15.295	
6,100.00	6,048.06	6,405.11	6,048.06	34.44	49.55	-89.89	-327.00	-1,539.00	1,010.00	942.93	67.08	15.058	
6,200.00	6,148.06	6,505.11	6,148.06	34.92	49.89	-89.89	-327.00	-1,539.00	1,010.00	941.97	68.03	14.846	
6,300.00	6,248.06	6,605.11	6,248.06	35.40	50.24	-89.89	-327.00	-1,539.00	1,010.00	941.01	68.99	14.640	
6,400.00	6,348.06	6,705.11	6,348.06	35.88	50.59	-89.89	-327.00	-1,539.00	1,010.00	940.05	69.95	14.438	
6,500.00	6,448.06	6,805.11	6,448.06	36.37	50.94	-89.89	-327.00	-1,539.00	1,010.00	939.08	70.92	14.242	
6,600.00	6,548.06	6,905.11	6,548.06	36.85	51.30	-89.89	-327.00	-1,539.00	1,010.00	938.11	71.89	14.050	
6,700.00	6,648.06	7,005.11	6,648.06	37.34	51.66	-89.89	-327.00	-1,539.00	1,010.00	937.14	72.86	13.862	
6,800.00	6,748.06	7,105.11	6,748.06	37.83	52.02	-89.89	-327.00	-1,539.00	1,010.00	936.17	73.83	13.679	
6,900.00	6,848.06	7,205.11	6,848.06	38.31	52.38	-89.89	-327.00	-1,539.00	1,010.00	935.19	74.81	13.501	
7,000.00	6,948.06	7,305.11	6,948.06	38.80	52.75	-89.89	-327.00	-1,539.00	1,010.00	934.21	75.79	13.326	
7,100.00	7,048.06	7,405.11	7,048.06	39.30	53.12	-89.89	-327.00	-1,539.00	1,010.00	933.23	76.77	13.156	
7,200.00	7,148.06	7,505.11	7,148.06	39.79	53.49	-89.89	-327.00	-1,539.00	1,010.00	932.24	77.76	12.989	
7,300.00	7,248.06	7,605.11	7,248.06	40.28	53.87	-89.89	-327.00	-1,539.00	1,010.00	931.26	78.74	12.826	
7,400.00	7,348.06	7,705.11	7,348.06	40.78	54.25	-89.89	-327.00	-1,539.00	1,010.00	930.27	79.73	12.667	
7,500.00	7,448.06	7,805.11	7,448.06	41.27	54.63	-89.89	-327.00	-1,539.00	1,010.00	929.28	80.73	12.512	
7,600.00	7,548.06	7,905.11	7,548.06	41.77	55.01	-89.89	-327.00	-1,539.00	1,010.00	928.28	81.72	12.360	
7,700.00	7,648.06	8,005.11	7,648.06	42.27	55.40	-89.89	-327.00	-1,539.00	1,010.00	927.29	82.71	12.211	
7,800.00	7,748.06	8,105.11	7,748.06	42.77	55.79	-89.89	-327.00	-1,539.00	1,010.00	926.29	83.71	12.065	
7,900.00	7,848.06	8,205.11	7,848.06	43.27	56.18	-89.89	-327.00	-1,539.00	1,010.00	925.29	84.71	11.923	
8,000.00	7,948.06	8,305.11	7,948.06	43.77	56.58	-89.89	-327.00	-1,539.00	1,010.00	924.29	85.71	11.784	
8,100.00	8,048.06	8,405.11	8,048.06	44.27	56.97	-89.89	-327.00	-1,539.00	1,010.00	923.29	86.72	11.647	
8,200.00	8,148.06	8,505.11	8,148.06	44.77	57.37	-89.89	-327.00	-1,539.00	1,010.00	922.28	87.72	11.514	
8,300.00	8,248.06	8,605.11	8,248.06	45.28	57.77	-89.89	-327.00	-1,539.00	1,010.00	921.28	88.73	11.383	
8,400.00	8,348.06	8,705.11	8,348.06	45.78	58.18	-89.89	-327.00	-1,539.00	1,010.00	920.27	89.73	11.255	
8,500.00	8,448.06	8,805.11	8,448.06	46.29	58.58	-89.89	-327.00	-1,539.00	1,010.00	919.26	90.74	11.130	
8,600.00	8,548.06	8,905.11	8,548.06	46.79	58.99	-89.89	-327.00	-1,539.00	1,010.00	918.25	91.75	11.008	
8,700.00	8,648.06	9,005.11	8,648.06	47.30	59.40	-89.89	-327.00	-1,539.00	1,010.00	917.23	92.77	10.887	
8,800.00	8,748.06	9,105.11	8,748.06	47.81	59.81	-89.89	-327.00	-1,539.00	1,010.00	916.22	93.78	10.770	
8,900.00	8,848.06	9,205.11	8,848.06	48.31	60.22	-89.89	-327.00	-1,539.00	1,010.00	915.21	94.80	10.654	
9,000.00	8,948.06	9,305.11	8,948.06	48.82	60.64	-89.89	-327.00	-1,539.00	1,010.00	914.19	95.81	10.541	
9,100.00	9,048.01	9,407.30	9,049.73	49.33	61.06	79.34	-335.75	-1,538.87	1,009.59	911.87	97.72	10.331	
9,200.00	9,146.57	9,507.54	9,146.42	49.87	61.47	79.07	-361.72	-1,538.49	1,006.40	907.34	99.06	10.160	
9,300.00	9,240.83	9,605.81	9,235.40	50.45	61.87	79.11	-403.13	-1,537.88	1,000.02	899.61	100.41	9.960	
9,400.00	9,327.92	9,702.13	9,314.50	51.06	62.25	79.45	-457.88	-1,537.07	990.65	888.86	101.79	9.732	
9,500.00	9,405.20	9,796.64	9,382.14	51.69	62.59	80.10	-523.73	-1,536.10	978.57	875.32	103.25	9.478	
9,600.00	9,470.32	9,889.53	9,437.20	52.36	62.91	81.05	-598.41	-1,535.00	964.11	859.28	104.84	9.196	
9,700.00	9,521.30	9,981.08	9,478.97	53.06	63.22	82.26	-679.76	-1,533.81	947.69	841.15	106.54	8.895	
9,800.00	9,556.60	10,071.60	9,507.02	53.81	63.51	83.73	-765.71	-1,532.54	929.77	821.46	108.31	8.585	
9,900.00	9,575.13	10,161.43	9,521.14	54.59	63.82	85.40	-854.32	-1,531.24	910.84	800.84	110.00	8.280	
10,000.00	9,577.07	10,254.06	9,522.12	55.39	64.16	86.67	-946.89	-1,529.87	891.59	780.15	111.44	8.001	
10,100.00	9,574.60	10,352.64	9,520.11	56.24	64.58	86.60	-1,045.43	-1,528.42	874.82	762.17	112.64	7.766	
10,200.00	9,572.13	10,451.74	9,518.08	57.14	65.05	86.54	-1,144.50	-1,526.96	861.48	747.57	113.92	7.562	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		
10,300.00	9,569.66	10,551.24	9,516.05	58.09	65.58	86.49	-1,243.98	-1,525.50	851.61	736.35	115.26	7.389		
10,400.00	9,567.19	10,651.03	9,514.02	59.08	66.18	86.45	-1,343.73	-1,524.03	845.21	728.55	116.66	7.245		
10,500.00	9,564.72	10,750.99	9,511.98	60.11	66.85	86.43	-1,443.66	-1,522.56	842.29	724.19	118.10	7.132		
10,558.25	9,563.28	10,809.24	9,510.79	60.73	67.27	86.43	-1,501.89	-1,521.70	841.80	722.57	119.23	7.060		
10,600.00	9,562.25	10,850.98	9,509.94	61.18	67.59	86.44	-1,543.62	-1,521.09	842.07	722.01	120.06	7.014		
10,700.00	9,559.79	10,950.98	9,507.89	62.30	68.39	86.47	-1,643.59	-1,519.62	842.03	719.68	122.35	6.882		
10,800.00	9,557.32	11,050.98	9,505.85	63.48	69.26	86.49	-1,743.56	-1,518.14	841.99	717.24	124.74	6.750		
10,900.00	9,554.86	11,150.98	9,503.81	64.71	70.20	86.52	-1,843.52	-1,516.67	841.95	714.71	127.24	6.617		
11,000.00	9,552.39	11,250.98	9,501.77	65.98	71.20	86.55	-1,943.49	-1,515.20	841.91	712.08	129.83	6.485		
11,100.00	9,549.93	11,350.98	9,499.73	67.30	72.26	86.58	-2,043.46	-1,513.73	841.87	709.36	132.51	6.353		
11,200.00	9,547.46	11,450.98	9,497.69	68.67	73.38	86.61	-2,143.43	-1,512.26	841.83	706.55	135.28	6.223		
11,300.00	9,545.00	11,550.98	9,495.65	70.07	74.56	86.64	-2,243.39	-1,510.79	841.79	703.67	138.12	6.094		
11,400.00	9,542.54	11,650.98	9,493.61	71.51	75.79	86.67	-2,343.36	-1,509.31	841.75	700.71	141.04	5.968		
11,500.00	9,540.07	11,750.98	9,491.57	72.99	77.08	86.70	-2,443.33	-1,507.84	841.72	697.68	144.03	5.844		
11,600.00	9,537.61	11,850.98	9,489.53	74.50	78.40	86.72	-2,543.30	-1,506.37	841.68	694.59	147.09	5.722		
11,700.00	9,535.14	11,950.97	9,487.49	76.04	79.77	86.75	-2,643.26	-1,504.90	841.64	691.44	150.20	5.603		
11,800.00	9,532.68	12,050.97	9,485.44	77.61	81.19	86.78	-2,743.23	-1,503.43	841.60	688.23	153.38	5.487		
11,900.00	9,530.21	12,150.97	9,483.40	79.21	82.64	86.81	-2,843.20	-1,501.95	841.57	684.96	156.61	5.374		
12,000.00	9,527.75	12,250.97	9,481.36	80.83	84.12	86.84	-2,943.17	-1,500.48	841.53	681.64	159.89	5.263		
12,100.00	9,525.28	12,350.97	9,479.32	82.48	85.64	86.87	-3,043.13	-1,499.01	841.49	678.28	163.21	5.156		
12,200.00	9,522.82	12,450.97	9,477.28	84.15	87.19	86.90	-3,143.10	-1,497.54	841.46	674.87	166.59	5.051		
12,300.00	9,520.36	12,550.97	9,475.24	85.85	88.77	86.93	-3,243.07	-1,496.07	841.42	671.42	170.00	4.949		
12,400.00	9,517.89	12,650.97	9,473.20	87.56	90.38	86.95	-3,343.04	-1,494.60	841.38	667.93	173.46	4.851		
12,500.00	9,515.43	12,750.97	9,471.16	89.29	92.01	86.98	-3,443.00	-1,493.12	841.35	664.40	176.95	4.755		
12,600.00	9,512.96	12,850.97	9,469.12	91.05	93.66	87.01	-3,542.97	-1,491.65	841.31	660.83	180.48	4.662		
12,700.00	9,510.50	12,950.97	9,467.08	92.82	95.34	87.04	-3,642.94	-1,490.18	841.28	657.24	184.04	4.571		
12,800.00	9,508.03	13,050.96	9,465.04	94.60	97.04	87.07	-3,742.91	-1,488.71	841.24	653.61	187.63	4.483		
12,900.00	9,505.57	13,150.96	9,462.99	96.40	98.76	87.10	-3,842.87	-1,487.24	841.21	649.95	191.26	4.398		
13,000.00	9,503.10	13,250.96	9,460.95	98.22	100.50	87.13	-3,942.84	-1,485.76	841.17	646.26	194.91	4.316		
13,100.00	9,500.64	13,350.96	9,458.91	100.05	102.26	87.16	-4,042.81	-1,484.29	841.14	642.55	198.59	4.236		
13,200.00	9,498.18	13,450.96	9,456.87	101.89	104.03	87.18	-4,142.78	-1,482.82	841.10	638.81	202.29	4.158		
13,300.00	9,495.71	13,550.96	9,454.83	103.74	105.81	87.21	-4,242.74	-1,481.35	841.07	635.05	206.02	4.083		
13,400.00	9,493.25	13,650.96	9,452.79	105.61	107.62	87.24	-4,342.71	-1,479.88	841.03	631.27	209.77	4.009		
13,500.00	9,490.78	13,750.96	9,450.75	107.49	109.43	87.27	-4,442.68	-1,478.41	841.00	627.46	213.54	3.938		
13,600.00	9,488.32	13,850.96	9,448.71	109.37	111.26	87.30	-4,542.65	-1,476.93	840.97	623.64	217.33	3.870		
13,700.00	9,485.85	13,950.96	9,446.67	111.27	113.10	87.33	-4,642.61	-1,475.46	840.93	619.80	221.14	3.803		
13,800.00	9,483.39	14,050.96	9,444.63	113.18	114.96	87.36	-4,742.58	-1,473.99	840.90	615.93	224.97	3.738		
13,900.00	9,480.92	14,150.95	9,442.59	115.09	116.82	87.39	-4,842.55	-1,472.52	840.87	612.06	228.81	3.675		
14,000.00	9,478.46	14,250.95	9,440.55	117.02	118.70	87.42	-4,942.52	-1,471.05	840.83	608.16	232.67	3.614		
14,100.00	9,476.00	14,350.95	9,438.50	118.95	120.58	87.44	-5,042.48	-1,469.58	840.80	604.25	236.55	3.554		
14,200.00	9,473.53	14,450.95	9,436.46	120.89	122.48	87.47	-5,142.45	-1,468.10	840.77	600.32	240.45	3.497		
14,300.00	9,471.07	14,550.95	9,434.42	122.84	124.38	87.50	-5,242.42	-1,466.63	840.74	596.39	244.35	3.441		
14,400.00	9,468.60	14,650.95	9,432.38	124.79	126.29	87.53	-5,342.38	-1,465.16	840.71	592.43	248.27	3.386		
14,500.00	9,466.14	14,750.95	9,430.34	126.75	128.22	87.56	-5,442.35	-1,463.69	840.67	588.47	252.21	3.333		
14,600.00	9,463.67	14,850.95	9,428.30	128.72	130.14	87.59	-5,542.32	-1,462.22	840.64	584.49	256.15	3.282		
14,607.67	9,463.49	14,858.62	9,428.14	128.87	130.29	87.59	-5,549.99	-1,462.10	840.64	584.16	256.48	3.278		
14,700.06	9,462.03	14,941.74	9,427.15	130.69	131.90	87.62	-5,633.10	-1,461.46	840.63	580.56	260.27	3.231		
14,800.00	9,461.83	15,041.68	9,426.50	132.67	133.84	87.59	-5,733.04	-1,461.15	840.65	576.61	264.23	3.182		
14,900.00	9,461.63	15,141.68	9,425.85	134.65	135.79	87.56	-5,833.03	-1,460.84	840.66	572.65	268.21	3.135		
15,000.00	9,461.43	15,241.68	9,425.21	136.63	137.75	87.53	-5,933.03	-1,460.53	840.68	568.69	272.20	3.089		
15,100.00	9,461.22	15,341.68	9,424.56	138.63	139.71	87.50	-6,033.03	-1,460.22	840.69	564.71	276.19	3.045		
15,200.00	9,461.02	15,441.68	9,423.91	140.62	141.67	87.47	-6,133.02	-1,459.91	840.92	560.72	280.19	3.001		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Centro +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,300.00	9,460.82	15,541.68	9,423.27	142.62	143.65	87.44	-6,233.02	-1,459.60	840.93	556.73	284.21	2.959	
15,400.00	9,460.62	15,641.68	9,422.62	144.63	145.63	87.41	-6,333.02	-1,459.29	840.95	552.72	288.23	2.918	
15,500.00	9,460.42	15,741.67	9,421.98	146.64	147.61	87.38	-6,433.01	-1,458.98	840.97	548.71	292.26	2.877	
15,600.00	9,460.22	15,841.67	9,421.33	148.65	149.60	87.35	-6,533.01	-1,458.66	840.99	544.69	296.30	2.838	
15,700.00	9,460.02	15,941.67	9,420.68	150.67	151.59	87.32	-6,633.01	-1,458.35	841.00	540.67	300.34	2.800	
15,800.00	9,459.81	16,041.67	9,420.04	152.69	153.59	87.29	-6,733.00	-1,458.04	841.02	536.63	304.39	2.763	
15,900.00	9,459.61	16,141.67	9,419.39	154.71	155.59	87.26	-6,833.00	-1,457.73	841.04	532.59	308.45	2.727	
16,000.00	9,459.41	16,241.67	9,418.74	156.74	157.60	87.23	-6,932.99	-1,457.42	841.06	528.55	312.51	2.691	
16,100.00	9,459.21	16,341.67	9,418.10	158.77	159.61	87.20	-7,032.99	-1,457.11	841.08	524.50	316.59	2.657	
16,200.00	9,459.01	16,441.67	9,417.45	160.81	161.62	87.17	-7,132.99	-1,456.80	841.10	520.44	320.66	2.623	
16,300.00	9,458.81	16,541.67	9,416.81	162.85	163.64	87.14	-7,232.98	-1,456.49	841.12	516.37	324.75	2.590	
16,400.00	9,458.60	16,641.67	9,416.16	164.89	165.66	87.11	-7,332.98	-1,456.18	841.14	512.31	328.83	2.558	
16,500.00	9,458.40	16,741.66	9,415.51	166.93	167.68	87.08	-7,432.98	-1,455.87	841.16	508.23	332.93	2.527	
16,600.00	9,458.20	16,841.66	9,414.87	168.98	169.71	87.05	-7,532.97	-1,455.56	841.18	504.15	337.03	2.496	
16,700.00	9,458.00	16,941.66	9,414.22	171.03	171.74	87.02	-7,632.97	-1,455.24	841.20	500.07	341.13	2.466	
16,800.00	9,457.80	17,041.66	9,413.57	173.08	173.78	86.99	-7,732.97	-1,454.93	841.22	495.98	345.24	2.437	
16,900.00	9,457.60	17,141.66	9,412.93	175.14	175.81	86.96	-7,832.96	-1,454.62	841.24	491.89	349.35	2.408	
17,000.00	9,457.40	17,241.66	9,412.28	177.19	177.85	86.93	-7,932.96	-1,454.31	841.27	487.80	353.47	2.380	
17,100.00	9,457.19	17,341.66	9,411.64	179.25	179.89	86.90	-8,032.96	-1,454.00	841.29	483.70	357.59	2.353	
17,200.00	9,456.99	17,441.66	9,410.99	181.31	181.94	86.87	-8,132.95	-1,453.69	841.31	479.59	361.72	2.326	
17,300.00	9,456.79	17,541.66	9,410.34	183.38	183.99	86.84	-8,232.95	-1,453.38	841.33	475.48	365.85	2.300	
17,400.00	9,456.59	17,641.66	9,409.70	185.44	186.04	86.80	-8,332.94	-1,453.07	841.35	471.37	369.98	2.274	
17,500.00	9,456.39	17,741.65	9,409.05	187.51	188.09	86.77	-8,432.94	-1,452.76	841.38	467.26	374.12	2.249	
17,600.00	9,456.19	17,841.65	9,408.40	189.58	190.15	86.74	-8,532.94	-1,452.45	841.40	463.14	378.26	2.224	
17,700.00	9,455.99	17,941.65	9,407.76	191.65	192.20	86.71	-8,632.93	-1,452.14	841.42	459.02	382.40	2.200	
17,800.00	9,455.78	18,041.65	9,407.11	193.73	194.26	86.68	-8,732.93	-1,451.83	841.44	454.90	386.55	2.177	
17,900.00	9,455.58	18,141.65	9,406.47	195.80	196.32	86.65	-8,832.93	-1,451.51	841.47	450.77	390.70	2.154	
18,000.00	9,455.38	18,241.65	9,405.82	197.88	198.39	86.62	-8,932.92	-1,451.20	841.49	446.64	394.85	2.131	
18,100.00	9,455.18	18,341.65	9,405.17	199.96	200.45	86.59	-9,032.92	-1,450.89	841.52	442.51	399.01	2.109	
18,200.00	9,454.98	18,441.65	9,404.53	202.04	202.52	86.56	-9,132.92	-1,450.58	841.54	438.37	403.17	2.087	
18,300.00	9,454.78	18,541.65	9,403.88	204.12	204.59	86.53	-9,232.91	-1,450.27	841.57	434.23	407.33	2.066	
18,400.00	9,454.57	18,641.65	9,403.23	206.20	206.66	86.50	-9,332.91	-1,449.96	841.59	430.09	411.50	2.045	
18,500.00	9,454.37	18,741.64	9,402.59	208.29	208.73	86.47	-9,432.91	-1,449.65	841.61	425.95	415.66	2.025	
18,600.00	9,454.17	18,841.64	9,401.94	210.38	210.81	86.44	-9,532.90	-1,449.34	841.64	421.81	419.83	2.005	
18,700.00	9,453.97	18,941.64	9,401.30	212.46	212.88	86.41	-9,632.90	-1,449.03	841.67	417.66	424.01	1.985	
18,800.00	9,453.77	19,041.64	9,400.65	214.55	214.96	86.38	-9,732.90	-1,448.72	841.69	413.51	428.18	1.966	
18,900.00	9,453.57	19,141.64	9,400.00	216.64	217.04	86.35	-9,832.89	-1,448.41	841.72	409.36	432.36	1.947	
19,000.00	9,453.37	19,241.64	9,399.36	218.74	219.12	86.32	-9,932.89	-1,448.10	841.74	405.21	436.54	1.928	
19,100.00	9,453.16	19,341.64	9,398.71	220.83	221.20	86.29	-10,032.88	-1,447.78	841.77	401.05	440.72	1.910	
19,200.00	9,452.96	19,441.64	9,398.06	222.92	223.29	86.26	-10,132.88	-1,447.47	841.80	396.90	444.90	1.892	
19,300.00	9,452.76	19,541.64	9,397.42	225.02	225.37	86.23	-10,232.88	-1,447.16	841.82	392.74	449.08	1.875	
19,400.00	9,452.56	19,641.64	9,396.77	227.11	227.46	86.20	-10,332.87	-1,446.85	841.85	388.58	453.27	1.857	
19,500.00	9,452.36	19,741.63	9,396.13	229.21	229.55	86.17	-10,432.87	-1,446.54	841.88	384.42	457.46	1.840	
19,600.00	9,452.16	19,841.63	9,395.48	231.31	231.64	86.14	-10,532.87	-1,446.23	841.90	380.26	461.65	1.824	
19,642.29	9,452.07	19,883.93	9,395.21	232.20	232.52	86.13	-10,575.16	-1,446.10	841.92	378.50	463.42	1.817	
19,677.89	9,452.00	19,915.77	9,395.00	232.95	233.19	86.12	-10,607.00	-1,446.00	841.93	377.10	464.83	1.811	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	103.93		-446.00	1,798.00	1,852.51				
100.00	100.00	90.60	90.60	0.19	0.17	103.93		-446.00	1,798.00	1,852.49	1,852.12	0.37	5,040.896	
200.00	200.00	190.60	190.60	0.73	0.68	103.93		-446.00	1,798.00	1,852.49	1,851.08	1.41	1,313.444	
300.00	300.00	290.60	290.60	1.27	1.22	103.93		-446.00	1,798.00	1,852.49	1,850.00	2.49	745.223	
400.00	400.00	390.60	390.60	1.81	1.75	103.93		-446.00	1,798.00	1,852.49	1,848.93	3.56	520.182	
500.00	500.00	490.60	490.60	2.34	2.29	103.93		-446.00	1,798.00	1,852.49	1,847.85	4.64	399.532	
600.00	600.00	590.60	590.60	2.88	2.83	103.93		-446.00	1,798.00	1,852.49	1,846.78	5.71	324.312	
700.00	700.00	690.60	690.60	3.42	3.37	103.93		-446.00	1,798.00	1,852.49	1,845.70	6.79	272.928	
800.00	800.00	790.60	790.60	3.96	3.91	103.93		-446.00	1,798.00	1,852.49	1,844.63	7.86	235.599	
900.00	900.00	890.60	890.60	4.50	4.44	103.93		-446.00	1,798.00	1,852.49	1,843.55	8.94	207.253	
1,000.00	1,000.00	990.60	990.60	5.03	4.98	103.93		-446.00	1,798.00	1,852.49	1,842.48	10.01	184.995	
1,100.00	1,100.00	1,090.60	1,090.60	5.57	5.52	103.93		-446.00	1,798.00	1,852.49	1,841.40	11.09	167.054	
1,200.00	1,200.00	1,190.60	1,190.60	6.11	6.06	103.93		-446.00	1,798.00	1,852.49	1,840.33	12.16	152.286	
1,300.00	1,300.00	1,290.60	1,290.60	6.65	6.59	103.93		-446.00	1,798.00	1,852.49	1,839.25	13.24	139.917	
1,400.00	1,400.00	1,390.60	1,390.60	7.18	7.13	103.93		-446.00	1,798.00	1,852.49	1,838.17	14.32	129.406	
1,500.00	1,500.00	1,490.60	1,490.60	7.72	7.67	103.93		-446.00	1,798.00	1,852.49	1,837.10	15.39	120.364	
1,600.00	1,600.00	1,590.60	1,590.60	8.26	8.21	103.93		-446.00	1,798.00	1,852.49	1,836.02	16.47	112.503	
1,700.00	1,700.00	1,690.60	1,690.60	8.80	8.74	103.93		-446.00	1,798.00	1,852.49	1,834.95	17.54	105.605	
1,800.00	1,800.00	1,790.60	1,790.60	9.33	9.28	103.93		-446.00	1,798.00	1,852.49	1,833.87	18.62	99.505	
1,900.00	1,899.98	2,053.77	2,053.43	9.85	10.66	-134.30		-444.38	1,786.89	1,849.71	1,829.21	20.50	90.225	
2,000.00	1,999.84	2,330.87	2,327.83	10.35	12.15	-134.66		-438.92	1,749.47	1,839.75	1,817.32	22.43	82.028	
2,100.00	2,099.45	2,505.67	2,498.68	10.86	13.14	-135.10		-433.59	1,712.95	1,824.25	1,800.43	23.82	76.573	
2,200.00	2,198.70	2,604.47	2,594.94	11.38	13.72	-135.51		-430.38	1,690.96	1,810.32	1,785.51	24.81	72.953	
2,300.00	2,297.47	2,703.39	2,691.33	11.90	14.32	-135.96		-427.16	1,668.93	1,798.90	1,773.09	25.81	69.709	
2,400.00	2,395.95	2,802.33	2,787.73	12.44	14.92	-136.29		-423.95	1,646.91	1,788.77	1,761.91	26.86	66.591	
2,500.00	2,494.43	2,901.27	2,884.13	12.99	15.54	-136.62		-420.73	1,624.88	1,778.71	1,750.78	27.93	63.686	
2,600.00	2,592.91	3,000.21	2,980.54	13.55	16.16	-136.96		-417.51	1,602.85	1,768.70	1,739.70	29.01	60.978	
2,700.00	2,691.39	3,099.15	3,076.94	14.12	16.79	-137.31		-414.30	1,580.82	1,758.76	1,728.67	30.09	58.449	
2,800.00	2,789.87	3,198.09	3,173.35	14.69	17.43	-137.66		-411.08	1,558.80	1,748.89	1,717.70	31.18	56.085	
2,900.00	2,888.35	3,297.03	3,269.75	15.27	18.07	-138.01		-407.87	1,536.77	1,739.07	1,706.79	32.28	53.873	
3,000.00	2,886.84	3,395.97	3,366.15	15.85	18.71	-138.36		-404.65	1,514.74	1,729.33	1,695.94	33.38	51.800	
3,100.00	3,085.32	3,494.91	3,462.56	16.45	19.37	-138.72		-401.44	1,492.71	1,719.65	1,685.16	34.49	49.855	
3,200.00	3,183.80	3,593.85	3,558.96	17.04	20.02	-139.08		-398.22	1,470.69	1,710.04	1,674.43	35.61	48.026	
3,300.00	3,282.28	3,692.79	3,655.37	17.64	20.68	-139.45		-395.01	1,448.66	1,700.50	1,663.78	36.72	46.306	
3,400.00	3,380.76	3,791.73	3,751.77	18.24	21.35	-139.82		-391.79	1,426.63	1,691.03	1,653.19	37.84	44.685	
3,500.00	3,479.24	3,890.67	3,848.17	18.85	22.01	-140.20		-388.58	1,404.60	1,681.63	1,642.67	38.97	43.156	
3,600.00	3,577.72	3,989.61	3,944.58	19.45	22.68	-140.58		-385.36	1,382.58	1,672.31	1,632.22	40.09	41.712	
3,700.00	3,676.21	4,088.55	4,040.98	20.07	23.35	-140.96		-382.15	1,360.55	1,663.06	1,621.84	41.22	40.346	
3,800.00	3,774.69	4,187.50	4,137.38	20.68	24.03	-141.35		-378.93	1,338.52	1,653.89	1,611.53	42.35	39.052	
3,900.00	3,873.17	4,286.44	4,233.79	21.30	24.70	-141.74		-375.72	1,316.49	1,644.79	1,601.31	43.48	37.826	
4,000.00	3,971.65	4,385.38	4,330.19	21.91	25.38	-142.14		-372.50	1,294.47	1,635.77	1,591.15	44.62	36.663	
4,100.00	4,070.13	4,484.32	4,426.60	22.53	26.06	-142.54		-369.29	1,272.44	1,626.83	1,581.08	45.75	35.558	
4,200.00	4,168.61	4,583.26	4,523.00	23.15	26.74	-142.94		-366.07	1,250.41	1,617.97	1,571.08	46.89	34.507	
4,300.00	4,267.10	4,682.20	4,619.40	23.78	27.43	-143.35		-362.86	1,228.38	1,609.20	1,561.17	48.03	33.507	
4,400.00	4,365.58	4,781.14	4,715.81	24.40	28.11	-143.77		-359.64	1,206.36	1,600.50	1,551.34	49.16	32.554	
4,500.00	4,464.06	4,880.08	4,812.21	25.03	28.80	-144.18		-356.42	1,184.33	1,591.89	1,541.59	50.30	31.646	
4,600.00	4,562.54	4,979.02	4,908.62	25.66	29.48	-144.61		-353.21	1,162.30	1,583.37	1,531.93	51.44	30.778	
4,700.00	4,661.02	5,077.96	5,005.02	26.28	30.17	-145.03		-349.99	1,140.28	1,574.94	1,522.35	52.59	29.950	
4,800.00	4,759.50	5,176.90	5,101.42	26.91	30.86	-145.47		-346.78	1,118.25	1,566.59	1,512.87	53.73	29.158	
4,900.00	4,857.98	5,275.84	5,197.83	27.54	31.55	-145.90		-343.56	1,096.22	1,558.34	1,503.47	54.87	28.400	
5,000.00	4,956.47	5,350.43	5,270.58	28.17	32.07	-146.23		-341.19	1,079.96	1,550.73	1,494.85	55.88	27.753	
5,100.00	5,054.95	5,400.00	5,319.14	28.81	32.41	-146.45		-339.75	1,070.09	1,545.43	1,488.69	56.74	27.238	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,153.43	5,479.56	5,397.41	29.44	32.92	-146.79	-337.69	1,056.00	1,542.23	1,484.46	57.76	26.699	
5,283.64	5,235.80	5,533.70	5,450.89	29.97	33.26	-147.02	-336.47	1,047.65	1,541.42	1,482.87	58.55	26.327	CC
5,300.00	5,251.91	5,544.29	5,461.37	30.07	33.32	-147.07	-336.25	1,046.13	1,541.45	1,482.75	58.70	26.259	
5,400.00	5,350.40	5,600.00	5,516.58	30.71	33.66	-147.30	-335.18	1,038.78	1,543.00	1,483.40	59.60	25.891	
5,500.00	5,449.23	5,673.91	5,590.03	31.33	34.08	-147.59	-333.99	1,030.67	1,544.94	1,484.36	60.59	25.500	
5,600.00	5,548.53	5,738.89	5,654.76	31.91	34.44	-147.78	-333.18	1,025.09	1,546.27	1,484.80	61.46	25.157	
5,700.00	5,648.19	5,800.00	5,715.74	32.47	34.77	-147.91	-332.61	1,021.17	1,546.92	1,484.67	62.25	24.849	
5,800.00	5,748.07	5,869.08	5,784.76	33.00	35.11	-147.99	-332.19	1,018.28	1,546.86	1,483.85	63.01	24.549	
5,900.00	5,848.06	5,934.25	5,849.92	33.49	35.43	90.11	-332.01	1,017.08	1,546.12	1,482.51	63.61	24.306	
5,949.27	5,897.32	5,972.26	5,887.92	33.73	35.61	90.11	-332.00	1,017.00	1,546.00	1,481.96	64.05	24.139	
6,000.00	5,948.06	6,022.99	5,938.66	33.97	35.85	90.11	-332.00	1,017.00	1,546.00	1,481.45	64.55	23.949	
6,100.00	6,048.06	6,122.99	6,038.66	34.44	36.31	90.11	-332.00	1,017.00	1,546.00	1,480.45	65.55	23.584	
6,200.00	6,148.06	6,222.99	6,138.66	34.92	36.78	90.11	-332.00	1,017.00	1,546.00	1,479.45	66.55	23.229	
6,300.00	6,248.06	6,322.99	6,238.66	35.40	37.25	90.11	-332.00	1,017.00	1,546.00	1,478.44	67.56	22.884	
6,400.00	6,348.06	6,422.99	6,338.66	35.88	37.72	90.11	-332.00	1,017.00	1,546.00	1,477.44	68.57	22.548	
6,500.00	6,448.06	6,522.99	6,438.66	36.37	38.19	90.11	-332.00	1,017.00	1,546.00	1,476.43	69.57	22.221	
6,600.00	6,548.06	6,622.99	6,538.66	36.85	38.67	90.11	-332.00	1,017.00	1,546.00	1,475.42	70.58	21.903	
6,700.00	6,648.06	6,722.99	6,638.66	37.34	39.15	90.11	-332.00	1,017.00	1,546.00	1,474.41	71.60	21.593	
6,800.00	6,748.06	6,822.99	6,738.66	37.83	39.62	90.11	-332.00	1,017.00	1,546.00	1,473.39	72.61	21.292	
6,900.00	6,848.06	6,922.99	6,838.66	38.31	40.10	90.11	-332.00	1,017.00	1,546.00	1,472.38	73.63	20.998	
7,000.00	6,948.06	7,022.99	6,938.66	38.80	40.59	90.11	-332.00	1,017.00	1,546.00	1,471.36	74.64	20.711	
7,100.00	7,048.06	7,122.99	7,038.66	39.30	41.07	90.11	-332.00	1,017.00	1,546.00	1,470.34	75.66	20.432	
7,200.00	7,148.06	7,222.99	7,138.66	39.79	41.55	90.11	-332.00	1,017.00	1,546.00	1,469.32	76.68	20.161	
7,300.00	7,248.06	7,322.99	7,238.66	40.28	42.04	90.11	-332.00	1,017.00	1,546.00	1,468.30	77.71	19.895	
7,400.00	7,348.06	7,422.99	7,338.66	40.78	42.52	90.11	-332.00	1,017.00	1,546.00	1,467.27	78.73	19.637	
7,500.00	7,448.06	7,522.99	7,438.66	41.27	43.01	90.11	-332.00	1,017.00	1,546.00	1,466.25	79.76	19.384	
7,600.00	7,548.06	7,622.99	7,538.66	41.77	43.50	90.11	-332.00	1,017.00	1,546.00	1,465.22	80.78	19.138	
7,700.00	7,648.06	7,722.99	7,638.66	42.27	43.99	90.11	-332.00	1,017.00	1,546.00	1,464.19	81.81	18.898	
7,800.00	7,748.06	7,822.99	7,738.66	42.77	44.48	90.11	-332.00	1,017.00	1,546.00	1,463.16	82.84	18.663	
7,900.00	7,848.06	7,922.99	7,838.66	43.27	44.97	90.11	-332.00	1,017.00	1,546.00	1,462.13	83.87	18.434	
8,000.00	7,948.06	8,022.99	7,938.66	43.77	45.47	90.11	-332.00	1,017.00	1,546.00	1,461.10	84.90	18.210	
8,100.00	8,048.06	8,122.99	8,038.66	44.27	45.96	90.11	-332.00	1,017.00	1,546.00	1,460.07	85.93	17.991	
8,200.00	8,148.06	8,222.99	8,138.66	44.77	46.46	90.11	-332.00	1,017.00	1,546.00	1,459.04	86.96	17.777	
8,300.00	8,248.06	8,322.99	8,238.66	45.28	46.95	90.11	-332.00	1,017.00	1,546.00	1,458.00	88.00	17.568	
8,400.00	8,348.06	8,422.99	8,338.66	45.78	47.45	90.11	-332.00	1,017.00	1,546.00	1,456.97	89.03	17.364	
8,500.00	8,448.06	8,522.99	8,438.66	46.29	47.95	90.11	-332.00	1,017.00	1,546.00	1,455.93	90.07	17.164	
8,600.00	8,548.06	8,622.99	8,538.66	46.79	48.45	90.11	-332.00	1,017.00	1,546.00	1,454.90	91.11	16.969	
8,700.00	8,648.06	8,722.99	8,638.66	47.30	48.95	90.11	-332.00	1,017.00	1,546.00	1,453.86	92.15	16.778	
8,800.00	8,748.06	8,822.99	8,738.66	47.81	49.45	90.11	-332.00	1,017.00	1,546.00	1,452.82	93.18	16.591	
8,900.00	8,848.06	8,922.99	8,838.66	48.31	49.95	90.11	-332.00	1,017.00	1,546.00	1,451.78	94.22	16.408	
9,000.00	8,948.06	9,022.99	8,938.66	48.82	50.45	90.11	-332.00	1,017.00	1,546.00	1,450.74	95.26	16.229	
9,036.01	8,984.06	9,059.00	8,974.66	49.01	50.63	-100.30	-332.00	1,017.00	1,546.09	1,450.38	95.71	16.154	
9,100.00	9,048.01	9,122.95	9,038.61	49.33	50.95	-100.32	-332.00	1,017.00	1,546.29	1,449.87	96.43	16.036	
9,200.00	9,146.57	9,221.45	9,137.09	49.87	51.43	-100.56	-333.27	1,017.01	1,549.28	1,451.68	97.60	15.874	
9,300.00	9,240.83	9,320.99	9,235.33	50.45	51.88	-100.58	-348.45	1,017.15	1,555.63	1,456.94	98.69	15.763	
9,400.00	9,327.92	9,423.54	9,332.23	51.06	52.30	-100.29	-381.61	1,017.47	1,565.18	1,465.43	99.75	15.691	
9,500.00	9,405.20	9,529.19	9,424.23	51.69	52.67	-99.69	-433.25	1,017.95	1,577.61	1,476.78	100.84	15.645	
9,600.00	9,470.32	9,637.96	9,507.40	52.36	52.98	-98.78	-503.09	1,018.60	1,592.52	1,490.50	102.02	15.610	
9,700.00	9,521.30	9,749.78	9,577.58	53.06	53.23	-97.61	-589.91	1,019.42	1,609.40	1,506.07	103.33	15.576	
9,800.00	9,556.60	9,864.45	9,630.65	53.81	53.42	-96.20	-691.34	1,020.37	1,627.69	1,522.94	104.75	15.538	
9,900.00	9,575.13	9,981.65	9,662.96	54.59	53.62	-94.59	-803.78	1,021.42	1,646.79	1,540.57	106.22	15.504	
10,000.00	9,577.07	10,099.71	9,671.75	55.39	53.90	-93.38	-921.30	1,022.52	1,665.89	1,558.30	107.59	15.484	

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
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 Reference Well: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		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	
10,100.00	9,574.60	10,198.37	9,669.88	56.24	54.25	-93.40	-1,019.95	1,023.45	1,682.15	1,573.34	108.81	15.460	
10,200.00	9,572.13	10,297.54	9,667.99	57.14	54.71	-93.43	-1,119.09	1,024.38	1,694.96	1,584.85	110.11	15.393	
10,300.00	9,569.66	10,397.10	9,666.10	58.09	55.28	-93.46	-1,218.63	1,025.31	1,704.31	1,592.81	111.50	15.285	
10,400.00	9,567.19	10,496.92	9,664.20	59.08	55.95	-93.51	-1,318.43	1,026.25	1,710.19	1,597.22	112.97	15.139	
10,500.00	9,564.72	10,596.89	9,662.30	60.11	56.70	-93.57	-1,418.37	1,027.18	1,712.58	1,598.09	114.49	14.958	
10,600.00	9,562.25	10,696.88	9,660.40	61.18	57.54	-93.61	-1,518.35	1,028.12	1,712.28	1,595.94	116.34	14.718	
10,700.00	9,559.79	10,796.88	9,658.50	62.30	58.45	-93.63	-1,618.32	1,029.06	1,711.80	1,593.36	118.44	14.453	
10,800.00	9,557.32	10,896.88	9,656.60	63.48	59.42	-93.65	-1,718.29	1,029.99	1,711.31	1,590.66	120.65	14.184	
10,900.00	9,554.86	10,996.87	9,654.71	64.71	60.46	-93.67	-1,818.27	1,030.93	1,710.83	1,587.85	122.98	13.912	
11,000.00	9,552.39	11,096.87	9,652.81	65.98	61.56	-93.69	-1,918.24	1,031.87	1,710.34	1,584.94	125.41	13.639	
11,100.00	9,549.93	11,196.87	9,650.91	67.30	62.71	-93.71	-2,018.22	1,032.80	1,709.86	1,581.93	127.93	13.365	
11,200.00	9,547.46	11,296.87	9,649.01	68.67	63.92	-93.73	-2,118.19	1,033.74	1,709.38	1,578.82	130.56	13.093	
11,300.00	9,545.00	11,396.86	9,647.11	70.07	65.18	-93.75	-2,218.17	1,034.68	1,708.89	1,575.63	133.27	12.823	
11,400.00	9,542.54	11,496.86	9,645.21	71.51	66.48	-93.77	-2,318.14	1,035.62	1,708.41	1,572.35	136.06	12.556	
11,500.00	9,540.07	11,596.86	9,643.31	72.99	67.83	-93.79	-2,418.12	1,036.55	1,707.93	1,569.00	138.93	12.293	
11,600.00	9,537.61	11,696.85	9,641.41	74.50	69.22	-93.81	-2,518.09	1,037.49	1,707.44	1,565.57	141.87	12.035	
11,700.00	9,535.14	11,796.85	9,639.51	76.04	70.64	-93.83	-2,618.07	1,038.43	1,706.96	1,562.08	144.89	11.781	
11,800.00	9,532.68	11,896.85	9,637.61	77.61	72.11	-93.85	-2,718.04	1,039.36	1,706.48	1,558.52	147.96	11.533	
11,900.00	9,530.21	11,996.85	9,635.71	79.21	73.60	-93.87	-2,818.02	1,040.30	1,706.00	1,554.90	151.10	11.290	
12,000.00	9,527.75	12,096.84	9,633.81	80.83	75.13	-93.89	-2,917.99	1,041.24	1,705.52	1,551.22	154.29	11.054	
12,100.00	9,525.28	12,196.84	9,631.91	82.48	76.69	-93.91	-3,017.96	1,042.17	1,705.03	1,547.49	157.54	10.823	
12,200.00	9,522.82	12,296.84	9,630.01	84.15	78.28	-93.93	-3,117.94	1,043.11	1,704.55	1,543.71	160.84	10.598	
12,300.00	9,520.36	12,396.83	9,628.11	85.85	79.89	-93.95	-3,217.91	1,044.05	1,704.07	1,539.89	164.18	10.379	
12,400.00	9,517.89	12,496.83	9,626.21	87.56	81.53	-93.97	-3,317.89	1,044.99	1,703.59	1,536.02	167.57	10.166	
12,500.00	9,515.43	12,596.83	9,624.31	89.29	83.20	-93.99	-3,417.86	1,045.92	1,703.11	1,532.11	171.00	9.960	
12,600.00	9,512.96	12,696.82	9,622.41	91.05	84.88	-94.01	-3,517.84	1,046.86	1,702.63	1,528.16	174.47	9.759	
12,700.00	9,510.50	12,796.82	9,620.51	92.82	86.59	-94.03	-3,617.81	1,047.80	1,702.15	1,524.17	177.98	9.564	
12,800.00	9,508.03	12,896.82	9,618.61	94.60	88.31	-94.05	-3,717.79	1,048.73	1,701.67	1,520.15	181.52	9.375	
12,900.00	9,505.57	12,996.82	9,616.71	96.40	90.06	-94.07	-3,817.76	1,049.67	1,701.19	1,516.10	185.09	9.191	
13,000.00	9,503.10	13,096.81	9,614.81	98.22	91.82	-94.09	-3,917.74	1,050.61	1,700.71	1,512.02	188.69	9.013	
13,100.00	9,500.64	13,196.81	9,612.91	100.05	93.60	-94.11	-4,017.71	1,051.54	1,700.23	1,507.91	192.32	8.840	
13,200.00	9,498.18	13,296.81	9,611.01	101.89	95.39	-94.13	-4,117.68	1,052.48	1,699.75	1,503.77	195.98	8.673	
13,300.00	9,495.71	13,396.80	9,609.11	103.74	97.20	-94.15	-4,217.66	1,053.42	1,699.27	1,499.60	199.67	8.510	
13,400.00	9,493.25	13,496.80	9,607.21	105.61	99.02	-94.17	-4,317.63	1,054.36	1,698.79	1,495.41	203.38	8.353	
13,500.00	9,490.78	13,596.80	9,605.31	107.49	100.86	-94.19	-4,417.61	1,055.29	1,698.31	1,491.20	207.11	8.200	
13,600.00	9,488.32	13,696.80	9,603.41	109.37	102.71	-94.21	-4,517.58	1,056.23	1,697.83	1,486.97	210.87	8.052	
13,700.00	9,485.85	13,796.79	9,601.51	111.27	104.57	-94.23	-4,617.56	1,057.17	1,697.36	1,482.71	214.64	7.908	
13,800.00	9,483.39	13,896.79	9,599.61	113.18	106.44	-94.25	-4,717.53	1,058.10	1,696.88	1,478.44	218.44	7.768	
13,900.00	9,480.92	13,996.79	9,597.71	115.09	108.32	-94.27	-4,817.51	1,059.04	1,696.40	1,474.15	222.25	7.633	
14,000.00	9,478.46	14,096.78	9,595.81	117.02	110.21	-94.29	-4,917.48	1,059.98	1,695.92	1,469.84	226.08	7.501	
14,100.00	9,476.00	14,196.78	9,593.91	118.95	112.11	-94.31	-5,017.46	1,060.91	1,695.44	1,465.51	229.93	7.374	
14,200.00	9,473.53	14,296.78	9,592.01	120.89	114.02	-94.33	-5,117.43	1,061.85	1,694.97	1,461.17	233.80	7.250	
14,300.00	9,471.07	14,396.77	9,590.11	122.84	115.94	-94.36	-5,217.41	1,062.79	1,694.49	1,456.82	237.67	7.129	
14,400.00	9,468.60	14,496.77	9,588.21	124.79	117.87	-94.38	-5,317.38	1,063.73	1,694.01	1,452.45	241.57	7.013	
14,500.00	9,466.14	14,596.77	9,586.31	126.75	119.81	-94.40	-5,417.35	1,064.66	1,693.54	1,448.06	245.48	6.899	
14,600.00	9,463.67	14,696.77	9,584.41	128.72	121.75	-94.42	-5,517.33	1,065.60	1,693.06	1,443.66	249.40	6.789	
14,674.04	9,462.47	14,773.00	9,583.16	130.18	123.23	-94.41	-5,593.55	1,066.28	1,692.95	1,440.45	252.51	6.705	
14,700.06	9,462.03	14,799.27	9,582.99	130.69	123.75	-94.42	-5,619.82	1,066.46	1,692.88	1,439.29	253.59	6.676	
14,800.00	9,461.83	14,899.21	9,582.38	132.67	125.70	-94.40	-5,719.76	1,067.15	1,693.23	1,435.71	257.52	6.575	
14,900.00	9,461.63	14,999.21	9,581.77	134.65	127.66	-94.39	-5,819.75	1,067.84	1,693.58	1,432.11	261.47	6.477	
15,000.00	9,461.43	15,099.21	9,581.17	136.63	129.63	-94.37	-5,919.74	1,068.54	1,693.93	1,428.50	265.44	6.382	
15,100.00	9,461.22	15,199.21	9,580.56	138.63	131.60	-94.36	-6,019.74	1,069.23	1,694.29	1,424.88	269.41	6.289	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)
15,200.00	9,461.02	15,299.21	9,579.95	140.62	133.58	-94.34	-6,119.73	1,069.92	1,694.64	1,421.25	273.39	6.199	
15,300.00	9,460.82	15,399.20	9,579.34	142.62	135.56	-94.33	-6,219.73	1,070.61	1,694.99	1,417.61	277.38	6.111	
15,400.00	9,460.62	15,499.20	9,578.73	144.63	137.55	-94.31	-6,319.72	1,071.31	1,695.34	1,413.96	281.39	6.025	
15,500.00	9,460.42	15,599.20	9,578.12	146.64	139.55	-94.30	-6,419.72	1,072.00	1,695.69	1,410.30	285.40	5.942	
15,600.00	9,460.22	15,699.20	9,577.51	148.65	141.55	-94.28	-6,519.71	1,072.69	1,696.05	1,406.63	289.41	5.860	
15,700.00	9,460.02	15,799.20	9,576.90	150.67	143.55	-94.27	-6,619.70	1,073.38	1,696.40	1,402.96	293.44	5.781	
15,800.00	9,459.81	15,899.20	9,576.29	152.69	145.56	-94.25	-6,719.70	1,074.08	1,696.75	1,399.27	297.48	5.704	
15,900.00	9,459.61	15,999.19	9,575.68	154.71	147.57	-94.24	-6,819.69	1,074.77	1,697.10	1,395.58	301.52	5.628	
16,000.00	9,459.41	16,099.19	9,575.07	156.74	149.59	-94.22	-6,919.69	1,075.46	1,697.46	1,391.89	305.57	5.555	
16,100.00	9,459.21	16,199.19	9,574.46	158.77	151.61	-94.21	-7,019.68	1,076.15	1,697.81	1,388.18	309.63	5.483	
16,200.00	9,459.01	16,299.19	9,573.85	160.81	153.63	-94.20	-7,119.68	1,076.85	1,698.16	1,384.47	313.69	5.413	
16,300.00	9,458.81	16,399.19	9,573.25	162.85	155.66	-94.18	-7,219.67	1,077.54	1,698.52	1,380.75	317.76	5.345	
16,400.00	9,458.60	16,499.19	9,572.64	164.89	157.69	-94.17	-7,319.66	1,078.23	1,698.87	1,377.03	321.84	5.279	
16,500.00	9,458.40	16,599.19	9,572.03	166.93	159.73	-94.15	-7,419.66	1,078.92	1,699.22	1,373.30	325.92	5.214	
16,600.00	9,458.20	16,699.18	9,571.42	168.98	161.76	-94.14	-7,519.65	1,079.62	1,699.58	1,369.56	330.01	5.150	
16,700.00	9,458.00	16,799.18	9,570.81	171.03	163.80	-94.12	-7,619.65	1,080.31	1,699.93	1,365.82	334.11	5.088	
16,800.00	9,457.80	16,899.18	9,570.20	173.08	165.85	-94.11	-7,719.64	1,081.00	1,700.28	1,362.08	338.21	5.027	
16,900.00	9,457.60	16,999.18	9,569.59	175.14	167.89	-94.09	-7,819.63	1,081.69	1,700.64	1,358.33	342.31	4.968	
17,000.00	9,457.40	17,099.18	9,568.98	177.19	169.94	-94.08	-7,919.63	1,082.38	1,700.99	1,354.57	346.42	4.910	
17,100.00	9,457.19	17,199.18	9,568.37	179.25	171.99	-94.06	-8,019.62	1,083.08	1,701.34	1,350.81	350.53	4.854	
17,200.00	9,456.99	17,299.17	9,567.76	181.31	174.05	-94.05	-8,119.62	1,083.77	1,701.70	1,347.04	354.65	4.798	
17,300.00	9,456.79	17,399.17	9,567.15	183.38	176.11	-94.03	-8,219.61	1,084.46	1,702.05	1,343.27	358.78	4.744	
17,400.00	9,456.59	17,499.17	9,566.54	185.44	178.17	-94.02	-8,319.61	1,085.15	1,702.41	1,339.50	362.91	4.691	
17,500.00	9,456.39	17,599.17	9,565.93	187.51	180.23	-94.01	-8,419.60	1,085.85	1,702.76	1,335.72	367.04	4.639	
17,600.00	9,456.19	17,699.17	9,565.32	189.58	182.29	-93.99	-8,519.59	1,086.54	1,703.12	1,331.94	371.17	4.588	
17,700.00	9,455.99	17,799.17	9,564.72	191.65	184.36	-93.98	-8,619.59	1,087.23	1,703.47	1,328.15	375.32	4.539	
17,800.00	9,455.78	17,899.16	9,564.11	193.73	186.42	-93.96	-8,719.58	1,087.92	1,703.82	1,324.36	379.46	4.490	
17,900.00	9,455.58	17,999.16	9,563.50	195.80	188.49	-93.95	-8,819.58	1,088.62	1,704.18	1,320.57	383.61	4.443	
18,000.00	9,455.38	18,099.16	9,562.89	197.88	190.57	-93.93	-8,919.57	1,089.31	1,704.53	1,316.77	387.76	4.396	
18,100.00	9,455.18	18,199.16	9,562.28	199.96	192.64	-93.92	-9,019.56	1,090.00	1,704.89	1,312.97	391.91	4.350	
18,200.00	9,454.98	18,299.16	9,561.67	202.04	194.72	-93.90	-9,119.56	1,090.69	1,705.24	1,309.17	396.07	4.305	
18,300.00	9,454.78	18,399.16	9,561.06	204.12	196.79	-93.89	-9,219.55	1,091.39	1,705.60	1,305.37	400.23	4.262	
18,400.00	9,454.57	18,499.16	9,560.45	206.20	198.87	-93.87	-9,319.55	1,092.08	1,705.96	1,301.56	404.40	4.218	
18,500.00	9,454.37	18,599.15	9,559.84	208.29	200.95	-93.86	-9,419.54	1,092.77	1,706.31	1,297.74	408.57	4.176	
18,600.00	9,454.17	18,699.15	9,559.23	210.38	203.03	-93.85	-9,519.54	1,093.46	1,706.67	1,293.93	412.74	4.135	
18,700.00	9,453.97	18,799.15	9,558.62	212.46	205.12	-93.83	-9,619.53	1,094.16	1,707.02	1,290.11	416.91	4.094	
18,800.00	9,453.77	18,899.15	9,558.01	214.55	207.20	-93.82	-9,719.52	1,094.85	1,707.38	1,286.29	421.09	4.055	
18,900.00	9,453.57	18,999.15	9,557.40	216.64	209.29	-93.80	-9,819.52	1,095.54	1,707.73	1,282.47	425.27	4.016	
19,000.00	9,453.37	19,099.15	9,556.80	218.74	211.38	-93.79	-9,919.51	1,096.23	1,708.09	1,278.64	429.45	3.977	
19,100.00	9,453.16	19,199.14	9,556.19	220.83	213.47	-93.77	-10,019.51	1,096.93	1,708.45	1,274.81	433.63	3.940	
19,200.00	9,452.96	19,299.14	9,555.58	222.92	215.56	-93.76	-10,119.50	1,097.62	1,708.80	1,270.98	437.82	3.903	
19,300.00	9,452.76	19,399.14	9,554.97	225.02	217.65	-93.74	-10,219.49	1,098.31	1,709.16	1,267.15	442.01	3.867	
19,400.00	9,452.56	19,499.14	9,554.36	227.11	219.74	-93.73	-10,319.49	1,099.00	1,709.51	1,263.31	446.20	3.831	
19,500.00	9,452.36	19,599.14	9,553.75	229.21	221.84	-93.71	-10,419.48	1,099.69	1,709.87	1,259.47	450.40	3.796	
19,600.00	9,452.16	19,699.14	9,553.14	231.31	223.94	-93.70	-10,519.48	1,100.39	1,710.23	1,255.63	454.59	3.762	
19,677.89	9,452.00	19,777.03	9,552.67	232.95	225.57	-93.69	-10,597.36	1,100.93	1,710.51	1,252.64	457.86	3.736 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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	Warning
0.00	0.00	9.00	9.00	0.00	0.02	151.80	-835.37	447.89	947.86				
100.00	100.00	109.00	109.00	0.19	0.24	151.80	-835.37	447.89	947.86	947.43	0.44	2,176.281	
200.00	200.00	209.00	209.00	0.73	0.78	151.80	-835.37	447.89	947.86	946.35	1.51	627.327	
300.00	300.00	309.00	309.00	1.27	1.32	151.80	-835.37	447.89	947.86	945.28	2.59	366.484	
400.00	400.00	409.00	409.00	1.81	1.86	151.80	-835.37	447.89	947.86	944.20	3.66	258.853	
500.00	500.00	509.00	509.00	2.34	2.39	151.80	-835.37	447.89	947.86	943.13	4.74	200.090	
600.00	600.00	613.39	613.39	2.88	2.95	151.80	-835.34	447.87	947.84	942.01	5.84	162.412	
700.00	700.00	762.01	761.93	3.42	3.76	151.77	-831.08	446.28	944.81	937.64	7.17	131.752	
800.00	800.00	906.58	906.00	3.96	4.54	151.67	-820.03	442.13	936.67	928.18	8.49	110.336	
900.00	900.00	1,006.04	1,004.91	4.50	5.08	151.58	-810.30	438.48	926.31	916.74	9.57	96.791	
1,000.00	1,000.00	1,105.49	1,103.81	5.03	5.63	151.49	-800.57	434.83	915.96	905.30	10.66	85.965	
1,100.00	1,100.00	1,204.94	1,202.72	5.57	6.19	151.40	-790.84	431.18	905.61	893.87	11.74	77.118	
1,200.00	1,200.00	1,304.39	1,301.63	6.11	6.74	151.31	-781.11	427.53	895.26	882.43	12.83	69.757	
1,300.00	1,300.00	1,403.85	1,400.54	6.65	7.30	151.21	-771.38	423.88	884.92	870.99	13.93	63.541	
1,400.00	1,400.00	1,503.30	1,499.45	7.18	7.86	151.11	-761.65	420.22	874.57	859.55	15.02	58.223	
1,500.00	1,500.00	1,602.75	1,598.35	7.72	8.42	151.01	-751.92	416.57	864.23	848.12	16.12	53.624	
1,600.00	1,600.00	1,702.20	1,697.26	8.26	8.99	150.91	-742.19	412.92	853.89	836.68	17.21	49.607	
1,700.00	1,700.00	1,801.65	1,796.17	8.80	9.55	150.81	-732.46	409.27	843.56	825.25	18.31	46.069	
1,800.00	1,800.00	1,901.11	1,895.08	9.33	10.12	150.70	-722.72	405.62	833.23	813.82	19.41	42.930	
1,900.00	1,899.98	2,000.50	1,993.93	9.85	10.68	-87.87	-713.00	401.97	822.83	802.52	20.31	40.509	
2,000.00	1,999.84	2,099.71	2,092.59	10.35	11.25	-88.56	-703.29	398.33	812.33	790.88	21.35	38.043	
2,100.00	2,099.45	2,198.60	2,190.94	10.86	11.81	-89.52	-693.62	394.70	801.85	779.45	22.40	35.797	
2,200.00	2,198.70	2,297.05	2,288.86	11.38	12.37	-90.73	-683.98	391.09	791.53	768.07	23.46	33.746	
2,300.00	2,297.47	2,394.96	2,386.22	11.90	12.93	-92.21	-674.40	387.49	781.58	757.06	24.52	31.873	
2,400.00	2,395.95	2,492.54	2,483.27	12.44	13.49	-93.64	-664.86	383.91	772.14	746.54	25.60	30.162	
2,500.00	2,494.43	2,590.13	2,580.33	12.99	14.04	-95.10	-655.31	380.33	763.21	736.52	26.69	28.597	
2,600.00	2,592.91	2,687.72	2,677.38	13.55	14.60	-96.60	-645.76	376.74	754.81	727.02	27.79	27.164	
2,700.00	2,691.39	2,785.30	2,774.43	14.12	15.16	-98.13	-636.21	373.16	746.95	718.08	28.89	25.851	
2,800.00	2,789.87	2,882.89	2,871.48	14.69	15.72	-99.68	-626.66	369.58	739.65	709.65	30.01	24.648	
2,900.00	2,888.35	2,980.47	2,968.53	15.27	16.28	-101.27	-617.11	366.00	732.94	701.81	31.13	23.545	
3,000.00	2,886.84	3,078.06	3,065.59	15.85	16.83	-102.88	-607.57	362.41	726.81	694.56	32.25	22.534	
3,100.00	3,085.32	3,175.65	3,162.64	16.45	17.39	-104.52	-598.02	358.83	721.30	687.91	33.38	21.605	
3,200.00	3,183.80	3,273.23	3,259.69	17.04	17.95	-106.18	-588.47	355.25	716.41	681.89	34.52	20.754	
3,300.00	3,282.28	3,370.82	3,356.74	17.64	18.51	-107.86	-578.92	351.67	712.15	676.49	35.66	19.973	
3,400.00	3,380.76	3,468.41	3,453.79	18.24	19.07	-109.55	-569.37	348.08	708.54	671.75	36.79	19.257	
3,500.00	3,479.24	3,565.99	3,550.85	18.85	19.63	-111.27	-559.82	344.50	705.59	667.66	37.93	18.600	
3,600.00	3,577.72	3,663.58	3,647.90	19.45	20.18	-112.99	-550.27	340.92	703.31	664.23	39.08	17.999	
3,700.00	3,676.21	3,761.17	3,744.95	20.07	20.74	-114.72	-540.73	337.34	701.70	661.48	40.22	17.448	
3,800.00	3,774.69	3,858.75	3,842.00	20.68	21.30	-116.46	-531.18	333.75	700.77	659.41	41.36	16.944	
3,887.28	3,860.64	3,943.92	3,926.70	21.22	21.79	-117.99	-522.84	330.63	700.51	658.15	42.35	16.540 CC	
3,900.00	3,873.17	3,956.34	3,939.05	21.30	21.86	-118.21	-521.63	330.17	700.51	658.02	42.50	16.484	
4,000.00	3,971.65	4,053.92	4,036.11	21.91	22.42	-119.95	-512.08	326.59	700.94	657.30	43.64	16.063	
4,100.00	4,070.13	4,151.51	4,133.16	22.53	22.98	-121.69	-502.53	323.01	702.05	657.27	44.77	15.680 ES	
4,200.00	4,168.61	4,249.10	4,230.21	23.15	23.54	-123.42	-492.98	319.42	703.83	657.92	45.91	15.332	
4,300.00	4,267.10	4,345.71	4,326.29	23.78	24.09	-125.12	-483.54	315.88	706.29	659.25	47.03	15.017	
4,400.00	4,365.58	4,429.39	4,409.64	24.40	24.56	-126.51	-476.64	313.29	710.49	662.41	48.08	14.777	
4,500.00	4,464.06	4,513.60	4,493.71	25.03	25.02	-127.74	-472.01	311.56	717.15	668.03	49.12	14.599	
4,600.00	4,562.54	4,600.00	4,580.07	25.66	25.48	-128.83	-469.66	310.67	726.11	675.94	50.17	14.474	
4,700.00	4,661.02	4,689.95	4,670.02	26.28	25.94	-129.80	-469.40	310.58	736.98	685.76	51.21	14.390	
4,800.00	4,759.50	4,788.43	4,768.50	26.91	26.44	-130.81	-469.40	310.58	748.31	696.00	52.30	14.307	
4,900.00	4,857.98	4,886.92	4,866.98	27.54	26.94	-131.80	-469.40	310.58	759.86	706.48	53.39	14.233	
5,000.00	4,956.47	4,985.40	4,965.47	28.17	27.45	-132.75	-469.40	310.58	771.64	717.17	54.47	14.166	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		
5,100.00	5,054.95	5,083.88	5,063.95	28.81	27.95	-133.67	-469.40	310.58	783.62	728.07	55.55	14.106		
5,200.00	5,153.43	5,182.36	5,162.43	29.44	28.46	-134.57	-469.40	310.58	795.81	739.17	56.64	14.051		
5,300.00	5,251.91	5,280.84	5,260.91	30.07	28.96	-135.44	-469.40	310.58	808.18	750.46	57.72	14.003		
5,400.00	5,350.40	5,379.33	5,359.40	30.71	29.47	-136.31	-469.40	310.58	820.71	761.90	58.81	13.956		
5,500.00	5,449.23	5,478.16	5,458.23	31.33	29.98	-137.18	-469.40	310.58	831.83	771.88	59.95	13.875		
5,600.00	5,548.53	5,577.47	5,557.53	31.91	30.50	-137.84	-469.40	310.58	840.51	779.46	61.06	13.766		
5,700.00	5,648.19	5,677.12	5,657.19	32.47	31.01	-138.29	-469.40	310.58	846.67	784.55	62.11	13.631		
5,800.00	5,748.07	5,777.00	5,757.07	33.00	31.53	-138.56	-469.40	310.58	850.25	787.12	63.13	13.469		
5,900.00	5,848.06	5,876.99	5,857.06	33.49	32.05	99.49	-469.40	310.58	851.24	787.45	63.78	13.345		
6,000.00	5,948.06	5,976.99	5,957.06	33.97	32.57	99.49	-469.40	310.58	851.24	786.44	64.80	13.137		
6,100.00	6,048.06	6,076.99	6,057.06	34.44	33.09	99.49	-469.40	310.58	851.24	785.42	65.81	12.934		
6,200.00	6,148.06	6,176.99	6,157.06	34.92	33.61	99.49	-469.40	310.58	851.24	784.41	66.83	12.737		
6,300.00	6,248.06	6,276.99	6,257.06	35.40	34.13	99.49	-469.40	310.58	851.24	783.39	67.85	12.546		
6,400.00	6,348.06	6,376.99	6,357.06	35.88	34.65	99.49	-469.40	310.58	851.24	782.37	68.87	12.360		
6,500.00	6,448.06	6,476.99	6,457.06	36.37	35.18	99.49	-469.40	310.58	851.24	781.34	69.89	12.179		
6,600.00	6,548.06	6,576.99	6,557.06	36.85	35.70	99.49	-469.40	310.58	851.24	780.32	70.92	12.003		
6,700.00	6,648.06	6,676.99	6,657.06	37.34	36.22	99.49	-469.40	310.58	851.24	779.29	71.94	11.832		
6,800.00	6,748.06	6,776.99	6,757.06	37.83	36.75	99.49	-469.40	310.58	851.24	778.27	72.97	11.666		
6,900.00	6,848.06	6,876.99	6,857.06	38.31	37.27	99.49	-469.40	310.58	851.24	777.24	74.00	11.504		
7,000.00	6,948.06	6,976.99	6,957.06	38.80	37.80	99.49	-469.40	310.58	851.24	776.21	75.03	11.346		
7,100.00	7,048.06	7,076.99	7,057.06	39.30	38.32	99.49	-469.40	310.58	851.24	775.18	76.06	11.192		
7,200.00	7,148.06	7,176.99	7,157.06	39.79	38.85	99.49	-469.40	310.58	851.24	774.15	77.09	11.042		
7,300.00	7,248.06	7,276.99	7,257.06	40.28	39.37	99.49	-469.40	310.58	851.24	773.11	78.12	10.896		
7,400.00	7,348.06	7,376.99	7,357.06	40.78	39.90	99.49	-469.40	310.58	851.24	772.08	79.16	10.754		
7,500.00	7,448.06	7,476.99	7,457.06	41.27	40.42	99.49	-469.40	310.58	851.24	771.04	80.19	10.615		
7,600.00	7,548.06	7,576.99	7,557.06	41.77	40.95	99.49	-469.40	310.58	851.24	770.01	81.23	10.480		
7,700.00	7,648.06	7,676.99	7,657.06	42.27	41.48	99.49	-469.40	310.58	851.24	768.97	82.27	10.347		
7,800.00	7,748.06	7,776.99	7,757.06	42.77	42.00	99.49	-469.40	310.58	851.24	767.93	83.30	10.218		
7,900.00	7,848.06	7,876.99	7,857.06	43.27	42.53	99.49	-469.40	310.58	851.24	766.89	84.34	10.092		
8,000.00	7,948.06	7,976.99	7,957.06	43.77	43.06	99.49	-469.40	310.58	851.24	765.85	85.38	9.970		
8,100.00	8,048.06	8,076.99	8,057.06	44.27	43.59	99.49	-469.40	310.58	851.24	764.81	86.42	9.849		
8,200.00	8,148.06	8,176.99	8,157.06	44.77	44.12	99.49	-469.40	310.58	851.24	763.77	87.47	9.732		
8,300.00	8,248.06	8,276.99	8,257.06	45.28	44.64	99.49	-469.40	310.58	851.24	762.73	88.51	9.617		
8,400.00	8,348.06	8,376.99	8,357.06	45.78	45.17	99.49	-469.40	310.58	851.24	761.68	89.55	9.505		
8,500.00	8,448.06	8,476.99	8,457.06	46.29	45.70	99.49	-469.40	310.58	851.24	760.64	90.60	9.396		
8,600.00	8,548.06	8,576.99	8,557.06	46.79	46.30	99.36	-467.35	310.56	850.97	759.26	91.71	9.279		
8,700.00	8,648.06	8,678.73	8,659.96	47.30	47.05	97.67	-442.06	310.31	847.78	754.84	92.94	9.121		
8,800.00	8,748.06	8,779.59	8,759.59	47.81	47.74	94.64	-397.15	309.86	842.70	748.59	94.11	8.955		
8,900.00	8,848.06	8,879.78	8,859.78	48.31	48.33	91.13	-345.61	309.35	838.75	743.58	95.17	8.813		
8,949.10	8,897.16	8,963.30	8,906.16	48.56	48.58	89.43	-320.69	309.10	838.14	742.49	95.65	8.763		
9,000.00	8,948.06	9,000.00	8,932.52	48.82	48.82	87.69	-295.18	308.85	838.89	742.76	96.13	8.726		
9,100.00	9,048.01	9,056.31	8,969.66	49.33	49.21	-105.23	-252.88	308.43	845.84	748.63	97.22	8.701 SF		
9,200.00	9,146.57	9,092.58	8,991.31	49.87	49.46	-105.52	-223.79	308.14	865.00	767.01	97.99	8.828		
9,300.00	9,240.83	9,110.53	9,001.33	50.45	49.58	-103.29	-208.90	307.99	898.14	799.51	98.64	9.106		
9,400.00	9,327.92	9,114.83	9,003.66	51.06	49.61	-98.51	-205.29	307.96	944.02	844.59	99.43	9.494		
9,500.00	9,405.20	9,100.00	8,995.51	51.69	49.51	-90.76	-217.67	308.08	999.94	899.77	100.17	9.983		
9,600.00	9,470.32	9,100.00	8,995.51	52.36	49.51	-82.79	-217.67	308.08	1,062.32	962.21	100.11	10.611		
9,700.00	9,521.30	9,077.44	8,982.50	53.06	49.35	-72.93	-236.10	308.26	1,128.04	1,030.57	97.47	11.573		
9,800.00	9,556.60	9,050.00	8,965.71	53.81	49.16	-63.48	-257.80	308.48	1,194.12	1,102.17	91.95	12.987		
9,900.00	9,575.13	9,028.91	8,952.11	54.59	49.02	-55.60	-273.92	308.64	1,257.97	1,172.81	85.17	14.771		
10,000.00	9,577.07	9,000.00	8,932.52	55.39	48.82	-50.83	-295.18	308.85	1,317.88	1,237.28	80.60	16.351		
10,100.00	9,574.60	8,973.97	8,913.99	56.24	48.65	-51.16	-313.45	309.03	1,377.40	1,296.03	81.37	16.928		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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
10,200.00	9,572.13	8,950.00	8,896.21	57.14	48.49	-51.54	-329.52	309.19	1,438.08	1,355.86	82.22	17.491	
10,300.00	9,569.66	8,926.68	8,878.27	58.09	48.34	-51.92	-344.42	309.34	1,499.84	1,416.74	83.11	18.047	
10,400.00	9,567.19	8,900.00	8,857.03	59.08	48.17	-52.20	-360.57	309.50	1,562.65	1,478.75	83.90	18.625	
10,500.00	9,564.72	8,900.00	8,857.03	60.11	48.17	-53.25	-360.57	309.50	1,626.48	1,540.84	85.64	18.992	
10,600.00	9,562.25	8,869.57	8,831.92	61.18	47.97	-52.70	-377.75	309.67	1,691.31	1,605.54	85.77	19.720	
10,700.00	9,559.79	8,850.00	8,815.30	62.30	47.85	-52.12	-388.08	309.77	1,758.96	1,672.93	86.03	20.446	
10,800.00	9,557.32	8,850.00	8,815.30	63.48	47.85	-52.12	-388.08	309.77	1,829.23	1,742.19	87.05	21.014	
10,900.00	9,554.86	8,825.33	8,793.87	64.71	47.70	-51.37	-400.29	309.89	1,901.55	1,814.36	87.20	21.807	
11,000.00	9,552.39	8,800.00	8,771.34	65.98	47.54	-50.61	-411.85	310.01	1,976.24	1,888.89	87.35	22.626	
11,100.00	9,549.93	8,800.00	8,771.34	67.30	47.54	-50.61	-411.85	310.01	2,052.49	1,964.00	88.49	23.196	
11,200.00	9,547.46	8,800.00	8,771.34	68.67	47.54	-50.61	-411.85	310.01	2,130.70	2,041.03	89.66	23.763	
11,300.00	9,545.00	8,780.47	8,753.62	70.07	47.42	-50.02	-420.08	310.09	2,210.28	2,120.16	90.12	24.525	
11,400.00	9,542.54	8,771.15	8,745.08	71.51	47.36	-49.73	-423.79	310.12	2,291.37	2,200.37	91.00	25.180	
11,500.00	9,540.07	8,750.00	8,725.46	72.99	47.23	-49.10	-431.70	310.20	2,373.90	2,282.47	91.44	25.963	
11,600.00	9,537.61	8,750.00	8,725.46	74.50	47.23	-49.10	-431.70	310.20	2,457.31	2,364.58	92.73	26.499	
11,700.00	9,535.14	8,750.00	8,725.46	76.04	47.23	-49.10	-431.70	310.20	2,541.92	2,447.86	94.06	27.025	
11,800.00	9,532.68	8,750.00	8,725.46	77.61	47.23	-49.10	-431.70	310.20	2,627.61	2,532.20	95.41	27.541	
11,900.00	9,530.21	8,750.00	8,725.46	79.21	47.23	-49.10	-431.70	310.20	2,714.28	2,617.50	96.78	28.046	
12,000.00	9,527.75	8,726.56	8,703.40	80.83	47.09	-48.39	-439.61	310.28	2,801.29	2,704.08	97.21	28.817	
12,100.00	9,525.28	8,700.00	8,678.03	82.48	46.93	-47.60	-447.48	310.36	2,889.76	2,792.25	97.51	29.634	
12,200.00	9,522.82	8,700.00	8,678.03	84.15	46.93	-47.60	-447.48	310.36	2,978.31	2,879.37	98.93	30.104	
12,300.00	9,520.36	8,700.00	8,678.03	85.85	46.93	-47.60	-447.48	310.36	3,067.56	2,967.18	100.37	30.562	
12,400.00	9,517.89	8,700.00	8,678.03	87.56	46.93	-47.60	-447.48	310.36	3,157.45	3,055.62	101.83	31.008	
12,500.00	9,515.43	8,700.00	8,678.03	89.29	46.93	-47.60	-447.48	310.36	3,247.93	3,144.64	103.30	31.443	
12,600.00	9,512.96	8,700.00	8,678.03	91.05	46.93	-47.60	-447.48	310.36	3,338.96	3,234.18	104.78	31.866	
12,700.00	9,510.50	8,700.00	8,678.03	92.82	46.93	-47.60	-447.48	310.36	3,430.49	3,324.21	106.28	32.278	
12,800.00	9,508.03	8,700.00	8,678.03	94.60	46.93	-47.60	-447.48	310.36	3,522.48	3,414.68	107.79	32.678	
12,900.00	9,505.57	8,700.00	8,678.03	96.40	46.93	-47.60	-447.48	310.36	3,614.89	3,505.57	109.32	33.068	
13,000.00	9,503.10	8,700.00	8,678.03	98.22	46.93	-47.60	-447.48	310.36	3,707.70	3,596.84	110.85	33.448	
13,100.00	9,500.64	8,675.76	8,654.59	100.05	46.79	-46.89	-453.63	310.42	3,800.29	3,688.99	111.31	34.142	
13,200.00	9,498.18	8,672.36	8,651.28	101.89	46.77	-46.79	-454.41	310.43	3,893.83	3,780.93	112.70	34.549	
13,300.00	9,495.71	8,650.00	8,629.41	103.74	46.64	-46.13	-459.07	310.47	3,987.63	3,874.39	113.24	35.214	
13,400.00	9,493.25	8,650.00	8,629.41	105.61	46.64	-46.13	-459.07	310.47	4,081.45	3,966.66	114.79	35.555	
13,500.00	9,490.78	8,650.00	8,629.41	107.49	46.64	-46.13	-459.07	310.47	4,175.56	4,059.20	116.36	35.886	
13,600.00	9,488.32	8,650.00	8,629.41	109.37	46.64	-46.13	-459.07	310.47	4,269.93	4,152.00	117.93	36.208	
13,700.00	9,485.85	8,650.00	8,629.41	111.27	46.64	-46.13	-459.07	310.47	4,364.55	4,245.05	119.51	36.521	
13,800.00	9,483.39	8,650.00	8,629.41	113.18	46.64	-46.13	-459.07	310.47	4,459.41	4,338.32	121.09	36.827	
13,900.00	9,480.92	8,650.00	8,629.41	115.09	46.64	-46.13	-459.07	310.47	4,554.49	4,431.81	122.68	37.124	
14,000.00	9,478.46	8,650.00	8,629.41	117.02	46.64	-46.13	-459.07	310.47	4,649.78	4,525.49	124.28	37.413	
14,100.00	9,476.00	8,650.00	8,629.41	118.95	46.64	-46.13	-459.07	310.47	4,745.26	4,619.37	125.89	37.695	
14,200.00	9,473.53	8,650.00	8,629.41	120.89	46.64	-46.13	-459.07	310.47	4,840.92	4,713.42	127.50	37.969	
14,300.00	9,471.07	8,650.00	8,629.41	122.84	46.64	-46.13	-459.07	310.47	4,936.75	4,807.64	129.11	38.236	
14,400.00	9,468.60	8,650.00	8,629.41	124.79	46.64	-46.13	-459.07	310.47	5,032.75	4,902.01	130.73	38.497	
14,500.00	9,466.14	8,650.00	8,629.41	126.75	46.64	-46.13	-459.07	310.47	5,128.90	4,996.54	132.36	38.751	
14,600.00	9,463.67	8,650.00	8,629.41	128.72	46.64	-46.13	-459.07	310.47	5,225.19	5,091.20	133.99	38.998	
14,700.00	9,461.20	8,650.00	8,629.41	130.69	46.64	-48.05	-459.07	310.47	5,321.90	5,183.00	135.61	39.234	
14,800.00	9,458.73	8,650.00	8,629.41	132.67	46.64	-48.05	-459.07	310.47	5,418.98	5,278.43	137.24	39.465	
14,900.00	9,456.26	8,650.00	8,629.41	134.65	46.64	-48.05	-459.07	310.47	5,516.23	5,374.01	138.87	39.691	
15,000.00	9,453.79	8,650.00	8,629.41	136.63	46.64	-48.05	-459.07	310.47	5,613.57	5,469.68	140.50	39.913	
15,100.00	9,451.32	8,650.00	8,629.41	138.63	46.64	-48.05	-459.07	310.47	5,711.00	5,565.44	142.13	40.134	
15,200.00	9,448.85	8,650.00	8,629.41	140.62	46.64	-48.05	-459.07	310.47	5,808.52	5,661.29	143.76	40.355	
15,300.00	9,446.38	8,626.30	8,606.06	142.62	46.51	-47.28	-463.06	310.51	5,905.60	5,758.06	145.39	40.576	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		Highside Toolface (°)	Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)
15,400.00	9,460.62	8,624.98	8,604.75	144.63	46.50	-47.23	-463.26	310.52	6,003.22	5,854.09	149.13	40.254
15,500.00	9,460.42	8,623.69	8,603.47	146.64	46.49	-47.19	-463.45	310.52	6,100.92	5,950.19	150.73	40.476
15,600.00	9,460.22	8,600.00	8,579.96	148.65	46.36	-46.44	-466.37	310.55	6,199.16	6,048.15	151.01	41.052
15,700.00	9,460.02	8,600.00	8,579.96	150.67	46.36	-46.44	-466.37	310.55	6,296.94	6,144.26	152.68	41.243
15,800.00	9,459.81	8,600.00	8,579.96	152.69	46.36	-46.44	-466.37	310.55	6,394.79	6,240.45	154.35	41.431
15,900.00	9,459.61	8,600.00	8,579.96	154.71	46.36	-46.44	-466.37	310.55	6,492.71	6,336.69	156.02	41.614
16,000.00	9,459.41	8,600.00	8,579.96	156.74	46.36	-46.44	-466.37	310.55	6,590.69	6,432.89	157.70	41.793
16,100.00	9,459.21	8,600.00	8,579.96	158.77	46.36	-46.44	-466.37	310.55	6,688.73	6,529.35	159.38	41.968
16,200.00	9,459.01	8,600.00	8,579.96	160.81	46.36	-46.44	-466.37	310.55	6,786.83	6,625.77	161.06	42.139
16,300.00	9,458.81	8,600.00	8,579.96	162.85	46.36	-46.44	-466.37	310.55	6,884.98	6,722.24	162.74	42.306
16,400.00	9,458.60	8,600.00	8,579.96	164.89	46.36	-46.44	-466.37	310.55	6,983.19	6,818.76	164.43	42.470
16,500.00	9,458.40	8,600.00	8,579.96	166.93	46.36	-46.44	-466.37	310.55	7,081.44	6,915.33	166.11	42.630
16,600.00	9,458.20	8,600.00	8,579.96	168.98	46.36	-46.44	-466.37	310.55	7,179.74	7,011.94	167.80	42.787
16,700.00	9,458.00	8,600.00	8,579.96	171.03	46.36	-46.44	-466.37	310.55	7,278.09	7,108.60	169.49	42.940
16,800.00	9,457.80	8,600.00	8,579.96	173.08	46.36	-46.44	-466.37	310.55	7,376.49	7,205.30	171.19	43.090
16,900.00	9,457.60	8,600.00	8,579.96	175.14	46.36	-46.44	-466.37	310.55	7,474.92	7,302.04	172.88	43.237
17,000.00	9,457.40	8,600.00	8,579.96	177.19	46.36	-46.44	-466.37	310.55	7,573.40	7,398.82	174.58	43.381
17,100.00	9,457.19	8,600.00	8,579.96	179.25	46.36	-46.44	-466.37	310.55	7,671.92	7,495.64	176.27	43.523
17,200.00	9,456.99	8,600.00	8,579.96	181.31	46.36	-46.44	-466.37	310.55	7,770.47	7,592.50	177.97	43.661
17,300.00	9,456.79	8,600.00	8,579.96	183.38	46.36	-46.44	-466.37	310.55	7,869.06	7,689.39	179.67	43.796
17,400.00	9,456.59	8,600.00	8,579.96	185.44	46.36	-46.44	-466.37	310.55	7,967.69	7,786.31	181.38	43.929
17,500.00	9,456.39	8,600.00	8,579.96	187.51	46.36	-46.44	-466.37	310.55	8,066.35	7,883.27	183.08	44.059
17,600.00	9,456.19	8,600.00	8,579.96	189.58	46.36	-46.44	-466.37	310.55	8,165.04	7,980.26	184.78	44.187
17,700.00	9,455.99	8,600.00	8,579.96	191.65	46.36	-46.44	-466.37	310.55	8,263.76	8,077.27	186.49	44.312
17,800.00	9,455.78	8,600.00	8,579.96	193.73	46.36	-46.44	-466.37	310.55	8,362.52	8,174.32	188.20	44.435
17,900.00	9,455.58	8,600.00	8,579.96	195.80	46.36	-46.44	-466.37	310.55	8,461.30	8,271.40	189.91	44.555
18,000.00	9,455.38	8,600.00	8,579.96	197.88	46.36	-46.44	-466.37	310.55	8,560.11	8,368.50	191.62	44.673
18,100.00	9,455.18	8,600.00	8,579.96	199.96	46.36	-46.44	-466.37	310.55	8,658.95	8,465.63	193.33	44.789
18,200.00	9,454.98	8,600.00	8,579.96	202.04	46.36	-46.44	-466.37	310.55	8,757.82	8,562.78	195.04	44.903
18,300.00	9,454.78	8,600.00	8,579.96	204.12	46.36	-46.44	-466.37	310.55	8,856.71	8,659.96	196.75	45.015
18,400.00	9,454.57	8,600.00	8,579.96	206.20	46.36	-46.44	-466.37	310.55	8,955.62	8,757.16	198.47	45.124
18,500.00	9,454.37	8,600.00	8,579.96	208.29	46.36	-46.44	-466.37	310.55	9,054.56	8,854.38	200.18	45.232
18,600.00	9,454.17	8,600.00	8,579.96	210.38	46.36	-46.44	-466.37	310.55	9,153.53	8,951.63	201.90	45.338
18,700.00	9,453.97	8,600.00	8,579.96	212.46	46.36	-46.44	-466.37	310.55	9,252.51	9,048.90	203.61	45.442
18,800.00	9,453.77	8,600.00	8,579.96	214.55	46.36	-46.44	-466.37	310.55	9,351.52	9,146.19	205.33	45.544
18,900.00	9,453.57	8,600.00	8,579.96	216.64	46.36	-46.44	-466.37	310.55	9,450.54	9,243.49	207.05	45.644
19,000.00	9,453.37	8,600.00	8,579.96	218.74	46.36	-46.44	-466.37	310.55	9,549.59	9,340.82	208.77	45.742
19,100.00	9,453.16	8,600.00	8,579.96	220.83	46.36	-46.44	-466.37	310.55	9,648.66	9,438.17	210.49	45.839
19,200.00	9,452.96	8,600.00	8,579.96	222.92	46.36	-46.44	-466.37	310.55	9,747.75	9,535.53	212.21	45.934
19,300.00	9,452.76	8,600.00	8,579.96	225.02	46.36	-46.44	-466.37	310.55	9,846.85	9,632.92	213.93	46.028
19,400.00	9,452.56	8,600.00	8,579.96	227.11	46.36	-46.44	-466.37	310.55	9,945.97	9,730.32	215.66	46.120

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Site Error: 0.00 usft
 Offset Well Error: 0.00 usft

Offset Design HH SO 8 5 Fed 003 - 3H - OH - Plan 1 06-16-17													
Survey Program: 0-MWD+HDGM													
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)	Offset Wellbore +E/-W (usft)					
0.00	0.00	8.00	8.00	0.00	0.02	151.07	-810.27	447.86	925.81				
100.00	100.00	108.00	108.00	0.19	0.24	151.07	-810.27	447.86	925.81	925.38	0.43	2,152.206	
200.00	200.00	208.00	208.00	0.73	0.77	151.07	-810.27	447.86	925.81	924.30	1.51	614.917	
300.00	300.00	308.00	308.00	1.27	1.31	151.07	-810.27	447.86	925.81	923.23	2.58	358.701	
400.00	400.00	408.00	408.00	1.81	1.85	151.07	-810.27	447.86	925.81	922.15	3.66	253.201	
500.00	500.00	508.00	508.00	2.34	2.39	151.07	-810.27	447.86	925.81	921.07	4.73	195.655	
600.00	600.00	610.14	610.14	2.88	2.94	151.07	-810.26	447.86	925.80	919.98	5.82	159.109	
700.00	700.00	736.83	736.78	3.42	3.62	150.92	-807.21	448.99	924.12	917.09	7.04	131.347	
800.00	800.00	862.99	862.62	3.96	4.30	150.50	-798.95	452.03	919.59	911.34	8.25	111.429	
900.00	900.00	970.10	969.17	4.50	4.88	149.97	-788.68	455.82	912.97	903.60	9.37	97.399	
1,000.00	1,000.00	1,069.56	1,068.08	5.03	5.43	149.47	-778.93	459.41	906.31	895.85	10.46	86.664	
1,100.00	1,100.00	1,169.01	1,166.99	5.57	5.98	148.95	-769.18	463.01	899.72	888.17	11.55	77.928	
1,200.00	1,200.00	1,268.46	1,265.90	6.11	6.54	148.43	-759.43	466.60	893.20	880.56	12.64	70.688	
1,300.00	1,300.00	1,367.91	1,364.81	6.65	7.09	147.90	-749.68	470.19	886.75	873.03	13.73	64.594	
1,400.00	1,400.00	1,467.37	1,463.71	7.18	7.65	147.37	-739.93	473.79	880.39	865.56	14.82	59.398	
1,500.00	1,500.00	1,566.82	1,562.62	7.72	8.22	146.82	-730.19	477.38	874.10	858.18	15.92	54.917	
1,600.00	1,600.00	1,666.27	1,661.53	8.26	8.78	146.27	-720.44	480.97	867.89	850.88	17.01	51.015	
1,700.00	1,700.00	1,765.73	1,760.44	8.80	9.34	145.71	-710.69	484.57	861.76	843.65	18.11	47.589	
1,800.00	1,800.00	1,865.18	1,859.35	9.33	9.90	145.15	-700.94	488.16	855.72	836.51	19.20	44.558	
1,900.00	1,899.98	1,964.47	1,958.09	9.85	10.47	-93.78	-691.21	491.75	849.87	829.61	20.27	41.936	
2,000.00	1,999.84	2,063.35	2,056.43	10.35	11.03	-94.82	-681.52	495.32	844.43	823.11	21.33	39.596	
2,100.00	2,099.45	2,161.70	2,154.25	10.86	11.59	-96.09	-671.88	498.88	839.58	817.18	22.39	37.495	
2,200.00	2,198.70	2,259.40	2,251.41	11.38	12.15	-97.57	-662.30	502.41	835.53	812.07	23.46	35.611	
2,300.00	2,297.47	2,356.33	2,347.82	11.90	12.70	-99.25	-652.80	505.91	832.56	808.02	24.54	33.925	
2,400.00	2,395.95	2,452.84	2,443.80	12.44	13.25	-100.99	-643.34	509.40	830.64	805.01	25.63	32.410	
2,500.00	2,494.43	2,549.36	2,539.78	12.99	13.80	-102.73	-633.88	512.88	829.54	802.81	26.73	31.037	
2,583.28	2,576.45	2,629.73	2,619.72	13.46	14.26	-104.18	-626.00	515.79	829.25	801.60	27.65	29.994	CC
2,600.00	2,592.91	2,645.87	2,635.77	13.55	14.35	-104.47	-624.42	516.37	829.26	801.43	27.83	29.795	
2,700.00	2,691.39	2,742.38	2,731.75	14.12	14.90	-106.22	-614.96	519.86	829.81	800.87	28.94	28.670	ES
2,800.00	2,789.87	2,838.89	2,827.73	14.69	15.45	-107.96	-605.50	523.35	831.19	801.13	30.06	27.651	
2,900.00	2,888.35	2,935.40	2,923.71	15.27	16.00	-109.70	-596.04	526.83	833.39	802.21	31.18	26.728	
3,000.00	2,986.84	3,031.91	3,019.70	15.85	16.55	-111.42	-586.58	530.32	836.40	804.10	32.30	25.893	
3,100.00	3,085.32	3,128.42	3,115.68	16.45	17.10	-113.13	-577.12	533.81	840.22	806.79	33.43	25.137	
3,200.00	3,183.80	3,224.93	3,211.66	17.04	17.66	-114.83	-567.66	537.29	844.83	810.28	34.55	24.453	
3,300.00	3,282.28	3,321.44	3,307.65	17.64	18.21	-116.50	-558.20	540.78	850.22	814.55	35.67	23.834	
3,400.00	3,380.76	3,417.96	3,403.63	18.24	18.76	-118.16	-548.74	544.27	856.38	819.59	36.79	23.275	
3,500.00	3,479.24	3,514.47	3,499.61	18.85	19.31	-119.79	-539.28	547.76	863.29	825.38	37.91	22.769	
3,600.00	3,577.72	3,610.98	3,595.60	19.45	19.86	-121.40	-529.82	551.24	870.94	831.90	39.03	22.313	
3,700.00	3,676.21	3,707.49	3,691.58	20.07	20.41	-122.98	-520.36	554.73	879.29	839.14	40.15	21.900	
3,800.00	3,774.69	3,803.73	3,787.30	20.68	20.96	-124.52	-510.97	558.19	888.35	847.08	41.26	21.530	
3,900.00	3,873.17	3,899.56	3,882.80	21.30	21.50	-125.89	-503.59	560.91	898.12	855.77	42.36	21.203	
4,000.00	3,971.65	3,996.73	3,979.86	21.91	22.02	-127.05	-499.18	562.54	908.46	865.02	43.45	20.910	
4,100.00	4,070.13	4,095.03	4,078.13	22.53	22.53	-128.00	-497.85	563.03	919.14	874.61	44.53	20.643	
4,200.00	4,168.61	4,193.51	4,176.61	23.15	23.04	-128.83	-497.85	563.03	930.03	884.43	45.60	20.396	
4,300.00	4,267.10	4,291.99	4,275.10	23.78	23.54	-129.65	-497.85	563.03	941.11	894.44	46.67	20.164	
4,400.00	4,365.58	4,390.47	4,373.58	24.40	24.05	-130.44	-497.85	563.03	952.38	904.63	47.75	19.947	
4,500.00	4,464.06	4,488.95	4,472.06	25.03	24.55	-131.22	-497.85	563.03	963.83	915.01	48.82	19.742	
4,600.00	4,562.54	4,587.43	4,570.54	25.66	25.06	-131.98	-497.85	563.03	975.46	925.56	49.90	19.550	
4,700.00	4,661.02	4,685.91	4,669.02	26.28	25.57	-132.73	-497.85	563.03	987.25	936.28	50.97	19.369	
4,800.00	4,759.50	4,784.40	4,767.50	26.91	26.08	-133.45	-497.85	563.03	999.21	947.16	52.04	19.199	
4,900.00	4,857.98	4,882.88	4,865.98	27.54	26.59	-134.16	-497.85	563.03	1,011.32	958.20	53.12	19.039	
5,000.00	4,956.47	4,981.36	4,964.47	28.17	27.10	-134.85	-497.85	563.03	1,023.59	969.39	54.19	18.887	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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			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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
5,100.00	5,054.95	5,079.84	5,062.95	28.81	27.61	-135.53	-497.85	563.03	1,036.00	980.73	55.27	18.744	
5,200.00	5,153.43	5,178.32	5,161.43	29.44	28.12	-136.19	-497.85	563.03	1,048.55	992.20	56.34	18.609	
5,300.00	5,251.91	5,276.80	5,259.91	30.07	28.64	-136.83	-497.85	563.03	1,061.23	1,003.81	57.42	18.482	
5,400.00	5,350.40	5,375.29	5,358.40	30.71	29.15	-137.48	-497.85	563.03	1,074.03	1,015.52	58.51	18.356	
5,500.00	5,449.23	5,474.12	5,457.23	31.33	29.67	-138.17	-497.85	563.03	1,085.35	1,025.66	59.68	18.185	
5,600.00	5,548.53	5,573.43	5,556.53	31.91	30.19	-138.70	-497.85	563.03	1,094.15	1,033.34	60.82	17.991	
5,700.00	5,648.19	5,673.08	5,656.19	32.47	30.71	-139.06	-497.85	563.03	1,100.39	1,038.48	61.91	17.774	
5,800.00	5,748.07	5,772.96	5,756.07	33.00	31.23	-139.27	-497.85	563.03	1,104.00	1,041.05	62.95	17.537	
5,900.00	5,848.06	5,872.95	5,856.06	33.49	31.75	98.79	-497.85	563.03	1,105.01	1,041.52	63.49	17.405	
6,000.00	5,948.06	5,972.95	5,956.06	33.97	32.28	98.79	-497.85	563.03	1,105.01	1,040.50	64.51	17.130	
6,100.00	6,048.06	6,072.95	6,056.06	34.44	32.80	98.79	-497.85	563.03	1,105.01	1,039.48	65.53	16.863	
6,200.00	6,148.06	6,172.95	6,156.06	34.92	33.33	98.79	-497.85	563.03	1,105.01	1,038.46	66.55	16.604	
6,300.00	6,248.06	6,272.95	6,256.06	35.40	33.85	98.79	-497.85	563.03	1,105.01	1,037.43	67.57	16.353	
6,400.00	6,348.06	6,372.95	6,356.06	35.88	34.38	98.79	-497.85	563.03	1,105.01	1,036.41	68.60	16.108	
6,500.00	6,448.06	6,472.95	6,456.06	36.37	34.91	98.79	-497.85	563.03	1,105.01	1,035.38	69.62	15.871	
6,600.00	6,548.06	6,572.95	6,556.06	36.85	35.43	98.79	-497.85	563.03	1,105.01	1,034.35	70.65	15.640	
6,700.00	6,648.06	6,672.95	6,656.06	37.34	35.96	98.79	-497.85	563.03	1,105.01	1,033.32	71.68	15.415	
6,800.00	6,748.06	6,772.95	6,756.06	37.83	36.49	98.79	-497.85	563.03	1,105.01	1,032.29	72.71	15.197	
6,900.00	6,848.06	6,872.95	6,856.06	38.31	37.02	98.79	-497.85	563.03	1,105.01	1,031.26	73.75	14.984	
7,000.00	6,948.06	6,972.95	6,956.06	38.80	37.54	98.79	-497.85	563.03	1,105.01	1,030.23	74.78	14.777	
7,100.00	7,048.06	7,072.95	7,056.06	39.30	38.07	98.79	-497.85	563.03	1,105.01	1,029.19	75.81	14.575	
7,200.00	7,148.06	7,172.95	7,156.06	39.79	38.60	98.79	-497.85	563.03	1,105.01	1,028.16	76.85	14.379	
7,300.00	7,248.06	7,272.95	7,256.06	40.28	39.13	98.79	-497.85	563.03	1,105.01	1,027.12	77.88	14.188	
7,400.00	7,348.06	7,372.95	7,356.06	40.78	39.66	98.79	-497.85	563.03	1,105.01	1,026.08	78.92	14.001	
7,500.00	7,448.06	7,472.95	7,456.06	41.27	40.19	98.79	-497.85	563.03	1,105.01	1,025.04	79.96	13.819	
7,600.00	7,548.06	7,572.95	7,556.06	41.77	40.72	98.79	-497.85	563.03	1,105.01	1,024.00	81.00	13.642	
7,700.00	7,648.06	7,672.95	7,656.06	42.27	41.25	98.79	-497.85	563.03	1,105.01	1,022.96	82.04	13.469	
7,800.00	7,748.06	7,772.95	7,756.06	42.77	41.78	98.79	-497.85	563.03	1,105.01	1,021.92	83.08	13.300	
7,900.00	7,848.06	7,872.95	7,856.06	43.27	42.31	98.79	-497.85	563.03	1,105.01	1,020.88	84.12	13.135	
8,000.00	7,948.06	7,972.95	7,956.06	43.77	42.84	98.79	-497.85	563.03	1,105.01	1,019.84	85.17	12.974	
8,100.00	8,048.06	8,072.95	8,056.06	44.27	43.37	98.79	-497.85	563.03	1,105.01	1,018.79	86.21	12.817	
8,200.00	8,148.06	8,172.95	8,156.06	44.77	43.90	98.79	-497.85	563.03	1,105.01	1,017.75	87.26	12.664	
8,300.00	8,248.06	8,272.95	8,256.06	45.28	44.43	98.79	-497.85	563.03	1,105.01	1,016.70	88.30	12.514	
8,400.00	8,348.06	8,372.95	8,356.06	45.78	44.96	98.79	-497.85	563.03	1,105.01	1,015.66	89.35	12.367	
8,500.00	8,448.06	8,472.95	8,456.06	46.29	45.49	98.79	-497.85	563.03	1,105.01	1,014.61	90.39	12.224	
8,600.00	8,548.06	8,572.95	8,556.06	46.79	46.02	98.79	-497.85	563.03	1,105.01	1,013.56	91.44	12.084	
8,700.00	8,648.06	8,672.95	8,656.06	47.30	46.55	98.79	-497.85	563.03	1,105.01	1,012.52	92.49	11.947	
8,800.00	8,748.06	8,772.95	8,756.06	47.81	47.09	98.79	-497.85	563.03	1,105.01	1,011.47	93.54	11.813	
8,900.00	8,848.06	8,872.95	8,856.06	48.31	47.62	98.79	-497.85	563.03	1,105.01	1,010.42	94.59	11.682	
9,000.00	8,948.06	8,972.95	8,956.06	48.82	48.15	98.79	-497.85	563.03	1,105.01	1,009.37	95.64	11.554	
9,036.96	8,985.01	9,009.91	8,993.01	49.01	48.35	-91.64	-497.85	563.03	1,105.02	1,008.67	96.35	11.469	
9,100.00	9,048.01	9,072.91	9,056.01	49.33	48.68	-91.69	-497.85	563.03	1,105.05	1,008.04	97.01	11.391	
9,200.00	9,146.57	9,184.80	9,167.85	49.87	49.28	-92.72	-495.89	563.01	1,105.44	1,007.30	98.15	11.263	
9,254.71	9,198.86	9,251.85	9,234.20	50.19	49.65	-94.19	-486.46	562.92	1,105.36	1,006.55	98.81	11.187	
9,300.00	9,240.83	9,298.88	9,279.86	50.45	49.92	-95.58	-475.25	562.81	1,105.61	1,006.32	99.29	11.135	
9,400.00	9,327.92	9,374.20	9,350.63	51.06	50.36	-98.07	-449.61	562.55	1,109.87	1,009.70	100.18	11.079 SF	
9,500.00	9,405.20	9,416.19	9,388.43	51.69	50.61	-98.76	-431.36	562.37	1,122.55	1,021.63	100.93	11.123	
9,600.00	9,470.32	9,434.28	9,404.28	52.36	50.71	-97.33	-422.65	562.29	1,145.50	1,043.68	101.83	11.249	
9,700.00	9,521.30	9,436.05	9,405.82	53.06	50.72	-93.95	-421.77	562.28	1,178.43	1,075.52	102.91	11.451	
9,800.00	9,556.60	9,426.65	9,397.63	53.81	50.67	-88.93	-426.39	562.32	1,219.70	1,115.99	103.70	11.761	
9,900.00	9,575.13	9,400.00	9,374.01	54.59	50.51	-82.29	-438.73	562.45	1,267.03	1,163.75	103.28	12.268	
10,000.00	9,577.07	9,387.00	9,362.29	55.39	50.43	-77.72	-444.34	562.50	1,317.74	1,215.33	102.40	12.868	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 (°)	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)					
10,100.00	9,574.60	9,365.88	9,342.98	56.24	50.31	-77.12	-452.90	562.59	1,370.47	1,267.75	102.72	13.342	
10,200.00	9,572.13	9,350.00	9,328.26	57.14	50.22	-76.78	-458.86	562.64	1,424.95	1,321.76	103.19	13.809	
10,300.00	9,569.66	9,331.79	9,311.19	58.09	50.11	-76.36	-465.19	562.71	1,481.01	1,377.37	103.64	14.290	
10,400.00	9,567.19	9,317.91	9,298.05	59.08	50.03	-76.16	-469.65	562.75	1,538.50	1,434.28	104.22	14.762	
10,500.00	9,564.72	9,300.00	9,280.93	60.11	49.93	-75.82	-474.94	562.80	1,597.28	1,492.55	104.73	15.251	
10,600.00	9,562.25	9,300.00	9,280.93	61.18	49.93	-75.96	-474.94	562.80	1,657.75	1,551.98	105.77	15.674	
10,700.00	9,559.79	9,300.00	9,280.93	62.30	49.93	-75.96	-474.94	562.80	1,721.76	1,614.88	106.88	16.109	
10,800.00	9,557.32	9,276.59	9,258.33	63.48	49.80	-75.00	-481.03	562.86	1,788.58	1,681.12	107.46	16.644	
10,900.00	9,554.86	9,268.80	9,250.76	64.71	49.75	-74.68	-482.85	562.88	1,858.45	1,749.97	108.47	17.133	
11,000.00	9,552.39	9,250.00	9,232.38	65.98	49.64	-73.91	-486.82	562.92	1,931.00	1,821.77	109.23	17.679	
11,100.00	9,549.93	9,250.00	9,232.38	67.30	49.64	-73.91	-486.82	562.92	2,005.61	1,895.08	110.53	18.145	
11,200.00	9,547.46	9,250.00	9,232.38	68.67	49.64	-73.91	-486.82	562.92	2,082.35	1,970.47	111.88	18.612	
11,300.00	9,545.00	9,250.00	9,232.38	70.07	49.64	-73.91	-486.82	562.92	2,161.00	2,047.73	113.27	19.078	
11,400.00	9,542.54	9,250.00	9,232.38	71.51	49.64	-73.91	-486.82	562.92	2,241.35	2,126.65	114.69	19.542	
11,500.00	9,540.07	9,250.00	9,232.38	72.99	49.64	-73.91	-486.82	562.92	2,323.22	2,207.07	116.15	20.001	
11,600.00	9,537.61	9,250.00	9,232.38	74.50	49.64	-73.91	-486.82	562.92	2,406.47	2,288.82	117.65	20.455	
11,700.00	9,535.14	9,226.55	9,209.30	76.04	49.51	-72.95	-490.93	562.96	2,490.42	2,371.94	118.48	21.019	
11,800.00	9,532.68	9,222.91	9,205.70	77.61	49.49	-72.80	-491.48	562.97	2,575.83	2,455.91	119.92	21.480	
11,900.00	9,530.21	9,200.00	9,182.98	79.21	49.36	-71.86	-494.43	563.00	2,662.60	2,541.82	120.78	22.044	
12,000.00	9,527.75	9,200.00	9,182.98	80.83	49.36	-71.86	-494.43	563.00	2,749.80	2,627.42	122.38	22.470	
12,100.00	9,525.28	9,200.00	9,182.98	82.48	49.36	-71.86	-494.43	563.00	2,837.84	2,713.85	123.99	22.887	
12,200.00	9,522.82	9,200.00	9,182.98	84.15	49.36	-71.86	-494.43	563.00	2,926.66	2,801.02	125.63	23.296	
12,300.00	9,520.36	9,200.00	9,182.98	85.85	49.36	-71.86	-494.43	563.00	3,016.17	2,888.88	127.29	23.695	
12,400.00	9,517.89	9,200.00	9,182.98	87.56	49.36	-71.86	-494.43	563.00	3,106.32	2,977.35	128.97	24.085	
12,500.00	9,515.43	9,200.00	9,182.98	89.29	49.36	-71.86	-494.43	563.00	3,197.06	3,066.39	130.67	24.467	
12,600.00	9,512.96	9,200.00	9,182.98	91.05	49.36	-71.86	-494.43	563.00	3,288.33	3,155.95	132.38	24.840	
12,700.00	9,510.50	9,200.00	9,182.98	92.82	49.36	-71.86	-494.43	563.00	3,380.10	3,245.99	134.11	25.203	
12,800.00	9,508.03	9,200.00	9,182.98	94.60	49.36	-71.86	-494.43	563.00	3,472.33	3,336.47	135.86	25.558	
12,900.00	9,505.57	9,200.00	9,182.98	96.40	49.36	-71.86	-494.43	563.00	3,564.97	3,427.35	137.62	25.904	
13,000.00	9,503.10	9,200.00	9,182.98	98.22	49.36	-71.86	-494.43	563.00	3,658.00	3,518.61	139.39	26.242	
13,100.00	9,500.64	9,200.00	9,182.98	100.05	49.36	-71.86	-494.43	563.00	3,751.39	3,610.21	141.18	26.571	
13,200.00	9,498.18	9,200.00	9,182.98	101.89	49.36	-71.86	-494.43	563.00	3,845.11	3,702.13	142.98	26.893	
13,300.00	9,495.71	9,200.00	9,182.98	103.74	49.36	-71.86	-494.43	563.00	3,939.14	3,794.35	144.79	27.206	
13,400.00	9,493.25	9,200.00	9,182.98	105.61	49.36	-71.86	-494.43	563.00	4,033.46	3,886.85	146.61	27.511	
13,500.00	9,490.78	9,200.00	9,182.98	107.49	49.36	-71.86	-494.43	563.00	4,128.04	3,979.60	148.44	27.809	
13,600.00	9,488.32	9,200.00	9,182.98	109.37	49.36	-71.86	-494.43	563.00	4,222.88	4,072.59	150.28	28.099	
13,700.00	9,485.85	9,200.00	9,182.98	111.27	49.36	-71.86	-494.43	563.00	4,317.95	4,165.81	152.13	28.382	
13,800.00	9,483.39	9,200.00	9,182.98	113.18	49.36	-71.86	-494.43	563.00	4,413.23	4,259.24	153.99	28.658	
13,900.00	9,480.92	9,200.00	9,182.98	115.09	49.36	-71.86	-494.43	563.00	4,508.72	4,352.86	155.86	28.928	
14,000.00	9,478.46	9,200.00	9,182.98	117.02	49.36	-71.86	-494.43	563.00	4,604.40	4,446.67	157.74	29.191	
14,100.00	9,476.00	9,200.00	9,182.98	118.95	49.36	-71.86	-494.43	563.00	4,700.26	4,540.65	159.62	29.447	
14,200.00	9,473.53	9,177.18	9,160.25	120.89	49.24	-70.94	-496.47	563.02	4,795.80	4,635.16	160.64	29.854	
14,300.00	9,471.07	9,176.16	9,159.24	122.84	49.23	-70.90	-496.54	563.02	4,891.95	4,729.46	162.49	30.106	
14,400.00	9,468.60	9,175.19	9,158.27	124.79	49.23	-70.86	-496.60	563.02	4,988.24	4,823.89	164.35	30.352	
14,500.00	9,466.14	9,174.24	9,157.33	126.75	49.22	-70.82	-496.66	563.02	5,084.68	4,918.47	166.21	30.592	
14,600.00	9,463.67	9,173.34	9,156.42	128.72	49.22	-70.78	-496.72	563.02	5,181.25	5,013.16	168.08	30.826	
14,700.00	9,462.03	9,172.54	9,155.63	130.69	49.21	-74.86	-496.77	563.02	5,278.16	5,104.75	173.41	30.438	
14,800.00	9,461.83	9,150.00	9,133.11	132.67	49.09	-73.86	-497.71	563.03	5,375.79	5,201.29	174.50	30.807	
14,900.00	9,461.63	9,150.00	9,133.11	134.65	49.09	-73.86	-497.71	563.03	5,473.10	5,296.66	176.44	31.020	
15,000.00	9,461.43	9,150.00	9,133.11	136.63	49.09	-73.86	-497.71	563.03	5,570.51	5,392.13	178.38	31.228	
15,100.00	9,461.22	9,150.00	9,133.11	138.63	49.09	-73.86	-497.71	563.03	5,668.01	5,487.68	180.33	31.431	
15,200.00	9,461.02	9,150.00	9,133.11	140.62	49.09	-73.86	-497.71	563.03	5,765.59	5,583.31	182.28	31.630	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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						
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 Centros (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,300.00	9,460.82	9,150.00	9,133.11	142.62	49.09	-73.86	-497.71	563.03	5,863.25	5,679.01	184.24	31.824	
15,400.00	9,460.62	9,150.00	9,133.11	144.63	49.09	-73.86	-497.71	563.03	5,960.99	5,774.79	186.20	32.014	
15,500.00	9,460.42	9,150.00	9,133.11	146.64	49.09	-73.86	-497.71	563.03	6,058.81	5,870.64	188.16	32.200	
15,600.00	9,460.22	9,150.00	9,133.11	148.65	49.09	-73.86	-497.71	563.03	6,156.69	5,966.56	190.13	32.381	
15,700.00	9,460.02	9,150.00	9,133.11	150.67	49.09	-73.86	-497.71	563.03	6,254.64	6,062.54	192.10	32.559	
15,800.00	9,459.81	9,150.00	9,133.11	152.69	49.09	-73.86	-497.71	563.03	6,352.66	6,158.58	194.08	32.732	
15,900.00	9,459.61	9,150.00	9,133.11	154.71	49.09	-73.86	-497.71	563.03	6,450.74	6,254.68	196.06	32.902	
16,000.00	9,459.41	9,150.00	9,133.11	156.74	49.09	-73.86	-497.71	563.03	6,548.87	6,350.83	198.04	33.068	
16,100.00	9,459.21	9,150.00	9,133.11	158.77	49.09	-73.86	-497.71	563.03	6,647.06	6,447.04	200.03	33.231	
16,200.00	9,459.01	9,150.00	9,133.11	160.81	49.09	-73.86	-497.71	563.03	6,745.31	6,543.29	202.01	33.390	
16,300.00	9,458.81	9,150.00	9,133.11	162.85	49.09	-73.86	-497.71	563.03	6,843.60	6,639.60	204.00	33.546	
16,400.00	9,458.60	9,150.00	9,133.11	164.89	49.09	-73.86	-497.71	563.03	6,941.94	6,735.95	206.00	33.699	
16,500.00	9,458.40	9,150.00	9,133.11	166.93	49.09	-73.86	-497.71	563.03	7,040.33	6,832.34	207.99	33.849	
16,600.00	9,458.20	9,150.00	9,133.11	168.98	49.09	-73.86	-497.71	563.03	7,138.77	6,928.78	209.99	33.995	
16,700.00	9,458.00	9,150.00	9,133.11	171.03	49.09	-73.86	-497.71	563.03	7,237.25	7,025.25	211.99	34.139	
16,800.00	9,457.80	9,150.00	9,133.11	173.08	49.09	-73.86	-497.71	563.03	7,335.77	7,121.77	214.00	34.280	
16,900.00	9,457.60	9,150.00	9,133.11	175.14	49.09	-73.86	-497.71	563.03	7,434.32	7,218.32	216.00	34.418	
17,000.00	9,457.40	9,150.00	9,133.11	177.19	49.09	-73.86	-497.71	563.03	7,532.92	7,314.91	218.01	34.553	
17,100.00	9,457.19	9,150.00	9,133.11	179.25	49.09	-73.86	-497.71	563.03	7,631.55	7,411.53	220.02	34.685	
17,200.00	9,456.99	9,150.00	9,133.11	181.31	49.09	-73.86	-497.71	563.03	7,730.22	7,508.19	222.03	34.815	
17,300.00	9,456.79	9,150.00	9,133.11	183.38	49.09	-73.86	-497.71	563.03	7,828.92	7,604.87	224.05	34.943	
17,400.00	9,456.59	9,150.00	9,133.11	185.44	49.09	-73.86	-497.71	563.03	7,927.66	7,701.59	226.06	35.068	
17,500.00	9,456.39	9,150.00	9,133.11	187.51	49.09	-73.86	-497.71	563.03	8,026.42	7,798.34	228.08	35.191	
17,600.00	9,456.19	9,150.00	9,133.11	189.58	49.09	-73.86	-497.71	563.03	8,125.22	7,895.12	230.10	35.311	
17,700.00	9,455.99	9,150.00	9,133.11	191.65	49.09	-73.86	-497.71	563.03	8,224.04	7,991.92	232.12	35.429	
17,800.00	9,455.78	9,150.00	9,133.11	193.73	49.09	-73.86	-497.71	563.03	8,322.90	8,088.75	234.15	35.546	
17,900.00	9,455.58	9,150.00	9,133.11	195.80	49.09	-73.86	-497.71	563.03	8,421.78	8,185.60	236.17	35.659	
18,000.00	9,455.38	9,150.00	9,133.11	197.88	49.09	-73.86	-497.71	563.03	8,520.68	8,282.48	238.20	35.771	
18,100.00	9,455.18	9,150.00	9,133.11	199.96	49.09	-73.86	-497.71	563.03	8,619.61	8,379.39	240.23	35.881	
18,200.00	9,454.98	9,150.00	9,133.11	202.04	49.09	-73.86	-497.71	563.03	8,718.57	8,476.31	242.26	35.989	
18,300.00	9,454.78	9,150.00	9,133.11	204.12	49.09	-73.86	-497.71	563.03	8,817.55	8,573.26	244.29	36.095	
18,400.00	9,454.57	9,150.00	9,133.11	206.20	49.09	-73.86	-497.71	563.03	8,916.55	8,670.23	246.32	36.199	
18,500.00	9,454.37	9,150.00	9,133.11	208.29	49.09	-73.86	-497.71	563.03	9,015.58	8,767.22	248.35	36.302	
18,600.00	9,454.17	9,150.00	9,133.11	210.38	49.09	-73.86	-497.71	563.03	9,114.62	8,864.23	250.39	36.402	
18,700.00	9,453.97	9,150.00	9,133.11	212.46	49.09	-73.86	-497.71	563.03	9,213.69	8,961.27	252.42	36.501	
18,800.00	9,453.77	9,150.00	9,133.11	214.55	49.09	-73.86	-497.71	563.03	9,312.77	9,058.31	254.46	36.598	
18,900.00	9,453.57	9,150.00	9,133.11	216.64	49.09	-73.86	-497.71	563.03	9,411.88	9,155.38	256.50	36.694	
19,000.00	9,453.37	9,150.00	9,133.11	218.74	49.09	-73.86	-497.71	563.03	9,511.00	9,252.47	258.54	36.788	
19,100.00	9,453.16	9,150.00	9,133.11	220.83	49.09	-73.86	-497.71	563.03	9,610.15	9,349.57	260.58	36.880	
19,200.00	9,452.96	9,150.00	9,133.11	222.92	49.09	-73.86	-497.71	563.03	9,709.31	9,446.69	262.62	36.971	
19,300.00	9,452.76	9,150.00	9,133.11	225.02	49.09	-73.86	-497.71	563.03	9,808.48	9,543.82	264.66	37.060	
19,400.00	9,452.56	9,150.00	9,133.11	227.11	49.09	-73.86	-497.71	563.03	9,907.68	9,640.97	266.71	37.148	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		Minimum Separation (usft)	Separation Factor	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)
0.00	0.00	7.00	7.00	0.00	0.01	149.51	-760.44	447.80	882.49				
100.00	100.00	107.00	107.00	0.19	0.23	149.51	-760.44	447.80	882.49	882.07	0.42	2,077.481	
200.00	200.00	207.00	207.00	0.73	0.77	149.51	-760.44	447.80	882.49	880.99	1.50	588.248	
300.00	300.00	307.00	307.00	1.27	1.31	149.51	-760.44	447.80	882.49	879.92	2.58	342.633	
400.00	400.00	407.00	407.00	1.81	1.84	149.51	-760.44	447.80	882.49	878.84	3.65	241.710	
500.00	500.00	507.00	507.00	2.34	2.38	149.51	-760.44	447.80	882.49	877.77	4.73	186.714	
600.00	600.00	609.90	609.90	2.88	2.93	149.51	-760.43	447.79	882.48	876.66	5.82	151.705	
700.00	700.00	751.26	751.19	3.42	3.69	149.59	-757.78	444.82	879.80	872.69	7.11	123.762	
800.00	800.00	891.89	891.39	3.96	4.45	149.81	-750.55	436.71	872.45	864.05	8.40	103.860	
900.00	900.00	993.73	992.67	4.50	5.01	150.03	-743.48	428.76	862.52	853.03	9.49	90.916	
1,000.00	1,000.00	1,093.18	1,091.57	5.03	5.56	150.25	-736.56	421.00	852.59	842.03	10.56	80.723	
1,100.00	1,100.00	1,192.63	1,190.48	5.57	6.11	150.47	-729.64	413.23	842.68	831.04	11.64	72.398	
1,200.00	1,200.00	1,292.09	1,289.39	6.11	6.67	150.71	-722.72	405.47	832.78	820.06	12.72	65.474	
1,300.00	1,300.00	1,391.54	1,388.29	6.65	7.23	150.94	-715.81	397.70	822.89	809.09	13.80	59.628	
1,400.00	1,400.00	1,490.99	1,487.20	7.18	7.79	151.19	-708.89	389.94	813.02	798.14	14.88	54.629	
1,500.00	1,500.00	1,590.44	1,586.11	7.72	8.35	151.43	-701.97	382.17	803.16	787.20	15.97	50.305	
1,600.00	1,600.00	1,689.89	1,685.01	8.26	8.92	151.69	-695.05	374.41	793.32	776.27	17.05	46.530	
1,700.00	1,700.00	1,789.34	1,783.92	8.80	9.48	151.95	-688.13	366.64	783.50	765.36	18.13	43.206	
1,800.00	1,800.00	1,888.80	1,882.83	9.33	10.05	152.22	-681.21	358.87	773.69	754.47	19.22	40.257	
1,900.00	1,899.98	1,988.28	1,981.76	9.85	10.62	-85.96	-674.29	351.11	763.77	743.50	20.26	37.693	
2,000.00	1,999.84	2,087.74	2,080.68	10.35	11.19	-86.28	-667.37	343.34	753.61	732.30	21.31	35.370	
2,100.00	2,099.45	2,187.07	2,179.46	10.86	11.75	-86.88	-660.47	335.58	743.24	720.89	22.35	33.249	
2,200.00	2,198.70	2,286.14	2,277.99	11.38	12.32	-87.76	-653.57	327.85	732.75	709.34	23.41	31.303	
2,300.00	2,297.47	2,384.82	2,376.13	11.90	12.89	-88.94	-646.71	320.14	722.28	697.81	24.47	29.514	
2,400.00	2,395.95	2,483.27	2,474.05	12.44	13.45	-90.07	-639.86	312.46	712.02	686.47	25.55	27.869	
2,500.00	2,494.43	2,581.73	2,571.96	12.99	14.01	-91.23	-633.01	304.77	702.05	675.41	26.64	26.358	
2,600.00	2,592.91	2,680.18	2,669.88	13.55	14.58	-92.42	-626.16	297.08	692.37	664.64	27.73	24.968	
2,700.00	2,691.39	2,778.64	2,767.79	14.12	15.14	-93.64	-619.31	289.39	683.01	654.18	28.83	23.689	
2,800.00	2,789.87	2,877.09	2,865.71	14.69	15.71	-94.90	-612.46	281.70	673.97	644.03	29.94	22.510	
2,900.00	2,888.35	2,975.55	2,963.62	15.27	16.27	-96.19	-605.62	274.02	665.27	634.22	31.05	21.422	
3,000.00	2,986.84	3,074.00	3,061.54	15.85	16.84	-97.51	-598.77	266.33	656.92	624.75	32.17	20.418	
3,100.00	3,085.32	3,172.46	3,159.45	16.45	17.40	-98.87	-591.92	258.64	648.94	615.64	33.30	19.490	
3,200.00	3,183.80	3,270.91	3,257.37	17.04	17.97	-100.25	-585.07	250.95	641.34	606.91	34.42	18.632	
3,300.00	3,282.28	3,369.37	3,355.28	17.64	18.53	-101.67	-578.22	243.27	634.13	598.57	35.55	17.837	
3,400.00	3,380.76	3,467.82	3,453.20	18.24	19.10	-103.12	-571.37	235.58	627.32	590.64	36.68	17.102	
3,500.00	3,479.24	3,566.28	3,551.11	18.85	19.66	-104.60	-564.52	227.89	620.93	583.12	37.81	16.421	
3,600.00	3,577.72	3,664.73	3,649.03	19.45	20.23	-106.11	-557.67	220.20	614.98	576.04	38.95	15.791	
3,700.00	3,676.21	3,763.19	3,746.94	20.07	20.79	-107.65	-550.82	212.52	609.47	569.39	40.08	15.207	
3,800.00	3,774.69	3,861.64	3,844.86	20.68	21.36	-109.21	-543.98	204.83	604.42	563.21	41.21	14.666	
3,900.00	3,873.17	3,960.10	3,942.77	21.30	21.93	-110.80	-537.13	197.14	599.84	557.50	42.34	14.166	
4,000.00	3,971.65	4,058.55	4,040.69	21.91	22.49	-112.41	-530.28	189.45	595.74	552.26	43.48	13.702	
4,100.00	4,070.13	4,157.01	4,138.60	22.53	23.06	-114.04	-523.43	181.76	592.13	547.52	44.61	13.274	
4,200.00	4,168.61	4,255.46	4,236.52	23.15	23.62	-115.68	-516.58	174.08	589.01	543.27	45.74	12.878	
4,300.00	4,267.10	4,353.92	4,334.43	23.78	24.19	-117.35	-509.73	166.39	586.40	539.54	46.87	12.513	
4,400.00	4,365.58	4,452.37	4,432.35	24.40	24.76	-119.02	-502.88	158.70	584.31	536.32	47.99	12.175	
4,500.00	4,464.06	4,543.38	4,522.88	25.03	25.28	-120.58	-496.72	151.78	583.02	533.95	49.07	11.880	
4,501.80	4,465.83	4,544.86	4,524.36	25.04	25.28	-120.60	-496.63	151.68	583.02	533.93	49.09	11.876 CC, ES	
4,600.00	4,562.54	4,625.71	4,604.97	25.66	25.73	-121.93	-492.49	147.03	584.58	534.47	50.11	11.666	
4,700.00	4,661.02	4,700.00	4,679.16	26.28	26.14	-123.10	-490.02	144.27	589.40	538.30	51.10	11.535	
4,800.00	4,759.50	4,790.43	4,769.56	26.91	26.61	-124.42	-488.75	142.84	597.20	545.05	52.16	11.450	
4,900.00	4,857.98	4,885.85	4,864.98	27.54	27.09	-125.72	-488.72	142.81	607.23	554.00	53.23	11.407	
5,000.00	4,956.47	4,984.33	4,963.47	28.17	27.59	-127.01	-488.72	142.81	617.63	563.31	54.32	11.370	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
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Reference Site: HH SO 17 20 FED 001
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Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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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 8 5 Fed 003 - 5H - OH - Plan 1 06-16-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	Separation (usft)
5,100.00	5,054.95	5,082.81	5,061.95	28.81	28.09	-128.26	-488.72	142.81	628.33	572.92	11.340			
5,200.00	5,153.43	5,181.30	5,160.43	29.44	28.59	-129.48	-488.72	142.81	639.33	582.83	11.317			
5,300.00	5,251.91	5,279.78	5,258.91	30.07	29.09	-130.65	-488.72	142.81	650.60	593.03	11.300			
5,400.00	5,350.40	5,378.26	5,357.40	30.71	29.60	-131.80	-488.72	142.81	662.12	603.46	11.287			
5,500.00	5,449.23	5,477.10	5,456.23	31.33	30.10	-132.91	-488.72	142.81	672.42	612.64	11.249			
5,600.00	5,548.53	5,576.40	5,555.53	31.91	30.61	-133.75	-488.72	142.81	680.50	619.65	11.183			
5,700.00	5,648.19	5,676.06	5,655.19	32.47	31.12	-134.32	-488.72	142.81	686.25	624.36	11.088			
5,800.00	5,748.07	5,775.94	5,755.07	33.00	31.64	-134.66	-488.72	142.81	689.60	626.72	10.967			
5,900.00	5,848.06	5,875.92	5,855.06	33.49	32.15	-103.37	-488.72	142.81	690.53	626.99	10.867			
6,000.00	5,948.06	5,975.92	5,955.06	33.97	32.67	-103.37	-488.72	142.81	690.53	625.98	10.697			
6,100.00	6,048.06	6,075.92	6,055.06	34.44	33.18	-103.37	-488.72	142.81	690.53	624.96	10.531			
6,200.00	6,148.06	6,175.92	6,155.06	34.92	33.70	-103.37	-488.72	142.81	690.53	623.94	10.370			
6,300.00	6,248.06	6,275.92	6,255.06	35.40	34.22	-103.37	-488.72	142.81	690.53	622.93	10.214			
6,400.00	6,348.06	6,375.92	6,355.06	35.88	34.74	-103.37	-488.72	142.81	690.53	621.91	10.062			
6,500.00	6,448.06	6,475.92	6,455.06	36.37	35.26	-103.37	-488.72	142.81	690.53	620.88	9.915			
6,600.00	6,548.06	6,575.92	6,555.06	36.85	35.78	-103.37	-488.72	142.81	690.53	619.86	9.771			
6,700.00	6,648.06	6,675.92	6,655.06	37.34	36.30	-103.37	-488.72	142.81	690.53	618.84	9.631			
6,800.00	6,748.06	6,775.92	6,755.06	37.83	36.82	-103.37	-488.72	142.81	690.53	617.81	9.495			
6,900.00	6,848.06	6,875.92	6,855.06	38.31	37.34	-103.37	-488.72	142.81	690.53	616.78	9.363			
7,000.00	6,948.06	6,975.92	6,955.06	38.80	37.86	-103.37	-488.72	142.81	690.53	615.75	9.234			
7,100.00	7,048.06	7,075.92	7,055.06	39.30	38.38	-103.37	-488.72	142.81	690.53	614.72	9.109			
7,200.00	7,148.06	7,175.92	7,155.06	39.79	38.90	-103.37	-488.72	142.81	690.53	613.69	8.986			
7,300.00	7,248.06	7,275.92	7,255.06	40.28	39.43	-103.37	-488.72	142.81	690.53	612.66	8.867			
7,400.00	7,348.06	7,375.92	7,355.06	40.78	39.95	-103.37	-488.72	142.81	690.53	611.62	8.751			
7,500.00	7,448.06	7,475.92	7,455.06	41.27	40.47	-103.37	-488.72	142.81	690.53	610.59	8.638			
7,600.00	7,548.06	7,575.92	7,555.06	41.77	41.00	-103.37	-488.72	142.81	690.53	609.55	8.527			
7,700.00	7,648.06	7,675.92	7,655.06	42.27	41.52	-103.37	-488.72	142.81	690.53	608.52	8.420			
7,800.00	7,748.06	7,775.92	7,755.06	42.77	42.05	-103.37	-488.72	142.81	690.53	607.48	8.314			
7,900.00	7,848.06	7,875.92	7,855.06	43.27	42.57	-103.37	-488.72	142.81	690.53	606.44	8.212			
8,000.00	7,948.06	7,975.92	7,955.06	43.77	43.10	-103.37	-488.72	142.81	690.53	605.40	8.111			
8,100.00	8,048.06	8,075.92	8,055.06	44.27	43.62	-103.37	-488.72	142.81	690.53	604.36	8.013			
8,200.00	8,148.06	8,175.92	8,155.06	44.77	44.15	-103.37	-488.72	142.81	690.53	603.32	7.918			
8,300.00	8,248.06	8,275.92	8,255.06	45.28	44.67	-103.37	-488.72	142.81	690.53	602.28	7.824			
8,400.00	8,348.06	8,375.92	8,355.06	45.78	45.20	-103.37	-488.72	142.81	690.53	601.23	7.733			
8,500.00	8,448.06	8,475.92	8,455.06	46.29	45.73	-103.37	-488.72	142.81	690.53	600.19	7.643			
8,600.00	8,548.06	8,575.92	8,555.06	46.79	46.25	-103.37	-488.72	142.81	690.53	599.14	7.556			
8,700.00	8,648.06	8,675.92	8,655.06	47.30	46.78	-103.37	-488.72	142.81	690.53	598.10	7.471			
8,800.00	8,748.06	8,775.92	8,755.06	47.81	47.31	-103.37	-488.72	142.81	690.53	597.05	7.387			
8,900.00	8,848.06	8,875.92	8,855.06	48.31	47.84	-103.37	-488.72	142.81	690.53	596.01	7.305			
9,000.00	8,948.06	8,975.92	8,955.06	48.82	48.37	-103.37	-488.72	142.81	690.53	594.96	7.225			
9,100.00	9,048.01	9,075.88	9,055.01	49.33	48.89	-87.17	-488.72	142.81	690.45	593.64	7.132			
9,200.00	9,146.57	9,174.44	9,153.57	49.87	49.41	-88.55	-488.72	142.81	689.84	591.99	7.050			
9,260.63	9,204.42	9,232.29	9,211.42	50.23	49.72	-90.00	-488.72	142.81	689.60	591.09	7.000			
9,300.00	9,240.83	9,268.70	9,247.83	50.45	49.91	-91.13	-488.72	142.81	689.76	590.82	6.971			
9,400.00	9,327.92	9,355.79	9,334.92	51.06	50.37	-94.37	-488.72	142.81	692.55	592.51	6.923 SF			
9,500.00	9,405.20	9,433.07	9,412.20	51.69	50.78	-97.51	-488.72	142.81	701.22	600.24	6.944			
9,600.00	9,470.32	9,491.55	9,470.60	52.36	51.09	-99.42	-486.14	142.78	719.09	617.36	7.069			
9,700.00	9,521.30	9,524.94	9,503.73	53.06	51.28	-98.75	-482.00	142.74	749.40	646.74	7.300			
9,800.00	9,556.60	9,539.35	9,517.94	53.81	51.36	-95.14	-479.62	142.72	792.59	688.69	7.629			
9,900.00	9,575.13	9,540.06	9,518.63	54.59	51.36	-88.78	-479.50	142.72	846.53	741.92	8.092			
10,000.00	9,577.07	9,531.33	9,510.03	55.39	51.31	-82.75	-480.99	142.73	907.90	803.76	8.718			
10,100.00	9,574.60	9,521.84	9,500.66	56.24	51.26	-82.27	-482.47	142.74	973.35	868.68	9.299			

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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			Between		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)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor	
10,200.00	9,572.13	9,513.83	9,492.74	57.14	51.22	-81.97	-483.59	142.76	1,041.75	936.47	105.28	9.895	
10,300.00	9,569.66	9,500.00	9,479.01	58.09	51.14	-81.29	-485.27	142.77	1,112.56	1,006.80	105.76	10.520	
10,400.00	9,567.19	9,500.00	9,479.01	59.08	51.14	-81.66	-485.27	142.77	1,185.15	1,078.47	106.68	11.110	
10,500.00	9,564.72	9,500.00	9,479.01	60.11	51.14	-82.02	-485.27	142.77	1,259.29	1,151.67	107.61	11.702	
10,600.00	9,562.25	9,500.00	9,479.01	61.18	51.14	-82.14	-485.27	142.77	1,335.14	1,226.48	108.66	12.288	
10,700.00	9,559.79	9,500.00	9,479.01	62.30	51.14	-82.14	-485.27	142.77	1,413.88	1,304.09	109.79	12.878	
10,800.00	9,557.32	9,500.00	9,479.01	63.48	51.14	-82.14	-485.27	142.77	1,495.17	1,384.19	110.99	13.472	
10,900.00	9,554.86	9,480.75	9,459.84	64.71	51.04	-80.87	-487.06	142.79	1,578.22	1,466.54	111.68	14.131	
11,000.00	9,552.39	9,477.88	9,456.98	65.98	51.02	-80.68	-487.27	142.79	1,663.36	1,550.48	112.88	14.735	
11,100.00	9,549.93	9,475.29	9,454.39	67.30	51.01	-80.50	-487.45	142.79	1,750.06	1,635.93	114.14	15.333	
11,200.00	9,547.46	9,472.93	9,452.04	68.67	50.99	-80.35	-487.60	142.80	1,838.10	1,722.66	115.44	15.923	
11,300.00	9,545.00	9,470.77	9,449.88	70.07	50.98	-80.21	-487.73	142.80	1,927.30	1,810.51	116.78	16.503	
11,400.00	9,542.54	9,450.00	9,429.13	71.51	50.87	-78.84	-488.58	142.80	2,017.87	1,900.32	117.54	17.167	
11,500.00	9,540.07	9,450.00	9,429.13	72.99	50.87	-78.84	-488.58	142.80	2,108.88	1,989.85	119.03	17.718	
11,600.00	9,537.61	9,450.00	9,429.13	74.50	50.87	-78.84	-488.58	142.80	2,200.67	2,080.13	120.54	18.257	
11,700.00	9,535.14	9,450.00	9,429.13	76.04	50.87	-78.84	-488.58	142.80	2,293.14	2,171.06	122.09	18.783	
11,800.00	9,532.68	9,450.00	9,429.13	77.61	50.87	-78.84	-488.58	142.80	2,386.23	2,262.56	123.66	19.297	
11,900.00	9,530.21	9,450.00	9,429.13	79.21	50.87	-78.84	-488.58	142.80	2,479.85	2,354.58	125.26	19.797	
12,000.00	9,527.75	9,450.00	9,429.13	80.83	50.87	-78.84	-488.58	142.80	2,573.95	2,447.06	126.89	20.285	
12,100.00	9,525.28	9,450.00	9,429.13	82.48	50.87	-78.84	-488.58	142.80	2,668.48	2,539.94	128.54	20.760	
12,200.00	9,522.82	9,450.00	9,429.13	84.15	50.87	-78.84	-488.58	142.80	2,763.39	2,633.18	130.21	21.222	
12,300.00	9,520.36	9,450.00	9,429.13	85.85	50.87	-78.84	-488.58	142.80	2,858.66	2,726.75	131.91	21.671	
12,400.00	9,517.89	9,450.00	9,429.13	87.56	50.87	-78.84	-488.58	142.80	2,954.23	2,820.61	133.62	22.109	
12,500.00	9,515.43	9,450.00	9,429.13	89.29	50.87	-78.84	-488.58	142.80	3,050.09	2,914.73	135.36	22.534	
12,600.00	9,512.96	9,450.00	9,429.13	91.05	50.87	-78.84	-488.58	142.80	3,146.21	3,009.10	137.11	22.947	
12,700.00	9,510.50	9,450.00	9,429.13	92.82	50.87	-78.84	-488.58	142.80	3,242.56	3,103.69	138.88	23.349	
12,800.00	9,508.03	9,450.00	9,429.13	94.60	50.87	-78.84	-488.58	142.80	3,339.13	3,198.47	140.66	23.739	
12,900.00	9,505.57	9,450.00	9,429.13	96.40	50.87	-78.84	-488.58	142.80	3,435.89	3,293.43	142.46	24.119	
13,000.00	9,503.10	9,450.00	9,429.13	98.22	50.87	-78.84	-488.58	142.80	3,532.83	3,388.57	144.27	24.488	
13,100.00	9,500.64	9,450.00	9,429.13	100.05	50.87	-78.84	-488.58	142.80	3,629.94	3,483.85	146.09	24.847	
13,200.00	9,498.18	9,450.00	9,429.13	101.89	50.87	-78.84	-488.58	142.80	3,727.20	3,579.28	147.93	25.196	
13,300.00	9,495.71	9,450.00	9,429.13	103.74	50.87	-78.84	-488.58	142.80	3,824.61	3,674.83	149.78	25.536	
13,400.00	9,493.25	9,450.00	9,429.13	105.61	50.87	-78.84	-488.58	142.80	3,922.14	3,770.51	151.64	25.866	
13,500.00	9,490.78	9,450.00	9,429.13	107.49	50.87	-78.84	-488.58	142.80	4,019.80	3,866.29	153.50	26.187	
13,600.00	9,488.32	9,450.00	9,429.13	109.37	50.87	-78.84	-488.58	142.80	4,117.56	3,962.18	155.38	26.499	
13,700.00	9,485.85	9,450.00	9,429.13	111.27	50.87	-78.84	-488.58	142.80	4,215.44	4,058.16	157.27	26.803	
13,800.00	9,483.39	9,450.00	9,429.13	113.18	50.87	-78.84	-488.58	142.80	4,313.41	4,154.24	159.17	27.099	
13,900.00	9,480.92	9,450.00	9,429.13	115.09	50.87	-78.84	-488.58	142.80	4,411.47	4,250.39	161.08	27.387	
14,000.00	9,478.46	9,450.00	9,429.13	117.02	50.87	-78.84	-488.58	142.80	4,509.61	4,346.62	162.99	27.668	
14,100.00	9,476.00	9,450.00	9,429.13	118.95	50.87	-78.84	-488.58	142.80	4,607.84	4,442.93	164.91	27.941	
14,200.00	9,473.53	9,444.18	9,423.32	120.89	50.84	-78.46	-488.68	142.81	4,706.11	4,539.51	166.80	28.249	
14,300.00	9,471.07	9,443.79	9,422.92	122.84	50.84	-78.43	-488.68	142.81	4,804.47	4,635.96	168.51	28.511	
14,400.00	9,468.60	9,443.40	9,422.53	124.79	50.84	-78.40	-488.69	142.81	4,902.91	4,732.47	170.44	28.767	
14,500.00	9,466.14	9,443.03	9,422.16	126.75	50.83	-78.38	-488.69	142.81	5,001.40	4,829.03	172.37	29.016	
14,600.00	9,463.67	9,437.11	9,416.24	128.72	50.80	-77.99	-488.72	142.81	5,099.98	4,925.93	174.05	29.301	
14,700.00	9,462.03	9,437.11	9,416.24	130.69	50.80	-85.37	-488.72	142.81	5,198.73	5,019.17	179.56	28.952	
14,800.00	9,461.83	9,437.11	9,416.24	132.67	50.80	-85.37	-488.72	142.81	5,297.56	5,116.01	181.54	29.181	
14,900.00	9,461.63	9,437.11	9,416.24	134.65	50.80	-85.37	-488.72	142.81	5,396.48	5,212.95	183.53	29.404	
15,000.00	9,461.43	9,437.11	9,416.24	136.63	50.80	-85.37	-488.72	142.81	5,495.44	5,309.92	185.52	29.622	
15,100.00	9,461.22	9,437.11	9,416.24	138.63	50.80	-85.37	-488.72	142.81	5,594.44	5,406.93	187.51	29.835	
15,200.00	9,461.02	9,437.11	9,416.24	140.62	50.80	-85.37	-488.72	142.81	5,693.47	5,503.96	189.51	30.043	
15,300.00	9,460.82	9,437.11	9,416.24	142.62	50.80	-85.37	-488.72	142.81	5,792.54	5,601.02	191.52	30.246	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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		Minimum Separation		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		
15,400.00	9,460.62	9,437.11	9,416.24	144.63	50.80	-85.37	-488.72	142.81	5,891.64	5,698.11	193.53	30.444		
15,500.00	9,460.42	9,437.11	9,416.24	146.64	50.80	-85.37	-488.72	142.81	5,990.77	5,795.23	195.54	30.637		
15,600.00	9,460.22	9,437.11	9,416.24	148.65	50.80	-85.37	-488.72	142.81	6,089.93	5,892.37	197.56	30.826		
15,700.00	9,460.02	9,437.11	9,416.24	150.67	50.80	-85.37	-488.72	142.81	6,189.11	5,989.53	199.58	31.011		
15,800.00	9,459.81	9,437.11	9,416.24	152.69	50.80	-85.37	-488.72	142.81	6,288.32	6,086.72	201.60	31.192		
15,900.00	9,459.61	9,437.11	9,416.24	154.71	50.80	-85.37	-488.72	142.81	6,387.55	6,183.93	203.63	31.369		
16,000.00	9,459.41	9,437.11	9,416.24	156.74	50.80	-85.37	-488.72	142.81	6,486.81	6,281.15	205.66	31.542		
16,100.00	9,459.21	9,437.11	9,416.24	158.77	50.80	-85.37	-488.72	142.81	6,586.09	6,378.40	207.69	31.711		
16,200.00	9,459.01	9,437.11	9,416.24	160.81	50.80	-85.37	-488.72	142.81	6,685.40	6,475.67	209.73	31.876		
16,300.00	9,458.81	9,437.11	9,416.24	162.85	50.80	-85.37	-488.72	142.81	6,784.72	6,572.95	211.77	32.038		
16,400.00	9,458.60	9,437.11	9,416.24	164.89	50.80	-85.37	-488.72	142.81	6,884.06	6,670.25	213.81	32.197		
16,500.00	9,458.40	9,437.11	9,416.24	166.93	50.80	-85.37	-488.72	142.81	6,983.42	6,767.56	215.86	32.352		
16,600.00	9,458.20	9,437.11	9,416.24	168.98	50.80	-85.37	-488.72	142.81	7,082.80	6,864.89	217.91	32.504		
16,700.00	9,458.00	9,437.11	9,416.24	171.03	50.80	-85.37	-488.72	142.81	7,182.20	6,962.24	219.96	32.653		
16,800.00	9,457.80	9,437.11	9,416.24	173.08	50.80	-85.37	-488.72	142.81	7,281.61	7,059.60	222.01	32.798		
16,900.00	9,457.60	9,437.11	9,416.24	175.14	50.80	-85.37	-488.72	142.81	7,381.04	7,156.97	224.07	32.941		
17,000.00	9,457.40	9,437.11	9,416.24	177.19	50.80	-85.37	-488.72	142.81	7,480.48	7,254.36	226.13	33.081		
17,100.00	9,457.19	9,437.11	9,416.24	179.25	50.80	-85.37	-488.72	142.81	7,579.94	7,351.75	228.19	33.218		
17,200.00	9,456.99	9,437.11	9,416.24	181.31	50.80	-85.37	-488.72	142.81	7,679.41	7,449.17	230.25	33.353		
17,300.00	9,456.79	9,437.11	9,416.24	183.38	50.80	-85.37	-488.72	142.81	7,778.90	7,546.59	232.31	33.485		
17,400.00	9,456.59	9,437.11	9,416.24	185.44	50.80	-85.37	-488.72	142.81	7,878.40	7,644.02	234.38	33.614		
17,500.00	9,456.39	9,437.11	9,416.24	187.51	50.80	-85.37	-488.72	142.81	7,977.91	7,741.46	236.45	33.741		
17,600.00	9,456.19	9,437.11	9,416.24	189.58	50.80	-85.37	-488.72	142.81	8,077.43	7,838.92	238.52	33.865		
17,700.00	9,455.99	9,437.11	9,416.24	191.65	50.80	-85.37	-488.72	142.81	8,176.97	7,936.38	240.59	33.987		
17,800.00	9,455.78	9,437.11	9,416.24	193.73	50.80	-85.37	-488.72	142.81	8,276.51	8,033.85	242.66	34.107		
17,900.00	9,455.58	9,437.11	9,416.24	195.80	50.80	-85.37	-488.72	142.81	8,376.07	8,131.33	244.74	34.225		
18,000.00	9,455.38	9,437.11	9,416.24	197.88	50.80	-85.37	-488.72	142.81	8,475.64	8,228.83	246.81	34.340		
18,100.00	9,455.18	9,437.11	9,416.24	199.96	50.80	-85.37	-488.72	142.81	8,575.22	8,326.32	248.89	34.453		
18,200.00	9,454.98	9,437.11	9,416.24	202.04	50.80	-85.37	-488.72	142.81	8,674.81	8,423.83	250.97	34.565		
18,300.00	9,454.78	9,437.11	9,416.24	204.12	50.80	-85.37	-488.72	142.81	8,774.40	8,521.35	253.05	34.674		
18,400.00	9,454.57	9,437.11	9,416.24	206.20	50.80	-85.37	-488.72	142.81	8,874.01	8,618.87	255.14	34.781		
18,500.00	9,454.37	9,437.11	9,416.24	208.29	50.80	-85.37	-488.72	142.81	8,973.62	8,716.40	257.22	34.887		
18,600.00	9,454.17	9,437.11	9,416.24	210.38	50.80	-85.37	-488.72	142.81	9,073.25	8,813.94	259.31	34.990		
18,700.00	9,453.97	9,437.11	9,416.24	212.46	50.80	-85.37	-488.72	142.81	9,172.88	8,911.48	261.39	35.092		
18,800.00	9,453.77	9,437.11	9,416.24	214.55	50.80	-85.37	-488.72	142.81	9,272.52	9,009.03	263.48	35.192		
18,900.00	9,453.57	9,437.11	9,416.24	216.64	50.80	-85.37	-488.72	142.81	9,372.16	9,106.59	265.57	35.290		
19,000.00	9,453.37	9,437.11	9,416.24	218.74	50.80	-85.37	-488.72	142.81	9,471.82	9,204.15	267.66	35.387		
19,100.00	9,453.16	9,437.11	9,416.24	220.83	50.80	-85.37	-488.72	142.81	9,571.48	9,301.72	269.76	35.482		
19,200.00	9,452.96	9,437.11	9,416.24	222.92	50.80	-85.37	-488.72	142.81	9,671.15	9,399.30	271.85	35.575		
19,300.00	9,452.76	9,437.11	9,416.24	225.02	50.80	-85.37	-488.72	142.81	9,770.82	9,496.88	273.94	35.667		
19,400.00	9,452.56	9,437.11	9,416.24	227.11	50.80	-85.37	-488.72	142.81	9,870.51	9,594.47	276.04	35.758		
19,500.00	9,452.36	9,437.11	9,416.24	229.21	50.80	-85.37	-488.72	142.81	9,970.19	9,692.06	278.13	35.847		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 13HD - OH / Job #61220 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 497-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	-120.50	-533.01	-905.00	1,050.36				
100.00	100.00	93.74	93.74	0.19	0.13	-120.50	-532.93	-904.75	1,050.06	1,049.73	0.33	3,212.736	
200.00	200.00	199.26	199.25	0.73	0.33	-120.51	-532.66	-903.88	1,049.21	1,048.15	1.06	988.648	
300.00	300.00	303.46	303.44	1.27	0.67	-120.52	-532.16	-902.70	1,047.99	1,046.05	1.94	539.716	
400.00	400.00	412.25	412.21	1.81	1.02	-120.58	-531.99	-900.38	1,046.08	1,043.26	2.83	370.206	
500.00	500.00	503.08	503.02	2.34	1.20	-120.64	-532.08	-898.40	1,044.25	1,040.71	3.54	294.630	
600.00	600.00	610.23	610.14	2.88	1.45	-120.73	-532.54	-895.90	1,042.46	1,038.12	4.34	240.473	
700.00	700.00	710.92	710.76	3.42	1.83	-120.88	-533.78	-892.44	1,040.14	1,034.89	5.25	198.152	
800.00	800.00	796.74	796.52	3.96	2.20	-121.04	-535.47	-889.79	1,038.52	1,032.36	6.16	168.567	
835.50	835.50	823.73	823.50	4.15	2.33	-121.09	-536.16	-889.24	1,038.37	1,031.90	6.48	160.344	
900.00	900.00	871.00	870.74	4.50	2.55	-121.17	-537.61	-888.76	1,038.86	1,031.82	7.04	147.561	
1,000.00	1,000.00	957.04	956.72	5.03	2.96	-121.30	-540.60	-889.18	1,041.09	1,033.11	7.98	130.407	
1,100.00	1,100.00	1,034.54	1,034.16	5.57	3.33	-121.33	-542.65	-891.59	1,045.13	1,036.25	8.89	117.613	
1,200.00	1,200.00	1,134.92	1,134.33	6.11	3.81	-121.14	-542.56	-898.13	1,050.66	1,040.75	9.90	106.093	
1,300.00	1,300.00	1,234.99	1,234.12	6.65	4.29	-120.85	-540.60	-905.12	1,055.65	1,044.71	10.93	96.555	
1,400.00	1,400.00	1,312.02	1,310.90	7.18	4.68	-120.62	-539.37	-911.21	1,061.69	1,049.82	11.86	89.507	
1,500.00	1,500.00	1,388.74	1,387.20	7.72	5.08	-120.37	-538.65	-919.14	1,070.10	1,057.31	12.80	83.615	
1,600.00	1,600.00	1,472.33	1,470.14	8.26	5.52	-120.05	-537.74	-929.62	1,080.39	1,066.61	13.78	78.395	
1,700.00	1,700.00	1,563.10	1,560.03	8.80	6.02	-119.66	-536.55	-942.09	1,091.70	1,076.88	14.82	73.683	
1,800.00	1,800.00	1,649.15	1,645.13	9.33	6.50	-119.28	-535.32	-954.79	1,103.91	1,088.07	15.84	69.705	
1,900.00	1,899.98	1,724.00	1,718.92	9.85	6.93	2.95	-534.38	-967.28	1,116.21	1,099.52	16.69	66.876	
2,000.00	1,999.84	1,787.80	1,781.52	10.35	7.32	3.27	-533.97	-979.61	1,127.75	1,110.23	17.53	64.349	
2,100.00	2,099.45	1,858.43	1,850.38	10.86	7.76	3.65	-534.09	-995.33	1,138.86	1,120.47	18.39	61.936	
2,200.00	2,198.70	1,947.16	1,936.45	11.38	8.33	4.17	-534.31	-1,016.84	1,148.46	1,129.12	19.34	59.382	
2,300.00	2,297.47	2,057.73	2,043.87	11.90	9.05	4.82	-534.47	-1,043.05	1,154.22	1,133.81	20.40	56.568	
2,400.00	2,395.95	2,158.28	2,141.72	12.44	9.72	5.40	-534.89	-1,066.17	1,157.83	1,136.34	21.49	53.869	
2,500.00	2,494.43	2,255.58	2,236.38	12.99	10.38	5.96	-535.22	-1,088.71	1,161.68	1,139.11	22.57	51.464	
2,600.00	2,592.91	2,353.27	2,331.34	13.55	11.05	6.54	-535.20	-1,111.65	1,165.80	1,142.14	23.66	49.269	
2,700.00	2,691.39	2,443.36	2,418.82	14.12	11.68	7.08	-535.12	-1,133.14	1,170.38	1,145.66	24.71	47.356	
2,800.00	2,789.87	2,530.50	2,503.25	14.69	12.29	7.60	-535.43	-1,154.74	1,176.10	1,150.35	25.76	45.664	
2,900.00	2,888.35	2,624.41	2,594.07	15.27	12.97	8.14	-536.35	-1,178.60	1,182.78	1,155.94	26.84	44.065	
3,000.00	2,986.84	2,724.63	2,691.00	15.85	13.70	8.70	-537.50	-1,204.02	1,189.61	1,161.64	27.97	42.535	
3,100.00	3,085.32	2,819.22	2,782.50	16.45	14.39	9.22	-538.69	-1,228.02	1,196.60	1,167.54	29.06	41.172	
3,200.00	3,183.80	2,917.78	2,877.71	17.04	15.12	9.75	-540.01	-1,253.46	1,204.15	1,173.96	30.19	39.890	
3,300.00	3,282.28	3,018.43	2,975.01	17.64	15.86	10.29	-541.47	-1,279.14	1,211.54	1,180.22	31.32	38.678	
3,400.00	3,380.76	3,112.71	3,066.13	18.24	16.56	10.78	-542.91	-1,303.31	1,219.19	1,186.76	32.43	37.598	
3,500.00	3,479.24	3,205.15	3,155.33	18.85	17.26	11.27	-544.25	-1,327.52	1,227.45	1,193.93	33.52	36.615	
3,600.00	3,577.72	3,297.44	3,244.24	19.45	17.97	11.77	-545.39	-1,352.27	1,236.35	1,201.73	34.62	35.710	
3,700.00	3,676.21	3,413.88	3,356.40	20.07	18.66	12.41	-546.40	-1,383.52	1,245.31	1,209.44	35.87	34.721	
3,800.00	3,774.69	3,583.85	3,521.95	20.68	20.07	13.24	-547.32	-1,421.90	1,249.81	1,212.40	37.41	33.411	
3,900.00	3,873.17	3,702.60	3,638.49	21.30	20.86	13.74	-548.38	-1,444.60	1,251.42	1,212.78	38.64	32.389	
4,000.00	3,971.65	3,809.96	3,744.11	21.91	21.57	14.16	-549.72	-1,463.83	1,252.03	1,212.23	39.80	31.459	
4,100.00	4,070.13	3,901.72	3,834.36	22.53	22.17	14.52	-550.84	-1,480.36	1,252.80	1,211.92	40.87	30.650	
4,200.00	4,168.61	4,132.56	4,063.14	23.15	23.53	15.26	-553.93	-1,510.14	1,248.78	1,206.09	42.69	29.253	
4,300.00	4,267.10	4,258.81	4,189.17	23.78	24.17	15.54	-555.64	-1,517.16	1,237.51	1,193.61	43.90	28.190	
4,400.00	4,365.58	4,359.34	4,289.56	24.40	24.68	15.77	-557.03	-1,522.31	1,226.03	1,181.05	44.97	27.260	
4,500.00	4,464.06	4,480.52	4,410.62	25.03	25.28	16.12	-556.90	-1,527.78	1,213.58	1,167.43	46.16	26.293	
4,600.00	4,562.54	4,580.45	4,510.46	25.66	25.77	16.45	-555.95	-1,531.67	1,200.36	1,153.13	47.23	25.416	
4,700.00	4,661.02	4,693.13	4,623.10	26.28	26.32	16.77	-555.67	-1,534.81	1,186.27	1,137.90	48.37	24.527	
4,800.00	4,759.50	4,792.34	4,722.29	26.91	26.79	17.02	-556.20	-1,536.85	1,171.74	1,122.30	49.43	23.705	
4,900.00	4,857.98	4,899.04	4,828.97	27.54	27.29	17.29	-556.80	-1,538.94	1,157.16	1,106.63	50.53	22.901	
5,000.00	4,956.47	5,018.40	4,948.31	28.17	27.84	17.66	-555.94	-1,539.86	1,141.14	1,089.45	51.68	22.079	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 13HD - OH / Job #61220 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 174-MWD, 497-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Hightside Tooface (')	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,100.00	5,054.95	5,121.81	5,051.71	28.81	28.30	18.03	-554.15	-1,539.62	1,123.93	1,071.18	52.75	21.307	
5,200.00	5,153.43	5,219.01	5,148.89	29.44	28.73	18.38	-552.42	-1,539.30	1,106.68	1,052.90	53.78	20.576	
5,300.00	5,251.91	5,314.22	5,244.08	30.07	29.16	18.75	-550.66	-1,539.20	1,089.67	1,034.86	54.82	19.879	
5,400.00	5,350.40	5,409.20	5,339.05	30.71	29.60	19.12	-548.96	-1,539.38	1,073.03	1,017.17	55.86	19.208	
5,500.00	5,449.23	5,505.84	5,435.67	31.33	30.05	19.37	-547.34	-1,539.80	1,058.72	1,001.76	56.96	18.588	
5,600.00	5,548.53	5,605.00	5,534.82	31.91	30.52	19.60	-545.86	-1,540.26	1,047.77	989.77	58.00	18.065	
5,700.00	5,648.19	5,703.86	5,633.68	32.47	30.99	19.76	-544.81	-1,540.66	1,040.16	981.18	58.98	17.637	
5,800.00	5,748.07	5,803.40	5,733.22	33.00	31.46	19.87	-544.03	-1,541.10	1,035.94	976.05	59.89	17.298	
5,897.61	5,845.66	5,903.14	5,832.96	33.48	31.94	19.92	-543.52	-1,541.35	1,034.65	973.91	60.74	17.035	
5,900.00	5,848.06	5,905.48	5,835.29	33.49	31.95	-101.96	-543.51	-1,541.36	1,034.83	974.06	60.77	17.028	
6,000.00	5,948.06	6,003.13	5,932.94	33.97	32.42	-101.94	-543.17	-1,541.63	1,035.03	973.26	61.77	16.756	
6,100.00	6,048.06	6,101.11	6,030.92	34.44	32.90	-101.92	-542.82	-1,542.07	1,035.40	972.63	62.78	16.494	
6,200.00	6,148.06	6,196.78	6,126.58	34.92	33.37	-101.89	-542.53	-1,542.82	1,036.11	972.34	63.77	16.247	
6,300.00	6,248.06	6,293.25	6,223.05	35.40	33.84	-101.89	-542.64	-1,543.90	1,037.22	972.44	64.78	16.012	
6,400.00	6,348.06	6,393.50	6,323.28	35.88	34.33	-101.93	-543.73	-1,544.99	1,038.52	972.72	65.79	15.785	
6,500.00	6,448.06	6,495.39	6,425.16	36.37	34.81	-102.02	-545.48	-1,545.74	1,039.59	972.78	66.81	15.560	
6,600.00	6,548.06	6,594.54	6,524.28	36.85	35.29	-102.13	-547.70	-1,546.40	1,040.70	972.89	67.82	15.346	
6,700.00	6,648.06	6,697.64	6,627.34	37.34	35.77	-102.28	-550.64	-1,546.87	1,041.76	972.91	68.84	15.133	
6,800.00	6,748.06	6,802.73	6,732.39	37.83	36.27	-102.44	-553.58	-1,546.84	1,042.33	972.46	69.87	14.918	
6,900.00	6,848.06	6,904.27	6,833.89	38.31	36.74	-102.59	-556.26	-1,546.49	1,042.57	971.68	70.89	14.708	
7,000.00	6,948.06	7,007.60	6,937.18	38.80	37.22	-102.74	-558.99	-1,545.98	1,042.66	970.75	71.91	14.500	
7,100.00	7,048.06	7,112.24	7,041.79	39.30	37.71	-102.88	-561.38	-1,545.08	1,042.33	969.39	72.94	14.291	
7,200.00	7,148.06	7,212.60	7,142.12	39.79	38.17	-103.03	-563.90	-1,543.90	1,041.75	967.80	73.94	14.088	
7,300.00	7,248.06	7,319.43	7,248.89	40.28	38.67	-103.21	-566.92	-1,542.21	1,040.85	965.87	74.98	13.881	
7,400.00	7,348.06	7,425.76	7,355.16	40.78	39.16	-103.39	-569.72	-1,539.84	1,039.29	963.27	76.02	13.671	
7,500.00	7,448.06	7,527.62	7,456.96	41.27	39.62	-103.54	-571.75	-1,537.29	1,037.31	960.28	77.03	13.466	
7,600.00	7,548.06	7,626.74	7,556.05	41.77	40.08	-103.65	-573.26	-1,534.95	1,035.38	957.34	78.03	13.268	
7,700.00	7,648.06	7,726.18	7,655.45	42.27	40.54	-103.76	-574.68	-1,532.58	1,033.39	954.36	79.04	13.075	
7,800.00	7,748.06	7,821.00	7,750.24	42.77	40.98	-103.83	-575.61	-1,530.76	1,031.76	951.74	80.02	12.893	
7,900.00	7,848.06	7,917.06	7,846.29	43.27	41.43	-103.88	-576.30	-1,529.46	1,030.63	949.61	81.02	12.721	
8,000.00	7,948.06	8,015.59	7,944.81	43.77	41.90	-103.92	-576.79	-1,528.40	1,029.70	947.67	82.02	12.554	
8,100.00	8,048.06	8,115.58	8,044.80	44.27	42.38	-103.91	-576.40	-1,527.67	1,028.90	945.86	83.04	12.390	
8,200.00	8,148.06	8,214.96	8,144.17	44.77	42.86	-103.88	-575.60	-1,526.96	1,028.00	943.95	84.06	12.230	
8,300.00	8,248.06	8,312.10	8,241.31	45.28	43.33	-103.83	-574.59	-1,526.57	1,027.37	942.31	85.07	12.077	
8,400.00	8,348.06	8,409.97	8,339.17	45.78	43.81	-103.78	-573.55	-1,526.42	1,026.97	940.88	86.08	11.930	
8,500.00	8,448.06	8,507.57	8,436.77	46.29	44.30	-103.72	-572.51	-1,526.48	1,026.77	939.67	87.10	11.788	
8,527.47	8,475.53	8,534.33	8,463.53	46.43	44.43	-103.70	-572.21	-1,526.54	1,026.76	939.38	87.38	11.750	
8,600.00	8,548.06	8,605.36	8,534.55	46.79	44.79	-103.65	-571.39	-1,526.80	1,026.82	938.69	88.12	11.652	
8,700.00	8,648.06	8,703.39	8,632.57	47.30	45.28	-103.59	-570.30	-1,527.31	1,027.06	937.91	89.15	11.520	
8,800.00	8,748.06	8,801.80	8,730.97	47.81	45.78	-103.52	-569.23	-1,527.99	1,027.48	937.30	90.18	11.393	
8,900.00	8,848.06	8,898.51	8,827.68	48.31	46.28	-103.46	-568.29	-1,528.86	1,028.13	936.92	91.21	11.272	
9,000.00	8,948.06	8,997.97	8,927.12	48.82	46.79	-103.40	-567.44	-1,529.92	1,028.97	936.72	92.25	11.154	
9,100.00	9,048.01	9,094.24	9,023.38	49.33	47.28	66.35	-566.66	-1,531.12	1,029.34	935.96	93.38	11.023	
9,200.00	9,146.57	9,212.70	9,141.79	49.87	47.89	68.08	-563.51	-1,532.20	1,023.30	928.70	94.61	10.816	
9,300.00	9,240.83	9,299.31	9,228.30	50.45	48.33	71.00	-559.42	-1,532.74	1,010.81	915.29	95.53	10.581	
9,400.00	9,327.92	9,387.30	9,315.98	51.06	48.77	75.29	-552.33	-1,533.77	994.70	898.06	96.65	10.292	
9,500.00	9,405.20	9,475.79	9,403.18	51.69	49.21	80.85	-537.61	-1,534.51	977.34	879.25	98.09	9.964	
9,600.00	9,470.32	9,522.64	9,448.59	52.36	49.43	84.75	-526.08	-1,534.48	963.18	863.93	99.25	9.704	
9,700.00	9,521.30	9,545.79	9,470.81	53.06	49.54	86.77	-519.58	-1,534.46	956.35	856.16	100.19	9.546	
9,726.11	9,532.08	9,548.79	9,473.68	53.26	49.55	86.98	-518.70	-1,534.46	956.03	855.62	100.41	9.521 CC, ES	
9,800.00	9,556.60	9,551.42	9,476.19	53.81	49.56	86.87	-517.93	-1,534.46	958.62	857.60	101.02	9.490 SF	
9,900.00	9,575.13	9,543.19	9,468.32	54.59	49.52	85.22	-520.34	-1,534.46	970.21	868.43	101.79	9.532	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 - 13HD - OH / Job #61220 - Surveys (Patterson 815)														Offset Site Error:	0.00 usft
Survey Program: 174-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 Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
10,000.00	9,577.07	9,524.60	9,450.48	55.39	49.44	82.77	-525.55	-1,534.48	990.30	887.95	102.36	9.675			
10,100.00	9,574.60	9,505.47	9,432.01	56.24	49.35	81.53	-530.56	-1,534.49	1,021.29	918.43	102.86	9.929			
10,200.00	9,572.13	9,487.00	9,414.10	57.14	49.26	80.26	-535.06	-1,534.51	1,063.45	960.09	103.36	10.289			
10,300.00	9,569.66	9,487.00	9,414.10	58.09	49.26	80.00	-535.06	-1,534.51	1,115.68	1,011.57	104.12	10.716			
10,400.00	9,567.19	9,460.77	9,388.50	59.08	49.13	78.08	-540.79	-1,534.48	1,176.26	1,071.81	104.45	11.261			
10,500.00	9,564.72	9,449.43	9,377.38	60.11	49.08	76.93	-543.01	-1,534.43	1,244.31	1,139.33	104.99	11.852			
10,600.00	9,562.25	9,439.40	9,367.52	61.18	49.03	76.12	-544.84	-1,534.36	1,318.03	1,212.28	105.76	12.463			
10,700.00	9,559.79	9,430.47	9,358.72	62.30	48.98	75.56	-546.36	-1,534.29	1,395.00	1,288.30	106.71	13.073			
10,800.00	9,557.32	9,422.47	9,350.82	63.48	48.94	75.06	-547.64	-1,534.22	1,474.63	1,366.91	107.72	13.690			
10,900.00	9,554.86	9,393.00	9,321.64	64.71	48.80	73.21	-551.67	-1,533.86	1,556.92	1,448.71	108.22	14.387			
11,000.00	9,552.39	9,393.00	9,321.64	65.98	48.80	73.21	-551.67	-1,533.86	1,640.55	1,531.05	109.50	14.982			
11,100.00	9,549.93	9,393.00	9,321.64	67.30	48.80	73.21	-551.67	-1,533.86	1,725.93	1,615.10	110.83	15.573			
11,200.00	9,547.46	9,393.00	9,321.64	68.67	48.80	73.21	-551.67	-1,533.86	1,812.80	1,700.60	112.20	16.157			
11,300.00	9,545.00	9,393.00	9,321.64	70.07	48.80	73.21	-551.67	-1,533.86	1,900.96	1,787.36	113.60	16.734			
11,400.00	9,542.54	9,393.00	9,321.64	71.51	48.80	73.21	-551.67	-1,533.86	1,990.24	1,875.20	115.04	17.300			
11,500.00	9,540.07	9,393.00	9,321.64	72.99	48.80	73.21	-551.67	-1,533.86	2,080.50	1,963.98	116.51	17.856			
11,600.00	9,537.61	9,393.00	9,321.64	74.50	48.80	73.21	-551.67	-1,533.86	2,171.61	2,053.59	118.02	18.401			
11,700.00	9,535.14	9,393.00	9,321.64	76.04	48.80	73.21	-551.67	-1,533.86	2,263.47	2,143.92	119.55	18.933			
11,800.00	9,532.68	9,393.00	9,321.64	77.61	48.80	73.21	-551.67	-1,533.86	2,355.99	2,234.88	121.11	19.454			
11,900.00	9,530.21	9,361.73	9,290.55	79.21	48.64	71.29	-555.00	-1,533.43	2,448.55	2,326.83	121.72	20.116			
12,000.00	9,527.75	9,357.58	9,286.42	80.83	48.62	71.03	-555.38	-1,533.37	2,542.03	2,418.85	123.18	20.637			
12,100.00	9,525.28	9,353.65	9,282.50	82.48	48.60	70.79	-555.74	-1,533.32	2,635.98	2,511.31	124.67	21.144			
12,200.00	9,522.82	9,349.91	9,278.78	84.15	48.58	70.57	-556.06	-1,533.28	2,730.33	2,604.16	126.18	21.639			
12,300.00	9,520.36	9,346.36	9,275.24	85.85	48.56	70.35	-556.36	-1,533.23	2,825.07	2,697.36	127.71	22.121			
12,400.00	9,517.89	9,342.98	9,271.87	87.56	48.55	70.15	-556.64	-1,533.19	2,920.14	2,790.88	129.26	22.591			
12,500.00	9,515.43	9,339.75	9,268.65	89.29	48.53	69.95	-556.89	-1,533.16	3,015.52	2,884.69	130.83	23.049			
12,600.00	9,512.96	9,336.67	9,265.58	91.05	48.51	69.77	-557.13	-1,533.12	3,111.18	2,978.76	132.42	23.495			
12,700.00	9,510.50	9,333.73	9,262.65	92.82	48.50	69.59	-557.35	-1,533.09	3,207.09	3,073.06	134.03	23.929			
12,800.00	9,508.03	9,298.00	9,226.99	94.60	48.32	67.47	-559.48	-1,532.73	3,303.81	3,169.49	134.32	24.597			
12,900.00	9,505.57	9,298.00	9,226.99	96.40	48.32	67.47	-559.48	-1,532.73	3,400.08	3,264.03	136.05	24.991			
13,000.00	9,503.10	9,298.00	9,226.99	98.22	48.32	67.47	-559.48	-1,532.73	3,496.56	3,358.76	137.79	25.375			
13,100.00	9,500.64	9,298.00	9,226.99	100.05	48.32	67.47	-559.48	-1,532.73	3,593.23	3,453.68	139.55	25.749			
13,200.00	9,498.18	9,298.00	9,226.99	101.89	48.32	67.47	-559.48	-1,532.73	3,690.08	3,548.76	141.32	26.112			
13,300.00	9,495.71	9,298.00	9,226.99	103.74	48.32	67.47	-559.48	-1,532.73	3,787.09	3,644.00	143.09	26.466			
13,400.00	9,493.25	9,298.00	9,226.99	105.61	48.32	67.47	-559.48	-1,532.73	3,884.25	3,739.37	144.88	26.810			
13,500.00	9,490.78	9,298.00	9,226.99	107.49	48.32	67.47	-559.48	-1,532.73	3,981.56	3,834.88	146.68	27.145			
13,600.00	9,488.32	9,298.00	9,226.99	109.37	48.32	67.47	-559.48	-1,532.73	4,078.99	3,930.51	148.48	27.471			
13,700.00	9,485.85	9,298.00	9,226.99	111.27	48.32	67.47	-559.48	-1,532.73	4,176.55	4,026.25	150.30	27.788			
13,800.00	9,483.39	9,298.00	9,226.99	113.18	48.32	67.47	-559.48	-1,532.73	4,274.22	4,122.10	152.12	28.097			
13,900.00	9,480.92	9,298.00	9,226.99	115.09	48.32	67.47	-559.48	-1,532.73	4,371.99	4,218.04	153.95	28.398			
14,000.00	9,478.46	9,298.00	9,226.99	117.02	48.32	67.47	-559.48	-1,532.73	4,469.87	4,314.08	155.79	28.691			
14,100.00	9,476.00	9,298.00	9,226.99	118.95	48.32	67.47	-559.48	-1,532.73	4,567.83	4,410.20	157.64	28.977			
14,200.00	9,473.53	9,298.00	9,226.99	120.89	48.32	67.47	-559.48	-1,532.73	4,665.88	4,506.39	159.49	29.255			
14,300.00	9,471.07	9,298.00	9,226.99	122.84	48.32	67.47	-559.48	-1,532.73	4,764.02	4,602.67	161.35	29.526			
14,400.00	9,468.60	9,298.00	9,226.99	124.79	48.32	67.47	-559.48	-1,532.73	4,862.22	4,699.01	163.21	29.791			
14,500.00	9,466.14	9,291.85	9,220.85	126.75	48.29	67.12	-559.76	-1,532.67	4,960.50	4,795.73	164.77	30.105			
14,600.00	9,463.67	9,284.11	9,213.12	128.72	48.25	66.67	-560.12	-1,532.61	5,058.83	4,892.59	166.25	30.429			
14,700.00	9,462.03	9,277.22	9,206.24	130.69	48.21	74.16	-560.44	-1,532.56	5,157.26	4,984.06	173.20	29.776			
14,800.00	9,461.83	9,271.88	9,200.90	132.67	48.19	73.85	-560.69	-1,532.52	5,255.59	5,080.66	174.94	30.043			
14,900.00	9,461.63	9,266.51	9,195.53	134.65	48.16	73.53	-560.95	-1,532.48	5,354.03	5,177.37	176.66	30.306			
15,000.00	9,461.43	9,261.09	9,190.12	136.63	48.13	73.21	-561.20	-1,532.44	5,452.52	5,274.14	178.39	30.565			
15,100.00	9,461.22	9,255.65	9,184.68	138.63	48.11	72.89	-561.46	-1,532.41	5,551.07	5,370.96	180.11	30.821			

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 13HD - OH / Job #61220 - Surveys (Patterson 815)														Offset Site Error:	0.00 usft
Survey Program: 174-MWD, 497-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	9,461.02	9,250.17	9,179.21	140.62	48.08	72.57	-561.72	-1,532.37	5,649.65	5,467.83	181.82	31.072			
15,300.00	9,460.82	9,244.65	9,173.70	142.62	48.05	72.25	-561.98	-1,532.34	5,748.29	5,564.75	183.53	31.320			
15,400.00	9,460.62	9,239.10	9,168.16	144.63	48.02	71.93	-562.24	-1,532.31	5,846.96	5,661.72	185.24	31.564			
15,500.00	9,460.42	9,233.51	9,162.58	146.64	47.99	71.61	-562.51	-1,532.29	5,945.68	5,758.74	186.94	31.806			
15,600.00	9,460.22	9,227.89	9,156.96	148.65	47.97	71.29	-562.78	-1,532.26	6,044.43	5,855.80	188.63	32.044			
15,700.00	9,460.02	9,222.23	9,151.31	150.67	47.94	70.96	-563.05	-1,532.24	6,143.21	5,952.90	190.31	32.279			
15,800.00	9,459.81	9,216.54	9,145.62	152.69	47.91	70.64	-563.33	-1,532.22	6,242.04	6,050.04	191.99	32.512			
15,900.00	9,459.61	9,210.81	9,139.89	154.71	47.88	70.31	-563.61	-1,532.20	6,340.89	6,147.22	193.66	32.742			
16,000.00	9,459.41	9,205.04	9,134.13	156.74	47.85	69.98	-563.89	-1,532.18	6,439.77	6,244.44	195.33	32.969			
16,100.00	9,459.21	9,204.00	9,133.10	158.77	47.85	69.92	-563.94	-1,532.18	6,538.69	6,341.46	197.23	33.153			
16,200.00	9,459.01	9,204.00	9,133.10	160.81	47.85	69.92	-563.94	-1,532.18	6,637.64	6,438.45	199.18	33.324			
16,300.00	9,458.81	9,204.00	9,133.10	162.85	47.85	69.92	-563.94	-1,532.18	6,736.62	6,535.47	201.14	33.492			
16,400.00	9,458.60	9,204.00	9,133.10	164.89	47.85	69.92	-563.94	-1,532.18	6,835.62	6,632.52	203.10	33.656			
16,500.00	9,458.40	9,204.00	9,133.10	166.93	47.85	69.92	-563.94	-1,532.18	6,934.66	6,729.60	205.07	33.817			
16,600.00	9,458.20	9,204.00	9,133.10	168.98	47.85	69.92	-563.94	-1,532.18	7,033.73	6,826.69	207.03	33.974			
16,700.00	9,458.00	9,204.00	9,133.10	171.03	47.85	69.92	-563.94	-1,532.18	7,132.82	6,923.82	209.00	34.128			
16,800.00	9,457.80	9,204.00	9,133.10	173.08	47.85	69.92	-563.94	-1,532.18	7,231.93	7,020.96	210.97	34.279			
16,900.00	9,457.60	9,204.00	9,133.10	175.14	47.85	69.92	-563.94	-1,532.18	7,331.07	7,118.13	212.94	34.427			
17,000.00	9,457.40	9,204.00	9,133.10	177.19	47.85	69.92	-563.94	-1,532.18	7,430.24	7,215.32	214.92	34.572			
17,100.00	9,457.19	9,204.00	9,133.10	179.25	47.85	69.92	-563.94	-1,532.18	7,529.42	7,312.52	216.90	34.714			
17,200.00	9,456.99	9,204.00	9,133.10	181.31	47.85	69.92	-563.94	-1,532.18	7,628.63	7,409.75	218.88	34.854			
17,300.00	9,456.79	9,204.00	9,133.10	183.38	47.85	69.92	-563.94	-1,532.18	7,727.85	7,507.00	220.86	34.990			
17,400.00	9,456.59	9,204.00	9,133.10	185.44	47.85	69.92	-563.94	-1,532.18	7,827.10	7,604.26	222.84	35.124			
17,500.00	9,456.39	9,204.00	9,133.10	187.51	47.85	69.92	-563.94	-1,532.18	7,926.36	7,701.54	224.82	35.256			
17,600.00	9,456.19	9,204.00	9,133.10	189.58	47.85	69.92	-563.94	-1,532.18	8,025.65	7,798.84	226.81	35.385			
17,700.00	9,455.99	9,204.00	9,133.10	191.65	47.85	69.92	-563.94	-1,532.18	8,124.95	7,896.15	228.80	35.511			
17,800.00	9,455.78	9,204.00	9,133.10	193.73	47.85	69.92	-563.94	-1,532.18	8,224.27	7,993.48	230.79	35.635			
17,900.00	9,455.58	9,204.00	9,133.10	195.80	47.85	69.92	-563.94	-1,532.18	8,323.60	8,090.82	232.78	35.757			
18,000.00	9,455.38	9,204.00	9,133.10	197.88	47.85	69.92	-563.94	-1,532.18	8,422.95	8,188.18	234.77	35.877			
18,100.00	9,455.18	9,204.00	9,133.10	199.96	47.85	69.92	-563.94	-1,532.18	8,522.32	8,285.55	236.77	35.994			
18,200.00	9,454.98	9,204.00	9,133.10	202.04	47.85	69.92	-563.94	-1,532.18	8,621.70	8,382.93	238.76	36.110			
18,300.00	9,454.78	9,204.00	9,133.10	204.12	47.85	69.92	-563.94	-1,532.18	8,721.09	8,480.33	240.76	36.223			
18,400.00	9,454.57	9,204.00	9,133.10	206.20	47.85	69.92	-563.94	-1,532.18	8,820.50	8,577.74	242.76	36.334			
18,500.00	9,454.37	9,204.00	9,133.10	208.29	47.85	69.92	-563.94	-1,532.18	8,919.92	8,675.16	244.76	36.443			
18,600.00	9,454.17	9,204.00	9,133.10	210.38	47.85	69.92	-563.94	-1,532.18	9,019.35	8,772.59	246.76	36.551			
18,700.00	9,453.97	9,204.00	9,133.10	212.46	47.85	69.92	-563.94	-1,532.18	9,118.80	8,870.03	248.77	36.656			
18,800.00	9,453.77	9,204.00	9,133.10	214.55	47.85	69.92	-563.94	-1,532.18	9,218.26	8,967.49	250.77	36.760			
18,900.00	9,453.57	9,204.00	9,133.10	216.64	47.85	69.92	-563.94	-1,532.18	9,317.73	9,064.95	252.77	36.862			
19,000.00	9,453.37	9,204.00	9,133.10	218.74	47.85	69.92	-563.94	-1,532.18	9,417.21	9,162.43	254.78	36.962			
19,100.00	9,453.16	9,204.00	9,133.10	220.83	47.85	69.92	-563.94	-1,532.18	9,516.70	9,259.91	256.79	37.060			
19,200.00	9,452.96	9,204.00	9,133.10	222.92	47.85	69.92	-563.94	-1,532.18	9,616.20	9,357.41	258.80	37.157			
19,300.00	9,452.76	9,204.00	9,133.10	225.02	47.85	69.92	-563.94	-1,532.18	9,715.72	9,454.91	260.81	37.253			
19,400.00	9,452.56	9,204.00	9,133.10	227.11	47.85	69.92	-563.94	-1,532.18	9,815.24	9,552.42	262.82	37.346			
19,500.00	9,452.36	9,204.00	9,133.10	229.21	47.85	69.92	-563.94	-1,532.18	9,914.77	9,649.94	264.83	37.438			

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 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)					
0.00	0.00	0.00	0.00	0.00	0.00	-121.66	-558.01	-905.00	1,063.26				
100.00	100.00	91.99	91.99	0.19	0.13	-121.66	-557.93	-904.90	1,063.08	1,062.75	0.32	3,286.842	
200.00	200.00	198.91	198.91	0.73	0.34	-121.65	-557.63	-904.47	1,062.60	1,061.53	1.07	995.069	
300.00	300.00	307.86	307.85	1.27	0.70	-121.68	-557.05	-902.81	1,061.00	1,059.03	1.97	539.652	
400.00	400.00	409.82	409.78	1.81	0.97	-121.77	-557.68	-900.32	1,059.25	1,056.48	2.77	382.280	
500.00	500.00	516.65	516.55	2.34	1.21	-121.89	-558.24	-897.07	1,056.94	1,053.39	3.55	297.554	
600.00	600.00	620.48	620.30	2.88	1.55	-122.04	-559.05	-893.16	1,054.15	1,049.72	4.43	237.736	
700.00	700.00	725.24	724.94	3.42	1.95	-122.25	-560.53	-888.31	1,050.99	1,045.62	5.37	195.703	
800.00	800.00	825.34	824.83	3.96	2.43	-122.54	-563.09	-882.46	1,047.42	1,041.04	6.38	164.085	
900.00	900.00	916.46	915.71	4.50	2.89	-122.88	-566.72	-876.82	1,044.37	1,036.99	7.38	141.543	
1,000.00	1,000.00	1,004.69	1,003.70	5.03	3.35	-123.22	-570.94	-871.98	1,042.37	1,034.01	8.37	124.565	
1,089.03	1,089.03	1,079.18	1,078.03	5.51	3.74	-123.48	-574.63	-868.79	1,041.63	1,032.41	9.23	112.873	
1,100.00	1,100.00	1,087.20	1,086.04	5.57	3.78	-123.51	-575.02	-868.55	1,041.65	1,032.32	9.33	111.673	
1,200.00	1,200.00	1,156.00	1,154.76	6.11	4.13	-123.67	-578.12	-867.72	1,043.24	1,033.02	10.21	102.162	
1,300.00	1,300.00	1,231.14	1,229.82	6.65	4.49	-123.74	-580.87	-869.67	1,047.49	1,036.38	11.11	94.284	
1,400.00	1,400.00	1,299.21	1,297.71	7.18	4.82	-123.71	-583.12	-873.98	1,054.61	1,042.64	11.97	88.083	
1,500.00	1,500.00	1,380.16	1,378.24	7.72	5.22	-123.68	-587.23	-881.06	1,064.59	1,051.69	12.90	82.509	
1,600.00	1,600.00	1,475.18	1,472.77	8.26	5.69	-123.69	-592.72	-889.01	1,074.79	1,060.87	13.92	77.235	
1,700.00	1,700.00	1,558.66	1,555.62	8.80	6.13	-123.81	-600.10	-896.02	1,086.62	1,071.74	14.88	73.005	
1,800.00	1,800.00	1,737.20	1,732.73	9.33	7.11	-124.53	-621.11	-902.57	1,097.07	1,080.71	16.37	67.036	
1,900.00	1,899.98	1,908.04	1,903.02	9.85	8.04	-3.32	-632.84	-897.56	1,096.58	1,078.72	17.85	61.422	
2,000.00	1,999.84	2,084.34	2,079.13	10.35	8.92	-3.38	-628.91	-891.17	1,087.52	1,068.30	19.23	56.561	
2,100.00	2,099.45	2,240.35	2,234.03	10.86	9.70	-3.58	-620.32	-874.96	1,066.86	1,046.38	20.47	52.105	
2,200.00	2,198.70	2,343.23	2,335.88	11.38	10.22	-3.79	-613.93	-861.92	1,040.99	1,019.57	21.42	48.589	
2,300.00	2,297.47	2,442.86	2,434.43	11.90	10.73	-4.04	-607.47	-848.81	1,011.24	988.91	22.33	45.292	
2,400.00	2,395.95	2,539.84	2,530.30	12.44	11.24	-4.30	-601.63	-835.40	979.60	956.28	23.32	42.005	
2,500.00	2,494.43	2,635.81	2,625.12	12.99	11.77	-4.64	-596.49	-821.45	947.80	923.48	24.32	38.971	
2,600.00	2,592.91	2,724.18	2,712.39	13.55	12.27	-5.03	-592.55	-808.18	916.17	890.88	25.29	36.223	
2,700.00	2,691.39	2,807.09	2,794.41	14.12	12.73	-5.41	-589.28	-796.53	885.64	859.39	26.24	33.748	
2,800.00	2,789.87	2,891.48	2,878.08	14.69	13.21	-5.80	-586.41	-785.87	856.53	829.32	27.21	31.479	
2,900.00	2,888.35	2,980.93	2,966.87	15.27	13.71	-6.21	-583.61	-775.40	828.34	800.13	28.21	29.365	
3,000.00	2,986.84	3,071.90	3,057.25	15.85	14.22	-6.63	-580.93	-765.46	800.90	771.68	29.22	27.412	
3,100.00	3,085.32	3,166.52	3,151.31	16.45	14.75	-7.09	-578.20	-755.48	773.84	743.58	30.25	25.580	
3,200.00	3,183.80	3,262.69	3,246.91	17.04	15.30	-7.58	-575.44	-745.52	746.98	715.68	31.30	23.866	
3,300.00	3,282.28	3,363.08	3,346.68	17.64	15.86	-8.15	-572.48	-734.69	719.81	687.43	32.38	22.233	
3,400.00	3,380.76	3,461.96	3,444.87	18.24	16.43	-8.78	-569.45	-723.45	692.19	658.74	33.45	20.694	
3,500.00	3,479.24	3,554.63	3,536.87	18.85	16.95	-9.43	-566.57	-712.71	664.48	629.99	34.49	19.264	
3,600.00	3,577.72	3,638.46	3,620.24	19.45	17.43	-9.99	-564.19	-704.29	638.15	602.66	35.49	17.982	
3,700.00	3,676.21	3,713.00	3,694.56	20.07	17.84	-10.40	-562.12	-698.90	614.10	577.67	36.43	16.856	
3,800.00	3,774.69	3,808.00	3,789.44	20.68	18.34	-10.71	-559.17	-695.50	592.38	554.91	37.47	15.810	
3,900.00	3,873.17	3,895.26	3,876.64	21.30	18.79	-10.79	-555.96	-694.94	572.36	533.90	38.45	14.884	
4,000.00	3,971.65	3,991.08	3,972.40	21.91	19.27	-10.83	-552.45	-695.16	553.03	513.55	39.48	14.008	
4,100.00	4,070.13	4,085.69	4,066.97	22.53	19.75	-10.98	-550.02	-695.08	534.19	493.68	40.51	13.187	
4,200.00	4,168.61	4,184.16	4,165.43	23.15	20.26	-11.20	-548.12	-694.87	515.70	474.14	41.56	12.408	
4,300.00	4,267.10	4,282.00	4,263.24	23.78	20.75	-11.40	-545.97	-694.94	497.25	454.64	42.61	11.669	
4,400.00	4,365.58	4,380.19	4,361.41	24.40	21.26	-11.63	-543.92	-694.98	478.85	435.18	43.67	10.965	
4,500.00	4,464.06	4,477.11	4,458.31	25.03	21.75	-11.86	-541.94	-695.16	460.59	415.87	44.72	10.299	
4,600.00	4,562.54	4,575.79	4,556.96	25.66	22.26	-12.07	-539.77	-695.60	442.42	396.64	45.78	9.664	
4,700.00	4,661.02	4,673.90	4,655.06	26.28	22.76	-12.33	-537.75	-695.91	424.26	377.42	46.84	9.058	
4,800.00	4,759.50	4,772.45	4,753.58	26.91	23.26	-12.61	-535.68	-696.24	406.10	358.19	47.90	8.477	
4,900.00	4,857.98	4,870.61	4,851.71	27.54	23.77	-12.86	-533.36	-696.77	387.90	338.93	48.97	7.922	
5,000.00	4,956.47	4,966.75	4,947.82	28.17	24.26	-13.13	-531.23	-697.52	369.98	319.96	50.02	7.397	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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		Minimum		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore +N/-S (usft)	Centro +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Factor	
5,100.00	5,054.95	5,061.90	5,042.95	28.81	24.74	-13.39	-529.66	-699.02	353.02	301.95	51.06	6.913	
5,200.00	5,153.43	5,160.65	5,141.66	29.44	25.24	-13.61	-527.90	-701.07	336.31	284.19	52.12	6.452	
5,300.00	5,251.91	5,257.90	5,238.87	30.07	25.73	-13.85	-526.35	-703.23	319.85	266.67	53.18	6.015	
5,400.00	5,350.40	5,355.05	5,335.99	30.71	26.22	-14.13	-525.19	-705.64	303.88	249.62	54.27	5.600	
5,500.00	5,449.23	5,453.30	5,434.19	31.33	26.72	-14.23	-524.20	-708.55	290.47	234.96	55.51	5.233	
5,600.00	5,548.53	5,552.68	5,533.52	31.91	27.22	-14.17	-523.12	-711.58	280.42	223.73	56.69	4.947	
5,700.00	5,648.19	5,651.81	5,632.59	32.47	27.72	-13.97	-522.29	-714.72	274.01	216.21	57.80	4.741	
5,800.00	5,748.07	5,751.20	5,731.94	33.00	28.22	-13.69	-521.87	-717.63	271.10	212.27	58.84	4.608	
5,830.14	5,778.20	5,781.02	5,761.75	33.15	28.37	-13.56	-521.74	-718.59	270.94	211.81	59.13	4.582	
5,900.00	5,848.06	5,849.91	5,830.59	33.49	28.72	-135.06	-521.45	-721.02	271.94	211.84	60.10	4.525	
6,000.00	5,948.06	5,949.01	5,929.61	33.97	29.22	-134.40	-521.02	-725.06	274.53	213.45	61.08	4.495	
6,100.00	6,048.06	6,048.78	6,029.28	34.44	29.73	-133.68	-520.45	-729.46	277.30	215.24	62.06	4.468	
6,200.00	6,148.06	6,148.76	6,129.17	34.92	30.24	-133.03	-520.08	-733.68	280.12	217.06	63.05	4.443	
6,300.00	6,248.06	6,251.09	6,231.45	35.40	30.76	-132.64	-520.42	-736.87	282.64	218.57	64.07	4.412	
6,400.00	6,348.06	6,350.61	6,330.94	35.88	31.26	-132.90	-522.68	-737.40	284.57	219.48	65.09	4.372	
6,500.00	6,448.06	6,450.82	6,431.11	36.37	31.77	-133.21	-525.27	-737.95	286.73	220.61	66.12	4.337	
6,600.00	6,548.06	6,551.98	6,532.24	36.85	32.29	-133.48	-527.56	-738.40	288.61	221.46	67.15	4.298	
6,700.00	6,648.06	6,652.38	6,632.62	37.34	32.80	-133.79	-529.81	-738.46	290.21	222.02	68.19	4.256	
6,800.00	6,748.06	6,752.71	6,732.91	37.83	33.32	-134.19	-532.28	-738.14	291.68	222.46	69.23	4.213	
6,900.00	6,848.06	6,853.31	6,833.48	38.31	33.83	-134.67	-534.97	-737.35	292.99	222.72	70.27	4.169	
7,000.00	6,948.06	6,953.47	6,933.60	38.80	34.35	-135.22	-537.79	-736.21	294.18	222.86	71.32	4.125	
7,100.00	7,048.06	7,053.27	7,033.35	39.30	34.86	-135.72	-540.45	-735.24	295.40	223.03	72.37	4.082	
7,200.00	7,148.06	7,153.02	7,133.07	39.79	35.38	-136.12	-542.83	-734.63	296.69	223.28	73.41	4.041	
7,300.00	7,248.06	7,252.88	7,232.90	40.28	35.90	-136.52	-545.27	-734.09	298.09	223.63	74.46	4.003	
7,400.00	7,348.06	7,353.67	7,333.65	40.78	36.42	-136.98	-547.89	-733.24	299.40	223.89	75.51	3.965	
7,500.00	7,448.06	7,454.52	7,434.47	41.27	36.94	-137.44	-550.19	-732.14	300.33	223.77	76.57	3.923	
7,600.00	7,548.06	7,554.36	7,534.27	41.77	37.46	-137.95	-552.67	-730.73	301.21	223.59	77.62	3.881	
7,700.00	7,648.06	7,653.97	7,633.82	42.27	37.98	-138.58	-555.61	-728.92	302.21	223.53	78.68	3.841	
7,800.00	7,748.06	7,752.79	7,732.57	42.77	38.50	-139.28	-558.95	-726.92	303.43	223.70	79.74	3.805	
7,900.00	7,848.06	7,851.86	7,831.55	43.27	39.02	-139.99	-562.68	-725.13	305.12	224.33	80.80	3.777	
8,000.00	7,948.06	7,951.50	7,931.11	43.77	39.54	-140.65	-566.35	-723.62	307.00	225.15	81.86	3.751	
8,100.00	8,048.06	8,051.52	8,031.05	44.27	40.06	-141.25	-569.89	-722.36	308.96	226.04	82.92	3.726	
8,200.00	8,148.06	8,151.68	8,131.16	44.77	40.58	-141.75	-573.10	-721.42	310.88	226.90	83.97	3.702	
8,300.00	8,248.06	8,252.05	8,231.48	45.28	41.10	-142.19	-576.01	-720.70	312.72	227.69	85.03	3.678	
8,400.00	8,348.06	8,351.34	8,330.74	45.78	41.62	-142.59	-578.83	-720.09	314.59	228.51	86.08	3.655	
8,500.00	8,448.06	8,449.38	8,428.72	46.29	42.13	-142.99	-581.96	-719.70	316.90	229.77	87.13	3.637	
8,600.00	8,548.06	8,548.27	8,527.55	46.79	42.65	-143.42	-585.62	-719.45	319.71	231.53	88.18	3.626	
8,700.00	8,648.06	8,647.56	8,626.75	47.30	43.17	-143.86	-589.54	-719.29	322.80	233.57	89.23	3.618	
8,800.00	8,748.06	8,747.02	8,726.14	47.81	43.69	-144.30	-593.63	-719.16	326.05	235.77	90.28	3.611	
8,900.00	8,848.06	8,845.52	8,824.54	48.31	44.20	-144.74	-597.95	-719.17	329.63	238.30	91.33	3.609	
9,000.00	8,948.06	8,944.05	8,922.96	48.82	44.71	-145.16	-602.60	-719.42	333.64	241.27	92.38	3.612	
9,100.00	9,048.01	9,043.57	9,022.34	49.33	45.23	24.07	-607.74	-719.65	336.55	243.43	93.11	3.614	
9,200.00	9,146.57	9,146.72	9,125.39	49.87	45.77	25.43	-612.13	-720.49	325.78	233.19	92.59	3.518	
9,300.00	9,240.83	9,249.20	9,227.85	50.45	46.30	29.87	-613.40	-722.04	297.96	207.49	90.46	3.294	
9,400.00	9,327.92	9,340.40	9,319.01	51.06	46.77	38.79	-611.52	-723.93	255.63	167.10	88.53	2.887	
9,500.00	9,405.20	9,418.28	9,396.87	51.69	47.18	53.37	-610.28	-723.76	204.93	114.60	90.33	2.269	
9,600.00	9,470.32	9,481.53	9,460.12	52.36	47.51	73.51	-609.60	-723.46	158.17	61.49	96.69	1.636	
9,684.56	9,514.42	9,524.77	9,503.36	52.95	47.73	89.97	-609.26	-723.40	140.61	40.79	99.82	1.409 Level 3, CC, ES, SF	
9,700.00	9,521.30	9,531.56	9,510.15	53.06	47.76	92.39	-609.22	-723.39	141.29	41.39	99.90	1.414 Level 3	
9,800.00	9,556.60	9,566.60	9,545.19	53.81	47.95	101.52	-609.09	-723.40	176.96	77.80	99.16	1.785	
9,900.00	9,575.13	9,585.14	9,563.73	54.59	48.04	98.09	-609.06	-723.42	249.08	148.33	100.76	2.472	
10,000.00	9,577.07	9,586.99	9,565.58	55.39	48.05	86.65	-609.05	-723.43	336.35	233.80	102.55	3.280	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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							
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
10,100.00	9,574.60	9,584.45	9,563.04	56.24	48.04	85.10	-609.06	-723.42	430.05	326.89	103.16	4.169	
10,200.00	9,572.13	9,581.89	9,560.48	57.14	48.03	82.99	-609.06	-723.42	526.89	423.23	103.66	5.083	
10,300.00	9,569.66	9,579.18	9,557.77	58.09	48.01	79.70	-609.06	-723.41	625.32	521.51	103.81	6.024	
10,400.00	9,567.19	9,576.41	9,555.00	59.08	48.00	73.87	-609.07	-723.41	724.60	621.82	102.78	7.050	
10,500.00	9,564.72	9,573.59	9,552.18	60.11	47.98	60.62	-609.07	-723.41	824.33	728.19	96.14	8.574	
10,600.00	9,562.25	9,570.73	9,549.32	61.18	47.97	49.79	-609.08	-723.41	924.23	836.34	87.89	10.516	
10,700.00	9,559.79	9,567.81	9,546.40	62.30	47.95	46.61	-609.08	-723.40	1,024.15	938.42	85.73	11.946	
10,800.00	9,557.32	9,564.84	9,543.43	63.48	47.94	43.68	-609.09	-723.40	1,124.07	1,040.41	83.67	13.435	
10,900.00	9,554.86	9,561.81	9,540.40	64.71	47.92	40.99	-609.10	-723.40	1,224.00	1,142.27	81.73	14.975	
11,000.00	9,552.39	9,558.73	9,537.32	65.98	47.91	38.51	-609.11	-723.40	1,323.94	1,243.99	79.95	16.559	
11,100.00	9,549.93	9,555.58	9,534.17	67.30	47.89	36.24	-609.12	-723.39	1,423.88	1,345.54	78.34	18.176	
11,200.00	9,547.46	9,552.38	9,530.97	68.67	47.87	34.15	-609.13	-723.39	1,523.82	1,446.93	76.89	19.818	
11,300.00	9,545.00	9,549.11	9,527.70	70.07	47.86	32.23	-609.14	-723.39	1,623.76	1,548.15	75.61	21.474	
11,400.00	9,542.54	9,545.78	9,524.37	71.51	47.84	30.47	-609.15	-723.39	1,723.71	1,649.20	74.50	23.136	
11,500.00	9,540.07	9,542.38	9,520.97	72.99	47.82	28.84	-609.17	-723.39	1,823.65	1,750.10	73.55	24.795	
11,600.00	9,537.61	9,538.92	9,517.51	74.50	47.80	27.33	-609.19	-723.39	1,923.60	1,850.85	72.75	26.442	
11,700.00	9,535.14	9,535.38	9,513.97	76.04	47.78	25.94	-609.20	-723.39	2,023.54	1,951.45	72.09	28.071	
11,800.00	9,532.68	9,531.78	9,510.37	77.61	47.77	24.65	-609.22	-723.39	2,123.49	2,051.93	71.56	29.674	
11,900.00	9,530.21	9,528.10	9,506.69	79.21	47.75	23.45	-609.24	-723.40	2,223.43	2,152.27	71.16	31.246	
12,000.00	9,527.75	9,524.34	9,502.93	80.83	47.73	22.34	-609.26	-723.40	2,323.38	2,252.51	70.87	32.783	
12,100.00	9,525.28	9,520.50	9,499.09	82.48	47.71	21.30	-609.29	-723.40	2,423.32	2,352.63	70.69	34.280	
12,200.00	9,522.82	9,516.58	9,495.17	84.15	47.69	20.34	-609.31	-723.41	2,523.27	2,452.66	70.61	35.736	
12,300.00	9,520.36	9,512.58	9,491.17	85.85	47.67	19.43	-609.34	-723.41	2,623.21	2,552.60	70.62	37.147	
12,400.00	9,517.89	9,508.49	9,487.08	87.56	47.65	18.59	-609.37	-723.41	2,723.16	2,652.45	70.71	38.513	
12,500.00	9,515.43	9,504.31	9,482.90	89.29	47.62	17.79	-609.40	-723.42	2,823.10	2,752.22	70.88	39.832	
12,600.00	9,512.96	9,500.04	9,478.63	91.05	47.60	17.05	-609.43	-723.43	2,923.04	2,851.93	71.11	41.104	
12,700.00	9,510.50	9,495.67	9,474.26	92.82	47.58	16.34	-609.47	-723.43	3,022.98	2,951.57	71.41	42.330	
12,800.00	9,508.03	9,491.20	9,469.79	94.60	47.56	15.68	-609.51	-723.44	3,122.92	3,051.15	71.78	43.509	
12,900.00	9,505.57	9,486.83	9,465.42	96.40	47.53	15.09	-609.55	-723.45	3,222.86	3,150.64	72.22	44.624	
13,000.00	9,503.10	9,482.86	9,461.46	98.22	47.51	14.58	-609.58	-723.46	3,322.80	3,250.02	72.78	45.653	
13,100.00	9,500.64	9,478.86	9,457.45	100.05	47.49	14.11	-609.62	-723.47	3,422.74	3,349.35	73.38	46.641	
13,200.00	9,498.18	9,474.80	9,453.39	101.89	47.47	13.65	-609.66	-723.48	3,522.68	3,448.66	74.02	47.590	
13,300.00	9,495.71	9,470.70	9,449.30	103.74	47.45	13.23	-609.70	-723.49	3,622.62	3,547.92	74.69	48.501	
13,400.00	9,493.25	9,466.56	9,445.15	105.61	47.43	12.82	-609.74	-723.51	3,722.55	3,647.16	75.39	49.376	
13,500.00	9,490.78	9,462.37	9,440.97	107.49	47.41	12.44	-609.78	-723.52	3,822.49	3,746.37	76.12	50.217	
13,600.00	9,488.32	9,458.14	9,436.73	109.37	47.38	12.07	-609.83	-723.54	3,922.43	3,845.55	76.87	51.024	
13,700.00	9,485.85	9,453.86	9,432.45	111.27	47.36	11.73	-609.87	-723.56	4,022.36	3,944.71	77.65	51.800	
13,800.00	9,483.39	9,449.52	9,428.12	113.18	47.34	11.40	-609.92	-723.58	4,122.30	4,043.85	78.45	52.546	
13,900.00	9,480.92	9,445.14	9,423.74	115.09	47.32	11.08	-609.97	-723.60	4,222.23	4,142.96	79.27	53.263	
14,000.00	9,478.46	9,440.71	9,419.31	117.02	47.29	10.78	-610.02	-723.62	4,322.17	4,242.06	80.11	53.953	
14,100.00	9,476.00	9,436.23	9,414.83	118.95	47.27	10.49	-610.07	-723.65	4,422.10	4,341.13	80.97	54.617	
14,200.00	9,473.53	9,431.70	9,410.30	120.89	47.25	10.22	-610.12	-723.67	4,522.03	4,440.19	81.84	55.255	
14,300.00	9,471.07	9,427.12	9,405.71	122.84	47.22	9.95	-610.17	-723.70	4,621.96	4,539.24	82.73	55.871	
14,400.00	9,468.60	9,422.48	9,401.07	124.79	47.20	9.70	-610.23	-723.73	4,721.89	4,638.27	83.63	56.463	
14,500.00	9,466.14	9,417.78	9,396.38	126.75	47.17	9.46	-610.29	-723.77	4,821.83	4,737.28	84.54	57.034	
14,600.00	9,463.67	9,413.04	9,391.63	128.72	47.15	9.23	-610.35	-723.80	4,921.76	4,836.29	85.47	57.585	
14,700.00	9,462.03	9,409.29	9,387.89	130.69	47.13	8.99	-610.39	-723.83	5,021.76	4,935.33	86.43	58.136	
14,800.00	9,461.83	9,407.37	9,385.97	132.67	47.12	8.77	-610.42	-723.85	5,121.68	5,035.25	87.41	58.687	
14,900.00	9,461.63	9,405.43	9,384.03	134.65	47.11	8.55	-610.44	-723.86	5,221.65	5,135.17	88.41	59.238	
15,000.00	9,461.43	9,403.46	9,382.06	136.63	47.10	8.33	-610.47	-723.88	5,321.63	5,235.09	89.41	59.789	
15,100.00	9,461.22	9,401.47	9,380.07	138.63	47.09	8.11	-610.49	-723.89	5,421.61	5,335.01	90.41	60.340	
15,200.00	9,461.02	9,399.45	9,378.05	140.62	47.08	7.89	-610.52	-723.91	5,521.58	5,434.93	91.41	60.891	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 +N/-S (usft)	Offset Wellbore +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,300.00	9,460.82	9,397.41	9,376.01	142.62	47.07	45.65	-610.55	-723.93	5,621.56	5,470.68	150.88	37.260		
15,400.00	9,460.62	9,395.35	9,373.94	144.63	47.06	44.97	-610.58	-723.95	5,721.53	5,570.14	151.39	37.792		
15,500.00	9,460.42	9,393.25	9,371.85	146.64	47.05	44.29	-610.60	-723.97	5,821.51	5,669.61	151.90	38.325		
15,600.00	9,460.22	9,375.80	9,354.40	148.65	46.96	39.25	-610.86	-724.07	5,921.49	5,776.74	144.75	40.908		
15,700.00	9,460.02	9,347.70	9,326.31	150.67	46.81	32.88	-611.37	-724.00	6,021.46	5,886.77	134.68	44.709		
15,800.00	9,459.81	9,302.53	9,281.15	152.69	46.58	25.65	-612.44	-723.27	6,121.41	5,998.54	122.87	49.818		
15,900.00	9,459.61	9,299.00	9,277.63	154.71	46.56	25.20	-612.53	-723.18	6,221.36	6,097.95	123.41	50.414		
16,000.00	9,459.41	9,299.00	9,277.63	156.74	46.56	25.20	-612.53	-723.18	6,321.31	6,196.55	124.75	50.671		
16,100.00	9,459.21	9,299.00	9,277.63	158.77	46.56	25.20	-612.53	-723.18	6,421.26	6,295.16	126.10	50.922		
16,200.00	9,459.01	9,299.00	9,277.63	160.81	46.56	25.20	-612.53	-723.18	6,521.21	6,393.76	127.45	51.167		
16,300.00	9,458.81	9,299.00	9,277.63	162.85	46.56	25.20	-612.53	-723.18	6,621.16	6,492.36	128.80	51.407		
16,400.00	9,458.60	9,299.00	9,277.63	164.89	46.56	25.20	-612.53	-723.18	6,721.11	6,590.96	130.15	51.641		
16,500.00	9,458.40	9,299.00	9,277.63	166.93	46.56	25.20	-612.53	-723.18	6,821.07	6,689.56	131.50	51.870		
16,600.00	9,458.20	9,299.00	9,277.63	168.98	46.56	25.20	-612.53	-723.18	6,921.02	6,788.17	132.86	52.093		
16,700.00	9,458.00	9,299.00	9,277.63	171.03	46.56	25.20	-612.53	-723.18	7,020.98	6,886.77	134.21	52.312		
16,800.00	9,457.80	9,299.00	9,277.63	173.08	46.56	25.20	-612.53	-723.18	7,120.94	6,985.37	135.57	52.526		
16,900.00	9,457.60	9,299.00	9,277.63	175.14	46.56	25.20	-612.53	-723.18	7,220.90	7,083.97	136.93	52.735		
17,000.00	9,457.40	9,299.00	9,277.63	177.19	46.56	25.20	-612.53	-723.18	7,320.86	7,182.57	138.29	52.939		
17,100.00	9,457.19	9,299.00	9,277.63	179.25	46.56	25.20	-612.53	-723.18	7,420.82	7,281.18	139.65	53.139		
17,200.00	9,456.99	9,299.00	9,277.63	181.31	46.56	25.20	-612.53	-723.18	7,520.79	7,379.78	141.01	53.335		
17,300.00	9,456.79	9,299.00	9,277.63	183.38	46.56	25.20	-612.53	-723.18	7,620.75	7,478.38	142.37	53.527		
17,400.00	9,456.59	9,299.00	9,277.63	185.44	46.56	25.20	-612.53	-723.18	7,720.72	7,576.98	143.74	53.715		
17,500.00	9,456.39	9,299.00	9,277.63	187.51	46.56	25.20	-612.53	-723.18	7,820.68	7,675.58	145.10	53.898		
17,600.00	9,456.19	9,299.00	9,277.63	189.58	46.56	25.20	-612.53	-723.18	7,920.65	7,774.18	146.47	54.078		
17,700.00	9,455.99	9,299.00	9,277.63	191.65	46.56	25.20	-612.53	-723.18	8,020.62	7,872.78	147.83	54.255		
17,800.00	9,455.78	9,299.00	9,277.63	193.73	46.56	25.20	-612.53	-723.18	8,120.59	7,971.39	149.20	54.428		
17,900.00	9,455.58	9,299.00	9,277.63	195.80	46.56	25.20	-612.53	-723.18	8,220.55	8,069.99	150.57	54.597		
18,000.00	9,455.38	9,299.00	9,277.63	197.88	46.56	25.20	-612.53	-723.18	8,320.52	8,168.59	151.94	54.763		
18,100.00	9,455.18	9,299.00	9,277.63	199.96	46.56	25.20	-612.53	-723.18	8,420.49	8,267.19	153.31	54.926		
18,200.00	9,454.98	9,299.00	9,277.63	202.04	46.56	25.20	-612.53	-723.18	8,520.47	8,365.79	154.68	55.086		
18,300.00	9,454.78	9,299.00	9,277.63	204.12	46.56	25.20	-612.53	-723.18	8,620.44	8,464.39	156.05	55.243		
18,400.00	9,454.57	9,299.00	9,277.63	206.20	46.56	25.20	-612.53	-723.18	8,720.41	8,562.99	157.42	55.396		
18,500.00	9,454.37	9,299.00	9,277.63	208.29	46.56	25.20	-612.53	-723.18	8,820.38	8,661.59	158.79	55.547		
18,600.00	9,454.17	9,299.00	9,277.63	210.38	46.56	25.20	-612.53	-723.18	8,920.36	8,760.19	160.16	55.695		
18,700.00	9,453.97	9,299.00	9,277.63	212.46	46.56	25.20	-612.53	-723.18	9,020.33	8,858.79	161.54	55.840		
18,800.00	9,453.77	9,299.00	9,277.63	214.55	46.56	25.20	-612.53	-723.18	9,120.31	8,957.40	162.91	55.983		
18,900.00	9,453.57	9,299.00	9,277.63	216.64	46.56	25.20	-612.53	-723.18	9,220.28	9,056.00	164.29	56.123		
19,000.00	9,453.37	9,299.00	9,277.63	218.74	46.56	25.20	-612.53	-723.18	9,320.26	9,154.60	165.66	56.260		
19,100.00	9,453.16	9,299.00	9,277.63	220.83	46.56	25.20	-612.53	-723.18	9,420.24	9,253.20	167.04	56.395		
19,200.00	9,452.96	9,299.00	9,277.63	222.92	46.56	25.20	-612.53	-723.18	9,520.21	9,351.80	168.42	56.528		
19,300.00	9,452.76	9,299.00	9,277.63	225.02	46.56	25.20	-612.53	-723.18	9,620.19	9,450.40	169.79	56.658		
19,400.00	9,452.56	9,299.00	9,277.63	227.11	46.56	25.20	-612.53	-723.18	9,720.17	9,549.00	171.17	56.786		
19,500.00	9,452.36	9,299.00	9,277.63	229.21	46.56	25.20	-612.53	-723.18	9,820.15	9,647.60	172.55	56.912		
19,600.00	9,452.16	9,299.00	9,277.63	231.31	46.56	25.20	-612.53	-723.18	9,920.13	9,746.20	173.93	57.036		
19,677.89	9,452.00	9,299.00	9,277.63	232.95	46.56	25.20	-612.53	-723.18	9,998.00	9,823.00	175.00	57.132		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	
0.00	0.00	0.00	0.00	0.00	0.00	-121.66	-558.01	-905.00	1,063.26				
100.00	100.00	91.99	91.99	0.19	0.13	-121.66	-557.93	-904.90	1,063.08	1,062.75	0.32	3,286.842	
200.00	200.00	198.91	198.91	0.73	0.34	-121.65	-557.63	-904.47	1,062.60	1,061.53	1.07	995.069	
300.00	300.00	307.86	307.85	1.27	0.70	-121.68	-557.05	-902.81	1,061.00	1,059.03	1.97	539.652	
400.00	400.00	409.82	409.78	1.81	0.97	-121.77	-557.68	-900.32	1,059.25	1,056.48	2.77	382.280	
500.00	500.00	516.65	516.55	2.34	1.21	-121.89	-558.24	-897.07	1,056.94	1,053.39	3.55	297.554	
600.00	600.00	620.48	620.30	2.88	1.55	-122.04	-559.05	-893.16	1,054.15	1,049.72	4.43	237.736	
700.00	700.00	725.24	724.94	3.42	1.95	-122.25	-560.53	-888.31	1,050.99	1,045.62	5.37	195.703	
800.00	800.00	825.34	824.83	3.96	2.43	-122.54	-563.09	-882.46	1,047.42	1,041.04	6.38	164.085	
900.00	900.00	916.46	915.71	4.50	2.89	-122.88	-566.72	-876.82	1,044.37	1,036.99	7.38	141.543	
1,000.00	1,000.00	1,004.69	1,003.70	5.03	3.35	-123.22	-570.94	-871.98	1,042.37	1,034.01	8.37	124.565	
1,089.03	1,089.03	1,079.18	1,078.03	5.51	3.74	-123.48	-574.63	-868.79	1,041.63	1,032.41	9.23	112.873	
1,100.00	1,100.00	1,087.20	1,086.04	5.57	3.78	-123.51	-575.02	-868.55	1,041.65	1,032.32	9.33	111.673	
1,200.00	1,200.00	1,156.00	1,154.76	6.11	4.13	-123.67	-578.12	-867.72	1,043.24	1,033.02	10.21	102.162	
1,300.00	1,300.00	1,231.14	1,229.82	6.65	4.49	-123.74	-580.87	-869.67	1,047.49	1,036.38	11.11	94.284	
1,400.00	1,400.00	1,299.21	1,297.71	7.18	4.82	-123.71	-583.12	-873.98	1,054.61	1,042.64	11.97	88.083	
1,500.00	1,500.00	1,380.16	1,378.24	7.72	5.22	-123.68	-587.23	-881.06	1,064.59	1,051.69	12.90	82.509	
1,600.00	1,600.00	1,475.18	1,472.77	8.26	5.69	-123.69	-592.72	-889.01	1,074.79	1,060.87	13.92	77.235	
1,700.00	1,700.00	1,558.66	1,555.62	8.80	6.13	-123.81	-600.10	-896.02	1,086.62	1,071.74	14.88	73.005	
1,800.00	1,800.00	1,737.20	1,732.73	9.33	7.11	-124.53	-621.11	-902.57	1,097.07	1,080.71	16.37	67.036	
1,900.00	1,899.98	1,908.04	1,903.02	9.85	8.04	-3.32	-632.84	-897.56	1,096.58	1,078.72	17.85	61.422	
2,000.00	1,999.84	2,084.34	2,079.13	10.35	8.92	-3.38	-628.91	-891.17	1,087.52	1,068.30	19.23	56.561	
2,100.00	2,099.45	2,240.35	2,234.03	10.86	9.70	-3.58	-620.32	-874.96	1,066.86	1,046.38	20.47	52.105	
2,200.00	2,198.70	2,343.23	2,335.88	11.38	10.22	-3.79	-613.93	-861.92	1,040.99	1,019.57	21.42	48.589	
2,300.00	2,297.47	2,442.86	2,434.43	11.90	10.73	-4.04	-607.47	-848.81	1,011.24	988.91	22.33	45.292	
2,400.00	2,395.95	2,539.84	2,530.30	12.44	11.24	-4.30	-601.63	-835.40	979.60	956.28	23.32	42.005	
2,500.00	2,494.43	2,635.81	2,625.12	12.99	11.77	-4.64	-596.49	-821.45	947.80	923.48	24.32	38.971	
2,600.00	2,592.91	2,724.18	2,712.39	13.55	12.27	-5.03	-592.55	-808.18	916.17	890.88	25.29	36.223	
2,700.00	2,691.39	2,807.09	2,794.41	14.12	12.73	-5.41	-589.28	-796.53	885.64	859.39	26.24	33.748	
2,800.00	2,789.87	2,891.48	2,878.08	14.69	13.21	-5.80	-586.41	-785.87	856.53	829.32	27.21	31.479	
2,900.00	2,888.35	2,980.93	2,966.67	15.27	13.71	-6.21	-583.61	-775.40	828.34	800.13	28.21	29.365	
3,000.00	2,986.84	3,071.90	3,057.25	15.85	14.22	-6.63	-580.93	-765.46	800.90	771.68	29.22	27.412	
3,100.00	3,085.32	3,166.52	3,151.31	16.45	14.75	-7.09	-578.20	-755.48	773.84	743.58	30.25	25.580	
3,200.00	3,183.80	3,262.69	3,246.91	17.04	15.30	-7.58	-575.44	-745.52	746.98	715.68	31.30	23.866	
3,300.00	3,282.28	3,363.08	3,346.68	17.64	15.86	-8.15	-572.48	-734.69	719.81	687.43	32.38	22.233	
3,400.00	3,380.76	3,461.96	3,444.87	18.24	16.43	-8.78	-569.45	-723.45	692.19	658.74	33.45	20.694	
3,500.00	3,479.24	3,554.63	3,536.87	18.85	16.95	-9.43	-566.57	-712.71	664.48	629.99	34.49	19.264	
3,600.00	3,577.72	3,638.46	3,620.24	19.45	17.43	-9.99	-564.19	-704.29	638.15	602.66	35.49	17.982	
3,700.00	3,676.21	3,713.00	3,694.56	20.07	17.84	-10.40	-562.12	-698.90	614.10	577.67	36.43	16.856	
3,800.00	3,774.69	3,808.00	3,789.44	20.68	18.34	-10.71	-559.17	-695.50	592.38	554.91	37.47	15.810	
3,900.00	3,873.17	3,895.26	3,876.64	21.30	18.79	-10.79	-555.96	-694.94	572.36	533.90	38.45	14.884	
4,000.00	3,971.65	3,991.08	3,972.40	21.91	19.27	-10.83	-552.45	-695.16	553.03	513.55	39.48	14.008	
4,100.00	4,070.13	4,085.69	4,066.97	22.53	19.75	-10.98	-550.02	-695.08	534.19	493.68	40.51	13.187	
4,200.00	4,168.61	4,184.16	4,165.43	23.15	20.26	-11.20	-548.12	-694.87	515.70	474.14	41.56	12.408	
4,300.00	4,267.10	4,282.00	4,263.24	23.78	20.75	-11.40	-545.97	-694.94	497.25	454.64	42.61	11.669	
4,400.00	4,365.58	4,380.19	4,361.41	24.40	21.26	-11.63	-543.92	-694.98	478.85	435.18	43.67	10.965	
4,500.00	4,464.06	4,477.11	4,458.31	25.03	21.75	-11.86	-541.94	-695.16	460.59	415.87	44.72	10.299	
4,600.00	4,562.54	4,575.79	4,556.96	25.66	22.26	-12.07	-539.77	-695.60	442.42	396.64	45.78	9.664	
4,700.00	4,661.02	4,673.90	4,655.06	26.28	22.76	-12.33	-537.75	-695.91	424.26	377.42	46.84	9.058	
4,800.00	4,759.50	4,772.45	4,753.58	26.91	23.26	-12.61	-535.68	-696.24	406.10	358.19	47.90	8.477	
4,900.00	4,857.98	4,870.61	4,851.71	27.54	23.77	-12.86	-533.36	-696.77	387.90	338.93	48.97	7.922	
5,000.00	4,956.47	4,966.75	4,947.82	28.17	24.26	-13.13	-531.23	-697.52	369.98	319.96	50.02	7.397	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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, 8131-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)
5,100.00	5,054.95	5,061.90	5,042.95	28.81	24.74	-13.39	-529.66	-699.02	353.02	301.95	51.06	6.913	
5,200.00	5,153.43	5,160.65	5,141.66	29.44	25.24	-13.61	-527.90	-701.07	336.31	284.19	52.12	6.452	
5,300.00	5,251.91	5,257.90	5,238.87	30.07	25.73	-13.85	-526.35	-703.23	319.85	266.67	53.18	6.015	
5,400.00	5,350.40	5,355.05	5,335.99	30.71	26.22	-14.13	-525.19	-705.64	303.88	249.62	54.27	5.600	
5,500.00	5,449.23	5,453.30	5,434.19	31.33	26.72	-14.23	-524.20	-708.55	290.47	234.96	55.51	5.233	
5,600.00	5,548.53	5,552.68	5,533.52	31.91	27.22	-14.17	-523.12	-711.58	280.42	223.73	56.69	4.947	
5,700.00	5,648.19	5,651.81	5,632.59	32.47	27.72	-13.97	-522.29	-714.72	274.01	216.21	57.80	4.741	
5,800.00	5,748.07	5,751.20	5,731.94	33.00	28.22	-13.69	-521.87	-717.63	271.10	212.27	58.84	4.608	
5,830.14	5,778.20	5,781.02	5,761.75	33.15	28.37	-13.56	-521.74	-718.59	270.94	211.81	59.13	4.582	
5,900.00	5,848.06	5,849.91	5,830.59	33.49	28.72	-135.06	-521.45	-721.02	271.94	211.84	60.10	4.525	
6,000.00	5,948.06	5,949.01	5,929.61	33.97	29.22	-134.40	-521.02	-725.06	274.53	213.45	61.08	4.495	
6,100.00	6,048.06	6,048.78	6,029.28	34.44	29.73	-133.68	-520.45	-729.46	277.30	215.24	62.06	4.468	
6,200.00	6,148.06	6,148.76	6,129.17	34.92	30.24	-133.03	-520.08	-733.68	280.12	217.06	63.05	4.443	
6,300.00	6,248.06	6,251.09	6,231.45	35.40	30.76	-132.64	-520.42	-736.87	282.64	218.57	64.07	4.412	
6,400.00	6,348.06	6,350.61	6,330.94	35.88	31.26	-132.90	-522.68	-737.40	284.57	219.48	65.09	4.372	
6,500.00	6,448.06	6,450.82	6,431.11	36.37	31.77	-133.21	-525.27	-737.95	286.73	220.61	66.12	4.337	
6,600.00	6,548.06	6,551.98	6,532.24	36.85	32.29	-133.48	-527.56	-738.40	288.61	221.46	67.15	4.298	
6,700.00	6,648.06	6,652.38	6,632.62	37.34	32.80	-133.79	-529.81	-738.46	290.21	222.02	68.19	4.256	
6,800.00	6,748.06	6,752.71	6,732.91	37.83	33.32	-134.19	-532.28	-738.14	291.68	222.46	69.23	4.213	
6,900.00	6,848.06	6,853.31	6,833.48	38.31	33.83	-134.67	-534.97	-737.35	292.99	222.72	70.27	4.169	
7,000.00	6,948.06	6,953.47	6,933.60	38.80	34.35	-135.22	-537.79	-736.21	294.18	222.86	71.32	4.125	
7,100.00	7,048.06	7,053.27	7,033.35	39.30	34.86	-135.72	-540.45	-735.24	295.40	223.03	72.37	4.082	
7,200.00	7,148.06	7,153.02	7,133.07	39.79	35.38	-136.12	-542.83	-734.63	296.69	223.28	73.41	4.041	
7,300.00	7,248.06	7,252.88	7,232.90	40.28	35.90	-136.52	-545.27	-734.09	298.09	223.63	74.46	4.003	
7,400.00	7,348.06	7,353.67	7,333.65	40.78	36.42	-136.98	-547.89	-733.24	299.40	223.89	75.51	3.965	
7,500.00	7,448.06	7,454.52	7,434.47	41.27	36.94	-137.44	-550.19	-732.14	300.33	223.77	76.57	3.923	
7,600.00	7,548.06	7,554.36	7,534.27	41.77	37.46	-137.95	-552.67	-730.73	301.21	223.59	77.62	3.881	
7,700.00	7,648.06	7,653.97	7,633.82	42.27	37.98	-138.58	-555.61	-728.92	302.21	223.53	78.68	3.841	
7,800.00	7,748.06	7,752.79	7,732.57	42.77	38.50	-139.28	-558.95	-726.92	303.43	223.70	79.74	3.805	
7,900.00	7,848.06	7,851.86	7,831.55	43.27	39.02	-139.99	-562.68	-725.13	305.12	224.33	80.80	3.777	
8,000.00	7,948.06	7,951.50	7,931.11	43.77	39.54	-140.65	-566.35	-723.62	307.00	225.15	81.86	3.751	
8,100.00	8,048.06	8,051.52	8,031.05	44.27	40.06	-141.25	-569.89	-722.36	308.96	226.04	82.92	3.726	
8,200.00	8,148.06	8,151.68	8,131.16	44.77	40.58	-141.75	-573.10	-721.42	310.88	226.90	83.97	3.702	
8,300.00	8,248.06	8,252.05	8,231.48	45.28	41.10	-142.19	-576.01	-720.70	312.72	227.69	85.03	3.678	
8,400.00	8,348.06	8,351.34	8,330.74	45.78	41.62	-142.59	-578.83	-720.09	314.59	228.51	86.08	3.655	
8,500.00	8,448.06	8,449.38	8,428.72	46.29	42.13	-142.99	-581.96	-719.70	316.90	229.77	87.13	3.637	
8,600.00	8,548.06	8,548.27	8,527.55	46.79	42.65	-143.42	-585.62	-719.45	319.71	231.53	88.18	3.626	
8,700.00	8,648.06	8,647.56	8,626.75	47.30	43.17	-143.86	-589.54	-719.29	322.80	233.57	89.23	3.618	
8,800.00	8,748.06	8,747.02	8,726.14	47.81	43.69	-144.30	-593.63	-719.16	326.05	235.77	90.28	3.611	
8,900.00	8,848.06	8,845.52	8,824.54	48.31	44.20	-144.74	-597.95	-719.17	329.63	238.30	91.33	3.609	
9,000.00	8,948.06	8,944.05	8,922.96	48.82	44.71	-145.16	-602.60	-719.42	333.64	241.27	92.38	3.612	
9,100.00	9,048.01	9,061.24	9,040.03	49.33	45.21	24.13	-607.49	-719.30	335.83	242.75	93.09	3.608	
9,200.00	9,146.57	9,198.14	9,176.34	49.87	45.41	27.38	-596.81	-715.34	312.84	220.57	92.26	3.391	
9,300.00	9,240.83	9,289.29	9,266.31	50.45	45.42	34.64	-582.35	-713.27	270.85	180.76	90.09	3.006	
9,400.00	9,327.92	9,364.89	9,340.98	51.06	45.44	46.85	-570.64	-711.86	219.96	130.79	89.17	2.467	
9,500.00	9,405.20	9,430.10	9,405.52	51.69	45.46	65.49	-561.34	-711.12	169.24	76.66	92.58	1.828	
9,600.00	9,470.32	9,483.76	9,458.68	52.36	45.48	86.04	-554.06	-710.77	139.03	42.26	96.76	1.437 Level 3	
9,615.68	9,479.30	9,490.90	9,465.76	52.47	45.48	88.73	-553.11	-710.74	138.33	41.32	97.01	1.426 Level 3, CC, ES, SF	
9,700.00	9,521.30	9,521.30	9,495.87	53.06	45.49	98.07	-548.95	-710.59	158.72	61.74	96.97	1.637	
9,800.00	9,556.60	9,536.87	9,511.22	53.81	45.50	95.45	-546.31	-710.38	223.52	125.49	98.02	2.280	
9,900.00	9,575.13	9,536.99	9,511.33	54.59	45.50	79.50	-546.29	-710.38	308.01	209.94	98.07	3.141	
10,000.00	9,577.07	9,508.00	9,482.71	55.39	45.48	55.64	-550.85	-710.67	399.29	313.22	86.07	4.639	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Centro +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,100.00	9,574.60	9,508.00	9,482.71	56.24	45.48	52.48	-550.85	-710.67	492.68	408.50	84.18	5.853	
10,200.00	9,572.13	9,508.00	9,482.71	57.14	45.48	47.82	-550.85	-710.67	588.96	508.25	80.71	7.297	
10,300.00	9,569.66	9,493.11	9,467.95	58.09	45.48	36.77	-552.82	-710.73	686.66	616.58	70.08	9.798	
10,400.00	9,567.19	9,476.28	9,451.27	59.08	45.47	23.87	-555.06	-710.81	784.97	728.58	56.39	13.920	
10,500.00	9,564.72	9,459.14	9,434.28	60.11	45.47	10.50	-557.37	-710.91	883.57	839.50	44.08	20.047	
10,600.00	9,562.25	9,441.69	9,417.00	61.18	45.46	5.82	-559.74	-711.03	982.26	940.57	41.69	23.559	
10,700.00	9,559.79	9,423.92	9,399.40	62.30	45.46	5.30	-562.19	-711.17	1,080.93	1,038.82	42.11	25.667	
10,800.00	9,557.32	9,404.58	9,380.25	63.48	45.45	4.85	-564.89	-711.35	1,179.58	1,136.97	42.61	27.684	
10,900.00	9,554.86	9,382.91	9,358.81	64.71	45.45	4.45	-567.99	-711.61	1,278.16	1,235.00	43.16	29.614	
11,000.00	9,552.39	9,360.18	9,336.32	65.98	45.44	4.12	-571.34	-711.93	1,376.67	1,332.90	43.77	31.449	
11,100.00	9,549.93	9,336.29	9,312.71	67.30	45.43	3.85	-574.96	-712.33	1,475.12	1,430.68	44.44	33.194	
11,200.00	9,547.46	9,312.97	9,289.69	68.67	45.43	3.64	-578.60	-712.78	1,573.48	1,528.32	45.16	34.843	
11,300.00	9,545.00	9,292.46	9,269.43	70.07	45.42	3.49	-581.84	-713.21	1,671.81	1,625.87	45.94	36.395	
11,400.00	9,542.54	9,271.62	9,248.86	71.51	45.42	3.36	-585.17	-713.65	1,770.11	1,723.37	46.74	37.874	
11,500.00	9,540.07	9,250.45	9,227.98	72.99	45.42	3.24	-588.57	-714.11	1,868.38	1,820.82	47.56	39.283	
11,600.00	9,537.61	9,228.95	9,206.77	74.50	45.41	3.14	-592.07	-714.59	1,966.63	1,918.22	48.41	40.626	
11,700.00	9,535.14	9,225.00	9,202.87	76.04	45.41	3.12	-592.71	-714.68	2,064.91	2,015.55	49.36	41.831	
11,800.00	9,532.68	9,225.00	9,202.87	77.61	45.41	3.12	-592.71	-714.68	2,163.35	2,113.00	50.35	42.966	
11,900.00	9,530.21	9,225.00	9,202.87	79.21	45.41	3.12	-592.71	-714.68	2,261.93	2,210.58	51.35	44.049	
12,000.00	9,527.75	9,225.00	9,202.87	80.83	45.41	3.12	-592.71	-714.68	2,360.62	2,308.26	52.36	45.084	
12,100.00	9,525.28	9,225.00	9,202.87	82.48	45.41	3.12	-592.71	-714.68	2,459.42	2,406.04	53.38	46.072	
12,200.00	9,522.82	9,190.19	9,168.47	84.15	45.41	2.99	-597.90	-715.56	2,557.58	2,503.33	54.24	47.150	
12,300.00	9,520.36	9,185.25	9,163.58	85.85	45.40	2.98	-598.56	-715.71	2,656.34	2,601.08	55.26	48.070	
12,400.00	9,517.89	9,180.56	9,158.92	87.56	45.40	2.96	-599.17	-715.84	2,755.17	2,698.88	56.28	48.951	
12,500.00	9,515.43	9,176.10	9,154.50	89.29	45.40	2.95	-599.72	-715.98	2,854.05	2,796.73	57.32	49.793	
12,600.00	9,512.96	9,171.85	9,150.28	91.05	45.40	2.94	-600.24	-716.11	2,952.98	2,894.62	58.36	50.600	
12,700.00	9,510.50	9,167.79	9,146.26	92.82	45.40	2.93	-600.72	-716.24	3,051.97	2,992.56	59.41	51.372	
12,800.00	9,508.03	9,131.00	9,109.68	94.60	45.40	2.87	-604.44	-717.51	3,151.63	3,091.30	60.33	52.242	
12,900.00	9,505.57	9,131.00	9,109.68	96.40	45.40	2.87	-604.44	-717.51	3,250.57	3,189.16	61.41	52.936	
13,000.00	9,503.10	9,131.00	9,109.68	98.22	45.40	2.87	-604.44	-717.51	3,349.57	3,287.08	62.49	53.603	
13,100.00	9,500.64	9,131.00	9,109.68	100.05	45.40	2.87	-604.44	-717.51	3,448.63	3,385.05	63.58	54.245	
13,200.00	9,498.18	9,131.00	9,109.68	101.89	45.40	2.87	-604.44	-717.51	3,547.74	3,483.07	64.67	54.862	
13,300.00	9,495.71	9,131.00	9,109.68	103.74	45.40	2.87	-604.44	-717.51	3,646.90	3,581.14	65.76	55.455	
13,400.00	9,493.25	9,131.00	9,109.68	105.61	45.40	2.87	-604.44	-717.51	3,746.11	3,679.25	66.86	56.027	
13,500.00	9,490.78	9,131.00	9,109.68	107.49	45.40	2.87	-604.44	-717.51	3,845.36	3,777.39	67.97	56.578	
13,600.00	9,488.32	9,131.00	9,109.68	109.37	45.40	2.87	-604.44	-717.51	3,944.64	3,875.57	69.07	57.109	
13,700.00	9,485.85	9,131.00	9,109.68	111.27	45.40	2.87	-604.44	-717.51	4,043.96	3,973.78	70.18	57.622	
13,800.00	9,483.39	9,131.00	9,109.68	113.18	45.40	2.87	-604.44	-717.51	4,143.31	4,072.02	71.29	58.116	
13,900.00	9,480.92	9,131.00	9,109.68	115.09	45.40	2.87	-604.44	-717.51	4,242.70	4,170.29	72.41	58.594	
14,000.00	9,478.46	9,131.00	9,109.68	117.02	45.40	2.87	-604.44	-717.51	4,342.11	4,268.58	73.53	59.055	
14,100.00	9,476.00	9,131.00	9,109.68	118.95	45.40	2.87	-604.44	-717.51	4,441.55	4,366.90	74.65	59.501	
14,200.00	9,473.53	9,131.00	9,109.68	120.89	45.40	2.87	-604.44	-717.51	4,541.01	4,465.24	75.77	59.932	
14,300.00	9,471.07	9,131.00	9,109.68	122.84	45.40	2.87	-604.44	-717.51	4,640.50	4,563.60	76.89	60.349	
14,400.00	9,468.60	9,131.00	9,109.68	124.79	45.40	2.87	-604.44	-717.51	4,740.00	4,661.98	78.02	60.753	
14,500.00	9,466.14	9,131.00	9,109.68	126.75	45.40	2.87	-604.44	-717.51	4,839.53	4,760.38	79.15	61.144	
14,600.00	9,463.67	9,131.00	9,109.68	128.72	45.40	2.87	-604.44	-717.51	4,939.08	4,858.80	80.28	61.523	
14,700.00	9,462.03	9,131.00	9,109.68	130.69	45.40	12.92	-604.44	-717.51	5,038.77	4,949.43	89.34	56.403	
14,800.00	9,461.83	9,131.00	9,109.68	132.67	45.40	12.92	-604.44	-717.51	5,138.46	5,047.94	90.52	56.767	
14,900.00	9,461.63	9,131.00	9,109.68	134.65	45.40	12.92	-604.44	-717.51	5,238.22	5,146.51	91.70	57.120	
15,000.00	9,461.43	9,131.00	9,109.68	136.63	45.40	12.92	-604.44	-717.51	5,337.98	5,245.09	92.89	57.464	
15,100.00	9,461.22	9,131.00	9,109.68	138.63	45.40	12.92	-604.44	-717.51	5,437.76	5,343.68	94.08	57.798	
15,200.00	9,461.02	9,131.00	9,109.68	140.62	45.40	12.92	-604.44	-717.51	5,537.54	5,442.27	95.27	58.122	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 Tooface (")	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
15,300.00	9,460.82	9,131.00	9,109.68	142.62	45.40	12.92	-604.44	-717.51	5,637.33	5,540.87	96.47	58.438	
15,400.00	9,460.62	9,131.00	9,109.68	144.63	45.40	12.92	-604.44	-717.51	5,737.13	5,639.47	97.66	58.745	
15,500.00	9,460.42	9,131.00	9,109.68	146.64	45.40	12.92	-604.44	-717.51	5,836.94	5,738.08	98.86	59.044	
15,600.00	9,460.22	9,131.00	9,109.68	148.65	45.40	12.92	-604.44	-717.51	5,936.75	5,836.69	100.06	59.334	
15,700.00	9,460.02	9,131.00	9,109.68	150.67	45.40	12.92	-604.44	-717.51	6,036.57	5,935.31	101.25	59.618	
15,800.00	9,459.81	9,131.00	9,109.68	152.69	45.40	12.92	-604.44	-717.51	6,136.39	6,033.94	102.46	59.893	
15,900.00	9,459.61	9,131.00	9,109.68	154.71	45.40	12.92	-604.44	-717.51	6,236.22	6,132.57	103.66	60.162	
16,000.00	9,459.41	9,131.00	9,109.68	156.74	45.40	12.92	-604.44	-717.51	6,336.06	6,231.20	104.86	60.424	
16,100.00	9,459.21	9,131.00	9,109.68	158.77	45.40	12.92	-604.44	-717.51	6,435.90	6,329.84	106.06	60.680	
16,200.00	9,459.01	9,131.00	9,109.68	160.81	45.40	12.92	-604.44	-717.51	6,535.74	6,428.48	107.27	60.929	
16,300.00	9,458.81	9,131.00	9,109.68	162.85	45.40	12.92	-604.44	-717.51	6,635.59	6,527.12	108.47	61.172	
16,400.00	9,458.60	9,131.00	9,109.68	164.89	45.40	12.92	-604.44	-717.51	6,735.45	6,625.77	109.68	61.409	
16,500.00	9,458.40	9,131.00	9,109.68	166.93	45.40	12.92	-604.44	-717.51	6,835.31	6,724.42	110.89	61.641	
16,600.00	9,458.20	9,131.00	9,109.68	168.98	45.40	12.92	-604.44	-717.51	6,935.17	6,823.07	112.10	61.867	
16,700.00	9,458.00	9,131.00	9,109.68	171.03	45.40	12.92	-604.44	-717.51	7,035.04	6,921.73	113.31	62.088	
16,800.00	9,457.80	9,131.00	9,109.68	173.08	45.40	12.92	-604.44	-717.51	7,134.91	7,020.39	114.52	62.303	
16,900.00	9,457.60	9,131.00	9,109.68	175.14	45.40	12.92	-604.44	-717.51	7,234.78	7,119.05	115.73	62.514	
17,000.00	9,457.40	9,131.00	9,109.68	177.19	45.40	12.92	-604.44	-717.51	7,334.66	7,217.72	116.94	62.720	
17,100.00	9,457.19	9,131.00	9,109.68	179.25	45.40	12.92	-604.44	-717.51	7,434.54	7,316.38	118.16	62.921	
17,200.00	9,456.99	9,131.00	9,109.68	181.31	45.40	12.92	-604.44	-717.51	7,534.42	7,415.05	119.37	63.118	
17,300.00	9,456.79	9,131.00	9,109.68	183.38	45.40	12.92	-604.44	-717.51	7,634.31	7,513.73	120.58	63.311	
17,400.00	9,456.59	9,131.00	9,109.68	185.44	45.40	12.92	-604.44	-717.51	7,734.20	7,612.40	121.80	63.499	
17,500.00	9,456.39	9,131.00	9,109.68	187.51	45.40	12.92	-604.44	-717.51	7,834.09	7,711.08	123.02	63.684	
17,600.00	9,456.19	9,131.00	9,109.68	189.58	45.40	12.92	-604.44	-717.51	7,933.99	7,809.75	124.23	63.864	
17,700.00	9,455.99	9,131.00	9,109.68	191.65	45.40	12.92	-604.44	-717.51	8,033.89	7,908.44	125.45	64.041	
17,800.00	9,455.78	9,131.00	9,109.68	193.73	45.40	12.92	-604.44	-717.51	8,133.79	8,007.12	126.67	64.214	
17,900.00	9,455.58	9,131.00	9,109.68	195.80	45.40	12.92	-604.44	-717.51	8,233.69	8,105.80	127.89	64.383	
18,000.00	9,455.38	9,131.00	9,109.68	197.88	45.40	12.92	-604.44	-717.51	8,333.59	8,204.49	129.11	64.549	
18,100.00	9,455.18	9,131.00	9,109.68	199.96	45.40	12.92	-604.44	-717.51	8,433.50	8,303.18	130.32	64.711	
18,200.00	9,454.98	9,131.00	9,109.68	202.04	45.40	12.92	-604.44	-717.51	8,533.41	8,401.87	131.54	64.871	
18,300.00	9,454.78	9,131.00	9,109.68	204.12	45.40	12.92	-604.44	-717.51	8,633.32	8,500.56	132.77	65.027	
18,400.00	9,454.57	9,131.00	9,109.68	206.20	45.40	12.92	-604.44	-717.51	8,733.24	8,599.25	133.99	65.180	
18,500.00	9,454.37	9,131.00	9,109.68	208.29	45.40	12.92	-604.44	-717.51	8,833.15	8,697.94	135.21	65.330	
18,600.00	9,454.17	9,131.00	9,109.68	210.38	45.40	12.92	-604.44	-717.51	8,933.07	8,796.64	136.43	65.477	
18,700.00	9,453.97	9,131.00	9,109.68	212.46	45.40	12.92	-604.44	-717.51	9,032.99	8,895.34	137.65	65.622	
18,800.00	9,453.77	9,131.00	9,109.68	214.55	45.40	12.92	-604.44	-717.51	9,132.91	8,994.03	138.88	65.763	
18,900.00	9,453.57	9,131.00	9,109.68	216.64	45.40	12.92	-604.44	-717.51	9,232.83	9,092.73	140.10	65.902	
19,000.00	9,453.37	9,131.00	9,109.68	218.74	45.40	12.92	-604.44	-717.51	9,332.76	9,191.43	141.32	66.039	
19,100.00	9,453.16	9,131.00	9,109.68	220.83	45.40	12.92	-604.44	-717.51	9,432.68	9,290.14	142.55	66.172	
19,200.00	9,452.96	9,131.00	9,109.68	222.92	45.40	12.92	-604.44	-717.51	9,532.61	9,388.84	143.77	66.304	
19,300.00	9,452.76	9,131.00	9,109.68	225.02	45.40	12.92	-604.44	-717.51	9,632.54	9,487.54	145.00	66.433	
19,400.00	9,452.56	9,131.00	9,109.68	227.11	45.40	12.92	-604.44	-717.51	9,732.47	9,586.25	146.22	66.560	
19,500.00	9,452.36	9,131.00	9,109.68	229.21	45.40	12.92	-604.44	-717.51	9,832.40	9,684.96	147.45	66.684	
19,600.00	9,452.16	9,131.00	9,109.68	231.31	45.40	12.92	-604.44	-717.51	9,932.34	9,783.66	148.67	66.806	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 21HA - OH / Job #61216 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft	
Survey Program: 164-MWD, 432-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	-115.52	-433.01	-907.00	1,005.14					
100.00	100.00	89.43	89.43	0.19	0.13	-115.54	-433.25	-906.76	1,004.95	1,004.63	0.32	3,134.517		
200.00	200.00	191.44	191.43	0.73	0.32	-115.60	-434.09	-905.95	1,004.58	1,003.54	1.05	957.633		
300.00	300.00	299.43	299.42	1.27	0.65	-115.66	-434.80	-904.94	1,004.05	1,002.13	1.92	522.975		
400.00	400.00	408.74	408.67	1.81	1.01	-115.81	-436.06	-901.70	1,001.84	999.03	2.81	356.505		
500.00	500.00	512.40	512.26	2.34	1.24	-115.97	-437.54	-898.44	999.64	996.05	3.58	279.027		
600.00	600.00	618.16	617.94	2.88	1.52	-116.13	-438.87	-894.48	996.82	992.42	4.40	226.738		
700.00	700.00	720.87	720.52	3.42	1.85	-116.35	-440.74	-889.74	993.49	988.22	5.27	188.636		
800.00	800.00	818.23	817.75	3.96	2.29	-116.58	-442.90	-885.15	990.24	984.01	6.24	158.731		
900.00	900.00	910.43	909.83	4.50	2.72	-116.81	-445.19	-881.04	987.39	980.19	7.20	137.058		
1,000.00	1,000.00	996.36	995.70	5.03	3.14	-116.97	-447.02	-878.57	985.79	977.63	8.16	120.766		
1,100.00	1,100.00	1,088.37	1,087.70	5.57	3.59	-117.07	-448.50	-877.58	985.55	976.39	9.15	107.654		
1,200.00	1,200.00	1,198.58	1,197.90	6.11	4.15	-117.14	-449.21	-876.49	984.96	974.71	10.25	96.124		
1,300.00	1,300.00	1,303.87	1,303.18	6.65	4.68	-117.15	-448.73	-874.97	983.46	972.15	11.32	86.909		
1,400.00	1,400.00	1,404.68	1,403.97	7.18	5.19	-117.12	-447.43	-873.73	981.78	969.41	12.36	79.401		
1,500.00	1,500.00	1,500.99	1,500.26	7.72	5.68	-117.05	-445.72	-872.85	980.16	966.77	13.39	73.197		
1,600.00	1,600.00	1,594.89	1,594.16	8.26	6.15	-117.00	-444.51	-872.37	979.11	964.71	14.40	67.974		
1,649.77	1,649.77	1,629.00	1,628.26	8.53	6.32	-116.99	-444.21	-872.28	978.91	964.07	14.84	65.944		
1,700.00	1,700.00	1,675.48	1,674.73	8.80	6.55	-116.97	-443.99	-872.59	979.13	963.78	15.35	63.803		
1,800.00	1,800.00	1,748.40	1,747.63	9.33	6.92	-116.93	-444.26	-874.61	981.76	965.51	16.25	60.427		
1,900.00	1,899.98	1,818.00	1,817.12	9.85	7.26	5.00	-445.20	-878.28	985.42	968.32	17.10	57.635		
2,000.00	1,999.84	1,917.65	1,916.52	10.35	7.76	5.10	-447.06	-885.03	987.09	969.03	18.06	54.647		
2,100.00	2,099.45	2,013.11	2,011.72	10.86	8.24	5.23	-448.91	-891.96	985.76	966.77	18.99	51.909		
2,200.00	2,198.70	2,109.49	2,107.79	11.38	8.72	5.41	-450.61	-899.46	981.36	961.45	19.91	49.286		
2,300.00	2,297.47	2,204.86	2,202.81	11.90	9.21	5.65	-451.96	-907.44	973.87	953.06	20.81	46.806		
2,400.00	2,395.95	2,281.00	2,288.52	12.44	9.66	5.96	-451.99	-916.06	965.56	943.80	21.76	44.378		
2,500.00	2,494.43	2,378.49	2,375.29	12.99	10.12	6.45	-450.00	-927.04	958.60	935.88	22.72	42.185		
2,600.00	2,592.91	2,474.91	2,470.66	13.55	10.64	7.12	-446.35	-940.75	952.62	928.87	23.75	40.115		
2,700.00	2,691.39	2,570.69	2,565.35	14.12	11.16	7.79	-442.71	-954.64	947.04	922.27	24.78	38.223		
2,800.00	2,789.87	2,650.04	2,643.72	14.69	11.60	8.34	-440.29	-966.90	942.79	917.06	25.73	36.645		
2,900.00	2,888.35	2,739.59	2,731.96	15.27	12.11	8.94	-438.62	-982.03	940.43	913.69	26.74	35.171		
3,000.00	2,986.84	2,833.62	2,824.54	15.85	12.64	9.57	-437.16	-998.45	938.86	911.08	27.78	33.794		
3,100.00	3,085.32	2,931.08	2,920.43	16.45	13.21	10.21	-435.93	-1,015.79	937.83	908.99	28.85	32.509		
3,200.00	3,183.80	3,026.53	3,014.33	17.04	13.78	10.84	-434.93	-1,032.93	937.16	907.25	29.91	31.332		
3,255.74	3,238.69	3,079.19	3,066.10	17.37	14.09	11.18	-434.45	-1,042.58	937.06	906.56	30.50	30.721 CC		
3,300.00	3,282.28	3,121.01	3,107.19	17.64	14.34	11.45	-434.10	-1,050.35	937.13	906.15	30.97	30.257		
3,400.00	3,380.76	3,213.65	3,198.13	18.24	14.90	12.06	-433.43	-1,067.95	937.81	905.78	32.03	29.281		
3,500.00	3,479.24	3,306.11	3,288.77	18.85	15.46	12.67	-432.91	-1,086.21	939.38	906.29	33.09	28.390		
3,600.00	3,577.72	3,404.09	3,384.74	19.45	16.07	13.31	-432.70	-1,105.97	941.58	907.40	34.18	27.546		
3,700.00	3,676.21	3,516.97	3,495.45	20.07	16.77	14.00	-432.80	-1,127.96	943.34	907.98	35.36	26.677		
3,800.00	3,774.69	3,615.35	3,592.12	20.68	17.39	14.57	-433.06	-1,146.23	944.36	907.90	36.46	25.899		
3,900.00	3,873.17	3,722.21	3,697.17	21.30	18.05	15.18	-433.46	-1,165.78	945.25	907.64	37.61	25.130		
4,000.00	3,971.65	3,832.66	3,806.03	21.91	18.73	15.76	-434.41	-1,184.45	944.98	906.19	38.78	24.365		
4,100.00	4,070.13	3,928.49	3,900.50	22.53	19.32	16.24	-435.47	-1,200.49	944.71	904.83	39.87	23.692		
4,200.00	4,168.61	4,030.60	4,001.14	23.15	19.95	16.77	-436.32	-1,217.75	944.61	903.60	41.00	23.037		
4,300.00	4,267.10	4,134.04	4,103.15	23.78	20.59	17.35	-436.45	-1,234.88	944.07	901.93	42.14	22.402		
4,400.00	4,365.58	4,233.91	4,201.65	24.40	21.21	17.91	-436.54	-1,251.33	943.54	900.27	43.26	21.809		
4,500.00	4,464.06	4,334.43	4,300.83	25.03	21.83	18.45	-436.97	-1,267.71	942.99	898.60	44.39	21.243		
4,600.00	4,562.54	4,434.13	4,399.19	25.66	22.45	19.00	-437.13	-1,283.95	942.47	896.95	45.52	20.706		
4,700.00	4,661.02	4,532.76	4,496.47	26.28	23.06	19.60	-436.48	-1,300.24	942.09	895.45	46.64	20.200		
4,774.80	4,734.68	4,605.44	4,568.10	26.75	23.52	20.09	-435.25	-1,312.49	941.97	894.50	47.48	19.841		
4,800.00	4,759.50	4,629.76	4,592.06	26.91	23.67	20.25	-434.87	-1,316.62	941.99	894.23	47.76	19.725		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 21HA - OH / Job #61216 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 164-MWD, 432-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	
4,900.00	4,857.98	4,724.35	4,685.24	27.54	24.26	20.87	-433.69	-1,332.87	942.38	893.52	48.86	19.286	
5,000.00	4,956.47	4,821.24	4,780.62	28.17	24.88	21.48	-432.82	-1,349.92	943.37	893.38	49.99	18.873 ES	
5,100.00	5,054.95	4,918.10	4,875.94	28.81	25.49	22.07	-432.32	-1,367.09	944.66	893.55	51.11	18.483	
5,200.00	5,153.43	5,013.83	4,970.09	29.44	26.11	22.64	-432.00	-1,384.37	946.41	894.18	52.23	18.120	
5,300.00	5,251.91	5,108.95	5,063.58	30.07	26.72	23.20	-431.90	-1,401.92	948.70	895.35	53.35	17.783	
5,400.00	5,350.40	5,204.51	5,157.43	30.71	27.34	23.75	-432.06	-1,419.94	951.55	897.07	54.49	17.464	
5,500.00	5,449.23	5,310.94	5,261.96	31.33	28.03	24.34	-432.24	-1,439.98	956.45	900.73	55.72	17.164	
5,600.00	5,548.53	5,417.89	5,367.16	31.91	28.71	24.87	-432.03	-1,459.20	963.69	906.79	56.89	16.938	
5,700.00	5,648.19	5,519.08	5,466.78	32.47	29.36	25.30	-431.77	-1,476.98	973.71	915.75	57.96	16.800	
5,800.00	5,748.07	5,639.57	5,585.64	33.00	30.12	25.66	-432.14	-1,496.73	985.79	926.73	59.06	16.692	
5,900.00	5,848.06	5,760.30	5,705.19	33.49	30.85	-96.04	-433.11	-1,513.50	998.47	938.52	59.95	16.655	
6,000.00	5,948.06	5,871.01	5,815.04	33.97	31.51	-96.04	-434.63	-1,527.16	1,010.89	949.83	61.06	16.557	
6,100.00	6,048.06	6,000.98	5,944.28	34.44	32.25	-96.07	-436.58	-1,540.78	1,021.53	959.27	62.26	16.407	
6,200.00	6,148.06	6,148.42	6,091.40	34.92	33.05	-96.06	-437.46	-1,550.18	1,027.85	964.30	63.55	16.175	
6,300.00	6,248.06	6,270.53	6,213.45	35.40	33.67	-96.06	-437.87	-1,553.88	1,030.87	966.18	64.69	15.936	
6,400.00	6,348.06	6,382.91	6,325.82	35.88	34.23	-96.08	-438.39	-1,555.47	1,032.33	966.55	65.77	15.695	
6,500.00	6,448.06	6,488.51	6,431.41	36.37	34.74	-96.12	-439.08	-1,556.00	1,032.89	966.07	66.82	15.458	
6,600.00	6,548.06	6,589.66	6,532.56	36.85	35.22	-96.15	-439.65	-1,556.24	1,033.18	965.35	67.84	15.231	
6,700.00	6,648.06	6,690.34	6,633.24	37.34	35.69	-96.20	-440.56	-1,556.35	1,033.39	964.54	68.85	15.009	
6,800.00	6,748.06	6,790.93	6,733.83	37.83	36.17	-96.24	-441.34	-1,556.41	1,033.54	963.67	69.87	14.793	
6,900.00	6,848.06	6,894.22	6,837.12	38.31	36.66	-96.27	-441.92	-1,556.37	1,033.55	962.66	70.89	14.579	
7,000.00	6,948.06	6,999.72	6,942.61	38.80	37.14	-96.29	-442.26	-1,555.83	1,033.09	961.17	71.92	14.364	
7,100.00	7,048.06	7,107.18	7,050.06	39.30	37.64	-96.30	-442.16	-1,554.69	1,032.02	959.07	72.95	14.146	
7,200.00	7,148.06	7,218.77	7,161.63	39.79	38.15	-96.31	-442.16	-1,552.44	1,030.02	956.01	74.01	13.918	
7,300.00	7,248.06	7,321.91	7,264.73	40.28	38.61	-96.35	-442.51	-1,549.56	1,027.28	952.26	75.02	13.693	
7,400.00	7,348.06	7,422.85	7,365.62	40.78	39.07	-96.37	-442.60	-1,546.56	1,024.34	948.31	76.02	13.474	
7,500.00	7,448.06	7,523.25	7,465.98	41.27	39.53	-96.40	-442.75	-1,543.50	1,021.33	944.30	77.03	13.260	
7,600.00	7,548.06	7,624.07	7,566.75	41.77	40.00	-96.44	-443.11	-1,540.37	1,018.28	940.25	78.03	13.050	
7,700.00	7,648.06	7,726.13	7,668.75	42.27	40.47	-96.48	-443.54	-1,537.00	1,015.05	936.00	79.05	12.841	
7,800.00	7,748.06	7,825.16	7,767.73	42.77	40.93	-96.53	-443.97	-1,533.63	1,011.72	931.67	80.05	12.639	
7,900.00	7,848.06	7,921.26	7,863.78	43.27	41.37	-96.57	-444.44	-1,530.63	1,008.67	927.64	81.03	12.447	
8,000.00	7,948.06	8,018.38	7,960.86	43.77	41.83	-96.62	-444.89	-1,527.97	1,006.00	923.97	82.03	12.264	
8,100.00	8,048.06	8,117.35	8,059.80	44.27	42.29	-96.66	-445.39	-1,525.41	1,003.49	920.45	83.04	12.085	
8,200.00	8,148.06	8,214.84	8,157.24	44.77	42.76	-96.74	-446.54	-1,522.94	1,001.11	917.07	84.04	11.912	
8,300.00	8,248.06	8,310.21	8,252.58	45.28	43.21	-96.85	-448.14	-1,520.83	999.11	914.07	85.04	11.749	
8,400.00	8,348.06	8,400.71	8,343.05	45.78	43.65	-96.95	-449.69	-1,519.45	997.81	911.79	86.01	11.600	
8,467.61	8,415.66	8,460.32	8,402.66	46.12	43.94	-96.99	-450.42	-1,519.08	997.50	910.83	86.67	11.509	
8,500.00	8,448.06	8,485.54	8,427.88	46.29	44.06	-96.99	-450.35	-1,519.18	997.62	910.65	86.97	11.471	
8,600.00	8,548.06	8,580.24	8,522.36	46.79	44.54	-96.66	-444.93	-1,521.15	998.98	911.00	87.98	11.355	
8,700.00	8,648.06	8,698.99	8,638.20	47.30	45.13	-95.23	-419.98	-1,523.81	998.96	909.84	89.12	11.209	
8,716.45	8,664.51	8,713.11	8,651.51	47.38	45.20	-94.96	-415.28	-1,524.20	998.94	909.66	89.28	11.189	
8,800.00	8,748.06	8,782.05	8,713.83	47.81	45.51	-93.28	-386.17	-1,526.89	999.75	909.68	90.07	11.099	
8,900.00	8,848.06	8,858.07	8,775.65	48.31	45.82	-90.76	-342.22	-1,530.71	1,003.56	912.57	90.99	11.029	
9,000.00	8,948.06	8,919.55	8,819.81	48.82	46.05	-88.33	-299.67	-1,534.12	1,012.13	920.30	91.83	11.022 SF	
9,100.00	9,048.01	8,975.00	8,854.66	49.33	46.23	83.05	-256.66	-1,537.01	1,026.40	933.58	92.81	11.059	
9,200.00	9,146.57	9,020.73	8,881.01	49.87	46.37	83.39	-219.34	-1,538.93	1,045.68	952.02	93.66	11.165	
9,300.00	9,240.83	9,042.29	8,892.79	50.45	46.44	81.97	-201.29	-1,539.62	1,070.85	976.46	94.40	11.344	
9,400.00	9,327.92	9,047.41	8,895.53	51.06	46.46	79.02	-196.96	-1,539.78	1,102.02	1,007.05	94.96	11.605	
9,500.00	9,405.20	9,039.44	8,891.25	51.69	46.43	74.83	-203.69	-1,539.53	1,138.03	1,042.96	95.06	11.971	
9,600.00	9,470.32	9,023.00	8,882.27	52.36	46.38	69.94	-217.45	-1,539.01	1,177.09	1,082.80	94.29	12.483	
9,700.00	9,521.30	8,994.27	8,866.00	53.06	46.29	64.56	-241.10	-1,537.91	1,217.13	1,124.85	92.27	13.190	
9,800.00	9,556.60	8,975.00	8,854.66	53.81	46.23	59.99	-256.66	-1,537.01	1,256.19	1,166.53	89.66	14.010	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 21HA - OH / Job #61216 - Surveys (Patterson 815)													Offset Site Error: 0.00 usft
Survey Program: 164-MWD, 432-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)					
9,900.00	9,575.13	8,928.00	8,825.37	54.59	46.08	55.02	-293.32	-1,534.58	1,292.48	1,206.36	86.12	15.007	
10,000.00	9,577.07	8,928.00	8,825.37	55.39	46.08	52.87	-293.32	-1,534.58	1,325.71	1,240.65	85.06	15.586	
10,100.00	9,574.60	8,880.00	8,792.10	56.24	45.91	50.91	-327.78	-1,531.92	1,363.37	1,279.41	83.96	16.239	
10,200.00	9,572.13	8,880.00	8,792.10	57.14	45.91	50.21	-327.78	-1,531.92	1,408.65	1,324.52	84.13	16.743	
10,300.00	9,569.66	8,852.37	8,771.26	58.09	45.80	48.54	-345.86	-1,530.41	1,460.72	1,377.39	83.33	17.530	
10,400.00	9,567.19	8,833.00	8,756.06	59.08	45.73	46.95	-357.82	-1,529.40	1,518.99	1,436.39	82.60	18.389	
10,500.00	9,564.72	8,833.00	8,756.06	60.11	45.73	45.76	-357.82	-1,529.40	1,582.97	1,500.66	82.31	19.232	
10,600.00	9,562.25	8,804.47	8,732.80	61.18	45.61	44.50	-374.28	-1,527.98	1,650.90	1,569.03	81.88	20.164	
10,700.00	9,559.79	8,785.00	8,716.37	62.30	45.53	43.92	-384.66	-1,527.03	1,721.88	1,639.67	82.21	20.945	
10,800.00	9,557.32	8,785.00	8,716.37	63.48	45.53	43.92	-384.66	-1,527.03	1,795.18	1,711.94	83.23	21.568	
10,900.00	9,554.86	8,785.00	8,716.37	64.71	45.53	43.92	-384.66	-1,527.03	1,870.95	1,786.66	84.29	22.196	
11,000.00	9,552.39	8,763.68	8,697.79	65.98	45.43	43.29	-395.07	-1,526.06	1,948.18	1,863.53	84.65	23.014	
11,100.00	9,549.93	8,738.00	8,674.61	67.30	45.32	42.53	-406.06	-1,525.04	2,028.02	1,943.15	84.86	23.897	
11,200.00	9,547.46	8,738.00	8,674.61	68.67	45.32	42.53	-406.06	-1,525.04	2,108.59	2,022.58	86.01	24.515	
11,300.00	9,545.00	8,738.00	8,674.61	70.07	45.32	42.53	-406.06	-1,525.04	2,190.77	2,103.58	87.19	25.126	
11,400.00	9,542.54	8,738.00	8,674.61	71.51	45.32	42.53	-406.06	-1,525.04	2,274.38	2,185.98	88.40	25.729	
11,500.00	9,540.07	8,738.00	8,674.61	72.99	45.32	42.53	-406.06	-1,525.04	2,359.26	2,269.63	89.63	26.323	
11,600.00	9,537.61	8,738.00	8,674.61	74.50	45.32	42.53	-406.06	-1,525.04	2,445.28	2,354.40	90.88	26.906	
11,700.00	9,535.14	8,716.73	8,654.90	76.04	45.21	41.90	-414.01	-1,524.32	2,531.79	2,440.43	91.36	27.712	
11,800.00	9,532.68	8,710.76	8,649.30	77.61	45.19	41.72	-416.09	-1,524.14	2,619.42	2,526.99	92.43	28.341	
11,900.00	9,530.21	8,690.00	8,629.66	79.21	45.09	41.12	-422.77	-1,523.58	2,708.10	2,615.15	92.95	29.136	
12,000.00	9,527.75	8,690.00	8,629.66	80.83	45.09	41.12	-422.77	-1,523.58	2,797.06	2,702.79	94.27	29.672	
12,100.00	9,525.28	8,690.00	8,629.66	82.48	45.09	41.12	-422.77	-1,523.58	2,886.74	2,791.14	95.60	30.195	
12,200.00	9,522.82	8,690.00	8,629.66	84.15	45.09	41.12	-422.77	-1,523.58	2,977.08	2,880.13	96.95	30.706	
12,300.00	9,520.36	8,690.00	8,629.66	85.85	45.09	41.12	-422.77	-1,523.58	3,068.03	2,969.71	98.32	31.205	
12,400.00	9,517.89	8,690.00	8,629.66	87.56	45.09	41.12	-422.77	-1,523.58	3,159.51	3,059.81	99.70	31.690	
12,500.00	9,515.43	8,690.00	8,629.66	89.29	45.09	41.12	-422.77	-1,523.58	3,251.50	3,150.41	101.09	32.164	
12,600.00	9,512.96	8,690.00	8,629.66	91.05	45.09	41.12	-422.77	-1,523.58	3,343.95	3,241.45	102.50	32.624	
12,700.00	9,510.50	8,669.39	8,609.89	92.82	44.99	40.52	-428.58	-1,523.12	3,436.34	3,333.26	103.08	33.337	
12,800.00	9,508.03	8,665.84	8,606.47	94.60	44.97	40.42	-429.50	-1,523.04	3,529.42	3,425.06	104.36	33.821	
12,900.00	9,505.57	8,643.00	8,584.25	96.40	44.86	39.77	-434.80	-1,522.60	3,623.27	3,518.42	104.85	34.557	
13,000.00	9,503.10	8,643.00	8,584.25	98.22	44.86	39.77	-434.80	-1,522.60	3,716.88	3,610.60	106.28	34.973	
13,100.00	9,500.64	8,643.00	8,584.25	100.05	44.86	39.77	-434.80	-1,522.60	3,810.82	3,703.10	107.72	35.378	
13,200.00	9,498.18	8,643.00	8,584.25	101.89	44.86	39.77	-434.80	-1,522.60	3,905.05	3,795.89	109.16	35.772	
13,300.00	9,495.71	8,643.00	8,584.25	103.74	44.86	39.77	-434.80	-1,522.60	3,999.57	3,888.95	110.62	36.156	
13,400.00	9,493.25	8,643.00	8,584.25	105.61	44.86	39.77	-434.80	-1,522.60	4,094.35	3,982.26	112.08	36.530	
13,500.00	9,490.78	8,643.00	8,584.25	107.49	44.86	39.77	-434.80	-1,522.60	4,189.37	4,075.81	113.55	36.894	
13,600.00	9,488.32	8,643.00	8,584.25	109.37	44.86	39.77	-434.80	-1,522.60	4,284.61	4,169.58	115.03	37.248	
13,700.00	9,485.85	8,643.00	8,584.25	111.27	44.86	39.77	-434.80	-1,522.60	4,380.07	4,263.56	116.51	37.593	
13,800.00	9,483.39	8,643.00	8,584.25	113.18	44.86	39.77	-434.80	-1,522.60	4,475.73	4,357.72	118.00	37.930	
13,900.00	9,480.92	8,643.00	8,584.25	115.09	44.86	39.77	-434.80	-1,522.60	4,571.57	4,452.07	119.50	38.257	
14,000.00	9,478.46	8,643.00	8,584.25	117.02	44.86	39.77	-434.80	-1,522.60	4,667.58	4,546.59	121.00	38.576	
14,100.00	9,476.00	8,643.00	8,584.25	118.95	44.86	39.77	-434.80	-1,522.60	4,763.77	4,641.26	122.50	38.887	
14,200.00	9,473.53	8,643.00	8,584.25	120.89	44.86	39.77	-434.80	-1,522.60	4,860.10	4,736.09	124.01	39.190	
14,300.00	9,471.07	8,643.00	8,584.25	122.84	44.86	39.77	-434.80	-1,522.60	4,956.58	4,831.05	125.53	39.486	
14,400.00	9,468.60	8,620.98	8,562.65	124.79	44.75	39.16	-439.04	-1,522.16	5,052.78	4,926.76	126.02	40.095	
14,500.00	9,466.14	8,618.70	8,560.41	126.75	44.74	39.10	-439.44	-1,522.11	5,149.44	5,022.01	127.43	40.410	
14,600.00	9,463.67	8,616.50	8,558.24	128.72	44.73	39.03	-439.81	-1,522.06	5,246.21	5,117.37	128.84	40.718	
14,700.00	9,462.03	8,595.00	8,537.00	130.69	44.62	43.78	-443.08	-1,521.53	5,343.56	5,206.07	137.49	38.865	
14,800.00	9,461.83	8,595.00	8,537.00	132.67	44.62	43.78	-443.08	-1,521.53	5,440.66	5,301.57	139.08	39.119	
14,900.00	9,461.63	8,595.00	8,537.00	134.65	44.62	43.78	-443.08	-1,521.53	5,537.91	5,397.23	140.68	39.366	
15,000.00	9,461.43	8,595.00	8,537.00	136.63	44.62	43.78	-443.08	-1,521.53	5,635.26	5,492.98	142.28	39.608	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 - 21HA - OH / Job #61216 - Surveys (Patterson 815)											Offset Site Error: 0.00 usft	
Survey Program: 164-MWD, 432-MWD+HDGM											Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				
15,100.00	9,461.22	8,595.00	8,537.00	138.63	44.62	43.78	-443.08	-1,521.53	5,732.70	5,588.82	143.88	39.844
15,200.00	9,461.02	8,595.00	8,537.00	140.62	44.62	43.78	-443.08	-1,521.53	5,830.22	5,684.74	145.48	40.075
15,300.00	9,460.82	8,595.00	8,537.00	142.62	44.62	43.78	-443.08	-1,521.53	5,927.83	5,780.74	147.09	40.300
15,400.00	9,460.62	8,595.00	8,537.00	144.63	44.62	43.78	-443.08	-1,521.53	6,025.52	5,876.82	148.71	40.520
15,500.00	9,460.42	8,595.00	8,537.00	146.64	44.62	43.78	-443.08	-1,521.53	6,123.28	5,972.96	150.32	40.735
15,600.00	9,460.22	8,595.00	8,537.00	148.65	44.62	43.78	-443.08	-1,521.53	6,221.12	6,069.18	151.94	40.945
15,700.00	9,460.02	8,595.00	8,537.00	150.67	44.62	43.78	-443.08	-1,521.53	6,319.02	6,165.46	153.56	41.150
15,800.00	9,459.81	8,595.00	8,537.00	152.69	44.62	43.78	-443.08	-1,521.53	6,416.98	6,261.80	155.18	41.351
15,900.00	9,459.61	8,595.00	8,537.00	154.71	44.62	43.78	-443.08	-1,521.53	6,515.01	6,358.20	156.81	41.547
16,000.00	9,459.41	8,595.00	8,537.00	156.74	44.62	43.78	-443.08	-1,521.53	6,613.10	6,454.66	158.44	41.739
16,100.00	9,459.21	8,595.00	8,537.00	158.77	44.62	43.78	-443.08	-1,521.53	6,711.24	6,551.17	160.07	41.927
16,200.00	9,459.01	8,595.00	8,537.00	160.81	44.62	43.78	-443.08	-1,521.53	6,809.44	6,647.74	161.70	42.111
16,300.00	9,458.81	8,595.00	8,537.00	162.85	44.62	43.78	-443.08	-1,521.53	6,907.69	6,744.35	163.34	42.291
16,400.00	9,458.60	8,595.00	8,537.00	164.89	44.62	43.78	-443.08	-1,521.53	7,005.99	6,841.01	164.97	42.467
16,500.00	9,458.40	8,595.00	8,537.00	166.93	44.62	43.78	-443.08	-1,521.53	7,104.33	6,937.72	166.61	42.640
16,600.00	9,458.20	8,595.00	8,537.00	168.98	44.62	43.78	-443.08	-1,521.53	7,202.73	7,034.47	168.25	42.809
16,700.00	9,458.00	8,595.00	8,537.00	171.03	44.62	43.78	-443.08	-1,521.53	7,301.16	7,131.26	169.90	42.974
16,800.00	9,457.80	8,595.00	8,537.00	173.08	44.62	43.78	-443.08	-1,521.53	7,399.64	7,228.10	171.54	43.136
16,900.00	9,457.60	8,595.00	8,537.00	175.14	44.62	43.78	-443.08	-1,521.53	7,498.16	7,324.97	173.19	43.295
17,000.00	9,457.40	8,595.00	8,537.00	177.19	44.62	43.78	-443.08	-1,521.53	7,596.71	7,421.88	174.83	43.451
17,100.00	9,457.19	8,595.00	8,537.00	179.25	44.62	43.78	-443.08	-1,521.53	7,695.31	7,518.82	176.48	43.603
17,200.00	9,456.99	8,595.00	8,537.00	181.31	44.62	43.78	-443.08	-1,521.53	7,793.94	7,615.80	178.14	43.753
17,300.00	9,456.79	8,595.00	8,537.00	183.38	44.62	43.78	-443.08	-1,521.53	7,892.60	7,712.81	179.79	43.899
17,400.00	9,456.59	8,595.00	8,537.00	185.44	44.62	43.78	-443.08	-1,521.53	7,991.30	7,809.85	181.44	44.043
17,500.00	9,456.39	8,595.00	8,537.00	187.51	44.62	43.78	-443.08	-1,521.53	8,090.03	7,906.93	183.10	44.184
17,600.00	9,456.19	8,595.00	8,537.00	189.58	44.62	43.78	-443.08	-1,521.53	8,188.79	8,004.03	184.75	44.323
17,700.00	9,455.99	8,595.00	8,537.00	191.65	44.62	43.78	-443.08	-1,521.53	8,287.58	8,101.16	186.41	44.458
17,800.00	9,455.78	8,595.00	8,537.00	193.73	44.62	43.78	-443.08	-1,521.53	8,386.39	8,198.32	188.07	44.591
17,900.00	9,455.58	8,595.00	8,537.00	195.80	44.62	43.78	-443.08	-1,521.53	8,485.24	8,295.51	189.73	44.722
18,000.00	9,455.38	8,595.00	8,537.00	197.88	44.62	43.78	-443.08	-1,521.53	8,584.11	8,392.72	191.39	44.850
18,100.00	9,455.18	8,572.88	8,515.04	199.96	44.51	43.09	-445.74	-1,520.96	8,682.64	8,491.07	191.57	45.324
18,200.00	9,454.98	8,572.07	8,514.24	202.04	44.50	43.07	-445.82	-1,520.94	8,781.54	8,588.37	193.17	45.461
18,300.00	9,454.78	8,571.28	8,513.46	204.12	44.50	43.04	-445.90	-1,520.91	8,880.46	8,685.69	194.77	45.595
18,400.00	9,454.57	8,570.51	8,512.69	206.20	44.49	43.02	-445.98	-1,520.89	8,979.40	8,783.03	196.37	45.727
18,500.00	9,454.37	8,548.00	8,490.27	208.29	44.38	42.33	-447.91	-1,520.31	9,078.72	8,882.24	196.49	46.205
18,600.00	9,454.17	8,548.00	8,490.27	210.38	44.38	42.33	-447.91	-1,520.31	9,177.69	8,979.56	198.13	46.321
18,700.00	9,453.97	8,548.00	8,490.27	212.46	44.38	42.33	-447.91	-1,520.31	9,276.67	9,076.90	199.78	46.435
18,800.00	9,453.77	8,548.00	8,490.27	214.55	44.38	42.33	-447.91	-1,520.31	9,375.68	9,174.26	201.42	46.547
18,900.00	9,453.57	8,548.00	8,490.27	216.64	44.38	42.33	-447.91	-1,520.31	9,474.71	9,271.64	203.07	46.657
19,000.00	9,453.37	8,548.00	8,490.27	218.74	44.38	42.33	-447.91	-1,520.31	9,573.75	9,369.03	204.72	46.765
19,100.00	9,453.16	8,548.00	8,490.27	220.83	44.38	42.33	-447.91	-1,520.31	9,672.82	9,466.45	206.37	46.871
19,200.00	9,452.96	8,548.00	8,490.27	222.92	44.38	42.33	-447.91	-1,520.31	9,771.91	9,563.89	208.02	46.976
19,300.00	9,452.76	8,548.00	8,490.27	225.02	44.38	42.33	-447.91	-1,520.31	9,871.01	9,661.34	209.67	47.079
19,400.00	9,452.56	8,548.00	8,490.27	227.11	44.38	42.33	-447.91	-1,520.31	9,970.14	9,758.81	211.32	47.180

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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)	+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	-116.82	-458.01	-906.00	1,015.27						
100.00	100.00	90.68	90.68	0.19	0.13	-116.82	-457.93	-905.86	1,015.03	1,014.71	0.32	3,149.129			
200.00	200.00	198.14	198.14	0.73	0.33	-116.82	-457.63	-905.27	1,014.43	1,013.37	1.06	958.156			
300.00	300.00	305.96	305.94	1.27	0.68	-116.85	-457.35	-903.25	1,012.61	1,010.66	1.95	518.739			
400.00	400.00	399.52	399.48	1.81	0.98	-116.94	-458.10	-901.23	1,011.06	1,008.27	2.79	362.559			
500.00	500.00	507.29	507.20	2.34	1.23	-117.10	-459.83	-898.68	1,009.70	1,006.12	3.57	282.510			
600.00	600.00	628.76	628.57	2.88	1.50	-117.31	-461.57	-894.08	1,007.05	1,002.67	4.38	230.100			
700.00	700.00	791.63	790.50	3.42	2.14	-117.99	-466.58	-877.87	999.53	993.98	5.55	180.045			
800.00	800.00	887.58	885.46	3.96	2.62	-118.54	-470.29	-864.70	989.23	982.66	6.57	150.460			
900.00	900.00	968.97	966.17	4.50	3.06	-118.99	-473.49	-854.63	980.23	972.69	7.54	129.928			
1,000.00	1,000.00	1,070.22	1,066.74	5.03	3.61	-119.47	-476.68	-843.47	972.13	963.50	8.63	112.671			
1,100.00	1,100.00	1,179.07	1,174.98	5.57	4.21	-119.88	-477.94	-831.94	963.47	953.71	9.76	98.701			
1,200.00	1,200.00	1,283.91	1,279.15	6.11	4.79	-120.25	-478.34	-820.15	953.91	943.02	10.88	87.651			
1,300.00	1,300.00	1,383.69	1,378.35	6.65	5.35	-120.56	-477.89	-809.41	944.39	932.41	11.98	78.832			
1,400.00	1,400.00	1,484.51	1,478.59	7.18	5.91	-120.81	-476.35	-798.70	934.46	921.38	13.08	71.428			
1,500.00	1,500.00	1,574.58	1,568.18	7.72	6.42	-121.04	-475.20	-789.54	925.08	910.95	14.12	65.495			
1,600.00	1,600.00	1,671.23	1,664.43	8.26	6.96	-121.29	-474.45	-780.69	916.82	901.62	15.20	60.309			
1,700.00	1,700.00	1,787.84	1,780.39	8.80	7.62	-121.63	-473.38	-768.60	907.50	891.10	16.40	55.333			
1,800.00	1,800.00	1,878.90	1,870.86	9.33	8.14	-121.93	-472.45	-758.22	897.29	879.83	17.46	51.392			
1,900.00	1,899.98	1,960.23	1,951.82	9.85	8.60	-0.29	-472.05	-750.48	887.22	869.05	18.17	48.823			
2,000.00	1,999.84	2,047.44	2,038.79	10.35	9.08	-0.51	-471.79	-744.05	875.59	856.50	19.09	45.868			
2,100.00	2,099.45	2,144.96	2,136.09	10.86	9.61	-0.74	-471.56	-737.52	861.13	841.09	20.04	42.975			
2,200.00	2,198.70	2,245.36	2,236.26	11.38	10.16	-0.98	-471.19	-730.77	843.15	822.17	20.98	40.191			
2,300.00	2,297.47	2,345.73	2,336.38	11.90	10.71	-1.25	-470.59	-723.80	821.46	799.57	21.89	37.523			
2,400.00	2,395.95	2,445.54	2,435.93	12.44	11.26	-1.51	-469.76	-716.61	797.76	774.82	22.93	34.789			
2,500.00	2,494.43	2,544.61	2,534.73	12.99	11.80	-1.79	-468.70	-709.27	773.77	749.79	23.97	32.277			
2,600.00	2,592.91	2,648.84	2,638.63	13.55	12.38	-2.11	-467.41	-701.04	749.33	724.28	25.05	29.915			
2,700.00	2,691.39	2,754.55	2,743.85	14.12	12.98	-2.54	-466.25	-691.05	723.72	697.58	26.14	27.682			
2,800.00	2,789.87	2,851.49	2,840.25	14.69	13.54	-3.04	-465.46	-680.87	697.47	670.27	27.20	25.642			
2,900.00	2,888.35	2,947.24	2,935.47	15.27	14.09	-3.57	-464.69	-670.87	671.32	643.07	28.25	23.761			
3,000.00	2,986.84	3,043.05	3,030.78	15.85	14.64	-4.11	-463.72	-661.11	645.31	616.00	29.31	22.017			
3,100.00	3,085.32	3,141.21	3,128.42	16.45	15.20	-4.69	-462.52	-651.14	619.27	588.89	30.38	20.383			
3,200.00	3,183.80	3,239.39	3,226.06	17.04	15.76	-5.33	-461.15	-640.92	593.00	561.54	31.46	18.850			
3,300.00	3,282.28	3,337.75	3,323.84	17.64	16.33	-6.03	-459.58	-630.38	566.44	533.90	32.54	17.406			
3,400.00	3,380.76	3,429.00	3,414.57	18.24	16.86	-6.76	-458.34	-620.67	540.17	506.58	33.59	16.080			
3,500.00	3,479.24	3,512.31	3,497.51	18.85	17.33	-7.49	-458.15	-612.88	515.66	481.06	34.60	14.904			
3,600.00	3,577.72	3,594.34	3,579.34	19.45	17.78	-8.21	-459.09	-607.28	494.01	458.41	35.60	13.878			
3,700.00	3,676.21	3,681.88	3,666.80	20.07	18.24	-8.88	-460.67	-604.01	475.15	438.53	36.61	12.977			
3,800.00	3,774.69	3,776.54	3,761.43	20.68	18.72	-9.48	-462.17	-602.49	457.82	420.16	37.66	12.156			
3,900.00	3,873.17	3,873.57	3,858.46	21.30	19.20	-10.02	-463.31	-601.76	440.92	402.21	38.71	11.392			
4,000.00	3,971.65	3,971.58	3,956.46	21.91	19.67	-10.47	-463.89	-601.87	424.30	384.56	39.74	10.676			
4,100.00	4,070.13	4,069.97	4,054.85	22.53	20.14	-10.98	-464.57	-601.97	407.77	366.98	40.78	9.998			
4,200.00	4,168.61	4,168.33	4,153.21	23.15	20.61	-11.53	-465.32	-602.05	391.31	349.48	41.83	9.355			
4,300.00	4,267.10	4,266.71	4,251.59	23.78	21.09	-12.12	-466.04	-602.24	374.94	332.06	42.88	8.744			
4,400.00	4,365.58	4,364.60	4,349.47	24.40	21.56	-12.75	-466.76	-602.57	358.72	314.79	43.93	8.166			
4,500.00	4,464.06	4,462.57	4,447.44	25.03	22.03	-13.43	-467.62	-603.06	342.75	297.77	44.98	7.620			
4,600.00	4,562.54	4,561.06	4,545.92	25.66	22.51	-14.18	-468.54	-603.64	326.95	280.91	46.03	7.102			
4,700.00	4,661.02	4,659.55	4,644.40	26.28	22.98	-14.96	-469.37	-604.40	311.25	264.16	47.09	6.609			
4,800.00	4,759.50	4,757.31	4,742.16	26.91	23.45	-15.78	-470.17	-605.42	295.79	247.64	48.15	6.143			
4,900.00	4,857.98	4,855.18	4,840.02	27.54	23.92	-16.66	-471.07	-606.79	280.70	231.49	49.21	5.704			
5,000.00	4,956.47	4,953.36	4,938.18	28.17	24.39	-17.63	-472.16	-608.34	265.95	215.67	50.28	5.289			
5,100.00	5,054.95	5,051.35	5,036.14	28.81	24.87	-18.74	-473.55	-609.97	251.56	200.20	51.36	4.898			

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	5,153.43	5,149.63	5,134.39	29.44	25.35	-19.99	-475.17	-611.75	237.55	185.10	52.45	4.529	
5,300.00	5,251.91	5,248.30	5,233.02	30.07	25.83	-21.38	-476.93	-613.74	223.90	170.34	53.56	4.180	
5,400.00	5,350.40	5,348.37	5,333.06	30.71	26.32	-22.81	-478.19	-616.04	210.15	155.45	54.70	3.842	
5,500.00	5,449.23	5,448.11	5,432.77	31.33	26.80	-23.94	-478.67	-618.42	197.93	141.97	55.97	3.537	
5,600.00	5,548.53	5,546.56	5,531.18	31.91	27.28	-24.71	-479.26	-621.16	189.27	132.13	57.14	3.312	
5,700.00	5,648.19	5,647.49	5,632.07	32.47	27.78	-25.09	-480.05	-624.20	184.08	125.82	58.26	3.160	
5,800.00	5,748.07	5,752.41	5,736.97	33.00	28.30	-25.47	-479.99	-625.17	180.22	120.89	59.33	3.037	
5,900.00	5,848.06	5,854.67	5,839.20	33.49	28.83	-147.93	-478.84	-622.90	176.88	116.10	60.78	2.910	
6,000.00	5,948.06	5,954.26	5,938.75	33.97	29.36	-148.35	-477.65	-620.63	174.66	112.84	61.82	2.825	
6,100.00	6,048.06	6,053.98	6,038.45	34.44	29.88	-148.66	-476.41	-618.78	172.63	109.78	62.85	2.747	
6,200.00	6,148.06	6,153.17	6,137.63	34.92	30.40	-148.83	-475.17	-617.41	170.85	106.98	63.87	2.675	
6,300.00	6,248.06	6,252.46	6,236.91	35.40	30.91	-149.06	-474.42	-616.18	169.57	104.67	64.90	2.613	
6,400.00	6,348.06	6,352.27	6,336.71	35.88	31.44	-149.31	-473.94	-615.03	168.55	102.62	65.93	2.557	
6,500.00	6,448.06	6,452.06	6,436.49	36.37	31.96	-149.44	-473.34	-614.23	167.63	100.67	66.96	2.504	
6,600.00	6,548.06	6,552.17	6,536.60	36.85	32.48	-149.51	-472.68	-613.61	166.75	98.77	67.98	2.453	
6,700.00	6,648.06	6,651.85	6,636.27	37.34	32.99	-149.53	-472.01	-613.12	165.92	96.92	69.00	2.405	
6,800.00	6,748.06	6,751.59	6,736.01	37.83	33.51	-149.49	-471.36	-612.89	165.25	95.23	70.02	2.360	
6,886.31	6,834.37	6,836.94	6,821.35	38.25	33.94	-149.38	-471.00	-613.04	165.00	94.12	70.88	2.328	
6,900.00	6,848.06	6,850.58	6,834.99	38.31	34.01	-149.36	-470.96	-613.10	165.00	93.98	71.02	2.323	
7,000.00	6,948.06	6,950.51	6,934.93	38.80	34.51	-149.23	-470.83	-613.45	165.07	93.05	72.02	2.292	
7,100.00	7,048.06	7,050.75	7,035.17	39.30	35.01	-149.12	-470.70	-613.74	165.11	92.08	73.03	2.261	
7,200.00	7,148.06	7,151.35	7,135.77	39.79	35.53	-149.04	-470.33	-613.79	164.81	90.77	74.04	2.226	
7,300.00	7,248.06	7,251.42	7,235.83	40.28	36.04	-148.95	-469.80	-613.78	164.35	89.29	75.06	2.190	
7,400.00	7,348.06	7,351.45	7,335.87	40.78	36.56	-148.86	-469.26	-613.74	163.87	87.79	76.09	2.154	
7,500.00	7,448.06	7,450.99	7,435.40	41.27	37.07	-148.89	-468.91	-613.45	163.43	86.31	77.11	2.119	
7,528.59	7,476.65	7,479.24	7,463.65	41.42	37.22	-148.93	-468.96	-613.32	163.40	85.99	77.41	2.111	
7,600.00	7,548.06	7,550.07	7,534.48	41.77	37.59	-149.14	-469.39	-612.88	163.54	85.39	78.15	2.093	
7,700.00	7,648.06	7,649.63	7,634.03	42.27	38.11	-149.63	-470.55	-611.93	164.05	84.85	79.21	2.071	
7,800.00	7,748.06	7,748.82	7,733.19	42.77	38.64	-150.48	-472.45	-610.22	164.86	84.59	80.27	2.054	
7,900.00	7,848.06	7,847.57	7,831.87	43.27	39.16	-151.58	-475.30	-608.18	166.39	85.04	81.34	2.045	
8,000.00	7,948.06	7,946.50	7,930.72	43.77	39.68	-152.72	-478.84	-606.28	168.65	86.23	82.42	2.046	
8,100.00	8,048.06	8,045.19	8,029.31	44.27	40.19	-153.89	-482.99	-604.46	171.58	88.09	83.49	2.055	
8,200.00	8,148.06	8,144.24	8,128.22	44.77	40.71	-155.06	-487.79	-602.86	175.26	90.69	84.56	2.072	
8,300.00	8,248.06	8,246.54	8,230.44	45.28	41.24	-155.37	-491.40	-603.46	178.71	93.10	85.61	2.087	
8,400.00	8,348.06	8,344.45	8,328.27	45.78	41.74	-154.82	-493.26	-606.22	181.63	95.02	86.61	2.097	
8,500.00	8,448.06	8,443.18	8,426.88	46.29	42.25	-155.69	-498.13	-605.41	185.77	98.10	87.66	2.119	
8,600.00	8,548.06	8,545.05	8,528.62	46.79	42.78	-156.39	-503.14	-605.10	190.15	101.42	88.73	2.143	
8,700.00	8,648.06	8,663.05	8,646.52	47.30	43.37	-155.67	-501.85	-607.17	190.05	100.23	89.82	2.116	
8,800.00	8,748.06	8,810.16	8,789.01	47.81	44.07	-149.49	-467.71	-610.72	169.79	78.96	90.83	1.869	
8,900.00	8,848.06	8,935.87	8,895.74	48.31	44.57	-131.03	-402.55	-613.51	127.42	36.11	91.31	1.395 Level 3	
9,000.00	8,948.06	9,007.00	8,944.07	48.82	44.78	-103.79	-350.65	-617.16	91.22	-0.57	91.79	0.994 Level 1	
9,009.27	8,957.33	9,007.00	8,944.07	48.87	44.78	65.82	-350.65	-617.16	90.76	-1.20	91.96	0.987 Level 1, CC, ES, SF	
9,100.00	9,048.01	9,007.00	8,944.07	49.33	44.78	62.93	-350.65	-617.16	128.04	35.65	92.39	1.386 Level 3	
9,200.00	9,146.57	9,007.00	8,944.07	49.87	44.78	51.59	-350.65	-617.16	207.72	115.62	92.09	2.256	
9,300.00	9,240.83	9,007.00	8,944.07	50.45	44.78	38.41	-350.65	-617.16	295.91	206.38	89.53	3.305	
9,400.00	9,327.92	9,007.00	8,944.07	51.06	44.78	27.74	-350.65	-617.16	385.08	301.15	83.93	4.588	
9,500.00	9,405.20	9,007.00	8,944.07	51.69	44.78	20.37	-350.65	-617.16	472.74	396.91	75.83	6.234	
9,600.00	9,470.32	9,007.00	8,944.07	52.36	44.78	15.46	-350.65	-617.16	557.56	491.47	66.08	8.437	
9,700.00	9,521.30	9,007.00	8,944.07	53.06	44.78	12.17	-350.65	-617.16	638.58	582.95	55.62	11.481	
9,800.00	9,556.60	9,007.00	8,944.07	53.81	44.78	9.91	-350.65	-617.16	715.03	669.28	45.75	15.630	
9,900.00	9,575.13	9,007.00	8,944.07	54.59	44.78	8.30	-350.65	-617.16	786.26	747.66	38.60	20.369	
10,000.00	9,577.07	9,007.00	8,944.07	55.39	44.78	6.93	-350.65	-617.16	852.23	815.67	36.55	23.315	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 +N/-S (usft)	Offset Wellbore +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,100.00	9,574.60	8,959.64	8,913.03	56.24	44.64	4.10	-386.27	-614.50	917.32	881.67	35.65	25.731		
10,200.00	9,572.13	8,928.00	8,889.79	57.14	44.55	1.65	-407.69	-613.24	988.41	952.98	35.43	27.901		
10,300.00	9,569.66	8,928.00	8,889.79	58.09	44.55	-0.61	-407.69	-613.24	1,062.56	1,026.84	35.72	29.747		
10,400.00	9,567.19	8,928.00	8,889.79	59.08	44.55	-3.16	-407.69	-613.24	1,140.64	1,104.19	36.45	31.295		
10,500.00	9,564.72	8,928.00	8,889.79	60.11	44.55	-5.98	-407.69	-613.24	1,221.81	1,184.06	37.75	32.367		
10,600.00	9,562.25	8,880.42	8,851.50	61.18	44.36	-6.68	-435.85	-611.89	1,301.47	1,262.90	38.57	33.743		
10,700.00	9,559.79	8,834.00	8,810.88	62.30	44.18	-6.37	-458.22	-611.07	1,387.31	1,348.23	39.08	35.496		
10,800.00	9,557.32	8,834.00	8,810.88	63.48	44.18	-6.37	-458.22	-611.07	1,471.57	1,431.71	39.86	36.916		
10,900.00	9,554.86	8,834.00	8,810.88	64.71	44.18	-6.37	-458.22	-611.07	1,557.69	1,517.02	40.67	38.296		
11,000.00	9,552.39	8,834.00	8,810.88	65.98	44.18	-6.37	-458.22	-611.07	1,645.39	1,603.87	41.52	39.631		
11,100.00	9,549.93	8,834.00	8,810.88	67.30	44.18	-6.37	-458.22	-611.07	1,734.41	1,692.02	42.39	40.918		
11,200.00	9,547.46	8,834.00	8,810.88	68.67	44.18	-6.37	-458.22	-611.07	1,824.58	1,781.29	43.28	42.156		
11,300.00	9,545.00	8,834.00	8,810.88	70.07	44.18	-6.37	-458.22	-611.07	1,915.71	1,871.52	44.20	43.343		
11,400.00	9,542.54	8,834.00	8,810.88	71.51	44.18	-6.37	-458.22	-611.07	2,007.70	1,962.56	45.14	44.482		
11,500.00	9,540.07	8,834.00	8,810.88	72.99	44.18	-6.37	-458.22	-611.07	2,100.41	2,054.32	46.09	45.571		
11,600.00	9,537.61	8,834.00	8,810.88	74.50	44.18	-6.37	-458.22	-611.07	2,193.77	2,146.71	47.06	46.614		
11,700.00	9,535.14	8,791.88	8,771.89	76.04	43.99	-6.09	-474.10	-610.39	2,285.12	2,237.30	47.82	47.785		
11,800.00	9,532.68	8,786.74	8,767.02	77.61	43.97	-6.06	-475.76	-610.29	2,378.89	2,330.10	48.79	48.754		
11,900.00	9,530.21	8,781.93	8,762.46	79.21	43.94	-6.04	-477.26	-610.19	2,473.08	2,423.30	49.78	49.679		
12,000.00	9,527.75	8,739.00	8,720.98	80.83	43.75	-5.81	-488.20	-609.13	2,569.75	2,519.16	50.59	50.795		
12,100.00	9,525.28	8,739.00	8,720.98	82.48	43.75	-5.81	-488.20	-609.13	2,664.22	2,612.59	51.62	51.608		
12,200.00	9,522.82	8,739.00	8,720.98	84.15	43.75	-5.81	-488.20	-609.13	2,759.08	2,706.41	52.67	52.387		
12,300.00	9,520.36	8,739.00	8,720.98	85.85	43.75	-5.81	-488.20	-609.13	2,854.29	2,800.57	53.72	53.134		
12,400.00	9,517.89	8,739.00	8,720.98	87.56	43.75	-5.81	-488.20	-609.13	2,949.81	2,895.04	54.78	53.850		
12,500.00	9,515.43	8,730.00	8,712.30	89.29	43.71	-5.76	-490.55	-608.92	3,045.60	2,989.80	55.80	54.576		
12,600.00	9,512.96	8,730.00	8,712.30	91.05	43.71	-5.76	-490.55	-608.92	3,141.60	3,084.72	56.88	55.233		
12,700.00	9,510.50	8,730.00	8,712.30	92.82	43.71	-5.76	-490.55	-608.92	3,237.83	3,179.87	57.96	55.865		
12,800.00	9,508.03	8,730.00	8,712.30	94.60	43.71	-5.76	-490.55	-608.92	3,334.29	3,275.25	59.04	56.471		
12,900.00	9,505.57	8,730.00	8,712.30	96.40	43.71	-5.76	-490.55	-608.92	3,430.95	3,370.82	60.14	57.054		
13,000.00	9,503.10	8,730.00	8,712.30	98.22	43.71	-5.76	-490.55	-608.92	3,527.80	3,466.57	61.23	57.614		
13,100.00	9,500.64	8,710.48	8,693.51	100.05	43.61	-5.66	-495.79	-608.49	3,623.77	3,561.52	62.24	58.221		
13,200.00	9,498.18	8,691.00	8,674.33	101.89	43.51	-5.57	-499.09	-607.97	3,721.73	3,658.47	63.26	58.833		
13,300.00	9,495.71	8,691.00	8,674.33	103.74	43.51	-5.57	-499.09	-607.97	3,818.81	3,754.44	64.37	59.328		
13,400.00	9,493.25	8,691.00	8,674.33	105.61	43.51	-5.57	-499.09	-607.97	3,916.04	3,850.56	65.48	59.805		
13,500.00	9,490.78	8,691.00	8,674.33	107.49	43.51	-5.57	-499.09	-607.97	4,013.40	3,946.81	66.60	60.265		
13,600.00	9,488.32	8,691.00	8,674.33	109.37	43.51	-5.57	-499.09	-607.97	4,110.89	4,043.18	67.71	60.709		
13,700.00	9,485.85	8,691.00	8,674.33	111.27	43.51	-5.57	-499.09	-607.97	4,208.50	4,139.66	68.84	61.137		
13,800.00	9,483.39	8,691.00	8,674.33	113.18	43.51	-5.57	-499.09	-607.97	4,306.22	4,236.26	69.96	61.551		
13,900.00	9,480.92	8,691.00	8,674.33	115.09	43.51	-5.57	-499.09	-607.97	4,404.04	4,332.95	71.09	61.951		
14,000.00	9,478.46	8,691.00	8,674.33	117.02	43.51	-5.57	-499.09	-607.97	4,501.95	4,429.73	72.22	62.337		
14,100.00	9,476.00	8,691.00	8,674.33	118.95	43.51	-5.57	-499.09	-607.97	4,599.96	4,526.61	73.35	62.710		
14,200.00	9,473.53	8,691.00	8,674.33	120.89	43.51	-5.57	-499.09	-607.97	4,698.05	4,623.56	74.49	63.072		
14,300.00	9,471.07	8,691.00	8,674.33	122.84	43.51	-5.57	-499.09	-607.97	4,796.22	4,720.59	75.62	63.422		
14,400.00	9,468.60	8,691.00	8,674.33	124.79	43.51	-5.57	-499.09	-607.97	4,894.46	4,817.70	76.76	63.760		
14,500.00	9,466.14	8,691.00	8,674.33	126.75	43.51	-5.57	-499.09	-607.97	4,992.77	4,914.87	77.90	64.088		
14,600.00	9,463.67	8,691.00	8,674.33	128.72	43.51	-5.57	-499.09	-607.97	5,091.15	5,012.10	79.05	64.406		
14,700.00	9,462.03	8,691.00	8,674.33	130.69	43.51	-2.13	-499.09	-607.97	5,189.79	5,110.43	79.36	65.396		
14,800.00	9,461.83	8,691.00	8,674.33	132.67	43.51	-2.13	-499.09	-607.97	5,288.60	5,208.11	80.50	65.701		
14,900.00	9,461.63	8,691.00	8,674.33	134.65	43.51	-2.13	-499.09	-607.97	5,387.51	5,305.88	81.63	65.997		
15,000.00	9,461.43	8,691.00	8,674.33	136.63	43.51	-2.13	-499.09	-607.97	5,486.46	5,403.69	82.77	66.284		
15,100.00	9,461.22	8,691.00	8,674.33	138.63	43.51	-2.13	-499.09	-607.97	5,585.45	5,501.54	83.91	66.563		
15,200.00	9,461.02	8,691.00	8,674.33	140.62	43.51	-2.13	-499.09	-607.97	5,684.47	5,599.42	85.05	66.834		

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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		
15,300.00	9,460.82	8,691.00	8,674.33	142.62	43.51	-2.13	-499.09	-607.97	5,783.53	5,697.33	86.20	67.097		
15,400.00	9,460.62	8,691.00	8,674.33	144.63	43.51	-2.13	-499.09	-607.97	5,882.62	5,795.28	87.34	67.353		
15,500.00	9,460.42	8,691.00	8,674.33	146.64	43.51	-2.13	-499.09	-607.97	5,981.74	5,893.25	88.49	67.601		
15,600.00	9,460.22	8,691.00	8,674.33	148.65	43.51	-2.13	-499.09	-607.97	6,080.89	5,991.26	89.63	67.843		
15,700.00	9,460.02	8,691.00	8,674.33	150.67	43.51	-2.13	-499.09	-607.97	6,180.06	6,089.28	90.78	68.078		
15,800.00	9,459.81	8,691.00	8,674.33	152.69	43.51	-2.13	-499.09	-607.97	6,279.26	6,187.34	91.93	68.307		
15,900.00	9,459.61	8,691.00	8,674.33	154.71	43.51	-2.13	-499.09	-607.97	6,378.49	6,285.41	93.08	68.530		
16,000.00	9,459.41	8,691.00	8,674.33	156.74	43.51	-2.13	-499.09	-607.97	6,477.74	6,383.52	94.23	68.747		
16,100.00	9,459.21	8,691.00	8,674.33	158.77	43.51	-2.13	-499.09	-607.97	6,577.01	6,481.64	95.38	68.958		
16,200.00	9,459.01	8,691.00	8,674.33	160.81	43.51	-2.13	-499.09	-607.97	6,676.31	6,579.78	96.53	69.164		
16,300.00	9,458.81	8,691.00	8,674.33	162.85	43.51	-2.13	-499.09	-607.97	6,775.62	6,677.94	97.68	69.365		
16,400.00	9,458.60	8,691.00	8,674.33	164.89	43.51	-2.13	-499.09	-607.97	6,874.96	6,776.13	98.83	69.561		
16,500.00	9,458.40	8,691.00	8,674.33	166.93	43.51	-2.13	-499.09	-607.97	6,974.31	6,874.33	99.99	69.752		
16,600.00	9,458.20	8,691.00	8,674.33	168.98	43.51	-2.13	-499.09	-607.97	7,073.69	6,972.54	101.14	69.938		
16,700.00	9,458.00	8,691.00	8,674.33	171.03	43.51	-2.13	-499.09	-607.97	7,173.08	7,070.78	102.30	70.120		
16,800.00	9,457.80	8,691.00	8,674.33	173.08	43.51	-2.13	-499.09	-607.97	7,272.48	7,169.03	103.45	70.297		
16,900.00	9,457.60	8,691.00	8,674.33	175.14	43.51	-2.13	-499.09	-607.97	7,371.91	7,267.30	104.61	70.471		
17,000.00	9,457.40	8,691.00	8,674.33	177.19	43.51	-2.13	-499.09	-607.97	7,471.34	7,365.58	105.77	70.640		
17,100.00	9,457.19	8,691.00	8,674.33	179.25	43.51	-2.13	-499.09	-607.97	7,570.80	7,463.87	106.92	70.805		
17,200.00	9,456.99	8,691.00	8,674.33	181.31	43.51	-2.13	-499.09	-607.97	7,670.26	7,562.18	108.08	70.967		
17,300.00	9,456.79	8,691.00	8,674.33	183.38	43.51	-2.13	-499.09	-607.97	7,769.75	7,660.50	109.24	71.125		
17,400.00	9,456.59	8,691.00	8,674.33	185.44	43.51	-2.13	-499.09	-607.97	7,869.24	7,758.84	110.40	71.279		
17,500.00	9,456.39	8,691.00	8,674.33	187.51	43.51	-2.13	-499.09	-607.97	7,968.75	7,857.19	111.56	71.431		
17,600.00	9,456.19	8,691.00	8,674.33	189.58	43.51	-2.13	-499.09	-607.97	8,068.27	7,955.55	112.72	71.578		
17,700.00	9,455.99	8,691.00	8,674.33	191.65	43.51	-2.13	-499.09	-607.97	8,167.80	8,053.92	113.88	71.723		
17,800.00	9,455.78	8,691.00	8,674.33	193.73	43.51	-2.13	-499.09	-607.97	8,267.34	8,152.30	115.04	71.864		
17,900.00	9,455.58	8,691.00	8,674.33	195.80	43.51	-2.13	-499.09	-607.97	8,366.89	8,250.69	116.20	72.003		
18,000.00	9,455.38	8,691.00	8,674.33	197.88	43.51	-2.13	-499.09	-607.97	8,466.45	8,349.09	117.36	72.138		
18,100.00	9,455.18	8,691.00	8,674.33	199.96	43.51	-2.13	-499.09	-607.97	8,566.03	8,447.50	118.53	72.271		
18,200.00	9,454.98	8,691.00	8,674.33	202.04	43.51	-2.13	-499.09	-607.97	8,665.61	8,545.92	119.69	72.401		
18,300.00	9,454.78	8,691.00	8,674.33	204.12	43.51	-2.13	-499.09	-607.97	8,765.20	8,644.35	120.85	72.529		
18,400.00	9,454.57	8,691.00	8,674.33	206.20	43.51	-2.13	-499.09	-607.97	8,864.81	8,742.79	122.02	72.653		
18,500.00	9,454.37	8,691.00	8,674.33	208.29	43.51	-2.13	-499.09	-607.97	8,964.42	8,841.24	123.18	72.776		
18,600.00	9,454.17	8,668.72	8,652.17	210.38	43.40	-2.12	-501.38	-607.33	9,063.65	8,939.39	124.27	72.937		
18,700.00	9,453.97	8,668.09	8,651.55	212.46	43.40	-2.12	-501.44	-607.31	9,163.26	9,037.83	125.43	73.055		
18,800.00	9,453.77	8,667.47	8,650.93	214.55	43.40	-2.12	-501.49	-607.30	9,262.87	9,136.28	126.59	73.171		
18,900.00	9,453.57	8,666.86	8,650.32	216.64	43.39	-2.12	-501.54	-607.28	9,362.50	9,234.74	127.75	73.285		
19,000.00	9,453.37	8,666.26	8,649.73	218.74	43.39	-2.12	-501.59	-607.26	9,462.13	9,333.21	128.92	73.397		
19,100.00	9,453.16	8,644.00	8,627.53	220.83	43.28	-2.10	-503.10	-606.63	9,562.12	9,432.12	130.01	73.551		
19,200.00	9,452.96	8,644.00	8,627.53	222.92	43.28	-2.10	-503.10	-606.63	9,661.75	9,530.57	131.17	73.657		
19,300.00	9,452.76	8,644.00	8,627.53	225.02	43.28	-2.10	-503.10	-606.63	9,761.38	9,629.04	132.34	73.761		
19,400.00	9,452.56	8,644.00	8,627.53	227.11	43.28	-2.10	-503.10	-606.63	9,861.02	9,727.51	133.50	73.863		
19,500.00	9,452.36	8,644.00	8,627.53	229.21	43.28	-2.10	-503.10	-606.63	9,960.66	9,825.99	134.67	73.963		

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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		
0.00	0.00	0.00	0.00	0.00	0.00	-118.06	-483.01	-906.00	1,026.79					
100.00	100.00	85.87	85.87	0.19	0.13	-118.06	-482.88	-906.07	1,026.76	1,026.43	0.32	3,178.601		
200.00	200.00	184.57	184.57	0.73	0.28	-118.05	-482.88	-906.32	1,026.93	1,025.92	1.01	1,017.249		
300.00	300.00	284.19	284.19	1.27	0.46	-118.03	-482.73	-906.72	1,027.22	1,025.49	1.73	593.341		
400.00	400.00	387.26	387.26	1.81	0.78	-118.06	-483.27	-906.58	1,027.34	1,024.76	2.59	397.402		
500.00	500.00	501.36	501.34	2.34	1.04	-118.16	-484.58	-905.22	1,026.86	1,023.48	3.38	303.667		
600.00	600.00	605.66	605.61	2.88	1.33	-118.27	-485.45	-902.81	1,025.22	1,021.01	4.21	243.356		
700.00	700.00	703.76	703.66	3.42	1.64	-118.40	-486.71	-899.98	1,023.29	1,018.23	5.06	202.336		
780.04	780.04	767.16	767.04	3.85	1.91	-118.49	-487.76	-898.83	1,022.64	1,016.88	5.76	177.468		
800.00	800.00	783.64	783.52	3.96	1.99	-118.51	-488.06	-898.70	1,022.68	1,016.74	5.94	172.099		
900.00	900.00	880.31	880.16	4.50	2.44	-118.61	-489.98	-898.19	1,023.17	1,016.24	6.93	147.585		
1,000.00	1,000.00	973.29	973.14	5.03	2.89	-118.66	-491.17	-898.61	1,024.18	1,016.27	7.91	129.401		
1,100.00	1,100.00	1,066.61	1,066.43	5.57	3.33	-118.60	-491.02	-900.50	1,025.88	1,016.98	8.90	115.280		
1,200.00	1,200.00	1,167.10	1,166.88	6.11	3.83	-118.49	-490.28	-903.17	1,027.86	1,017.93	9.93	103.499		
1,300.00	1,300.00	1,265.21	1,264.96	6.65	4.31	-118.40	-489.67	-905.67	1,029.81	1,018.85	10.95	94.015		
1,400.00	1,400.00	1,352.15	1,351.84	7.18	4.75	-118.28	-488.90	-908.88	1,032.63	1,020.69	11.93	86.536		
1,500.00	1,500.00	1,452.68	1,452.26	7.72	5.27	-118.10	-487.58	-913.34	1,035.92	1,022.94	12.99	79.758		
1,600.00	1,600.00	1,541.62	1,541.05	8.26	5.73	-117.89	-485.89	-918.16	1,039.81	1,025.83	13.99	74.330		
1,700.00	1,700.00	1,630.00	1,629.22	8.80	6.20	-117.65	-484.13	-923.95	1,044.70	1,029.71	14.99	69.684		
1,800.00	1,800.00	1,712.72	1,711.67	9.33	6.64	-117.42	-482.70	-930.52	1,050.97	1,035.00	15.97	65.806		
1,900.00	1,899.98	1,819.00	1,817.54	9.85	7.21	4.78	-480.80	-939.66	1,056.07	1,039.04	17.03	62.004		
2,000.00	1,999.84	1,898.62	1,896.83	10.35	7.64	5.02	-479.71	-946.74	1,058.22	1,040.29	17.93	59.008		
2,100.00	2,099.45	1,968.21	1,965.99	10.86	8.03	5.24	-479.61	-954.45	1,059.42	1,040.66	18.77	56.450		
2,200.00	2,198.70	2,052.38	2,049.38	11.38	8.50	5.52	-480.55	-965.87	1,059.86	1,040.20	19.66	53.904		
2,300.00	2,297.47	2,153.93	2,150.01	11.90	9.07	5.87	-481.97	-979.46	1,056.91	1,036.28	20.63	51.222		
2,400.00	2,395.95	2,249.64	2,244.83	12.44	9.62	6.19	-483.63	-992.39	1,052.52	1,030.86	21.66	48.584		
2,500.00	2,494.43	2,353.76	2,347.95	12.99	10.22	6.55	-485.44	-1,006.61	1,048.32	1,025.57	22.75	46.085		
2,600.00	2,592.91	2,466.64	2,459.84	13.55	10.87	7.00	-485.91	-1,021.51	1,043.18	1,019.29	23.89	43.674		
2,700.00	2,691.39	2,583.08	2,575.41	14.12	11.54	7.50	-485.11	-1,035.69	1,036.71	1,011.66	25.05	41.389		
2,800.00	2,789.87	2,715.61	2,707.40	14.69	12.28	7.99	-484.22	-1,047.47	1,027.12	1,000.82	26.30	39.060		
2,900.00	2,888.35	2,814.59	2,806.10	15.27	12.83	8.32	-483.76	-1,054.96	1,016.62	989.25	27.36	37.155		
3,000.00	2,986.84	2,913.04	2,904.26	15.85	13.38	8.66	-483.37	-1,062.52	1,006.27	977.84	28.43	35.399		
3,100.00	3,085.32	3,010.94	3,001.88	16.45	13.93	8.98	-483.34	-1,069.94	996.01	966.52	29.49	33.773		
3,200.00	3,183.80	3,108.50	3,099.14	17.04	14.47	9.29	-483.57	-1,077.44	985.99	955.43	30.56	32.267		
3,300.00	3,282.28	3,216.73	3,207.08	17.64	15.07	9.64	-483.83	-1,085.52	975.81	944.13	31.68	30.799		
3,400.00	3,380.76	3,357.41	3,347.58	18.24	15.83	10.11	-482.62	-1,092.18	962.64	929.66	32.98	29.190		
3,500.00	3,479.24	3,452.03	3,442.14	18.85	16.34	10.42	-481.31	-1,095.06	947.84	913.81	34.03	27.856		
3,600.00	3,577.72	3,547.50	3,537.55	19.45	16.85	10.74	-480.31	-1,098.29	933.50	898.42	35.08	26.611		
3,700.00	3,676.21	3,645.53	3,635.51	20.07	17.38	11.07	-479.34	-1,101.75	919.35	883.20	36.15	25.432		
3,800.00	3,774.69	3,742.48	3,732.39	20.68	17.90	11.41	-478.45	-1,105.33	905.41	868.19	37.22	24.328		
3,900.00	3,873.17	3,840.14	3,829.98	21.30	18.42	11.77	-477.61	-1,109.10	891.67	853.38	38.29	23.287		
4,000.00	3,971.65	3,942.88	3,932.64	21.91	18.98	12.15	-476.85	-1,113.04	877.99	838.60	39.39	22.289		
4,100.00	4,070.13	4,051.24	4,040.96	22.53	19.56	12.49	-476.61	-1,115.82	863.32	822.80	40.52	21.304		
4,200.00	4,168.61	4,151.38	4,141.09	23.15	20.09	12.77	-476.86	-1,117.51	848.02	806.41	41.61	20.381		
4,300.00	4,267.10	4,248.99	4,238.68	23.78	20.60	13.06	-477.08	-1,119.29	832.87	790.18	42.68	19.513		
4,400.00	4,365.58	4,346.49	4,336.16	24.40	21.12	13.35	-477.37	-1,121.16	817.84	774.08	43.76	18.690		
4,500.00	4,464.06	4,444.50	4,434.15	25.03	21.64	13.66	-477.63	-1,123.22	803.00	758.16	44.84	17.908		
4,600.00	4,562.54	4,552.51	4,542.14	25.66	22.22	14.04	-477.54	-1,125.15	787.80	741.82	45.97	17.136		
4,700.00	4,661.02	4,654.19	4,643.82	26.28	22.75	14.45	-476.68	-1,126.14	771.61	724.54	47.07	16.392		
4,800.00	4,759.50	4,750.54	4,740.15	26.91	23.26	14.86	-475.81	-1,127.10	755.46	707.32	48.14	15.692		
4,900.00	4,857.98	4,852.83	4,842.43	27.54	23.79	15.32	-474.73	-1,128.08	739.29	690.05	49.25	15.012		
5,000.00	4,956.47	4,955.82	4,945.41	28.17	24.33	15.83	-473.12	-1,128.58	722.56	672.21	50.35	14.351		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,054.95	5,054.90	5,044.47	28.81	24.83	16.37	-471.24	-1,128.78	705.54	654.11	51.43	13.718	
5,200.00	5,153.43	5,153.63	5,143.18	29.44	25.34	16.94	-469.31	-1,129.00	688.58	636.07	52.51	13.113	
5,300.00	5,251.91	5,256.91	5,246.46	30.07	25.85	17.47	-468.21	-1,128.45	671.20	617.59	53.61	12.521	
5,400.00	5,350.40	5,357.09	5,346.62	30.71	26.34	17.85	-468.71	-1,126.93	653.33	598.64	54.69	11.946	
5,500.00	5,449.23	5,454.89	5,444.40	31.33	26.82	18.04	-469.73	-1,125.33	637.55	581.69	55.86	11.414	
5,600.00	5,548.53	5,553.44	5,542.93	31.91	27.30	18.15	-470.88	-1,123.78	625.14	568.18	56.96	10.975	
5,700.00	5,648.19	5,652.35	5,641.82	32.47	27.78	18.18	-472.21	-1,122.32	616.19	558.19	58.00	10.624	
5,800.00	5,748.07	5,751.43	5,740.88	33.00	28.27	18.12	-473.68	-1,120.89	610.60	551.63	58.97	10.354	
5,900.00	5,848.06	5,850.55	5,839.98	33.49	28.76	-103.94	-475.58	-1,119.56	608.50	548.78	59.72	10.190	
6,000.00	5,948.06	5,950.89	5,940.29	33.97	29.26	-104.16	-477.62	-1,118.20	607.68	546.96	60.72	10.007	
6,100.00	6,048.06	6,051.54	6,040.91	34.44	29.76	-104.36	-479.51	-1,116.77	606.76	545.03	61.73	9.829	
6,200.00	6,148.06	6,154.10	6,143.43	34.92	30.28	-104.59	-481.51	-1,115.06	605.64	542.89	62.75	9.651	
6,300.00	6,248.06	6,254.58	6,243.87	35.40	30.78	-104.83	-483.57	-1,112.99	604.17	540.40	63.77	9.475	
6,400.00	6,348.06	6,355.17	6,344.42	35.88	31.28	-105.05	-485.50	-1,110.92	602.67	537.89	64.78	9.303	
6,500.00	6,448.06	6,454.64	6,443.86	36.37	31.78	-105.23	-486.89	-1,108.98	601.15	535.36	65.79	9.137	
6,600.00	6,548.06	6,553.95	6,543.15	36.85	32.28	-105.33	-487.55	-1,107.35	599.74	532.94	66.80	8.978	
6,678.37	6,626.43	6,624.23	6,613.44	37.23	32.63	-105.37	-487.86	-1,106.76	599.20	531.64	67.56	8.869	
6,700.00	6,648.06	6,643.57	6,632.77	37.34	32.73	-105.39	-487.99	-1,106.76	599.24	531.47	67.77	8.842	
6,800.00	6,748.06	6,739.83	6,729.03	37.83	33.24	-105.45	-488.80	-1,107.28	599.98	531.19	68.79	8.722	
6,900.00	6,848.06	6,841.40	6,830.60	38.31	33.77	-105.46	-489.12	-1,108.13	600.88	531.04	69.84	8.604	
7,000.00	6,948.06	6,941.18	6,930.36	38.80	34.30	-105.32	-487.91	-1,109.23	601.61	530.74	70.88	8.488	
7,100.00	7,048.06	7,036.54	7,025.68	39.30	34.80	-105.09	-485.92	-1,110.95	602.81	530.92	71.89	8.385	
7,200.00	7,148.06	7,136.89	7,125.98	39.79	35.33	-104.83	-483.66	-1,113.14	604.33	531.40	72.94	8.285	
7,300.00	7,248.06	7,236.79	7,225.83	40.28	35.86	-104.55	-481.23	-1,115.32	605.84	531.85	73.98	8.189	
7,400.00	7,348.06	7,336.98	7,325.97	40.78	36.40	-104.28	-479.80	-1,117.59	607.42	532.39	75.03	8.096	
7,500.00	7,448.06	7,441.45	7,430.39	41.27	36.95	-104.04	-476.68	-1,119.34	608.55	532.45	76.10	7.997	
7,600.00	7,548.06	7,544.00	7,532.92	41.77	37.49	-103.88	-475.10	-1,120.22	609.01	531.85	77.16	7.893	
7,700.00	7,648.06	7,644.48	7,633.40	42.27	38.02	-103.73	-473.65	-1,120.95	609.37	531.16	78.20	7.792	
7,800.00	7,748.06	7,745.22	7,734.12	42.77	38.54	-103.58	-472.12	-1,121.50	609.54	530.29	79.25	7.691	
7,900.00	7,848.06	7,846.01	7,834.90	43.27	39.07	-103.40	-470.33	-1,122.06	609.67	529.37	80.30	7.593	
7,996.40	7,944.45	7,942.59	7,931.45	43.75	39.58	-103.23	-468.51	-1,122.46	609.63	528.33	81.31	7.498	
8,000.00	7,948.06	7,946.16	7,935.02	43.77	39.60	-103.22	-468.44	-1,122.47	609.63	528.29	81.34	7.495	
8,100.00	8,048.06	8,045.29	8,034.14	44.27	40.12	-103.03	-466.45	-1,123.02	609.71	527.33	82.38	7.401	
8,200.00	8,148.06	8,144.39	8,133.21	44.77	40.64	-102.82	-464.37	-1,123.72	609.94	526.51	83.43	7.311	
8,300.00	8,248.06	8,243.48	8,232.27	45.28	41.16	-102.62	-462.30	-1,124.57	610.32	525.85	84.47	7.225	
8,400.00	8,348.06	8,342.44	8,331.21	45.78	41.68	-102.41	-460.30	-1,125.57	610.86	525.34	85.51	7.143	
8,500.00	8,448.06	8,441.53	8,430.28	46.29	42.21	-102.22	-458.40	-1,126.70	611.56	525.00	86.56	7.065	
8,600.00	8,548.06	8,540.21	8,528.93	46.79	42.73	-102.02	-456.54	-1,127.99	612.45	524.84	87.61	6.991	
8,700.00	8,648.06	8,639.61	8,628.30	47.30	43.26	-101.83	-454.76	-1,129.44	613.51	524.85	88.66	6.920	
8,800.00	8,748.06	8,739.00	8,727.67	47.81	43.79	-101.64	-453.05	-1,130.96	614.66	524.95	89.71	6.852	
8,900.00	8,848.06	8,837.68	8,826.32	48.31	44.32	-101.48	-451.60	-1,132.58	615.96	525.21	90.76	6.787	
9,000.00	8,948.06	8,935.43	8,924.05	48.82	44.84	-101.35	-450.57	-1,134.41	617.59	525.80	91.80	6.728	
9,100.00	9,048.01	9,048.49	9,037.08	49.33	45.44	68.59	-449.47	-1,136.32	618.56	525.44	93.12	6.643	
9,200.00	9,146.57	9,201.76	9,189.63	49.87	46.23	72.75	-437.53	-1,129.87	607.16	512.63	94.52	6.423	
9,300.00	9,240.83	9,312.85	9,297.85	50.45	46.77	80.06	-414.98	-1,121.38	588.50	492.65	95.85	6.140	
9,400.00	9,327.92	9,390.36	9,366.29	51.06	47.12	88.25	-380.13	-1,112.74	570.01	472.92	97.09	5.871	
9,479.49	9,390.27	9,408.55	9,380.92	51.56	47.18	90.55	-369.55	-1,110.55	564.70	467.01	97.70	5.780 CC, ES	
9,500.00	9,405.20	9,410.99	9,382.85	51.69	47.19	90.76	-368.08	-1,110.26	565.07	467.23	97.84	5.775 SF	
9,600.00	9,470.32	9,413.85	9,385.09	52.36	47.20	89.79	-366.34	-1,109.92	577.45	478.87	98.59	5.857	
9,700.00	9,521.30	9,406.34	9,379.17	53.06	47.18	86.04	-370.87	-1,110.82	606.10	506.83	99.27	6.105	
9,800.00	9,556.60	9,389.00	9,365.17	53.81	47.11	79.86	-380.89	-1,112.91	647.61	548.38	99.22	6.527	
9,900.00	9,575.13	9,389.00	9,365.17	54.59	47.11	74.16	-380.89	-1,112.91	698.08	599.67	98.41	7.093	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 17 20 FED 001
 Site Error: 0.00 usft
 Reference Well: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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: 282-MWD, 430-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Hightide 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	9,577.07	9,357.76	9,338.66	55.39	46.98	67.16	-396.96	-1,116.60	753.19	657.22	95.97	7.848	
10,100.00	9,574.60	9,342.00	9,324.67	56.24	46.91	65.27	-403.98	-1,118.40	816.73	721.12	95.61	8.542	
10,200.00	9,572.13	9,342.00	9,324.67	57.14	46.91	64.33	-403.98	-1,118.40	888.76	792.90	95.86	9.272	
10,300.00	9,569.66	9,316.40	9,301.17	58.09	46.79	61.15	-413.78	-1,121.05	966.46	871.94	94.52	10.225	
10,400.00	9,567.19	9,295.00	9,280.91	59.08	46.69	57.91	-420.40	-1,122.91	1,049.81	956.86	92.94	11.295	
10,500.00	9,564.72	9,295.00	9,280.91	60.11	46.69	55.96	-420.40	-1,122.91	1,136.57	1,044.29	92.28	12.316	
10,600.00	9,562.25	9,295.00	9,280.91	61.18	46.69	55.22	-420.40	-1,122.91	1,226.33	1,133.68	92.65	13.235	
10,700.00	9,559.79	9,295.00	9,280.91	62.30	46.69	55.22	-420.40	-1,122.91	1,317.63	1,223.92	93.72	14.060	
10,800.00	9,557.32	9,295.00	9,280.91	63.48	46.69	55.22	-420.40	-1,122.91	1,410.11	1,315.29	94.82	14.871	
10,900.00	9,554.86	9,271.25	9,257.98	64.71	46.57	53.33	-426.29	-1,124.76	1,502.74	1,408.50	94.24	15.946	
11,000.00	9,552.39	9,265.93	9,252.80	65.98	46.55	52.91	-427.43	-1,125.17	1,596.58	1,501.56	95.02	16.803	
11,100.00	9,549.93	9,247.00	9,234.26	67.30	46.45	51.47	-430.96	-1,126.57	1,691.34	1,596.53	94.81	17.838	
11,200.00	9,547.46	9,247.00	9,234.26	68.67	46.45	51.47	-430.96	-1,126.57	1,786.21	1,690.17	96.04	18.598	
11,300.00	9,545.00	9,247.00	9,234.26	70.07	46.45	51.47	-430.96	-1,126.57	1,881.62	1,784.31	97.31	19.337	
11,400.00	9,542.54	9,247.00	9,234.26	71.51	46.45	51.47	-430.96	-1,126.57	1,977.48	1,878.88	98.60	20.056	
11,500.00	9,540.07	9,247.00	9,234.26	72.99	46.45	51.47	-430.96	-1,126.57	2,073.73	1,973.81	99.92	20.755	
11,600.00	9,537.61	9,247.00	9,234.26	74.50	46.45	51.47	-430.96	-1,126.57	2,170.32	2,069.06	101.26	21.433	
11,700.00	9,535.14	9,231.58	9,219.08	76.04	46.38	50.33	-433.39	-1,127.69	2,267.05	2,165.63	101.42	22.352	
11,800.00	9,532.68	9,225.71	9,213.28	77.61	46.35	49.91	-434.26	-1,128.12	2,364.06	2,261.72	102.35	23.099	
11,900.00	9,530.21	9,220.16	9,207.80	79.21	46.32	49.52	-435.06	-1,128.52	2,461.27	2,357.97	103.31	23.825	
12,000.00	9,527.75	9,200.00	9,187.88	80.83	46.22	48.13	-437.75	-1,130.00	2,558.80	2,455.66	103.14	24.809	
12,100.00	9,525.28	9,200.00	9,187.88	82.48	46.22	48.13	-437.75	-1,130.00	2,656.28	2,551.72	104.56	25.405	
12,200.00	9,522.82	9,200.00	9,187.88	84.15	46.22	48.13	-437.75	-1,130.00	2,753.94	2,647.94	105.99	25.982	
12,300.00	9,520.36	9,200.00	9,187.88	85.85	46.22	48.13	-437.75	-1,130.00	2,851.76	2,744.32	107.44	26.542	
12,400.00	9,517.89	9,200.00	9,187.88	87.56	46.22	48.13	-437.75	-1,130.00	2,949.72	2,840.82	108.91	27.085	
12,500.00	9,515.43	9,200.00	9,187.88	89.29	46.22	48.13	-437.75	-1,130.00	3,047.82	2,937.44	110.39	27.610	
12,600.00	9,512.96	9,182.19	9,170.25	91.05	46.13	46.95	-439.90	-1,131.30	3,145.92	3,035.49	110.43	28.489	
12,700.00	9,510.50	9,176.37	9,164.48	92.82	46.10	46.58	-440.57	-1,131.72	3,244.16	3,132.72	111.45	29.110	
12,800.00	9,508.03	9,170.76	9,158.92	94.60	46.07	46.22	-441.21	-1,132.12	3,342.48	3,229.99	112.49	29.714	
12,900.00	9,505.57	9,153.00	9,141.31	96.40	45.98	45.12	-443.12	-1,133.38	3,440.93	3,328.38	112.55	30.571	
13,000.00	9,503.10	9,153.00	9,141.31	98.22	45.98	45.12	-443.12	-1,133.38	3,539.36	3,425.31	114.05	31.032	
13,100.00	9,500.64	9,153.00	9,141.31	100.05	45.98	45.12	-443.12	-1,133.38	3,637.88	3,522.31	115.56	31.479	
13,200.00	9,498.18	9,153.00	9,141.31	101.89	45.98	45.12	-443.12	-1,133.38	3,736.47	3,619.38	117.08	31.913	
13,300.00	9,495.71	9,153.00	9,141.31	103.74	45.98	45.12	-443.12	-1,133.38	3,835.13	3,716.52	118.61	32.333	
13,400.00	9,493.25	9,153.00	9,141.31	105.61	45.98	45.12	-443.12	-1,133.38	3,933.87	3,813.72	120.15	32.742	
13,500.00	9,490.78	9,153.00	9,141.31	107.49	45.98	45.12	-443.12	-1,133.38	4,032.66	3,910.97	121.69	33.138	
13,600.00	9,488.32	9,153.00	9,141.31	109.37	45.98	45.12	-443.12	-1,133.38	4,131.52	4,008.27	123.24	33.523	
13,700.00	9,485.85	9,153.00	9,141.31	111.27	45.98	45.12	-443.12	-1,133.38	4,230.42	4,105.62	124.80	33.897	
13,800.00	9,483.39	9,153.00	9,141.31	113.18	45.98	45.12	-443.12	-1,133.38	4,329.38	4,203.02	126.37	34.260	
13,900.00	9,480.92	9,132.29	9,120.74	115.09	45.88	43.89	-445.07	-1,134.62	4,428.16	4,302.05	126.11	35.112	
14,000.00	9,478.46	9,130.01	9,118.46	117.02	45.86	43.75	-445.26	-1,134.74	4,527.16	4,399.69	127.47	35.515	
14,100.00	9,476.00	9,127.81	9,116.28	118.95	45.85	43.62	-445.44	-1,134.84	4,626.19	4,497.35	128.84	35.907	
14,200.00	9,473.53	9,125.70	9,114.17	120.89	45.84	43.50	-445.61	-1,134.94	4,725.26	4,595.05	130.22	36.288	
14,300.00	9,471.07	9,106.00	9,094.53	122.84	45.74	42.36	-446.97	-1,135.63	4,824.53	4,694.53	130.01	37.110	
14,400.00	9,468.60	9,106.00	9,094.53	124.79	45.74	42.36	-446.97	-1,135.63	4,923.63	4,792.07	131.56	37.424	
14,500.00	9,466.14	9,106.00	9,094.53	126.75	45.74	42.36	-446.97	-1,135.63	5,022.77	4,889.65	133.13	37.730	
14,600.00	9,463.67	9,106.00	9,094.53	128.72	45.74	42.36	-446.97	-1,135.63	5,121.94	4,987.25	134.69	38.027	
14,700.00	9,461.20	9,106.00	9,094.53	130.69	45.74	42.36	-446.97	-1,135.63	5,221.24	5,086.68	152.55	34.225	
14,800.00	9,461.83	9,106.00	9,094.53	132.67	45.74	42.36	-446.97	-1,135.63	5,320.49	5,166.21	154.28	34.485	
14,900.00	9,461.63	9,106.00	9,094.53	134.65	45.74	42.36	-446.97	-1,135.63	5,419.83	5,263.81	156.02	34.738	
15,000.00	9,461.43	9,106.00	9,094.53	136.63	45.74	42.36	-446.97	-1,135.63	5,519.19	5,361.43	157.76	34.985	
15,100.00	9,461.22	9,106.00	9,094.53	138.63	45.74	42.36	-446.97	-1,135.63	5,618.57	5,459.07	159.50	35.226	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MTD Reference: GL + KB @ 3286.00usft
 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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,200.00	9,461.02	9,106.00	9,094.53	140.62	45.74	53.78	-446.97	-1,135.63	5,717.97	5,556.73	161.25	35.461		
15,300.00	9,460.82	9,106.00	9,094.53	142.62	45.74	53.78	-446.97	-1,135.63	5,817.40	5,654.40	163.00	35.690		
15,400.00	9,460.62	9,106.00	9,094.53	144.63	45.74	53.78	-446.97	-1,135.63	5,916.84	5,752.09	164.75	35.914		
15,500.00	9,460.42	9,106.00	9,094.53	146.64	45.74	53.78	-446.97	-1,135.63	6,016.31	5,849.80	166.51	36.132		
15,600.00	9,460.22	9,106.00	9,094.53	148.65	45.74	53.78	-446.97	-1,135.63	6,115.79	5,947.52	168.27	36.345		
15,700.00	9,460.02	9,106.00	9,094.53	150.67	45.74	53.78	-446.97	-1,135.63	6,215.28	6,045.25	170.03	36.554		
15,800.00	9,459.81	9,106.00	9,094.53	152.69	45.74	53.78	-446.97	-1,135.63	6,314.80	6,143.00	171.80	36.757		
15,900.00	9,459.61	9,106.00	9,094.53	154.71	45.74	53.78	-446.97	-1,135.63	6,414.32	6,240.76	173.57	36.956		
16,000.00	9,459.41	9,106.00	9,094.53	156.74	45.74	53.78	-446.97	-1,135.63	6,513.87	6,338.53	175.34	37.150		
16,100.00	9,459.21	9,106.00	9,094.53	158.77	45.74	53.78	-446.97	-1,135.63	6,613.42	6,436.31	177.11	37.340		
16,200.00	9,459.01	9,106.00	9,094.53	160.81	45.74	53.78	-446.97	-1,135.63	6,712.99	6,534.10	178.89	37.525		
16,300.00	9,458.81	9,106.00	9,094.53	162.85	45.74	53.78	-446.97	-1,135.63	6,812.57	6,631.90	180.67	37.707		
16,400.00	9,458.60	9,106.00	9,094.53	164.89	45.74	53.78	-446.97	-1,135.63	6,912.17	6,729.71	182.45	37.884		
16,500.00	9,458.40	9,106.00	9,094.53	166.93	45.74	53.78	-446.97	-1,135.63	7,011.77	6,827.54	184.24	38.058		
16,600.00	9,458.20	9,106.00	9,094.53	168.98	45.74	53.78	-446.97	-1,135.63	7,111.39	6,925.37	186.02	38.228		
16,700.00	9,458.00	9,106.00	9,094.53	171.03	45.74	53.78	-446.97	-1,135.63	7,211.02	7,023.20	187.81	38.395		
16,800.00	9,457.80	9,106.00	9,094.53	173.08	45.74	53.78	-446.97	-1,135.63	7,310.66	7,121.05	189.60	38.558		
16,900.00	9,457.60	9,106.00	9,094.53	175.14	45.74	53.78	-446.97	-1,135.63	7,410.30	7,218.91	191.40	38.717		
17,000.00	9,457.40	9,106.00	9,094.53	177.19	45.74	53.78	-446.97	-1,135.63	7,509.96	7,316.77	193.19	38.873		
17,100.00	9,457.19	9,106.00	9,094.53	179.25	45.74	53.78	-446.97	-1,135.63	7,609.63	7,414.64	194.99	39.026		
17,200.00	9,456.99	9,106.00	9,094.53	181.31	45.74	53.78	-446.97	-1,135.63	7,709.30	7,512.51	196.79	39.176		
17,300.00	9,456.79	9,106.00	9,094.53	183.38	45.74	53.78	-446.97	-1,135.63	7,808.98	7,610.40	198.58	39.323		
17,400.00	9,456.59	9,106.00	9,094.53	185.44	45.74	53.78	-446.97	-1,135.63	7,908.67	7,708.29	200.39	39.467		
17,500.00	9,456.39	9,106.00	9,094.53	187.51	45.74	53.78	-446.97	-1,135.63	8,008.37	7,806.18	202.19	39.608		
17,600.00	9,456.19	9,106.00	9,094.53	189.58	45.74	53.78	-446.97	-1,135.63	8,108.08	7,904.08	203.99	39.747		
17,700.00	9,455.99	9,106.00	9,094.53	191.65	45.74	53.78	-446.97	-1,135.63	8,207.79	8,001.99	205.80	39.882		
17,800.00	9,455.78	9,106.00	9,094.53	193.73	45.74	53.78	-446.97	-1,135.63	8,307.51	8,099.90	207.61	40.015		
17,900.00	9,455.58	9,106.00	9,094.53	195.80	45.74	53.78	-446.97	-1,135.63	8,407.24	8,197.82	209.42	40.146		
18,000.00	9,455.38	9,106.00	9,094.53	197.88	45.74	53.78	-446.97	-1,135.63	8,506.97	8,295.74	211.23	40.274		
18,100.00	9,455.18	9,106.00	9,094.53	199.96	45.74	53.78	-446.97	-1,135.63	8,606.71	8,393.67	213.04	40.400		
18,200.00	9,454.98	9,106.00	9,094.53	202.04	45.74	53.78	-446.97	-1,135.63	8,706.45	8,491.60	214.85	40.523		
18,300.00	9,454.78	9,106.00	9,094.53	204.12	45.74	53.78	-446.97	-1,135.63	8,806.20	8,589.54	216.67	40.644		
18,400.00	9,454.57	9,106.00	9,094.53	206.20	45.74	53.78	-446.97	-1,135.63	8,905.96	8,687.48	218.48	40.763		
18,500.00	9,454.37	9,106.00	9,094.53	208.29	45.74	53.78	-446.97	-1,135.63	9,005.72	8,785.43	220.30	40.880		
18,600.00	9,454.17	9,106.00	9,094.53	210.38	45.74	53.78	-446.97	-1,135.63	9,105.49	8,883.38	222.11	40.995		
18,700.00	9,453.97	9,106.00	9,094.53	212.46	45.74	53.78	-446.97	-1,135.63	9,205.26	8,981.33	223.93	41.107		
18,800.00	9,453.77	9,106.00	9,094.53	214.55	45.74	53.78	-446.97	-1,135.63	9,305.04	9,079.29	225.75	41.218		
18,900.00	9,453.57	9,106.00	9,094.53	216.64	45.74	53.78	-446.97	-1,135.63	9,404.82	9,177.25	227.57	41.327		
19,000.00	9,453.37	9,106.00	9,094.53	218.74	45.74	53.78	-446.97	-1,135.63	9,504.61	9,275.21	229.40	41.433		
19,100.00	9,453.16	9,106.00	9,094.53	220.83	45.74	53.78	-446.97	-1,135.63	9,604.40	9,373.18	231.22	41.538		
19,200.00	9,452.96	9,106.00	9,094.53	222.92	45.74	53.78	-446.97	-1,135.63	9,704.19	9,471.15	233.04	41.642		
19,300.00	9,452.76	9,106.00	9,094.53	225.02	45.74	53.78	-446.97	-1,135.63	9,803.99	9,569.13	234.87	41.743		
19,400.00	9,452.56	9,106.00	9,094.53	227.11	45.74	53.78	-446.97	-1,135.63	9,903.80	9,667.11	236.69	41.843		

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 +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	-119.28	-508.01	-906.00	1,038.79				
100.00	100.00	87.95	87.95	0.19	0.12	-119.29	-508.12	-905.89	1,038.66	1,038.35	0.32	3,266.959	
200.00	200.00	187.80	187.80	0.73	0.30	-119.32	-508.52	-905.52	1,038.53	1,037.51	1.03	1,012.159	
210.62	210.62	197.84	197.83	0.79	0.33	-119.32	-508.56	-905.49	1,038.53	1,037.41	1.11	932.442	
300.00	300.00	289.37	289.37	1.27	0.61	-119.32	-508.69	-905.55	1,038.65	1,036.77	1.87	554.257	
400.00	400.00	396.20	396.19	1.81	0.94	-119.30	-507.75	-904.80	1,037.57	1,034.82	2.74	378.245	
500.00	500.00	506.25	506.23	2.34	1.18	-119.32	-507.60	-903.67	1,036.65	1,033.12	3.52	294.177	
600.00	600.00	609.22	609.18	2.88	1.40	-119.38	-507.41	-901.41	1,034.65	1,030.37	4.28	241.734	
700.00	700.00	718.32	718.21	3.42	1.80	-119.50	-508.10	-897.91	1,032.17	1,026.96	5.22	197.835	
800.00	800.00	835.46	835.18	3.96	2.32	-119.75	-509.75	-891.78	1,028.32	1,022.04	6.28	163.814	
900.00	900.00	945.20	944.60	4.50	2.85	-120.09	-512.08	-883.79	1,023.05	1,015.70	7.34	139.286	
1,000.00	1,000.00	1,049.96	1,048.97	5.03	3.40	-120.47	-514.84	-875.06	1,017.17	1,008.74	8.42	120.739	
1,100.00	1,100.00	1,205.10	1,203.01	5.57	4.25	-121.17	-518.62	-857.29	1,008.65	998.83	9.81	102.784	
1,200.00	1,200.00	1,331.86	1,327.97	6.11	5.00	-121.93	-521.18	-836.19	995.35	984.25	11.09	89.729	
1,300.00	1,300.00	1,453.86	1,447.80	6.65	5.75	-122.73	-522.74	-813.37	980.15	967.77	12.38	79.179	
1,400.00	1,400.00	1,572.19	1,563.55	7.18	6.51	-123.52	-522.39	-788.78	962.41	948.74	13.67	70.386	
1,500.00	1,500.00	1,673.33	1,662.32	7.72	7.17	-124.22	-521.64	-767.04	944.03	929.15	14.87	63.468	
1,600.00	1,600.00	1,780.99	1,767.27	8.26	7.90	-125.02	-520.74	-743.04	925.08	908.95	16.13	57.338	
1,700.00	1,700.00	1,870.88	1,854.77	8.80	8.51	-125.73	-519.75	-722.49	905.69	888.41	17.28	52.414	
1,800.00	1,800.00	1,950.57	1,932.72	9.33	9.04	-126.32	-519.01	-705.95	888.23	869.89	18.35	48.413	
1,900.00	1,899.98	2,032.79	2,013.53	9.85	9.57	-5.04	-518.32	-690.78	871.12	852.20	18.92	46.038	
2,000.00	1,999.84	2,125.00	2,104.40	10.35	10.16	-5.73	-517.85	-675.15	852.09	832.18	19.91	42.801	
2,100.00	2,099.45	2,243.68	2,221.08	10.86	10.93	-6.73	-516.81	-653.54	828.60	807.56	21.04	39.379	
2,200.00	2,198.70	2,350.69	2,325.82	11.38	11.65	-7.83	-514.86	-631.68	799.65	777.56	22.09	36.194	
2,300.00	2,297.47	2,448.33	2,421.26	11.90	12.31	-8.99	-512.60	-611.22	766.95	743.88	23.07	33.251	
2,400.00	2,395.95	2,547.26	2,517.82	12.44	12.99	-10.22	-510.17	-589.80	732.28	708.09	24.20	30.261	
2,500.00	2,494.43	2,644.05	2,612.03	12.99	13.67	-11.62	-507.89	-567.73	697.16	671.81	25.35	27.506	
2,600.00	2,592.91	2,737.09	2,702.44	13.55	14.34	-13.17	-505.92	-545.86	662.08	635.59	26.49	24.991	
2,700.00	2,691.39	2,830.81	2,793.55	14.12	15.01	-14.85	-503.55	-524.03	627.35	599.69	27.66	22.679	
2,800.00	2,789.87	2,921.56	2,881.75	14.69	15.66	-16.67	-501.17	-502.80	593.03	564.19	28.83	20.567	
2,900.00	2,888.35	3,011.97	2,969.77	15.27	16.30	-18.62	-498.66	-482.29	559.67	529.65	30.02	18.643	
3,000.00	2,986.84	3,102.50	3,058.01	15.85	16.93	-20.75	-496.01	-462.27	527.26	496.03	31.23	16.884	
3,100.00	3,085.32	3,192.19	3,145.37	16.45	17.57	-23.21	-494.26	-442.02	496.11	463.63	32.47	15.277	
3,200.00	3,183.80	3,283.66	3,234.22	17.04	18.23	-26.24	-493.85	-420.27	466.53	432.74	33.80	13.805	
3,300.00	3,282.28	3,375.44	3,323.25	17.64	18.91	-29.70	-493.57	-397.98	438.30	403.13	35.17	12.463	
3,400.00	3,380.76	3,461.91	3,407.23	18.24	19.53	-33.31	-493.66	-377.40	412.44	375.91	36.53	11.291	
3,500.00	3,479.24	3,547.82	3,491.06	18.85	20.14	-37.12	-494.88	-358.67	390.56	352.67	37.89	10.308	
3,600.00	3,577.72	3,640.77	3,581.93	19.45	20.78	-41.53	-496.34	-339.13	371.41	332.08	39.32	9.445	
3,700.00	3,676.21	3,728.95	3,668.49	20.07	21.37	-45.82	-498.09	-322.45	355.69	314.99	40.69	8.741	
3,800.00	3,774.69	3,817.00	3,755.42	20.68	21.92	-49.94	-500.90	-308.81	344.20	302.20	42.00	8.196	
3,900.00	3,873.17	3,910.56	3,848.16	21.30	22.47	-54.12	-504.85	-297.02	336.25	292.97	43.28	7.769	
4,000.00	3,971.65	4,013.90	3,950.89	21.91	23.04	-58.50	-508.36	-286.51	329.60	285.04	44.56	7.397	
4,100.00	4,070.13	4,119.24	4,056.03	22.53	23.57	-62.38	-509.44	-280.25	322.18	276.42	45.76	7.041	
4,200.00	4,168.61	4,219.54	4,156.29	23.15	24.05	-65.72	-509.14	-277.37	314.46	267.59	46.87	6.709	
4,300.00	4,267.10	4,317.80	4,254.53	23.78	24.51	-69.01	-508.64	-275.32	307.51	259.57	47.95	6.413	
4,400.00	4,365.58	4,416.10	4,352.80	24.40	24.97	-72.39	-508.15	-273.56	301.59	252.59	49.00	6.154	
4,500.00	4,464.06	4,513.89	4,450.57	25.03	25.43	-75.87	-507.65	-271.79	296.77	246.74	50.03	5.931	
4,600.00	4,562.54	4,610.93	4,547.61	25.66	25.87	-79.26	-507.66	-270.68	293.37	242.34	51.03	5.749	
4,700.00	4,661.02	4,708.49	4,645.17	26.28	26.31	-82.53	-508.48	-270.40	291.48	239.48	52.00	5.606	
4,800.00	4,759.50	4,807.43	4,744.11	26.91	26.73	-85.82	-509.51	-270.35	290.66	237.71	52.94	5.490	
4,857.17	4,815.81	4,864.11	4,800.78	27.27	26.98	-87.70	-510.01	-270.40	290.51	237.04	53.47	5.433	
4,900.00	4,857.98	4,905.98	4,842.64	27.54	27.16	-89.09	-510.39	-270.44	290.63	236.76	53.87	5.395	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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 +N/-S (usft)	Centro +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,000.00	4,956.47	5,003.88	4,940.55	28.17	27.59	-92.32	-511.47	-270.45	291.77	236.99	54.78	5.326	
5,100.00	5,054.95	5,102.27	5,038.92	28.81	28.03	-95.50	-512.76	-270.49	294.03	238.35	55.68	5.281	
5,200.00	5,153.43	5,200.95	5,137.59	29.44	28.46	-98.59	-514.21	-270.72	297.20	240.63	56.57	5.254	
5,300.00	5,251.91	5,299.08	5,235.71	30.07	28.90	-101.57	-515.73	-270.97	301.28	243.82	57.46	5.244	
5,400.00	5,350.40	5,397.58	5,334.19	30.71	29.34	-104.47	-517.45	-271.18	306.34	247.99	58.35	5.250	
5,500.00	5,449.23	5,496.23	5,432.82	31.33	29.78	-106.96	-519.34	-271.48	311.57	252.29	59.28	5.256	
5,600.00	5,548.53	5,594.66	5,531.23	31.91	30.23	-108.71	-521.57	-271.79	316.40	256.17	60.24	5.253	
5,700.00	5,648.19	5,695.05	5,631.59	32.47	30.69	-109.82	-524.00	-272.10	320.42	259.19	61.23	5.233	
5,800.00	5,748.07	5,799.63	5,736.16	33.00	31.16	-110.51	-525.10	-272.39	322.49	260.26	62.24	5.182	
5,900.00	5,848.06	5,901.89	5,838.42	33.49	31.62	-127.31	-524.32	-272.72	322.24	259.71	62.53	5.154	
6,000.00	5,948.06	6,002.25	5,938.77	33.97	32.08	-127.21	-523.20	-273.27	321.13	257.65	63.48	5.059	
6,100.00	6,048.06	6,102.30	6,038.81	34.44	32.53	-127.15	-522.21	-274.00	319.95	255.51	64.44	4.965	
6,200.00	6,148.06	6,202.09	6,138.60	34.92	32.99	-127.10	-521.32	-274.73	318.83	253.43	65.40	4.875	
6,300.00	6,248.06	6,302.42	6,238.92	35.40	33.44	-127.11	-520.63	-275.67	317.67	251.30	66.37	4.786	
6,400.00	6,348.06	6,403.33	6,339.82	35.88	33.90	-127.16	-520.09	-276.91	316.37	249.02	67.34	4.698	
6,500.00	6,448.06	6,505.21	6,441.68	36.37	34.36	-127.29	-519.53	-278.80	314.55	246.23	68.33	4.604	
6,600.00	6,548.06	6,605.89	6,542.33	36.85	34.81	-127.56	-519.29	-281.54	312.25	242.94	69.31	4.505	
6,700.00	6,648.06	6,705.08	6,641.47	37.34	35.26	-127.94	-519.58	-284.56	310.02	239.72	70.30	4.410	
6,800.00	6,748.06	6,805.13	6,741.47	37.83	35.71	-128.38	-520.21	-287.59	308.02	236.72	71.30	4.320	
6,900.00	6,848.06	6,905.94	6,842.23	38.31	36.17	-128.82	-520.64	-290.80	305.81	233.50	72.30	4.229	
7,000.00	6,948.06	7,005.31	6,941.54	38.80	36.63	-129.27	-521.07	-294.10	303.50	230.19	73.30	4.140	
7,100.00	7,048.06	7,103.71	7,039.89	39.30	37.08	-129.73	-521.76	-297.07	301.61	227.31	74.30	4.059	
7,200.00	7,148.06	7,203.57	7,139.71	39.79	37.54	-130.15	-522.48	-299.66	300.09	224.78	75.31	3.985	
7,300.00	7,248.06	7,304.76	7,240.87	40.28	38.01	-130.60	-523.14	-302.51	298.36	222.03	76.33	3.909	
7,400.00	7,348.06	7,403.04	7,339.09	40.78	38.47	-131.19	-524.34	-305.76	296.66	219.32	77.34	3.836	
7,500.00	7,448.06	7,500.46	7,436.44	41.27	38.93	-131.83	-526.23	-308.64	295.74	217.39	78.35	3.775	
7,600.00	7,548.06	7,599.31	7,535.23	41.77	39.39	-132.49	-528.59	-311.11	295.48	216.11	79.37	3.723	
7,608.53	7,556.59	7,607.67	7,543.59	41.81	39.43	-132.55	-528.80	-311.31	295.48	216.02	79.46	3.719	
7,700.00	7,648.06	7,697.21	7,633.07	42.27	39.86	-133.17	-531.36	-313.27	295.79	215.39	80.40	3.679	
7,800.00	7,748.06	7,795.75	7,731.53	42.77	40.33	-133.94	-534.90	-315.35	296.74	215.31	81.43	3.644	
7,900.00	7,848.06	7,896.46	7,832.11	43.27	40.81	-134.88	-539.13	-317.96	297.82	215.35	82.48	3.611	
8,000.00	7,948.06	7,997.25	7,932.74	43.77	41.29	-135.95	-543.70	-321.31	298.72	215.19	83.54	3.576	
8,100.00	8,048.06	8,098.81	8,034.14	44.27	41.78	-137.03	-547.98	-325.02	299.27	214.67	84.60	3.538	
8,200.00	8,148.06	8,200.19	8,135.40	44.77	42.26	-137.96	-551.33	-328.57	299.34	213.69	85.65	3.495	
8,300.00	8,248.06	8,301.52	8,236.63	45.28	42.75	-138.82	-554.08	-332.09	299.06	212.37	86.70	3.449	
8,400.00	8,348.06	8,403.32	8,338.33	45.78	43.24	-139.66	-556.30	-335.97	298.22	210.47	87.75	3.399	
8,500.00	8,448.06	8,504.04	8,438.96	46.29	43.72	-140.49	-558.07	-340.07	296.96	208.17	88.79	3.344	
8,600.00	8,548.06	8,604.06	8,538.87	46.79	44.20	-141.32	-559.77	-344.23	295.65	205.82	89.83	3.291	
8,700.00	8,648.06	8,703.87	8,638.58	47.30	44.68	-142.18	-561.55	-348.51	294.40	203.52	90.88	3.240	
8,800.00	8,748.06	8,803.07	8,737.67	47.81	45.16	-143.08	-563.49	-352.80	293.32	201.41	91.92	3.191	
8,900.00	8,848.06	8,902.41	8,836.90	48.31	45.65	-144.01	-565.72	-357.05	292.58	199.62	92.96	3.147	
9,000.00	8,948.06	9,001.92	8,936.28	48.82	46.13	-144.95	-568.09	-361.27	292.06	198.05	94.01	3.107	
9,100.00	9,048.01	9,103.47	9,037.73	49.33	46.63	-144.93	-570.20	-365.09	290.49	195.11	95.37	3.046	
9,200.00	9,146.57	9,208.69	9,142.22	49.87	47.18	-150.43	-562.32	-358.68	277.09	181.60	95.49	2.902	
9,300.00	9,240.83	9,339.51	9,264.50	50.45	47.89	-70.10	-522.52	-337.95	249.08	153.00	96.08	2.592	
9,400.00	9,327.92	9,400.12	9,317.13	51.06	48.18	-84.82	-493.89	-328.79	228.23	131.23	96.99	2.353	
9,421.01	9,345.05	9,409.59	9,325.20	51.19	48.22	-87.09	-489.13	-327.44	227.45	130.30	97.15	2.341	CC, ES, SF
9,500.00	9,405.20	9,435.17	9,346.76	51.69	48.34	-92.01	-475.82	-323.96	239.20	141.59	97.61	2.451	
9,600.00	9,470.32	9,447.21	9,356.77	52.36	48.39	-89.71	-469.32	-322.40	285.25	186.75	98.50	2.896	
9,700.00	9,521.30	9,442.18	9,352.61	53.06	48.37	-78.98	-472.05	-323.04	353.91	255.61	98.30	3.600	
9,800.00	9,556.60	9,424.68	9,337.96	53.81	48.29	-63.11	-481.37	-325.36	432.58	340.61	91.96	4.704	
9,900.00	9,575.13	9,397.41	9,314.80	54.59	48.16	-47.51	-495.24	-329.18	513.38	434.61	78.76	6.518	

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: 5H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
 TVD Reference: GL + KB @ 3286.00usft
 MD Reference: GL + KB @ 3286.00usft
 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	9,577.07	9,358.00	9,280.75	55.39	47.98	-37.81	-514.17	-335.10	591.85	523.75	68.10	8.691	
10,100.00	9,574.60	9,334.62	9,260.17	56.24	47.86	-37.83	-524.65	-338.70	671.03	602.62	68.41	9.809	
10,200.00	9,572.13	9,311.00	9,238.98	57.14	47.74	-38.05	-534.46	-342.23	752.55	683.56	68.99	10.908	
10,300.00	9,569.66	9,311.00	9,238.98	58.09	47.74	-40.48	-534.46	-342.23	836.32	764.16	72.16	11.589	
10,400.00	9,567.19	9,284.48	9,214.64	59.08	47.60	-40.71	-544.16	-346.31	921.06	848.24	72.82	12.648	
10,500.00	9,564.72	9,264.00	9,195.44	60.11	47.49	-41.57	-550.43	-349.69	1,007.55	933.33	74.22	13.575	
10,600.00	9,562.25	9,264.00	9,195.44	61.18	47.49	-42.43	-550.43	-349.69	1,094.93	1,019.01	75.92	14.422	
10,700.00	9,559.79	9,264.00	9,195.44	62.30	47.49	-42.43	-550.43	-349.69	1,184.25	1,107.44	76.81	15.418	
10,800.00	9,557.32	9,264.00	9,195.44	63.48	47.49	-42.43	-550.43	-349.69	1,275.16	1,197.42	77.75	16.401	
10,900.00	9,554.86	9,243.93	9,176.34	64.71	47.38	-40.75	-555.57	-353.06	1,366.71	1,289.96	76.74	17.809	
11,000.00	9,552.39	9,238.37	9,171.00	65.98	47.35	-40.30	-556.83	-353.97	1,459.53	1,382.32	77.21	18.903	
11,100.00	9,549.93	9,217.00	9,150.32	67.30	47.23	-38.61	-560.97	-357.41	1,553.57	1,477.38	76.19	20.391	
11,200.00	9,547.46	9,217.00	9,150.32	68.67	47.23	-38.61	-560.97	-357.41	1,647.68	1,570.42	77.26	21.326	
11,300.00	9,545.00	9,217.00	9,150.32	70.07	47.23	-38.61	-560.97	-357.41	1,742.45	1,664.09	78.36	22.235	
11,400.00	9,542.54	9,217.00	9,150.32	71.51	47.23	-38.61	-560.97	-357.41	1,837.78	1,758.28	79.50	23.117	
11,500.00	9,540.07	9,217.00	9,150.32	72.99	47.23	-38.61	-560.97	-357.41	1,933.57	1,852.91	80.66	23.971	
11,600.00	9,537.61	9,217.00	9,150.32	74.50	47.23	-38.61	-560.97	-357.41	2,029.77	1,947.92	81.85	24.798	
11,700.00	9,535.14	9,217.00	9,150.32	76.04	47.23	-38.61	-560.97	-357.41	2,126.33	2,043.26	83.07	25.597	
11,800.00	9,532.68	9,217.00	9,150.32	77.61	47.23	-38.61	-560.97	-357.41	2,223.18	2,138.87	84.31	26.370	
11,900.00	9,530.21	9,217.00	9,150.32	79.21	47.23	-38.61	-560.97	-357.41	2,320.31	2,234.74	85.57	27.116	
12,000.00	9,527.75	9,217.00	9,150.32	80.83	47.23	-38.61	-560.97	-357.41	2,417.66	2,330.81	86.85	27.837	
12,100.00	9,525.28	9,196.09	9,129.88	82.48	47.11	-37.05	-564.17	-360.38	2,514.77	2,428.89	86.07	29.216	
12,200.00	9,522.82	9,193.18	9,127.01	84.15	47.10	-36.84	-564.56	-360.74	2,612.39	2,525.29	87.09	29.995	
12,300.00	9,520.36	9,190.42	9,124.30	85.85	47.08	-36.85	-564.92	-361.07	2,710.16	2,622.02	88.14	30.748	
12,400.00	9,517.89	9,169.00	9,103.12	87.56	46.96	-35.22	-567.33	-363.20	2,808.44	2,720.95	87.49	32.100	
12,500.00	9,515.43	9,169.00	9,103.12	89.29	46.96	-35.22	-567.33	-363.20	2,906.40	2,817.58	88.81	32.725	
12,600.00	9,512.96	9,169.00	9,103.12	91.05	46.96	-35.22	-567.33	-363.20	3,004.49	2,914.34	90.15	33.329	
12,700.00	9,510.50	9,169.00	9,103.12	92.82	46.96	-35.22	-567.33	-363.20	3,102.70	3,011.20	91.49	33.912	
12,800.00	9,508.03	9,169.00	9,103.12	94.60	46.96	-35.22	-567.33	-363.20	3,201.02	3,108.17	92.85	34.476	
12,900.00	9,505.57	9,169.00	9,103.12	96.40	46.96	-35.22	-567.33	-363.20	3,299.44	3,205.23	94.21	35.020	
13,000.00	9,503.10	9,169.00	9,103.12	98.22	46.96	-35.22	-567.33	-363.20	3,397.96	3,302.37	95.59	35.547	
13,100.00	9,500.64	9,169.00	9,103.12	100.05	46.96	-35.22	-567.33	-363.20	3,496.56	3,399.58	96.98	36.056	
13,200.00	9,498.18	9,169.00	9,103.12	101.89	46.96	-35.22	-567.33	-363.20	3,595.23	3,496.86	98.37	36.548	
13,300.00	9,495.71	9,169.00	9,103.12	103.74	46.96	-35.22	-567.33	-363.20	3,693.98	3,594.21	99.77	37.025	
13,400.00	9,493.25	9,169.00	9,103.12	105.61	46.96	-35.22	-567.33	-363.20	3,792.79	3,691.61	101.18	37.486	
13,500.00	9,490.78	9,169.00	9,103.12	107.49	46.96	-35.22	-567.33	-363.20	3,891.67	3,789.07	102.59	37.933	
13,600.00	9,488.32	9,169.00	9,103.12	109.37	46.96	-35.22	-567.33	-363.20	3,990.60	3,886.58	104.02	38.365	
13,700.00	9,485.85	9,169.00	9,103.12	111.27	46.96	-35.22	-567.33	-363.20	4,089.58	3,984.14	105.44	38.784	
13,800.00	9,483.39	9,169.00	9,103.12	113.18	46.96	-35.22	-567.33	-363.20	4,188.61	4,081.73	106.88	39.190	
13,900.00	9,480.92	9,169.00	9,103.12	115.09	46.96	-35.22	-567.33	-363.20	4,287.69	4,179.37	108.32	39.584	
14,000.00	9,478.46	9,169.00	9,103.12	117.02	46.96	-35.22	-567.33	-363.20	4,386.80	4,277.04	109.76	39.966	
14,100.00	9,476.00	9,169.00	9,103.12	118.95	46.96	-35.22	-567.33	-363.20	4,485.96	4,374.75	111.21	40.337	
14,200.00	9,473.53	9,169.00	9,103.12	120.89	46.96	-35.22	-567.33	-363.20	4,585.15	4,472.49	112.67	40.697	
14,300.00	9,471.07	9,169.00	9,103.12	122.84	46.96	-35.22	-567.33	-363.20	4,684.38	4,570.26	114.13	41.046	
14,400.00	9,468.60	9,169.00	9,103.12	124.79	46.96	-35.22	-567.33	-363.20	4,783.64	4,668.05	115.59	41.385	
14,500.00	9,466.14	9,169.00	9,103.12	126.75	46.96	-35.22	-567.33	-363.20	4,882.93	4,765.88	117.06	41.715	
14,600.00	9,463.67	9,169.00	9,103.12	128.72	46.96	-35.22	-567.33	-363.20	4,982.25	4,863.72	118.53	42.035	
14,700.00	9,461.20	9,169.00	9,103.12	130.69	46.96	-37.55	-567.33	-363.20	5,081.75	4,957.61	124.13	40.938	
14,800.00	9,461.83	9,169.00	9,103.12	132.67	46.96	-37.55	-567.33	-363.20	5,181.31	5,055.66	125.64	41.239	
14,900.00	9,461.63	9,169.00	9,103.12	134.65	46.96	-37.55	-567.33	-363.20	5,280.94	5,153.78	127.15	41.532	
15,000.00	9,461.43	9,169.00	9,103.12	136.63	46.96	-37.55	-567.33	-363.20	5,380.58	5,251.91	128.67	41.817	
15,100.00	9,461.22	9,169.00	9,103.12	138.63	46.96	-37.55	-567.33	-363.20	5,480.24	5,350.05	130.19	42.094	

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: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
15,200.00	9,461.02	9,169.00	9,103.12	140.62	46.96	-37.55	-567.33	-363.20	5,579.91	5,448.19	131.71	42.364			
15,300.00	9,460.82	9,169.00	9,103.12	142.62	46.96	-37.55	-567.33	-363.20	5,679.59	5,546.35	133.24	42.627			
15,400.00	9,460.62	9,169.00	9,103.12	144.63	46.96	-37.55	-567.33	-363.20	5,779.28	5,644.52	134.77	42.884			
15,500.00	9,460.42	9,147.33	9,081.57	146.64	46.85	-35.80	-569.02	-364.59	5,878.53	5,745.39	133.14	44.152			
15,600.00	9,460.22	9,146.79	9,081.03	148.65	46.85	-35.76	-569.06	-364.61	5,978.23	5,843.65	134.57	44.423			
15,700.00	9,460.02	9,146.26	9,080.50	150.67	46.85	-35.72	-569.09	-364.63	6,077.93	5,941.92	136.01	44.688			
15,800.00	9,459.81	9,145.75	9,079.99	152.69	46.84	-35.68	-569.12	-364.66	6,177.63	6,040.19	137.45	44.946			
15,900.00	9,459.61	9,145.25	9,079.49	154.71	46.84	-35.64	-569.15	-364.68	6,277.35	6,138.47	138.89	45.198			
16,000.00	9,459.41	9,144.76	9,079.00	156.74	46.84	-35.61	-569.17	-364.70	6,377.08	6,236.75	140.33	45.444			
16,100.00	9,459.21	9,144.29	9,078.53	158.77	46.84	-35.57	-569.20	-364.72	6,476.81	6,335.04	141.78	45.684			
16,200.00	9,459.01	9,143.83	9,078.08	160.81	46.83	-35.54	-569.23	-364.74	6,576.56	6,433.33	143.22	45.918			
16,300.00	9,458.81	9,122.00	9,056.26	162.85	46.72	-34.00	-570.02	-365.20	6,676.74	6,534.97	141.77	47.096			
16,400.00	9,458.60	9,122.00	9,056.26	164.89	46.72	-34.00	-570.02	-365.20	6,776.48	6,633.21	143.26	47.301			
16,500.00	9,458.40	9,122.00	9,056.26	166.93	46.72	-34.00	-570.02	-365.20	6,876.22	6,731.46	144.76	47.501			
16,600.00	9,458.20	9,122.00	9,056.26	168.98	46.72	-34.00	-570.02	-365.20	6,975.98	6,829.72	146.26	47.697			
16,700.00	9,458.00	9,122.00	9,056.26	171.03	46.72	-34.00	-570.02	-365.20	7,075.74	6,927.98	147.75	47.889			
16,800.00	9,457.80	9,122.00	9,056.26	173.08	46.72	-34.00	-570.02	-365.20	7,175.50	7,026.25	149.25	48.076			
16,900.00	9,457.60	9,122.00	9,056.26	175.14	46.72	-34.00	-570.02	-365.20	7,275.28	7,124.52	150.75	48.259			
17,000.00	9,457.40	9,122.00	9,056.26	177.19	46.72	-34.00	-570.02	-365.20	7,375.06	7,222.80	152.26	48.438			
17,100.00	9,457.19	9,122.00	9,056.26	179.25	46.72	-34.00	-570.02	-365.20	7,474.84	7,321.08	153.76	48.614			
17,200.00	9,456.99	9,122.00	9,056.26	181.31	46.72	-34.00	-570.02	-365.20	7,574.63	7,419.37	155.26	48.785			
17,300.00	9,456.79	9,122.00	9,056.26	183.38	46.72	-34.00	-570.02	-365.20	7,674.43	7,517.66	156.77	48.953			
17,400.00	9,456.59	9,122.00	9,056.26	185.44	46.72	-34.00	-570.02	-365.20	7,774.23	7,615.95	158.28	49.118			
17,500.00	9,456.39	9,122.00	9,056.26	187.51	46.72	-34.00	-570.02	-365.20	7,874.04	7,714.25	159.79	49.279			
17,600.00	9,456.19	9,122.00	9,056.26	189.58	46.72	-34.00	-570.02	-365.20	7,973.85	7,812.56	161.29	49.437			
17,700.00	9,455.99	9,122.00	9,056.26	191.65	46.72	-34.00	-570.02	-365.20	8,073.67	7,910.86	162.80	49.591			
17,800.00	9,455.78	9,122.00	9,056.26	193.73	46.72	-34.00	-570.02	-365.20	8,173.49	8,009.17	164.32	49.743			
17,900.00	9,455.58	9,122.00	9,056.26	195.80	46.72	-34.00	-570.02	-365.20	8,273.31	8,107.48	165.83	49.891			
18,000.00	9,455.38	9,122.00	9,056.26	197.88	46.72	-34.00	-570.02	-365.20	8,373.14	8,205.80	167.34	50.037			
18,100.00	9,455.18	9,122.00	9,056.26	199.96	46.72	-34.00	-570.02	-365.20	8,472.98	8,304.12	168.85	50.179			
18,200.00	9,454.98	9,122.00	9,056.26	202.04	46.72	-34.00	-570.02	-365.20	8,572.81	8,402.44	170.37	50.319			
18,300.00	9,454.78	9,122.00	9,056.26	204.12	46.72	-34.00	-570.02	-365.20	8,672.65	8,500.77	171.88	50.456			
18,400.00	9,454.57	9,122.00	9,056.26	206.20	46.72	-34.00	-570.02	-365.20	8,772.50	8,599.10	173.40	50.591			
18,500.00	9,454.37	9,122.00	9,056.26	208.29	46.72	-34.00	-570.02	-365.20	8,872.35	8,697.43	174.92	50.723			
18,600.00	9,454.17	9,122.00	9,056.26	210.38	46.72	-34.00	-570.02	-365.20	8,972.20	8,795.76	176.44	50.853			
18,700.00	9,453.97	9,122.00	9,056.26	212.46	46.72	-34.00	-570.02	-365.20	9,072.05	8,894.10	177.95	50.980			
18,800.00	9,453.77	9,122.00	9,056.26	214.55	46.72	-34.00	-570.02	-365.20	9,171.91	8,992.44	179.47	51.105			
18,900.00	9,453.57	9,122.00	9,056.26	216.64	46.72	-34.00	-570.02	-365.20	9,271.77	9,090.78	180.99	51.227			
19,000.00	9,453.37	9,122.00	9,056.26	218.74	46.72	-34.00	-570.02	-365.20	9,371.64	9,189.12	182.51	51.348			
19,100.00	9,453.16	9,122.00	9,056.26	220.83	46.72	-34.00	-570.02	-365.20	9,471.50	9,287.47	184.03	51.466			
19,200.00	9,452.96	9,122.00	9,056.26	222.92	46.72	-34.00	-570.02	-365.20	9,571.37	9,385.82	185.56	51.582			
19,300.00	9,452.76	9,122.00	9,056.26	225.02	46.72	-34.00	-570.02	-365.20	9,671.24	9,484.17	187.08	51.696			
19,400.00	9,452.56	9,122.00	9,056.26	227.11	46.72	-34.00	-570.02	-365.20	9,771.12	9,582.52	188.60	51.809			
19,500.00	9,452.36	9,122.00	9,056.26	229.21	46.72	-34.00	-570.02	-365.20	9,871.00	9,680.87	190.12	51.919			
19,600.00	9,452.16	9,122.00	9,056.26	231.31	46.72	-34.00	-570.02	-365.20	9,970.88	9,779.23	191.65	52.027			

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

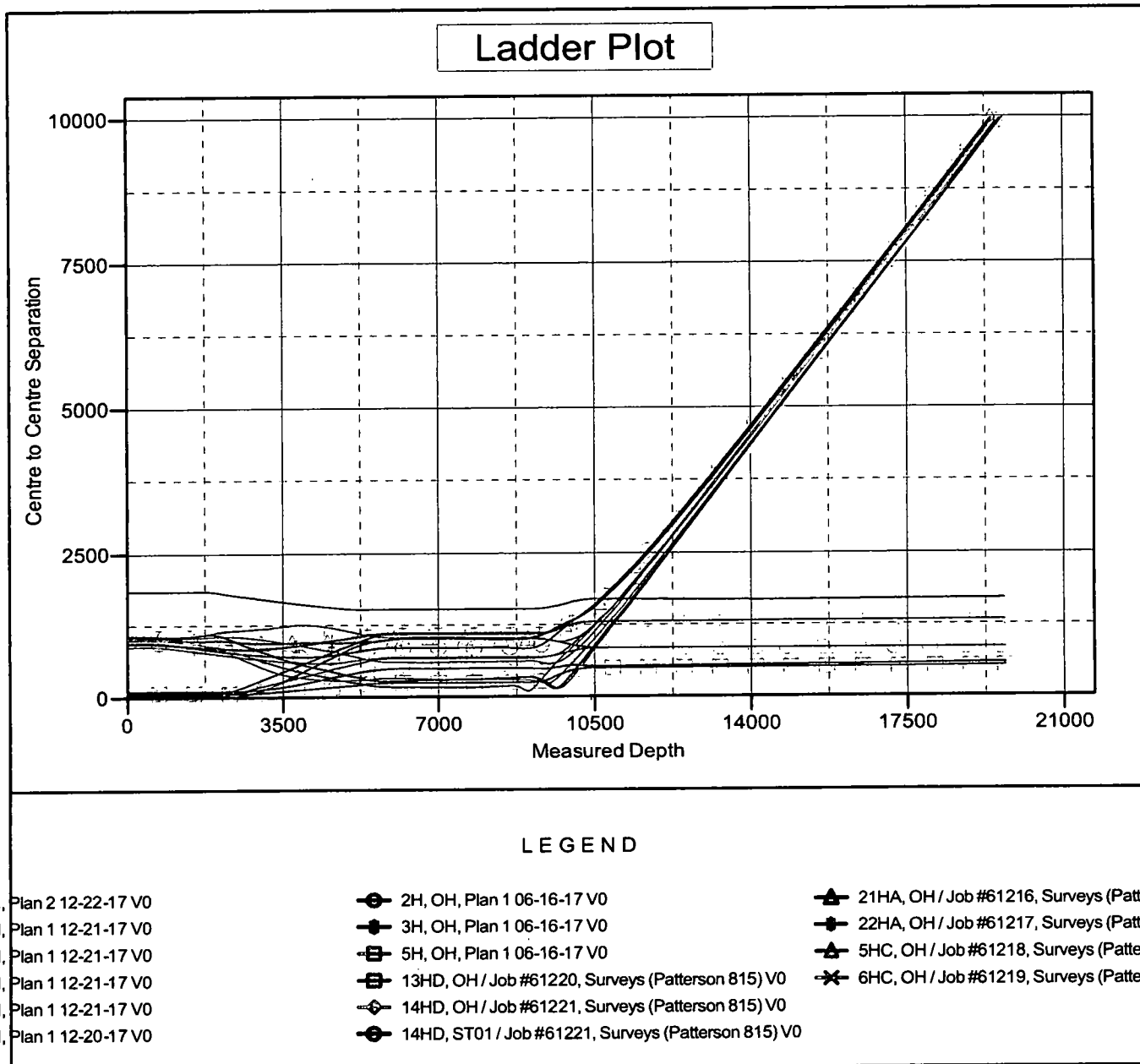


Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 17 20 FED 001
Site Error: 0.00 usft
Reference Well: 5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 2 12-22-17

Local Co-ordinate Reference: Well 5H
TVD Reference: GL + KB @ 3286.00usft
MD Reference: GL + KB @ 3286.00usft
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 @ 3286.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 5H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.06°



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



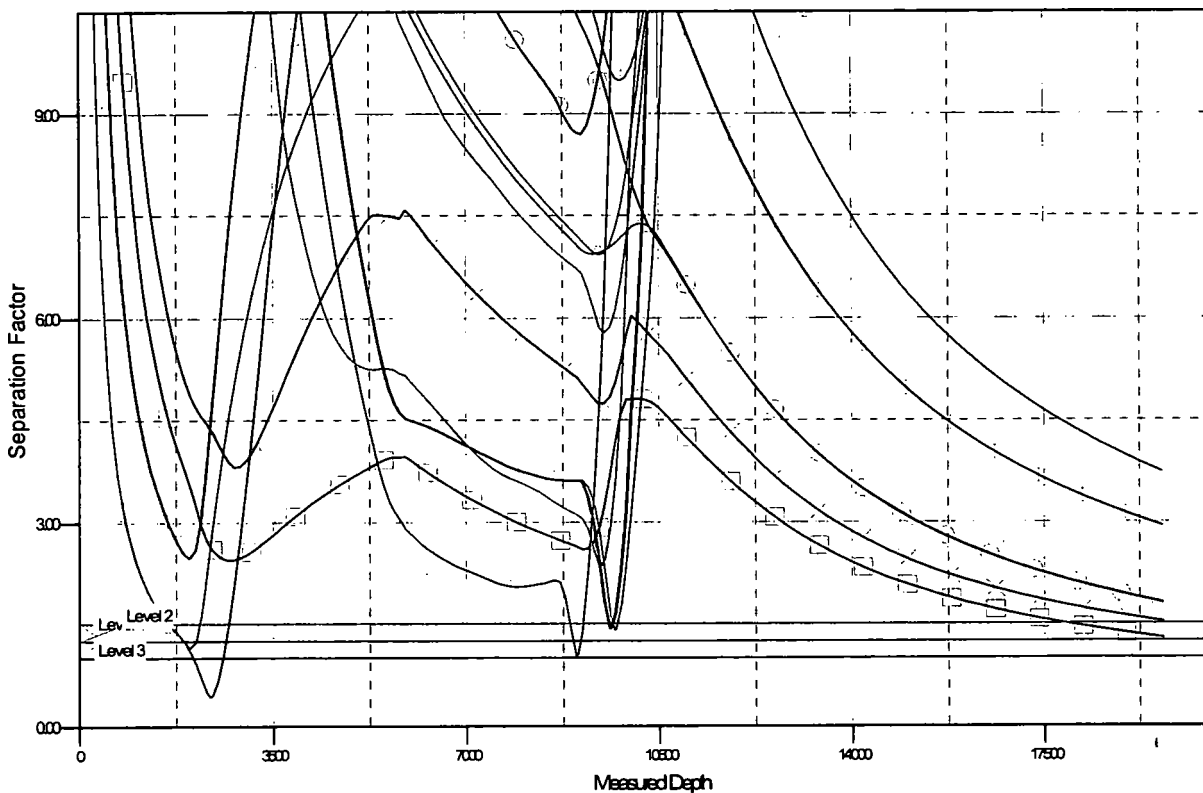
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Reference Depths are relative to GL + KB @ 3286.00usft
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Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 5H
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 2 12-22-17 V0
1, Plan 1 12-21-17 V0
1, Plan 1 12-21-17 V0
1, Plan 1 12-21-17 V0
1, Plan 1 12-21-17 V0
1, Plan 1 12-20-17 V0

2H, OH, Plan 1 06-16-17 V0
3H, OH, Plan 1 06-16-17 V0
5H, OH, Plan 1 06-16-17 V0
13HD, OH / Job #61220, Surveys (Patterson 815) V0
14HD, OH / Job #61221, Surveys (Patterson 815) V0
14HD, ST01 / Job #61221, Surveys (Patterson 815) V0

21HA, OH / Job #61216, Surveys (Patterson 815) V0
22HA, OH / Job #61217, Surveys (Patterson 815) V0
5HC, OH / Job #61218, Surveys (Patterson 815) V0
6HC, OH / Job #61219, Surveys (Patterson 815) V0

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

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	CHEVRON USA INCORPERATED
LEASE NO.:	NMNM118108
WELL NAME & NO.:	HH SO 17 20 FED 001 5H
SURFACE HOLE FOOTAGE:	230'/S & 1872'/W
BOTTOM HOLE FOOTAGE	280'/S & 1170'/W
LOCATION:	SECTION 8, T26S, R27E , NM ^{PM}
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, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

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

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:

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

Directional Drilling:

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

Lost Circulation:

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

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

Abandonment Cementing:

Upon well abandonment in 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

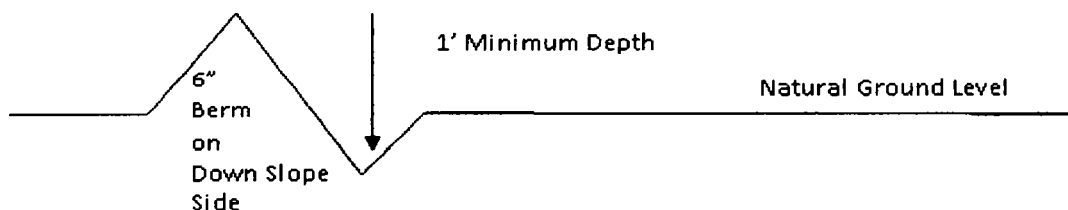
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

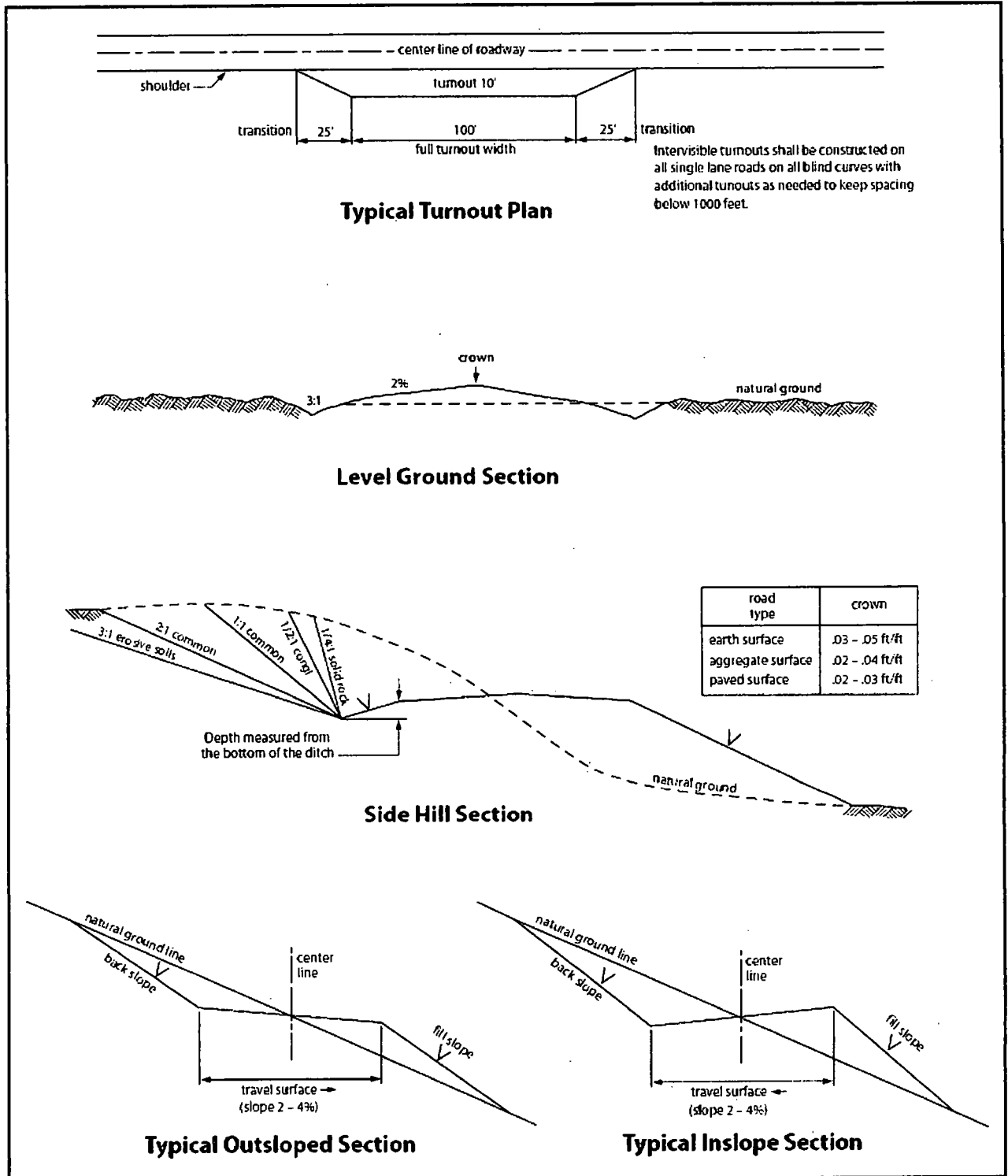


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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.

☒ 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: 08/17/2017

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: 10400019869

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: 5H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400019869

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

Mater Development Plan name: HAYHURST DEVELOPMENT AREA

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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: 5H

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_5H_C_102_08-17-2017.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	230	FSL	187 2	FWL	26S	27E	8	Aliquot SESW	32.0504	- 104.2148 63	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 118108	325 8	0	0
KOP Leg #1	230	FSL	187 2	FWL	26S	27E	8	Aliquot SESW	32.0504	- 104.2148 63	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 118108	325 8	0	0
PPP Leg #1	330	FNL	117 0	FWL	26S	27E	17	Aliquot NWN W	32.04874 5	- 104.2166 14	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	- 574 2	120 00	900 0

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FSL	117 0	FWL	26S	27E	20	Aliquot SWS W	32.02137 9	- 104.2168 57	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	- 574 2	120 00	900 0
BHL Leg #1	280	FSL	117 0	FWL	26S	27E	20	Aliquot SWS W	32.02124 2	- 104.2168 57	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 100549	- 645 1	200 44	870 9

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

Choke Diagram Attachment:

HH_SO_17_20_FED_001_5H_Choke_Diagram_08-17-2017.pdf

BOP Diagram Attachment:

HH_SO_17_20_FED_001_5H_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	-5742	-6192	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	-5742	-14442	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	20044	0	20044	-5742	-25786	20044	P-110	20	OTHER - TXP	1.5	1.26	DRY	1.84	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_5H_9pt_plan_08-17-2017.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

Casing Attachments

Casing ID: 2 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

HH_SO_17_20_FED_001_5H_9.625_TXP_08-17-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH_SO_17_20_FED_001_5H_9.625_TXP_08-17-2017.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_5H_P110_TXP_08-17-2017.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: 5H

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	285	1.21	15.6	5.54	10	H	CLASS H + RETARDER, EXTENDER, DISPERSANT
PRODUCTION	Lead		7015	8015	237	1.21	14.5	5.54	10	H	50:50 POZ: CLASS H + EXTENDER, ANTIFOAM, DISPERSANT, RETARDER
PRODUCTION	Tail		8015	2004 4	2547	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: 5H

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	20044	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: 6563

Anticipated Surface Pressure: 4427.02

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: 5H

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

HH_SO_17_20_FED_001_5H_H2S_08-17-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH_SO_17_20_FED_001_5H_Directional_Plan_08-17-2017.pdf

HH_SO_17_20_FED_001_5H_Rig_Pad_Layout_08-17-2017.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

CHOKE MANIFOLD SCHEMATIC

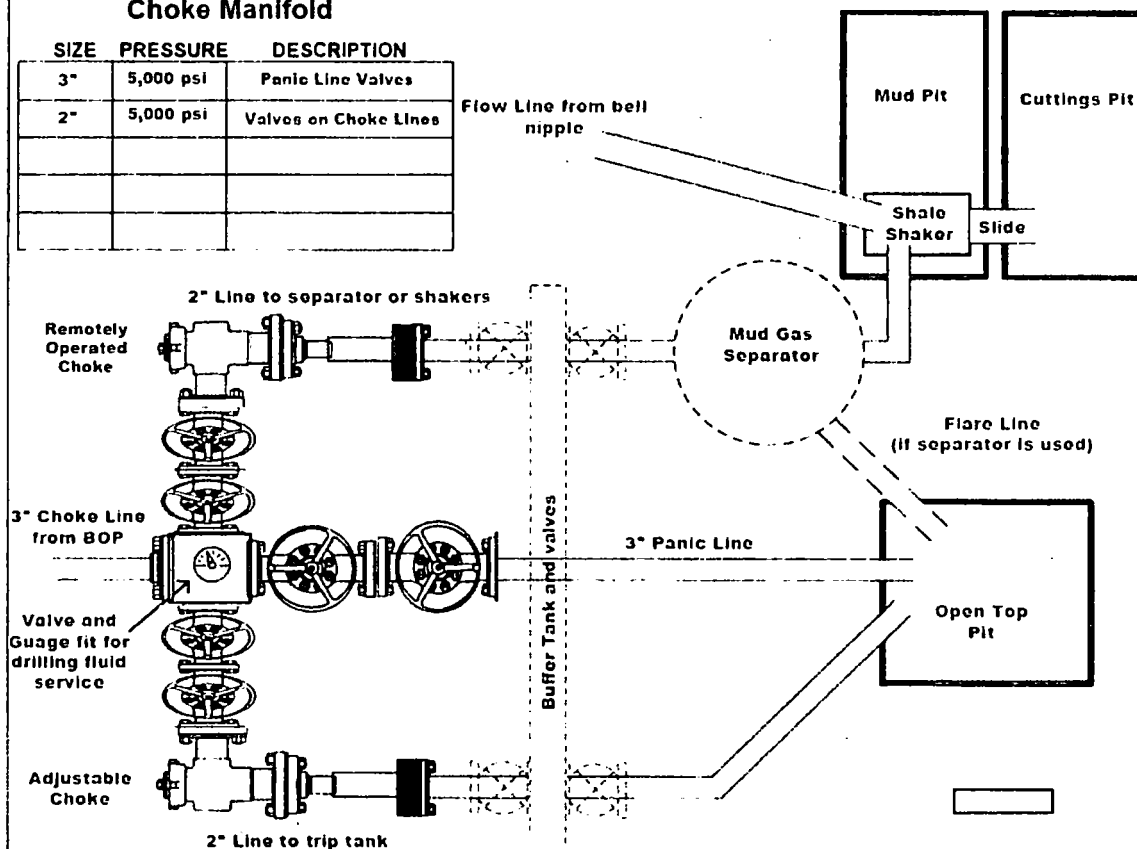
Minimum Requirements

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

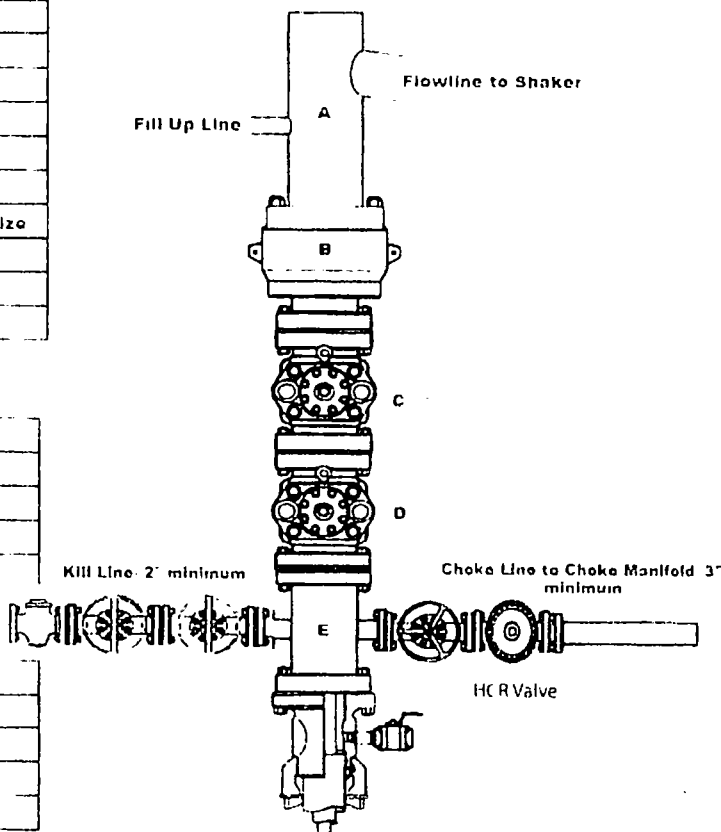
SIZE	PRESSURE	DESCRIPTION
A	N/A	Bell Nipple
B	13 5/8"	5,000 psi Annular
C	13 5/8"	5,000 psi Pipe Ram
D	13 5/8"	5,000 psi Blind Ram
E	13 5/8"	5,000 psi Mud Cross
F		
DSA	As required for each hole size	
C-Sec		
B-Sec	13-5/8" 5K x 11" 5K	
A-Sec	13-3/8" SOW x 13-5/8" 5K	

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

- ☐ Accumulator will have sufficient capacity to open the hydraulically-controlled choke line valve (if used), close all rams, close the annular preventer, and retain a minimum of 200 psi above the maximum acceptable precharge pressure (see table above) on the closing manifold without the use of the closing pumps. This test will be performed with test pressure recorded and kept on location through the end of the well

- ☐ Accumulator fluid reservoir will be double the usable fluid volume of the accumulator system capacity. Fluid level will be maintained at manufacturer's recommendations. Usable fluid volume will be recorded. Reservoir capacity will be recorded. Reservoir fluid level will be recorded along with manufacturer's recommendation. All will be kept on location through the end of the well.

- ☐ Closing unit system will have two independent power sources (not counting accumulator bottles) to close the preventers.

- ☐ Power for the closing unit pumps will be available to the unit at all times so that the pumps will automatically start when the closing valve manifold pressure decreases to the pre-set level. It is recommended to check that oil 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 ⁽²⁾			
Minimum	20240 ft-lbs	Optimum	22490 ft-lbs
		Maximum	24740 ft-lbs
OPERATIONAL LIMIT TORQUES			
Operating Torque	ASK	Yield Torque	45900 ft-lbs

BLANKING DIMENSIONS

Blanking Dimensions

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

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Casta		695	
Lamar		2395	
Bell		2310	
Cherry		3208	
Bushy		4450	
Bona Springs Limestone		6282	
First Bona Springs Sand		6888	
First Bona Springs Shale		6914	
Second Bona Springs Sand		7821	
Harvey Sand		8123	
Third Bona Springs Sand		8817	
Wellcamp A		9342	
Wellcamp C		9709	
Lateral TVD Wellcamp C		8708	20044.41

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Water	Deposits Expected Base of Fresh Water	450
Water	Casta	505
Water	Cherry Canyon	3208
Oil/Gas	Bushy Canyon	4450
Oil/Gas	Bona Springs Limestone	6282
Oil/Gas	First Bona Springs Shale	6914
Oil/Gas	Second Bona Springs Sand	7821
Oil/Gas	Harvey Sand	8123
Oil/Gas	Wellcamp A	9342
Oil/Gas	Wellcamp C	9709

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

3. BOP EQUIPMENT

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

Chevron requests a variance to use a FMC Technologies UH-3 Mudflow wellhead, which will be run through the rig floor on surface casing. BOPF will be rigged up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The test report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on Oa with the BLM office and remains unchanged from previous submittal.

4. CASING PROGRAM

Purpose	From	To	Hole Size	Cas Size	Weight	Grade	Threds	Condition
Surface	0'	450'	17-1/8"	13-3/8"	54.5 #	K-55	BTG	New
Intermediate	0'	8100'	12-1/4"	8-5/8"	43.5 #	L-80	12P	New
Production	0'	20,044'	8-1/2"	5-1/2"	29.0 #	P-110	12P	New

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

Surface Casing: 450'

Intermediate Casing: 8015'

Production Casing:	Min BF Burst	Min BF Collapse	Min BF Tension	Min BF T/Axial
Casting String	1.82	0.11	3.87	2.31
Surface	1.45	1.32	1.78	1.84
Intermediate	1.28	1.2	2.43	1.29

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

Burst Design	Surf	Int	Prod
Pressure Test: Surface, Int, Prod Cag	X	X	X
P external Water			
P internal: Test only - next section has/will mud in rig			
Displace to Gas: Surf Cag	X		
P external Water			
P internal: Dry Gas from Next Cag Entry		X	
Free at Shoe: Gas to Surf: Int Cag			
P external Water			
P internal: Dry Gas: 14 non Free Gradient			
Stratification (Free): Pressure- Prod Cag			X
P external Water			
P internal: Max Int pressure of lowest injected fluid			X
Tubing Neck- Prod Cag (packer at KOP)			
P external Water			
P internal: Leak Surf below surf: 8.7 psi packer fluid			
Collapse Design			
Full Evacuation	X	X	X
P external Water gradient in cement, mud above TOC			
P internal: none			
Cementing: Surf, Int, Prod Cag	X	X	X
P external Wet cement			
P internal: water			
Tension Design	X	X	X

5. CEMENTING PROGRAM

Slurry	Type	Cement Top	Cement Bottom	Weight	Yield	Wt Excess	Sacks	Water
Surface	Type	Class C	0'	450	14.8	1.31	50	338
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	0	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.31	0	233	8.37
Stage 1 Lead	50:50 Poz: Class C + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	0	659	13.78
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	8,700'	15.8	1.21	0	268	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, Retarder	7,015'	8,015'	14.5	1.21	0	237	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	20,044'	15.8	1.2	0	2837	5.30

6. MUD PROGRAM

From	To	Type	Weight	P. Vls	Filtrate
0'	450'	Spurt Mud	8.3 - 9.7	32 - 34	MC - MC
450'	8100'	OBM	9.0 - 9.5	50 - 70	5.0 - 10
8015'	20,044'	OBM	10.0 - 13.0	50 - 70	5.0 - 10

7. TESTING, LOGGING, AND CORING

TYPE	Logs	Interval	Timber	Vendor
Mudlogs	2 min mudlog	Int Cag to TD	Drillout of Int Cag	TBD
LWD	MWD Gamma	Int. and Prod. Hole	Within Drilling	TBD

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE
PLEASE REFERENCE MOP

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 ⁽²⁾			
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs
		Maximum	13770 ft-lbs
OPERATIONAL LIMIT TORQUES			
Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs

BLANKING DIMENSIONS

Blanking Dimensions

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



H₂S Preparedness and Contingency Plan Summary

- Hayhurst Eddy County, New Mexico

Training

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

Awareness Level

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

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

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

Advanced Level H₂S Training

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

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

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



H₂S Preparedness and Contingency Plan Summary

H₂S Training Certification

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

Briefing Area

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

H₂S Equipment

Respiratory Protection

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

Visual Warning System

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

H₂S Detection and Monitoring System

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

H₂S Preparedness and Contingency Plan Summary



Well Control Equipment

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

Mud Program

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

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

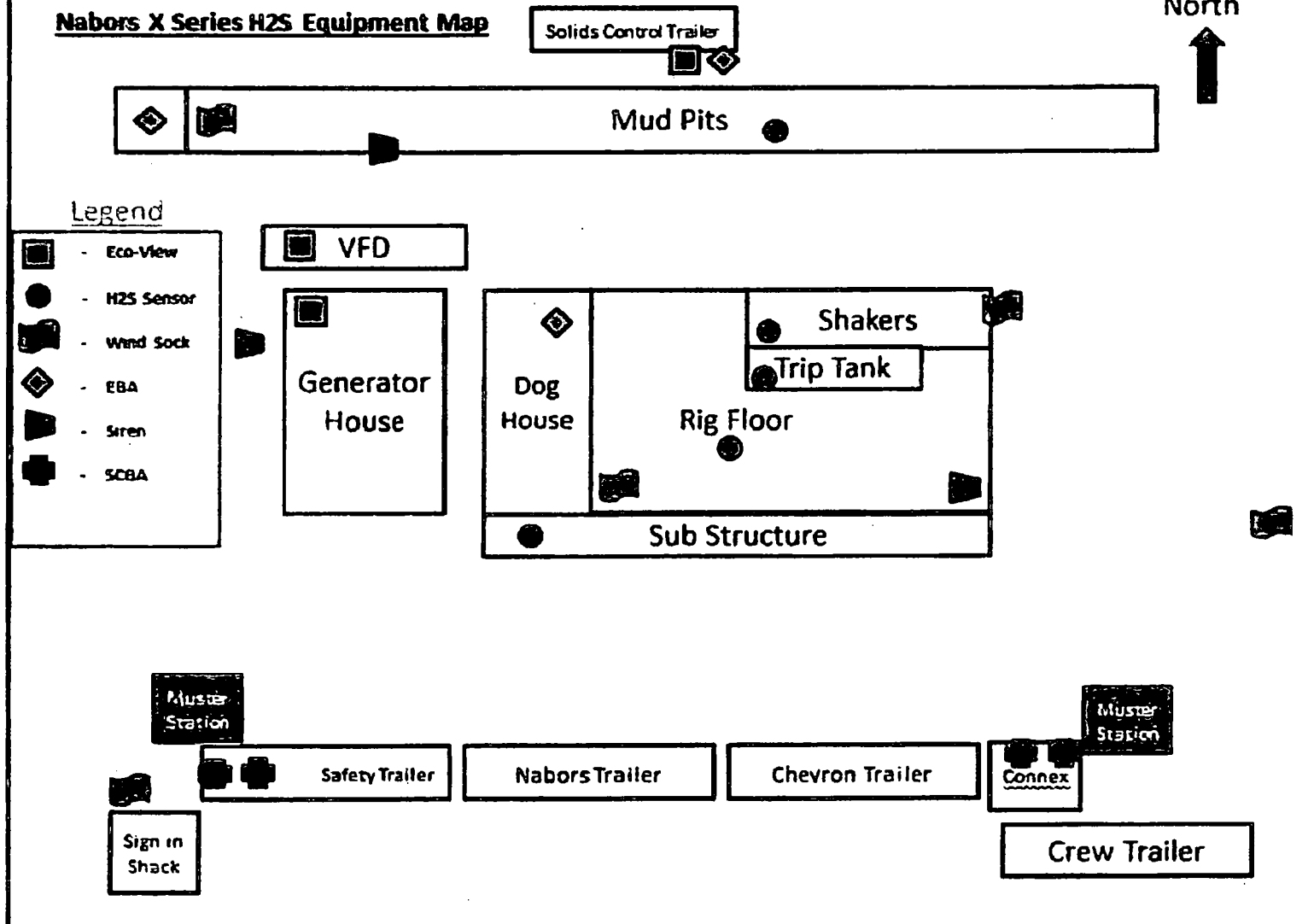
Public Safety - Emergency Assistance

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

H₂S Preparedness and Contingency Plan Summary



Nabors X Series H₂S Equipment Map



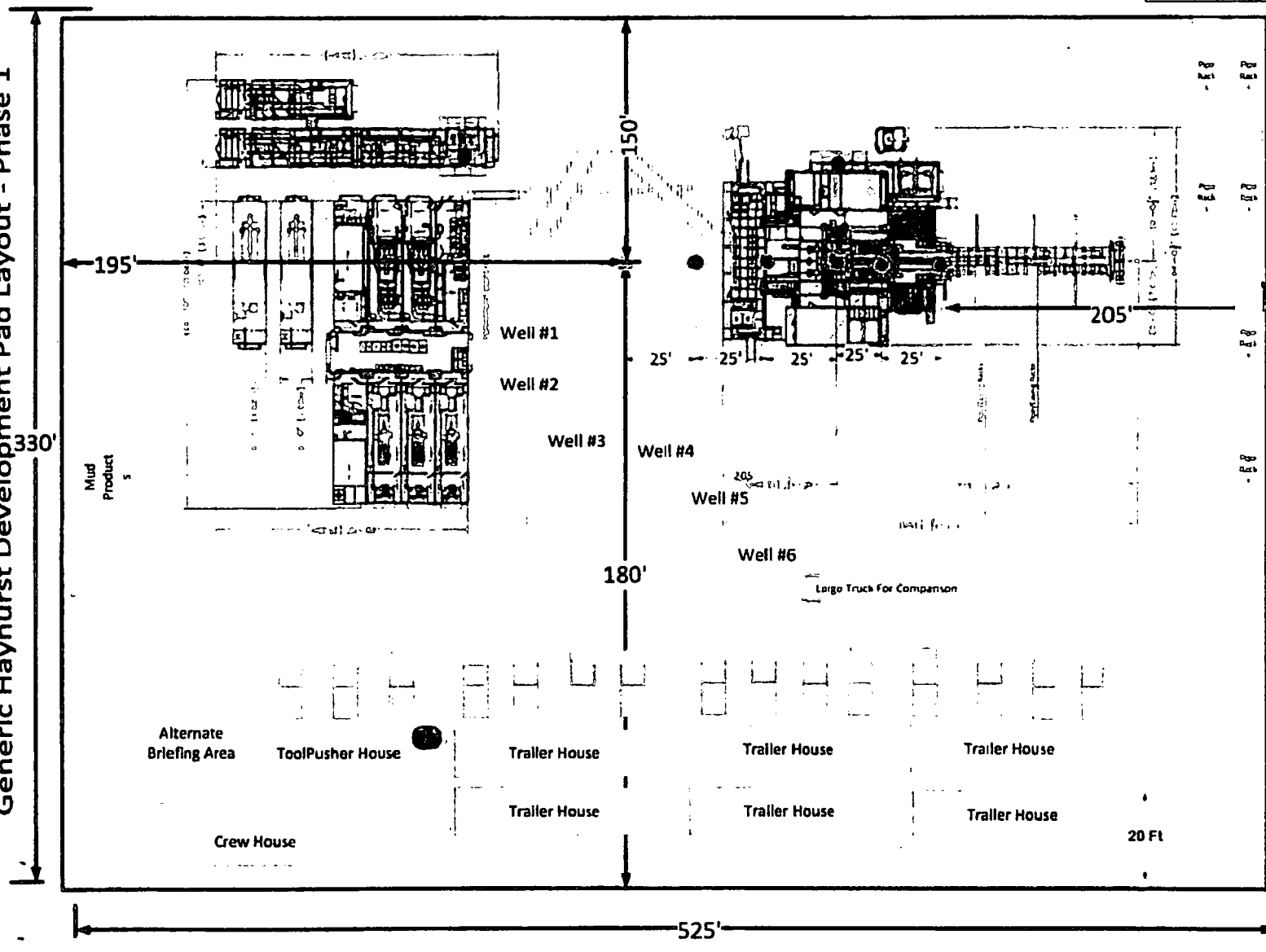
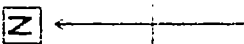
Directional Survey

Well Name
Ground Level (ft)
KB (ft)

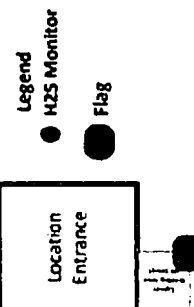
HH SO 17 20 FED 001 SH
3257
3285

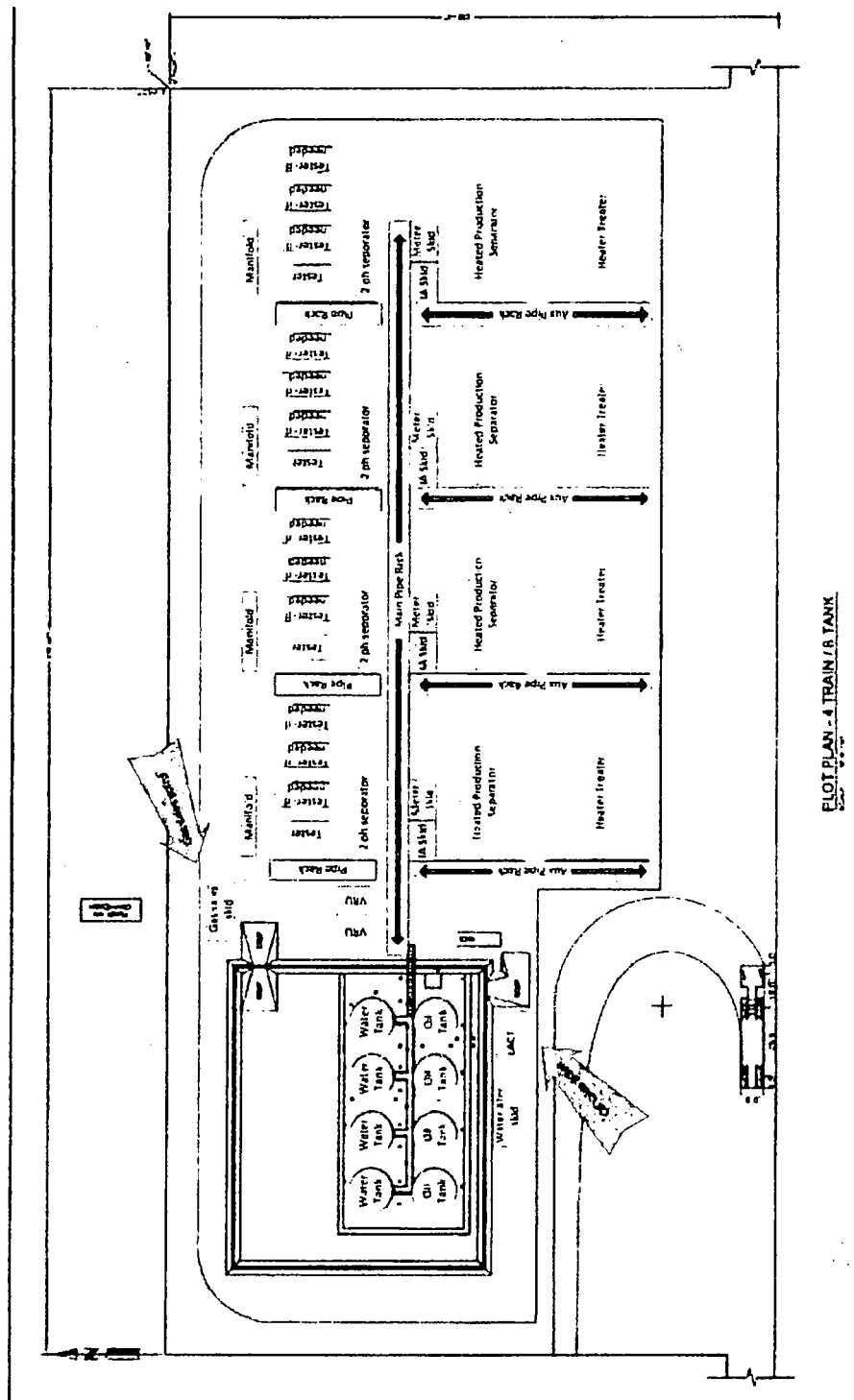
Comments	Measured Depth (ft)	Inclination (°)	Azimuth (GN)	Azimuth (TN)	Total Vertical Depth (ft)	DX	DY	DXTN	DYTN	DLS (1/100ft)	X	Y	Z
KOP	0.00	0.00	271.02	271.43	-88.02	-0.12	12.40	-0.03	12.40	0.0	1883752.95	11634132.92	3286.00
	98.43	0.00	271.02	271.43	10.40	-0.12	12.40	-0.03	12.40	0.0	1883752.95	11634132.92	3187.58
	128.49	0.90	271.02	271.43	40.46	-0.36	12.40	-0.27	12.41	3.0	1883752.71	11634132.92	3157.51
	158.55	1.80	271.02	271.43	70.51	-1.07	12.42	-0.98	12.43	3.0	1883752.00	11634132.94	3127.46
	188.61	2.71	271.02	271.43	100.55	-2.25	12.44	-2.16	12.46	3.0	1883750.82	11634132.96	3097.42
	218.67	3.61	271.02	271.43	130.57	-3.90	12.47	-3.81	12.50	3.0	1883749.17	11634132.99	3067.41
	9023.82	3.61	271.02	271.43	8918.27	-557.65	22.29	-557.66	26.35	0.0	1883195.42	11634142.81	-5720.29
	9050.42	4.44	234.22	234.64	8944.81	-559.32	21.70	-559.34	25.78	10.0	1883193.75	11634142.22	-5746.84
	9077.03	6.37	214.38	214.80	8971.30	-560.99	19.88	-561.02	23.97	10.0	1883192.08	11634140.40	-5773.32
	9103.63	8.70	204.36	204.78	8997.67	-562.66	16.83	-562.71	20.93	10.0	1883190.41	11634137.35	-5799.70
	9130.24	11.17	198.64	199.06	9023.88	-564.31	12.56	-564.39	16.67	10.0	1883188.76	11634133.08	-5825.90
	9156.84	13.71	194.99	195.41	9049.86	-565.95	7.07	-566.07	11.19	10.0	1883187.12	11634127.59	-5851.88
	9183.45	16.29	192.48	192.89	9075.55	-567.57	0.38	-567.74	4.51	10.0	1883185.50	11634120.50	-5877.58
	9210.05	18.90	190.64	191.05	9100.91	-569.17	-7.50	-569.40	-3.36	10.0	1883183.90	11634113.02	-5902.93
	9236.66	21.51	189.23	189.64	9125.87	-570.75	-16.54	-571.04	-12.40	10.0	1883182.32	11634103.98	-5927.90
	9263.26	24.14	188.11	188.53	9150.39	-572.30	-26.74	-572.67	-22.59	10.0	1883180.77	11634093.78	-5952.42
	9289.86	26.77	187.20	187.62	9174.41	-573.82	-38.07	-574.27	-33.90	10.0	1883179.25	11634082.45	-5976.44
	9316.47	29.41	186.45	186.86	9197.88	-575.30	-50.50	-575.84	-46.33	10.0	1883177.77	11634070.02	-5999.91
	9343.07	32.05	185.80	186.22	9220.75	-576.75	-64.01	-577.39	-59.83	10.0	1883176.32	11634056.51	-6022.78
	9369.68	34.69	185.25	185.67	9242.97	-578.15	-78.57	-578.90	-74.39	10.0	1883174.92	11634041.95	-6044.99
	9396.28	37.33	184.77	185.18	9264.49	-579.52	-94.15	-580.38	-89.96	10.0	1883173.55	11634026.51	-6066.51
	9422.89	39.98	184.34	184.75	9285.76	-580.83	-110.70	-581.82	-106.51	10.0	1883172.27	11634009.82	-6087.29
	9449.49	42.63	183.95	184.37	9305.24	-582.10	-128.21	-583.21	-124.01	10.0	1883170.97	11633992.41	-6107.27
	9476.10	45.28	183.60	184.02	9324.40	-583.31	-146.63	-584.56	-142.43	10.0	1883169.76	11633973.89	-6126.42
	9502.70	47.93	183.29	183.70	9342.67	-584.47	-165.92	-585.86	-161.71	10.0	1883168.60	11633954.60	-6144.70
	9529.30	50.58	182.99	183.41	9360.04	-585.58	-186.63	-587.11	-181.83	10.0	1883167.49	11633934.48	-6162.06
	9555.91	53.23	182.72	183.14	9376.45	-586.62	-206.94	-588.31	-202.73	10.0	1883166.45	11633913.58	-6178.47
	9582.51	55.88	182.47	182.89	9391.87	-587.60	-228.58	-589.44	-224.37	10.0	1883165.47	11633891.94	-6193.50
	9609.12	58.54	182.24	182.65	9406.28	-588.52	-250.92	-590.52	-246.71	10.0	1883164.55	11633869.60	-6208.31
	9635.72	61.19	182.01	182.43	9419.64	-589.37	-273.80	-591.54	-269.69	10.0	1883163.70	11633846.62	-6221.66
	9662.33	63.84	181.80	182.22	9431.91	-590.15	-297.48	-592.50	-293.28	10.0	1883162.92	11633823.04	-6233.94
	9688.93	66.50	181.60	182.01	9443.08	-590.87	-321.60	-593.39	-317.40	10.0	1883162.20	11633798.92	-6245.11
	9715.54	69.15	181.40	181.82	9453.12	-591.51	-346.22	-594.21	-342.02	10.0	1883161.56	11633774.30	-6255.15
	9742.14	71.81	181.21	181.63	9462.01	-592.08	-371.28	-594.97	-367.08	10.0	1883160.99	11633749.24	-6264.04
	9768.75	74.46	181.03	181.45	9469.73	-592.58	-396.73	-595.65	-392.53	10.0	1883160.49	11633723.79	-6271.75
	9795.35	77.12	180.85	181.27	9476.26	-593.00	-422.50	-596.26	-418.31	10.0	1883160.07	11633698.07	-6278.29
	9821.95	79.77	180.68	181.09	9481.59	-593.35	-448.55	-596.80	-444.37	10.0	1883159.72	11633671.97	-6283.61
	9848.56	82.43	180.50	180.92	9485.71	-593.62	-474.83	-597.26	-470.65	10.0	1883159.45	11633645.69	-6287.73
	9875.16	85.08	180.34	180.75	9488.60	-593.81	-501.26	-597.64	-497.09	10.0	1883159.26	11633619.26	-6290.62
	9901.77	87.74	180.17	180.58	9490.27	-593.93	-527.80	-597.95	-523.64	10.0	1883159.14	11633592.72	-6292.29
First Take Point	9928.37	90.39	180.00	180.42	9490.70	-593.97	-554.39	-598.19	-550.24	10.0	1883159.10	11633566.13	-6292.72
	9981.52	90.72	179.58	180.00	9490.19	-593.77	-607.52	-598.38	-603.38	1.0	1883159.30	11633533.00	-6292.21
	10034.67	91.04	179.16	179.58	9489.37	-593.19	-660.64	-598.18	-656.53	1.0	1883159.88	11633459.88	-6291.39
	10087.83	91.37	178.74	179.16	9488.25	-592.21	-713.76	-597.59	-709.66	1.0	1883160.86	11633406.76	-6290.28
	14933.48	91.37	178.74	179.16	9372.59	-485.59	-555.25	-576.16	-555.41	0.0	1883167.48	11632565.27	-6174.62
	14983.42	90.93	178.99	179.40	9371.59	-484.60	-560.15	-575.54	-560.34	1.0	1883168.47	11632815.37	-6173.62
	15033.36	90.50	179.23	179.65	9370.97	-483.82	-565.07	-575.12	-565.32	1.0	1883169.25	11632845.53	-6172.74
	15083.31	90.07	179.48	179.90	9370.72	-483.26	-5704.99	-574.92	-5703.22	1.0	1883169.81	11632845.53	-6172.74
Last Take Point	19937.84	90.07	179.48	179.90	9365.19	-483.15	-10557.70	-516.30	-10557.74	0.0	1883113.92	11632562.82	-6167.21
Bottom Hole Location	20117.84	90.07	179.48	179.90	9364.99	-483.52	-10737.63	-515.78	-10737.74	0.0	1883115.55	11632382.89	-6167.01

Generic Hayhurst Development Pad Layout - Phase 1



- H2S Monitor Locations**
- Bop/Cellar
 - Rig floor
 - Shaker 3rd
 - Two nipple
- Flag Locations**
- Sign-in sheet
 - Rig floor
 - Dog House
- 10 Minute Escape Pads**
- 1 in PDU
 - 1 at Trip Tank
 - 1 at Accumulator
 - 4 at Rig floor
- 45 Minute Escape Pads**
- 2 at Briefing Area
 - 2 at Alternate Briefing Area





ELOT PLAN - 4 TRAIN / R TANK



APD ID: 10400019869

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: 5H

[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_5H_Roads_08-17-2017.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_5H_New_Roads_08-17-2017.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: 5H

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_5H_New_Roads_08-17-2017.pdf

New road type:

Length:

Width (ft.):

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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_5H_New_Roads_08-17-2017.pdf

New road type:

Length:

Width (ft.):

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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_5H_Radius_Map_08-17-2017.pdf

Existing Wells description:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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_5H_aerial_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:

Well target aquifer:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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

Temporary disposal of produced water into reserve pit?

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 17 20 FED 001

Well Number: 5H

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_5H_Well_Plat_08-17-2017.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-310', S-230', 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: 5H

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_5H_CutFill_08-17-2017.pdf

HH_SO_17_20_FED_001_5H_IR_08-17-2017.pdf

HH_SO_17_20_FED_001_5H_SUP_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): 0.006198347

Pipeline short term disturbance (acres): 0.006198347

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 1.5561984

Total short term disturbance: 3.2861984

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 1.22222 acres from the proposed size of 444 acres. 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: 5H

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: 5H

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: 5H

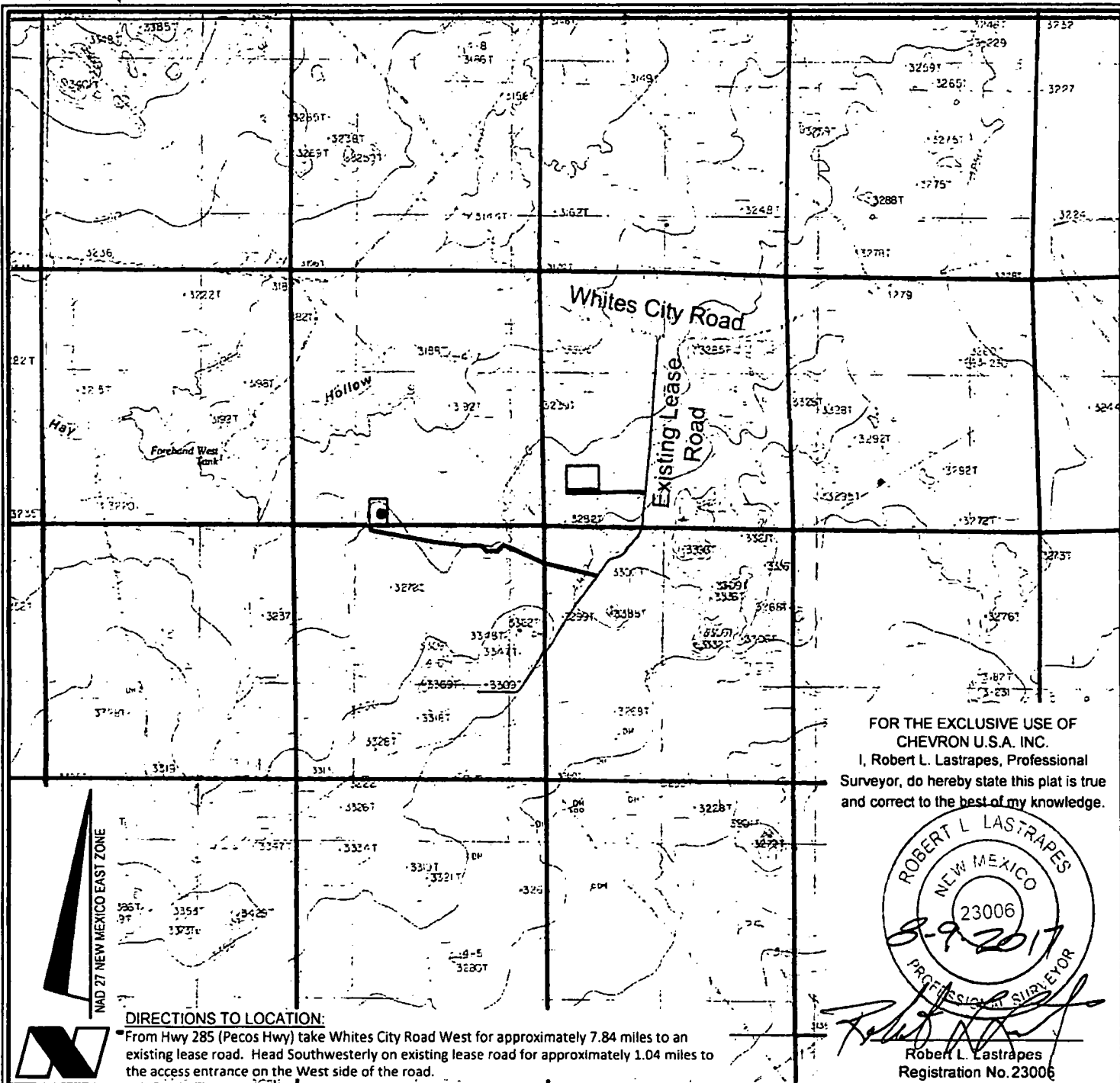
ROW Applications

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 20 001 NO. 5H WELL
LOCATED 230' FSL AND 1,872' FWL
SECTION 8, T26S-R27E
EDDY COUNTY, NEW MEXICO



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

DRAWN BY: VHV

REVISIONS

PROJ. MGR.: GDG

No. 2

DATE: 11/01/2016

REVISED BY: BOR

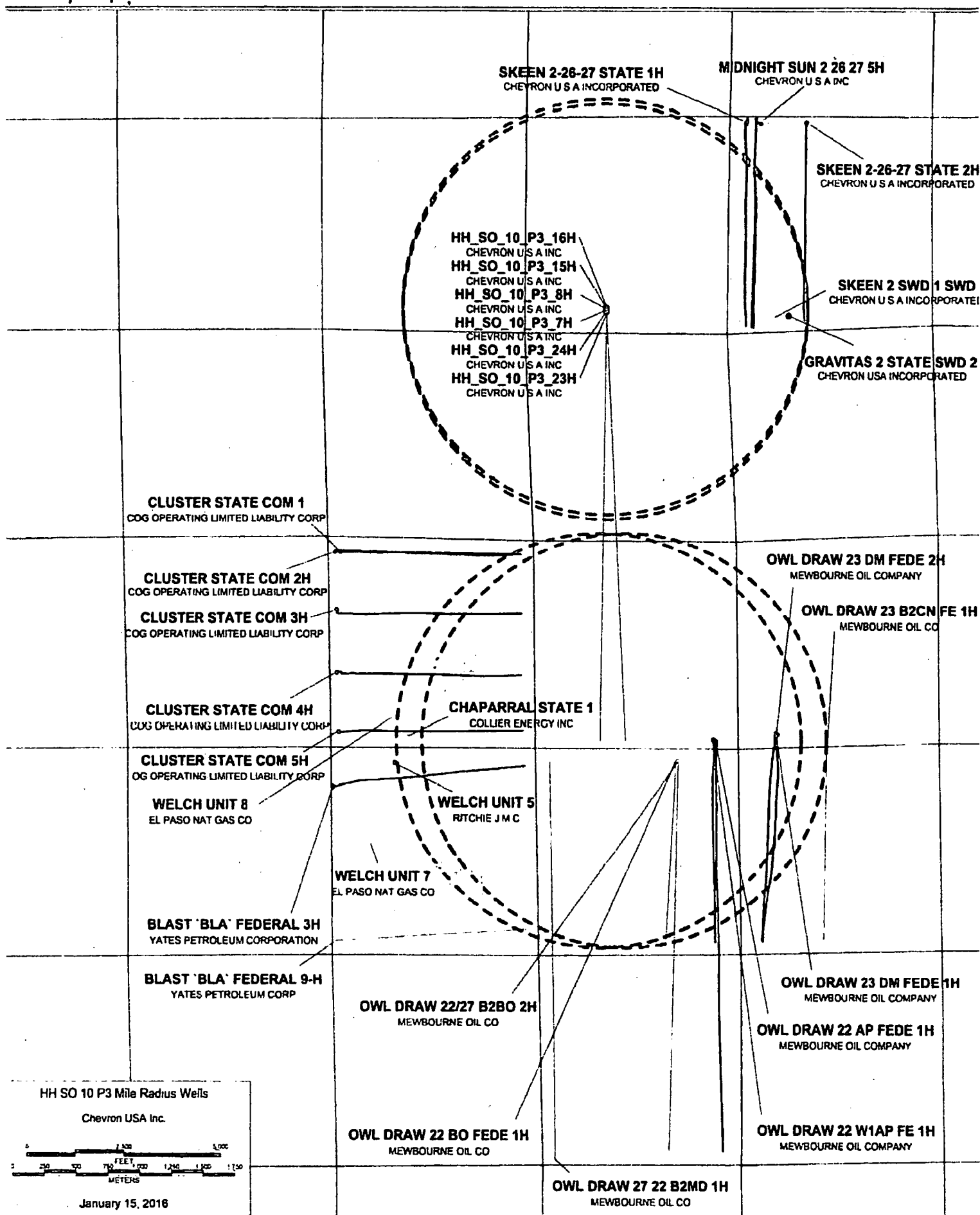
DATE: 12/23/2015

No. 3

DATE: 08/08/2017

REVISED BY: KJD

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 5H ROAD PLAT.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 ±940', ±56.97 Rods, ±1.72 Acres
 Proposed WFMP Flowline(Cluster) ±931', ±56.42 Rods
 Proposed Gas Lift Flowline ±914', ±55.39 Rods
 Proposed SWD Flowline ±911', ±55.21 Rods
 Proposed Utility Line ±891', ±54.00 Rods

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

Proposed
HH SO 17 20
FED 001 PAD

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

Bureau of Land Management
 Proposed 80' ROW ±3,464', ±209.94 Rods, ±6.36 Acres
 Proposed WFMP Flowline(Cluster) ±3,398', ±205.94 Rods
 Proposed Gas Lift Flowline ±3,434', ±208.12 Rods
 Proposed SWD Flowline ±3,447', ±208.91 Rods
 Proposed Utility Line ±3,562', ±215.88 Rods
 Proposed Access Road ±3744', ±226.89 Rods

Future
Central Tank
Battery

Proposed
Frac Pond

Fnd. 2" Iron Pipe
w/ Cap at the
SW Corner of
Section 9

S 71° 47' 06" W 2,277.87'

Centerline of Future
HH SO 8 P5 Access Road

State of New Mexico
 Proposed Access Road, ±1155', ±69.97 Rods

Not to be used for construction, grading,
recordation, conveyance, sales, or as the
basis for the issuance of a permit.

PRELIMINARY

Scale: 1" = 500'

500' 0 250' 500'



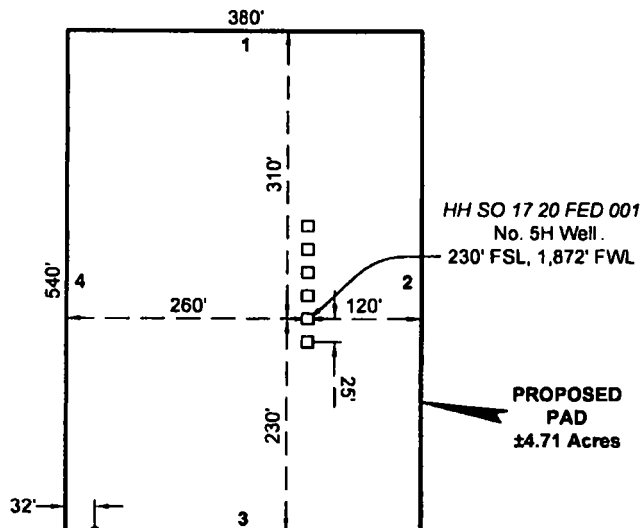
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 135 Regency Sq., Lafayette, LA 70508
 Ph. 337-237-2200 Fax. 337-232-3299
 www.fenstermaker.com

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: 10/31/2018	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			

R 27 E

T
26
S



NW PAD CORNER		NE PAD CORNER		HH SO 17 20 FED 001 NO. 5H WELL	
X=	536,599 NAD 27	X=	536,979 NAD 27	X=	536,858 NAD 27
Y=	382,347	Y=	382,347	Y=	382,037
ELEVATION +3251' NAVD 88		ELEVATION +3249' NAVD 88		LAT. 32.050278	
SW PAD CORNER		SE PAD CORNER		LONG. 104.214369	
X=	536,598 NAD 27	X=	536,978 NAD 27	X=	578,042 NAD 83
Y=	381,808	Y=	381,807	Y=	382,094
ELEVATION +3255' NAVD 88		ELEVATION +3261' NAVD 88		LAT. 32.050400	
				LONG. 104.214863	
				ELEVATION +3258' NAVD 88	

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

Sec. 8

Bureau of Land Management
±4.71 Acres- 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 ±5,148.76'
±312.04 Rods
±2.84 Acres

Elev.
3258.0

Elev.
3239.8

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.



Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

PAGE 1 OF 4

CHEVRON U.S.A. INC.
PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 5H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJG		REVISIONS	
PROJ. MGR.: GDG	No. 6	DATE: 12/07/2016	REVISED BY: GDG
DATE: 12/22/2015	No. 7	DATE: 08/08/2017	REVISED BY: KJD
FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 5H WELL PLAT.dwg			



NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 200'

200' 0 100' 200'



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135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

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

Sec. 8

Bureau of Land Management
±4.71 Acres- Proposed Pad

SEE PAGE
1 OF 4

CENTERLINE
PROPOSED
ACCESS ROAD (C)
24' X ±55.83'
±3.38 Rods
±0.03 Acres

SEE PAGE
3 OF 4

Sec. 9

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

CENTERLINE
PROPOSED
ACCESS ROAD (B)
24' X ±1731.26'
±104.92 Rods
±0.96 Acres

Sec. 16

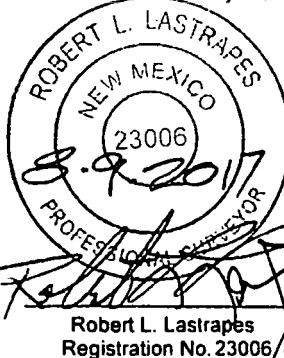
NW / NW
State of New Mexico
±1,154.50', ±69.97 Rods, ±0.64 Acres-
Proposed Access Road (A)

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.



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Scale: 1" = 1000'

LEGEND

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

SURFACE USE PLAT

PAGE 2 OF 4

CHEVRON U.S.A. INC.
PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 5H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJG

REVISIONS

PROJ. MGR.: GDG

No. 6

DATE: 12/07/2016

REVISED BY: GDG

DATE: 12/22/2015

No. 7

DATE: 08/08/2017

REVISED BY: KJD

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 5H WELL PLAT.dwg



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= 540,722 NAD 27 Y= 383,044	X= 541,422 NAD 27 Y= 383,056
ELEVATION +3257' NAVD 88	ELEVATION +3265' NAVD 88	ELEVATION +3265' 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= 540,730 NAD 27 Y= 382,544	X= 541,430 NAD 27 Y= 382,556
ELEVATION +3277' NAVD 88	ELEVATION +3289' NAVD 88	ELEVATION +3276' NAVD 88	ELEVATION +3276' NAVD 88

R 27 E

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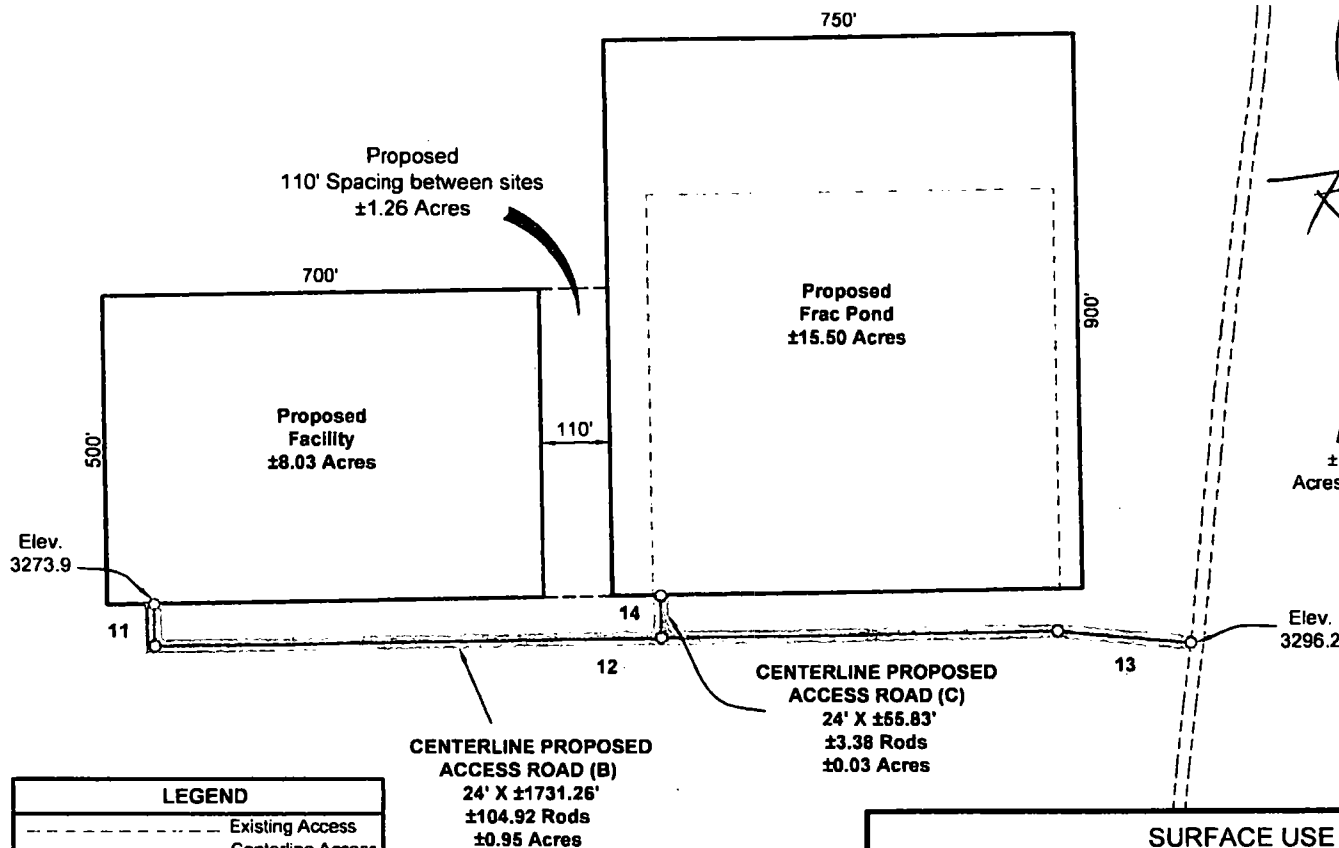


Robert L. Lastrapes
Registration No. 23006

Sec. 9

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

T
26
S



LEGEND	
---	Existing Access
---	Centerline Access
---	Proposed Pad



Scale: 1" = 300'

300' 0 150' 300'



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SURFACE USE PLAT

PAGE 3 OF 4

CHEVRON U.S.A. INC.
PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 5H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJC	REVISIONS		
PROJ. MGR.: GDG	No. 6	DATE: 12/07/2016	REVISED BY: KJD
DATE: 12/22/2015	No. 7	DATE: 08/08/2017	REVISED BY: KJD
FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 5H WELL PLAT.dwg			

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

NOTE:

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

NOTE:

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

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

ROBERT L. LASTRAPES
NEW MEXICO
23006
8-9-2017
PROFESSIONAL SURVEYOR
Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

PAGE 4 OF 4

CHEVRON U.S.A. INC.

PROPOSED PADS, FRAC POND & ACCESS ROADS
HH SO 17 20 FED 001 NO. 5H WELL
SECTIONS 8, 9, 16 & 17, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY: LJG

REVISIONS

PROJ. MGR.: GDG

No. 6

DATE: 12/07/2016

REVISED BY: GDG

DATE: 12/22/2015

No. 7

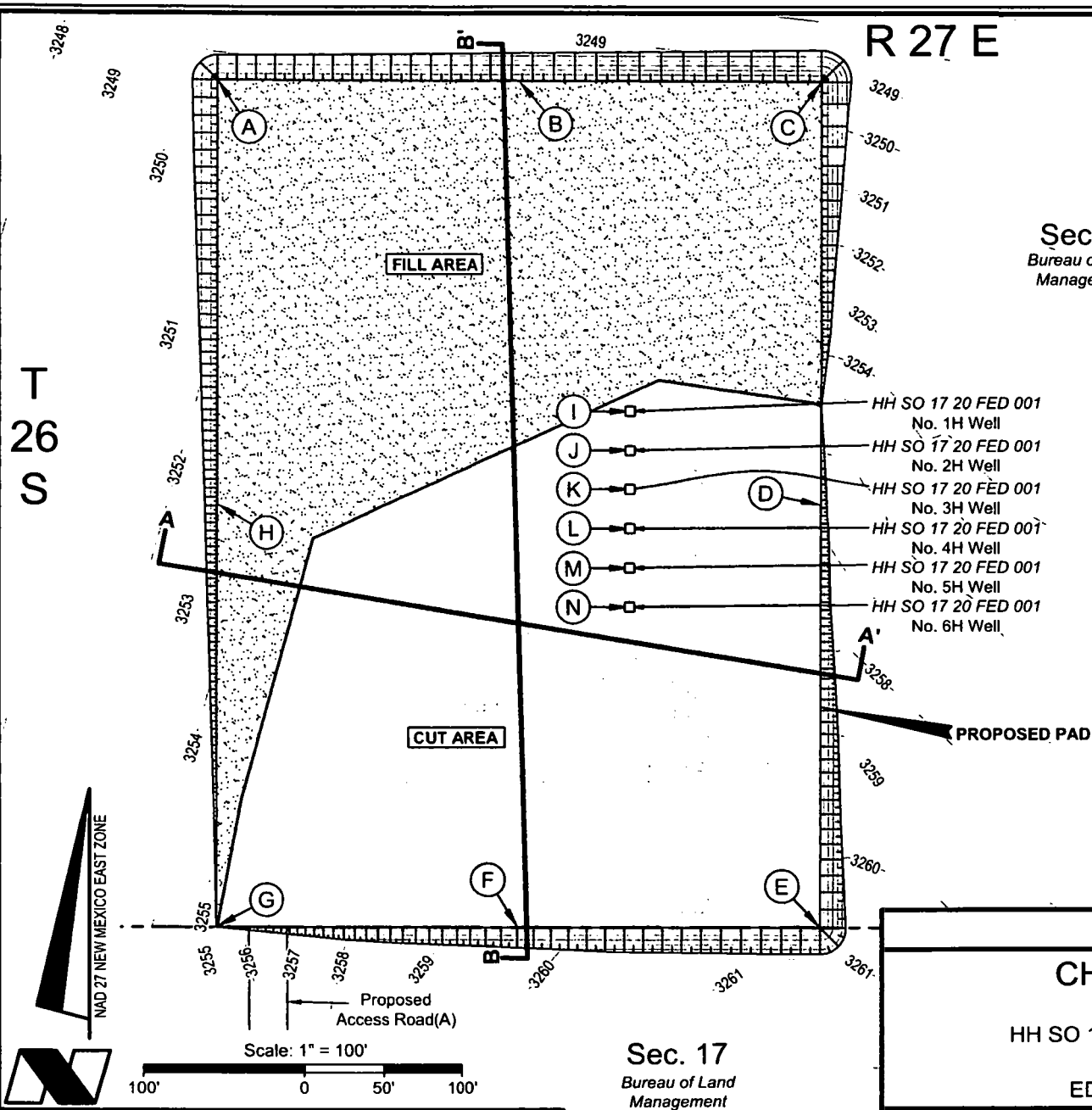
DATE: 08/08/2017

REVISED BY: KJD

FILENAME: T:\2015\2153440\DWG\HH SO 17 20 FED 001 5H WELL PLAT.dwg



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



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.

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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

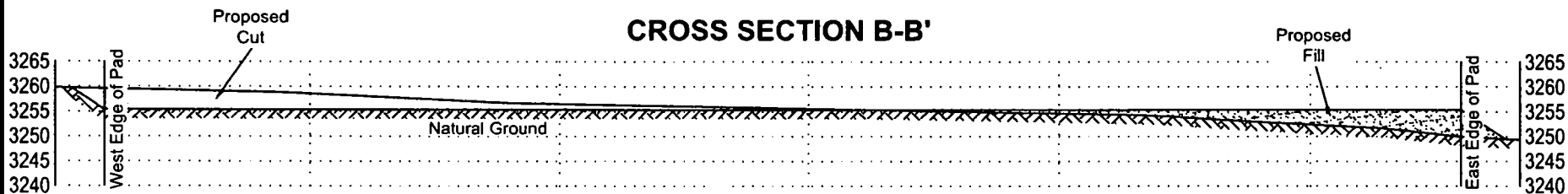
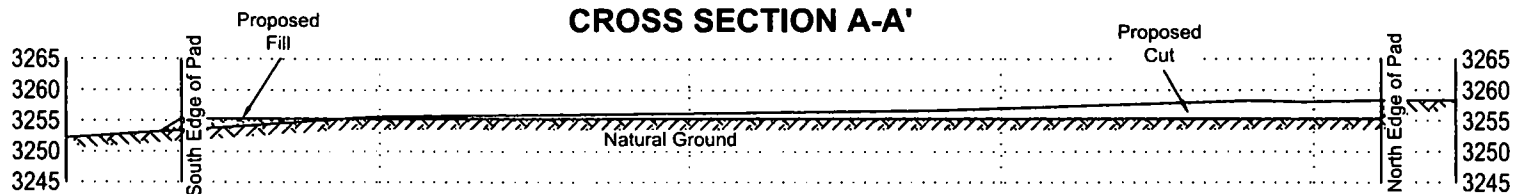
Sec. 17

Bureau of Land
Management

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

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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

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No.

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



VICINITY MAP

10,000' 0 5,000' 10,000'
Scale: 1"=10,000'

AREA OF
WORK



Roadrunner
Road

Whites City Road

HWY 285 (Pecos Hwy)

Existing
Lease Road

Willholt Ranch Road

Dusty Trail

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

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



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Robert L. Lastrapes
Registration No. 23006

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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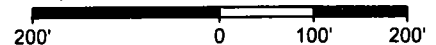
LEGEND

	Proposed Pad
	Section Line
	Centerline Access

PAGE 1 OF 2

WELL PLAT

Scale: 1" = 200'



CHEVRON U.S.A. INC.

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



C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
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www.fenstermaker.com

DRAWN BY: AMT		REVISIONS	
PROJ. MGR.: GDG	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			

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:

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NOTE:

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Robert L. Lastrapes
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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DRAWN BY: AMT		REVISIONS	
PROJ. MGR.: GDG	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			

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 SUPO 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 SUPO 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-310', S-230', E-120', W-260'. Total disturbance area needed for construction of well pad will be approximately 4.71 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 5H
NMNM 118108
SECTION 8, T26S-R27E
SHL 230' FSL & 1872' FWL

SECTION 20, T26S, R27E
BHL 280' FSL & 1170' 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 5H
NMNM 118108
SECTION 8, T26S-R27E
SHL 230' FSL & 1872' FWL

SECTION 20, T26S, R27E
BHL 280' FSL & 1170' 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



Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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: