

NM OCB Artesia
ARTESIA DISTRICT

17-347

Form 3160-3
(March 2012)

AUG 03 2017

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM121473
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator CHEVRON USA INCORPORATED		7. If Unit or CA Agreement, Name and No.
3a. Address 6301 Deauville Blvd. Midland TX 79706		8. Lease Name and Well No. HH SO 10 15 FED 002 5H 318939
3b. Phone No. (include area code) (432)687-7866		9. API Well No. 30-015-44371
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface SWSW / 289 FSL / 833 FWL / LAT 32.064801 / LONG -104.184266 unit m At proposed prod. zone SWSW / 280 FSL / 750 FWL / LAT 32.035669 / LONG -104.184081		10. Field and Pool, or Exploratory PURPLE SAGE / WOLFCAMP, (GAS)
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area SEC 3 / T26S / R27E / NMP
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 289 feet	16. No. of acres in lease 1920	12. County or Parish EDDY
17. Spacing Unit dedicated to this well 640	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, 4300 feet applied for, on this lease, ft.	19. Proposed Depth 9000 feet / 19000 feet	20. BLM/BIA Bond No. on file FED: CA0329
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3271 feet	22. Approximate date work will start* 07/01/2017	23. Estimated duration 120 days

24. Attachments

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

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

25. Signature (Electronic Submission)	Name (Printed/Typed) Dorian K Fuentes / Ph: (432)687-7631	Date 03/20/2017
Title Permitting Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Bobby Ballard / Ph: (575)234-2235	Date 07/26/2017
Title Natural Resource Specialist		

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

RWP 8-8-17

APD ID: 10400010580

Submission Date: 03/20/2017

Highlight

Operator Name: CHEVRON USA INCORPORATED

Federal/Indian APD: FED

All Changes

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400010580

Tie to previous NOS? 10400009618

Submission Date: 03/20/2017

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: NMNM121473

Lease Acres: 1920

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: CHEVRON USA INCORPORATED

Operator letter of designation:

Keep application confidential? NO

Operator Info

Operator Organization Name: CHEVRON USA INCORPORATED

Operator Address: 6301 Deauville Blvd.

Zip: 79706

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)687-7866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Master Development Plan name: HAYHURST DEVELOPMENT AREA

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: PURPLE SAGE

Pool Name: WOLFCAMP,
(GAS)

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

Describe other minerals:

Is the proposed well in a Helium production area? N

Use Existing Well Pad? NO

New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: HH SO
Number: 1H 2H 3H 4H 5H 6H
10 15 FED 002

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town:

Distance to nearest well: 4300 FT

Distance to lease line: 289 FT

Reservoir well spacing assigned acres Measurement: 640 Acres

Well plat: HH_SO_10_15_FED_002_5H_C_102_05-31-2017.pdf

Well work start Date: 07/01/2017

Duration: 120 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: 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	289	FSL	833	FWL	26S	27E	3	Aliquot SWS W	32.06480 1	- 104.1842 66	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	327 1	0	0
KOP Leg #1	289	FSL	833	FWL	26S	27E	3	Aliquot SWS W	32.06480 1	- 104.1842 66	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	327 1	0	0
PPP Leg #1	330	FNL	750	FWL	26S	27E	10	Aliquot NWN W	32.06310 2	- 104.1845 23	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 9	180 00	900 0

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

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	750	FWL	26S	27E	15	Aliquot SWS W	32.03580 6	- 104.1840 82	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 9	180 00	900 0
BHL Leg #1	280	FSL	750	FWL	26S	27E	15	Aliquot SWS W	32.03566 9	- 104.1840 81	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 121473	- 572 9	190 00	900 0

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
17358	CASTILE	3626	505	505	LIMESTONE, ANHYDRITE, GYPSUM	NONE	No
17345	BELL CANYON	1316	2310	2310	SANDSTONE	NONE	No
17360	LAMAR LS	1231	2395	2395	LIMESTONE	NONE	No
17339	CHERRY CANYON	418	3208	3208	SANDSTONE	NONE	No
18596	BRUSHY CANYON	-824	4450	4450	SANDSTONE	NONE	No
17316	BONE SPRING	-2673	6299	6299	LIMESTONE	NONE	No
17359	BONE SPRING 1ST	-3262	6888	6888	SANDSTONE	NONE	No
17359	BONE SPRING 1ST	-3288	6914	6914	SHALE, SANDSTONE	NONE	No
17371	2ND BONE SPRING CARB	-3995	7621	7621	SANDSTONE	NONE	No
18598	3RD BONE SPRING CARB	-4991	8617	8617	LIMESTONE	NONE	No
17333	WOLFCAMP	-6587	10213	20525	MUDSTONE	NATURAL GAS, OIL	Yes

Section 2 - Blowout Prevention

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Pressure Rating (PSI): 5M

Rating Depth: 10213

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

Requesting Variance? YES

Variance request: Chevron requests a variance to use a CoFlex hose with a metal protective covering that will be utilized between the BOP and Choke manifold and Chevron would also like to request another variance to use a FMC technologies conventional well head which will be run through the rig floor on surface casing. BOPE will be nipped up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days.

Testing Procedure: Test BOP from 250 PSI to 5000 psi in Ram and 250 PSI to 3500 PSI in Annular

Choke Diagram Attachment:

HH_SO_10_15_FED_002_5H_BOP_Choke_03-20-2017.pdf

BOP Diagram Attachment:

HH_SO_10_15_FED_002_5H_BOP_Diagram_03-20-2017.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	450	0	450	-5729	-6179	450	K-55	54.5	STC	5.11	1.82	DRY	2.31	DRY	3.1
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	9015	0	9015	-5729	-14744	9015	L-80	43.5	OTHER	1.32	1.45	DRY	1.84	DRY	1.1
3	PRODUCTION	8.5	5.5	NEW	API	N	0	20525	0	20525	-5729	-25995	20525	P-110	20	OTHER	1.5	1.26	DRY	1.84	DRY	2.1

Casing Attachments

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Casing Attachments

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

Inspection Document:

Spec Document:

Taperd String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_10_15_FED_002_5H_9_PT_03-20-2017.pdf

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

Inspection Document:

Spec Document:

Taperd String Spec:

HH_SO_10_15_FED_002_5H_9_PT_03-20-2017.pdf

Casing Design Assumptions and Worksheet(s):

HH_SO_10_15_FED_002_5H_9.625_TXP_03-20-2017.pdf

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

Inspection Document:

Spec Document:

Taperd String Spec:

Casing Design Assumptions and Worksheet(s):

HH_SO_10_15_FED_002_5H_P110_TXP_03-20-2017.pdf

Section 4 - Cement

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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 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, VISCOSIFIER
INTERMEDIATE	Lead	2100	2100	8015	1524	2.43	11.9	13.76	100	H	50:50 POZ: CLASS H + EXTENDER, ANTIFOAM, RETARDER, SALT, VISCOSIFIER
INTERMEDIATE	Tail		8015	9015	389	1.21	15.6	5.54	50	H	CLASS H + RETARDER, EXTENDER, DISPERSANT
PRODUCTION	Lead		7015	8015	430	1.21	14.5	5.54		H	50:50 POZ: CLASS H + EXTENDER, ANTIFOAM, DISPERSANT, RETARDER
PRODUCTION	Tail		8015	20525	3281	1.2	15.6	5.3	50	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.

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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

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	9015	OIL-BASED MUD	9	9.5							
9015	20525	OIL-BASED MUD	10	13.5							The mud weights will range depending on the targeted formation. The Wolfcamp A pore pressure will not exceed 9.5 ppg, but due to wellbore stability, the mud program will exceed the pore pressure. To control pressure we are using 13.5 and may end up using heavier mud weight to 14.0.

Section 6 - Test, Logging, Coring

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

Drill stem tests are not planned

The logging program will be as follows:

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

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

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

GR,MWD,MUDLOG

Coring operation description for the well:

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

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7170

Anticipated Surface Pressure: 5190

Anticipated Bottom Hole Temperature(F): 150

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

HH_SO_10_15_FED_002_5H_H2S_03-20-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

HH_SO_10_15_FED_002_5H_AC_Report_03-20-2017.pdf

HH_SO_10_15_FED_002_5H_Stand_Report_03-20-2017.pdf

HH_SO_10_15_FED_002_5H_Well_Pad_Layout_03-20-2017.pdf

HH_SO_10_15_FED_002_5H_Well_Plat_03-20-2017.pdf

Other proposed operations facets description:

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

Other proposed operations facets attachment:

Other Variance attachment:

HH_SO_10_15_FED_002_5H_Variance_Report_03-20-2017.pdf

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

HH_SO_10_15_FED_002_5H_Roads_05-31-2017.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. Complete Surface Use Plan for this APD is attached.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

HH_SO_10_15_FED_002_5H_New_Roads_05-31-2017.pdf

New road type: LOCAL

Length: 1136.45 Feet

Width (ft.): 24

Max slope (%): 2

Max grade (%): 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 24

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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_10_15_FED_002_5H_New_Roads_05-31-2017.pdf

New road type:

Length:

Width (ft.):

Max slope (%):

Max grade (%):

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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_10_15_FED_002_5H_New_Roads_05-31-2017.pdf

New road type:

Length:

Width (ft.):

Max slope (%):

Max grade (%):

Army Corp of Engineers (ACOE) permit required?

ACOE Permit Number(s):

New road travel width:

New road access erosion control:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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_10_15_FED_002_5H_Radius_Map_03-20-2017.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Estimated Production Facilities description:

Production Facilities description: The existing Chevron-operated facilities located in the NE corner of Section 10, T26S-R27E where oil and gas sales will take place. o the existing facility is 500 X 700 o Attached Fac Plat was approved for this facility in the MDP SUP Pg. 2

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Production Facilities map:

HH_SO_10_15_FED_002_5H_Fac_Plat_06-01-2017.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

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

Water source type: GW WELL

Describe type:

Source latitude:

Source longitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: FEDERAL

Water source transport method: PIPELINE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 716000

Source volume (acre-feet): 92.28746

Source volume (gal): 30072000

Water source and transportation map:

HH_SO_10_15_FED_002_5H_DETAIL_05-31-2017.pdf

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

New water well? NO

New Water Well Info

Well latitude:

Well Longitude:

Well datum:

Well target aquifer:

Est. depth to top of aquifer(ft):

Est thickness of aquifer:

Aquifer comments:

Aquifer documentation:

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.):

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Well Production type:

Completion Method:

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: CALICHE WILL BE SOURCED FROM A CHEVRON OPERATED NMSLO PIT IN S2 NW4 SECTION 16 T26S R27E OR AN ALTERNATE PRIVATE PIT IN SECTION 13 T24S R27E, 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?

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

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

HH_SO_10_15_FED_002_5H_Rig_Pad_Layout_05-31-2017.pdf

HH_SO_10_15_FED_002_5H_Well_Plat_05-31-2017.pdf

Comments: As referenced on the attached APD SUPO o Exterior well pad dimensions are 545' X 385' o Interior well pad dimensions from point of entry (well head) of the westernmost well are N-235', S-310', E-125', W-260'. The length to the east includes 25' spacing for next well on multi-well pad (four wells). Total disturbance area needed for construction of well pad will be 4.81 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.

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

HH_SO_10_15_FED_002_5H_APD_SUP_05-31-2017.pdf

HH_SO_10_15_FED_002_5H_IR_Plat_06-01-2017.pdf

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

Drainage/Erosion control reclamation: The well pad, road, and surrounding area will be cleared of material, trash, and equipment. All surfacing material will be removed and returned to the original mineral pit or recycled to repair for build roads and well pads. Please reference the master development plan pg. 8-9.

Wellpad long term disturbance (acres): 1.5

Wellpad short term disturbance (acres): 4.8

Access road long term disturbance (acres): 0.52

Access road short term disturbance (acres): 0.52

Pipeline long term disturbance (acres): 4.275482

Pipeline short term disturbance (acres): 4.275482

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 6.295482

Total short term disturbance: 9.595482

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

Topsoil redistribution: Topsoil that was spread over the interim reclamation areas will be stockpiled prior to re-contouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation. Please reference the master development plan page 9.

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. Please reference the master development plan page 9.

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:

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Seed Type Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Kevin

Last Name: Dickerson

Phone:

Email: lfuh@chevron.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

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

Weed treatment plan attachment:

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

Monitoring plan attachment:

Success standards: As per BLM requirements.

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? YES

Use APD as ROW? YES

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

ROW Applications

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

Use a previously conducted onsite? YES

Previous Onsite information: On-site performed by BLM, Mr. Paul Murphy.

Other SUPO Attachment

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

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:

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Operator Name: CHEVRON USA INCORPORATED

Well Name: HH SO 10 15 FED 002

Well Number: 5H

Other regulatory requirements attachment:

Bond Information

Federal/Indian APD: FED

BLM Bond number: CA0329

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Operator Certification

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

NAME: Dorian K Fuentes

Signed on: 03/20/2017

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:

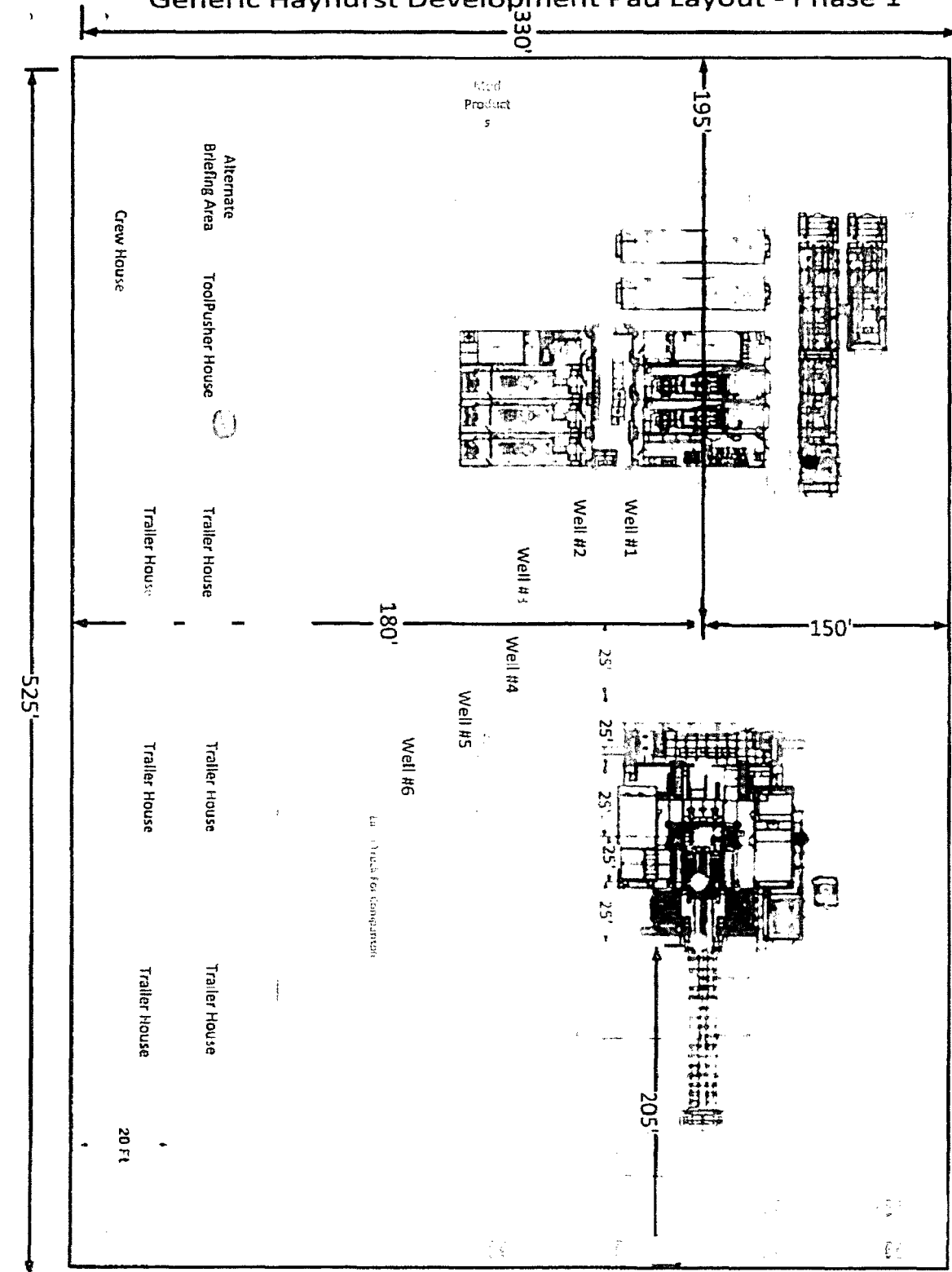
Well Number: 5H

Zip:

Email address:

pay.gov Tracking ID: 261C3D4R

Generic Hayhurst Development Pad Layout - Phase 1



Location
Entrance

Legend

● H2S Monitor

● Flag

H2S Monitor Locations

- Rig/Cellar
- Rig Floor
- Operator Stand
- Tool Nipple

Rig Locations

- Drilling Shed
- Rig Floor
- Dog House

10 Minute Escape Packs

- 1 at Rig
- 1 at Tool Nipple
- 1 at Accumulator
- 4 at Rig Floor

45 Minute Escape Packs

- 2 at Briefing Area
- 2 at Alternate Briefing Area

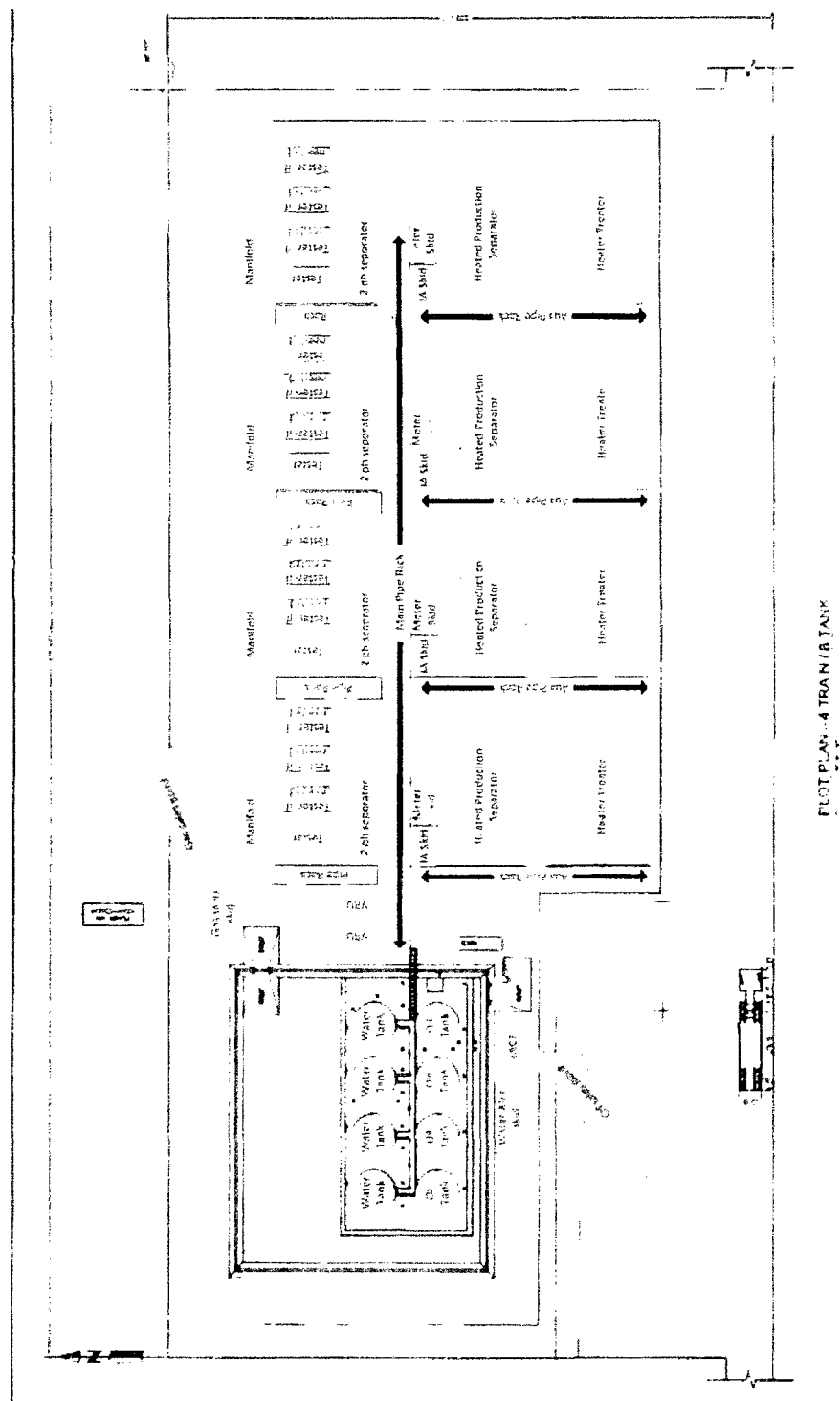
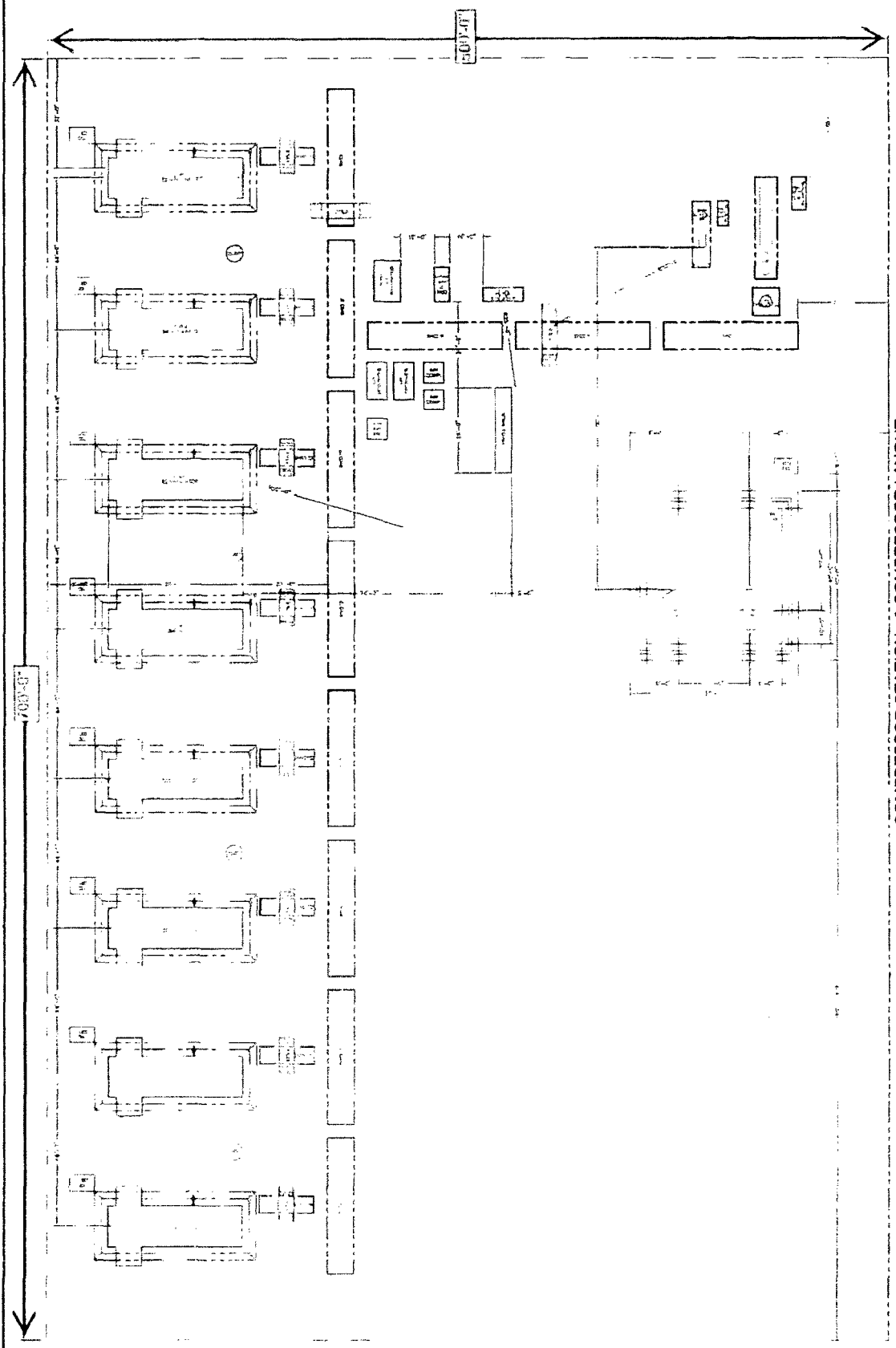


FIGURE 4-1: PLAN - 4 TRAM / 8 INCH

EXHIBIT 4



COMPRESSION STATION - 8 COMPRESSOR LAYOUT

Chevron U.S.A. Inc.		STANDARD COMPRESSOR GAS-LIFT STATION	
FOR REVIEW		PLOT PLAN - 8 COMPRESSOR LAYOUT	
APPROVED FOR REVIEW		COMPRESSOR PLOT PLAN TOTAL	
DATE: 07/14/2015		DRAWN BY: [Signature]	
CHECKED BY: [Signature]		SCALE: 1" = 100'	

R 27 E

PROPOSED PAD
±4.81 Acres

NW PAD CORNER		NE PAD CORNER		HH SO 10 15 FED NO. 25 WELL	
X=	546,074	NAD 27	X=	546,459	NAD 27
Y=	387,526		Y=	387,520	
ELEVATION +3261' NAVD 88		ELEVATION +3272' NAVD 88		ELEVATION +3271' NAVD 88	
SW PAD CORNER		SE PAD CORNER		LONG.	
X=	546,066	NAD 27	X=	546,451	NAD 27
Y=	386,981		Y=	386,975	
ELEVATION +3279' NAVD 88		ELEVATION +3281' NAVD 88		LAT.	
				LONG.	
				ELEVATION +3271' NAVD 88	

Sec. 3

Bureau of Land Management
(Pad - ±4.63 Acres)

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

S 87° 16' 22" E 603.33'

Sec. 10

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

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

Existing
±50' Frontier Energy
Pipeline ROW

Whites City Road

Future 30'
Chevron
Flowline ROW

Roadrunner Road

T
26
S

LEGEND

- Future PL ROW
- Existing PL ROW
- Existing Road
- Section Line
- End. Monument

Scale: 1" = 200'



NAD 27 NEW MEXICO EAST ZONE



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

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



Robert L. Lastapas
Registration No. 23006

DRAWN BY BOR

REVISIONS

PROJ MGR. GDS

No.

DATE:

REVISOR BY:

DATE: 01/11/2017

No.

DATE:

REVISOR BY:

FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 25. SUP.dwg

SURFACE USE PLAT

Page 1 of 2

CHEVRON U.S.A. INC.
PROPOSED PAD & ACCESS ROAD
HH SO 10 15 FED 002, 5H Well
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

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

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

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

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

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

1-17-2017
23006
NEW MEXICO
PROFESSIONAL SURVEYOR
Robert Lastapes
Registration No. 23006

SURFACE USE PLAT

Page 2 of 2

CHEVRON U.S.A. INC.
PROPOSED PAD & ACCESS ROAD
HH SO 10 15 FED 002 54 Well
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

DRAWN BY BOR		REVISIONS	
PROJ MGR. GDG	No.	DATE	REVISIED BY
DATE: 01/11/2017	No.	DATE	REVISED BY
FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 25_SUP.dwg			



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

PROPOSED PAD
±4.81 Acres

NW PAD CORNER		NE PAD CORNER		HH SD 10 15 FED NO 25 WELL	
X=	546,074 NAD 27	X=	546,459 NAD 27	X=	546,330 NAD 27
Y=	387,526	Y=	387,520	Y=	387,287
ELEVATION +3261' NAVD 88		ELEVATION +3272' NAVD 88		LAT	
SW PAD CORNER		SE PAD CORNER		LONG.	
X=	546,056 NAD 27	X=	546,451 NAD 27	X=	587,514 NAD83
Y=	386,981	Y=	386,975	Y=	387,344
ELEVATION +3273' NAVD 88		ELEVATION +3281' NAVD 88		LAT	
				LONG	
				104 184,786	
				32,064,801	

HH SO 10 15 FED	
NO. 25 WELL	
X=	546,330 MAD 27
Y=	387,287
LAT	32.064679
LONG.	104.183773
X=	587,514 NAD83
Y=	387,344
LAT	32.064601
LONG.	104.184266
ELEVATION +327.1 NAVD 88	

Bureau of Land Management
(Pad-#4.63 Acres)

Diagram showing the proposed future 30' Chevron Flowline ROW and Roadrunner Road.

ST 25

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

S 87° 16' 22" E 603.33'

Bureau of Land Management

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

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

Existing
±50' Frontier Energy
Pipeline ROW

Whites City Road

LEGEND

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

Scale: 1" = 200'

0 100' 200'



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www.fenstermaker.com

FOR THE EXCLUSIVE USE OF

CHEVRON U.S.A. INC.

I, Robert L. Lastrapes, Professional

Surveyor, do hereby state this plat is true and correct to the best of my knowledge.



Robert L. Lastrapes
Registration No. 23006

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PROJ MGR. GDG	No.	DATE:	REVISED BY:
DATE: 01/11/2017	No.	DATE:	REVISED BY:

SURFACE USE PLAT

Page 1 of 2

CHEVRON U.S.A. INC.

PROPOSED PAD & ACCESS ROAD

SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

REVISIONS

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SED BY:

DATE: 01/11/2017

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

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

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

NOTE:

Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipe line 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 cable, PVC pipelines, etc. may exist undetected on site.

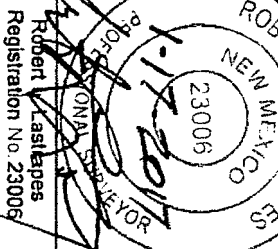
NOTE:

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.mnocal.org.

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CHEVRON U.S.A. INC.

I, Robert L. Lastlapes, Professional

Surveyor, do hereby state this plat is true and correct to the best of my knowledge.



Robert Lastlapes
Registration No. 23006

SURFACE USE PLAT

Page 2 of 2

CHEVRON U.S.A. INC.
PROPOSED PAD & ACCESS ROAD
HH SO 10 15 FED 002, 5H Well
SECTIONS 3 & 10, T26S-R27E
EDDY COUNTY, NEW MEXICO

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REVISIONS

PROJ. MGR. GDG

No.

DATE

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DATE: 01/11/2017

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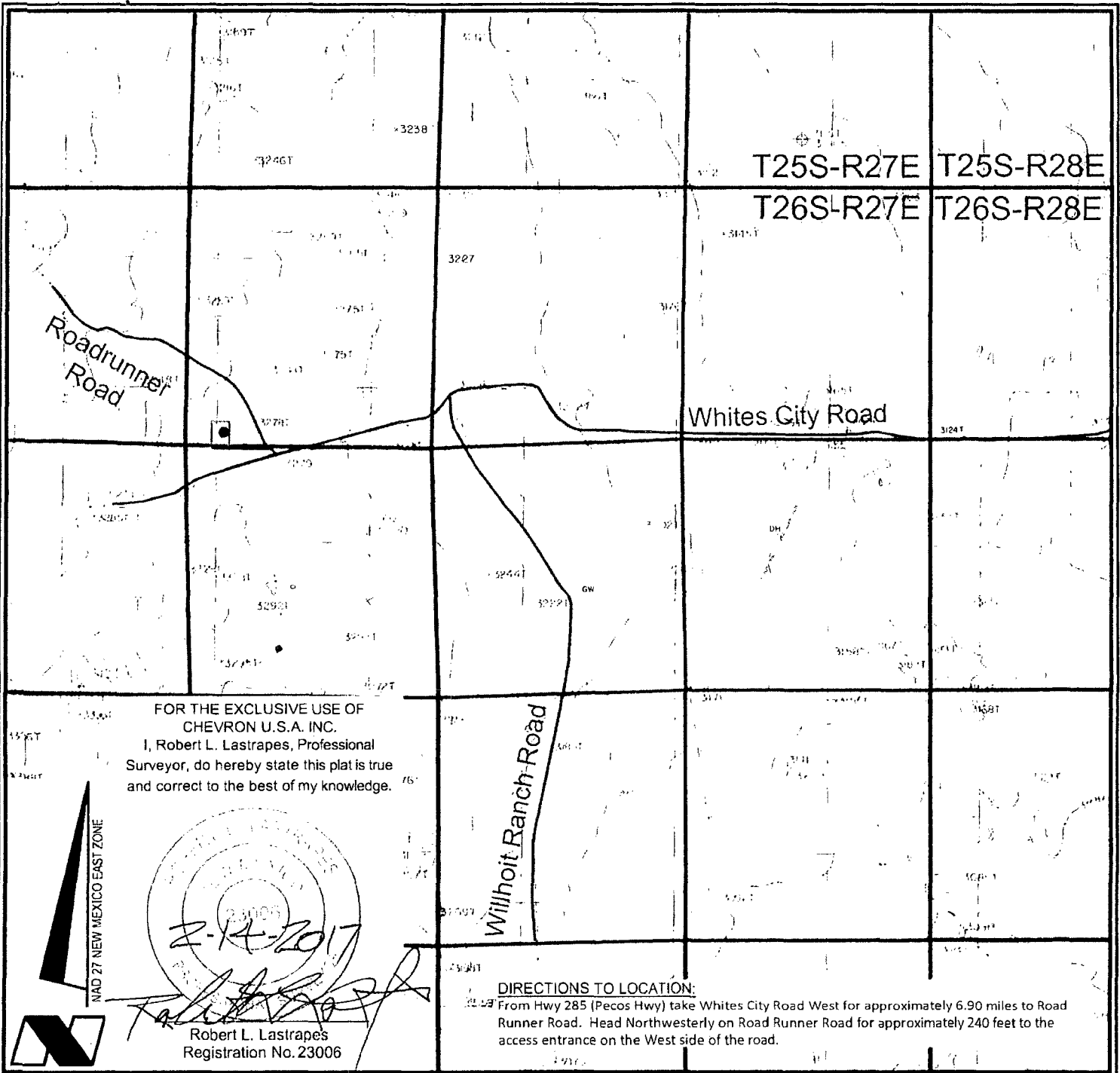
DATE

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FILENAME: T:\2017\217519\DWG\HH SO 10 15 FED 25_SUP.dwg



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Ph. 337-237-2200 Fax 337-232-3299
www.fenstermaker.com



VICINITY MAP

SCALE: 1" = 3000'

3000' 0 1500' 3000'

LEGEND

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

CHEVRON U.S.A. INC.
 HH SO 10 15 FED 002 NO. 5H WELL
 LOCATED 833' FWL AND 289' FSL
 SECTION 3, T26S-R27E
 EDDY COUNTY, NEW MEXICO



C.H. Fenstermaker & Associates, L.L.C.
 135 Regency Sq. Lafayette, LA 70508
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REVISIONS

PROJ. MGR.: GDG

No. 1

DATE: 02/13/2017

REVISED BY: TBD

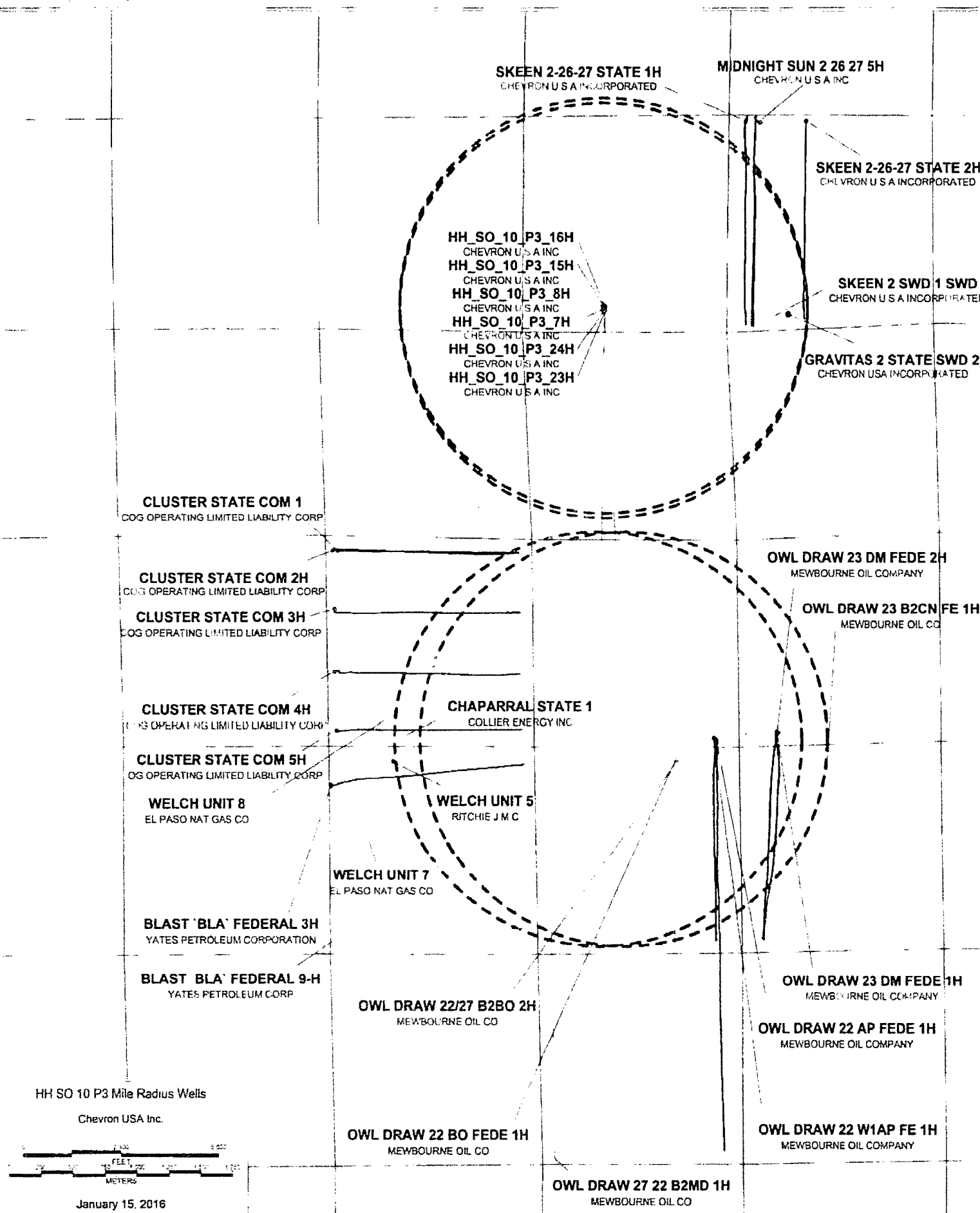
DATE: 01/11/2017

No.

DATE:

REVISED BY:

FILENAME: T\2017\2175119\DWG\HH SO 10 15 FED 002 5H_APD.dwg



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

1-25-2017
Robert L. Lastrapes
Registration No. 23096

R 27 E

Sec. 3

Bureau of Land Management

PROPOSED PAD
±4.82 Acres

Road Runner
Road

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

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

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

Sec. 4

NAD 27 NEW MEXICO EAST ZONE

Whites City Road

Scale: 1" = 300'
300' 150' 0' 300'

Sec. 10

Bureau of Land Management

NW PAD CORNER		NE PAD CORNER		HH SO 10 P3 NO. 15H WELL	
X=	547,311 NAD 27	X=	547,686 NAD 27	X=	547,568 NAD 27
Y=	387,848	Y=	387,842	Y=	387,609
ELEVATION +3281' NAVD 88		ELEVATION +3279' NAVD 88		LAT. 32.065559	
LONG. 104.179777		SE PAD CORNER		LONG. 104.179777	
X=	547,303 NAD 27	X=	547,688 NAD 27	X=	588,752 NAD 83
Y=	387,303	Y=	387,297	Y=	387,666
ELEVATION +3282' NAVD 88		ELEVATION +3276' NAVD 88		LAT. 32.065681	
LONG. 104.180269		ELEVATION +3279' NAVD 88		LONG. 104.180269	

LEGEND

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

T 26 S

SURFACE USE PLAT PAGE 1 of 4

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

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



R 27 E

Whites City Road

Sec. 3

Bureau of Land Management

CENTERLINE PROPOSED
ACCESS ROAD (D)
24' x ±101.00'
±5.12 Rods
±0.06 Acres

Elev.
3239.2'

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

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

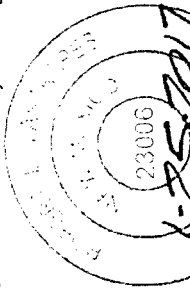
Sec. 2

State of New Mexico

Sec. 11

Bureau of Land Management
(Proposed Frac Pond- ±1.93 Acres)
(Proposed Frac Pond Outside of
Existing Fence Line- ±0.78 Acres)
(Proposed Fence Line Re-Route-
±628.17', ±38.07 Rods)

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



Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

PAGE 2 of 4

CHEVRON U.S.A. INC.

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

REVISIONS

DRAWN BY:	NO. 1	DATE:	REVISED BY:
LJG	No. 1	08/30/2016	BOR
PROJ. MGR:	NO. 2	DATE:	REVISED BY:
GDG	No. 2	11/04/2016	BOR

FILENAME: T:\2015\153371\DWG\HH SO 10 P3 15H_RevSUP.dwg

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

PROPOSED
CENTRAL TANK
BATTERY
±8.03 Acres

PROPOSED
COMPRESSOR
STATION
±3.44 Acres

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

Scale: 1" = 300'



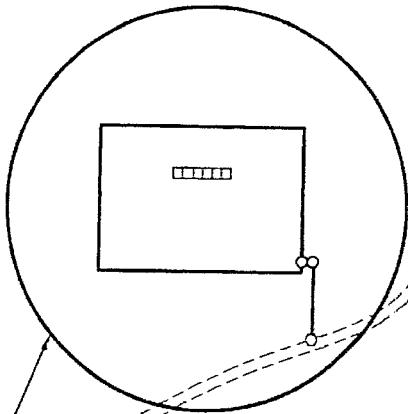
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135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com



T 26 S

R 27 E

SEE PAGE
1 OF 4



Sec. 3

Bureau of Land Management

SEE PAGE
2 OF 4

Sec. 2

State of New Mexico

NW CTB CORNER		NE CTB CORNER		SW CTBNW COMPRESSOR CORNER	
X=	549.484 NAD 27	X=	549.984 NAD 27	X=	549.484 NAD 27
Y=	386.534	Y=	386.534	Y=	385.834
ELEVATION +3249' NAVD 88		ELEVATION +3243' NAVD 88		ELEVATION +3255' NAVD 88	
SW COMPRESSOR CORNER		SE COMPRESSOR CORNER		SE CTBNE COMPRESSOR CORNER	
X=	549.484 NAD 27	X=	549.984 NAD 27	X=	549.984 NAD 27
Y=	385.534	Y=	385.534	Y=	385.834
ELEVATION +3259' NAVD 88		ELEVATION +3252' NAVD 88		ELEVATION +3248' NAVD 88	

Sec. 10

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

Sec. 11

Bureau of Land Management
(Proposed Frac Pond- ±1.93 Acres)
(Proposed Frac Pond Outside of Existing Fence Line- ±0.78 Acres)
(Proposed Fence Line Re-Route- ±628.17', ±38.07 Rods)

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

LEGEND	
Section Line	---
Existing Road	---
Centerline Access	---
Fence Line	-X-
Found Monument	●

Scale: 1" = 500'



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SURFACE USE PLAT

PAGE 3 OF 4

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

REVISIONS

DRAWN BY: LJG

PROJ MGR: GDG

No. 1

DATE: 08/30/2016

REVISED BY: BOR

DATE: 12/16/2015

No. 2

DATE: 11/04/2016

REVISED BY: BOR

FILENAME: T:\2015\2153371\DWG\HH SO 10 P3 15H_RevSJP.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.nmonocall.org

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

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

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

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

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

1-25-2017
24000
Robert L. Lastrapes
Registration No. 23006



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

SURFACE USE PLAT

CHEVRON U.S.A. INC.

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

REVISIONS

DRAWN BY: LJG		REVISIONS	
PROJ MGR.: GDG	No. 1	DATE: 08/30/2016	REVISED BY: BOR
DATE: 12/16/2015	No. 2	DATE: 11/04/2016	REVISED BY: BOR
FILENAME: T:\2015\152153371\DWG\HH SO 10 P3 15H_RevSUP.dwg			

R27E

SEC. 3

HH SO 10 P1
DRILL SITE

HH SO 10 P1
DRILL SITE

ROAD RUNNER ROAD

WHITES CITY ROAD

BUREAU OF LAND MANAGEMENT
ROW = 2204' ± 2286 RODS, ± 3.17 ACRES
WFMP FLOWLINE CLUSTER = 2186' ± 11.18 RODS
GAS LIFT LINE = 2177' ± 11.13 RODS
TEMP WATER = 2285' ± 11.24 RODS

FUTURE 30' CHEVRON ROW

EXISTING FLOWLINE

FUTURE 30' CHEVRON ROW

ROW = 4603' ± 278.97 RODS, ± 3.17 ACRES
WFMP FLOWLINE CLUSTER = 4583' ± 277.76 RODS
GAS LIFT LINE = 4600' ± 278.79 RODS
TEMP WATER = 4608' ± 279.27 RODS

SEC. 10

BUREAU OF LAND MANAGEMENT
ROW = 4489' ± 266.81 RODS, ± 3.13 ACRES
WFMP FLOWLINE CLUSTER = 4475' ± 265.38 RODS
GAS LIFT LINE = 4482' ± 265.64 RODS
TEMP WATER = 4475' ± 265.03 RODS

FUTURE
COMPRESSOR SITE

FUTURE
PAC POND

LEGEND

WFMP FLOWLINE
GAS LIFT LINE
TEMP WATER
UTILITY LINE
ACCESS

PRELIMINARY

Scale: 1" = 400'

0 200' 400'

DETAIL

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



C. H. Fenstermaker & Associates, L.L.C.
135 Remedy St., Lafayette, LA 70506
Ph. 337-232-2200 Fax 337-432-3296
www.fenstermaker.com

DRAWN BY: TBD
PROJ. MGR.: GDG
DATE: 05/02/2017

REVISIONS

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

FILENAME: T201712715119DWGHH SO 10 15 FED 002 DETAIL.dwg

R 27 E

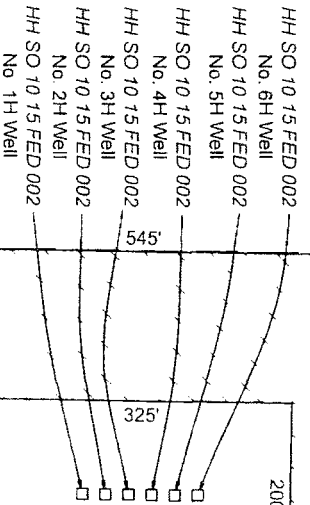
**PROPOSED
TEMPORARY
PAD AREA**
±3.32 Acres

**PROPOSED
PERMANENT
PAD AREA**
±1.49 Acres

NW PAD CORNER		NE PAD CORNER		HH SO 10 15 FED 002 NO. 1H WELL	
X=	546,074	NAD 27	X=	546,459	NAD 27
Y=	387,526		Y=	387,520	
ELEVATION +3267' NAVD 88		ELEVATION +3272' NAVD 88		LAT 32.064404	
SW PAD CORNER		SE PAD CORNER		LONG. 104.183778	
X=	546,066	NAD 27	X=	546,451	NAD 27
Y=	386,981		Y=	386,975	
ELEVATION +3279' NAVD 88		ELEVATION +3281' NAVD 88		LAT 32.064526	
				LONG. 104.184271	
				ELEVATION +3273' NAVD 88	

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

S 87° 16' 22" E 603.33'



Bureau of Land Management
(Access: ±0.11 Acres 237.68' ±14.40 Rods)

Sec. 3

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

Sec. 10

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

Whites City Road



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

Scale 1" = 200'
0 100' 200'



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



Robert L. Lastropes
Registration No. 23006

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

WELL PLAT

Page 1 of 2

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

DRAWN BY: BOR		REVISIONS	
PROJ. MGR. GDG	No.	DATE:	REVISED BY:
DATE: MAY 31 2017	No.	DATE:	REVISED BY:
FILENAME: T:\2017\2175119\DWG\HH SO 10 15 FED 002 1H_IR.DWG			

T 26 S

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

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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

WELL PLAT

Page 2 of 2

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

DRAWN BY: BOR

REVISIONS

PROJ. MGR. GDG

No.

DATE:

REVISED BY:

DATE: MAY 31, 2017

No.

DATE:

REVISED BY:

FILENAME: T:\2017\2175\19\DWG\HH SO 10 15 FED 002 1H_IR.dwg



C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
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1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Castille		505	
Lamar		2395	
Bell		2310	
Cherry		3208	
Brushy		4450	
Bone Spring/Avalon		6299	
First Bone Spring Sand		6888	
First Bone Spring Shale		6914	
Second Bone Spring Sand		7621	
Harkey Sand		8123	
Third Bone Spring Sand		8617	
Wolfcamp A		9342	
Wolfcamp D		10213	
Lateral TVD Wolfcamp D		10213	20525.03'

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

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

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		450
Water	Castille	505
Water	Cherry Canyon	3208
Oil/Gas	Brushy Canyon	4450
Oil/Gas	Bone Spring Limestone	6888
Oil/Gas	First Bone Spring Shale	6914
Oil/Gas	Second Bone Spring Sand	7621
Oil/Gas	Harkey Sand	8123
Oil/Gas	Wolfcamp A	9342
Oil/Gas	Wolfcamp D	10213

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

3. BOP EQUIPMENT

PLEASE REFERENCE MDP

4. CASING PROGRAM

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	450'	17-1/2"	13-3/8"	54.5 #	K-55	STC	New
Intermediate	0'	9,015'	12-1/4"	9-5/8"	40.0 #	L-80	TXP	New
Production	0'	20525.03'	8-1/2"	0"	20.0 #	P-110	TXP	New

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

Surface Casing: 450'
Intermediate Casing: 9015'
Production Casing: 20525.03' MD/10,213' TVD (10,000' VS @ 90.28 deg inc)

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

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

	Surf	Int	Prod
Burst Design			
Pressure Test- Surface, Int, Prod Csg P external: Water P internal: Test psi + next section heaviest mud in csg	X	X	X
Displace to Gas- Surf Csg P external: Water P internal: Dry Gas from Next Csg Point	X		
Frac at Shoe, Gas to Surf- Int Csg P external: Water P internal: Dry Gas, 15 ppg Frac Gradient		X	
Stimulation (Frac) Pressures- Prod Csg P external: Water P internal: Max inj pressure w/ heaviest injected fluid			X
Tubing leak- Prod Csg (packer at KOP) P external: Water P internal: Leak just below surf, 8.7 ppg packer fluid			X
Collapse Design			
Full Evacuation P external: Water gradient in cement, mud above TOC P internal: none	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: water	X	X	X
Tension Design			
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Cement Top	Cement Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	450'	14.8	1.33	50	356	6.37
Intermediate								
Stage 2 Lead	50:50 Poz: Class C + Antifoam, Extender, Salt, Retarder	0'	1,100'	11.9	2.43	50	213	14.21
Stage 2 Tail	Class C + Antifoam, Retarder, Viscosifier	1,100'	2,100'	14.8	1.33	0	235	6.37
DV TOOL		2,100'						
Stage 1 Lead	50:50 Poz: Class H + Extender, Antifoam, Retarder, Salt, Viscosifier	2,100'	8,015'	11.9	2.43	100	1524	13.76
Stage 1 Tail	Class H + Retarder, Extender, Dispersant	8,015'	9,015'	15.6	1.21	50	389	5.54
Production								
Lead	50:50 Poz: Class H + Extender, Antifoam, Dispersant, , Retarder	7,015'	8,015'	14.5	1.21	100	430	5.54
Tail	Class H + Viscosifier, Antifoam, Dispersant, Fluid Loss, Retarder, Expanding Agent	8,015'	20525.03'	15.6	1.2	50	3281	5.30

ONSHORE ORDER NO. 1
Chevron
HayHurst SO 10 P2 #25H
Eddy County, NM

CONFIDENTIAL -- TIGHT HOLE
DRILLING PLAN
PAGE: 4

6. MUD PROGRAM

From	To	Type	Weight	F. Vis	Filtrate
0'	450'	Spud Mud	0	0	0
450'	9015'	OBM	9.0 - 9.5	50 -70	5.0 - 10
9015'	20525.03'	OBM	10.0 - 13.5	50 -70	5.0 - 10

7. TESTING, LOGGING, AND CORING

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

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE
PLEASE REFERENCE MDP

CHOKE MANIFOLD SCHEMATIC

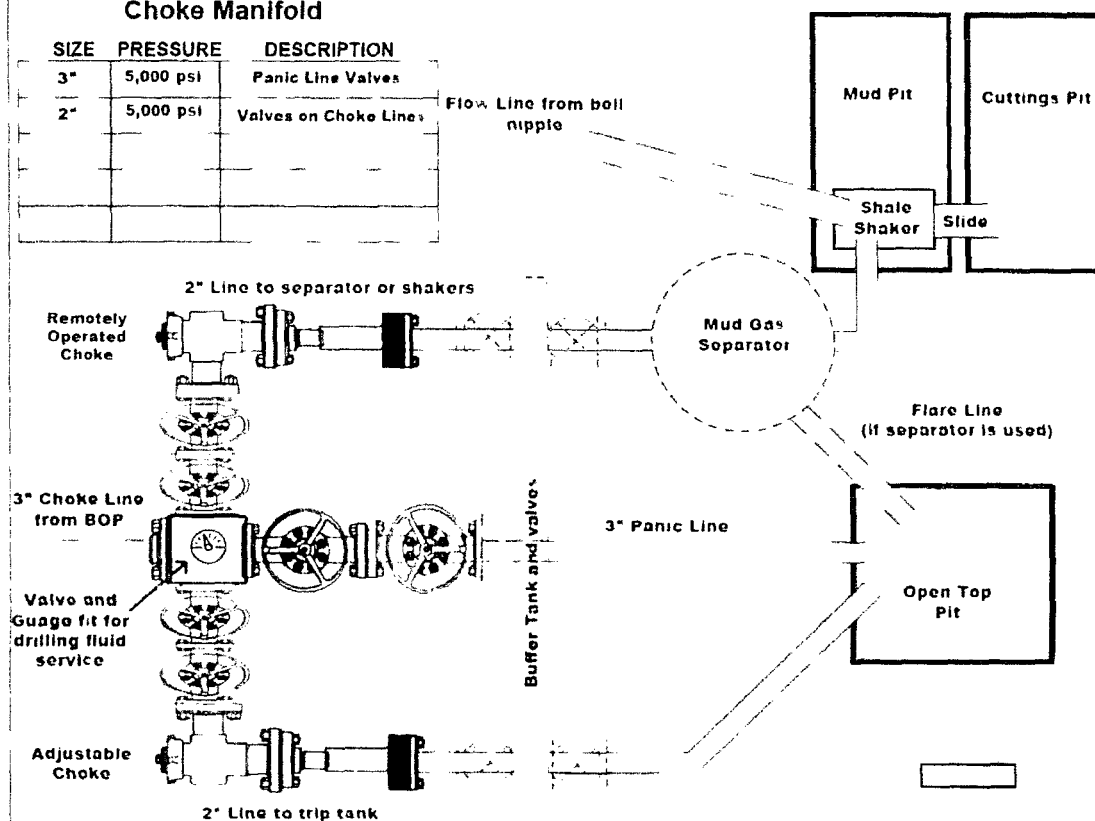
Minimum Requirements

OPERATION : Bone Spring wells/ Intermediate section SWD

Minimum System Pressure Rating : 5,000 psi

Choke Manifold

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



Installation Checklist

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

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

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

Wellname: _____

Representative: _____

Date: _____

Diagram B

BLOWOUT PREVENTOR SCHEMATIC

Minimum Requirements

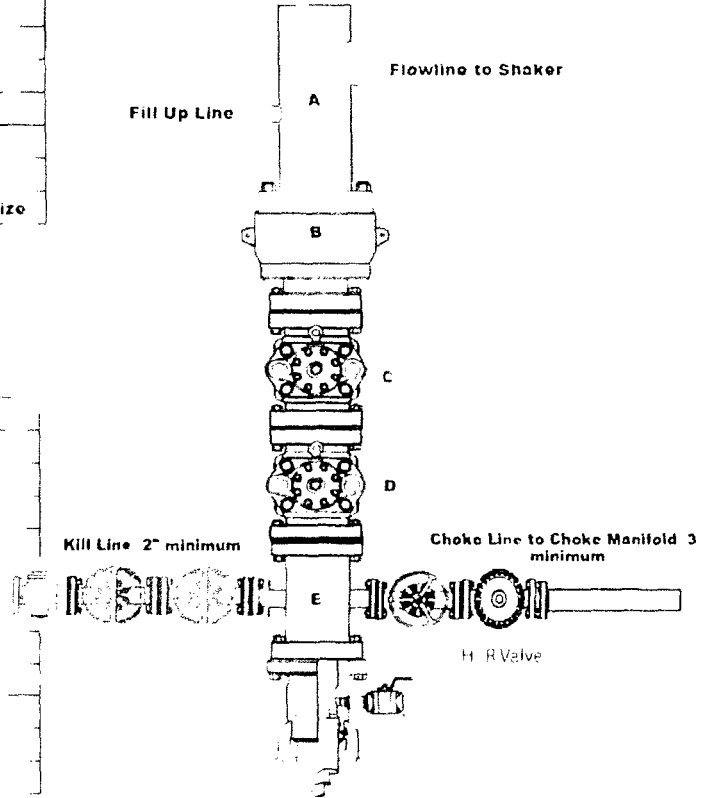
OPERATION : Bone Spring wells/ Intermediate section SWD

Minimum System Pressure Rating : 5,000 psi

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

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

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



Installation Checklist

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

- ☐ The installed BOP equipment meets at least the minimum requirements (rating, type, size, configuration) as shown on this schematic. Components may be substituted for equivalent equipment rated to higher pressures. Additional components may be put into place as long as they meet or exceed the minimum pressure rating of the system.
- ☐ All valves on the kill line and choke line will be full opening and will allow straight through flow.
- ☐ The kill line and choke line will be straight unless turns use tee blocks or are targeted with running tool, and will be anchored to prevent whip and reduce vibration.
- ☐ Manual (hand wheels) or automatic locking devices will be installed on all ram preventers. Hand wheels will also be installed on all manual valves on the choke line and kill line.
- ☐ A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will remain open unless accumulator is inoperative.
- ☐ Upper kelly cock valve with handle will be available on rig floor along with safety valve and subs to fit all drill string connections in use.

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

Wellname: _____

Representative: _____

Date: _____

Diagram A



Project: Eddy County, NM (NA027 NME)

Site: HH SO 10 15 Fed

Well: 0025

Wellbore: OH

Design: Plan 1 02-01-17

Rig:

WELL DETAILS

Well Name: HH SO 10 15 Fed
Well ID: 0025
Wellbore: OH
Design: Plan 1 02-01-17

SECTION DETAILS

Section Name: HH SO 10 15 Fed
Section ID: 0025
Section Type: OH
Design: Plan 1 02-01-17

DESIGN TARGET DETAILS

Design Target Name: HH SO 10 15 Fed
Design Target ID: 0025
Design Target Type: OH
Design: Plan 1 02-01-17

FORMATION TOP DETAILS

Formation Top Name: HH SO 10 15 Fed
Formation Top ID: 0025
Formation Top Type: OH
Design: Plan 1 02-01-17

END

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

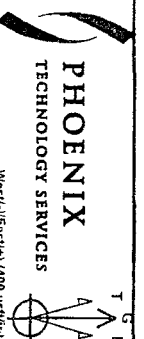
SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE



Map System: NAD83
Datum: NAD83
Zone: 10N
Units: Feet
Scale: 1:10000
Projection: UTM
Magnetic North: 7.34°
Magnetic Field Strength: 40000 nT
Magnetic Declination: 7.34°
Date: 2/20/2017
Model: HIGM

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE

Section Line Name: HH SO 10 15 Fed
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SECTION LINE

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Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

SECTION LINE

SECTION LINE

Section Line Name: HH SO 10 15 Fed
Section Line ID: 0025
Section Line Type: OH
Design: Plan 1 02-01-17

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Design: Plan 1 02-01-17

SECTION LINE

Map System: NAD83
Datum: NAD83
Zone: 10N
Units: Feet
Scale: 1:10000
Projection: UTM
Magnetic North: 7.34°
Magnetic Field Strength: 40000 nT
Magnetic Declination: 7.34°
Date: 2/20/2017
Model: HIGM



Chevron

**Eddy County, NM (NAD27 NME)
HH SO 10 15 Fed
0025**

OH

Plan: Plan 1 02-01-17

Standard Planning Report

01 February, 2017





Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0025
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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

Site HH SO 10 15 Fed

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

Well 0025

Well Position	+N/-S	99.91 usft	Northing:	387,286.91 usft	Latitude:	32° 3' 52.84368 N
	+E/-W	1.12 usft	Easting:	546,330.13 usft	Longitude:	104° 11' 1.58551 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,271.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/1/2017	7.42	59.82	48,056

Design Plan 1 02-01-17

Audit Notes:

Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.61

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Bulld 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	
8,305.00	0.00	0.00	8,305.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,480.19	3.50	235.74	8,480.08	-3.01	-4.43	2.00	2.00	0.00	235.74	
9,662.10	3.50	235.74	9,659.78	-43.68	-64.13	0.00	0.00	0.00	0.00	
10,544.24	90.12	178.61	10,213.00	-617.99	78.70	10.00	9.82	-6.48	-57.18	FTP - HH SO 10 15
15,510.33	90.12	178.61	10,203.00	-5,582.60	41.89	0.00	0.00	0.00	0.00	MP HH SO 10 15
15,563.70	90.28	179.66	10,202.82	-5,635.97	42.70	2.00	0.30	1.98	81.40	
20,525.03	90.28	179.66	10,179.00	-10,597.16	71.78	0.00	0.00	0.00	0.00	BHL HH SO 10 15



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
 Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Site: HH SO 10 15 Fed
 Well: 0025
 Wellbore: OH
 Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Gnd
 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
8,305.00	0.00	0.00	8,305.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
8,400.00	1.90	235.74	8,399.98	-0.89	-1.30	0.88	2.00	2.00	0.00
8,480.19	3.50	235.74	8,480.08	-3.01	-4.43	2.98	2.00	2.00	0.00
Hold 3.50° Inc at 235.74° Azm									
8,500.00	3.50	235.74	8,499.85	-3.70	-5.43	3.66	0.00	0.00	0.00
8,600.00	3.50	235.74	8,599.67	-7.14	-10.48	7.07	0.00	0.00	0.00
8,700.00	3.50	235.74	8,699.48	-10.58	-15.53	10.47	0.00	0.00	0.00
8,800.00	3.50	235.74	8,799.29	-14.02	-20.58	13.88	0.00	0.00	0.00
8,900.00	3.50	235.74	8,899.11	-17.46	-25.63	17.28	0.00	0.00	0.00
9,000.00	3.50	235.74	8,998.92	-20.90	-30.68	20.69	0.00	0.00	0.00
9,100.00	3.50	235.74	9,098.73	-24.34	-35.73	24.09	0.00	0.00	0.00
9,200.00	3.50	235.74	9,198.55	-27.78	-40.79	27.50	0.00	0.00	0.00
9,300.00	3.50	235.74	9,298.36	-31.22	-45.84	30.91	0.00	0.00	0.00
9,400.00	3.50	235.74	9,398.17	-34.66	-50.89	34.31	0.00	0.00	0.00
9,500.00	3.50	235.74	9,497.98	-38.10	-55.94	37.72	0.00	0.00	0.00
9,600.00	3.50	235.74	9,597.80	-41.54	-60.99	41.12	0.00	0.00	0.00
9,662.10	3.50	235.74	9,659.78	-43.68	-64.13	43.24	0.00	0.00	0.00
Begin 10.00°/100' Build & Turn									
9,700.00	6.41	205.88	9,697.54	-46.23	-66.01	45.78	10.00	7.65	78.79
9,800.00	15.96	188.98	9,795.55	-64.87	-70.60	64.39	10.00	9.55	-16.90
9,900.00	25.85	184.71	9,888.86	-100.27	74.54	99.76	10.00	9.89	-4.27
10,000.00	35.80	182.70	9,974.63	-151.34	77.72	150.81	10.00	9.95	-2.00
10,100.00	45.76	181.48	10,050.26	-216.53	-80.03	215.98	10.00	9.97	-1.22
10,200.00	55.74	180.62	10,113.44	-293.86	-81.41	293.30	10.00	9.98	-0.86
10,300.00	65.73	179.94	10,162.27	-380.98	-81.82	380.42	10.00	9.98	-0.68
10,400.00	75.71	179.37	10,195.25	-475.25	-81.24	474.69	10.00	9.99	-0.58
10,500.00	85.70	178.84	10,211.38	-573.80	-79.68	573.25	10.00	9.99	-0.53
10,544.24	90.12	178.61	10,213.00	-617.99	-78.70	617.45	10.00	9.99	-0.51
LP, Hold 90.11° Inc at 178.61° Azm - FTP - HH SO 10 15 Fed 0025									
10,600.00	90.12	178.61	10,212.89	-673.73	-77.34	673.19	0.00	0.00	0.00
10,700.00	90.12	178.61	10,212.69	773.70	74.91	773.18	0.00	0.00	0.00
10,800.00	90.12	178.61	10,212.49	-873.67	-72.49	873.16	0.00	0.00	0.00
10,900.00	90.12	178.61	10,212.28	-973.64	-70.06	973.15	0.00	0.00	0.00
11,000.00	90.12	178.61	10,212.08	-1,073.61	-67.63	1,073.13	0.00	0.00	0.00
11,100.00	90.12	178.61	10,211.88	-1,173.58	-65.20	1,173.11	0.00	0.00	0.00
11,200.00	90.12	178.61	10,211.68	-1,273.55	-62.77	1,273.10	0.00	0.00	0.00
11,300.00	90.12	178.61	10,211.48	1,373.52	-60.34	1,373.08	0.00	0.00	0.00
11,400.00	90.12	178.61	10,211.28	1,473.49	-57.92	1,473.07	0.00	0.00	0.00
11,500.00	90.12	178.61	10,211.08	1,573.46	-55.49	1,573.05	0.00	0.00	0.00
11,600.00	90.12	178.61	10,210.87	1,673.43	-53.06	1,673.04	0.00	0.00	0.00
11,700.00	90.12	178.61	10,210.67	1,773.41	-50.63	1,773.02	0.00	0.00	0.00
11,800.00	90.12	178.61	10,210.47	1,873.38	-48.20	1,873.01	0.00	0.00	0.00
11,900.00	90.12	178.61	10,210.27	1,973.35	-45.77	1,972.99	0.00	0.00	0.00
12,000.00	90.12	178.61	10,210.07	2,073.32	-43.35	2,072.98	0.00	0.00	0.00
12,100.00	90.12	178.61	10,209.87	2,173.29	-40.92	2,172.96	0.00	0.00	0.00
12,200.00	90.12	178.61	10,209.67	2,273.26	-38.49	2,272.94	0.00	0.00	0.00
12,300.00	90.12	178.61	10,209.46	2,373.23	-36.06	2,372.93	0.00	0.00	0.00
12,400.00	90.12	178.61	10,209.26	2,473.20	-33.63	2,472.91	0.00	0.00	0.00
12,500.00	90.12	178.61	10,209.06	2,573.17	-31.21	2,572.90	0.00	0.00	0.00
12,600.00	90.12	178.61	10,208.86	2,673.14	-28.78	2,672.88	0.00	0.00	0.00
12,700.00	90.12	178.61	10,208.66	2,773.11	-26.35	2,772.87	0.00	0.00	0.00
12,800.00	90.12	178.61	10,208.46	2,873.08	-23.92	2,872.85	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
 Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Site: HH SO 10 15 Fed
 Well: 0025
 Wellbore: OH
 Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299 00usft
 MD Reference: RKB @ 3299 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)
12,900.00	90.12	178.61	10,208.26	-2.973.05	-21.49	2,972.84	0.00	0.00	0.00
13,000.00	90.12	178.61	10,208.06	-3.073.02	-19.06	3,072.82	0.00	0.00	0.00
13,100.00	90.12	178.61	10,207.85	-3.172.99	-16.64	3,172.80	0.00	0.00	0.00
13,200.00	90.12	178.61	10,207.65	-3.272.96	-14.21	3,272.79	0.00	0.00	0.00
13,300.00	90.12	178.61	10,207.45	-3.372.93	-11.78	3,372.77	0.00	0.00	0.00
13,400.00	90.12	178.61	10,207.25	-3.472.90	-9.35	3,472.76	0.00	0.00	0.00
13,500.00	90.12	178.61	10,207.05	-3.572.87	-6.92	3,572.74	0.00	0.00	0.00
13,600.00	90.12	178.61	10,206.85	-3.672.84	-4.49	3,672.73	0.00	0.00	0.00
13,700.00	90.12	178.61	10,206.65	-3.772.81	-2.07	3,772.71	0.00	0.00	0.00
13,800.00	90.12	178.61	10,206.44	-3.872.78	0.36	3,872.70	0.00	0.00	0.00
13,900.00	90.12	178.61	10,206.24	-3.972.75	2.79	3,972.68	0.00	0.00	0.00
14,000.00	90.12	178.61	10,206.04	-4.072.72	5.22	4,072.66	0.00	0.00	0.00
14,100.00	90.12	178.61	10,205.84	-4.172.69	7.65	4,172.65	0.00	0.00	0.00
14,200.00	90.12	178.61	10,205.64	-4.272.66	10.07	4,272.63	0.00	0.00	0.00
14,300.00	90.12	178.61	10,205.44	-4.372.63	12.50	4,372.62	0.00	0.00	0.00
14,400.00	90.12	178.61	10,205.24	-4.472.60	14.93	4,472.60	0.00	0.00	0.00
14,500.00	90.12	178.61	10,205.03	-4.572.57	17.36	4,572.59	0.00	0.00	0.00
14,600.00	90.12	178.61	10,204.83	-4.672.54	19.79	4,672.57	0.00	0.00	0.00
14,700.00	90.12	178.61	10,204.63	-4.772.51	22.22	4,772.56	0.00	0.00	0.00
14,800.00	90.12	178.61	10,204.43	-4.872.48	24.64	4,872.54	0.00	0.00	0.00
14,900.00	90.12	178.61	10,204.23	-4.972.46	27.07	4,972.52	0.00	0.00	0.00
15,000.00	90.12	178.61	10,204.03	-5.072.43	29.50	5,072.51	0.00	0.00	0.00
15,100.00	90.12	178.61	10,203.83	-5.172.40	31.93	5,172.49	0.00	0.00	0.00
15,200.00	90.12	178.61	10,203.63	-5.272.37	34.36	5,272.48	0.00	0.00	0.00
15,300.00	90.12	178.61	10,203.42	-5.372.34	36.79	5,372.46	0.00	0.00	0.00
15,400.00	90.12	178.61	10,203.22	-5.472.31	39.21	5,472.45	0.00	0.00	0.00
15,500.00	90.12	178.61	10,203.02	-5.572.28	41.64	5,572.43	0.00	0.00	0.00
15,510.33	90.12	178.61	10,203.00	-5.582.60	41.89	5,582.76	0.00	0.00	0.00
Begin 2.00°/100' Build & Turn - MP - HH SO 10 15 Fed 0025									
15,563.70	90.28	179.66	10,202.82	-5.635.97	42.70	5,636.13	2.00	0.30	1.98
Hold 90.28° Inc at 179.66° Azm									
15,600.00	90.28	179.66	10,202.64	-5.672.27	42.91	5,672.43	0.00	0.00	0.00
15,700.00	90.28	179.66	10,202.16	-5.772.26	43.50	5,772.43	0.00	0.00	0.00
15,800.00	90.28	179.66	10,201.68	-5.872.26	44.08	5,872.42	0.00	0.00	0.00
15,900.00	90.28	179.66	10,201.20	-5.972.26	44.67	5,972.42	0.00	0.00	0.00
16,000.00	90.28	179.66	10,200.72	-6.072.25	45.26	6,072.42	0.00	0.00	0.00
16,100.00	90.28	179.66	10,200.24	-6.172.25	45.84	6,172.42	0.00	0.00	0.00
16,200.00	90.28	179.66	10,199.76	-6.272.25	46.43	6,272.42	0.00	0.00	0.00
16,300.00	90.28	179.66	10,199.28	-6.372.25	47.01	6,372.42	0.00	0.00	0.00
16,400.00	90.28	179.66	10,198.80	-6.472.24	47.60	6,472.42	0.00	0.00	0.00
16,500.00	90.28	179.66	10,198.32	-6.572.24	48.19	6,572.42	0.00	0.00	0.00
16,600.00	90.28	179.66	10,197.84	-6.672.24	48.77	6,672.41	0.00	0.00	0.00
16,700.00	90.28	179.66	10,197.36	-6.772.23	49.36	6,772.41	0.00	0.00	0.00
16,800.00	90.28	179.66	10,196.88	-6.872.23	49.95	6,872.41	0.00	0.00	0.00
16,900.00	90.28	179.66	10,196.40	-6.972.23	50.53	6,972.41	0.00	0.00	0.00
17,000.00	90.28	179.66	10,195.92	-7.072.23	51.12	7,072.41	0.00	0.00	0.00
17,100.00	90.28	179.66	10,195.44	-7.172.22	51.70	7,172.41	0.00	0.00	0.00
17,200.00	90.28	179.66	10,194.96	-7.272.22	52.29	7,272.41	0.00	0.00	0.00
17,300.00	90.28	179.66	10,194.48	-7.372.22	52.88	7,372.41	0.00	0.00	0.00
17,400.00	90.28	179.66	10,194.00	-7.472.21	53.46	7,472.40	0.00	0.00	0.00
17,500.00	90.28	179.66	10,193.52	-7.572.21	54.05	7,572.40	0.00	0.00	0.00
17,600.00	90.28	179.66	10,193.04	-7.672.21	54.63	7,672.40	0.00	0.00	0.00
17,700.00	90.28	179.66	10,192.56	-7.772.21	55.22	7,772.40	0.00	0.00	0.00



Phoenix Technology Services LP

Planning Report



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 Site: HH SO 10 15 Fed
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Local Co-ordinate Reference: Well 0025
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 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)
17,800.00	90.28	179.66	10,192.08	-7,872.20	55.81	7,872.40	0.00	0.00	0.00
17,900.00	90.28	179.66	10,191.60	-7,972.20	56.39	7,972.40	0.00	0.00	0.00
18,000.00	90.28	179.66	10,191.12	-8,072.20	56.98	8,072.40	0.00	0.00	0.00
18,100.00	90.28	179.66	10,190.64	-8,172.19	57.57	8,172.40	0.00	0.00	0.00
18,200.00	90.28	179.66	10,190.16	-8,272.19	58.15	8,272.40	0.00	0.00	0.00
18,300.00	90.28	179.66	10,189.68	-8,372.19	58.74	8,372.39	0.00	0.00	0.00
18,400.00	90.28	179.66	10,189.20	-8,472.19	59.32	8,472.39	0.00	0.00	0.00
18,500.00	90.28	179.66	10,188.72	-8,572.18	59.91	8,572.39	0.00	0.00	0.00
18,600.00	90.28	179.66	10,188.24	-8,672.18	60.50	8,672.39	0.00	0.00	0.00
18,700.00	90.28	179.66	10,187.76	-8,772.18	61.08	8,772.39	0.00	0.00	0.00
18,800.00	90.28	179.66	10,187.28	-8,872.17	61.67	8,872.39	0.00	0.00	0.00
18,900.00	90.28	179.66	10,186.80	-8,972.17	62.26	8,972.39	0.00	0.00	0.00
19,000.00	90.28	179.66	10,186.32	-9,072.17	62.84	9,072.39	0.00	0.00	0.00
19,100.00	90.28	179.66	10,185.84	-9,172.17	63.43	9,172.38	0.00	0.00	0.00
19,200.00	90.28	179.66	10,185.36	-9,272.16	64.01	9,272.38	0.00	0.00	0.00
19,300.00	90.28	179.66	10,184.88	-9,372.16	64.60	9,372.38	0.00	0.00	0.00
19,400.00	90.28	179.66	10,184.40	-9,472.16	65.19	9,472.38	0.00	0.00	0.00
19,500.00	90.28	179.66	10,183.92	-9,572.15	65.77	9,572.38	0.00	0.00	0.00
19,600.00	90.28	179.66	10,183.44	-9,672.15	66.36	9,672.38	0.00	0.00	0.00
19,700.00	90.28	179.66	10,182.96	-9,772.15	66.95	9,772.38	0.00	0.00	0.00
19,800.00	90.28	179.66	10,182.48	-9,872.15	67.53	9,872.38	0.00	0.00	0.00
19,900.00	90.28	179.66	10,182.00	-9,972.14	68.12	9,972.38	0.00	0.00	0.00
20,000.00	90.28	179.66	10,181.52	-10,072.14	68.70	10,072.37	0.00	0.00	0.00
20,100.00	90.28	179.66	10,181.04	-10,172.14	69.29	10,172.37	0.00	0.00	0.00
20,200.00	90.28	179.66	10,180.56	-10,272.13	69.88	10,272.37	0.00	0.00	0.00
20,300.00	90.28	179.66	10,180.08	-10,372.13	70.46	10,372.37	0.00	0.00	0.00
20,400.00	90.28	179.66	10,179.60	-10,472.13	71.05	10,472.37	0.00	0.00	0.00
20,475.03	90.28	179.66	10,179.24	-10,547.15	71.49	10,547.40	0.00	0.00	0.00
LTP - HH SO 10 15 Fed 0025									
20,500.00	90.28	179.66	10,179.12	-10,572.13	71.64	10,572.37	0.00	0.00	0.00
20,525.03	90.28	179.66	10,179.00	-10,597.16	71.78	10,597.40	0.00	0.00	0.00
TD at 20525.03 - BHL - HH SO 10 15 Fed 0025									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP - HH SO 10 15 Fed - hit/miss target - Shape - Point	0.00	0.00	10,179.00	-10,547.15	71.49	376,739.76	546,401.61	32° 2' 8.46148" N	104° 11' 0.92476" W
- plan misses target center by 0.24usft at 20475.03usft MD (10179.24 TVD - 10547.15 N 71.49 E)									
BHL - HH SO 10 15 Fed - plan hits target center - Point	0.00	0.00	10,179.00	-10,597.16	71.78	376,689.76	546,401.91	32° 2' 7.96663" N	104° 11' 0.92212" W
MP - HH SO 10 15 Fed - plan hits target center - Point	0.00	0.00	10,203.00	-5,582.60	41.89	381,704.31	546,372.02	32° 2' 57.59426" N	104° 11' 1.18862" W
FTP - HH SO 10 15 Fed - plan hits target center - Point	0.00	0.00	10,213.00	-617.99	-78.70	386,668.92	546,251.43	32° 3' 46.72873" N	104° 11' 2.50999" W



Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Site: HH SO 10 15 Fed
Well: 0025
Wellbore: OH
Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299 00usft
MD Reference: RKB @ 3299 00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,305.00	8,305.00	0.00	0.00	KOP, Begin 2 00' /100' Build
8,480.19	8,480.08	-3.01	-4.43	Hold 3.50' Inc at 235 74' Azm
9,662.10	9,659.78	-43.68	-64.13	Begin 10 00' /100' Build & Turn
10,544.24	10,213.00	-617.99	-78.70	LP, Hold 90 11' Inc at 178.61' Azm
15,510.33	10,203.00	-5,582.60	41.89	Begin 2 00' /100' Build & Turn
15,563.70	10,202.82	-5,635.97	42.70	Hold 90.28' Inc at 179 66' Azm
20,525.03	10,179.00	10,597.16	71.78	TD at 20525.03



Chevron

**Eddy County, NM (NAD27 NME)
HH SO 10 15 Fed
0025**

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

Anticollision Report

01 February, 2017





Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

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

Survey Tool Program **Date** 2/1/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	20,524.55	Plan 1 02-01-17 (OH)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
HH SO 10 15 Fed						
0021 - OH - Plan 1 02-01-17	2,071.96	2,074.31	99.17	77.61	4.599	CC
0021 - OH - Plan 1 02-01-17	2,300.00	2,301.78	100.46	76.48	4.189	ES
0021 - OH - Plan 1 02-01-17	20,525.44	19,555.16	1,093.86	800.42	3.728	SF
0022 - OH - Plan 1 02-01-17	1,766.33	1,767.33	75.00	56.69	4.096	CC
0022 - OH - Plan 1 02-01-17	2,000.00	2,000.38	75.92	55.14	3.653	ES
0022 - OH - Plan 1 02-01-17	2,800.00	2,799.13	94.80	65.58	3.244	SF
0023 - OH - Plan 1 02-01-17	2,100.66	2,102.06	48.02	26.15	2.196	CC
0023 - OH - Plan 1 02-01-17	2,200.00	2,201.17	48.50	25.57	2.115	ES
0023 - OH - Plan 1 02-01-17	20,525.44	20,266.00	615.57	244.33	1.658	SF
0024 - OH - Plan 1 02-01-17	1,766.33	1,767.33	25.00	6.69	1.365	Level 3, CC
0024 - OH - Plan 1 02-01-17	2,000.00	2,000.80	26.04	5.26	1.253	Level 3, ES, SF
0026 - OH - Plan 1 02-01-17	1,921.42	1,920.45	24.87	4.92	1.247	Level 2, CC
0026 - OH - Plan 1 02-01-17	2,000.00	1,998.86	25.25	4.48	1.216	Level 2, ES, SF
HH SO 10 P3						
#15H - OH - Plan 2 11-18-16	2,461.69	2,474.69	1,279.09	1,253.25	49.498	CC
#15H - OH - Plan 2 11-18-16	20,525.44	20,494.84	1,681.46	1,203.19	3.516	ES, SF
#23H - OH - Plan 2 11-18-16	2,212.48	2,224.48	1,255.67	1,232.52	54.226	CC
#23H - OH - Plan 2 11-18-16	2,400.00	2,400.00	1,256.37	1,231.33	50.166	ES
#23H - OH - Plan 2 11-18-16	20,525.44	19,466.27	1,783.65	1,374.60	4.361	SF
#7H - OH - Plan 2 11-18-16	8,300.00	8,330.52	1,169.67	1,081.98	13.339	CC
#7H - OH - Plan 2 11-18-16	20,525.44	20,152.09	1,320.29	858.94	2.862	ES, SF
#8H - OH - Plan 2 11-18-16	2,200.00	2,213.00	1,272.06	1,249.03	55.241	CC
#8H - OH - Plan 2 11-18-16	2,300.00	2,300.00	1,272.46	1,248.44	52.968	ES
#8H - OH - Plan 2 11-18-16	20,525.44	20,233.17	2,126.48	1,652.24	4.484	SF

Offset Design HH SO 10 15 Fed - 0021 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		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)	Factor	
0.00	0.00	2.00	0.00	0.00	0.00	-179.36	-99.91	-1.12	99.92				
100.00	100.00	102.00	100.00	0.19	0.20	-179.36	-99.91	-1.12	99.92	99.52	0.40	251.112	
200.00	200.00	202.00	200.00	0.73	0.74	-179.36	-99.91	-1.12	99.92	98.44	1.47	67.819	
300.00	300.00	302.00	300.00	1.27	1.28	-179.36	-99.91	-1.12	99.92	97.37	2.55	39.203	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0021 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
400.00	400.00	402.00	400.00	1.81	1.82	-179.36	-99.91	-1.12	99.92	96.29	3.62	27.570	
500.00	500.00	502.00	500.00	2.34	2.36	-179.36	-99.91	-1.12	99.92	95.22	4.70	21.261	
600.00	600.00	602.00	600.00	2.88	2.89	-179.36	-99.91	-1.12	99.92	94.14	5.77	17.302	
700.00	700.00	702.00	700.00	3.42	3.43	-179.36	-99.91	-1.12	99.92	93.07	6.85	14.586	
800.00	800.00	802.00	800.00	3.96	3.97	-179.36	-99.91	-1.12	99.92	91.99	7.93	12.607	
900.00	900.00	902.00	900.00	4.50	4.51	-179.36	-99.91	-1.12	99.92	90.92	9.00	11.101	
1,000.00	1,000.00	1,002.00	1,000.00	5.03	5.04	-179.36	-99.91	-1.12	99.92	89.84	10.08	9.916	
1,100.00	1,100.00	1,102.00	1,100.00	5.57	5.58	-179.36	-99.91	-1.12	99.92	88.77	11.15	8.960	
1,200.00	1,200.00	1,202.00	1,200.00	6.11	6.12	-179.36	-99.91	-1.12	99.92	87.69	12.23	8.172	
1,300.00	1,300.00	1,302.00	1,300.00	6.65	6.66	-179.36	-99.91	-1.12	99.92	86.62	13.30	7.511	
1,400.00	1,400.00	1,402.00	1,400.00	7.18	7.19	-179.36	-99.91	-1.12	99.92	85.54	14.38	6.949	
1,500.00	1,500.00	1,502.00	1,500.00	7.72	7.73	-179.36	-99.91	-1.12	99.92	84.46	15.45	6.466	
1,600.00	1,600.00	1,602.00	1,600.00	8.26	8.27	-179.36	-99.91	-1.12	99.92	83.39	16.53	6.045	
1,700.00	1,700.00	1,702.00	1,700.00	8.80	8.81	-179.36	-99.91	-1.12	99.92	82.31	17.60	5.676	
1,800.00	1,800.00	1,802.01	1,800.01	9.33	9.35	-179.36	-99.91	-1.12	99.92	81.24	18.68	5.349	
1,900.00	1,900.00	1,902.39	1,900.37	9.87	9.87	-178.31	-99.67	-2.94	99.71	79.97	19.75	5.050	
2,000.00	2,000.00	2,002.52	2,000.36	10.41	10.39	-175.25	-98.96	-8.21	99.30	78.50	20.80	4.774	
2,071.96	2,071.96	2,074.31	2,071.96	10.80	10.77	-172.34	-98.29	-13.22	99.17	77.61	21.56	4.599 CC	
2,100.00	2,100.00	2,102.28	2,099.86	10.95	10.91	-171.20	-98.02	-15.17	99.19	77.33	21.86	4.538	
2,200.00	2,200.00	2,202.03	2,199.37	11.49	11.44	-167.16	-97.09	-22.12	99.58	76.66	22.92	4.345	
2,300.00	2,300.00	2,301.78	2,298.87	12.02	11.97	-163.18	-96.15	-29.07	100.46	76.48	23.98	4.189 ES	
2,400.00	2,400.00	2,401.53	2,398.38	12.56	12.50	-159.28	-95.22	-36.03	101.82	76.77	25.05	4.065	
2,500.00	2,500.00	2,501.29	2,497.88	13.10	13.03	-155.49	-94.28	-42.98	103.64	77.52	26.11	3.969	
2,600.00	2,600.00	2,601.04	2,597.39	13.64	13.56	-151.86	-93.35	-49.93	105.90	78.71	27.19	3.895	
2,700.00	2,700.00	2,700.79	2,696.89	14.17	14.10	-148.39	-92.41	-56.88	108.56	80.30	28.26	3.842	
2,800.00	2,800.00	2,800.54	2,796.40	14.71	14.63	-145.09	-91.48	-63.84	111.61	82.27	29.34	3.805	
2,900.00	2,900.00	2,900.30	2,895.90	15.25	15.17	-141.98	-90.54	-70.79	115.00	84.59	30.41	3.781	
3,000.00	3,000.00	3,000.05	2,995.41	15.79	15.71	-139.06	-89.61	-77.74	118.72	87.23	31.49	3.770	
3,100.00	3,100.00	3,099.80	3,094.92	16.32	16.25	-136.31	-88.67	-84.70	122.73	90.16	32.57	3.768	
3,200.00	3,200.00	3,199.55	3,194.42	16.86	16.79	-133.75	-87.74	-91.65	127.00	93.35	33.65	3.774	
3,300.00	3,300.00	3,299.31	3,293.93	17.40	17.34	-131.36	-86.80	-98.60	131.51	96.77	34.73	3.786	
3,400.00	3,400.00	3,399.06	3,393.43	17.94	17.88	-129.13	-85.87	-105.56	136.23	100.41	35.82	3.804	
3,500.00	3,500.00	3,498.81	3,492.94	18.48	18.42	-127.05	-84.93	-112.51	141.14	104.24	36.90	3.825	
3,600.00	3,600.00	3,498.56	3,492.44	19.01	18.97	-125.11	-84.00	-119.46	146.23	108.25	37.98	3.850	
3,700.00	3,700.00	3,498.32	3,491.95	19.55	19.51	-123.31	-83.06	-126.41	151.47	112.41	39.06	3.878	
3,800.00	3,800.00	3,498.07	3,491.45	20.09	20.06	-121.62	-82.13	-133.37	156.86	116.71	40.15	3.907	
3,900.00	3,900.00	3,497.82	3,490.96	20.63	20.61	-120.05	-81.19	-140.32	162.37	121.14	41.23	3.938	
4,000.00	4,000.00	3,497.57	3,490.46	21.16	21.15	-118.59	-80.26	-147.27	167.99	125.68	42.32	3.970	
4,100.00	4,100.00	4,097.32	4,089.97	21.70	21.70	-117.22	-79.32	-154.23	173.72	130.32	43.40	4.003	
4,200.00	4,200.00	4,197.08	4,189.47	22.24	22.25	-115.94	-78.39	-161.18	179.54	135.05	44.48	4.036	
4,300.00	4,300.00	4,296.83	4,288.98	22.78	22.79	-114.73	-77.45	-168.13	185.44	139.87	45.57	4.070	
4,400.00	4,400.00	4,396.58	4,388.49	23.31	23.34	-113.61	-76.52	-175.08	191.42	144.77	46.65	4.103	
4,500.00	4,500.00	4,496.33	4,487.99	23.85	23.89	-112.55	-75.58	-182.04	197.47	149.73	47.74	4.137	
4,600.00	4,600.00	4,496.09	4,487.50	24.39	24.44	-111.55	-74.65	-188.99	203.58	154.76	48.82	4.170	
4,700.00	4,700.00	4,495.84	4,487.00	24.93	24.99	-110.62	-73.71	-195.94	209.75	159.85	49.90	4.203	
4,800.00	4,800.00	4,495.59	4,486.51	25.47	25.54	-109.73	-72.78	-202.90	215.97	164.99	50.99	4.236	
4,900.00	4,900.00	4,495.34	4,486.01	26.00	26.09	-108.90	-71.84	-209.85	222.25	170.17	52.07	4.268	
5,000.00	5,000.00	4,495.10	4,485.52	26.54	26.64	-108.11	-70.91	-216.80	228.56	175.40	53.16	4.300	
5,100.00	5,100.00	5,094.85	5,085.02	27.08	27.19	-107.37	-69.97	-223.75	234.92	180.67	54.24	4.331	
5,200.00	5,200.00	5,194.60	5,184.53	27.62	27.74	-106.66	-69.04	-230.71	241.31	185.98	55.33	4.361	
5,300.00	5,300.00	5,294.35	5,284.03	28.15	28.29	-105.99	-68.10	-237.66	247.74	191.33	56.41	4.392	
5,400.00	5,400.00	5,394.11	5,383.54	28.69	28.84	-105.35	-67.17	-244.61	254.20	196.70	57.50	4.421	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0021 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,500.00	5,500.00	5,493.86	5,483.04	29.23	29.39	-104.75	-66.23	-251.57	260.69	202.11	58.58	4.450	
5,600.00	5,600.00	5,593.61	5,582.55	29.77	29.94	-104.18	-65.30	-258.52	267.21	207.54	59.67	4.478	
5,700.00	5,700.00	5,693.36	5,682.06	30.31	30.49	-103.63	-64.36	-265.47	273.75	213.00	60.75	4.506	
5,800.00	5,800.00	5,793.12	5,781.56	30.84	31.04	-103.11	-63.43	-272.42	280.32	218.48	61.84	4.533	
5,900.00	5,900.00	5,892.87	5,881.07	31.38	31.60	-102.61	-62.49	-279.38	286.91	223.98	62.92	4.560	
6,000.00	6,000.00	5,992.62	5,980.57	31.92	32.15	-102.13	-61.56	-286.33	293.52	229.51	64.01	4.586	
6,100.00	6,100.00	6,092.37	6,080.08	32.46	32.70	-101.68	-60.62	-293.28	300.14	235.05	65.09	4.611	
6,200.00	6,200.00	6,192.12	6,179.58	32.99	33.25	-101.24	-59.69	-300.24	306.79	240.61	66.18	4.636	
6,300.00	6,300.00	6,291.88	6,279.09	33.53	33.80	-100.83	-58.75	-307.19	313.46	246.19	67.26	4.660	
6,400.00	6,400.00	6,391.63	6,378.59	34.07	34.36	-100.43	-57.82	-314.14	320.13	251.79	68.35	4.684	
6,500.00	6,500.00	6,491.38	6,478.10	34.61	34.91	-100.05	-56.88	-321.09	326.83	257.40	69.43	4.707	
6,600.00	6,600.00	6,591.13	6,577.60	35.14	35.46	-99.68	-55.95	-328.05	333.54	263.02	70.52	4.730	
6,700.00	6,700.00	6,690.89	6,677.11	35.68	36.01	-99.33	-55.01	-335.00	340.26	268.66	71.60	4.752	
6,800.00	6,800.00	6,790.64	6,776.61	36.22	36.56	-98.99	-54.08	-341.95	346.99	274.30	72.69	4.774	
6,900.00	6,900.00	6,890.39	6,876.12	36.76	37.12	-98.66	-53.14	-348.91	353.74	279.96	73.77	4.795	
7,000.00	7,000.00	6,990.14	6,975.63	37.30	37.67	-98.35	-52.20	-355.86	360.49	285.63	74.86	4.816	
7,100.00	7,100.00	7,089.90	7,075.13	37.83	38.22	-98.04	-51.27	-362.81	367.26	291.32	75.94	4.836	
7,200.00	7,200.00	7,189.65	7,174.64	38.37	38.78	-97.75	-50.33	-369.77	374.04	297.01	77.03	4.856	
7,300.00	7,300.00	7,289.40	7,274.14	38.91	39.33	-97.47	-49.40	-376.72	380.82	302.71	78.11	4.875	
7,400.00	7,400.00	7,389.15	7,373.65	39.45	39.88	-97.20	-48.46	-383.67	387.62	308.42	79.20	4.894	
7,500.00	7,500.00	7,488.91	7,473.15	39.98	40.43	-96.94	-47.53	-390.62	394.42	314.13	80.29	4.913	
7,600.00	7,600.00	7,588.66	7,572.66	40.52	40.99	-96.68	-46.59	-397.58	401.23	319.86	81.37	4.931	
7,700.00	7,700.00	7,688.41	7,672.16	41.06	41.54	-96.44	-45.66	-404.53	408.05	325.59	82.46	4.949	
7,800.00	7,800.00	7,788.16	7,771.67	41.60	42.09	-96.20	-44.72	-411.48	414.87	331.33	83.54	4.966	
7,900.00	7,900.00	7,887.92	7,871.17	42.13	42.65	-95.97	-43.79	-418.44	421.71	337.08	84.63	4.983	
8,000.00	8,000.00	7,987.67	7,970.68	42.67	43.20	-95.75	-42.85	-425.39	428.55	342.83	85.71	5.000	
8,100.00	8,100.00	8,087.42	8,070.18	43.21	43.75	-95.54	-41.92	-432.34	435.39	348.59	86.80	5.016	
8,200.00	8,200.00	8,187.17	8,169.69	43.75	44.31	-95.33	-40.98	-439.29	442.24	354.36	87.88	5.032	
8,300.00	8,300.00	8,286.93	8,269.20	44.29	44.86	-95.13	-40.05	-446.25	449.10	360.13	88.97	5.048	
8,400.00	8,399.98	8,386.74	8,368.77	44.80	45.41	-94.93	-39.11	-453.20	454.59	365.17	89.42	5.064	
8,500.00	8,499.85	8,486.63	8,468.40	45.30	45.97	-94.73	-38.18	-460.17	457.13	366.71	90.42	5.056	
8,600.00	8,599.67	8,586.51	8,568.04	45.80	46.52	-94.54	-37.24	-467.13	458.73	367.28	91.45	5.016	
8,700.00	8,699.48	8,685.85	8,667.13	46.29	47.07	-94.35	-36.30	-474.04	460.40	367.91	92.48	4.978	
8,800.00	8,799.29	8,782.47	8,762.82	46.79	47.58	-94.16	-35.37	-480.95	462.52	369.04	93.48	4.948	
8,900.00	8,899.11	8,874.10	8,850.72	47.29	48.03	-93.97	-34.44	-487.86	466.12	371.70	94.42	4.937	
9,000.00	8,998.92	8,956.99	8,925.93	47.80	48.40	-93.78	-33.51	-494.77	473.31	378.02	95.29	4.967	
9,100.00	9,098.73	9,029.40	8,987.01	48.30	48.70	-93.59	-32.58	-501.68	486.70	390.60	96.10	5.065	
9,200.00	9,198.55	9,091.34	9,035.06	48.80	48.93	-93.40	-31.65	-508.59	508.51	411.66	96.85	5.251	
9,300.00	9,298.36	9,150.00	9,076.45	49.31	49.14	-93.21	-30.72	-515.50	539.99	442.42	97.56	5.535	
9,400.00	9,398.17	9,187.99	9,100.92	49.81	49.27	-93.02	-29.79	-522.41	581.10	482.91	98.19	5.918	
9,500.00	9,497.98	9,225.41	9,123.08	50.32	49.40	-92.83	-28.86	-529.32	631.32	532.51	98.81	6.389	
9,600.00	9,597.80	9,250.00	9,136.56	50.83	49.49	-92.64	-27.93	-536.23	689.51	590.13	99.38	6.938	
9,700.00	9,697.54	9,284.95	9,154.18	51.34	49.61	-92.45	-27.00	-543.14	753.71	653.90	99.81	7.551	
9,800.00	9,795.55	9,314.32	9,167.55	51.83	49.72	-92.26	-26.07	-550.05	817.26	718.36	99.81	8.263	
9,900.00	9,888.86	9,350.00	9,181.97	52.29	49.85	-92.07	-25.14	-556.96	876.59	780.62	99.97	9.134	
10,000.00	9,974.63	9,379.59	9,192.37	52.74	49.97	-91.88	-24.21	-563.87	929.94	839.08	90.85	10.235	
10,100.00	10,050.26	9,400.00	9,198.70	53.19	50.06	-91.69	-23.28	-570.78	976.37	892.44	83.94	11.632	
10,200.00	10,113.44	9,450.00	9,211.28	53.64	50.27	-91.50	-22.35	-577.69	1,014.13	938.41	75.71	13.394	
10,300.00	10,162.27	9,500.00	9,219.61	54.10	50.50	-91.31	-21.42	-584.60	1,043.50	976.12	67.38	15.486	
10,400.00	10,195.25	9,523.92	9,222.07	54.57	50.61	-91.12	-20.49	-591.51	1,063.10	1,002.64	60.46	17.584	
10,500.00	10,211.38	9,561.25	9,223.92	55.05	50.79	-90.93	-19.56	-598.42	1,073.23	1,016.67	56.56	18.976	
10,600.00	10,212.89	9,641.27	9,223.75	55.55	51.21	-90.74	-18.63	-605.33	1,074.61	1,017.92	56.69	18.955	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design													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			
10,700.00	10,212.69	9,741.27	9,223.39	56.12	51.80	23.00	-780.34	-494.87	1,074.76	1,017.16	57.60	18.658			
10,800.00	10,212.49	9,841.27	9,223.03	56.77	52.47	23.00	-880.31	-492.43	1,074.91	1,016.28	58.62	18.336			
10,900.00	10,212.28	9,941.27	9,222.67	57.49	53.22	23.00	-980.28	-490.00	1,075.05	1,015.30	59.76	17.991			
11,000.00	10,212.08	10,041.27	9,222.30	58.29	54.04	22.99	-1,080.25	-487.57	1,075.20	1,014.21	60.99	17.629			
11,100.00	10,211.88	10,141.27	9,221.94	59.15	54.94	22.99	-1,180.22	-485.13	1,075.34	1,013.03	62.32	17.256			
11,200.00	10,211.68	10,241.27	9,221.58	60.08	55.90	22.98	-1,280.19	-482.70	1,075.49	1,011.75	63.74	16.873			
11,300.00	10,211.48	10,341.27	9,221.22	61.07	56.92	22.98	-1,380.16	-480.26	1,075.64	1,010.39	65.24	16.486			
11,400.00	10,211.28	10,441.27	9,220.85	62.12	58.01	22.98	-1,480.13	-477.83	1,075.78	1,008.95	66.83	16.098			
11,500.00	10,211.08	10,541.27	9,220.49	63.23	59.16	22.97	-1,580.10	-475.40	1,075.93	1,007.44	68.48	15.710			
11,600.00	10,210.87	10,641.27	9,220.13	64.39	60.37	22.97	-1,680.07	-472.96	1,076.07	1,005.86	70.21	15.327			
11,700.00	10,210.67	10,741.27	9,219.77	65.61	61.62	22.97	-1,780.04	-470.53	1,076.22	1,004.22	72.00	14.948			
11,800.00	10,210.47	10,841.27	9,219.41	66.87	62.93	22.96	-1,880.01	-468.10	1,076.37	1,002.52	73.85	14.576			
11,900.00	10,210.27	10,941.27	9,219.04	68.18	64.28	22.96	-1,979.98	-465.66	1,076.51	1,000.77	75.75	14.212			
12,000.00	10,210.07	11,041.27	9,218.68	69.53	65.67	22.96	-2,079.95	-463.23	1,076.66	998.96	77.70	13.857			
12,100.00	10,209.87	11,141.27	9,218.32	70.92	67.11	22.95	-2,179.92	-460.79	1,076.80	997.11	79.70	13.512			
12,200.00	10,209.67	11,241.27	9,217.96	72.35	68.59	22.95	-2,279.88	-458.36	1,076.95	995.21	81.74	13.176			
12,300.00	10,209.46	11,341.27	9,217.59	73.81	70.10	22.94	-2,379.85	-455.93	1,077.10	993.28	83.82	12.851			
12,400.00	10,209.26	11,441.27	9,217.23	75.31	71.64	22.94	-2,479.82	-453.49	1,077.24	991.31	85.94	12.535			
12,500.00	10,209.06	11,541.27	9,216.87	76.84	73.22	22.94	-2,579.79	-451.06	1,077.39	989.30	88.09	12.231			
12,600.00	10,208.86	11,641.27	9,216.51	78.40	74.82	22.93	-2,679.76	-448.62	1,077.53	987.26	90.27	11.936			
12,700.00	10,208.66	11,741.27	9,216.14	79.99	76.45	22.93	-2,779.73	-446.19	1,077.68	985.19	92.49	11.652			
12,800.00	10,208.46	11,841.27	9,215.78	81.61	78.11	22.93	-2,879.70	-443.76	1,077.83	983.10	94.73	11.378			
12,900.00	10,208.26	11,941.27	9,215.42	83.25	79.80	22.92	-2,979.67	-441.32	1,077.97	980.98	96.99	11.114			
13,000.00	10,208.06	12,041.27	9,215.06	84.92	81.50	22.92	-3,079.64	-438.89	1,078.12	978.83	99.29	10.859			
13,100.00	10,207.85	12,141.27	9,214.70	86.60	83.23	22.92	-3,179.61	-436.45	1,078.27	976.67	101.60	10.613			
13,200.00	10,207.65	12,241.27	9,214.33	88.31	84.98	22.91	-3,279.58	-434.02	1,078.41	974.48	103.93	10.376			
13,300.00	10,207.45	12,341.27	9,213.97	90.04	86.74	22.91	-3,379.55	-431.59	1,078.56	972.27	106.29	10.148			
13,400.00	10,207.25	12,441.27	9,213.61	91.79	88.53	22.91	-3,479.52	-429.15	1,078.70	970.05	108.66	9.928			
13,500.00	10,207.05	12,541.27	9,213.25	93.55	90.33	22.90	-3,579.49	-426.72	1,078.85	967.80	111.05	9.715			
13,600.00	10,206.85	12,641.27	9,212.88	95.33	92.15	22.90	-3,679.46	-424.28	1,079.00	965.55	113.45	9.511			
13,700.00	10,206.65	12,741.27	9,212.52	97.13	93.98	22.89	-3,779.43	-421.85	1,079.14	963.27	115.87	9.314			
13,800.00	10,206.44	12,841.27	9,212.16	98.94	95.83	22.89	-3,879.40	-419.42	1,079.29	960.99	118.30	9.123			
13,900.00	10,206.24	12,941.27	9,211.80	100.76	97.69	22.89	-3,979.37	-416.98	1,079.43	958.69	120.75	8.940			
14,000.00	10,206.04	13,041.27	9,211.43	102.60	99.56	22.88	-4,079.34	-414.55	1,079.58	956.38	123.20	8.763			
14,100.00	10,205.84	13,141.27	9,211.07	104.46	101.44	22.88	-4,179.31	-412.12	1,079.73	954.05	125.67	8.592			
14,200.00	10,205.64	13,241.27	9,210.71	106.32	103.34	22.88	-4,279.28	-409.68	1,079.87	951.72	128.15	8.426			
14,300.00	10,205.44	13,341.27	9,210.35	108.19	105.24	22.87	-4,379.25	-407.25	1,080.02	949.37	130.64	8.267			
14,400.00	10,205.24	13,441.27	9,209.98	110.08	107.16	22.87	-4,479.22	-404.81	1,080.16	947.02	133.14	8.113			
14,500.00	10,205.03	13,541.27	9,209.62	111.98	109.08	22.87	-4,579.19	-402.38	1,080.31	944.66	135.65	7.964			
14,600.00	10,204.83	13,641.27	9,209.26	113.88	111.01	22.86	-4,679.15	-399.95	1,080.46	942.29	138.17	7.820			
14,700.00	10,204.63	13,741.27	9,208.90	115.80	112.96	22.86	-4,779.12	-397.51	1,080.60	939.91	140.70	7.680			
14,800.00	10,204.43	13,841.27	9,208.54	117.72	114.91	22.85	-4,879.09	-395.08	1,080.75	937.52	143.23	7.546			
14,900.00	10,204.23	13,941.26	9,208.17	119.65	116.85	22.85	-4,979.06	-392.64	1,080.89	935.12	145.77	7.415			
15,000.00	10,204.03	14,041.26	9,207.81	121.59	118.83	22.85	-5,079.03	-390.21	1,081.04	932.72	148.32	7.289			
15,100.00	10,203.83	14,141.26	9,207.45	123.54	120.80	22.84	-5,179.00	-387.78	1,081.19	930.32	150.87	7.166			
15,200.00	10,203.63	14,241.26	9,207.09	125.49	122.78	22.84	-5,278.97	-385.34	1,081.33	927.90	153.43	7.048			
15,300.00	10,203.42	14,341.26	9,206.72	127.46	124.76	22.84	-5,378.94	-382.91	1,081.48	925.48	156.00	6.933			
15,400.00	10,203.22	14,441.26	9,206.36	129.42	126.76	22.83	-5,478.91	-380.47	1,081.63	923.06	158.57	6.821			
15,500.00	10,203.02	14,540.91	9,206.00	131.40	128.74	22.83	-5,578.82	-378.05	1,081.77	920.63	161.14	6.713			
15,600.00	10,202.84	14,629.74	9,205.65	133.37	130.52	22.83	-5,667.34	-377.03	1,082.03	918.39	163.63	6.613			
15,700.00	10,202.16	14,729.74	9,204.71	135.35	132.52	22.83	-5,767.34	-376.45	1,082.27	916.05	166.21	6.511			
15,800.00	10,201.68	14,829.74	9,203.97	137.34	134.52	22.82	-5,867.33	-375.86	1,082.51	913.71	168.79	6.413			

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0021 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,900.00	10,201.20	14,929.73	9,203.23	139.32	136.54	22.82	-5,967.33	-375.28	1,082.75	911.36	171.38	6.318		
16,000.00	10,200.72	15,029.73	9,202.49	141.32	138.55	22.81	-6,067.32	-374.69	1,082.99	909.01	173.97	6.225		
16,100.00	10,200.24	15,129.73	9,201.75	143.32	140.57	22.81	-6,167.32	-374.11	1,083.23	906.66	176.57	6.135		
16,200.00	10,199.76	15,229.73	9,201.01	145.32	142.59	22.80	-6,267.32	-373.52	1,083.47	904.30	179.17	6.047		
16,300.00	10,199.28	15,329.73	9,200.27	147.33	144.62	22.80	-6,367.31	-372.94	1,083.71	901.94	181.77	5.962		
16,400.00	10,198.80	15,429.73	9,199.53	149.34	146.65	22.79	-6,467.31	-372.36	1,083.95	899.57	184.38	5.879		
16,500.00	10,198.32	15,529.73	9,198.79	151.36	148.68	22.79	-6,567.30	-371.77	1,084.19	897.20	186.99	5.798		
16,600.00	10,197.84	15,629.73	9,198.05	153.38	150.72	22.78	-6,667.30	-371.19	1,084.43	894.83	189.60	5.720		
16,700.00	10,197.36	15,729.73	9,197.31	155.40	152.76	22.78	-6,767.29	-370.60	1,084.67	892.45	192.21	5.643		
16,800.00	10,196.88	15,829.73	9,196.57	157.43	154.81	22.77	-6,867.29	-370.02	1,084.91	890.08	194.83	5.568		
16,900.00	10,196.40	15,929.73	9,195.83	159.46	156.86	22.77	-6,967.28	-369.43	1,085.15	887.70	197.45	5.496		
17,000.00	10,195.92	16,029.73	9,195.09	161.49	158.91	22.76	-7,067.28	-368.85	1,085.39	885.31	200.07	5.425		
17,100.00	10,195.44	16,129.73	9,194.35	163.53	160.96	22.76	-7,167.27	-368.27	1,085.63	882.93	202.70	5.356		
17,200.00	10,194.96	16,229.73	9,193.61	165.57	163.01	22.75	-7,267.27	-367.68	1,085.87	880.54	205.33	5.288		
17,300.00	10,194.48	16,329.73	9,192.87	167.61	165.07	22.75	-7,367.26	-367.10	1,086.11	878.15	207.96	5.223		
17,400.00	10,194.00	16,429.73	9,192.13	169.66	167.13	22.74	-7,467.26	-366.51	1,086.35	875.76	210.59	5.159		
17,500.00	10,193.52	16,529.73	9,191.39	171.71	169.20	22.74	-7,567.25	-365.93	1,086.59	873.36	213.22	5.096		
17,600.00	10,193.04	16,629.73	9,190.65	173.76	171.26	22.73	-7,667.25	-365.34	1,086.83	870.97	215.86	5.035		
17,700.00	10,192.56	16,729.73	9,189.91	175.81	173.33	22.73	-7,767.24	-364.76	1,087.07	868.57	218.50	4.975		
17,800.00	10,192.08	16,829.73	9,189.17	177.87	175.40	22.72	-7,867.24	-364.18	1,087.31	866.17	221.14	4.917		
17,900.00	10,191.60	16,929.73	9,188.43	179.93	177.47	22.71	-7,967.23	-363.59	1,087.55	863.77	223.78	4.860		
18,000.00	10,191.12	17,029.73	9,187.69	181.99	179.55	22.71	-8,067.23	-363.01	1,087.79	861.37	226.42	4.804		
18,100.00	10,190.64	17,129.73	9,186.96	184.05	181.62	22.70	-8,167.22	-362.42	1,088.03	858.96	229.07	4.750		
18,200.00	10,190.16	17,229.73	9,186.22	186.12	183.70	22.70	-8,267.22	-361.84	1,088.27	856.56	231.71	4.697		
18,300.00	10,189.68	17,329.73	9,185.48	188.19	185.78	22.69	-8,367.21	-361.25	1,088.51	854.15	234.36	4.645		
18,400.00	10,189.20	17,429.73	9,184.74	190.26	187.86	22.69	-8,467.21	-360.67	1,088.75	851.74	237.01	4.594		
18,500.00	10,188.72	17,529.73	9,184.00	192.33	189.95	22.68	-8,567.21	-360.09	1,088.99	849.33	239.66	4.544		
18,600.00	10,188.24	17,629.73	9,183.26	194.40	192.03	22.68	-8,667.20	-359.50	1,089.23	846.92	242.31	4.495		
18,700.00	10,187.76	17,729.73	9,182.52	196.48	194.12	22.67	-8,767.20	-358.92	1,089.47	844.50	244.96	4.447		
18,800.00	10,187.28	17,829.73	9,181.78	198.55	196.21	22.67	-8,867.19	-358.33	1,089.71	842.09	247.62	4.401		
18,900.00	10,186.80	17,929.72	9,181.04	200.63	198.30	22.66	-8,967.19	-357.75	1,089.95	839.68	250.27	4.355		
19,000.00	10,186.32	18,029.72	9,180.30	202.71	200.39	22.66	-9,067.18	-357.17	1,090.19	837.26	252.93	4.310		
19,100.00	10,185.84	18,129.72	9,179.56	204.80	202.48	22.65	-9,167.18	-356.58	1,090.43	834.84	255.59	4.266		
19,200.00	10,185.36	18,229.72	9,178.82	206.88	204.58	22.65	-9,267.17	-356.00	1,090.67	832.42	258.25	4.223		
19,300.00	10,184.88	18,329.72	9,178.08	208.96	206.67	22.64	-9,367.17	-355.41	1,090.91	830.00	260.91	4.181		
19,400.00	10,184.40	18,429.72	9,177.34	211.05	208.77	22.64	-9,467.16	-354.83	1,091.15	827.58	263.57	4.140		
19,500.00	10,183.92	18,529.72	9,176.60	213.14	210.87	22.63	-9,567.16	-354.24	1,091.39	825.16	266.23	4.099		
19,600.00	10,183.44	18,629.72	9,175.86	215.23	212.97	22.63	-9,667.15	-353.66	1,091.63	822.74	268.89	4.060		
19,700.00	10,182.96	18,729.72	9,175.12	217.32	215.07	22.62	-9,767.15	-353.08	1,091.87	820.32	271.55	4.021		
19,800.00	10,182.48	18,829.72	9,174.38	219.41	217.17	22.62	-9,867.14	-352.49	1,092.11	817.90	274.22	3.983		
19,900.00	10,182.00	18,929.72	9,173.64	221.51	219.27	22.61	-9,967.14	-351.91	1,092.35	815.47	276.88	3.945		
20,000.00	10,181.52	19,029.72	9,172.90	223.60	221.37	22.61	-10,067.13	-351.32	1,092.59	813.05	279.55	3.908		
20,100.00	10,181.04	19,129.72	9,172.16	225.70	223.48	22.60	-10,167.13	-350.74	1,092.83	810.62	282.21	3.872		
20,200.00	10,180.56	19,229.72	9,171.42	227.79	225.58	22.60	-10,267.12	-350.15	1,093.07	808.19	284.88	3.837		
20,300.00	10,180.08	19,329.72	9,170.68	229.89	227.69	22.59	-10,367.12	-349.57	1,093.31	805.77	287.55	3.802		
20,400.00	10,179.60	19,429.72	9,169.94	231.99	229.80	22.59	-10,467.11	-348.99	1,093.55	803.34	290.21	3.768		
20,500.00	10,179.12	19,529.72	9,169.20	234.09	231.91	22.58	-10,567.11	-348.40	1,093.79	800.91	292.88	3.735		
20,525.44	10,179.00	19,555.16	9,169.02	234.55	232.44	22.58	-10,592.55	-348.25	1,093.86	800.42	293.43	3.728 SF		



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
0.00	0.00	1.00	0.00	0.00	0.00	-179.15	-74.99	-1.11	75.00						
100.00	100.00	101.00	100.00	0.19	0.20	-179.15	-74.99	-1.11	75.00	74.61	0.39	191.070			
200.00	200.00	201.00	200.00	0.73	0.74	-179.15	-74.99	-1.11	75.00	73.53	1.47	51.092			
300.00	300.00	301.00	300.00	1.27	1.27	-179.15	-74.99	-1.11	75.00	72.46	2.54	29.489			
400.00	400.00	401.00	400.00	1.81	1.81	-179.15	-74.99	-1.11	75.00	71.38	3.62	20.725			
500.00	500.00	501.00	500.00	2.34	2.35	-179.15	-74.99	-1.11	75.00	70.31	4.69	15.977			
600.00	600.00	601.00	600.00	2.88	2.89	-179.15	-74.99	-1.11	75.00	69.23	5.77	12.999			
700.00	700.00	701.00	700.00	3.42	3.43	-179.15	-74.99	-1.11	75.00	68.16	6.85	10.957			
800.00	800.00	801.00	800.00	3.96	3.96	-179.15	-74.99	-1.11	75.00	67.08	7.92	9.469			
900.00	900.00	901.00	900.00	4.50	4.50	-179.15	-74.99	-1.11	75.00	66.00	9.00	8.337			
1,000.00	1,000.00	1,001.00	1,000.00	5.03	5.04	-179.15	-74.99	-1.11	75.00	64.93	10.07	7.447			
1,100.00	1,100.00	1,101.00	1,100.00	5.57	5.58	-179.15	-74.99	-1.11	75.00	63.85	11.15	6.728			
1,200.00	1,200.00	1,201.00	1,200.00	6.11	6.11	-179.15	-74.99	-1.11	75.00	62.78	12.22	6.136			
1,300.00	1,300.00	1,301.00	1,300.00	6.65	6.65	-179.15	-74.99	-1.11	75.00	61.70	13.30	5.640			
1,400.00	1,400.00	1,401.00	1,400.00	7.18	7.19	-179.15	-74.99	-1.11	75.00	60.63	14.37	5.218			
1,500.00	1,500.00	1,501.00	1,500.00	7.72	7.73	-179.15	-74.99	-1.11	75.00	59.55	15.45	4.855			
1,600.00	1,600.00	1,601.00	1,600.00	8.26	8.26	-179.15	-74.99	-1.11	75.00	58.48	16.52	4.539			
1,700.00	1,700.00	1,701.00	1,700.00	8.80	8.80	-179.15	-74.99	-1.11	75.00	57.40	17.60	4.262			
1,766.33	1,766.33	1,767.33	1,766.33	9.15	9.16	-179.15	-74.99	-1.11	75.00	56.69	18.31	4.096 CC			
1,800.00	1,800.00	1,801.00	1,800.00	9.33	9.34	-179.15	-74.99	-1.11	75.00	56.33	18.67	4.016			
1,900.00	1,900.00	1,900.72	1,899.70	9.87	9.86	179.51	-75.18	0.65	75.18	55.45	19.73	3.810			
2,000.00	2,000.00	2,000.38	1,999.24	10.41	10.37	175.79	-75.71	5.58	75.92	55.14	20.78	3.653 ES			
2,100.00	2,100.00	2,100.23	2,098.92	10.95	10.89	171.70	-76.30	11.13	77.12	55.29	21.83	3.533			
2,200.00	2,200.00	2,200.07	2,198.61	11.49	11.41	167.75	-76.89	16.69	78.70	55.82	22.88	3.439			
2,300.00	2,300.00	2,299.91	2,298.30	12.02	11.93	163.98	-77.49	22.25	80.64	56.70	23.93	3.369			
2,400.00	2,400.00	2,399.76	2,397.98	12.56	12.45	160.40	-78.08	27.81	82.91	57.92	24.99	3.318			
2,500.00	2,500.00	2,499.60	2,497.67	13.10	12.98	157.02	-78.68	33.36	85.49	59.44	26.05	3.282			
2,600.00	2,600.00	2,599.44	2,597.36	13.64	13.50	153.85	-79.27	38.92	88.35	61.24	27.10	3.260			
2,700.00	2,700.00	2,699.29	2,697.04	14.17	14.03	150.89	-79.86	44.48	91.46	63.30	28.17	3.247			
2,800.00	2,800.00	2,799.13	2,796.73	14.71	14.56	148.12	-80.46	50.04	94.80	65.58	29.23	3.244 SF			
2,900.00	2,900.00	2,898.97	2,896.42	15.25	15.10	145.55	-81.05	55.59	98.35	68.06	30.29	3.247			
3,000.00	3,000.00	2,998.82	2,996.10	15.79	15.63	143.17	-81.65	61.15	102.08	70.73	31.36	3.256			
3,100.00	3,100.00	3,098.66	3,095.79	16.32	16.16	140.95	-82.24	66.71	105.98	73.55	32.42	3.269			
3,200.00	3,200.00	3,198.50	3,195.48	16.86	16.70	138.90	-82.83	72.26	110.02	76.53	33.49	3.285			
3,300.00	3,300.00	3,298.35	3,295.16	17.40	17.24	136.99	-83.43	77.82	114.19	79.63	34.56	3.304			
3,400.00	3,400.00	3,398.19	3,394.85	17.94	17.77	135.22	-84.02	83.38	118.48	82.86	35.63	3.326			
3,500.00	3,500.00	3,498.03	3,494.54	18.48	18.31	133.57	-84.62	88.94	122.88	86.18	36.70	3.348			
3,600.00	3,600.00	3,597.88	3,594.22	19.01	18.85	132.04	-85.21	94.49	127.37	89.60	37.77	3.372			
3,700.00	3,700.00	3,697.72	3,693.91	19.55	19.39	130.62	-85.80	100.05	131.95	93.10	38.84	3.397			
3,800.00	3,800.00	3,797.56	3,793.60	20.09	19.93	129.29	-86.40	105.61	136.60	96.68	39.91	3.422			
3,900.00	3,900.00	3,897.41	3,893.28	20.63	20.47	128.04	-86.99	111.17	141.32	100.33	40.99	3.448			
4,000.00	4,000.00	3,997.25	3,992.97	21.16	21.01	126.88	-87.59	116.72	146.10	104.04	42.06	3.473			
4,100.00	4,100.00	4,097.09	4,092.66	21.70	21.55	125.80	-88.18	122.28	150.94	107.80	43.14	3.499			
4,200.00	4,200.00	4,196.94	4,192.34	22.24	22.09	124.78	-88.77	127.84	155.83	111.61	44.21	3.524			
4,300.00	4,300.00	4,296.78	4,292.03	22.78	22.63	123.82	-89.37	133.40	160.76	115.47	45.29	3.550			
4,400.00	4,400.00	4,396.62	4,391.72	23.31	23.17	122.92	-89.96	138.95	165.74	119.37	46.37	3.575			
4,500.00	4,500.00	4,496.46	4,491.40	23.85	23.71	122.07	-90.56	144.51	170.75	123.31	47.44	3.599			
4,600.00	4,600.00	4,596.31	4,591.09	24.39	24.26	121.27	-91.15	150.07	175.81	127.29	48.52	3.623			
4,700.00	4,700.00	4,696.15	4,690.78	24.93	24.80	120.52	-91.74	155.62	180.89	131.29	49.60	3.647			
4,800.00	4,800.00	4,795.99	4,790.46	25.47	25.34	119.81	-92.34	161.18	186.00	135.33	50.68	3.670			
4,900.00	4,900.00	4,895.84	4,890.15	26.00	25.88	119.13	-92.93	166.74	191.14	139.39	51.75	3.693			
5,000.00	5,000.00	4,995.68	4,989.84	26.54	26.43	118.49	-93.52	172.30	196.31	143.47	52.83	3.716			

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,100.00	5,100.00	5,095.52	5,089.52	27.08	26.97	117.89	-94.12	177.85	201.49	147.58	53.91	3.738	
5,200.00	5,200.00	5,195.37	5,189.21	27.62	27.52	117.31	-94.71	183.41	206.70	151.71	54.99	3.759	
5,300.00	5,300.00	5,295.21	5,288.90	28.15	28.06	116.76	-95.31	188.97	211.93	155.86	56.07	3.780	
5,400.00	5,400.00	5,395.05	5,388.58	28.69	28.60	116.24	-95.90	194.53	217.18	160.03	57.15	3.800	
5,500.00	5,500.00	5,494.90	5,488.27	29.23	29.15	115.75	-96.49	200.08	222.45	164.22	58.23	3.820	
5,600.00	5,600.00	5,594.74	5,587.96	29.77	29.69	115.27	-97.09	205.64	227.73	168.42	59.31	3.840	
5,700.00	5,700.00	5,694.58	5,687.64	30.31	30.24	114.82	-97.68	211.20	233.02	172.63	60.39	3.859	
5,800.00	5,800.00	5,794.43	5,787.33	30.84	30.78	114.39	-98.28	216.76	238.33	176.86	61.47	3.877	
5,900.00	5,900.00	5,894.27	5,887.02	31.38	31.33	113.98	-98.87	222.31	243.65	181.10	62.55	3.895	
6,000.00	6,000.00	5,994.11	5,986.70	31.92	31.87	113.58	-99.46	227.87	248.99	185.36	63.63	3.913	
6,100.00	6,100.00	6,093.96	6,086.39	32.46	32.42	113.20	-100.06	233.43	254.33	189.62	64.71	3.930	
6,200.00	6,200.00	6,193.80	6,186.08	32.99	32.96	112.84	-100.65	238.98	259.69	193.90	65.79	3.947	
6,300.00	6,300.00	6,293.64	6,285.76	33.53	33.51	112.49	-101.25	244.54	265.05	198.18	66.87	3.964	
6,400.00	6,400.00	6,393.49	6,385.45	34.07	34.06	112.16	-101.84	250.10	270.43	202.48	67.95	3.980	
6,500.00	6,500.00	6,493.33	6,485.14	34.61	34.60	111.83	-102.43	255.66	275.81	206.78	69.04	3.995	
6,600.00	6,600.00	6,593.17	6,584.82	35.14	35.15	111.53	-103.03	261.21	281.21	211.09	70.12	4.011	
6,700.00	6,700.00	6,693.02	6,684.51	35.68	35.69	111.23	-103.62	266.77	286.61	215.41	71.20	4.025	
6,800.00	6,800.00	6,792.86	6,784.20	36.22	36.24	110.94	-104.22	272.33	292.02	219.74	72.28	4.040	
6,900.00	6,900.00	6,892.70	6,883.88	36.76	36.79	110.66	-104.81	277.89	297.43	224.07	73.36	4.054	
7,000.00	7,000.00	6,992.54	6,983.57	37.30	37.33	110.40	-105.40	283.44	302.85	228.41	74.44	4.068	
7,100.00	7,100.00	7,092.39	7,083.26	37.83	37.88	110.14	-106.00	289.00	308.28	232.75	75.53	4.082	
7,200.00	7,200.00	7,192.23	7,182.94	38.37	38.42	109.89	-106.59	294.56	313.71	237.11	76.61	4.095	
7,300.00	7,300.00	7,292.07	7,282.63	38.91	38.97	109.65	-107.19	300.12	319.15	241.46	77.69	4.108	
7,400.00	7,400.00	7,391.92	7,382.32	39.45	39.52	109.42	-107.78	305.67	324.60	245.83	78.77	4.121	
7,500.00	7,500.00	7,491.76	7,482.00	39.98	40.06	109.20	-108.37	311.23	330.05	250.19	79.86	4.133	
7,600.00	7,600.00	7,591.60	7,581.69	40.52	40.61	108.98	-108.97	316.79	335.50	254.57	80.94	4.145	
7,700.00	7,700.00	7,691.45	7,681.38	41.06	41.16	108.77	-109.56	322.34	340.96	258.94	82.02	4.157	
7,800.00	7,800.00	7,791.29	7,781.06	41.60	41.70	108.57	-110.15	327.90	346.43	263.33	83.10	4.169	
7,900.00	7,900.00	7,891.13	7,880.75	42.13	42.25	108.37	-110.75	333.46	351.90	267.71	84.18	4.180	
8,000.00	8,000.00	7,990.98	7,980.44	42.67	42.80	108.18	-111.34	339.02	357.37	272.10	85.27	4.191	
8,100.00	8,100.00	8,090.82	8,080.12	43.21	43.34	108.00	-111.94	344.57	362.84	276.49	86.35	4.202	
8,200.00	8,200.00	8,190.66	8,179.81	43.75	43.89	107.82	-112.53	350.13	368.32	280.89	87.43	4.213	
8,300.00	8,300.00	8,290.51	8,279.50	44.29	44.44	107.64	-113.12	355.69	373.81	285.29	88.52	4.223	
8,400.00	8,399.98	8,390.27	8,379.10	44.80	44.99	-128.36	-113.72	361.24	380.27	291.07	89.19	4.263	
8,500.00	8,499.85	8,489.77	8,478.45	45.30	45.53	-128.99	-114.31	366.78	388.88	298.74	90.15	4.314	
8,600.00	8,599.67	8,589.16	8,577.69	45.80	46.08	-129.82	-114.90	372.31	398.28	307.10	91.17	4.368	
8,700.00	8,699.48	8,688.56	8,676.93	46.29	46.62	-130.61	-115.49	377.84	407.75	315.55	92.20	4.422	
8,800.00	8,799.29	8,782.84	8,771.04	46.79	47.14	-131.25	-116.65	383.11	417.49	324.29	93.20	4.479	
8,900.00	8,899.11	8,865.11	8,852.49	47.29	47.58	-130.59	-126.76	387.88	430.25	336.12	94.13	4.571	
9,000.00	8,998.92	8,943.70	8,928.15	47.80	47.99	-128.63	-147.22	392.59	447.35	352.32	95.03	4.708	
9,100.00	9,098.73	9,016.17	8,994.84	48.30	48.36	-125.84	-175.11	396.97	469.85	373.97	95.88	4.900	
9,200.00	9,198.55	9,081.20	9,051.26	48.80	48.68	-122.68	-207.14	400.89	498.94	402.26	96.69	5.160	
9,300.00	9,298.36	9,138.46	9,097.65	49.31	48.95	-119.53	-240.49	404.28	535.43	437.99	97.44	5.495	
9,400.00	9,398.17	9,188.32	9,135.16	49.81	49.18	-116.59	-273.19	407.17	579.56	481.40	98.15	5.905	
9,500.00	9,497.98	9,231.50	9,165.25	50.32	49.39	-113.97	-304.06	409.59	631.00	532.18	98.82	6.385	
9,600.00	9,597.80	9,268.87	9,189.34	50.83	49.57	-111.69	-332.53	411.62	689.12	589.66	99.46	6.929	
9,700.00	9,697.54	9,300.00	9,207.96	51.34	49.72	-77.57	-357.43	413.27	752.48	652.34	100.14	7.514	
9,800.00	9,795.55	9,335.55	9,227.54	51.83	49.89	-53.70	-387.04	415.08	813.82	713.97	99.85	8.150	
9,900.00	9,888.86	9,371.10	9,245.24	52.29	50.07	-44.27	-417.81	416.81	869.77	772.28	97.49	8.922	
10,000.00	9,974.63	9,400.00	9,258.21	52.74	50.22	-38.64	-443.60	418.16	919.01	826.00	93.01	9.881	
10,100.00	10,050.26	9,450.00	9,277.51	53.19	50.49	-34.61	-489.66	420.35	960.27	873.55	86.73	11.072	
10,200.00	10,113.44	9,484.41	9,288.43	53.64	50.67	-32.06	-522.25	421.76	992.97	913.53	79.44	12.500	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	10,162.27	9,523.49	9,298.43	54.10	50.89	-30.38	-559.99	423.23	1,016.53	944.40	72.13	14.092		
10,400.00	10,195.25	9,550.00	9,303.75	54.57	51.04	-29.46	-585.95	424.16	1,030.75	964.62	66.13	15.586		
10,500.00	10,211.38	9,600.00	9,310.48	55.05	51.32	-29.15	-635.45	425.74	1,034.83	971.83	63.01	16.424		
10,600.00	10,212.89	9,653.58	9,312.88	55.55	51.63	-29.25	-688.94	427.18	1,031.88	968.66	63.22	16.323		
10,647.60	10,212.79	9,672.11	9,312.85	55.82	51.74	-29.25	-707.46	427.63	1,031.46	967.97	63.50	16.245		
10,700.00	10,212.69	9,724.51	9,312.76	56.12	52.07	-29.25	-759.85	428.90	1,031.45	967.48	63.97	16.125		
10,800.00	10,212.49	9,824.51	9,312.57	56.77	52.74	-29.25	-859.82	431.32	1,031.43	966.47	64.97	15.876		
10,900.00	10,212.28	9,924.51	9,312.39	57.49	53.49	-29.25	-959.79	433.75	1,031.41	965.33	66.09	15.607		
11,000.00	10,212.08	10,024.51	9,312.21	58.29	54.32	-29.25	-1,059.76	436.17	1,031.40	964.08	67.31	15.322		
11,100.00	10,211.88	10,124.51	9,312.03	59.15	55.21	-29.25	-1,159.73	438.60	1,031.38	962.73	68.65	15.024		
11,200.00	10,211.68	10,224.51	9,311.85	60.08	56.18	-29.25	-1,259.70	441.02	1,031.36	961.28	70.08	14.717		
11,300.00	10,211.48	10,324.51	9,311.67	61.07	57.21	-29.25	-1,359.67	443.45	1,031.34	959.73	71.61	14.403		
11,400.00	10,211.28	10,424.51	9,311.49	62.12	58.30	-29.25	-1,459.64	445.87	1,031.32	958.10	73.22	14.085		
11,500.00	10,211.08	10,524.51	9,311.30	63.23	59.45	-29.25	-1,559.61	448.30	1,031.30	956.39	74.91	13.767		
11,600.00	10,210.87	10,624.51	9,311.12	64.39	60.65	-29.25	-1,659.58	450.72	1,031.28	954.60	76.68	13.448		
11,700.00	10,210.67	10,724.51	9,310.94	65.61	61.91	-29.25	-1,759.55	453.15	1,031.26	952.74	78.53	13.133		
11,800.00	10,210.47	10,824.51	9,310.76	66.87	63.22	-29.26	-1,859.52	455.58	1,031.24	950.81	80.44	12.821		
11,900.00	10,210.27	10,924.51	9,310.58	68.18	64.57	-29.26	-1,959.49	458.00	1,031.23	948.82	82.41	12.514		
12,000.00	10,210.07	11,024.51	9,310.40	69.53	65.97	-29.26	-2,059.46	460.43	1,031.21	946.77	84.43	12.213		
12,100.00	10,209.87	11,124.51	9,310.22	70.92	67.40	-29.26	-2,159.43	462.85	1,031.19	944.67	86.51	11.919		
12,200.00	10,209.67	11,224.51	9,310.04	72.35	68.88	-29.26	-2,259.40	465.28	1,031.17	942.52	88.64	11.633		
12,300.00	10,209.46	11,324.51	9,309.85	73.81	70.39	-29.26	-2,359.37	467.70	1,031.15	940.33	90.82	11.354		
12,400.00	10,209.26	11,424.51	9,309.67	75.31	71.93	-29.26	-2,459.34	470.13	1,031.13	938.09	93.04	11.083		
12,500.00	10,209.06	11,524.51	9,309.49	76.84	73.51	-29.26	-2,559.31	472.55	1,031.11	935.81	95.30	10.820		
12,600.00	10,208.86	11,624.51	9,309.31	78.40	75.12	-29.26	-2,659.28	474.98	1,031.09	933.50	97.60	10.565		
12,700.00	10,208.66	11,724.51	9,309.13	79.99	76.75	-29.26	-2,759.26	477.40	1,031.07	931.15	99.93	10.318		
12,800.00	10,208.46	11,824.51	9,308.95	81.61	78.41	-29.26	-2,859.23	479.83	1,031.05	928.76	102.29	10.080		
12,900.00	10,208.26	11,924.51	9,308.77	83.25	80.09	-29.26	-2,959.20	482.26	1,031.04	926.35	104.68	9.849		
13,000.00	10,208.06	12,024.51	9,308.59	84.92	81.80	-29.26	-3,059.17	484.68	1,031.02	923.91	107.10	9.626		
13,100.00	10,207.85	12,124.51	9,308.40	86.60	83.52	-29.26	-3,159.14	487.11	1,031.00	921.45	109.55	9.411		
13,200.00	10,207.65	12,224.51	9,308.22	88.31	85.27	-29.26	-3,259.11	489.53	1,030.98	918.96	112.02	9.203		
13,300.00	10,207.45	12,324.51	9,308.04	90.04	87.04	-29.26	-3,359.08	491.96	1,030.96	916.44	114.52	9.003		
13,400.00	10,207.25	12,424.51	9,307.86	91.79	88.82	-29.26	-3,459.05	494.38	1,030.94	913.91	117.03	8.809		
13,500.00	10,207.05	12,524.51	9,307.68	93.55	90.62	-29.26	-3,559.02	496.81	1,030.92	911.35	119.57	8.622		
13,600.00	10,206.85	12,624.51	9,307.50	95.33	92.44	-29.26	-3,658.99	499.23	1,030.90	908.78	122.13	8.441		
13,700.00	10,206.65	12,724.51	9,307.32	97.13	94.27	-29.26	-3,758.96	501.66	1,030.88	906.19	124.70	8.267		
13,800.00	10,206.44	12,824.51	9,307.14	98.94	96.12	-29.26	-3,858.93	504.08	1,030.87	903.58	127.29	8.099		
13,900.00	10,206.24	12,924.51	9,306.95	100.76	97.98	-29.26	-3,958.90	506.51	1,030.85	900.95	129.89	7.936		
14,000.00	10,206.04	13,024.51	9,306.77	102.60	99.85	-29.26	-4,058.87	508.93	1,030.83	898.32	132.51	7.779		
14,100.00	10,205.84	13,124.51	9,306.59	104.46	101.73	-29.26	-4,158.84	511.36	1,030.81	895.66	135.15	7.627		
14,200.00	10,205.64	13,224.51	9,306.41	106.32	103.62	-29.26	-4,258.81	513.79	1,030.79	893.00	137.79	7.481		
14,300.00	10,205.44	13,324.51	9,306.23	108.19	105.53	-29.27	-4,358.78	516.21	1,030.77	890.32	140.45	7.339		
14,400.00	10,205.24	13,424.51	9,306.05	110.08	107.44	-29.27	-4,458.75	518.64	1,030.75	887.63	143.12	7.202		
14,500.00	10,205.03	13,524.51	9,305.87	111.98	109.37	-29.27	-4,558.72	521.06	1,030.73	884.93	145.80	7.069		
14,600.00	10,204.83	13,624.51	9,305.68	113.88	111.30	-29.27	-4,658.69	523.49	1,030.71	882.22	148.49	6.941		
14,700.00	10,204.63	13,724.51	9,305.50	115.80	113.24	-29.27	-4,758.66	525.91	1,030.70	879.50	151.20	6.817		
14,800.00	10,204.43	13,824.51	9,305.32	117.72	115.19	-29.27	-4,858.63	528.34	1,030.68	876.77	153.91	6.697		
14,900.00	10,204.23	13,924.51	9,305.14	119.65	117.15	-29.27	-4,958.60	530.76	1,030.66	874.03	156.63	6.580		
15,000.00	10,204.03	14,024.51	9,304.96	121.59	119.11	-29.27	-5,058.57	533.19	1,030.64	871.28	159.35	6.468		
15,100.00	10,203.83	14,124.51	9,304.78	123.54	121.08	-29.27	-5,158.55	535.61	1,030.62	868.53	162.09	6.358		
15,200.00	10,203.63	14,224.51	9,304.60	125.49	123.06	-29.27	-5,258.52	538.04	1,030.60	865.77	164.83	6.252		
15,300.00	10,203.42	14,324.51	9,304.42	127.46	125.05	-29.27	-5,358.49	540.47	1,030.58	863.00	167.58	6.150		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0022 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
15,400.00	10,203.22	14,424.51	9,304.23	129.42	127.04	-29.27	-5,458.46	542.89	1,030.56	860.22	170.34	6.050	
15,500.00	10,203.02	14,524.51	9,304.05	131.40	129.03	-29.27	-5,558.43	545.32	1,030.54	857.44	173.11	5.953	
15,502.81	10,203.02	14,527.32	9,304.05	131.45	129.09	-29.27	-5,561.24	545.38	1,030.54	857.36	173.18	5.951	
15,600.00	10,202.64	14,629.48	9,303.63	133.37	131.13	-29.28	-5,663.38	546.97	1,030.72	854.77	175.94	5.858	
15,700.00	10,202.16	14,729.48	9,302.97	135.35	133.12	-29.27	-5,763.37	547.55	1,030.87	852.17	178.70	5.769	
15,800.00	10,201.68	14,829.48	9,302.31	137.34	135.13	-29.27	-5,863.37	548.13	1,031.03	849.57	181.47	5.682	
15,900.00	10,201.20	14,929.48	9,301.65	139.32	137.13	-29.26	-5,963.37	548.72	1,031.19	846.95	184.23	5.597	
16,000.00	10,200.72	15,029.48	9,300.99	141.32	139.14	-29.26	-6,063.36	549.30	1,031.34	844.34	187.01	5.515	
16,100.00	10,200.24	15,129.48	9,300.32	143.32	141.16	-29.25	-6,163.36	549.89	1,031.50	841.71	189.79	5.435	
16,200.00	10,199.76	15,229.48	9,299.66	145.32	143.18	-29.25	-6,263.35	550.47	1,031.66	839.09	192.57	5.357	
16,300.00	10,199.28	15,329.48	9,299.00	147.33	145.20	-29.24	-6,363.35	551.06	1,031.82	836.46	195.36	5.282	
16,400.00	10,198.80	15,429.48	9,298.34	149.34	147.23	-29.24	-6,463.35	551.64	1,031.97	833.82	198.15	5.208	
16,500.00	10,198.32	15,529.48	9,297.68	151.36	149.26	-29.23	-6,563.34	552.22	1,032.13	831.19	200.94	5.136	
16,600.00	10,197.84	15,629.48	9,297.02	153.38	151.29	-29.23	-6,663.34	552.81	1,032.29	828.54	203.74	5.067	
16,700.00	10,197.36	15,729.48	9,296.36	155.40	153.33	-29.22	-6,763.33	553.39	1,032.44	825.90	206.54	4.999	
16,800.00	10,196.88	15,829.48	9,295.70	157.43	155.37	-29.22	-6,863.33	553.98	1,032.60	823.25	209.35	4.932	
16,900.00	10,196.40	15,929.48	9,295.04	159.46	157.41	-29.21	-6,963.33	554.56	1,032.76	820.60	212.16	4.868	
17,000.00	10,195.92	16,029.48	9,294.38	161.49	159.46	-29.21	-7,063.32	555.15	1,032.91	817.95	214.97	4.805	
17,100.00	10,195.44	16,129.48	9,293.72	163.53	161.51	-29.20	-7,163.32	555.73	1,033.07	815.29	217.78	4.744	
17,200.00	10,194.96	16,229.48	9,293.05	165.57	163.56	-29.20	-7,263.31	556.31	1,033.23	812.63	220.60	4.684	
17,300.00	10,194.48	16,329.48	9,292.39	167.61	165.62	-29.19	-7,363.31	556.90	1,033.38	809.97	223.42	4.625	
17,400.00	10,194.00	16,429.48	9,291.73	169.66	167.68	-29.19	-7,463.31	557.48	1,033.54	807.30	226.24	4.568	
17,500.00	10,193.52	16,529.48	9,291.07	171.71	169.74	-29.18	-7,563.30	558.07	1,033.70	804.63	229.07	4.513	
17,600.00	10,193.04	16,629.48	9,290.41	173.76	171.80	-29.18	-7,663.30	558.65	1,033.85	801.96	231.89	4.458	
17,700.00	10,192.56	16,729.48	9,289.75	175.81	173.86	-29.17	-7,763.29	559.23	1,034.01	799.29	234.72	4.405	
17,800.00	10,192.08	16,829.48	9,289.09	177.87	175.93	-29.17	-7,863.29	559.82	1,034.17	796.62	237.55	4.353	
17,900.00	10,191.60	16,929.48	9,288.43	179.93	178.00	-29.16	-7,963.29	560.40	1,034.33	793.94	240.39	4.303	
18,000.00	10,191.12	17,029.48	9,287.77	181.99	180.07	-29.16	-8,063.28	560.99	1,034.48	791.26	243.22	4.253	
18,100.00	10,190.64	17,129.48	9,287.11	184.05	182.15	-29.16	-8,163.28	561.57	1,034.64	788.58	246.06	4.205	
18,200.00	10,190.16	17,229.48	9,286.45	186.12	184.22	-29.15	-8,263.27	562.16	1,034.80	785.90	248.90	4.157	
18,300.00	10,189.68	17,329.48	9,285.78	188.19	186.30	-29.15	-8,363.27	562.74	1,034.95	783.21	251.74	4.111	
18,400.00	10,189.20	17,429.48	9,285.12	190.26	188.38	-29.14	-8,463.27	563.32	1,035.11	780.53	254.58	4.066	
18,500.00	10,188.72	17,529.47	9,284.46	192.33	190.46	-29.14	-8,563.26	563.91	1,035.27	777.84	257.43	4.022	
18,600.00	10,188.24	17,629.47	9,283.80	194.40	192.54	-29.13	-8,663.26	564.49	1,035.42	775.15	260.27	3.978	
18,700.00	10,187.76	17,729.47	9,283.14	196.48	194.63	-29.13	-8,763.25	565.08	1,035.58	772.46	263.12	3.936	
18,800.00	10,187.28	17,829.47	9,282.48	198.55	196.71	-29.12	-8,863.25	565.66	1,035.74	769.77	265.97	3.894	
18,900.00	10,186.80	17,929.47	9,281.82	200.63	198.80	-29.12	-8,963.25	566.25	1,035.90	767.08	268.82	3.854	
19,000.00	10,186.32	18,029.47	9,281.16	202.71	200.89	-29.11	-9,063.24	566.83	1,036.05	764.38	271.67	3.814	
19,100.00	10,185.84	18,129.47	9,280.50	204.80	202.98	-29.11	-9,163.24	567.41	1,036.21	761.69	274.52	3.775	
19,200.00	10,185.36	18,229.47	9,279.84	206.88	205.07	-29.10	-9,263.23	568.00	1,036.37	758.99	277.38	3.736	
19,300.00	10,184.88	18,329.47	9,279.18	208.96	207.17	-29.10	-9,363.23	568.58	1,036.52	756.29	280.23	3.699	
19,400.00	10,184.40	18,429.47	9,278.51	211.05	209.26	-29.09	-9,463.23	569.17	1,036.68	753.59	283.09	3.662	
19,500.00	10,183.92	18,529.47	9,277.85	213.14	211.36	-29.09	-9,563.22	569.75	1,036.84	750.89	285.95	3.626	
19,600.00	10,183.44	18,629.47	9,277.19	215.23	213.45	-29.08	-9,663.22	570.33	1,036.99	748.19	288.80	3.591	
19,700.00	10,182.96	18,729.47	9,276.53	217.32	215.55	-29.08	-9,763.21	570.92	1,037.15	745.49	291.66	3.556	
19,800.00	10,182.48	18,829.47	9,275.87	219.41	217.65	-29.07	-9,863.21	571.50	1,037.31	742.79	294.52	3.522	
19,900.00	10,182.00	18,929.47	9,275.21	221.51	219.75	-29.07	-9,963.20	572.09	1,037.47	740.08	297.38	3.489	
20,000.00	10,181.52	19,029.47	9,274.55	223.60	221.85	-29.06	-10,063.20	572.67	1,037.62	737.38	300.25	3.456	
20,100.00	10,181.04	19,129.47	9,273.89	225.70	223.96	-29.06	-10,163.20	573.26	1,037.78	734.67	303.11	3.424	
20,200.00	10,180.56	19,229.47	9,273.23	227.79	226.06	-29.05	-10,263.19	573.84	1,037.94	731.96	305.97	3.392	
20,300.00	10,180.08	19,329.47	9,272.57	229.89	228.17	-29.05	-10,363.19	574.42	1,038.09	729.26	308.84	3.361	
20,400.00	10,179.60	19,429.47	9,271.90	231.99	230.27	-29.04	-10,463.18	575.01	1,038.25	726.55	311.70	3.331	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design													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		
20,500.00	10,179.12	19,529.47	9,271.24	234.09	232.38	-29.04	-10,563.18	575.59	1,038.41	723.84	314.57	3.301		
20,525.44	10,179.00	19,554.91	9,271.08	234.55	232.91	-29.03	-10,588.62	575.74	1,038.45	723.27	315.18	3.295		



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	1.00	0.00	0.00	0.00	-179.15	-49.99	-0.74	50.00				
100.00	100.00	101.00	100.00	0.19	0.20	-179.15	-49.99	-0.74	50.00	49.61	0.39	127.380	
200.00	200.00	201.00	200.00	0.73	0.74	-179.15	-49.99	-0.74	50.00	48.53	1.47	34.061	
300.00	300.00	301.00	300.00	1.27	1.27	-179.15	-49.99	-0.74	50.00	47.46	2.54	19.659	
400.00	400.00	401.00	400.00	1.81	1.81	-179.15	-49.99	-0.74	50.00	46.38	3.62	13.817	
500.00	500.00	501.00	500.00	2.34	2.35	-179.15	-49.99	-0.74	50.00	45.31	4.69	10.651	
600.00	600.00	601.00	600.00	2.88	2.89	-179.15	-49.99	-0.74	50.00	44.23	5.77	8.666	
700.00	700.00	701.00	700.00	3.42	3.43	-179.15	-49.99	-0.74	50.00	43.15	6.85	7.305	
800.00	800.00	801.00	800.00	3.96	3.96	-179.15	-49.99	-0.74	50.00	42.08	7.92	6.313	
900.00	900.00	901.00	900.00	4.50	4.50	-179.15	-49.99	-0.74	50.00	41.00	9.00	5.558	
1,000.00	1,000.00	1,001.00	1,000.00	5.03	5.04	-179.15	-49.99	-0.74	50.00	39.93	10.07	4.965	
1,100.00	1,100.00	1,101.00	1,100.00	5.57	5.58	-179.15	-49.99	-0.74	50.00	38.85	11.15	4.486	
1,200.00	1,200.00	1,201.00	1,200.00	6.11	6.11	-179.15	-49.99	-0.74	50.00	37.78	12.22	4.091	
1,300.00	1,300.00	1,301.00	1,300.00	6.65	6.65	-179.15	-49.99	-0.74	50.00	36.70	13.30	3.760	
1,400.00	1,400.00	1,401.00	1,400.00	7.18	7.19	-179.15	-49.99	-0.74	50.00	35.63	14.37	3.479	
1,500.00	1,500.00	1,501.00	1,500.00	7.72	7.73	-179.15	-49.99	-0.74	50.00	34.55	15.45	3.237	
1,600.00	1,600.00	1,601.00	1,600.00	8.26	8.26	-179.15	-49.99	-0.74	50.00	33.48	16.52	3.026	
1,700.00	1,700.00	1,701.00	1,700.00	8.80	8.80	-179.15	-49.99	-0.74	50.00	32.40	17.60	2.841	
1,800.00	1,800.00	1,801.00	1,800.00	9.33	9.34	-179.15	-49.99	-0.74	50.00	31.33	18.67	2.677	
1,900.00	1,900.00	1,901.45	1,900.43	9.87	9.87	-177.15	-49.47	-2.46	49.53	29.79	19.74	2.509	
2,000.00	2,000.00	2,001.63	2,000.47	10.41	10.39	-171.08	-47.92	-7.52	48.51	27.71	20.80	2.332	
2,100.00	2,100.00	2,101.40	2,100.00	10.95	10.92	-163.04	-45.93	-14.01	48.02	26.16	21.86	2.196	
2,100.66	2,100.66	2,102.06	2,100.66	10.95	10.92	-162.98	-45.92	-14.05	48.02	26.15	21.87	2.196 CC	
2,200.00	2,200.00	2,201.17	2,199.54	11.49	11.45	-154.99	-43.95	-20.50	48.50	25.57	22.93	2.115 ES	
2,300.00	2,300.00	2,300.94	2,299.08	12.02	11.98	-147.24	-41.96	-27.00	49.90	25.91	23.99	2.080	
2,400.00	2,400.00	2,400.70	2,398.61	12.56	12.51	-140.04	-39.97	-33.49	52.17	27.10	25.06	2.081	
2,500.00	2,500.00	2,500.47	2,498.15	13.10	13.04	-133.53	-37.99	-39.98	55.18	29.04	26.14	2.111	
2,600.00	2,600.00	2,600.24	2,597.69	13.64	13.58	-127.76	-36.00	-46.47	58.83	31.62	27.21	2.162	
2,700.00	2,700.00	2,700.01	2,697.22	14.17	14.11	-122.71	-34.01	-52.97	63.01	34.72	28.29	2.227	
2,800.00	2,800.00	2,799.78	2,796.76	14.71	14.65	-118.31	-32.02	-59.46	67.61	38.25	29.36	2.303	
2,900.00	2,900.00	2,899.55	2,896.30	15.25	15.19	-114.49	-30.04	-65.95	72.56	42.12	30.44	2.384	
3,000.00	3,000.00	2,999.31	2,995.83	15.79	15.73	-111.17	-28.05	-72.45	77.80	46.28	31.52	2.468	
3,100.00	3,100.00	3,099.08	3,095.37	16.32	16.27	-108.27	-26.06	-78.94	83.26	50.66	32.60	2.554	
3,200.00	3,200.00	3,198.85	3,194.91	16.86	16.81	-105.74	-24.08	-85.43	88.90	55.23	33.67	2.640	
3,300.00	3,300.00	3,298.62	3,294.44	17.40	17.36	-103.51	-22.09	-91.92	94.70	59.95	34.75	2.725	
3,400.00	3,400.00	3,298.39	3,293.98	17.94	17.90	-101.54	-20.10	-98.42	100.63	64.80	35.83	2.808	
3,500.00	3,500.00	3,498.15	3,493.52	18.48	18.44	-99.80	-18.11	-104.91	106.66	69.75	36.91	2.890	
3,600.00	3,600.00	3,597.92	3,593.06	19.01	18.99	-98.24	-16.13	-111.40	112.78	74.79	37.99	2.969	
3,700.00	3,700.00	3,697.69	3,692.59	19.55	19.53	-96.84	-14.14	-117.89	118.97	79.90	39.07	3.045	
3,800.00	3,800.00	3,797.46	3,792.13	20.09	20.08	-95.58	-12.15	-124.39	125.23	85.08	40.15	3.119	
3,900.00	3,900.00	3,897.23	3,891.67	20.63	20.62	-94.44	-10.17	-130.88	131.54	90.31	41.23	3.190	
4,000.00	4,000.00	3,997.00	3,991.20	21.16	21.17	-93.41	-8.18	-137.37	137.90	95.59	42.31	3.259	
4,100.00	4,100.00	4,096.76	4,090.74	21.70	21.72	-92.46	-6.19	-143.86	144.30	100.91	43.39	3.326	
4,200.00	4,200.00	4,196.53	4,190.28	22.24	22.26	-91.60	-4.21	-150.36	150.73	106.26	44.47	3.389	
4,300.00	4,300.00	4,296.30	4,289.81	22.78	22.81	-90.81	-2.22	-156.85	157.20	111.65	45.55	3.451	
4,400.00	4,400.00	4,296.07	4,289.35	23.31	23.36	-90.08	-0.23	-163.34	163.69	117.06	46.63	3.510	
4,500.00	4,500.00	4,495.84	4,488.89	23.85	23.91	-89.41	1.76	-169.84	170.21	122.49	47.71	3.567	
4,600.00	4,600.00	4,495.60	4,488.42	24.39	24.46	-88.78	3.74	-176.33	176.75	127.95	48.80	3.622	
4,700.00	4,700.00	4,495.37	4,487.96	24.93	25.00	-88.20	5.73	-182.82	183.31	133.43	49.88	3.675	
4,800.00	4,800.00	4,795.14	4,787.50	25.47	25.55	-87.67	7.72	-189.31	189.88	138.92	50.96	3.726	
4,900.00	4,900.00	4,894.91	4,887.03	26.00	26.10	-87.16	9.70	-195.81	196.48	144.43	52.04	3.775	
5,000.00	5,000.00	4,994.68	4,986.57	26.54	26.65	-86.69	11.69	-202.30	203.08	149.96	53.12	3.823	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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	5,100.00	5,094.44	5,086.11	27.08	27.20	-86.25	13.68	-208.79	209.70	155.50	54.20	3.869		
5,200.00	5,200.00	5,194.21	5,185.64	27.62	27.75	-85.84	15.67	-215.28	216.33	161.04	55.29	3.913		
5,300.00	5,300.00	5,293.98	5,285.18	28.15	28.30	-85.45	17.65	-221.78	222.97	166.60	56.37	3.956		
5,400.00	5,400.00	5,393.75	5,384.72	28.69	28.85	-85.08	19.64	-228.27	229.62	172.17	57.45	3.997		
5,500.00	5,500.00	5,493.52	5,484.26	29.23	29.40	-84.74	21.63	-234.76	236.28	177.75	58.53	4.037		
5,600.00	5,600.00	5,593.29	5,583.79	29.77	29.95	-84.41	23.61	-241.26	242.95	183.33	59.62	4.075		
5,700.00	5,700.00	5,693.05	5,683.33	30.31	30.50	-84.10	25.60	-247.75	249.62	188.92	60.70	4.112		
5,800.00	5,800.00	5,792.82	5,782.87	30.84	31.05	-83.81	27.59	-254.24	256.31	194.52	61.78	4.148		
5,900.00	5,900.00	5,892.59	5,882.40	31.38	31.60	-83.53	29.58	-260.73	262.99	200.13	62.87	4.183		
6,000.00	6,000.00	5,992.36	5,981.94	31.92	32.15	-83.26	31.56	-267.23	269.69	205.74	63.95	4.217		
6,100.00	6,100.00	6,092.13	6,081.48	32.46	32.70	-83.01	33.55	-273.72	276.39	211.36	65.03	4.250		
6,200.00	6,200.00	6,191.89	6,181.01	32.99	33.25	-82.77	35.54	-280.21	283.09	216.98	66.12	4.282		
6,300.00	6,300.00	6,291.66	6,280.55	33.53	33.80	-82.54	37.52	-286.70	289.80	222.60	67.20	4.313		
6,400.00	6,400.00	6,391.43	6,380.09	34.07	34.35	-82.33	39.51	-293.20	296.52	228.23	68.28	4.342		
6,500.00	6,500.00	6,491.20	6,479.62	34.61	34.90	-82.12	41.50	-299.69	303.23	233.87	69.37	4.372		
6,600.00	6,600.00	6,590.97	6,579.16	35.14	35.45	-81.92	43.48	-306.18	309.96	239.51	70.45	4.400		
6,700.00	6,700.00	6,690.73	6,678.70	35.68	36.01	-81.73	45.47	-312.68	316.68	245.15	71.53	4.427		
6,800.00	6,800.00	6,790.50	6,778.23	36.22	36.56	-81.54	47.46	-319.17	323.41	250.79	72.62	4.454		
6,900.00	6,900.00	6,890.27	6,877.77	36.76	37.11	-81.37	49.45	-325.66	330.14	256.44	73.70	4.480		
7,000.00	7,000.00	6,990.04	6,977.31	37.30	37.66	-81.20	51.43	-332.15	336.88	262.09	74.78	4.505		
7,100.00	7,100.00	7,089.81	7,076.84	37.83	38.21	-81.04	53.42	-338.65	343.61	267.75	75.87	4.529		
7,200.00	7,200.00	7,189.58	7,176.38	38.37	38.76	-80.88	55.41	-345.14	350.35	273.40	76.95	4.553		
7,300.00	7,300.00	7,289.34	7,275.92	38.91	39.31	-80.73	57.39	-351.63	357.10	279.06	78.04	4.576		
7,400.00	7,400.00	7,389.11	7,375.45	39.45	39.87	-80.59	59.38	-358.12	363.84	284.72	79.12	4.599		
7,500.00	7,500.00	7,488.88	7,474.99	39.98	40.42	-80.45	61.37	-364.62	370.59	290.39	80.20	4.621		
7,600.00	7,600.00	7,588.65	7,574.53	40.52	40.97	-80.31	63.36	-371.11	377.34	296.05	81.29	4.642		
7,700.00	7,700.00	7,688.42	7,674.07	41.06	41.52	-80.18	65.34	-377.60	384.09	301.72	82.37	4.663		
7,800.00	7,800.00	7,788.18	7,773.60	41.60	42.07	-80.06	67.33	-384.09	390.84	307.39	83.46	4.683		
7,900.00	7,900.00	7,887.95	7,873.14	42.13	42.62	-79.94	69.32	-390.59	397.60	313.06	84.54	4.703		
8,000.00	8,000.00	7,987.72	7,972.68	42.67	43.18	-79.82	71.30	-397.08	404.36	318.73	85.62	4.722		
8,100.00	8,100.00	8,087.49	8,072.21	43.21	43.73	-79.71	73.29	-403.57	411.11	324.41	86.71	4.741		
8,200.00	8,200.00	8,187.26	8,171.75	43.75	44.28	-79.60	75.28	-410.07	417.87	330.08	87.79	4.760		
8,300.00	8,300.00	8,287.03	8,271.29	44.29	44.83	-79.49	77.27	-416.56	424.64	335.76	88.88	4.778		
8,400.00	8,399.98	8,386.84	8,370.87	44.80	45.39	-79.44	79.25	-423.05	430.28	340.83	89.46	4.810		
8,500.00	8,499.85	8,486.70	8,470.49	45.30	45.94	-79.47	81.24	-429.55	433.54	343.07	90.48	4.792		
8,600.00	8,599.67	8,586.54	8,570.10	45.80	46.49	-79.43	83.23	-436.05	436.06	344.55	91.51	4.765		
8,700.00	8,699.48	8,686.38	8,669.71	46.29	47.04	-79.48	85.22	-442.55	438.64	346.09	92.55	4.739		
8,800.00	8,799.29	8,786.22	8,769.32	46.79	47.60	-79.43	87.21	-449.04	441.28	347.69	93.59	4.715		
8,900.00	8,899.11	8,886.06	8,868.93	47.29	48.15	-79.07	89.20	-455.54	443.97	349.34	94.63	4.692		
9,000.00	8,998.92	8,985.90	8,968.54	47.80	48.70	-79.00	91.18	-462.04	446.71	351.04	95.67	4.669		
9,100.00	9,098.73	9,085.75	9,068.16	48.30	49.25	-79.02	93.17	-468.54	449.51	352.80	96.72	4.648		
9,200.00	9,198.55	9,185.59	9,167.77	48.80	49.81	-79.03	95.16	-475.03	452.36	354.60	97.76	4.627		
9,300.00	9,298.36	9,301.41	9,283.25	49.31	50.43	-79.07	97.15	-481.52	455.17	356.49	98.88	4.605		
9,400.00	9,398.17	9,428.28	9,406.93	49.81	51.05	-79.16	99.14	-488.01	458.02	358.47	100.00	4.588		
9,500.00	9,497.98	9,540.84	9,509.55	50.32	51.62	-79.26	101.13	-494.50	460.91	360.54	101.17	4.570		
9,600.00	9,597.80	9,634.45	9,586.84	50.83	51.86	-79.37	103.12	-501.00	463.84	362.70	102.39	4.552		
9,630.06	9,627.79	9,659.09	9,605.67	50.98	51.94	-79.42	104.11	-502.50	464.83	363.69	102.81	4.545		
9,700.00	9,697.54	9,710.56	9,642.73	51.34	52.09	-79.50	105.10	-504.00	465.82	364.68	103.29	4.537		
9,800.00	9,795.55	9,779.81	9,687.28	51.83	52.28	-79.59	106.09	-505.50	466.81	365.77	103.82	4.529		
9,900.00	9,888.86	9,850.00	9,725.60	52.29	52.47	-79.68	107.08	-507.00	467.80	366.86	104.35	4.521		
10,000.00	9,974.63	9,909.61	9,752.31	52.74	52.64	-79.77	108.07	-508.50	468.79	367.85	104.88	4.513		
10,100.00	10,050.26	9,971.69	9,774.12	53.19	52.83	-79.87	109.06	-510.00	469.78	368.84	105.41	4.505		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.00	10,113.44	10,032.52	9,789.28	53.64	53.05	53.71	-363.90	-504.24	537.37	441.72	95.66	5.618	
10,300.00	10,162.27	10,100.00	9,798.71	54.10	53.32	50.16	-430.68	-503.24	558.79	467.59	91.19	6.128	
10,400.00	10,195.25	10,153.06	9,800.60	54.57	53.54	47.67	-483.67	-502.09	577.01	489.72	87.29	6.610	
10,500.00	10,211.38	10,251.54	9,800.14	55.05	54.00	45.69	-582.12	-499.69	587.88	503.06	84.81	6.931	
10,600.00	10,212.89	10,351.49	9,799.68	55.55	54.54	45.47	-682.04	-497.26	589.19	503.79	85.40	6.899	
10,700.00	10,212.69	10,451.49	9,799.21	56.12	55.16	45.45	-782.01	-494.83	589.37	502.92	86.45	6.818	
10,800.00	10,212.49	10,551.49	9,798.75	56.77	55.85	45.43	-881.98	-492.39	589.55	501.93	87.62	6.728	
10,900.00	10,212.28	10,651.49	9,798.29	57.49	56.61	45.41	-981.95	-489.96	589.73	500.81	88.92	6.632	
11,000.00	10,212.08	10,751.49	9,797.83	58.29	57.45	45.39	-1,081.92	-487.53	589.91	499.58	90.33	6.531	
11,100.00	10,211.88	10,851.49	9,797.36	59.15	58.35	45.37	-1,181.89	-485.09	590.09	498.24	91.85	6.424	
11,200.00	10,211.68	10,951.49	9,796.90	60.08	59.31	45.36	-1,281.86	-482.66	590.27	496.79	93.48	6.315	
11,300.00	10,211.48	11,051.49	9,796.44	61.07	60.34	45.34	-1,381.82	-480.22	590.45	495.24	95.20	6.202	
11,400.00	10,211.28	11,151.49	9,795.97	62.12	61.42	45.32	-1,481.79	-477.79	590.63	493.60	97.02	6.087	
11,500.00	10,211.08	11,251.49	9,795.51	63.23	62.56	45.30	-1,581.76	-475.36	590.81	491.87	98.93	5.972	
11,600.00	10,210.87	11,351.49	9,795.05	64.39	63.76	45.28	-1,681.73	-472.92	590.99	490.06	100.93	5.856	
11,700.00	10,210.67	11,451.49	9,794.58	65.61	65.00	45.26	-1,781.70	-470.49	591.17	488.17	103.00	5.740	
11,800.00	10,210.47	11,551.49	9,794.12	66.87	66.29	45.25	-1,881.67	-468.05	591.35	486.20	105.15	5.624	
11,900.00	10,210.27	11,651.49	9,793.66	68.18	67.63	45.23	-1,981.64	-465.62	591.53	484.17	107.36	5.510	
12,000.00	10,210.07	11,751.49	9,793.20	69.53	69.01	45.21	-2,081.61	-463.19	591.71	482.07	109.64	5.397	
12,100.00	10,209.87	11,851.49	9,792.73	70.92	70.42	45.19	-2,181.58	-460.75	591.89	479.90	111.98	5.285	
12,200.00	10,209.67	11,951.49	9,792.27	72.35	71.88	45.17	-2,281.55	-458.32	592.07	477.69	114.38	5.176	
12,300.00	10,209.46	12,051.49	9,791.81	73.81	73.37	45.15	-2,381.51	-455.89	592.25	475.41	116.84	5.069	
12,400.00	10,209.26	12,151.49	9,791.34	75.31	74.89	45.13	-2,481.48	-453.45	592.43	473.09	119.34	4.964	
12,500.00	10,209.06	12,251.49	9,790.88	76.84	76.45	45.12	-2,581.45	-451.02	592.61	470.72	121.89	4.862	
12,600.00	10,208.86	12,351.49	9,790.42	78.40	78.03	45.10	-2,681.42	-448.58	592.79	468.31	124.48	4.762	
12,700.00	10,208.66	12,451.49	9,789.95	79.99	79.64	45.08	-2,781.39	-446.15	592.97	465.86	127.12	4.665	
12,800.00	10,208.46	12,551.48	9,789.49	81.61	81.28	45.06	-2,881.36	-443.72	593.15	463.36	129.79	4.570	
12,900.00	10,208.26	12,651.48	9,789.03	83.25	82.94	45.04	-2,981.33	-441.28	593.33	460.83	132.50	4.478	
13,000.00	10,208.06	12,751.48	9,788.57	84.92	84.62	45.03	-3,081.30	-438.85	593.51	458.27	135.24	4.389	
13,100.00	10,207.85	12,851.48	9,788.10	86.60	86.33	45.01	-3,181.27	-436.41	593.69	455.68	138.02	4.302	
13,200.00	10,207.65	12,951.48	9,787.64	88.31	88.05	44.99	-3,281.23	-433.98	593.88	453.05	140.82	4.217	
13,300.00	10,207.45	13,051.48	9,787.18	90.04	89.80	44.97	-3,381.20	-431.55	594.06	450.40	143.65	4.135	
13,400.00	10,207.25	13,151.48	9,786.71	91.79	91.56	44.95	-3,481.17	-429.11	594.24	447.72	146.51	4.056	
13,500.00	10,207.05	13,251.48	9,786.25	93.55	93.34	44.93	-3,581.14	-426.68	594.42	445.02	149.40	3.979	
13,600.00	10,206.85	13,351.48	9,785.79	95.33	95.13	44.92	-3,681.11	-424.24	594.60	442.30	152.30	3.904	
13,700.00	10,206.65	13,451.48	9,785.32	97.13	96.95	44.90	-3,781.08	-421.81	594.78	439.55	155.23	3.832	
13,800.00	10,206.44	13,551.48	9,784.86	98.94	98.77	44.88	-3,881.05	-419.38	594.96	436.78	158.18	3.761	
13,900.00	10,206.24	13,651.48	9,784.40	100.76	100.61	44.86	-3,981.02	-416.94	595.14	433.99	161.15	3.693	
14,000.00	10,206.04	13,751.48	9,783.94	102.60	102.46	44.84	-4,080.99	-414.51	595.33	431.19	164.14	3.627	
14,100.00	10,205.84	13,851.48	9,783.47	104.46	104.33	44.83	-4,180.96	-412.07	595.51	428.37	167.14	3.563	
14,200.00	10,205.64	13,951.48	9,783.01	106.32	106.20	44.81	-4,280.92	-409.64	595.69	425.53	170.16	3.501	
14,300.00	10,205.44	14,051.48	9,782.55	108.19	108.09	44.79	-4,380.89	-407.21	595.87	422.67	173.20	3.440	
14,400.00	10,205.24	14,151.48	9,782.08	110.08	109.98	44.77	-4,480.86	-404.77	596.05	419.81	176.25	3.382	
14,500.00	10,205.03	14,251.48	9,781.62	111.98	111.89	44.75	-4,580.83	-402.34	596.23	416.92	179.31	3.325	
14,600.00	10,204.83	14,351.48	9,781.16	113.88	113.81	44.73	-4,680.80	-399.91	596.42	414.03	182.39	3.270	
14,700.00	10,204.63	14,451.48	9,780.69	115.80	115.73	44.72	-4,780.77	-397.47	596.60	411.12	185.47	3.217	
14,800.00	10,204.43	14,551.48	9,780.23	117.72	117.67	44.70	-4,880.74	-395.04	596.78	408.21	188.57	3.165	
14,900.00	10,204.23	14,651.48	9,779.77	119.65	119.61	44.68	-4,980.71	-392.60	596.96	405.28	191.68	3.114	
15,000.00	10,204.03	14,751.48	9,779.31	121.59	121.56	44.66	-5,080.68	-390.17	597.14	402.34	194.81	3.065	
15,100.00	10,203.83	14,851.48	9,778.84	123.54	123.51	44.64	-5,180.65	-387.74	597.33	399.39	197.94	3.018	
15,200.00	10,203.63	14,951.48	9,778.38	125.49	125.48	44.63	-5,280.61	-385.30	597.51	396.43	201.08	2.972	
15,300.00	10,203.42	15,051.48	9,777.92	127.46	127.45	44.61	-5,380.58	-382.87	597.69	393.47	204.22	2.927	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design													HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
15,400.00	10,203.22	15,151.48	9,777.45	129.42	129.42	44.59	-5,480.55	-380.43	597.87	390.49	207.38	2.883				
15,500.00	10,203.02	15,249.48	9,777.00	131.40	131.36	44.57	-5,578.52	-378.05	598.06	387.55	210.51	2.841				
15,600.00	10,202.64	15,341.59	9,776.25	133.37	133.19	44.56	-5,670.63	-377.00	598.45	384.78	213.66	2.801				
15,700.00	10,202.16	15,441.59	9,775.29	135.35	135.18	44.53	-5,770.62	-376.42	598.79	381.99	216.80	2.762				
15,800.00	10,201.68	15,541.59	9,774.33	137.34	137.17	44.50	-5,870.61	-375.84	599.13	379.19	219.94	2.724				
15,900.00	10,201.20	15,641.59	9,773.37	139.32	139.17	44.46	-5,970.60	-375.25	599.48	376.38	223.09	2.687				
16,000.00	10,200.72	15,741.59	9,772.41	141.32	141.17	44.43	-6,070.60	-374.67	599.82	373.57	226.25	2.651				
16,100.00	10,200.24	15,841.59	9,771.45	143.32	143.18	44.40	-6,170.59	-374.08	600.17	370.76	229.41	2.616				
16,200.00	10,199.76	15,941.59	9,770.50	145.32	145.19	44.37	-6,270.58	-373.50	600.51	367.94	232.57	2.582				
16,300.00	10,199.28	16,041.58	9,769.54	147.33	147.20	44.34	-6,370.57	-372.91	600.85	365.11	235.74	2.549				
16,400.00	10,198.80	16,141.58	9,768.58	149.34	149.22	44.30	-6,470.57	-372.33	601.20	362.29	238.91	2.516				
16,500.00	10,198.32	16,241.58	9,767.62	151.36	151.24	44.27	-6,570.56	-371.75	601.54	359.45	242.09	2.485				
16,600.00	10,197.84	16,341.58	9,766.66	153.38	153.27	44.24	-6,670.55	-371.16	601.89	356.62	245.27	2.454				
16,700.00	10,197.36	16,441.58	9,765.70	155.40	155.30	44.21	-6,770.55	-370.58	602.23	353.78	248.45	2.424				
16,800.00	10,196.88	16,541.58	9,764.74	157.43	157.33	44.18	-6,870.54	-369.99	602.58	350.94	251.64	2.395				
16,900.00	10,196.40	16,641.58	9,763.78	159.46	159.37	44.15	-6,970.53	-369.41	602.92	348.10	254.83	2.366				
17,000.00	10,195.92	16,741.58	9,762.82	161.49	161.41	44.11	-7,070.52	-368.83	603.27	345.25	258.02	2.338				
17,100.00	10,195.44	16,841.57	9,761.86	163.53	163.45	44.08	-7,170.52	-368.24	603.62	342.40	261.21	2.311				
17,200.00	10,194.96	16,941.57	9,760.90	165.57	165.50	44.05	-7,270.51	-367.66	603.96	339.55	264.41	2.284				
17,300.00	10,194.48	17,041.57	9,759.94	167.61	167.55	44.02	-7,370.50	-367.07	604.31	336.70	267.61	2.258				
17,400.00	10,194.00	17,141.57	9,758.98	169.66	169.60	43.99	-7,470.49	-366.49	604.65	333.84	270.81	2.233				
17,500.00	10,193.52	17,241.57	9,758.02	171.71	171.65	43.96	-7,570.49	-365.91	605.00	330.98	274.02	2.208				
17,600.00	10,193.04	17,341.57	9,757.06	173.76	173.71	43.93	-7,670.48	-365.32	605.35	328.13	277.22	2.184				
17,700.00	10,192.56	17,441.57	9,756.10	175.81	175.77	43.89	-7,770.47	-364.74	605.69	325.26	280.43	2.160				
17,800.00	10,192.08	17,541.57	9,755.14	177.87	177.83	43.86	-7,870.46	-364.15	606.04	322.40	283.64	2.137				
17,900.00	10,191.60	17,641.57	9,754.18	179.93	179.89	43.83	-7,970.46	-363.57	606.39	319.54	286.85	2.114				
18,000.00	10,191.12	17,741.56	9,753.22	181.99	181.96	43.80	-8,070.45	-362.99	606.74	316.68	290.06	2.092				
18,100.00	10,190.64	17,841.56	9,752.26	184.05	184.03	43.77	-8,170.44	-362.40	607.08	313.81	293.27	2.070				
18,200.00	10,190.16	17,941.56	9,751.30	186.12	186.10	43.74	-8,270.43	-361.82	607.43	310.94	296.49	2.049				
18,300.00	10,189.68	18,041.56	9,750.34	188.19	188.17	43.71	-8,370.43	-361.23	607.78	308.08	299.70	2.028				
18,400.00	10,189.20	18,141.56	9,749.39	190.26	190.24	43.68	-8,470.42	-360.65	608.13	305.21	302.92	2.008				
18,500.00	10,188.72	18,241.56	9,748.43	192.33	192.32	43.64	-8,570.41	-360.06	608.48	302.34	306.14	1.988				
18,600.00	10,188.24	18,341.56	9,747.47	194.40	194.40	43.61	-8,670.40	-359.48	608.82	299.47	309.35	1.968				
18,700.00	10,187.76	18,441.56	9,746.51	196.48	196.48	43.58	-8,770.40	-358.90	609.17	296.60	312.57	1.949				
18,800.00	10,187.28	18,541.56	9,745.55	198.55	198.56	43.55	-8,870.39	-358.31	609.52	293.73	315.79	1.930				
18,900.00	10,186.80	18,641.55	9,744.59	200.63	200.64	43.52	-8,970.38	-357.73	609.87	290.86	319.01	1.912				
19,000.00	10,186.32	18,741.55	9,743.63	202.71	202.72	43.49	-9,070.37	-357.14	610.22	287.99	322.23	1.894				
19,100.00	10,185.84	18,841.55	9,742.67	204.80	204.81	43.46	-9,170.37	-356.56	610.57	285.12	325.45	1.876				
19,200.00	10,185.36	18,941.55	9,741.71	206.88	206.90	43.43	-9,270.36	-355.98	610.92	282.25	328.67	1.859				
19,300.00	10,184.88	19,041.55	9,740.75	208.96	208.99	43.40	-9,370.35	-355.39	611.27	279.38	331.89	1.842				
19,400.00	10,184.40	19,141.55	9,739.79	211.05	211.08	43.37	-9,470.34	-354.81	611.62	276.51	335.11	1.825				
19,500.00	10,183.92	19,241.55	9,738.83	213.14	213.17	43.34	-9,570.34	-354.22	611.97	273.64	338.33	1.809				
19,600.00	10,183.44	19,341.55	9,737.87	215.23	215.26	43.31	-9,670.33	-353.64	612.32	270.77	341.55	1.793				
19,700.00	10,182.96	19,441.54	9,736.91	217.32	217.35	43.27	-9,770.32	-353.06	612.67	267.90	344.77	1.777				
19,800.00	10,182.48	19,541.54	9,735.95	219.41	219.45	43.24	-9,870.31	-352.47	613.02	265.02	348.00	1.762				
19,900.00	10,182.00	19,641.54	9,734.99	221.51	221.55	43.21	-9,970.31	-351.89	613.37	262.15	351.22	1.746				
20,000.00	10,181.52	19,741.54	9,734.03	223.60	223.64	43.18	-10,070.30	-351.30	613.72	259.28	354.44	1.732				
20,100.00	10,181.04	19,841.54	9,733.07	225.70	225.74	43.15	-10,170.29	-350.72	614.07	256.42	357.66	1.717				
20,200.00	10,180.56	19,941.54	9,732.11	227.79	227.84	43.12	-10,270.28	-350.14	614.42	253.55	360.88	1.703				
20,300.00	10,180.08	20,041.54	9,731.15	229.89	229.94	43.09	-10,370.28	-349.55	614.78	250.68	364.10	1.688				
20,400.00	10,179.60	20,141.54	9,730.19	231.99	232.05	43.06	-10,470.27	-348.97	615.13	247.81	367.32	1.675				
20,500.00	10,179.12	20,241.54	9,729.23	234.09	234.15	43.03	-10,570.26	-348.38	615.48	244.94	370.54	1.661				

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0023 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
20,525.44	10,179.00	20,266.00	9,729.00	234.55	234.66	43.02	-10,594.72	-348.24	615.57	244.33	371.24	1.658	SF



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
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)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	1.00	0.00	0.00	0.00	-179.15		-25.00	-0.37	25.00				
100.00	100.00	101.00	100.00	0.19	0.20	-179.15		-25.00	-0.37	25.00	24.61	0.39	63.692	
200.00	200.00	201.00	200.00	0.73	0.74	-179.15		-25.00	-0.37	25.00	23.53	1.47	17.031	
300.00	300.00	301.00	300.00	1.27	1.27	-179.15		-25.00	-0.37	25.00	22.46	2.54	9.830	
400.00	400.00	401.00	400.00	1.81	1.81	-179.15		-25.00	-0.37	25.00	21.38	3.62	6.909	
500.00	500.00	501.00	500.00	2.34	2.35	-179.15		-25.00	-0.37	25.00	20.31	4.69	5.326	
600.00	600.00	601.00	600.00	2.88	2.89	-179.15		-25.00	-0.37	25.00	19.23	5.77	4.333	
700.00	700.00	701.00	700.00	3.42	3.43	-179.15		-25.00	-0.37	25.00	18.16	6.85	3.652	
800.00	800.00	801.00	800.00	3.96	3.96	-179.15		-25.00	-0.37	25.00	17.08	7.92	3.156	
900.00	900.00	901.00	900.00	4.50	4.50	-179.15		-25.00	-0.37	25.00	16.00	9.00	2.779	
1,000.00	1,000.00	1,001.00	1,000.00	5.03	5.04	-179.15		-25.00	-0.37	25.00	14.93	10.07	2.482	
1,100.00	1,100.00	1,101.00	1,100.00	5.57	5.58	-179.15		-25.00	-0.37	25.00	13.85	11.15	2.243	
1,200.00	1,200.00	1,201.00	1,200.00	6.11	6.11	-179.15		-25.00	-0.37	25.00	12.78	12.22	2.046	
1,300.00	1,300.00	1,301.00	1,300.00	6.65	6.65	-179.15		-25.00	-0.37	25.00	11.70	13.30	1.880	
1,400.00	1,400.00	1,401.00	1,400.00	7.18	7.19	-179.15		-25.00	-0.37	25.00	10.63	14.37	1.739	
1,500.00	1,500.00	1,501.00	1,500.00	7.72	7.73	-179.15		-25.00	-0.37	25.00	9.55	15.45	1.618	
1,600.00	1,600.00	1,601.00	1,600.00	8.26	8.26	-179.15		-25.00	-0.37	25.00	8.48	16.52	1.513	
1,700.00	1,700.00	1,701.00	1,700.00	8.80	8.80	-179.15		-25.00	-0.37	25.00	7.40	17.60	1.421	Level 3
1,766.33	1,766.33	1,767.33	1,766.33	9.15	9.16	-179.15		-25.00	-0.37	25.00	6.69	18.31	1.365	Level 3, CC
1,800.00	1,800.00	1,801.00	1,800.00	9.33	9.34	-179.15		-25.00	-0.37	25.00	6.33	18.67	1.339	Level 3
1,900.00	1,900.00	1,900.90	1,899.88	9.87	9.86	-176.81		-25.14	1.40	25.18	5.45	19.73	1.276	Level 3
2,000.00	2,000.00	2,000.80	1,999.69	10.41	10.38	167.94		-25.47	5.44	26.04	5.26	20.78	1.253	Level 3, ES, SF
2,100.00	2,100.00	2,100.71	2,099.52	10.95	10.89	159.72		-25.80	9.53	27.51	5.67	21.83	1.260	Level 3
2,200.00	2,200.00	2,200.63	2,199.35	11.49	11.41	152.46		-26.13	13.63	29.48	6.59	22.89	1.288	Level 3
2,300.00	2,300.00	2,300.54	2,299.19	12.02	11.93	146.19		-26.46	17.72	31.85	7.91	23.94	1.331	Level 3
2,400.00	2,400.00	2,400.46	2,399.02	12.56	12.45	140.85		-26.79	21.81	34.56	9.56	25.00	1.383	Level 3
2,500.00	2,500.00	2,500.37	2,498.85	13.10	12.97	136.32		-27.12	25.90	37.52	11.47	26.06	1.440	Level 3
2,600.00	2,600.00	2,600.29	2,598.68	13.64	13.50	132.46		-27.45	30.00	40.68	13.57	27.12	1.500	
2,700.00	2,700.00	2,700.20	2,698.51	14.17	14.03	129.18		-27.78	34.09	44.00	15.82	28.18	1.561	
2,800.00	2,800.00	2,800.12	2,798.34	14.71	14.56	126.37		-28.11	38.18	47.44	18.20	29.24	1.622	
2,900.00	2,900.00	2,900.04	2,898.17	15.25	15.08	123.94		-28.44	42.27	50.98	20.67	30.31	1.682	
3,000.00	3,000.00	2,999.95	2,998.00	15.79	15.62	121.82		-28.77	46.36	54.60	23.23	31.38	1.740	
3,100.00	3,100.00	3,099.87	3,097.84	16.32	16.15	119.98		-29.11	50.46	58.29	25.85	32.44	1.797	
3,200.00	3,200.00	3,199.78	3,197.67	16.86	16.68	118.35		-29.44	54.55	62.03	28.52	33.51	1.851	
3,300.00	3,300.00	3,299.70	3,297.50	17.40	17.21	116.91		-29.77	58.64	65.81	31.23	34.58	1.903	
3,400.00	3,400.00	3,399.61	3,397.33	17.94	17.74	115.63		-30.10	62.73	69.63	33.98	35.65	1.953	
3,500.00	3,500.00	3,499.53	3,497.16	18.48	18.28	114.48		-30.43	66.83	73.48	36.76	36.72	2.001	
3,600.00	3,600.00	3,599.44	3,596.99	19.01	18.81	113.45		-30.76	70.92	77.36	39.57	37.79	2.047	
3,700.00	3,700.00	3,699.36	3,696.82	19.55	19.35	112.51		-31.09	75.01	81.26	42.40	38.86	2.091	
3,800.00	3,800.00	3,799.28	3,796.65	20.09	19.88	111.66		-31.42	79.10	85.18	45.24	39.94	2.133	
3,900.00	3,900.00	3,899.19	3,896.48	20.63	20.42	110.89		-31.75	83.19	89.12	48.11	41.01	2.173	
4,000.00	4,000.00	3,999.11	3,996.32	21.16	20.96	110.18		-32.08	87.29	93.07	50.99	42.08	2.212	
4,100.00	4,100.00	4,099.02	4,096.15	21.70	21.49	109.53		-32.41	91.38	97.03	53.88	43.16	2.248	
4,200.00	4,200.00	4,198.94	4,195.98	22.24	22.03	108.93		-32.74	95.47	101.01	56.78	44.23	2.284	
4,300.00	4,300.00	4,298.85	4,295.81	22.78	22.57	108.38		-33.07	99.56	105.00	59.69	45.30	2.318	
4,400.00	4,400.00	4,398.77	4,395.64	23.31	23.11	107.86		-33.40	103.66	108.99	62.61	46.38	2.350	
4,500.00	4,500.00	4,498.68	4,495.47	23.85	23.64	107.38		-33.73	107.75	113.00	65.54	47.45	2.381	
4,600.00	4,600.00	4,598.60	4,595.30	24.39	24.18	106.94		-34.07	111.84	117.01	68.48	48.53	2.411	
4,700.00	4,700.00	4,598.52	4,595.13	24.93	24.72	106.53		-34.40	115.93	121.02	71.42	49.60	2.440	
4,800.00	4,800.00	4,798.43	4,794.97	25.47	25.26	106.14		-34.73	120.02	125.05	74.37	50.68	2.467	
4,900.00	4,900.00	4,898.35	4,894.80	26.00	25.80	105.77		-35.06	124.12	129.08	77.32	51.75	2.494	
5,000.00	5,000.00	4,998.26	4,994.63	26.54	26.34	105.43		-35.39	128.21	133.11	80.28	52.83	2.520	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
5,100.00	5,100.00	5,098.18	5,094.46	27.08	26.88	105.11	-35.72	132.30	137.15	83.24	53.91	2.544		
5,200.00	5,200.00	5,198.09	5,194.29	27.62	27.42	104.80	-36.05	136.39	141.19	86.21	54.98	2.568		
5,300.00	5,300.00	5,298.01	5,294.12	28.15	27.96	104.52	-36.38	140.49	145.24	89.18	56.06	2.591		
5,400.00	5,400.00	5,397.92	5,393.95	28.69	28.50	104.25	-36.71	144.58	149.29	92.15	57.14	2.613		
5,500.00	5,500.00	5,497.84	5,493.78	29.23	29.04	103.99	-37.04	148.67	153.34	95.13	58.21	2.634		
5,600.00	5,600.00	5,597.76	5,593.61	29.77	29.58	103.75	-37.37	152.76	157.40	98.11	59.29	2.655		
5,700.00	5,700.00	5,697.67	5,693.45	30.31	30.12	103.52	-37.70	156.85	161.46	101.09	60.37	2.675		
5,800.00	5,800.00	5,797.59	5,793.28	30.84	30.66	103.30	-38.03	160.95	165.52	104.07	61.44	2.694		
5,900.00	5,900.00	5,897.50	5,893.11	31.38	31.20	103.09	-38.36	165.04	169.58	107.06	62.52	2.712		
6,000.00	6,000.00	5,997.42	5,992.94	31.92	31.74	102.89	-38.69	169.13	173.64	110.05	63.60	2.730		
6,100.00	6,100.00	6,097.33	6,092.77	32.46	32.28	102.70	-39.03	173.22	177.71	113.04	64.68	2.748		
6,200.00	6,200.00	6,197.25	6,192.60	32.99	32.82	102.51	-39.36	177.32	181.78	116.03	65.75	2.765		
6,300.00	6,300.00	6,297.16	6,292.43	33.53	33.36	102.34	-39.69	181.41	185.85	119.02	66.83	2.781		
6,400.00	6,400.00	6,397.08	6,392.26	34.07	33.90	102.17	-40.02	185.50	189.92	122.02	67.91	2.797		
6,500.00	6,500.00	6,497.00	6,492.09	34.61	34.44	102.01	-40.35	189.59	194.00	125.01	68.99	2.812		
6,600.00	6,600.00	6,596.91	6,591.93	35.14	34.98	101.86	-40.68	193.68	198.07	128.01	70.07	2.827		
6,700.00	6,700.00	6,696.83	6,691.76	35.68	35.52	101.71	-41.01	197.78	202.15	131.01	71.14	2.841		
6,800.00	6,800.00	6,796.74	6,791.59	36.22	36.07	101.57	-41.34	201.87	206.23	134.01	72.22	2.856		
6,900.00	6,900.00	6,896.66	6,891.42	36.76	36.61	101.44	-41.67	205.96	210.31	137.01	73.30	2.869		
7,000.00	7,000.00	6,996.57	6,991.25	37.30	37.15	101.31	-42.00	210.05	214.39	140.01	74.38	2.882		
7,100.00	7,100.00	7,096.49	7,091.08	37.83	37.69	101.18	-42.33	214.15	218.47	143.01	75.46	2.895		
7,200.00	7,200.00	7,196.40	7,190.91	38.37	38.23	101.06	-42.66	218.24	222.55	146.02	76.54	2.908		
7,300.00	7,300.00	7,296.32	7,290.74	38.91	38.77	100.94	-42.99	222.33	226.64	149.02	77.61	2.920		
7,400.00	7,400.00	7,396.24	7,390.58	39.45	39.31	100.83	-43.32	226.42	230.72	152.03	78.69	2.932		
7,500.00	7,500.00	7,496.15	7,490.41	39.98	39.86	100.72	-43.65	230.51	234.81	155.04	79.77	2.944		
7,600.00	7,600.00	7,596.07	7,590.24	40.52	40.40	100.62	-43.99	234.61	238.89	158.04	80.85	2.955		
7,700.00	7,700.00	7,695.98	7,690.07	41.06	40.94	100.52	-44.32	238.70	242.98	161.05	81.93	2.966		
7,800.00	7,800.00	7,795.90	7,789.90	41.60	41.48	100.42	-44.65	242.79	247.07	164.06	83.01	2.976		
7,900.00	7,900.00	7,895.81	7,889.73	42.13	42.02	100.32	-44.98	246.88	251.16	167.07	84.09	2.987		
8,000.00	8,000.00	7,995.73	7,989.56	42.67	42.57	100.23	-45.31	250.98	255.25	170.08	85.17	2.997		
8,100.00	8,100.00	8,095.64	8,089.39	43.21	43.11	100.14	-45.64	255.07	259.34	173.09	86.24	3.007		
8,200.00	8,200.00	8,195.56	8,189.22	43.75	43.65	100.06	-45.97	259.16	263.43	176.10	87.32	3.017		
8,300.00	8,300.00	8,295.48	8,289.06	44.29	44.19	99.97	-46.30	263.25	267.52	179.11	88.40	3.026		
8,400.00	8,399.98	8,395.32	8,388.82	44.80	44.73	-136.01	-46.63	267.34	272.74	183.56	89.18	3.058		
8,500.00	8,499.85	8,494.95	8,488.36	45.30	45.27	-136.71	-46.96	271.42	280.44	190.32	90.12	3.112		
8,600.00	8,599.67	8,594.48	8,587.81	45.80	45.81	-137.60	-47.29	275.50	289.03	197.88	91.15	3.171		
8,700.00	8,699.48	8,694.02	8,687.26	46.29	46.36	-138.44	-47.62	279.58	297.67	205.49	92.18	3.229		
8,800.00	8,799.29	8,793.55	8,786.71	46.79	46.90	-139.23	-47.95	283.65	306.38	213.17	93.21	3.287		
8,900.00	8,899.11	8,893.08	8,886.16	47.29	47.44	-139.96	-48.28	287.73	315.14	220.90	94.24	3.344		
9,000.00	8,998.92	8,992.62	8,985.61	47.80	47.98	-140.69	-48.61	291.80	323.95	228.68	95.27	3.400		
9,100.00	9,098.73	9,092.15	9,085.06	48.30	48.52	-141.36	-48.94	295.88	332.81	236.51	96.30	3.456		
9,200.00	9,198.55	9,191.68	9,184.51	48.80	49.06	-141.99	-49.27	299.96	341.71	244.37	97.34	3.511		
9,300.00	9,298.36	9,291.22	9,283.96	49.31	49.60	-142.60	-49.60	304.03	350.65	252.28	98.37	3.564		
9,400.00	9,398.17	9,386.20	9,378.46	49.81	50.10	-142.02	-50.95	308.08	360.20	260.83	99.38	3.625		
9,500.00	9,497.98	9,477.12	9,466.60	50.32	50.57	-139.23	-78.50	312.21	371.69	271.35	100.34	3.704		
9,600.00	9,597.80	9,560.32	9,543.33	50.83	50.99	-135.02	-110.22	316.13	387.17	285.91	101.26	3.824		
9,700.00	9,697.54	9,634.27	9,607.05	51.34	51.34	-99.67	-147.49	319.64	408.86	306.67	102.19	4.001		
9,800.00	9,795.55	9,700.00	9,659.24	51.83	51.64	-76.92	-187.26	322.75	433.91	331.01	102.90	4.217		
9,900.00	9,888.86	9,771.83	9,710.65	52.29	51.98	-67.39	-237.25	326.07	459.36	356.65	102.72	4.472		
10,000.00	9,974.63	9,838.02	9,752.14	52.74	52.29	-61.31	-288.69	329.02	483.54	382.28	101.26	4.775		
10,100.00	10,050.26	9,900.00	9,785.38	53.19	52.59	-57.03	-340.90	331.66	505.09	406.48	98.61	5.122		
10,200.00	10,113.44	9,967.23	9,814.83	53.64	52.93	-53.84	-401.24	334.33	523.02	427.83	95.18	5.495		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
10,300.00	10,162.27	10,030.83	9,836.00	54.10	53.25	-51.69	-461.13	336.66	536.65	444.93	91.72	5.851	
10,400.00	10,195.25	10,100.00	9,851.35	54.57	53.62	-50.36	-528.49	338.93	545.57	456.52	89.04	6.127	
10,500.00	10,211.38	10,150.00	9,857.33	55.05	53.88	-49.87	-578.10	340.39	549.39	461.49	87.90	6.250	
10,598.68	10,215.04	10,232.99	9,858.88	55.54	54.34	-49.71	-661.02	342.47	550.77	462.39	88.38	6.232	
10,600.00	10,212.89	10,234.37	9,858.88	55.55	54.35	-49.87	-662.40	342.51	549.30	460.74	88.56	6.203	
10,700.00	10,212.69	10,334.37	9,858.55	56.12	54.96	-49.86	-762.37	344.93	549.37	459.80	89.57	6.133	
10,800.00	10,212.49	10,434.37	9,858.23	56.77	55.64	-49.85	-862.34	347.36	549.45	458.73	90.72	6.056	
10,900.00	10,212.28	10,534.37	9,857.91	57.49	56.39	-49.84	-962.31	349.79	549.53	457.52	92.01	5.973	
11,000.00	10,212.08	10,634.37	9,857.59	58.29	57.22	-49.83	-1,062.28	352.21	549.60	456.19	93.41	5.884	
11,100.00	10,211.88	10,734.37	9,857.26	59.15	58.11	-49.82	-1,162.25	354.64	549.68	454.74	94.94	5.790	
11,200.00	10,211.68	10,834.37	9,856.94	60.08	59.07	-49.81	-1,262.22	357.06	549.76	453.18	96.57	5.693	
11,300.00	10,211.48	10,934.37	9,856.62	61.07	60.09	-49.80	-1,362.19	359.49	549.83	451.51	98.32	5.592	
11,400.00	10,211.28	11,034.37	9,856.30	62.12	61.17	-49.79	-1,462.16	361.92	549.91	449.74	100.16	5.490	
11,500.00	10,211.08	11,134.37	9,855.97	63.23	62.31	-49.78	-1,562.13	364.34	549.98	447.88	102.11	5.386	
11,600.00	10,210.87	11,234.37	9,855.65	64.39	63.50	-49.78	-1,662.10	366.77	550.06	445.92	104.14	5.282	
11,700.00	10,210.67	11,334.37	9,855.33	65.61	64.74	-49.77	-1,762.07	369.20	550.14	443.88	106.26	5.177	
11,800.00	10,210.47	11,434.37	9,855.01	66.87	66.03	-49.76	-1,862.04	371.62	550.21	441.76	108.46	5.073	
11,900.00	10,210.27	11,534.37	9,854.69	68.18	67.36	-49.75	-1,962.01	374.05	550.29	439.56	110.73	4.970	
12,000.00	10,210.07	11,634.37	9,854.36	69.53	68.74	-49.74	-2,061.98	376.47	550.37	437.29	113.08	4.867	
12,100.00	10,209.87	11,734.37	9,854.04	70.92	70.16	-49.73	-2,161.95	378.90	550.44	434.95	115.49	4.766	
12,200.00	10,209.67	11,834.37	9,853.72	72.35	71.61	-49.72	-2,261.92	381.33	550.52	432.55	117.97	4.667	
12,300.00	10,209.46	11,934.37	9,853.40	73.81	73.10	-49.71	-2,361.89	383.75	550.60	430.10	120.50	4.569	
12,400.00	10,209.26	12,034.37	9,853.07	75.31	74.62	-49.70	-2,461.86	386.18	550.67	427.59	123.09	4.474	
12,500.00	10,209.06	12,134.37	9,852.75	76.84	76.17	-49.69	-2,561.83	388.61	550.75	425.02	125.73	4.381	
12,600.00	10,208.86	12,234.37	9,852.43	78.40	77.76	-49.68	-2,661.80	391.03	550.83	422.41	128.42	4.289	
12,700.00	10,208.66	12,334.37	9,852.11	79.99	79.37	-49.67	-2,761.77	393.46	550.90	419.76	131.15	4.201	
12,800.00	10,208.46	12,434.37	9,851.79	81.61	81.00	-49.66	-2,861.74	395.88	550.98	417.06	133.92	4.114	
12,900.00	10,208.26	12,534.37	9,851.46	83.25	82.67	-49.65	-2,961.71	398.31	551.06	414.32	136.74	4.030	
13,000.00	10,208.06	12,634.37	9,851.14	84.92	84.35	-49.64	-3,061.68	400.74	551.13	411.54	139.59	3.948	
13,100.00	10,207.85	12,734.37	9,850.82	86.60	86.05	-49.63	-3,161.65	403.16	551.21	408.73	142.48	3.869	
13,200.00	10,207.65	12,834.37	9,850.50	88.31	87.78	-49.62	-3,261.62	405.59	551.29	405.89	145.40	3.792	
13,300.00	10,207.45	12,934.37	9,850.17	90.04	89.53	-49.61	-3,361.59	408.01	551.36	403.01	148.35	3.717	
13,400.00	10,207.25	13,034.37	9,849.85	91.79	91.29	-49.60	-3,461.56	410.44	551.44	400.11	151.33	3.644	
13,500.00	10,207.05	13,134.37	9,849.53	93.55	93.07	-49.59	-3,561.53	412.87	551.52	397.18	154.34	3.573	
13,600.00	10,206.85	13,234.37	9,849.21	95.33	94.87	-49.58	-3,661.50	415.29	551.59	394.22	157.37	3.505	
13,700.00	10,206.65	13,334.37	9,848.88	97.13	96.68	-49.57	-3,761.47	417.72	551.67	391.24	160.43	3.439	
13,800.00	10,206.44	13,434.37	9,848.56	98.94	98.50	-49.56	-3,861.44	420.15	551.75	388.24	163.51	3.374	
13,900.00	10,206.24	13,534.37	9,848.24	100.76	100.34	-49.55	-3,961.41	422.57	551.83	385.22	166.61	3.312	
14,000.00	10,206.04	13,634.37	9,847.92	102.60	102.20	-49.54	-4,061.38	425.00	551.90	382.17	169.73	3.252	
14,100.00	10,205.84	13,734.37	9,847.60	104.46	104.06	-49.53	-4,161.35	427.42	551.98	379.11	172.87	3.193	
14,200.00	10,205.64	13,834.37	9,847.27	106.32	105.94	-49.52	-4,261.32	429.85	552.06	376.02	176.03	3.136	
14,300.00	10,205.44	13,934.37	9,846.95	108.19	107.83	-49.51	-4,361.29	432.28	552.13	372.92	179.21	3.081	
14,400.00	10,205.24	14,034.37	9,846.63	110.08	109.72	-49.50	-4,461.26	434.70	552.21	369.81	182.40	3.027	
14,500.00	10,205.03	14,134.37	9,846.31	111.98	111.63	-49.49	-4,561.23	437.13	552.29	366.68	185.61	2.976	
14,600.00	10,204.83	14,234.37	9,845.98	113.88	113.55	-49.48	-4,661.20	439.55	552.36	363.53	188.83	2.925	
14,700.00	10,204.63	14,334.37	9,845.66	115.80	115.47	-49.47	-4,761.17	441.98	552.44	360.37	192.07	2.876	
14,800.00	10,204.43	14,434.37	9,845.34	117.72	117.41	-49.46	-4,861.14	444.41	552.52	357.20	195.32	2.829	
14,900.00	10,204.23	14,534.37	9,845.02	119.65	119.35	-49.45	-4,961.11	446.83	552.59	354.02	198.58	2.783	
15,000.00	10,204.03	14,634.37	9,844.69	121.59	121.30	-49.45	-5,061.08	449.26	552.67	350.82	201.85	2.738	
15,100.00	10,203.83	14,734.37	9,844.37	123.54	123.26	-49.44	-5,161.05	451.69	552.75	347.62	205.13	2.695	
15,200.00	10,203.63	14,834.37	9,844.05	125.49	125.22	-49.43	-5,261.02	454.11	552.83	344.40	208.43	2.652	
15,300.00	10,203.42	14,934.37	9,843.73	127.46	127.19	-49.42	-5,360.99	456.54	552.90	341.17	211.73	2.611	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
15,400.00	10,203.22	15,034.37	9,843.41	129.42	129.17	-49.41	-5,460.96	458.96	552.98	337.93	215.05	2.571	
15,500.00	10,203.02	15,134.37	9,843.08	131.40	131.15	-49.40	-5,560.93	461.39	553.06	334.69	218.37	2.533	
15,600.00	10,202.64	15,239.95	9,842.43	133.37	133.24	-49.39	-5,666.50	462.99	553.40	331.67	221.73	2.496	
15,700.00	10,202.16	15,339.95	9,841.51	135.35	135.23	-49.35	-5,766.49	463.58	553.69	328.68	225.01	2.461	
15,800.00	10,201.68	15,439.95	9,840.59	137.34	137.22	-49.32	-5,866.48	464.16	553.97	325.68	228.29	2.427	
15,900.00	10,201.20	15,539.95	9,839.67	139.32	139.21	-49.28	-5,966.47	464.74	554.26	322.68	231.58	2.393	
16,000.00	10,200.72	15,639.95	9,838.75	141.32	141.21	-49.25	-6,066.47	465.33	554.55	319.67	234.88	2.361	
16,100.00	10,200.24	15,739.95	9,837.83	143.32	143.22	-49.21	-6,166.46	465.91	554.83	316.65	238.18	2.329	
16,200.00	10,199.76	15,839.95	9,836.91	145.32	145.23	-49.18	-6,266.45	466.50	555.12	313.63	241.49	2.299	
16,300.00	10,199.28	15,939.95	9,835.99	147.33	147.24	-49.15	-6,366.45	467.08	555.41	310.61	244.80	2.269	
16,400.00	10,198.80	16,039.95	9,835.06	149.34	149.25	-49.11	-6,466.44	467.66	555.69	307.58	248.11	2.240	
16,500.00	10,198.32	16,139.94	9,834.14	151.36	151.28	-49.08	-6,566.43	468.25	555.98	304.55	251.43	2.211	
16,600.00	10,197.84	16,239.94	9,833.22	153.38	153.30	-49.04	-6,666.43	468.83	556.27	301.52	254.75	2.184	
16,700.00	10,197.36	16,339.94	9,832.30	155.40	155.33	-49.01	-6,766.42	469.42	556.55	298.48	258.08	2.157	
16,800.00	10,196.88	16,439.94	9,831.38	157.43	157.36	-48.97	-6,866.41	470.00	556.84	295.43	261.41	2.130	
16,900.00	10,196.40	16,539.94	9,830.46	159.46	159.39	-48.94	-6,966.41	470.58	557.13	292.39	264.74	2.104	
17,000.00	10,195.92	16,639.94	9,829.54	161.49	161.43	-48.90	-7,066.40	471.17	557.42	289.34	268.08	2.079	
17,100.00	10,195.44	16,739.94	9,828.62	163.53	163.47	-48.87	-7,166.39	471.75	557.71	286.29	271.42	2.055	
17,200.00	10,194.96	16,839.94	9,827.70	165.57	165.52	-48.84	-7,266.38	472.34	557.99	283.24	274.76	2.031	
17,300.00	10,194.48	16,939.94	9,826.78	167.61	167.57	-48.80	-7,366.38	472.92	558.28	280.18	278.10	2.007	
17,400.00	10,194.00	17,039.94	9,825.86	169.66	169.61	-48.77	-7,466.37	473.50	558.57	277.12	281.45	1.985	
17,500.00	10,193.52	17,139.94	9,824.93	171.71	171.67	-48.73	-7,566.36	474.09	558.86	274.06	284.80	1.962	
17,600.00	10,193.04	17,239.93	9,824.01	173.76	173.72	-48.70	-7,666.36	474.67	559.15	271.00	288.15	1.940	
17,700.00	10,192.56	17,339.93	9,823.09	175.81	175.78	-48.67	-7,766.35	475.26	559.44	267.94	291.50	1.919	
17,800.00	10,192.08	17,439.93	9,822.17	177.87	177.84	-48.63	-7,866.34	475.84	559.73	264.87	294.86	1.898	
17,900.00	10,191.60	17,539.93	9,821.25	179.93	179.90	-48.60	-7,966.34	476.42	560.02	261.81	298.21	1.878	
18,000.00	10,191.12	17,639.93	9,820.33	181.99	181.97	-48.56	-8,066.33	477.01	560.31	258.74	301.57	1.858	
18,100.00	10,190.64	17,739.93	9,819.41	184.05	184.03	-48.53	-8,166.32	477.59	560.60	255.67	304.93	1.838	
18,200.00	10,190.16	17,839.93	9,818.49	186.12	186.10	-48.50	-8,266.32	478.18	560.89	252.60	308.29	1.819	
18,300.00	10,189.68	17,939.93	9,817.57	188.19	188.17	-48.46	-8,366.31	478.76	561.18	249.53	311.65	1.801	
18,400.00	10,189.20	18,039.93	9,816.65	190.26	190.24	-48.43	-8,466.30	479.34	561.47	246.46	315.01	1.782	
18,500.00	10,188.72	18,139.93	9,815.73	192.33	192.32	-48.39	-8,566.29	479.93	561.76	243.39	318.38	1.764	
18,600.00	10,188.24	18,239.92	9,814.80	194.40	194.40	-48.36	-8,666.29	480.51	562.05	240.31	321.74	1.747	
18,700.00	10,187.76	18,339.92	9,813.88	196.48	196.47	-48.33	-8,766.28	481.10	562.34	237.24	325.10	1.730	
18,800.00	10,187.28	18,439.92	9,812.96	198.55	198.55	-48.29	-8,866.27	481.68	562.64	234.16	328.47	1.713	
18,900.00	10,186.80	18,539.92	9,812.04	200.63	200.63	-48.26	-8,966.27	482.26	562.93	231.09	331.84	1.696	
19,000.00	10,186.32	18,639.92	9,811.12	202.71	202.72	-48.23	-9,066.26	482.85	563.22	228.02	335.20	1.680	
19,100.00	10,185.84	18,739.92	9,810.20	204.80	204.80	-48.19	-9,166.25	483.43	563.51	224.94	338.57	1.664	
19,200.00	10,185.36	18,839.92	9,809.28	206.88	206.89	-48.16	-9,266.25	484.02	563.80	221.87	341.94	1.649	
19,300.00	10,184.88	18,939.92	9,808.36	208.96	208.98	-48.13	-9,366.24	484.60	564.10	218.79	345.31	1.634	
19,400.00	10,184.40	19,039.92	9,807.44	211.05	211.07	-48.09	-9,466.23	485.18	564.39	215.72	348.67	1.619	
19,500.00	10,183.92	19,139.92	9,806.52	213.14	213.16	-48.06	-9,566.23	485.77	564.68	212.64	352.04	1.604	
19,600.00	10,183.44	19,239.91	9,805.60	215.23	215.25	-48.02	-9,666.22	486.35	564.97	209.56	355.41	1.590	
19,700.00	10,182.96	19,339.91	9,804.68	217.32	217.34	-47.99	-9,766.21	486.94	565.27	206.49	358.78	1.576	
19,800.00	10,182.48	19,439.91	9,803.75	219.41	219.44	-47.96	-9,866.20	487.52	565.56	203.42	362.15	1.562	
19,900.00	10,182.00	19,539.91	9,802.83	221.51	221.53	-47.92	-9,966.20	488.10	565.86	200.34	365.51	1.548	
20,000.00	10,181.52	19,639.91	9,801.91	223.60	223.63	-47.89	-10,066.19	488.69	566.15	197.27	368.88	1.535	
20,100.00	10,181.04	19,739.91	9,800.99	225.70	225.73	-47.86	-10,166.18	489.27	566.44	194.19	372.25	1.522	
20,200.00	10,180.56	19,839.91	9,800.07	227.79	227.82	-47.83	-10,266.18	489.86	566.74	191.12	375.62	1.509	
20,300.00	10,180.08	19,939.91	9,799.15	229.89	229.92	-47.79	-10,366.17	490.44	567.03	188.05	378.98	1.496 Level 3	
20,400.00	10,179.60	20,039.91	9,798.23	231.99	232.03	-47.76	-10,466.16	491.02	567.33	184.97	382.35	1.484 Level 3	
20,500.00	10,179.12	20,139.91	9,797.31	234.09	234.13	-47.73	-10,566.16	491.61	567.62	181.90	385.72	1.472 Level 3	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0024 - OH - Plan 1 02-01-17												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
20,525.44	10,179.00	20,165.34	9,797.07	234.55	234.66	-47.72	-10,591.59	491.76	567.70	181.22	386.48	1.469	Level 3



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	1.00	0.00	0.00	0.85	25.00	0.37	25.02				
100.00	100.00	99.00	100.00	0.19	0.19	0.85	25.00	0.37	25.00	24.61	0.39	64.898	
200.00	200.00	199.00	200.00	0.73	0.73	0.85	25.00	0.37	25.00	23.54	1.46	17.156	
300.00	300.00	299.00	300.00	1.27	1.26	0.85	25.00	0.37	25.00	22.47	2.53	9.871	
400.00	400.00	399.00	400.00	1.81	1.80	0.85	25.00	0.37	25.00	21.39	3.61	6.929	
500.00	500.00	499.00	500.00	2.34	2.34	0.85	25.00	0.37	25.00	20.32	4.68	5.338	
600.00	600.00	599.00	600.00	2.88	2.88	0.85	25.00	0.37	25.00	19.24	5.76	4.341	
700.00	700.00	699.00	700.00	3.42	3.41	0.85	25.00	0.37	25.00	18.17	6.83	3.658	
800.00	800.00	799.00	800.00	3.96	3.95	0.85	25.00	0.37	25.00	17.09	7.91	3.161	
900.00	900.00	899.00	900.00	4.50	4.49	0.85	25.00	0.37	25.00	16.01	8.99	2.782	
1,000.00	1,000.00	999.00	1,000.00	5.03	5.03	0.85	25.00	0.37	25.00	14.94	10.06	2.485	
1,100.00	1,100.00	1,099.00	1,100.00	5.57	5.57	0.85	25.00	0.37	25.00	13.86	11.14	2.245	
1,200.00	1,200.00	1,199.00	1,200.00	6.11	6.10	0.85	25.00	0.37	25.00	12.79	12.21	2.047	
1,300.00	1,300.00	1,299.00	1,300.00	6.65	6.64	0.85	25.00	0.37	25.00	11.71	13.29	1.882	
1,400.00	1,400.00	1,399.00	1,400.00	7.18	7.18	0.85	25.00	0.37	25.00	10.64	14.36	1.741	
1,500.00	1,500.00	1,499.00	1,500.00	7.72	7.72	0.85	25.00	0.37	25.00	9.56	15.44	1.619	
1,600.00	1,600.00	1,599.00	1,600.00	8.26	8.25	0.85	25.00	0.37	25.00	8.49	16.51	1.514	
1,700.00	1,700.00	1,699.00	1,700.00	8.80	8.79	0.85	25.00	0.37	25.00	7.41	17.59	1.421	Level 3
1,800.00	1,800.00	1,799.00	1,800.00	9.33	9.33	0.85	25.00	0.37	25.00	6.34	18.66	1.339	Level 3
1,900.00	1,900.00	1,899.00	1,900.00	9.87	9.85	4.78	24.80	2.07	24.88	5.16	19.72	1.262	Level 3
1,921.42	1,921.42	1,920.45	1,921.42	9.99	9.96	6.66	24.70	2.89	24.87	4.92	19.95	1.247	Level 2, CC
2,000.00	2,000.00	1,998.86	1,999.70	10.41	10.36	16.62	24.20	7.22	25.25	4.48	20.77	1.216	Level 2, ES, SF
2,100.00	2,100.00	2,098.35	2,098.83	10.95	10.88	33.81	23.22	15.55	27.97	6.15	21.83	1.282	Level 3
2,200.00	2,200.00	2,197.93	2,198.00	11.49	11.40	47.93	22.17	24.56	33.15	10.26	22.88	1.449	Level 3
2,300.00	2,300.00	2,297.52	2,297.17	12.02	11.93	57.83	21.12	33.57	39.76	15.82	23.95	1.660	
2,400.00	2,400.00	2,397.10	2,396.34	12.56	12.45	64.77	20.07	42.59	47.22	22.20	25.01	1.888	
2,500.00	2,500.00	2,496.69	2,495.51	13.10	12.99	69.77	19.01	51.60	55.17	29.09	26.08	2.115	
2,600.00	2,600.00	2,596.27	2,594.68	13.64	13.52	73.49	17.96	60.61	63.44	36.28	27.16	2.336	
2,700.00	2,700.00	2,695.85	2,693.85	14.17	14.06	76.35	16.91	69.62	71.91	43.68	28.23	2.547	
2,800.00	2,800.00	2,795.44	2,793.02	14.71	14.60	78.60	15.85	78.63	80.52	51.21	29.30	2.748	
2,900.00	2,900.00	2,895.02	2,892.19	15.25	15.14	80.41	14.80	87.64	89.23	58.85	30.38	2.937	
3,000.00	3,000.00	2,994.61	2,991.36	15.79	15.68	81.90	13.75	96.65	98.01	66.55	31.46	3.115	
3,100.00	3,100.00	3,094.19	3,090.53	16.32	16.23	83.15	12.70	105.66	106.85	74.31	32.54	3.284	
3,200.00	3,200.00	3,193.78	3,189.70	16.86	16.77	84.20	11.64	114.68	115.72	82.11	33.62	3.442	
3,300.00	3,300.00	3,293.36	3,288.87	17.40	17.32	85.11	10.59	123.69	124.64	89.94	34.70	3.592	
3,400.00	3,400.00	3,392.94	3,388.04	17.94	17.87	85.89	9.54	132.70	133.58	97.79	35.78	3.733	
3,500.00	3,500.00	3,492.53	3,487.21	18.48	18.42	86.57	8.49	141.71	142.54	105.67	36.87	3.866	
3,600.00	3,600.00	3,592.11	3,586.38	19.01	18.97	87.18	7.43	150.72	151.52	113.57	37.95	3.992	
3,700.00	3,700.00	3,691.70	3,685.55	19.55	19.52	87.71	6.38	159.73	160.51	121.48	39.04	4.112	
3,800.00	3,800.00	3,791.28	3,784.72	20.09	20.08	88.19	5.33	168.74	169.52	129.40	40.12	4.225	
3,900.00	3,900.00	3,890.86	3,883.89	20.63	20.63	88.62	4.28	177.76	178.53	137.33	41.21	4.332	
4,000.00	4,000.00	3,990.45	3,983.06	21.16	21.18	89.01	3.22	186.77	187.56	145.26	42.30	4.434	
4,100.00	4,100.00	4,090.03	4,082.23	21.70	21.74	89.36	2.17	195.78	196.59	153.21	43.38	4.531	
4,200.00	4,200.00	4,189.62	4,181.40	22.24	22.29	89.69	1.12	204.79	205.63	161.16	44.47	4.624	
4,300.00	4,300.00	4,289.20	4,280.57	22.78	22.85	89.98	0.06	213.80	214.68	169.12	45.56	4.712	
4,400.00	4,400.00	4,388.78	4,379.74	23.31	23.41	90.25	-0.99	222.81	223.73	177.08	46.65	4.796	
4,500.00	4,500.00	4,488.37	4,478.91	23.85	23.96	90.50	-2.04	231.82	232.79	185.05	47.74	4.876	
4,600.00	4,600.00	4,587.95	4,578.08	24.39	24.52	90.74	-3.09	240.83	241.85	193.02	48.83	4.953	
4,700.00	4,700.00	4,687.54	4,677.25	24.93	25.08	90.95	-4.15	249.85	250.91	200.99	49.92	5.026	
4,800.00	4,800.00	4,787.12	4,776.42	25.47	25.64	91.15	-5.20	258.86	259.98	208.97	51.01	5.096	
4,900.00	4,900.00	4,886.71	4,875.59	26.00	26.19	91.34	-6.25	267.87	269.05	216.95	52.10	5.164	
5,000.00	5,000.00	4,986.29	4,974.76	26.54	26.75	91.51	-7.30	276.88	278.12	224.93	53.20	5.228	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design													HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,100.00	5,100.00	5,085.87	5,073.93	27.08	27.31	91.67	-8.36	285.89	287.20	232.91	54.29	5.290				
5,200.00	5,200.00	5,185.46	5,173.10	27.62	27.87	91.83	-9.41	294.90	296.28	240.90	55.38	5.350				
5,300.00	5,300.00	5,285.04	5,272.27	28.15	28.43	91.97	-10.46	303.91	305.36	248.88	56.47	5.407				
5,400.00	5,400.00	5,384.63	5,371.44	28.69	28.99	92.11	-11.51	312.92	314.44	256.87	57.56	5.462				
5,500.00	5,500.00	5,484.21	5,470.61	29.23	29.55	92.24	-12.57	321.94	323.52	264.86	58.66	5.515				
5,600.00	5,600.00	5,583.79	5,569.78	29.77	30.11	92.36	-13.62	330.95	332.60	272.85	59.75	5.566				
5,700.00	5,700.00	5,683.38	5,668.95	30.31	30.67	92.47	-14.67	339.96	341.69	280.84	60.84	5.616				
5,800.00	5,800.00	5,782.96	5,768.12	30.84	31.24	92.58	-15.73	348.97	350.78	288.84	61.94	5.663				
5,900.00	5,900.00	5,882.55	5,867.29	31.38	31.80	92.68	-16.78	357.98	359.86	296.83	63.03	5.709				
6,000.00	6,000.00	5,982.13	5,966.46	31.92	32.36	92.78	-17.83	366.99	368.95	304.83	64.13	5.754				
6,100.00	6,100.00	6,081.72	6,065.63	32.46	32.92	92.88	-18.88	376.00	378.04	312.82	65.22	5.796				
6,200.00	6,200.00	6,181.30	6,164.80	32.99	33.48	92.96	-19.94	385.02	387.13	320.82	66.31	5.838				
6,300.00	6,300.00	6,280.88	6,263.97	33.53	34.04	93.05	-20.99	394.03	396.23	328.82	67.41	5.878				
6,400.00	6,400.00	6,380.47	6,363.14	34.07	34.61	93.13	-22.04	403.04	405.32	336.82	68.50	5.917				
6,500.00	6,500.00	6,480.05	6,462.31	34.61	35.17	93.21	-23.09	412.05	414.41	344.82	69.60	5.954				
6,600.00	6,600.00	6,579.64	6,561.48	35.14	35.73	93.28	-24.15	421.06	423.51	352.82	70.69	5.991				
6,700.00	6,700.00	6,679.22	6,660.65	35.68	36.29	93.35	-25.20	430.07	432.60	360.82	71.79	6.026				
6,800.00	6,800.00	6,778.80	6,759.82	36.22	36.86	93.42	-26.25	439.08	441.70	368.82	72.88	6.060				
6,900.00	6,900.00	6,878.39	6,858.99	36.76	37.42	93.49	-27.30	448.09	450.79	376.82	73.98	6.094				
7,000.00	7,000.00	6,977.97	6,958.16	37.30	37.98	93.55	-28.36	457.11	459.89	384.82	75.07	6.126				
7,100.00	7,100.00	7,077.56	7,057.33	37.83	38.55	93.61	-29.41	466.12	468.99	392.82	76.17	6.157				
7,200.00	7,200.00	7,177.14	7,156.50	38.37	39.11	93.67	-30.46	475.13	478.09	400.82	77.26	6.188				
7,300.00	7,300.00	7,276.72	7,255.67	38.91	39.67	93.72	-31.52	484.14	487.19	408.83	78.36	6.217				
7,400.00	7,400.00	7,376.31	7,354.84	39.45	40.24	93.78	-32.57	493.15	496.28	416.83	79.45	6.246				
7,500.00	7,500.00	7,475.89	7,454.01	39.98	40.80	93.83	-33.62	502.16	505.38	424.83	80.55	6.274				
7,600.00	7,600.00	7,575.48	7,553.18	40.52	41.36	93.88	-34.67	511.17	514.48	432.84	81.65	6.301				
7,700.00	7,700.00	7,675.06	7,652.35	41.06	41.93	93.93	-35.73	520.19	523.58	440.84	82.74	6.328				
7,800.00	7,800.00	7,774.65	7,751.52	41.60	42.49	93.98	-36.78	529.20	532.68	448.85	83.84	6.354				
7,900.00	7,900.00	7,874.23	7,850.69	42.13	43.05	94.02	-37.83	538.21	541.78	456.85	84.93	6.379				
8,000.00	8,000.00	7,973.81	7,949.86	42.67	43.62	94.06	-38.88	547.22	550.89	464.86	86.03	6.403				
8,100.00	8,100.00	8,073.40	8,049.03	43.21	44.18	94.11	-39.94	556.23	559.99	472.86	87.13	6.427				
8,200.00	8,200.00	8,172.98	8,148.20	43.75	44.75	94.15	-40.99	565.24	569.09	480.87	88.22	6.451				
8,300.00	8,300.00	8,272.57	8,247.37	44.29	45.31	94.19	-42.04	574.25	578.19	488.87	89.32	6.473				
8,400.00	8,399.98	8,372.02	8,346.42	44.80	45.87	-141.49	-43.09	583.25	588.52	499.28	89.24	6.595				
8,500.00	8,499.85	8,471.14	8,445.12	45.30	46.44	-141.62	-44.14	592.22	601.51	511.37	90.14	6.673				
8,600.00	8,599.67	8,570.11	8,543.68	45.80	47.00	-141.93	-45.19	601.18	615.39	524.22	91.17	6.750				
8,700.00	8,699.48	8,669.09	8,642.25	46.29	47.56	-142.23	-46.23	610.13	629.29	537.08	92.20	6.825				
8,800.00	8,799.29	8,768.07	8,740.81	46.79	48.12	-142.52	-47.28	619.09	643.20	549.96	93.24	6.899				
8,900.00	8,899.11	8,867.05	8,839.38	47.29	48.68	-142.79	-48.33	628.05	657.13	562.86	94.27	6.971				
9,000.00	8,998.92	8,966.02	8,937.95	47.80	49.24	-143.06	-49.37	637.00	671.07	575.76	95.31	7.041				
9,100.00	9,098.73	9,065.00	9,036.51	48.30	49.80	-143.31	-50.42	645.96	685.02	588.68	96.34	7.110				
9,200.00	9,198.55	9,163.98	9,135.08	48.80	50.36	-143.55	-51.46	654.92	698.99	601.61	97.38	7.178				
9,300.00	9,298.36	9,262.95	9,233.64	49.31	50.92	-143.78	-52.51	663.87	712.97	614.55	98.42	7.244				
9,400.00	9,398.17	9,361.93	9,332.21	49.81	51.49	-144.01	-53.56	672.83	726.96	627.50	99.46	7.309				
9,500.00	9,497.98	9,460.91	9,430.77	50.32	52.05	-144.22	-54.60	681.79	740.96	640.46	100.50	7.373				
9,600.00	9,597.80	9,559.89	9,529.34	50.83	52.61	-144.43	-55.65	690.74	754.98	653.43	101.54	7.435				
9,700.00	9,697.54	9,657.22	9,626.24	51.34	53.16	-144.66	-57.50	699.57	768.97	666.37	102.60	7.495				
9,800.00	9,795.55	9,751.53	9,719.03	51.83	53.69	-96.64	-71.25	708.31	782.69	679.01	103.68	7.549				
9,900.00	9,888.86	9,846.60	9,808.97	52.29	54.21	-91.71	-100.37	717.17	795.74	691.00	104.74	7.598				
10,000.00	9,974.63	9,942.63	9,893.67	52.74	54.70	-89.21	-144.52	725.93	807.74	701.99	105.75	7.638				
10,100.00	10,050.26	10,039.80	9,970.67	53.19	55.18	-87.69	-203.02	734.34	818.36	711.63	106.73	7.667				
10,200.00	10,113.44	10,138.27	10,037.48	53.64	55.65	-86.73	-274.76	742.14	827.28	719.59	107.69	7.682				

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	10,162.27	10,238.10	10,091.70	54.10	56.12	-86.19	-358.14	749.10	834.22	725.56	108.66	7.677		
10,400.00	10,195.25	10,339.30	10,131.11	54.57	56.62	-86.00	-451.03	754.94	838.98	729.29	109.69	7.649		
10,500.00	10,211.38	10,441.83	10,153.81	55.05	57.15	-86.12	-550.77	759.44	841.41	730.63	110.78	7.595		
10,600.00	10,212.89	10,544.58	10,158.94	55.55	57.72	-86.33	-653.24	762.41	841.73	729.85	111.88	7.523		
10,700.00	10,212.69	10,644.58	10,158.68	56.12	58.33	-86.32	-753.21	764.83	841.73	728.66	113.07	7.444		
10,800.00	10,212.49	10,744.58	10,158.41	56.77	59.01	-86.32	-853.18	767.25	841.73	727.33	114.40	7.358		
10,900.00	10,212.28	10,844.58	10,158.15	57.49	59.76	-86.31	-953.15	769.68	841.73	725.84	115.88	7.264		
11,000.00	10,212.08	10,944.58	10,157.89	58.29	60.57	-86.31	-1,053.12	772.10	841.72	724.22	117.51	7.163		
11,100.00	10,211.88	11,044.58	10,157.63	59.15	61.45	-86.30	-1,153.09	774.52	841.72	722.46	119.26	7.058		
11,200.00	10,211.68	11,144.58	10,157.37	60.08	62.39	-86.30	-1,253.06	776.94	841.72	720.57	121.15	6.948		
11,300.00	10,211.48	11,244.58	10,157.10	61.07	63.39	-86.30	-1,353.04	779.37	841.72	718.56	123.16	6.834		
11,400.00	10,211.28	11,344.58	10,156.84	62.12	64.45	-86.29	-1,453.01	781.79	841.72	716.43	125.29	6.718		
11,500.00	10,211.08	11,444.58	10,156.58	63.23	65.56	-86.29	-1,552.98	784.21	841.71	714.19	127.53	6.600		
11,600.00	10,210.87	11,544.58	10,156.32	64.39	66.72	-86.28	-1,652.95	786.63	841.71	711.84	129.87	6.481		
11,700.00	10,210.67	11,644.58	10,156.06	65.61	67.93	-86.28	-1,752.92	789.06	841.71	709.39	132.32	6.361		
11,800.00	10,210.47	11,744.58	10,155.79	66.87	69.19	-86.28	-1,852.89	791.48	841.71	706.85	134.86	6.241		
11,900.00	10,210.27	11,844.58	10,155.53	68.18	70.49	-86.27	-1,952.86	793.90	841.71	704.22	137.49	6.122		
12,000.00	10,210.07	11,944.58	10,155.27	69.53	71.83	-86.27	-2,052.83	796.32	841.70	701.50	140.20	6.004		
12,100.00	10,209.87	12,044.58	10,155.01	70.92	73.22	-86.26	-2,152.80	798.74	841.70	698.71	142.99	5.886		
12,200.00	10,209.67	12,144.58	10,154.75	72.35	74.64	-86.26	-2,252.77	801.17	841.70	695.84	145.86	5.770		
12,300.00	10,209.46	12,244.58	10,154.48	73.81	76.09	-86.25	-2,352.74	803.59	841.70	692.90	148.80	5.656		
12,400.00	10,209.26	12,344.58	10,154.22	75.31	77.58	-86.25	-2,452.71	806.01	841.70	689.89	151.81	5.544		
12,500.00	10,209.06	12,444.58	10,153.96	76.84	79.10	-86.25	-2,552.68	808.43	841.69	686.82	154.88	5.435		
12,600.00	10,208.86	12,544.58	10,153.70	78.40	80.65	-86.24	-2,652.65	810.86	841.69	683.69	158.00	5.327		
12,700.00	10,208.66	12,644.58	10,153.44	79.99	82.22	-86.24	-2,752.62	813.28	841.69	680.50	161.19	5.222		
12,800.00	10,208.46	12,744.58	10,153.17	81.61	83.83	-86.23	-2,852.59	815.70	841.69	677.27	164.42	5.119		
12,900.00	10,208.26	12,844.58	10,152.91	83.25	85.45	-86.23	-2,952.56	818.12	841.69	673.98	167.71	5.019		
13,000.00	10,208.06	12,944.58	10,152.65	84.92	87.10	-86.23	-3,052.53	820.54	841.68	670.64	171.04	4.921		
13,100.00	10,207.85	13,044.58	10,152.39	86.60	88.78	-86.22	-3,152.50	822.97	841.68	667.27	174.41	4.826		
13,200.00	10,207.65	13,144.58	10,152.13	88.31	90.47	-86.22	-3,252.47	825.39	841.68	663.85	177.83	4.733		
13,300.00	10,207.45	13,244.58	10,151.87	90.04	92.19	-86.21	-3,352.44	827.81	841.68	660.39	181.29	4.643		
13,400.00	10,207.25	13,344.58	10,151.60	91.79	93.92	-86.21	-3,452.41	830.23	841.68	656.90	184.78	4.555		
13,500.00	10,207.05	13,444.58	10,151.34	93.55	95.67	-86.21	-3,552.38	832.66	841.67	653.37	188.31	4.470		
13,600.00	10,206.85	13,544.58	10,151.08	95.33	97.44	-86.20	-3,652.35	835.08	841.67	649.81	191.87	4.387		
13,700.00	10,206.65	13,644.58	10,150.82	97.13	99.22	-86.20	-3,752.32	837.50	841.67	646.21	195.46	4.306		
13,800.00	10,206.44	13,744.58	10,150.56	98.94	101.02	-86.19	-3,852.29	839.92	841.67	642.59	199.08	4.228		
13,900.00	10,206.24	13,844.58	10,150.29	100.76	102.83	-86.19	-3,952.26	842.35	841.67	638.94	202.73	4.152		
14,000.00	10,206.04	13,944.58	10,150.03	102.60	104.66	-86.18	-4,052.23	844.77	841.66	635.26	206.40	4.078		
14,100.00	10,205.84	14,044.58	10,149.77	104.46	106.50	-86.18	-4,152.20	847.19	841.66	631.56	210.10	4.006		
14,200.00	10,205.64	14,144.58	10,149.51	106.32	108.35	-86.18	-4,252.17	849.61	841.66	627.84	213.82	3.936		
14,300.00	10,205.44	14,244.58	10,149.25	108.19	110.21	-86.17	-4,352.14	852.03	841.66	624.09	217.57	3.868		
14,400.00	10,205.24	14,344.58	10,148.98	110.08	112.09	-86.17	-4,452.11	854.46	841.66	620.32	221.34	3.803		
14,500.00	10,205.03	14,444.58	10,148.72	111.98	113.97	-86.16	-4,552.08	856.88	841.66	616.53	225.12	3.739		
14,600.00	10,204.83	14,544.58	10,148.46	113.88	115.86	-86.16	-4,652.06	859.30	841.65	612.72	228.93	3.676		
14,700.00	10,204.63	14,644.58	10,148.20	115.80	117.77	-86.16	-4,752.03	861.72	841.65	608.90	232.75	3.616		
14,800.00	10,204.43	14,744.58	10,147.94	117.72	119.68	-86.15	-4,852.00	864.15	841.65	605.05	236.59	3.557		
14,900.00	10,204.23	14,844.58	10,147.67	119.65	121.60	-86.15	-4,951.97	866.57	841.65	601.19	240.45	3.500		
15,000.00	10,204.03	14,944.58	10,147.41	121.59	123.53	-86.14	-5,051.94	868.99	841.65	597.32	244.33	3.445		
15,100.00	10,203.83	15,044.58	10,147.15	123.54	125.47	-86.14	-5,151.91	871.41	841.64	593.43	248.22	3.391		
15,200.00	10,203.63	15,144.58	10,146.89	125.49	127.41	-86.13	-5,251.88	873.84	841.64	589.52	252.12	3.338		
15,300.00	10,203.42	15,244.58	10,146.63	127.46	129.36	-86.13	-5,351.85	876.26	841.64	585.60	256.04	3.287		
15,400.00	10,203.22	15,344.58	10,146.36	129.42	131.32	-86.13	-5,451.82	878.68	841.64	581.67	259.97	3.237		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,500.00	10,203.02	15,444.58	10,146.10	131.40	133.29	-86.12	-5,551.79	881.10	841.64	577.73	263.91	3.189		
15,500.10	10,203.02	15,444.68	10,146.10	131.40	133.29	-86.12	-5,551.89	881.10	841.64	577.72	263.91	3.189		
15,600.00	10,202.64	15,559.79	10,145.60	133.37	135.55	-86.12	-5,666.98	882.99	842.03	574.10	267.93	3.143		
15,700.00	10,202.16	15,659.79	10,144.94	135.35	137.51	-86.10	-5,766.98	883.57	842.04	570.16	271.88	3.097		
15,800.00	10,201.68	15,759.79	10,144.28	137.34	139.49	-86.09	-5,866.97	884.16	842.05	566.21	275.84	3.053		
15,900.00	10,201.20	15,859.79	10,143.62	139.32	141.46	-86.08	-5,966.97	884.74	842.06	562.25	279.81	3.009		
16,000.00	10,200.72	15,959.79	10,142.96	141.32	143.44	-86.07	-6,066.96	885.32	842.07	558.28	283.79	2.967		
16,100.00	10,200.24	16,059.79	10,142.30	143.32	145.43	-86.05	-6,166.96	885.91	842.08	554.30	287.77	2.926		
16,200.00	10,199.76	16,159.79	10,141.64	145.32	147.42	-86.04	-6,266.96	886.49	842.09	550.32	291.77	2.886		
16,300.00	10,199.28	16,259.79	10,140.98	147.33	149.42	-86.03	-6,366.95	887.08	842.10	546.32	295.78	2.847		
16,400.00	10,198.80	16,359.79	10,140.32	149.34	151.42	-86.02	-6,466.95	887.66	842.11	542.32	299.79	2.809		
16,500.00	10,198.32	16,459.79	10,139.66	151.36	153.42	-86.01	-6,566.94	888.25	842.12	538.31	303.81	2.772		
16,600.00	10,197.84	16,559.79	10,139.00	153.38	155.43	-85.99	-6,666.94	888.83	842.13	534.29	307.84	2.736		
16,700.00	10,197.36	16,659.79	10,138.34	155.40	157.45	-85.98	-6,766.94	889.41	842.14	530.26	311.88	2.700		
16,800.00	10,196.88	16,759.79	10,137.68	157.43	159.46	-85.97	-6,866.93	890.00	842.15	526.23	315.93	2.666		
16,900.00	10,196.40	16,859.79	10,137.02	159.46	161.48	-85.96	-6,966.93	890.58	842.17	522.19	319.98	2.632		
17,000.00	10,195.92	16,959.79	10,136.36	161.49	163.51	-85.94	-7,066.92	891.17	842.18	518.14	324.04	2.599		
17,100.00	10,195.44	17,059.79	10,135.69	163.53	165.53	-85.93	-7,166.92	891.75	842.19	514.09	328.10	2.567		
17,200.00	10,194.96	17,159.79	10,135.03	165.57	167.57	-85.92	-7,266.92	892.34	842.20	510.03	332.17	2.535		
17,300.00	10,194.48	17,259.79	10,134.37	167.61	169.60	-85.91	-7,366.91	892.92	842.21	505.96	336.24	2.505		
17,400.00	10,194.00	17,359.79	10,133.71	169.66	171.64	-85.89	-7,466.91	893.50	842.22	501.89	340.33	2.475		
17,500.00	10,193.52	17,459.79	10,133.05	171.71	173.68	-85.88	-7,566.90	894.09	842.23	497.82	344.41	2.445		
17,600.00	10,193.04	17,559.79	10,132.39	173.76	175.72	-85.87	-7,666.90	894.67	842.24	493.74	348.50	2.417		
17,700.00	10,192.56	17,659.79	10,131.73	175.81	177.76	-85.86	-7,766.89	895.26	842.25	489.65	352.60	2.389		
17,800.00	10,192.08	17,759.79	10,131.07	177.87	179.81	-85.85	-7,866.89	895.84	842.26	485.56	356.70	2.361		
17,900.00	10,191.60	17,859.79	10,130.41	179.93	181.86	-85.83	-7,966.89	896.43	842.28	481.47	360.81	2.334		
18,000.00	10,191.12	17,959.79	10,129.75	181.99	183.92	-85.82	-8,066.88	897.01	842.29	477.37	364.92	2.308		
18,100.00	10,190.64	18,059.79	10,129.09	184.05	185.97	-85.81	-8,166.88	897.60	842.30	473.26	369.04	2.282		
18,200.00	10,190.16	18,159.79	10,128.43	186.12	188.03	-85.80	-8,266.87	898.18	842.31	469.15	373.16	2.257		
18,300.00	10,189.68	18,259.79	10,127.77	188.19	190.09	-85.78	-8,366.87	898.76	842.32	465.04	377.28	2.233		
18,400.00	10,189.20	18,359.79	10,127.11	190.26	192.15	-85.77	-8,466.87	899.35	842.33	460.92	381.41	2.208		
18,500.00	10,188.72	18,459.79	10,126.45	192.33	194.22	-85.76	-8,566.86	899.93	842.34	456.80	385.54	2.185		
18,600.00	10,188.24	18,559.79	10,125.79	194.40	196.28	-85.75	-8,666.86	900.52	842.36	452.68	389.67	2.162		
18,700.00	10,187.76	18,659.79	10,125.12	196.48	198.35	-85.74	-8,766.85	901.10	842.37	448.55	393.81	2.139		
18,800.00	10,187.28	18,759.79	10,124.46	198.55	200.42	-85.72	-8,866.85	901.69	842.38	444.42	397.96	2.117		
18,900.00	10,186.80	18,859.79	10,123.80	200.63	202.49	-85.71	-8,966.85	902.27	842.39	440.29	402.10	2.095		
19,000.00	10,186.32	18,959.78	10,123.14	202.71	204.57	-85.70	-9,066.84	902.85	842.40	436.15	406.25	2.074		
19,100.00	10,185.84	19,059.78	10,122.48	204.80	206.64	-85.69	-9,166.84	903.44	842.41	432.01	410.40	2.053		
19,200.00	10,185.36	19,159.78	10,121.82	206.88	208.72	-85.67	-9,266.83	904.02	842.42	427.87	414.56	2.032		
19,300.00	10,184.88	19,259.78	10,121.16	208.96	210.80	-85.66	-9,366.83	904.61	842.44	423.72	418.71	2.012		
19,400.00	10,184.40	19,359.78	10,120.50	211.05	212.88	-85.65	-9,466.83	905.19	842.45	419.57	422.87	1.992		
19,500.00	10,183.92	19,459.78	10,119.84	213.14	214.96	-85.64	-9,566.82	905.78	842.46	415.42	427.04	1.973		
19,600.00	10,183.44	19,559.78	10,119.18	215.23	217.04	-85.63	-9,666.82	906.36	842.47	411.27	431.20	1.954		
19,700.00	10,182.96	19,659.78	10,118.52	217.32	219.13	-85.61	-9,766.81	906.94	842.48	407.11	435.37	1.935		
19,800.00	10,182.48	19,759.78	10,117.86	219.41	221.21	-85.60	-9,866.81	907.53	842.50	402.95	439.54	1.917		
19,900.00	10,182.00	19,859.78	10,117.20	221.51	223.30	-85.59	-9,966.81	908.11	842.51	398.79	443.72	1.899		
20,000.00	10,181.52	19,959.78	10,116.54	223.60	225.39	-85.58	-10,066.80	908.70	842.52	394.63	447.89	1.881		
20,100.00	10,181.04	20,059.78	10,115.88	225.70	227.48	-85.56	-10,166.80	909.28	842.53	390.46	452.07	1.864		
20,200.00	10,180.56	20,159.78	10,115.21	227.79	229.57	-85.55	-10,266.79	909.87	842.54	386.29	456.25	1.847		
20,300.00	10,180.08	20,259.78	10,114.55	229.89	231.67	-85.54	-10,366.79	910.45	842.56	382.12	460.43	1.830		
20,400.00	10,179.60	20,359.78	10,113.89	231.99	233.76	-85.53	-10,466.79	911.03	842.57	377.95	464.62	1.813		
20,500.00	10,179.12	20,459.78	10,113.23	234.09	235.86	-85.51	-10,566.78	911.62	842.58	373.78	468.81	1.797		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design												HH SO 10 15 Fed - 0026 - OH - Plan 1 02-01-17		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM														Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Distance									
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		
20,525.44	10,179.00	20,485.22	10,113.07	234.55	236.39	-85.51	-10,592.22	911.77	842.58	372.79	469.79	1.794			



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16												Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	13.00	0.00	0.00	0.02	75.42	322.09	1,237.88	1,279.09				
100.00	100.00	113.00	100.00	0.19	0.25	75.42	322.09	1,237.88	1,279.09	1,278.65	0.44	2,883.380	
200.00	200.00	213.00	200.00	0.73	0.79	75.42	322.09	1,237.88	1,279.09	1,277.57	1.52	842.050	
300.00	300.00	313.00	300.00	1.27	1.33	75.42	322.09	1,237.88	1,279.09	1,276.50	2.59	493.014	
400.00	400.00	413.00	400.00	1.81	1.86	75.42	322.09	1,237.88	1,279.09	1,275.42	3.67	348.541	
500.00	500.00	513.00	500.00	2.34	2.40	75.42	322.09	1,237.88	1,279.09	1,274.35	4.75	269.551	
600.00	600.00	613.00	600.00	2.88	2.94	75.42	322.09	1,237.88	1,279.09	1,273.27	5.82	219.750	
700.00	700.00	713.00	700.00	3.42	3.48	75.42	322.09	1,237.88	1,279.09	1,272.20	6.90	185.481	
800.00	800.00	813.00	800.00	3.96	4.01	75.42	322.09	1,237.88	1,279.09	1,271.12	7.97	160.458	
900.00	900.00	913.00	900.00	4.50	4.55	75.42	322.09	1,237.88	1,279.09	1,270.05	9.05	141.384	
1,000.00	1,000.00	1,013.00	1,000.00	5.03	5.09	75.42	322.09	1,237.88	1,279.09	1,268.97	10.12	126.363	
1,100.00	1,100.00	1,113.00	1,100.00	5.57	5.63	75.42	322.09	1,237.88	1,279.09	1,267.90	11.20	114.228	
1,200.00	1,200.00	1,213.00	1,200.00	6.11	6.16	75.42	322.09	1,237.88	1,279.09	1,266.82	12.27	104.219	
1,300.00	1,300.00	1,313.00	1,300.00	6.65	6.70	75.42	322.09	1,237.88	1,279.09	1,265.74	13.35	95.822	
1,400.00	1,400.00	1,413.00	1,400.00	7.18	7.24	75.42	322.09	1,237.88	1,279.09	1,264.67	14.42	88.678	
1,500.00	1,500.00	1,513.00	1,500.00	7.72	7.78	75.42	322.09	1,237.88	1,279.09	1,263.59	15.50	82.525	
1,600.00	1,600.00	1,613.00	1,600.00	8.26	8.32	75.42	322.09	1,237.88	1,279.09	1,262.52	16.57	77.171	
1,700.00	1,700.00	1,713.00	1,700.00	8.80	8.85	75.42	322.09	1,237.88	1,279.09	1,261.44	17.65	72.469	
1,800.00	1,800.00	1,813.00	1,800.00	9.33	9.39	75.42	322.09	1,237.88	1,279.09	1,260.37	18.73	68.307	
1,900.00	1,900.00	1,913.00	1,900.00	9.87	9.93	75.42	322.09	1,237.88	1,279.09	1,259.29	19.80	64.597	
2,000.00	2,000.00	2,013.00	2,000.00	10.41	10.47	75.42	322.09	1,237.88	1,279.09	1,258.22	20.88	61.270	
2,100.00	2,100.00	2,113.00	2,100.00	10.95	11.00	75.42	322.09	1,237.88	1,279.09	1,257.14	21.95	58.268	
2,200.00	2,200.00	2,213.00	2,200.00	11.49	11.54	75.42	322.09	1,237.88	1,279.09	1,256.07	23.03	55.547	
2,300.00	2,300.00	2,313.00	2,300.00	12.02	12.08	75.42	322.09	1,237.88	1,279.09	1,254.99	24.10	53.068	
2,400.00	2,400.00	2,413.00	2,400.00	12.56	12.62	75.42	322.09	1,237.88	1,279.09	1,253.92	25.18	50.802	
2,461.69	2,461.69	2,474.69	2,461.69	12.89	12.95	75.42	322.09	1,237.88	1,279.09	1,253.25	25.84	49.498 CC	
2,500.00	2,500.00	2,510.77	2,497.77	13.10	13.14	75.42	322.07	1,237.89	1,279.10	1,252.87	26.24	48.748	
2,600.00	2,600.00	2,600.00	2,586.98	13.64	13.60	75.48	320.79	1,239.05	1,279.97	1,252.73	27.24	46.996	
2,700.00	2,700.00	2,676.28	2,663.17	14.17	13.98	75.63	318.07	1,241.52	1,282.14	1,253.99	28.15	45.547	
2,800.00	2,800.00	2,758.67	2,745.31	14.71	14.39	75.88	313.44	1,245.71	1,285.70	1,256.61	29.10	44.187	
2,900.00	2,900.00	2,840.62	2,826.82	15.25	14.80	76.21	307.10	1,251.46	1,290.66	1,260.62	30.05	42.957	
3,000.00	3,000.00	2,922.02	2,907.50	15.79	15.21	76.63	299.09	1,258.71	1,297.06	1,266.06	30.99	41.848	
3,100.00	3,100.00	3,005.00	2,989.40	16.32	15.63	77.15	289.20	1,267.66	1,304.93	1,272.97	31.96	40.833	
3,200.00	3,200.00	3,103.53	3,086.47	16.86	16.15	77.79	276.71	1,278.99	1,313.49	1,280.48	33.01	39.794	
3,300.00	3,300.00	3,202.05	3,183.54	17.40	16.67	78.43	264.21	1,290.31	1,322.22	1,288.15	34.06	38.815	
3,400.00	3,400.00	3,300.58	3,280.61	17.94	17.20	79.06	251.71	1,301.63	1,331.11	1,295.98	35.13	37.891	
3,500.00	3,500.00	3,399.10	3,377.68	18.48	17.74	79.67	239.21	1,312.95	1,340.16	1,303.95	36.20	37.019	
3,600.00	3,600.00	3,497.63	3,474.75	19.01	18.29	80.29	226.72	1,324.27	1,349.36	1,312.08	37.28	36.195	
3,700.00	3,700.00	3,596.15	3,571.82	19.55	18.84	80.89	214.22	1,335.59	1,358.72	1,320.35	38.36	35.416	
3,800.00	3,800.00	3,694.68	3,668.89	20.09	19.40	81.48	201.72	1,346.91	1,368.23	1,328.77	39.45	34.679	
3,900.00	3,900.00	3,793.20	3,765.96	20.63	19.96	82.07	189.23	1,358.23	1,377.88	1,337.33	40.55	33.980	
4,000.00	4,000.00	3,891.72	3,863.03	21.16	20.52	82.65	176.73	1,369.55	1,387.68	1,346.03	41.65	33.318	
4,100.00	4,100.00	3,990.25	3,960.10	21.70	21.09	83.22	164.23	1,380.87	1,397.62	1,354.87	42.75	32.690	
4,200.00	4,200.00	4,088.77	4,057.18	22.24	21.67	83.78	151.73	1,392.19	1,407.70	1,363.84	43.86	32.094	
4,300.00	4,300.00	4,187.30	4,154.25	22.78	22.25	84.33	139.24	1,403.51	1,417.91	1,372.94	44.97	31.521	
4,400.00	4,400.00	4,285.82	4,251.32	23.31	22.83	84.88	126.74	1,414.83	1,428.26	1,382.17	46.09	30.988	
4,500.00	4,500.00	4,384.35	4,348.39	23.85	23.41	85.42	114.24	1,426.15	1,438.73	1,391.52	47.21	30.475	
4,600.00	4,600.00	4,482.87	4,445.46	24.39	24.00	85.95	101.75	1,437.47	1,449.33	1,401.00	48.33	29.987	
4,700.00	4,700.00	4,581.40	4,542.53	24.93	24.59	86.47	89.25	1,448.79	1,460.06	1,410.60	49.46	29.521	
4,800.00	4,800.00	4,679.92	4,639.60	25.47	25.19	86.99	76.75	1,460.11	1,470.90	1,420.31	50.59	29.077	
4,900.00	4,900.00	4,778.45	4,736.67	26.00	25.78	87.50	64.25	1,471.43	1,481.86	1,430.15	51.72	28.653	
5,000.00	5,000.00	4,876.97	4,833.74	26.54	26.38	88.00	51.76	1,482.75	1,492.94	1,440.09	52.85	28.248	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16												Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,100.00	5,100.00	4,975.49	4,930.81	27.08	26.98	88.49	39.26	1,494.08	1,504.14	1,450.15	53.99	27.860	
5,200.00	5,200.00	5,074.02	5,027.88	27.62	27.58	88.98	26.76	1,505.40	1,515.44	1,460.31	55.13	27.490	
5,300.00	5,300.00	5,172.54	5,124.96	28.15	28.18	89.46	14.26	1,516.72	1,526.85	1,470.58	56.27	27.136	
5,400.00	5,400.00	5,271.07	5,222.03	28.69	28.79	89.93	1.77	1,528.04	1,538.37	1,480.96	57.41	26.796	
5,500.00	5,500.00	5,369.59	5,319.10	29.23	29.39	90.40	-10.73	1,539.36	1,549.99	1,491.43	58.55	26.471	
5,600.00	5,600.00	5,468.12	5,416.17	29.77	30.00	90.86	-23.23	1,550.68	1,561.71	1,502.01	59.70	26.160	
5,700.00	5,700.00	5,576.97	5,523.44	30.31	30.67	91.35	-36.94	1,563.10	1,573.47	1,512.57	60.91	25.833	
5,800.00	5,800.00	5,737.66	5,682.66	30.84	31.62	91.92	-52.91	1,577.56	1,582.81	1,520.41	62.40	25.366	
5,900.00	5,900.00	5,900.30	5,844.78	31.38	32.52	92.25	-62.30	1,586.08	1,588.26	1,524.42	63.84	24.878	
6,000.00	6,000.00	6,055.58	6,000.00	31.92	33.32	92.34	-64.92	1,588.45	1,589.77	1,524.60	65.18	24.392	
6,100.00	6,100.00	6,155.58	6,100.00	32.46	33.81	92.34	-64.92	1,588.45	1,589.77	1,523.57	66.20	24.013	
6,200.00	6,200.00	6,255.58	6,200.00	32.99	34.30	92.34	-64.92	1,588.45	1,589.77	1,522.54	67.24	23.645	
6,300.00	6,300.00	6,355.58	6,300.00	33.53	34.79	92.34	-64.92	1,588.45	1,589.77	1,521.51	68.27	23.287	
6,400.00	6,400.00	6,455.58	6,400.00	34.07	35.29	92.34	-64.92	1,588.45	1,589.77	1,520.47	69.30	22.940	
6,500.00	6,500.00	6,555.58	6,500.00	34.61	35.78	92.34	-64.92	1,588.45	1,589.77	1,519.44	70.34	22.603	
6,600.00	6,600.00	6,655.58	6,600.00	35.14	36.28	92.34	-64.92	1,588.45	1,589.77	1,518.40	71.37	22.275	
6,700.00	6,700.00	6,755.58	6,700.00	35.68	36.78	92.34	-64.92	1,588.45	1,589.77	1,517.37	72.41	21.956	
6,800.00	6,800.00	6,855.58	6,800.00	36.22	37.28	92.34	-64.92	1,588.45	1,589.77	1,516.33	73.45	21.646	
6,900.00	6,900.00	6,955.58	6,900.00	36.76	37.78	92.34	-64.92	1,588.45	1,589.77	1,515.29	74.48	21.344	
7,000.00	7,000.00	7,055.58	7,000.00	37.30	38.28	92.34	-64.92	1,588.45	1,589.77	1,514.25	75.52	21.050	
7,100.00	7,100.00	7,155.58	7,100.00	37.83	38.78	92.34	-64.92	1,588.45	1,589.77	1,513.21	76.57	20.764	
7,200.00	7,200.00	7,255.58	7,200.00	38.37	39.28	92.34	-64.92	1,588.45	1,589.77	1,512.17	77.61	20.485	
7,300.00	7,300.00	7,355.58	7,300.00	38.91	39.79	92.34	-64.92	1,588.45	1,589.77	1,511.12	78.65	20.213	
7,400.00	7,400.00	7,455.58	7,400.00	39.45	40.29	92.34	-64.92	1,588.45	1,589.77	1,510.08	79.69	19.949	
7,500.00	7,500.00	7,555.58	7,500.00	39.98	40.80	92.34	-64.92	1,588.45	1,589.77	1,509.04	80.74	19.691	
7,600.00	7,600.00	7,655.58	7,600.00	40.52	41.30	92.34	-64.92	1,588.45	1,589.77	1,507.99	81.78	19.439	
7,700.00	7,700.00	7,755.58	7,700.00	41.06	41.81	92.34	-64.92	1,588.45	1,589.77	1,506.95	82.83	19.194	
7,800.00	7,800.00	7,855.58	7,800.00	41.60	42.32	92.34	-64.92	1,588.45	1,589.77	1,505.90	83.87	18.954	
7,900.00	7,900.00	7,955.58	7,900.00	42.13	42.83	92.34	-64.92	1,588.45	1,589.77	1,504.85	84.92	18.720	
8,000.00	8,000.00	8,055.58	8,000.00	42.67	43.34	92.34	-64.92	1,588.45	1,589.77	1,503.80	85.97	18.492	
8,100.00	8,100.00	8,155.58	8,100.00	43.21	43.85	92.34	-64.92	1,588.45	1,589.77	1,502.75	87.02	18.269	
8,200.00	8,200.00	8,255.58	8,200.00	43.75	44.36	92.34	-64.92	1,588.45	1,589.77	1,501.71	88.07	18.052	
8,300.00	8,300.00	8,355.58	8,300.00	44.29	44.87	92.34	-64.92	1,588.45	1,589.77	1,500.66	89.12	17.839	
8,400.00	8,399.98	8,455.58	8,399.98	44.80	45.38	-143.42	-64.92	1,588.45	1,591.04	1,501.58	89.45	17.786	
8,500.00	8,499.85	8,555.43	8,499.85	45.30	45.89	-143.49	-64.92	1,588.45	1,595.05	1,504.69	90.36	17.653	
8,600.00	8,599.67	8,655.25	8,599.67	45.80	46.40	-143.62	-64.92	1,588.45	1,599.97	1,508.60	91.37	17.511	
8,700.00	8,699.48	8,755.06	8,699.48	46.29	46.92	-143.75	-64.92	1,588.45	1,604.90	1,512.51	92.38	17.372	
8,800.00	8,799.29	8,854.87	8,799.29	46.79	47.43	-143.88	-64.92	1,588.45	1,609.83	1,516.43	93.40	17.236	
8,900.00	8,899.11	8,954.69	8,899.11	47.29	47.94	-144.01	-64.92	1,588.45	1,614.78	1,520.36	94.42	17.102	
9,000.00	8,998.92	9,054.50	8,998.92	47.80	48.46	-144.13	-64.92	1,588.45	1,619.73	1,524.29	95.44	16.972	
9,100.00	9,098.73	9,154.31	9,098.73	48.30	48.97	-144.26	-64.92	1,588.45	1,624.69	1,528.23	96.46	16.843	
9,200.00	9,198.55	9,254.13	9,198.55	48.80	49.49	-144.39	-64.92	1,588.45	1,629.66	1,532.18	97.48	16.718	
9,300.00	9,298.36	9,353.94	9,298.36	49.31	50.00	-144.51	-64.92	1,588.45	1,634.63	1,536.13	98.50	16.595	
9,400.00	9,398.17	9,453.75	9,398.17	49.81	50.52	-144.63	-64.92	1,588.45	1,639.61	1,540.09	99.53	16.474	
9,500.00	9,497.98	9,553.57	9,497.98	50.32	51.04	-144.76	-64.92	1,588.45	1,644.61	1,544.05	100.55	16.355	
9,600.00	9,597.80	9,650.00	9,594.42	50.83	51.53	-144.87	-64.96	1,588.45	1,649.61	1,548.05	101.56	16.242	
9,700.00	9,697.54	9,741.96	9,685.90	51.34	52.02	-114.76	-73.36	1,588.65	1,654.92	1,552.36	102.56	16.135	
9,800.00	9,795.55	9,830.60	9,771.71	51.83	52.51	-97.40	-95.19	1,589.18	1,660.23	1,556.63	103.60	16.025	
9,900.00	9,888.86	9,918.63	9,852.60	52.29	53.03	-92.78	-129.70	1,590.01	1,665.21	1,560.56	104.65	15.913	
10,000.00	9,974.63	10,006.31	9,926.97	52.74	53.56	-90.55	-175.97	1,591.13	1,669.71	1,564.02	105.69	15.798	
10,100.00	10,050.26	10,093.90	9,993.35	53.19	54.11	-89.25	-232.97	1,592.51	1,673.59	1,566.85	106.74	15.679	
10,200.00	10,113.44	10,181.65	10,050.36	53.64	54.69	-88.46	-299.54	1,594.11	1,676.73	1,568.92	107.81	15.553	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design													HH SO 10 P3 - #15H - OH - Plan 2 11-18-16		Offset Site Error: 0.00 usft	
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
10,300.00	10,162.27	10,269.81	10,096.74	54.10	55.30	-88.03	-374.39	1,595.92	1,679.03	1,570.13	108.91	15.417				
10,400.00	10,195.25	10,358.62	10,131.31	54.57	55.95	-87.89	-456.08	1,597.90	1,680.46	1,570.41	110.05	15.270				
10,500.00	10,211.38	10,450.00	10,153.26	55.05	56.64	-88.01	-544.65	1,600.03	1,680.97	1,569.72	111.25	15.109				
10,600.00	10,212.89	10,539.33	10,160.86	55.55	57.32	-88.23	-633.54	1,602.18	1,680.81	1,568.35	112.46	14.946				
10,641.82	10,212.80	10,580.50	10,160.69	55.79	57.65	-88.22	-674.70	1,603.18	1,680.81	1,567.78	113.02	14.871				
10,700.00	10,212.69	10,638.68	10,160.39	56.12	58.13	-88.22	-732.86	1,604.58	1,680.80	1,566.97	113.84	14.765				
10,800.00	10,212.49	10,738.68	10,159.86	56.77	59.00	-88.21	-832.83	1,607.00	1,680.80	1,565.44	115.36	14.570				
10,900.00	10,212.28	10,838.68	10,159.34	57.49	59.94	-88.19	-932.80	1,609.41	1,680.80	1,563.77	117.03	14.362				
11,000.00	10,212.08	10,938.68	10,158.82	58.29	60.95	-88.18	-1,032.77	1,611.82	1,680.79	1,561.96	118.83	14.144				
11,100.00	10,211.88	11,038.68	10,158.29	59.15	62.02	-88.17	-1,132.74	1,614.24	1,680.79	1,560.02	120.77	13.917				
11,200.00	10,211.68	11,138.67	10,157.77	60.08	63.14	-88.16	-1,232.71	1,616.65	1,680.79	1,557.96	122.83	13.684				
11,300.00	10,211.48	11,238.67	10,157.24	61.07	64.32	-88.15	-1,332.67	1,619.07	1,680.79	1,555.78	125.01	13.446				
11,400.00	10,211.28	11,338.67	10,156.72	62.12	65.56	-88.14	-1,432.64	1,621.48	1,680.78	1,553.48	127.30	13.204				
11,500.00	10,211.08	11,438.67	10,156.20	63.23	66.84	-88.13	-1,532.61	1,623.90	1,680.78	1,551.08	129.69	12.960				
11,600.00	10,210.87	11,538.67	10,155.67	64.39	68.17	-88.12	-1,632.58	1,626.31	1,680.78	1,548.58	132.19	12.715				
11,700.00	10,210.67	11,638.67	10,155.15	65.61	69.54	-88.11	-1,732.55	1,628.73	1,680.77	1,545.99	134.79	12.470				
11,800.00	10,210.47	11,738.67	10,154.63	66.87	70.96	-88.10	-1,832.52	1,631.14	1,680.77	1,543.30	137.47	12.227				
11,900.00	10,210.27	11,838.67	10,154.10	68.18	72.41	-88.08	-1,932.49	1,633.56	1,680.77	1,540.53	140.24	11.985				
12,000.00	10,210.07	11,938.67	10,153.58	69.53	73.91	-88.07	-2,032.46	1,635.97	1,680.76	1,537.68	143.09	11.747				
12,100.00	10,209.87	12,038.67	10,153.06	70.92	75.43	-88.06	-2,132.43	1,638.39	1,680.76	1,534.75	146.01	11.511				
12,200.00	10,209.67	12,138.67	10,152.53	72.35	76.99	-88.05	-2,232.40	1,640.80	1,680.76	1,531.76	149.00	11.280				
12,300.00	10,209.46	12,238.67	10,152.01	73.81	78.58	-88.04	-2,332.36	1,643.22	1,680.76	1,528.69	152.06	11.053				
12,400.00	10,209.26	12,338.67	10,151.49	75.31	80.20	-88.03	-2,432.33	1,645.63	1,680.75	1,525.57	155.19	10.831				
12,500.00	10,209.06	12,438.67	10,150.96	76.84	81.85	-88.02	-2,532.30	1,648.05	1,680.75	1,522.39	158.37	10.613				
12,600.00	10,208.86	12,538.67	10,150.44	78.40	83.52	-88.01	-2,632.27	1,650.46	1,680.75	1,519.15	161.60	10.400				
12,700.00	10,208.66	12,638.67	10,149.91	79.99	85.21	-88.00	-2,732.24	1,652.87	1,680.75	1,515.85	164.89	10.193				
12,800.00	10,208.46	12,738.67	10,149.39	81.61	86.93	-87.99	-2,832.21	1,655.29	1,680.75	1,512.51	168.23	9.991				
12,900.00	10,208.26	12,838.67	10,148.87	83.25	88.67	-87.98	-2,932.18	1,657.70	1,680.74	1,509.13	171.62	9.794				
13,000.00	10,208.06	12,938.67	10,148.34	84.92	90.43	-87.96	-3,032.15	1,660.12	1,680.74	1,505.70	175.04	9.602				
13,100.00	10,207.85	13,038.66	10,147.82	86.60	92.21	-87.95	-3,132.12	1,662.53	1,680.74	1,502.22	178.51	9.415				
13,200.00	10,207.65	13,138.66	10,147.30	88.31	94.01	-87.94	-3,232.08	1,664.95	1,680.74	1,498.71	182.02	9.234				
13,300.00	10,207.45	13,238.66	10,146.77	90.04	95.82	-87.93	-3,332.05	1,667.36	1,680.74	1,495.17	185.57	9.057				
13,400.00	10,207.25	13,338.66	10,146.25	91.79	97.65	-87.92	-3,432.02	1,669.78	1,680.73	1,491.59	189.15	8.886				
13,500.00	10,207.05	13,438.66	10,145.73	93.55	99.49	-87.91	-3,531.99	1,672.19	1,680.73	1,487.97	192.76	8.719				
13,600.00	10,206.85	13,538.66	10,145.20	95.33	101.35	-87.90	-3,631.96	1,674.61	1,680.73	1,484.33	196.40	8.558				
13,700.00	10,206.65	13,638.66	10,144.68	97.13	103.23	-87.89	-3,731.93	1,677.02	1,680.73	1,480.66	200.07	8.401				
13,800.00	10,206.44	13,738.66	10,144.16	98.94	105.11	-87.88	-3,831.90	1,679.44	1,680.73	1,476.96	203.77	8.248				
13,900.00	10,206.24	13,838.66	10,143.63	100.76	107.01	-87.87	-3,931.87	1,681.85	1,680.72	1,473.23	207.49	8.100				
14,000.00	10,206.04	13,938.66	10,143.11	102.60	108.92	-87.85	-4,031.84	1,684.27	1,680.72	1,469.48	211.24	7.956				
14,100.00	10,205.84	14,038.66	10,142.58	104.46	110.84	-87.84	-4,131.81	1,686.68	1,680.72	1,465.71	215.01	7.817				
14,200.00	10,205.64	14,138.66	10,142.06	106.32	112.76	-87.83	-4,231.77	1,689.09	1,680.72	1,461.91	218.81	7.681				
14,300.00	10,205.44	14,238.66	10,141.54	108.19	114.70	-87.82	-4,331.74	1,691.51	1,680.72	1,458.09	222.62	7.550				
14,400.00	10,205.24	14,338.66	10,141.01	110.08	116.65	-87.81	-4,431.71	1,693.92	1,680.72	1,454.26	226.46	7.422				
14,500.00	10,205.03	14,438.66	10,140.49	111.98	118.61	-87.80	-4,531.68	1,696.34	1,680.72	1,450.40	230.31	7.297				
14,600.00	10,204.83	14,538.66	10,139.97	113.88	120.58	-87.79	-4,631.65	1,698.75	1,680.72	1,446.53	234.19	7.177				
14,700.00	10,204.63	14,638.66	10,139.44	115.80	122.55	-87.78	-4,731.62	1,701.17	1,680.71	1,442.64	238.08	7.060				
14,800.00	10,204.43	14,738.66	10,138.92	117.72	124.53	-87.77	-4,831.59	1,703.58	1,680.71	1,438.73	241.98	6.946				
14,900.00	10,204.23	14,838.66	10,138.40	119.65	126.52	-87.76	-4,931.56	1,706.00	1,680.71	1,434.81	245.90	6.835				
15,000.00	10,204.03	14,938.66	10,137.87	121.59	128.52	-87.74	-5,031.53	1,708.41	1,680.71	1,430.87	249.84	6.727				
15,100.00	10,203.83	15,038.65	10,137.35	123.54	130.52	-87.73	-5,131.49	1,710.83	1,680.71	1,426.92	253.79	6.622				
15,200.00	10,203.63	15,138.65	10,136.82	125.49	132.53	-87.72	-5,231.46	1,713.24	1,680.71	1,422.96	257.75	6.521				
15,300.00	10,203.42	15,238.65	10,136.30	127.46	134.54	-87.71	-5,331.43	1,715.66	1,680.71	1,418.98	261.73	6.422				

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,400.00	10,203.22	15,338.65	10,135.78	129.42	136.56	-87.70	-5,431.40	1,718.07	1,680.71	1,414.99	265.72	6.325	
15,500.00	10,203.02	15,438.65	10,135.25	131.40	138.59	-87.69	-5,531.37	1,720.49	1,680.71	1,410.99	269.72	6.231	
15,500.03	10,203.02	15,438.68	10,135.25	131.40	138.59	-87.69	-5,531.40	1,720.49	1,680.71	1,410.99	269.72	6.231	
15,600.00	10,202.64	15,569.40	10,134.57	133.37	141.24	-87.68	-5,662.09	1,722.97	1,681.47	1,407.24	274.22	6.132	
15,700.00	10,202.16	15,669.40	10,134.05	135.35	143.26	-87.68	-5,762.09	1,723.55	1,681.47	1,403.24	278.22	6.044	
15,800.00	10,201.68	15,769.40	10,133.54	137.34	145.28	-87.68	-5,862.09	1,724.14	1,681.47	1,399.23	282.23	5.958	
15,900.00	10,201.20	15,869.40	10,133.02	139.32	147.31	-87.68	-5,962.08	1,724.72	1,681.47	1,395.21	286.25	5.874	
16,000.00	10,200.72	15,969.40	10,132.50	141.32	149.35	-87.67	-6,062.08	1,725.30	1,681.47	1,391.18	290.28	5.793	
16,100.00	10,200.24	16,069.40	10,131.99	143.32	151.38	-87.67	-6,162.08	1,725.89	1,681.46	1,387.15	294.32	5.713	
16,200.00	10,199.76	16,169.40	10,131.47	145.32	153.43	-87.67	-6,262.07	1,726.47	1,681.46	1,383.10	298.36	5.636	
16,300.00	10,199.28	16,269.40	10,130.95	147.33	155.47	-87.67	-6,362.07	1,727.06	1,681.46	1,379.05	302.42	5.560	
16,400.00	10,198.80	16,369.40	10,130.43	149.34	157.52	-87.67	-6,462.07	1,727.64	1,681.46	1,374.98	306.48	5.486	
16,500.00	10,198.32	16,469.40	10,129.92	151.36	159.57	-87.67	-6,562.06	1,728.23	1,681.46	1,370.91	310.55	5.414	
16,600.00	10,197.84	16,569.40	10,129.40	153.38	161.63	-87.67	-6,662.06	1,728.81	1,681.46	1,366.84	314.63	5.344	
16,700.00	10,197.36	16,669.40	10,128.88	155.40	163.69	-87.67	-6,762.06	1,729.40	1,681.46	1,362.75	318.71	5.276	
16,800.00	10,196.88	16,769.40	10,128.37	157.43	165.75	-87.66	-6,862.05	1,729.98	1,681.46	1,358.66	322.80	5.209	
16,900.00	10,196.40	16,869.40	10,127.85	159.46	167.82	-87.66	-6,962.05	1,730.57	1,681.46	1,354.56	326.90	5.144	
17,000.00	10,195.92	16,969.40	10,127.33	161.49	169.89	-87.66	-7,062.05	1,731.15	1,681.46	1,350.46	331.00	5.080	
17,100.00	10,195.44	17,069.40	10,126.81	163.53	171.96	-87.66	-7,162.05	1,731.74	1,681.46	1,346.35	335.11	5.018	
17,200.00	10,194.96	17,169.40	10,126.30	165.57	174.03	-87.66	-7,262.04	1,732.32	1,681.46	1,342.23	339.23	4.957	
17,300.00	10,194.48	17,269.40	10,125.78	167.61	176.11	-87.66	-7,362.04	1,732.91	1,681.46	1,338.11	343.35	4.897	
17,400.00	10,194.00	17,369.40	10,125.26	169.66	178.19	-87.66	-7,462.04	1,733.49	1,681.46	1,333.99	347.48	4.839	
17,500.00	10,193.52	17,469.40	10,124.75	171.71	180.27	-87.66	-7,562.03	1,734.07	1,681.46	1,329.86	351.61	4.782	
17,600.00	10,193.04	17,569.40	10,124.23	173.76	182.36	-87.65	-7,662.03	1,734.66	1,681.46	1,325.72	355.74	4.727	
17,700.00	10,192.56	17,669.40	10,123.71	175.81	184.44	-87.65	-7,762.03	1,735.24	1,681.46	1,321.58	359.89	4.672	
17,800.00	10,192.08	17,769.40	10,123.20	177.87	186.53	-87.65	-7,862.02	1,735.83	1,681.46	1,317.43	364.03	4.619	
17,900.00	10,191.60	17,869.40	10,122.68	179.93	188.62	-87.65	-7,962.02	1,736.41	1,681.46	1,313.28	368.18	4.567	
18,000.00	10,191.12	17,969.40	10,122.16	181.99	190.72	-87.65	-8,062.02	1,737.00	1,681.46	1,309.13	372.34	4.516	
18,100.00	10,190.64	18,069.40	10,121.64	184.05	192.81	-87.65	-8,162.01	1,737.58	1,681.46	1,304.97	376.50	4.466	
18,200.00	10,190.16	18,169.40	10,121.13	186.12	194.91	-87.65	-8,262.01	1,738.17	1,681.46	1,300.81	380.66	4.417	
18,300.00	10,189.68	18,269.40	10,120.61	188.19	197.01	-87.65	-8,362.01	1,738.75	1,681.46	1,296.64	384.83	4.369	
18,400.00	10,189.20	18,369.40	10,120.09	190.26	199.11	-87.64	-8,462.01	1,739.34	1,681.46	1,292.47	389.00	4.323	
18,500.00	10,188.72	18,469.40	10,119.58	192.33	201.21	-87.64	-8,562.00	1,739.92	1,681.46	1,288.29	393.17	4.277	
18,600.00	10,188.24	18,569.40	10,119.06	194.40	203.32	-87.64	-8,662.00	1,740.51	1,681.46	1,284.12	397.35	4.232	
18,700.00	10,187.76	18,669.40	10,118.54	196.48	205.43	-87.64	-8,762.00	1,741.09	1,681.46	1,279.93	401.53	4.188	
18,800.00	10,187.28	18,769.40	10,118.02	198.55	207.53	-87.64	-8,861.99	1,741.68	1,681.46	1,275.75	405.71	4.144	
18,900.00	10,186.80	18,869.40	10,117.51	200.63	209.64	-87.64	-8,961.99	1,742.26	1,681.46	1,271.56	409.90	4.102	
19,000.00	10,186.32	18,969.40	10,116.99	202.71	211.75	-87.64	-9,061.99	1,742.84	1,681.46	1,267.37	414.09	4.061	
19,100.00	10,185.84	19,069.40	10,116.47	204.80	213.87	-87.64	-9,161.98	1,743.43	1,681.46	1,263.18	418.29	4.020	
19,200.00	10,185.36	19,169.40	10,115.96	206.88	215.98	-87.63	-9,261.98	1,744.01	1,681.46	1,258.98	422.48	3.980	
19,300.00	10,184.88	19,269.40	10,115.44	208.96	218.10	-87.63	-9,361.98	1,744.60	1,681.46	1,254.78	426.68	3.941	
19,400.00	10,184.40	19,369.40	10,114.92	211.05	220.21	-87.63	-9,461.98	1,745.18	1,681.46	1,250.58	430.89	3.902	
19,500.00	10,183.92	19,469.40	10,114.40	213.14	222.33	-87.63	-9,561.97	1,745.77	1,681.46	1,246.37	435.09	3.865	
19,600.00	10,183.44	19,569.40	10,113.89	215.23	224.45	-87.63	-9,661.97	1,746.35	1,681.46	1,242.16	439.30	3.828	
19,700.00	10,182.96	19,669.40	10,113.37	217.32	226.57	-87.63	-9,761.97	1,746.94	1,681.46	1,237.95	443.51	3.791	
19,800.00	10,182.48	19,769.40	10,112.85	219.41	228.69	-87.63	-9,861.96	1,747.52	1,681.46	1,233.74	447.72	3.756	
19,900.00	10,182.00	19,869.40	10,112.34	221.51	230.82	-87.63	-9,961.96	1,748.11	1,681.46	1,229.52	451.94	3.721	
20,000.00	10,181.52	19,969.40	10,111.82	223.60	232.94	-87.62	-10,061.96	1,748.69	1,681.46	1,225.30	456.16	3.686	
20,100.00	10,181.04	20,069.40	10,111.30	225.70	235.06	-87.62	-10,161.95	1,749.28	1,681.46	1,221.08	460.38	3.652	
20,200.00	10,180.56	20,169.40	10,110.78	227.79	237.19	-87.62	-10,261.95	1,749.86	1,681.46	1,216.86	464.60	3.619	
20,300.00	10,180.08	20,269.40	10,110.27	229.89	239.32	-87.62	-10,361.95	1,750.44	1,681.46	1,212.64	468.83	3.587	
20,400.00	10,179.60	20,369.40	10,109.75	231.99	241.45	-87.62	-10,461.94	1,751.03	1,681.46	1,208.41	473.05	3.554	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #15H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
20,500.00	10,179.12	20,469.40	10,109.23	234.09	243.58	-87.62	-10,561.94	1,751.61	1,681.46	1,204.18	477.28	3.523	
20,525.44	10,179.00	20,494.84	10,109.10	234.55	244.12	-87.62	-10,587.38	1,751.76	1,681.46	1,203.19	478.28	3.516 ES, 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 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16												Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	12.00	0.00	0.00	0.02	79.81	222.09	1,235.88	1,255.67				
100.00	100.00	112.00	100.00	0.19	0.24	79.81	222.09	1,235.88	1,255.67	1,255.23	0.44	2,865.316	
200.00	200.00	212.00	200.00	0.73	0.78	79.81	222.09	1,235.88	1,255.67	1,254.16	1.51	829.568	
300.00	300.00	312.00	300.00	1.27	1.32	79.81	222.09	1,235.88	1,255.67	1,253.08	2.59	484.992	
400.00	400.00	412.00	400.00	1.81	1.86	79.81	222.09	1,235.88	1,255.67	1,252.01	3.66	342.661	
500.00	500.00	512.00	500.00	2.34	2.40	79.81	222.09	1,235.88	1,255.67	1,250.93	4.74	264.916	
600.00	600.00	612.00	600.00	2.88	2.93	79.81	222.09	1,235.88	1,255.67	1,249.86	5.82	215.926	
700.00	700.00	712.00	700.00	3.42	3.47	79.81	222.09	1,235.88	1,255.67	1,248.78	6.89	182.227	
800.00	800.00	812.00	800.00	3.96	4.01	79.81	222.09	1,235.88	1,255.67	1,247.71	7.97	157.626	
900.00	900.00	912.00	900.00	4.50	4.55	79.81	222.09	1,235.88	1,255.67	1,246.63	9.04	138.878	
1,000.00	1,000.00	1,012.00	1,000.00	5.03	5.08	79.81	222.09	1,235.88	1,255.67	1,245.56	10.12	124.116	
1,100.00	1,100.00	1,112.00	1,100.00	5.57	5.62	79.81	222.09	1,235.88	1,255.67	1,244.48	11.19	112.190	
1,200.00	1,200.00	1,212.00	1,200.00	6.11	6.16	79.81	222.09	1,235.88	1,255.67	1,243.41	12.27	102.355	
1,300.00	1,300.00	1,312.00	1,300.00	6.65	6.70	79.81	222.09	1,235.88	1,255.67	1,242.33	13.34	94.106	
1,400.00	1,400.00	1,412.00	1,400.00	7.18	7.23	79.81	222.09	1,235.88	1,255.67	1,241.25	14.42	87.087	
1,500.00	1,500.00	1,512.00	1,500.00	7.72	7.77	79.81	222.09	1,235.88	1,255.67	1,240.18	15.49	81.042	
1,600.00	1,600.00	1,612.00	1,600.00	8.26	8.31	79.81	222.09	1,235.88	1,255.67	1,239.10	16.57	75.782	
1,700.00	1,700.00	1,712.00	1,700.00	8.80	8.85	79.81	222.09	1,235.88	1,255.67	1,238.03	17.64	71.164	
1,800.00	1,800.00	1,812.00	1,800.00	9.33	9.39	79.81	222.09	1,235.88	1,255.67	1,236.95	18.72	67.076	
1,900.00	1,900.00	1,912.00	1,900.00	9.87	9.92	79.81	222.09	1,235.88	1,255.67	1,235.88	19.80	63.432	
2,000.00	2,000.00	2,012.00	2,000.00	10.41	10.46	79.81	222.09	1,235.88	1,255.67	1,234.80	20.87	60.163	
2,100.00	2,100.00	2,112.00	2,100.00	10.95	11.00	79.81	222.09	1,235.88	1,255.67	1,233.73	21.95	57.215	
2,200.00	2,200.00	2,212.00	2,200.00	11.49	11.54	79.81	222.09	1,235.88	1,255.67	1,232.65	23.02	54.542	
2,212.48	2,212.48	2,224.48	2,212.48	11.55	11.60	79.81	222.09	1,235.88	1,255.67	1,232.52	23.16	54.226 CC	
2,300.00	2,300.00	2,307.89	2,295.88	12.02	12.03	79.84	221.54	1,236.07	1,255.77	1,231.72	24.06	52.198	
2,400.00	2,400.00	2,400.00	2,387.93	12.56	12.48	79.99	218.39	1,237.19	1,256.37	1,231.33	25.04	50.166 ES	
2,500.00	2,500.00	2,495.33	2,483.03	13.10	12.95	80.28	212.19	1,239.38	1,257.53	1,231.48	26.05	48.273	
2,600.00	2,600.00	2,593.60	2,580.94	13.64	13.44	80.66	204.27	1,242.19	1,259.01	1,231.94	27.07	46.502	
2,700.00	2,700.00	2,693.24	2,680.21	14.17	13.94	81.04	196.23	1,245.03	1,260.55	1,232.45	28.11	44.844	
2,800.00	2,800.00	2,792.87	2,779.48	14.71	14.44	81.42	188.20	1,247.87	1,262.15	1,233.00	29.15	43.301	
2,900.00	2,900.00	2,892.50	2,878.75	15.25	14.95	81.80	180.17	1,250.72	1,263.81	1,233.61	30.19	41.860	
3,000.00	3,000.00	2,992.14	2,978.02	15.79	15.46	82.18	172.14	1,253.56	1,265.52	1,234.28	31.24	40.513	
3,100.00	3,100.00	3,091.77	3,077.29	16.32	15.97	82.56	164.10	1,256.40	1,267.28	1,234.99	32.29	39.251	
3,200.00	3,200.00	3,191.41	3,176.55	16.86	16.49	82.93	156.07	1,259.25	1,269.10	1,235.76	33.34	38.067	
3,300.00	3,300.00	3,291.04	3,275.82	17.40	17.02	83.31	148.04	1,262.09	1,270.97	1,236.58	34.39	36.954	
3,400.00	3,400.00	3,390.67	3,375.09	17.94	17.54	83.68	140.00	1,264.94	1,272.90	1,237.45	35.45	35.906	
3,500.00	3,500.00	3,490.31	3,474.36	18.48	18.07	84.06	131.97	1,267.78	1,274.89	1,238.38	36.51	34.918	
3,600.00	3,600.00	3,589.94	3,573.63	19.01	18.60	84.43	123.94	1,270.62	1,276.93	1,239.35	37.57	33.986	
3,700.00	3,700.00	3,689.57	3,672.90	19.55	19.13	84.80	115.90	1,273.47	1,279.02	1,240.38	38.64	33.104	
3,800.00	3,800.00	3,789.21	3,772.17	20.09	19.66	85.17	107.87	1,276.31	1,281.16	1,241.46	39.70	32.270	
3,900.00	3,900.00	3,888.84	3,871.43	20.63	20.20	85.54	99.84	1,279.16	1,283.36	1,242.60	40.77	31.479	
4,000.00	4,000.00	3,988.47	3,970.70	21.16	20.74	85.90	91.80	1,282.00	1,285.62	1,243.78	41.84	30.729	
4,100.00	4,100.00	4,088.11	4,069.97	21.70	21.27	86.27	83.77	1,284.84	1,287.92	1,245.01	42.91	30.016	
4,200.00	4,200.00	4,187.74	4,169.24	22.24	21.81	86.63	75.74	1,287.69	1,290.28	1,246.30	43.98	29.338	
4,300.00	4,300.00	4,287.37	4,268.51	22.78	22.36	87.00	67.70	1,290.53	1,292.69	1,247.64	45.05	28.693	
4,400.00	4,400.00	4,387.01	4,367.78	23.31	22.90	87.36	59.67	1,293.37	1,295.15	1,249.02	46.13	28.078	
4,500.00	4,500.00	4,486.64	4,467.04	23.85	23.44	87.72	51.64	1,296.22	1,297.67	1,250.46	47.20	27.492	
4,600.00	4,600.00	4,586.27	4,566.31	24.39	23.99	88.08	43.60	1,299.06	1,300.23	1,251.95	48.28	26.932	
4,700.00	4,700.00	4,685.91	4,665.58	24.93	24.53	88.43	35.57	1,301.91	1,302.85	1,253.49	49.36	26.397	
4,800.00	4,800.00	4,785.54	4,764.85	25.47	25.08	88.79	27.54	1,304.75	1,305.51	1,255.08	50.44	25.885	
4,900.00	4,900.00	4,885.18	4,864.12	26.00	25.63	89.15	19.51	1,307.59	1,308.23	1,256.72	51.51	25.395	
5,000.00	5,000.00	4,984.81	4,963.39	26.54	26.18	89.50	11.47	1,310.44	1,311.00	1,258.40	52.60	24.926	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,100.00	5,084.44	5,062.66	27.08	26.73	89.85	3.44	1,313.28	1,313.82	1,260.14	53.68	24.476	
5,200.00	5,200.00	5,184.08	5,161.92	27.62	27.28	90.20	-4.59	1,316.13	1,316.68	1,261.93	54.76	24.045	
5,300.00	5,300.00	5,283.71	5,261.19	28.15	27.83	90.55	-12.63	1,318.97	1,319.60	1,263.76	55.84	23.631	
5,400.00	5,400.00	5,383.34	5,360.46	28.69	28.38	90.90	-20.66	1,321.81	1,322.57	1,265.64	56.93	23.233	
5,500.00	5,500.00	5,482.98	5,459.73	29.23	28.93	91.24	-28.69	1,324.66	1,325.58	1,267.57	58.01	22.851	
5,600.00	5,600.00	5,582.61	5,559.00	29.77	29.48	91.58	-36.73	1,327.50	1,328.64	1,269.55	59.10	22.483	
5,700.00	5,700.00	5,682.24	5,658.27	30.31	30.03	91.93	-44.76	1,330.34	1,331.75	1,271.57	60.18	22.129	
5,800.00	5,800.00	5,784.94	5,760.59	30.84	30.60	92.28	-52.99	1,333.26	1,334.89	1,273.61	61.29	21.782	
5,900.00	5,900.00	5,905.86	5,881.29	31.38	31.26	92.56	-59.64	1,335.61	1,337.07	1,274.59	62.48	21.400	
6,000.00	6,000.00	6,024.59	6,000.00	31.92	31.89	92.64	-61.51	1,336.28	1,337.69	1,274.05	63.64	21.019	
6,100.00	6,100.00	6,124.59	6,100.00	32.46	32.39	92.64	-61.51	1,336.28	1,337.69	1,273.00	64.69	20.680	
6,200.00	6,200.00	6,224.59	6,200.00	32.99	32.90	92.64	-61.51	1,336.28	1,337.69	1,271.96	65.73	20.350	
6,300.00	6,300.00	6,324.59	6,300.00	33.53	33.40	92.64	-61.51	1,336.28	1,337.69	1,270.91	66.78	20.031	
6,400.00	6,400.00	6,424.59	6,400.00	34.07	33.91	92.64	-61.51	1,336.28	1,337.69	1,269.86	67.83	19.722	
6,500.00	6,500.00	6,524.59	6,500.00	34.61	34.42	92.64	-61.51	1,336.28	1,337.69	1,268.81	68.88	19.421	
6,600.00	6,600.00	6,624.59	6,600.00	35.14	34.93	92.64	-61.51	1,336.28	1,337.69	1,267.76	69.93	19.130	
6,700.00	6,700.00	6,724.59	6,700.00	35.68	35.44	92.64	-61.51	1,336.28	1,337.69	1,266.71	70.98	18.847	
6,800.00	6,800.00	6,824.59	6,800.00	36.22	35.95	92.64	-61.51	1,336.28	1,337.69	1,265.66	72.03	18.572	
6,900.00	6,900.00	6,924.59	6,900.00	36.76	36.46	92.64	-61.51	1,336.28	1,337.69	1,264.61	73.08	18.304	
7,000.00	7,000.00	7,024.59	7,000.00	37.30	36.97	92.64	-61.51	1,336.28	1,337.69	1,263.56	74.13	18.045	
7,100.00	7,100.00	7,124.59	7,100.00	37.83	37.48	92.64	-61.51	1,336.28	1,337.69	1,262.50	75.19	17.792	
7,200.00	7,200.00	7,224.59	7,200.00	38.37	38.00	92.64	-61.51	1,336.28	1,337.69	1,261.45	76.24	17.546	
7,300.00	7,300.00	7,324.59	7,300.00	38.91	38.51	92.64	-61.51	1,336.28	1,337.69	1,260.40	77.29	17.306	
7,400.00	7,400.00	7,424.59	7,400.00	39.45	39.03	92.64	-61.51	1,336.28	1,337.69	1,259.34	78.35	17.073	
7,500.00	7,500.00	7,524.59	7,500.00	39.98	39.54	92.64	-61.51	1,336.28	1,337.69	1,258.29	79.40	16.846	
7,600.00	7,600.00	7,624.59	7,600.00	40.52	40.06	92.64	-61.51	1,336.28	1,337.69	1,257.23	80.46	16.625	
7,700.00	7,700.00	7,724.59	7,700.00	41.06	40.57	92.64	-61.51	1,336.28	1,337.69	1,256.17	81.52	16.410	
7,800.00	7,800.00	7,824.59	7,800.00	41.60	41.09	92.64	-61.51	1,336.28	1,337.69	1,255.12	82.57	16.200	
7,900.00	7,900.00	7,924.59	7,900.00	42.13	41.61	92.64	-61.51	1,336.28	1,337.69	1,254.06	83.63	15.995	
8,000.00	8,000.00	8,024.59	8,000.00	42.67	42.13	92.64	-61.51	1,336.28	1,337.69	1,253.00	84.69	15.795	
8,100.00	8,100.00	8,124.59	8,100.00	43.21	42.65	92.64	-61.51	1,336.28	1,337.69	1,251.94	85.75	15.600	
8,200.00	8,200.00	8,224.59	8,200.00	43.75	43.16	92.64	-61.51	1,336.28	1,337.69	1,250.88	86.81	15.410	
8,300.00	8,300.00	8,324.59	8,300.00	44.29	43.68	92.64	-61.51	1,336.28	1,337.69	1,249.82	87.87	15.224	
8,400.00	8,399.98	8,424.57	8,399.98	44.80	44.20	-143.13	-61.51	1,336.28	1,338.95	1,250.05	88.90	15.061	
8,500.00	8,499.85	8,524.44	8,499.85	45.30	44.72	-143.22	-61.51	1,336.28	1,342.95	1,253.11	89.83	14.949	
8,600.00	8,599.67	8,623.09	8,598.50	45.80	45.24	-143.38	-61.56	1,336.28	1,347.85	1,257.01	90.84	14.837	
8,700.00	8,699.48	8,709.38	8,684.37	46.29	45.70	-143.18	-69.20	1,336.46	1,353.35	1,261.54	91.80	14.742	
8,800.00	8,799.29	8,792.40	8,765.01	46.79	46.17	-142.49	-88.63	1,336.93	1,359.99	1,267.23	92.76	14.661	
8,900.00	8,899.11	8,869.17	8,836.37	47.29	46.62	-141.42	-116.79	1,337.61	1,368.30	1,274.59	93.71	14.601	
9,000.00	8,898.92	8,937.98	8,896.61	47.80	47.04	-140.14	-149.93	1,338.41	1,378.96	1,284.34	94.62	14.574	
9,100.00	8,898.73	9,000.00	8,947.17	48.30	47.43	-138.74	-185.80	1,339.28	1,392.73	1,297.24	95.50	14.584	
9,200.00	9,198.55	9,050.00	8,984.91	48.80	47.75	-137.46	-218.55	1,340.07	1,410.25	1,313.95	96.30	14.644	
9,300.00	9,298.36	9,100.00	9,019.66	49.31	48.09	-136.06	-254.48	1,340.94	1,432.02	1,334.90	97.12	14.745	
9,400.00	9,398.17	9,134.26	9,041.60	49.81	48.32	-135.04	-280.78	1,341.58	1,458.31	1,360.48	97.83	14.906	
9,500.00	9,497.98	9,167.59	9,061.40	50.32	48.55	-134.01	-307.58	1,342.22	1,489.33	1,390.78	98.54	15.113	
9,600.00	9,597.80	9,200.00	9,079.12	50.83	48.77	-132.97	-334.70	1,342.88	1,525.07	1,425.82	99.25	15.366	
9,700.00	9,697.54	9,221.97	9,090.25	51.34	48.93	-100.85	-353.63	1,343.34	1,565.11	1,465.18	99.93	15.662	
9,800.00	9,795.55	9,250.00	9,103.38	51.83	49.13	-79.20	-378.38	1,343.94	1,605.71	1,505.22	100.49	15.979	
9,900.00	9,888.86	9,278.93	9,115.65	52.29	49.35	-70.66	-404.58	1,344.57	1,644.49	1,544.10	100.39	16.381	
10,000.00	9,974.63	9,300.00	9,123.74	52.74	49.50	-65.15	-424.02	1,345.04	1,680.06	1,580.77	99.30	16.920	
10,100.00	10,050.26	9,350.00	9,140.05	53.19	49.88	-60.69	-471.26	1,346.18	1,710.98	1,613.70	97.28	17.588	
10,200.00	10,113.44	9,377.04	9,147.13	53.64	50.08	-57.69	-497.35	1,346.81	1,736.38	1,641.84	94.53	18.368	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	10,162.27	9,400.00	9,152.17	54.10	50.26	-55.60	-519.73	1,347.35	1,755.59	1,663.94	91.65	19.155	
10,400.00	10,195.25	9,450.00	9,160.02	54.57	50.65	-54.20	-569.08	1,348.55	1,767.70	1,678.27	89.43	19.766	
10,500.00	10,211.38	9,481.82	9,162.76	55.05	50.89	-53.68	-600.77	1,349.31	1,772.67	1,684.26	88.41	20.051	
10,600.00	10,212.89	9,518.48	9,163.74	55.55	51.18	-53.70	-637.40	1,350.20	1,771.98	1,683.10	88.87	19.938	
10,600.46	10,212.89	9,518.48	9,163.74	55.55	51.18	-53.70	-637.40	1,350.20	1,771.98	1,683.10	88.88	19.937	
10,700.00	10,212.69	9,614.62	9,163.22	56.12	51.98	-53.69	-733.51	1,352.52	1,772.17	1,682.12	90.05	19.680	
10,800.00	10,212.49	9,714.62	9,162.68	56.77	52.88	-53.68	-833.48	1,354.94	1,772.36	1,680.97	91.39	19.394	
10,900.00	10,212.28	9,814.62	9,162.14	57.49	53.85	-53.67	-933.45	1,357.36	1,772.55	1,679.69	92.86	19.089	
11,000.00	10,212.08	9,914.62	9,161.60	58.29	54.90	-53.66	-1,033.42	1,359.77	1,772.74	1,678.29	94.46	18.768	
11,100.00	10,211.88	10,014.62	9,161.06	59.15	56.01	-53.65	-1,133.39	1,362.19	1,772.93	1,676.76	96.18	18.434	
11,200.00	10,211.68	10,114.62	9,160.51	60.08	57.19	-53.64	-1,233.35	1,364.61	1,773.13	1,675.11	98.01	18.090	
11,300.00	10,211.48	10,214.61	9,159.97	61.07	58.42	-53.63	-1,333.32	1,367.02	1,773.32	1,673.36	99.96	17.740	
11,400.00	10,211.28	10,314.61	9,159.43	62.12	59.71	-53.62	-1,433.29	1,369.44	1,773.51	1,671.51	102.01	17.386	
11,500.00	10,211.08	10,414.61	9,158.89	63.23	61.05	-53.61	-1,533.26	1,371.86	1,773.70	1,669.55	104.15	17.030	
11,600.00	10,210.87	10,514.61	9,158.35	64.39	62.45	-53.61	-1,633.23	1,374.28	1,773.90	1,667.51	106.38	16.674	
11,700.00	10,210.67	10,614.61	9,157.81	65.61	63.88	-53.60	-1,733.20	1,376.69	1,774.09	1,665.39	108.70	16.320	
11,800.00	10,210.47	10,714.61	9,157.27	66.87	65.36	-53.59	-1,833.17	1,379.11	1,774.28	1,663.18	111.10	15.970	
11,900.00	10,210.27	10,814.61	9,156.73	68.18	66.88	-53.58	-1,933.14	1,381.53	1,774.47	1,660.90	113.58	15.624	
12,000.00	10,210.07	10,914.61	9,156.19	69.53	68.44	-53.57	-2,033.10	1,383.94	1,774.67	1,658.55	116.12	15.283	
12,100.00	10,209.87	11,014.61	9,155.64	70.92	70.03	-53.56	-2,133.07	1,386.36	1,774.86	1,656.13	118.73	14.949	
12,200.00	10,209.67	11,114.61	9,155.10	72.35	71.65	-53.55	-2,233.04	1,388.78	1,775.05	1,653.66	121.40	14.622	
12,300.00	10,209.46	11,214.61	9,154.56	73.81	73.31	-53.54	-2,333.01	1,391.19	1,775.25	1,651.12	124.12	14.302	
12,400.00	10,209.26	11,314.61	9,154.02	75.31	74.99	-53.53	-2,432.98	1,393.61	1,775.44	1,648.54	126.90	13.991	
12,500.00	10,209.06	11,414.61	9,153.48	76.84	76.70	-53.52	-2,532.95	1,396.03	1,775.63	1,645.90	129.73	13.687	
12,600.00	10,208.86	11,514.61	9,152.94	78.40	78.43	-53.51	-2,632.92	1,398.45	1,775.82	1,643.22	132.61	13.392	
12,700.00	10,208.66	11,614.61	9,152.40	79.99	80.19	-53.51	-2,732.89	1,400.86	1,776.02	1,640.49	135.53	13.104	
12,800.00	10,208.46	11,714.61	9,151.86	81.61	81.96	-53.50	-2,832.85	1,403.28	1,776.21	1,637.72	138.49	12.826	
12,900.00	10,208.26	11,814.61	9,151.32	83.25	83.76	-53.49	-2,932.82	1,405.70	1,776.40	1,634.92	141.49	12.555	
13,000.00	10,208.06	11,914.61	9,150.78	84.92	85.58	-53.48	-3,032.79	1,408.11	1,776.60	1,632.07	144.52	12.293	
13,100.00	10,207.85	12,014.60	9,150.23	86.60	87.41	-53.47	-3,132.76	1,410.53	1,776.79	1,629.20	147.59	12.039	
13,200.00	10,207.65	12,114.60	9,149.69	88.31	89.26	-53.46	-3,232.73	1,412.95	1,776.98	1,626.29	150.69	11.792	
13,300.00	10,207.45	12,214.60	9,149.15	90.04	91.13	-53.45	-3,332.70	1,415.36	1,777.18	1,623.36	153.82	11.554	
13,400.00	10,207.25	12,314.60	9,148.61	91.79	93.01	-53.44	-3,432.67	1,417.78	1,777.37	1,620.39	156.98	11.322	
13,500.00	10,207.05	12,414.60	9,148.07	93.55	94.90	-53.43	-3,532.64	1,420.20	1,777.56	1,617.40	160.16	11.099	
13,600.00	10,206.85	12,514.60	9,147.53	95.33	96.81	-53.42	-3,632.60	1,422.62	1,777.76	1,614.39	163.37	10.882	
13,700.00	10,206.65	12,614.60	9,146.99	97.13	98.73	-53.42	-3,732.57	1,425.03	1,777.95	1,611.35	166.60	10.672	
13,800.00	10,206.44	12,714.60	9,146.45	98.94	100.66	-53.41	-3,832.54	1,427.45	1,778.14	1,608.29	169.85	10.469	
13,900.00	10,206.24	12,814.60	9,145.91	100.76	102.60	-53.40	-3,932.51	1,429.87	1,778.34	1,605.21	173.12	10.272	
14,000.00	10,206.04	12,914.60	9,145.36	102.60	104.56	-53.39	-4,032.48	1,432.28	1,778.53	1,602.11	176.42	10.081	
14,100.00	10,205.84	13,014.60	9,144.82	104.46	106.52	-53.38	-4,132.45	1,434.70	1,778.72	1,599.00	179.73	9.897	
14,200.00	10,205.64	13,114.60	9,144.28	106.32	108.49	-53.37	-4,232.42	1,437.12	1,778.92	1,595.86	183.06	9.718	
14,300.00	10,205.44	13,214.60	9,143.74	108.19	110.47	-53.36	-4,332.39	1,439.53	1,779.11	1,592.71	186.40	9.545	
14,400.00	10,205.24	13,314.60	9,143.20	110.08	112.46	-53.35	-4,432.35	1,441.95	1,779.31	1,589.55	189.76	9.377	
14,500.00	10,205.03	13,414.60	9,142.66	111.98	114.45	-53.34	-4,532.32	1,444.37	1,779.50	1,586.37	193.13	9.214	
14,600.00	10,204.83	13,514.60	9,142.12	113.88	116.46	-53.33	-4,632.29	1,446.79	1,779.69	1,583.17	196.52	9.056	
14,700.00	10,204.63	13,614.60	9,141.58	115.80	118.47	-53.33	-4,732.26	1,449.20	1,779.89	1,579.97	199.92	8.903	
14,800.00	10,204.43	13,714.59	9,141.04	117.72	120.49	-53.32	-4,832.23	1,451.62	1,780.08	1,576.75	203.33	8.754	
14,900.00	10,204.23	13,814.59	9,140.50	119.65	122.51	-53.31	-4,932.20	1,454.04	1,780.27	1,573.52	206.76	8.610	
15,000.00	10,204.03	13,914.59	9,139.95	121.59	124.54	-53.30	-5,032.17	1,456.45	1,780.47	1,570.27	210.20	8.471	
15,100.00	10,203.83	14,014.59	9,139.41	123.54	126.57	-53.29	-5,132.13	1,458.87	1,780.66	1,567.02	213.64	8.335	
15,200.00	10,203.63	14,114.59	9,138.87	125.49	128.61	-53.28	-5,232.10	1,461.29	1,780.86	1,563.76	217.10	8.203	
15,300.00	10,203.42	14,214.59	9,138.33	127.46	130.66	-53.27	-5,332.07	1,463.70	1,781.05	1,560.49	220.56	8.075	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,400.00	10,203.22	14,314.59	9,137.79	129.42	132.71	-53.26	-5,432.04	1,466.12	1,781.25	1,557.21	224.04	7.951	
15,500.00	10,203.02	14,414.59	9,137.25	131.40	134.77	-53.25	-5,532.01	1,468.54	1,781.44	1,553.92	227.52	7.830	
15,600.00	10,202.64	14,540.83	9,136.57	133.37	137.36	-53.26	-5,658.23	1,470.94	1,782.13	1,550.63	231.50	7.698	
15,700.00	10,202.16	14,640.83	9,136.04	135.35	139.41	-53.26	-5,758.22	1,471.52	1,782.16	1,547.16	235.00	7.584	
15,800.00	10,201.68	14,740.83	9,135.50	137.34	141.47	-53.26	-5,858.22	1,472.11	1,782.19	1,543.68	238.51	7.472	
15,900.00	10,201.20	14,840.83	9,134.97	139.32	143.52	-53.25	-5,958.22	1,472.69	1,782.22	1,540.20	242.02	7.364	
16,000.00	10,200.72	14,940.83	9,134.43	141.32	145.58	-53.25	-6,058.21	1,473.28	1,782.25	1,536.71	245.54	7.258	
16,100.00	10,200.24	15,040.83	9,133.90	143.32	147.65	-53.25	-6,158.21	1,473.86	1,782.28	1,533.21	249.07	7.156	
16,200.00	10,199.76	15,140.83	9,133.37	145.32	149.72	-53.25	-6,258.21	1,474.45	1,782.31	1,529.71	252.60	7.056	
16,300.00	10,199.28	15,240.83	9,132.83	147.33	151.79	-53.25	-6,358.20	1,475.03	1,782.34	1,526.20	256.14	6.958	
16,400.00	10,198.80	15,340.83	9,132.30	149.34	153.86	-53.25	-6,458.20	1,475.62	1,782.38	1,522.69	259.69	6.864	
16,500.00	10,198.32	15,440.83	9,131.77	151.36	155.94	-53.25	-6,558.20	1,476.20	1,782.41	1,519.17	263.24	6.771	
16,600.00	10,197.84	15,540.83	9,131.23	153.38	158.02	-53.24	-6,658.19	1,476.79	1,782.44	1,515.64	266.80	6.681	
16,700.00	10,197.36	15,640.83	9,130.70	155.40	160.10	-53.24	-6,758.19	1,477.37	1,782.47	1,512.11	270.36	6.593	
16,800.00	10,196.88	15,740.83	9,130.17	157.43	162.19	-53.24	-6,858.19	1,477.96	1,782.50	1,508.57	273.93	6.507	
16,900.00	10,196.40	15,840.83	9,129.63	159.46	164.27	-53.24	-6,958.18	1,478.54	1,782.53	1,505.03	277.50	6.424	
17,000.00	10,195.92	15,940.83	9,129.10	161.49	166.37	-53.24	-7,058.18	1,479.13	1,782.56	1,501.49	281.07	6.342	
17,100.00	10,195.44	16,040.83	9,128.57	163.53	168.46	-53.24	-7,158.18	1,479.71	1,782.59	1,497.94	284.66	6.262	
17,200.00	10,194.96	16,140.83	9,128.03	165.57	170.55	-53.24	-7,258.18	1,480.30	1,782.62	1,494.38	288.24	6.184	
17,300.00	10,194.48	16,240.83	9,127.50	167.61	172.65	-53.23	-7,358.17	1,480.88	1,782.65	1,490.82	291.83	6.109	
17,400.00	10,194.00	16,340.83	9,126.96	169.66	174.75	-53.23	-7,458.17	1,481.47	1,782.68	1,487.26	295.42	6.034	
17,500.00	10,193.52	16,440.83	9,126.43	171.71	176.85	-53.23	-7,558.17	1,482.05	1,782.72	1,483.69	299.02	5.962	
17,600.00	10,193.04	16,540.83	9,125.90	173.76	178.96	-53.23	-7,658.16	1,482.64	1,782.75	1,480.12	302.62	5.891	
17,700.00	10,192.56	16,640.83	9,125.36	175.81	181.06	-53.23	-7,758.16	1,483.22	1,782.78	1,476.55	306.23	5.822	
17,800.00	10,192.08	16,740.83	9,124.83	177.87	183.17	-53.23	-7,858.16	1,483.81	1,782.81	1,472.97	309.84	5.754	
17,900.00	10,191.60	16,840.83	9,124.30	179.93	185.28	-53.23	-7,958.15	1,484.39	1,782.84	1,469.39	313.45	5.688	
18,000.00	10,191.12	16,940.83	9,123.76	181.99	187.39	-53.22	-8,058.15	1,484.98	1,782.87	1,465.81	317.06	5.623	
18,100.00	10,190.64	17,040.83	9,123.23	184.05	189.50	-53.22	-8,158.15	1,485.56	1,782.90	1,462.22	320.68	5.560	
18,200.00	10,190.16	17,140.83	9,122.70	186.12	191.62	-53.22	-8,258.14	1,486.15	1,782.93	1,458.63	324.30	5.498	
18,300.00	10,189.68	17,240.83	9,122.16	188.19	193.73	-53.22	-8,358.14	1,486.73	1,782.96	1,455.04	327.92	5.437	
18,400.00	10,189.20	17,340.83	9,121.63	190.26	195.85	-53.22	-8,458.14	1,487.32	1,782.99	1,451.44	331.55	5.378	
18,500.00	10,188.72	17,440.83	9,121.10	192.33	197.97	-53.22	-8,558.13	1,487.90	1,783.02	1,447.85	335.18	5.320	
18,600.00	10,188.24	17,540.83	9,120.56	194.40	200.09	-53.22	-8,658.13	1,488.48	1,783.06	1,444.25	338.81	5.263	
18,700.00	10,187.76	17,640.83	9,120.03	196.48	202.21	-53.21	-8,758.13	1,489.07	1,783.09	1,440.64	342.44	5.207	
18,800.00	10,187.28	17,740.83	9,119.50	198.55	204.33	-53.21	-8,858.12	1,489.65	1,783.12	1,437.04	346.08	5.152	
18,900.00	10,186.80	17,840.83	9,118.96	200.63	206.46	-53.21	-8,958.12	1,490.24	1,783.15	1,433.43	349.72	5.099	
19,000.00	10,186.32	17,940.83	9,118.43	202.71	208.58	-53.21	-9,058.12	1,490.82	1,783.18	1,429.82	353.36	5.046	
19,100.00	10,185.84	18,040.83	9,117.89	204.80	210.71	-53.21	-9,158.12	1,491.41	1,783.21	1,426.21	357.00	4.995	
19,200.00	10,185.36	18,140.83	9,117.36	206.88	212.84	-53.21	-9,258.11	1,491.99	1,783.24	1,422.59	360.65	4.945	
19,300.00	10,184.88	18,240.83	9,116.83	208.96	214.97	-53.21	-9,358.11	1,492.58	1,783.27	1,418.98	364.30	4.895	
19,400.00	10,184.40	18,340.83	9,116.29	211.05	217.10	-53.20	-9,458.11	1,493.16	1,783.30	1,415.36	367.95	4.847	
19,500.00	10,183.92	18,440.83	9,115.76	213.14	219.23	-53.20	-9,558.10	1,493.75	1,783.33	1,411.74	371.60	4.799	
19,600.00	10,183.44	18,540.83	9,115.23	215.23	221.36	-53.20	-9,658.10	1,494.33	1,783.36	1,408.11	375.25	4.752	
19,700.00	10,182.96	18,640.83	9,114.69	217.32	223.49	-53.20	-9,758.10	1,494.92	1,783.40	1,404.49	378.91	4.707	
19,800.00	10,182.48	18,740.83	9,114.16	219.41	225.63	-53.20	-9,858.09	1,495.50	1,783.43	1,400.86	382.56	4.662	
19,900.00	10,182.00	18,840.83	9,113.63	221.51	227.76	-53.20	-9,958.09	1,496.09	1,783.46	1,397.24	386.22	4.618	
20,000.00	10,181.52	18,940.83	9,113.09	223.60	229.90	-53.20	-10,058.09	1,496.67	1,783.49	1,393.61	389.88	4.574	
20,100.00	10,181.04	19,040.83	9,112.56	225.70	232.04	-53.19	-10,158.08	1,497.26	1,783.52	1,389.98	393.54	4.532	
20,200.00	10,180.56	19,140.83	9,112.03	227.79	234.17	-53.19	-10,258.08	1,497.84	1,783.55	1,386.34	397.21	4.490	
20,300.00	10,180.08	19,240.83	9,111.49	229.89	236.31	-53.19	-10,358.08	1,498.43	1,783.58	1,382.71	400.87	4.449	
20,400.00	10,179.60	19,340.83	9,110.96	231.99	238.45	-53.19	-10,458.07	1,499.01	1,783.61	1,379.07	404.54	4.409	
20,500.00	10,179.12	19,440.83	9,110.43	234.09	240.59	-53.19	-10,558.07	1,499.60	1,783.64	1,375.44	408.21	4.369	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #23H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
20,525.44	10,179.00	19,466.27	9,110.29	234.55	241.14	-53.19	-10,583.51	1,499.75	1,783.65	1,374.60	409.05	4.361 SF	



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	13.00	0.00	0.00	0.02	77.59	272.09	1,236.88	1,266.45				
100.00	100.00	113.00	100.00	0.19	0.25	77.59	272.09	1,236.88	1,266.45	1,266.01	0.44	2,854.879	
200.00	200.00	213.00	200.00	0.73	0.79	77.59	272.09	1,236.88	1,266.45	1,264.93	1.52	833.727	
300.00	300.00	313.00	300.00	1.27	1.33	77.59	272.09	1,236.88	1,266.45	1,263.86	2.59	488.141	
400.00	400.00	413.00	400.00	1.81	1.86	77.59	272.09	1,236.88	1,266.45	1,262.78	3.67	345.096	
500.00	500.00	513.00	500.00	2.34	2.40	77.59	272.09	1,236.88	1,266.45	1,261.71	4.75	266.887	
600.00	600.00	613.00	600.00	2.88	2.94	77.59	272.09	1,236.88	1,266.45	1,260.63	5.82	217.578	
700.00	700.00	713.00	700.00	3.42	3.48	77.59	272.09	1,236.88	1,266.45	1,259.55	6.90	183.647	
800.00	800.00	813.00	800.00	3.96	4.01	77.59	272.09	1,236.88	1,266.45	1,258.48	7.97	158.872	
900.00	900.00	913.00	900.00	4.50	4.55	77.59	272.09	1,236.88	1,266.45	1,257.40	9.05	139.987	
1,000.00	1,000.00	1,013.00	1,000.00	5.03	5.09	77.59	272.09	1,236.88	1,266.45	1,256.33	10.12	125.114	
1,100.00	1,100.00	1,113.00	1,100.00	5.57	5.63	77.59	272.09	1,236.88	1,266.45	1,255.25	11.20	113.099	
1,200.00	1,200.00	1,213.00	1,200.00	6.11	6.16	77.59	272.09	1,236.88	1,266.45	1,254.18	12.27	103.189	
1,300.00	1,300.00	1,313.00	1,300.00	6.65	6.70	77.59	272.09	1,236.88	1,266.45	1,253.10	13.35	94.875	
1,400.00	1,400.00	1,413.00	1,400.00	7.18	7.24	77.59	272.09	1,236.88	1,266.45	1,252.03	14.42	87.802	
1,500.00	1,500.00	1,513.00	1,500.00	7.72	7.78	77.59	272.09	1,236.88	1,266.45	1,250.95	15.50	81.710	
1,600.00	1,600.00	1,613.00	1,600.00	8.26	8.32	77.59	272.09	1,236.88	1,266.45	1,249.88	16.57	76.408	
1,700.00	1,700.00	1,713.00	1,700.00	8.80	8.85	77.59	272.09	1,236.88	1,266.45	1,248.80	17.65	71.753	
1,800.00	1,800.00	1,813.00	1,800.00	9.33	9.39	77.59	272.09	1,236.88	1,266.45	1,247.72	18.73	67.632	
1,900.00	1,900.00	1,913.00	1,900.00	9.87	9.93	77.59	272.09	1,236.88	1,266.45	1,246.65	19.80	63.959	
2,000.00	2,000.00	2,013.00	2,000.00	10.41	10.47	77.59	272.09	1,236.88	1,266.45	1,245.57	20.88	60.664	
2,100.00	2,100.00	2,113.00	2,100.00	10.95	11.00	77.59	272.09	1,236.88	1,266.45	1,244.50	21.95	57.692	
2,200.00	2,200.00	2,213.00	2,200.00	11.49	11.54	77.59	272.09	1,236.88	1,266.45	1,243.42	23.03	54.998	
2,300.00	2,300.00	2,357.43	2,344.40	12.02	12.29	77.63	270.99	1,235.19	1,265.34	1,241.04	24.31	52.054	
2,400.00	2,400.00	2,527.21	2,513.77	12.56	13.14	77.81	264.79	1,225.64	1,259.07	1,233.37	25.70	48.994	
2,500.00	2,500.00	2,615.69	2,601.80	13.10	13.59	77.98	259.39	1,218.59	1,250.04	1,223.36	26.68	46.850	
2,600.00	2,600.00	2,700.00	2,685.73	13.64	14.01	78.23	252.88	1,213.87	1,242.89	1,215.25	27.64	44.966	
2,700.00	2,700.00	2,767.67	2,753.08	14.17	14.35	78.49	246.69	1,211.59	1,237.59	1,209.08	28.51	43.403	
2,800.00	2,800.00	2,857.63	2,842.55	14.71	14.81	78.90	237.46	1,210.14	1,233.95	1,204.45	29.50	41.832	
2,900.00	2,900.00	2,957.08	2,941.46	15.25	15.31	79.36	227.16	1,208.68	1,230.54	1,200.01	30.53	40.305	
3,000.00	3,000.00	3,056.54	3,040.37	15.79	15.82	79.82	216.86	1,207.22	1,227.21	1,195.64	31.57	38.876	
3,100.00	3,100.00	3,155.99	3,139.27	16.32	16.33	80.28	206.56	1,205.77	1,223.96	1,191.35	32.61	37.537	
3,200.00	3,200.00	3,255.44	3,238.18	16.86	16.85	80.74	196.26	1,204.31	1,220.79	1,187.14	33.65	36.280	
3,300.00	3,300.00	3,354.89	3,337.08	17.40	17.37	81.21	185.96	1,202.85	1,217.71	1,183.01	34.69	35.098	
3,400.00	3,400.00	3,454.34	3,435.99	17.94	17.90	81.68	175.66	1,201.40	1,214.70	1,178.96	35.74	33.985	
3,500.00	3,500.00	3,553.79	3,534.90	18.48	18.43	82.15	165.36	1,199.94	1,211.78	1,174.99	36.79	32.936	
3,600.00	3,600.00	3,653.25	3,633.80	19.01	18.96	82.63	155.06	1,198.48	1,208.94	1,171.10	37.84	31.945	
3,700.00	3,700.00	3,752.70	3,732.71	19.55	19.49	83.10	144.76	1,197.02	1,206.19	1,167.29	38.90	31.009	
3,800.00	3,800.00	3,852.15	3,831.61	20.09	20.03	83.58	134.46	1,195.57	1,203.52	1,163.57	39.95	30.123	
3,900.00	3,900.00	3,951.60	3,930.52	20.63	20.57	84.06	124.16	1,194.11	1,200.94	1,159.92	41.01	29.283	
4,000.00	4,000.00	4,051.05	4,029.43	21.16	21.11	84.55	113.86	1,192.65	1,198.44	1,156.37	42.07	28.486	
4,100.00	4,100.00	4,150.50	4,128.33	21.70	21.66	85.03	103.56	1,191.20	1,196.03	1,152.89	43.13	27.729	
4,200.00	4,200.00	4,249.95	4,227.24	22.24	22.20	85.52	93.27	1,189.74	1,193.70	1,149.51	44.19	27.010	
4,300.00	4,300.00	4,349.41	4,326.14	22.78	22.75	86.01	82.97	1,188.28	1,191.46	1,146.20	45.26	26.326	
4,400.00	4,400.00	4,448.86	4,425.05	23.31	23.30	86.50	72.67	1,186.83	1,189.31	1,142.99	46.32	25.674	
4,500.00	4,500.00	4,548.31	4,523.96	23.85	23.85	86.99	62.37	1,185.37	1,187.25	1,139.86	47.39	25.052	
4,600.00	4,600.00	4,647.76	4,622.86	24.39	24.40	87.48	52.07	1,183.91	1,185.28	1,136.82	48.46	24.459	
4,700.00	4,700.00	4,747.21	4,721.77	24.93	24.95	87.98	41.77	1,182.46	1,183.39	1,133.86	49.53	23.893	
4,800.00	4,800.00	4,846.66	4,820.67	25.47	25.51	88.47	31.47	1,181.00	1,181.60	1,131.00	50.60	23.352	
4,900.00	4,900.00	4,946.11	4,919.58	26.00	26.06	88.97	21.17	1,179.54	1,179.89	1,128.22	51.67	22.835	
5,000.00	5,000.00	5,045.57	5,018.49	26.54	26.62	89.47	10.87	1,178.08	1,178.28	1,125.54	52.74	22.339	
5,100.00	5,100.00	5,145.02	5,117.39	27.08	27.18	89.97	0.57	1,176.63	1,176.76	1,122.94	53.82	21.865	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,200.00	5,200.00	5,244.47	5,216.30	27.62	27.74	90.47	-9.73	1,175.17	1,175.32	1,120.43	54.89	21.411	
5,300.00	5,300.00	5,343.92	5,315.20	28.15	28.30	90.98	-20.03	1,173.71	1,173.98	1,118.01	55.97	20.975	
5,400.00	5,400.00	5,443.37	5,414.11	28.69	28.86	91.48	-30.33	1,172.26	1,172.73	1,115.69	57.05	20.557	
5,500.00	5,500.00	5,542.82	5,513.02	29.23	29.42	91.99	-40.63	1,170.80	1,171.58	1,113.45	58.13	20.155	
5,600.00	5,600.00	5,639.59	5,609.32	29.77	29.96	92.44	-49.87	1,169.49	1,170.59	1,111.40	59.19	19.777	
5,700.00	5,700.00	5,735.64	5,705.18	30.31	30.48	92.74	-56.00	1,168.62	1,169.98	1,109.73	60.24	19.421	
5,800.00	5,800.00	5,832.01	5,801.49	30.84	30.99	92.89	-58.96	1,168.21	1,169.69	1,108.40	61.29	19.084	
5,857.42	5,857.42	5,887.93	5,857.42	31.15	31.28	92.90	-59.24	1,168.17	1,169.67	1,107.78	61.89	18.900	
5,900.00	5,900.00	5,930.52	5,900.00	31.38	31.49	92.90	-59.24	1,168.17	1,169.67	1,107.33	62.34	18.764	
6,000.00	6,000.00	6,030.52	6,000.00	31.92	31.99	92.90	-59.24	1,168.17	1,169.67	1,106.28	63.38	18.454	
6,100.00	6,100.00	6,130.52	6,100.00	32.46	32.50	92.90	-59.24	1,168.17	1,169.67	1,105.23	64.43	18.153	
6,200.00	6,200.00	6,230.52	6,200.00	32.99	33.00	92.90	-59.24	1,168.17	1,169.67	1,104.18	65.49	17.862	
6,300.00	6,300.00	6,330.52	6,300.00	33.53	33.51	92.90	-59.24	1,168.17	1,169.67	1,103.13	66.54	17.579	
6,400.00	6,400.00	6,430.52	6,400.00	34.07	34.01	92.90	-59.24	1,168.17	1,169.67	1,102.08	67.59	17.306	
6,500.00	6,500.00	6,530.52	6,500.00	34.61	34.52	92.90	-59.24	1,168.17	1,169.67	1,101.03	68.64	17.040	
6,600.00	6,600.00	6,630.52	6,600.00	35.14	35.03	92.90	-59.24	1,168.17	1,169.67	1,099.97	69.70	16.783	
6,700.00	6,700.00	6,730.52	6,700.00	35.68	35.54	92.90	-59.24	1,168.17	1,169.67	1,098.92	70.75	16.532	
6,800.00	6,800.00	6,830.52	6,800.00	36.22	36.05	92.90	-59.24	1,168.17	1,169.67	1,097.86	71.80	16.290	
6,900.00	6,900.00	6,930.52	6,900.00	36.76	36.56	92.90	-59.24	1,168.17	1,169.67	1,096.81	72.86	16.054	
7,000.00	7,000.00	7,030.52	7,000.00	37.30	37.07	92.90	-59.24	1,168.17	1,169.67	1,095.75	73.92	15.824	
7,100.00	7,100.00	7,130.52	7,100.00	37.83	37.58	92.90	-59.24	1,168.17	1,169.67	1,094.70	74.97	15.601	
7,200.00	7,200.00	7,230.52	7,200.00	38.37	38.09	92.90	-59.24	1,168.17	1,169.67	1,093.64	76.03	15.384	
7,300.00	7,300.00	7,330.52	7,300.00	38.91	38.61	92.90	-59.24	1,168.17	1,169.67	1,092.58	77.09	15.173	
7,400.00	7,400.00	7,430.52	7,400.00	39.45	39.12	92.90	-59.24	1,168.17	1,169.67	1,091.52	78.15	14.968	
7,500.00	7,500.00	7,530.52	7,500.00	39.98	39.64	92.90	-59.24	1,168.17	1,169.67	1,090.46	79.20	14.768	
7,600.00	7,600.00	7,630.52	7,600.00	40.52	40.15	92.90	-59.24	1,168.17	1,169.67	1,089.40	80.26	14.573	
7,700.00	7,700.00	7,730.52	7,700.00	41.06	40.67	92.90	-59.24	1,168.17	1,169.67	1,088.34	81.32	14.383	
7,800.00	7,800.00	7,830.52	7,800.00	41.60	41.18	92.90	-59.24	1,168.17	1,169.67	1,087.28	82.38	14.198	
7,900.00	7,900.00	7,930.52	7,900.00	42.13	41.70	92.90	-59.24	1,168.17	1,169.67	1,086.22	83.44	14.017	
8,000.00	8,000.00	8,030.52	8,000.00	42.67	42.22	92.90	-59.24	1,168.17	1,169.67	1,085.16	84.50	13.841	
8,100.00	8,100.00	8,130.52	8,100.00	43.21	42.74	92.90	-59.24	1,168.17	1,169.67	1,084.10	85.57	13.670	
8,200.00	8,200.00	8,230.52	8,200.00	43.75	43.25	92.90	-59.24	1,168.17	1,169.67	1,083.04	86.63	13.502	
8,300.00	8,300.00	8,330.52	8,300.00	44.29	43.77	92.90	-59.24	1,168.17	1,169.67	1,081.98	87.69	13.339 CC	
8,400.00	8,399.98	8,430.50	8,399.98	44.80	44.29	-142.87	-59.24	1,168.17	1,170.92	1,081.86	89.06	13.147	
8,500.00	8,499.85	8,530.37	8,499.85	45.30	44.81	-142.98	-59.24	1,168.17	1,174.91	1,084.90	90.01	13.053	
8,600.00	8,599.67	8,630.19	8,599.67	45.80	45.33	-143.16	-59.24	1,168.17	1,179.80	1,088.77	91.02	12.961	
8,700.00	8,699.48	8,730.00	8,699.48	46.29	45.85	-143.34	-59.24	1,168.17	1,184.70	1,092.66	92.04	12.872	
8,800.00	8,799.29	8,829.81	8,799.29	46.79	46.37	-143.51	-59.24	1,168.17	1,189.61	1,096.55	93.05	12.784	
8,900.00	8,899.11	8,929.63	8,899.11	47.29	46.89	-143.69	-59.24	1,168.17	1,194.53	1,100.46	94.07	12.698	
9,000.00	8,998.92	9,029.44	8,998.92	47.80	47.41	-143.86	-59.24	1,168.17	1,199.46	1,104.37	95.09	12.614	
9,100.00	9,098.73	9,129.25	9,098.73	48.30	47.93	-144.03	-59.24	1,168.17	1,204.41	1,108.30	96.11	12.531	
9,200.00	9,198.55	9,229.06	9,198.55	48.80	48.46	-144.20	-59.24	1,168.17	1,209.36	1,112.23	97.13	12.451	
9,300.00	9,298.36	9,328.70	9,298.36	49.31	48.96	-144.32	-60.10	1,168.19	1,214.37	1,116.23	98.14	12.374	
9,400.00	9,398.17	9,418.27	9,398.17	49.81	49.45	-144.92	-71.96	1,168.47	1,220.02	1,120.89	99.13	12.307	
9,500.00	9,497.98	9,500.00	9,465.09	50.32	49.94	-142.94	-95.76	1,169.05	1,226.79	1,126.66	100.13	12.252	
9,600.00	9,597.80	9,577.28	9,535.40	50.83	50.40	-141.58	-127.69	1,169.82	1,235.40	1,134.30	101.10	12.220	
9,700.00	9,697.54	9,650.00	9,597.07	51.34	50.85	-109.74	-166.12	1,170.75	1,246.61	1,144.52	102.09	12.211	
9,800.00	9,795.55	9,711.09	9,644.78	51.83	51.24	-90.58	-204.22	1,171.67	1,259.13	1,156.10	103.02	12.222	
9,900.00	9,888.86	9,774.72	9,689.86	52.29	51.66	-84.17	-249.07	1,172.76	1,271.81	1,167.99	103.82	12.250	
10,000.00	9,974.63	9,837.18	9,729.01	52.74	52.08	-80.32	-297.69	1,173.94	1,283.90	1,179.56	104.34	12.305	
10,100.00	10,050.26	9,900.00	9,762.81	53.19	52.52	-77.60	-350.58	1,175.22	1,294.70	1,190.13	104.57	12.381	
10,200.00	10,113.44	9,959.77	9,789.41	53.64	52.95	-75.65	-404.05	1,176.51	1,303.65	1,199.08	104.57	12.466	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	10,162.27	10,020.32	9,810.53	54.10	53.40	-74.30	-460.76	1,177.88	1,310.32	1,205.78	104.53	12.535	
10,400.00	10,195.25	10,080.62	9,825.50	54.57	53.85	-73.53	-519.12	1,179.29	1,314.37	1,209.71	104.66	12.558	
10,500.00	10,211.38	10,150.00	9,835.03	55.05	54.38	-73.29	-587.78	1,180.95	1,315.69	1,210.48	105.21	12.505	
10,597.15	10,215.04	10,200.65	9,836.72	55.53	54.76	-73.29	-638.38	1,182.18	1,315.68	1,209.71	105.97	12.415	
10,600.00	10,212.89	10,203.57	9,836.70	55.55	54.79	-73.38	-641.29	1,182.25	1,314.97	1,208.91	106.05	12.399	
10,700.00	10,212.69	10,303.57	9,836.18	56.12	55.59	-73.36	-741.26	1,184.67	1,315.05	1,207.68	107.37	12.247	
10,800.00	10,212.49	10,403.56	9,835.66	56.77	56.47	-73.35	-841.23	1,187.09	1,315.13	1,206.29	108.84	12.083	
10,900.00	10,212.28	10,503.56	9,835.13	57.49	57.43	-73.34	-941.20	1,189.50	1,315.21	1,204.76	110.46	11.907	
11,000.00	10,212.08	10,603.56	9,834.61	58.29	58.45	-73.32	-1,041.16	1,191.92	1,315.30	1,203.09	112.20	11.722	
11,100.00	10,211.88	10,703.56	9,834.09	59.15	59.53	-73.31	-1,141.13	1,194.34	1,315.38	1,201.30	114.08	11.530	
11,200.00	10,211.68	10,803.56	9,833.56	60.08	60.67	-73.30	-1,241.10	1,196.76	1,315.46	1,199.38	116.09	11.332	
11,300.00	10,211.48	10,903.56	9,833.04	61.07	61.87	-73.28	-1,341.07	1,199.18	1,315.55	1,197.34	118.21	11.129	
11,400.00	10,211.28	11,003.56	9,832.52	62.12	63.13	-73.27	-1,441.04	1,201.60	1,315.63	1,195.19	120.44	10.924	
11,500.00	10,211.08	11,103.56	9,831.99	63.23	64.43	-73.25	-1,541.01	1,204.01	1,315.71	1,192.94	122.77	10.717	
11,600.00	10,210.87	11,203.56	9,831.47	64.39	65.79	-73.24	-1,640.98	1,206.43	1,315.80	1,190.59	125.21	10.509	
11,700.00	10,210.67	11,303.56	9,830.95	65.61	67.19	-73.23	-1,740.95	1,208.85	1,315.88	1,188.14	127.74	10.301	
11,800.00	10,210.47	11,403.56	9,830.42	66.87	68.63	-73.21	-1,840.92	1,211.27	1,315.97	1,185.61	130.36	10.095	
11,900.00	10,210.27	11,503.56	9,829.90	68.18	70.11	-73.20	-1,940.88	1,213.69	1,316.05	1,182.99	133.06	9.891	
12,000.00	10,210.07	11,603.56	9,829.37	69.53	71.62	-73.19	-2,040.85	1,216.11	1,316.13	1,180.30	135.83	9.689	
12,100.00	10,209.87	11,703.56	9,828.85	70.92	73.18	-73.17	-2,140.82	1,218.53	1,316.22	1,177.53	138.69	9.491	
12,200.00	10,209.67	11,803.56	9,828.33	72.35	74.76	-73.16	-2,240.79	1,220.94	1,316.30	1,174.69	141.61	9.295	
12,300.00	10,209.46	11,903.56	9,827.80	73.81	76.38	-73.15	-2,340.76	1,223.36	1,316.39	1,171.79	144.59	9.104	
12,400.00	10,209.26	12,003.56	9,827.28	75.31	78.02	-73.13	-2,440.73	1,225.78	1,316.47	1,168.83	147.64	8.917	
12,500.00	10,209.06	12,103.56	9,826.76	76.84	79.69	-73.12	-2,540.70	1,228.20	1,316.55	1,165.81	150.74	8.734	
12,600.00	10,208.86	12,203.56	9,826.23	78.40	81.39	-73.11	-2,640.67	1,230.62	1,316.64	1,162.74	153.90	8.555	
12,700.00	10,208.66	12,303.55	9,825.71	79.99	83.11	-73.09	-2,740.63	1,233.04	1,316.72	1,159.62	157.10	8.381	
12,800.00	10,208.46	12,403.55	9,825.19	81.61	84.85	-73.08	-2,840.60	1,235.46	1,316.81	1,156.45	160.36	8.212	
12,900.00	10,208.26	12,503.55	9,824.66	83.25	86.61	-73.06	-2,940.57	1,237.87	1,316.89	1,153.24	163.65	8.047	
13,000.00	10,208.06	12,603.55	9,824.14	84.92	88.39	-73.05	-3,040.54	1,240.29	1,316.98	1,149.98	166.99	7.886	
13,100.00	10,207.85	12,703.55	9,823.61	86.60	90.19	-73.04	-3,140.51	1,242.71	1,317.06	1,146.69	170.37	7.730	
13,200.00	10,207.65	12,803.55	9,823.09	88.31	92.01	-73.02	-3,240.48	1,245.13	1,317.15	1,143.36	173.79	7.579	
13,300.00	10,207.45	12,903.55	9,822.57	90.04	93.85	-73.01	-3,340.45	1,247.55	1,317.23	1,139.99	177.24	7.432	
13,400.00	10,207.25	13,003.55	9,822.04	91.79	95.70	-73.00	-3,440.42	1,249.97	1,317.32	1,136.59	180.72	7.289	
13,500.00	10,207.05	13,103.55	9,821.52	93.55	97.56	-72.98	-3,540.39	1,252.38	1,317.40	1,133.16	184.24	7.151	
13,600.00	10,206.85	13,203.55	9,821.00	95.33	99.44	-72.97	-3,640.35	1,254.80	1,317.49	1,129.71	187.78	7.016	
13,700.00	10,206.65	13,303.55	9,820.47	97.13	101.33	-72.96	-3,740.32	1,257.22	1,317.57	1,126.22	191.35	6.886	
13,800.00	10,206.44	13,403.55	9,819.95	98.94	103.24	-72.94	-3,840.29	1,259.64	1,317.66	1,122.71	194.95	6.759	
13,900.00	10,206.24	13,503.55	9,819.43	100.76	105.15	-72.93	-3,940.26	1,262.06	1,317.74	1,119.17	198.57	6.636	
14,000.00	10,206.04	13,603.55	9,818.90	102.60	107.08	-72.92	-4,040.23	1,264.48	1,317.83	1,115.62	202.21	6.517	
14,100.00	10,205.84	13,703.55	9,818.38	104.46	109.02	-72.90	-4,140.20	1,266.90	1,317.91	1,112.04	205.88	6.401	
14,200.00	10,205.64	13,803.55	9,817.86	106.32	110.96	-72.89	-4,240.17	1,269.31	1,318.00	1,108.43	209.56	6.289	
14,300.00	10,205.44	13,903.55	9,817.33	108.19	112.92	-72.88	-4,340.14	1,271.73	1,318.08	1,104.81	213.27	6.180	
14,400.00	10,205.24	14,003.55	9,816.81	110.08	114.88	-72.86	-4,440.11	1,274.15	1,318.17	1,101.18	216.99	6.075	
14,500.00	10,205.03	14,103.55	9,816.28	111.98	116.86	-72.85	-4,540.07	1,276.57	1,318.25	1,097.52	220.74	5.972	
14,600.00	10,204.83	14,203.55	9,815.76	113.88	118.84	-72.83	-4,640.04	1,278.99	1,318.34	1,093.85	224.49	5.872	
14,700.00	10,204.63	14,303.54	9,815.24	115.80	120.83	-72.82	-4,740.01	1,281.41	1,318.43	1,090.16	228.27	5.776	
14,800.00	10,204.43	14,403.54	9,814.71	117.72	122.82	-72.81	-4,839.98	1,283.83	1,318.51	1,086.45	232.06	5.682	
14,900.00	10,204.23	14,503.54	9,814.19	119.65	124.83	-72.79	-4,939.95	1,286.24	1,318.60	1,082.73	235.86	5.591	
15,000.00	10,204.03	14,603.54	9,813.67	121.59	126.84	-72.78	-5,039.92	1,288.66	1,318.68	1,079.00	239.68	5.502	
15,100.00	10,203.83	14,703.54	9,813.14	123.54	128.85	-72.77	-5,139.89	1,291.08	1,318.77	1,075.26	243.51	5.416	
15,200.00	10,203.63	14,803.54	9,812.62	125.49	130.87	-72.75	-5,239.86	1,293.50	1,318.86	1,071.50	247.35	5.332	
15,300.00	10,203.42	14,903.54	9,812.10	127.46	132.90	-72.74	-5,339.83	1,295.92	1,318.94	1,067.73	251.21	5.250	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,400.00	10,203.22	15,003.54	9,811.57	129.42	134.94	-72.73	-5,439.79	1,298.34	1,319.03	1,063.95	255.08	5.171		
15,500.00	10,203.02	15,103.54	9,811.05	131.40	136.97	-72.71	-5,539.76	1,300.76	1,319.12	1,060.16	258.95	5.094		
15,600.00	10,202.64	15,226.65	9,810.40	133.37	139.48	-72.71	-5,662.85	1,302.97	1,319.73	1,056.40	263.33	5.012		
15,700.00	10,202.16	15,326.65	9,809.88	135.35	141.52	-72.71	-5,762.84	1,303.55	1,319.74	1,052.52	267.22	4.939		
15,800.00	10,201.68	15,426.65	9,809.36	137.34	143.56	-72.71	-5,862.84	1,304.14	1,319.75	1,048.64	271.12	4.868		
15,900.00	10,201.20	15,526.65	9,808.84	139.32	145.60	-72.70	-5,962.84	1,304.72	1,319.76	1,044.74	275.02	4.799		
16,000.00	10,200.72	15,626.65	9,808.32	141.32	147.65	-72.70	-6,062.83	1,305.31	1,319.77	1,040.84	278.94	4.731		
16,100.00	10,200.24	15,726.65	9,807.79	143.32	149.70	-72.70	-6,162.83	1,305.89	1,319.79	1,036.92	282.86	4.666		
16,200.00	10,199.76	15,826.65	9,807.27	145.32	151.75	-72.70	-6,262.83	1,306.48	1,319.80	1,033.00	286.79	4.602		
16,300.00	10,199.28	15,926.65	9,806.75	147.33	153.81	-72.70	-6,362.82	1,307.06	1,319.81	1,029.08	290.73	4.540		
16,400.00	10,198.80	16,026.65	9,806.23	149.34	155.87	-72.70	-6,462.82	1,307.65	1,319.82	1,025.14	294.68	4.479		
16,500.00	10,198.32	16,126.65	9,805.70	151.36	157.94	-72.69	-6,562.82	1,308.23	1,319.83	1,021.20	298.63	4.420		
16,600.00	10,197.84	16,226.65	9,805.18	153.38	160.00	-72.69	-6,662.82	1,308.82	1,319.84	1,017.25	302.59	4.362		
16,700.00	10,197.36	16,326.65	9,804.66	155.40	162.07	-72.69	-6,762.81	1,309.40	1,319.85	1,013.29	306.56	4.305		
16,800.00	10,196.88	16,426.65	9,804.14	157.43	164.15	-72.69	-6,862.81	1,309.99	1,319.86	1,009.33	310.53	4.250		
16,900.00	10,196.40	16,526.65	9,803.61	159.46	166.23	-72.69	-6,962.81	1,310.57	1,319.88	1,005.36	314.51	4.197		
17,000.00	10,195.92	16,626.65	9,803.09	161.49	168.30	-72.68	-7,062.80	1,311.16	1,319.89	1,001.39	318.50	4.144		
17,100.00	10,195.44	16,726.65	9,802.57	163.53	170.39	-72.68	-7,162.80	1,311.74	1,319.90	997.41	322.49	4.093		
17,200.00	10,194.96	16,826.65	9,802.05	165.57	172.47	-72.68	-7,262.80	1,312.33	1,319.91	993.43	326.48	4.043		
17,300.00	10,194.48	16,926.65	9,801.53	167.61	174.56	-72.68	-7,362.79	1,312.91	1,319.92	989.44	330.48	3.994		
17,400.00	10,194.00	17,026.65	9,801.00	169.66	176.65	-72.68	-7,462.79	1,313.50	1,319.93	985.45	334.49	3.946		
17,500.00	10,193.52	17,126.65	9,800.48	171.71	178.74	-72.68	-7,562.79	1,314.08	1,319.94	981.45	338.50	3.899		
17,600.00	10,193.04	17,226.65	9,799.96	173.76	180.83	-72.67	-7,662.78	1,314.67	1,319.96	977.44	342.51	3.854		
17,700.00	10,192.56	17,326.65	9,799.44	175.81	182.93	-72.67	-7,762.78	1,315.25	1,319.97	973.43	346.53	3.809		
17,800.00	10,192.08	17,426.65	9,798.91	177.87	185.03	-72.67	-7,862.78	1,315.84	1,319.98	969.42	350.56	3.765		
17,900.00	10,191.60	17,526.65	9,798.39	179.93	187.13	-72.67	-7,962.78	1,316.42	1,319.99	965.41	354.58	3.723		
18,000.00	10,191.12	17,626.65	9,797.87	181.99	189.23	-72.67	-8,062.77	1,317.01	1,320.00	961.39	358.62	3.681		
18,100.00	10,190.64	17,726.65	9,797.35	184.05	191.33	-72.67	-8,162.77	1,317.59	1,320.01	957.36	362.65	3.640		
18,200.00	10,190.16	17,826.65	9,796.82	186.12	193.44	-72.66	-8,262.77	1,318.18	1,320.02	953.33	366.69	3.600		
18,300.00	10,189.68	17,926.65	9,796.30	188.19	195.55	-72.66	-8,362.76	1,318.76	1,320.04	949.30	370.73	3.561		
18,400.00	10,189.20	18,026.65	9,795.78	190.26	197.66	-72.66	-8,462.76	1,319.35	1,320.05	945.27	374.78	3.522		
18,500.00	10,188.72	18,126.65	9,795.26	192.33	199.77	-72.66	-8,562.76	1,319.93	1,320.06	941.23	378.83	3.485		
18,600.00	10,188.24	18,226.65	9,794.73	194.40	201.88	-72.66	-8,662.75	1,320.52	1,320.07	937.19	382.88	3.448		
18,700.00	10,187.76	18,326.65	9,794.21	196.48	203.99	-72.65	-8,762.75	1,321.10	1,320.08	933.14	386.94	3.412		
18,800.00	10,187.28	18,426.65	9,793.69	198.55	206.11	-72.65	-8,862.75	1,321.69	1,320.09	929.09	391.00	3.376		
18,900.00	10,186.80	18,526.65	9,793.17	200.63	208.23	-72.65	-8,962.74	1,322.27	1,320.10	925.04	395.06	3.342		
19,000.00	10,186.32	18,626.65	9,792.65	202.71	210.34	-72.65	-9,062.74	1,322.86	1,320.12	920.99	399.13	3.308		
19,100.00	10,185.84	18,726.65	9,792.12	204.80	212.46	-72.65	-9,162.74	1,323.44	1,320.13	916.93	403.19	3.274		
19,200.00	10,185.36	18,826.65	9,791.60	206.88	214.58	-72.65	-9,262.73	1,324.03	1,320.14	912.87	407.26	3.241		
19,300.00	10,184.88	18,926.65	9,791.08	208.96	216.71	-72.64	-9,362.73	1,324.61	1,320.15	908.81	411.34	3.209		
19,400.00	10,184.40	19,026.65	9,790.56	211.05	218.83	-72.64	-9,462.73	1,325.20	1,320.16	904.75	415.41	3.178		
19,500.00	10,183.92	19,126.65	9,790.03	213.14	220.95	-72.64	-9,562.73	1,325.78	1,320.17	900.68	419.49	3.147		
19,600.00	10,183.44	19,226.65	9,789.51	215.23	223.08	-72.64	-9,662.72	1,326.37	1,320.18	896.61	423.57	3.117		
19,700.00	10,182.96	19,326.65	9,788.99	217.32	225.21	-72.64	-9,762.72	1,326.95	1,320.19	892.54	427.66	3.087		
19,800.00	10,182.48	19,426.65	9,788.47	219.41	227.34	-72.64	-9,862.72	1,327.54	1,320.21	888.47	431.74	3.058		
19,900.00	10,182.00	19,526.65	9,787.94	221.51	229.46	-72.63	-9,962.71	1,328.12	1,320.22	884.39	435.83	3.029		
20,000.00	10,181.52	19,626.65	9,787.42	223.60	231.59	-72.63	-10,062.71	1,328.71	1,320.23	880.31	439.92	3.001		
20,100.00	10,181.04	19,726.65	9,786.90	225.70	233.73	-72.63	-10,162.71	1,329.29	1,320.24	876.23	444.01	2.973		
20,200.00	10,180.56	19,826.65	9,786.38	227.79	235.86	-72.63	-10,262.70	1,329.88	1,320.25	872.15	448.10	2.946		
20,300.00	10,180.08	19,926.65	9,785.86	229.89	237.99	-72.63	-10,362.70	1,330.46	1,320.26	868.07	452.20	2.920		
20,400.00	10,179.60	20,026.65	9,785.33	231.99	240.12	-72.62	-10,462.70	1,331.05	1,320.27	863.98	456.30	2.893		
20,500.00	10,179.12	20,126.65	9,784.81	234.09	242.26	-72.62	-10,562.69	1,331.63	1,320.29	859.89	460.39	2.868		

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 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #7H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
20,525.44	10,179.00	20,152.09	9,784.68	234.55	242.80	-72.62	-10,588.13	1,331.78	1,320.29	858.94	461.35	2.862 ES, SF	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #8H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	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)						
0.00	0.00	13.00	0.00	0.00	0.02	76.49	297.09	1,236.88	1,272.06					
100.00	100.00	113.00	100.00	0.19	0.25	76.49	297.09	1,236.88	1,272.06	1,271.61	0.44	2,867.515		
200.00	200.00	213.00	200.00	0.73	0.79	76.49	297.09	1,236.88	1,272.06	1,270.54	1.52	837.417		
300.00	300.00	313.00	300.00	1.27	1.33	76.49	297.09	1,236.88	1,272.06	1,269.46	2.59	490.301		
400.00	400.00	413.00	400.00	1.81	1.86	76.49	297.09	1,236.88	1,272.06	1,268.39	3.67	348.623		
500.00	500.00	513.00	500.00	2.34	2.40	76.49	297.09	1,236.88	1,272.06	1,267.31	4.75	268.068		
600.00	600.00	613.00	600.00	2.88	2.94	76.49	297.09	1,236.88	1,272.06	1,266.24	5.82	218.541		
700.00	700.00	713.00	700.00	3.42	3.48	76.49	297.09	1,236.88	1,272.06	1,265.16	6.90	184.460		
800.00	800.00	813.00	800.00	3.96	4.01	76.49	297.09	1,236.88	1,272.06	1,264.08	7.97	159.575		
900.00	900.00	913.00	900.00	4.50	4.55	76.49	297.09	1,236.88	1,272.06	1,263.01	9.05	140.606		
1,000.00	1,000.00	1,013.00	1,000.00	5.03	5.09	76.49	297.09	1,236.88	1,272.06	1,261.93	10.12	125.668		
1,100.00	1,100.00	1,113.00	1,100.00	5.57	5.63	76.49	297.09	1,236.88	1,272.06	1,260.86	11.20	113.599		
1,200.00	1,200.00	1,213.00	1,200.00	6.11	6.16	76.49	297.09	1,236.88	1,272.06	1,259.78	12.27	103.645		
1,300.00	1,300.00	1,313.00	1,300.00	6.65	6.70	76.49	297.09	1,236.88	1,272.06	1,258.71	13.35	95.295		
1,400.00	1,400.00	1,413.00	1,400.00	7.18	7.24	76.49	297.09	1,236.88	1,272.06	1,257.63	14.42	88.190		
1,500.00	1,500.00	1,513.00	1,500.00	7.72	7.78	76.49	297.09	1,236.88	1,272.06	1,256.56	15.50	82.071		
1,600.00	1,600.00	1,613.00	1,600.00	8.26	8.32	76.49	297.09	1,236.88	1,272.06	1,255.48	16.57	76.746		
1,700.00	1,700.00	1,713.00	1,700.00	8.80	8.85	76.49	297.09	1,236.88	1,272.06	1,254.41	17.65	72.070		
1,800.00	1,800.00	1,813.00	1,800.00	9.33	9.39	76.49	297.09	1,236.88	1,272.06	1,253.33	18.73	67.931		
1,900.00	1,900.00	1,913.00	1,900.00	9.87	9.93	76.49	297.09	1,236.88	1,272.06	1,252.25	19.80	64.242		
2,000.00	2,000.00	2,013.00	2,000.00	10.41	10.47	76.49	297.09	1,236.88	1,272.06	1,251.18	20.88	60.932		
2,100.00	2,100.00	2,113.00	2,100.00	10.95	11.00	76.49	297.09	1,236.88	1,272.06	1,250.10	21.95	57.947		
2,200.00	2,200.00	2,213.00	2,200.00	11.49	11.54	76.49	297.09	1,236.88	1,272.06	1,249.03	23.03	55.241 CC		
2,300.00	2,300.00	2,300.00	2,287.00	12.02	12.00	76.51	296.90	1,237.27	1,272.06	1,248.44	24.02	52.968 ES		
2,400.00	2,400.00	2,371.10	2,358.06	12.56	12.36	76.57	295.99	1,239.19	1,274.74	1,249.82	24.92	51.158		
2,500.00	2,500.00	2,445.21	2,432.06	13.10	12.73	76.68	294.23	1,242.88	1,279.04	1,253.21	25.83	49.520		
2,600.00	2,600.00	2,519.06	2,505.66	13.64	13.11	76.85	291.66	1,248.28	1,285.36	1,258.62	26.74	48.066		
2,700.00	2,700.00	2,600.00	2,586.13	14.17	13.52	77.09	287.90	1,256.16	1,293.75	1,266.05	27.69	46.716		
2,800.00	2,800.00	2,680.35	2,665.81	14.71	13.94	77.38	283.44	1,265.52	1,303.80	1,275.15	28.65	45.510		
2,900.00	2,900.00	2,779.50	2,764.11	15.25	14.46	77.73	277.89	1,277.19	1,314.11	1,284.41	29.71	44.236		
3,000.00	3,000.00	2,878.65	2,862.41	15.79	14.98	78.07	272.33	1,288.85	1,324.48	1,293.71	30.77	43.044		
3,100.00	3,100.00	2,977.79	2,960.71	16.32	15.51	78.41	266.77	1,300.52	1,334.89	1,303.05	31.84	41.925		
3,200.00	3,200.00	3,076.94	3,059.01	16.86	16.05	78.74	261.21	1,312.19	1,345.34	1,312.43	32.91	40.875		
3,300.00	3,300.00	3,176.09	3,157.31	17.40	16.59	79.07	255.65	1,323.86	1,355.85	1,321.85	33.99	39.888		
3,400.00	3,400.00	3,275.23	3,255.62	17.94	17.14	79.39	250.09	1,335.53	1,366.39	1,331.32	35.07	38.958		
3,500.00	3,500.00	3,374.38	3,353.92	18.48	17.68	79.71	244.54	1,347.20	1,376.98	1,340.82	36.16	38.081		
3,600.00	3,600.00	3,473.53	3,452.22	19.01	18.23	80.03	238.98	1,358.86	1,387.61	1,350.36	37.25	37.253		
3,700.00	3,700.00	3,572.67	3,550.52	19.55	18.79	80.33	233.42	1,370.53	1,398.28	1,359.94	38.34	36.471		
3,800.00	3,800.00	3,671.82	3,648.82	20.09	19.35	80.64	227.86	1,382.20	1,408.99	1,369.56	39.43	35.730		
3,900.00	3,900.00	3,770.97	3,747.12	20.63	19.90	80.94	222.30	1,393.87	1,419.74	1,379.21	40.53	35.028		
4,000.00	4,000.00	3,870.11	3,845.42	21.16	20.47	81.23	216.74	1,405.54	1,430.53	1,388.90	41.63	34.363		
4,100.00	4,100.00	3,969.26	3,943.72	21.70	21.03	81.52	211.19	1,417.20	1,441.35	1,398.62	42.73	33.730		
4,200.00	4,200.00	4,068.41	4,042.02	22.24	21.60	81.81	205.63	1,428.87	1,452.21	1,408.38	43.83	33.129		
4,300.00	4,300.00	4,167.55	4,140.32	22.78	22.16	82.09	200.07	1,440.54	1,463.11	1,418.17	44.94	32.557		
4,400.00	4,400.00	4,266.70	4,238.62	23.31	22.73	82.37	194.51	1,452.21	1,474.04	1,427.99	46.05	32.012		
4,500.00	4,500.00	4,365.85	4,336.92	23.85	23.30	82.65	188.95	1,463.88	1,485.00	1,437.85	47.15	31.492		
4,600.00	4,600.00	4,464.99	4,435.22	24.39	23.87	82.92	183.39	1,475.55	1,496.00	1,447.74	48.26	30.996		
4,700.00	4,700.00	4,564.14	4,533.52	24.93	24.45	83.18	177.84	1,487.21	1,507.03	1,457.66	49.37	30.522		
4,800.00	4,800.00	4,663.29	4,631.83	25.47	25.02	83.44	172.28	1,498.88	1,518.09	1,467.61	50.49	30.069		
4,900.00	4,900.00	4,762.43	4,730.13	26.00	25.60	83.70	166.72	1,510.55	1,529.19	1,477.59	51.60	29.636		
5,000.00	5,000.00	4,861.58	4,828.43	26.54	26.17	83.96	161.16	1,522.22	1,540.31	1,487.60	52.71	29.220		
5,100.00	5,100.00	4,960.73	4,926.73	27.08	26.75	84.21	155.60	1,533.89	1,551.47	1,497.64	53.83	28.822		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #8H - OH - Plan 2 11-18-16													Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,200.00	5,059.87	5,025.03	27.62	27.33	84.46	150.04	1,545.55	1,562.65	1,507.70	54.94	28.440	
5,300.00	5,300.00	5,159.02	5,123.33	28.15	27.91	84.70	144.48	1,557.22	1,573.86	1,517.80	56.06	28.074	
5,400.00	5,400.00	5,258.17	5,221.63	28.69	28.49	84.94	138.93	1,568.89	1,585.10	1,527.92	57.18	27.722	
5,500.00	5,500.00	5,357.31	5,319.93	29.23	29.07	85.18	133.37	1,580.56	1,596.36	1,538.07	58.30	27.383	
5,600.00	5,600.00	5,456.46	5,418.23	29.77	29.65	85.41	127.81	1,592.23	1,607.66	1,548.24	59.42	27.058	
5,700.00	5,700.00	5,555.61	5,516.53	30.31	30.23	85.64	122.25	1,603.90	1,618.98	1,558.44	60.54	26.744	
5,800.00	5,800.00	5,654.75	5,614.83	30.84	30.82	85.87	116.69	1,615.56	1,630.32	1,568.67	61.66	26.442	
5,900.00	5,900.00	5,753.90	5,713.13	31.38	31.40	86.09	111.13	1,627.23	1,641.69	1,578.92	62.78	26.151	
6,000.00	6,000.00	5,853.05	5,811.43	31.92	31.98	86.31	105.58	1,638.90	1,653.09	1,589.19	63.90	25.871	
6,100.00	6,100.00	5,952.20	5,909.73	32.46	32.57	86.53	100.02	1,650.57	1,664.51	1,599.49	65.02	25.600	
6,200.00	6,200.00	6,051.34	6,008.04	32.99	33.15	86.75	94.46	1,662.24	1,675.95	1,609.81	66.14	25.339	
6,300.00	6,300.00	6,150.49	6,106.34	33.53	33.74	86.96	88.90	1,673.91	1,687.41	1,620.15	67.26	25.086	
6,400.00	6,400.00	6,249.64	6,204.64	34.07	34.33	87.17	83.34	1,685.57	1,698.90	1,630.51	68.39	24.842	
6,500.00	6,500.00	6,348.78	6,302.94	34.61	34.91	87.38	77.78	1,697.24	1,710.41	1,640.90	69.51	24.606	
6,600.00	6,600.00	6,447.93	6,401.24	35.14	35.50	87.58	72.23	1,708.91	1,721.95	1,651.31	70.64	24.378	
6,700.00	6,700.00	6,547.08	6,499.54	35.68	36.09	87.78	66.67	1,720.58	1,733.50	1,661.74	71.76	24.157	
6,800.00	6,800.00	6,646.22	6,597.84	36.22	36.68	87.98	61.11	1,732.25	1,745.07	1,672.19	72.88	23.943	
6,900.00	6,900.00	6,745.37	6,696.14	36.76	37.26	88.18	55.55	1,743.91	1,756.67	1,682.66	74.01	23.736	
7,000.00	7,000.00	6,844.52	6,794.44	37.30	37.85	88.37	49.99	1,755.58	1,768.28	1,693.15	75.13	23.535	
7,100.00	7,100.00	6,943.66	6,892.74	37.83	38.44	88.56	44.43	1,767.25	1,779.92	1,703.66	76.26	23.341	
7,200.00	7,200.00	7,042.81	6,991.04	38.37	39.03	88.75	38.88	1,778.92	1,791.57	1,714.19	77.38	23.152	
7,300.00	7,300.00	7,141.96	7,089.34	38.91	39.62	88.93	33.32	1,790.59	1,803.24	1,724.73	78.51	22.968	
7,400.00	7,400.00	7,241.10	7,187.64	39.45	40.21	89.12	27.76	1,802.26	1,814.94	1,735.30	79.64	22.790	
7,500.00	7,500.00	7,340.25	7,285.94	39.98	40.80	89.30	22.20	1,813.92	1,826.65	1,745.88	80.76	22.618	
7,600.00	7,600.00	7,439.40	7,384.24	40.52	41.39	89.48	16.64	1,825.59	1,838.37	1,756.48	81.89	22.450	
7,700.00	7,700.00	7,538.54	7,482.55	41.06	41.98	89.65	11.08	1,837.26	1,850.12	1,767.10	83.01	22.287	
7,800.00	7,800.00	7,637.69	7,580.85	41.60	42.57	89.83	5.53	1,848.93	1,861.88	1,777.74	84.14	22.128	
7,900.00	7,900.00	7,736.84	7,679.15	42.13	43.16	90.00	-0.03	1,860.60	1,873.66	1,788.39	85.27	21.974	
8,000.00	8,000.00	7,835.98	7,777.45	42.67	43.75	90.17	-5.59	1,872.27	1,885.45	1,799.06	86.40	21.824	
8,100.00	8,100.00	7,935.13	7,875.75	43.21	44.35	90.34	-11.15	1,883.93	1,897.27	1,809.74	87.52	21.677	
8,200.00	8,200.00	8,034.28	7,974.05	43.75	44.94	90.51	-16.71	1,895.60	1,909.09	1,820.44	88.65	21.535	
8,300.00	8,300.00	8,133.42	8,072.35	44.29	45.53	90.67	-22.27	1,907.27	1,920.94	1,831.16	89.78	21.397	
8,400.00	8,399.98	8,232.45	8,170.53	44.80	46.12	-144.79	-27.82	1,918.92	1,934.07	1,845.19	88.88	21.759	
8,500.00	8,499.85	8,331.14	8,268.38	45.30	46.71	-144.57	-33.35	1,930.54	1,949.98	1,860.21	89.77	21.722	
8,600.00	8,599.67	8,429.70	8,366.10	45.80	47.30	-144.52	-38.88	1,942.14	1,966.79	1,875.98	90.81	21.658	
8,700.00	8,699.48	8,528.26	8,463.82	46.29	47.89	-144.46	-44.40	1,953.74	1,983.61	1,891.75	91.85	21.596	
8,800.00	8,799.29	8,626.82	8,561.54	46.79	48.48	-144.41	-49.93	1,965.34	2,000.42	1,907.53	92.89	21.534	
8,900.00	8,899.11	8,725.38	8,659.25	47.29	49.07	-144.36	-55.45	1,976.93	2,017.24	1,923.30	93.94	21.474	
9,000.00	8,998.92	8,823.20	8,766.03	47.80	49.83	-144.30	-62.47	1,991.66	2,033.94	1,938.80	95.14	21.377	
9,100.00	9,098.73	9,136.91	9,069.02	48.30	51.38	-144.37	-70.44	2,008.40	2,044.87	1,947.70	97.17	21.044	
9,200.00	9,198.55	9,266.44	9,198.55	48.80	52.01	-144.50	-70.60	2,008.73	2,049.96	1,951.64	98.33	20.848	
9,300.00	9,298.36	9,366.25	9,298.36	49.31	52.50	-144.59	-70.60	2,008.73	2,054.95	1,955.62	99.33	20.688	
9,400.00	9,398.17	9,456.08	9,388.05	49.81	52.94	-144.58	-74.25	2,008.82	2,060.11	1,959.82	100.29	20.541	
9,500.00	9,497.98	9,540.50	9,470.93	50.32	53.39	-144.23	-89.90	2,009.20	2,065.96	1,964.71	101.25	20.405	
9,600.00	9,597.80	9,619.58	9,545.70	50.83	53.83	-143.60	-115.44	2,009.81	2,072.78	1,970.59	102.19	20.284	
9,700.00	9,697.54	9,691.58	9,610.13	51.34	54.24	-112.71	-147.45	2,010.58	2,080.90	1,977.78	103.12	20.180	
9,800.00	9,795.55	9,760.34	9,667.46	51.83	54.63	-94.48	-185.33	2,011.50	2,089.51	1,985.40	104.11	20.071	
9,900.00	9,888.86	9,827.45	9,718.66	52.29	55.03	-89.04	-228.66	2,012.54	2,097.95	1,992.87	105.08	19.965	
10,000.00	9,974.63	9,900.00	9,767.88	52.74	55.47	-86.00	-281.87	2,013.83	2,105.79	1,999.75	106.04	19.859	
10,100.00	10,050.26	9,950.00	9,797.70	53.19	55.78	-84.10	-321.97	2,014.79	2,112.63	2,005.84	106.79	19.783	
10,200.00	10,113.44	10,022.72	9,834.59	53.64	56.24	-82.70	-384.56	2,016.30	2,118.11	2,010.47	107.64	19.678	
10,300.00	10,162.27	10,086.69	9,860.25	54.10	56.67	-81.82	-443.11	2,017.71	2,122.05	2,013.61	108.45	19.567	

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
 Project: Eddy County, NM (NAD27 NME)
 Reference Site: HH SO 10 15 Fed
 Site Error: 0.00 usft
 Reference Well: 0025
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
 TVD Reference: RKB @ 3299.00usft
 MD Reference: RKB @ 3299.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 3.00 sigma
 Database: Compass 5000 GCR
 Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #8H - OH - Plan 2 11-18-16														Offset Site Error: 0.00 usft
Survey Program: 0-PHX+MWD+HDGM														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	10,195.25	10,150.00	9,879.07	54.57	57.12	-81.36	-503.51	2,019.17	2,124.26	2,014.92	109.34	19.429		
10,500.00	10,211.38	10,214.23	9,891.24	55.05	57.58	-81.29	-566.52	2,020.69	2,124.64	2,014.28	110.36	19.252		
10,600.00	10,212.89	10,278.29	9,896.27	55.55	58.06	-81.43	-630.33	2,022.23	2,123.75	2,012.33	111.42	19.060		
10,633.49	10,212.82	10,302.90	9,896.37	55.74	58.25	-81.43	-654.93	2,022.82	2,123.71	2,011.91	111.81	18.995		
10,700.00	10,212.69	10,369.41	9,896.02	56.12	58.78	-81.42	-721.42	2,024.43	2,123.73	2,011.01	112.73	18.840		
10,800.00	10,212.49	10,469.40	9,895.49	56.77	59.63	-81.42	-821.39	2,026.84	2,123.76	2,009.53	114.23	18.591		
10,900.00	10,212.28	10,569.40	9,894.97	57.49	60.54	-81.41	-921.36	2,029.25	2,123.79	2,007.91	115.89	18.327		
11,000.00	10,212.08	10,669.40	9,894.45	58.29	61.52	-81.40	-1,021.32	2,031.66	2,123.83	2,006.15	117.67	18.049		
11,100.00	10,211.88	10,769.40	9,893.92	59.15	62.56	-81.39	-1,121.29	2,034.07	2,123.86	2,004.27	119.59	17.760		
11,200.00	10,211.68	10,869.40	9,893.40	60.08	63.66	-81.38	-1,221.26	2,036.48	2,123.89	2,002.26	121.63	17.462		
11,300.00	10,211.48	10,969.40	9,892.88	61.07	64.81	-81.37	-1,321.23	2,038.89	2,123.92	2,000.13	123.79	17.157		
11,400.00	10,211.28	11,069.40	9,892.35	62.12	66.02	-81.36	-1,421.20	2,041.30	2,123.95	1,997.89	126.06	16.849		
11,500.00	10,211.08	11,169.40	9,891.83	63.23	67.27	-81.36	-1,521.17	2,043.71	2,123.98	1,995.54	128.44	16.537		
11,600.00	10,210.87	11,269.40	9,891.31	64.39	68.57	-81.35	-1,621.14	2,046.12	2,124.01	1,993.10	130.92	16.224		
11,700.00	10,210.67	11,369.40	9,890.78	65.61	69.92	-81.34	-1,721.11	2,048.53	2,124.04	1,990.55	133.49	15.912		
11,800.00	10,210.47	11,469.40	9,890.26	66.87	71.31	-81.33	-1,821.08	2,050.94	2,124.07	1,987.92	136.15	15.601		
11,900.00	10,210.27	11,569.40	9,889.73	68.18	72.74	-81.32	-1,921.05	2,053.36	2,124.11	1,985.21	138.90	15.293		
12,000.00	10,210.07	11,669.40	9,889.21	69.53	74.21	-81.31	-2,021.01	2,055.77	2,124.14	1,982.42	141.72	14.988		
12,100.00	10,209.87	11,769.40	9,888.69	70.92	75.71	-81.30	-2,120.98	2,058.18	2,124.17	1,979.55	144.62	14.688		
12,200.00	10,209.67	11,869.40	9,888.16	72.35	77.25	-81.29	-2,220.95	2,060.59	2,124.20	1,976.61	147.59	14.393		
12,300.00	10,209.46	11,969.40	9,887.64	73.81	78.81	-81.29	-2,320.92	2,063.00	2,124.23	1,973.61	150.63	14.103		
12,400.00	10,209.26	12,069.40	9,887.12	75.31	80.41	-81.28	-2,420.89	2,065.41	2,124.26	1,970.54	153.72	13.819		
12,500.00	10,209.06	12,169.40	9,886.59	76.84	82.03	-81.27	-2,520.86	2,067.82	2,124.30	1,967.41	156.88	13.541		
12,600.00	10,208.86	12,269.40	9,886.07	78.40	83.69	-81.26	-2,620.83	2,070.23	2,124.33	1,964.24	160.09	13.269		
12,700.00	10,208.66	12,369.40	9,885.55	79.99	85.36	-81.25	-2,720.80	2,072.64	2,124.36	1,961.00	163.36	13.005		
12,800.00	10,208.46	12,469.39	9,885.02	81.61	87.06	-81.24	-2,820.77	2,075.05	2,124.39	1,957.72	166.67	12.746		
12,900.00	10,208.26	12,569.39	9,884.50	83.25	88.78	-81.23	-2,920.74	2,077.46	2,124.42	1,954.40	170.02	12.495		
13,000.00	10,208.06	12,669.39	9,883.98	84.92	90.52	-81.23	-3,020.71	2,079.87	2,124.45	1,951.03	173.43	12.250		
13,100.00	10,207.85	12,769.39	9,883.45	86.60	92.28	-81.22	-3,120.67	2,082.29	2,124.49	1,947.62	176.87	12.012		
13,200.00	10,207.65	12,869.39	9,882.93	88.31	94.06	-81.21	-3,220.64	2,084.70	2,124.52	1,944.17	180.35	11.780		
13,300.00	10,207.45	12,969.39	9,882.40	90.04	95.86	-81.20	-3,320.61	2,087.11	2,124.55	1,940.69	183.86	11.555		
13,400.00	10,207.25	13,069.39	9,881.88	91.79	97.67	-81.19	-3,420.58	2,089.52	2,124.58	1,937.17	187.41	11.336		
13,500.00	10,207.05	13,169.39	9,881.36	93.55	99.50	-81.18	-3,520.55	2,091.93	2,124.61	1,933.62	191.00	11.124		
13,600.00	10,206.85	13,269.39	9,880.83	95.33	101.35	-81.17	-3,620.52	2,094.34	2,124.65	1,930.04	194.61	10.918		
13,700.00	10,206.65	13,369.39	9,880.31	97.13	103.21	-81.16	-3,720.49	2,096.75	2,124.68	1,926.43	198.25	10.717		
13,800.00	10,206.44	13,469.39	9,879.79	98.94	105.08	-81.16	-3,820.46	2,099.16	2,124.71	1,922.79	201.92	10.523		
13,900.00	10,206.24	13,569.39	9,879.26	100.76	106.96	-81.15	-3,920.43	2,101.57	2,124.74	1,919.13	205.61	10.334		
14,000.00	10,206.04	13,669.39	9,878.74	102.60	108.86	-81.14	-4,020.40	2,103.98	2,124.78	1,915.44	209.33	10.150		
14,100.00	10,205.84	13,769.39	9,878.22	104.46	110.76	-81.13	-4,120.36	2,106.39	2,124.81	1,911.74	213.07	9.972		
14,200.00	10,205.64	13,869.39	9,877.69	106.32	112.68	-81.12	-4,220.33	2,108.80	2,124.84	1,908.00	216.84	9.799		
14,300.00	10,205.44	13,969.39	9,877.17	108.19	114.61	-81.11	-4,320.30	2,111.21	2,124.87	1,904.25	220.62	9.631		
14,400.00	10,205.24	14,069.39	9,876.64	110.08	116.55	-81.10	-4,420.27	2,113.63	2,124.91	1,900.48	224.42	9.468		
14,500.00	10,205.03	14,169.39	9,876.12	111.98	118.49	-81.10	-4,520.24	2,116.04	2,124.94	1,896.69	228.25	9.310		
14,600.00	10,204.83	14,269.39	9,875.60	113.88	120.45	-81.09	-4,620.21	2,118.45	2,124.97	1,892.88	232.09	9.156		
14,700.00	10,204.63	14,369.38	9,875.07	115.80	122.41	-81.08	-4,720.18	2,120.86	2,125.00	1,889.06	235.94	9.006		
14,800.00	10,204.43	14,469.38	9,874.55	117.72	124.38	-81.07	-4,820.15	2,123.27	2,125.04	1,885.22	239.82	8.861		
14,900.00	10,204.23	14,569.38	9,874.03	119.65	126.36	-81.06	-4,920.12	2,125.68	2,125.07	1,881.36	243.71	8.720		
15,000.00	10,204.03	14,669.38	9,873.50	121.59	128.35	-81.05	-5,020.09	2,128.09	2,125.10	1,877.49	247.61	8.583		
15,100.00	10,203.83	14,769.38	9,872.98	123.54	130.34	-81.04	-5,120.06	2,130.50	2,125.14	1,873.61	251.53	8.449		
15,200.00	10,203.63	14,869.38	9,872.46	125.49	132.34	-81.03	-5,220.02	2,132.91	2,125.17	1,869.71	255.46	8.319		
15,300.00	10,203.42	14,969.38	9,871.93	127.46	134.35	-81.03	-5,319.99	2,135.32	2,125.20	1,865.80	259.40	8.193		
15,400.00	10,203.22	15,069.38	9,871.41	129.42	136.36	-81.02	-5,419.96	2,137.73	2,125.24	1,861.88	263.35	8.070		

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



Phoenix Technology Services LP

Anticollision Report



Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Offset Design HH SO 10 P3 - #8H - OH - Plan 2 11-18-16													Offset Site Error:	0.00 usft
Survey Program: 0-PHX+MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
15,500.00	10,203.02	15,169.38	9,870.89	131.40	138.38	-81.01	-5,519.93	2,140.14	2,125.27	1,857.95	267.32	7.950		
15,600.00	10,202.64	15,307.74	9,870.16	133.37	141.18	-81.00	-5,658.25	2,142.95	2,126.24	1,854.41	271.83	7.822		
15,700.00	10,202.16	15,407.74	9,869.64	135.35	143.19	-81.00	-5,758.25	2,143.53	2,126.25	1,850.45	275.80	7.709		
15,800.00	10,201.68	15,507.74	9,869.11	137.34	145.20	-81.00	-5,858.25	2,144.12	2,126.25	1,846.47	279.78	7.600		
15,900.00	10,201.20	15,607.74	9,868.59	139.32	147.22	-81.00	-5,958.24	2,144.70	2,126.26	1,842.49	283.77	7.493		
16,000.00	10,200.72	15,707.74	9,868.07	141.32	149.25	-81.00	-6,058.24	2,145.29	2,126.26	1,838.50	287.76	7.389		
16,100.00	10,200.24	15,807.74	9,867.54	143.32	151.28	-81.00	-6,158.24	2,145.87	2,126.27	1,834.49	291.77	7.287		
16,200.00	10,199.76	15,907.74	9,867.02	145.32	153.31	-81.00	-6,258.24	2,146.45	2,126.27	1,830.49	295.79	7.189		
16,300.00	10,199.28	16,007.74	9,866.50	147.33	155.35	-81.00	-6,358.23	2,147.04	2,126.28	1,826.47	299.81	7.092		
16,400.00	10,198.80	16,107.74	9,865.97	149.34	157.39	-80.99	-6,458.23	2,147.62	2,126.28	1,822.44	303.84	6.998		
16,500.00	10,198.32	16,207.74	9,865.45	151.36	159.44	-80.99	-6,558.23	2,148.21	2,126.29	1,818.41	307.88	6.906		
16,600.00	10,197.84	16,307.74	9,864.93	153.38	161.49	-80.99	-6,658.22	2,148.79	2,126.29	1,814.37	311.92	6.817		
16,700.00	10,197.36	16,407.74	9,864.40	155.40	163.54	-80.99	-6,758.22	2,149.38	2,126.30	1,810.32	315.97	6.729		
16,800.00	10,196.88	16,507.74	9,863.88	157.43	165.59	-80.99	-6,858.22	2,149.96	2,126.30	1,806.27	320.03	6.644		
16,900.00	10,196.40	16,607.74	9,863.35	159.46	167.65	-80.99	-6,958.21	2,150.54	2,126.30	1,802.21	324.10	6.561		
17,000.00	10,195.92	16,707.74	9,862.83	161.49	169.72	-80.99	-7,058.21	2,151.13	2,126.31	1,798.14	328.17	6.479		
17,100.00	10,195.44	16,807.74	9,862.31	163.53	171.78	-80.99	-7,158.21	2,151.71	2,126.31	1,794.07	332.24	6.400		
17,200.00	10,194.96	16,907.74	9,861.78	165.57	173.85	-80.98	-7,258.20	2,152.30	2,126.32	1,789.99	336.33	6.322		
17,300.00	10,194.48	17,007.74	9,861.26	167.61	175.92	-80.98	-7,358.20	2,152.88	2,126.32	1,785.91	340.41	6.246		
17,400.00	10,194.00	17,107.74	9,860.74	169.66	178.00	-80.98	-7,458.20	2,153.47	2,126.33	1,781.82	344.51	6.172		
17,500.00	10,193.52	17,207.74	9,860.21	171.71	180.07	-80.98	-7,558.19	2,154.05	2,126.33	1,777.73	348.61	6.100		
17,600.00	10,193.04	17,307.74	9,859.69	173.76	182.15	-80.98	-7,658.19	2,154.63	2,126.34	1,773.63	352.71	6.029		
17,700.00	10,192.56	17,407.74	9,859.17	175.81	184.23	-80.98	-7,758.19	2,155.22	2,126.34	1,769.53	356.82	5.959		
17,800.00	10,192.08	17,507.74	9,858.64	177.87	186.32	-80.98	-7,858.19	2,155.80	2,126.35	1,765.42	360.93	5.891		
17,900.00	10,191.60	17,607.74	9,858.12	179.93	188.40	-80.98	-7,958.18	2,156.39	2,126.35	1,761.31	365.05	5.825		
18,000.00	10,191.12	17,707.74	9,857.60	181.99	190.49	-80.98	-8,058.18	2,156.97	2,126.36	1,757.19	369.17	5.760		
18,100.00	10,190.64	17,807.74	9,857.07	184.05	192.58	-80.97	-8,158.18	2,157.56	2,126.36	1,753.07	373.29	5.696		
18,200.00	10,190.16	17,907.74	9,856.55	186.12	194.67	-80.97	-8,258.17	2,158.14	2,126.37	1,748.95	377.42	5.634		
18,300.00	10,189.68	18,007.74	9,856.02	188.19	196.77	-80.97	-8,358.17	2,158.72	2,126.37	1,744.82	381.56	5.573		
18,400.00	10,189.20	18,107.74	9,855.50	190.26	198.87	-80.97	-8,458.17	2,159.31	2,126.38	1,740.69	385.69	5.513		
18,500.00	10,188.72	18,207.74	9,854.98	192.33	200.96	-80.97	-8,558.16	2,159.89	2,126.38	1,736.55	389.83	5.455		
18,600.00	10,188.24	18,307.74	9,854.45	194.40	203.06	-80.97	-8,658.16	2,160.48	2,126.39	1,732.41	393.98	5.397		
18,700.00	10,187.76	18,407.74	9,853.93	196.48	205.17	-80.97	-8,758.16	2,161.06	2,126.39	1,728.27	398.13	5.341		
18,800.00	10,187.28	18,507.74	9,853.41	198.55	207.27	-80.97	-8,858.15	2,161.65	2,126.40	1,724.12	402.28	5.286		
18,900.00	10,186.80	18,607.74	9,852.88	200.63	209.37	-80.97	-8,958.15	2,162.23	2,126.40	1,719.97	406.43	5.232		
19,000.00	10,186.32	18,707.74	9,852.36	202.71	211.48	-80.96	-9,058.15	2,162.82	2,126.41	1,715.82	410.59	5.179		
19,100.00	10,185.84	18,807.74	9,851.84	204.80	213.59	-80.96	-9,158.15	2,163.40	2,126.41	1,711.67	414.75	5.127		
19,200.00	10,185.36	18,907.74	9,851.31	206.88	215.70	-80.96	-9,258.14	2,163.98	2,126.42	1,707.51	418.91	5.076		
19,300.00	10,184.88	19,007.74	9,850.79	208.96	217.81	-80.96	-9,358.14	2,164.57	2,126.42	1,703.35	423.08	5.026		
19,400.00	10,184.40	19,107.74	9,850.27	211.05	219.92	-80.96	-9,458.14	2,165.15	2,126.43	1,699.18	427.25	4.977		
19,500.00	10,183.92	19,207.74	9,849.74	213.14	222.04	-80.96	-9,558.13	2,165.74	2,126.43	1,695.02	431.42	4.929		
19,600.00	10,183.44	19,307.74	9,849.22	215.23	224.16	-80.96	-9,658.13	2,166.32	2,126.44	1,690.85	435.59	4.882		
19,700.00	10,182.96	19,407.74	9,848.69	217.32	226.27	-80.96	-9,758.13	2,166.91	2,126.44	1,686.68	439.77	4.835		
19,800.00	10,182.48	19,507.74	9,848.17	219.41	228.39	-80.95	-9,858.12	2,167.49	2,126.45	1,682.50	443.95	4.790		
19,900.00	10,182.00	19,607.74	9,847.65	221.51	230.51	-80.95	-9,958.12	2,168.07	2,126.45	1,678.33	448.13	4.745		
20,000.00	10,181.52	19,707.74	9,847.12	223.60	232.63	-80.95	-10,058.12	2,168.66	2,126.46	1,674.15	452.31	4.701		
20,100.00	10,181.04	19,807.74	9,846.60	225.70	234.75	-80.95	-10,158.11	2,169.24	2,126.46	1,669.97	456.50	4.658		
20,200.00	10,180.56	19,907.74	9,846.08	227.79	236.88	-80.95	-10,258.11	2,169.83	2,126.47	1,665.78	460.69	4.616		
20,300.00	10,180.08	20,007.74	9,845.55	229.89	239.00	-80.95	-10,358.11	2,170.41	2,126.47	1,661.60	464.88	4.574		
20,400.00	10,179.60	20,107.74	9,845.03	231.99	241.12	-80.95	-10,458.11	2,171.00	2,126.48	1,657.41	469.07	4.533		
20,500.00	10,179.12	20,207.74	9,844.51	234.09	243.25	-80.95	-10,558.10	2,171.58	2,126.48	1,653.22	473.26	4.493		
20,525.44	10,179.00	20,233.17	9,844.37	234.55	243.79	-80.95	-10,583.54	2,171.73	2,126.48	1,652.24	474.25	4.484 SF		

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



Phoenix Technology Services LP

Anticollision Report



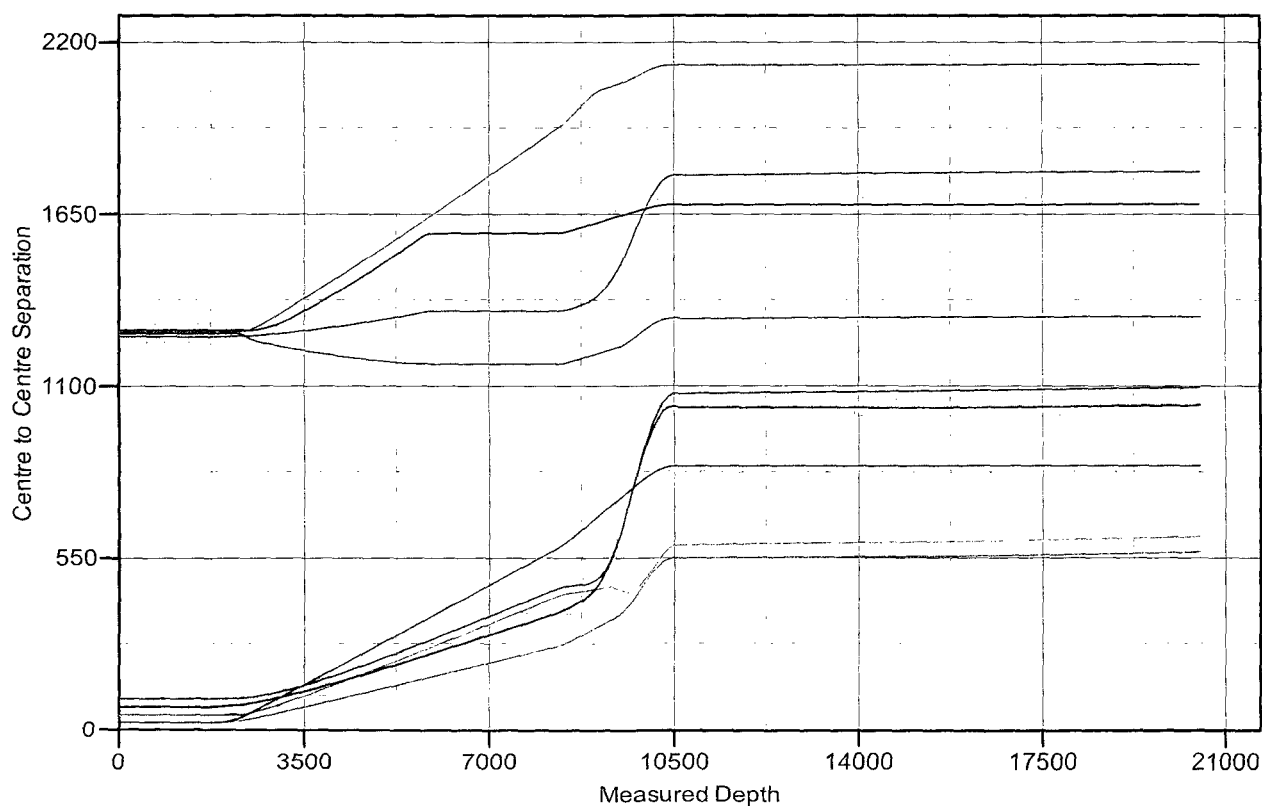
Company: Chevron
Project: Eddy County, NM (NAD27 NME)
Reference Site: HH SO 10 15 Fed
Site Error: 0.00 usft
Reference Well: 0025
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan 1 02-01-17

Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Reference Depths are relative to RKB @ 3299.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 0025
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.08°

Ladder Plot



LEGEND

- | | | |
|--------------------------------|--------------------------------|--------------------------------|
| ▲ #7H, OH, Plan 2 11-18-16 V0 | ◆ #15H, OH, Plan 2 11-18-16 V0 | ▲ 0023, OH, Plan 1 02-01-17 V0 |
| ■ #23H, OH, Plan 2 11-18-16 V0 | ◆ 0021, OH, Plan 1 02-01-17 V0 | ■ 0026, OH, Plan 1 02-01-17 V0 |
| ● #8H, OH, Plan 2 11-18-16 V0 | ◆ 0024, OH, Plan 1 02-01-17 V0 | ■ 0022, OH, Plan 1 02-01-17 V0 |

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Phoenix Technology Services LP

Anticollision Report



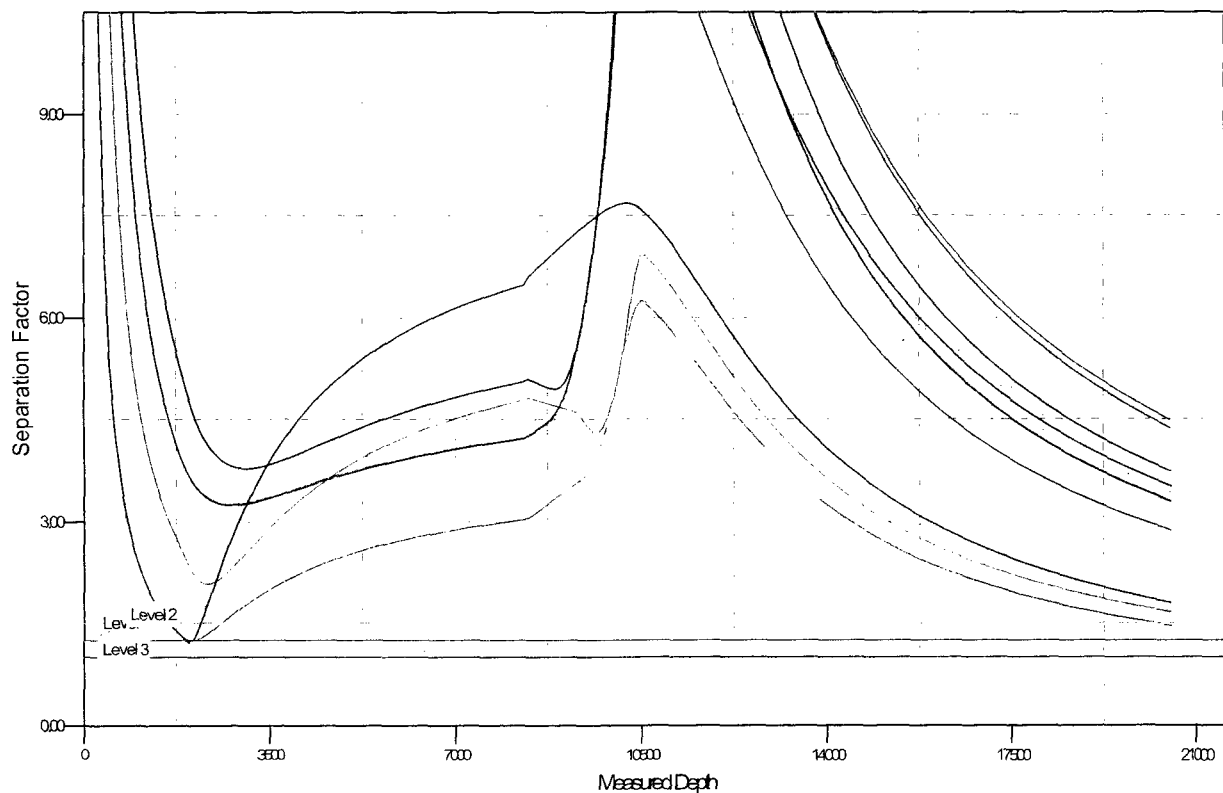
Company: Chevron
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Local Co-ordinate Reference: Well 0025
TVD Reference: RKB @ 3299.00usft
MD Reference: RKB @ 3299.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Reference Datum

Reference Depths are relative to RKB @ 3299.00usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: 0025
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.08°

Separation Factor Plot



LEGEND

▲ #7H, OH, Plan 2 11-18-16 V0	◆ #15H, OH, Plan 2 11-18-16 V0	▲ 0023, OH, Plan 1 02-01-17 V0
■ #23H, OH, Plan 2 11-18-16 V0	◆ 0021, OH, Plan 1 02-01-17 V0	■ 0026, OH, Plan 1 02-01-17 V0
● #8H, OH, Plan 2 11-18-16 V0	◆ 0024, OH, Plan 1 02-01-17 V0	■ 0022, OH, Plan 1 02-01-17 V0

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

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

July 07 2015



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

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

PIPE BODY DATA					
GEOMETRY					
Nominal OD	5.500 in.	Nominal Weight	20.00 lbs/ft	Standard Drift Diameter	4.653 in.
Nominal ID	4.778 in.	Wall Thickness	0.361 in.	Special Drift Diameter	N/A
Plain End Weight	19.83 lbs/ft				
PERFORMANCE					
Body Yield Strength	641 x 1000 lbs	Internal Yield	12630 psi	SMYS	110000 psi
Collapse	11100 psi				
TENARISXP™ BTC CONNECTION DATA					
GEOMETRY					
Connection OD	6.100 in.	Coupling Length	9.450 in	Connection ID	4.766 in.
Critical Section Area	5.828 sq. in.	Threads per in.	5.00	Make-Up Loss	4.204 in.
PERFORMANCE					
Tension Efficiency	100 %	Joint Yield Strength	641 x 1000 lbs	Internal Pressure Capacity ⁽¹⁾	12630 psi
Structural Compression Efficiency	100 %	Structural Compression Strength	641 x 1000 lbs	Structural Bending ⁽²⁾	92 °/100 ft
External Pressure Capacity	11100 psi				
ESTIMATED MAKE-UP TORQUES ⁽²⁾					
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs	Maximum	13770 ft-lbs
OPERATIONAL LIMIT TORQUES					
Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		

BLANKING DIMENSIONS

Blanking Dimensions

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

H₂S Preparedness and Contingency Plan Summary



1. Purpose of H₂S Training, Plans, and Procedures

1.1 Awareness

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 Training

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

Emergency Equipment

- 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



Wellhead Protection

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

Wellhead Protection

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

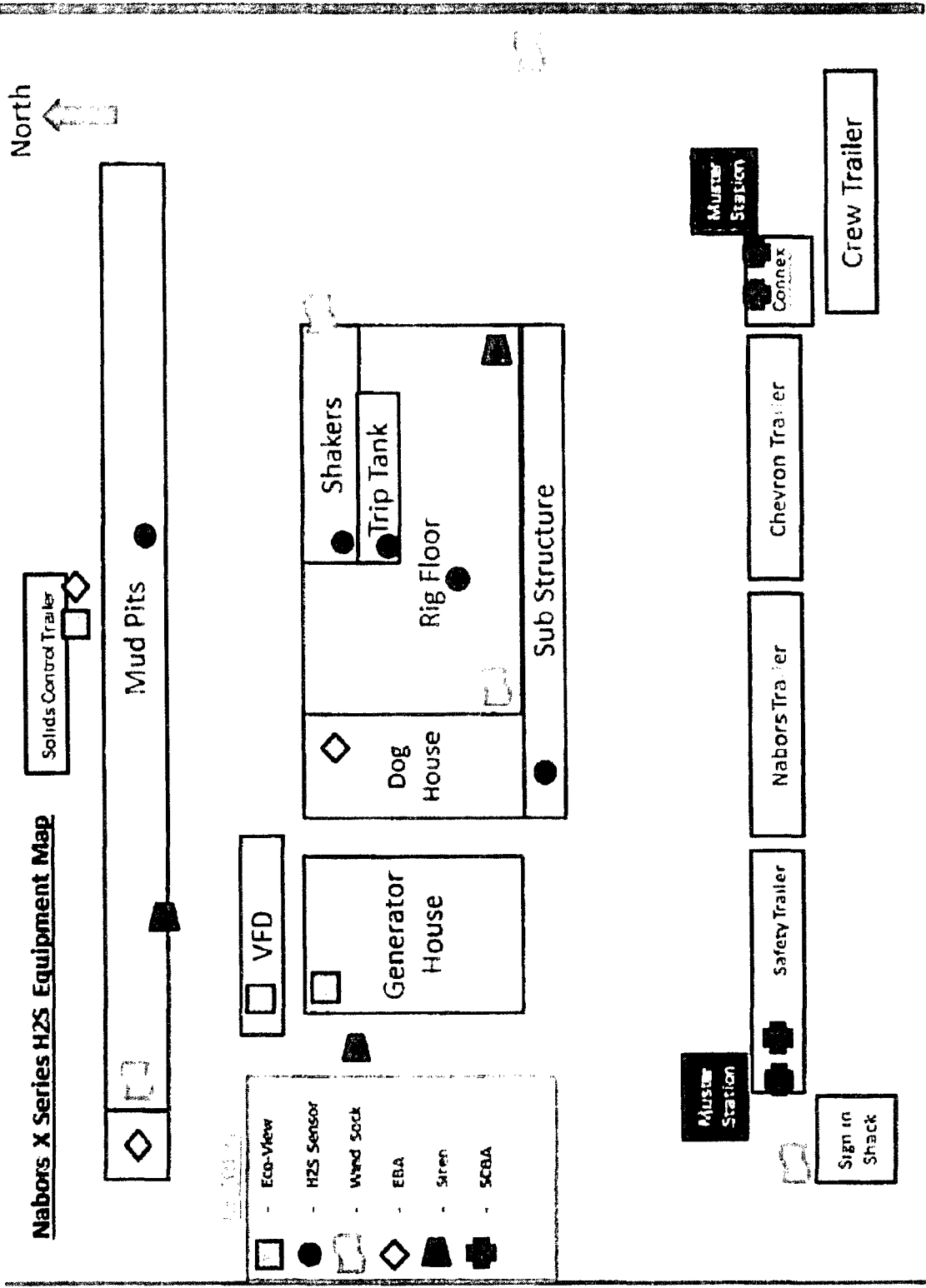
- 1. Use of a degasser
- 2. Use of a zinc based mud treatment
- 3. Increasing mud weight

Public Safety - Emergency Assistance

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



H₂S Preparedness and Contingency Plan Summary



CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 5H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SHL 289' FSL & 833' FWL

SECTION 15, T26S, R27E

BHL 280' FSL & 750' FWL

APD Surface Use Plan of Operations

The following information is provided to assist in the implementation of the APD Surface Use Plan of Operations. The information is provided for the purpose of providing information to the public and is not intended to be used for any other purpose.

HDA Master Development Plan Reference Table

The contents referenced below apply to all HDA APD's

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

Driving Directions

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

Approximate Construction Costs (Table 1, MDP Page 1)

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

Location of existing wells

- 1-Mile radius map is attached

CHEVRON U.S.A. INC.

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NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SECTION 15, T26S, R27E

SHL 289' FSL & 833' FWL

BHL 280' FSL & 750' FWL

Existing and Proposed Facilities and Pipelines in Section 15, T26S, R27E

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

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

Additional Information on Water Management (Mudflow - 011 p. 5)

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

CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 5H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SECTION 15, T26S, R27E

SHL 289' FSL & 833' FWL

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Caliche Sourcing and Management

- Caliche will be sourced from a Chevron operated NMSLO pit in S2 NW4 Section 16 T26S R27E, or an alternate private pit in Section 13, T24S R27E in Eddy County, NM.

Drilling and Completion Operations

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

Well Construction

- Surveyor Plat
 - Exterior well pad dimensions are 545' x 385'
 - Interior well pad dimensions from point of entry (well head) of the well are N-235', S-310', E-125', W-260'. Total disturbance area needed for construction of well pad will be approximately 4.81 acres
 - Topsoil placement is on the west where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices.
 - Cut and fill: will be minimal.
- Rig Layout (see diagram)

Reclamation and Reclamation Procedures

Interim Reclamation Procedures

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

CHEVRON U.S.A. INC.
HH SO 10 15 FED 002 5H
NMNM 121473
SECTION 3, T26S, R27E (Off Lease SHL) SECTION 15, T26S, R27E
SHL 289' FSL & 833' FWL BHL 280' FSL & 750' FWL

BLM Surface

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

On-site Cultural Resources

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

Primary point of contact

Primary point of contact:
Jennifer Van Curen
Jennifer.VanCuren@arcadis-us.com
M- 432-270-8753

CHEVRON U.S.A. INC.

HH SO 10 15 FED 002 5H

NMNM 121473

SECTION 3, T26S, R27E (Off Lease SHL)

SHL 289' FSL & 833' FWL

SECTION 15, T26S, R27E

BHL 280' FSL & 750' FWL

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

PECOS DISTRICT DRILLING OPERATIONS CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Inc.
LEASE NO.:	NMNM121473
WELL NAME & NO.:	5H-HH SO 10 15 Fed 002
SURFACE HOLE FOOTAGE:	289'/S & 833'/W
BOTTOM HOLE FOOTAGE:	280'/S & 750'/W
LOCATION:	Section 3, T.26 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

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

A. Hydrogen Sulfide

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

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.

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

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.

TMAK 07232017

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575)

☒ Eddy County

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

☒ Lea County

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

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

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

A. CASING

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

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

B. PRESSURE CONTROL

3. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
4. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
5. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - f. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

PECOS DISTRICT SURFACE USE CONDITIONS OF APPROVAL

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SURFACE HOLE FOOTAGE:	289'/S & 833'/W
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COUNTY:	Eddy County, New Mexico

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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.

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- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☒ **Noxious Weeds**
- ☒ **Special Requirements**
 - Cave/Karst
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- ☐ **Construction**
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 - Topsoil
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- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- ☒ **Interim Reclamation**
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I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Cave and Karst

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

Cave/Karst Surface Mitigation

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

Construction:

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

No Blasting:

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

Pad Berming:

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

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

Tank Battery Liners and Berms:

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

Leak Detection System:

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

Automatic Shut-off Systems:

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

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:

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

Directional Drilling:

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

Lost Circulation:

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

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

Abandonment Cementing:

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

Pressure Testing:

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

Watershed

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

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

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which

creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

G. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

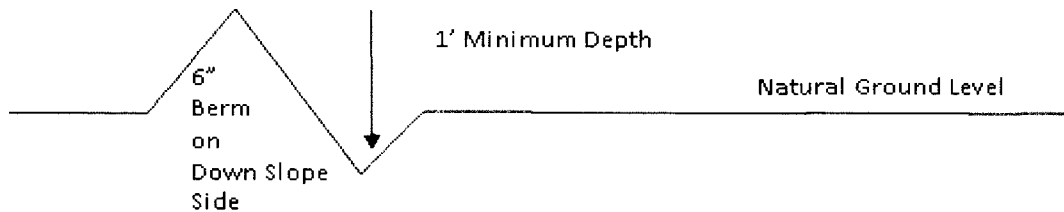
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

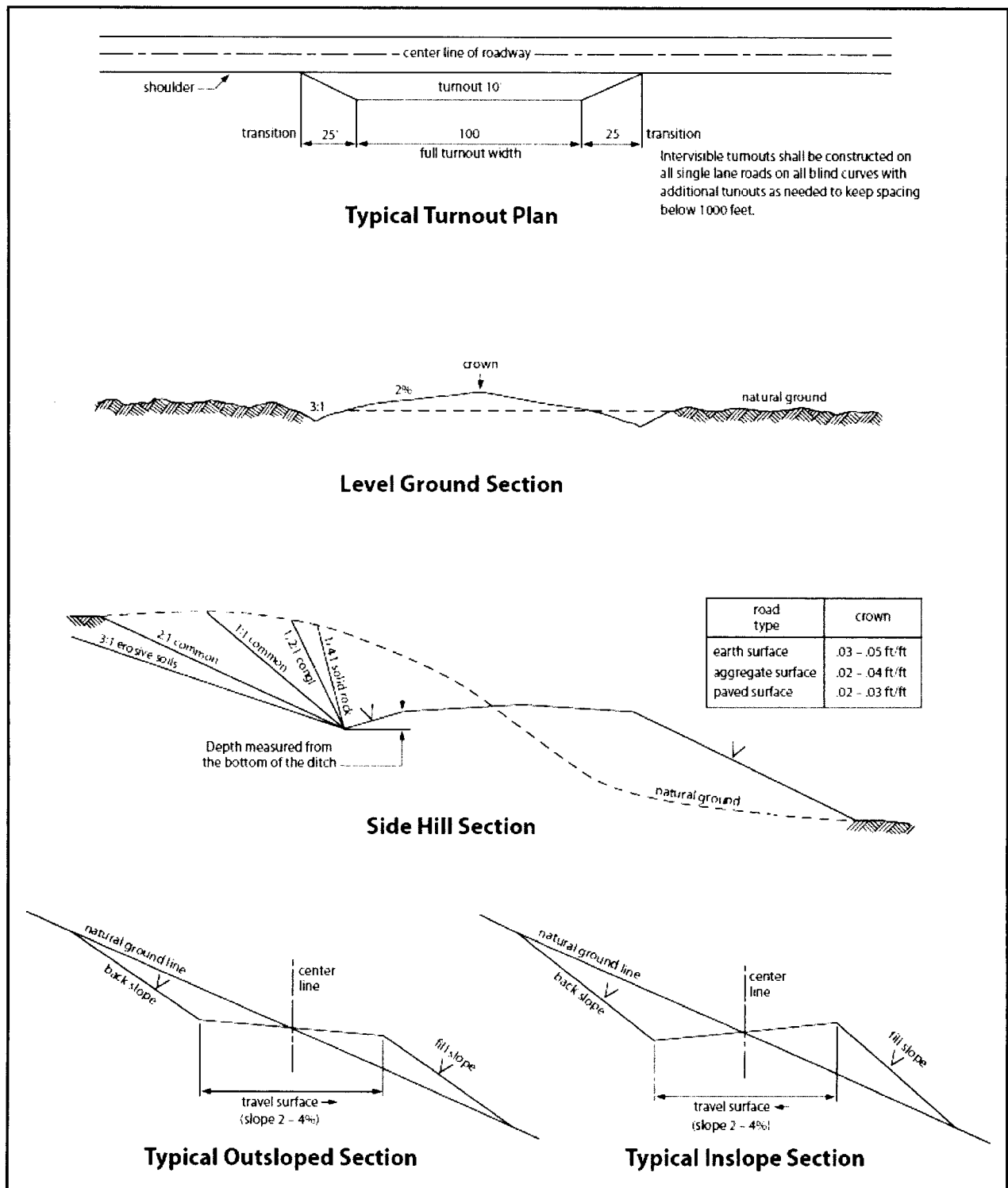


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

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

Painting Requirement

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

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

c. Acts of God.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STANDARD STIPULATIONS FOR BURIED PIPELINE STIPULATIONS

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

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

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

VIII. INTERIM RECLAMATION

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

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

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

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

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 1 for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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