Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.

2. Name of Operator

9. API Well No. 30 015 48229

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory

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

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

25. Signature	Name *(Printed/Typed)*	Date

Title

Approved by *(Signature)*	Name *(Printed/Typed)*	Date

Title	Office

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 04/16/2021

Entered KMS - NMOCD

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1226 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-015-48229	51120	Red Lake, Glorieta-Yeso

Property Code	Property Name	Well Number
330660	CARTER COLLIER 5 FED COM	14H

OGRID No.	Operator Name	Elevation
328947	SPUR ENERGY PARTNERS LLC	3565'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	FEET from the	North/South line	FEET from the	East/West line	County
LOT 8	4	18 S	27 E		716	NORTH	1034	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	FEET from the	North/South line	FEET from the	East/West line	County
D	5	18 S	27 E		360	NORTH	20	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160		C	

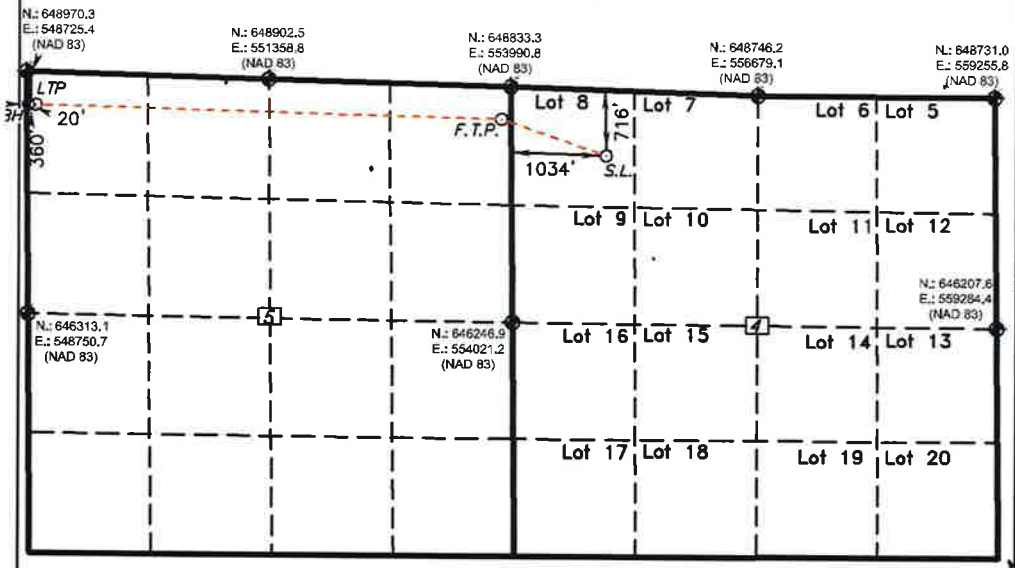
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

PROPOSED BOTTOM HOLE LOCATION
Lat – N 32.783058°
Long – W 104.309218°
NMSPCE– N 648609.6
E 548748.8
(NAD-83)

LAST TAKE POINT
360' FNL & 100' FWL
Lat – N 32.783052°
Long – W 104.308957°
NMSPCE– N 648607.5
E 548828.9
(NAD-83)

FIRST TAKE POINT
360' FNL & 100' FEL
Lat – N 32.782686°
Long – W 104.292473°
NMSPCE– N 648475.7
E 553895.0
(NAD-83)

SURFACE LOCATION
Lat – N 32.781605°
Long – W 104.288767°
NMSPCE– N 648082.9
E 555034.0
(NAD-83)



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Ryan C 4/17/19
Signature Date

Ryan Barber
Printed Name

ryan@percussionpetroleum.com
Email Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

OCTOBER 5, 2018
Date Surveyed

Signature & Seal of Professional Surveyor

Certificate Number Gary L. Jones 7977

0' 1000' 2000' 3000' 4000' N
SCALE: 1" = 2000'
WO Num.: 34108

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State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 04/19/2021

☒ Original Operator & OGRID No.: SPUR ENERGY PARTNERS LLC (328947)
☐ Amended - Reason for Amendment:_____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
CARTER COLLIER 5 FEDERAL COM 10H	30-015-Pending	9-4-18S-27E	1739' FNL 738' FWL	600 mcf/day	Flared	Will flare until gathering line tie-in
CARTER COLLIER 5 FEDERAL COM 11H	30-015-Pending	9-4-18S-27E	1719' FNL 735' FWL	600 mcf/day	Flared	Will flare until gathering line tie-in
CARTER COLLIER 5 FEDERAL COM 12H	30-015-Pending	8-4-18S-27E	756' FNL 1035' FWL	600 mcf/day	Flared	Will flare until gathering line tie-in
CARTER COLLIER 5 FEDERAL COM 13H	30-015-Pending	8-4-18S-27E	736' FNL 1035' FWL	600 mcf/day	Flared	Will flare until gathering line tie-in
CARTER COLLIER 5 FEDERAL COM 14H	30-015-Pending	8-4-18S-27E	716' FNL 1034' FWL	600 mcf/day	Flared	Will flare until gathering line tie-in

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated Frontier Field Services, LLC and will be connected to Frontier Field Services, LLC's low/high pressure gathering system located in Eddy County, New Mexico. It will require 1,250 feet of pipeline to connect the facility to low/high pressure gathering system. Spur Energy Partners LLC provides (periodically) to Frontier Field Services, LLC a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Spur Energy Partners LLC and Frontier Field Services, LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Frontier Field Services, LLC's Processing Plant located in Sec. 3, Twn. 18S, Rng. 27E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Frontier Field Services, LLC's system at that time. Based on current information, it is Spur Energy Partners LLC's belief the system can take this gas upon completion of the well(s).
Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Casing Design Criteria and Load Case Assumptions

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

Carter Collier Federal Area Wells

1. Collapse: DF_C=1.125
    a. Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
    b. Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and minimum mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft)

2. Burst: DF_B=1.125
    a. Pressure Test: psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
    b. Injection Down Casing: psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

3. Tensile: DF_T=1.8
    a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. **Surface Casing Program**

Casing Size (in)	Weight (ppf)	Grade	Connection	ID	ID (drift)	Collapse (psi)	Burst (psi)	Tension (1,000 lbs)	Capacity (bbl/ft)
9-5/8”	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773

Safety Factors

	API Rec. SF	**ACTUAL SF**	Case	External Fluids	Internal Fluids
Collaps	1.125	**3.30**	Lost	Mud	*None*

e			Circulation		
Burst	1.125	**1.46**	Plug Bump	Green Cement + 2ksi surf pressure	Displacement Fluid/Mud
Tension	1.8	**2.80**	100 klbs Overpull	Mud	Mud

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
7"	32	L-80	BTC	6.094	5.969	8,600	9,060	745	0.0361
5-1/2"	20	L-80	BTC	4.778	4.653	8,830	8,990	466	0.0221
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case	External Fluids		Internal Fluids			
Collapse	1.125	**3.75**	Lost Circulation	Mud		*None*			
Burst	1.125	**2.47**	Plug Bump	Green Cement + 2ksi surf pressure		Displacement Fluid/Mud			
Tension	1.8	**2.29**	100 klbs Overpull	Mud		Mud			

Buoyed Casing Weight: ***86,522 lbs (assuming 8.4 ppg fluid and 3,500' TVD-worst case scenario)***

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Hydrogen Sulfide Drilling Operations Plan

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

1. H_2S Safety Instructions to the following:
    - Characteristics of H_2S.
    - Physical effects and hazards.
    - Principal and operation of H_2S detectors, warning system and briefing areas.
    - Evacuation procedures, routes and First Aid.
    - Proper use of safety equipment and life support systems.
    - Essential personnel meeting medical evaluation criteria will receive additional training on the proper use of 30 min pressure demand air packs.

2. H_2S Detection & Alarm Systems:
    - H_2S sensor/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud returns pits by the shale shaker. Additional H_2S monitors may be placed as deemed necessary.
    - An audio alarm system will be installed on the derrick, the floor, and in the doghouse.

3. Windsocks and Wind Streamers:
    - Windsocks at mud pit area should be high enough to be visible.
    - Windsock on the rig floor/top of doghouse should be high enough to be visible.
4. Condition Flags & Signs:
    - Warning sign on access road to location
    - Flags to be displayed on sign at entrance to location
        i. Green Flag – Normal Safe Operation Condition
        ii. Yellow Flag – Potential Pressure and Danger
        iii. Red Flag – Danger (H_2S present in dangerous concentrations) Only H_2S trained personnel admitted on location

5. Well Control Equipment:
    - See attached APD

6. Communications:
    - While working under masks, chalkboards will be used for communications
    - Hand signals will be used where chalk board is inappropriate
    - Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at drilling foreman's trailer or living quarters.

7. Drilling Stem Testing:
    - No Drill Stem Tests or hole coring is planned at this time.

8. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9. If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavenger chemicals if necessary.

10. Emergency Contacts:

Emergency Contact Information - H2S Contingency Plan				
Precussion Petroleum Operating, LLC	**713-518-1331**			
Key Parties at Percussion Petroleum		**Office**	**Mobile**	**Email**
Lelan J Anders	Vice President of Operations	713-429-1291	281-908-1752	Lelan@PercussionPetroleum.com
Lupe Carrillo	Chief Operating Officer	713-589-9509	832-776-1869	Lupe@PercussionPetroleum.com
John H. Campbell III	Chief Executive Officer	713-589-4683	936-718-6488	John@PercussionPetroleum.com

Artesia, New Mexico:	
Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad, New Mexico:	
Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
New Mexico Oil Conservation Division	575-887-6544

Santa Fe, New Mexico:	
New Mexico Emergency Response Commission	505-476-9600
New Mexico Emergency Response Commission (24 hr)	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

Federal Contacts:	
Carlsbad BLM Office	575-234-5972
National Emergency Response Center (Washington, DC)	800-424-8802

Medical:	
Flight for Life - Lubbock, TX	806-743-9911
AeroCare - Lubbock, TX	806-747-8923
Med Flight Air Ambulance - Albuquerque, NM	505-842-4433
SB Air Med Service - Albuquerque, NM	505-842-4949

Well Control/ Other:	
Wild Well Control	281-784-4700
Boots & Coots IWC	800-256-9688
B.J. Services	575-746-3569
Halliburton	575-746-2757

WELL PLAN - Carter Collier 5 Fed Com #14H

Percussion Petroleum Operating, LLC

Well:		Carter Collier 5 Fed Com #14H
Location:	**SHL**	Section 4 T18S R27E 716' FNL 1034' FWL Lat: 32.781605° N Long: -104.288767°W
	BHL	Section 5 T18S R27E 360' FNL 20' FWL Lat: 32.783058° N Long: -104.309218°W
County:		Eddy
State:		New Mexico
Rig:		TBD
Spud Date:		TBD
AFE Number:		TBD
True Vertical Depth:		2,925'
Total Measured Depth:		8,563'
Elevation:		GL = 3565' KB = 3582'
Directions:		From the intersection of Highway 82 and County Road 201 (Chalk Bluff Road) go south 4.1 miles along Chalk Bluff Road and turn left. Go approximately 0.4 miles and location will be on the left.

Prepared By:	Ryan Barber
Operations Manager:	Lelan J Anders
Engineering:	Lelan J Anders / Ryan Barber
Exploration:	C.J. Lipinski
Land:	Josh Grisham

DRILLING PROGRAM

CASING DEPTHS:

9-5/8" 32# J-55 LT&C set at **1,000'** inside 12 1/4 open hole, cemented to surface

5 1/2" 20# L-80 BT&C set at **8,553'** inside

8 3/4 open hole, cemented to surface

7" 32# L-80 BT&C set at **3,025'** inside
8 3/4 open hole, cemented to surface

POTENTIAL PROBLEMS: 0' - 1000' Gravel, Red Beds and Water Sands. Seepage and losses. Tight hole.

1000' - TD Hole cleaning, seepage, and loses.

MUD PROGRAM:

Interval	Mud Type	Mud Weight	Viscosity	Water Loss	Plastic Viscosity	Yield Point
0' - 1000'	FW / Gel	8.4 - 9.2 PPG	36 - 42	NC	3 - 5	5 - 7
Paper and gel sweeps to clean hole						
1000' - KOP	FW / Cut Brine	8.3 - 9.2 PPG	28 - 30	NC	1	1
Gel sweeps to clean hole and LCM pills for loss circulation. Raise vis to 34 - 40 if needed.						
KOP - TD	Cut Brine	8.6 - 9.2 PPG	29 - 32	10 - 12	4 - 5	6 - 10

Salt gel sweeps to clean hole and LCM pill for loss circulation. Only acid soluble LCM below surface casing. Increase vis to 34 - 40 if needed. If drag becomes a problem add Surfac PG.
Drill curve and lateral section with XCD Polymer / Cut Brine / Starch system.
Drill as close to pressure balanced as possible.
Estimated BHP for the Yeso formation is 1258 psi.

Mud additions to be coordinated through PPO representative.
This program is only a guide and hole conditions will dictate mud system requirements and changes.

ESTIMATED FORMATION TOPS / LITHOLOGY: **3,565'** **Ground Level** **17' RKB**

Formation	MD	TVD	SS	Lithology
San Andres		1,445'	2,120'	Dolomite
Glorieta		2,800'	765'	Silty Dolomite
Yeso		2,865'	700'	Dolomite
Abo		4,938'	-1,373'	Dolomite
Wolfcamp		6,115'	-2,550'	Shale

DRILL STEM TEST: None

MUD LOGGING: A one man mud logging unit will be in service prior to spudding well to total depth. Samples in the lateral/pay will be taken every 10'. Mud logger will assist in picking surface casing point. Only authorized personnel will be allowed access to mud logging unit. Mud logger will be in contact with C.J. Lipinski. EOL at 20' FWL is a hard line. Cut short to 40' FWL to avoid crossing hard line. Do not exceed without approval from Lelan J Anders Operations Manager. Drilling Foreman is to be notified of changes in drilling parameters.

ELECTRIC LINE LOGS None

DIRECTIONAL SURVEYS: Straight hole specifications. Maximum deviation from vertical shall be no more than 3° inclination.
We will directionally drill according to the well plan in order to hit our intended landing zone.
We will drill as per directional plan to ~100 ft from lease line enabling us to locate our FTP 100' FEL
We will run 5 1/2" x 7" casing with 2 jt shoe track to TD and cement in place. Our LTP will be 8483'.
See directional plan for more details.
THIS IS A HORIZONTAL WELL WITH EXTREMELY TIGHT TOLERANCES. KEEP LELAN ANDERS AND CJ LIPINSKI INFORMED WITH ANY PROBLEMS MAINTAINING TARGET.

Straight Hole Specifications

Well Depth Feet	Maximum Distance Between Surveys	Maximum Deviation From Vertical
0' - 100'		3°
100' - 2,000'	MWD and Motor thru this section of hole.*	10°
2,000' - TD	MWD and Motor thru this section of hole.	

* Depending on directional plan. If vertical hole is used to 1800' MD (surface casing point) then minimum distance between surverys will be 250' MD 3° max deviation from vertical

WELLHEAD EQUIP:

9-5/8" Casing 9-5/8" 3M x 11" 3M SOW
5 1/2" Casing 11" 5M x 7-1/16" 10M Tubing Head

CASING DESIGN:

9-5/8" CASING

9-5/8" Shoe
1 Jt 9-5/8" 36# J-55 STC
9-5/8" Insert Float
9-5/8" 36# J-55 STC To Surface

Casing Burst: 3,520 psi
Casing Collapse: 2,020 psi
Casing Tensile: 394,000 lbs

CASING SAFETY FACTORS

	API Recommended Safety Factor	Actual Safety Factor	Scenerio	External Fluids	Internal Fluids
Collapse:	1.125	3.30	Lost Circulation	Mud	None
Burst:	1.125	1.46	Plug Bump	Cement + 2000 psi applied pressure	Mud/Water
Tensile:	1.8	2.80	100k Overpull	Mud	Mud

CENTRALIZER PLACEMENT

Stop collar 10 feet above shoe with centralizer. One on first collar and every forth collar to surface, or as required by the BLM.

7" x 5 1/2" CASING

5 1/2" Shoe
2 Jts 5 1/2" 20# L80 BTC
5 1/2" Float Collar
5 1/2" 20# L80 BTC Casing To 3025'
7" 32# L80 BTC Casing to surface

	5-1/2"	7"
Casing Burst:	8,990 psi	9,060 psi
Casing Collapse:	8,830 psi	8,600 psi
Casing Tensile:	466,000 lbs	745,000 lbs

CASING SAFETY FACTORS

	API Recommended Safety Factor	Actual Safety Factor	Scenario	External Fluids	Internal Fluids
Collapse:	1.125	3.75	Lost Circulation	Mud	None
Burst:	1.125	2.47	Plug Bump	Cement + 2000 psi applied pressure	Mud/Water
Tensile:	1.8	2.29	100k Overpull	Mud	Mud

CENTRALIZER PLACEMENT

Stop collar 10 feet above shoe with centralizer. One on first collar and every 10 collars to 1200 feet with one centralizer in 9-5/8" casing, or as required by the BLM.

REQUIREMENTS FOR ALL CASING:

Long string casing to be hydro tested before leaving yard.
Thread lock Float Shoe and joint connection between float equipment.
Unload and visually inspect casing, arranging on racks in order of running.
Strap all casing as it is unloaded, threads off. Count all joints on location.
Clean and inspect threads, drift, redope.
Check all casing markings and threads for correctness.
Check crossovers and crossover collars. Have back up collars.
Rope off and mark all casing not to be used.
PPO representative to supervise all casing operations.
Torque casing to optimal value.

CEMENT SCHEDULE:

9-5/8" CASING

Annular Volume: **313.2** cubic ft

Lead Cement: **504.1 sks** Class "C" + 2% CaCl + 0.25 pps Celloflake
Weight 14.8 ppg, Yield 1.32 cfs, Mix Water 6.3 gps.
These volumes based on circulating cement to surface plus 100% excess

If cement does not circulate 1 inch cement to surface.

7" x 5 1/2" CASING Annular Volume: **1867.5** cubic ft

Lead Cement: **494.9 sks** 65/65/6 Class "C"+ 6% gel + 5% salt + 0.25pps Celloflake + 0.2% C41-P
Weight 12.6 ppg, Yield 1.97 cfs, Mixing Water 10.84 gps
Tail Cement: **1396.9 sks** Class "C" + 2% CaCl + 0.25pps Celloflake
Weight 14.8 ppg, Yield 1.32 cfs, Mix Water 6.3 gps.
These volumes based on circulating cement to surface plus 50% excess

REQUIREMENTS FOR ALL CEMENT:

Have cement supervisor independently check cement volumes and displacement volumes.
Collect and identify cement sample from each pod.
Minimize out of hole time. Have cement head already installed on casing joint etc.
Run casing at a smooth even pace being certain not to break down well bore.
Plan for unexpected events, plug doesn't bump at target volume, pump or lift pressures off, etc.
Do not over pump displacement volume.
Ensure plug dropped behind good cement. Chase plug with 10 bbls of sugar water.
Weigh cement samples and take wet samples throughout job.
Run material balance at end of each job to ensure water and cement volumes used confirm was mixed at proper weight as designated.

DRILLING PROCEDURE

1. Build road and location as per rig requirements. Install Conductor to 90 ft. (THIS IS A CLOSED LOOP MUD SYSTEM)

2. Notify BLM (Carlsbad District) of rig moving in and tentative spud date.

3. Move in and rig up drill rig. Install valve in conductor pipe. Rig up closed loop system.

4. Order float equipment, Texas Pattern Guide Shoe, centralizers, and 9-5/8" casing to location. Visually inspect casing and arrange on racks in order of running. Rope off and mark all casing not to be used. Count all joints. Strap casing as it is unloaded (THREADS OFF). Inspect casing and check all casing markings and threads for correctness. Inspect and clean threads, redope, and drift casing. Closely inspect any crossover joints and have back up crossover collars on location.
PPO supervisor to oversee all casing inspections, drifting, strapping, etc.

5. Drill 12-1/4" hole with fresh water Native Spud Mud to TD of surface hole interval. BHA 12-1/4" bit, bit sub, 12" OD stabilizer, 1- 8" drill collar, 12" OD stabilizer, 6 - 8" drill collars and 9 - 6" drill collars. Directional surveys (inclination only on sand line) every 500' and at TD of surface hole.

6. Notify BLM of TD and cement job.

7. Pump 2 high vis sweeps and circulate hole clean run gyro survey every 200' prior to pulling out of hole.

8. Pull out of hole and record any tight spots on IADC report. SLM out of hole. Make sure cement crew will be on location and rigged up before casing is on bottom prior to starting out of hole. Keep hole full.

9. Rig up casing crew and run 9-5/8" casing per casing design. Fill casing every 5 joints and circulate one joint off bottom. Run centralizers per design or as required by BLM. Wash to bottom if necessary.

10. Rig up cementers and test lines to 2000 psi. Have cement supervisor INDEPENDENTLY check cement volumes and displacement volumes. Collect and identify cement sample from each pod. Minimize out of hole time.

11. Circulate casing for 3 casing volumes minimum or until hole cleans up. While circulating hold final job meeting with cement company going over cement volumes, mixing water requirements, displacement volumes, pump pressure and rates, and contingency plans for unexpected events (i.e. plug does not bump at theoretical displacement volume etc.). Add 100% excess to calculated cement volume required. Don't over displace. Top out cement to surface with 1" tubing **IF** necessary.

12. Pump 20 barrels fresh water spacer ahead and pump cement volume per cement design for 9-5/8" casing and PPO representative. Bump plug to 500 psi over pump pressure. Drop plug in good cement. Record cement to surface on IADC report.

13. Hang casing in full tension. Close cement head for 8 hours.

14. WOC 8 hours before cutting off and 24 hours before drilling out per BLM rules.

15. Cut off casing and install 9-5/8" 3M x 11" 3M SOW A-section.

16. Nipple up BOP and test to 500 psi low and 3000 psi high with an independent test company before drilling out.

17. Pick up 8-3/4" bit, and directional drilling BHA. Trip in hole, tag cement and record on IADC report. Test casing to 1000 psi. Drill out float collar and float shoe with fresh water / cut brine 8.3 - 9.2 ppg to a depth Increase mud vis to 30-34 for hole cleaning and samples if needed. Mud program is a guide and hole conditions will dictate mud system requirements or changes. All mud additions will be coordinated through PPO representative.

18. Order float equipment, guide shoe, centralizers, 7" and 5 1/2" casing to location. Check for proper size, type, and thread of casing. Visually inspect casing and arrange on racks in order of running. Rope off and mark all casing not to be used. Count all joints. Strap casing as it is unloaded (THREADS OFF). Inspect casing and check all casing markings and threads for correctness. Inspect and clean threads, redope, and drift casing. Closely inspect any crossover joints and have back up crossover collars on location. PPO supervisor to oversee all casing inspections, drifting, strapping, etc. Casing to be hydro tested before leaving yard. Make sure there are a minimum of 2 marker joints in the string (one at KOP and one mid way through planned lateral).

19. Drill curve and lateral section with XCD Polymer / Cut Brine / Starch System. Increase viscosity as needed using oil and LF-24 to help keep hole slick to TMD if needed. Mud program is a guide and hole conditions will dictate mud system requirements or changes. All mud additions will be coordinated through PPO representative. Drilling breaks and hole problems will be coordinated with drilling foreman, Operations Manager and Engineer. Artesia and Houston offices will be advised daily or as needed.

20. Notify BLM of TD and cement job.

21. Pump high vis sweep and circulate hole clean.

22. Pull out of hole and record any tight spots on IADC report. SLM out of hole. Make sure cement crew will be on location and rigged up before casing is on bottom prior to starting out of hole. Keep hole full.

23. Rig up casing crew and run 7" x 5 1/2" casing per casing design. Fill casing every 10 joints and circulate casing at bottom of 9-5/8" casing and 1 joint off bottom. Run centralizers per design or as required by the BLM. Wash to bottom if necessary. Record any fill on IADC report.

24. Rig up cementers and test lines to 2000 psi. Have cement supervisor INDEPENDENTLY check cement volumes and displacement volumes. Collect and identify cement sample from each pod. Minimize out of hole time.

25. Circulate casing on bottom for 6 times casing volume minimum or until hole cleans up. While circulating hold final job meeting with cement company going over cement volumes, mixing water requirements, displacement volumes, pump pressure and rates, and contingency plans for unexpected events (i.e. plug does not bump at theoretical displacement volume etc.). Add 50% excess for cement volumes required. Don't over displace.

26. Pump 20 barrels fresh water spacer ahead and pump cement volume per cement design for 7" x 5 1/2" casing and PPO representative. Bump plug to 500 psi over pump pressure. Drop plug behind good cement. Chase plug with 10 bbls sugar water or as directed by PPO Rep. Record cement to surface on IADC report.

27. Hang casing in minimum tension needed for pack off on wellhead. Close cement head for 8 hours.

28. WOC 8 hours before cutting off per BLM rules.

29. Nipple down BOP's and cut off casing and install 7" 10M x 11" 3M tubing head with 2 x 1-13/16" valves on one side and blind cap and BR plug on other side. Install with a blind flange and needle valve for completions.

30. Clean and jet pits. Release rig.

31. MAKE SURE LOCATION IS CLEAN BEFORE YOU LEAVE!!

REQUIREMENTS

1. All drill pipe and drill collars to be inspected by PPO representative and a total count of all joints on location.
2. Long string to be hydro tested before leaving yard.
3. Check all casing on location. Threads, size and weight.
4. All casing to be torqued to optimal torque.
5. All shoe tracks to be thread locked.

6. Mud Logger will tell what footage to catch samples.
7. Keep bit record and grade bits.
8. Check all float equipment for correct size and threads.
9. Sign and keep copies of field tickets to turn in to office.
10. Notify all State and Federal offices of events and record in morning report. (Date / Time / Name Of Person Talked To).
11. Check and make sure all bond coating and centralizers are in proper places.
12. PPO supervisor to be sure all casing tallies are correctly done.
13. PPO supervisor to check and ensure drill pipe tally is correct.
14. Record release dates of equipment on location.
15. Pre job safety meeting with all companies before job begins.
16. On rig floor when picking up BHA and making up float equipment.
17. Witness all testing and cement jobs.
18. Make sure that everything that is reported on IADC is correct.
19. Make sure all mud is correctly mixed by rig crews.
20. All accidents to be reported to office ASAP and a accident form sent in to office within 24 hours.
21. All trash is off location and lease road is clean at all times.
22. All records are kept as TIGHT HOLE and are not released.
23. Well record is sealed and sent to Artesia Office or is delivered to PPO supervisor to Artesia Office.

VENDOR LIST

COMPANY	SERVICE	CONTACT NAME	CONTACT NUMBER
TBD	Drilling Rig		
TBD	Directional Company		
TBD	Mud		
TBD	Cement		
NA	DST		
TBD	PVT's & Rig Monitor		
TBD	Mud Logging		
TBD	Conductor		
TBD	Closed Loop System		
TBD	Casing Crew & LD Machine		
TBD	Location & Road		
TBD	Stabilizers		
TBD	Float Equipment		
TBD	Open Hole Logging		
TBD	H2S Equipment		
TBD	Location & Trash Trailers		
TBD	Living Quarters		
TBD	Welder		
TBD	Forklift & Trucking		
TBD	Water		

TBD	Rotating Head

PERSONNEL LIST

TBD, Drilling Foreman
Cell

Lelan J Anders, Engineering/Operations
Office 713-429-1291
Cell 281-908-1752

Ryan Barber, Engineering/Operations
Office 713-300-1853
Cell 979-292-6279

C.J. Lipinski, Geology
Office 713-429-5282
Cell 262-894-2811

Josh Grisham, Land
Office 713-589-2337
Cell 979-417-6858

Percussion Petroleum, LLC

Eddy County, NM
Carter Collier 5 Fed Com
#14H

OH
Plan #1

Anticollision Report

01 November, 2018

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,500.00 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 11/1/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	8,562.21	Plan #1 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Carter Collier 5 Fed Com						
#10H - OH - Plan #1	454.14	477.14	1,053.39	1,050.47	360.881	CC
#10H - OH - Plan #1	500.00	516.82	1,053.45	1,050.23	326.860	ES
#10H - OH - Plan #1	8,562.21	8,553.48	1,936.69	1,622.97	6.173	SF
#11H - OH - Plan #1	454.14	477.14	1,034.89	1,031.98	354.543	CC
#11H - OH - Plan #1	500.00	520.47	1,034.92	1,031.69	319.717	ES
#11H - OH - Plan #1	8,562.21	8,638.61	1,464.48	1,152.18	4.689	SF
#12H - OH - Plan #1	500.00	501.00	40.21	37.04	12.688	CC, ES
#12H - OH - Plan #1	8,562.21	8,589.28	976.54	657.79	3.064	SF
#13H - OH - Plan #1	500.00	500.00	19.70	16.54	6.224	CC
#13H - OH - Plan #1	550.00	549.99	19.99	16.47	5.681	ES
#13H - OH - Plan #1	8,550.00	8,663.35	519.78	214.06	1.700	SF

Offset Design Carter Collier 5 Fed Com - #10H - OH - Plan #1 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	23.00	0.00	0.00	0.03	-164.303	-1,014.10	-285.00	1,053.39				
50.00	50.00	73.00	50.00	0.06	0.11	-164.303	-1,014.10	-285.00	1,053.39	1,053.22	0.17	6,279.618	
100.00	100.00	123.00	100.00	0.15	0.23	-164.303	-1,014.10	-285.00	1,053.39	1,053.01	0.38	2,772.215	
150.00	150.00	173.00	150.00	0.33	0.41	-164.303	-1,014.10	-285.00	1,053.39	1,052.65	0.74	1,426.480	
200.00	200.00	223.00	200.00	0.51	0.59	-164.303	-1,014.10	-285.00	1,053.39	1,052.29	1.10	960.310	
250.00	250.00	273.00	250.00	0.69	0.77	-164.303	-1,014.10	-285.00	1,053.39	1,051.93	1.46	723.781	
300.00	300.00	323.00	300.00	0.87	0.95	-164.303	-1,014.10	-285.00	1,053.39	1,051.57	1.81	580.741	
350.00	350.00	373.00	350.00	1.04	1.13	-164.303	-1,014.10	-285.00	1,053.39	1,051.21	2.17	484.909	
400.00	400.00	423.00	400.00	1.22	1.31	-164.303	-1,014.10	-285.00	1,053.39	1,050.86	2.53	416.225	
450.00	450.00	473.00	450.00	1.40	1.49	-164.303	-1,014.10	-285.00	1,053.39	1,050.50	2.89	364.584	
454.14	454.14	477.14	454.14	1.42	1.50	-164.303	-1,014.10	-285.00	1,053.39	1,050.47	2.92	360.881	CC
500.00	500.00	516.82	493.82	1.58	1.64	-164.303	-1,014.15	-285.01	1,053.45	1,050.23	3.22	326.860	ES
550.00	550.00	553.37	530.36	1.76	1.77	-111.867	-1,014.58	-285.13	1,054.23	1,050.70	3.53	298.961	
600.00	599.98	589.87	566.86	1.94	1.89	-111.884	-1,015.46	-285.36	1,055.97	1,052.14	3.83	275.757	
650.00	649.93	626.31	603.27	2.12	2.01	-111.915	-1,016.79	-285.71	1,058.67	1,054.54	4.13	256.282	
700.00	699.84	662.65	639.56	2.30	2.14	-111.959	-1,018.56	-286.18	1,062.33	1,057.90	4.43	239.760	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #10H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
750.00	749.68	700.00	676.84	2.48	2.26	-112.022	-1,020.85	-286.79	1,066.96	1,062.23	4.74	225.248	
800.00	799.45	734.88	711.61	2.66	2.38	-112.086	-1,023.40	-287.46	1,072.56	1,067.52	5.04	212.888	
850.00	849.13	770.71	747.31	2.85	2.51	-112.166	-1,026.46	-288.27	1,079.12	1,073.77	5.35	201.803	
900.00	898.70	800.00	776.45	3.04	2.61	-112.211	-1,029.27	-289.02	1,086.68	1,081.04	5.63	192.942	
950.00	948.15	841.67	817.86	3.25	2.77	-112.352	-1,033.77	-290.21	1,095.15	1,089.18	5.97	183.364	
1,000.00	997.47	876.74	852.65	3.45	2.90	-112.455	-1,038.01	-291.33	1,104.62	1,098.33	6.29	175.685	
1,050.00	1,046.63	911.49	887.08	3.67	3.03	-112.564	-1,042.62	-292.55	1,115.06	1,108.45	6.61	168.651	
1,100.00	1,095.62	945.91	921.11	3.89	3.17	-112.675	-1,047.58	-293.86	1,126.48	1,119.54	6.94	162.423	
1,150.00	1,144.44	979.96	954.72	4.12	3.30	-112.787	-1,052.88	-295.26	1,138.86	1,131.59	7.27	156.702	
1,200.00	1,193.06	1,013.63	987.88	4.36	3.44	-112.898	-1,058.49	-296.75	1,152.21	1,144.61	7.60	151.591	
1,250.00	1,241.46	1,046.88	1,020.57	4.62	3.59	-113.007	-1,064.41	-298.32	1,166.53	1,158.59	7.95	146.799	
1,300.00	1,289.64	1,079.71	1,052.76	4.88	3.73	-113.111	-1,070.61	-299.96	1,181.82	1,173.53	8.29	142.617	
1,350.00	1,337.58	1,112.08	1,084.43	5.16	3.87	-113.209	-1,077.07	-301.67	1,198.06	1,189.42	8.64	138.629	
1,400.00	1,385.27	1,143.97	1,115.56	5.45	4.02	-113.298	-1,083.78	-303.44	1,215.27	1,206.27	8.99	135.113	
1,450.00	1,432.68	1,175.38	1,146.14	5.75	4.17	-113.377	-1,090.71	-305.27	1,233.42	1,224.06	9.36	131.778	
1,500.00	1,479.82	1,200.00	1,170.06	6.07	4.29	-113.352	-1,096.36	-306.77	1,252.54	1,242.85	9.69	129.316	
1,550.00	1,526.65	1,236.66	1,205.57	6.40	4.48	-113.498	-1,105.16	-309.10	1,272.54	1,262.45	10.09	126.093	
1,600.00	1,573.17	1,266.50	1,234.39	6.74	4.63	-113.537	-1,112.64	-311.08	1,293.50	1,283.04	10.46	123.658	
1,650.00	1,619.36	1,300.00	1,266.64	7.11	4.80	-113.627	-1,121.38	-313.39	1,315.38	1,304.51	10.87	120.998	
1,700.00	1,665.25	1,324.55	1,290.22	7.48	4.94	-113.774	-1,128.02	-315.15	1,338.11	1,326.88	11.23	119.171	
1,750.00	1,711.09	1,352.99	1,317.45	7.87	5.10	-114.231	-1,135.96	-317.25	1,361.47	1,349.86	11.61	117.253	
1,800.00	1,756.92	1,383.55	1,346.61	8.26	5.27	-114.709	-1,144.77	-319.58	1,385.40	1,373.39	12.00	115.424	
1,850.00	1,802.76	1,424.93	1,386.08	8.65	5.51	-115.338	-1,156.81	-322.77	1,409.60	1,397.13	12.47	113.081	
1,900.00	1,848.59	1,466.32	1,425.54	9.04	5.76	-115.948	-1,168.86	-325.96	1,433.94	1,421.02	12.93	110.926	
1,950.00	1,894.43	1,507.70	1,465.00	9.44	6.00	-116.540	-1,180.90	-329.15	1,458.42	1,445.03	13.39	108.887	
2,000.00	1,940.27	1,549.09	1,504.47	9.85	6.25	-117.113	-1,192.95	-332.33	1,483.03	1,469.17	13.86	107.006	
2,050.00	1,986.10	1,609.53	1,543.93	10.25	6.62	-117.670	-1,204.99	-335.52	1,507.75	1,493.35	14.41	104.666	
2,100.00	2,031.94	1,631.86	1,583.40	10.66	6.76	-118.211	-1,217.04	-338.71	1,532.60	1,517.80	14.80	103.581	
2,150.00	2,077.77	1,673.24	1,622.86	11.07	7.02	-118.736	-1,229.08	-341.90	1,557.55	1,542.28	15.27	102.022	
2,200.00	2,123.61	1,714.62	1,662.32	11.48	7.27	-119.245	-1,241.13	-345.09	1,582.60	1,566.86	15.74	100.570	
2,250.00	2,169.44	1,756.01	1,701.79	11.89	7.53	-119.740	-1,253.17	-348.27	1,607.75	1,591.54	16.21	99.194	
2,300.00	2,215.28	1,797.39	1,741.25	12.30	7.79	-120.221	-1,265.22	-351.46	1,633.00	1,616.32	16.68	97.909	
2,350.00	2,261.12	1,838.78	1,780.72	12.72	8.05	-120.688	-1,277.26	-354.65	1,658.34	1,641.19	17.15	96.688	
2,400.00	2,306.95	1,880.16	1,820.18	13.13	8.32	-121.143	-1,289.31	-357.84	1,683.76	1,666.14	17.62	95.543	
2,450.00	2,352.79	1,921.55	1,859.65	13.55	8.58	-121.585	-1,301.35	-361.03	1,709.27	1,691.18	18.10	94.457	
2,500.00	2,398.52	1,962.92	1,899.10	13.97	8.84	-116.417	-1,313.40	-364.21	1,734.66	1,716.09	18.57	93.405	
2,550.00	2,443.33	2,004.13	1,938.39	14.42	9.11	-106.680	-1,325.39	-367.39	1,758.56	1,739.48	19.08	92.150	
2,600.00	2,486.77	2,044.85	1,977.23	14.92	9.37	-99.051	-1,337.24	-370.52	1,780.64	1,761.00	19.64	90.662	
2,650.00	2,528.49	2,084.79	2,015.31	15.44	9.63	-93.104	-1,348.87	-373.60	1,800.84	1,780.60	20.24	88.965	
2,700.00	2,568.20	2,123.63	2,052.35	16.01	9.88	-88.472	-1,360.17	-376.59	1,819.14	1,798.25	20.89	87.088	
2,750.00	2,605.57	2,161.08	2,088.06	16.61	10.12	-84.865	-1,371.07	-379.48	1,835.53	1,813.95	21.58	85.063	
2,800.00	2,641.03	2,202.68	2,122.62	17.24	10.39	-84.541	-1,381.62	-382.27	1,850.64	1,828.32	22.33	82.883	
2,850.00	2,676.39	2,869.90	2,700.09	17.89	14.73	-91.577	-1,480.43	-652.90	1,860.74	1,831.96	28.79	64.642	
2,900.00	2,711.74	2,919.89	2,735.44	18.55	15.15	-91.577	-1,479.99	-688.25	1,861.22	1,831.15	30.07	61.905	
2,950.00	2,747.10	2,970.91	2,771.32	19.22	15.63	-91.568	-1,479.53	-724.50	1,861.69	1,830.27	31.42	59.259	
3,000.00	2,781.65	3,023.78	2,805.73	19.92	16.19	-91.448	-1,479.03	-764.62	1,862.13	1,829.25	32.88	56.635	
3,050.00	2,813.06	3,076.34	2,836.12	20.69	16.83	-91.299	-1,478.49	-807.48	1,862.60	1,828.12	34.49	54.008	
3,100.00	2,840.95	3,128.58	2,862.31	21.53	17.54	-91.141	-1,477.92	-852.65	1,863.12	1,826.88	36.24	51.415	
3,150.00	2,865.13	3,180.47	2,884.15	22.43	18.34	-90.973	-1,477.33	-899.70	1,863.66	1,825.54	38.12	48.894	
3,200.00	2,885.40	3,232.02	2,901.54	23.39	19.20	-90.799	-1,476.72	-948.21	1,864.24	1,824.13	40.11	46.476	
3,250.00	2,901.61	3,283.21	2,914.43	24.39	20.13	-90.619	-1,476.10	-997.73	1,864.84	1,822.64	42.20	44.186	
3,300.00	2,913.64	3,334.05	2,922.80	25.44	21.11	-90.435	-1,475.47	-1,047.85	1,865.47	1,821.10	44.37	42.042	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #10H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,350.00	2,921.40	3,384.53	2,926.69	26.52	22.12	-90.248	-1,474.84	-1,098.16	1,866.12	1,819.53	46.59	40.053	
3,400.00	2,924.82	3,434.57	2,927.00	27.63	23.16	-90.086	-1,474.21	-1,148.19	1,866.79	1,817.94	48.85	38.218	
3,450.00	2,925.00	3,484.56	2,927.00	28.74	24.22	-90.061	-1,473.58	-1,198.18	1,867.46	1,816.33	51.13	36.526	
3,500.00	2,925.00	3,534.56	2,927.00	29.87	25.31	-90.061	-1,472.95	-1,248.18	1,868.13	1,814.70	53.44	34.960	
3,550.00	2,925.00	3,584.55	2,927.00	31.02	26.42	-90.061	-1,472.33	-1,298.17	1,868.80	1,813.02	55.78	33.503	
3,600.00	2,925.00	3,634.55	2,927.00	32.18	27.55	-90.061	-1,471.70	-1,348.16	1,869.48	1,811.33	58.14	32.153	
3,650.00	2,925.00	3,684.54	2,927.00	33.35	28.70	-90.061	-1,471.07	-1,398.15	1,870.15	1,809.62	60.53	30.894	
3,700.00	2,925.00	3,734.54	2,927.00	34.53	29.86	-90.061	-1,470.44	-1,448.14	1,870.82	1,807.88	62.94	29.724	
3,750.00	2,925.00	3,784.53	2,927.00	35.73	31.04	-90.061	-1,469.81	-1,498.13	1,871.49	1,806.13	65.37	28.630	
3,800.00	2,925.00	3,834.53	2,927.00	36.93	32.22	-90.061	-1,469.18	-1,548.12	1,872.17	1,804.36	67.81	27.610	
3,850.00	2,925.00	3,884.53	2,927.00	38.14	33.42	-90.061	-1,468.56	-1,598.12	1,872.84	1,802.57	70.26	26.654	
3,900.00	2,925.00	3,934.52	2,927.00	39.35	34.63	-90.061	-1,467.93	-1,648.11	1,873.51	1,800.78	72.73	25.759	
3,950.00	2,925.00	3,984.52	2,927.00	40.57	35.84	-90.061	-1,467.30	-1,698.10	1,874.18	1,798.97	75.21	24.919	
4,000.00	2,925.00	4,034.51	2,927.00	41.80	37.06	-90.061	-1,466.67	-1,748.09	1,874.86	1,797.16	77.70	24.129	
4,050.00	2,925.00	4,084.51	2,927.00	43.04	38.29	-90.061	-1,466.04	-1,798.08	1,875.53	1,795.33	80.20	23.385	
4,100.00	2,925.00	4,134.50	2,927.00	44.27	39.53	-90.061	-1,465.42	-1,848.07	1,876.20	1,793.49	82.71	22.685	
4,150.00	2,925.00	4,184.50	2,927.00	45.52	40.76	-90.061	-1,464.79	-1,898.07	1,876.87	1,791.65	85.22	22.023	
4,200.00	2,925.00	4,234.49	2,927.00	46.76	42.01	-90.061	-1,464.16	-1,948.06	1,877.55	1,789.80	87.75	21.398	
4,250.00	2,925.00	4,284.49	2,927.00	48.01	43.26	-90.061	-1,463.53	-1,998.05	1,878.22	1,787.94	90.27	20.806	
4,300.00	2,925.00	4,334.48	2,927.00	49.27	44.51	-90.061	-1,462.90	-2,048.04	1,878.89	1,786.08	92.81	20.245	
4,350.00	2,925.00	4,384.48	2,927.00	50.53	45.77	-90.061	-1,462.28	-2,098.03	1,879.56	1,784.21	95.35	19.712	
4,400.00	2,925.00	4,434.48	2,927.00	51.78	47.03	-90.061	-1,461.65	-2,148.02	1,880.24	1,782.34	97.89	19.207	
4,450.00	2,925.00	4,484.47	2,927.00	53.05	48.29	-90.061	-1,461.02	-2,198.01	1,880.91	1,780.46	100.44	18.726	
4,500.00	2,925.00	4,534.47	2,927.00	54.31	49.56	-90.061	-1,460.39	-2,248.01	1,881.58	1,778.58	103.00	18.268	
4,550.00	2,925.00	4,584.46	2,927.00	55.58	50.83	-90.061	-1,459.76	-2,298.00	1,882.25	1,776.70	105.56	17.832	
4,600.00	2,925.00	4,634.46	2,927.00	56.85	52.10	-90.061	-1,459.14	-2,347.99	1,882.93	1,774.81	108.12	17.416	
4,650.00	2,925.00	4,684.45	2,927.00	58.13	53.37	-90.061	-1,458.51	-2,397.98	1,883.60	1,772.92	110.68	17.018	
4,700.00	2,925.00	4,734.45	2,927.00	59.40	54.65	-90.061	-1,457.88	-2,447.97	1,884.27	1,771.02	113.25	16.638	
4,750.00	2,925.00	4,784.44	2,927.00	60.68	55.92	-90.061	-1,457.25	-2,497.96	1,884.94	1,769.12	115.82	16.275	
4,800.00	2,925.00	4,834.44	2,927.00	61.96	57.20	-90.061	-1,456.62	-2,547.96	1,885.62	1,767.22	118.40	15.926	
4,850.00	2,925.00	4,884.43	2,927.00	63.24	58.48	-90.061	-1,455.99	-2,597.95	1,886.29	1,765.32	120.97	15.593	
4,900.00	2,925.00	4,934.43	2,927.00	64.52	59.77	-90.061	-1,455.37	-2,647.94	1,886.96	1,763.41	123.55	15.273	
4,950.00	2,925.00	4,984.43	2,927.00	65.80	61.05	-90.061	-1,454.74	-2,697.93	1,887.63	1,761.50	126.13	14.965	
5,000.00	2,925.00	5,034.42	2,927.00	67.09	62.34	-90.061	-1,454.11	-2,747.92	1,888.31	1,759.59	128.72	14.670	
5,050.00	2,925.00	5,084.42	2,927.00	68.37	63.62	-90.061	-1,453.48	-2,797.91	1,888.98	1,757.68	131.30	14.387	
5,100.00	2,925.00	5,134.41	2,927.00	69.66	64.91	-90.061	-1,452.85	-2,847.90	1,889.65	1,755.76	133.89	14.114	
5,150.00	2,925.00	5,184.41	2,927.00	70.95	66.20	-90.061	-1,452.23	-2,897.90	1,890.32	1,753.85	136.48	13.851	
5,200.00	2,925.00	5,234.40	2,927.00	72.24	67.49	-90.061	-1,451.60	-2,947.89	1,891.00	1,751.93	139.07	13.598	
5,250.00	2,925.00	5,284.40	2,927.00	73.53	68.78	-90.061	-1,450.97	-2,997.88	1,891.67	1,750.01	141.66	13.353	
5,300.00	2,925.00	5,334.39	2,927.00	74.82	70.07	-90.061	-1,450.34	-3,047.87	1,892.34	1,748.09	144.26	13.118	
5,350.00	2,925.00	5,384.39	2,927.00	76.11	71.37	-90.061	-1,449.71	-3,097.86	1,893.01	1,746.16	146.85	12.891	
5,400.00	2,925.00	5,434.39	2,927.00	77.40	72.66	-90.061	-1,449.09	-3,147.85	1,893.69	1,744.24	149.45	12.671	
5,450.00	2,925.00	5,484.38	2,927.00	78.70	73.96	-90.060	-1,448.46	-3,197.85	1,894.36	1,742.31	152.05	12.459	
5,500.00	2,925.00	5,534.38	2,927.00	79.99	75.25	-90.060	-1,447.83	-3,247.84	1,895.03	1,740.39	154.65	12.254	
5,550.00	2,925.00	5,584.37	2,927.00	81.29	76.55	-90.060	-1,447.20	-3,297.83	1,895.70	1,738.46	157.25	12.056	
5,600.00	2,925.00	5,634.37	2,927.00	82.58	77.84	-90.060	-1,446.57	-3,347.82	1,896.38	1,736.53	159.85	11.864	
5,650.00	2,925.00	5,684.36	2,927.00	83.88	79.14	-90.060	-1,445.94	-3,397.81	1,897.05	1,734.60	162.45	11.678	
5,700.00	2,925.00	5,734.36	2,927.00	85.18	80.44	-90.060	-1,445.32	-3,447.80	1,897.72	1,732.67	165.05	11.498	
5,750.00	2,925.00	5,784.35	2,927.00	86.48	81.74	-90.060	-1,444.69	-3,497.79	1,898.39	1,730.73	167.66	11.323	
5,800.00	2,925.00	5,834.35	2,927.00	87.77	83.04	-90.060	-1,444.06	-3,547.79	1,899.07	1,728.80	170.26	11.154	
5,850.00	2,925.00	5,884.34	2,927.00	89.07	84.34	-90.060	-1,443.43	-3,597.78	1,899.74	1,726.87	172.87	10.989	
5,900.00	2,925.00	5,934.34	2,927.00	90.37	85.64	-90.060	-1,442.80	-3,647.77	1,900.41	1,724.93	175.48	10.830	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #10H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,950.00	2,925.00	5,984.34	2,927.00	91.67	86.94	-90.060	-1,442.18	-3,697.76	1,901.08	1,723.00	178.09	10.675	
6,000.00	2,925.00	6,034.33	2,927.00	92.97	88.24	-90.060	-1,441.55	-3,747.75	1,901.76	1,721.06	180.70	10.525	
6,050.00	2,925.00	6,084.33	2,927.00	94.28	89.54	-90.060	-1,440.92	-3,797.74	1,902.43	1,719.12	183.31	10.378	
6,100.00	2,925.00	6,134.32	2,927.00	95.58	90.85	-90.060	-1,440.29	-3,847.74	1,903.10	1,717.18	185.92	10.236	
6,150.00	2,925.00	6,184.32	2,927.00	96.88	92.15	-90.060	-1,439.66	-3,897.73	1,903.77	1,715.25	188.53	10.098	
6,200.00	2,925.00	6,234.31	2,927.00	98.18	93.45	-90.060	-1,439.04	-3,947.72	1,904.45	1,713.31	191.14	9.964	
6,250.00	2,925.00	6,284.31	2,927.00	99.48	94.76	-90.060	-1,438.41	-3,997.71	1,905.12	1,711.37	193.75	9.833	
6,300.00	2,925.00	6,334.30	2,927.00	100.79	96.06	-90.060	-1,437.78	-4,047.70	1,905.79	1,709.43	196.36	9.705	
6,350.00	2,925.00	6,384.30	2,927.00	102.09	97.36	-90.060	-1,437.15	-4,097.69	1,906.46	1,707.49	198.98	9.581	
6,400.00	2,925.00	6,434.29	2,927.00	103.40	98.67	-90.060	-1,436.52	-4,147.68	1,907.14	1,705.54	201.59	9.460	
6,450.00	2,925.00	6,484.29	2,927.00	104.70	99.97	-90.060	-1,435.90	-4,197.68	1,907.81	1,703.60	204.21	9.343	
6,500.00	2,925.00	6,534.29	2,927.00	106.00	101.28	-90.060	-1,435.27	-4,247.67	1,908.48	1,701.66	206.82	9.228	
6,550.00	2,925.00	6,584.28	2,927.00	107.31	102.59	-90.060	-1,434.64	-4,297.66	1,909.15	1,699.72	209.44	9.116	
6,600.00	2,925.00	6,634.28	2,927.00	108.62	103.89	-90.060	-1,434.01	-4,347.65	1,909.83	1,697.77	212.05	9.006	
6,650.00	2,925.00	6,684.27	2,927.00	109.92	105.20	-90.060	-1,433.38	-4,397.64	1,910.50	1,695.83	214.67	8.900	
6,700.00	2,925.00	6,734.27	2,927.00	111.23	106.50	-90.060	-1,432.75	-4,447.63	1,911.17	1,693.88	217.29	8.796	
6,750.00	2,925.00	6,784.26	2,927.00	112.53	107.81	-90.060	-1,432.13	-4,497.63	1,911.84	1,691.94	219.90	8.694	
6,800.00	2,925.00	6,834.26	2,927.00	113.84	109.12	-90.060	-1,431.50	-4,547.62	1,912.52	1,689.99	222.52	8.595	
6,850.00	2,925.00	6,884.25	2,927.00	115.15	110.42	-90.060	-1,430.87	-4,597.61	1,913.19	1,688.05	225.14	8.498	
6,900.00	2,925.00	6,934.25	2,927.00	116.45	111.73	-90.060	-1,430.24	-4,647.60	1,913.86	1,686.10	227.76	8.403	
6,950.00	2,925.00	6,984.25	2,927.00	117.76	113.04	-90.060	-1,429.61	-4,697.59	1,914.53	1,684.16	230.38	8.310	
7,000.00	2,925.00	7,034.24	2,927.00	119.07	114.35	-90.060	-1,428.99	-4,747.58	1,915.20	1,682.21	232.99	8.220	
7,050.00	2,925.00	7,084.24	2,927.00	120.38	115.66	-90.060	-1,428.36	-4,797.57	1,915.88	1,680.26	235.61	8.131	
7,100.00	2,925.00	7,134.23	2,927.00	121.68	116.96	-90.060	-1,427.73	-4,847.57	1,916.55	1,678.32	238.23	8.045	
7,150.00	2,925.00	7,184.23	2,927.00	122.99	118.27	-90.060	-1,427.10	-4,897.56	1,917.22	1,676.37	240.85	7.960	
7,200.00	2,925.00	7,234.22	2,927.00	124.30	119.58	-90.060	-1,426.47	-4,947.55	1,917.89	1,674.42	243.48	7.877	
7,250.00	2,925.00	7,284.22	2,927.00	125.61	120.89	-90.060	-1,425.85	-4,997.54	1,918.57	1,672.47	246.10	7.796	
7,300.00	2,925.00	7,334.21	2,927.00	126.92	122.20	-90.060	-1,425.22	-5,047.53	1,919.24	1,670.52	248.72	7.717	
7,350.00	2,925.00	7,384.21	2,927.00	128.23	123.51	-90.060	-1,424.59	-5,097.52	1,919.91	1,668.57	251.34	7.639	
7,400.00	2,925.00	7,434.20	2,927.00	129.54	124.82	-90.060	-1,423.96	-5,147.52	1,920.58	1,666.62	253.96	7.563	
7,450.00	2,925.00	7,484.20	2,927.00	130.85	126.13	-90.060	-1,423.33	-5,197.51	1,921.26	1,664.68	256.58	7.488	
7,500.00	2,925.00	7,534.20	2,927.00	132.16	127.44	-90.060	-1,422.71	-5,247.50	1,921.93	1,662.73	259.20	7.415	
7,550.00	2,925.00	7,584.19	2,927.00	133.47	128.75	-90.060	-1,422.08	-5,297.49	1,922.60	1,660.78	261.83	7.343	
7,600.00	2,925.00	7,634.19	2,927.00	134.78	130.06	-90.060	-1,421.45	-5,347.48	1,923.27	1,658.83	264.45	7.273	
7,650.00	2,925.00	7,684.18	2,927.00	136.09	131.37	-90.060	-1,420.82	-5,397.47	1,923.95	1,656.87	267.07	7.204	
7,700.00	2,925.00	7,734.18	2,927.00	137.40	132.68	-90.060	-1,420.19	-5,447.46	1,924.62	1,654.92	269.70	7.136	
7,750.00	2,925.00	7,784.17	2,927.00	138.71	133.99	-90.060	-1,419.56	-5,497.46	1,925.29	1,652.97	272.32	7.070	
7,800.00	2,925.00	7,834.17	2,927.00	140.02	135.30	-90.059	-1,418.94	-5,547.45	1,925.96	1,651.02	274.94	7.005	
7,850.00	2,925.00	7,884.16	2,927.00	141.33	136.61	-90.059	-1,418.31	-5,597.44	1,926.64	1,649.07	277.57	6.941	
7,900.00	2,925.00	7,934.16	2,927.00	142.64	137.92	-90.059	-1,417.68	-5,647.43	1,927.31	1,647.12	280.19	6.879	
7,950.00	2,925.00	7,984.15	2,927.00	143.95	139.23	-90.059	-1,417.05	-5,697.42	1,927.98	1,645.17	282.81	6.817	
8,000.00	2,925.00	8,034.15	2,927.00	145.26	140.54	-90.059	-1,416.42	-5,747.41	1,928.65	1,643.22	285.44	6.757	
8,050.00	2,925.00	8,084.15	2,927.00	146.57	141.85	-90.059	-1,415.80	-5,797.41	1,929.33	1,641.26	288.06	6.698	
8,100.00	2,925.00	8,134.14	2,927.00	147.88	143.16	-90.059	-1,415.17	-5,847.40	1,930.00	1,639.31	290.69	6.639	
8,150.00	2,925.00	8,184.14	2,927.00	149.19	144.47	-90.059	-1,414.54	-5,897.39	1,930.67	1,637.36	293.31	6.582	
8,200.00	2,925.00	8,234.13	2,927.00	150.50	145.79	-90.059	-1,413.91	-5,947.38	1,931.34	1,635.41	295.94	6.526	
8,250.00	2,925.00	8,284.13	2,927.00	151.82	147.10	-90.059	-1,413.28	-5,997.37	1,932.02	1,633.45	298.56	6.471	
8,300.00	2,925.00	8,334.12	2,927.00	153.13	148.41	-90.059	-1,412.66	-6,047.36	1,932.69	1,631.50	301.19	6.417	
8,350.00	2,925.00	8,384.12	2,927.00	154.44	149.72	-90.059	-1,412.03	-6,097.35	1,933.36	1,629.55	303.81	6.364	
8,400.00	2,925.00	8,434.11	2,927.00	155.75	151.03	-90.059	-1,411.40	-6,147.35	1,934.03	1,627.59	306.44	6.311	
8,450.00	2,925.00	8,484.11	2,927.00	157.06	152.34	-90.059	-1,410.77	-6,197.34	1,934.71	1,625.64	309.07	6.260	
8,500.00	2,925.00	8,534.10	2,927.00	158.38	153.66	-90.059	-1,410.14	-6,247.33	1,935.38	1,623.69	311.69	6.209	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #10H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,550.00	2,925.00	8,553.48	2,927.00	159.69	154.16	-90.059	-1,409.90	-6,266.70	1,936.29	1,622.85	313.45	6.177	
8,562.21	2,925.00	8,553.48	2,927.00	160.01	154.16	-90.059	-1,409.90	-6,266.70	1,936.69	1,622.97	313.72	6.173	SF

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #11H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	23.00	0.00	0.00	0.03	-163.859	-994.10	-287.70	1,034.89				
50.00	50.00	73.00	50.00	0.06	0.11	-163.859	-994.10	-287.70	1,034.89	1,034.73	0.17	6,169.377	
100.00	100.00	123.00	100.00	0.15	0.23	-163.859	-994.10	-287.70	1,034.89	1,034.51	0.38	2,723.548	
150.00	150.00	173.00	150.00	0.33	0.41	-163.859	-994.10	-287.70	1,034.89	1,034.16	0.74	1,401.438	
200.00	200.00	223.00	200.00	0.51	0.59	-163.859	-994.10	-287.70	1,034.89	1,033.80	1.10	943.452	
250.00	250.00	273.00	250.00	0.69	0.77	-163.859	-994.10	-287.70	1,034.89	1,033.44	1.46	711.075	
300.00	300.00	323.00	300.00	0.87	0.95	-163.859	-994.10	-287.70	1,034.89	1,033.08	1.81	570.546	
350.00	350.00	373.00	350.00	1.04	1.13	-163.859	-994.10	-287.70	1,034.89	1,032.72	2.17	476.397	
400.00	400.00	423.00	400.00	1.22	1.31	-163.859	-994.10	-287.70	1,034.89	1,032.36	2.53	408.918	
450.00	450.00	473.00	450.00	1.40	1.49	-163.859	-994.10	-287.70	1,034.89	1,032.00	2.89	358.184	
454.14	454.14	477.14	454.14	1.42	1.50	-163.859	-994.10	-287.70	1,034.89	1,031.98	2.92	354.543	CC
500.00	500.00	520.47	497.47	1.58	1.65	-163.855	-994.10	-287.77	1,034.92	1,031.69	3.24	319.717	ES
550.00	550.00	564.97	541.96	1.76	1.81	-111.396	-994.15	-288.43	1,035.34	1,031.77	3.57	289.947	
600.00	599.98	609.45	586.42	1.94	1.97	-111.367	-994.24	-289.79	1,036.34	1,032.43	3.90	265.431	
650.00	649.93	653.91	630.84	2.12	2.12	-111.331	-994.38	-291.82	1,037.92	1,033.68	4.24	244.907	
700.00	699.84	700.77	676.07	2.30	2.29	-111.289	-994.56	-294.60	1,040.08	1,035.50	4.58	227.071	
750.00	749.68	749.16	725.89	2.48	2.46	-111.270	-994.79	-297.92	1,042.65	1,037.71	4.94	211.232	
800.00	799.45	800.94	775.67	2.66	2.64	-111.289	-995.01	-301.24	1,045.54	1,040.23	5.30	197.111	
850.00	849.13	848.91	825.41	2.85	2.82	-111.347	-995.24	-304.56	1,048.75	1,043.08	5.67	185.031	
900.00	898.70	901.30	875.09	3.04	3.01	-111.441	-995.46	-307.87	1,052.28	1,046.23	6.05	173.977	
950.00	948.15	948.40	924.69	3.25	3.18	-111.572	-995.68	-311.18	1,056.14	1,049.72	6.42	164.491	
1,000.00	997.47	1,001.98	974.20	3.45	3.38	-111.739	-995.90	-314.48	1,060.33	1,053.52	6.82	155.534	
1,050.00	1,046.63	1,047.53	1,023.59	3.67	3.55	-111.941	-996.13	-317.78	1,064.88	1,057.68	7.20	147.937	
1,100.00	1,095.62	1,103.09	1,072.87	3.89	3.75	-112.175	-996.35	-321.06	1,069.77	1,062.16	7.62	140.454	
1,150.00	1,144.44	1,146.16	1,122.01	4.12	3.91	-112.442	-996.57	-324.34	1,075.04	1,067.03	8.00	134.304	
1,200.00	1,193.06	1,204.74	1,170.99	4.36	4.13	-112.740	-996.79	-327.61	1,080.68	1,072.23	8.45	127.880	
1,250.00	1,241.46	1,244.18	1,219.81	4.62	4.28	-113.066	-997.01	-330.86	1,086.72	1,077.87	8.84	122.881	
1,300.00	1,289.64	1,307.08	1,268.44	4.88	4.51	-113.420	-997.23	-334.11	1,093.16	1,083.84	9.32	117.244	
1,350.00	1,337.58	1,341.47	1,316.88	5.16	4.64	-113.800	-997.44	-337.34	1,100.04	1,090.32	9.72	113.200	
1,400.00	1,385.27	1,389.80	1,365.10	5.45	4.82	-114.204	-997.66	-340.55	1,107.35	1,097.19	10.16	108.961	
1,450.00	1,432.68	1,437.90	1,413.10	5.75	5.00	-114.631	-997.88	-343.76	1,115.13	1,104.50	10.63	104.924	
1,500.00	1,479.82	1,485.76	1,460.85	6.07	5.18	-115.077	-998.09	-346.94	1,123.38	1,112.29	11.09	101.287	
1,550.00	1,526.65	1,533.37	1,508.35	6.40	5.36	-115.542	-998.31	-350.11	1,132.13	1,120.56	11.57	97.811	
1,600.00	1,573.17	1,580.70	1,555.58	6.74	5.54	-116.023	-998.52	-353.26	1,141.40	1,129.34	12.06	94.680	
1,650.00	1,619.36	1,627.75	1,602.52	7.11	5.71	-116.519	-998.73	-356.39	1,151.20	1,138.65	12.55	91.701	
1,700.00	1,665.25	1,674.53	1,649.19	7.48	5.89	-117.110	-998.94	-359.50	1,161.52	1,148.46	13.05	88.984	
1,750.00	1,711.09	1,721.26	1,695.82	7.87	6.06	-117.797	-999.15	-362.61	1,172.07	1,158.51	13.56	86.440	
1,800.00	1,756.92	1,767.99	1,742.45	8.26	6.24	-118.473	-999.36	-365.72	1,182.80	1,168.73	14.06	84.110	
1,850.00	1,802.76	1,814.73	1,789.08	8.65	6.42	-119.138	-999.57	-368.83	1,193.69	1,179.12	14.57	81.931	
1,900.00	1,848.59	1,861.46	1,835.71	9.04	6.59	-119.791	-999.78	-371.94	1,204.75	1,189.67	15.07	79.927	
1,950.00	1,894.43	1,908.19	1,882.34	9.44	6.77	-120.434	-999.99	-375.05	1,215.97	1,200.39	15.58	78.052	
2,000.00	1,940.27	1,954.92	1,928.97	9.85	6.94	-121.065	-1,000.20	-378.16	1,227.34	1,211.26	16.08	76.320	
2,050.00	1,986.10	2,001.66	1,975.60	10.25	7.12	-121.686	-1,000.40	-381.27	1,238.86	1,222.28	16.58	74.698	
2,100.00	2,031.94	2,048.39	2,022.23	10.66	7.30	-122.297	-1,000.61	-384.38	1,250.53	1,233.44	17.08	73.195	
2,150.00	2,077.77	2,104.88	2,068.86	11.07	7.51	-122.896	-1,000.82	-387.49	1,262.34	1,244.72	17.62	71.635	
2,200.00	2,123.61	2,141.86	2,115.48	11.48	7.65	-123.486	-1,001.03	-390.60	1,274.29	1,256.21	18.08	70.473	
2,250.00	2,169.44	2,188.59	2,162.11	11.89	7.83	-124.065	-1,001.24	-393.71	1,286.38	1,267.80	18.58	69.240	
2,300.00	2,215.28	2,235.32	2,208.74	12.30	8.00	-124.634	-1,001.45	-396.82	1,298.59	1,279.52	19.07	68.090	
2,350.00	2,261.12	2,282.06	2,255.37	12.72	8.18	-125.193	-1,001.66	-399.93	1,310.94	1,291.37	19.56	67.007	
2,400.00	2,306.95	2,328.79	2,302.00	13.13	8.36	-125.743	-1,001.87	-403.04	1,323.40	1,303.35	20.05	65.994	
2,450.00	2,352.79	2,375.52	2,348.63	13.55	8.53	-126.282	-1,002.08	-406.15	1,335.99	1,315.45	20.54	65.040	
2,500.00	2,398.52	2,422.18	2,395.19	13.97	8.71	-121.870	-1,002.29	-409.26	1,348.51	1,327.48	21.03	64.124	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #11H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,550.00	2,443.33	2,474.82	2,447.52	14.42	8.92	-113.595	-1,002.49	-414.69	1,359.63	1,338.03	21.60	62.948	
2,600.00	2,486.77	2,530.50	2,502.10	14.92	9.17	-107.257	-1,002.60	-425.60	1,368.89	1,346.62	22.27	61.479	
2,650.00	2,528.49	2,588.55	2,557.59	15.44	9.45	-102.453	-1,002.61	-442.56	1,376.20	1,353.16	23.04	59.731	
2,700.00	2,568.20	2,648.92	2,613.17	16.01	9.79	-98.845	-1,002.50	-466.06	1,381.46	1,357.53	23.93	57.721	
2,750.00	2,605.57	2,711.48	2,667.83	16.61	10.21	-96.172	-1,002.25	-496.43	1,384.58	1,359.61	24.97	55.444	
2,800.00	2,641.03	2,776.16	2,720.51	17.24	10.71	-95.839	-1,001.87	-533.89	1,385.94	1,359.78	26.17	52.968	
2,850.00	2,676.39	2,842.45	2,769.77	17.89	11.32	-95.981	-1,001.34	-578.20	1,386.69	1,359.18	27.51	50.411	
2,900.00	2,711.74	2,908.26	2,804.63	18.55	12.02	-95.979	-1,000.90	-613.04	1,387.16	1,358.25	28.91	47.981	
2,950.00	2,747.10	2,941.74	2,839.98	19.22	12.41	-95.977	-1,000.46	-648.39	1,387.63	1,357.62	30.02	46.228	
3,000.00	2,781.65	2,991.71	2,875.32	19.92	12.99	-95.976	-1,000.02	-683.73	1,388.22	1,356.89	31.33	44.308	
3,050.00	2,813.06	3,041.99	2,910.86	20.69	13.60	-96.090	-999.57	-719.28	1,389.26	1,356.52	32.73	42.441	
3,100.00	2,840.95	3,107.75	2,954.39	21.53	14.47	-96.320	-998.95	-768.52	1,390.48	1,355.97	34.51	40.295	
3,150.00	2,865.13	3,174.64	2,992.59	22.43	15.51	-96.487	-998.26	-823.39	1,391.61	1,355.09	36.52	38.110	
3,200.00	2,885.40	3,242.42	3,024.50	23.39	16.67	-96.585	-997.51	-883.13	1,392.62	1,353.91	38.71	35.976	
3,250.00	2,901.61	3,310.78	3,049.32	24.39	17.95	-96.611	-996.71	-946.78	1,393.48	1,352.39	41.09	33.912	
3,300.00	2,913.64	3,379.40	3,066.43	25.44	19.34	-96.563	-995.88	-1,013.19	1,394.18	1,350.55	43.62	31.960	
3,350.00	2,921.40	3,447.95	3,075.49	26.52	20.79	-96.441	-995.02	-1,081.09	1,394.71	1,348.45	46.25	30.154	
3,400.00	2,924.82	3,509.07	3,077.00	27.63	22.13	-96.280	-994.26	-1,142.17	1,395.12	1,346.36	48.76	28.610	
3,450.00	2,925.00	3,559.07	3,077.00	28.74	23.25	-96.253	-993.63	-1,192.16	1,395.77	1,344.74	51.03	27.354	
3,500.00	2,925.00	3,609.06	3,077.00	29.87	24.38	-96.249	-993.00	-1,242.15	1,396.44	1,343.13	53.30	26.199	
3,550.00	2,925.00	3,659.06	3,077.00	31.02	25.54	-96.246	-992.37	-1,292.14	1,397.10	1,341.48	55.63	25.115	
3,600.00	2,925.00	3,709.05	3,077.00	32.18	26.70	-96.243	-991.74	-1,342.13	1,397.77	1,339.81	57.96	24.116	
3,650.00	2,925.00	3,759.05	3,077.00	33.35	27.89	-96.241	-991.11	-1,392.12	1,398.44	1,338.11	60.33	23.178	
3,700.00	2,925.00	3,809.04	3,077.00	34.53	29.08	-96.238	-990.49	-1,442.12	1,399.11	1,336.40	62.71	22.310	
3,750.00	2,925.00	3,859.04	3,077.00	35.73	30.29	-96.235	-989.86	-1,492.11	1,399.78	1,334.65	65.12	21.494	
3,800.00	2,925.00	3,909.04	3,077.00	36.93	31.50	-96.232	-989.23	-1,542.10	1,400.45	1,332.91	67.54	20.736	
3,850.00	2,925.00	3,959.03	3,077.00	38.14	32.72	-96.229	-988.60	-1,592.09	1,401.11	1,331.14	69.98	20.022	
3,900.00	2,925.00	4,009.03	3,077.00	39.35	33.94	-96.226	-987.97	-1,642.08	1,401.78	1,329.36	72.42	19.356	
3,950.00	2,925.00	4,059.02	3,077.00	40.57	35.18	-96.223	-987.34	-1,692.07	1,402.45	1,327.56	74.89	18.728	
4,000.00	2,925.00	4,109.02	3,077.00	41.80	36.42	-96.220	-986.72	-1,742.06	1,403.12	1,325.77	77.35	18.139	
4,050.00	2,925.00	4,159.01	3,077.00	43.04	37.67	-96.217	-986.09	-1,792.06	1,403.79	1,323.95	79.84	17.583	
4,100.00	2,925.00	4,209.01	3,077.00	44.27	38.91	-96.214	-985.46	-1,842.05	1,404.46	1,322.13	82.32	17.060	
4,150.00	2,925.00	4,259.00	3,077.00	45.52	40.17	-96.211	-984.83	-1,892.04	1,405.12	1,320.30	84.82	16.565	
4,200.00	2,925.00	4,309.00	3,077.00	46.76	41.43	-96.208	-984.20	-1,942.03	1,405.79	1,318.47	87.33	16.098	
4,250.00	2,925.00	4,358.99	3,077.00	48.01	42.69	-96.205	-983.58	-1,992.02	1,406.46	1,316.62	89.84	15.655	
4,300.00	2,925.00	4,408.99	3,077.00	49.27	43.95	-96.202	-982.95	-2,042.01	1,407.13	1,314.78	92.35	15.236	
4,350.00	2,925.00	4,458.99	3,077.00	50.53	45.22	-96.199	-982.32	-2,092.00	1,407.80	1,312.92	94.88	14.838	
4,400.00	2,925.00	4,508.98	3,077.00	51.78	46.49	-96.196	-981.69	-2,142.00	1,408.47	1,311.06	97.41	14.460	
4,450.00	2,925.00	4,558.98	3,077.00	53.05	47.77	-96.193	-981.06	-2,191.99	1,409.14	1,309.19	99.94	14.100	
4,500.00	2,925.00	4,608.97	3,077.00	54.31	49.04	-96.190	-980.43	-2,241.98	1,409.80	1,307.33	102.48	13.757	
4,550.00	2,925.00	4,658.97	3,077.00	55.58	50.32	-96.187	-979.81	-2,291.97	1,410.47	1,305.45	105.02	13.430	
4,600.00	2,925.00	4,708.96	3,077.00	56.85	51.60	-96.184	-979.18	-2,341.96	1,411.14	1,303.58	107.57	13.119	
4,650.00	2,925.00	4,758.96	3,077.00	58.13	52.88	-96.181	-978.55	-2,391.95	1,411.81	1,301.69	110.12	12.821	
4,700.00	2,925.00	4,808.95	3,077.00	59.40	54.16	-96.178	-977.92	-2,441.95	1,412.48	1,299.81	112.67	12.537	
4,750.00	2,925.00	4,858.95	3,077.00	60.68	55.45	-96.175	-977.29	-2,491.94	1,413.15	1,297.92	115.22	12.264	
4,800.00	2,925.00	4,908.95	3,077.00	61.96	56.73	-96.172	-976.67	-2,541.93	1,413.81	1,296.03	117.78	12.004	
4,850.00	2,925.00	4,958.94	3,077.00	63.24	58.02	-96.169	-976.04	-2,591.92	1,414.48	1,294.14	120.34	11.754	
4,900.00	2,925.00	5,008.94	3,077.00	64.52	59.31	-96.167	-975.41	-2,641.91	1,415.15	1,292.24	122.91	11.514	
4,950.00	2,925.00	5,058.93	3,077.00	65.80	60.60	-96.164	-974.78	-2,691.90	1,415.82	1,290.34	125.48	11.284	
5,000.00	2,925.00	5,108.93	3,077.00	67.09	61.89	-96.161	-974.15	-2,741.89	1,416.49	1,288.45	128.04	11.063	
5,050.00	2,925.00	5,158.92	3,077.00	68.37	63.18	-96.158	-973.52	-2,791.89	1,417.16	1,286.54	130.61	10.850	
5,100.00	2,925.00	5,208.92	3,077.00	69.66	64.48	-96.155	-972.90	-2,841.88	1,417.83	1,284.64	133.19	10.645	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #11H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,150.00	2,925.00	5,258.91	3,077.00	70.95	65.77	-96.152	-972.27	-2,891.87	1,418.49	1,282.73	135.76	10.448	
5,200.00	2,925.00	5,308.91	3,077.00	72.24	67.07	-96.149	-971.64	-2,941.86	1,419.16	1,280.82	138.34	10.259	
5,250.00	2,925.00	5,358.90	3,077.00	73.53	68.36	-96.146	-971.01	-2,991.85	1,419.83	1,278.91	140.92	10.076	
5,300.00	2,925.00	5,408.90	3,077.00	74.82	69.66	-96.143	-970.38	-3,041.84	1,420.50	1,277.00	143.50	9.899	
5,350.00	2,925.00	5,458.90	3,077.00	76.11	70.96	-96.140	-969.75	-3,091.84	1,421.17	1,275.09	146.08	9.729	
5,400.00	2,925.00	5,508.89	3,077.00	77.40	72.26	-96.137	-969.13	-3,141.83	1,421.84	1,273.18	148.66	9.564	
5,450.00	2,925.00	5,558.89	3,077.00	78.70	73.55	-96.135	-968.50	-3,191.82	1,422.50	1,271.26	151.25	9.405	
5,500.00	2,925.00	5,608.88	3,077.00	79.99	74.85	-96.132	-967.87	-3,241.81	1,423.17	1,269.34	153.83	9.252	
5,550.00	2,925.00	5,658.88	3,077.00	81.29	76.15	-96.129	-967.24	-3,291.80	1,423.84	1,267.42	156.42	9.103	
5,600.00	2,925.00	5,708.87	3,077.00	82.58	77.45	-96.126	-966.61	-3,341.79	1,424.51	1,265.51	159.00	8.959	
5,650.00	2,925.00	5,758.87	3,077.00	83.88	78.76	-96.123	-965.99	-3,391.78	1,425.18	1,263.58	161.59	8.819	
5,700.00	2,925.00	5,808.86	3,077.00	85.18	80.06	-96.120	-965.36	-3,441.78	1,425.85	1,261.66	164.18	8.684	
5,750.00	2,925.00	5,858.86	3,077.00	86.48	81.36	-96.117	-964.73	-3,491.77	1,426.52	1,259.74	166.78	8.554	
5,800.00	2,925.00	5,908.85	3,077.00	87.77	82.66	-96.114	-964.10	-3,541.76	1,427.18	1,257.82	169.37	8.427	
5,850.00	2,925.00	5,958.85	3,077.00	89.07	83.96	-96.111	-963.47	-3,591.75	1,427.85	1,255.89	171.96	8.303	
5,900.00	2,925.00	6,008.85	3,077.00	90.37	85.27	-96.109	-962.84	-3,641.74	1,428.52	1,253.97	174.55	8.184	
5,950.00	2,925.00	6,058.84	3,077.00	91.67	86.57	-96.106	-962.22	-3,691.73	1,429.19	1,252.04	177.15	8.068	
6,000.00	2,925.00	6,108.84	3,077.00	92.97	87.88	-96.103	-961.59	-3,741.73	1,429.86	1,250.11	179.74	7.955	
6,050.00	2,925.00	6,158.83	3,077.00	94.28	89.18	-96.100	-960.96	-3,791.72	1,430.53	1,248.19	182.34	7.845	
6,100.00	2,925.00	6,208.83	3,077.00	95.58	90.49	-96.097	-960.33	-3,841.71	1,431.20	1,246.26	184.94	7.739	
6,150.00	2,925.00	6,258.82	3,077.00	96.88	91.79	-96.094	-959.70	-3,891.70	1,431.86	1,244.33	187.54	7.635	
6,200.00	2,925.00	6,308.82	3,077.00	98.18	93.10	-96.091	-959.08	-3,941.69	1,432.53	1,242.40	190.13	7.534	
6,250.00	2,925.00	6,358.81	3,077.00	99.48	94.40	-96.089	-958.45	-3,991.68	1,433.20	1,240.47	192.73	7.436	
6,300.00	2,925.00	6,408.81	3,077.00	100.79	95.71	-96.086	-957.82	-4,041.67	1,433.87	1,238.54	195.33	7.341	
6,350.00	2,925.00	6,458.81	3,077.00	102.09	97.02	-96.083	-957.19	-4,091.67	1,434.54	1,236.60	197.93	7.248	
6,400.00	2,925.00	6,508.80	3,077.00	103.40	98.32	-96.080	-956.56	-4,141.66	1,435.21	1,234.67	200.54	7.157	
6,450.00	2,925.00	6,558.80	3,077.00	104.70	99.63	-96.077	-955.93	-4,191.65	1,435.88	1,232.74	203.14	7.068	
6,500.00	2,925.00	6,608.79	3,077.00	106.00	100.94	-96.074	-955.31	-4,241.64	1,436.54	1,230.80	205.74	6.982	
6,550.00	2,925.00	6,658.79	3,077.00	107.31	102.24	-96.072	-954.68	-4,291.63	1,437.21	1,228.87	208.34	6.898	
6,600.00	2,925.00	6,708.78	3,077.00	108.62	103.55	-96.069	-954.05	-4,341.62	1,437.88	1,226.94	210.95	6.816	
6,650.00	2,925.00	6,758.78	3,077.00	109.92	104.86	-96.066	-953.42	-4,391.62	1,438.55	1,225.00	213.55	6.736	
6,700.00	2,925.00	6,808.77	3,077.00	111.23	106.17	-96.063	-952.79	-4,441.61	1,439.22	1,223.06	216.15	6.658	
6,750.00	2,925.00	6,858.77	3,077.00	112.53	107.48	-96.060	-952.16	-4,491.60	1,439.89	1,221.13	218.76	6.582	
6,800.00	2,925.00	6,908.76	3,077.00	113.84	108.79	-96.057	-951.54	-4,541.59	1,440.56	1,219.19	221.36	6.508	
6,850.00	2,925.00	6,958.76	3,077.00	115.15	110.09	-96.055	-950.91	-4,591.58	1,441.22	1,217.26	223.97	6.435	
6,900.00	2,925.00	7,008.76	3,077.00	116.45	111.40	-96.052	-950.28	-4,641.57	1,441.89	1,215.32	226.57	6.364	
6,950.00	2,925.00	7,058.75	3,077.00	117.76	112.71	-96.049	-949.65	-4,691.56	1,442.56	1,213.38	229.18	6.294	
7,000.00	2,925.00	7,108.75	3,077.00	119.07	114.02	-96.046	-949.02	-4,741.56	1,443.23	1,211.44	231.79	6.227	
7,050.00	2,925.00	7,158.74	3,077.00	120.38	115.33	-96.043	-948.40	-4,791.55	1,443.90	1,209.50	234.40	6.160	
7,100.00	2,925.00	7,208.74	3,077.00	121.68	116.64	-96.040	-947.77	-4,841.54	1,444.57	1,207.56	237.00	6.095	
7,150.00	2,925.00	7,258.73	3,077.00	122.99	117.95	-96.038	-947.14	-4,891.53	1,445.24	1,205.63	239.61	6.032	
7,200.00	2,925.00	7,308.73	3,077.00	124.30	119.26	-96.035	-946.51	-4,941.52	1,445.90	1,203.69	242.22	5.969	
7,250.00	2,925.00	7,358.72	3,077.00	125.61	120.57	-96.032	-945.88	-4,991.51	1,446.57	1,201.75	244.83	5.909	
7,300.00	2,925.00	7,408.72	3,077.00	126.92	121.88	-96.029	-945.25	-5,041.51	1,447.24	1,199.81	247.44	5.849	
7,350.00	2,925.00	7,458.71	3,077.00	128.23	123.19	-96.026	-944.63	-5,091.50	1,447.91	1,197.86	250.05	5.791	
7,400.00	2,925.00	7,508.71	3,077.00	129.54	124.50	-96.024	-944.00	-5,141.49	1,448.58	1,195.92	252.65	5.733	
7,450.00	2,925.00	7,558.71	3,077.00	130.85	125.81	-96.021	-943.37	-5,191.48	1,449.25	1,193.98	255.26	5.677	
7,500.00	2,925.00	7,608.70	3,077.00	132.16	127.13	-96.018	-942.74	-5,241.47	1,449.92	1,192.04	257.87	5.623	
7,550.00	2,925.00	7,658.70	3,077.00	133.47	128.44	-96.015	-942.11	-5,291.46	1,450.58	1,190.10	260.49	5.569	
7,600.00	2,925.00	7,708.69	3,077.00	134.78	129.75	-96.013	-941.48	-5,341.45	1,451.25	1,188.16	263.10	5.516	
7,650.00	2,925.00	7,758.69	3,077.00	136.09	131.06	-96.010	-940.86	-5,391.45	1,451.92	1,186.22	265.71	5.464	
7,700.00	2,925.00	7,808.68	3,077.00	137.40	132.37	-96.007	-940.23	-5,441.44	1,452.59	1,184.27	268.32	5.414	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #11H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,750.00	2,925.00	7,858.68	3,077.00	138.71	133.68	-96.004	-939.60	-5,491.43	1,453.26	1,182.33	270.93	5.364	
7,800.00	2,925.00	7,908.67	3,077.00	140.02	134.99	-96.001	-938.97	-5,541.42	1,453.93	1,180.39	273.54	5.315	
7,850.00	2,925.00	7,958.67	3,077.00	141.33	136.30	-95.999	-938.34	-5,591.41	1,454.60	1,178.44	276.15	5.267	
7,900.00	2,925.00	8,008.67	3,077.00	142.64	137.62	-95.996	-937.72	-5,641.40	1,455.27	1,176.50	278.77	5.220	
7,950.00	2,925.00	8,058.66	3,077.00	143.95	138.93	-95.993	-937.09	-5,691.40	1,455.93	1,174.56	281.38	5.174	
8,000.00	2,925.00	8,108.66	3,077.00	145.26	140.24	-95.990	-936.46	-5,741.39	1,456.60	1,172.61	283.99	5.129	
8,050.00	2,925.00	8,158.65	3,077.00	146.57	141.55	-95.988	-935.83	-5,791.38	1,457.27	1,170.67	286.60	5.085	
8,100.00	2,925.00	8,208.65	3,077.00	147.88	142.86	-95.985	-935.20	-5,841.37	1,457.94	1,168.72	289.22	5.041	
8,150.00	2,925.00	8,258.64	3,077.00	149.19	144.18	-95.982	-934.57	-5,891.36	1,458.61	1,166.78	291.83	4.998	
8,200.00	2,925.00	8,308.64	3,077.00	150.50	145.49	-95.979	-933.95	-5,941.35	1,459.28	1,164.84	294.44	4.956	
8,250.00	2,925.00	8,358.63	3,077.00	151.82	146.80	-95.977	-933.32	-5,991.34	1,459.95	1,162.89	297.06	4.915	
8,300.00	2,925.00	8,408.63	3,077.00	153.13	148.11	-95.974	-932.69	-6,041.34	1,460.62	1,160.95	299.67	4.874	
8,350.00	2,925.00	8,458.62	3,077.00	154.44	149.43	-95.971	-932.06	-6,091.33	1,461.28	1,159.00	302.28	4.834	
8,400.00	2,925.00	8,508.62	3,077.00	155.75	150.74	-95.968	-931.43	-6,141.32	1,461.95	1,157.05	304.90	4.795	
8,450.00	2,925.00	8,558.62	3,077.00	157.06	152.05	-95.966	-930.81	-6,191.31	1,462.62	1,155.11	307.51	4.756	
8,500.00	2,925.00	8,608.61	3,077.00	158.38	153.36	-95.963	-930.18	-6,241.30	1,463.29	1,153.16	310.13	4.718	
8,550.00	2,925.00	8,638.61	3,077.00	159.69	154.15	-95.961	-929.80	-6,271.30	1,464.10	1,152.01	312.09	4.691	
8,562.21	2,925.00	8,638.61	3,077.00	160.01	154.15	-95.961	-929.80	-6,271.30	1,464.48	1,152.18	312.29	4.689	SF

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #12H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	1.00	0.00	0.00	0.00	178.860	-40.20	0.80	40.21				
50.00	50.00	51.00	50.00	0.06	0.08	178.860	-40.20	0.80	40.21	40.07	0.14	297.796	
100.00	100.00	101.00	100.00	0.15	0.15	178.860	-40.20	0.80	40.21	39.91	0.30	133.530	
150.00	150.00	151.00	150.00	0.33	0.33	178.860	-40.20	0.80	40.21	39.55	0.66	60.959	
200.00	200.00	201.00	200.00	0.51	0.51	178.860	-40.20	0.80	40.21	39.19	1.02	39.495	
250.00	250.00	251.00	250.00	0.69	0.69	178.860	-40.20	0.80	40.21	38.83	1.38	29.210	
300.00	300.00	301.00	300.00	0.87	0.87	178.860	-40.20	0.80	40.21	38.47	1.74	23.175	
350.00	350.00	351.00	350.00	1.04	1.05	178.860	-40.20	0.80	40.21	38.11	2.09	19.206	
400.00	400.00	401.00	400.00	1.22	1.23	178.860	-40.20	0.80	40.21	37.76	2.45	16.398	
450.00	450.00	451.00	450.00	1.40	1.41	178.860	-40.20	0.80	40.21	37.40	2.81	14.307	
500.00	500.00	501.00	500.00	1.58	1.59	178.860	-40.20	0.80	40.21	37.04	3.17	12.688	CC, ES
550.00	550.00	550.49	549.49	1.76	1.76	-128.723	-40.52	0.49	40.80	37.28	3.52	11.598	
600.00	599.98	599.96	598.94	1.94	1.93	-128.814	-41.45	-0.41	42.54	38.67	3.87	11.003	
650.00	649.93	649.34	648.27	2.12	2.10	-128.958	-42.99	-1.91	45.43	41.22	4.21	10.784	
700.00	699.84	698.61	697.45	2.30	2.26	-129.132	-45.14	-3.99	49.48	44.92	4.56	10.852	
750.00	749.68	747.72	746.41	2.48	2.44	-129.315	-47.89	-6.65	54.67	49.75	4.91	11.126	
800.00	799.45	796.63	795.10	2.66	2.61	-129.489	-51.22	-9.88	60.99	55.73	5.27	11.583	
850.00	849.13	845.31	843.48	2.85	2.79	-129.643	-55.13	-13.67	68.45	62.83	5.63	12.163	
900.00	898.70	893.73	891.49	3.04	2.97	-129.770	-59.60	-18.00	77.04	71.05	5.99	12.864	
950.00	948.15	941.84	939.09	3.25	3.16	-129.868	-64.62	-22.87	86.74	80.38	6.36	13.636	
1,000.00	997.47	989.61	986.23	3.45	3.36	-129.936	-70.17	-28.25	97.55	90.82	6.73	14.490	
1,050.00	1,046.63	1,037.02	1,032.88	3.67	3.56	-129.975	-76.23	-34.13	109.45	102.34	7.12	15.380	
1,100.00	1,095.62	1,084.02	1,078.98	3.89	3.76	-129.988	-82.80	-40.49	122.44	114.94	7.50	16.325	
1,150.00	1,144.44	1,130.59	1,124.51	4.12	3.98	-129.975	-89.83	-47.31	136.50	128.60	7.90	17.284	
1,200.00	1,193.06	1,176.70	1,169.43	4.36	4.20	-129.939	-97.32	-54.57	151.61	143.31	8.30	18.272	
1,250.00	1,241.46	1,222.33	1,213.70	4.62	4.42	-129.881	-105.24	-62.25	167.76	159.05	8.71	19.257	
1,300.00	1,289.64	1,267.44	1,257.30	4.88	4.66	-129.802	-113.57	-70.32	184.93	175.81	9.12	20.270	
1,350.00	1,337.58	1,312.02	1,300.19	5.16	4.90	-129.704	-122.28	-78.77	203.12	193.56	9.55	21.259	
1,400.00	1,385.27	1,356.05	1,342.37	5.45	5.14	-129.587	-131.35	-87.56	222.29	212.30	9.99	22.257	
1,450.00	1,432.68	1,399.50	1,383.79	5.75	5.39	-129.453	-140.76	-96.68	242.44	232.01	10.43	23.239	
1,500.00	1,479.82	1,442.35	1,424.45	6.07	5.66	-129.300	-150.49	-106.11	263.55	252.66	10.89	24.212	
1,550.00	1,526.65	1,484.59	1,464.32	6.40	5.92	-129.131	-160.50	-115.81	285.59	274.24	11.35	25.162	
1,600.00	1,573.17	1,526.20	1,503.40	6.74	6.19	-128.945	-170.77	-125.77	308.55	296.73	11.82	26.110	
1,650.00	1,619.36	1,567.18	1,541.67	7.11	6.47	-128.742	-181.28	-135.96	332.41	320.11	12.30	27.025	
1,700.00	1,665.25	1,607.53	1,579.15	7.48	6.75	-128.714	-192.01	-146.36	357.10	344.32	12.78	27.934	
1,750.00	1,711.09	1,647.44	1,616.01	7.87	7.04	-128.842	-203.00	-157.02	382.26	368.98	13.28	28.787	
1,800.00	1,756.92	1,686.96	1,652.29	8.26	7.33	-128.884	-214.25	-167.91	407.79	394.03	13.77	29.621	
1,850.00	1,802.76	1,726.06	1,687.97	8.65	7.64	-128.858	-225.72	-179.04	433.70	419.44	14.27	30.399	
1,900.00	1,848.59	1,764.74	1,723.05	9.04	7.94	-128.775	-237.42	-190.38	459.99	445.22	14.77	31.152	
1,950.00	1,894.43	1,802.99	1,757.53	9.44	8.25	-128.646	-249.32	-201.91	486.63	471.37	15.26	31.881	
2,000.00	1,940.27	1,840.81	1,791.39	9.85	8.57	-128.479	-261.41	-213.63	513.64	497.87	15.77	32.575	
2,050.00	1,986.10	1,880.45	1,826.68	10.25	8.91	-128.276	-274.38	-226.20	540.96	524.66	16.31	33.172	
2,100.00	2,031.94	1,922.26	1,863.87	10.66	9.27	-128.076	-288.10	-239.50	568.34	551.45	16.89	33.656	
2,150.00	2,077.77	1,964.07	1,901.06	11.07	9.64	-127.894	-301.82	-252.80	595.71	578.24	17.47	34.096	
2,200.00	2,123.61	2,005.88	1,938.24	11.48	10.01	-127.728	-315.54	-266.10	623.10	605.04	18.06	34.507	
2,250.00	2,169.44	2,047.69	1,975.43	11.89	10.38	-127.576	-329.26	-279.40	650.48	631.83	18.65	34.876	
2,300.00	2,215.28	2,089.50	2,012.62	12.30	10.75	-127.436	-342.98	-292.70	677.87	658.62	19.24	35.224	
2,350.00	2,261.12	2,131.31	2,049.81	12.72	11.13	-127.307	-356.70	-306.00	705.26	685.41	19.84	35.541	
2,400.00	2,306.95	2,173.12	2,087.00	13.13	11.51	-127.188	-370.42	-319.30	732.65	712.21	20.44	35.838	
2,450.00	2,352.79	2,214.93	2,124.19	13.55	11.89	-127.078	-384.14	-332.60	760.04	739.00	21.05	36.113	
2,500.00	2,398.52	2,256.85	2,161.47	13.97	12.27	-121.220	-397.89	-345.93	787.28	765.63	21.66	36.353	
2,550.00	2,443.33	2,300.50	2,199.41	14.42	12.67	-110.796	-411.89	-359.50	813.20	790.88	22.33	36.423	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #12H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,600.00	2,486.77	2,342.72	2,237.85	14.92	13.05	-102.703	-426.07	-373.24	837.46	814.41	23.05	36.339	
2,650.00	2,528.49	2,386.18	2,276.51	15.44	13.45	-96.487	-440.33	-387.07	859.95	836.11	23.83	36.083	
2,700.00	2,568.20	2,429.54	2,315.07	16.01	13.85	-91.754	-454.56	-400.86	880.63	855.95	24.68	35.683	
2,750.00	2,605.57	2,472.48	2,353.26	16.61	14.25	-88.189	-468.65	-414.52	899.52	873.94	25.58	35.162	
2,800.00	2,641.03	2,843.50	2,651.55	17.24	18.09	-91.492	-520.80	-618.66	900.10	868.67	31.43	28.639	
2,850.00	2,676.39	2,906.51	2,686.90	17.89	18.83	-91.492	-520.35	-654.01	900.58	867.58	33.00	27.290	
2,900.00	2,711.74	2,943.49	2,722.25	18.55	19.27	-91.491	-519.91	-689.36	901.05	866.82	34.23	26.322	
2,950.00	2,747.10	2,993.54	2,757.64	19.22	19.88	-91.490	-519.47	-724.75	901.53	865.86	35.66	25.278	
3,000.00	2,781.65	3,044.80	2,792.08	19.92	20.56	-91.371	-518.99	-762.69	901.99	864.81	37.18	24.257	
3,050.00	2,813.06	3,095.91	2,822.91	20.69	21.30	-91.218	-518.48	-803.43	902.49	863.65	38.84	23.236	
3,100.00	2,840.95	3,146.87	2,849.91	21.53	22.11	-91.055	-517.94	-846.63	903.03	862.40	40.63	22.225	
3,150.00	2,865.13	3,197.67	2,872.91	22.43	22.99	-90.884	-517.37	-891.91	903.60	861.06	42.55	21.238	
3,200.00	2,885.40	3,248.31	2,891.75	23.39	23.91	-90.708	-516.78	-938.89	904.20	859.63	44.57	20.287	
3,250.00	2,901.61	3,298.78	2,906.32	24.39	24.89	-90.526	-516.17	-987.19	904.83	858.14	46.69	19.380	
3,300.00	2,913.64	3,349.09	2,916.57	25.44	25.91	-90.340	-515.55	-1,036.42	905.47	856.59	48.88	18.524	
3,350.00	2,921.40	3,399.22	2,922.44	26.52	26.95	-90.152	-514.93	-1,086.19	906.13	855.01	51.12	17.724	
3,400.00	2,924.82	3,449.20	2,924.00	27.63	28.01	-89.967	-514.30	-1,136.12	906.80	853.41	53.40	16.982	
3,450.00	2,925.00	3,500.81	2,924.00	28.74	29.13	-89.937	-513.68	-1,186.11	907.48	851.74	55.74	16.281	
3,500.00	2,925.00	3,549.19	2,924.00	29.87	30.20	-89.937	-513.05	-1,236.10	908.15	850.12	58.03	15.650	
3,550.00	2,925.00	3,600.82	2,924.00	31.02	31.35	-89.937	-512.42	-1,286.09	908.82	848.40	60.42	15.042	
3,600.00	2,925.00	3,649.18	2,924.00	32.18	32.46	-89.937	-511.79	-1,336.09	909.50	846.74	62.75	14.493	
3,650.00	2,925.00	3,700.83	2,924.00	33.35	33.64	-89.937	-511.17	-1,386.08	910.17	844.98	65.19	13.962	
3,700.00	2,925.00	3,749.17	2,924.00	34.53	34.77	-89.937	-510.54	-1,436.07	910.84	843.28	67.56	13.482	
3,750.00	2,925.00	3,800.84	2,924.00	35.73	35.97	-89.937	-509.91	-1,486.06	911.52	841.49	70.03	13.016	
3,800.00	2,925.00	3,849.16	2,924.00	36.93	37.12	-89.937	-509.28	-1,536.05	912.19	839.76	72.43	12.594	
3,850.00	2,925.00	3,900.84	2,924.00	38.14	38.35	-89.937	-508.66	-1,586.04	912.86	837.93	74.93	12.183	
3,900.00	2,925.00	3,949.15	2,924.00	39.35	39.51	-89.937	-508.03	-1,636.04	913.54	836.18	77.36	11.809	
3,950.00	2,925.00	3,999.15	2,924.00	40.57	40.72	-89.937	-507.40	-1,686.03	914.21	834.37	79.84	11.451	
4,000.00	2,925.00	4,049.14	2,924.00	41.80	41.93	-89.937	-506.77	-1,736.02	914.88	832.56	82.32	11.113	
4,050.00	2,925.00	4,100.86	2,924.00	43.04	43.19	-89.937	-506.15	-1,786.01	915.55	830.69	84.86	10.789	
4,100.00	2,925.00	4,149.13	2,924.00	44.27	44.38	-89.937	-505.52	-1,836.00	916.23	828.90	87.33	10.492	
4,150.00	2,925.00	4,200.87	2,924.00	45.52	45.65	-89.938	-504.89	-1,885.99	916.90	827.02	89.88	10.201	
4,200.00	2,925.00	4,249.12	2,924.00	46.76	46.85	-89.938	-504.26	-1,935.98	917.57	825.22	92.36	9.935	
4,250.00	2,925.00	4,300.88	2,924.00	48.01	48.13	-89.938	-503.64	-1,985.98	918.25	823.32	94.93	9.673	
4,300.00	2,925.00	4,349.11	2,924.00	49.27	49.33	-89.938	-503.01	-2,035.97	918.92	821.51	97.41	9.433	
4,350.00	2,925.00	4,400.89	2,924.00	50.53	50.62	-89.938	-502.38	-2,085.96	919.59	819.60	100.00	9.196	
4,400.00	2,925.00	4,449.11	2,924.00	51.78	51.83	-89.938	-501.75	-2,135.95	920.27	817.77	102.49	8.979	
4,450.00	2,925.00	4,500.90	2,924.00	53.05	53.13	-89.938	-501.13	-2,185.94	920.94	815.85	105.09	8.764	
4,500.00	2,925.00	4,549.10	2,924.00	54.31	54.35	-89.938	-500.50	-2,235.93	921.61	814.02	107.59	8.566	
4,550.00	2,925.00	4,600.91	2,924.00	55.58	55.65	-89.938	-499.87	-2,285.93	922.29	812.10	110.19	8.370	
4,600.00	2,925.00	4,649.09	2,924.00	56.85	56.87	-89.938	-499.24	-2,335.92	922.96	810.26	112.70	8.189	
4,650.00	2,925.00	4,700.92	2,924.00	58.13	58.18	-89.938	-498.62	-2,385.91	923.63	808.32	115.31	8.010	
4,700.00	2,925.00	4,749.08	2,924.00	59.40	59.40	-89.938	-497.99	-2,435.90	924.31	806.48	117.83	7.844	
4,750.00	2,925.00	4,800.93	2,924.00	60.68	60.72	-89.938	-497.36	-2,485.89	924.98	804.53	120.44	7.680	
4,800.00	2,925.00	4,849.07	2,924.00	61.96	61.95	-89.938	-496.73	-2,535.88	925.65	802.68	122.97	7.528	
4,850.00	2,925.00	4,900.94	2,924.00	63.24	63.27	-89.938	-496.11	-2,585.87	926.33	800.74	125.59	7.376	
4,900.00	2,925.00	4,949.06	2,924.00	64.52	64.50	-89.938	-495.48	-2,635.87	927.00	798.88	128.12	7.236	
4,950.00	2,925.00	5,000.94	2,924.00	65.80	65.82	-89.938	-494.85	-2,685.86	927.67	796.93	130.74	7.095	
5,000.00	2,925.00	5,049.05	2,924.00	67.09	67.05	-89.938	-494.23	-2,735.85	928.34	795.07	133.28	6.966	
5,050.00	2,925.00	5,100.95	2,924.00	68.37	68.38	-89.938	-493.60	-2,785.84	929.02	793.11	135.91	6.836	
5,100.00	2,925.00	5,149.04	2,924.00	69.66	69.62	-89.938	-492.97	-2,835.83	929.69	791.25	138.44	6.715	
5,150.00	2,925.00	5,200.96	2,924.00	70.95	70.95	-89.938	-492.34	-2,885.82	930.36	789.29	141.08	6.595	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #12H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	2,925.00	5,249.03	2,924.00	72.24	72.19	-89.938	-491.72	-2,935.82	931.04	787.42	143.62	6.483	
5,250.00	2,925.00	5,300.97	2,924.00	73.53	73.52	-89.938	-491.09	-2,985.81	931.71	785.45	146.26	6.370	
5,300.00	2,925.00	5,349.02	2,924.00	74.82	74.76	-89.939	-490.46	-3,035.80	932.38	783.59	148.80	6.266	
5,350.00	2,925.00	5,400.98	2,924.00	76.11	76.10	-89.939	-489.83	-3,085.79	933.06	781.62	151.44	6.161	
5,400.00	2,925.00	5,449.02	2,924.00	77.40	77.34	-89.939	-489.21	-3,135.78	933.73	779.75	153.98	6.064	
5,450.00	2,925.00	5,499.01	2,924.00	78.70	78.63	-89.939	-488.58	-3,185.77	934.40	777.82	156.58	5.968	
5,500.00	2,925.00	5,549.01	2,924.00	79.99	79.92	-89.939	-487.95	-3,235.76	935.08	775.90	159.18	5.874	
5,550.00	2,925.00	5,599.00	2,924.00	81.29	81.21	-89.939	-487.32	-3,285.76	935.75	773.97	161.78	5.784	
5,600.00	2,925.00	5,649.00	2,924.00	82.58	82.50	-89.939	-486.70	-3,335.75	936.42	772.05	164.37	5.697	
5,650.00	2,925.00	5,701.01	2,924.00	83.88	83.85	-89.939	-486.07	-3,385.74	937.10	770.07	167.03	5.610	
5,700.00	2,925.00	5,748.99	2,924.00	85.18	85.09	-89.939	-485.44	-3,435.73	937.77	768.19	169.58	5.530	
5,750.00	2,925.00	5,801.02	2,924.00	86.48	86.44	-89.939	-484.81	-3,485.72	938.44	766.21	172.23	5.449	
5,800.00	2,925.00	5,848.98	2,924.00	87.77	87.68	-89.939	-484.19	-3,535.71	939.11	764.33	174.78	5.373	
5,850.00	2,925.00	5,901.03	2,924.00	89.07	89.03	-89.939	-483.56	-3,585.71	939.79	762.35	177.44	5.296	
5,900.00	2,925.00	5,948.97	2,924.00	90.37	90.27	-89.939	-482.93	-3,635.70	940.46	760.47	179.99	5.225	
5,950.00	2,925.00	6,001.03	2,924.00	91.67	91.62	-89.939	-482.30	-3,685.69	941.13	758.48	182.65	5.153	
6,000.00	2,925.00	6,048.96	2,924.00	92.97	92.87	-89.939	-481.68	-3,735.68	941.81	756.60	185.20	5.085	
6,050.00	2,925.00	6,101.04	2,924.00	94.28	94.22	-89.939	-481.05	-3,785.67	942.48	754.61	187.87	5.017	
6,100.00	2,925.00	6,148.95	2,924.00	95.58	95.46	-89.939	-480.42	-3,835.66	943.15	752.73	190.42	4.953	
6,150.00	2,925.00	6,198.95	2,924.00	96.88	96.76	-89.939	-479.79	-3,885.65	943.83	750.80	193.03	4.890	
6,200.00	2,925.00	6,248.94	2,924.00	98.18	98.06	-89.939	-479.17	-3,935.65	944.50	748.86	195.64	4.828	
6,250.00	2,925.00	6,301.06	2,924.00	99.48	99.42	-89.939	-478.54	-3,985.64	945.17	746.87	198.30	4.766	
6,300.00	2,925.00	6,348.93	2,924.00	100.79	100.66	-89.939	-477.91	-4,035.63	945.85	744.99	200.86	4.709	
6,350.00	2,925.00	6,401.07	2,924.00	102.09	102.02	-89.939	-477.28	-4,085.62	946.52	742.99	203.53	4.651	
6,400.00	2,925.00	6,448.92	2,924.00	103.40	103.27	-89.940	-476.66	-4,135.61	947.19	741.11	206.08	4.596	
6,450.00	2,925.00	6,501.08	2,924.00	104.70	104.62	-89.940	-476.03	-4,185.60	947.87	739.11	208.75	4.541	
6,500.00	2,925.00	6,548.92	2,924.00	106.00	105.87	-89.940	-475.40	-4,235.60	948.54	737.23	211.31	4.489	
6,550.00	2,925.00	6,601.09	2,924.00	107.31	107.23	-89.940	-474.77	-4,285.59	949.21	735.23	213.98	4.436	
6,600.00	2,925.00	6,648.91	2,924.00	108.62	108.48	-89.940	-474.15	-4,335.58	949.88	733.35	216.54	4.387	
6,650.00	2,925.00	6,701.10	2,924.00	109.92	109.84	-89.940	-473.52	-4,385.57	950.56	731.35	219.21	4.336	
6,700.00	2,925.00	6,748.90	2,924.00	111.23	111.08	-89.940	-472.89	-4,435.56	951.23	729.46	221.77	4.289	
6,750.00	2,925.00	6,801.11	2,924.00	112.53	112.45	-89.940	-472.27	-4,485.55	951.90	727.46	224.44	4.241	
6,800.00	2,925.00	6,848.89	2,924.00	113.84	113.69	-89.940	-471.64	-4,535.54	952.58	725.58	227.00	4.196	
6,850.00	2,925.00	6,901.12	2,924.00	115.15	115.05	-89.940	-471.01	-4,585.54	953.25	723.57	229.68	4.150	
6,900.00	2,925.00	6,948.88	2,924.00	116.45	116.30	-89.940	-470.38	-4,635.53	953.92	721.69	232.23	4.108	
6,950.00	2,925.00	7,001.13	2,924.00	117.76	117.67	-89.940	-469.76	-4,685.52	954.60	719.69	234.91	4.064	
7,000.00	2,925.00	7,048.87	2,924.00	119.07	118.91	-89.940	-469.13	-4,735.51	955.27	717.80	237.47	4.023	
7,050.00	2,925.00	7,101.13	2,924.00	120.38	120.28	-89.940	-468.50	-4,785.50	955.94	715.80	240.15	3.981	
7,100.00	2,925.00	7,148.86	2,924.00	121.68	121.52	-89.940	-467.87	-4,835.49	956.62	713.91	242.71	3.941	
7,150.00	2,925.00	7,201.14	2,924.00	122.99	122.89	-89.940	-467.25	-4,885.49	957.29	711.90	245.38	3.901	
7,200.00	2,925.00	7,248.85	2,924.00	124.30	124.14	-89.940	-466.62	-4,935.48	957.96	710.02	247.94	3.864	
7,250.00	2,925.00	7,301.15	2,924.00	125.61	125.50	-89.940	-465.99	-4,985.47	958.64	708.01	250.62	3.825	
7,300.00	2,925.00	7,348.84	2,924.00	126.92	126.75	-89.940	-465.36	-5,035.46	959.31	706.13	253.18	3.789	
7,350.00	2,925.00	7,401.16	2,924.00	128.23	128.12	-89.940	-464.74	-5,085.45	959.98	704.12	255.86	3.752	
7,400.00	2,925.00	7,448.83	2,924.00	129.54	129.36	-89.940	-464.11	-5,135.44	960.66	702.23	258.42	3.717	
7,450.00	2,925.00	7,501.17	2,924.00	130.85	130.73	-89.940	-463.48	-5,185.43	961.33	700.22	261.11	3.682	
7,500.00	2,925.00	7,548.82	2,924.00	132.16	131.98	-89.940	-462.85	-5,235.43	962.00	698.34	263.67	3.649	
7,550.00	2,925.00	7,601.18	2,924.00	133.47	133.35	-89.940	-462.23	-5,285.42	962.67	696.33	266.35	3.614	
7,600.00	2,925.00	7,648.82	2,924.00	134.78	134.60	-89.941	-461.60	-5,335.41	963.35	694.44	268.91	3.582	
7,650.00	2,925.00	7,701.19	2,924.00	136.09	135.97	-89.941	-460.97	-5,385.40	964.02	692.43	271.59	3.550	
7,700.00	2,925.00	7,748.81	2,924.00	137.40	137.21	-89.941	-460.34	-5,435.39	964.69	690.54	274.15	3.519	
7,750.00	2,925.00	7,801.20	2,924.00	138.71	138.58	-89.941	-459.72	-5,485.38	965.37	688.53	276.84	3.487	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #12H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,800.00	2,925.00	7,848.80	2,924.00	140.02	139.83	-89.941	-459.09	-5,535.38	966.04	686.64	279.40	3.458	
7,850.00	2,925.00	7,901.21	2,924.00	141.33	141.20	-89.941	-458.46	-5,585.37	966.71	684.63	282.08	3.427	
7,900.00	2,925.00	7,948.79	2,924.00	142.64	142.45	-89.941	-457.83	-5,635.36	967.39	682.74	284.64	3.399	
7,950.00	2,925.00	8,001.22	2,924.00	143.95	143.82	-89.941	-457.21	-5,685.35	968.06	680.73	287.33	3.369	
8,000.00	2,925.00	8,048.78	2,924.00	145.26	145.07	-89.941	-456.58	-5,735.34	968.73	678.84	289.89	3.342	
8,050.00	2,925.00	8,101.23	2,924.00	146.57	146.44	-89.941	-455.95	-5,785.33	969.41	676.83	292.58	3.313	
8,100.00	2,925.00	8,148.77	2,924.00	147.88	147.68	-89.941	-455.32	-5,835.32	970.08	674.94	295.14	3.287	
8,150.00	2,925.00	8,201.23	2,924.00	149.19	149.06	-89.941	-454.70	-5,885.32	970.75	672.93	297.83	3.259	
8,200.00	2,925.00	8,248.76	2,924.00	150.50	150.30	-89.941	-454.07	-5,935.31	971.43	671.04	300.38	3.234	
8,250.00	2,925.00	8,301.24	2,924.00	151.82	151.68	-89.941	-453.44	-5,985.30	972.10	669.02	303.07	3.207	
8,300.00	2,925.00	8,348.75	2,924.00	153.13	152.92	-89.941	-452.81	-6,035.29	972.77	667.14	305.63	3.183	
8,350.00	2,925.00	8,401.25	2,924.00	154.44	154.30	-89.941	-452.19	-6,085.28	973.44	665.12	308.32	3.157	
8,400.00	2,925.00	8,448.74	2,924.00	155.75	155.54	-89.941	-451.56	-6,135.27	974.12	663.23	310.88	3.133	
8,450.00	2,925.00	8,501.26	2,924.00	157.06	156.92	-89.941	-450.93	-6,185.27	974.79	661.22	313.57	3.109	
8,500.00	2,925.00	8,548.73	2,924.00	158.38	158.16	-89.941	-450.30	-6,235.26	975.46	659.33	316.13	3.086	
8,550.00	2,925.00	8,589.28	2,924.00	159.69	159.23	-89.941	-449.80	-6,275.80	976.18	657.69	318.49	3.065	
8,562.21	2,925.00	8,589.28	2,924.00	160.01	159.23	-89.941	-449.80	-6,275.80	976.54	657.79	318.75	3.064	SF

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #13H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	179.128	-19.70	0.30	19.70				
50.00	50.00	50.00	50.00	0.06	0.07	179.128	-19.70	0.30	19.70	19.57	0.13	147.549	
100.00	100.00	100.00	100.00	0.15	0.15	179.128	-19.70	0.30	19.70	19.40	0.30	66.219	
150.00	150.00	150.00	150.00	0.33	0.33	179.128	-19.70	0.30	19.70	19.05	0.66	30.034	
200.00	200.00	200.00	200.00	0.51	0.51	179.128	-19.70	0.30	19.70	18.69	1.01	19.421	
250.00	250.00	250.00	250.00	0.69	0.69	179.128	-19.70	0.30	19.70	18.33	1.37	14.350	
300.00	300.00	300.00	300.00	0.87	0.87	179.128	-19.70	0.30	19.70	17.97	1.73	11.379	
350.00	350.00	350.00	350.00	1.04	1.04	179.128	-19.70	0.30	19.70	17.61	2.09	9.427	
400.00	400.00	400.00	400.00	1.22	1.22	179.128	-19.70	0.30	19.70	17.25	2.45	8.047	
450.00	450.00	450.00	450.00	1.40	1.40	179.128	-19.70	0.30	19.70	16.90	2.81	7.019	
500.00	500.00	500.00	500.00	1.58	1.58	179.128	-19.70	0.30	19.70	16.54	3.17	6.224	CC
550.00	550.00	549.99	549.98	1.76	1.76	-128.161	-19.72	-0.14	19.99	16.47	3.52	5.681	ES
600.00	599.98	599.96	599.94	1.94	1.93	-127.382	-19.78	-1.44	20.85	16.98	3.87	5.385	
650.00	649.93	649.92	649.85	2.12	2.11	-126.217	-19.89	-3.62	22.29	18.06	4.22	5.275	
700.00	699.84	699.84	699.68	2.30	2.28	-124.817	-20.03	-6.66	24.31	19.73	4.58	5.310	
750.00	749.68	749.72	749.40	2.48	2.46	-123.324	-20.22	-10.56	26.93	21.99	4.94	5.450	
800.00	799.45	799.54	799.00	2.66	2.64	-121.848	-20.44	-15.33	30.15	24.85	5.31	5.684	
850.00	849.13	849.31	848.44	2.85	2.83	-120.458	-20.71	-20.95	33.97	28.29	5.68	5.978	
900.00	898.70	898.99	897.70	3.04	3.02	-119.192	-21.02	-27.41	38.40	32.34	6.06	6.335	
950.00	948.15	948.60	946.76	3.25	3.22	-118.060	-21.37	-34.71	43.42	36.96	6.46	6.721	
1,000.00	997.47	998.10	995.60	3.45	3.42	-117.059	-21.75	-42.85	49.04	42.18	6.86	7.150	
1,050.00	1,046.63	1,047.51	1,044.18	3.67	3.64	-116.177	-22.18	-51.80	55.25	47.97	7.28	7.586	
1,100.00	1,095.62	1,096.80	1,092.49	3.89	3.86	-115.402	-22.65	-61.57	62.05	54.34	7.71	8.051	
1,150.00	1,144.44	1,145.96	1,140.50	4.12	4.09	-114.719	-23.15	-72.14	69.44	61.27	8.16	8.507	
1,200.00	1,193.06	1,195.00	1,188.20	4.36	4.32	-114.112	-23.69	-83.50	77.40	68.78	8.62	8.980	
1,250.00	1,241.46	1,243.89	1,235.56	4.62	4.57	-113.571	-24.27	-95.63	85.95	76.84	9.11	9.439	
1,300.00	1,289.64	1,307.01	1,282.98	4.88	4.91	-113.248	-24.87	-108.36	94.98	85.31	9.68	9.816	
1,350.00	1,337.58	1,342.10	1,330.40	5.16	5.10	-113.386	-25.48	-121.10	104.36	94.23	10.13	10.303	
1,400.00	1,385.27	1,408.87	1,377.75	5.45	5.46	-113.874	-26.09	-133.83	114.09	103.34	10.75	10.612	
1,450.00	1,432.68	1,440.06	1,425.00	5.75	5.63	-114.624	-26.69	-146.52	124.19	112.99	11.21	11.080	
1,500.00	1,479.82	1,488.88	1,472.14	6.07	5.91	-115.568	-27.29	-159.19	134.69	122.93	11.76	11.453	
1,550.00	1,526.65	1,537.58	1,519.17	6.40	6.18	-116.653	-27.90	-171.83	145.61	133.28	12.33	11.805	
1,600.00	1,573.17	1,586.13	1,566.05	6.74	6.46	-117.839	-28.50	-184.43	156.99	144.09	12.90	12.166	
1,650.00	1,619.36	1,634.53	1,612.79	7.11	6.74	-119.094	-29.09	-196.99	168.86	155.37	13.49	12.517	
1,700.00	1,665.25	1,682.78	1,659.38	7.48	7.01	-120.467	-29.69	-209.51	181.21	167.13	14.08	12.874	
1,750.00	1,711.09	1,731.00	1,705.95	7.87	7.29	-121.805	-30.29	-222.02	193.73	179.06	14.67	13.209	
1,800.00	1,756.92	1,779.22	1,752.51	8.26	7.57	-122.981	-30.88	-234.53	206.33	191.08	15.25	13.527	
1,850.00	1,802.76	1,827.44	1,799.08	8.65	7.86	-124.022	-31.48	-247.05	219.01	203.16	15.84	13.822	
1,900.00	1,848.59	1,875.66	1,845.64	9.04	8.14	-124.949	-32.07	-259.56	231.75	215.31	16.43	14.102	
1,950.00	1,894.43	1,923.88	1,892.21	9.44	8.42	-125.781	-32.67	-272.07	244.53	227.51	17.03	14.361	
2,000.00	1,940.27	1,972.10	1,938.77	9.85	8.71	-126.529	-33.26	-284.58	257.37	239.75	17.62	14.607	
2,050.00	1,986.10	2,020.32	1,985.34	10.25	8.99	-127.207	-33.86	-297.10	270.24	252.02	18.21	14.837	
2,100.00	2,031.94	2,068.54	2,031.90	10.66	9.28	-127.824	-34.46	-309.61	283.14	264.33	18.81	15.055	
2,150.00	2,077.77	2,116.76	2,078.47	11.07	9.57	-128.386	-35.05	-322.12	296.07	276.66	19.40	15.258	
2,200.00	2,123.61	2,164.99	2,125.03	11.48	9.85	-128.902	-35.65	-334.64	309.02	289.02	20.00	15.452	
2,250.00	2,169.44	2,213.21	2,171.60	11.89	10.14	-129.376	-36.24	-347.15	322.00	301.40	20.60	15.634	
2,300.00	2,215.28	2,261.43	2,218.16	12.30	10.43	-129.814	-36.84	-359.66	334.99	313.80	21.19	15.807	
2,350.00	2,261.12	2,309.65	2,264.73	12.72	10.72	-130.219	-37.44	-372.17	348.00	326.21	21.79	15.970	
2,400.00	2,306.95	2,357.87	2,311.29	13.13	11.01	-130.595	-38.03	-384.69	361.03	338.64	22.39	16.125	
2,450.00	2,352.79	2,406.09	2,357.86	13.55	11.30	-130.945	-38.63	-397.20	374.07	351.08	22.99	16.272	
2,500.00	2,398.52	2,454.32	2,404.44	13.97	11.59	-126.345	-39.22	-409.72	386.98	363.39	23.59	16.405	
2,550.00	2,443.33	2,502.54	2,451.00	14.42	11.88	-118.179	-39.82	-422.23	398.74	374.54	24.19	16.482	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #13H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,600.00	2,486.77	2,550.40	2,497.22	14.92	12.17	-112.414	-40.41	-434.65	409.25	384.45	24.80	16.505	
2,650.00	2,528.49	2,603.02	2,547.73	15.44	12.50	-108.672	-41.02	-449.34	418.52	393.05	25.48	16.428	
2,700.00	2,568.20	2,660.56	2,601.26	16.01	12.94	-106.193	-41.47	-470.34	425.92	399.58	26.34	16.170	
2,750.00	2,605.57	2,720.31	2,654.35	16.61	13.48	-104.590	-41.70	-497.72	431.21	403.84	27.36	15.758	
2,800.00	2,641.03	2,782.33	2,706.12	17.24	14.13	-105.314	-41.66	-531.81	434.51	405.94	28.57	15.209	
2,850.00	2,676.39	2,846.37	2,755.39	17.89	14.90	-106.043	-41.33	-572.67	436.33	406.34	29.99	14.548	
2,900.00	2,711.74	2,901.21	2,794.44	18.55	15.64	-106.074	-40.86	-611.16	436.88	405.48	31.40	13.913	
2,950.00	2,747.10	2,951.21	2,829.80	19.22	16.34	-106.057	-40.42	-646.51	437.34	404.57	32.77	13.345	
3,000.00	2,781.65	3,001.18	2,865.13	19.92	17.04	-106.119	-39.98	-681.84	438.11	403.97	34.14	12.832	
3,050.00	2,813.06	3,050.88	2,900.28	20.69	17.75	-106.572	-39.53	-716.98	440.07	404.56	35.51	12.394	
3,100.00	2,840.95	3,109.59	2,940.68	21.53	18.63	-107.498	-39.00	-759.55	443.03	405.97	37.06	11.954	
3,150.00	2,865.13	3,174.35	2,980.15	22.43	19.70	-108.396	-38.36	-810.84	445.89	406.99	38.90	11.463	
3,200.00	2,885.40	3,240.38	3,014.18	23.39	20.90	-109.116	-37.65	-867.39	448.44	407.51	40.93	10.956	
3,250.00	2,901.61	3,307.48	3,041.86	24.39	22.22	-109.645	-36.88	-928.47	450.61	407.45	43.16	10.440	
3,300.00	2,913.64	3,375.39	3,062.41	25.44	23.64	-109.972	-36.07	-993.14	452.31	406.74	45.57	9.925	
3,350.00	2,921.40	3,443.79	3,075.24	26.52	25.13	-110.090	-35.23	-1,060.28	453.50	405.36	48.13	9.422	
3,400.00	2,924.82	3,512.37	3,079.98	27.63	26.67	-109.995	-34.37	-1,128.65	454.14	403.33	50.81	8.937	
3,450.00	2,925.00	3,563.81	3,080.00	28.74	27.84	-109.932	-33.72	-1,180.09	454.72	401.68	53.04	8.574	
3,500.00	2,925.00	3,613.81	3,080.00	29.87	28.99	-109.903	-33.09	-1,230.08	455.35	400.13	55.22	8.245	
3,550.00	2,925.00	3,663.80	3,080.00	31.02	30.16	-109.874	-32.47	-1,280.07	455.98	398.53	57.45	7.937	
3,600.00	2,925.00	3,713.80	3,080.00	32.18	31.33	-109.845	-31.84	-1,330.06	456.62	396.93	59.69	7.650	
3,650.00	2,925.00	3,763.79	3,080.00	33.35	32.52	-109.817	-31.21	-1,380.05	457.25	395.29	61.96	7.380	
3,700.00	2,925.00	3,813.79	3,080.00	34.53	33.72	-109.788	-30.58	-1,430.05	457.88	393.65	64.23	7.128	
3,750.00	2,925.00	3,863.78	3,080.00	35.73	34.93	-109.760	-29.96	-1,480.04	458.52	391.98	66.54	6.891	
3,800.00	2,925.00	3,913.78	3,080.00	36.93	36.14	-109.731	-29.33	-1,530.03	459.15	390.30	68.85	6.669	
3,850.00	2,925.00	3,963.78	3,080.00	38.14	37.36	-109.703	-28.70	-1,580.02	459.78	388.61	71.18	6.460	
3,900.00	2,925.00	4,013.77	3,080.00	39.35	38.59	-109.675	-28.07	-1,630.01	460.42	386.90	73.51	6.263	
3,950.00	2,925.00	4,063.77	3,080.00	40.57	39.82	-109.646	-27.45	-1,680.00	461.05	385.18	75.87	6.077	
4,000.00	2,925.00	4,113.76	3,080.00	41.80	41.06	-109.618	-26.82	-1,730.00	461.68	383.46	78.23	5.902	
4,050.00	2,925.00	4,163.76	3,080.00	43.04	42.30	-109.590	-26.19	-1,779.99	462.32	381.72	80.60	5.736	
4,100.00	2,925.00	4,213.75	3,080.00	44.27	43.55	-109.562	-25.56	-1,829.98	462.95	379.97	82.98	5.579	
4,150.00	2,925.00	4,263.75	3,080.00	45.52	44.80	-109.535	-24.94	-1,879.97	463.59	378.22	85.37	5.430	
4,200.00	2,925.00	4,313.74	3,080.00	46.76	46.05	-109.507	-24.31	-1,929.96	464.22	376.46	87.76	5.290	
4,250.00	2,925.00	4,363.74	3,080.00	48.01	47.31	-109.479	-23.68	-1,979.95	464.86	374.69	90.17	5.156	
4,300.00	2,925.00	4,413.73	3,080.00	49.27	48.57	-109.451	-23.05	-2,029.94	465.49	372.92	92.57	5.028	
4,350.00	2,925.00	4,463.73	3,080.00	50.53	49.84	-109.424	-22.43	-2,079.94	466.13	371.13	94.99	4.907	
4,400.00	2,925.00	4,513.73	3,080.00	51.78	51.11	-109.396	-21.80	-2,129.93	466.76	369.35	97.41	4.792	
4,450.00	2,925.00	4,563.72	3,080.00	53.05	52.38	-109.369	-21.17	-2,179.92	467.40	367.56	99.84	4.682	
4,500.00	2,925.00	4,613.72	3,080.00	54.31	53.65	-109.342	-20.54	-2,229.91	468.03	365.76	102.27	4.577	
4,550.00	2,925.00	4,663.71	3,080.00	55.58	54.92	-109.314	-19.92	-2,279.90	468.67	363.96	104.70	4.476	
4,600.00	2,925.00	4,713.71	3,080.00	56.85	56.20	-109.287	-19.29	-2,329.89	469.30	362.16	107.14	4.380	
4,650.00	2,925.00	4,763.70	3,080.00	58.13	57.47	-109.260	-18.66	-2,379.89	469.94	360.35	109.59	4.288	
4,700.00	2,925.00	4,813.70	3,080.00	59.40	58.75	-109.233	-18.03	-2,429.88	470.57	358.54	112.04	4.200	
4,750.00	2,925.00	4,863.69	3,080.00	60.68	60.04	-109.206	-17.41	-2,479.87	471.21	356.72	114.49	4.116	
4,800.00	2,925.00	4,913.69	3,080.00	61.96	61.32	-109.179	-16.78	-2,529.86	471.84	354.90	116.94	4.035	
4,850.00	2,925.00	4,963.69	3,080.00	63.24	62.60	-109.153	-16.15	-2,579.85	472.48	353.08	119.40	3.957	
4,900.00	2,925.00	5,013.68	3,080.00	64.52	63.89	-109.126	-15.52	-2,629.84	473.11	351.25	121.86	3.882	
4,950.00	2,925.00	5,063.68	3,080.00	65.80	65.17	-109.099	-14.90	-2,679.83	473.75	349.42	124.33	3.810	
5,000.00	2,925.00	5,113.67	3,080.00	67.09	66.46	-109.073	-14.27	-2,729.83	474.39	347.59	126.80	3.741	
5,050.00	2,925.00	5,163.67	3,080.00	68.37	67.75	-109.046	-13.64	-2,779.82	475.02	345.76	129.27	3.675	
5,100.00	2,925.00	5,213.66	3,080.00	69.66	69.04	-109.020	-13.01	-2,829.81	475.66	343.92	131.74	3.611	
5,150.00	2,925.00	5,263.66	3,080.00	70.95	70.33	-108.993	-12.39	-2,879.80	476.29	342.08	134.21	3.549	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #13H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	2,925.00	5,313.65	3,080.00	72.24	71.62	-108.967	-11.76	-2,929.79	476.93	340.24	136.69	3.489	
5,250.00	2,925.00	5,363.65	3,080.00	73.53	72.92	-108.941	-11.13	-2,979.78	477.57	338.40	139.17	3.431	
5,300.00	2,925.00	5,413.64	3,080.00	74.82	74.21	-108.914	-10.50	-3,029.78	478.20	336.55	141.65	3.376	
5,350.00	2,925.00	5,463.64	3,080.00	76.11	75.50	-108.888	-9.88	-3,079.77	478.84	334.70	144.14	3.322	
5,400.00	2,925.00	5,513.64	3,080.00	77.40	76.80	-108.862	-9.25	-3,129.76	479.48	332.85	146.63	3.270	
5,450.00	2,925.00	5,563.63	3,080.00	78.70	78.10	-108.836	-8.62	-3,179.75	480.12	331.00	149.11	3.220	
5,500.00	2,925.00	5,613.63	3,080.00	79.99	79.39	-108.810	-7.99	-3,229.74	480.75	329.15	151.60	3.171	
5,550.00	2,925.00	5,663.62	3,080.00	81.29	80.69	-108.785	-7.37	-3,279.73	481.39	327.29	154.10	3.124	
5,600.00	2,925.00	5,713.62	3,080.00	82.58	81.99	-108.759	-6.74	-3,329.72	482.03	325.44	156.59	3.078	
5,650.00	2,925.00	5,763.61	3,080.00	83.88	83.29	-108.733	-6.11	-3,379.72	482.66	323.58	159.09	3.034	
5,700.00	2,925.00	5,813.61	3,080.00	85.18	84.58	-108.707	-5.48	-3,429.71	483.30	321.72	161.58	2.991	
5,750.00	2,925.00	5,863.60	3,080.00	86.48	85.88	-108.682	-4.86	-3,479.70	483.94	319.86	164.08	2.949	
5,800.00	2,925.00	5,913.60	3,080.00	87.77	87.18	-108.656	-4.23	-3,529.69	484.58	317.99	166.58	2.909	
5,850.00	2,925.00	5,963.59	3,080.00	89.07	88.48	-108.631	-3.60	-3,579.68	485.21	316.13	169.09	2.870	
5,900.00	2,925.00	6,013.59	3,080.00	90.37	89.79	-108.606	-2.97	-3,629.67	485.85	314.26	171.59	2.831	
5,950.00	2,925.00	6,063.59	3,080.00	91.67	91.09	-108.580	-2.35	-3,679.67	486.49	312.40	174.09	2.794	
6,000.00	2,925.00	6,113.58	3,080.00	92.97	92.39	-108.555	-1.72	-3,729.66	487.13	310.53	176.60	2.758	
6,050.00	2,925.00	6,163.58	3,080.00	94.28	93.69	-108.530	-1.09	-3,779.65	487.77	308.66	179.11	2.723	
6,100.00	2,925.00	6,213.57	3,080.00	95.58	94.99	-108.505	-0.46	-3,829.64	488.40	306.79	181.62	2.689	
6,150.00	2,925.00	6,263.57	3,080.00	96.88	96.30	-108.480	0.16	-3,879.63	489.04	304.91	184.13	2.656	
6,200.00	2,925.00	6,313.56	3,080.00	98.18	97.60	-108.455	0.79	-3,929.62	489.68	303.04	186.64	2.624	
6,250.00	2,925.00	6,363.56	3,080.00	99.48	98.91	-108.430	1.42	-3,979.61	490.32	301.17	189.15	2.592	
6,300.00	2,925.00	6,413.55	3,080.00	100.79	100.21	-108.405	2.05	-4,029.61	490.96	299.29	191.67	2.562	
6,350.00	2,925.00	6,463.55	3,080.00	102.09	101.51	-108.380	2.67	-4,079.60	491.60	297.42	194.18	2.532	
6,400.00	2,925.00	6,513.54	3,080.00	103.40	102.82	-108.356	3.30	-4,129.59	492.24	295.54	196.70	2.503	
6,450.00	2,925.00	6,563.54	3,080.00	104.70	104.12	-108.331	3.93	-4,179.58	492.87	293.66	199.22	2.474	
6,500.00	2,925.00	6,613.54	3,080.00	106.00	105.43	-108.306	4.56	-4,229.57	493.51	291.78	201.73	2.446	
6,550.00	2,925.00	6,663.53	3,080.00	107.31	106.74	-108.282	5.18	-4,279.56	494.15	289.90	204.25	2.419	
6,600.00	2,925.00	6,713.53	3,080.00	108.62	108.04	-108.258	5.81	-4,329.56	494.79	288.02	206.77	2.393	
6,650.00	2,925.00	6,763.52	3,080.00	109.92	109.35	-108.233	6.44	-4,379.55	495.43	286.14	209.30	2.367	
6,700.00	2,925.00	6,813.52	3,080.00	111.23	110.65	-108.209	7.07	-4,429.54	496.07	284.25	211.82	2.342	
6,750.00	2,925.00	6,863.51	3,080.00	112.53	111.96	-108.185	7.69	-4,479.53	496.71	282.37	214.34	2.317	
6,800.00	2,925.00	6,913.51	3,080.00	113.84	113.27	-108.160	8.32	-4,529.52	497.35	280.48	216.87	2.293	
6,850.00	2,925.00	6,963.50	3,080.00	115.15	114.58	-108.136	8.95	-4,579.51	497.99	278.60	219.39	2.270	
6,900.00	2,925.00	7,013.50	3,080.00	116.45	115.88	-108.112	9.58	-4,629.50	498.63	276.71	221.92	2.247	
6,950.00	2,925.00	7,063.49	3,080.00	117.76	117.19	-108.088	10.20	-4,679.50	499.27	274.82	224.45	2.224	
7,000.00	2,925.00	7,113.49	3,080.00	119.07	118.50	-108.064	10.83	-4,729.49	499.91	272.93	226.97	2.202	
7,050.00	2,925.00	7,163.49	3,080.00	120.38	119.81	-108.040	11.46	-4,779.48	500.55	271.05	229.50	2.181	
7,100.00	2,925.00	7,213.48	3,080.00	121.68	121.11	-108.016	12.09	-4,829.47	501.19	269.16	232.03	2.160	
7,150.00	2,925.00	7,263.48	3,080.00	122.99	122.42	-107.993	12.71	-4,879.46	501.83	267.26	234.56	2.139	
7,200.00	2,925.00	7,313.47	3,080.00	124.30	123.73	-107.969	13.34	-4,929.45	502.47	265.37	237.10	2.119	
7,250.00	2,925.00	7,363.47	3,080.00	125.61	125.04	-107.945	13.97	-4,979.45	503.11	263.48	239.63	2.100	
7,300.00	2,925.00	7,413.46	3,080.00	126.92	126.35	-107.922	14.60	-5,029.44	503.75	261.59	242.16	2.080	
7,350.00	2,925.00	7,463.46	3,080.00	128.23	127.66	-107.898	15.22	-5,079.43	504.39	259.69	244.70	2.061	
7,400.00	2,925.00	7,513.45	3,080.00	129.54	128.97	-107.875	15.85	-5,129.42	505.03	257.80	247.23	2.043	
7,450.00	2,925.00	7,563.45	3,080.00	130.85	130.28	-107.851	16.48	-5,179.41	505.67	255.90	249.77	2.025	
7,500.00	2,925.00	7,613.45	3,080.00	132.16	131.59	-107.828	17.11	-5,229.40	506.31	254.01	252.30	2.007	
7,550.00	2,925.00	7,663.44	3,080.00	133.47	132.90	-107.805	17.73	-5,279.39	506.95	252.11	254.84	1.989	
7,600.00	2,925.00	7,713.44	3,080.00	134.78	134.21	-107.781	18.36	-5,329.39	507.59	250.22	257.38	1.972	
7,650.00	2,925.00	7,763.43	3,080.00	136.09	135.52	-107.758	18.99	-5,379.38	508.23	248.32	259.92	1.955	
7,700.00	2,925.00	7,813.43	3,080.00	137.40	136.83	-107.735	19.62	-5,429.37	508.87	246.42	262.46	1.939	
7,750.00	2,925.00	7,863.42	3,080.00	138.71	138.14	-107.712	20.24	-5,479.36	509.52	244.52	265.00	1.923	

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

PERCUSSION PETROLEUM LLC

Wellbenders

Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Carter Collier 5 Fed Com - #13H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-MWD+IGRF

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,800.00	2,925.00	7,913.42	3,080.00	140.02	139.45	-107.689	20.87	-5,529.35	510.16	242.62	267.54	1.907	
7,850.00	2,925.00	7,963.41	3,080.00	141.33	140.76	-107.666	21.50	-5,579.34	510.80	240.72	270.08	1.891	
7,900.00	2,925.00	8,013.41	3,080.00	142.64	142.07	-107.643	22.13	-5,629.34	511.44	238.82	272.62	1.876	
7,950.00	2,925.00	8,063.40	3,080.00	143.95	143.38	-107.621	22.76	-5,679.33	512.08	236.92	275.16	1.861	
8,000.00	2,925.00	8,113.40	3,080.00	145.26	144.69	-107.598	23.38	-5,729.32	512.72	235.02	277.71	1.846	
8,050.00	2,925.00	8,163.40	3,080.00	146.57	146.00	-107.575	24.01	-5,779.31	513.36	233.11	280.25	1.832	
8,100.00	2,925.00	8,213.39	3,080.00	147.88	147.31	-107.552	24.64	-5,829.30	514.01	231.21	282.79	1.818	
8,150.00	2,925.00	8,263.39	3,080.00	149.19	148.62	-107.530	25.27	-5,879.29	514.65	229.31	285.34	1.804	
8,200.00	2,925.00	8,313.38	3,080.00	150.50	149.94	-107.507	25.89	-5,929.28	515.29	227.40	287.89	1.790	
8,250.00	2,925.00	8,363.38	3,080.00	151.82	151.25	-107.485	26.52	-5,979.28	515.93	225.50	290.43	1.776	
8,300.00	2,925.00	8,413.37	3,080.00	153.13	152.56	-107.462	27.15	-6,029.27	516.57	223.59	292.98	1.763	
8,350.00	2,925.00	8,463.37	3,080.00	154.44	153.87	-107.440	27.78	-6,079.26	517.22	221.69	295.53	1.750	
8,400.00	2,925.00	8,513.36	3,080.00	155.75	155.18	-107.418	28.40	-6,129.25	517.86	219.78	298.08	1.737	
8,450.00	2,925.00	8,563.36	3,080.00	157.06	156.49	-107.395	29.03	-6,179.24	518.50	217.87	300.63	1.725	
8,500.00	2,925.00	8,613.35	3,080.00	158.38	157.80	-107.373	29.66	-6,229.23	519.14	215.97	303.18	1.712	
8,550.00	2,925.00	8,663.35	3,080.00	159.69	159.12	-107.351	30.29	-6,279.22	519.78	214.06	305.73	1.700	SF
8,562.21	2,925.00	8,664.53	3,080.00	160.01	159.15	-107.350	30.30	-6,280.40	520.06	214.19	305.86	1.700	

PERCUSSION PETROLEUM LLC

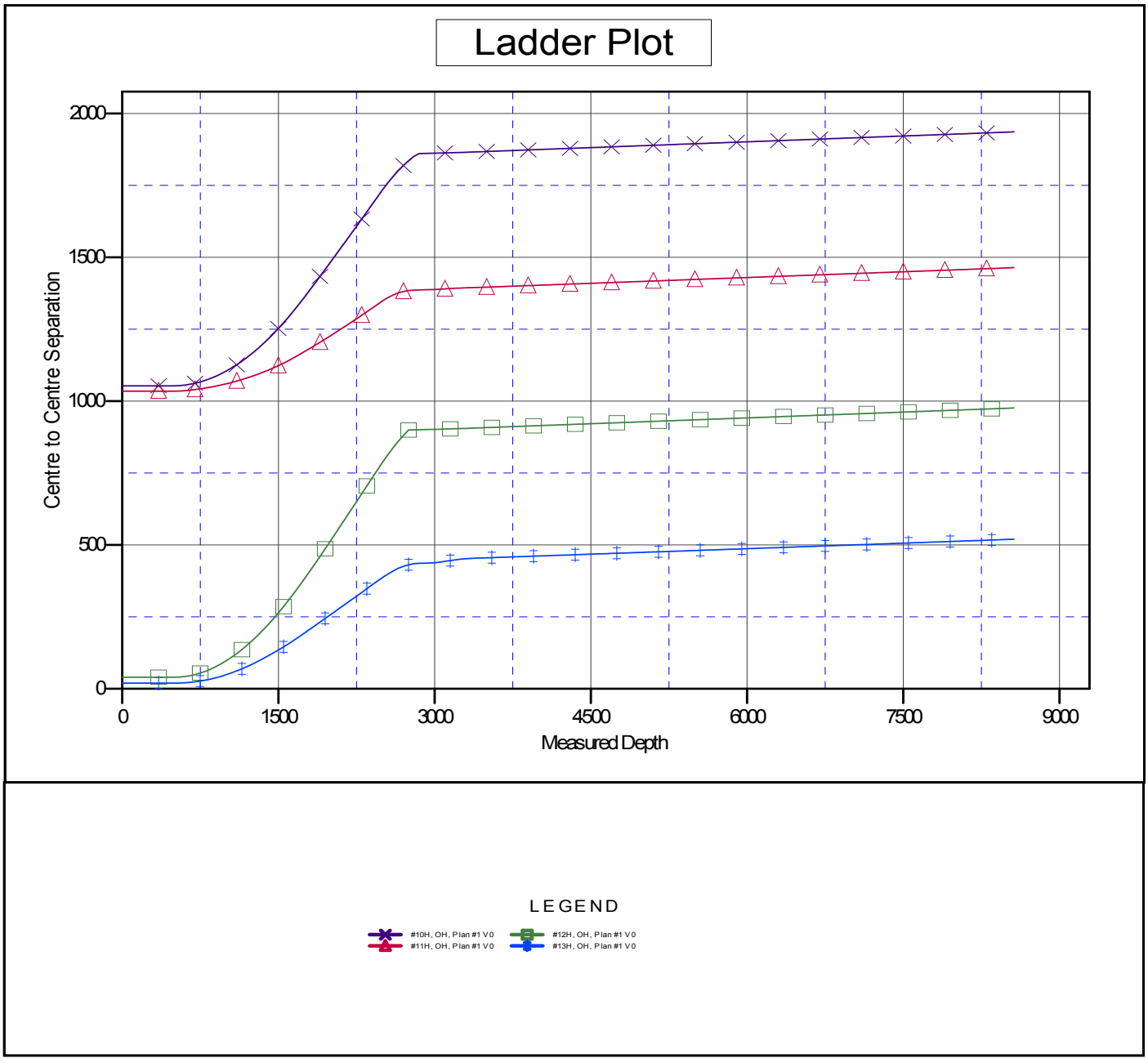
Wellbenders
Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to RKB=17' @ 3582.00usft (Silver Oak 1
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: #14H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.024°



PERCUSSION PETROLEUM LLC

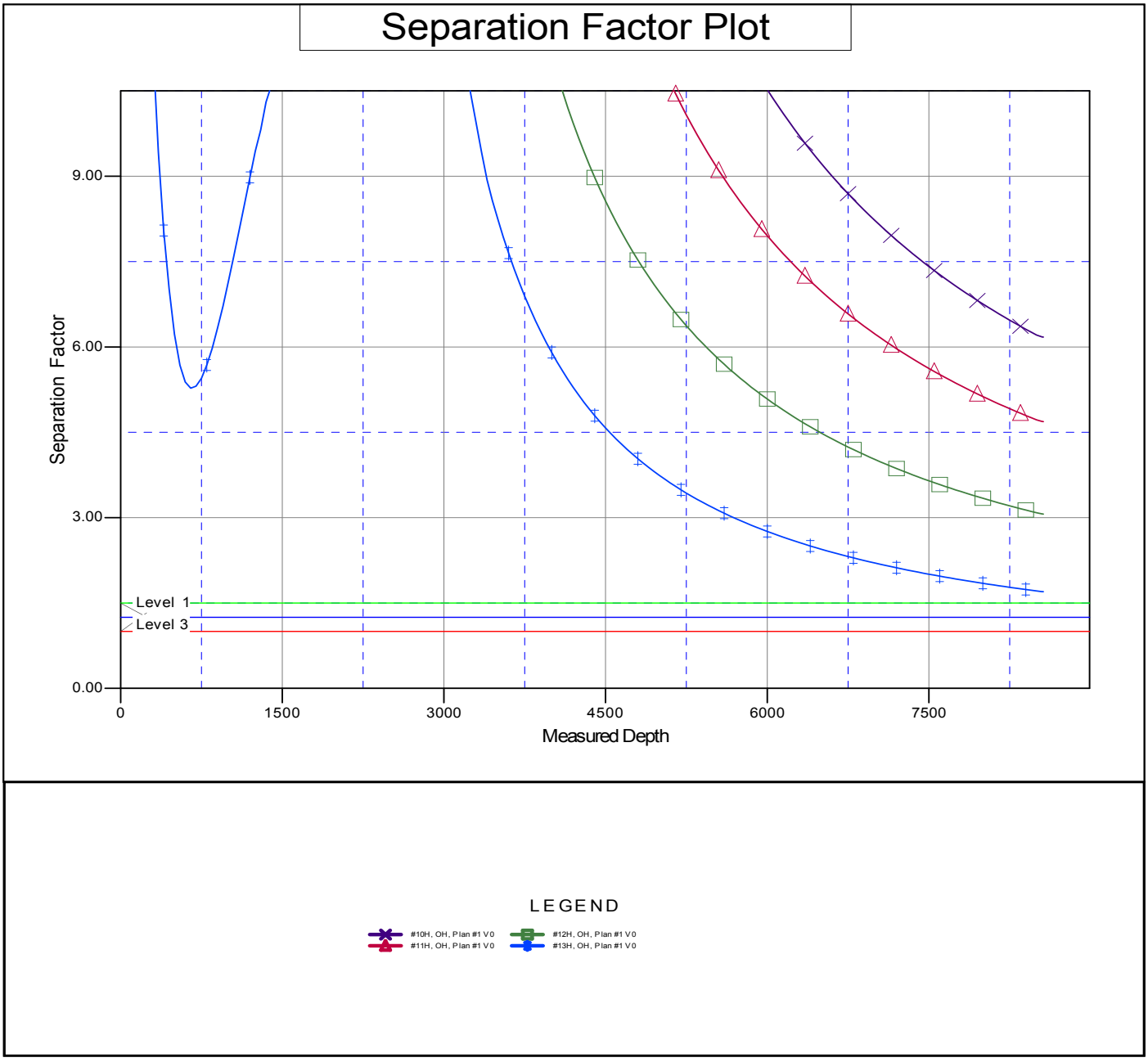
Wellbenders
Anticollision Report

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Reference Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#14H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to RKB=17' @ 3582.00usft (Silver Oak 1
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: #14H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.024°



PERCUSSION PETROLEUM LLC

Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Carter Collier 5 Fed Com
Well: #14H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #1 / 8:48, November 01 2018

WELL DETAILS: #14H

RKB=17' @ 3582.00usft (Silver Oak 1)
3565.00

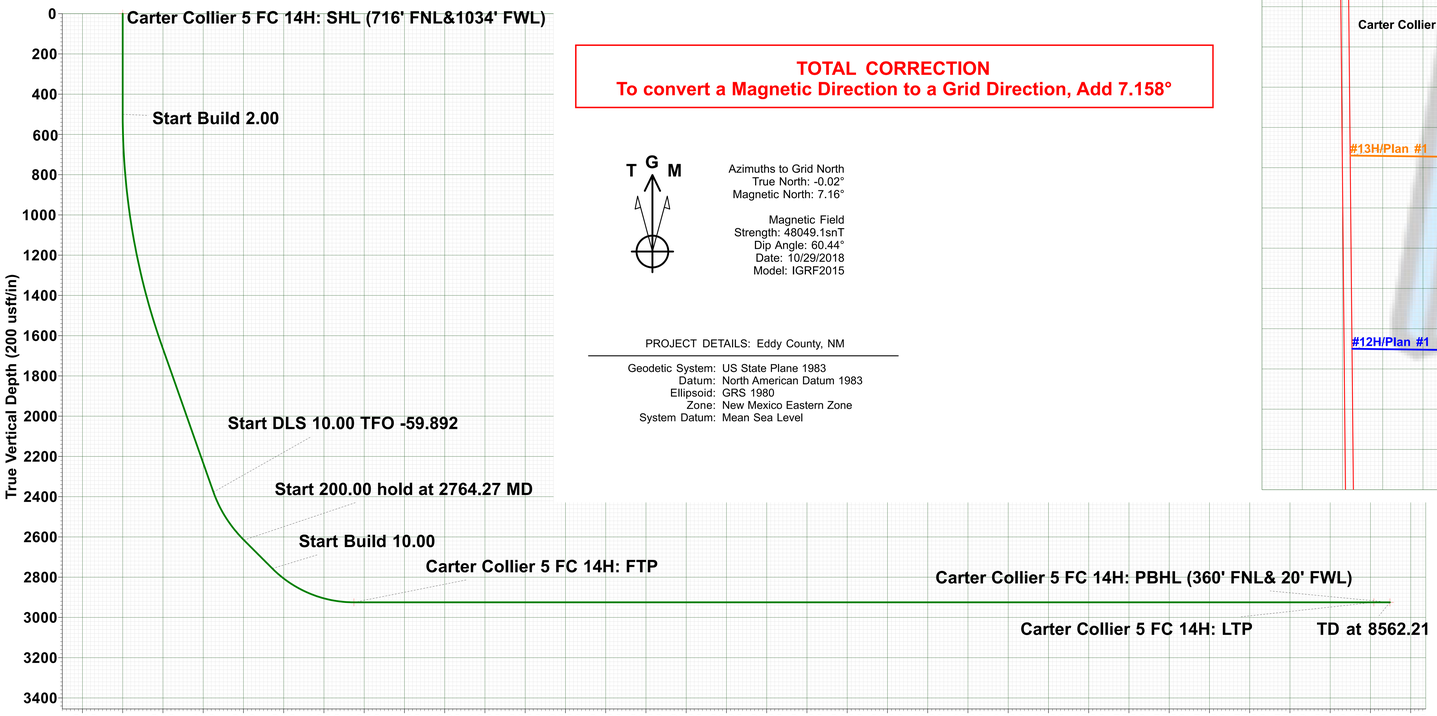
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	648082.90	555034.00	32.781605	-104.288767

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
3	1677.46	23.55	307.56	1644.59	145.45	-189.13	2.00	192.84
4	2476.58	23.55	307.56	2377.15	340.09	-442.21	0.00	450.91
5	2764.27	45.00	271.49	2615.76	378.58	-592.62	10.00	602.27
6	2964.27	45.00	271.49	2757.18	382.26	-734.00	0.00	743.69
7	3414.26	90.00	271.49	2925.00	392.80	-1139.00	10.00	1148.83
8	8562.21	90.00	271.49	2925.00	526.70	-6285.20	0.00	6296.77

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carter Collier 5 FC 14H: SHL (716' FNL&1034' FWL)	0.00	0.00	0.00	648082.90	555034.00	32.781605	-104.288767
Carter Collier 5 FC 14H: FTP	2925.00	392.80	-1139.00	648475.70	553895.00	32.782686	-104.292473
Carter Collier 5 FC 14H: LTP	2925.00	524.60	-6205.10	648607.50	548828.90	32.783052	-104.308957
Carter Collier 5 FC 14H: PBHL (360' FNL& 20' FWL)	2925.00	526.70	-6285.20	648609.60	548748.80	32.783058	-104.309218



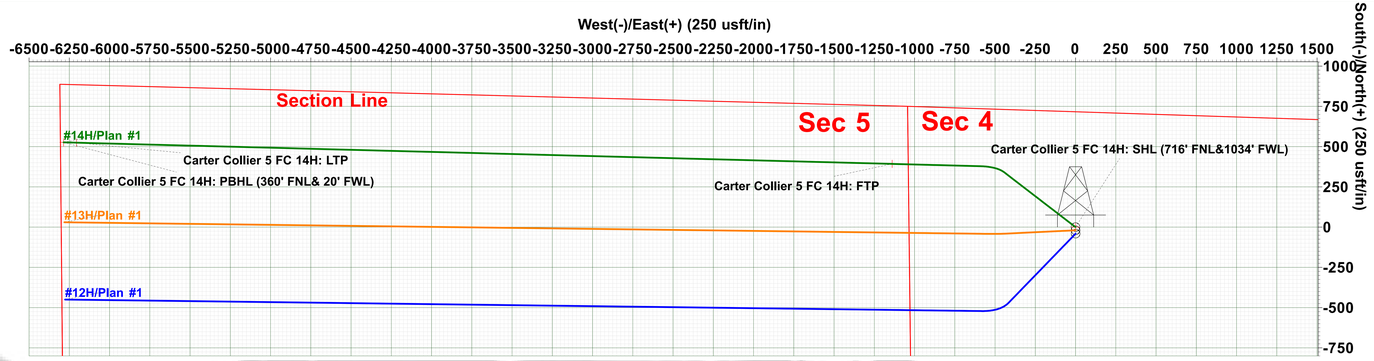
TOTAL CORRECTION
To convert a Magnetic Direction to a Grid Direction, Add 7.158°

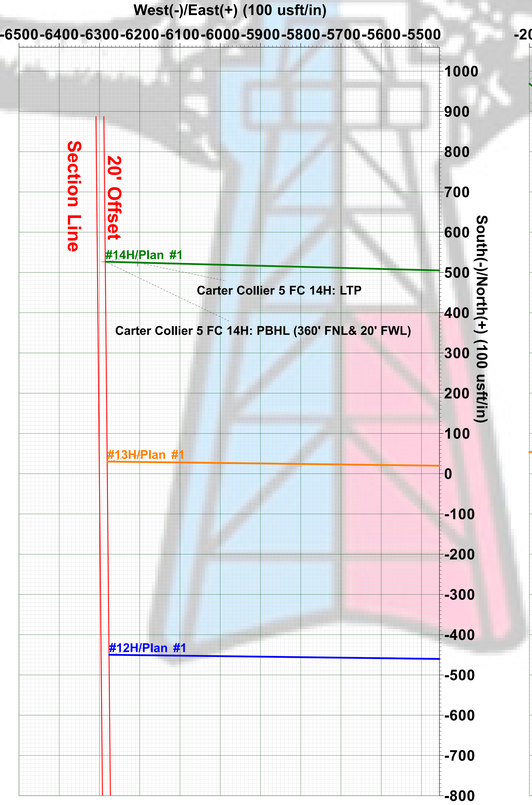
Azimuths to Grid North
True North: -0.02°
Magnetic North: 7.16°

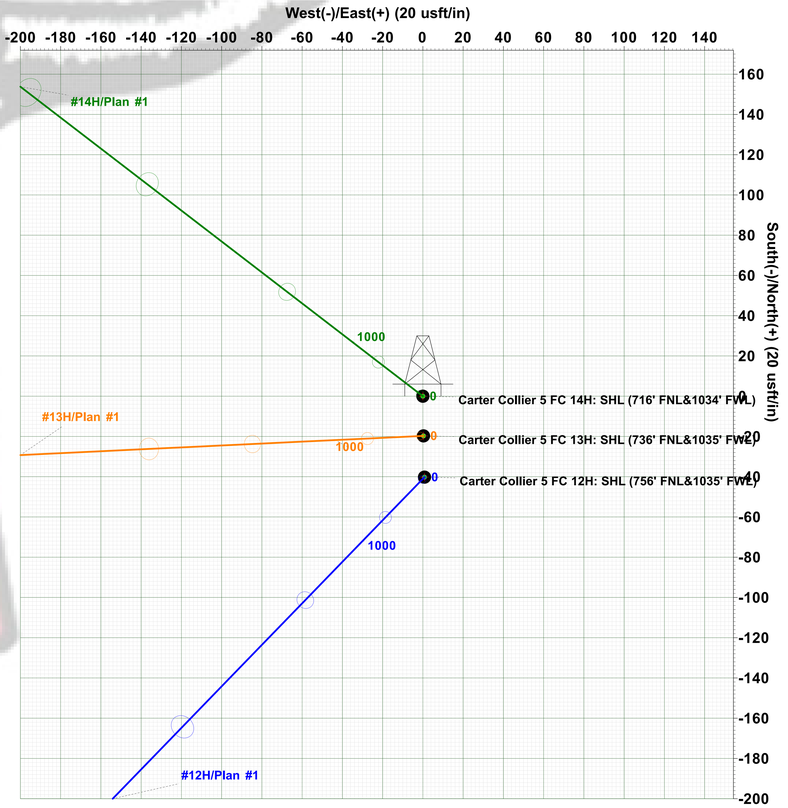
Magnetic Field
Strength: 48049.1snT
Dip Angle: 60.44°
Date: 10/29/2018
Model: IGRF2015

PROJECT DETAILS: Eddy County, NM

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level







WELLBENDERS DIRECTIONAL SERVICES LLC

Disclaimer:
All Plan Details, boundary lines and offset well location/ survey data is provided by customer and subject to customer approval.

Plan: Plan #1 (#14H/OH) Silver Oak 1

Created By: Derek Stephens Date: 8:48, November 01 2018

Percussion Petroleum, LLC

Eddy County, NM
Carter Collier 5 Fed Com
#14H
OH

Plan: Plan #1

Standard Plan With Toolface

01 November, 2018

PERCUSSION PETROLEUM LLC

Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Carter Collier 5 Fed Com
Well: #14H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #1 / 8:48, November 01 2018

WELL DETAILS: #14H

RKB=17' @ 3582.00usft (Silver Oak 1)
3565.00

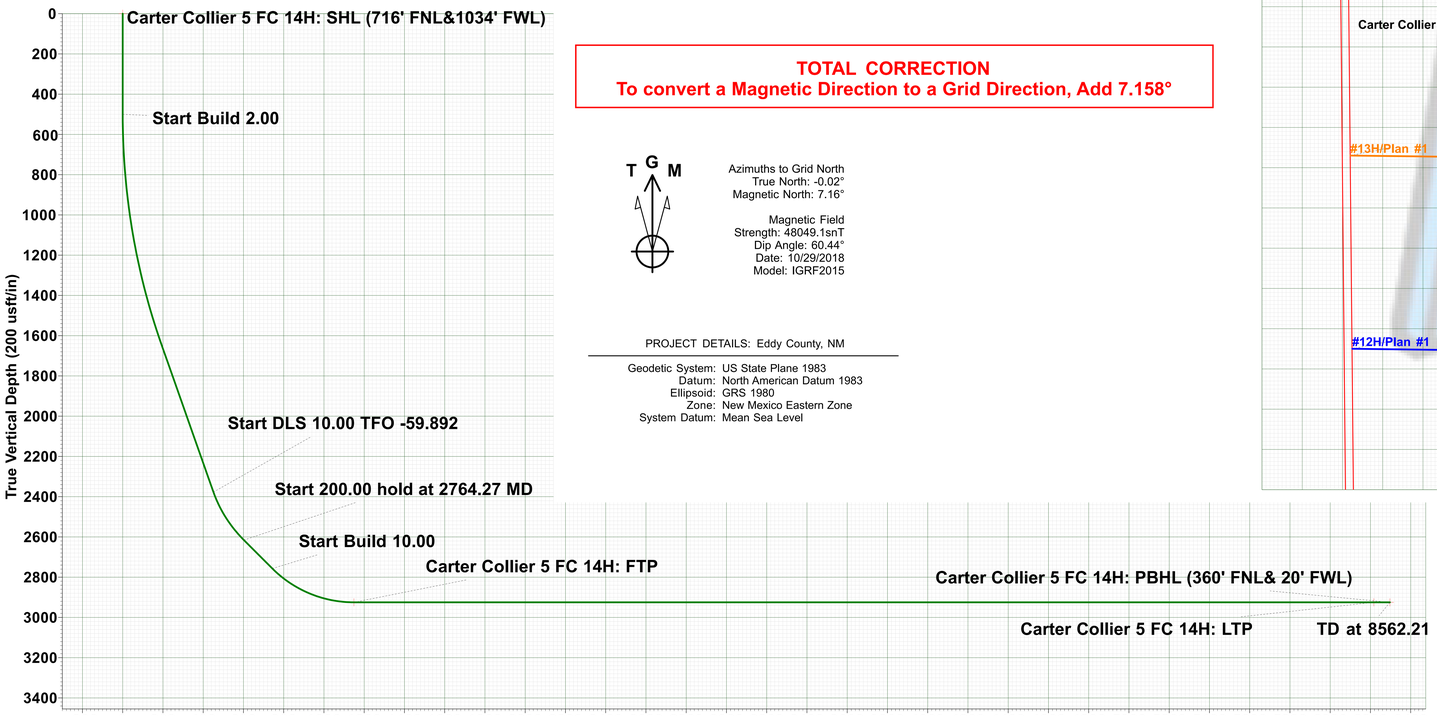
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	648082.90	555034.00	32.781605	-104.288767

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
3	1677.46	23.55	307.56	1644.59	145.45	-189.13	2.00	192.84
4	2476.58	23.55	307.56	2377.15	340.09	-442.21	0.00	450.91
5	2764.27	45.00	271.49	2615.76	378.58	-592.62	10.00	602.27
6	2964.27	45.00	271.49	2757.18	382.26	-734.00	0.00	743.69
7	3414.26	90.00	271.49	2925.00	392.80	-1139.00	10.00	1148.83
8	8562.21	90.00	271.49	2925.00	526.70	-6285.20	0.00	6296.77

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Carter Collier 5 FC 14H: SHL (716' FNL&1034' FWL)	0.00	0.00	0.00	648082.90	555034.00	32.781605	-104.288767
Carter Collier 5 FC 14H: FTP	2925.00	392.80	-1139.00	648475.70	553895.00	32.782686	-104.292473
Carter Collier 5 FC 14H: LTP	2925.00	524.60	-6205.10	648607.50	548828.90	32.783052	-104.308957
Carter Collier 5 FC 14H: PBHL (360' FNL& 20' FWL)	2925.00	526.70	-6285.20	648609.60	548748.80	32.783058	-104.309218



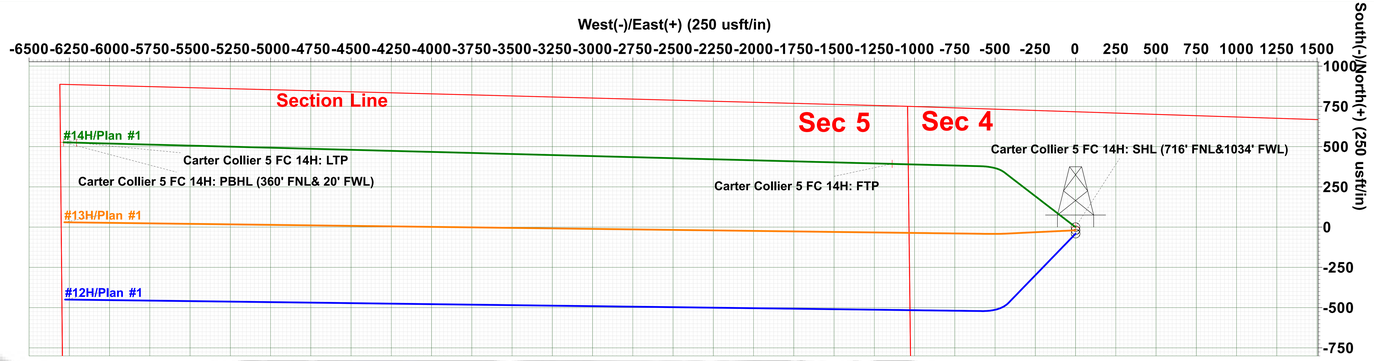
TOTAL CORRECTION
To convert a Magnetic Direction to a Grid Direction, Add 7.158°

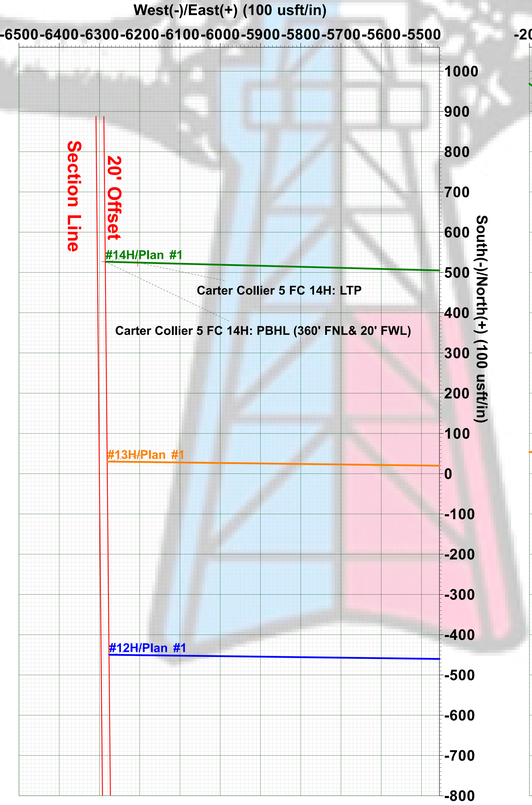
Azimuths to Grid North
True North: -0.02°
Magnetic North: 7.16°

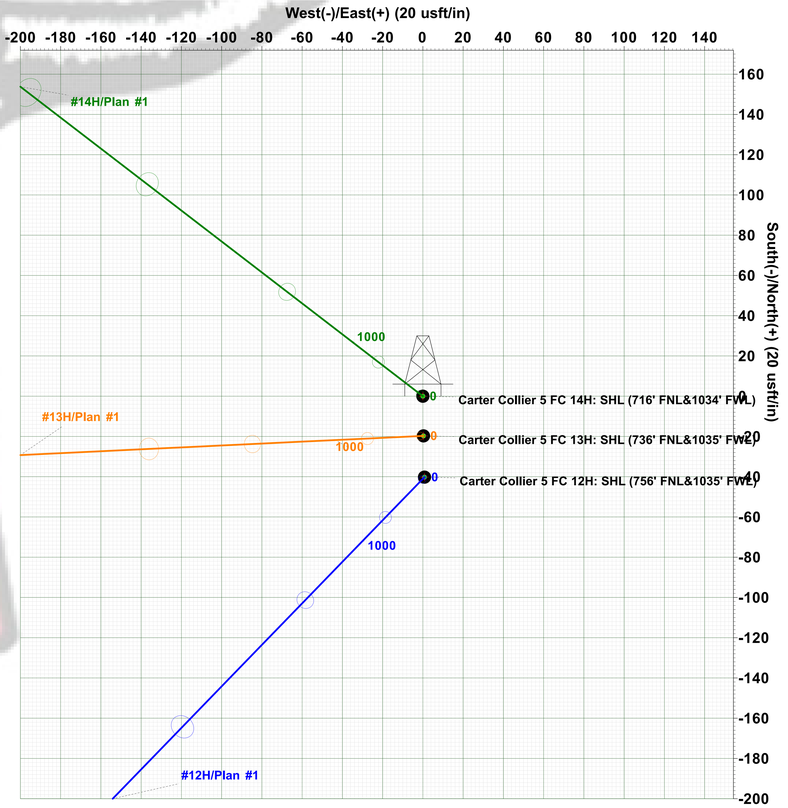
Magnetic Field
Strength: 48049.1snT
Dip Angle: 60.44°
Date: 10/29/2018
Model: IGRF2015

PROJECT DETAILS: Eddy County, NM

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level







WELLBENDERS DIRECTIONAL SERVICES LLC

Disclaimer:
All Plan Details, boundary lines and offset well location/ survey data is provided by customer and subject to customer approval.

Plan: Plan #1 (#14H/OH) Silver Oak 1

Created By: Derek Stephens Date: 8:48, November 01 2018

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Well:	#14H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	WBDS_SQL_2

Project Eddy County, NM

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Carter Collier 5 Fed Com

Site Position:		**Northing:**	647,068.80 usft	**Latitude:**	32.778818
From:	Map	**Easting:**	554,749.00 usft	**Longitude:**	-104.289696
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.024 °

Well #14H

Well Position	**+N/-S**	0.00 usft	**Northing:**	648,082.90 usft	**Latitude:**	32.781605
	+E/-W	0.00 usft	**Easting:**	555,034.00 usft	**Longitude:**	-104.288767
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,565.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/29/2018	7.182	60.440	48,049.08785846

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	271.49

Survey Tool Program **Date** 11/1/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	8,562.21	Plan #1 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES LLC

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Well:	#14H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
600.00	2.00	307.56	599.98	1.06	-1.38	1.41	2.00	2.00	0.00	307.563
700.00	4.00	307.56	699.84	4.25	-5.53	5.64	2.00	2.00	0.00	0.000
800.00	6.00	307.56	799.45	9.57	-12.44	12.68	2.00	2.00	0.00	0.000
900.00	8.00	307.56	898.70	17.00	-22.10	22.53	2.00	2.00	0.00	0.000
1,000.00	10.00	307.56	997.47	26.53	-34.50	35.18	2.00	2.00	0.00	0.000
1,100.00	12.00	307.56	1,095.62	38.16	-49.62	50.60	2.00	2.00	0.00	0.000
1,200.00	14.00	307.56	1,193.06	51.88	-67.46	68.78	2.00	2.00	0.00	0.000
1,300.00	16.00	307.56	1,289.64	67.65	-87.97	89.70	2.00	2.00	0.00	0.000
1,400.00	18.00	307.56	1,385.27	85.48	-111.15	113.33	2.00	2.00	0.00	0.000
1,500.00	20.00	307.56	1,479.82	105.32	-136.95	139.64	2.00	2.00	0.00	0.000
1,600.00	22.00	307.56	1,573.17	127.17	-165.36	168.61	2.00	2.00	0.00	0.000
1,677.46	23.55	307.56	1,644.59	145.45	-189.13	192.84	2.00	2.00	0.00	0.000
1,700.00	23.55	307.56	1,665.25	150.94	-196.26	200.12	0.00	0.00	0.00	0.000
1,800.00	23.55	307.56	1,756.92	175.30	-227.94	232.42	0.00	0.00	0.00	0.000
1,900.00	23.55	307.56	1,848.59	199.65	-259.61	264.71	0.00	0.00	0.00	0.000
2,000.00	23.55	307.56	1,940.27	224.01	-291.28	297.00	0.00	0.00	0.00	0.000
2,100.00	23.55	307.56	2,031.94	248.37	-322.95	329.30	0.00	0.00	0.00	0.000
2,200.00	23.55	307.56	2,123.61	272.72	-354.62	361.59	0.00	0.00	0.00	0.000
2,300.00	23.55	307.56	2,215.28	297.08	-386.29	393.88	0.00	0.00	0.00	0.000
2,400.00	23.55	307.56	2,306.95	321.44	-417.96	426.18	0.00	0.00	0.00	0.000
2,476.58	23.55	307.56	2,377.15	340.09	-442.21	450.91	0.00	0.00	0.00	0.000

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Well:	#14H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
2,500.00	24.80	302.73	2,398.52	345.60	-450.06	458.89	10.00	5.35	-20.64	-59.892
2,550.00	27.92	293.91	2,443.33	356.02	-469.59	478.69	10.00	6.24	-17.64	-55.481
2,600.00	31.49	286.83	2,486.77	364.55	-492.81	502.12	10.00	7.15	-14.15	-47.571
2,650.00	35.38	281.12	2,528.49	371.13	-519.53	529.01	10.00	7.78	-11.43	-41.422
2,700.00	39.49	276.43	2,568.20	375.70	-549.56	559.14	10.00	8.22	-9.38	-36.649
2,750.00	43.76	272.50	2,605.57	378.24	-582.65	592.29	10.00	8.54	-7.85	-32.920
2,764.27	45.00	271.49	2,615.76	378.58	-592.62	602.27	10.00	8.69	-7.07	-29.982
2,800.00	45.00	271.49	2,641.03	379.24	-617.88	627.53	0.00	0.00	0.00	0.000
2,900.00	45.00	271.49	2,711.74	381.08	-688.57	698.24	0.00	0.00	0.00	0.000
2,964.27	45.00	271.49	2,757.18	382.26	-734.00	743.69	0.00	0.00	0.00	0.000
3,000.00	48.57	271.49	2,781.65	382.94	-760.03	769.73	10.00	10.00	0.00	0.000
3,050.00	53.57	271.49	2,813.05	383.95	-798.90	808.61	10.00	10.00	0.00	0.000
3,100.00	58.57	271.49	2,840.95	385.03	-840.36	850.09	10.00	10.00	0.00	0.000
3,150.00	63.57	271.49	2,865.13	386.17	-884.09	893.83	10.00	10.00	0.00	0.000
3,200.00	68.57	271.49	2,885.40	387.36	-929.77	939.52	10.00	10.00	0.00	0.000
3,250.00	73.57	271.49	2,901.61	388.59	-977.03	986.80	10.00	10.00	0.00	0.000
3,300.00	78.57	271.49	2,913.64	389.85	-1,025.53	1,035.32	10.00	10.00	0.00	0.000
3,350.00	83.57	271.49	2,921.40	391.13	-1,074.89	1,084.70	10.00	10.00	0.00	0.000
3,400.00	88.57	271.49	2,924.82	392.43	-1,124.74	1,134.57	10.00	10.00	0.00	0.000
3,414.26	90.00	271.49	2,925.00	392.80	-1,139.00	1,148.83	10.00	10.00	0.00	0.000
3,500.00	90.00	271.49	2,925.00	395.03	-1,224.71	1,234.56	0.00	0.00	0.00	0.000
3,600.00	90.00	271.49	2,925.00	397.63	-1,324.67	1,334.56	0.00	0.00	0.00	0.000
3,700.00	90.00	271.49	2,925.00	400.23	-1,424.64	1,434.56	0.00	0.00	0.00	0.000
3,800.00	90.00	271.49	2,925.00	402.83	-1,524.60	1,534.56	0.00	0.00	0.00	0.000
3,900.00	90.00	271.49	2,925.00	405.43	-1,624.57	1,634.56	0.00	0.00	0.00	0.000
4,000.00	90.00	271.49	2,925.00	408.04	-1,724.54	1,734.56	0.00	0.00	0.00	0.000
4,100.00	90.00	271.49	2,925.00	410.64	-1,824.50	1,834.56	0.00	0.00	0.00	0.000

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #14H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Site:	Carter Collier 5 Fed Com	**MD Reference:**	RKB=17' @ 3582.00usft (Silver Oak 1)
Well:	#14H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
4,200.00	90.00	271.49	2,925.00	413.24	-1,924.47	1,934.56	0.00	0.00	0.00	0.000
4,300.00	90.00	271.49	2,925.00	415.84	-2,024.44	2,034.56	0.00	0.00	0.00	0.000
4,400.00	90.00	271.49	2,925.00	418.44	-2,124.40	2,134.56	0.00	0.00	0.00	0.000
4,500.00	90.00	271.49	2,925.00	421.04	-2,224.37	2,234.56	0.00	0.00	0.00	0.000
4,600.00	90.00	271.49	2,925.00	423.64	-2,324.33	2,334.56	0.00	0.00	0.00	0.000
4,700.00	90.00	271.49	2,925.00	426.24	-2,424.30	2,434.56	0.00	0.00	0.00	0.000
4,800.00	90.00	271.49	2,925.00	428.84	-2,524.27	2,534.56	0.00	0.00	0.00	0.000
4,900.00	90.00	271.49	2,925.00	431.44	-2,624.23	2,634.56	0.00	0.00	0.00	0.000
5,000.00	90.00	271.49	2,925.00	434.05	-2,724.20	2,734.56	0.00	0.00	0.00	0.000
5,100.00	90.00	271.49	2,925.00	436.65	-2,824.16	2,834.56	0.00	0.00	0.00	0.000
5,200.00	90.00	271.49	2,925.00	439.25	-2,924.13	2,934.56	0.00	0.00	0.00	0.000
5,300.00	90.00	271.49	2,925.00	441.85	-3,024.10	3,034.56	0.00	0.00	0.00	0.000
5,400.00	90.00	271.49	2,925.00	444.45	-3,124.06	3,134.56	0.00	0.00	0.00	0.000
5,500.00	90.00	271.49	2,925.00	447.05	-3,224.03	3,234.56	0.00	0.00	0.00	0.000
5,600.00	90.00	271.49	2,925.00	449.65	-3,324.00	3,334.56	0.00	0.00	0.00	0.000
5,700.00	90.00	271.49	2,925.00	452.25	-3,423.96	3,434.56	0.00	0.00	0.00	0.000
5,800.00	90.00	271.49	2,925.00	454.85	-3,523.93	3,534.56	0.00	0.00	0.00	0.000
5,900.00	90.00	271.49	2,925.00	457.45	-3,623.89	3,634.56	0.00	0.00	0.00	0.000
6,000.00	90.00	271.49	2,925.00	460.06	-3,723.86	3,734.56	0.00	0.00	0.00	0.000
6,100.00	90.00	271.49	2,925.00	462.66	-3,823.83	3,834.56	0.00	0.00	0.00	0.000
6,200.00	90.00	271.49	2,925.00	465.26	-3,923.79	3,934.56	0.00	0.00	0.00	0.000
6,300.00	90.00	271.49	2,925.00	467.86	-4,023.76	4,034.56	0.00	0.00	0.00	0.000
6,400.00	90.00	271.49	2,925.00	470.46	-4,123.73	4,134.56	0.00	0.00	0.00	0.000
6,500.00	90.00	271.49	2,925.00	473.06	-4,223.69	4,234.56	0.00	0.00	0.00	0.000
6,600.00	90.00	271.49	2,925.00	475.66	-4,323.66	4,334.56	0.00	0.00	0.00	0.000
6,700.00	90.00	271.49	2,925.00	478.26	-4,423.62	4,434.56	0.00	0.00	0.00	0.000
6,800.00	90.00	271.49	2,925.00	480.86	-4,523.59	4,534.56	0.00	0.00	0.00	0.000

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
6,900.00	90.00	271.49	2,925.00	483.47	-4,623.56	4,634.56	0.00	0.00	0.00	0.000
7,000.00	90.00	271.49	2,925.00	486.07	-4,723.52	4,734.56	0.00	0.00	0.00	0.000
7,100.00	90.00	271.49	2,925.00	488.67	-4,823.49	4,834.56	0.00	0.00	0.00	0.000
7,200.00	90.00	271.49	2,925.00	491.27	-4,923.45	4,934.56	0.00	0.00	0.00	0.000
7,300.00	90.00	271.49	2,925.00	493.87	-5,023.42	5,034.56	0.00	0.00	0.00	0.000
7,400.00	90.00	271.49	2,925.00	496.47	-5,123.39	5,134.56	0.00	0.00	0.00	0.000
7,500.00	90.00	271.49	2,925.00	499.07	-5,223.35	5,234.56	0.00	0.00	0.00	0.000
7,600.00	90.00	271.49	2,925.00	501.67	-5,323.32	5,334.56	0.00	0.00	0.00	0.000
7,700.00	90.00	271.49	2,925.00	504.27	-5,423.29	5,434.56	0.00	0.00	0.00	0.000
7,800.00	90.00	271.49	2,925.00	506.87	-5,523.25	5,534.56	0.00	0.00	0.00	0.000
7,900.00	90.00	271.49	2,925.00	509.48	-5,623.22	5,634.56	0.00	0.00	0.00	0.000
8,000.00	90.00	271.49	2,925.00	512.08	-5,723.18	5,734.56	0.00	0.00	0.00	0.000
8,100.00	90.00	271.49	2,925.00	514.68	-5,823.15	5,834.56	0.00	0.00	0.00	0.000
8,200.00	90.00	271.49	2,925.00	517.28	-5,923.12	5,934.56	0.00	0.00	0.00	0.000
8,300.00	90.00	271.49	2,925.00	519.88	-6,023.08	6,034.56	0.00	0.00	0.00	0.000
8,400.00	90.00	271.49	2,925.00	522.48	-6,123.05	6,134.56	0.00	0.00	0.00	0.000
8,500.00	90.00	271.49	2,925.00	525.08	-6,223.01	6,234.56	0.00	0.00	0.00	0.000
8,562.21	90.00	271.49	2,925.00	526.70	-6,285.20	6,296.77	0.00	0.00	0.00	0.000

Checked By: _____ Approved By: _____ Date: _____

Pecos District

Application for Permit to Drill

Conditions of Approval

Geology Concerns

Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst	☐ Medium	☒ High	☐ Critical
H2S	☐ None	☐ Below 100 PPM	☒ Above 100 PPM
Other	☐ 4 String Area	☐ Capitan Reef	☐ SWD Well

Note: The geology of the area where the well is being drilled determines the COAs that apply, not the above table.

Additional Engineering Requirements

Surface casing must be set at: 1,000 feet

General Requirements

1. Changes to the approved APD casing program need prior approval.

2. The Bureau of Land Management (BLM) will be notified in advance to witness:
   a. Well spudding (minimum 24 hours notice)
   b. Setting and cementing of all casing strings (minimum 4 hours notice)
   c. BOPE tests (minimum 4 hours notice)

   Eddy County
   620 East Greene Street, Carlsbad, NM 88220
   (575) 361-2822

   Lea County
   414 West Taylor, Hobbs, NM 88240
   (575) 393-3612

3. The initial wellhead installed on the well will remain on the well with spools used as needed.

4. 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:

i. 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 a Spudder Rig:
   i. Notify the BLM when moving in and removing the Spudder Rig.
   ii. 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.
   iii. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

5. 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 always be operational 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 doghouse or stairway area.

6. 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.

Pressure Control

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. 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.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
   a. 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.
   b. The results of the test shall be reported to the appropriate BLM office.
   c. 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.

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d. 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.
e. 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.
f. 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).
g. 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.
h. 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).

4. If the operator has proposed using a 5,000 (5M) Annular on a 10M BOP:
   a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 10,000 (10M) psi.

5. 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
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.

6. If a variance is approved for break testing the BOPE, the following requirements apply:
   a. BOPE break testing is only approved for a BOP rated at 5M or less.
   b. A full BOP test shall be performed every 21 days (at a minimum).
   c. A full BOP test is required prior to drilling the first intermediate hole section (if applicable). If any subsequent intermediate hole interval is deeper than the first, a full BOP test shall be required.
   d. A full BOP test is required prior to drilling the first production hole section. If any subsequent production hole interval is deeper than the first, a full BOP test shall be required.
   e. While in transfer, the BOP shall be secured by the hydraulic carrier or cradle.
   f. Pressure tests shall be performed on any BOPE components that have been disconnected. A low pressure (250-300 psi) and a high pressure (BOP max pressure rating) test are required.
   g. If a testing plug is used, pressure shall be maintained for at least 10 minutes. If there is any bleed off in pressure, the test shall be considered to have failed.
   h. If no testing plug is used, pressure shall be maintained for at least 30 minutes. If there is a decline in pressure of more than 10 percent, the test shall be considered to have failed.
   i. The appropriate Bureau of Land Management (BLM) office shall be notified a minimum of 4 hours before testing occurs.

7. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply:
   a. The flex line must meet the requirements of API 16C.
   b. Check condition of flexible line from BOP to choke manifold (replace if exterior is damaged or if line fails test).
   c. Line is to be as straight as possible with no hard bends and is to be anchored according to Manufacturer’s requirements.
   d. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating.
   e. 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.

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Casing and Cement

1. 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.).

2. On any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. The 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.

3. 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.

4. The surface casing shall be set at a minimum of 25 feet into the Rustler Anhydrite and 80 feet 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 24 hours in the Potash Area) 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.

5. Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

6. Intermediate casing must be cemented to surface. For medium/high cave/karst, potash, and Capitan Reef, wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

7. The production cement should tie-back at least 200 feet (500 feet in Secretary Potash, surface in R-111-P potash) into previous casing string. Operator shall provide method of verification.

8. Production liner cement should tie-back at least 100 feet into previous casing string. Operator shall provide verification of cement top.

9. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

10. No pea gravel permitted for remedial cement or fall back remedial cement without prior authorization from a BLM petroleum engineer.

11. 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.

12. DV tools:
    a. First stage to DV tool (The DV tool may be cancelled if cement circulates to surface on the first stage):
        i. Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
    b. Second stage above DV tool:
        i. For intermediate casing, cement to surface.
        ii. For production casing, cement should tie-back at least 200 feet (500 feet in Secretary Potash, surface in R-111-P potash) into previous casing string. Operator shall provide method of verification.
        iii. If cement does not circulate, contact the appropriate BLM office.

13. Wait on cement (WOC) for Potash Areas:
    a. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
    b. After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met:
        i. Cement reaches a minimum compressive strength of 500 psi for all cement blends
        ii. Until cement has been in place at least 24 hours.
    c. WOC time will be recorded in the driller's log.
    d. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

14. Wait on cement (WOC) for Water Basin:
    a. After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met:

i. Cement reaches a minimum compressive strength of 500 psi at the shoe
ii. Until cement has been in place at least 8 hours.

b. WOC time will be recorded in the driller's log.

15. Wait on cement (WOC) for Medium and High Cave/Karst Areas:
    a. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

16. If cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Drilling Mud

1. 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.

Waste Material and Fluids

1. 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.

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

Special Requirements

1. Communitization Agreement
    a. The operator will submit a Communitization Agreement to the Carlsbad Field Office (620 E Greene St. Carlsbad, New Mexico 88220), at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division.
    b. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
        i. If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
    c. In addition, the well sign shall include the surface and bottom hole lease numbers.
        i. When the Communitization Agreement number is known, it shall also be on the sign.

2. Unit Wells
    a. The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers.
        i. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.
    b. Commercial Well Determination
        i. A commercial well determination shall be submitted after production has been established for at least six months (this is not necessary for secondary recovery unit wells).

3. Hydrogen Sulfide (H2S)
    a. If H2S is encountered, provide measured values and formations to the BLM.
    b. An H2S area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items.
    c. An H2S Drilling Plan shall be activated 500 feet prior to drilling into the any formation designated as having H2S.
    d. Hydrogen Sulfide 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.

4. Capitan Reef
    a. If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following (Use this for 3 string wells in the Capitan Reef, if 4 string well ensure fresh water based mud used across the Capitan interval):
        i. Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
        ii. Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports.
        iii. The daily drilling report should show mud volume per shift/tour.
        iv. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval.
        v. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

5. Salt Water Disposal Wells
    a. The operator shall supply the BLM with a copy of a mudlog over the permitted disposal interval and estimated in situ water salinity based on open-hole logs.
    b. If hydrocarbons are encountered while drilling, the operator shall notify the BLM.
    c. The operator shall provide to the BLM a summary of formation depth picks based on mudlog and geophysical logs along with a copy of the mudlog and open-hole logs from total depth to top of Devonian.
    d. An NOI sundry with the completion procedure for this well shall be submitted and approved prior to commencing completion work. The procedure will be reviewed to verify that the completion proposal will allow the operator to:
        i. Properly evaluate the injection zone utilizing open-hole logs, swab testing and/or any other method to confirm that hydrocarbons cannot be produced in paying quantities. This evaluation shall be reviewed by the BLM prior to injection commencing.
        ii. Restrict the injection fluid to the approved formation.
        iii. If a step rate test will be run, an NOI sundry shall be submitted to the BLM for approval.
    e. If off-lease water will be disposed in this well, the operator shall provide proof of right-of-way approval.

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	SPUR
LEASE NO.:	Lease No. NMLC0065478A
COUNTY:	Eddy

Wells:
Carter Collier 5 Fed Com 12H:

Surface Hole Location: 756' FNL & 1035' FWL, Section 4, T. 18 S., R. 27 E.

Bottom Hole Location: 1336' FNL & 20' FWL, Section 5, T. 18 S., R. 27 E.

Carter Collier 5 Fed Com 13H:

Surface Hole Location: 736' FNL & 1035' FWL, Section 4, T. 18 S., R. 27 E.

Bottom Hole Location: 856' FNL & 20' FWL, Section 5, T. 18 S., R. 27 E.

Carter Collier 5 Fed Com 14H:

Surface Hole Location: 716' FNL & 1034' FWL, Section 4, T. 18 S., R. 27 E.

Bottom Hole Location: 360' FNL & 20' FWL, Section 5, T. 18 S., R. 27 E.

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TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Approval Date: 04/16/2021

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 resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Approval Date: 04/16/2021

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

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.

SPECIAL REQUIREMENT(S)

Watershed:
The entire well pad(s) 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 with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The 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 water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. 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.

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

BURIED/SURFACE LINE(S):
When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present.

The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

ELECTRIC LINE(S):
Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

Cave/Karst:

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- 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 (i.e. an access road crossing the berm cannot be lower than the berm height).
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.

- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

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Residual and Cumulative Mitigation
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation
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.

Range:

Cattleguards
Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement
Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Livestock Watering Requirement
Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

VRM IV:

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

Short-term mitigation measures include painting all above-ground structures that are not subject to safety requirements (including meter housing) Shale Green, which is a flat non-reflective paint color listed in the BLM Standard Environmental Color Chart (CC-001: June 2013). Long-term mitigation measures include the removal of wells and associated infrastructure following abandonment (end of cost-effective production). Previously impacted areas will be reclaimed by removing structures and caliche pads, returning disturbed areas to natural grade, and revegetating with an approved BLM seed mixture; thereby eliminating visual impacts.

V. 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.

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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.

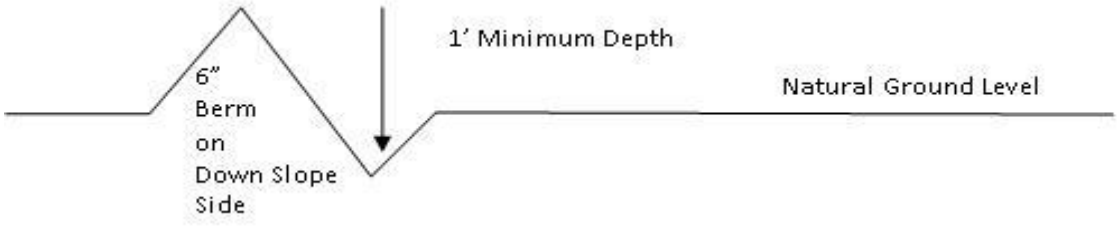
Ditching
Ditching shall be required on both sides of the road.

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 outsloping 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:

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

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.

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Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

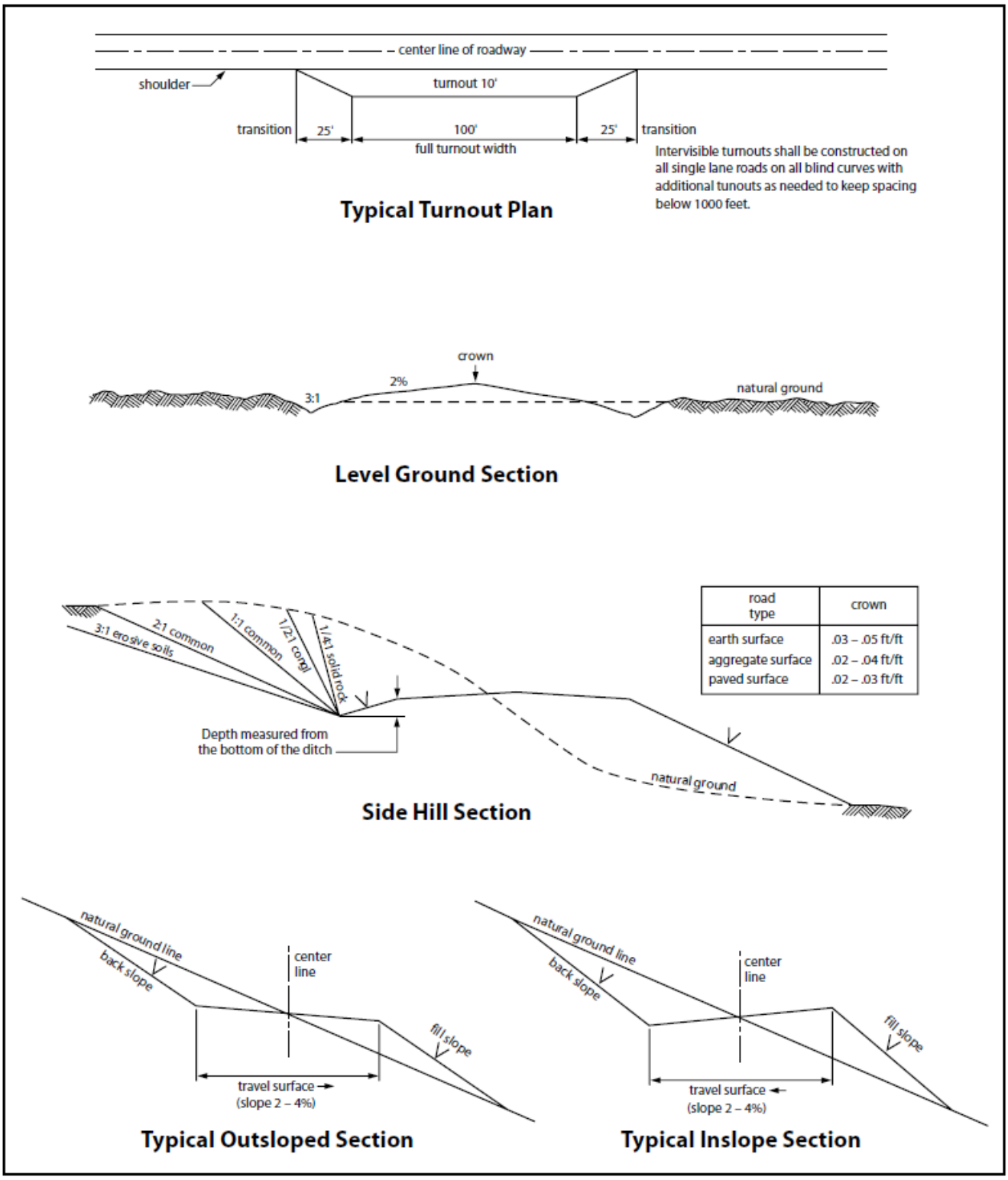

Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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VI. 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 1½ 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 1½ 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

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

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 **30** 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 of duney 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 6 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 resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 16 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

16. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in

consultation with Indian Tribes."

17. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

18. 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.

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

C. ELECTRIC LINES

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, 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. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. 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 the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the

Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 11 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

11. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

12. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The 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 the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

13. Special Stipulations:
For reclamation remove poles, lines, transformer, etc. and dispose of properly.
Fill in any holes from the poles removed.

VII. 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.

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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).

VIII. 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).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Approval Date: 04/16/2021

Mixture 4, for Gypsum Sites

The holder shall seed all the 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 will 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 will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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:

Species	lb/acre
Alkali Sacaton (*Sporobolus airoides*)	1.5
DWS~ Four-wing saltbush (*Atriplex canescens*)	8.0

~DWS: DeWinged Seed

*Pounds of pure live seed:

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

Approval Date: 04/16/2021

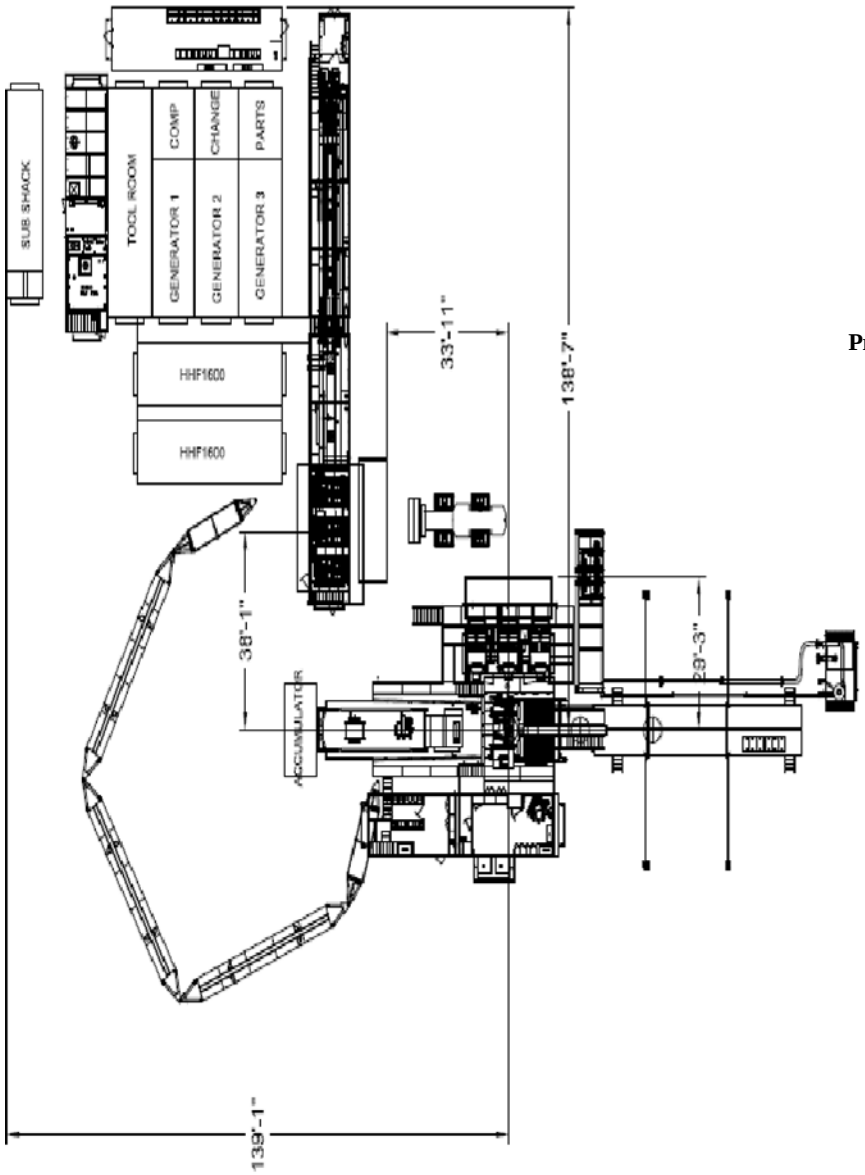
Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
Carter Collier 5 Federal Com 14H

Open drill site. No homes or buildings are near the proposed location.

1. Escape

   Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.

Secondary Briefing Area



Primary Briefing Area

Exit to road. Caution sign placed here.

N

Secondary Egress

WIND: Prevailing winds are from the Southwest

RIG # 57 1,150 HP Double Mast Drilling Rig

SUBSTRUCTURE
One Piece Step Down
Floor Height: 18' 9" (on 4' pony sub moving system)
Clear Height (beneath rotary beams): 15' 5"
Rotary Capacity: 400,000 lbf
Max Pipe Setback: 400,000 lbf
Note: All floor heights above are based on the substructure sitting on 6" mats & 4' pony sub moving system

MAST
106' telescoping, Drill Line: 1-1/8"
Static Hook Load: 440,000 lbf
Racking Capacity: 18,000' of 4" DP, 12,500' of 5" DP

DRAWWORKS
TSM 850 425,000lbs w/ 10 Lines
Input Power: 1,150 hp AC traction motor
Main Brake: 1,150 hp AC traction motor (Dynamic)
Aux Parking Brake: Eaton brake & drum / band brake system

TOP DRIVE
Tesco EXI 600 AC 350 Ton: Max speed 220 rpm,
Continuous Drill Torque: 30,000 ft-lbs
Max Torque (Make / Break): 45,000 ft-lbs
600 hp AC induction motor & drive system with PLC
250 Ton 5 x 36" Becket Block Assembly

IRON ROUGHNECK
NOV ST-80C Conn Range: 4 ½" to 8 ½"
Spin Speed: 75 rpm nominal on 5" drill pipe
Spin Torque: 1,750 ft-lbs
Maximum Make-up torque: 60,000 ft-lbs
Maximum Break-out torque: 80,000 ft-lbs

ROTARY TABLE
National 27 ½" 500 Ton with hydraulic drive to position tools only
27 ½" Diameter opening

POWER SYSTEM
VFD, MCC, Eaton Drives, Current Power Systems Controls, three Caterpillar C32 gen sets, 1220 BHP.

MUD PUMP #1
HHF1600 Triplex Rated Power: 1600 hp
Stroke: 12"
Input Power: 1500 hp AC traction motor
Pressure Rating: 5000 psi

MUD PUMP #2
HHF1600 Triplex Rated Power: 1600 hp
Stroke: 12"
Input Power: 1500 hp AC traction motor
Pressure Rating: 5000 psi

MUD TANKS
Two Tank system w/ 1200 bbls total capacity
Shakers: Three MI Swaco Mongoose 4 panel dual motion
Mud Gas Separator: MI Swaco 4' OD x 12' tall
Pill Tank: 54 bbls

MUD SYSTEM
5000 psi Max Pressure
5" Main plumbing and standpipe

SCALPING TANK
Main Tank: 186 bbls capacity
Trip Tank: 24 bbls capacity
Shakers: Three NOV Venom shakers dual motion

BOP (NACE)
11" x 5000 psi WP Spherical Annular
11" x 5000 psi WP Double Ram
11" x 5000 psi WP Single Ram (Optional)

MANIFOLD
3-1/8" 5,000 psi c/w two 3 1/8" manual chokes

ACCUMULATOR
CTI: 160 gal 6 station 3000 psi, c/w N2 Backup & electric triplex pump

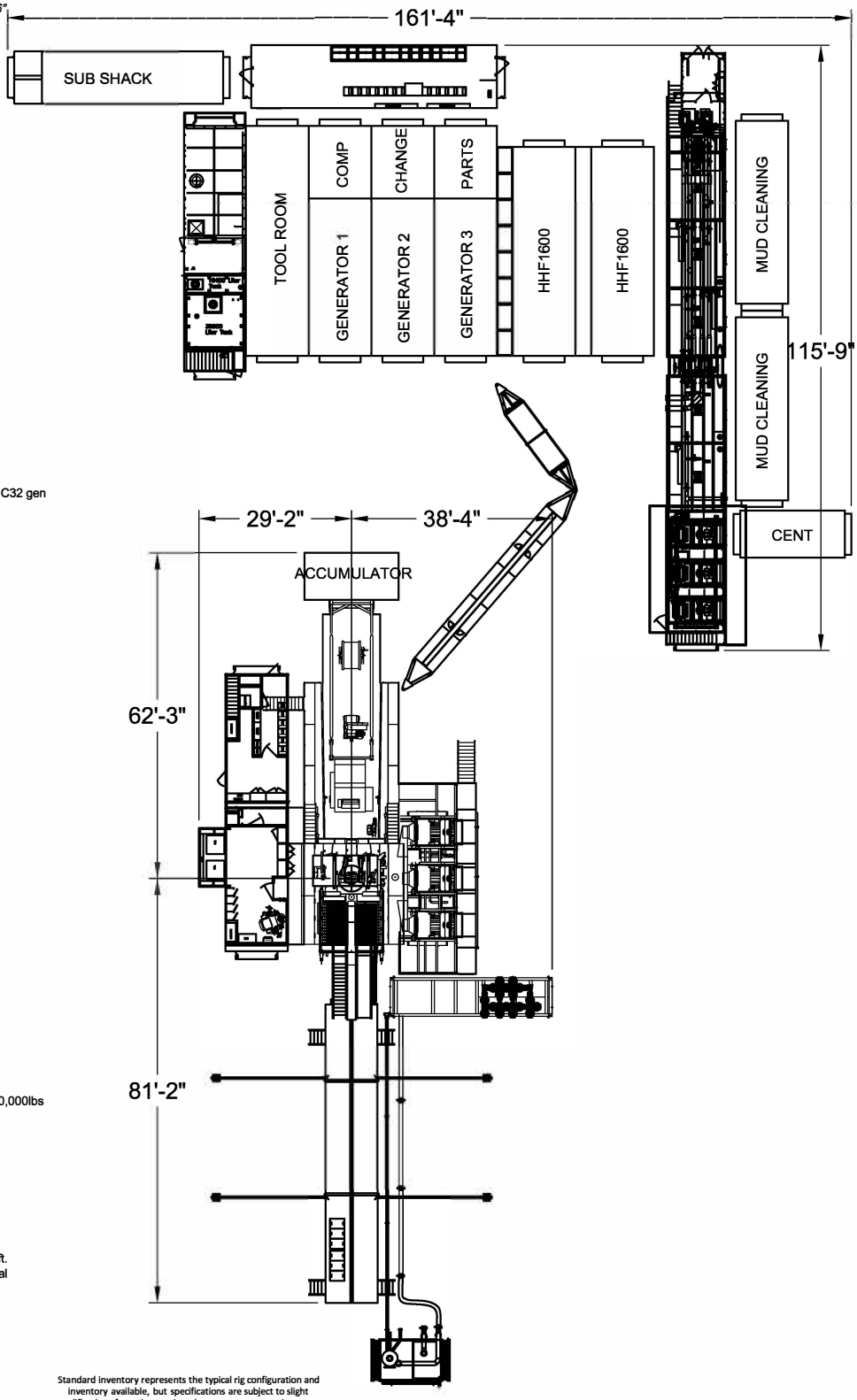
CATWALK
Ja-co Power Catwalk, tubular max length 47' 6", max OD 13 ⅝", max weight 10,000lbs

TUBULARS
Drill Pipe: Supplied as needed, per availability
Drill Collars & heaviwate: Supplied as needed, per availability

MISC.
Water Tank: 409 bbls; Fuel Tank 189 bbls; Screw Compressor
Boiler: 125 hp with Full Winterization

MOVING SYSTEM:
Walking beam hydraulic pony sub moving system for linear motion & side shift. 350' of Utility Suitcase style [50' lengths] connection for hydraulic and electrical supply.

TOOL/ STORAGE/ CAMP
Parts Storage Room and Tool House Room
Rig Manage Trailer: 14' x 44' skid mounted



Standard inventory represents the typical rig configuration and inventory available, but specifications are subject to slight modifications from time to time due to customer requirements.

All ratings quoted herin are manufacturer specifications. AKITA's normal operating parameters are 90% of manufacturer mast ratings and 80% of mud pump manufacturer pressure rating. Operation of rig equipment beyond these parameters requires approval from AKITA field office management.

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

Drilling Plan Data Report
04/19/2021

APD ID: 10400037169
Submission Date: 02/08/2019
Operator Name: SPUR ENERGY PARTNERS LLC
Well Name: CARTER COLLIER 5 FED COM
Well Number: 14H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
385341	QUATERNARY	3565	0	0	DOLOMITE, OTHER : caliche	USEABLE WATER	N
385349	GRAYBURG	2932	633	633	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
385350	SAN ANDRES	2091	1474	1474	DOLOMITE	NATURAL GAS, OIL	N
385351	GLORIETA	746	2819	2819		NATURAL GAS, OIL	N
385352	YESO	638	2927	2927		NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 5000

Equipment: A 3000 psi 5000' rated BOP stack consisting of annular preventer and double (blind and pipe) ram will be used below surface casing to TD. See attached BOP and choke manifold diagrams.
Requesting Variance? NO

Variance request:

Testing Procedure: Pressure test will be conducted before drilling out from under all casing strings. Third party test crews will conduct all tests. All tests will be recorded for 10 minutes on low pressure (500 psi) and 10 minutes on high pressure (3000 psi). After BOP testing is complete, test casing (without test plug) to 2000 psi for 30 minutes. All tests wil be charted on a plot. BOPs will be function tested every day.
Choke Diagram Attachment:

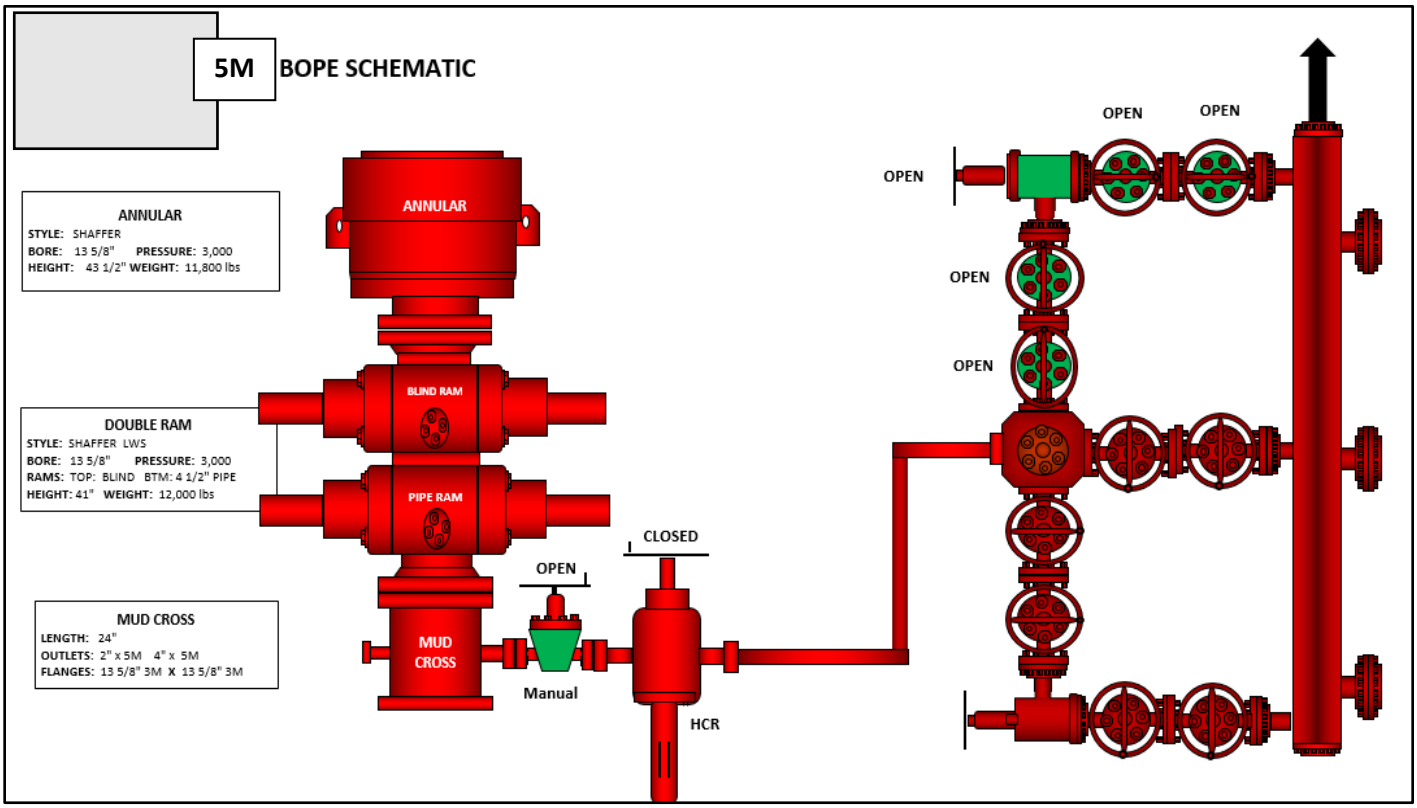
CarterCollier14H_BOPUpdate_20200117124139.pdf

BOP Diagram Attachment:

CarterCollier14H_BOPUpdate_20200117124145.pdf

Nipple-Up

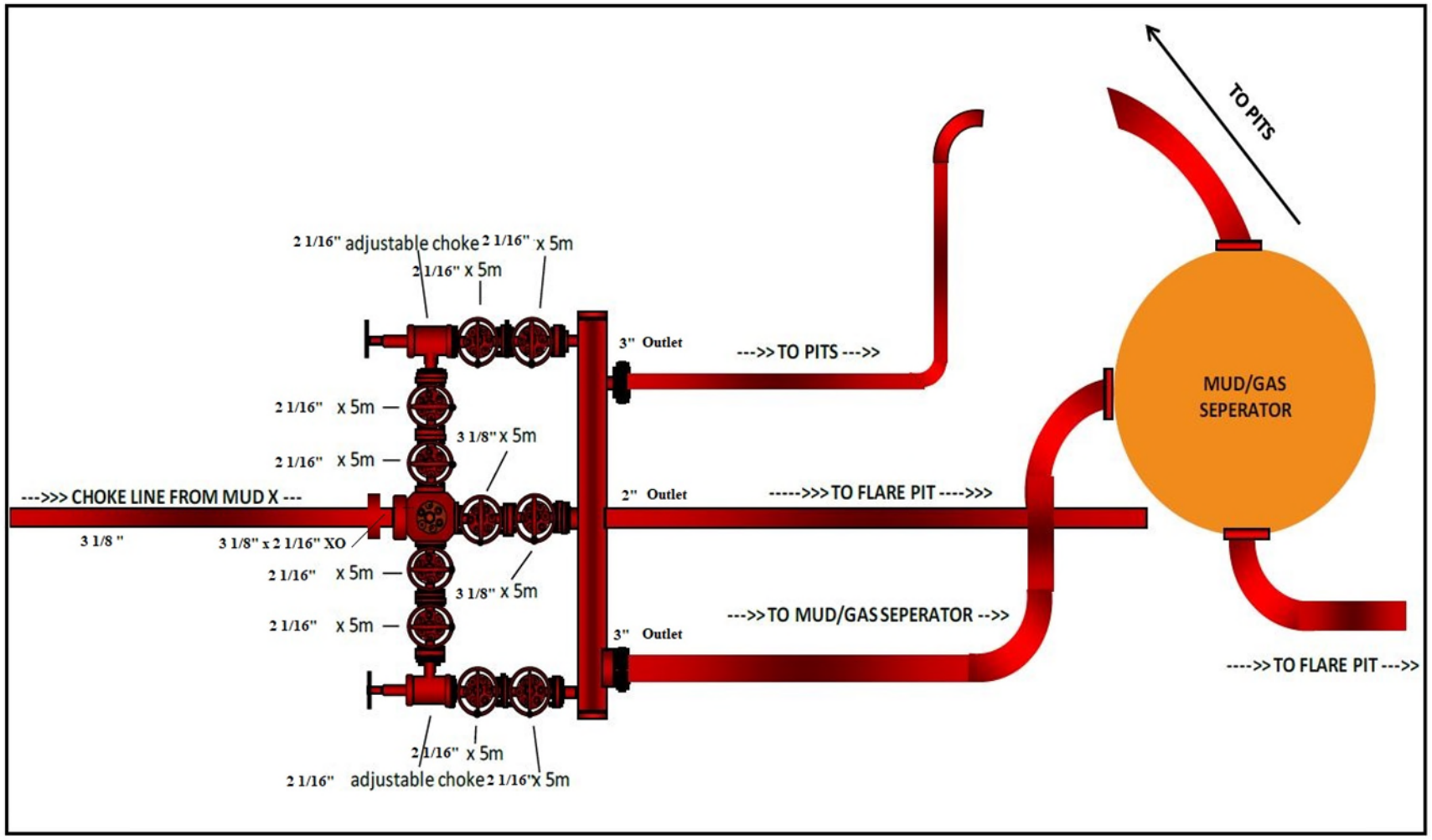
a. Raise stack and center over the wellhead
b. Install DSA and ring gaskets
c. Lower stack onto DSA
d. Torque DSA flange bolts in a star pattern to the specified torque
e. Verify BOP is centered to the rotary table
f. Install rotating head
g. Install hydraulic lines to BOP
h. Verify manifold line-up
i. Test BOP & manifold



Pressure Testing

a. All testing to be done with 3rd party testing crews
b. All tests should be recorded for 5 minutes on low pressure (500 psi) and 5 minutes on high pressure (5,000 psi) and charted on a plot
c. Company representative to email all copies of all plots to Drilling Engineer as well as save in the well file.
d. BOP's shall be function tested every day.

CHOKE DIAGRAM



Onshore Order 2:b. Minimum standards and enforcement provisions for choke manifold equipment.

i. All choke lines shall be straight lines unless turns use tee blocks or are targeted with running tees, and shall be anchored to prevent whip and reduce vibration.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 24692

COMMENTS

Operator:	OGRID:	Action Number:	Action Type:
SPUR ENERGY PARTNERS LLC 9655 Katy Freeway Suite 500 Houston, TX77024	328947	24692	FORM 3160-3

Created By	Comment	Comment Date
kpickford	KP GEO Review 4/21/2021	04/21/2021

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 24692

CONDITIONS OF APPROVAL

Operator:	OGRID:	Action Number:	Action Type:
SPUR ENERGY PARTNERS LLC 9655 Katy Freeway Suite 500 Houston, TX77024	328947	24692	FORM 3160-3

OCD Reviewer	Condition
kpickford	Notify OCD 24 hours prior to casing & cement
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system