

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

| | | |
|--|---------------------------------------|---|
| 1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone | | 5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. |
| 2. Name of Operator | | 9. API Well No. <div style="text-align: center; color: blue;">30 015 48178</div> |
| 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.



(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: LOT 8 / 756 FNL / 1035 FWL / TWSP: 18S / RANGE: 27E / SECTION: 4 / LAT: 32.781494 / LONG: -104.288764 (TVD: 0 feet, MD: 0 feet)
PPP: NENE / 1267 FNL / 100 FEL / TWSP: 18S / RANGE: 27E / SECTION: 5 / LAT: 32.780192 / LONG: -104.292439 (TVD: 2475 feet, MD: 3028 feet)
PPP: LOT F / 1302 FNL / 2634 FWL / TWSP: 18S / RANGE: 27E / SECTION: 5 / LAT: 32.780282 / LONG: -104.300682 (TVD: 2475 feet, MD: 5560 feet)
PPP: LOT E / 1320 FNL / 1317 FWL / TWSP: 18S / RANGE: 27E / SECTION: 5 / LAT: 32.780329 / LONG: -104.304967 (TVD: 2475 feet, MD: 6877 feet)
BHL: LOT E / 1336 FNL / 20 FWL / TWSP: 18S / RANGE: 27E / SECTION: 5 / LAT: 32.780374 / LONG: -104.309188 (TVD: 2475 feet, MD: 8176 feet)

BLM Point of Contact

Name: Candy Vigil

Title: LIE

Phone: 5752345982

Email: cvigil@blm.gov

Review and Appeal Rights

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

DISTRICT I1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-8181 Fax: (575) 393-0720**DISTRICT II**811 S. First St., Artesia, NM 88210
Phone (575) 746-1263 Fax: (575) 746-0720**DISTRICT III**1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170**DISTRICT IV**1226 S. St. Francis Dr., Santa Fe, NM 87506
Phone (505) 476-3486 Fax: (505) 476-3482State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office**OIL CONSERVATION DIVISION**
1226 South St. Francis Dr.
Santa Fe, New Mexico 87505**WELL LOCATION AND ACREAGE DEDICATION PLAT**☐ AMENDED REPORT

| | | |
|-----------------------------------|--|---|
| API Number 30-015-48178 | Pool Code 51300 | Pool Name Red Lake, Queen-Grayburg-San Andres |
| Property Code 330660 | Property Name CARTER COLLIER 5 FED COM | Well Number 12H |
| OGRID No. 328947 | Operator Name SPUR ENERGY PARTNERS LLC | Elevation 3566' |

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 | | 756 | NORTH | 1035 | 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 |
|-------------------------------|-----------------|--------------------------------|-------------|---------|---------------|------------------|---------------|----------------|-------------|
| E | 5 | 18 S | 27 E | | 1336 | NORTH | 20 | WEST | EDDY |
| Dedicated Acres 160 | Joint or Infill | Consolidation Code C | Order No. | | | | | | |

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 32.780374° Long - W 104.309188° NMSPCE- N 647633.1 E 548758.2 (NAD-83) | LAST TAKE POINT <u>1336' FNL & 100' FWL</u> Lat - N 32.780371° Long - W 104.308928° NMSPCE- N 647632.1 E 548838.2 (NAD-83) | FIRST TAKE POINT <u>1267' FNL & 100' FEL</u> Lat - N 32.780192° Long - W 104.292439° NMSPCE- N 647568.5 E 553905.6 (NAD-83) | SURFACE LOCATION Lat - N 32.781494° Long - W 104.288764° NMSPCE- N 648042.7 E 555034.8 (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. Signature: <u>Ryan Barber</u> Date: <u>4/17/19</u> Printed Name: <u>Ryan Barber</u> Email Address: <u>Ryan@percussionpetroleum.com</u> |
| | | | | 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 supervision, and that the same is true and correct to the best of my belief. Date Surveyed: <u>OCTOBER 5, 2018</u> Signature: <u>[Signature]</u> Professional Surveyor Certificate No. <u>7977</u> State of New Mexico Scale: 1" = 2000' WO Num.: 34108 |

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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, recomple 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

WELL PLAN - Carter Collier 5 Fed Com #12H



Percussion Petroleum Operating, LLC

Well: Carter Collier 5 Fed Com #12H
Location: **SHL** Section 4 T18S R27E 756' FNL 1035' FWL
 Lat: 32.781494° N Long: -104.288764°W
BHL Section 5 T18S R27E 1336' FNL 20' FWL
 Lat: 32.780374° N Long: -104.309188°W
County: Eddy
State: New Mexico
Rig: TBD
Spud Date: TBD
AFE Number: TBD
True Vertical Depth: 2,475'
Total Measured Depth: 8,176'
Elevation: GL = 3566' KB = 3583'
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 **8,166'** inside

8 3/4 open hole, cemented to surface

7" 32# L-80 BT&C set at **2,625'** 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 losses.

MUD PROGRAM:

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

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 Surfap 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 San Andres formation is 1064 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:

3,566' Ground Level 17' RKB

| <u>Formation</u> | <u>MD</u> | <u>TVD</u> | <u>SS</u> | <u>Lithology</u> |
|------------------|-----------|------------|-----------|------------------|
| San Andres | | 1,463' | 2,103' | Dolomite |
| Glorieta | | 2,801' | 765' | Silty Dolomite |
| Yeso | | 2,903' | 663' | Dolomite |
| Abo | | 4,951' | -1,385' | Dolomite |
| Wolfcamp | | 6,110' | -2,544' | 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 8096'.

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 surveys 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 Casing Burst: 3,520 psi
 1 Jt 9-5/8" 36# J-55 STC Casing Collapse: 2,020 psi
 9-5/8" Insert Float Casing Tensile: 394,000 lbs
 9-5/8" 36# J-55 STC To Surface

CASING SAFETY FACTORS

| | API Recommended Safety Factor | Actual Safety Factor | Scenario | 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 Casing Burst: 5-1/2" 8,990 psi 7" 9,060 psi
 2 Jts 5 1/2" 20# L80 BTC Casing Collapse: 8,830 psi 8,600 psi
 5 1/2" Float Collar Casing Tensile: 466,000 lbs 745,000 lbs
 5 1/2" 20# L80 BTC Casing To 2625'
 7" 32# L80 BTC Casing to surface

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: **1810.7** 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: **1332.3 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 BOPs 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. Prejob 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

| <u>COMPANY</u> | <u>SERVICE</u> | <u>CONTACT NAME</u> | <u>CONTACT NUMBER</u> |
|-----------------------|---------------------------|----------------------------|------------------------------|
| 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
#12H**

**OH
Plan #2**

Anticollision Report

27 November, 2018





Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | Plan #2 | | |
| 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 | 11/27/2018 | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
| 0.00 | 8,175.65 | Plan #2 (OH) | MWD+IGRF | OWSG MWD + IGRF or WMM |

| | | | | | | |
|--|--|-------------------------------------|--|---|--------------------------|----------------|
| Summary | | | | | | |
| Site Name | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| Carter Collier 5 Fed Com | | | | | | |
| #13H - OH - Plan #1 | 400.00 | 401.00 | 20.51 | 18.05 | 8.363 | CC, ES |
| #13H - OH - Plan #1 | 8,175.65 | 8,653.90 | 773.07 | 562.05 | 3.664 | SF |
| #14H - OH - Plan #1 | 400.00 | 401.00 | 40.21 | 37.76 | 16.398 | CC, ES |
| #14H - OH - Plan #1 | 8,175.65 | 8,527.41 | 1,075.10 | 783.73 | 3.690 | SF |

| 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 | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning | |
| 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | -1.397 | 20.50 | -0.50 | 20.51 | | | | | |
| 50.00 | 50.00 | 49.00 | 50.00 | 0.06 | 0.07 | -1.397 | 20.50 | -0.50 | 20.51 | 20.37 | 0.13 | 155.298 | | |
| 100.00 | 100.00 | 101.00 | 100.00 | 0.15 | 0.15 | -1.397 | 20.50 | -0.50 | 20.51 | 20.20 | 0.30 | 68.100 | | |
| 150.00 | 150.00 | 149.00 | 150.00 | 0.33 | 0.32 | -1.397 | 20.50 | -0.50 | 20.51 | 19.85 | 0.65 | 31.431 | | |
| 200.00 | 200.00 | 201.00 | 200.00 | 0.51 | 0.51 | -1.397 | 20.50 | -0.50 | 20.51 | 19.49 | 1.02 | 20.142 | | |
| 250.00 | 250.00 | 249.00 | 250.00 | 0.69 | 0.68 | -1.397 | 20.50 | -0.50 | 20.51 | 19.14 | 1.37 | 14.975 | | |
| 300.00 | 300.00 | 301.00 | 300.00 | 0.87 | 0.87 | -1.397 | 20.50 | -0.50 | 20.51 | 18.77 | 1.74 | 11.819 | | |
| 350.00 | 350.00 | 349.00 | 350.00 | 1.04 | 1.04 | -1.397 | 20.50 | -0.50 | 20.51 | 18.42 | 2.09 | 9.829 | | |
| 400.00 | 400.00 | 401.00 | 400.00 | 1.22 | 1.23 | -1.397 | 20.50 | -0.50 | 20.51 | 18.05 | 2.45 | 8.363 | CC, ES | |
| 450.00 | 450.00 | 449.00 | 450.00 | 1.40 | 1.40 | 135.391 | 20.50 | -0.50 | 20.89 | 18.09 | 2.80 | 7.470 | | |
| 500.00 | 499.97 | 498.97 | 499.97 | 1.57 | 1.58 | 138.352 | 20.50 | -0.50 | 22.09 | 18.94 | 3.15 | 7.014 | | |
| 550.00 | 549.89 | 548.96 | 549.96 | 1.74 | 1.75 | 141.638 | 20.48 | -0.92 | 24.12 | 20.63 | 3.50 | 6.900 | | |
| 600.00 | 599.75 | 598.94 | 599.92 | 1.92 | 1.93 | 143.923 | 20.42 | -2.21 | 26.94 | 23.10 | 3.84 | 7.011 | | |
| 650.00 | 649.50 | 648.91 | 649.85 | 2.10 | 2.10 | 145.313 | 20.32 | -4.37 | 30.51 | 26.31 | 4.20 | 7.269 | | |
| 700.00 | 699.14 | 698.85 | 699.69 | 2.28 | 2.28 | 145.992 | 20.17 | -7.39 | 34.79 | 30.24 | 4.55 | 7.648 | | |
| 750.00 | 748.64 | 748.75 | 749.44 | 2.48 | 2.46 | 146.149 | 19.99 | -11.28 | 39.78 | 34.86 | 4.91 | 8.093 | | |
| 800.00 | 797.97 | 798.60 | 799.06 | 2.68 | 2.64 | 145.945 | 19.76 | -16.03 | 45.46 | 40.18 | 5.28 | 8.611 | | |
| 850.00 | 847.11 | 848.38 | 848.52 | 2.90 | 2.83 | 145.503 | 19.49 | -21.63 | 51.85 | 46.19 | 5.66 | 9.155 | | |
| 900.00 | 896.04 | 898.08 | 897.80 | 3.12 | 3.02 | 144.913 | 19.19 | -28.08 | 58.94 | 52.89 | 6.05 | 9.747 | | |
| 950.00 | 944.74 | 947.70 | 946.88 | 3.37 | 3.22 | 144.237 | 18.84 | -35.37 | 66.73 | 60.27 | 6.45 | 10.338 | | |
| 1,000.00 | 993.17 | 997.21 | 995.72 | 3.61 | 3.42 | 143.516 | 18.45 | -43.49 | 75.22 | 68.36 | 6.86 | 10.961 | | |
| 1,050.00 | 1,041.32 | 1,046.62 | 1,044.30 | 3.89 | 3.64 | 142.779 | 18.03 | -52.43 | 84.42 | 77.12 | 7.30 | 11.563 | | |
| 1,100.00 | 1,089.17 | 1,095.90 | 1,092.61 | 4.16 | 3.85 | 142.043 | 17.56 | -62.18 | 94.32 | 86.58 | 7.74 | 12.186 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 1,150.00 | 1,136.68 | 1,145.04 | 1,140.61 | 4.47 | 4.09 | 141.319 | 17.06 | -72.73 | 104.93 | 96.71 | 8.21 | 12.774 | | |
| 1,200.00 | 1,183.85 | 1,194.05 | 1,188.28 | 4.78 | 4.32 | 140.613 | 16.52 | -84.07 | 116.23 | 107.54 | 8.69 | 13.374 | | |
| 1,250.00 | 1,230.65 | 1,242.89 | 1,235.60 | 5.12 | 4.57 | 139.928 | 15.94 | -96.18 | 128.23 | 119.03 | 9.20 | 13.938 | | |
| 1,300.00 | 1,277.05 | 1,308.69 | 1,282.35 | 5.47 | 4.92 | 139.376 | 15.35 | -108.72 | 140.96 | 131.15 | 9.81 | 14.372 | | |
| 1,350.00 | 1,323.03 | 1,339.44 | 1,328.83 | 5.85 | 5.08 | 139.132 | 14.75 | -121.21 | 154.49 | 144.24 | 10.25 | 15.070 | | |
| 1,400.00 | 1,368.57 | 1,387.34 | 1,375.09 | 6.23 | 5.34 | 139.128 | 14.16 | -133.64 | 168.81 | 158.03 | 10.78 | 15.659 | | |
| 1,450.00 | 1,413.65 | 1,434.98 | 1,421.09 | 6.65 | 5.61 | 139.303 | 13.57 | -146.01 | 183.93 | 172.61 | 11.33 | 16.240 | | |
| 1,500.00 | 1,458.25 | 1,482.34 | 1,466.83 | 7.06 | 5.87 | 139.611 | 12.99 | -158.30 | 199.85 | 187.98 | 11.86 | 16.846 | | |
| 1,550.00 | 1,502.34 | 1,529.40 | 1,512.27 | 7.52 | 6.14 | 140.016 | 12.41 | -170.51 | 216.57 | 204.16 | 12.41 | 17.446 | | |
| 1,600.00 | 1,545.92 | 1,576.14 | 1,557.40 | 7.98 | 6.40 | 140.487 | 11.83 | -182.63 | 234.11 | 221.16 | 12.95 | 18.073 | | |
| 1,650.00 | 1,588.94 | 1,622.53 | 1,602.20 | 8.47 | 6.67 | 141.005 | 11.25 | -194.67 | 252.48 | 238.98 | 13.50 | 18.696 | | |
| 1,700.00 | 1,631.40 | 1,668.54 | 1,646.64 | 8.97 | 6.93 | 141.549 | 10.69 | -206.61 | 271.68 | 257.64 | 14.04 | 19.345 | | |
| 1,750.00 | 1,673.27 | 1,714.17 | 1,690.70 | 9.50 | 7.19 | 142.108 | 10.12 | -218.45 | 291.72 | 277.13 | 14.59 | 19.993 | | |
| 1,800.00 | 1,714.54 | 1,759.38 | 1,734.36 | 10.04 | 7.46 | 142.669 | 9.56 | -230.19 | 312.61 | 297.49 | 15.13 | 20.666 | | |
| 1,850.00 | 1,755.18 | 1,804.16 | 1,777.60 | 10.61 | 7.72 | 143.226 | 9.01 | -241.81 | 334.35 | 318.68 | 15.67 | 21.340 | | |
| 1,900.00 | 1,795.18 | 1,848.49 | 1,820.40 | 11.18 | 7.98 | 143.771 | 8.46 | -253.31 | 356.94 | 340.75 | 16.20 | 22.038 | | |
| 1,950.00 | 1,834.71 | 1,907.52 | 1,862.88 | 11.78 | 8.33 | 144.569 | 7.92 | -264.72 | 380.16 | 363.34 | 16.82 | 22.607 | | |
| 2,000.00 | 1,874.22 | 1,936.46 | 1,905.35 | 12.38 | 8.50 | 145.357 | 7.38 | -276.13 | 403.46 | 386.20 | 17.26 | 23.381 | | |
| 2,050.00 | 1,913.74 | 1,980.44 | 1,947.82 | 12.99 | 8.76 | 146.060 | 6.83 | -287.55 | 426.81 | 409.03 | 17.79 | 23.997 | | |
| 2,100.00 | 1,953.29 | 2,024.59 | 1,990.46 | 13.59 | 9.02 | 141.409 | 6.29 | -299.01 | 449.71 | 431.40 | 18.31 | 24.558 | | |
| 2,150.00 | 1,992.88 | 2,069.42 | 2,033.75 | 14.20 | 9.28 | 134.269 | 5.73 | -310.64 | 470.36 | 451.52 | 18.83 | 24.976 | | |
| 2,200.00 | 2,032.23 | 2,114.64 | 2,077.42 | 14.81 | 9.55 | 127.848 | 5.17 | -322.37 | 488.58 | 469.24 | 19.34 | 25.256 | | |
| 2,250.00 | 2,071.04 | 2,159.91 | 2,121.13 | 15.42 | 9.82 | 122.248 | 4.61 | -334.12 | 504.47 | 484.62 | 19.84 | 25.421 | | |
| 2,300.00 | 2,109.00 | 2,204.89 | 2,164.56 | 16.02 | 10.09 | 117.535 | 4.06 | -345.79 | 518.14 | 497.82 | 20.32 | 25.495 | | |
| 2,350.00 | 2,145.84 | 2,249.22 | 2,207.38 | 16.61 | 10.36 | 113.726 | 3.51 | -357.30 | 529.79 | 509.02 | 20.77 | 25.502 | | |
| 2,400.00 | 2,181.43 | 2,307.30 | 2,249.37 | 17.20 | 10.70 | 112.962 | 2.97 | -368.58 | 539.91 | 518.64 | 21.28 | 25.377 | | |
| 2,450.00 | 2,216.79 | 2,336.01 | 2,291.19 | 17.79 | 10.88 | 115.117 | 2.44 | -379.82 | 550.58 | 528.97 | 21.62 | 25.469 | | |
| 2,500.00 | 2,252.14 | 2,379.32 | 2,333.01 | 18.39 | 11.14 | 117.204 | 1.90 | -391.06 | 562.16 | 540.15 | 22.01 | 25.538 | | |
| 2,550.00 | 2,287.50 | 2,422.63 | 2,374.83 | 19.02 | 11.40 | 119.221 | 1.37 | -402.29 | 574.60 | 552.19 | 22.41 | 25.637 | | |
| 2,600.00 | 2,322.55 | 2,465.72 | 2,416.44 | 19.67 | 11.66 | 120.636 | 0.84 | -413.48 | 588.04 | 565.25 | 22.79 | 25.798 | | |
| 2,650.00 | 2,354.86 | 2,506.82 | 2,456.13 | 20.38 | 11.90 | 121.246 | 0.33 | -424.14 | 604.14 | 580.99 | 23.15 | 26.099 | | |
| 2,700.00 | 2,383.74 | 2,545.28 | 2,493.27 | 21.15 | 12.14 | 121.620 | -0.15 | -434.12 | 623.34 | 599.87 | 23.46 | 26.565 | | |
| 2,750.00 | 2,408.94 | 2,614.97 | 2,560.02 | 22.00 | 12.59 | 123.685 | -0.93 | -454.05 | 645.39 | 621.30 | 24.09 | 26.792 | | |
| 2,800.00 | 2,430.29 | 2,776.65 | 2,702.54 | 22.91 | 14.06 | 129.445 | -1.48 | -529.26 | 665.70 | 639.92 | 25.79 | 25.817 | | |
| 2,850.00 | 2,447.62 | 2,906.97 | 2,789.66 | 23.87 | 15.72 | 131.867 | -0.74 | -606.18 | 681.45 | 654.01 | 27.44 | 24.836 | | |
| 2,900.00 | 2,460.80 | 2,936.44 | 2,820.36 | 24.89 | 16.13 | 131.870 | -0.35 | -636.87 | 699.26 | 671.26 | 28.00 | 24.976 | | |
| 2,950.00 | 2,469.72 | 2,977.53 | 2,849.41 | 25.94 | 16.71 | 131.697 | 0.01 | -665.92 | 720.22 | 691.63 | 28.59 | 25.190 | | |
| 3,000.00 | 2,474.32 | 3,015.98 | 2,876.60 | 27.02 | 17.25 | 131.277 | 0.36 | -693.11 | 744.34 | 715.26 | 29.08 | 25.596 | | |
| 3,050.00 | 2,475.00 | 3,051.80 | 2,901.93 | 28.12 | 17.77 | 131.652 | 0.67 | -718.44 | 771.32 | 741.84 | 29.47 | 26.170 | | |
| 3,100.00 | 2,475.00 | 3,578.25 | 3,081.00 | 29.23 | 28.17 | 141.618 | 6.66 | -1,195.33 | 773.06 | 735.32 | 37.75 | 20.481 | | |
| 3,150.00 | 2,475.00 | 3,628.25 | 3,081.00 | 30.37 | 29.33 | 141.618 | 7.29 | -1,245.32 | 773.06 | 733.77 | 39.29 | 19.675 | | |
| 3,200.00 | 2,475.00 | 3,678.25 | 3,081.00 | 31.51 | 30.50 | 141.618 | 7.91 | -1,295.32 | 773.06 | 732.22 | 40.85 | 18.926 | | |
| 3,250.00 | 2,475.00 | 3,728.25 | 3,081.00 | 32.67 | 31.68 | 141.618 | 8.54 | -1,345.32 | 773.06 | 730.64 | 42.42 | 18.223 | | |
| 3,300.00 | 2,475.00 | 3,778.25 | 3,081.00 | 33.85 | 32.87 | 141.618 | 9.17 | -1,395.31 | 773.06 | 729.06 | 44.01 | 17.567 | | |
| 3,350.00 | 2,475.00 | 3,828.25 | 3,081.00 | 35.03 | 34.07 | 141.618 | 9.80 | -1,445.31 | 773.06 | 727.46 | 45.61 | 16.951 | | |
| 3,400.00 | 2,475.00 | 3,878.25 | 3,081.00 | 36.22 | 35.28 | 141.618 | 10.43 | -1,495.30 | 773.06 | 725.85 | 47.21 | 16.375 | | |
| 3,450.00 | 2,475.00 | 3,928.25 | 3,081.00 | 37.43 | 36.49 | 141.618 | 11.05 | -1,545.30 | 773.06 | 724.23 | 48.83 | 15.832 | | |
| 3,500.00 | 2,475.00 | 3,978.25 | 3,081.00 | 38.63 | 37.71 | 141.618 | 11.68 | -1,595.30 | 773.06 | 722.61 | 50.45 | 15.322 | | |
| 3,550.00 | 2,475.00 | 4,028.25 | 3,081.00 | 39.85 | 38.94 | 141.618 | 12.31 | -1,645.29 | 773.06 | 720.98 | 52.09 | 14.841 | | |
| 3,600.00 | 2,475.00 | 4,078.25 | 3,081.00 | 41.07 | 40.18 | 141.618 | 12.94 | -1,695.29 | 773.07 | 719.34 | 53.73 | 14.388 | | |
| 3,650.00 | 2,475.00 | 4,128.25 | 3,081.00 | 42.30 | 41.42 | 141.618 | 13.56 | -1,745.28 | 773.07 | 717.69 | 55.38 | 13.960 | | |
| 3,700.00 | 2,475.00 | 4,178.25 | 3,081.00 | 43.54 | 42.66 | 141.618 | 14.19 | -1,795.28 | 773.07 | 716.04 | 57.03 | 13.556 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 3,750.00 | 2,475.00 | 4,228.25 | 3,081.00 | 44.78 | 43.91 | 141.618 | 14.82 | -1,845.28 | 773.07 | 714.38 | 58.69 | 13.173 | | |
| 3,800.00 | 2,475.00 | 4,278.25 | 3,081.00 | 46.02 | 45.16 | 141.618 | 15.45 | -1,895.27 | 773.07 | 712.72 | 60.35 | 12.810 | | |
| 3,850.00 | 2,475.00 | 4,328.25 | 3,081.00 | 47.27 | 46.42 | 141.618 | 16.07 | -1,945.27 | 773.07 | 711.05 | 62.02 | 12.465 | | |
| 3,900.00 | 2,475.00 | 4,378.25 | 3,081.00 | 48.52 | 47.68 | 141.618 | 16.70 | -1,995.27 | 773.07 | 709.38 | 63.69 | 12.138 | | |
| 3,950.00 | 2,475.00 | 4,428.25 | 3,081.00 | 49.77 | 48.94 | 141.618 | 17.33 | -2,045.26 | 773.07 | 707.70 | 65.36 | 11.827 | | |
| 4,000.00 | 2,475.00 | 4,478.25 | 3,081.00 | 51.03 | 50.21 | 141.618 | 17.96 | -2,095.26 | 773.07 | 706.02 | 67.04 | 11.531 | | |
| 4,050.00 | 2,475.00 | 4,528.25 | 3,081.00 | 52.29 | 51.47 | 141.618 | 18.58 | -2,145.25 | 773.07 | 704.34 | 68.72 | 11.249 | | |
| 4,100.00 | 2,475.00 | 4,578.25 | 3,081.00 | 53.56 | 52.74 | 141.618 | 19.21 | -2,195.25 | 773.07 | 702.66 | 70.41 | 10.980 | | |
| 4,150.00 | 2,475.00 | 4,628.25 | 3,081.00 | 54.82 | 54.02 | 141.618 | 19.84 | -2,245.25 | 773.07 | 700.97 | 72.10 | 10.723 | | |
| 4,200.00 | 2,475.00 | 4,678.25 | 3,081.00 | 56.09 | 55.29 | 141.618 | 20.47 | -2,295.24 | 773.07 | 699.28 | 73.79 | 10.477 | | |
| 4,250.00 | 2,475.00 | 4,728.25 | 3,081.00 | 57.36 | 56.57 | 141.618 | 21.09 | -2,345.24 | 773.07 | 697.59 | 75.48 | 10.242 | | |
| 4,300.00 | 2,475.00 | 4,778.25 | 3,081.00 | 58.64 | 57.85 | 141.618 | 21.72 | -2,395.23 | 773.07 | 695.89 | 77.17 | 10.017 | | |
| 4,350.00 | 2,475.00 | 4,828.25 | 3,081.00 | 59.91 | 59.13 | 141.618 | 22.35 | -2,445.23 | 773.07 | 694.19 | 78.87 | 9.801 | | |
| 4,400.00 | 2,475.00 | 4,878.25 | 3,081.00 | 61.19 | 60.41 | 141.618 | 22.98 | -2,495.23 | 773.07 | 692.49 | 80.57 | 9.595 | | |
| 4,450.00 | 2,475.00 | 4,928.25 | 3,081.00 | 62.47 | 61.69 | 141.618 | 23.60 | -2,545.22 | 773.07 | 690.79 | 82.27 | 9.396 | | |
| 4,500.00 | 2,475.00 | 4,978.25 | 3,081.00 | 63.75 | 62.98 | 141.618 | 24.23 | -2,595.22 | 773.07 | 689.09 | 83.98 | 9.206 | | |
| 4,550.00 | 2,475.00 | 5,028.25 | 3,081.00 | 65.03 | 64.26 | 141.618 | 24.86 | -2,645.21 | 773.07 | 687.39 | 85.68 | 9.023 | | |
| 4,600.00 | 2,475.00 | 5,078.25 | 3,081.00 | 66.31 | 65.55 | 141.618 | 25.49 | -2,695.21 | 773.07 | 685.68 | 87.39 | 8.846 | | |
| 4,650.00 | 2,475.00 | 5,128.25 | 3,081.00 | 67.60 | 66.84 | 141.618 | 26.11 | -2,745.21 | 773.07 | 683.97 | 89.09 | 8.677 | | |
| 4,700.00 | 2,475.00 | 5,178.25 | 3,081.00 | 68.88 | 68.13 | 141.618 | 26.74 | -2,795.20 | 773.07 | 682.26 | 90.80 | 8.514 | | |
| 4,750.00 | 2,475.00 | 5,228.25 | 3,081.00 | 70.17 | 69.42 | 141.618 | 27.37 | -2,845.20 | 773.07 | 680.55 | 92.51 | 8.356 | | |
| 4,800.00 | 2,475.00 | 5,278.25 | 3,081.00 | 71.46 | 70.71 | 141.618 | 28.00 | -2,895.19 | 773.07 | 678.84 | 94.23 | 8.204 | | |
| 4,850.00 | 2,475.00 | 5,328.25 | 3,081.00 | 72.75 | 72.00 | 141.618 | 28.62 | -2,945.19 | 773.07 | 677.13 | 95.94 | 8.058 | | |
| 4,900.00 | 2,475.00 | 5,378.25 | 3,081.00 | 74.04 | 73.29 | 141.618 | 29.25 | -2,995.19 | 773.07 | 675.41 | 97.65 | 7.917 | | |
| 4,950.00 | 2,475.00 | 5,428.25 | 3,081.00 | 75.33 | 74.59 | 141.618 | 29.88 | -3,045.18 | 773.07 | 673.70 | 99.37 | 7.780 | | |
| 5,000.00 | 2,475.00 | 5,478.25 | 3,081.00 | 76.62 | 75.88 | 141.618 | 30.51 | -3,095.18 | 773.07 | 671.98 | 101.08 | 7.648 | | |
| 5,050.00 | 2,475.00 | 5,528.25 | 3,081.00 | 77.92 | 77.18 | 141.618 | 31.14 | -3,145.17 | 773.07 | 670.27 | 102.80 | 7.520 | | |
| 5,100.00 | 2,475.00 | 5,578.25 | 3,081.00 | 79.21 | 78.47 | 141.618 | 31.76 | -3,195.17 | 773.07 | 668.55 | 104.52 | 7.397 | | |
| 5,150.00 | 2,475.00 | 5,628.25 | 3,081.00 | 80.50 | 79.77 | 141.618 | 32.39 | -3,245.17 | 773.07 | 666.83 | 106.24 | 7.277 | | |
| 5,200.00 | 2,475.00 | 5,678.25 | 3,081.00 | 81.80 | 81.07 | 141.618 | 33.02 | -3,295.16 | 773.07 | 665.11 | 107.96 | 7.161 | | |
| 5,250.00 | 2,475.00 | 5,728.25 | 3,081.00 | 83.09 | 82.37 | 141.618 | 33.65 | -3,345.16 | 773.07 | 663.39 | 109.68 | 7.049 | | |
| 5,300.00 | 2,475.00 | 5,778.25 | 3,081.00 | 84.39 | 83.67 | 141.618 | 34.27 | -3,395.15 | 773.07 | 661.67 | 111.40 | 6.940 | | |
| 5,350.00 | 2,475.00 | 5,828.25 | 3,081.00 | 85.69 | 84.97 | 141.618 | 34.90 | -3,445.15 | 773.07 | 659.95 | 113.12 | 6.834 | | |
| 5,400.00 | 2,475.00 | 5,878.25 | 3,081.00 | 86.99 | 86.26 | 141.618 | 35.53 | -3,495.15 | 773.07 | 658.23 | 114.84 | 6.732 | | |
| 5,450.00 | 2,475.00 | 5,928.25 | 3,081.00 | 88.29 | 87.57 | 141.618 | 36.16 | -3,545.14 | 773.07 | 656.50 | 116.56 | 6.632 | | |
| 5,500.00 | 2,475.00 | 5,978.25 | 3,081.00 | 89.58 | 88.87 | 141.618 | 36.78 | -3,595.14 | 773.07 | 654.78 | 118.29 | 6.535 | | |
| 5,550.00 | 2,475.00 | 6,028.25 | 3,081.00 | 90.88 | 90.17 | 141.618 | 37.41 | -3,645.14 | 773.07 | 653.06 | 120.01 | 6.442 | | |
| 5,600.00 | 2,475.00 | 6,078.25 | 3,081.00 | 92.18 | 91.47 | 141.618 | 38.04 | -3,695.13 | 773.07 | 651.33 | 121.74 | 6.350 | | |
| 5,650.00 | 2,475.00 | 6,128.25 | 3,081.00 | 93.48 | 92.77 | 141.618 | 38.67 | -3,745.13 | 773.07 | 649.61 | 123.46 | 6.262 | | |
| 5,700.00 | 2,475.00 | 6,178.25 | 3,081.00 | 94.79 | 94.07 | 141.618 | 39.29 | -3,795.12 | 773.07 | 647.88 | 125.19 | 6.175 | | |
| 5,750.00 | 2,475.00 | 6,228.25 | 3,081.00 | 96.09 | 95.38 | 141.618 | 39.92 | -3,845.12 | 773.07 | 646.15 | 126.91 | 6.091 | | |
| 5,800.00 | 2,475.00 | 6,278.25 | 3,081.00 | 97.39 | 96.68 | 141.618 | 40.55 | -3,895.12 | 773.07 | 644.43 | 128.64 | 6.009 | | |
| 5,850.00 | 2,475.00 | 6,328.25 | 3,081.00 | 98.69 | 97.98 | 141.618 | 41.18 | -3,945.11 | 773.07 | 642.70 | 130.37 | 5.930 | | |
| 5,900.00 | 2,475.00 | 6,378.25 | 3,081.00 | 99.99 | 99.29 | 141.618 | 41.80 | -3,995.11 | 773.07 | 640.97 | 132.10 | 5.852 | | |
| 5,950.00 | 2,475.00 | 6,428.25 | 3,081.00 | 101.30 | 100.59 | 141.618 | 42.43 | -4,045.10 | 773.07 | 639.24 | 133.82 | 5.777 | | |
| 6,000.00 | 2,475.00 | 6,478.25 | 3,081.00 | 102.60 | 101.90 | 141.618 | 43.06 | -4,095.10 | 773.07 | 637.52 | 135.55 | 5.703 | | |
| 6,050.00 | 2,475.00 | 6,528.25 | 3,081.00 | 103.90 | 103.20 | 141.618 | 43.69 | -4,145.10 | 773.07 | 635.79 | 137.28 | 5.631 | | |
| 6,100.00 | 2,475.00 | 6,578.25 | 3,081.00 | 105.21 | 104.51 | 141.618 | 44.31 | -4,195.09 | 773.07 | 634.06 | 139.01 | 5.561 | | |
| 6,150.00 | 2,475.00 | 6,628.25 | 3,081.00 | 106.51 | 105.81 | 141.618 | 44.94 | -4,245.09 | 773.07 | 632.33 | 140.74 | 5.493 | | |
| 6,200.00 | 2,475.00 | 6,678.25 | 3,081.00 | 107.82 | 107.12 | 141.618 | 45.57 | -4,295.08 | 773.07 | 630.60 | 142.47 | 5.426 | | |
| 6,250.00 | 2,475.00 | 6,728.25 | 3,081.00 | 109.12 | 108.43 | 141.618 | 46.20 | -4,345.08 | 773.07 | 628.87 | 144.20 | 5.361 | | |
| 6,300.00 | 2,475.00 | 6,778.25 | 3,081.00 | 110.43 | 109.73 | 141.618 | 46.82 | -4,395.08 | 773.07 | 627.14 | 145.93 | 5.297 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 6,350.00 | 2,475.00 | 6,828.25 | 3,081.00 | 111.73 | 111.04 | 141.618 | 47.45 | -4,445.07 | 773.07 | 625.41 | 147.66 | 5.235 | | |
| 6,400.00 | 2,475.00 | 6,878.25 | 3,081.00 | 113.04 | 112.35 | 141.618 | 48.08 | -4,495.07 | 773.07 | 623.67 | 149.40 | 5.175 | | |
| 6,450.00 | 2,475.00 | 6,928.25 | 3,081.00 | 114.35 | 113.65 | 141.618 | 48.71 | -4,545.06 | 773.07 | 621.94 | 151.13 | 5.115 | | |
| 6,500.00 | 2,475.00 | 6,978.25 | 3,081.00 | 115.65 | 114.96 | 141.618 | 49.33 | -4,595.06 | 773.07 | 620.21 | 152.86 | 5.057 | | |
| 6,550.00 | 2,475.00 | 7,028.25 | 3,081.00 | 116.96 | 116.27 | 141.618 | 49.96 | -4,645.06 | 773.07 | 618.48 | 154.59 | 5.001 | | |
| 6,600.00 | 2,475.00 | 7,078.25 | 3,081.00 | 118.26 | 117.58 | 141.618 | 50.59 | -4,695.05 | 773.07 | 616.75 | 156.32 | 4.945 | | |
| 6,650.00 | 2,475.00 | 7,128.25 | 3,081.00 | 119.57 | 118.88 | 141.618 | 51.22 | -4,745.05 | 773.07 | 615.01 | 158.06 | 4.891 | | |
| 6,700.00 | 2,475.00 | 7,178.25 | 3,081.00 | 120.88 | 120.19 | 141.618 | 51.85 | -4,795.04 | 773.07 | 613.28 | 159.79 | 4.838 | | |
| 6,750.00 | 2,475.00 | 7,228.25 | 3,081.00 | 122.19 | 121.50 | 141.618 | 52.47 | -4,845.04 | 773.07 | 611.55 | 161.52 | 4.786 | | |
| 6,800.00 | 2,475.00 | 7,278.25 | 3,081.00 | 123.49 | 122.81 | 141.618 | 53.10 | -4,895.04 | 773.07 | 609.81 | 163.26 | 4.735 | | |
| 6,850.00 | 2,475.00 | 7,328.25 | 3,081.00 | 124.80 | 124.12 | 141.618 | 53.73 | -4,945.03 | 773.07 | 608.08 | 164.99 | 4.686 | | |
| 6,900.00 | 2,475.00 | 7,378.25 | 3,081.00 | 126.11 | 125.43 | 141.618 | 54.36 | -4,995.03 | 773.07 | 606.35 | 166.72 | 4.637 | | |
| 6,950.00 | 2,475.00 | 7,428.25 | 3,081.00 | 127.42 | 126.74 | 141.618 | 54.98 | -5,045.03 | 773.07 | 604.61 | 168.46 | 4.589 | | |
| 7,000.00 | 2,475.00 | 7,478.25 | 3,081.00 | 128.73 | 128.05 | 141.618 | 55.61 | -5,095.02 | 773.07 | 602.88 | 170.19 | 4.542 | | |
| 7,050.00 | 2,475.00 | 7,528.25 | 3,081.00 | 130.04 | 129.36 | 141.618 | 56.24 | -5,145.02 | 773.07 | 601.14 | 171.93 | 4.497 | | |
| 7,100.00 | 2,475.00 | 7,578.25 | 3,081.00 | 131.34 | 130.67 | 141.618 | 56.87 | -5,195.01 | 773.07 | 599.41 | 173.66 | 4.452 | | |
| 7,150.00 | 2,475.00 | 7,628.25 | 3,081.00 | 132.65 | 131.98 | 141.618 | 57.49 | -5,245.01 | 773.07 | 597.67 | 175.40 | 4.408 | | |
| 7,200.00 | 2,475.00 | 7,678.25 | 3,081.00 | 133.96 | 133.29 | 141.618 | 58.12 | -5,295.01 | 773.07 | 595.94 | 177.13 | 4.364 | | |
| 7,250.00 | 2,475.00 | 7,728.25 | 3,081.00 | 135.27 | 134.60 | 141.618 | 58.75 | -5,345.00 | 773.07 | 594.20 | 178.87 | 4.322 | | |
| 7,300.00 | 2,475.00 | 7,778.25 | 3,081.00 | 136.58 | 135.91 | 141.618 | 59.38 | -5,395.00 | 773.07 | 592.47 | 180.60 | 4.281 | | |
| 7,350.00 | 2,475.00 | 7,828.25 | 3,081.00 | 137.89 | 137.22 | 141.618 | 60.00 | -5,444.99 | 773.07 | 590.73 | 182.34 | 4.240 | | |
| 7,400.00 | 2,475.00 | 7,878.25 | 3,081.00 | 139.20 | 138.53 | 141.618 | 60.63 | -5,494.99 | 773.07 | 589.00 | 184.07 | 4.200 | | |
| 7,450.00 | 2,475.00 | 7,928.25 | 3,081.00 | 140.51 | 139.84 | 141.618 | 61.26 | -5,544.99 | 773.07 | 587.26 | 185.81 | 4.161 | | |
| 7,500.00 | 2,475.00 | 7,978.25 | 3,081.00 | 141.82 | 141.15 | 141.618 | 61.89 | -5,594.98 | 773.07 | 585.53 | 187.55 | 4.122 | | |
| 7,550.00 | 2,475.00 | 8,028.25 | 3,081.00 | 143.13 | 142.46 | 141.618 | 62.51 | -5,644.98 | 773.07 | 583.79 | 189.28 | 4.084 | | |
| 7,600.00 | 2,475.00 | 8,078.25 | 3,081.00 | 144.44 | 143.77 | 141.618 | 63.14 | -5,694.97 | 773.07 | 582.05 | 191.02 | 4.047 | | |
| 7,650.00 | 2,475.00 | 8,128.25 | 3,081.00 | 145.75 | 145.08 | 141.618 | 63.77 | -5,744.97 | 773.07 | 580.32 | 192.75 | 4.011 | | |
| 7,700.00 | 2,475.00 | 8,178.25 | 3,081.00 | 147.06 | 146.39 | 141.618 | 64.40 | -5,794.97 | 773.07 | 578.58 | 194.49 | 3.975 | | |
| 7,750.00 | 2,475.00 | 8,228.25 | 3,081.00 | 148.37 | 147.70 | 141.618 | 65.02 | -5,844.96 | 773.07 | 576.84 | 196.23 | 3.940 | | |
| 7,800.00 | 2,475.00 | 8,278.25 | 3,081.00 | 149.68 | 149.01 | 141.618 | 65.65 | -5,894.96 | 773.07 | 575.11 | 197.96 | 3.905 | | |
| 7,850.00 | 2,475.00 | 8,328.25 | 3,081.00 | 150.99 | 150.33 | 141.618 | 66.28 | -5,944.95 | 773.07 | 573.37 | 199.70 | 3.871 | | |
| 7,900.00 | 2,475.00 | 8,378.25 | 3,081.00 | 152.31 | 151.64 | 141.618 | 66.91 | -5,994.95 | 773.07 | 571.63 | 201.44 | 3.838 | | |
| 7,950.00 | 2,475.00 | 8,428.25 | 3,081.00 | 153.62 | 152.95 | 141.618 | 67.53 | -6,044.95 | 773.07 | 569.90 | 203.18 | 3.805 | | |
| 8,000.00 | 2,475.00 | 8,478.25 | 3,081.00 | 154.93 | 154.26 | 141.618 | 68.16 | -6,094.94 | 773.07 | 568.16 | 204.91 | 3.773 | | |
| 8,050.00 | 2,475.00 | 8,528.25 | 3,081.00 | 156.24 | 155.57 | 141.618 | 68.79 | -6,144.94 | 773.07 | 566.42 | 206.65 | 3.741 | | |
| 8,100.00 | 2,475.00 | 8,578.25 | 3,081.00 | 157.55 | 156.88 | 141.618 | 69.42 | -6,194.93 | 773.07 | 564.68 | 208.39 | 3.710 | | |
| 8,150.00 | 2,475.00 | 8,628.25 | 3,081.00 | 158.86 | 158.20 | 141.618 | 70.04 | -6,244.93 | 773.07 | 562.95 | 210.13 | 3.679 | | |
| 8,175.65 | 2,475.00 | 8,653.90 | 3,081.00 | 159.53 | 158.87 | 141.618 | 70.37 | -6,270.58 | 773.07 | 562.05 | 211.02 | 3.664 SF | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | -1.140 | 40.20 | -0.80 | 40.21 | | | | | |
| 50.00 | 50.00 | 49.00 | 50.00 | 0.06 | 0.07 | -1.140 | 40.20 | -0.80 | 40.21 | 40.08 | 0.13 | 304.506 | | |
| 100.00 | 100.00 | 101.00 | 100.00 | 0.15 | 0.15 | -1.140 | 40.20 | -0.80 | 40.21 | 39.91 | 0.30 | 133.530 | | |
| 150.00 | 150.00 | 149.00 | 150.00 | 0.33 | 0.32 | -1.140 | 40.20 | -0.80 | 40.21 | 39.56 | 0.65 | 61.629 | | |
| 200.00 | 200.00 | 201.00 | 200.00 | 0.51 | 0.51 | -1.140 | 40.20 | -0.80 | 40.21 | 39.19 | 1.02 | 39.495 | | |
| 250.00 | 250.00 | 249.00 | 250.00 | 0.69 | 0.68 | -1.140 | 40.20 | -0.80 | 40.21 | 38.84 | 1.37 | 29.363 | | |
| 300.00 | 300.00 | 301.00 | 300.00 | 0.87 | 0.87 | -1.140 | 40.20 | -0.80 | 40.21 | 38.47 | 1.74 | 23.175 | | |
| 350.00 | 350.00 | 349.00 | 350.00 | 1.04 | 1.04 | -1.140 | 40.20 | -0.80 | 40.21 | 38.12 | 2.09 | 19.272 | | |
| 400.00 | 400.00 | 401.00 | 400.00 | 1.22 | 1.23 | -1.140 | 40.20 | -0.80 | 40.21 | 37.76 | 2.45 | 16.398 CC, ES | | |
| 450.00 | 450.00 | 449.00 | 450.00 | 1.40 | 1.40 | 135.126 | 40.20 | -0.80 | 40.59 | 37.80 | 2.80 | 14.514 | | |
| 500.00 | 499.97 | 498.97 | 499.97 | 1.57 | 1.58 | 136.689 | 40.20 | -0.80 | 41.77 | 38.62 | 3.15 | 13.265 | | |
| 550.00 | 549.89 | 548.47 | 549.47 | 1.74 | 1.76 | 138.635 | 40.45 | -1.13 | 44.03 | 40.53 | 3.50 | 12.585 | | |
| 600.00 | 599.75 | 597.88 | 598.86 | 1.92 | 1.93 | 140.331 | 41.22 | -2.13 | 47.64 | 43.79 | 3.85 | 12.380 | | |
| 650.00 | 649.50 | 647.16 | 648.10 | 2.10 | 2.11 | 141.695 | 42.50 | -3.80 | 52.59 | 48.38 | 4.21 | 12.505 | | |
| 700.00 | 699.14 | 696.27 | 697.11 | 2.28 | 2.28 | 142.715 | 44.30 | -6.13 | 58.86 | 54.30 | 4.56 | 12.906 | | |
| 750.00 | 748.64 | 745.15 | 745.85 | 2.48 | 2.46 | 143.424 | 46.59 | -9.11 | 66.43 | 61.51 | 4.93 | 13.485 | | |
| 800.00 | 797.97 | 793.77 | 794.26 | 2.68 | 2.64 | 143.873 | 49.37 | -12.73 | 75.29 | 70.00 | 5.29 | 14.232 | | |
| 850.00 | 847.11 | 842.08 | 842.27 | 2.90 | 2.82 | 144.116 | 52.64 | -16.97 | 85.42 | 79.76 | 5.67 | 15.075 | | |
| 900.00 | 896.04 | 890.04 | 889.84 | 3.12 | 3.01 | 144.204 | 56.36 | -21.82 | 96.81 | 90.77 | 6.04 | 16.025 | | |
| 950.00 | 944.74 | 937.61 | 936.91 | 3.37 | 3.20 | 144.176 | 60.54 | -27.24 | 109.44 | 103.01 | 6.43 | 17.018 | | |
| 1,000.00 | 993.17 | 984.75 | 983.44 | 3.61 | 3.39 | 144.061 | 65.14 | -33.23 | 123.30 | 116.48 | 6.82 | 18.081 | | |
| 1,050.00 | 1,041.32 | 1,031.43 | 1,029.39 | 3.89 | 3.59 | 143.883 | 70.16 | -39.76 | 138.37 | 131.14 | 7.22 | 19.155 | | |
| 1,100.00 | 1,089.17 | 1,077.61 | 1,074.70 | 4.16 | 3.79 | 143.658 | 75.58 | -46.80 | 154.63 | 147.01 | 7.63 | 20.271 | | |
| 1,150.00 | 1,136.68 | 1,123.25 | 1,119.34 | 4.47 | 4.00 | 143.397 | 81.37 | -54.33 | 172.08 | 164.03 | 8.05 | 21.372 | | |
| 1,200.00 | 1,183.85 | 1,168.32 | 1,163.28 | 4.78 | 4.21 | 143.110 | 87.51 | -62.32 | 190.69 | 182.22 | 8.47 | 22.506 | | |
| 1,250.00 | 1,230.65 | 1,212.80 | 1,206.47 | 5.12 | 4.43 | 142.801 | 93.98 | -70.73 | 210.44 | 201.53 | 8.91 | 23.617 | | |
| 1,300.00 | 1,277.05 | 1,256.66 | 1,248.89 | 5.47 | 4.65 | 142.474 | 100.76 | -79.55 | 231.31 | 221.96 | 9.35 | 24.733 | | |
| 1,350.00 | 1,323.03 | 1,299.87 | 1,290.52 | 5.85 | 4.88 | 142.132 | 107.83 | -88.74 | 253.29 | 243.48 | 9.81 | 25.828 | | |
| 1,400.00 | 1,368.57 | 1,342.41 | 1,331.32 | 6.23 | 5.12 | 141.776 | 115.16 | -98.27 | 276.34 | 266.07 | 10.27 | 26.909 | | |
| 1,450.00 | 1,413.65 | 1,384.25 | 1,371.28 | 6.65 | 5.36 | 141.406 | 122.74 | -108.12 | 300.45 | 289.71 | 10.74 | 27.965 | | |
| 1,500.00 | 1,458.25 | 1,425.38 | 1,410.37 | 7.06 | 5.60 | 141.024 | 130.52 | -118.25 | 325.60 | 314.38 | 11.22 | 29.016 | | |
| 1,550.00 | 1,502.34 | 1,465.78 | 1,448.59 | 7.52 | 5.85 | 140.627 | 138.51 | -128.63 | 351.76 | 340.04 | 11.72 | 30.024 | | |
| 1,600.00 | 1,545.92 | 1,505.43 | 1,485.92 | 7.98 | 6.10 | 140.217 | 146.66 | -139.23 | 378.90 | 366.70 | 12.20 | 31.047 | | |
| 1,650.00 | 1,588.94 | 1,544.32 | 1,522.35 | 8.47 | 6.37 | 139.791 | 154.96 | -150.02 | 407.01 | 394.29 | 12.72 | 32.003 | | |
| 1,700.00 | 1,631.40 | 1,582.44 | 1,557.87 | 8.97 | 6.63 | 139.350 | 163.39 | -160.98 | 436.06 | 422.84 | 13.22 | 32.979 | | |
| 1,750.00 | 1,673.27 | 1,619.78 | 1,592.48 | 9.50 | 6.89 | 138.891 | 171.93 | -172.08 | 466.02 | 452.27 | 13.74 | 33.907 | | |
| 1,800.00 | 1,714.54 | 1,656.32 | 1,626.18 | 10.04 | 7.16 | 138.413 | 180.54 | -183.29 | 496.87 | 482.60 | 14.26 | 34.836 | | |
| 1,850.00 | 1,755.18 | 1,706.72 | 1,660.09 | 10.61 | 7.53 | 137.928 | 189.50 | -194.93 | 528.56 | 513.65 | 14.91 | 35.462 | | |
| 1,900.00 | 1,795.18 | 1,731.34 | 1,694.98 | 11.18 | 7.72 | 137.485 | 198.77 | -206.99 | 560.91 | 545.53 | 15.38 | 36.468 | | |
| 1,950.00 | 1,834.71 | 1,769.01 | 1,729.51 | 11.78 | 8.02 | 137.622 | 207.95 | -218.92 | 593.71 | 577.75 | 15.96 | 37.197 | | |
| 2,000.00 | 1,874.22 | 1,806.67 | 1,764.03 | 12.38 | 8.31 | 137.899 | 217.12 | -230.85 | 626.53 | 610.00 | 16.54 | 37.890 | | |
| 2,050.00 | 1,913.74 | 1,844.32 | 1,798.55 | 12.99 | 8.60 | 138.148 | 226.29 | -242.77 | 659.36 | 642.24 | 17.12 | 38.516 | | |
| 2,100.00 | 1,953.29 | 1,882.36 | 1,833.42 | 13.59 | 8.90 | 132.524 | 235.56 | -254.82 | 691.69 | 673.99 | 17.71 | 39.062 | | |
| 2,150.00 | 1,992.88 | 1,922.02 | 1,869.78 | 14.20 | 9.22 | 124.160 | 245.22 | -267.38 | 721.65 | 703.31 | 18.34 | 39.357 | | |
| 2,200.00 | 2,032.23 | 1,963.12 | 1,907.46 | 14.81 | 9.55 | 116.556 | 255.23 | -280.40 | 748.91 | 729.90 | 19.01 | 39.397 | | |
| 2,250.00 | 2,071.04 | 2,005.37 | 1,946.19 | 15.42 | 9.89 | 109.789 | 265.52 | -293.78 | 773.35 | 753.62 | 19.73 | 39.206 | | |
| 2,300.00 | 2,109.00 | 2,048.43 | 1,985.66 | 16.02 | 10.24 | 103.911 | 276.01 | -307.41 | 794.90 | 774.42 | 20.48 | 38.808 | | |
| 2,350.00 | 2,145.84 | 2,108.02 | 2,025.58 | 16.61 | 10.72 | 98.937 | 286.61 | -321.21 | 813.54 | 792.13 | 21.40 | 38.014 | | |
| 2,400.00 | 2,181.43 | 2,135.69 | 2,065.65 | 17.20 | 10.95 | 97.105 | 297.26 | -335.05 | 829.58 | 807.48 | 22.10 | 37.535 | | |
| 2,450.00 | 2,216.79 | 2,179.40 | 2,105.73 | 17.79 | 11.31 | 98.323 | 307.91 | -348.89 | 845.52 | 822.56 | 22.96 | 36.823 | | |
| 2,500.00 | 2,252.14 | 2,223.12 | 2,145.80 | 18.39 | 11.67 | 99.503 | 318.55 | -362.74 | 861.85 | 838.04 | 23.81 | 36.194 | | |
| 2,550.00 | 2,287.50 | 2,266.83 | 2,185.87 | 19.02 | 12.03 | 100.644 | 329.20 | -376.58 | 878.55 | 853.86 | 24.68 | 35.594 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 2,600.00 | 2,322.55 | 2,310.36 | 2,225.78 | 19.67 | 12.39 | 100.966 | 339.81 | -390.37 | 895.67 | 870.12 | 25.55 | 35.056 | | |
| 2,650.00 | 2,354.86 | 2,352.18 | 2,264.12 | 20.38 | 12.73 | 100.297 | 349.99 | -403.62 | 913.84 | 887.41 | 26.43 | 34.575 | | |
| 2,700.00 | 2,383.74 | 2,391.69 | 2,300.34 | 21.15 | 13.06 | 99.585 | 359.62 | -416.13 | 933.27 | 905.96 | 27.31 | 34.170 | | |
| 2,750.00 | 2,408.94 | 2,428.60 | 2,334.17 | 22.00 | 13.37 | 98.768 | 368.60 | -427.82 | 954.05 | 925.86 | 28.18 | 33.851 | | |
| 2,800.00 | 2,430.29 | 2,837.83 | 2,668.78 | 22.91 | 17.73 | 109.393 | 420.14 | -645.42 | 964.52 | 929.43 | 35.09 | 27.485 | | |
| 2,850.00 | 2,447.62 | 2,883.23 | 2,700.89 | 23.87 | 18.33 | 109.683 | 420.97 | -677.52 | 972.61 | 936.14 | 36.47 | 26.669 | | |
| 2,900.00 | 2,460.80 | 2,926.64 | 2,731.58 | 24.89 | 18.91 | 109.926 | 421.77 | -708.20 | 982.60 | 944.81 | 37.79 | 26.000 | | |
| 2,950.00 | 2,469.72 | 2,976.52 | 2,766.76 | 25.94 | 19.59 | 110.354 | 422.69 | -743.55 | 994.63 | 955.47 | 39.16 | 25.398 | | |
| 3,000.00 | 2,474.32 | 3,143.42 | 2,863.17 | 27.02 | 22.31 | 113.808 | 426.21 | -879.02 | 1,005.99 | 963.47 | 42.52 | 23.660 | | |
| 3,050.00 | 2,475.00 | 3,357.90 | 2,923.23 | 28.12 | 26.70 | 116.317 | 431.54 | -1,083.54 | 1,012.60 | 965.10 | 47.50 | 21.318 | | |
| 3,100.00 | 2,475.00 | 3,452.22 | 2,926.00 | 29.23 | 28.80 | 116.426 | 433.99 | -1,177.75 | 1,013.47 | 962.94 | 50.53 | 20.056 | | |
| 3,150.00 | 2,475.00 | 3,502.22 | 2,926.00 | 30.37 | 29.92 | 116.409 | 435.29 | -1,227.72 | 1,014.07 | 961.40 | 52.67 | 19.253 | | |
| 3,200.00 | 2,475.00 | 3,552.21 | 2,926.00 | 31.51 | 31.07 | 116.392 | 436.59 | -1,277.70 | 1,014.67 | 959.84 | 54.83 | 18.505 | | |
| 3,250.00 | 2,475.00 | 3,602.21 | 2,926.00 | 32.67 | 32.23 | 116.375 | 437.89 | -1,327.68 | 1,015.28 | 958.27 | 57.01 | 17.808 | | |
| 3,300.00 | 2,475.00 | 3,652.21 | 2,926.00 | 33.85 | 33.41 | 116.358 | 439.19 | -1,377.66 | 1,015.88 | 956.67 | 59.21 | 17.157 | | |
| 3,350.00 | 2,475.00 | 3,702.20 | 2,926.00 | 35.03 | 34.59 | 116.341 | 440.49 | -1,427.64 | 1,016.48 | 955.06 | 61.42 | 16.550 | | |
| 3,400.00 | 2,475.00 | 3,752.20 | 2,926.00 | 36.22 | 35.78 | 116.325 | 441.79 | -1,477.62 | 1,017.09 | 953.44 | 63.65 | 15.980 | | |
| 3,450.00 | 2,475.00 | 3,802.19 | 2,926.00 | 37.43 | 36.98 | 116.308 | 443.09 | -1,527.60 | 1,017.69 | 951.81 | 65.88 | 15.447 | | |
| 3,500.00 | 2,475.00 | 3,852.19 | 2,926.00 | 38.63 | 38.19 | 116.291 | 444.39 | -1,577.57 | 1,018.29 | 950.16 | 68.13 | 14.946 | | |
| 3,550.00 | 2,475.00 | 3,902.18 | 2,926.00 | 39.85 | 39.40 | 116.274 | 445.69 | -1,627.55 | 1,018.90 | 948.51 | 70.39 | 14.475 | | |
| 3,600.00 | 2,475.00 | 3,952.18 | 2,926.00 | 41.07 | 40.63 | 116.257 | 446.99 | -1,677.53 | 1,019.50 | 946.84 | 72.66 | 14.031 | | |
| 3,650.00 | 2,475.00 | 4,002.17 | 2,926.00 | 42.30 | 41.85 | 116.241 | 448.29 | -1,727.51 | 1,020.11 | 945.17 | 74.94 | 13.613 | | |
| 3,700.00 | 2,475.00 | 4,052.17 | 2,926.00 | 43.54 | 43.09 | 116.224 | 449.59 | -1,777.49 | 1,020.71 | 943.49 | 77.22 | 13.218 | | |
| 3,750.00 | 2,475.00 | 4,102.16 | 2,926.00 | 44.78 | 44.33 | 116.207 | 450.89 | -1,827.47 | 1,021.31 | 941.80 | 79.51 | 12.845 | | |
| 3,800.00 | 2,475.00 | 4,152.16 | 2,926.00 | 46.02 | 45.57 | 116.191 | 452.19 | -1,877.45 | 1,021.92 | 940.11 | 81.81 | 12.491 | | |
| 3,850.00 | 2,475.00 | 4,202.16 | 2,926.00 | 47.27 | 46.82 | 116.174 | 453.49 | -1,927.42 | 1,022.52 | 938.41 | 84.11 | 12.156 | | |
| 3,900.00 | 2,475.00 | 4,252.15 | 2,926.00 | 48.52 | 48.07 | 116.157 | 454.79 | -1,977.40 | 1,023.13 | 936.70 | 86.42 | 11.838 | | |
| 3,950.00 | 2,475.00 | 4,302.15 | 2,926.00 | 49.77 | 49.32 | 116.141 | 456.09 | -2,027.38 | 1,023.73 | 934.99 | 88.74 | 11.536 | | |
| 4,000.00 | 2,475.00 | 4,352.14 | 2,926.00 | 51.03 | 50.58 | 116.124 | 457.39 | -2,077.36 | 1,024.33 | 933.27 | 91.06 | 11.249 | | |
| 4,050.00 | 2,475.00 | 4,402.14 | 2,926.00 | 52.29 | 51.84 | 116.108 | 458.69 | -2,127.34 | 1,024.94 | 931.55 | 93.38 | 10.975 | | |
| 4,100.00 | 2,475.00 | 4,452.13 | 2,926.00 | 53.56 | 53.10 | 116.091 | 460.00 | -2,177.32 | 1,025.54 | 929.83 | 95.71 | 10.715 | | |
| 4,150.00 | 2,475.00 | 4,502.13 | 2,926.00 | 54.82 | 54.37 | 116.075 | 461.30 | -2,227.30 | 1,026.15 | 928.10 | 98.05 | 10.466 | | |
| 4,200.00 | 2,475.00 | 4,552.12 | 2,926.00 | 56.09 | 55.64 | 116.058 | 462.60 | -2,277.27 | 1,026.75 | 926.37 | 100.38 | 10.228 | | |
| 4,250.00 | 2,475.00 | 4,602.12 | 2,926.00 | 57.36 | 56.91 | 116.042 | 463.90 | -2,327.25 | 1,027.36 | 924.63 | 102.72 | 10.001 | | |
| 4,300.00 | 2,475.00 | 4,652.12 | 2,926.00 | 58.64 | 58.18 | 116.025 | 465.20 | -2,377.23 | 1,027.96 | 922.89 | 105.07 | 9.784 | | |
| 4,350.00 | 2,475.00 | 4,702.11 | 2,926.00 | 59.91 | 59.46 | 116.009 | 466.50 | -2,427.21 | 1,028.57 | 921.15 | 107.41 | 9.576 | | |
| 4,400.00 | 2,475.00 | 4,752.11 | 2,926.00 | 61.19 | 60.73 | 115.992 | 467.80 | -2,477.19 | 1,029.17 | 919.41 | 109.77 | 9.376 | | |
| 4,450.00 | 2,475.00 | 4,802.10 | 2,926.00 | 62.47 | 62.01 | 115.976 | 469.10 | -2,527.17 | 1,029.78 | 917.66 | 112.12 | 9.185 | | |
| 4,500.00 | 2,475.00 | 4,852.10 | 2,926.00 | 63.75 | 63.29 | 115.959 | 470.40 | -2,577.15 | 1,030.38 | 915.91 | 114.47 | 9.001 | | |
| 4,550.00 | 2,475.00 | 4,902.09 | 2,926.00 | 65.03 | 64.57 | 115.943 | 471.70 | -2,627.12 | 1,030.99 | 914.16 | 116.83 | 8.825 | | |
| 4,600.00 | 2,475.00 | 4,952.09 | 2,926.00 | 66.31 | 65.86 | 115.927 | 473.00 | -2,677.10 | 1,031.59 | 912.40 | 119.19 | 8.655 | | |
| 4,650.00 | 2,475.00 | 5,002.08 | 2,926.00 | 67.60 | 67.14 | 115.910 | 474.30 | -2,727.08 | 1,032.20 | 910.64 | 121.56 | 8.492 | | |
| 4,700.00 | 2,475.00 | 5,052.08 | 2,926.00 | 68.88 | 68.43 | 115.894 | 475.60 | -2,777.06 | 1,032.80 | 908.88 | 123.92 | 8.334 | | |
| 4,750.00 | 2,475.00 | 5,102.07 | 2,926.00 | 70.17 | 69.71 | 115.878 | 476.90 | -2,827.04 | 1,033.41 | 907.12 | 126.29 | 8.183 | | |
| 4,800.00 | 2,475.00 | 5,152.07 | 2,926.00 | 71.46 | 71.00 | 115.861 | 478.20 | -2,877.02 | 1,034.02 | 905.36 | 128.66 | 8.037 | | |
| 4,850.00 | 2,475.00 | 5,202.07 | 2,926.00 | 72.75 | 72.29 | 115.845 | 479.50 | -2,927.00 | 1,034.62 | 903.59 | 131.03 | 7.896 | | |
| 4,900.00 | 2,475.00 | 5,252.06 | 2,926.00 | 74.04 | 73.58 | 115.829 | 480.80 | -2,976.97 | 1,035.23 | 901.82 | 133.40 | 7.760 | | |
| 4,950.00 | 2,475.00 | 5,302.06 | 2,926.00 | 75.33 | 74.87 | 115.813 | 482.10 | -3,026.95 | 1,035.83 | 900.06 | 135.78 | 7.629 | | |
| 5,000.00 | 2,475.00 | 5,352.05 | 2,926.00 | 76.62 | 76.16 | 115.796 | 483.40 | -3,076.93 | 1,036.44 | 898.28 | 138.16 | 7.502 | | |
| 5,050.00 | 2,475.00 | 5,402.05 | 2,926.00 | 77.92 | 77.46 | 115.780 | 484.70 | -3,126.91 | 1,037.05 | 896.51 | 140.53 | 7.379 | | |
| 5,100.00 | 2,475.00 | 5,452.04 | 2,926.00 | 79.21 | 78.75 | 115.764 | 486.00 | -3,176.89 | 1,037.65 | 894.74 | 142.91 | 7.261 | | |
| 5,150.00 | 2,475.00 | 5,502.04 | 2,926.00 | 80.50 | 80.04 | 115.748 | 487.30 | -3,226.87 | 1,038.26 | 892.96 | 145.30 | 7.146 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|----------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 5,200.00 | 2,475.00 | 5,552.03 | 2,926.00 | 81.80 | 81.34 | 115.732 | 488.60 | -3,276.85 | 1,038.86 | 891.18 | 147.68 | 7.035 | | |
| 5,250.00 | 2,475.00 | 5,602.03 | 2,926.00 | 83.09 | 82.64 | 115.716 | 489.90 | -3,326.82 | 1,039.47 | 889.41 | 150.07 | 6.927 | | |
| 5,300.00 | 2,475.00 | 5,652.02 | 2,926.00 | 84.39 | 83.93 | 115.700 | 491.21 | -3,376.80 | 1,040.08 | 887.63 | 152.45 | 6.822 | | |
| 5,350.00 | 2,475.00 | 5,702.02 | 2,926.00 | 85.69 | 85.23 | 115.684 | 492.51 | -3,426.78 | 1,040.68 | 885.84 | 154.84 | 6.721 | | |
| 5,400.00 | 2,475.00 | 5,752.02 | 2,926.00 | 86.99 | 86.53 | 115.668 | 493.81 | -3,476.76 | 1,041.29 | 884.06 | 157.23 | 6.623 | | |
| 5,450.00 | 2,475.00 | 5,802.01 | 2,926.00 | 88.29 | 87.83 | 115.651 | 495.11 | -3,526.74 | 1,041.90 | 882.28 | 159.62 | 6.527 | | |
| 5,500.00 | 2,475.00 | 5,852.01 | 2,926.00 | 89.58 | 89.13 | 115.635 | 496.41 | -3,576.72 | 1,042.50 | 880.49 | 162.01 | 6.435 | | |
| 5,550.00 | 2,475.00 | 5,902.00 | 2,926.00 | 90.88 | 90.42 | 115.619 | 497.71 | -3,626.70 | 1,043.11 | 878.71 | 164.40 | 6.345 | | |
| 5,600.00 | 2,475.00 | 5,952.00 | 2,926.00 | 92.18 | 91.73 | 115.603 | 499.01 | -3,676.67 | 1,043.72 | 876.92 | 166.80 | 6.257 | | |
| 5,650.00 | 2,475.00 | 6,001.99 | 2,926.00 | 93.48 | 93.03 | 115.588 | 500.31 | -3,726.65 | 1,044.33 | 875.13 | 169.19 | 6.172 | | |
| 5,700.00 | 2,475.00 | 6,051.99 | 2,926.00 | 94.79 | 94.33 | 115.572 | 501.61 | -3,776.63 | 1,044.93 | 873.34 | 171.59 | 6.090 | | |
| 5,750.00 | 2,475.00 | 6,101.98 | 2,926.00 | 96.09 | 95.63 | 115.556 | 502.91 | -3,826.61 | 1,045.54 | 871.55 | 173.99 | 6.009 | | |
| 5,800.00 | 2,475.00 | 6,151.98 | 2,926.00 | 97.39 | 96.93 | 115.540 | 504.21 | -3,876.59 | 1,046.15 | 869.76 | 176.39 | 5.931 | | |
| 5,850.00 | 2,475.00 | 6,201.97 | 2,926.00 | 98.69 | 98.23 | 115.524 | 505.51 | -3,926.57 | 1,046.75 | 867.97 | 178.79 | 5.855 | | |
| 5,900.00 | 2,475.00 | 6,251.97 | 2,926.00 | 99.99 | 99.54 | 115.508 | 506.81 | -3,976.55 | 1,047.36 | 866.17 | 181.19 | 5.780 | | |
| 5,950.00 | 2,475.00 | 6,301.97 | 2,926.00 | 101.30 | 100.84 | 115.492 | 508.11 | -4,026.52 | 1,047.97 | 864.38 | 183.59 | 5.708 | | |
| 6,000.00 | 2,475.00 | 6,351.96 | 2,926.00 | 102.60 | 102.14 | 115.476 | 509.41 | -4,076.50 | 1,048.58 | 862.58 | 186.00 | 5.638 | | |
| 6,050.00 | 2,475.00 | 6,401.96 | 2,926.00 | 103.90 | 103.45 | 115.461 | 510.71 | -4,126.48 | 1,049.19 | 860.79 | 188.40 | 5.569 | | |
| 6,100.00 | 2,475.00 | 6,451.95 | 2,926.00 | 105.21 | 104.75 | 115.445 | 512.01 | -4,176.46 | 1,049.79 | 858.99 | 190.80 | 5.502 | | |
| 6,150.00 | 2,475.00 | 6,501.95 | 2,926.00 | 106.51 | 106.06 | 115.429 | 513.31 | -4,226.44 | 1,050.40 | 857.19 | 193.21 | 5.437 | | |
| 6,200.00 | 2,475.00 | 6,551.94 | 2,926.00 | 107.82 | 107.36 | 115.413 | 514.61 | -4,276.42 | 1,051.01 | 855.39 | 195.62 | 5.373 | | |
| 6,250.00 | 2,475.00 | 6,601.94 | 2,926.00 | 109.12 | 108.67 | 115.397 | 515.91 | -4,326.40 | 1,051.62 | 853.59 | 198.03 | 5.311 | | |
| 6,300.00 | 2,475.00 | 6,651.93 | 2,926.00 | 110.43 | 109.97 | 115.382 | 517.21 | -4,376.37 | 1,052.23 | 851.79 | 200.44 | 5.250 | | |
| 6,350.00 | 2,475.00 | 6,701.93 | 2,926.00 | 111.73 | 111.28 | 115.366 | 518.51 | -4,426.35 | 1,052.83 | 849.99 | 202.84 | 5.190 | | |
| 6,400.00 | 2,475.00 | 6,751.92 | 2,926.00 | 113.04 | 112.58 | 115.350 | 519.81 | -4,476.33 | 1,053.44 | 848.19 | 205.26 | 5.132 | | |
| 6,450.00 | 2,475.00 | 6,801.92 | 2,926.00 | 114.35 | 113.89 | 115.335 | 521.11 | -4,526.31 | 1,054.05 | 846.38 | 207.67 | 5.076 | | |
| 6,500.00 | 2,475.00 | 6,851.92 | 2,926.00 | 115.65 | 115.20 | 115.319 | 522.41 | -4,576.29 | 1,054.66 | 844.58 | 210.08 | 5.020 | | |
| 6,550.00 | 2,475.00 | 6,901.91 | 2,926.00 | 116.96 | 116.50 | 115.303 | 523.72 | -4,626.27 | 1,055.27 | 842.77 | 212.49 | 4.966 | | |
| 6,600.00 | 2,475.00 | 6,951.91 | 2,926.00 | 118.26 | 117.81 | 115.288 | 525.02 | -4,676.24 | 1,055.88 | 840.97 | 214.91 | 4.913 | | |
| 6,650.00 | 2,475.00 | 7,001.90 | 2,926.00 | 119.57 | 119.12 | 115.272 | 526.32 | -4,726.22 | 1,056.49 | 839.16 | 217.32 | 4.861 | | |
| 6,700.00 | 2,475.00 | 7,051.90 | 2,926.00 | 120.88 | 120.43 | 115.257 | 527.62 | -4,776.20 | 1,057.09 | 837.36 | 219.74 | 4.811 | | |
| 6,750.00 | 2,475.00 | 7,101.89 | 2,926.00 | 122.19 | 121.73 | 115.241 | 528.92 | -4,826.18 | 1,057.70 | 835.55 | 222.16 | 4.761 | | |
| 6,800.00 | 2,475.00 | 7,151.89 | 2,926.00 | 123.49 | 123.04 | 115.226 | 530.22 | -4,876.16 | 1,058.31 | 833.74 | 224.57 | 4.713 | | |
| 6,850.00 | 2,475.00 | 7,201.88 | 2,926.00 | 124.80 | 124.35 | 115.210 | 531.52 | -4,926.14 | 1,058.92 | 831.93 | 226.99 | 4.665 | | |
| 6,900.00 | 2,475.00 | 7,251.88 | 2,926.00 | 126.11 | 125.66 | 115.194 | 532.82 | -4,976.12 | 1,059.53 | 830.12 | 229.41 | 4.619 | | |
| 6,950.00 | 2,475.00 | 7,301.87 | 2,926.00 | 127.42 | 126.97 | 115.179 | 534.12 | -5,026.09 | 1,060.14 | 828.31 | 231.83 | 4.573 | | |
| 7,000.00 | 2,475.00 | 7,351.87 | 2,926.00 | 128.73 | 128.28 | 115.164 | 535.42 | -5,076.07 | 1,060.75 | 826.50 | 234.25 | 4.528 | | |
| 7,050.00 | 2,475.00 | 7,401.87 | 2,926.00 | 130.04 | 129.59 | 115.148 | 536.72 | -5,126.05 | 1,061.36 | 824.69 | 236.67 | 4.485 | | |
| 7,100.00 | 2,475.00 | 7,451.86 | 2,926.00 | 131.34 | 130.89 | 115.133 | 538.02 | -5,176.03 | 1,061.97 | 822.87 | 239.09 | 4.442 | | |
| 7,150.00 | 2,475.00 | 7,501.86 | 2,926.00 | 132.65 | 132.20 | 115.117 | 539.32 | -5,226.01 | 1,062.58 | 821.06 | 241.52 | 4.400 | | |
| 7,200.00 | 2,475.00 | 7,551.85 | 2,926.00 | 133.96 | 133.51 | 115.102 | 540.62 | -5,275.99 | 1,063.19 | 819.25 | 243.94 | 4.358 | | |
| 7,250.00 | 2,475.00 | 7,601.85 | 2,926.00 | 135.27 | 134.82 | 115.086 | 541.92 | -5,325.97 | 1,063.80 | 817.43 | 246.36 | 4.318 | | |
| 7,300.00 | 2,475.00 | 7,651.84 | 2,926.00 | 136.58 | 136.13 | 115.071 | 543.22 | -5,375.94 | 1,064.41 | 815.62 | 248.79 | 4.278 | | |
| 7,350.00 | 2,475.00 | 7,701.84 | 2,926.00 | 137.89 | 137.44 | 115.056 | 544.52 | -5,425.92 | 1,065.02 | 813.80 | 251.21 | 4.239 | | |
| 7,400.00 | 2,475.00 | 7,751.83 | 2,926.00 | 139.20 | 138.75 | 115.040 | 545.82 | -5,475.90 | 1,065.63 | 811.99 | 253.64 | 4.201 | | |
| 7,450.00 | 2,475.00 | 7,801.83 | 2,926.00 | 140.51 | 140.06 | 115.025 | 547.12 | -5,525.88 | 1,066.24 | 810.17 | 256.07 | 4.164 | | |
| 7,500.00 | 2,475.00 | 7,851.83 | 2,926.00 | 141.82 | 141.37 | 115.010 | 548.42 | -5,575.86 | 1,066.85 | 808.35 | 258.49 | 4.127 | | |
| 7,550.00 | 2,475.00 | 7,901.82 | 2,926.00 | 143.13 | 142.69 | 114.995 | 549.72 | -5,625.84 | 1,067.46 | 806.53 | 260.92 | 4.091 | | |
| 7,600.00 | 2,475.00 | 7,951.82 | 2,926.00 | 144.44 | 144.00 | 114.979 | 551.02 | -5,675.82 | 1,068.07 | 804.71 | 263.35 | 4.056 | | |
| 7,650.00 | 2,475.00 | 8,001.81 | 2,926.00 | 145.75 | 145.31 | 114.964 | 552.32 | -5,725.79 | 1,068.68 | 802.89 | 265.78 | 4.021 | | |
| 7,700.00 | 2,475.00 | 8,051.81 | 2,926.00 | 147.06 | 146.62 | 114.949 | 553.62 | -5,775.77 | 1,069.29 | 801.07 | 268.21 | 3.987 | | |
| 7,750.00 | 2,475.00 | 8,101.80 | 2,926.00 | 148.37 | 147.93 | 114.934 | 554.92 | -5,825.75 | 1,069.90 | 799.25 | 270.64 | 3.953 | | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|--|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|---------------------------|-----------|
| Carter Collier 5 Fed Com - #14H - OH - Plan #1 | | | | | | | | | | | | Offset Well Error: | 0.00 usft |
| Survey Program: 0-MWD+IGRF | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
| 7,800.00 | 2,475.00 | 8,151.80 | 2,926.00 | 149.68 | 149.24 | 114.918 | 556.23 | -5,875.73 | 1,070.51 | 797.43 | 273.07 | 3.920 | |
| 7,850.00 | 2,475.00 | 8,201.79 | 2,926.00 | 150.99 | 150.55 | 114.903 | 557.53 | -5,925.71 | 1,071.12 | 795.61 | 275.51 | 3.888 | |
| 7,900.00 | 2,475.00 | 8,251.79 | 2,926.00 | 152.31 | 151.86 | 114.888 | 558.83 | -5,975.69 | 1,071.73 | 793.79 | 277.94 | 3.856 | |
| 7,950.00 | 2,475.00 | 8,301.78 | 2,926.00 | 153.62 | 153.17 | 114.873 | 560.13 | -6,025.67 | 1,072.34 | 791.97 | 280.37 | 3.825 | |
| 8,000.00 | 2,475.00 | 8,351.78 | 2,926.00 | 154.93 | 154.49 | 114.858 | 561.43 | -6,075.64 | 1,072.95 | 790.14 | 282.81 | 3.794 | |
| 8,050.00 | 2,475.00 | 8,401.78 | 2,926.00 | 156.24 | 155.80 | 114.843 | 562.73 | -6,125.62 | 1,073.56 | 788.32 | 285.24 | 3.764 | |
| 8,100.00 | 2,475.00 | 8,451.77 | 2,926.00 | 157.55 | 157.11 | 114.828 | 564.03 | -6,175.60 | 1,074.17 | 786.50 | 287.68 | 3.734 | |
| 8,150.00 | 2,475.00 | 8,501.77 | 2,926.00 | 158.86 | 158.42 | 114.813 | 565.33 | -6,225.58 | 1,074.78 | 784.67 | 290.11 | 3.705 | |
| 8,175.65 | 2,475.00 | 8,527.41 | 2,926.00 | 159.53 | 159.09 | 114.805 | 565.99 | -6,251.22 | 1,075.10 | 783.73 | 291.36 | 3.690 SF | |

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



Wellbenders

Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

Reference Depths are relative to RKB=17' @ 3583.00usft (Silver Oak 1)

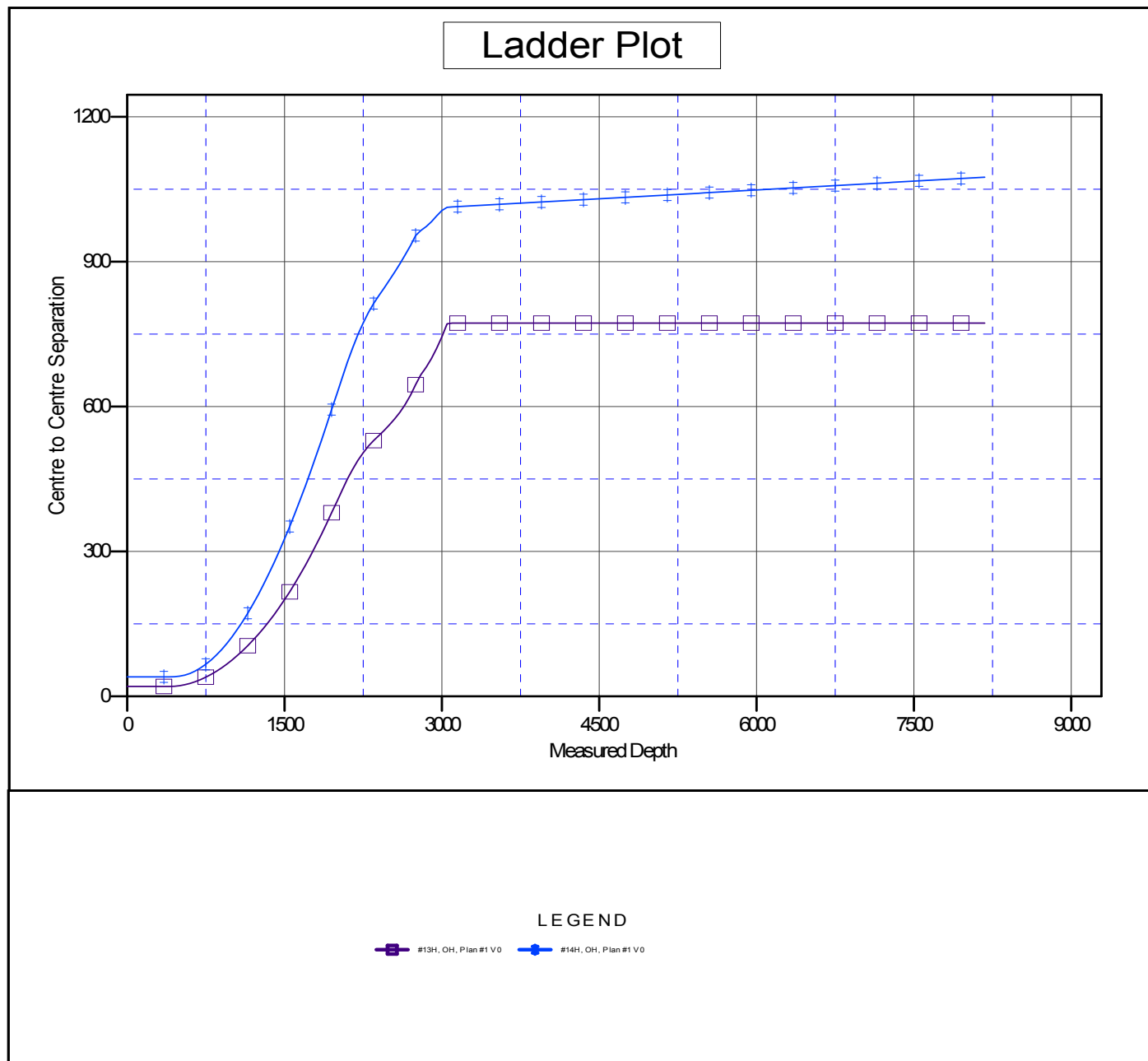
Coordinates are relative to: #12H

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Central Meridian is -104.333334

Grid Convergence at Surface is: 0.024°



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



Wellbenders Anticollision Report



| | | | |
|---------------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Reference Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site Error: | 0.00 usft | North Reference: | Grid |
| Reference Well: | #12H | 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 #2 | Offset TVD Reference: | Reference Datum |

Reference Depths are relative to RKB=17' @ 3583.00usft (Silver Oak 1)

Coordinates are relative to: #12H

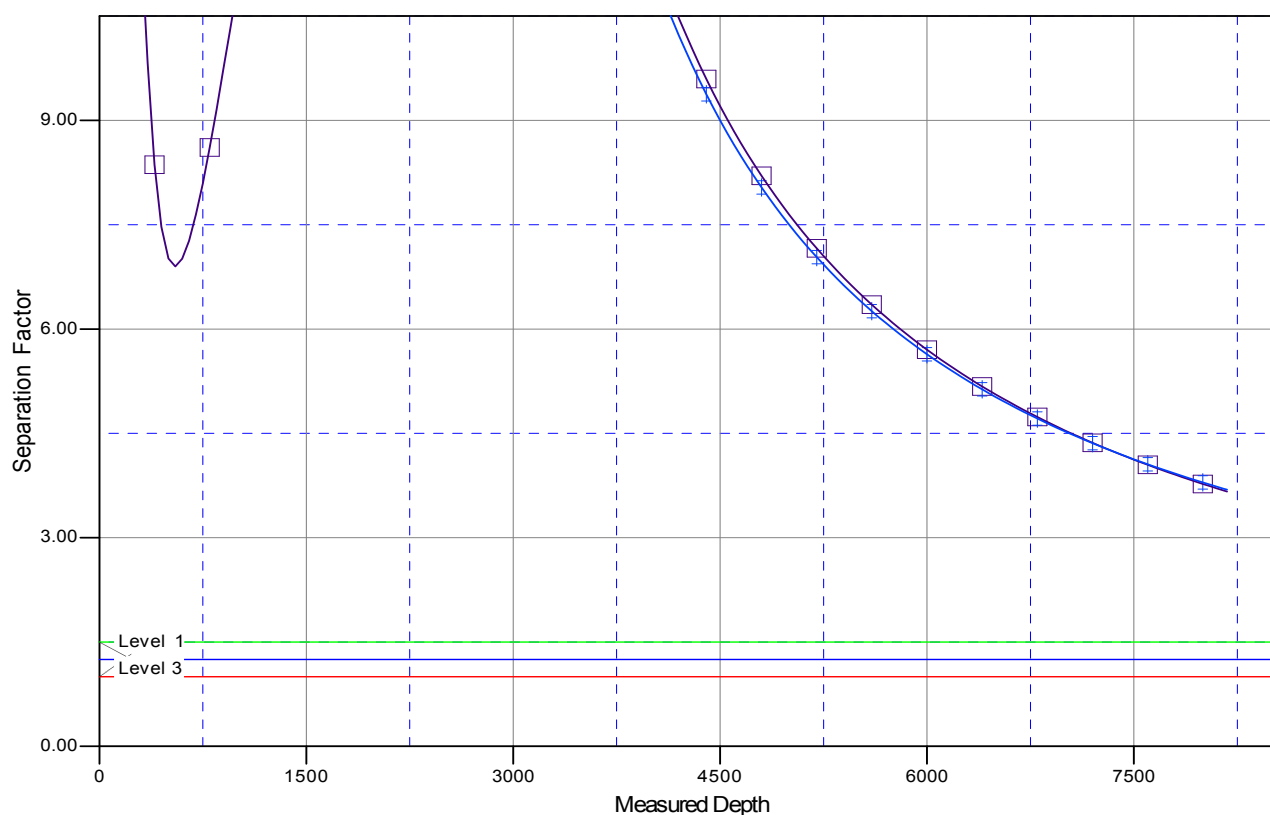
Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Central Meridian is -104.333334

Grid Convergence at Surface is: 0.024°

Separation Factor Plot



LEGEND

#13H, OH, Plan #1 V0 #14H, OH, Plan #1 V0



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Carter Collier 5 Fed Com
Well: #12H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #2 / 10:08, November 27 2018

WELL DETAILS: #12H

RKB=17' @ 3583.00usft (Silver Oak 1)
3566.00

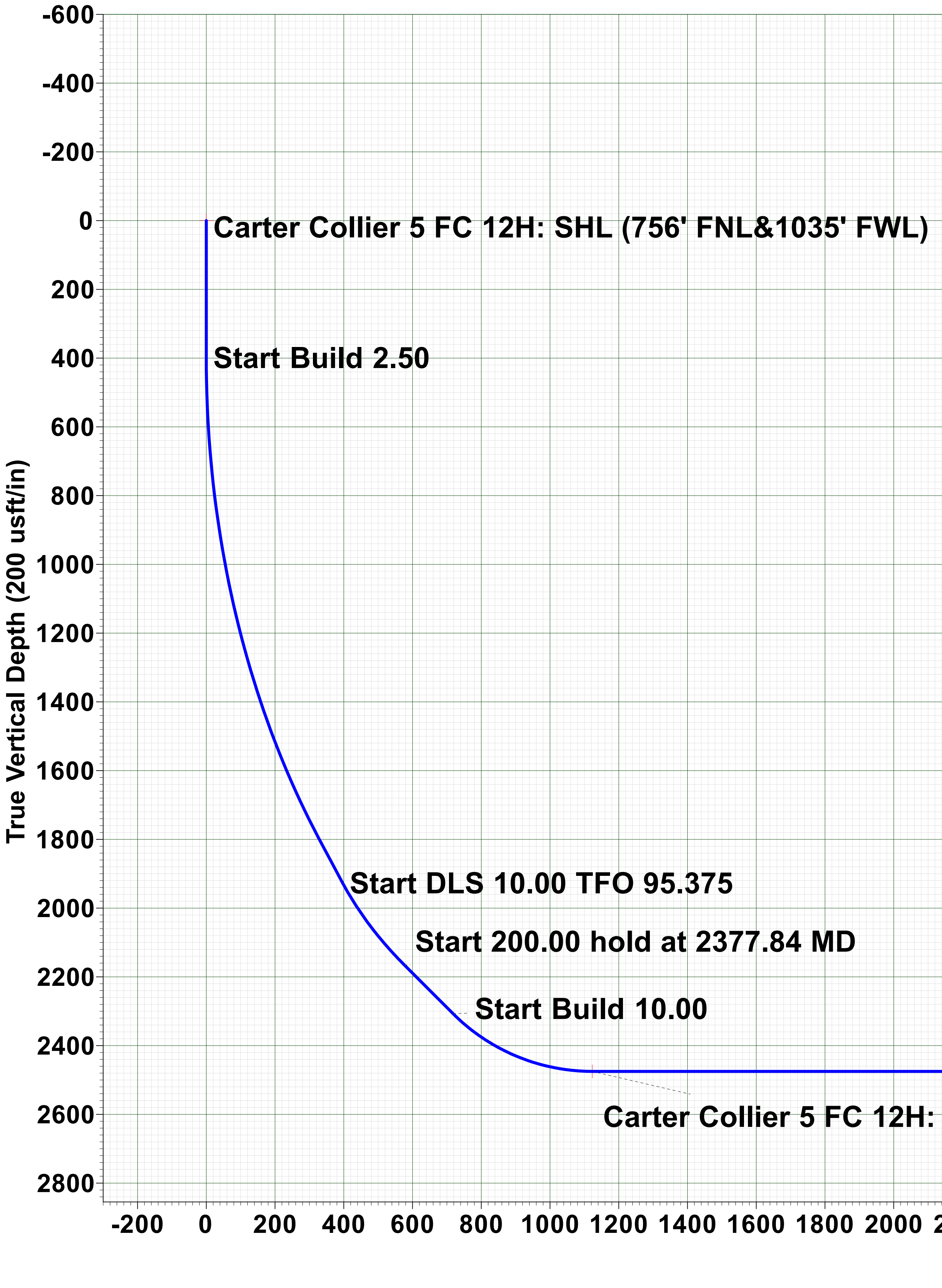
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|-------|-------|-----------|-----------|-----------|-------------|
| 0.00 | 0.00 | 648042.70 | 555034.80 | 32.781494 | -104.288765 |

SECTION DETAILS

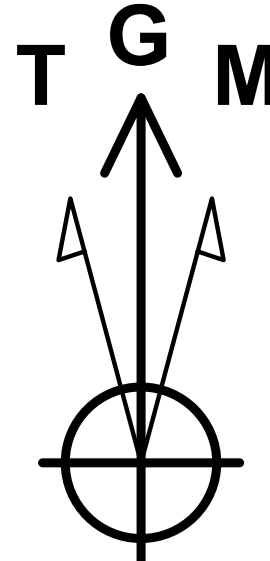
| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | VSect |
|-----|---------|-------|--------|---------|---------|----------|-------|---------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1911.51 | 37.79 | 224.28 | 1804.29 | -344.13 | -335.53 | 2.50 | 331.18 |
| 4 | 2068.07 | 37.79 | 224.28 | 1928.02 | -412.81 | -402.50 | 0.00 | 397.28 |
| 5 | 2377.84 | 45.00 | 270.72 | 2165.76 | -481.06 | -582.68 | 10.00 | 576.59 |
| 6 | 2577.84 | 45.00 | 270.72 | 2307.18 | -479.28 | -724.09 | 0.00 | 718.01 |
| 7 | 3027.84 | 90.00 | 270.72 | 2475.00 | -474.20 | -1129.20 | 10.00 | 1123.15 |
| 8 | 8175.65 | 90.00 | 270.72 | 2475.00 | -409.60 | -6276.60 | 0.00 | 6270.96 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|--|---------|---------|----------|-----------|-----------|-----------|-------------|
| Carter Collier 5 FC 12H: SHL (756' FNL&1035' FWL) | 0.00 | 0.00 | 0.00 | 648042.70 | 555034.80 | 32.781494 | -104.288765 |
| Carter Collier 5 FC 12H: FTP | 2475.00 | -474.20 | -1129.20 | 647568.50 | 553905.60 | 32.780192 | -104.292439 |
| Carter Collier 5 FC 12H: LTP | 2475.00 | -410.60 | -6196.60 | 647632.10 | 548838.20 | 32.780371 | -104.308928 |
| Carter Collier 5 FC 12H: PBHL (1336' FNL& 20' FWL) | 2475.00 | -409.60 | -6276.60 | 647633.10 | 548758.20 | 32.780374 | -104.309188 |



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

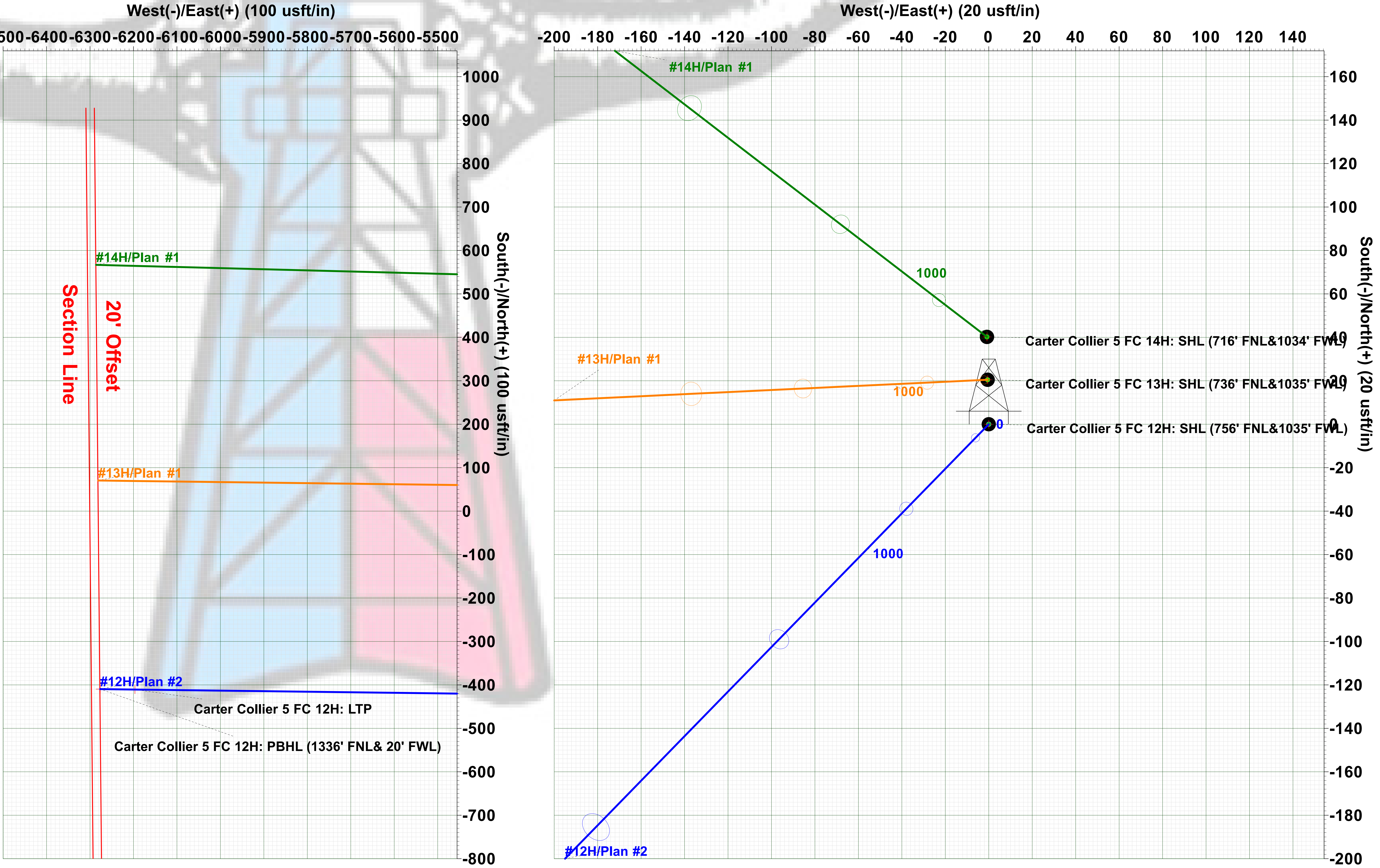
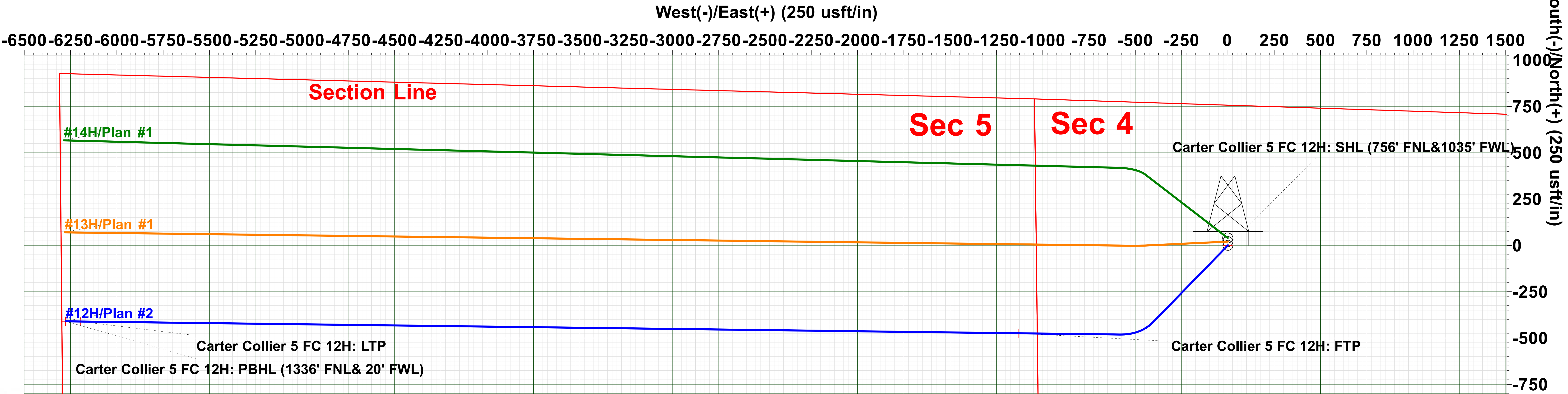


Azimuths to Grid North
True North: -0.02°
Magnetic North: 7.16°

Magnetic Field
Strength: 48049.0snT
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



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



Plan: Plan #2 (#12H/OH) Silver Oak 1

Created By: Derek Stephens Date: 10:08, November 27 2018



Percussion Petroleum, LLC

**Eddy County, NM
Carter Collier 5 Fed Com
#12H
OH**

Plan: Plan #2

Standard Plan With Toolface

27 November, 2018





Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Carter Collier 5 Fed Com
Well: #12H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #2 / 10:08, November 27 2018

WELL DETAILS: #12H

RKB=17' @ 3583.00usft (Silver Oak 1)
3566.00

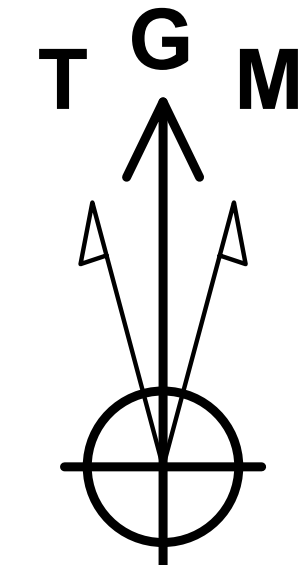
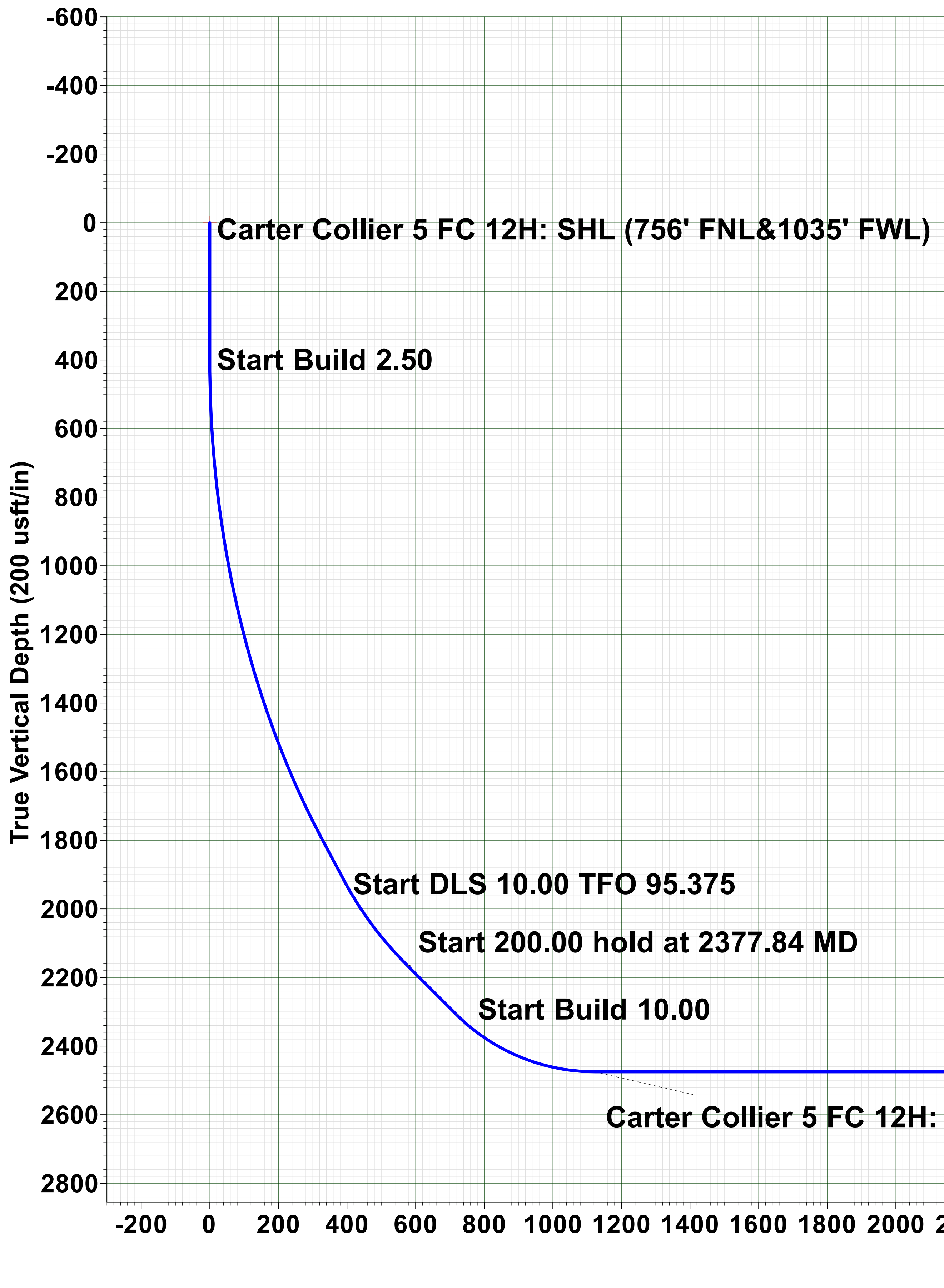
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|-------|-------|-----------|-----------|-----------|-------------|
| 0.00 | 0.00 | 648042.70 | 555034.80 | 32.781494 | -104.288765 |

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 | 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1911.51 | 37.79 | 224.28 | 1804.29 | -344.13 | -335.53 | 2.50 | 331.18 |
| 4 | 2068.07 | 37.79 | 224.28 | 1928.02 | -412.81 | -402.50 | 0.00 | 397.28 |
| 5 | 2377.84 | 45.00 | 270.72 | 2165.76 | -481.06 | -582.68 | 10.00 | 576.59 |
| 6 | 2577.84 | 45.00 | 270.72 | 2307.18 | -479.28 | -724.09 | 0.00 | 718.01 |
| 7 | 3027.84 | 90.00 | 270.72 | 2475.00 | -474.20 | -1129.20 | 10.00 | 1123.15 |
| 8 | 8175.65 | 90.00 | 270.72 | 2475.00 | -409.60 | -6276.60 | 0.00 | 6270.96 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|--|---------|---------|----------|-----------|-----------|-----------|-------------|
| Carter Collier 5 FC 12H: SHL (756' FNL&1035' FWL) | 0.00 | 0.00 | 0.00 | 648042.70 | 555034.80 | 32.781494 | -104.288765 |
| Carter Collier 5 FC 12H: FTP | 2475.00 | -474.20 | -1129.20 | 647568.50 | 553905.60 | 32.780192 | -104.292439 |
| Carter Collier 5 FC 12H: LTP | 2475.00 | -410.60 | -6196.60 | 647632.10 | 548838.20 | 32.780371 | -104.308928 |
| Carter Collier 5 FC 12H: PBHL (1336' FNL& 20' FWL) | 2475.00 | -409.60 | -6276.60 | 647633.10 | 548758.20 | 32.780374 | -104.309188 |



T G M

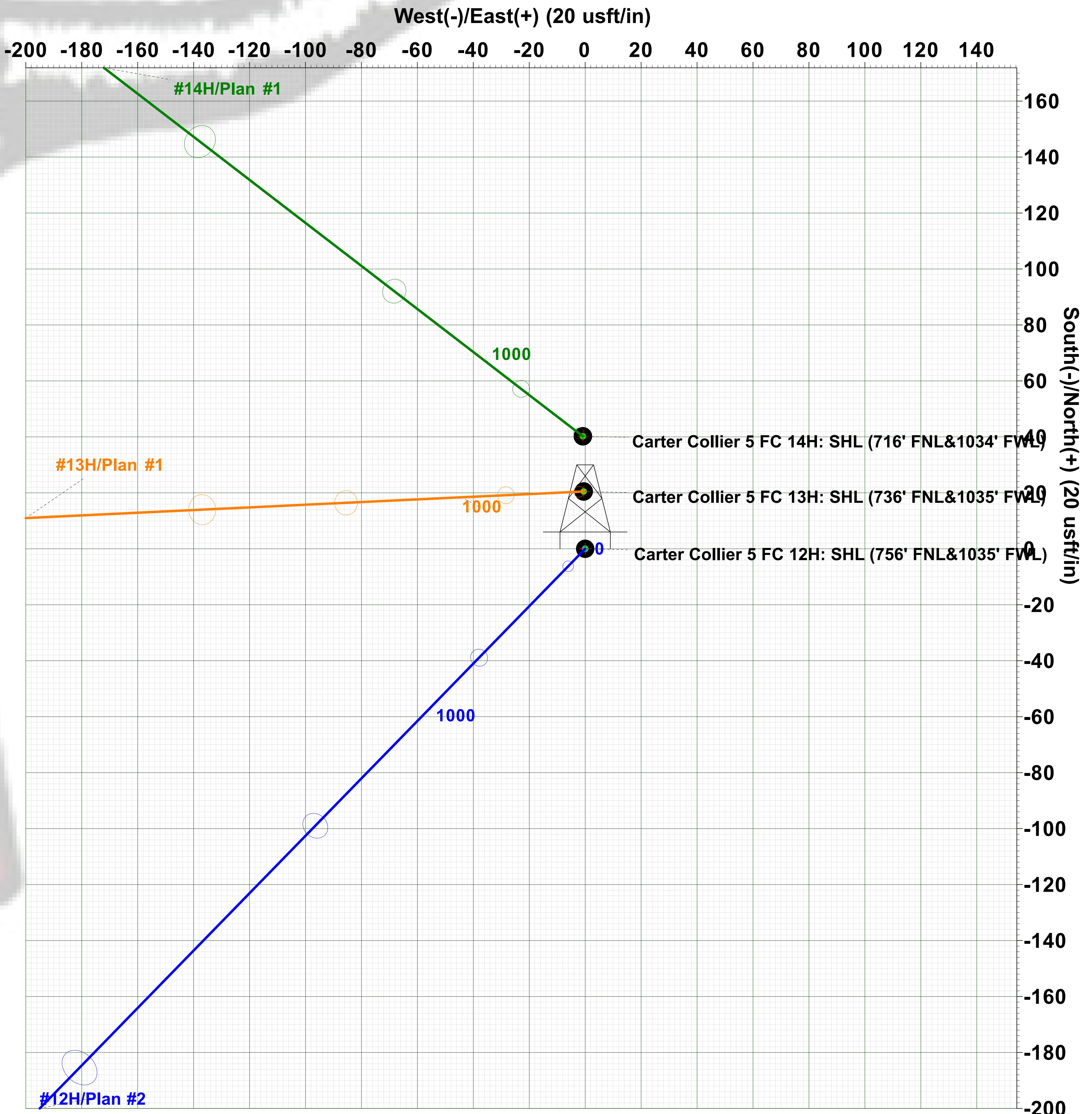
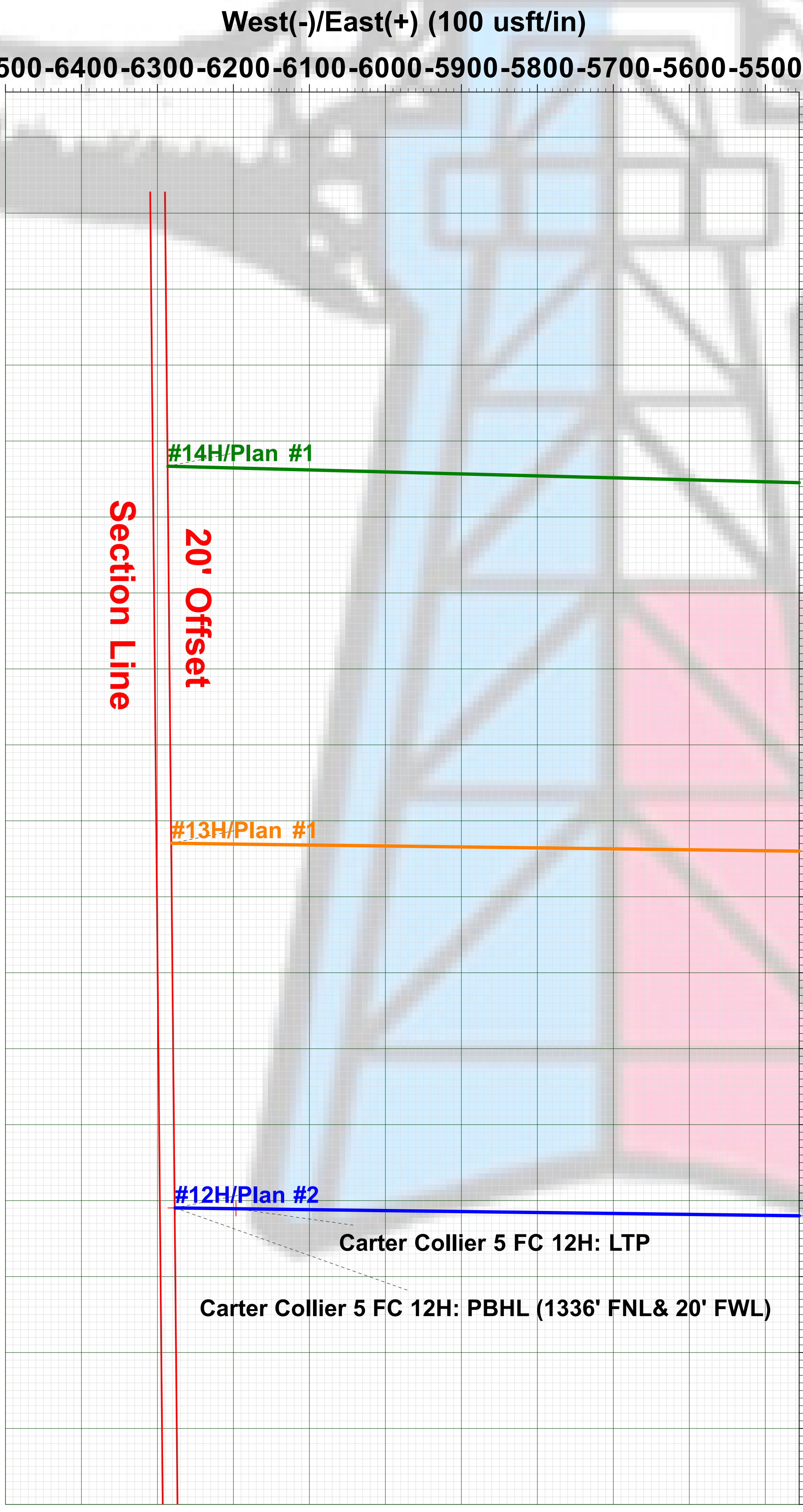
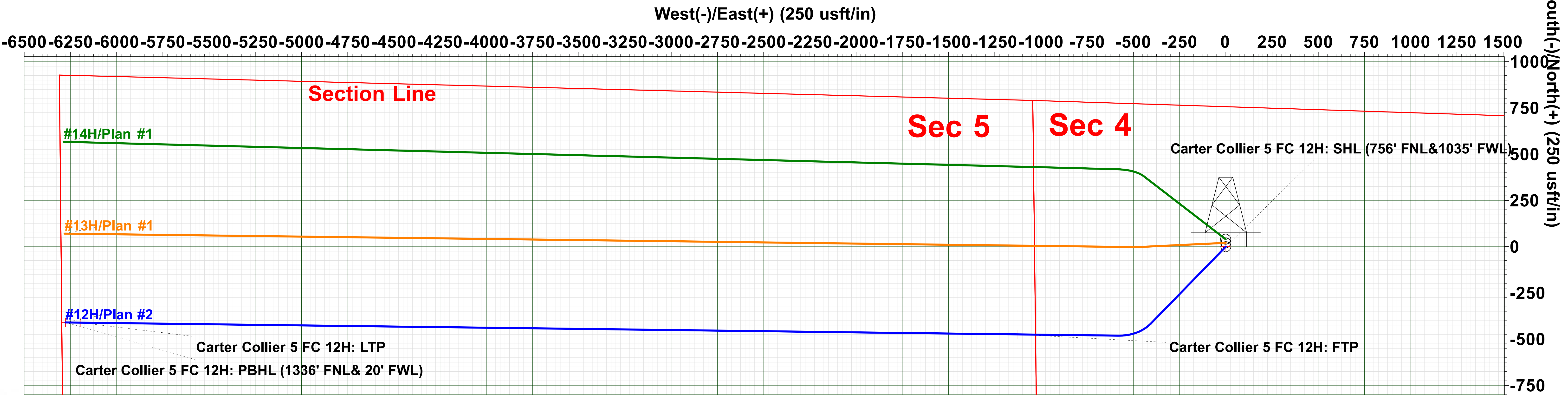
Azimuths to Grid North
True North: -0.02°
Magnetic North: 7.16°

Magnetic Field
Strength: 48049.0snT
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

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



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



Plan: Plan #2 (#12H/OH) Silver Oak 1

Created By: Derek Stephens Date: 10:08, November 27 2018



Wellbenders

Standard Plan With Toolface



| | | | |
|------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Well: | #12H | North Reference: | Grid |
| Wellbore: | OH | Survey Calculation Method: | Minimum Curvature |
| Design: | Plan #2 | 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 | |
| From: | Map | Easting: | | 554,749.00 usft | |
| Position Uncertainty: | | Slot Radius: | | 13.200 in | |
| | | | | Latitude: | |
| | | | | Longitude: | |
| | | | | Grid Convergence: | |
| | | | | 32.778818 | |
| | | | | -104.289696 | |
| | | | | 0.024 ° | |

| Well | | #12H | | | | |
|----------------------|-------|-----------|---------------------|-----------------|---------------|---------------|
| Well Position | +N/-S | 0.00 usft | Northing: | 648,042.70 usft | Latitude: | 32.781494 |
| | +E/-W | 0.00 usft | Easting: | 555,034.80 usft | Longitude: | -104.288765 |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | usft | Ground Level: | 3,566.00 usft |

| | | | | | |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore | OH | | | | |
| | | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 10/29/2018 | 7.182 | 60.440 | 48,049.01573424 |

| | | | | |
|-------------------|----------------------------|-----------------|-----------------|--------------------|
| Design | | Plan #2 | | |
| 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 | 270.72 |

| Survey Tool Program | | Date | 11/27/2018 | | |
|---------------------|--------------|-------------------|------------|------------------------|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 0.00 | 8,175.65 | Plan #2 (OH) | MWD+IGRF | OWSG MWD + IGRF or WMM | |



Wellbenders

Standard Plan With Toolface



| | | | |
|------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Well: | #12H | North Reference: | Grid |
| Wellbore: | OH | Survey Calculation Method: | Minimum Curvature |
| Design: | Plan #2 | 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 | 2.50 | 224.28 | 499.97 | -1.56 | -1.52 | 1.50 | 2.50 | 2.50 | 0.00 | 224.276 |
| 600.00 | 5.00 | 224.28 | 599.75 | -6.24 | -6.09 | 6.01 | 2.50 | 2.50 | 0.00 | 0.000 |
| 700.00 | 7.50 | 224.28 | 699.14 | -14.04 | -13.69 | 13.51 | 2.50 | 2.50 | 0.00 | 0.000 |
| 800.00 | 10.00 | 224.28 | 797.97 | -24.93 | -24.31 | 23.99 | 2.50 | 2.50 | 0.00 | 0.000 |
| 900.00 | 12.50 | 224.28 | 896.04 | -38.90 | -37.93 | 37.43 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,000.00 | 15.00 | 224.28 | 993.17 | -55.91 | -54.52 | 53.81 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,100.00 | 17.50 | 224.28 | 1,089.17 | -75.95 | -74.05 | 73.09 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,200.00 | 20.00 | 224.28 | 1,183.85 | -98.96 | -96.49 | 95.24 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,300.00 | 22.50 | 224.28 | 1,277.05 | -124.91 | -121.79 | 120.21 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,400.00 | 25.00 | 224.28 | 1,368.57 | -153.74 | -149.90 | 147.96 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,500.00 | 27.50 | 224.28 | 1,458.25 | -185.41 | -180.78 | 178.43 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,600.00 | 30.00 | 224.28 | 1,545.92 | -219.84 | -214.35 | 211.57 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,700.00 | 32.50 | 224.28 | 1,631.40 | -256.98 | -250.57 | 247.32 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,800.00 | 35.00 | 224.28 | 1,714.54 | -296.76 | -289.35 | 285.60 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,900.00 | 37.50 | 224.28 | 1,795.18 | -339.09 | -330.63 | 326.34 | 2.50 | 2.50 | 0.00 | 0.000 |
| 1,911.51 | 37.79 | 224.28 | 1,804.29 | -344.13 | -335.53 | 331.18 | 2.50 | 2.50 | 0.00 | 0.000 |
| 2,000.00 | 37.79 | 224.28 | 1,874.22 | -382.95 | -373.39 | 368.54 | 0.00 | 0.00 | 0.00 | 0.000 |
| 2,068.07 | 37.79 | 224.28 | 1,928.02 | -412.81 | -402.50 | 397.28 | 0.00 | 0.00 | 0.00 | 0.000 |
| 2,100.00 | 37.60 | 229.49 | 1,953.29 | -426.15 | -416.74 | 411.35 | 10.00 | -0.58 | 16.33 | 95.375 |
| 2,150.00 | 37.78 | 237.67 | 1,992.88 | -444.26 | -441.30 | 435.68 | 10.00 | 0.35 | 16.35 | 91.248 |
| 2,200.00 | 38.51 | 245.68 | 2,032.23 | -458.87 | -468.44 | 462.64 | 10.00 | 1.46 | 16.03 | 84.772 |
| 2,250.00 | 39.76 | 253.35 | 2,071.04 | -469.87 | -497.96 | 492.02 | 10.00 | 2.51 | 15.35 | 78.466 |



Wellbenders

Standard Plan With Toolface



Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Carter Collier 5 Fed Com
Well: #12H
Wellbore: OH
Design: Plan #2

Local Co-ordinate Reference: Well #12H
TVD Reference: RKB=17' @ 3583.00usft (Silver Oak 1)
MD Reference: RKB=17' @ 3583.00usft (Silver Oak 1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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 (°) |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|-------------------|--------------------|-------------------|--------------|
| 2,300.00 | 41.49 | 260.56 | 2,109.00 | -477.17 | -529.64 | 523.60 | 10.00 | 3.46 | 14.42 | 72.511 |
| 2,350.00 | 43.64 | 267.24 | 2,145.84 | -480.72 | -563.24 | 557.15 | 10.00 | 4.30 | 13.35 | 67.037 |
| 2,377.84 | 45.00 | 270.72 | 2,165.76 | -481.06 | -582.68 | 576.59 | 10.00 | 4.87 | 12.50 | 62.116 |
| 2,400.00 | 45.00 | 270.72 | 2,181.43 | -480.86 | -598.35 | 592.26 | 0.00 | 0.00 | 0.00 | 0.000 |
| 2,500.00 | 45.00 | 270.72 | 2,252.14 | -479.97 | -669.05 | 662.97 | 0.00 | 0.00 | 0.00 | 0.000 |
| 2,577.84 | 45.00 | 270.72 | 2,307.18 | -479.28 | -724.09 | 718.01 | 0.00 | 0.00 | 0.00 | 0.000 |
| 2,600.00 | 47.22 | 270.72 | 2,322.55 | -479.08 | -740.06 | 733.98 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,650.00 | 52.22 | 270.72 | 2,354.86 | -478.61 | -778.18 | 772.11 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,700.00 | 57.22 | 270.72 | 2,383.74 | -478.09 | -818.98 | 812.91 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,750.00 | 62.22 | 270.72 | 2,408.94 | -477.55 | -862.14 | 856.07 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,800.00 | 67.22 | 270.72 | 2,430.29 | -476.98 | -907.33 | 901.27 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,850.00 | 72.22 | 270.72 | 2,447.62 | -476.40 | -954.21 | 948.15 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,900.00 | 77.22 | 270.72 | 2,460.80 | -475.79 | -1,002.43 | 996.37 | 10.00 | 10.00 | 0.00 | 0.000 |
| 2,950.00 | 82.22 | 270.72 | 2,469.72 | -475.17 | -1,051.60 | 1,045.55 | 10.00 | 10.00 | 0.00 | 0.000 |
| 3,000.00 | 87.22 | 270.72 | 2,474.32 | -474.55 | -1,101.37 | 1,095.32 | 10.00 | 10.00 | 0.00 | 0.000 |
| 3,027.84 | 90.00 | 270.72 | 2,475.00 | -474.20 | -1,129.20 | 1,123.15 | 10.00 | 10.00 | 0.00 | 0.000 |
| 3,100.00 | 90.00 | 270.72 | 2,475.00 | -473.29 | -1,201.35 | 1,195.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,200.00 | 90.00 | 270.72 | 2,475.00 | -472.04 | -1,301.34 | 1,295.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,300.00 | 90.00 | 270.72 | 2,475.00 | -470.78 | -1,401.34 | 1,395.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,400.00 | 90.00 | 270.72 | 2,475.00 | -469.53 | -1,501.33 | 1,495.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,500.00 | 90.00 | 270.72 | 2,475.00 | -468.27 | -1,601.32 | 1,595.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,600.00 | 90.00 | 270.72 | 2,475.00 | -467.02 | -1,701.31 | 1,695.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,700.00 | 90.00 | 270.72 | 2,475.00 | -465.77 | -1,801.31 | 1,795.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,800.00 | 90.00 | 270.72 | 2,475.00 | -464.51 | -1,901.30 | 1,895.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 3,900.00 | 90.00 | 270.72 | 2,475.00 | -463.26 | -2,001.29 | 1,995.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,000.00 | 90.00 | 270.72 | 2,475.00 | -462.00 | -2,101.28 | 2,095.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,100.00 | 90.00 | 270.72 | 2,475.00 | -460.75 | -2,201.27 | 2,195.31 | 0.00 | 0.00 | 0.00 | 0.000 |



Wellbenders

Standard Plan With Toolface



| | | | |
|------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Well: | #12H | North Reference: | Grid |
| Wellbore: | OH | Survey Calculation Method: | Minimum Curvature |
| Design: | Plan #2 | 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 | 270.72 | 2,475.00 | -459.49 | -2,301.27 | 2,295.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,300.00 | 90.00 | 270.72 | 2,475.00 | -458.24 | -2,401.26 | 2,395.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,400.00 | 90.00 | 270.72 | 2,475.00 | -456.98 | -2,501.25 | 2,495.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,500.00 | 90.00 | 270.72 | 2,475.00 | -455.73 | -2,601.24 | 2,595.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,600.00 | 90.00 | 270.72 | 2,475.00 | -454.47 | -2,701.23 | 2,695.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,700.00 | 90.00 | 270.72 | 2,475.00 | -453.22 | -2,801.23 | 2,795.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,800.00 | 90.00 | 270.72 | 2,475.00 | -451.96 | -2,901.22 | 2,895.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 4,900.00 | 90.00 | 270.72 | 2,475.00 | -450.71 | -3,001.21 | 2,995.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,000.00 | 90.00 | 270.72 | 2,475.00 | -449.45 | -3,101.20 | 3,095.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,100.00 | 90.00 | 270.72 | 2,475.00 | -448.20 | -3,201.20 | 3,195.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,200.00 | 90.00 | 270.72 | 2,475.00 | -446.94 | -3,301.19 | 3,295.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,300.00 | 90.00 | 270.72 | 2,475.00 | -445.69 | -3,401.18 | 3,395.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,400.00 | 90.00 | 270.72 | 2,475.00 | -444.43 | -3,501.17 | 3,495.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,500.00 | 90.00 | 270.72 | 2,475.00 | -443.18 | -3,601.16 | 3,595.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,600.00 | 90.00 | 270.72 | 2,475.00 | -441.92 | -3,701.16 | 3,695.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,700.00 | 90.00 | 270.72 | 2,475.00 | -440.67 | -3,801.15 | 3,795.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,800.00 | 90.00 | 270.72 | 2,475.00 | -439.41 | -3,901.14 | 3,895.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 5,900.00 | 90.00 | 270.72 | 2,475.00 | -438.16 | -4,001.13 | 3,995.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,000.00 | 90.00 | 270.72 | 2,475.00 | -436.90 | -4,101.12 | 4,095.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,100.00 | 90.00 | 270.72 | 2,475.00 | -435.65 | -4,201.12 | 4,195.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,200.00 | 90.00 | 270.72 | 2,475.00 | -434.39 | -4,301.11 | 4,295.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,300.00 | 90.00 | 270.72 | 2,475.00 | -433.14 | -4,401.10 | 4,395.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,400.00 | 90.00 | 270.72 | 2,475.00 | -431.88 | -4,501.09 | 4,495.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,500.00 | 90.00 | 270.72 | 2,475.00 | -430.63 | -4,601.09 | 4,595.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,600.00 | 90.00 | 270.72 | 2,475.00 | -429.37 | -4,701.08 | 4,695.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,700.00 | 90.00 | 270.72 | 2,475.00 | -428.12 | -4,801.07 | 4,795.31 | 0.00 | 0.00 | 0.00 | 0.000 |
| 6,800.00 | 90.00 | 270.72 | 2,475.00 | -426.86 | -4,901.06 | 4,895.31 | 0.00 | 0.00 | 0.00 | 0.000 |



Wellbenders

Standard Plan With Toolface



| | | | |
|------------------|---------------------------|-------------------------------------|--------------------------------------|
| Company: | Percussion Petroleum, LLC | Local Co-ordinate Reference: | Well #12H |
| Project: | Eddy County, NM | TVD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Site: | Carter Collier 5 Fed Com | MD Reference: | RKB=17' @ 3583.00usft (Silver Oak 1) |
| Well: | #12H | North Reference: | Grid |
| Wellbore: | OH | Survey Calculation Method: | Minimum Curvature |
| Design: | Plan #2 | 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 (°) | |
| 6,900.00 | 90.00 | 270.72 | 2,475.00 | -425.61 | -5,001.05 | 4,995.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,000.00 | 90.00 | 270.72 | 2,475.00 | -424.35 | -5,101.05 | 5,095.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,100.00 | 90.00 | 270.72 | 2,475.00 | -423.10 | -5,201.04 | 5,195.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,200.00 | 90.00 | 270.72 | 2,475.00 | -421.84 | -5,301.03 | 5,295.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,300.00 | 90.00 | 270.72 | 2,475.00 | -420.59 | -5,401.02 | 5,395.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,400.00 | 90.00 | 270.72 | 2,475.00 | -419.33 | -5,501.01 | 5,495.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,500.00 | 90.00 | 270.72 | 2,475.00 | -418.08 | -5,601.01 | 5,595.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,600.00 | 90.00 | 270.72 | 2,475.00 | -416.82 | -5,701.00 | 5,695.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,700.00 | 90.00 | 270.72 | 2,475.00 | -415.57 | -5,800.99 | 5,795.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,800.00 | 90.00 | 270.72 | 2,475.00 | -414.31 | -5,900.98 | 5,895.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 7,900.00 | 90.00 | 270.72 | 2,475.00 | -413.06 | -6,000.97 | 5,995.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 8,000.00 | 90.00 | 270.72 | 2,475.00 | -411.80 | -6,100.97 | 6,095.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 8,100.00 | 90.00 | 270.72 | 2,475.00 | -410.55 | -6,200.96 | 6,195.31 | 0.00 | 0.00 | 0.00 | 0.000 | |
| 8,175.65 | 90.00 | 270.72 | 2,475.00 | -409.60 | -6,276.60 | 6,270.96 | 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 | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Secretary | <input type="checkbox"/> R-111-P |
| Cave/Karst | <input type="checkbox"/> Medium | <input checked="" type="checkbox"/> High | <input type="checkbox"/> Critical |
| H2S | <input type="checkbox"/> None | <input type="checkbox"/> Below 100 PPM | <input checked="" type="checkbox"/> Above 100 PPM |
| Other | <input type="checkbox"/> 4 String Area | <input type="checkbox"/> Capitan Reef | <input type="checkbox"/> 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.

- 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.

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.

Cave and Karst Conditions of Approval for APDs

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

Cave/Karst Surface Mitigation

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

Construction:

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 be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- All tank battery locations and facilities will be lined and bermed.
- The liner should be at least 20 mil in thickness and installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures.
- Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

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.

Leak Detection System:

- A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present.
- A leak detection plan will be submitted to BLM that incorporates an automatic shut off system (see below) to minimize the effects of an undesirable event that could negatively impact sensitive cave/karst resources.

- Well heads, pipelines (surface and buried), storage tanks, and all supporting equipment should be monitored regularly after installation to promptly identify and fix leaks.

Automatic Shut-off Systems:

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

Cave/Karst Subsurface Mitigation

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

Closed Loop System:

- A closed loop system using steel tanks will be utilized during drilling – no pits
- All fluids and cuttings will be hauled off-site and disposed of properly at an authorized site

Rotary Drilling with Fresh Water:

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

Directional Drilling:

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

Lost Circulation:

- ALL lost circulation zones between surface and the base of the cave occurrence zone will be logged and reported in the drilling report.
- If a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, regardless of the type of drilling machinery used, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

- Additional plugging conditions of approval may be required upon well abandonment in high and medium karst potential occurrence zones.
- The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

- 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 undertaken to correct the problem to the BLM's approval.



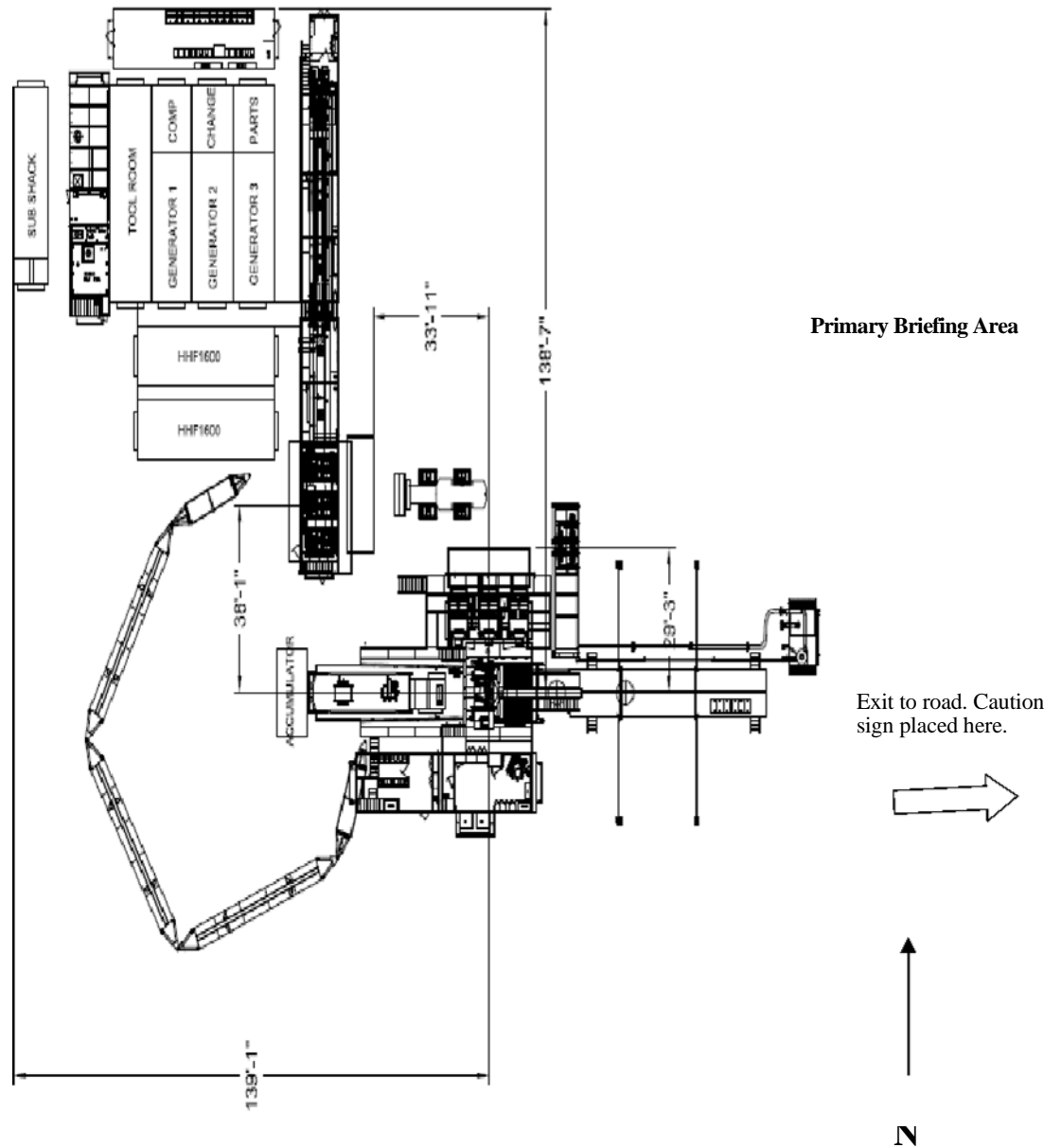
Permian Drilling Hydrogen Sulfide Drilling Operations Plan Carter Collier 5 Federal Com 12H

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



WIND: Prevailing winds are from the Southwest

Secondary Egress



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-90C Conn Range: 4 1/4" to 8 1/2"

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 1/2" 500 Ton with hydraulic drive to position tools only

27 1/2" 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 5/8", max weight 10,000lbs

TUBULARS

Drill Pipe: Supplied as needed, per availability

Drill Collars & heavywate: Supplied as needed, per availability

MISC.

Water Tank: 409 bbls; Fuel Tank 189 bbls; Screw Compressor

Boiler: 125 hp with Full Winterization

MOVING SYSTEM:

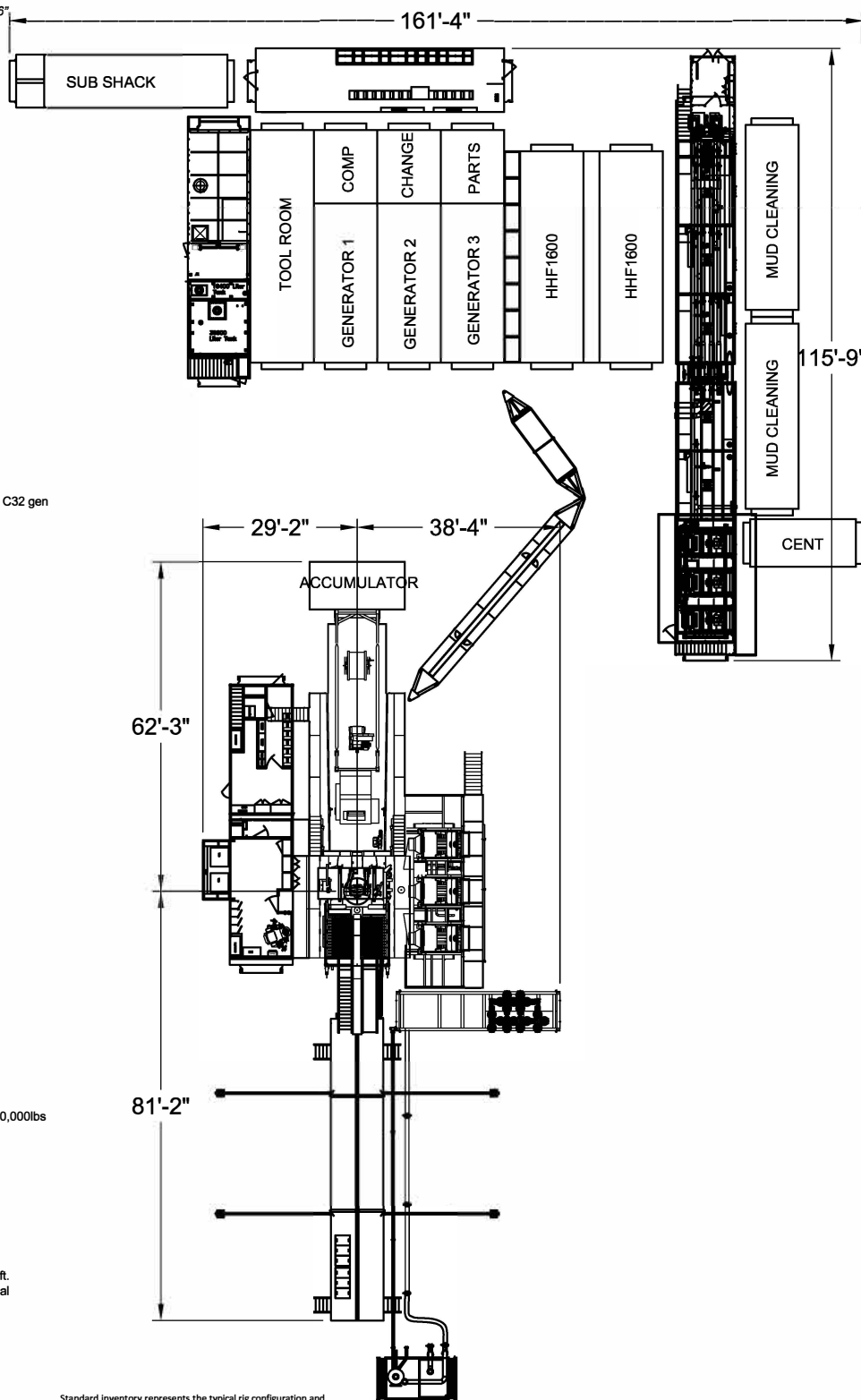
Walking beam hydraulic pony sub moving system for linear motion & side shift.

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 herein 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.

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

Drilling Plan Data Report

04/19/2021

APD ID: 10400037393

Submission Date: 02/08/2019

Highlighted data
reflects the most
recent changes

Operator Name: SPUR ENERGY PARTNERS LLC

Well Name: CARTER COLLIER 5 FED COM

Well Number: 12H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies | Mineral Resources | Producing Formation |
|--------------|----------------|-----------|---------------------|----------------|---------------------------|-------------------|---------------------|
| 362938 | QUATERNARY | 3566 | 0 | 0 | DOLOMITE, OTHER : caliche | USEABLE WATER | N |
| 362940 | GRAYBURG | 2933 | 633 | 633 | DOLOMITE, SILTSTONE | NATURAL GAS, OIL | N |
| 375995 | SAN ANDRES | 2092 | 1474 | 1474 | DOLOMITE | NATURAL GAS, OIL | Y |
| 375997 | GLORIETA | 747 | 2819 | 2819 | DOLOMITE, SILTSTONE | NATURAL GAS, OIL | N |
| 375998 | YESO | 639 | 2927 | 2927 | DOLOMITE | NATURAL GAS, OIL | N |

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 tests 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 will be charted on a plot. BOPs will be function tested every day.

Choke Diagram Attachment:

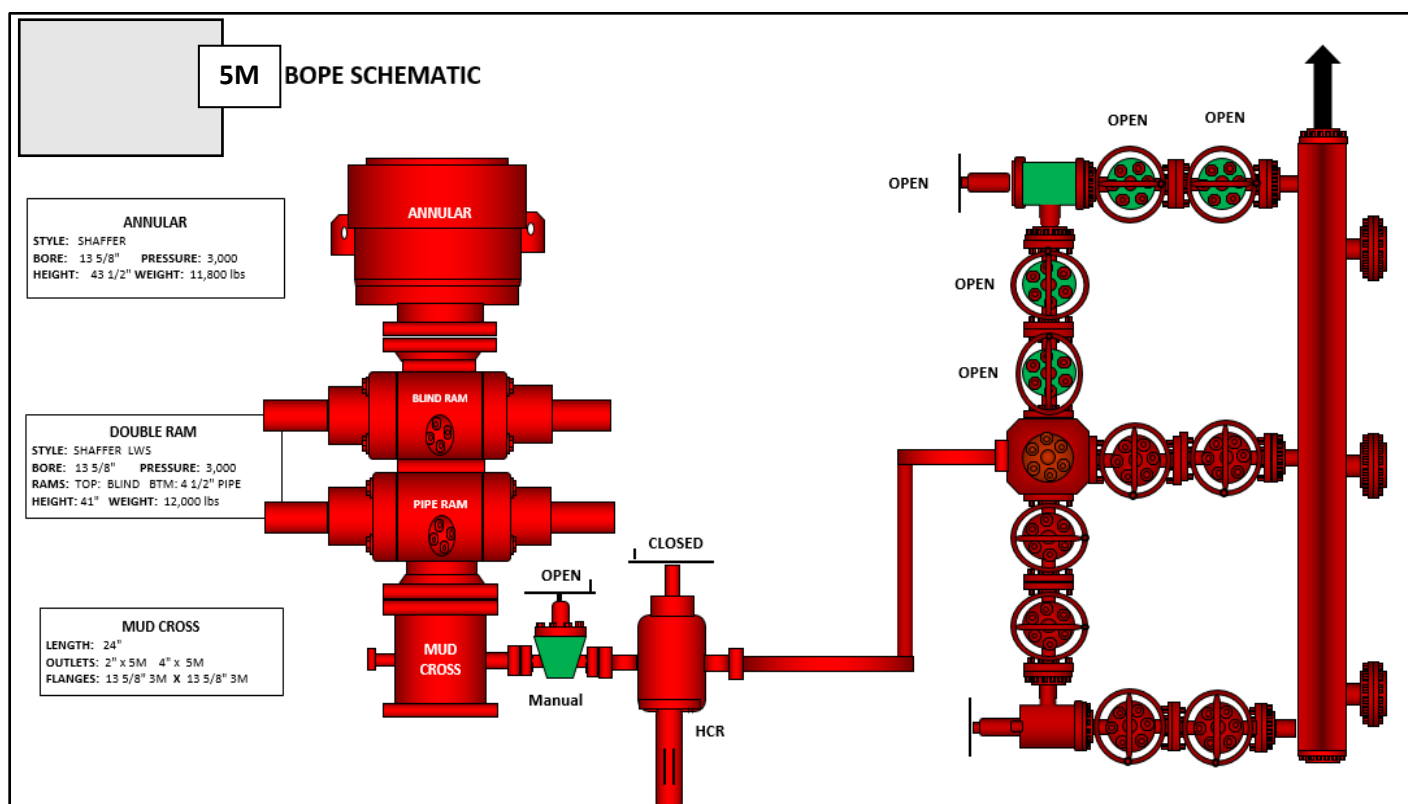
BOP_Testing_Plan.rev3_20191104123957.docx

BOP Diagram Attachment:

BOP_Testing_Plan.rev3_20191104124005.docx

Nipple-Up

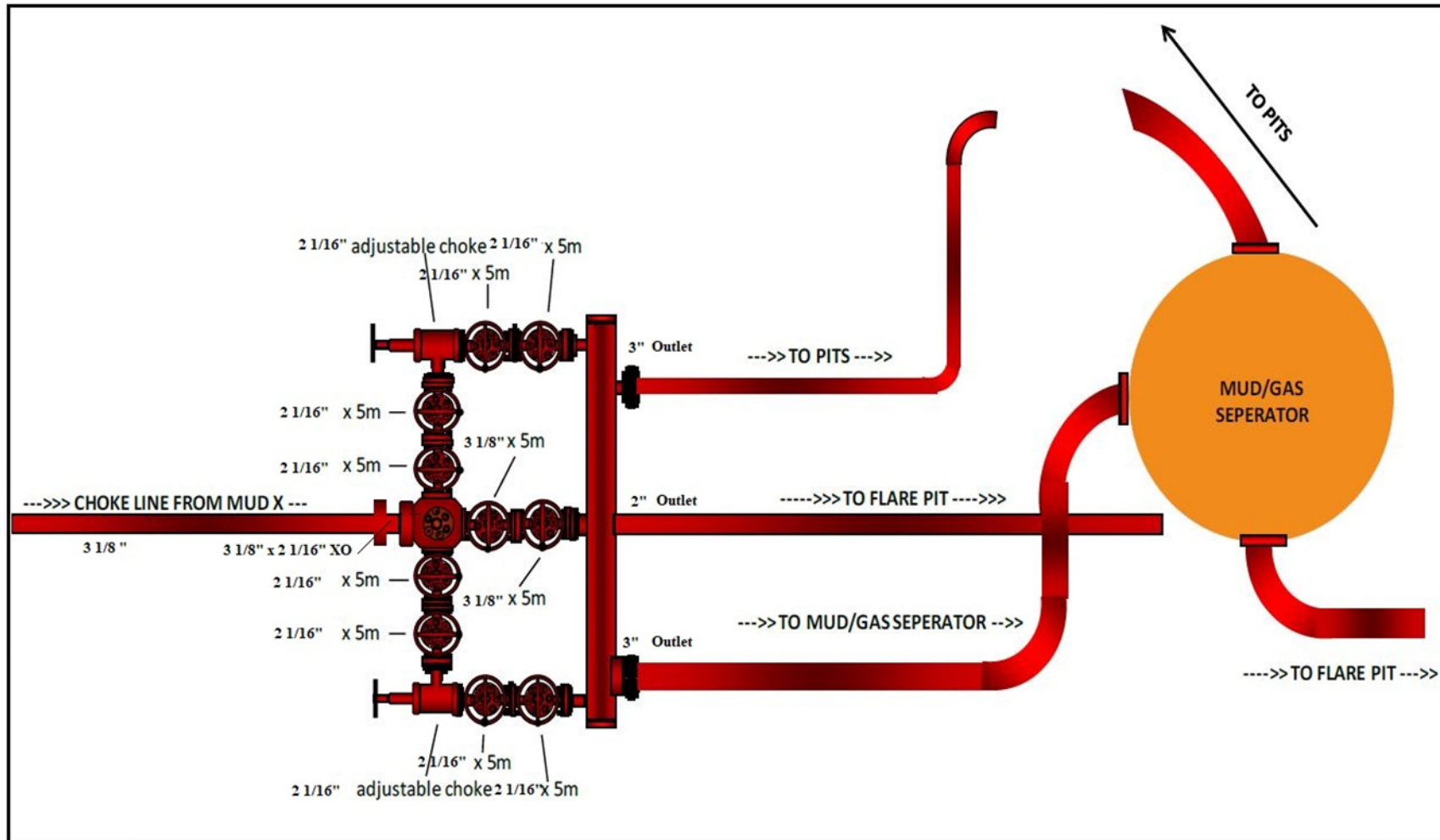
- Raise stack and center over the wellhead
- Install DSA and ring gaskets
- Lower stack onto DSA
- Torque DSA flange bolts in a star pattern to the specified torque
- Verify BOP is centered to the rotary table
- Install rotating head
- Install hydraulic lines to BOP
- Verify manifold line-up
- Test BOP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



Pressure Testing

- All testing to be done with 3rd party testing crews
- 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
- Company representative to email all copies of all plots to Drilling Engineer as well as save in the well file.
- 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 24690

COMMENTS

| | | | | | | | |
|--------------------------|-------------------|--------|--|----------------|--|--------------|--|
| Operator: | | OGRID: | | Action Number: | | Action Type: | |
| SPUR ENERGY PARTNERS LLC | 9655 Katy Freeway | 328947 | | 24690 | | FORM 3160-3 | |
| Suite 500 | Houston, TX77024 | | | | | | |

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

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CONDITIONS

Action 24690

CONDITIONS OF APPROVAL

| | | | | | | | | |
|-----------|--------------------------|-------------------|--------|--------|----------------|-------|--------------|-------------|
| Operator: | SPUR ENERGY PARTNERS LLC | 9655 Katy Freeway | OGRID: | 328947 | Action Number: | 24690 | Action Type: | FORM 3160-3 |
| | Suite 500 | Houston, TX77024 | | | | | | |

| | |
|-----------------|--|
| 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 |