

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

|  |  |  |  |
|--|--|--|--|
| 1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER   |  |  | 5. Lease Serial No.<br><b>NMNM116166</b>                                     |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other  |  |  | 6. If Indian, Allottee or Tribe Name   |
| 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone   |  |  | 7. If Unit or CA Agreement, Name and No.                                     |
| 2. Name of Operator<br><b>AVANT OPERATING LLC</b>  |  |  | 8. Lease Name and Well No.<br><b>ROYAL OAK 25 FED COM</b><br><b>008H</b>     |
| 3a. Address<br><b>1515 WYNKOOP STREET, SUITE 700, DENVER, CO 802</b>   |  | 3b. Phone No. (include area code)<br><b>(720) 746-5045</b> | 9. API Well No.<br><b>30-025-53264</b>                                       |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At surface <b>NWNE / 320 FNL / 1480 FEL / LAT 32.7250736 / LONG -103.6127988</b><br>At proposed prod. zone <b>SWSE / 100 FSL / 2310 FEL / LAT 32.6971965 / LONG -103.6154653</b> |  |  | 10. Field and Pool, or Exploratory<br><b>CORBIN/WOLFCAMP SOUTH</b>           |
| 14. Distance in miles and direction from nearest town or post office*<br><b>11 miles</b>   |  |  | 11. Sec., T. R. M. or Blk. and Survey or Area<br><b>SEC 25/T18S/R33E/NMP</b> |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)<br><b>320 feet</b>   |  | 16. No of acres in lease                                   | 12. County or Parish<br><b>LEA</b>   |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>20 feet</b>  |  | 17. Spacing Unit dedicated to this well<br><b>640.0</b>    | 13. State<br><b>NM</b>   |
| 19. Proposed Depth<br><b>11400 feet / 21597 feet</b>   |  | 20. BLM/BIA Bond No. in file<br><b>FED: NMB01882</b>       |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br><b>3905 feet</b>  |  | 22. Approximate date work will start*<br><b>05/01/2024</b> | 23. Estimated duration<br><b>60 days</b>                                     |
| 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.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

|  |   |                           |
|--|---|---------------------------|
| 25. Signature<br>(Electronic Submission)                     | Name (Printed/Typed)<br><b>BRIAN WOOD / Ph: (720) 746-5045</b>  | Date<br><b>01/08/2024</b> |
| Title<br><b>Permitting Agent</b>                             |   |                           |
| Approved by (Signature)<br>(Electronic Submission)           | Name (Printed/Typed)<br><b>CODY LAYTON / Ph: (575) 234-5959</b> | Date<br><b>07/12/2024</b> |
| Title<br><b>Assistant Field Manager Lands &amp; Minerals</b> |   |                           |
| Office<br><b>Carlsbad Field Office</b>                       |   |                           |

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)



Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

|  |  |                                |                                  |
|--|--|--------------------------------|----------------------------------|
| <sup>1</sup> API Number<br>30-025- 53264 |  | <sup>2</sup> Pool Code<br>8170 | BUFFALO;WOLFCAMP                 |
| <sup>4</sup> Property Code<br>335845     | <sup>5</sup> Property Name<br>ROYAL OAK 25 FED COM |                                | <sup>6</sup> Well Number<br>008H |
| <sup>7</sup> OGRID No.<br>330396         | <sup>8</sup> Operator Name<br>AVANT OPERATING, LLC |                                | <sup>9</sup> Elevation<br>3905   |

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| B             | 25      | 18 S     | 33 E  |         | 320           | NORTH            | 1480          | EAST           | LEA    |

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| 0             | 36      | 18 S     | 33 E  |         | 100           | SOUTH            | 2310          | EAST           | LEA    |

|                    |        |                    |                            |              |
|--------------------|--------|--------------------|----------------------------|--------------|
| 12 Dedicated Acres | 640.00 | 13 Joint or Infill | 14 Consolidation Code<br>C | 15 Order No. |
|--------------------|--------|--------------------|----------------------------|--------------|

16 Legend:

- = SURFACE LOCATION (SHL)
- = BOTTOM HOLE LOCATION/ LTP
- △ = FIRST TAKE POINT/PPP-1
- = KICK OFF POINT (KOP)
- ◇ = LANDING POINT (LP)
- ⊙ = FOUND 1913 USGLO BRASS CAP
- ⊖ = FOUND 1912 USGLO BRASS CAP
- ⦿ = FOUND 1/2" REBAR

## 17 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.

7-31-23

Signature Date  
BRIAN WOOD  
Printed Name brian@permitswest.com  
E-mail Address 505 466-8120

## 18 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.

10/30/22

Date of Survey  
Plat Revised: 5/01/23  
Signature and Seal of Professional Surveyor:

17078  
Certificate Number

### CORNER COORDINATES TABLE

| NAD 83 NME, NMSPC ZONE 3001 |      |           |       |             |
|-----------------------------|------|-----------|-------|-------------|
| A                           | - Y= | 628573.87 | N, X= | 761762.76 E |
| B                           | - Y= | 628602.65 | N, X= | 761398.80 E |
| C                           | - Y= | 623296.78 | N, X= | 761800.73 E |
| D                           | - Y= | 623325.01 | N, X= | 764441.19 E |
| E                           | - Y= | 620684.05 | N, X= | 764460.83 E |
| F                           | - Y= | 617987.58 | N, X= | 759202.09 E |
| G                           | - Y= | 618042.94 | N, X= | 764480.74 E |

## CORNER COORDINATES TABLE

NAD 83 NME, NMSPC ZONE 3001

|   |   |                  |    |                    |   |
|---|---|------------------|----|--------------------|---|
| A | - | LAT.=32.7259398" | N, | LONG.=103.6165596" | W |
| B | - | LAT.=32.7259696" | N, | LONG.=103.6079878" | W |
| C | - | LAT.=32.7114352" | N, | LONG.=103.6165522" | W |
| D | - | LAT.=32.7114634" | N, | LONG.=103.6079674" | W |
| E | - | LAT.=32.7042045" | N, | LONG.=103.6079623" | W |
| F | - | LAT.=32.6968909" | N, | LONG.=103.6251158" | W |
| G | - | LAT.=32.6969450" | N, | LONG.=103.6079563" | W |



NAD 83 NME, NMSPC ZONE 3001  
Y= 628266.54 N  
X= 762921.48 E  
LAT: 32.7250736° N  
LONG: 103.6127988° W

### KICK OFF POINT

NAD 83 NME, NMSPC ZONE 3001  
50' FNL, 2310' FEL  
SEC. 25, T18S, R33E  
Y= 628527.43 N  
X= 762089.33 E  
LAT: 32.7258061° N  
LONG: 103.6154988° W

FIRST TAKE POINT/PPP-1

NAD 83 NME, NMSPC ZONE 3001  
100' FNL, 2310' FEL  
SEC. 25, T18S, R33E  
Y= 628477.43 N  
X= 762089.73 E  
LAT: 32.7256687° N  
LONG: 103.6154986° W

LANDING POINT

NAD 83 NME, NMSPC ZONE 3001  
525' FNL, 2310' FEL  
SEC. 25, T18S, R33E  
Y= 628052.44 N  
X= 762093.14 E  
LAT: 32.7245006° N  
LONG: 103.6154969° W

PPP-2

NAD 83 NME, NMSPC ZONE 3001  
2639' FNL, 2311' FEL  
SEC. 25, T18S, R33E  
Y= 625938.08 N  
X= 762109.53 E  
LAT: 32.7186890° N  
LONG: 103.6154902° W

PPP-3

NAD 83 NME, NMSPC ZONE 3001  
O' FNL, 2311' FEL  
SEC. 36, T18S, R33E  
Y= 623300.30 N  
X= 762129.96 E  
LAT: 32.7114388° N  
LONG: 103.6154818° W

LAST TAKE POINT

BOTTOM HOLE LOCATION  
NAD 83 NME, NMSPC ZONE 3001  
Y= 618118.71 N  
X= 762170.10 E  
LAT: 32.6971965° N  
LONG: 103.6154653° W

State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

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

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** Avant Operating, LLC    **OGRID:** 330396    **Date:** 04/15/2024

**II. Type:** ☒ Original   ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name                 | API | ULSTR          | Footages       | Anticipated Oil BBL/D | Anticipated Gas MCF/D | Anticipated Produced Water BBL/D |
|---------------------------|-----|----------------|----------------|-----------------------|-----------------------|----------------------------------|
| Royal Oak 25 Fed Com 008H |     | B-25-T18S-R33E | 320FNL/1480FEL | 1300 BBL/D            | 2100 MCF/D            | 4800 BBL/D                       |

**IV. Central Delivery Point Name:** Royal Oak CTB [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

| Well Name                 | API | Spud Date  | TD Reached Date | Completion Commencement Date | Initial Flow Back Date | First Production Date |
|---------------------------|-----|------------|-----------------|------------------------------|------------------------|-----------------------|
| Royal Oak 25 Fed Com 008H |     | 10/11/2025 | 11/23/2025      | 11/27/2025                   | 12/28/2025             | 12/28/2025            |

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

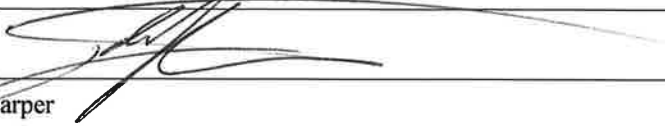
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

|  |
|--|
| Signature:      |
| Printed Name: John Harper  |
| Title: SVP Assets and Exploration  |
| E-mail Address: John@avantnr.com   |
| Date: 07/15/24   |
| Phone: 678-988-6644  |
| <b>OIL CONSERVATION DIVISION</b><br><b>(Only applicable when submitted as a standalone form)</b> |
| Approved By:   |
| Title:   |
| Approval Date:   |
| Conditions of Approval:  |



**Avant Operating, LLC Natural Gas Management Plan**

- VI. Separation equipment will be sized by construction engineering staff based on stated manufacturer daily throughput capacities and anticipated daily production rates to ensure adequate capacity. Closed vent system piping, compression needs, and VRUs will be sized utilizing ProMax modelling software to ensure adequate capacity for anticipated production volumes and conditions.
- VII. Avant Operating, LLC (Avant) will take the following actions to comply with the regulations listed in 19.15.27.8:
- A. Avant will maximize the recovery of natural gas by minimizing the waste, as defined by 19.15.2 NMAC, of natural gas through venting and flaring. Avant will ensure that well(s) will be connected to a natural gas gathering system with sufficient capacity to transport natural gas.
  - B. All drilling operations will be equipped with a rig flare located at least 100' from the nearest surface hole. Rig flare will be utilized to combust any natural gas that is brought to surface during normal drilling operations. In the case of emergency venting or flaring the volumes will be estimated and reported appropriately.
  - C. During completion operations any natural gas brought to surface will be flared. Immediately following the finish of completion operations, all well flowback will be directed to permanent separation equipment. Produced natural gas from separation equipment will be sent to sales. It is not anticipated that gas will not meet pipeline standards. However, if natural gas does not meet gathering pipeline quality specifications, Avant will flare the natural gas for 60 days or until the natural gas meets the pipeline quality specifications. Avant will ensure that the flare is sized properly and is equipped with automatic igniter or continuous pilot. The gas sample will be analyzed twice per week and the gas will be routed into a gathering system as soon as pipeline specifications are met.
  - D. Avant will comply with the performance standards requirements and provisions listed in 19.15.27.8 (1) through (8). All equipment will be designed and sized to handle maximum anticipated pressures and throughputs to minimize the waste. Production storage tanks constructed after May 25, 2021, will be equipped with automatic gauging system. Flares constructed after May 25, 2021, will be equipped with automatic igniter or continuous pilot. Flares will be located at least 100' from the well and storage tanks unless otherwise approved by the division. Avant will conduct AVO inspections as described in 19.15.27.8 E (5) (a) with frequencies specified in 19.15.27.8 E (5) (b) and (c). All emergencies will be resolved as quickly and safely as feasible to minimize waste.
  - E. The volume of natural gas that is vented or flared as the result of malfunction or emergency during drilling and completions operations will be estimated. The volume of natural gas that is vented, flared, or beneficially used during production operations, will be measured, or estimated. Avant will install equipment to measure



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

# Drilling Plan Data Report

07/12/2024

APD ID: 10400096606

Submission Date: 01/08/2024

Highlighted data  
reflects the most  
recent changes

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

| Formation ID | Formation Name    | Elevation | True Vertical | Measured Depth | Lithologies       | Mineral Resources | Producing Formatio |
|--------------|-------------------|-----------|---------------|----------------|-------------------|-------------------|--------------------|
| 13762717     | QUATERNARY        | 3905      | 0             | 0              | OTHER : Caliche   | USEABLE WATER     | N                  |
| 13762718     | RUSTLER ANHYDRITE | 2219      | 1686          | 1686           | ANHYDRITE         | NONE              | N                  |
| 13762719     | SALADO            | 2145      | 1760          | 1760           | SALT              | NONE              | N                  |
| 13762720     | YATES             | 745       | 3160          | 3164           | DOLOMITE          | NATURAL GAS, OIL  | N                  |
| 13762721     | SEVEN RIVERS      | 257       | 3648          | 3655           | LIMESTONE         | NATURAL GAS, OIL  | N                  |
| 13762722     | QUEEN             | -457      | 4362          | 4372           | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762723     | CHERRY CANYON     | -1517     | 5422          | 5438           | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762724     | BRUSHY CANYON     | -2187     | 6092          | 6112           | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762725     | BONE SPRING LIME  | -3416     | 7321          | 7347           | LIMESTONE         | NATURAL GAS, OIL  | N                  |
| 13762726     | AVALON SAND       | -3673     | 7578          | 7605           | SHALE             | NONE              | N                  |
| 13762727     | BONE SPRING 1ST   | -4787     | 8692          | 8725           | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762728     | BONE SPRING 2ND   | -5381     | 9286          | 9322           | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762729     | BONE SPRING 3RD   | -6140     | 10045         | 10086          | SANDSTONE         | NATURAL GAS, OIL  | N                  |
| 13762730     | WOLFCAMP          | -6285     | 10190         | 10231          | OTHER : Carbonate | NATURAL GAS, OIL  | Y                  |

## Section 2 - Blowout Prevention

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

Pressure Rating (PSI): 5M                      Rating Depth: 15000

**Equipment:** A minimum 5M system will be used. The minimum blowout preventer equipment (BOPE) shown in the BOP Diagram will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer, and an annular preventer (5000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on top and drill pipe rams on bottom. All BOPE will be tested in accordance with 43 CFR 3172.

**Requesting Variance?** YES

**Variance request:** Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line). Co-flex line will be tested in accordance with highest BOP test pressures (5000 psi) before drilling out of surface casing and (5000 psi) before drilling out of intermediate casing. Pressure tests will be charted for records. The manufacturers hydrostatic test report will be kept on location for inspection.

**Testing Procedure:** Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000 (high) / 250 (low) psig and the annular preventer to 3500 (high) / 250 (low) psig by an independent service company. Test charts will always be kept on location. Surface casing will be tested to 1500 psi for 30 minutes. Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000 (high) / 250 (low) psig and the annular preventer to 3500 (high) / 250 (low) psig by an independent service company. Test charts will always be kept on location. Intermediate casing will be tested to 2000 psi for 30 minutes. A solid steel body pack-off will be used after running and cementing the intermediate casing. After installation, pack-off and lower flange will be pressure tested to 5000 psi. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe. This pressure test will be repeated at least once every 30 days, as per 43 CFR 3172. Kelly cock will always be in the drill string. Full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will always be on the rig floor. The multi-bowl wellhead will be installed by a third-party welder while being monitored by the vendors representative. All BOP equipment will be tested using a conventional test plug - not a cup or J-packer type. Both the surface and intermediate casing strings will be tested as per 43 CFR 3172 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

**Choke Diagram Attachment:**  
Royal\_008H\_Choke\_20240107123548.pdf

**BOP Diagram Attachment:**  
Royal\_008H\_BOP\_20240107123559.pdf

Section 3 - Casing

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type   | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|-----------|-------------|-----------|----------|-----------|----------|----------------|------------|---------------|-------------|----------------|-------------|----------------|-----------------------------|-------|--------|--------------|-------------|----------|---------------|----------|--------------|---------|
| 1         | SURFACE     | 14.75     | 10.75    | NEW       | API      | N              | 0          | 1711          | 0           | 1711           | 3905        | 2194           | 1711                        | J-55  | 40.5   | BUTT         | 1.125       | 1.125    | DRY           | 1.6      | DRY          | 1.6     |
| 2         | PRODUCTION  | 6.75      | 5.5      | NEW       | NON API  | Y              | 0          | 8922          | 0           | 8888           | 0           | -4983          | 8922                        | OTHER | 20     | OTHER - GBCD | 1.125       | 1.125    | DRY           | 1.6      | DRY          | 1.6     |



Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

| Casing ID | String Type  | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type               | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|-----------|--------------|-----------|----------|-----------|----------|----------------|------------|---------------|-------------|----------------|-------------|----------------|-----------------------------|-------|--------|--------------------------|-------------|----------|---------------|----------|--------------|---------|
| 3         | INTERMEDIATE | 9.875     | 7.625    | NEW       | API      | N              | 0          | 9422          | 0           | 9386           | 0           | -5481          | 9422                        | OTHER | 29.7   | BUTT                     | 1.125       | 1.125    | DRY           | 1.6      | DRY          | 1.6     |
| 4         | PRODUCTION   | 6.75      | 5.5      | NEW       | NON API  | Y              | 8922       | 10967         | 8888        | 10923          | -4983       | -7018          | 2045                        | OTHER | 20     | OTHER - USS Talon HTQ RD | 1.125       | 1.125    | DRY           | 1.6      | DRY          | 1.6     |
| 5         | PRODUCTION   | 6.75      | 5.5      | NEW       | NON API  | Y              | 10967      | 21597         | 10923       | 11400          | -7018       | -7495          | 10630                       | OTHER | 20     | OTHER - GBCD             | 1.125       | 1.125    | DRY           | 1.6      | DRY          | 1.6     |

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Royal\_008H\_Casing\_Design\_Assumptions\_20240107123705.pdf

Casing ID: 2StringPRODUCTION

Inspection Document:

Spec Document:

5.5in\_GBCD\_Casing\_Spec\_20240107123910.pdf

Tapered String Spec:

5.5in\_GBCD\_Casing\_Spec\_20240107124313.pdf

Casing Design Assumptions and Worksheet(s):

Royal\_008H\_Casing\_Design\_Assumptions\_20240107123942.pdf

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

Casing Attachments

Casing ID: 3StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Royal\_008H\_Casing\_Design\_Assumptions\_20240107123811.pdf

Casing ID: 4StringPRODUCTION

Inspection Document:

Spec Document:

5.5in\_USS\_Talon\_Casing\_Spec\_20240107124038.pdf

Tapered String Spec:

5.5in\_GBCD\_Casing\_Spec\_20240107124048.pdf

Casing Design Assumptions and Worksheet(s):

Royal\_008H\_Casing\_Design\_Assumptions\_20240107124116.pdf

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:

5.5in\_GBCD\_Casing\_Spec\_20240107124216.pdf

Tapered String Spec:

5.5in\_GBCD\_Casing\_Spec\_20240107124227.pdf

Casing Design Assumptions and Worksheet(s):

Royal\_008H\_Casing\_Design\_Assumptions\_20240107124253.pdf

Section 4 - Cement

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

| String Type  | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type                   | Additives  |
|--------------|-----------|------------------|--------|-----------|--------------|-------|---------|-------|---------|-------------------------------|--|
| SURFACE      | Lead      |                  | 0      | 1711      | 505          | 1.9   | 12.8    | 959   | 20      | 35% Class B Poz + 65% Class C | 6% gel + 5% salt + ¼ #/sack poly flake + 0.005 gal/sack No Foam V1A                                |
| SURFACE      | Tail      |                  | 0      | 1711      | 155          | 1.33  | 14.8    | 206   | 20      | Class C                       | 1% CaCl2 + 0.005 gal/sack No Foam V1A  |
| INTERMEDIATE | Lead      |                  | 0      | 9422      | 630          | 3.38  | 10.7    | 2129  | 20      | 100% Class H                  | 5 #/sack Plexcrete STE + 2% SMS + + 0.65% R-1300 + 3 #/sack gilsonite + 0.005 gal/sack No Foam V1A |
| INTERMEDIATE | Tail      |                  | 0      | 9422      | 220          | 1.27  | 14.2    | 279   | 20      | 50% Class B Poz + 50% Class H | 5% salt + 0.15% FR-5 + 0.2% FL-24 + 0.005 gal/sack No Foam V1A                                     |
| PRODUCTION   | Lead      |                  | 0      | 2159<br>7 | 415          | 2.49  | 11.8    | 1033  | 20      | 50% Class B Poz + 50% Class H | 10% gel + 5% salt + 1% SMS + 0.35% R-1300 + 0.5% MagBond + 0.005 gal/sack No Foam V1A              |
| PRODUCTION   | Tail      |                  | 0      | 2159<br>7 | 885          | 1.22  | 14.5    | 1079  | 20      | 50% Class B Poz + 50% Class H | 5% salt + 0.05% RCKCAS-100 + 0.5% R-33 + 0.5% FL-24 + 0.5% MagBond + 0.005% gal/sack No Foam V1A   |

### Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

**Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials (e. g., barite, bentonite, LCM) to maintain mud properties and meet minimum lost circulation and weight increase requirements will always be kept on site.

**Describe the mud monitoring system utilized:** An electronic pit volume totalizer (PVT) mud system complying with 43 CFR 3172 will monitor pit volumes for gains or losses, flow rate, pump pressures, and stroke rate.

### Circulating Medium Table

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 008H

| Top Depth | Bottom Depth | Mud Type            | Min Weight (lbs/gal) | Max Weight (lbs/gal) | Density (lbs/cu ft) | Gel Strength (lbs/100 sqft) | PH | Viscosity (CP) | Salinity (ppm) | Filtration (cc) | Additional Characteristics |
|-----------|--------------|---------------------|----------------------|----------------------|---------------------|-----------------------------|----|----------------|----------------|-----------------|----------------------------|
| 0         | 1711         | OTHER : Fresh Water | 8.4                  | 9.9                  |                     |                             |    |                |                |                 |                            |
| 1711      | 9422         | OTHER : Cut Brine   | 9.4                  | 9.5                  |                     |                             |    |                |                |                 |                            |
| 9422      | 1171 6       | OTHER : Cut Brine   | 9.2                  | 9.5                  |                     |                             |    |                |                |                 |                            |
| 1171 6    | 2159 7       | OIL-BASED MUD       | 9                    | 9.2                  |                     |                             |    |                |                |                 |                            |

Section 6 - Test, Logging, Coring

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

GR log will be acquired by MWD tools throughout the well.

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

GAMMA RAY LOG,

Coring operation description for the well:

No core or open hole or cased hole log is planned.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5335

Anticipated Surface Pressure: 2826

Anticipated Bottom Hole Temperature(F): 179

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Royal\_Pad1\_H2S\_Plan\_20240107125454.pdf

**Operator Name:** AVANT OPERATING LLC**Well Name:** ROYAL OAK 25 FED COM**Well Number:** 008H

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Royal\_008H\_Horizontal\_Plan\_20240107125512.pdf

**Other proposed operations facets description:**

All casing strings below the conductor will be pressure tested to 0.22 psi/ft x casing string length, or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield. If pressure declines more than 10% in 30 minutes, then corrective action will be taken.

**Other proposed operations facets attachment:**

Royal\_Anticollision\_Report\_20240107125602.pdf

Royal\_008H\_Speedhead\_Specs\_20240107125620.pdf

Coflex\_Certs\_Rev\_20240623155033.pdf

Royal\_008H\_Drill\_Plan\_Rev\_20240623155048.pdf

**Other Variance attachment:**

Casing\_Cementing\_Variance\_Request\_20240107124630.pdf



**WELL DETAILS: Royal Oak 25 Fed Com #008H**

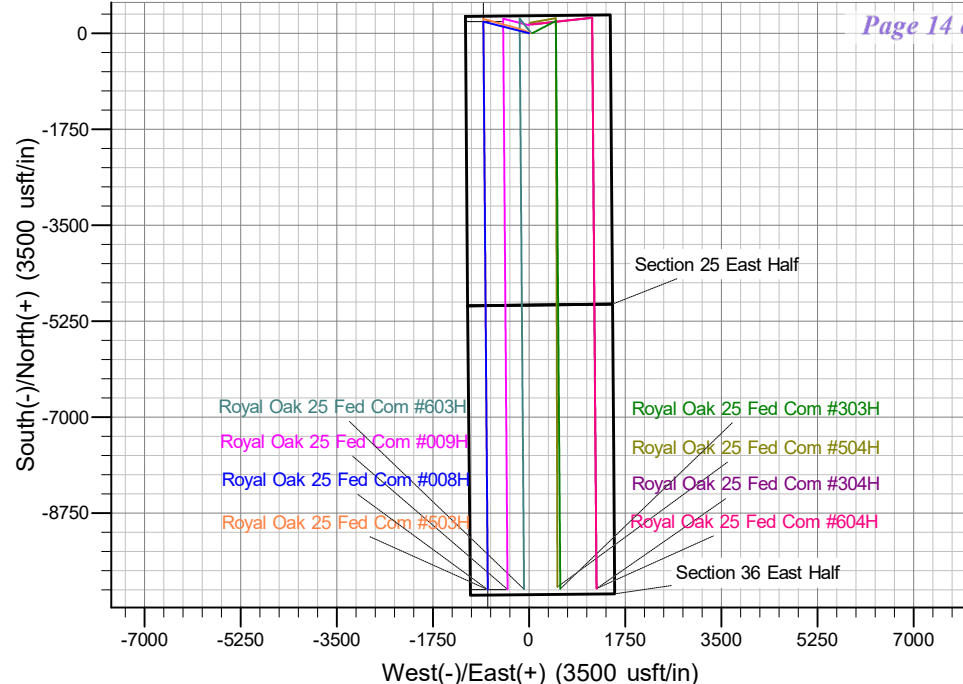
Ground Elev: 3905.0 KB: 3931.5

| +N/-S | +E/-W | Northing  | Easting   | Latitude     | Longitude     |
|-------|-------|-----------|-----------|--------------|---------------|
| 0.0   | 0.0   | 628266.54 | 762921.48 | 32.7250736°N | 103.6127988°W |

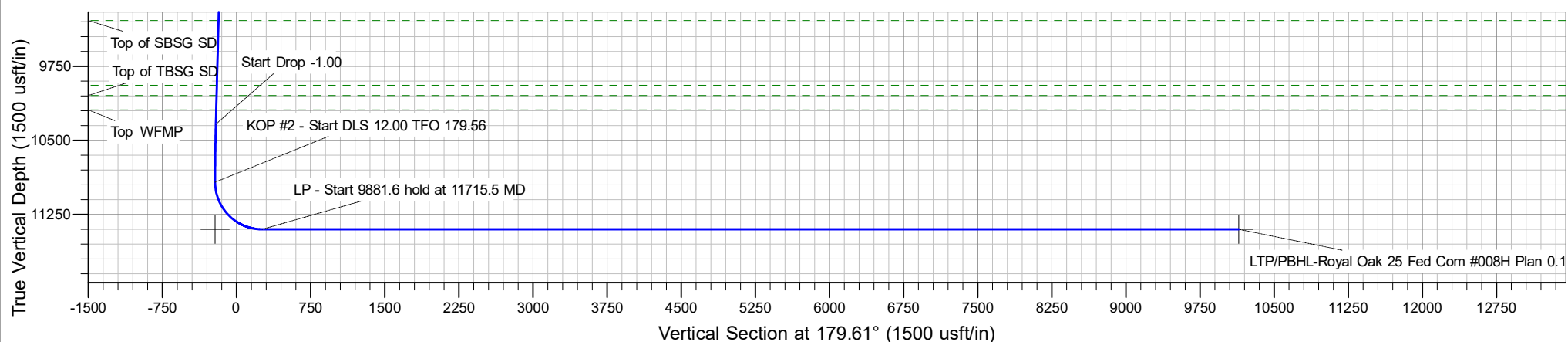
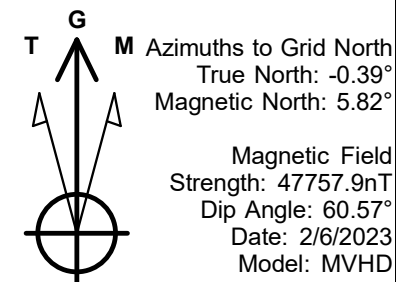
**PROJECT DETAILS: Lea Co., NM (NAD 83)**

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

System Datum: Mean Sea Level

**SECTION DETAILS**

| Sec | MD      | Inc   | Azi    | TVD     | +N/-S    | +E/-W  | Dleg  | TFace  | VSect   | Annotation                           |
|-----|---------|-------|--------|---------|----------|--------|-------|--------|---------|--------------------------------------|
| 1   | 0.0     | 0.00  | 0.00   | 0.0     | 0.0      | 0.0    | 0.00  | 0.00   | 0.0     |                                      |
| 2   | 2000.0  | 0.00  | 0.00   | 2000.0  | 0.0      | 0.0    | 0.00  | 0.00   | 0.0     | KOP - Start Build 1.00               |
| 3   | 2587.8  | 5.88  | 284.23 | 2586.8  | 7.4      | -29.2  | 1.00  | 284.23 | -7.6    | Start 7789.9 hold at 2587.8 MD       |
| 4   | 10377.7 | 5.88  | 284.23 | 10335.7 | 203.5    | -802.5 | 0.00  | 0.00   | -208.9  | Start Drop -1.00                     |
| 5   | 10965.5 | 0.00  | 0.00   | 10922.5 | 210.9    | -831.7 | 1.00  | 180.00 | -216.5  | KOP #2 - Start DLS 12.00 TFO 179.56  |
| 6   | 11715.5 | 90.00 | 179.56 | 11400.0 | -266.6   | -828.0 | 12.00 | 179.56 | 260.9   | LP - Start 9881.6 hold at 11715.5 MD |
| 7   | 21597.1 | 90.00 | 179.56 | 11400.0 | -10147.8 | -751.4 | 0.00  | 0.00   | 10142.5 | TD at 21597.1                        |





Planning Report



|           |                            |                              |                                 |
|-----------|----------------------------|------------------------------|---------------------------------|
| Database: | EDM 5000.16 Single User Db | Local Co-ordinate Reference: | Well Royal Oak 25 Fed Com #008H |
| Company:  | Avant Operating, LLC       | TVD Reference:               | Well @ 3931.5usft (3931.5)      |
| Project:  | Lea Co., NM (NAD 83)       | MD Reference:                | Well @ 3931.5usft (3931.5)      |
| Site:     | Royal Oak 25 Fed Com Pad 1 | North Reference:             | Grid                            |
| Well:     | Royal Oak 25 Fed Com #008H | Survey Calculation Method:   | Minimum Curvature               |
| Wellbore: | OH                         |                              |                                 |
| Design:   | Plan 0.1                   |                              |                                 |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project     | Lea Co., NM (NAD 83)      |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | New Mexico Eastern Zone   |               |                |

|                       |                            |              |                 |
|-----------------------|----------------------------|--------------|-----------------|
| Site                  | Royal Oak 25 Fed Com Pad 1 |              |                 |
| Site Position:        |                            | Northing:    | 628,346.43 usft |
| From:                 | Map                        | Easting:     | 762,901.42 usft |
| Position Uncertainty: | 0.0 usft                   | Slot Radius: | 13-3/16 "       |
|                       |                            | Latitude:    | 32.7252935°N    |
|                       |                            | Longitude:   | 103.6128623°W   |

|                      |                            |                     |               |
|----------------------|----------------------------|---------------------|---------------|
| Well                 | Royal Oak 25 Fed Com #008H |                     |               |
| Well Position        | +N/-S                      | 0.0 usft            | Northing:     |
|                      | +E/-W                      | 0.0 usft            | Easting:      |
| Position Uncertainty | 0.0 usft                   | Wellhead Elevation: |               |
| Grid Convergence:    | 0.39 °                     |                     |               |
|                      |                            | Latitude:           | 32.7250736°N  |
|                      |                            | Longitude:          | 103.6127988°W |
|                      |                            | Ground Level:       | 3,905.0 usft  |

|           |            |             |                 |               |                     |
|-----------|------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | OH         |             |                 |               |                     |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | MVHD       | 2/6/2023    | 6.21            | 60.57         | 47,757.86177384     |

|                   |                         |              |               |               |
|-------------------|-------------------------|--------------|---------------|---------------|
| Design            | Plan 0.1                |              |               |               |
| Audit Notes:      |                         |              |               |               |
| Version:          | Phase:                  | PLAN         | Tie On Depth: | 0.0           |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft)  | Direction (°) |
|                   | 0.0                     | 0.0          | 0.0           | 179.61        |

|                          |                 |                        |                 |         |
|--------------------------|-----------------|------------------------|-----------------|---------|
| Plan Survey Tool Program | Date            | 7/28/2023              |                 |         |
| Depth From (usft)        | Depth To (usft) | Survey (Wellbore)      | Tool Name       | Remarks |
| 1                        | 0.0             | 21,596.6 Plan 0.1 (OH) | B001Mb_MWD+HRGM |         |
|                          |                 |                        | OWSG MWD + HRGM |         |

|                       |                 |             |                       |              |              |                         |                        |                       |         |                    |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|--------------------|
| Plan Sections         |                 |             |                       |              |              |                         |                        |                       |         |                    |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target             |
| 0.0                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 2,000.0               | 0.00            | 0.00        | 2,000.0               | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 2,587.8               | 5.88            | 284.23      | 2,586.8               | 7.4          | -29.2        | 1.00                    | 1.00                   | 0.00                  | 284.23  |                    |
| 10,377.7              | 5.88            | 284.23      | 10,335.7              | 203.5        | -802.5       | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 10,965.5              | 0.00            | 0.00        | 10,922.5              | 210.9        | -831.7       | 1.00                    | -1.00                  | 0.00                  | 180.00  |                    |
| 11,715.5              | 90.00           | 179.56      | 11,400.0              | -266.6       | -828.0       | 12.00                   | 12.00                  | 23.94                 | 179.56  |                    |
| 21,597.1              | 90.00           | 179.56      | 11,400.0              | -10,147.8    | -751.4       | 0.00                    | 0.00                   | 0.00                  | 0.00    | LTP/PBHL-Royal Oak |



## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Planned Survey                        |                 |             |                       |              |              |                         |                         |                        |                       |
|---------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)                 | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0                                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 100.0                                 | 0.00            | 0.00        | 100.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 200.0                                 | 0.00            | 0.00        | 200.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 300.0                                 | 0.00            | 0.00        | 300.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 400.0                                 | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 500.0                                 | 0.00            | 0.00        | 500.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 600.0                                 | 0.00            | 0.00        | 600.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 700.0                                 | 0.00            | 0.00        | 700.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 800.0                                 | 0.00            | 0.00        | 800.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 900.0                                 | 0.00            | 0.00        | 900.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,000.0                               | 0.00            | 0.00        | 1,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,100.0                               | 0.00            | 0.00        | 1,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,200.0                               | 0.00            | 0.00        | 1,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,300.0                               | 0.00            | 0.00        | 1,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,400.0                               | 0.00            | 0.00        | 1,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,500.0                               | 0.00            | 0.00        | 1,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,600.0                               | 0.00            | 0.00        | 1,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,686.0                               | 0.00            | 0.00        | 1,686.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>RUSTLER</b>                        |                 |             |                       |              |              |                         |                         |                        |                       |
| 1,700.0                               | 0.00            | 0.00        | 1,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,800.0                               | 0.00            | 0.00        | 1,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,900.0                               | 0.00            | 0.00        | 1,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,000.0                               | 0.00            | 0.00        | 2,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>KOP - Start Build 1.00</b>         |                 |             |                       |              |              |                         |                         |                        |                       |
| 2,100.0                               | 1.00            | 284.23      | 2,100.0               | 0.2          | -0.8         | -0.2                    | 1.00                    | 1.00                   | 0.00                  |
| 2,200.0                               | 2.00            | 284.23      | 2,200.0               | 0.9          | -3.4         | -0.9                    | 1.00                    | 1.00                   | 0.00                  |
| 2,300.0                               | 3.00            | 284.23      | 2,299.9               | 1.9          | -7.6         | -2.0                    | 1.00                    | 1.00                   | 0.00                  |
| 2,400.0                               | 4.00            | 284.23      | 2,399.7               | 3.4          | -13.5        | -3.5                    | 1.00                    | 1.00                   | 0.00                  |
| 2,500.0                               | 5.00            | 284.23      | 2,499.4               | 5.4          | -21.1        | -5.5                    | 1.00                    | 1.00                   | 0.00                  |
| 2,587.8                               | 5.88            | 284.23      | 2,586.8               | 7.4          | -29.2        | -7.6                    | 1.00                    | 1.00                   | 0.00                  |
| <b>Start 7789.9 hold at 2587.8 MD</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 2,600.0                               | 5.88            | 284.23      | 2,598.9               | 7.7          | -30.4        | -7.9                    | 0.00                    | 0.00                   | 0.00                  |
| 2,700.0                               | 5.88            | 284.23      | 2,698.4               | 10.2         | -40.3        | -10.5                   | 0.00                    | 0.00                   | 0.00                  |
| 2,800.0                               | 5.88            | 284.23      | 2,797.9               | 12.7         | -50.3        | -13.1                   | 0.00                    | 0.00                   | 0.00                  |
| 2,900.0                               | 5.88            | 284.23      | 2,897.3               | 15.3         | -60.2        | -15.7                   | 0.00                    | 0.00                   | 0.00                  |
| 3,000.0                               | 5.88            | 284.23      | 2,996.8               | 17.8         | -70.1        | -18.3                   | 0.00                    | 0.00                   | 0.00                  |
| 3,100.0                               | 5.88            | 284.23      | 3,096.3               | 20.3         | -80.0        | -20.8                   | 0.00                    | 0.00                   | 0.00                  |
| 3,164.1                               | 5.88            | 284.23      | 3,160.0               | 21.9         | -86.4        | -22.5                   | 0.00                    | 0.00                   | 0.00                  |
| <b>YATES</b>                          |                 |             |                       |              |              |                         |                         |                        |                       |
| 3,200.0                               | 5.88            | 284.23      | 3,195.8               | 22.8         | -90.0        | -23.4                   | 0.00                    | 0.00                   | 0.00                  |
| 3,300.0                               | 5.88            | 284.23      | 3,295.2               | 25.3         | -99.9        | -26.0                   | 0.00                    | 0.00                   | 0.00                  |
| 3,400.0                               | 5.88            | 284.23      | 3,394.7               | 27.8         | -109.8       | -28.6                   | 0.00                    | 0.00                   | 0.00                  |
| 3,500.0                               | 5.88            | 284.23      | 3,494.2               | 30.4         | -119.8       | -31.2                   | 0.00                    | 0.00                   | 0.00                  |
| 3,600.0                               | 5.88            | 284.23      | 3,593.6               | 32.9         | -129.7       | -33.8                   | 0.00                    | 0.00                   | 0.00                  |
| 3,654.6                               | 5.88            | 284.23      | 3,648.0               | 34.3         | -135.1       | -35.2                   | 0.00                    | 0.00                   | 0.00                  |
| <b>SEVEN RIVERS</b>                   |                 |             |                       |              |              |                         |                         |                        |                       |
| 3,700.0                               | 5.88            | 284.23      | 3,693.1               | 35.4         | -139.6       | -36.3                   | 0.00                    | 0.00                   | 0.00                  |
| 3,800.0                               | 5.88            | 284.23      | 3,792.6               | 37.9         | -149.5       | -38.9                   | 0.00                    | 0.00                   | 0.00                  |
| 3,900.0                               | 5.88            | 284.23      | 3,892.1               | 40.4         | -159.5       | -41.5                   | 0.00                    | 0.00                   | 0.00                  |
| 4,000.0                               | 5.88            | 284.23      | 3,991.5               | 43.0         | -169.4       | -44.1                   | 0.00                    | 0.00                   | 0.00                  |
| 4,100.0                               | 5.88            | 284.23      | 4,091.0               | 45.5         | -179.3       | -46.7                   | 0.00                    | 0.00                   | 0.00                  |
| 4,200.0                               | 5.88            | 284.23      | 4,190.5               | 48.0         | -189.3       | -49.3                   | 0.00                    | 0.00                   | 0.00                  |
| 4,300.0                               | 5.88            | 284.23      | 4,290.0               | 50.5         | -199.2       | -51.9                   | 0.00                    | 0.00                   | 0.00                  |



## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Planned Survey         |                 |             |                       |              |              |                         |                         |                        |                       |
|------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)  | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,372.4                | 5.88            | 284.23      | 4,362.0               | 52.3         | -206.4       | -53.7                   | 0.00                    | 0.00                   | 0.00                  |
| <b>QUEEN</b>           |                 |             |                       |              |              |                         |                         |                        |                       |
| 4,400.0                | 5.88            | 284.23      | 4,389.4               | 53.0         | -209.1       | -54.4                   | 0.00                    | 0.00                   | 0.00                  |
| 4,500.0                | 5.88            | 284.23      | 4,488.9               | 55.5         | -219.0       | -57.0                   | 0.00                    | 0.00                   | 0.00                  |
| 4,600.0                | 5.88            | 284.23      | 4,588.4               | 58.1         | -229.0       | -59.6                   | 0.00                    | 0.00                   | 0.00                  |
| 4,700.0                | 5.88            | 284.23      | 4,687.9               | 60.6         | -238.9       | -62.2                   | 0.00                    | 0.00                   | 0.00                  |
| 4,800.0                | 5.88            | 284.23      | 4,787.3               | 63.1         | -248.8       | -64.8                   | 0.00                    | 0.00                   | 0.00                  |
| 4,900.0                | 5.88            | 284.23      | 4,886.8               | 65.6         | -258.7       | -67.4                   | 0.00                    | 0.00                   | 0.00                  |
| 5,000.0                | 5.88            | 284.23      | 4,986.3               | 68.1         | -268.7       | -69.9                   | 0.00                    | 0.00                   | 0.00                  |
| 5,100.0                | 5.88            | 284.23      | 5,085.8               | 70.6         | -278.6       | -72.5                   | 0.00                    | 0.00                   | 0.00                  |
| 5,200.0                | 5.88            | 284.23      | 5,185.2               | 73.2         | -288.5       | -75.1                   | 0.00                    | 0.00                   | 0.00                  |
| 5,300.0                | 5.88            | 284.23      | 5,284.7               | 75.7         | -298.5       | -77.7                   | 0.00                    | 0.00                   | 0.00                  |
| 5,400.0                | 5.88            | 284.23      | 5,384.2               | 78.2         | -308.4       | -80.3                   | 0.00                    | 0.00                   | 0.00                  |
| 5,438.0                | 5.88            | 284.23      | 5,422.0               | 79.1         | -312.2       | -81.3                   | 0.00                    | 0.00                   | 0.00                  |
| <b>CHERRY CANYON</b>   |                 |             |                       |              |              |                         |                         |                        |                       |
| 5,500.0                | 5.88            | 284.23      | 5,483.7               | 80.7         | -318.3       | -82.9                   | 0.00                    | 0.00                   | 0.00                  |
| 5,600.0                | 5.88            | 284.23      | 5,583.1               | 83.2         | -328.2       | -85.5                   | 0.00                    | 0.00                   | 0.00                  |
| 5,700.0                | 5.88            | 284.23      | 5,682.6               | 85.7         | -338.2       | -88.0                   | 0.00                    | 0.00                   | 0.00                  |
| 5,800.0                | 5.88            | 284.23      | 5,782.1               | 88.3         | -348.1       | -90.6                   | 0.00                    | 0.00                   | 0.00                  |
| 5,900.0                | 5.88            | 284.23      | 5,881.6               | 90.8         | -358.0       | -93.2                   | 0.00                    | 0.00                   | 0.00                  |
| 6,000.0                | 5.88            | 284.23      | 5,981.0               | 93.3         | -367.9       | -95.8                   | 0.00                    | 0.00                   | 0.00                  |
| 6,100.0                | 5.88            | 284.23      | 6,080.5               | 95.8         | -377.9       | -98.4                   | 0.00                    | 0.00                   | 0.00                  |
| 6,111.6                | 5.88            | 284.23      | 6,092.0               | 96.1         | -379.0       | -98.7                   | 0.00                    | 0.00                   | 0.00                  |
| <b>BRUSHY CANYON</b>   |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,200.0                | 5.88            | 284.23      | 6,180.0               | 98.3         | -387.8       | -101.0                  | 0.00                    | 0.00                   | 0.00                  |
| 6,300.0                | 5.88            | 284.23      | 6,279.4               | 100.8        | -397.7       | -103.5                  | 0.00                    | 0.00                   | 0.00                  |
| 6,400.0                | 5.88            | 284.23      | 6,378.9               | 103.4        | -407.7       | -106.1                  | 0.00                    | 0.00                   | 0.00                  |
| 6,500.0                | 5.88            | 284.23      | 6,478.4               | 105.9        | -417.6       | -108.7                  | 0.00                    | 0.00                   | 0.00                  |
| 6,600.0                | 5.88            | 284.23      | 6,577.9               | 108.4        | -427.5       | -111.3                  | 0.00                    | 0.00                   | 0.00                  |
| 6,700.0                | 5.88            | 284.23      | 6,677.3               | 110.9        | -437.4       | -113.9                  | 0.00                    | 0.00                   | 0.00                  |
| 6,800.0                | 5.88            | 284.23      | 6,776.8               | 113.4        | -447.4       | -116.5                  | 0.00                    | 0.00                   | 0.00                  |
| 6,900.0                | 5.88            | 284.23      | 6,876.3               | 115.9        | -457.3       | -119.1                  | 0.00                    | 0.00                   | 0.00                  |
| 7,000.0                | 5.88            | 284.23      | 6,975.8               | 118.5        | -467.2       | -121.6                  | 0.00                    | 0.00                   | 0.00                  |
| 7,100.0                | 5.88            | 284.23      | 7,075.2               | 121.0        | -477.2       | -124.2                  | 0.00                    | 0.00                   | 0.00                  |
| 7,200.0                | 5.88            | 284.23      | 7,174.7               | 123.5        | -487.1       | -126.8                  | 0.00                    | 0.00                   | 0.00                  |
| 7,300.0                | 5.88            | 284.23      | 7,274.2               | 126.0        | -497.0       | -129.4                  | 0.00                    | 0.00                   | 0.00                  |
| 7,347.1                | 5.88            | 284.23      | 7,321.0               | 127.2        | -501.7       | -130.6                  | 0.00                    | 0.00                   | 0.00                  |
| <b>Top of BSGI</b>     |                 |             |                       |              |              |                         |                         |                        |                       |
| 7,400.0                | 5.88            | 284.23      | 7,373.7               | 128.5        | -506.9       | -132.0                  | 0.00                    | 0.00                   | 0.00                  |
| 7,500.0                | 5.88            | 284.23      | 7,473.1               | 131.1        | -516.9       | -134.6                  | 0.00                    | 0.00                   | 0.00                  |
| 7,600.0                | 5.88            | 284.23      | 7,572.6               | 133.6        | -526.8       | -137.1                  | 0.00                    | 0.00                   | 0.00                  |
| 7,605.4                | 5.88            | 284.23      | 7,578.0               | 133.7        | -527.3       | -137.3                  | 0.00                    | 0.00                   | 0.00                  |
| <b>Top of Avalon A</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 7,700.0                | 5.88            | 284.23      | 7,672.1               | 136.1        | -536.7       | -139.7                  | 0.00                    | 0.00                   | 0.00                  |
| 7,800.0                | 5.88            | 284.23      | 7,771.6               | 138.6        | -546.6       | -142.3                  | 0.00                    | 0.00                   | 0.00                  |
| 7,900.0                | 5.88            | 284.23      | 7,871.0               | 141.1        | -556.6       | -144.9                  | 0.00                    | 0.00                   | 0.00                  |
| 8,000.0                | 5.88            | 284.23      | 7,970.5               | 143.6        | -566.5       | -147.5                  | 0.00                    | 0.00                   | 0.00                  |
| 8,100.0                | 5.88            | 284.23      | 8,070.0               | 146.2        | -576.4       | -150.1                  | 0.00                    | 0.00                   | 0.00                  |
| 8,200.0                | 5.88            | 284.23      | 8,169.5               | 148.7        | -586.4       | -152.7                  | 0.00                    | 0.00                   | 0.00                  |
| 8,300.0                | 5.88            | 284.23      | 8,268.9               | 151.2        | -596.3       | -155.2                  | 0.00                    | 0.00                   | 0.00                  |
| 8,400.0                | 5.88            | 284.23      | 8,368.4               | 153.7        | -606.2       | -157.8                  | 0.00                    | 0.00                   | 0.00                  |
| 8,500.0                | 5.88            | 284.23      | 8,467.9               | 156.2        | -616.1       | -160.4                  | 0.00                    | 0.00                   | 0.00                  |
| 8,600.0                | 5.88            | 284.23      | 8,567.4               | 158.7        | -626.1       | -163.0                  | 0.00                    | 0.00                   | 0.00                  |



## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Planned Survey                          |                 |             |                       |              |              |                         |                         |                        |                       |
|---|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)                   | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 8,700.0                                 | 5.88            | 284.23      | 8,666.8               | 161.3        | -636.0       | -165.6                  | 0.00                    | 0.00                   | 0.00                  |
| 8,725.3                                 | 5.88            | 284.23      | 8,692.0               | 161.9        | -638.5       | -166.2                  | 0.00                    | 0.00                   | 0.00                  |
| Top of FBSG SD                          |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,800.0                                 | 5.88            | 284.23      | 8,766.3               | 163.8        | -645.9       | -168.2                  | 0.00                    | 0.00                   | 0.00                  |
| 8,900.0                                 | 5.88            | 284.23      | 8,865.8               | 166.3        | -655.8       | -170.8                  | 0.00                    | 0.00                   | 0.00                  |
| 9,000.0                                 | 5.88            | 284.23      | 8,965.3               | 168.8        | -665.8       | -173.3                  | 0.00                    | 0.00                   | 0.00                  |
| 9,035.9                                 | 5.88            | 284.23      | 9,001.0               | 169.7        | -669.3       | -174.3                  | 0.00                    | 0.00                   | 0.00                  |
| Top of SBSG Shale                       |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,100.0                                 | 5.88            | 284.23      | 9,064.7               | 171.3        | -675.7       | -175.9                  | 0.00                    | 0.00                   | 0.00                  |
| 9,200.0                                 | 5.88            | 284.23      | 9,164.2               | 173.8        | -685.6       | -178.5                  | 0.00                    | 0.00                   | 0.00                  |
| 9,300.0                                 | 5.88            | 284.23      | 9,263.7               | 176.4        | -695.6       | -181.1                  | 0.00                    | 0.00                   | 0.00                  |
| 9,322.4                                 | 5.88            | 284.23      | 9,286.0               | 176.9        | -697.8       | -181.7                  | 0.00                    | 0.00                   | 0.00                  |
| Top of SBSG SD                          |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,400.0                                 | 5.88            | 284.23      | 9,363.1               | 178.9        | -705.5       | -183.7                  | 0.00                    | 0.00                   | 0.00                  |
| 9,500.0                                 | 5.88            | 284.23      | 9,462.6               | 181.4        | -715.4       | -186.3                  | 0.00                    | 0.00                   | 0.00                  |
| 9,600.0                                 | 5.88            | 284.23      | 9,562.1               | 183.9        | -725.3       | -188.8                  | 0.00                    | 0.00                   | 0.00                  |
| 9,700.0                                 | 5.88            | 284.23      | 9,661.6               | 186.4        | -735.3       | -191.4                  | 0.00                    | 0.00                   | 0.00                  |
| 9,800.0                                 | 5.88            | 284.23      | 9,761.0               | 188.9        | -745.2       | -194.0                  | 0.00                    | 0.00                   | 0.00                  |
| 9,900.0                                 | 5.88            | 284.23      | 9,860.5               | 191.5        | -755.1       | -196.6                  | 0.00                    | 0.00                   | 0.00                  |
| 9,981.9                                 | 5.88            | 284.23      | 9,942.0               | 193.5        | -763.3       | -198.7                  | 0.00                    | 0.00                   | 0.00                  |
| Top of TBSG Carb                        |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,000.0                                | 5.88            | 284.23      | 9,960.0               | 194.0        | -765.1       | -199.2                  | 0.00                    | 0.00                   | 0.00                  |
| 10,085.5                                | 5.88            | 284.23      | 10,045.0              | 196.1        | -773.5       | -201.4                  | 0.00                    | 0.00                   | 0.00                  |
| Top of TBSG SD                          |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,100.0                                | 5.88            | 284.23      | 10,059.5              | 196.5        | -775.0       | -201.8                  | 0.00                    | 0.00                   | 0.00                  |
| 10,200.0                                | 5.88            | 284.23      | 10,158.9              | 199.0        | -784.9       | -204.4                  | 0.00                    | 0.00                   | 0.00                  |
| 10,231.2                                | 5.88            | 284.23      | 10,190.0              | 199.8        | -788.0       | -205.2                  | 0.00                    | 0.00                   | 0.00                  |
| Top WFMP                                |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,300.0                                | 5.88            | 284.23      | 10,258.4              | 201.5        | -794.8       | -206.9                  | 0.00                    | 0.00                   | 0.00                  |
| 10,377.7                                | 5.88            | 284.23      | 10,335.7              | 203.5        | -802.5       | -208.9                  | 0.00                    | 0.00                   | 0.00                  |
| Start Drop -1.00                        |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,400.0                                | 5.66            | 284.23      | 10,357.9              | 204.0        | -804.7       | -209.5                  | 1.00                    | -1.00                  | 0.00                  |
| 10,500.0                                | 4.66            | 284.23      | 10,457.5              | 206.2        | -813.4       | -211.8                  | 1.00                    | -1.00                  | 0.00                  |
| 10,600.0                                | 3.66            | 284.23      | 10,557.2              | 208.0        | -820.5       | -213.6                  | 1.00                    | -1.00                  | 0.00                  |
| 10,700.0                                | 2.66            | 284.23      | 10,657.1              | 209.4        | -825.8       | -215.0                  | 1.00                    | -1.00                  | 0.00                  |
| 10,800.0                                | 1.66            | 284.23      | 10,757.0              | 210.3        | -829.4       | -215.9                  | 1.00                    | -1.00                  | 0.00                  |
| 10,900.0                                | 0.66            | 284.23      | 10,857.0              | 210.8        | -831.4       | -216.5                  | 1.00                    | -1.00                  | 0.00                  |
| 10,965.5                                | 0.00            | 0.00        | 10,922.5              | 210.9        | -831.7       | -216.5                  | 1.00                    | -1.00                  | 0.00                  |
| KOP #2 - Start DLS 12.00 TFO 179.56     |                 |             |                       |              |              |                         |                         |                        |                       |
| 11,000.0                                | 4.14            | 179.56      | 10,956.9              | 209.6        | -831.7       | -215.3                  | 12.00                   | 12.00                  | 0.00                  |
| 11,100.0                                | 16.14           | 179.56      | 11,055.2              | 192.1        | -831.6       | -197.7                  | 12.00                   | 12.00                  | 0.00                  |
| 11,200.0                                | 28.14           | 179.56      | 11,147.7              | 154.5        | -831.3       | -160.1                  | 12.00                   | 12.00                  | 0.00                  |
| 11,300.0                                | 40.14           | 179.56      | 11,230.3              | 98.5         | -830.9       | -104.1                  | 12.00                   | 12.00                  | 0.00                  |
| 11,336.6                                | 44.53           | 179.56      | 11,257.3              | 73.8         | -830.7       | -79.5                   | 12.00                   | 12.00                  | 0.00                  |
| FTP-Royal Oak 25 Fed Com #008H Plan 0.1 |                 |             |                       |              |              |                         |                         |                        |                       |
| 11,400.0                                | 52.14           | 179.56      | 11,299.4              | 26.5         | -830.3       | -32.1                   | 12.00                   | 12.00                  | 0.00                  |
| 11,500.0                                | 64.14           | 179.56      | 11,352.1              | -58.3        | -829.7       | 52.6                    | 12.00                   | 12.00                  | 0.00                  |
| 11,600.0                                | 76.14           | 179.56      | 11,386.1              | -152.2       | -828.9       | 146.5                   | 12.00                   | 12.00                  | 0.00                  |
| 11,700.0                                | 88.14           | 179.56      | 11,399.7              | -251.0       | -828.2       | 245.4                   | 12.00                   | 12.00                  | 0.00                  |
| 11,715.5                                | 90.00           | 179.56      | 11,400.0              | -266.6       | -828.0       | 260.9                   | 12.00                   | 12.00                  | 0.00                  |
| LP - Start 9881.6 hold at 11715.5 MD    |                 |             |                       |              |              |                         |                         |                        |                       |
| 11,800.0                                | 90.00           | 179.56      | 11,400.0              | -351.0       | -827.4       | 345.4                   | 0.00                    | 0.00                   | 0.00                  |
| 11,900.0                                | 90.00           | 179.56      | 11,400.0              | -451.0       | -826.6       | 445.4                   | 0.00                    | 0.00                   | 0.00                  |





## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Planned Survey        |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 12,000.0              | 90.00           | 179.56      | 11,400.0              | -551.0       | -825.8       | 545.4                   | 0.00                    | 0.00                   | 0.00                  |
| 12,100.0              | 90.00           | 179.56      | 11,400.0              | -651.0       | -825.1       | 645.4                   | 0.00                    | 0.00                   | 0.00                  |
| 12,200.0              | 90.00           | 179.56      | 11,400.0              | -751.0       | -824.3       | 745.4                   | 0.00                    | 0.00                   | 0.00                  |
| 12,300.0              | 90.00           | 179.56      | 11,400.0              | -851.0       | -823.5       | 845.4                   | 0.00                    | 0.00                   | 0.00                  |
| 12,400.0              | 90.00           | 179.56      | 11,400.0              | -951.0       | -822.7       | 945.4                   | 0.00                    | 0.00                   | 0.00                  |
| 12,500.0              | 90.00           | 179.56      | 11,400.0              | -1,051.0     | -822.0       | 1,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 12,600.0              | 90.00           | 179.56      | 11,400.0              | -1,151.0     | -821.2       | 1,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 12,700.0              | 90.00           | 179.56      | 11,400.0              | -1,251.0     | -820.4       | 1,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 12,800.0              | 90.00           | 179.56      | 11,400.0              | -1,351.0     | -819.6       | 1,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 12,900.0              | 90.00           | 179.56      | 11,400.0              | -1,451.0     | -818.9       | 1,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,000.0              | 90.00           | 179.56      | 11,400.0              | -1,551.0     | -818.1       | 1,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,100.0              | 90.00           | 179.56      | 11,400.0              | -1,651.0     | -817.3       | 1,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,200.0              | 90.00           | 179.56      | 11,400.0              | -1,751.0     | -816.5       | 1,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,300.0              | 90.00           | 179.56      | 11,400.0              | -1,851.0     | -815.8       | 1,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,400.0              | 90.00           | 179.56      | 11,400.0              | -1,951.0     | -815.0       | 1,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,500.0              | 90.00           | 179.56      | 11,400.0              | -2,051.0     | -814.2       | 2,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,600.0              | 90.00           | 179.56      | 11,400.0              | -2,151.0     | -813.4       | 2,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,700.0              | 90.00           | 179.56      | 11,400.0              | -2,251.0     | -812.6       | 2,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,800.0              | 90.00           | 179.56      | 11,400.0              | -2,351.0     | -811.9       | 2,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 13,900.0              | 90.00           | 179.56      | 11,400.0              | -2,451.0     | -811.1       | 2,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,000.0              | 90.00           | 179.56      | 11,400.0              | -2,551.0     | -810.3       | 2,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,100.0              | 90.00           | 179.56      | 11,400.0              | -2,651.0     | -809.5       | 2,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,200.0              | 90.00           | 179.56      | 11,400.0              | -2,751.0     | -808.8       | 2,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,300.0              | 90.00           | 179.56      | 11,400.0              | -2,851.0     | -808.0       | 2,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,400.0              | 90.00           | 179.56      | 11,400.0              | -2,951.0     | -807.2       | 2,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,500.0              | 90.00           | 179.56      | 11,400.0              | -3,051.0     | -806.4       | 3,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,600.0              | 90.00           | 179.56      | 11,400.0              | -3,150.9     | -805.7       | 3,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,700.0              | 90.00           | 179.56      | 11,400.0              | -3,250.9     | -804.9       | 3,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,800.0              | 90.00           | 179.56      | 11,400.0              | -3,350.9     | -804.1       | 3,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 14,900.0              | 90.00           | 179.56      | 11,400.0              | -3,450.9     | -803.3       | 3,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,000.0              | 90.00           | 179.56      | 11,400.0              | -3,550.9     | -802.6       | 3,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,100.0              | 90.00           | 179.56      | 11,400.0              | -3,650.9     | -801.8       | 3,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,200.0              | 90.00           | 179.56      | 11,400.0              | -3,750.9     | -801.0       | 3,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,300.0              | 90.00           | 179.56      | 11,400.0              | -3,850.9     | -800.2       | 3,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,400.0              | 90.00           | 179.56      | 11,400.0              | -3,950.9     | -799.5       | 3,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,500.0              | 90.00           | 179.56      | 11,400.0              | -4,050.9     | -798.7       | 4,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,600.0              | 90.00           | 179.56      | 11,400.0              | -4,150.9     | -797.9       | 4,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,700.0              | 90.00           | 179.56      | 11,400.0              | -4,250.9     | -797.1       | 4,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,800.0              | 90.00           | 179.56      | 11,400.0              | -4,350.9     | -796.4       | 4,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 15,900.0              | 90.00           | 179.56      | 11,400.0              | -4,450.9     | -795.6       | 4,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,000.0              | 90.00           | 179.56      | 11,400.0              | -4,550.9     | -794.8       | 4,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,100.0              | 90.00           | 179.56      | 11,400.0              | -4,650.9     | -794.0       | 4,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,200.0              | 90.00           | 179.56      | 11,400.0              | -4,750.9     | -793.3       | 4,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,300.0              | 90.00           | 179.56      | 11,400.0              | -4,850.9     | -792.5       | 4,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,400.0              | 90.00           | 179.56      | 11,400.0              | -4,950.9     | -791.7       | 4,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,500.0              | 90.00           | 179.56      | 11,400.0              | -5,050.9     | -790.9       | 5,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,600.0              | 90.00           | 179.56      | 11,400.0              | -5,150.9     | -790.1       | 5,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,700.0              | 90.00           | 179.56      | 11,400.0              | -5,250.9     | -789.4       | 5,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,800.0              | 90.00           | 179.56      | 11,400.0              | -5,350.9     | -788.6       | 5,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 16,900.0              | 90.00           | 179.56      | 11,400.0              | -5,450.9     | -787.8       | 5,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,000.0              | 90.00           | 179.56      | 11,400.0              | -5,550.9     | -787.0       | 5,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,100.0              | 90.00           | 179.56      | 11,400.0              | -5,650.9     | -786.3       | 5,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,200.0              | 90.00           | 179.56      | 11,400.0              | -5,750.9     | -785.5       | 5,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,300.0              | 90.00           | 179.56      | 11,400.0              | -5,850.9     | -784.7       | 5,845.4                 | 0.00                    | 0.00                   | 0.00                  |



## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Planned Survey   |                 |             |                       |              |              |                         |                         |                        |                       |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)  | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 17,400.0   | 90.00           | 179.56      | 11,400.0              | -5,950.9     | -783.9       | 5,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,500.0   | 90.00           | 179.56      | 11,400.0              | -6,050.9     | -783.2       | 6,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,600.0   | 90.00           | 179.56      | 11,400.0              | -6,150.9     | -782.4       | 6,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,700.0   | 90.00           | 179.56      | 11,400.0              | -6,250.9     | -781.6       | 6,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,800.0   | 90.00           | 179.56      | 11,400.0              | -6,350.9     | -780.8       | 6,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 17,900.0   | 90.00           | 179.56      | 11,400.0              | -6,450.9     | -780.1       | 6,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,000.0   | 90.00           | 179.56      | 11,400.0              | -6,550.8     | -779.3       | 6,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,100.0   | 90.00           | 179.56      | 11,400.0              | -6,650.8     | -778.5       | 6,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,200.0   | 90.00           | 179.56      | 11,400.0              | -6,750.8     | -777.7       | 6,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,300.0   | 90.00           | 179.56      | 11,400.0              | -6,850.8     | -777.0       | 6,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,400.0   | 90.00           | 179.56      | 11,400.0              | -6,950.8     | -776.2       | 6,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,500.0   | 90.00           | 179.56      | 11,400.0              | -7,050.8     | -775.4       | 7,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,600.0   | 90.00           | 179.56      | 11,400.0              | -7,150.8     | -774.6       | 7,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,700.0   | 90.00           | 179.56      | 11,400.0              | -7,250.8     | -773.9       | 7,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,800.0   | 90.00           | 179.56      | 11,400.0              | -7,350.8     | -773.1       | 7,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 18,900.0   | 90.00           | 179.56      | 11,400.0              | -7,450.8     | -772.3       | 7,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,000.0   | 90.00           | 179.56      | 11,400.0              | -7,550.8     | -771.5       | 7,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,100.0   | 90.00           | 179.56      | 11,400.0              | -7,650.8     | -770.8       | 7,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,200.0   | 90.00           | 179.56      | 11,400.0              | -7,750.8     | -770.0       | 7,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,300.0   | 90.00           | 179.56      | 11,400.0              | -7,850.8     | -769.2       | 7,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,400.0   | 90.00           | 179.56      | 11,400.0              | -7,950.8     | -768.4       | 7,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,500.0   | 90.00           | 179.56      | 11,400.0              | -8,050.8     | -767.7       | 8,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,600.0   | 90.00           | 179.56      | 11,400.0              | -8,150.8     | -766.9       | 8,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,700.0   | 90.00           | 179.56      | 11,400.0              | -8,250.8     | -766.1       | 8,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,800.0   | 90.00           | 179.56      | 11,400.0              | -8,350.8     | -765.3       | 8,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 19,900.0   | 90.00           | 179.56      | 11,400.0              | -8,450.8     | -764.5       | 8,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,000.0   | 90.00           | 179.56      | 11,400.0              | -8,550.8     | -763.8       | 8,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,100.0   | 90.00           | 179.56      | 11,400.0              | -8,650.8     | -763.0       | 8,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,200.0   | 90.00           | 179.56      | 11,400.0              | -8,750.8     | -762.2       | 8,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,300.0   | 90.00           | 179.56      | 11,400.0              | -8,850.8     | -761.4       | 8,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,400.0   | 90.00           | 179.56      | 11,400.0              | -8,950.8     | -760.7       | 8,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,500.0   | 90.00           | 179.56      | 11,400.0              | -9,050.8     | -759.9       | 9,045.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,600.0   | 90.00           | 179.56      | 11,400.0              | -9,150.8     | -759.1       | 9,145.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,700.0   | 90.00           | 179.56      | 11,400.0              | -9,250.8     | -758.3       | 9,245.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,800.0   | 90.00           | 179.56      | 11,400.0              | -9,350.8     | -757.6       | 9,345.4                 | 0.00                    | 0.00                   | 0.00                  |
| 20,900.0   | 90.00           | 179.56      | 11,400.0              | -9,450.8     | -756.8       | 9,445.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,000.0   | 90.00           | 179.56      | 11,400.0              | -9,550.8     | -756.0       | 9,545.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,100.0   | 90.00           | 179.56      | 11,400.0              | -9,650.8     | -755.2       | 9,645.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,200.0   | 90.00           | 179.56      | 11,400.0              | -9,750.8     | -754.5       | 9,745.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,300.0   | 90.00           | 179.56      | 11,400.0              | -9,850.7     | -753.7       | 9,845.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,400.0   | 90.00           | 179.56      | 11,400.0              | -9,950.7     | -752.9       | 9,945.4                 | 0.00                    | 0.00                   | 0.00                  |
| 21,500.0   | 90.00           | 179.56      | 11,400.0              | -10,050.7    | -752.1       | 10,045.4                | 0.00                    | 0.00                   | 0.00                  |
| 21,597.1   | 90.00           | 179.56      | 11,400.0              | -10,147.8    | -751.4       | 10,142.5                | 0.00                    | 0.00                   | 0.00                  |
| TD at 21597.1 - LTP/PBHL-Royal Oak 25 Fed Com #008H Plan 0.1 |                 |             |                       |              |              |                         |                         |                        |                       |



## Planning Report



|                  |                            |                                     |                                 |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| <b>Database:</b> | EDM 5000.16 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Royal Oak 25 Fed Com #008H |
| <b>Company:</b>  | Avant Operating, LLC       | <b>TVD Reference:</b>               | Well @ 3931.5usft (3931.5)      |
| <b>Project:</b>  | Lea Co., NM (NAD 83)       | <b>MD Reference:</b>                | Well @ 3931.5usft (3931.5)      |
| <b>Site:</b>     | Royal Oak 25 Fed Com Pad 1 | <b>North Reference:</b>             | Grid                            |
| <b>Well:</b>     | Royal Oak 25 Fed Com #008H | <b>Survey Calculation Method:</b>   | Minimum Curvature               |
| <b>Wellbore:</b> | OH                         |                                     |                                 |
| <b>Design:</b>   | Plan 0.1                   |                                     |                                 |

| Design Targets  |               |              |            |              |              |                 |                |              |               |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|--------------|---------------|
| Target Name   | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude     | Longitude     |
| LTP/PBHL-Royal Oak 25 Fed Com #008H<br>- hit/miss target<br>- Shape<br>- Point  | 0.00          | 0.00         | 11,400.0   | -10,147.8    | -751.4       | 618,118.71      | 762,170.10     | 32.6971965°N | 103.6154654°W |
| FTP-Royal Oak 25 Fed Com #008H<br>- plan misses target center by 197.9usft at 11336.6usft MD (11257.3 TVD, 73.8 N, -830.7 E)<br>- Point | 0.00          | 0.00         | 11,400.0   | 210.9        | -831.7       | 628,477.43      | 762,089.73     | 32.7256687°N | 103.6154986°W |

| Casing Points         |                       |      |                     |                   |
|-----------------------|-----------------------|------|---------------------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
| 11,715.5              | 11,400.0              | LP   | 5-1/2               | 6                 |

| Formations            |                       |                   |           |         |                   |  |
|-----------------------|-----------------------|-------------------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name              | Lithology | Dip (°) | Dip Direction (°) |  |
| 1,686.0               | 1,686.0               | RUSTLER           |           |         |                   |  |
| 3,164.1               | 3,160.0               | YATES             |           |         |                   |  |
| 3,654.6               | 3,648.0               | SEVEN RIVERS      |           |         |                   |  |
| 4,372.4               | 4,362.0               | QUEEN             |           |         |                   |  |
| 5,438.0               | 5,422.0               | CHERRY CANYON     |           |         |                   |  |
| 6,111.6               | 6,092.0               | BRUSHY CANYON     |           |         |                   |  |
| 7,347.1               | 7,321.0               | Top of BSGL       |           |         |                   |  |
| 7,605.4               | 7,578.0               | Top of Avalon A   |           |         |                   |  |
| 8,725.3               | 8,692.0               | Top of FBSG SD    |           |         |                   |  |
| 9,035.9               | 9,001.0               | Top of SBSG Shale |           |         |                   |  |
| 9,322.4               | 9,286.0               | Top of SBSG SD    |           |         |                   |  |
| 9,981.9               | 9,942.0               | Top of TBSG Carb  |           |         |                   |  |
| 10,085.5              | 10,045.0              | Top of TBSG SD    |           |         |                   |  |
| 10,231.2              | 10,190.0              | Top WFMP          |           |         |                   |  |

| Plan Annotations      |                       |                   |              |                                      |  |
|-----------------------|-----------------------|-------------------|--------------|--------------------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              |                                      |  |
|                       |                       | +N/-S (usft)      | +E/-W (usft) | Comment                              |  |
| 2,000.0               | 2,000.0               | 0.0               | 0.0          | KOP - Start Build 1.00               |  |
| 2,587.8               | 2,586.8               | 7.4               | -29.2        | Start 7789.9 hold at 2587.8 MD       |  |
| 10,377.7              | 10,335.7              | 203.5             | -802.5       | Start Drop -1.00                     |  |
| 10,965.5              | 10,922.5              | 210.9             | -831.7       | KOP #2 - Start DLS 12.00 TFO 179.56  |  |
| 11,715.5              | 11,400.0              | -266.6            | -828.0       | LP - Start 9881.6 hold at 11715.5 MD |  |
| 21,597.1              | 11,400.0              | -10,147.8         | -751.4       | TD at 21597.1                        |  |

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

|                         |                                    |
|-------------------------|------------------------------------|
| <b>OPERATOR'S NAME:</b> | Avant Operating LLC                |
| <b>LEASE NO.:</b>       | NMNM116166                         |
| <b>LOCATION:</b>        | Section 25, T.18 S., R.33 E., NMPM |
| <b>COUNTY:</b>          | Lea County, New Mexico ▼           |

|                             |                         |
|-----------------------------|-------------------------|
| <b>WELL NAME &amp; NO.:</b> | Royal Oak 25 Fed Com 8H |
| <b>BOTTOM HOLE FOOTAGE</b>  | 100'S & 2310'E          |
| <b>ATS/API ID:</b>          | ATS-23-642              |
| <b>APD ID:</b>              | 10400096606             |
| <b>Sundry ID:</b>           | N/a                     |
| <b>Date APD Submitted:</b>  | N/a                     |

COA

|                               |   |   |   |
|-------------------------------|---|---|---|
| H2S                           | Yes ▼   |   |   |
| Potash                        | None ▼  |   |   |
| Cave/Karst Potential          | Low ▼   |   |   |
| Cave/Karst Potential          | <input type="checkbox"/> Critical                 |   |   |
| Variance                      | <input checked="" type="checkbox"/> None          | <input checked="" type="checkbox"/> Flex Hose | <input checked="" type="checkbox"/> Other |
| Wellhead                      | Conventional and Multibowl ▼                      |   |   |
| Other                         | <input type="checkbox"/> 4 String                 | Capitan Reef<br>None ▼                        | <input type="checkbox"/> WIPP             |
| Other                         | Pilot Hole<br>None ▼                              | <input type="checkbox"/> Open Annulus         |   |
| Cementing                     | Contingency Squeeze<br>None ▼                     | Echo-Meter<br>None ▼                          | Primary Cement Squeeze<br>None ▼          |
| Special Requirements          | <input type="checkbox"/> Water Disposal/Injection | <input checked="" type="checkbox"/> COM       | <input type="checkbox"/> Unit             |
| Special Requirements          | <input type="checkbox"/> Batch Sundry             | Waste Prevention<br>None ▼                    |   |
| Special Requirements Variance | <input type="checkbox"/> Break Testing            | <input type="checkbox"/> Offline Cementing    | <input type="checkbox"/> Casing Clearance |

## A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet **43 CFR part 3170 Subpart 3176** requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

## B. CASING

1. The **10-3/4 inch** surface casing shall be set at approximately **1720 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt when present, and below usable fresh water) and cemented to the surface. The surface hole shall be **14 3/4 inch** in diameter.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**

2. The minimum required fill of cement behind the **7-5/8 inch** intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**
3. The minimum required fill of cement behind the **5-1/2 inch** production casing is:
  - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.



### C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2.

#### **Option 1:**

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7-5/8** inch intermediate casing shoe shall be **5000 (5M)** psi.

#### **Option 2:**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **10-3/4** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test.
- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.

### D. SPECIAL REQUIREMENT (S)

#### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, 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. 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.

- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in **43 CFR part 3170 Subpart 3171**
- 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.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## GENERAL REQUIREMENTS

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

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

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

### A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke

manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) 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.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be



initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 3172**.

#### C. DRILLING MUD

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

#### D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and

disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

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

Long Vo (LVO) 6/28/2024

## Hydrogen Sulfide Plan Summary

- A. All personnel shall receive proper H<sub>2</sub>S training in accordance with Onshore Order III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:

- Well control equipment
  - a. Flare line 150' from wellhead to be ignited by flare gun.
  - b. Choke manifold with a remotely operated choke.
  - c. Mud/gas separator

- Protective equipment for essential personnel.

### Breathing apparatus:

- a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- b. Work/Escapes packs — 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

### Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100 ft 5/8 inch OSHA approved rope
- d. 1-20# class ABC fire extinguisher

- H<sub>2</sub>S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.

(Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
  - a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  - b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  - c. Two wind socks will be placed in strategic locations, visible from all angles.



- **Mud program:**  
The mud program has been designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- **Metallurgy:**  
All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- **Communication:**  
Communication will be via cell phones and land lines where available.

#### Company Personnel to be Notified

|   |                        |
|---|------------------------|
| John Harper, Vice President of Geoscience | Office: (720) 746-5045 |
|   | Mobile: (678) 988-6644 |
| Braden Harris, Engineer                   | Mobile: (406) 600-3310 |

#### Local & County Agencies

|   |                       |
|---|-----------------------|
| Maljamar Volunter Fire Department           | 911 or (575) 676-4100 |
| Lea County Sheriff (Lovington)              | 911 or (575) 396-3611 |
| Lea County Emergency Management (Lovington) | (575) 396-8602        |
| Lea Regional Medical Center Hopital (Hobbs) | (575) 492-5000        |

#### State Agencies

|                                      |                |
|--------------------------------------|----------------|
| NM State Police (Hobbs)              | (575) 392-5588 |
| NM Oil Conservation (Hobbs)          | (575) 370-3186 |
| NM Oil Conservation (Santa Fe)       | (505) 476-3440 |
| NM Dept. of Transportation (Roswell) | (575) 637-7201 |



Federal Agencies

|                          |                |
|--------------------------|----------------|
| BLM (Carlsbad)           | (575) 234-5972 |
| BLM (Hobbs)              | (575) 393-3612 |
| National Response Center | (800) 424-8802 |
| US EPA Region 6 (Dallas) | (800) 887-6063 |
|                          | (214) 665-6444 |

Veterinarians

|                                  |                |
|----------------------------------|----------------|
| Lovington Veterinary Clinic      | (575) 396-7387 |
| Hobbs Animal Clinic              | (575) 392-5563 |
| Dal Paso Animal Hospital (Hobbs) | (575) 397-2286 |

Residents within 2 miles

None

Air Evacuation

|  |                |
|--|----------------|
| AeroCare (Lubbock)                     | (800) 627-2376 |
| Med Flight Air Ambulance (Albuquerque) | (800) 842-4431 |
| Lifeguard (Albuquerque)                | (888) 866-7256 |





## AVANT OPERATING, LLC

ROYAL OAK 25 FED COM PAD 1  
SEC. 25, T-18-S, R-33-E, N.M.P.M.,  
LEA COUNTY, N.M.

**WARNING SIGN  
& WINDSOCK**

SECTION 24  
SECTION 25

**PRIMARY SAFETY EXIT  
BRIEFING AREA  
>150' FROM WELLS**

**TOPSOIL**

**TOPSOIL**

**WINDSOCK ON  
RIG FLOOR &  
@ MUD TANKS**

**HIGHEST GROUND TO EAST**

**PREVAILING WINDS  
BLOW FROM SOUTH**

**SECONDARY SAFETY BRIEFING AREA >150' FROM WELL EXIT**

**WARNING SIGN  
& WINDSOCK**

Proposed  
Pad Elevation  
3904'

*Before digging  
call for utility  
line location!*

**WARNING SIGN  
& WINDSOCK**

0 50 100  
SCALE: 1"=100'

## NOTES:

1. ALL BEARINGS, DISTANCES & COORDINATES SHOWN ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.
2. CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELL PAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
3. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
4. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

I, MARSHALL W. LINDEEN, NEW MEXICO PROFESSIONAL SURVEYOR NO. 17078, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

| WELL FLAG  | NAD 83                                     |
|--|--|
| ROYAL OAK 25 FED COM 504H<br>160' FNL, 1480' FEL | LAT.=32.7255133' N<br>LONG.=103.6127998' W |
| ROYAL OAK 25 FED COM 009H<br>160' FNL, 1460' FEL | LAT.=32.7255134' N<br>LONG.=103.6127347' W |
| ROYAL OAK 25 FED COM 604H<br>160' FNL, 1440' FEL | LAT.=32.7255136' N<br>LONG.=103.6126694' W |
| ROYAL OAK 25 FED COM 304H<br>160' FNL, 1420' FEL | LAT.=32.7255140' N<br>LONG.=103.6126044' W |
| ROYAL OAK 25 FED COM 008H<br>320' FNL, 1480' FEL | LAT.=32.7250736' N<br>LONG.=103.6127988' W |
| ROYAL OAK 25 FED COM 503H<br>320' FNL, 1460' FEL | LAT.=32.7250737' N<br>LONG.=103.6127338' W |
| ROYAL OAK 25 FED COM 603H<br>320' FNL, 1440' FEL | LAT.=32.7250738' N<br>LONG.=103.6126690' W |
| ROYAL OAK 25 FED COM 303H<br>320' FNL, 1420' FEL | LAT.=32.7250743' N<br>LONG.=103.6126038' W |

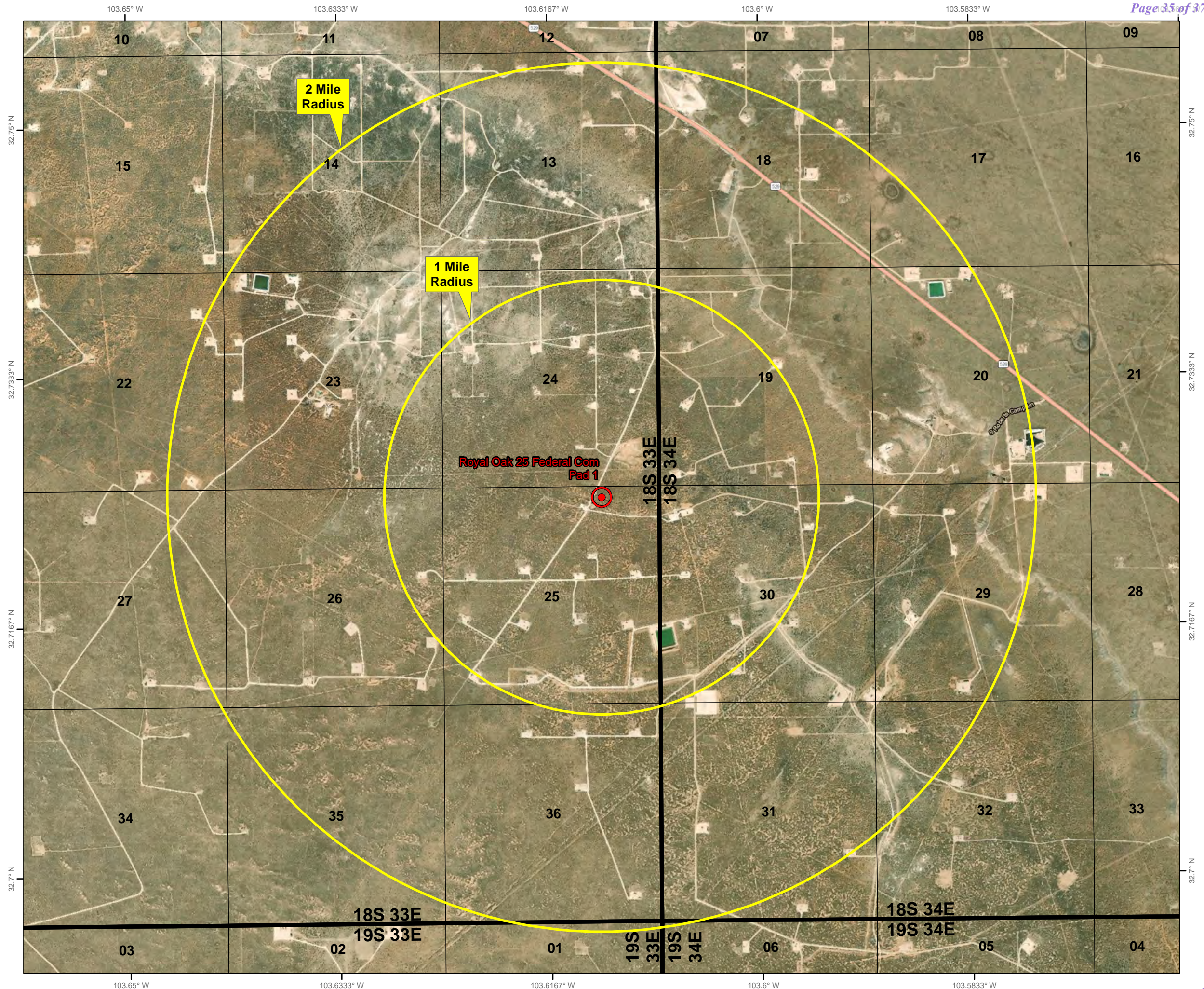
**United**  
Field Services Inc.

P.O. Box 3651  
Farmington, NM 87499  
Office: (505) 334-0408

|                      |                      |
|----------------------|----------------------|
| DWG. No. : 11721-C01 | Revision:            |
| Drawn by: A.D.       | Date Drawn: 11/18/22 |
| Surveyed: 10/30/22   | App by: M.W.L.       |
| Rev. Date:           | Sheet: 1 of 3        |

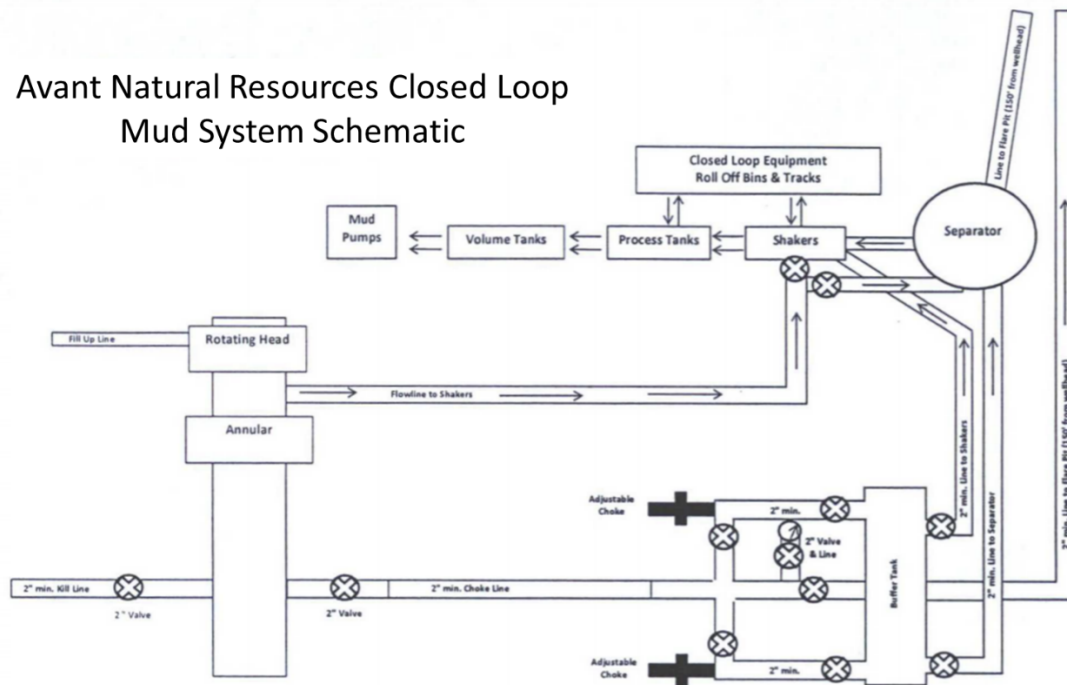


Section 25, Township 18S, Range 33E  
Lea County, New Mexico





## Avant Natural Resources Closed Loop Mud System Schematic



**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**

CONDITIONS  
  
Action 365800

CONDITIONS

|  |                |
|--|----------------|
| Operator:<br><br>Avant Operating, LLC<br>1515 Wynkoop Street<br>Denver, CO 80202 | OGRID:         |
|  | 330396         |
|  | Action Number: |
|  | 365800         |
| Action Type:<br>[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)            |                |

CONDITIONS

| Created By | Condition  | Condition Date |
|------------|--|----------------|
| pkautz     | Will require a File As Drilled C-102 and a Directional Survey with the C-104   | 7/26/2024      |
| pkautz     | 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 | 7/26/2024      |
| pkautz     | 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                  | 7/26/2024      |
| pkautz     | Cement is required to circulate on both surface and intermediate1 strings of casing  | 7/26/2024      |
| pkautz     | If cement does not circulate on any string, a CBL is required for that string of casing  | 7/26/2024      |