

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: ☐ DRILL ☐ REENTER		5. Lease Serial No.
1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator		8. Lease Name and Well No.
3a. Address		9. API Well No. 30-025-54152
3b. Phone No. (include area code)		10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish
		13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

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

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

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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

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

(Continued on page 2)

*(Instructions on page 2)



C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024	
		Submittal Type:	☒ Initial Submittal
			☐ Amended Report
		☐ As Drilled	

WELL LOCATION INFORMATION

API Number 30-025-54152	Pool Code 8170	Pool Name Buffalo; Wolfcamp
Property Code 335845	Property Name ROYAL OAK 24 FED COM	Well Number 009H
OGRID No. 330396	Operator Name AVANT OPERATING, LLC	Ground Level Elevation 3910.0
Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
O	24	18 S	33 E		763 FSL	1771 FEL	32.7280456° N	103.6137491° W	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
P	36	18 S	33 E		100 FSL	990 FEL	32.6972099° N	103.6111746° W	LEA

Dedicated Acres 1280	Infill or Defining Well Infill	Defining Well API	Overlapping Spacing Unit (Y/N) No	Consolidation Code
Order Numbers. R-23453			Well setbacks are under Common Ownership: ☐ Yes ☒ No	

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
A	25	18 S	33 E		50 FNL	990 FEL	32.7258211° N	103.6112067° W	LEA

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
A	25	18 S	33 E		100 FNL	990 FEL	32.7256837° N	103.6112065° W	LEA

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
P	36	18 S	33 E		100 FSL	990 FEL	32.6972099° N	103.6111746° W	LEA

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☒ Horizontal ☐ Vertical	Ground Floor Elevation:
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OPERATOR CERTIFICATIONS

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Signature _____ Date 12/1/2024
Printed Name Meghan Twele
E-mail Address mtwele@outlook.com

SURVEYOR CERTIFICATIONS

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. I further certify that United Field Services, Inc., located at 21 Road 3520 in Flora Vista, New Mexico is the company providing this information.



Signature and Seal of Professional Surveyor _____
Certificate Number 14831 Date of Field Survey 5/15/24 Date of Certification 12/2/2024

Note: No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.

United Field Services, Inc., located at 21 Road 3520, Flora Vista, New Mexico, is the company providing this plat.

Plat. Revised: 11/15/24

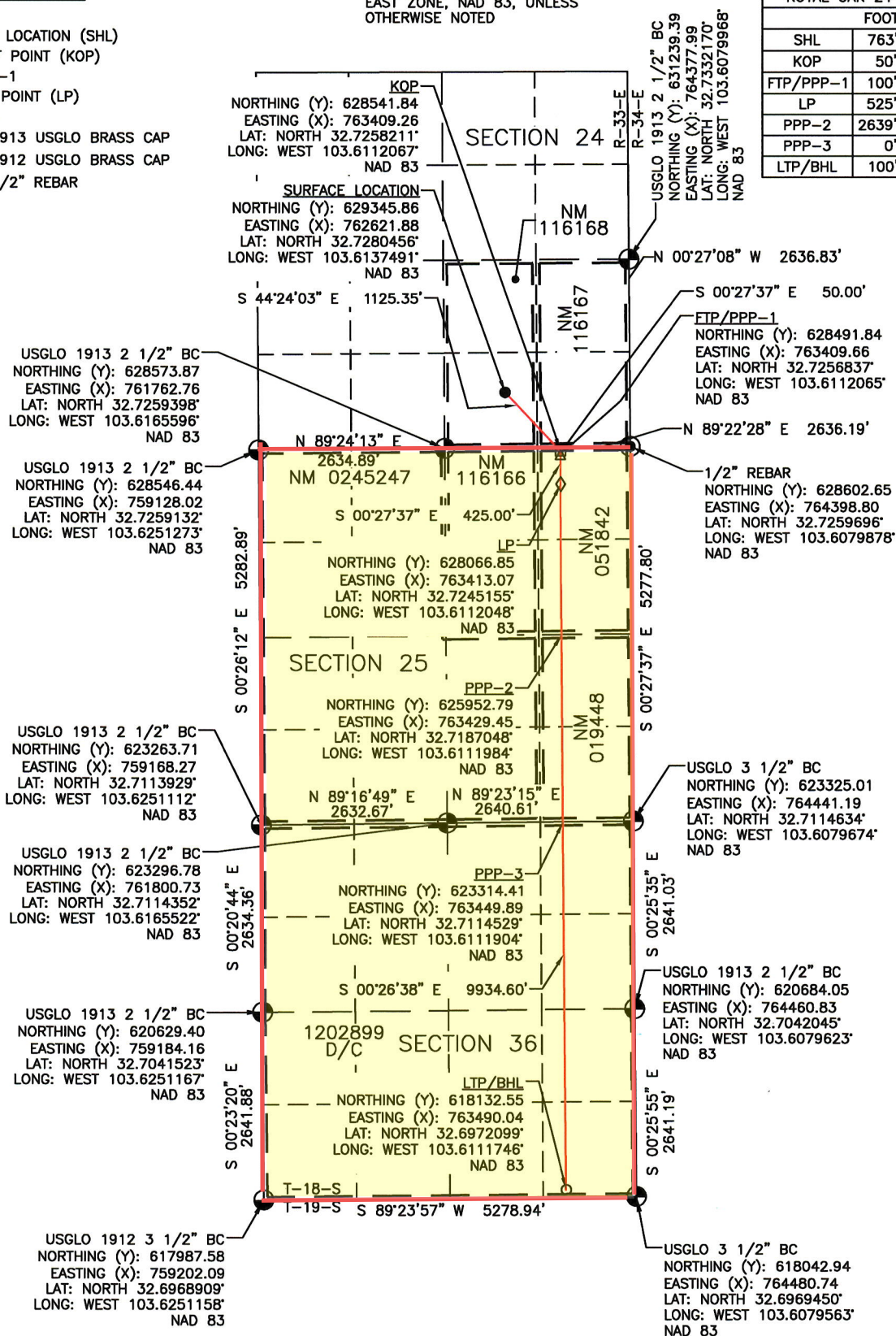
UFSI PROJECT NO. 11721

LEGEND:

- = SURFACE LOCATION (SHL)
- = KICK OFF POINT (KOP)
- △ = FTP/PPP-1
- ◇ = LANDING POINT (LP)
- = LTP/BHL
- ⊕ = FOUND 1913 USGLO BRASS CAP
- ⊙ = FOUND 1912 USGLO BRASS CAP
- ⦿ = FOUND 1/2" REBAR

NOTE: BEARINGS AND DISTANCES SHOWN ARE REFERENCED TO THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE, NAD 83, UNLESS OTHERWISE NOTED

AVANT OPERATING, LLC			
ROYAL OAK 24 FED COM 009H			
FOOTAGES			
SHL	763'	FSL	1771' FEL
KOP	50'	FNL	990' FEL
FTP/PPP-1	100'	FNL	990' FEL
LP	525'	FNL	990' FEL
PPP-2	2639'	FNL	991' FEL
PPP-3	0'	FNL	991' FEL
LTP/BHL	100'	FSL	990' FEL



State of New Mexico
Energy, Minerals and Natural Resources DepartmentSubmit Electronically
Via E-permittingOil 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:** 12/5/2024**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		O-24-T18S-R33E	603FSL/1770FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 009H		O-24-T18S-R33E	723FSL/1771FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 303H		O-24-T18S-R33E	603FSL/1710FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 304H		O-24-T18S-R33E	763FSL/1711FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 503H		O-24-T18S-R33E	603FSL/1750FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 504H		O-24-T18S-R33E	763FSL/1751FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 603H		O-24-T18S-R33E	603FSL/1730FEL	1300 BBL/D	2100 MCF/D	4800 BBL/D
Royal Oak 25 Fed Com 604H		O-24-T18S-R33E	763FSL/1731FEL	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
Royal Oak 25 Fed Com 009H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 303H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 304H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 503H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 504H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 603H		10/11/2025	11/23/2025	11/27/2025	12/28/2025	12/28/2025
Royal Oak 25 Fed Com 604H		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

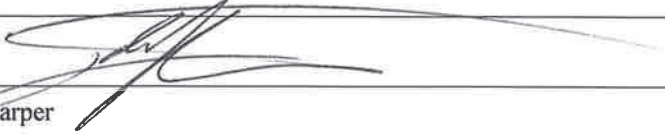
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(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

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

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

11/22/2024

APD ID: 10400094569

Submission Date: 01/10/2024

Highlighted data
reflects the most
recent changes

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 009H

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
14549090	QUATERNARY	3910	0	0	OTHER : Caliche	USEABLE WATER	N
14549091	RUSTLER ANHYDRITE	2296	1614	1614	ANHYDRITE	NONE	N
14549095	SALADO	2111	1799	1799	SALT	NONE	N
14549094	YATES	288	3622	3633	SANDSTONE	NATURAL GAS, OIL	N
14549096	CAPITAN REEF	-956	4866	4893	LIMESTONE	USEABLE WATER	N
14549101	CHERRY CANYON	-1612	5522	5557	SANDSTONE	NATURAL GAS, OIL	N
14549102	BRUSHY CANYON	-2282	6192	6236	SANDSTONE	NATURAL GAS, OIL	N
14549099	BONE SPRING	-3589	7499	7560	LIMESTONE	NATURAL GAS, OIL	N
14549104	FIRST BONE SPRING SAND	-4872	8782	8860	SANDSTONE	NATURAL GAS, OIL	N
14549105	BONE SPRING 2ND	-5468	9378	9463	SANDSTONE	NATURAL GAS, OIL	N
14549098	BONE SPRING 3RD	-6176	10086	10174	SANDSTONE	NATURAL GAS, OIL	N
14549106	WOLFCAMP	-6326	10236	10324	OTHER : Carbonate	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

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

Operator Name: AVANT OPERATING LLC**Well Name:** ROYAL OAK 25 FED COM**Well Number:** 009H

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 1500 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, but not to exceed 70 percent of the minimum internal yield.

Choke Diagram Attachment:

Royal_Choke_20230213112224.pdf

BOP Diagram Attachment:

Royal_BOP_20230213112232.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	1639	0	1639	3910	2271	1639	J-55	40.5	OTHER - LTC	1.125	1.125	DRY	1.6	DRY	1.6
2	PRODUCTION	6.75	5.5	NEW	NON API	Y	0	9063	0	9063	3910	-5153	9063	HCP -110	20	OTHER - GB CD	1.125	1.125	DRY	1.6	DRY	1.6
3	INTERMEDIATE	9.875	7.625	NEW	API	N	0	9563	0	9478	3869	-5568	9563	HCP -110	29.7	OTHER - LTC	1.125	1.125	DRY	1.6	DRY	1.6
4	PRODUCTION	6.75	5.5	NEW	NON API	Y	9063	10965	9063	10965	-5153	-7055	1902	HCP -110	20	OTHER - Anaconda SP	1.125	1.125	DRY	1.6	DRY	1.6
5	PRODUCTION	6.75	5.5	NEW	NON API	Y	10965	21647	10965	11354	-7055	-7444	10682	HCP -110	20	OTHER - GB CD	1.125	1.125	DRY	1.6	DRY	1.6

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COMWell Number: 009H

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Updated_Royal_Oak_Casing_Design_Criteria_20240816125642.pdf

Casing ID: 2StringPRODUCTION

Inspection Document:

Spec Document:

5.5in_GBCD_Casing_Spec_20240816125948.pdf

Tapered String Spec:

Updated_Royal_Oak_Casing_Design_Criteria_20240816125933.pdf

Casing Design Assumptions and Worksheet(s):

Updated_Royal_Oak_Casing_Design_Criteria_20240816125929.pdf

Casing ID: 3StringINTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Updated_Royal_Oak_Casing_Design_Criteria_20240816125719.pdf

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 009H

Casing Attachments

Casing ID: 4StringPRODUCTION

Inspection Document:

Spec Document:
5.500_x_20.00__P_110_HC_Anaconda__SP_Data_Sheet_20240816130203.pdf

Tapered String Spec:
Updated_Royal_Oak_Casing_Design_Criteria_20240816130209.pdf

Casing Design Assumptions and Worksheet(s):
Updated_Royal_Oak_Casing_Design_Criteria_20240816130225.pdf

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:
5.5in_GBCD_Casing_Spec_20240110095331.pdf

Tapered String Spec:
Updated_Royal_Oak_Casing_Design_Criteria_20240816130014.pdf

Casing Design Assumptions and Worksheet(s):
Updated_Royal_Oak_Casing_Design_Criteria_20240816125545.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	0	0

SURFACE	Lead		0	1639	615	1.9	12.8	1168	50	35% Class B Poz + 65% Class C	6% Gel+5% SALT+0.25PPS Pol-E-Flake+0.005GPS
SURFACE	Tail		1311	1639	185	1.33	14.8	246	20	Class C	1% CaCl2 + 0.005 gal/sack No Foam V1A

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 009H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	9563	690	3.38	10.7	2332	50	100%ProLite	5PPS Plexcrete STE+2% SMS+0.65% R-1300+3PPS Gilsonite+0.005GPS NoFoam V1A
INTERMEDIATE	Tail		7650	9563	400	1.27	14.2	273	20	50% Class B Poz + 50% Class H	5% SALT+0.15% FR- 5+0.2% FL- 24+0.005GPS NoFoam
PRODUCTION	Lead		0	2164 7	320	3.35	10.7	1072	50	100% ProLite	5PPS Plexcrete STE+2% SMS+0.7% R- 1300+0.5% FL- 24+0.5% MagBond+0.005GPS NoFoam V1A

PRODUCTION	Lead		1096 5	2164 7	890	1.22	14.5	1086	20	50% B_Poz+50% Class H	5% SALT+0.05% RCKCAS-100+0.5% R- 33+0.5% FL-24+0.5% MagBond+0.005GPS NoFoam 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 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:** 009H

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	1639	OTHER : Fresh Water	8.4	9							
1639	9563	OTHER : Cut Brine	9.5	9.5							
9563	10965	OTHER : Cut Brine	9.2	9.5							
10965	11715	OIL-BASED MUD	9.5	9.5							
11715	21647	OIL-BASED MUD	9.5	9.5							

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: 4996

Anticipated Surface Pressure: 2498

Anticipated Bottom Hole Temperature(F): 179

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Royal_Oak_Pad_1_H2S_pack_20240816132424.pdf

Operator Name: AVANT OPERATING LLC**Well Name:** ROYAL OAK 25 FED COM**Well Number:** 009H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Royal_Oak_24_Fed_Com_009H_Plan_0.1_Report_20240816132457.pdf

Royal_Oak_24_Fed_Com_009H_Plan_0.1_Anti_Collision_20240816132500.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_Speedhead_Specs_20230922105335.pdf

Flex_Line_Certification_20240310213014.pdf

Royal_Oak_25_Fed_Com_009H___WBS___Prelim___20240816132504.pdf

Royal_Oak_25_Fed_Com_009H_Cement_Proposal_20240816132508.pdf

Avant_Natural_Resources___3_String_Wolfcamp_Well___AES_VERT_MP_20240816132532.pdf

Other Variance attachment:

009H_Royal_Casing_Cementing_Variance_Request_20230927180638.pdf

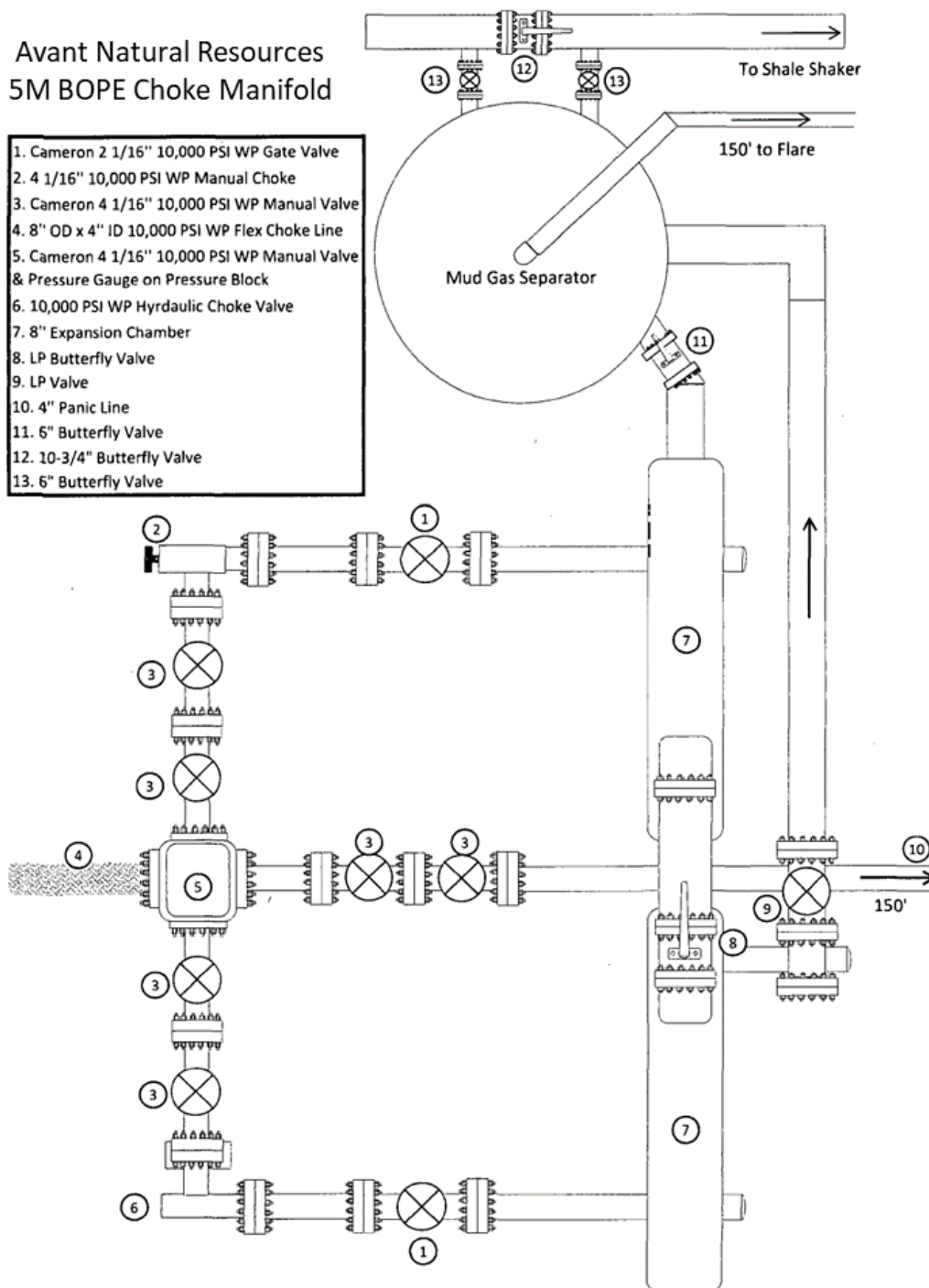
Avant___Offline_Cementing_Procedure_20240808130030.pdf

Avant_Surface_Casing_Cement_Variance_20240808130039.pdf

Choke Manifold Diagram

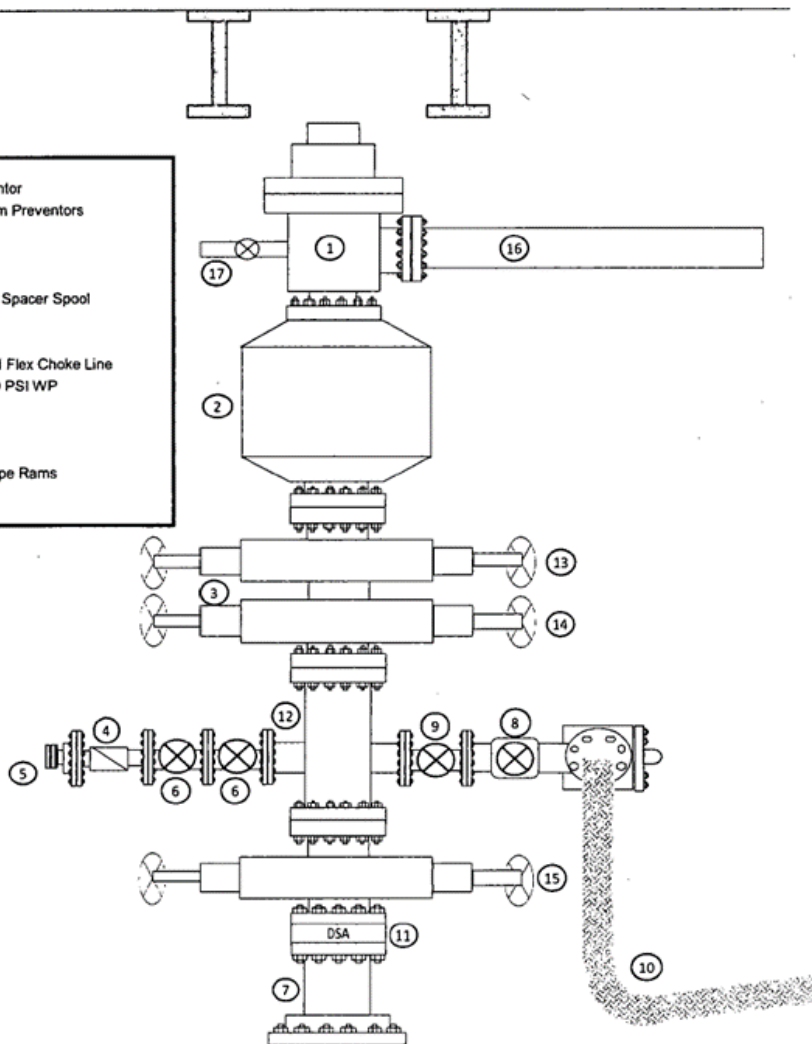
Avant Natural Resources
5M BOPE Choke Manifold

1. Cameron 2 1/16" 10,000 PSI WP Gate Valve
2. 4 1/16" 10,000 PSI WP Manual Choke
3. Cameron 4 1/16" 10,000 PSI WP Manual Valve
4. 8" OD x 4" ID 10,000 PSI WP Flex Choke Line
5. Cameron 4 1/16" 10,000 PSI WP Manual Valve & Pressure Gauge on Pressure Block
6. 10,000 PSI WP Hydraulic Choke Valve
7. 8" Expansion Chamber
8. LP Butterfly Valve
9. LP Valve
10. 4" Panic Line
11. 5" Butterfly Valve
12. 10-3/4" Butterfly Valve
13. 6" Butterfly Valve



Avant Natural Resources 5M BOP Diagram

1. 13 5/8" Rotating Head
2. NOV 13 5/8" 5,000 PSI WP GK Annular Preventor
3. 13 5/8" Cameron Type "U" 10,000 PSI WP Ram Preventors
4. 2 1/16" - 10,000 PSI WP Check Valve
5. 10,000 PSI WP - 1502 Union to kill line
6. 2 1/16" - 10,000 PSI WP Manual Valves
7. 13 5/8" 3,000 PSI WP x 13 5/8" 5,000 PSI WP Spacer Spool
8. 4 1/16" 10,000 PSI WP HCR Valve
9. 4 1/16" 10,000 PSI WP Manual Valve
10. 6" OD x 3" ID 10,000 PSI WP Steel Armoured Flex Choke Line
11. DSA - 13 5/8" 10,000 PSI WP x 13 5/8" 5,000 PSI WP
12. Mud Cross - 13 5/8" 10,000 PSI WP
13. Blind Rams
14. Pipe Rams
15. 13 5/8" Cameron Type "U" 10,000 PSI WP Pipe Rams
16. Flow Line
17. 2" Fill Line





PERFORMANCE
DATA SHEET

Revised May 2020

5.500" 20.0# IP HCP-110 with GB CD Butt

DIMENSIONAL DATA

Casing OD	5.500 in	Pipe Grade	IP HCP-110
Coupling OD	6.300 in	Coupling Grade	P-110
Pipe Gauge	0.361 in	T&C WPF	20.00 lbs/ft
Drift Diameter	4.653 in	PE WPF	19.83 lbs/ft

MECHANICAL DATA

Pipe IP Yield Minimum	125,000 psi	Collapse Pressure	12,200 psi
Pipe Tensile Minimum	125,000 psi	Pipe Body Internal Yield Pressure	14,360 psi
Coupling Yield Minimum	110,000 psi	Leak at E7 Plane	21,500 psi
Coupling Tensile Minimum	125,000 psi	Pipe Hydrostatic Test @ 80% SMYS	13,100 psi

CONNECTION & PIPE DATA

Thread Name	GB CD Butt	Coupling Thread Fracture Strength	1,013,000 lbs
Joint Strength	685,000 lbs	Pipe Body Plain End Yield	729,000 lbs
Minimum Makeup Torque	10,000 ft-lbs	Pipe Thread Fracture Strength	685,000 lbs
Maximum Make-up Torque	20,000 ft-lbs	Coupling Internal Yield Pressure	16,240 psi
Maximum Operating Torque	33,660 ft-lbs		
Connection Yield Torque	35,440 ft-lbs		

Note:

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5.500 x 20.00# P-110 HC Anaconda™ SP

Pipe Body Data		
Nominal OD	5.500	Inches
Wall Thickness	0.361	Inches
Weight	20.00	lb/ft
PE Weight	19.83	lb/ft
Nominal ID	4.778	Inches
Drift	4.653	Inches
Minimum Yield Strength	110,000	PSI
Minimum Tensile Strength	125,000	PSI
RBW	87.5%	Rating

Connection Data		
Connection OD	5.748	Inches
Connection ID	4.778	Inches
Make-Up Loss	4.765	Inches
Tension Efficiency	90%	Rating
Compression Efficiency	90%	Rating
Yield Strength in Tension	577,000	LBS.
Yield Strength in Compression	577,000	LBS.
MIYP (Burst)	12,640	PSI
Collapse*	12,770	PSI
Uniaxial Bending	82.6	°/100 FT

Make-Up Torque		
Yield Torque	37,000	FT-LBS.
Max Operating Torque	29,600	FT-LBS.
Max Make-Up	22,000	FT-LBS.
Optimum Make-Up	20,000	FT-LBS.
Minimum Make-Up	18,000	FT-LBS.



Revision 7.12.23

For Technical Support please email support@fermata-tech.com or call (281) 941-5257.

1/5/2024

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*Collapse value based on API collapse +10-15% depending on D/t ratio and is used for example only. The actual collapse rating is 100% of pipe body and will vary depending on the mill. Verify the collapse rating of the pipe body with the manufacturer.



PERFORMANCE
DATA SHEET

Revised May 2020

5.500" 20.0# IP HCP-110 with GB CD Butt

DIMENSIONAL DATA

Casing OD	5.500 in	Pipe Grade	IP HCP-110
Coupling OD	6.300 in	Coupling Grade	P-110
Pipe Gauge	0.361 in	T&C WPF	20.00 lbs/ft
Drift Diameter	4.653 in	PE WPF	19.83 lbs/ft

MECHANICAL DATA

Pipe IP Yield Minimum	125,000 psi	Collapse Pressure	12,200 psi
Pipe Tensile Minimum	125,000 psi	Pipe Body Internal Yield Pressure	14,360 psi
Coupling Yield Minimum	110,000 psi	Leak at E7 Plane	21,500 psi
Coupling Tensile Minimum	125,000 psi	Pipe Hydrostatic Test @ 80% SMYS	13,100 psi

CONNECTION & PIPE DATA

Thread Name	GB CD Butt	Coupling Thread Fracture Strength	1,013,000 lbs
Joint Strength	685,000 lbs	Pipe Body Plain End Yield	729,000 lbs
Minimum Makeup Torque	10,000 ft-lbs	Pipe Thread Fracture Strength	685,000 lbs
Maximum Make-up Torque	20,000 ft-lbs	Coupling Internal Yield Pressure	16,240 psi
Maximum Operating Torque	33,660 ft-lbs		
Connection Yield Torque	35,440 ft-lbs		

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CASING DESIGN CRITERIA & LOAD CASE ASSUMPTIONS

SURFACE CASING:

SIZE (in)	SURFACE CASING	ID (in)	DRIFT (in)	BURST (psi)	COLLAPSE (psi)	TENSION (k-lbs)	JOINT STRENGTH (k-lbs)	DEPTHS
10.75"	40.5# J-55 LTC	10.05	9.894	3130	1580	629	700	0' – SCP

Collapse: $DF_c = 1.25$

- Full internal evacuation: Collapse force equal to the mud gradient in which the casing will be ran.
- Cementing: Collapse force equal to the gradient of the planned cement slurries to planned depths and an internal force equal to the fluid gradient of displacement fluid.

Burst: $DF_B = 1.25$

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the gradient in which the casing will be ran.

Tension: $DF_T = 1.6$

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string, without considering buoyancy.

INTERMEIDATE CASING:

SIZE (in)	INTERMEDIATE CASING	ID (in)	DRIFT (in)	BURST (psi)	COLLAPSE (psi)	TENSION (k-lbs)	JOINT STRENGTH (k-lbs)	DEPTHS
7-5/8"	29.7# HCP-110 LTC	6.875	6.75	9470	7150	940	769	0' – ICP

Collapse: $DF_c = 1.25$

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be ran.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to fluid gradient of displacement fluid.

Burst: $DF_B = 1.25$

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be ran.
- Gas Kick Profile: Internal burst force at the shoe will be fracture pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be ran above that. External force will be equal to the mud gradient in which the casing will be ran.

- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be fracture pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be ran.

Tension: $DF_T = 1.6$

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string, without considering buoyancy.

PRODUCTION CASING:

SIZE (in)	PRODUCTION CASING	ID (in)	DRIFT (in)	BURST (psi)	COLLAPSE (psi)	TENSION (k-lbs)	CONN OD (in)	JOINT TENSION (k-lbs)	DEPTHS
5-1/2"	20# HCP-110 GBCD	4.778	4.653	12,640	12,200	641	6.300	641	0' – 9,063' & KOP' - TD
5-1/2"	20# HCP-110 ANACONDA SP (5.90" OD)	4.778	4.653	12,640	12,770	577	5.748	577	9,063' – KOP'

Collapse: $DF_C = 1.25$

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be ran. Internal force equal to gas gradient over one-third of setting depth and mud gradient with which the next hole section will be ran below that.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be ran above that and an internal force equal to the fluid gradient of displacement fluid.

Burst: $DF_B = 1.25$

- Pressure Test: 80% of burst casing test with an external force equal to the mud gradient in which the casing will be ran.
- Injection Down Casing: 9800 psi surface injection pressure plus an internal pressure gradient of with an external force equal to the mud gradient in which the casing will be ran.

Tension: $DF_T = 1.6$

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string, without considering buoyancy.

WELL DETAILS: Royal Oak 24 Fed Com 009H

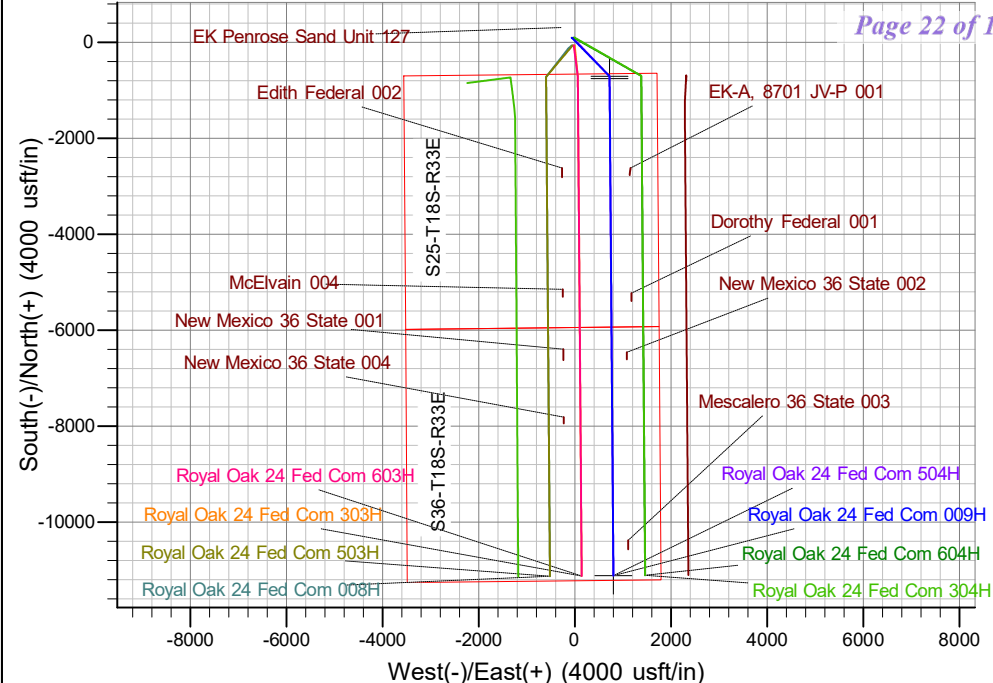
Ground Elev: 3910.0 KB: 3936.5

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
98.7	-66.6	629345.86	762621.88	32.728046	-103.613749

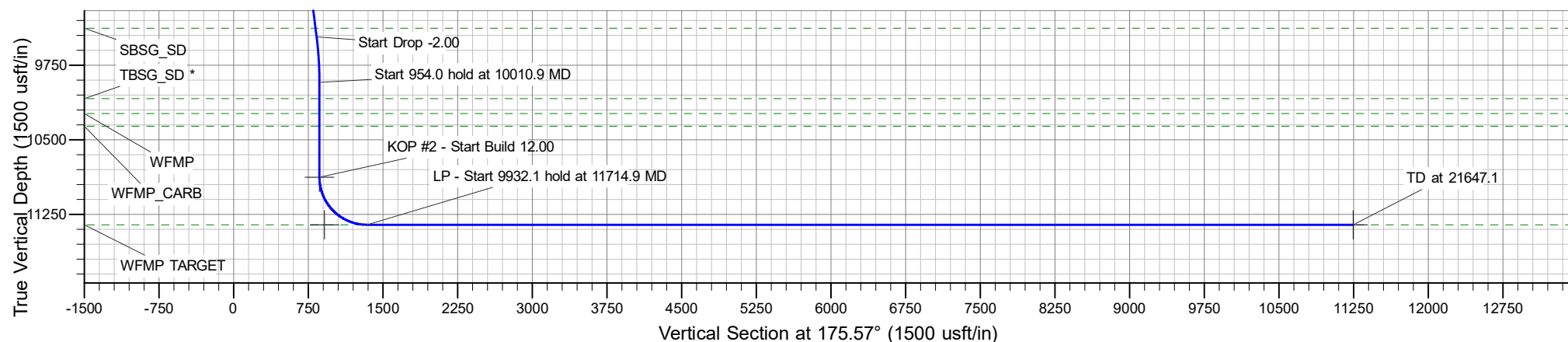
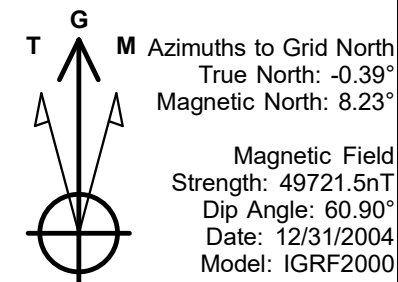
PROJECT DETAILS: Lea Co., NM (NAD 83)

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	98.7	-66.6	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	98.7	-66.6	0.00	0.00	0.0	KOP - Start Build 2.00
3	2959.1	9.18	135.60	2957.1	72.4	-40.9	2.00	135.60	28.1	Start 6592.7 hold at 2959.1 MD
4	9551.8	9.18	135.60	9465.4	-679.1	695.1	0.00	0.00	834.3	Start Drop -2.00
5	10010.9	0.00	0.00	9922.5	-705.4	720.8	2.00	180.00	862.4	Start 954.0 hold at 10010.9 MD
6	10964.9	0.00	0.00	10876.5	-705.4	720.8	0.00	0.00	862.4	KOP #2 - Start Build 12.00
7	11714.9	90.00	179.56	11354.0	-1182.8	724.5	12.00	179.56	1338.7	LP - Start 9932.1 hold at 11714.9 MD
8	21647.1	90.00	179.56	11354.0	-11114.6	801.5	0.00	0.00	11246.9	TD at 21647.1



Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 009H

OH

Plan: Plan 0.1

Standard Planning Report

22 July, 2024

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	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 24 Fed Com Pad 1				
Site Position:		Northing:	629,247.19 usft	Latitude:	32.727773
From:	Lat/Long	Easting:	762,688.50 usft	Longitude:	-103.613535
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	Royal Oak 24 Fed Com 009H					
Well Position	+N/-S	98.7 usft	Northing:	629,345.86 usft	Latitude:	32.728046
	+E/-W	-66.6 usft	Easting:	762,621.88 usft	Longitude:	-103.613749
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,910.0 usft
Grid Convergence:		0.39 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	8.62	60.90	49,721.52305752

Design	Plan 0.1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.0	98.7	-66.6	175.57

Plan Survey Tool Program	Date	7/22/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	21,647.1 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	98.7	-66.6	0.00	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	98.7	-66.6	0.00	0.00	0.00	0.00	
2,959.1	9.18	135.60	2,957.1	72.4	-40.9	2.00	2.00	0.00	135.60	
9,551.8	9.18	135.60	9,465.4	-679.1	695.1	0.00	0.00	0.00	0.00	
10,010.9	0.00	0.00	9,922.5	-705.4	720.8	2.00	-2.00	0.00	180.00	
10,964.9	0.00	0.00	10,876.5	-705.4	720.8	0.00	0.00	0.00	0.00	
11,714.9	90.00	179.56	11,354.0	-1,182.8	724.5	12.00	12.00	0.00	179.56	
21,647.1	90.00	179.56	11,354.0	-11,114.6	801.5	0.00	0.00	0.00	0.00	LTP/BHL- Royal Oak

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	98.7	-66.6	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	98.7	-66.6	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	98.7	-66.6	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	98.7	-66.6	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	98.7	-66.6	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	98.7	-66.6	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	98.7	-66.6	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	98.7	-66.6	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	98.7	-66.6	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,614.0	0.00	0.00	1,614.0	98.7	-66.6	0.0	0.00	0.00	0.00
RUSTLER									
1,700.0	0.00	0.00	1,700.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,799.0	0.00	0.00	1,799.0	98.7	-66.6	0.0	0.00	0.00	0.00
SOLADO									
1,800.0	0.00	0.00	1,800.0	98.7	-66.6	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	98.7	-66.6	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	98.7	-66.6	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
2,600.0	2.00	135.60	2,600.0	97.4	-65.4	1.3	2.00	2.00	0.00
2,700.0	4.00	135.60	2,699.8	93.7	-61.7	5.3	2.00	2.00	0.00
2,800.0	6.00	135.60	2,799.5	87.5	-55.6	12.0	2.00	2.00	0.00
2,900.0	8.00	135.60	2,898.7	78.8	-47.1	21.4	2.00	2.00	0.00
2,959.1	9.18	135.60	2,957.1	72.4	-40.9	28.1	2.00	2.00	0.00
Start 6592.7 hold at 2959.1 MD									
3,000.0	9.18	135.60	2,997.5	67.8	-36.4	33.1	0.00	0.00	0.00
3,100.0	9.18	135.60	3,096.2	56.4	-25.2	45.4	0.00	0.00	0.00
3,200.0	9.18	135.60	3,195.0	45.0	-14.0	57.6	0.00	0.00	0.00
3,300.0	9.18	135.60	3,293.7	33.6	-2.9	69.8	0.00	0.00	0.00
3,400.0	9.18	135.60	3,392.4	22.2	8.3	82.0	0.00	0.00	0.00
3,500.0	9.18	135.60	3,491.1	10.8	19.5	94.3	0.00	0.00	0.00
3,600.0	9.18	135.60	3,589.8	-0.6	30.6	106.5	0.00	0.00	0.00
3,632.6	9.18	135.60	3,622.0	-4.3	34.3	110.5	0.00	0.00	0.00
YATES									
3,700.0	9.18	135.60	3,688.5	-12.0	41.8	118.7	0.00	0.00	0.00
3,800.0	9.18	135.60	3,787.3	-23.4	52.9	131.0	0.00	0.00	0.00
3,900.0	9.18	135.60	3,886.0	-34.8	64.1	143.2	0.00	0.00	0.00
4,000.0	9.18	135.60	3,984.7	-46.2	75.3	155.4	0.00	0.00	0.00
4,100.0	9.18	135.60	4,083.4	-57.6	86.4	167.6	0.00	0.00	0.00
4,200.0	9.18	135.60	4,182.1	-69.0	97.6	179.9	0.00	0.00	0.00
4,300.0	9.18	135.60	4,280.9	-80.4	108.8	192.1	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
4,400.0	9.18	135.60	4,379.6	-91.8	119.9	204.3	0.00	0.00	0.00
4,500.0	9.18	135.60	4,478.3	-103.2	131.1	216.5	0.00	0.00	0.00
4,600.0	9.18	135.60	4,577.0	-114.6	142.3	228.8	0.00	0.00	0.00
4,700.0	9.18	135.60	4,675.7	-126.0	153.4	241.0	0.00	0.00	0.00
4,800.0	9.18	135.60	4,774.5	-137.4	164.6	253.2	0.00	0.00	0.00
4,892.7	9.18	135.60	4,866.0	-148.0	174.9	264.6	0.00	0.00	0.00
CAPITAN_REEF									
4,900.0	9.18	135.60	4,873.2	-148.8	175.7	265.5	0.00	0.00	0.00
5,000.0	9.18	135.60	4,971.9	-160.2	186.9	277.7	0.00	0.00	0.00
5,100.0	9.18	135.60	5,070.6	-171.6	198.1	289.9	0.00	0.00	0.00
5,200.0	9.18	135.60	5,169.3	-183.0	209.2	302.1	0.00	0.00	0.00
5,300.0	9.18	135.60	5,268.0	-194.4	220.4	314.4	0.00	0.00	0.00
5,400.0	9.18	135.60	5,366.8	-205.8	231.6	326.6	0.00	0.00	0.00
5,500.0	9.18	135.60	5,465.5	-217.2	242.7	338.8	0.00	0.00	0.00
5,557.2	9.18	135.60	5,522.0	-223.7	249.1	345.8	0.00	0.00	0.00
CHERRY_CNYN									
5,600.0	9.18	135.60	5,564.2	-228.6	253.9	351.1	0.00	0.00	0.00
5,700.0	9.18	135.60	5,662.9	-240.0	265.1	363.3	0.00	0.00	0.00
5,800.0	9.18	135.60	5,761.6	-251.4	276.2	375.5	0.00	0.00	0.00
5,900.0	9.18	135.60	5,860.4	-262.8	287.4	387.7	0.00	0.00	0.00
6,000.0	9.18	135.60	5,959.1	-274.2	298.6	400.0	0.00	0.00	0.00
6,100.0	9.18	135.60	6,057.8	-285.6	309.7	412.2	0.00	0.00	0.00
6,200.0	9.18	135.60	6,156.5	-297.0	320.9	424.4	0.00	0.00	0.00
6,235.9	9.18	135.60	6,192.0	-301.1	324.9	428.8	0.00	0.00	0.00
BRUSHY_CNYN									
6,300.0	9.18	135.60	6,255.2	-308.4	332.0	436.6	0.00	0.00	0.00
6,400.0	9.18	135.60	6,354.0	-319.8	343.2	448.9	0.00	0.00	0.00
6,500.0	9.18	135.60	6,452.7	-331.2	354.4	461.1	0.00	0.00	0.00
6,600.0	9.18	135.60	6,551.4	-342.6	365.5	473.3	0.00	0.00	0.00
6,700.0	9.18	135.60	6,650.1	-354.0	376.7	485.6	0.00	0.00	0.00
6,800.0	9.18	135.60	6,748.8	-365.4	387.9	497.8	0.00	0.00	0.00
6,900.0	9.18	135.60	6,847.5	-376.8	399.0	510.0	0.00	0.00	0.00
7,000.0	9.18	135.60	6,946.3	-388.2	410.2	522.2	0.00	0.00	0.00
7,100.0	9.18	135.60	7,045.0	-399.6	421.4	534.5	0.00	0.00	0.00
7,200.0	9.18	135.60	7,143.7	-411.0	432.5	546.7	0.00	0.00	0.00
7,269.2	9.18	135.60	7,212.0	-418.9	440.2	555.2	0.00	0.00	0.00
LWR_BYCN_MKR									
7,300.0	9.18	135.60	7,242.4	-422.4	443.7	558.9	0.00	0.00	0.00
7,400.0	9.18	135.60	7,341.1	-433.8	454.9	571.2	0.00	0.00	0.00
7,500.0	9.18	135.60	7,439.9	-445.2	466.0	583.4	0.00	0.00	0.00
7,559.9	9.18	135.60	7,499.0	-452.0	472.7	590.7	0.00	0.00	0.00
BSPG_LIME *									
7,600.0	9.18	135.60	7,538.6	-456.6	477.2	595.6	0.00	0.00	0.00
7,700.0	9.18	135.60	7,637.3	-468.0	488.3	607.8	0.00	0.00	0.00
7,800.0	9.18	135.60	7,736.0	-479.4	499.5	620.1	0.00	0.00	0.00
7,900.0	9.18	135.60	7,834.7	-490.8	510.7	632.3	0.00	0.00	0.00
8,000.0	9.18	135.60	7,933.5	-502.2	521.8	644.5	0.00	0.00	0.00
8,100.0	9.18	135.60	8,032.2	-513.6	533.0	656.7	0.00	0.00	0.00
8,200.0	9.18	135.60	8,130.9	-525.0	544.2	669.0	0.00	0.00	0.00
8,300.0	9.18	135.60	8,229.6	-536.4	555.3	681.2	0.00	0.00	0.00
8,400.0	9.18	135.60	8,328.3	-547.8	566.5	693.4	0.00	0.00	0.00
8,500.0	9.18	135.60	8,427.0	-559.2	577.7	705.7	0.00	0.00	0.00
8,600.0	9.18	135.60	8,525.8	-570.6	588.8	717.9	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	9.18	135.60	8,624.5	-582.0	600.0	730.1	0.00	0.00	0.00
8,800.0	9.18	135.60	8,723.2	-593.4	611.1	742.3	0.00	0.00	0.00
8,859.6	9.18	135.60	8,782.0	-600.2	617.8	749.6	0.00	0.00	0.00
FBSG_SD *									
8,900.0	9.18	135.60	8,821.9	-604.8	622.3	754.6	0.00	0.00	0.00
9,000.0	9.18	135.60	8,920.6	-616.2	633.5	766.8	0.00	0.00	0.00
9,100.0	9.18	135.60	9,019.4	-627.6	644.6	779.0	0.00	0.00	0.00
9,174.6	9.18	135.60	9,093.0	-636.1	653.0	788.1	0.00	0.00	0.00
SBSG_CARB									
9,200.0	9.18	135.60	9,118.1	-639.0	655.8	791.3	0.00	0.00	0.00
9,300.0	9.18	135.60	9,216.8	-650.4	667.0	803.5	0.00	0.00	0.00
9,400.0	9.18	135.60	9,315.5	-661.8	678.1	815.7	0.00	0.00	0.00
9,463.3	9.18	135.60	9,378.0	-669.0	685.2	823.4	0.00	0.00	0.00
SBSG_SD									
9,500.0	9.18	135.60	9,414.2	-673.2	689.3	827.9	0.00	0.00	0.00
9,551.8	9.18	135.60	9,465.4	-679.1	695.1	834.3	0.00	0.00	0.00
Start Drop -2.00									
9,600.0	8.22	135.60	9,513.0	-684.3	700.2	839.9	2.00	-2.00	0.00
9,700.0	6.22	135.60	9,612.2	-693.3	709.0	849.5	2.00	-2.00	0.00
9,800.0	4.22	135.60	9,711.8	-699.8	715.3	856.5	2.00	-2.00	0.00
9,900.0	2.22	135.60	9,811.6	-703.8	719.3	860.8	2.00	-2.00	0.00
10,000.0	0.22	135.60	9,911.6	-705.3	720.7	862.4	2.00	-2.00	0.00
10,010.9	0.00	0.00	9,922.5	-705.4	720.8	862.4	2.00	-2.00	0.00
Start 954.0 hold at 10010.9 MD									
10,100.0	0.00	0.00	10,011.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,174.4	0.00	0.00	10,086.0	-705.4	720.8	862.4	0.00	0.00	0.00
TBSG_SD *									
10,200.0	0.00	0.00	10,111.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,300.0	0.00	0.00	10,211.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,324.4	0.00	0.00	10,236.0	-705.4	720.8	862.4	0.00	0.00	0.00
WFMP									
10,400.0	0.00	0.00	10,311.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,452.4	0.00	0.00	10,364.0	-705.4	720.8	862.4	0.00	0.00	0.00
WFMP_CARB									
10,500.0	0.00	0.00	10,411.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,600.0	0.00	0.00	10,511.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,700.0	0.00	0.00	10,611.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,800.0	0.00	0.00	10,711.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,900.0	0.00	0.00	10,811.6	-705.4	720.8	862.4	0.00	0.00	0.00
10,964.9	0.00	0.00	10,876.5	-705.4	720.8	862.4	0.00	0.00	0.00
KOP #2 - Start Build 12.00 - KOP - Royal Oak 24 Fed Com 009H									
10,975.0	1.21	179.56	10,886.6	-705.5	720.8	862.5	11.96	11.96	0.00
11,000.0	4.21	179.56	10,911.6	-706.6	720.8	863.7	12.00	12.00	0.00
11,025.0	7.21	179.56	10,936.5	-709.1	720.8	866.2	12.00	12.00	0.00
11,050.0	10.21	179.56	10,961.2	-712.9	720.8	869.9	12.00	12.00	0.00
11,075.0	13.21	179.56	10,985.6	-718.0	720.9	875.0	12.00	12.00	0.00
11,100.0	16.21	179.56	11,009.8	-724.3	720.9	881.3	12.00	12.00	0.00
11,125.0	19.21	179.56	11,033.6	-731.9	721.0	888.9	12.00	12.00	0.00
11,150.0	22.21	179.56	11,057.0	-740.8	721.0	897.7	12.00	12.00	0.00
11,175.0	25.21	179.56	11,079.9	-750.8	721.1	907.8	12.00	12.00	0.00
11,200.0	28.21	179.56	11,102.2	-762.1	721.2	919.0	12.00	12.00	0.00
11,225.0	31.21	179.56	11,123.9	-774.4	721.3	931.3	12.00	12.00	0.00
11,250.0	34.21	179.56	11,145.0	-788.0	721.4	944.8	12.00	12.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
11,275.0	37.21	179.56	11,165.3	-802.5	721.5	959.4	12.00	12.00	0.00
11,300.0	40.21	179.56	11,184.8	-818.2	721.6	975.0	12.00	12.00	0.00
11,325.0	43.21	179.56	11,203.4	-834.8	721.8	991.5	12.00	12.00	0.00
11,350.0	46.21	179.56	11,221.2	-852.4	721.9	1,009.1	12.00	12.00	0.00
11,367.6	48.32	179.56	11,233.1	-865.3	722.0	1,022.0	12.00	12.00	0.00
FTP - Royal Oak 24 Fed Com 009H									
11,375.0	49.21	179.56	11,238.0	-870.9	722.0	1,027.5	12.00	12.00	0.00
11,400.0	52.21	179.56	11,253.9	-890.2	722.2	1,046.8	12.00	12.00	0.00
11,425.0	55.21	179.56	11,268.6	-910.4	722.4	1,066.9	12.00	12.00	0.00
11,450.0	58.21	179.56	11,282.4	-931.3	722.5	1,087.8	12.00	12.00	0.00
11,475.0	61.21	179.56	11,295.0	-952.9	722.7	1,109.3	12.00	12.00	0.00
11,500.0	64.21	179.56	11,306.4	-975.1	722.9	1,131.5	12.00	12.00	0.00
11,525.0	67.21	179.56	11,316.7	-997.8	723.0	1,154.2	12.00	12.00	0.00
11,550.0	70.21	179.56	11,325.8	-1,021.1	723.2	1,177.4	12.00	12.00	0.00
11,575.0	73.21	179.56	11,333.6	-1,044.9	723.4	1,201.1	12.00	12.00	0.00
11,600.0	76.21	179.56	11,340.2	-1,069.0	723.6	1,225.2	12.00	12.00	0.00
11,625.0	79.21	179.56	11,345.6	-1,093.4	723.8	1,249.5	12.00	12.00	0.00
11,650.0	82.21	179.56	11,349.6	-1,118.1	724.0	1,274.1	12.00	12.00	0.00
11,675.0	85.21	179.56	11,352.3	-1,142.9	724.2	1,298.9	12.00	12.00	0.00
11,700.0	88.21	179.56	11,353.8	-1,167.9	724.4	1,323.8	12.00	12.00	0.00
11,714.9	90.00	179.56	11,354.0	-1,182.8	724.5	1,338.7	12.00	12.00	0.00
LP - Start 9932.1 hold at 11714.9 MD - WFMP TARGET									
11,800.0	90.00	179.56	11,354.0	-1,267.9	725.1	1,423.6	0.00	0.00	0.00
11,900.0	90.00	179.56	11,354.0	-1,367.9	725.9	1,523.3	0.00	0.00	0.00
12,000.0	90.00	179.56	11,354.0	-1,467.9	726.7	1,623.1	0.00	0.00	0.00
12,100.0	90.00	179.56	11,354.0	-1,567.9	727.5	1,722.9	0.00	0.00	0.00
12,200.0	90.00	179.56	11,354.0	-1,667.9	728.2	1,822.6	0.00	0.00	0.00
12,300.0	90.00	179.56	11,354.0	-1,767.9	729.0	1,922.4	0.00	0.00	0.00
12,400.0	90.00	179.56	11,354.0	-1,867.9	729.8	2,022.1	0.00	0.00	0.00
12,500.0	90.00	179.56	11,354.0	-1,967.9	730.6	2,121.9	0.00	0.00	0.00
12,600.0	90.00	179.56	11,354.0	-2,067.8	731.3	2,221.6	0.00	0.00	0.00
12,700.0	90.00	179.56	11,354.0	-2,167.8	732.1	2,321.4	0.00	0.00	0.00
12,800.0	90.00	179.56	11,354.0	-2,267.8	732.9	2,421.2	0.00	0.00	0.00
12,900.0	90.00	179.56	11,354.0	-2,367.8	733.7	2,520.9	0.00	0.00	0.00
13,000.0	90.00	179.56	11,354.0	-2,467.8	734.4	2,620.7	0.00	0.00	0.00
13,100.0	90.00	179.56	11,354.0	-2,567.8	735.2	2,720.4	0.00	0.00	0.00
13,200.0	90.00	179.56	11,354.0	-2,667.8	736.0	2,820.2	0.00	0.00	0.00
13,300.0	90.00	179.56	11,354.0	-2,767.8	736.8	2,920.0	0.00	0.00	0.00
13,400.0	90.00	179.56	11,354.0	-2,867.8	737.5	3,019.7	0.00	0.00	0.00
13,500.0	90.00	179.56	11,354.0	-2,967.8	738.3	3,119.5	0.00	0.00	0.00
13,600.0	90.00	179.56	11,354.0	-3,067.8	739.1	3,219.2	0.00	0.00	0.00
13,700.0	90.00	179.56	11,354.0	-3,167.8	739.9	3,319.0	0.00	0.00	0.00
13,800.0	90.00	179.56	11,354.0	-3,267.8	740.6	3,418.8	0.00	0.00	0.00
13,900.0	90.00	179.56	11,354.0	-3,367.8	741.4	3,518.5	0.00	0.00	0.00
14,000.0	90.00	179.56	11,354.0	-3,467.8	742.2	3,618.3	0.00	0.00	0.00
14,100.0	90.00	179.56	11,354.0	-3,567.8	743.0	3,718.0	0.00	0.00	0.00
14,200.0	90.00	179.56	11,354.0	-3,667.8	743.8	3,817.8	0.00	0.00	0.00
14,300.0	90.00	179.56	11,354.0	-3,767.8	744.5	3,917.5	0.00	0.00	0.00
14,400.0	90.00	179.56	11,354.0	-3,867.8	745.3	4,017.3	0.00	0.00	0.00
14,500.0	90.00	179.56	11,354.0	-3,967.8	746.1	4,117.1	0.00	0.00	0.00
14,600.0	90.00	179.56	11,354.0	-4,067.8	746.9	4,216.8	0.00	0.00	0.00
14,700.0	90.00	179.56	11,354.0	-4,167.8	747.6	4,316.6	0.00	0.00	0.00
14,800.0	90.00	179.56	11,354.0	-4,267.8	748.4	4,416.3	0.00	0.00	0.00
14,900.0	90.00	179.56	11,354.0	-4,367.8	749.2	4,516.1	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)
15,000.0	90.00	179.56	11,354.0	-4,467.8	750.0	4,615.9	0.00	0.00	0.00
15,100.0	90.00	179.56	11,354.0	-4,567.8	750.7	4,715.6	0.00	0.00	0.00
15,200.0	90.00	179.56	11,354.0	-4,667.8	751.5	4,815.4	0.00	0.00	0.00
15,300.0	90.00	179.56	11,354.0	-4,767.8	752.3	4,915.1	0.00	0.00	0.00
15,400.0	90.00	179.56	11,354.0	-4,867.8	753.1	5,014.9	0.00	0.00	0.00
15,500.0	90.00	179.56	11,354.0	-4,967.8	753.8	5,114.6	0.00	0.00	0.00
15,600.0	90.00	179.56	11,354.0	-5,067.8	754.6	5,214.4	0.00	0.00	0.00
15,700.0	90.00	179.56	11,354.0	-5,167.8	755.4	5,314.2	0.00	0.00	0.00
15,800.0	90.00	179.56	11,354.0	-5,267.8	756.2	5,413.9	0.00	0.00	0.00
15,900.0	90.00	179.56	11,354.0	-5,367.7	756.9	5,513.7	0.00	0.00	0.00
16,000.0	90.00	179.56	11,354.0	-5,467.7	757.7	5,613.4	0.00	0.00	0.00
16,100.0	90.00	179.56	11,354.0	-5,567.7	758.5	5,713.2	0.00	0.00	0.00
16,200.0	90.00	179.56	11,354.0	-5,667.7	759.3	5,813.0	0.00	0.00	0.00
16,300.0	90.00	179.56	11,354.0	-5,767.7	760.0	5,912.7	0.00	0.00	0.00
16,400.0	90.00	179.56	11,354.0	-5,867.7	760.8	6,012.5	0.00	0.00	0.00
16,500.0	90.00	179.56	11,354.0	-5,967.7	761.6	6,112.2	0.00	0.00	0.00
16,600.0	90.00	179.56	11,354.0	-6,067.7	762.4	6,212.0	0.00	0.00	0.00
16,700.0	90.00	179.56	11,354.0	-6,167.7	763.2	6,311.7	0.00	0.00	0.00
16,800.0	90.00	179.56	11,354.0	-6,267.7	763.9	6,411.5	0.00	0.00	0.00
16,900.0	90.00	179.56	11,354.0	-6,367.7	764.7	6,511.3	0.00	0.00	0.00
17,000.0	90.00	179.56	11,354.0	-6,467.7	765.5	6,611.0	0.00	0.00	0.00
17,100.0	90.00	179.56	11,354.0	-6,567.7	766.3	6,710.8	0.00	0.00	0.00
17,200.0	90.00	179.56	11,354.0	-6,667.7	767.0	6,810.5	0.00	0.00	0.00
17,300.0	90.00	179.56	11,354.0	-6,767.7	767.8	6,910.3	0.00	0.00	0.00
17,400.0	90.00	179.56	11,354.0	-6,867.7	768.6	7,010.1	0.00	0.00	0.00
17,500.0	90.00	179.56	11,354.0	-6,967.7	769.4	7,109.8	0.00	0.00	0.00
17,600.0	90.00	179.56	11,354.0	-7,067.7	770.1	7,209.6	0.00	0.00	0.00
17,700.0	90.00	179.56	11,354.0	-7,167.7	770.9	7,309.3	0.00	0.00	0.00
17,800.0	90.00	179.56	11,354.0	-7,267.7	771.7	7,409.1	0.00	0.00	0.00
17,900.0	90.00	179.56	11,354.0	-7,367.7	772.5	7,508.9	0.00	0.00	0.00
18,000.0	90.00	179.56	11,354.0	-7,467.7	773.2	7,608.6	0.00	0.00	0.00
18,100.0	90.00	179.56	11,354.0	-7,567.7	774.0	7,708.4	0.00	0.00	0.00
18,200.0	90.00	179.56	11,354.0	-7,667.7	774.8	7,808.1	0.00	0.00	0.00
18,300.0	90.00	179.56	11,354.0	-7,767.7	775.6	7,907.9	0.00	0.00	0.00
18,400.0	90.00	179.56	11,354.0	-7,867.7	776.3	8,007.6	0.00	0.00	0.00
18,500.0	90.00	179.56	11,354.0	-7,967.7	777.1	8,107.4	0.00	0.00	0.00
18,600.0	90.00	179.56	11,354.0	-8,067.7	777.9	8,207.2	0.00	0.00	0.00
18,700.0	90.00	179.56	11,354.0	-8,167.7	778.7	8,306.9	0.00	0.00	0.00
18,800.0	90.00	179.56	11,354.0	-8,267.7	779.4	8,406.7	0.00	0.00	0.00
18,900.0	90.00	179.56	11,354.0	-8,367.7	780.2	8,506.4	0.00	0.00	0.00
19,000.0	90.00	179.56	11,354.0	-8,467.7	781.0	8,606.2	0.00	0.00	0.00
19,100.0	90.00	179.56	11,354.0	-8,567.7	781.8	8,706.0	0.00	0.00	0.00
19,200.0	90.00	179.56	11,354.0	-8,667.6	782.6	8,805.7	0.00	0.00	0.00
19,300.0	90.00	179.56	11,354.0	-8,767.6	783.3	8,905.5	0.00	0.00	0.00
19,400.0	90.00	179.56	11,354.0	-8,867.6	784.1	9,005.2	0.00	0.00	0.00
19,500.0	90.00	179.56	11,354.0	-8,967.6	784.9	9,105.0	0.00	0.00	0.00
19,600.0	90.00	179.56	11,354.0	-9,067.6	785.7	9,204.7	0.00	0.00	0.00
19,700.0	90.00	179.56	11,354.0	-9,167.6	786.4	9,304.5	0.00	0.00	0.00
19,800.0	90.00	179.56	11,354.0	-9,267.6	787.2	9,404.3	0.00	0.00	0.00
19,900.0	90.00	179.56	11,354.0	-9,367.6	788.0	9,504.0	0.00	0.00	0.00
20,000.0	90.00	179.56	11,354.0	-9,467.6	788.8	9,603.8	0.00	0.00	0.00
20,100.0	90.00	179.56	11,354.0	-9,567.6	789.5	9,703.5	0.00	0.00	0.00
20,200.0	90.00	179.56	11,354.0	-9,667.6	790.3	9,803.3	0.00	0.00	0.00
20,300.0	90.00	179.56	11,354.0	-9,767.6	791.1	9,903.1	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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)	
20,400.0	90.00	179.56	11,354.0	-9,867.6	791.9	10,002.8	0.00	0.00	0.00	
20,500.0	90.00	179.56	11,354.0	-9,967.6	792.6	10,102.6	0.00	0.00	0.00	
20,600.0	90.00	179.56	11,354.0	-10,067.6	793.4	10,202.3	0.00	0.00	0.00	
20,700.0	90.00	179.56	11,354.0	-10,167.6	794.2	10,302.1	0.00	0.00	0.00	
20,800.0	90.00	179.56	11,354.0	-10,267.6	795.0	10,401.8	0.00	0.00	0.00	
20,900.0	90.00	179.56	11,354.0	-10,367.6	795.7	10,501.6	0.00	0.00	0.00	
21,000.0	90.00	179.56	11,354.0	-10,467.6	796.5	10,601.4	0.00	0.00	0.00	
21,100.0	90.00	179.56	11,354.0	-10,567.6	797.3	10,701.1	0.00	0.00	0.00	
21,200.0	90.00	179.56	11,354.0	-10,667.6	798.1	10,800.9	0.00	0.00	0.00	
21,300.0	90.00	179.56	11,354.0	-10,767.6	798.8	10,900.6	0.00	0.00	0.00	
21,400.0	90.00	179.56	11,354.0	-10,867.6	799.6	11,000.4	0.00	0.00	0.00	
21,500.0	90.00	179.56	11,354.0	-10,967.6	800.4	11,100.2	0.00	0.00	0.00	
21,600.0	90.00	179.56	11,354.0	-11,067.6	801.2	11,199.9	0.00	0.00	0.00	
21,647.1	90.00	179.56	11,354.0	-11,114.6	801.5	11,246.9	0.00	0.00	0.00	
TD at 21647.1 - LTP/BHL- Royal Oak 24 Fed Com 009H										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
KOP - Royal Oak 24 Fed	0.00	0.00	10,876.5	-705.4	720.8	628,541.84	763,409.26	32.725821	-103.611207	
- plan hits target center										
- Point										
LTP/BHL- Royal Oak 24	0.00	0.00	11,354.0	-11,114.6	801.5	618,132.55	763,490.04	32.697210	-103.611175	
- plan hits target center										
- Point										
FTP - Royal Oak 24 Fed	0.00	0.00	11,354.0	-755.4	721.2	628,491.84	763,409.66	32.725684	-103.611207	
- plan misses target center by 163.4usft at 11367.6usft MD (11233.1 TVD, -865.3 N, 722.0 E)										
- Point										

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3936.5usft (3936.5)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3936.5usft (3936.5)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,614.0	1,614.0	RUSTLER				
1,799.0	1,799.0	SOLADO				
3,632.6	3,622.0	YATES				
4,892.7	4,866.0	CAPITAN_REEF				
5,557.2	5,522.0	CHERRY_CNYN				
6,235.9	6,192.0	BRUSHY_CNYN				
7,269.2	7,212.0	LWR_BYCN_MKR				
7,559.9	7,499.0	BSPG_LIME *				
8,859.6	8,782.0	FBSG__SD *				
9,174.6	9,093.0	SBSG_CARB				
9,463.3	9,378.0	SBSG_SD				
10,174.4	10,086.0	TBSG_SD *				
10,324.4	10,236.0	WFMP				
10,452.4	10,364.0	WFMP_CARB				
11,714.9	11,354.0	WFMP TARGET				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,500.0	2,500.0	98.7	-66.6	KOP - Start Build 2.00	
2,959.1	2,957.1	72.4	-40.9	Start 6592.7 hold at 2959.1 MD	
9,551.8	9,465.4	-679.1	695.1	Start Drop -2.00	
10,010.9	9,922.5	-705.4	720.8	Start 954.0 hold at 10010.9 MD	
10,964.9	10,876.5	-705.4	720.8	KOP #2 - Start Build 12.00	
11,714.9	11,354.0	-1,182.8	724.5	LP - Start 9932.1 hold at 11714.9 MD	
21,647.1	11,354.0	-11,114.6	801.5	TD at 21647.1	

Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 009H

OH

Plan 0.1

Anticollision Report

22 July, 2024

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Reference	Plan 0.1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 2,354.3usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	7/22/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	21,647.1	Plan 0.1 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Royal Oak 24 Fed Com Pad 1						
Dorothy Federal 001 - OH - OH	15,761.4	10,510.0	886.7	719.2	5.294	CC, ES
Dorothy Federal 001 - OH - OH	16,200.0	10,510.0	989.2	790.6	4.980	SF
Edith Federal 002 - OH - OH	13,143.7	10,500.0	1,293.5	1,069.1	5.763	CC, ES, SF
EK Penrose Sand Unit 127 - OH - Inactive Injection	2,500.0	2,496.5	307.4	213.3	3.268	CC
EK Penrose Sand Unit 127 - OH - Inactive Injection	2,600.0	2,596.5	309.1	211.9	3.180	ES
EK Penrose Sand Unit 127 - OH - Inactive Injection	2,800.0	2,796.0	323.1	219.5	3.121	SF
EK-A, 8701 JV-P 001 - OH - OH	13,155.4	10,505.0	935.4	795.0	6.663	CC, ES
EK-A, 8701 JV-P 001 - OH - OH	13,800.0	10,505.0	1,136.0	943.8	5.912	SF
McElvain 004 - OH - OH	15,670.6	10,000.0	1,657.5	1,466.9	8.696	CC, ES
McElvain 004 - OH - OH	16,000.0	10,000.0	1,689.9	1,494.8	8.663	SF
Mescalero 36 State 003 - OH - OH	20,913.8	9,964.0	1,319.0	1,169.3	8.811	CC, ES
Mescalero 36 State 003 - OH - OH	21,647.1	9,964.0	1,509.1	1,302.0	7.284	SF
New Mexico 36 State 001 - OH - OH	16,968.4	11,285.2	1,006.2	663.5	2.937	CC, ES, SF
New Mexico 36 State 002 - OH - OH	16,994.5	10,000.0	1,317.8	1,200.6	11.241	CC
New Mexico 36 State 002 - OH - OH	17,000.0	10,000.0	1,317.8	1,200.5	11.236	ES
New Mexico 36 State 002 - OH - OH	18,000.0	10,000.0	1,657.6	1,462.3	8.490	SF
New Mexico 36 State 004 - OH - OH	18,337.0	10,450.0	1,293.2	1,029.2	4.899	CC, ES, SF
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,000.0	1,997.3	160.0	146.1	11.529	CC
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,100.0	2,095.5	160.5	145.9	11.016	ES
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	21,647.1	21,600.7	1,320.0	989.2	3.990	SF
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	2,000.0	1,998.7	170.7	156.8	12.298	CC, ES
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	5,200.0	5,161.7	309.4	272.5	8.382	SF
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	1,916.0	1,918.0	60.1	46.8	4.520	CC
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,000.0	2,002.0	60.1	46.2	4.324	ES
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,100.0	2,100.0	61.6	47.0	4.225	SF
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,200.0	2,197.4	161.1	145.8	10.525	CC, ES
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	21,647.1	19,975.7	2,098.5	1,853.8	8.576	SF
Royal Oak 24 Fed Com 504H - OH - Plan 0.1	1,916.6	1,916.7	20.1	6.8	1.511	CC
Royal Oak 24 Fed Com 504H - OH - Plan 0.1	9,432.7	9,431.4	63.8	-3.7	0.945	Level 1, ES, SF
Royal Oak 24 Fed Com 603H - OH - Plan 0.1	2,000.0	1,997.7	164.8	150.9	11.874	CC, ES
Royal Oak 24 Fed Com 603H - OH - Plan 0.1	21,647.1	20,427.9	1,330.9	1,113.4	6.118	SF
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	1,916.5	1,917.1	39.9	26.6	3.005	CC
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,000.0	2,000.0	39.9	26.1	2.877	ES
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,100.0	2,099.4	41.4	26.9	2.843	SF

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Royal Oak 25 Fed Com Pad 2						
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	9,128.2	9,278.4	2,017.5	1,950.3	30.010	CC, ES
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	21,647.1	20,452.9	2,272.3	1,985.0	7.910	SF
Speedmaster 30 Fed Com Pad 1B						
Speedmaster 30 Fed Com 007H - OH - Plan 0.1	21,642.6	21,604.9	1,560.2	1,239.7	4.869	CC
Speedmaster 30 Fed Com 007H - OH - Plan 0.1	21,647.1	21,608.0	1,560.2	1,239.6	4.867	ES, SF

Offset Design: Royal Oak 24 Fed Com Pad 1 - Dorothy Federal 001 - OH - OH													Offset Site Error: 0.0 usft	
Survey Program: 370-INC-ONLY													Offset Well Error: 0.0 usft	
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,600.0	11,354.0	10,510.0	10,508.6	61.2	220.3	-28.41	-5,225.9	1,177.7	2,336.2	2,086.9	249.31	9.370		
13,700.0	11,354.0	10,510.0	10,508.6	62.3	220.3	-28.41	-5,225.9	1,177.7	2,244.0	1,995.7	248.30	9.037		
13,800.0	11,354.0	10,510.0	10,508.6	63.4	220.3	-28.41	-5,225.9	1,177.7	2,152.5	1,905.3	247.17	8.709		
13,900.0	11,354.0	10,510.0	10,508.6	64.5	220.3	-28.41	-5,225.9	1,177.7	2,061.8	1,815.9	245.90	8.385		
14,000.0	11,354.0	10,510.0	10,508.6	65.6	220.3	-28.41	-5,225.9	1,177.7	1,972.0	1,727.5	244.47	8.067		
14,100.0	11,354.0	10,510.0	10,508.6	66.7	220.3	-28.41	-5,225.9	1,177.7	1,883.2	1,640.4	242.84	7.755		
14,200.0	11,354.0	10,510.0	10,508.6	67.8	220.3	-28.41	-5,225.9	1,177.7	1,795.6	1,554.6	241.00	7.450		
14,300.0	11,354.0	10,510.0	10,508.6	69.0	220.3	-28.41	-5,225.9	1,177.7	1,709.4	1,470.4	238.91	7.155		
14,400.0	11,354.0	10,510.0	10,508.6	70.1	220.3	-28.41	-5,225.9	1,177.7	1,624.7	1,388.2	236.51	6.870		
14,500.0	11,354.0	10,510.0	10,508.6	71.3	220.3	-28.41	-5,225.9	1,177.7	1,541.9	1,308.1	233.75	6.596		
14,600.0	11,354.0	10,510.0	10,508.6	72.5	220.3	-28.41	-5,225.9	1,177.7	1,461.2	1,230.6	230.57	6.337		
14,700.0	11,354.0	10,510.0	10,508.6	73.7	220.3	-28.41	-5,225.9	1,177.7	1,383.0	1,156.1	226.91	6.095		
14,800.0	11,354.0	10,510.0	10,508.6	74.9	220.3	-28.41	-5,225.9	1,177.7	1,307.9	1,085.2	222.68	5.873		
14,900.0	11,354.0	10,510.0	10,508.6	76.1	220.3	-28.41	-5,225.9	1,177.7	1,236.2	1,018.4	217.80	5.676		
15,000.0	11,354.0	10,510.0	10,508.6	77.3	220.3	-28.41	-5,225.9	1,177.7	1,168.7	956.5	212.20	5.508		
15,100.0	11,354.0	10,510.0	10,508.6	78.5	220.3	-28.41	-5,225.9	1,177.7	1,106.2	900.3	205.85	5.374		
15,200.0	11,354.0	10,510.0	10,508.6	79.8	220.3	-28.41	-5,225.9	1,177.7	1,049.5	850.7	198.76	5.280		
15,300.0	11,354.0	10,510.0	10,508.6	81.0	220.3	-28.41	-5,225.9	1,177.7	999.5	808.4	191.12	5.230		
15,400.0	11,354.0	10,510.0	10,508.6	82.2	220.3	-28.41	-5,225.9	1,177.7	957.5	774.2	183.31	5.223		
15,500.0	11,354.0	10,510.0	10,508.6	83.5	220.3	-28.41	-5,225.9	1,177.7	924.4	748.4	176.03	5.251		
15,600.0	11,354.0	10,510.0	10,508.6	84.8	220.3	-28.41	-5,225.9	1,177.7	901.3	730.9	170.35	5.291		
15,700.0	11,354.0	10,510.0	10,508.6	86.0	220.3	-28.41	-5,225.9	1,177.7	888.8	721.3	167.46	5.308		
15,761.4	11,354.0	10,510.0	10,508.6	86.8	220.3	-28.41	-5,225.9	1,177.7	886.7	719.2	167.49	5.294	CC, ES	
15,800.0	11,354.0	10,510.0	10,508.6	87.3	220.3	-28.41	-5,225.9	1,177.7	887.5	719.3	168.27	5.274		
15,900.0	11,354.0	10,510.0	10,508.6	88.6	220.3	-28.41	-5,225.9	1,177.7	897.4	724.6	172.82	5.193		
16,000.0	11,354.0	10,510.0	10,508.6	89.8	220.3	-28.41	-5,225.9	1,177.7	918.2	738.0	180.23	5.095		
16,100.0	11,354.0	10,510.0	10,508.6	91.1	220.3	-28.41	-5,225.9	1,177.7	949.1	759.9	189.23	5.016		
16,200.0	11,354.0	10,510.0	10,508.6	92.4	220.3	-28.41	-5,225.9	1,177.7	989.2	790.6	198.65	4.980	SF	
16,300.0	11,354.0	10,510.0	10,508.6	93.7	220.3	-28.41	-5,225.9	1,177.7	1,037.4	829.8	207.68	4.995		
16,400.0	11,354.0	10,510.0	10,508.6	95.0	220.3	-28.41	-5,225.9	1,177.7	1,092.7	876.8	215.89	5.061		
16,500.0	11,354.0	10,510.0	10,508.6	96.3	220.3	-28.41	-5,225.9	1,177.7	1,154.0	930.9	223.12	5.172		
16,600.0	11,354.0	10,510.0	10,508.6	97.6	220.3	-28.41	-5,225.9	1,177.7	1,220.4	991.1	229.35	5.321		
16,700.0	11,354.0	10,510.0	10,508.6	98.9	220.3	-28.41	-5,225.9	1,177.7	1,291.2	1,056.5	234.67	5.502		
16,800.0	11,354.0	10,510.0	10,508.6	100.3	220.3	-28.41	-5,225.9	1,177.7	1,365.6	1,126.4	239.17	5.710		
16,900.0	11,354.0	10,510.0	10,508.6	101.6	220.3	-28.41	-5,225.9	1,177.7	1,443.1	1,200.2	242.97	5.939		
17,000.0	11,354.0	10,510.0	10,508.6	102.9	220.3	-28.41	-5,225.9	1,177.7	1,523.3	1,277.1	246.19	6.187		
17,100.0	11,354.0	10,510.0	10,508.6	104.2	220.3	-28.41	-5,225.9	1,177.7	1,605.6	1,356.7	248.93	6.450		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Dorothy Federal 001 - OH - OH													Offset Site Error:	0.0 usft
Survey Program: 370-INC-ONLY													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
17,200.0	11,354.0	10,510.0	10,508.6	105.6	220.3	-28.41	-5,225.9	1,177.7	1,689.9	1,438.7	251.25	6.726		
17,300.0	11,354.0	10,510.0	10,508.6	106.9	220.3	-28.41	-5,225.9	1,177.7	1,775.8	1,522.6	253.24	7.012		
17,400.0	11,354.0	10,510.0	10,508.6	108.2	220.3	-28.41	-5,225.9	1,177.7	1,863.1	1,608.2	254.94	7.308		
17,500.0	11,354.0	10,510.0	10,508.6	109.6	220.3	-28.41	-5,225.9	1,177.7	1,951.7	1,695.2	256.41	7.611		
17,600.0	11,354.0	10,510.0	10,508.6	110.9	220.3	-28.41	-5,225.9	1,177.7	2,041.2	1,783.6	257.69	7.921		
17,700.0	11,354.0	10,510.0	10,508.6	112.2	220.3	-28.41	-5,225.9	1,177.7	2,131.8	1,873.0	258.80	8.237		
17,800.0	11,354.0	10,510.0	10,508.6	113.6	220.3	-28.41	-5,225.9	1,177.7	2,223.1	1,963.3	259.77	8.558		
17,900.0	11,354.0	10,510.0	10,508.6	114.9	220.3	-28.41	-5,225.9	1,177.7	2,315.1	2,054.5	260.63	8.883		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Edith Federal 002 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 350-INC-ONLY													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
7,400.0	7,341.1	7,347.4	7,345.5	27.8	166.2	62.77	-2,665.5	-266.7	2,345.8	2,152.3	193.56	12.119	
7,500.0	7,439.9	7,441.2	7,439.3	28.2	168.3	63.11	-2,663.8	-266.7	2,336.8	2,140.8	196.04	11.920	
7,600.0	7,538.6	7,537.7	7,535.8	28.6	170.2	63.46	-2,662.2	-266.7	2,328.0	2,129.5	198.42	11.733	
7,700.0	7,637.3	7,634.2	7,632.4	29.0	172.2	63.82	-2,660.7	-266.7	2,319.3	2,118.5	200.80	11.550	
7,800.0	7,736.0	7,730.8	7,728.9	29.4	174.2	64.17	-2,659.3	-266.7	2,310.8	2,107.6	203.18	11.373	
7,900.0	7,834.7	7,827.4	7,825.5	29.9	176.1	64.53	-2,657.9	-266.7	2,302.5	2,096.9	205.57	11.201	
8,000.0	7,933.5	7,925.1	7,923.2	30.3	178.1	64.89	-2,656.6	-266.7	2,294.4	2,086.4	207.95	11.033	
8,100.0	8,032.2	8,023.6	8,021.7	30.7	180.1	65.26	-2,655.4	-266.7	2,286.3	2,076.0	210.32	10.871	
8,200.0	8,130.9	8,122.2	8,120.3	31.1	182.0	65.63	-2,654.1	-266.7	2,278.4	2,065.7	212.70	10.712	
8,300.0	8,229.6	8,220.8	8,218.8	31.5	184.0	66.01	-2,652.8	-266.7	2,270.6	2,055.5	215.08	10.557	
8,400.0	8,328.3	8,319.3	8,317.4	31.9	185.9	66.38	-2,651.5	-266.7	2,262.8	2,045.4	217.46	10.406	
8,500.0	8,427.0	8,421.5	8,419.5	32.3	188.1	66.78	-2,650.1	-266.7	2,255.1	2,035.1	220.07	10.247	
8,600.0	8,525.8	8,526.2	8,524.2	32.8	190.5	67.19	-2,648.4	-266.7	2,247.3	2,024.5	222.84	10.085	
8,700.0	8,624.5	8,630.7	8,628.7	33.2	192.9	67.60	-2,646.4	-266.7	2,239.3	2,013.7	225.60	9.926	
8,800.0	8,723.2	8,735.2	8,733.2	33.6	195.2	68.02	-2,644.1	-266.7	2,231.2	2,002.8	228.37	9.770	
8,900.0	8,821.9	8,825.0	8,823.0	34.0	197.2	68.39	-2,641.8	-266.7	2,222.9	1,992.1	230.83	9.630	
9,000.0	8,920.6	8,929.2	8,927.1	34.4	199.5	68.81	-2,639.3	-266.7	2,214.8	1,981.3	233.48	9.486	
9,100.0	9,019.4	9,020.6	9,018.5	34.8	201.4	69.19	-2,637.4	-266.7	2,207.1	1,971.2	235.89	9.356	
9,200.0	9,118.1	9,112.1	9,110.0	35.3	203.4	69.56	-2,635.9	-266.7	2,199.9	1,961.6	238.30	9.232	
9,300.0	9,216.8	9,203.7	9,201.6	35.7	205.4	69.93	-2,634.6	-266.7	2,193.0	1,952.3	240.71	9.111	
9,400.0	9,315.5	9,296.3	9,294.2	36.1	207.3	70.31	-2,633.7	-266.7	2,186.6	1,943.6	243.07	8.996	
9,500.0	9,414.2	9,395.2	9,393.1	36.5	209.0	70.71	-2,632.8	-266.7	2,180.5	1,935.3	245.20	8.893	
9,600.0	9,513.0	9,495.7	9,493.6	36.9	210.9	71.05	-2,631.9	-266.7	2,174.5	1,927.0	247.46	8.787	
9,700.0	9,612.2	9,596.7	9,594.5	37.3	212.7	71.29	-2,630.9	-266.7	2,169.5	1,919.8	249.71	8.688	
9,800.0	9,711.8	9,698.0	9,695.9	37.7	214.6	71.46	-2,629.7	-266.7	2,165.5	1,913.6	251.95	8.595	
9,900.0	9,811.6	9,799.7	9,797.5	38.1	216.4	71.56	-2,628.5	-266.7	2,162.7	1,908.5	254.16	8.509	
10,000.0	9,911.6	9,900.4	9,898.3	38.4	218.3	71.60	-2,627.2	-266.7	2,160.8	1,904.5	256.39	8.428	
10,100.0	10,011.6	10,000.4	9,998.3	38.7	220.2	-152.79	-2,625.9	-266.7	2,159.7	1,901.1	258.61	8.351	
10,200.0	10,111.6	10,100.4	10,098.2	39.0	222.2	-152.77	-2,624.6	-266.7	2,158.5	1,897.7	260.85	8.275	
10,300.0	10,211.6	10,200.4	10,198.2	39.3	224.1	-152.76	-2,623.3	-266.7	2,157.3	1,894.3	263.09	8.200	
10,400.0	10,311.6	10,300.4	10,298.2	39.6	226.0	-152.74	-2,622.0	-266.7	2,156.2	1,890.9	265.33	8.127	
10,500.0	10,411.6	10,400.4	10,398.2	40.0	227.9	-152.73	-2,620.6	-266.7	2,155.0	1,887.5	267.57	8.054	
10,600.0	10,511.6	10,500.0	10,497.8	40.3	229.8	-152.71	-2,619.3	-266.7	2,153.9	1,884.1	269.79	7.983	
10,624.7	10,536.3	10,500.0	10,497.8	40.3	229.8	-152.71	-2,619.3	-266.7	2,153.7	1,883.8	269.89	7.980	
10,700.0	10,611.6	10,500.0	10,497.8	40.6	229.8	-152.71	-2,619.3	-266.7	2,155.0	1,885.0	270.00	7.982	
10,800.0	10,711.6	10,500.0	10,497.8	40.9	229.8	-152.71	-2,619.3	-266.7	2,160.8	1,891.2	269.67	8.013	
10,900.0	10,811.6	10,500.0	10,497.8	41.2	229.8	-152.71	-2,619.3	-266.7	2,171.2	1,902.4	268.82	8.077	
11,000.0	10,911.6	10,500.0	10,497.8	41.5	229.8	27.48	-2,619.3	-266.7	2,185.0	1,917.6	267.45	8.170	
11,100.0	11,009.8	10,500.0	10,497.8	41.9	229.8	27.27	-2,619.3	-266.7	2,188.8	1,923.1	265.62	8.240	
11,200.0	11,102.2	10,500.0	10,497.8	42.3	229.8	27.85	-2,619.3	-266.7	2,178.5	1,915.1	263.36	8.272	
11,300.0	11,184.8	10,500.0	10,497.8	42.8	229.8	29.27	-2,619.3	-266.7	2,154.4	1,893.7	260.77	8.262	
11,400.0	11,253.9	10,500.0	10,497.8	43.3	229.8	31.72	-2,619.3	-266.7	2,117.2	1,859.3	257.98	8.207	
11,500.0	11,306.4	10,500.0	10,497.8	43.9	229.8	35.49	-2,619.3	-266.7	2,067.9	1,812.7	255.19	8.103	
11,600.0	11,340.2	10,500.0	10,497.8	44.5	229.8	41.11	-2,619.3	-266.7	2,007.6	1,755.0	252.64	7.947	
11,700.0	11,353.8	10,500.0	10,497.8	45.0	229.8	49.30	-2,619.3	-266.7	1,938.4	1,687.8	250.60	7.735	
11,800.0	11,354.0	10,500.0	10,497.8	45.6	229.8	50.79	-2,619.3	-266.7	1,865.2	1,616.2	248.97	7.491	
11,900.0	11,354.0	10,500.0	10,497.8	46.2	229.8	50.79	-2,619.3	-266.7	1,794.5	1,547.3	247.21	7.259	
12,000.0	11,354.0	10,500.0	10,497.8	46.9	229.8	50.79	-2,619.3	-266.7	1,726.7	1,481.4	245.30	7.039	
12,100.0	11,354.0	10,500.0	10,497.8	47.6	229.8	50.79	-2,619.3	-266.7	1,662.1	1,418.9	243.23	6.833	
12,200.0	11,354.0	10,500.0	10,497.8	48.3	229.8	50.79	-2,619.3	-266.7	1,601.2	1,360.2	241.03	6.643	
12,300.0	11,354.0	10,500.0	10,497.8	49.1	229.8	50.79	-2,619.3	-266.7	1,544.4	1,305.7	238.72	6.470	
12,400.0	11,354.0	10,500.0	10,497.8	49.9	229.8	50.79	-2,619.3	-266.7	1,492.1	1,255.8	236.32	6.314	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Edith Federal 002 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 350-INC-ONLY													Offset Well Error: 0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Reference	Offset	Reference	Offset	Reference	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,500.0	11,354.0	10,500.0	10,497.8	50.7	229.8	50.79	-2,619.3	-266.7	1,444.9	1,211.0	233.91	6.177	
12,600.0	11,354.0	10,500.0	10,497.8	51.5	229.8	50.79	-2,619.3	-266.7	1,403.2	1,171.6	231.56	6.060	
12,700.0	11,354.0	10,500.0	10,497.8	52.4	229.8	50.79	-2,619.3	-266.7	1,367.5	1,138.2	229.36	5.962	
12,800.0	11,354.0	10,500.0	10,497.8	53.3	229.8	50.79	-2,619.3	-266.7	1,338.4	1,111.0	227.43	5.885	
12,900.0	11,354.0	10,500.0	10,497.8	54.2	229.8	50.79	-2,619.3	-266.7	1,316.3	1,090.4	225.90	5.827	
13,000.0	11,354.0	10,500.0	10,497.8	55.1	229.8	50.79	-2,619.3	-266.7	1,301.5	1,076.6	224.87	5.788	
13,100.0	11,354.0	10,500.0	10,497.8	56.1	229.8	50.79	-2,619.3	-266.7	1,294.3	1,069.9	224.43	5.767	
13,143.7	11,354.0	10,500.0	10,497.8	56.5	229.8	50.79	-2,619.3	-266.7	1,293.5	1,069.1	224.44	5.763	CC, ES, SF
13,200.0	11,354.0	10,500.0	10,497.8	57.1	229.8	50.79	-2,619.3	-266.7	1,294.8	1,070.1	224.63	5.764	
13,300.0	11,354.0	10,500.0	10,497.8	58.1	229.8	50.79	-2,619.3	-266.7	1,303.0	1,077.5	225.45	5.779	
13,400.0	11,354.0	10,500.0	10,497.8	59.1	229.8	50.79	-2,619.3	-266.7	1,318.7	1,091.8	226.85	5.813	
13,500.0	11,354.0	10,500.0	10,497.8	60.1	229.8	50.79	-2,619.3	-266.7	1,341.7	1,113.0	228.72	5.866	
13,600.0	11,354.0	10,500.0	10,497.8	61.2	229.8	50.79	-2,619.3	-266.7	1,371.7	1,140.7	230.94	5.940	
13,700.0	11,354.0	10,500.0	10,497.8	62.3	229.8	50.79	-2,619.3	-266.7	1,408.1	1,174.7	233.39	6.033	
13,800.0	11,354.0	10,500.0	10,497.8	63.4	229.8	50.79	-2,619.3	-266.7	1,450.5	1,214.5	235.96	6.147	
13,900.0	11,354.0	10,500.0	10,497.8	64.5	229.8	50.79	-2,619.3	-266.7	1,498.4	1,259.9	238.55	6.281	
14,000.0	11,354.0	10,500.0	10,497.8	65.6	229.8	50.79	-2,619.3	-266.7	1,551.3	1,310.2	241.08	6.435	
14,100.0	11,354.0	10,500.0	10,497.8	66.7	229.8	50.79	-2,619.3	-266.7	1,608.6	1,365.1	243.51	6.606	
14,200.0	11,354.0	10,500.0	10,497.8	67.8	229.8	50.79	-2,619.3	-266.7	1,670.0	1,424.2	245.80	6.794	
14,300.0	11,354.0	10,500.0	10,497.8	69.0	229.8	50.79	-2,619.3	-266.7	1,735.0	1,487.1	247.94	6.998	
14,400.0	11,354.0	10,500.0	10,497.8	70.1	229.8	50.79	-2,619.3	-266.7	1,803.2	1,553.3	249.91	7.215	
14,500.0	11,354.0	10,500.0	10,497.8	71.3	229.8	50.79	-2,619.3	-266.7	1,874.2	1,622.5	251.72	7.446	
14,600.0	11,354.0	10,500.0	10,497.8	72.5	229.8	50.79	-2,619.3	-266.7	1,947.8	1,694.4	253.37	7.688	
14,700.0	11,354.0	10,500.0	10,497.8	73.7	229.8	50.79	-2,619.3	-266.7	2,023.7	1,768.8	254.88	7.940	
14,800.0	11,354.0	10,500.0	10,497.8	74.9	229.8	50.79	-2,619.3	-266.7	2,101.5	1,845.3	256.25	8.201	
14,900.0	11,354.0	10,500.0	10,497.8	76.1	229.8	50.79	-2,619.3	-266.7	2,181.2	1,923.7	257.49	8.471	
15,000.0	11,354.0	10,500.0	10,497.8	77.3	229.8	50.79	-2,619.3	-266.7	2,262.5	2,003.9	258.63	8.748	
15,100.0	11,354.0	10,500.0	10,497.8	78.5	229.8	50.79	-2,619.3	-266.7	2,345.3	2,085.6	259.66	9.032	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK Penrose Sand Unit 127 - OH - Inactive Injection													Offset Site Error:	0.0 usft
Survey Program: 1000-INC-ONLY													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned: Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-46.63	309.8	-290.1	307.4					
100.0	100.0	96.5	96.5	0.1	2.9	-46.63	309.8	-290.1	307.4	304.3	3.06	100.447		
200.0	200.0	196.5	196.5	0.5	6.0	-46.63	309.8	-290.1	307.4	300.9	6.45	47.632		
300.0	300.0	296.5	296.5	0.8	9.0	-46.63	309.8	-290.1	307.4	297.5	9.85	31.218		
400.0	400.0	396.5	396.5	1.2	12.0	-46.63	309.8	-290.1	307.4	294.1	13.24	23.217		
500.0	500.0	496.5	496.5	1.6	15.1	-46.63	309.8	-290.1	307.4	290.8	16.63	18.481		
600.0	600.0	596.5	596.5	1.9	18.1	-46.63	309.8	-290.1	307.4	287.4	20.03	15.350		
700.0	700.0	696.5	696.5	2.3	21.1	-46.63	309.8	-290.1	307.4	284.0	23.42	13.126		
800.0	800.0	796.5	796.5	2.6	24.2	-46.63	309.8	-290.1	307.4	280.6	26.81	11.464		
900.0	900.0	896.5	896.5	3.0	27.2	-46.63	309.8	-290.1	307.4	277.2	30.20	10.177		
1,000.0	1,000.0	996.5	996.5	3.4	30.2	-46.63	309.8	-290.1	307.4	273.8	33.60	9.149		
1,100.0	1,100.0	1,096.5	1,096.5	3.7	34.3	-46.63	309.8	-290.1	307.4	269.4	38.01	8.086		
1,200.0	1,200.0	1,196.5	1,196.5	4.1	38.4	-46.63	309.8	-290.1	307.4	264.9	42.47	7.238		
1,300.0	1,300.0	1,296.5	1,296.5	4.4	42.5	-46.63	309.8	-290.1	307.4	260.5	46.92	6.551		
1,400.0	1,400.0	1,396.5	1,396.5	4.8	46.6	-46.63	309.8	-290.1	307.4	256.0	51.37	5.984		
1,500.0	1,500.0	1,496.5	1,496.5	5.2	50.7	-46.63	309.8	-290.1	307.4	251.6	55.82	5.506		
1,600.0	1,600.0	1,596.5	1,596.5	5.5	54.8	-46.63	309.8	-290.1	307.4	247.1	60.28	5.099		
1,700.0	1,700.0	1,696.5	1,696.5	5.9	58.9	-46.63	309.8	-290.1	307.4	242.7	64.73	4.749		
1,800.0	1,800.0	1,796.5	1,796.5	6.2	63.0	-46.63	309.8	-290.1	307.4	238.2	69.18	4.443		
1,900.0	1,900.0	1,896.5	1,896.5	6.6	67.1	-46.63	309.8	-290.1	307.4	233.7	73.64	4.174		
2,000.0	2,000.0	1,996.5	1,996.5	6.9	71.1	-46.63	309.8	-290.1	307.4	229.3	78.09	3.936		
2,100.0	2,100.0	2,096.5	2,096.5	7.3	74.0	-46.63	309.8	-290.1	307.4	226.1	81.32	3.780		
2,200.0	2,200.0	2,196.5	2,196.5	7.7	76.8	-46.63	309.8	-290.1	307.4	222.9	84.50	3.638		
2,300.0	2,300.0	2,296.5	2,296.5	8.0	79.7	-46.63	309.8	-290.1	307.4	219.7	87.69	3.505		
2,400.0	2,400.0	2,396.5	2,396.5	8.4	82.5	-46.63	309.8	-290.1	307.4	216.5	90.87	3.383		
2,500.0	2,500.0	2,496.5	2,496.5	8.7	85.3	-46.63	309.8	-290.1	307.4	213.3	94.06	3.268 CC		
2,600.0	2,600.0	2,596.5	2,596.5	9.1	88.1	177.79	309.8	-290.1	309.1	211.9	97.22	3.180 ES		
2,700.0	2,699.8	2,696.3	2,696.3	9.4	91.0	177.82	309.8	-290.1	314.4	214.0	100.37	3.132		
2,800.0	2,799.5	2,796.0	2,796.0	9.7	93.8	177.87	309.8	-290.1	323.1	219.5	103.52	3.121 SF		
2,900.0	2,898.7	2,895.2	2,895.2	10.1	96.6	177.94	309.8	-290.1	335.2	228.6	106.66	3.143		
3,000.0	2,997.5	2,994.0	2,994.0	10.4	99.4	178.02	309.8	-290.1	350.6	240.8	109.78	3.193		
3,100.0	3,096.2	3,092.7	3,092.7	10.8	101.8	178.11	309.8	-290.1	366.5	254.0	112.54	3.257		
3,200.0	3,195.0	3,191.5	3,191.5	11.1	104.2	178.19	309.8	-290.1	382.5	267.2	115.28	3.318		
3,300.0	3,293.7	3,290.2	3,290.2	11.5	106.6	178.26	309.8	-290.1	398.4	280.4	118.02	3.376		
3,400.0	3,392.4	3,388.9	3,388.9	11.8	109.0	178.33	309.8	-290.1	414.4	293.6	120.76	3.432		
3,500.0	3,491.1	3,487.6	3,487.6	12.2	111.4	178.39	309.8	-290.1	430.3	306.8	123.50	3.484		
3,600.0	3,589.8	3,586.3	3,586.3	12.6	113.8	178.45	309.8	-290.1	446.3	320.0	126.25	3.535		
3,700.0	3,688.5	3,685.0	3,685.0	13.0	116.2	178.50	309.8	-290.1	462.2	333.2	128.99	3.583		
3,800.0	3,787.3	3,783.8	3,783.8	13.3	118.6	178.55	309.8	-290.1	478.2	346.4	131.74	3.630		
3,900.0	3,886.0	3,882.5	3,882.5	13.7	121.0	178.60	309.8	-290.1	494.1	359.6	134.49	3.674		
4,000.0	3,984.7	3,981.2	3,981.2	14.1	123.4	178.64	309.8	-290.1	510.1	372.8	137.24	3.717		
4,100.0	4,083.4	4,079.9	4,079.9	14.5	125.1	178.68	309.8	-290.1	526.0	386.8	139.27	3.777		
4,200.0	4,182.1	4,178.6	4,178.6	14.9	126.6	178.72	309.8	-290.1	542.0	400.8	141.14	3.840		
4,300.0	4,280.9	4,277.4	4,277.4	15.2	128.1	178.76	309.8	-290.1	557.9	414.9	143.01	3.901		
4,400.0	4,379.6	4,376.1	4,376.1	15.6	129.7	178.79	309.8	-290.1	573.9	429.0	144.88	3.961		
4,500.0	4,478.3	4,474.8	4,474.8	16.0	131.2	178.83	309.8	-290.1	589.8	443.1	146.74	4.020		
4,600.0	4,577.0	4,573.5	4,573.5	16.4	132.7	178.86	309.8	-290.1	605.8	457.2	148.61	4.076		
4,700.0	4,675.7	4,657.0	4,657.0	16.8	134.0	178.88	309.8	-290.1	621.9	471.8	150.19	4.141		
4,800.0	4,774.5	4,657.0	4,657.0	17.2	134.0	178.88	309.8	-290.1	647.8	499.6	148.16	4.372		
4,900.0	4,873.2	4,657.0	4,657.0	17.6	134.0	178.88	309.8	-290.1	687.4	543.9	143.48	4.791		
5,000.0	4,971.9	4,657.0	4,657.0	18.0	134.0	178.88	309.8	-290.1	738.5	601.3	137.22	5.382		
5,100.0	5,070.6	4,657.0	4,657.0	18.4	134.0	178.88	309.8	-290.1	798.9	668.5	130.33	6.130		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK Penrose Sand Unit 127 - OH - Inactive Injection													Offset Site Error:	0.0 usft
Survey Program: 1000-INC-ONLY													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned:				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.0	5,169.3	4,657.0	4,657.0	18.8	134.0	178.88	309.8	-290.1	866.6	743.2	123.42	7.022		
5,300.0	5,268.0	4,657.0	4,657.0	19.2	134.0	178.88	309.8	-290.1	940.1	823.3	116.86	8.045		
5,400.0	5,366.8	4,657.0	4,657.0	19.6	134.0	178.88	309.8	-290.1	1,018.2	907.4	110.82	9.188		
5,500.0	5,465.5	4,657.0	4,657.0	20.0	134.0	178.88	309.8	-290.1	1,099.8	994.4	105.36	10.438		
5,600.0	5,564.2	4,657.0	4,657.0	20.4	134.0	178.88	309.8	-290.1	1,184.2	1,083.8	100.47	11.787		
5,700.0	5,662.9	4,657.0	4,657.0	20.8	134.0	178.88	309.8	-290.1	1,270.9	1,174.8	96.10	13.224		
5,800.0	5,761.6	4,657.0	4,657.0	21.2	134.0	178.88	309.8	-290.1	1,359.5	1,267.2	92.22	14.742		
5,900.0	5,860.4	4,657.0	4,657.0	21.6	134.0	178.88	309.8	-290.1	1,449.5	1,360.7	88.76	16.331		
6,000.0	5,959.1	4,657.0	4,657.0	22.0	134.0	178.88	309.8	-290.1	1,540.7	1,455.0	85.67	17.984		
6,100.0	6,057.8	4,657.0	4,657.0	22.4	134.0	178.88	309.8	-290.1	1,633.0	1,550.1	82.92	19.694		
6,200.0	6,156.5	4,657.0	4,657.0	22.9	134.0	178.88	309.8	-290.1	1,726.1	1,645.7	80.45	21.456		
6,300.0	6,255.2	4,657.0	4,657.0	23.3	134.0	178.88	309.8	-290.1	1,820.0	1,741.7	78.24	23.262		
6,400.0	6,354.0	4,657.0	4,657.0	23.7	134.0	178.88	309.8	-290.1	1,914.5	1,838.2	76.25	25.108		
6,500.0	6,452.7	4,657.0	4,657.0	24.1	134.0	178.88	309.8	-290.1	2,009.5	1,935.0	74.46	26.989		
6,600.0	6,551.4	4,657.0	4,657.0	24.5	134.0	178.88	309.8	-290.1	2,105.0	2,032.1	72.84	28.899		
6,700.0	6,650.1	4,657.0	4,657.0	24.9	134.0	178.88	309.8	-290.1	2,200.8	2,129.5	71.37	30.836		
6,800.0	6,748.8	4,657.0	4,657.0	25.3	134.0	178.88	309.8	-290.1	2,297.1	2,227.0	70.05	32.794		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK-A, 8701 JV-P 001 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 207-INC-ONLY													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
7,400.0	7,341.1	7,379.4	7,378.5	27.8	153.0	27.45	-2,665.4	1,151.8	2,338.5	2,159.2	179.30	13.042	
7,500.0	7,439.9	7,477.8	7,476.9	28.2	155.4	27.60	-2,662.9	1,152.3	2,322.0	2,140.0	182.08	12.753	
7,600.0	7,538.6	7,573.6	7,572.7	28.6	157.6	27.75	-2,660.5	1,152.9	2,305.7	2,121.0	184.69	12.484	
7,700.0	7,637.3	7,667.3	7,666.3	29.0	159.7	27.90	-2,658.3	1,153.4	2,289.5	2,102.3	187.16	12.232	
7,800.0	7,736.0	7,761.0	7,760.0	29.4	161.8	28.05	-2,656.4	1,153.7	2,273.5	2,083.9	189.64	11.989	
7,900.0	7,834.7	7,854.7	7,853.7	29.9	163.9	28.22	-2,654.7	1,154.0	2,257.8	2,065.7	192.11	11.752	
8,000.0	7,933.5	7,948.5	7,947.5	30.3	165.9	28.38	-2,653.3	1,154.3	2,242.3	2,047.7	194.59	11.523	
8,100.0	8,032.2	8,043.8	8,042.7	30.7	167.9	28.56	-2,652.0	1,154.4	2,227.0	2,030.1	196.95	11.307	
8,200.0	8,130.9	8,140.5	8,139.5	31.1	169.8	28.74	-2,650.8	1,154.5	2,211.8	2,012.6	199.20	11.104	
8,300.0	8,229.6	8,237.4	8,236.3	31.5	171.6	28.93	-2,649.8	1,154.6	2,196.8	1,995.3	201.44	10.905	
8,400.0	8,328.3	8,334.2	8,333.1	31.9	173.5	29.11	-2,648.8	1,154.7	2,181.8	1,978.1	203.69	10.712	
8,500.0	8,427.0	8,431.0	8,430.0	32.3	175.3	29.31	-2,647.8	1,154.8	2,167.0	1,961.0	205.93	10.523	
8,600.0	8,525.8	8,530.2	8,529.2	32.8	177.3	29.51	-2,646.9	1,154.9	2,152.2	1,944.0	208.22	10.336	
8,700.0	8,624.5	8,630.6	8,629.6	33.2	179.2	29.71	-2,646.0	1,154.9	2,137.4	1,926.8	210.53	10.152	
8,800.0	8,723.2	8,731.0	8,730.0	33.6	181.1	29.92	-2,644.9	1,155.0	2,122.5	1,909.6	212.84	9.972	
8,900.0	8,821.9	8,831.4	8,830.4	34.0	183.0	30.13	-2,643.7	1,155.2	2,107.5	1,892.4	215.15	9.796	
9,000.0	8,920.6	8,931.8	8,930.7	34.4	185.0	30.34	-2,642.5	1,155.3	2,092.5	1,875.1	217.46	9.623	
9,100.0	9,019.4	9,030.4	9,029.3	34.8	186.9	30.55	-2,641.2	1,155.4	2,077.5	1,857.7	219.81	9.451	
9,200.0	9,118.1	9,129.0	9,127.9	35.3	188.9	30.76	-2,639.9	1,155.6	2,062.5	1,840.3	222.17	9.284	
9,300.0	9,216.8	9,227.6	9,226.5	35.7	190.9	30.97	-2,638.6	1,155.7	2,047.6	1,823.0	224.52	9.120	
9,400.0	9,315.5	9,326.2	9,325.0	36.1	192.8	31.19	-2,637.3	1,155.9	2,032.6	1,805.7	226.88	8.959	
9,500.0	9,414.2	9,424.8	9,423.7	36.5	194.8	31.41	-2,636.1	1,156.0	2,017.7	1,788.5	229.23	8.802	
9,600.0	9,513.0	9,524.7	9,523.6	36.9	196.7	31.56	-2,634.7	1,156.0	2,003.1	1,771.6	231.56	8.651	
9,700.0	9,612.2	9,625.2	9,624.1	37.3	198.7	31.62	-2,633.3	1,156.1	1,991.1	1,757.1	233.95	8.511	
9,800.0	9,711.8	9,726.1	9,725.0	37.7	200.8	31.65	-2,631.9	1,156.2	1,981.9	1,745.6	236.33	8.386	
9,900.0	9,811.6	9,827.3	9,826.2	38.1	202.8	31.65	-2,630.3	1,156.4	1,975.7	1,737.0	238.71	8.277	
10,000.0	9,911.6	9,928.7	9,927.5	38.4	204.8	31.63	-2,628.6	1,156.6	1,972.3	1,731.2	241.07	8.181	
10,100.0	10,011.6	10,028.4	10,027.2	38.7	206.8	167.21	-2,626.9	1,156.9	1,970.7	1,727.2	243.43	8.095	
10,200.0	10,111.6	10,126.8	10,125.6	39.0	208.9	167.20	-2,625.3	1,157.1	1,969.1	1,723.3	245.80	8.011	
10,300.0	10,211.6	10,225.2	10,224.0	39.3	210.9	167.18	-2,623.8	1,157.3	1,967.7	1,719.5	248.16	7.929	
10,400.0	10,311.6	10,323.6	10,322.4	39.6	212.9	167.17	-2,622.4	1,157.5	1,966.3	1,715.8	250.53	7.849	
10,500.0	10,411.6	10,422.0	10,420.8	40.0	215.0	167.15	-2,621.0	1,157.6	1,965.0	1,712.1	252.89	7.770	
10,600.0	10,511.6	10,505.0	10,503.8	40.3	216.6	167.14	-2,619.9	1,157.7	1,963.8	1,709.0	254.87	7.705	
10,607.6	10,519.3	10,505.0	10,503.8	40.3	216.6	167.14	-2,619.9	1,157.7	1,963.8	1,708.9	254.91	7.704	
10,700.0	10,611.6	10,505.0	10,503.8	40.6	216.6	167.14	-2,619.9	1,157.7	1,966.0	1,710.9	255.06	7.708	
10,800.0	10,711.6	10,505.0	10,503.8	40.9	216.6	167.14	-2,619.9	1,157.7	1,973.2	1,718.6	254.63	7.749	
10,900.0	10,811.6	10,505.0	10,503.8	41.2	216.6	167.14	-2,619.9	1,157.7	1,985.5	1,731.8	253.62	7.829	
11,000.0	10,911.6	10,505.0	10,503.8	41.5	216.6	-12.27	-2,619.9	1,157.7	2,001.4	1,749.3	252.04	7.941	
11,100.0	11,009.8	10,505.0	10,503.8	41.9	216.6	-12.15	-2,619.9	1,157.7	2,006.2	1,756.3	249.88	8.029	
11,200.0	11,102.2	10,505.0	10,503.8	42.3	216.6	-12.43	-2,619.9	1,157.7	1,995.5	1,748.3	247.17	8.073	
11,300.0	11,184.8	10,505.0	10,503.8	42.8	216.6	-13.14	-2,619.9	1,157.7	1,969.6	1,725.6	243.98	8.073	
11,400.0	11,253.9	10,505.0	10,503.8	43.3	216.6	-14.41	-2,619.9	1,157.7	1,929.0	1,688.6	240.42	8.024	
11,500.0	11,306.4	10,505.0	10,503.8	43.9	216.6	-16.49	-2,619.9	1,157.7	1,874.7	1,638.0	236.67	7.921	
11,600.0	11,340.2	10,505.0	10,503.8	44.5	216.6	-19.87	-2,619.9	1,157.7	1,807.7	1,574.8	232.96	7.760	
11,700.0	11,353.8	10,505.0	10,503.8	45.0	216.6	-25.64	-2,619.9	1,157.7	1,729.9	1,500.4	229.56	7.536	
11,800.0	11,354.0	10,505.0	10,503.8	45.6	216.6	-26.82	-2,619.9	1,157.7	1,646.8	1,420.4	226.36	7.275	
11,900.0	11,354.0	10,505.0	10,503.8	46.2	216.6	-26.82	-2,619.9	1,157.7	1,565.5	1,342.8	222.71	7.030	
12,000.0	11,354.0	10,505.0	10,503.8	46.9	216.6	-26.82	-2,619.9	1,157.7	1,486.6	1,268.0	218.51	6.803	
12,100.0	11,354.0	10,505.0	10,503.8	47.6	216.6	-26.82	-2,619.9	1,157.7	1,410.2	1,196.6	213.68	6.600	
12,200.0	11,354.0	10,505.0	10,503.8	48.3	216.6	-26.82	-2,619.9	1,157.7	1,337.0	1,128.9	208.13	6.424	
12,300.0	11,354.0	10,505.0	10,503.8	49.1	216.6	-26.82	-2,619.9	1,157.7	1,267.5	1,065.7	201.80	6.281	
12,400.0	11,354.0	10,505.0	10,503.8	49.9	216.6	-26.82	-2,619.9	1,157.7	1,202.3	1,007.7	194.61	6.178	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK-A, 8701 JV-P 001 - OH - OH													Offset Site Error:	0.0 usft
Survey Program: 207-INC-ONLY				Offset					Rule Assigned:				Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
12,500.0	11,354.0	10,505.0	10,503.8	50.7	216.6	-26.82	-2,619.9	1,157.7	1,142.1	955.6	186.57	6.122		
12,600.0	11,354.0	10,505.0	10,503.8	51.5	216.6	-26.82	-2,619.9	1,157.7	1,087.8	910.1	177.76	6.120		
12,700.0	11,354.0	10,505.0	10,503.8	52.4	216.6	-26.82	-2,619.9	1,157.7	1,040.3	871.9	168.45	6.176		
12,800.0	11,354.0	10,505.0	10,503.8	53.3	216.6	-26.82	-2,619.9	1,157.7	1,000.6	841.5	159.13	6.288		
12,900.0	11,354.0	10,505.0	10,503.8	54.2	216.6	-26.82	-2,619.9	1,157.7	969.6	819.0	150.61	6.438		
13,000.0	11,354.0	10,505.0	10,503.8	55.1	216.6	-26.82	-2,619.9	1,157.7	948.2	804.2	144.03	6.583		
13,100.0	11,354.0	10,505.0	10,503.8	56.1	216.6	-26.82	-2,619.9	1,157.7	937.0	796.4	140.59	6.665		
13,155.4	11,354.0	10,505.0	10,503.8	56.6	216.6	-26.82	-2,619.9	1,157.7	935.4	795.0	140.38	6.663	CC, ES	
13,200.0	11,354.0	10,505.0	10,503.8	57.1	216.6	-26.82	-2,619.9	1,157.7	936.5	795.3	141.13	6.635		
13,300.0	11,354.0	10,505.0	10,503.8	58.1	216.6	-26.82	-2,619.9	1,157.7	946.5	800.8	145.66	6.498		
13,400.0	11,354.0	10,505.0	10,503.8	59.1	216.6	-26.82	-2,619.9	1,157.7	966.8	813.6	153.29	6.307		
13,500.0	11,354.0	10,505.0	10,503.8	60.1	216.6	-26.82	-2,619.9	1,157.7	996.9	834.1	162.77	6.124		
13,600.0	11,354.0	10,505.0	10,503.8	61.2	216.6	-26.82	-2,619.9	1,157.7	1,035.7	862.8	172.91	5.990		
13,700.0	11,354.0	10,505.0	10,503.8	62.3	216.6	-26.82	-2,619.9	1,157.7	1,082.4	899.5	182.87	5.919		
13,800.0	11,354.0	10,505.0	10,503.8	63.4	216.6	-26.82	-2,619.9	1,157.7	1,136.0	943.8	192.17	5.912	SF	
13,900.0	11,354.0	10,505.0	10,503.8	64.5	216.6	-26.82	-2,619.9	1,157.7	1,195.6	995.0	200.55	5.962		
14,000.0	11,354.0	10,505.0	10,503.8	65.6	216.6	-26.82	-2,619.9	1,157.7	1,260.3	1,052.3	207.95	6.061		
14,100.0	11,354.0	10,505.0	10,503.8	66.7	216.6	-26.82	-2,619.9	1,157.7	1,329.4	1,115.0	214.41	6.200		
14,200.0	11,354.0	10,505.0	10,503.8	67.8	216.6	-26.82	-2,619.9	1,157.7	1,402.2	1,182.2	220.00	6.374		
14,300.0	11,354.0	10,505.0	10,503.8	69.0	216.6	-26.82	-2,619.9	1,157.7	1,478.2	1,253.4	224.82	6.575		
14,400.0	11,354.0	10,505.0	10,503.8	70.1	216.6	-26.82	-2,619.9	1,157.7	1,556.9	1,328.0	228.98	6.799		
14,500.0	11,354.0	10,505.0	10,503.8	71.3	216.6	-26.82	-2,619.9	1,157.7	1,638.0	1,405.4	232.57	7.043		
14,600.0	11,354.0	10,505.0	10,503.8	72.5	216.6	-26.82	-2,619.9	1,157.7	1,721.0	1,485.3	235.68	7.302		
14,700.0	11,354.0	10,505.0	10,503.8	73.7	216.6	-26.82	-2,619.9	1,157.7	1,805.8	1,567.4	238.37	7.575		
14,800.0	11,354.0	10,505.0	10,503.8	74.9	216.6	-26.82	-2,619.9	1,157.7	1,892.0	1,651.3	240.72	7.860		
14,900.0	11,354.0	10,505.0	10,503.8	76.1	216.6	-26.82	-2,619.9	1,157.7	1,979.6	1,736.8	242.77	8.154		
15,000.0	11,354.0	10,505.0	10,503.8	77.3	216.6	-26.82	-2,619.9	1,157.7	2,068.2	1,823.7	244.57	8.457		
15,100.0	11,354.0	10,505.0	10,503.8	78.5	216.6	-26.82	-2,619.9	1,157.7	2,157.9	1,911.7	246.16	8.766		
15,200.0	11,354.0	10,505.0	10,503.8	79.8	216.6	-26.82	-2,619.9	1,157.7	2,248.4	2,000.9	247.56	9.082		
15,300.0	11,354.0	10,505.0	10,503.8	81.0	216.6	-26.82	-2,619.9	1,157.7	2,339.7	2,090.9	248.81	9.404		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - McElvain 004 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 195-INC-ONLY													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,000.0	11,354.0	10,000.0	9,998.5	65.6	211.9	37.33	-5,146.2	-249.8	2,353.3	2,128.6	224.71	10.473	
14,100.0	11,354.0	10,000.0	9,998.5	66.7	211.9	37.33	-5,146.2	-249.8	2,283.4	2,060.6	222.85	10.247	
14,200.0	11,354.0	10,000.0	9,998.5	67.8	211.9	37.33	-5,146.2	-249.8	2,215.8	1,995.0	220.85	10.033	
14,300.0	11,354.0	10,000.0	9,998.5	69.0	211.9	37.33	-5,146.2	-249.8	2,150.8	1,932.1	218.71	9.834	
14,400.0	11,354.0	10,000.0	9,998.5	70.1	211.9	37.33	-5,146.2	-249.8	2,088.5	1,872.0	216.42	9.650	
14,500.0	11,354.0	10,000.0	9,998.5	71.3	211.9	37.33	-5,146.2	-249.8	2,029.2	1,815.2	213.99	9.483	
14,600.0	11,354.0	10,000.0	9,998.5	72.5	211.9	37.33	-5,146.2	-249.8	1,973.2	1,761.7	211.44	9.332	
14,700.0	11,354.0	10,000.0	9,998.5	73.7	211.9	37.33	-5,146.2	-249.8	1,920.8	1,712.0	208.78	9.200	
14,800.0	11,354.0	10,000.0	9,998.5	74.9	211.9	37.33	-5,146.2	-249.8	1,872.2	1,666.2	206.05	9.086	
14,900.0	11,354.0	10,000.0	9,998.5	76.1	211.9	37.33	-5,146.2	-249.8	1,827.9	1,624.6	203.31	8.991	
15,000.0	11,354.0	10,000.0	9,998.5	77.3	211.9	37.33	-5,146.2	-249.8	1,788.0	1,587.4	200.61	8.913	
15,100.0	11,354.0	10,000.0	9,998.5	78.5	211.9	37.33	-5,146.2	-249.8	1,753.0	1,554.9	198.04	8.852	
15,200.0	11,354.0	10,000.0	9,998.5	79.8	211.9	37.33	-5,146.2	-249.8	1,723.0	1,527.3	195.68	8.805	
15,300.0	11,354.0	10,000.0	9,998.5	81.0	211.9	37.33	-5,146.2	-249.8	1,698.4	1,504.8	193.65	8.770	
15,400.0	11,354.0	10,000.0	9,998.5	82.2	211.9	37.33	-5,146.2	-249.8	1,679.4	1,487.4	192.06	8.745	
15,500.0	11,354.0	10,000.0	9,998.5	83.5	211.9	37.33	-5,146.2	-249.8	1,666.2	1,475.3	190.99	8.724	
15,600.0	11,354.0	10,000.0	9,998.5	84.8	211.9	37.33	-5,146.2	-249.8	1,659.0	1,468.5	190.53	8.707	
15,670.6	11,354.0	10,000.0	9,998.5	85.6	211.9	37.33	-5,146.2	-249.8	1,657.5	1,466.9	190.60	8.696 CC, ES	
15,700.0	11,354.0	10,000.0	9,998.5	86.0	211.9	37.33	-5,146.2	-249.8	1,657.7	1,467.0	190.73	8.692	
15,800.0	11,354.0	10,000.0	9,998.5	87.3	211.9	37.33	-5,146.2	-249.8	1,662.5	1,471.0	191.58	8.678	
15,900.0	11,354.0	10,000.0	9,998.5	88.6	211.9	37.33	-5,146.2	-249.8	1,673.3	1,480.2	193.04	8.668	
16,000.0	11,354.0	10,000.0	9,998.5	89.8	211.9	37.33	-5,146.2	-249.8	1,689.9	1,494.8	195.06	8.663 SF	
16,100.0	11,354.0	10,000.0	9,998.5	91.1	211.9	37.33	-5,146.2	-249.8	1,712.2	1,514.7	197.52	8.668	
16,200.0	11,354.0	10,000.0	9,998.5	92.4	211.9	37.33	-5,146.2	-249.8	1,740.0	1,539.7	200.32	8.686	
16,300.0	11,354.0	10,000.0	9,998.5	93.7	211.9	37.33	-5,146.2	-249.8	1,773.0	1,569.6	203.35	8.719	
16,400.0	11,354.0	10,000.0	9,998.5	95.0	211.9	37.33	-5,146.2	-249.8	1,810.9	1,604.4	206.49	8.770	
16,500.0	11,354.0	10,000.0	9,998.5	96.3	211.9	37.33	-5,146.2	-249.8	1,853.4	1,643.7	209.67	8.840	
16,600.0	11,354.0	10,000.0	9,998.5	97.6	211.9	37.33	-5,146.2	-249.8	1,900.3	1,687.5	212.82	8.929	
16,700.0	11,354.0	10,000.0	9,998.5	98.9	211.9	37.33	-5,146.2	-249.8	1,951.1	1,735.3	215.87	9.038	
16,800.0	11,354.0	10,000.0	9,998.5	100.3	211.9	37.33	-5,146.2	-249.8	2,005.7	1,786.9	218.80	9.167	
16,900.0	11,354.0	10,000.0	9,998.5	101.6	211.9	37.33	-5,146.2	-249.8	2,063.7	1,842.1	221.57	9.314	
17,000.0	11,354.0	10,000.0	9,998.5	102.9	211.9	37.33	-5,146.2	-249.8	2,124.7	1,900.6	224.17	9.478	
17,100.0	11,354.0	10,000.0	9,998.5	104.2	211.9	37.33	-5,146.2	-249.8	2,188.7	1,962.1	226.60	9.659	
17,200.0	11,354.0	10,000.0	9,998.5	105.6	211.9	37.33	-5,146.2	-249.8	2,255.3	2,026.4	228.86	9.855	
17,300.0	11,354.0	10,000.0	9,998.5	106.9	211.9	37.33	-5,146.2	-249.8	2,324.3	2,093.3	230.94	10.064	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Mescalero 36 State 003 - OH - OH													Offset Site Error:	0.0 usft
Survey Program: 281-INC-ONLY													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
19,000.0	11,354.0	9,964.0	9,961.8	129.9	223.9	-13.65	-10,379.0	1,107.2	2,324.3	2,081.6	242.64	9.579		
19,100.0	11,354.0	9,964.0	9,961.8	131.3	223.9	-13.65	-10,379.0	1,107.2	2,242.7	2,001.9	240.73	9.316		
19,200.0	11,354.0	9,964.0	9,961.8	132.7	223.9	-13.65	-10,379.0	1,107.2	2,162.6	1,924.0	238.59	9.064		
19,300.0	11,354.0	9,964.0	9,961.8	134.0	223.9	-13.65	-10,379.0	1,107.2	2,084.2	1,848.1	236.17	8.825		
19,400.0	11,354.0	9,964.0	9,961.8	135.4	223.9	-13.65	-10,379.0	1,107.2	2,007.8	1,774.4	233.45	8.601		
19,500.0	11,354.0	9,964.0	9,961.8	136.8	223.9	-13.65	-10,379.0	1,107.2	1,933.5	1,703.2	230.37	8.393		
19,600.0	11,354.0	9,964.0	9,961.8	138.2	223.9	-13.65	-10,379.0	1,107.2	1,861.7	1,634.8	226.89	8.205		
19,700.0	11,354.0	9,964.0	9,961.8	139.5	223.9	-13.65	-10,379.0	1,107.2	1,792.5	1,569.5	222.94	8.040		
19,800.0	11,354.0	9,964.0	9,961.8	140.9	223.9	-13.65	-10,379.0	1,107.2	1,726.3	1,507.9	218.49	7.901		
19,900.0	11,354.0	9,964.0	9,961.8	142.3	223.9	-13.65	-10,379.0	1,107.2	1,663.6	1,450.1	213.46	7.793		
20,000.0	11,354.0	9,964.0	9,961.8	143.7	223.9	-13.65	-10,379.0	1,107.2	1,604.6	1,396.8	207.81	7.722		
20,100.0	11,354.0	9,964.0	9,961.8	145.1	223.9	-13.65	-10,379.0	1,107.2	1,549.8	1,348.3	201.50	7.691		
20,200.0	11,354.0	9,964.0	9,961.8	146.5	223.9	-13.65	-10,379.0	1,107.2	1,499.7	1,305.2	194.55	7.709		
20,300.0	11,354.0	9,964.0	9,961.8	147.9	223.9	-13.65	-10,379.0	1,107.2	1,454.8	1,267.8	186.98	7.781		
20,400.0	11,354.0	9,964.0	9,961.8	149.2	223.9	-13.65	-10,379.0	1,107.2	1,415.5	1,236.6	178.95	7.910		
20,500.0	11,354.0	9,964.0	9,961.8	150.6	223.9	-13.65	-10,379.0	1,107.2	1,382.4	1,211.6	170.72	8.097		
20,600.0	11,354.0	9,964.0	9,961.8	152.0	223.9	-13.65	-10,379.0	1,107.2	1,355.8	1,193.0	162.79	8.329		
20,700.0	11,354.0	9,964.0	9,961.8	153.4	223.9	-13.65	-10,379.0	1,107.2	1,336.2	1,180.3	155.91	8.570		
20,800.0	11,354.0	9,964.0	9,961.8	154.8	223.9	-13.65	-10,379.0	1,107.2	1,323.9	1,172.7	151.14	8.759		
20,900.0	11,354.0	9,964.0	9,961.8	156.2	223.9	-13.65	-10,379.0	1,107.2	1,319.1	1,169.5	149.61	8.817		
20,913.8	11,354.0	9,964.0	9,961.8	156.4	223.9	-13.65	-10,379.0	1,107.2	1,319.0	1,169.3	149.69	8.811 CC, ES		
21,000.0	11,354.0	9,964.0	9,961.8	157.6	223.9	-13.65	-10,379.0	1,107.2	1,321.8	1,169.9	151.90	8.702		
21,100.0	11,354.0	9,964.0	9,961.8	159.0	223.9	-13.65	-10,379.0	1,107.2	1,332.1	1,174.4	157.64	8.450		
21,200.0	11,354.0	9,964.0	9,961.8	160.4	223.9	-13.65	-10,379.0	1,107.2	1,349.7	1,183.9	165.75	8.143		
21,300.0	11,354.0	9,964.0	9,961.8	161.8	223.9	-13.65	-10,379.0	1,107.2	1,374.4	1,199.3	175.09	7.850		
21,400.0	11,354.0	9,964.0	9,961.8	163.2	223.9	-13.65	-10,379.0	1,107.2	1,405.8	1,221.0	184.78	7.608		
21,500.0	11,354.0	9,964.0	9,961.8	164.6	223.9	-13.65	-10,379.0	1,107.2	1,443.4	1,249.1	194.27	7.430		
21,600.0	11,354.0	9,964.0	9,961.8	166.0	223.9	-13.65	-10,379.0	1,107.2	1,486.8	1,283.6	203.20	7.317		
21,647.1	11,354.0	9,964.0	9,961.8	166.7	223.9	-13.65	-10,379.0	1,107.2	1,509.1	1,302.0	207.17	7.284 SF		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 001 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 308-INC-ONLY												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,900.0	11,354.0	11,323.4	11,321.8	76.1	241.5	92.18	-6,443.3	-240.9	2,299.9	2,003.1	296.77	7.750	
15,000.0	11,354.0	11,321.6	11,320.0	77.3	241.4	92.08	-6,443.3	-240.9	2,210.4	1,912.5	297.89	7.420	
15,100.0	11,354.0	11,319.7	11,318.2	78.5	241.4	91.98	-6,443.3	-240.9	2,121.8	1,822.7	299.13	7.093	
15,200.0	11,354.0	11,317.9	11,316.4	79.8	241.3	91.87	-6,443.4	-240.9	2,034.4	1,733.9	300.49	6.770	
15,300.0	11,354.0	11,316.1	11,314.6	81.0	241.3	91.77	-6,443.4	-240.9	1,948.1	1,646.1	301.99	6.451	
15,400.0	11,354.0	11,314.3	11,312.7	82.2	241.3	91.66	-6,443.4	-240.9	1,863.2	1,559.6	303.64	6.136	
15,500.0	11,354.0	11,312.4	11,310.9	83.5	241.2	91.56	-6,443.5	-240.9	1,779.9	1,474.4	305.45	5.827	
15,600.0	11,354.0	11,310.6	11,309.1	84.8	241.2	91.46	-6,443.5	-240.9	1,698.3	1,390.9	307.45	5.524	
15,700.0	11,354.0	11,308.8	11,307.2	86.0	241.1	91.35	-6,443.5	-240.9	1,618.9	1,309.2	309.63	5.228	
15,800.0	11,354.0	11,306.9	11,305.4	87.3	241.1	91.25	-6,443.6	-240.9	1,541.8	1,229.8	312.02	4.941	
15,900.0	11,354.0	11,305.1	11,303.6	88.6	241.1	91.14	-6,443.6	-240.9	1,467.5	1,152.9	314.61	4.664	
16,000.0	11,354.0	11,303.2	11,301.7	89.8	241.0	91.04	-6,443.6	-240.9	1,396.4	1,079.0	317.41	4.399	
16,100.0	11,354.0	11,301.4	11,299.9	91.1	241.0	90.93	-6,443.7	-240.9	1,329.0	1,008.6	320.39	4.148	
16,200.0	11,354.0	11,299.5	11,298.0	92.4	240.9	90.83	-6,443.7	-240.9	1,266.0	942.4	323.54	3.913	
16,300.0	11,354.0	11,297.7	11,296.2	93.7	240.9	90.72	-6,443.7	-240.9	1,207.9	881.1	326.80	3.696	
16,400.0	11,354.0	11,295.8	11,294.3	95.0	240.9	90.61	-6,443.8	-240.9	1,155.6	825.5	330.08	3.501	
16,500.0	11,354.0	11,294.0	11,292.4	96.3	240.8	90.51	-6,443.8	-240.9	1,109.8	776.6	333.28	3.330	
16,600.0	11,354.0	11,292.1	11,290.6	97.6	240.8	90.40	-6,443.8	-240.9	1,071.5	735.2	336.25	3.187	
16,700.0	11,354.0	11,290.2	11,288.7	98.9	240.7	90.30	-6,443.9	-240.9	1,041.3	702.5	338.83	3.073	
16,800.0	11,354.0	11,288.3	11,286.8	100.3	240.7	90.19	-6,443.9	-240.9	1,020.2	679.3	340.85	2.993	
16,900.0	11,354.0	11,286.5	11,284.9	101.6	240.7	90.08	-6,443.9	-240.9	1,008.5	666.3	342.17	2.947	
16,968.4	11,354.0	11,285.2	11,283.6	102.5	240.6	90.01	-6,444.0	-240.9	1,006.2	663.5	342.62	2.937	CC, ES, SF
17,000.0	11,354.0	11,284.6	11,283.1	102.9	240.6	89.97	-6,444.0	-240.9	1,006.6	664.0	342.69	2.937	
17,100.0	11,354.0	11,282.7	11,281.2	104.2	240.6	89.87	-6,444.0	-240.9	1,014.7	672.3	342.39	2.964	
17,200.0	11,354.0	11,280.8	11,279.3	105.6	240.5	89.76	-6,444.1	-240.9	1,032.4	691.1	341.31	3.025	
17,300.0	11,354.0	11,278.9	11,277.4	106.9	240.5	89.65	-6,444.1	-240.9	1,059.4	719.8	339.56	3.120	
17,400.0	11,354.0	11,277.0	11,275.5	108.2	240.5	89.54	-6,444.1	-240.9	1,094.8	757.5	337.29	3.246	
17,500.0	11,354.0	11,275.1	11,273.6	109.6	240.4	89.44	-6,444.2	-240.9	1,137.9	803.2	334.67	3.400	
17,600.0	11,354.0	11,273.2	11,271.7	110.9	240.4	89.33	-6,444.2	-240.9	1,187.9	856.0	331.85	3.580	
17,700.0	11,354.0	11,271.3	11,269.8	112.2	240.3	89.22	-6,444.2	-240.9	1,243.9	915.0	328.94	3.782	
17,800.0	11,354.0	11,269.4	11,267.9	113.6	240.3	89.11	-6,444.3	-240.9	1,305.2	979.2	326.06	4.003	
17,900.0	11,354.0	11,267.5	11,266.0	114.9	240.3	89.00	-6,444.3	-240.9	1,371.1	1,047.8	323.26	4.241	
18,000.0	11,354.0	11,265.6	11,264.0	116.3	240.2	88.89	-6,444.3	-240.9	1,440.9	1,120.3	320.59	4.494	
18,100.0	11,354.0	11,263.6	11,262.1	117.6	240.2	88.78	-6,444.4	-240.9	1,514.0	1,196.0	318.08	4.760	
18,200.0	11,354.0	11,261.7	11,260.2	119.0	240.1	88.67	-6,444.4	-240.9	1,590.1	1,274.4	315.75	5.036	
18,300.0	11,354.0	11,259.8	11,258.3	120.3	240.1	88.56	-6,444.5	-240.9	1,668.8	1,355.2	313.59	5.322	
18,400.0	11,354.0	11,257.9	11,256.3	121.7	240.1	88.45	-6,444.5	-240.9	1,749.6	1,438.0	311.60	5.615	
18,500.0	11,354.0	11,255.9	11,254.4	123.1	240.0	88.34	-6,444.5	-240.9	1,832.3	1,522.5	309.77	5.915	
18,600.0	11,354.0	11,254.0	11,252.5	124.4	240.0	88.23	-6,444.6	-240.9	1,916.6	1,608.5	308.10	6.221	
18,700.0	11,354.0	11,252.0	11,250.5	125.8	239.9	88.12	-6,444.6	-240.9	2,002.4	1,695.8	306.57	6.532	
18,800.0	11,354.0	11,250.1	11,248.6	127.2	239.9	88.01	-6,444.6	-240.9	2,089.4	1,784.3	305.17	6.847	
18,900.0	11,354.0	11,248.1	11,246.6	128.5	239.8	87.90	-6,444.7	-240.9	2,177.6	1,873.7	303.89	7.166	
19,000.0	11,354.0	11,246.2	11,244.7	129.9	239.8	87.79	-6,444.7	-240.9	2,266.7	1,964.0	302.72	7.488	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 002 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 307-INC-ONLY												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,100.0	11,354.0	10,000.0	9,998.8	78.5	210.9	-13.82	-6,459.8	1,080.2	2,307.8	2,088.2	219.54	10.512	
15,200.0	11,354.0	10,000.0	9,998.8	79.8	210.9	-13.82	-6,459.8	1,080.2	2,226.4	2,009.4	216.97	10.261	
15,300.0	11,354.0	10,000.0	9,998.8	81.0	210.9	-13.82	-6,459.8	1,080.2	2,146.6	1,932.5	214.13	10.025	
15,400.0	11,354.0	10,000.0	9,998.8	82.2	210.9	-13.82	-6,459.8	1,080.2	2,068.6	1,857.6	210.98	9.805	
15,500.0	11,354.0	10,000.0	9,998.8	83.5	210.9	-13.82	-6,459.8	1,080.2	1,992.5	1,785.1	207.47	9.604	
15,600.0	11,354.0	10,000.0	9,998.8	84.8	210.9	-13.82	-6,459.8	1,080.2	1,918.7	1,715.1	203.58	9.425	
15,700.0	11,354.0	10,000.0	9,998.8	86.0	210.9	-13.82	-6,459.8	1,080.2	1,847.3	1,648.0	199.24	9.272	
15,800.0	11,354.0	10,000.0	9,998.8	87.3	210.9	-13.82	-6,459.8	1,080.2	1,778.6	1,584.2	194.42	9.148	
15,900.0	11,354.0	10,000.0	9,998.8	88.6	210.9	-13.82	-6,459.8	1,080.2	1,713.1	1,524.0	189.08	9.060	
16,000.0	11,354.0	10,000.0	9,998.8	89.8	210.9	-13.82	-6,459.8	1,080.2	1,651.0	1,467.8	183.16	9.014	
16,100.0	11,354.0	10,000.0	9,998.8	91.1	210.9	-13.82	-6,459.8	1,080.2	1,592.7	1,416.1	176.65	9.016	
16,200.0	11,354.0	10,000.0	9,998.8	92.4	210.9	-13.82	-6,459.8	1,080.2	1,538.8	1,369.3	169.53	9.077	
16,300.0	11,354.0	10,000.0	9,998.8	93.7	210.9	-13.82	-6,459.8	1,080.2	1,489.6	1,327.8	161.84	9.204	
16,400.0	11,354.0	10,000.0	9,998.8	95.0	210.9	-13.82	-6,459.8	1,080.2	1,445.7	1,292.0	153.67	9.408	
16,500.0	11,354.0	10,000.0	9,998.8	96.3	210.9	-13.82	-6,459.8	1,080.2	1,407.5	1,262.3	145.20	9.694	
16,600.0	11,354.0	10,000.0	9,998.8	97.6	210.9	-13.82	-6,459.8	1,080.2	1,375.6	1,238.8	136.76	10.059	
16,700.0	11,354.0	10,000.0	9,998.8	98.9	210.9	-13.82	-6,459.8	1,080.2	1,350.3	1,221.4	128.87	10.478	
16,800.0	11,354.0	10,000.0	9,998.8	100.3	210.9	-13.82	-6,459.8	1,080.2	1,332.1	1,209.8	122.32	10.890	
16,900.0	11,354.0	10,000.0	9,998.8	101.6	210.9	-13.82	-6,459.8	1,080.2	1,321.2	1,203.1	118.14	11.183	
16,994.5	11,354.0	10,000.0	9,998.8	102.8	210.9	-13.82	-6,459.8	1,080.2	1,317.8	1,200.6	117.23	11.241 CC	
17,000.0	11,354.0	10,000.0	9,998.8	102.9	210.9	-13.82	-6,459.8	1,080.2	1,317.8	1,200.5	117.28	11.236 ES	
17,100.0	11,354.0	10,000.0	9,998.8	104.2	210.9	-13.82	-6,459.8	1,080.2	1,322.0	1,201.9	120.13	11.005	
17,200.0	11,354.0	10,000.0	9,998.8	105.6	210.9	-13.82	-6,459.8	1,080.2	1,333.7	1,207.5	126.18	10.570	
17,300.0	11,354.0	10,000.0	9,998.8	106.9	210.9	-13.82	-6,459.8	1,080.2	1,352.7	1,218.3	134.40	10.065	
17,400.0	11,354.0	10,000.0	9,998.8	108.2	210.9	-13.82	-6,459.8	1,080.2	1,378.8	1,235.0	143.75	9.591	
17,500.0	11,354.0	10,000.0	9,998.8	109.6	210.9	-13.82	-6,459.8	1,080.2	1,411.4	1,258.0	153.46	9.197	
17,600.0	11,354.0	10,000.0	9,998.8	110.9	210.9	-13.82	-6,459.8	1,080.2	1,450.2	1,287.2	163.01	8.897	
17,700.0	11,354.0	10,000.0	9,998.8	112.2	210.9	-13.82	-6,459.8	1,080.2	1,494.8	1,322.7	172.08	8.686	
17,800.0	11,354.0	10,000.0	9,998.8	113.6	210.9	-13.82	-6,459.8	1,080.2	1,544.5	1,363.9	180.52	8.556	
17,900.0	11,354.0	10,000.0	9,998.8	114.9	210.9	-13.82	-6,459.8	1,080.2	1,598.9	1,410.7	188.25	8.494	
18,000.0	11,354.0	10,000.0	9,998.8	116.3	210.9	-13.82	-6,459.8	1,080.2	1,657.6	1,462.3	195.25	8.490 SF	
18,100.0	11,354.0	10,000.0	9,998.8	117.6	210.9	-13.82	-6,459.8	1,080.2	1,720.1	1,518.5	201.54	8.535	
18,200.0	11,354.0	10,000.0	9,998.8	119.0	210.9	-13.82	-6,459.8	1,080.2	1,786.0	1,578.8	207.17	8.621	
18,300.0	11,354.0	10,000.0	9,998.8	120.3	210.9	-13.82	-6,459.8	1,080.2	1,855.0	1,642.8	212.20	8.742	
18,400.0	11,354.0	10,000.0	9,998.8	121.7	210.9	-13.82	-6,459.8	1,080.2	1,926.6	1,710.0	216.67	8.892	
18,500.0	11,354.0	10,000.0	9,998.8	123.1	210.9	-13.82	-6,459.8	1,080.2	2,000.8	1,780.1	220.66	9.067	
18,600.0	11,354.0	10,000.0	9,998.8	124.4	210.9	-13.82	-6,459.8	1,080.2	2,077.1	1,852.8	224.21	9.264	
18,700.0	11,354.0	10,000.0	9,998.8	125.8	210.9	-13.82	-6,459.8	1,080.2	2,155.3	1,927.9	227.38	9.479	
18,800.0	11,354.0	10,000.0	9,998.8	127.2	210.9	-13.82	-6,459.8	1,080.2	2,235.2	2,005.0	230.21	9.710	
18,900.0	11,354.0	10,000.0	9,998.8	128.5	210.9	-13.82	-6,459.8	1,080.2	2,316.8	2,084.0	232.74	9.954	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 004 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 251-INC-ONLY												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
16,400.0	11,354.0	10,450.0	10,449.2	95.0	209.4	51.20	-7,812.5	-231.9	2,329.0	2,070.1	258.92	8.995	
16,500.0	11,354.0	10,450.0	10,449.2	96.3	209.4	51.20	-7,812.5	-231.9	2,246.6	1,987.2	259.37	8.662	
16,600.0	11,354.0	10,450.0	10,449.2	97.6	209.4	51.20	-7,812.5	-231.9	2,165.6	1,905.7	259.83	8.334	
16,700.0	11,354.0	10,450.0	10,449.2	98.9	209.4	51.20	-7,812.5	-231.9	2,086.2	1,825.9	260.29	8.015	
16,800.0	11,354.0	10,450.0	10,449.2	100.3	209.4	51.20	-7,812.5	-231.9	2,008.7	1,747.9	260.75	7.703	
16,900.0	11,354.0	10,450.0	10,449.2	101.6	209.4	51.20	-7,812.5	-231.9	1,933.2	1,672.0	261.20	7.401	
17,000.0	11,354.0	10,450.0	10,449.2	102.9	209.4	51.20	-7,812.5	-231.9	1,860.1	1,598.5	261.64	7.110	
17,100.0	11,354.0	10,450.0	10,449.2	104.2	209.4	51.20	-7,812.5	-231.9	1,789.6	1,527.5	262.04	6.829	
17,200.0	11,354.0	10,450.0	10,449.2	105.6	209.4	51.20	-7,812.5	-231.9	1,722.0	1,459.6	262.41	6.562	
17,300.0	11,354.0	10,450.0	10,449.2	106.9	209.4	51.20	-7,812.5	-231.9	1,657.6	1,394.9	262.73	6.309	
17,400.0	11,354.0	10,450.0	10,449.2	108.2	209.4	51.20	-7,812.5	-231.9	1,597.0	1,334.0	263.00	6.072	
17,500.0	11,354.0	10,450.0	10,449.2	109.6	209.4	51.20	-7,812.5	-231.9	1,540.4	1,277.2	263.20	5.853	
17,600.0	11,354.0	10,450.0	10,449.2	110.9	209.4	51.20	-7,812.5	-231.9	1,488.5	1,225.1	263.33	5.652	
17,700.0	11,354.0	10,450.0	10,449.2	112.2	209.4	51.20	-7,812.5	-231.9	1,441.6	1,178.2	263.41	5.473	
17,800.0	11,354.0	10,450.0	10,449.2	113.6	209.4	51.20	-7,812.5	-231.9	1,400.3	1,136.8	263.43	5.316	
17,900.0	11,354.0	10,450.0	10,449.2	114.9	209.4	51.20	-7,812.5	-231.9	1,365.0	1,101.6	263.42	5.182	
18,000.0	11,354.0	10,450.0	10,449.2	116.3	209.4	51.20	-7,812.5	-231.9	1,336.4	1,073.0	263.42	5.073	
18,100.0	11,354.0	10,450.0	10,449.2	117.6	209.4	51.20	-7,812.5	-231.9	1,314.7	1,051.3	263.47	4.990	
18,200.0	11,354.0	10,450.0	10,449.2	119.0	209.4	51.20	-7,812.5	-231.9	1,300.4	1,036.8	263.60	4.933	
18,300.0	11,354.0	10,450.0	10,449.2	120.3	209.4	51.20	-7,812.5	-231.9	1,293.7	1,029.9	263.85	4.903	
18,337.0	11,354.0	10,450.0	10,449.2	120.9	209.4	51.20	-7,812.5	-231.9	1,293.2	1,029.2	263.97	4.899 CC, ES, SF	
18,400.0	11,354.0	10,450.0	10,449.2	121.7	209.4	51.20	-7,812.5	-231.9	1,294.7	1,030.5	264.23	4.900	
18,500.0	11,354.0	10,450.0	10,449.2	123.1	209.4	51.20	-7,812.5	-231.9	1,303.4	1,038.7	264.72	4.924	
18,600.0	11,354.0	10,450.0	10,449.2	124.4	209.4	51.20	-7,812.5	-231.9	1,319.7	1,054.4	265.31	4.974	
18,700.0	11,354.0	10,450.0	10,449.2	125.8	209.4	51.20	-7,812.5	-231.9	1,343.2	1,077.2	265.94	5.051	
18,800.0	11,354.0	10,450.0	10,449.2	127.2	209.4	51.20	-7,812.5	-231.9	1,373.6	1,107.0	266.56	5.153	
18,900.0	11,354.0	10,450.0	10,449.2	128.5	209.4	51.20	-7,812.5	-231.9	1,410.4	1,143.3	267.14	5.280	
19,000.0	11,354.0	10,450.0	10,449.2	129.9	209.4	51.20	-7,812.5	-231.9	1,453.2	1,185.6	267.65	5.430	
19,100.0	11,354.0	10,450.0	10,449.2	131.3	209.4	51.20	-7,812.5	-231.9	1,501.5	1,233.4	268.04	5.602	
19,200.0	11,354.0	10,450.0	10,449.2	132.7	209.4	51.20	-7,812.5	-231.9	1,554.7	1,286.4	268.33	5.794	
19,300.0	11,354.0	10,450.0	10,449.2	134.0	209.4	51.20	-7,812.5	-231.9	1,612.3	1,343.8	268.51	6.005	
19,400.0	11,354.0	10,450.0	10,449.2	135.4	209.4	51.20	-7,812.5	-231.9	1,674.0	1,405.4	268.58	6.233	
19,500.0	11,354.0	10,450.0	10,449.2	136.8	209.4	51.20	-7,812.5	-231.9	1,739.2	1,470.6	268.56	6.476	
19,600.0	11,354.0	10,450.0	10,449.2	138.2	209.4	51.20	-7,812.5	-231.9	1,807.6	1,539.1	268.47	6.733	
19,700.0	11,354.0	10,450.0	10,449.2	139.5	209.4	51.20	-7,812.5	-231.9	1,878.8	1,610.5	268.31	7.002	
19,800.0	11,354.0	10,450.0	10,449.2	140.9	209.4	51.20	-7,812.5	-231.9	1,952.6	1,684.5	268.10	7.283	
19,900.0	11,354.0	10,450.0	10,449.2	142.3	209.4	51.20	-7,812.5	-231.9	2,028.6	1,760.7	267.86	7.573	
20,000.0	11,354.0	10,450.0	10,449.2	143.7	209.4	51.20	-7,812.5	-231.9	2,106.6	1,839.0	267.59	7.873	
20,100.0	11,354.0	10,450.0	10,449.2	145.1	209.4	51.20	-7,812.5	-231.9	2,186.4	1,919.1	267.30	8.180	
20,200.0	11,354.0	10,450.0	10,449.2	146.5	209.4	51.20	-7,812.5	-231.9	2,267.8	2,000.8	267.00	8.494	
20,300.0	11,354.0	10,450.0	10,449.2	147.9	209.4	51.20	-7,812.5	-231.9	2,350.7	2,084.0	266.70	8.814	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	179.17	-61.3	-64.3	160.0				
100.0	100.0	97.3	97.3	0.1	0.1	179.17	-61.3	-64.3	160.0	159.7	0.26	615.485	
200.0	200.0	197.3	197.3	0.5	0.5	179.17	-61.3	-64.3	160.0	159.0	0.97	164.799	
300.0	300.0	297.3	297.3	0.8	0.8	179.17	-61.3	-64.3	160.0	158.3	1.69	94.791	
400.0	400.0	397.3	397.3	1.2	1.2	179.17	-61.3	-64.3	160.0	157.6	2.40	66.529	
500.0	500.0	497.3	497.3	1.6	1.6	179.17	-61.3	-64.3	160.0	156.9	3.12	51.249	
600.0	600.0	597.3	597.3	1.9	1.9	179.17	-61.3	-64.3	160.0	156.1	3.84	41.677	
700.0	700.0	697.3	697.3	2.3	2.3	179.17	-61.3	-64.3	160.0	155.4	4.56	35.118	
800.0	800.0	797.3	797.3	2.6	2.6	179.17	-61.3	-64.3	160.0	154.7	5.27	30.342	
900.0	900.0	897.3	897.3	3.0	3.0	179.17	-61.3	-64.3	160.0	154.0	5.99	26.710	
1,000.0	1,000.0	997.3	997.3	3.4	3.3	179.17	-61.3	-64.3	160.0	153.3	6.71	23.855	
1,100.0	1,100.0	1,097.3	1,097.3	3.7	3.7	179.17	-61.3	-64.3	160.0	152.6	7.42	21.551	
1,200.0	1,200.0	1,197.3	1,197.3	4.1	4.1	179.17	-61.3	-64.3	160.0	151.8	8.14	19.653	
1,300.0	1,300.0	1,297.3	1,297.3	4.4	4.4	179.17	-61.3	-64.3	160.0	151.1	8.86	18.062	
1,400.0	1,400.0	1,397.3	1,397.3	4.8	4.8	179.17	-61.3	-64.3	160.0	150.4	9.57	16.709	
1,500.0	1,500.0	1,497.3	1,497.3	5.2	5.1	179.17	-61.3	-64.3	160.0	149.7	10.29	15.545	
1,600.0	1,600.0	1,597.3	1,597.3	5.5	5.5	179.17	-61.3	-64.3	160.0	149.0	11.01	14.533	
1,700.0	1,700.0	1,697.3	1,697.3	5.9	5.9	179.17	-61.3	-64.3	160.0	148.3	11.72	13.644	
1,800.0	1,800.0	1,797.3	1,797.3	6.2	6.2	179.17	-61.3	-64.3	160.0	147.5	12.44	12.858	
1,900.0	1,900.0	1,897.3	1,897.3	6.6	6.6	179.17	-61.3	-64.3	160.0	146.8	13.16	12.157	
2,000.0	2,000.0	1,997.3	1,997.3	6.9	6.9	179.17	-61.3	-64.3	160.0	146.1	13.88	11.529 CC	
2,100.0	2,100.0	2,095.5	2,095.5	7.3	7.3	179.38	-61.8	-64.9	160.5	145.9	14.57	11.016 ES	
2,200.0	2,200.0	2,193.7	2,193.6	7.7	7.6	-179.96	-63.5	-66.7	162.2	146.9	15.25	10.634	
2,300.0	2,300.0	2,291.7	2,291.6	8.0	7.9	-178.89	-66.3	-69.8	165.1	149.1	15.93	10.360	
2,400.0	2,400.0	2,389.5	2,389.2	8.4	8.3	-177.45	-70.1	-74.1	169.2	152.6	16.61	10.184	
2,500.0	2,500.0	2,487.1	2,486.6	8.7	8.6	-175.70	-75.1	-79.7	174.6	157.3	17.29	10.100	
2,600.0	2,600.0	2,584.5	2,583.4	9.1	8.9	51.01	-81.2	-86.4	180.4	162.5	17.95	10.051	
2,700.0	2,699.8	2,682.5	2,680.9	9.4	9.3	54.33	-88.3	-94.3	185.6	167.0	18.60	9.980	
2,800.0	2,799.5	2,781.4	2,779.2	9.7	9.6	58.41	-95.7	-102.5	189.8	170.6	19.27	9.853	
2,900.0	2,898.7	2,880.0	2,877.2	10.1	9.9	63.18	-103.0	-110.6	193.4	173.5	19.93	9.702	
3,000.0	2,997.5	2,978.1	2,974.7	10.4	10.3	68.58	-110.2	-118.7	197.2	176.5	20.61	9.568	
3,100.0	3,096.2	3,076.2	3,072.2	10.8	10.6	73.93	-117.5	-126.7	202.5	181.2	21.29	9.513	
3,200.0	3,195.0	3,173.9	3,169.3	11.1	11.0	78.93	-124.9	-134.7	209.6	187.6	21.97	9.540	
3,300.0	3,293.7	3,272.0	3,266.8	11.5	11.4	83.17	-133.3	-141.5	218.3	195.6	22.66	9.634	
3,400.0	3,392.4	3,370.4	3,364.5	11.8	11.7	87.05	-141.9	-148.2	228.1	204.8	23.36	9.766	
3,500.0	3,491.1	3,468.7	3,462.3	12.2	12.1	90.60	-150.5	-154.9	238.9	214.9	24.07	9.928	
3,600.0	3,589.8	3,567.1	3,560.0	12.6	12.4	93.84	-159.1	-161.6	250.6	225.8	24.78	10.113	
3,700.0	3,688.5	3,665.4	3,657.8	13.0	12.8	96.79	-167.7	-168.3	263.0	237.5	25.49	10.315	
3,800.0	3,787.3	3,763.7	3,755.5	13.3	13.2	99.47	-176.3	-175.0	276.0	249.8	26.21	10.529	
3,900.0	3,886.0	3,862.1	3,853.2	13.7	13.5	101.91	-184.9	-181.7	289.5	262.6	26.93	10.750	
4,000.0	3,984.7	3,960.4	3,951.0	14.1	13.9	104.12	-193.4	-188.4	303.6	275.9	27.66	10.975	
4,100.0	4,083.4	4,058.8	4,048.7	14.5	14.2	106.15	-202.0	-195.1	318.0	289.6	28.39	11.203	
4,200.0	4,182.1	4,157.1	4,146.5	14.9	14.6	107.99	-210.6	-201.8	332.8	303.7	29.12	11.430	
4,300.0	4,280.9	4,255.5	4,244.2	15.2	15.0	109.68	-219.2	-208.5	348.0	318.1	29.85	11.656	
4,400.0	4,379.6	4,353.8	4,341.9	15.6	15.3	111.23	-227.8	-215.2	363.3	332.8	30.59	11.879	
4,500.0	4,478.3	4,452.2	4,439.7	16.0	15.7	112.66	-236.4	-221.9	379.0	347.7	31.32	12.099	
4,600.0	4,577.0	4,550.5	4,537.4	16.4	16.1	113.97	-245.0	-228.6	394.8	362.8	32.06	12.314	
4,700.0	4,675.7	4,648.9	4,635.2	16.8	16.5	115.18	-253.6	-235.3	410.9	378.1	32.80	12.525	
4,800.0	4,774.5	4,747.2	4,732.9	17.2	16.8	116.30	-262.2	-242.0	427.1	393.5	33.54	12.731	
4,900.0	4,873.2	4,845.6	4,830.6	17.6	17.2	117.33	-270.7	-248.7	443.4	409.1	34.29	12.932	
5,000.0	4,971.9	4,943.9	4,928.4	18.0	17.6	118.30	-279.3	-255.4	459.9	424.9	35.03	13.128	
5,100.0	5,070.6	5,042.2	5,026.1	18.4	17.9	119.19	-287.9	-262.1	476.5	440.7	35.78	13.318	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.0	5,169.3	5,140.6	5,123.9	18.8	18.3	120.03	-296.5	-268.8	493.2	456.7	36.52	13.504	
5,300.0	5,268.0	5,238.9	5,221.6	19.2	18.7	120.81	-305.1	-275.5	510.0	472.7	37.27	13.683	
5,400.0	5,366.8	5,337.3	5,319.4	19.6	19.1	121.54	-313.7	-282.2	526.9	488.9	38.02	13.858	
5,500.0	5,465.5	5,435.6	5,417.1	20.0	19.4	122.23	-322.3	-288.9	543.9	505.1	38.77	14.028	
5,600.0	5,564.2	5,534.0	5,514.8	20.4	19.8	122.88	-330.9	-295.6	560.9	521.4	39.52	14.193	
5,700.0	5,662.9	5,632.3	5,612.6	20.8	20.2	123.48	-339.4	-302.3	578.0	537.7	40.27	14.353	
5,800.0	5,761.6	5,730.7	5,710.3	21.2	20.6	124.06	-348.0	-309.0	595.2	554.2	41.02	14.508	
5,900.0	5,860.4	5,829.0	5,808.1	21.6	20.9	124.60	-356.6	-315.7	612.4	570.6	41.78	14.659	
6,000.0	5,959.1	5,927.4	5,905.8	22.0	21.3	125.11	-365.2	-322.4	629.7	587.1	42.53	14.805	
6,100.0	6,057.8	6,025.7	6,003.5	22.4	21.7	125.59	-373.8	-329.2	647.0	603.7	43.28	14.947	
6,200.0	6,156.5	6,124.0	6,101.3	22.9	22.1	126.05	-382.4	-335.9	664.3	620.3	44.04	15.085	
6,300.0	6,255.2	6,222.4	6,199.0	23.3	22.5	126.49	-391.0	-342.6	681.7	636.9	44.79	15.219	
6,400.0	6,354.0	6,320.7	6,296.8	23.7	22.8	126.90	-399.6	-349.3	699.2	653.6	45.55	15.349	
6,500.0	6,452.7	6,419.1	6,394.5	24.1	23.2	127.29	-408.2	-356.0	716.6	670.3	46.31	15.476	
6,600.0	6,551.4	6,517.4	6,492.2	24.5	23.6	127.67	-416.7	-362.7	734.1	687.1	47.06	15.599	
6,700.0	6,650.1	6,615.8	6,590.0	24.9	24.0	128.03	-425.3	-369.4	751.7	703.8	47.82	15.718	
6,800.0	6,748.8	6,714.1	6,687.7	25.3	24.3	128.37	-433.9	-376.1	769.2	720.6	48.58	15.834	
6,900.0	6,847.5	6,812.5	6,785.5	25.7	24.7	128.69	-442.5	-382.8	786.8	737.5	49.34	15.947	
7,000.0	6,946.3	6,910.8	6,883.2	26.1	25.1	129.00	-451.1	-389.5	804.4	754.3	50.10	16.057	
7,100.0	7,045.0	7,009.2	6,980.9	26.5	25.5	129.30	-459.7	-396.2	822.0	771.2	50.86	16.164	
7,200.0	7,143.7	7,107.5	7,078.7	27.0	25.9	129.59	-468.3	-402.9	839.7	788.1	51.62	16.268	
7,300.0	7,242.4	7,205.9	7,176.4	27.4	26.2	129.86	-476.9	-409.6	857.3	805.0	52.38	16.369	
7,400.0	7,341.1	7,304.2	7,274.2	27.8	26.6	130.13	-485.4	-416.3	875.0	821.9	53.14	16.468	
7,500.0	7,439.9	7,402.5	7,371.9	28.2	27.0	130.38	-494.0	-423.0	892.7	838.8	53.90	16.564	
7,600.0	7,538.6	7,500.9	7,469.6	28.6	27.4	130.62	-502.6	-429.7	910.5	855.8	54.66	16.657	
7,700.0	7,637.3	7,599.2	7,567.4	29.0	27.8	130.86	-511.2	-436.4	928.2	872.8	55.42	16.748	
7,800.0	7,736.0	7,697.6	7,665.1	29.4	28.1	131.08	-519.8	-443.1	945.9	889.8	56.18	16.837	
7,900.0	7,834.7	7,795.9	7,762.9	29.9	28.5	131.30	-528.4	-449.8	963.7	906.8	56.94	16.924	
8,000.0	7,933.5	7,894.3	7,860.6	30.3	28.9	131.51	-537.0	-456.5	981.5	923.8	57.71	17.008	
8,100.0	8,032.2	7,992.6	7,958.3	30.7	29.3	131.71	-545.6	-463.2	999.3	940.8	58.47	17.090	
8,200.0	8,130.9	8,091.0	8,056.1	31.1	29.7	131.90	-554.2	-469.9	1,017.1	957.8	59.23	17.171	
8,300.0	8,229.6	8,189.3	8,153.8	31.5	30.1	132.09	-562.7	-476.6	1,034.9	974.9	60.00	17.249	
8,400.0	8,328.3	8,287.7	8,251.6	31.9	30.4	132.27	-571.3	-483.3	1,052.7	991.9	60.76	17.326	
8,500.0	8,427.0	8,386.0	8,349.3	32.3	30.8	132.44	-579.9	-490.0	1,070.5	1,009.0	61.52	17.400	
8,600.0	8,525.8	8,484.3	8,447.0	32.8	31.2	132.61	-588.5	-496.7	1,088.4	1,026.1	62.29	17.473	
8,700.0	8,624.5	8,582.7	8,544.8	33.2	31.6	132.78	-597.1	-503.4	1,106.2	1,043.1	63.05	17.544	
8,800.0	8,723.2	8,681.0	8,642.5	33.6	32.0	132.94	-605.7	-510.1	1,124.1	1,060.2	63.82	17.614	
8,900.0	8,821.9	8,779.4	8,740.3	34.0	32.3	133.09	-614.3	-516.8	1,141.9	1,077.3	64.58	17.682	
9,000.0	8,920.6	8,877.7	8,838.0	34.4	32.7	133.24	-622.9	-523.5	1,159.8	1,094.4	65.35	17.749	
9,100.0	9,019.4	8,976.1	8,935.8	34.8	33.1	133.38	-631.4	-530.2	1,177.7	1,111.6	66.11	17.814	
9,200.0	9,118.1	9,074.4	9,033.5	35.3	33.5	133.53	-640.0	-536.9	1,195.6	1,128.7	66.88	17.877	
9,300.0	9,216.8	9,172.8	9,131.2	35.7	33.9	133.66	-648.6	-543.6	1,213.4	1,145.8	67.64	17.939	
9,400.0	9,315.5	9,271.1	9,229.0	36.1	34.3	133.79	-657.2	-550.3	1,231.3	1,162.9	68.41	18.000	
9,500.0	9,414.2	9,369.5	9,326.7	36.5	34.6	133.92	-665.8	-557.1	1,249.3	1,180.1	69.17	18.060	
9,600.0	9,513.0	9,467.9	9,424.5	36.9	35.0	134.15	-674.4	-563.8	1,266.9	1,196.9	69.94	18.114	
9,700.0	9,612.2	9,566.6	9,522.7	37.3	35.4	134.39	-683.0	-570.5	1,284.4	1,211.7	70.70	18.140	
9,800.0	9,711.8	9,665.7	9,621.2	37.7	35.8	134.48	-691.7	-577.2	1,295.6	1,224.1	71.45	18.134	
9,900.0	9,811.6	9,765.0	9,719.9	38.1	36.2	134.42	-700.3	-584.0	1,306.3	1,234.1	72.18	18.097	
10,000.0	9,911.6	9,878.8	9,833.0	38.4	36.6	134.19	-709.9	-591.5	1,314.4	1,241.4	73.01	18.004	
10,100.0	10,011.6	10,018.5	9,972.3	38.7	37.1	-90.53	-717.5	-597.4	1,318.7	1,244.8	73.93	17.837	
10,200.0	10,111.6	10,155.1	10,108.9	39.0	37.6	-90.63	-719.8	-599.2	1,320.0	1,245.2	74.76	17.656	
10,300.0	10,211.6	10,255.1	10,208.9	39.3	37.9	-90.63	-719.8	-599.2	1,320.0	1,244.6	75.40	17.506	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,400.0	10,311.6	10,355.1	10,308.9	39.6	38.2	-90.63	-719.8	-599.2	1,320.0	1,244.0	76.04	17.359	
10,500.0	10,411.6	10,455.1	10,408.9	40.0	38.6	-90.63	-719.8	-599.2	1,320.0	1,243.3	76.68	17.214	
10,600.0	10,511.6	10,555.1	10,508.9	40.3	38.9	-90.63	-719.8	-599.2	1,320.0	1,242.7	77.33	17.071	
10,700.0	10,611.6	10,655.1	10,608.9	40.6	39.2	-90.63	-719.8	-599.2	1,320.0	1,242.0	77.97	16.930	
10,800.0	10,711.6	10,755.1	10,708.9	40.9	39.5	-90.63	-719.8	-599.2	1,320.0	1,241.4	78.61	16.791	
10,900.0	10,811.6	10,855.1	10,808.9	41.2	39.8	-90.63	-719.8	-599.2	1,320.0	1,240.7	79.26	16.654	
11,000.0	10,911.6	10,954.9	10,908.6	41.5	40.2	89.83	-720.8	-599.2	1,320.0	1,240.1	79.92	16.516	
11,100.0	11,009.8	11,054.1	11,006.2	41.9	40.5	89.86	-737.7	-599.0	1,320.0	1,239.3	80.70	16.357	
11,200.0	11,102.2	11,153.5	11,098.4	42.3	41.0	89.90	-774.4	-598.7	1,320.0	1,238.4	81.59	16.179	
11,300.0	11,184.8	11,253.1	11,181.1	42.8	41.4	89.94	-829.5	-598.3	1,320.0	1,237.4	82.57	15.987	
11,400.0	11,253.9	11,352.9	11,250.8	43.3	41.9	89.98	-900.7	-597.8	1,320.0	1,236.4	83.62	15.786	
11,437.5	11,275.6	11,390.3	11,272.9	43.5	42.1	90.00	-931.0	-597.5	1,320.0	1,236.0	84.03	15.709	
11,500.0	11,306.4	11,452.9	11,304.3	43.9	42.4	90.03	-985.0	-597.1	1,320.0	1,235.3	84.72	15.580	
11,600.0	11,340.2	11,553.1	11,339.1	44.5	43.0	90.07	-1,078.8	-596.4	1,320.0	1,234.1	85.86	15.375	
11,700.0	11,353.8	11,653.6	11,353.6	45.0	43.5	90.11	-1,178.0	-595.6	1,320.0	1,233.0	86.98	15.175	
11,800.0	11,354.0	11,753.7	11,354.0	45.6	44.0	90.12	-1,278.1	-594.8	1,320.0	1,231.9	88.12	14.979	
11,900.0	11,354.0	11,853.7	11,354.0	46.2	44.6	90.12	-1,378.1	-594.1	1,320.0	1,230.7	89.34	14.776	
12,000.0	11,354.0	11,953.7	11,354.0	46.9	45.2	90.12	-1,478.1	-593.3	1,320.0	1,229.4	90.62	14.566	
12,100.0	11,354.0	12,053.7	11,354.0	47.6	45.9	90.12	-1,578.1	-592.5	1,320.0	1,228.0	91.98	14.350	
12,200.0	11,354.0	12,153.7	11,354.0	48.3	46.6	90.12	-1,678.1	-591.7	1,320.0	1,226.6	93.42	14.130	
12,300.0	11,354.0	12,253.7	11,354.0	49.1	47.3	90.12	-1,778.1	-591.0	1,320.0	1,225.1	94.91	13.907	
12,400.0	11,354.0	12,353.7	11,354.0	49.9	48.1	90.12	-1,878.1	-590.2	1,320.0	1,223.5	96.48	13.682	
12,500.0	11,354.0	12,453.7	11,354.0	50.7	48.9	90.12	-1,978.1	-589.4	1,320.0	1,221.9	98.10	13.456	
12,600.0	11,354.0	12,553.7	11,354.0	51.5	49.7	90.12	-2,078.1	-588.6	1,320.0	1,220.2	99.78	13.229	
12,700.0	11,354.0	12,653.7	11,354.0	52.4	50.5	90.12	-2,178.1	-587.9	1,320.0	1,218.5	101.51	13.003	
12,800.0	11,354.0	12,753.7	11,354.0	53.3	51.4	90.12	-2,278.1	-587.1	1,320.0	1,216.7	103.30	12.778	
12,900.0	11,354.0	12,853.7	11,354.0	54.2	52.3	90.12	-2,378.1	-586.3	1,320.0	1,214.9	105.14	12.555	
13,000.0	11,354.0	12,953.7	11,354.0	55.1	53.2	90.12	-2,478.1	-585.5	1,320.0	1,213.0	107.02	12.334	
13,100.0	11,354.0	13,053.7	11,354.0	56.1	54.2	90.12	-2,578.1	-584.7	1,320.0	1,211.1	108.95	12.116	
13,200.0	11,354.0	13,153.7	11,354.0	57.1	55.1	90.12	-2,678.1	-584.0	1,320.0	1,209.1	110.92	11.900	
13,300.0	11,354.0	13,253.7	11,354.0	58.1	56.1	90.12	-2,778.1	-583.2	1,320.0	1,207.1	112.93	11.689	
13,400.0	11,354.0	13,353.7	11,354.0	59.1	57.1	90.12	-2,878.1	-582.4	1,320.0	1,205.0	114.98	11.480	
13,500.0	11,354.0	13,453.7	11,354.0	60.1	58.2	90.12	-2,978.1	-581.6	1,320.0	1,202.9	117.06	11.276	
13,600.0	11,354.0	13,553.7	11,354.0	61.2	59.2	90.12	-3,078.1	-580.9	1,320.0	1,200.8	119.18	11.076	
13,700.0	11,354.0	13,653.7	11,354.0	62.3	60.3	90.12	-3,178.1	-580.1	1,320.0	1,198.7	121.33	10.880	
13,800.0	11,354.0	13,753.7	11,354.0	63.4	61.4	90.12	-3,278.1	-579.3	1,320.0	1,196.5	123.51	10.687	
13,900.0	11,354.0	13,853.7	11,354.0	64.5	62.4	90.12	-3,378.1	-578.5	1,320.0	1,194.3	125.72	10.500	
14,000.0	11,354.0	13,953.7	11,354.0	65.6	63.5	90.12	-3,478.0	-577.8	1,320.0	1,192.1	127.96	10.316	
14,100.0	11,354.0	14,053.7	11,354.0	66.7	64.7	90.12	-3,578.0	-577.0	1,320.0	1,189.8	130.22	10.137	
14,200.0	11,354.0	14,153.7	11,354.0	67.8	65.8	90.12	-3,678.0	-576.2	1,320.0	1,187.5	132.51	9.962	
14,300.0	11,354.0	14,253.7	11,354.0	69.0	66.9	90.12	-3,778.0	-575.4	1,320.0	1,185.2	134.82	9.791	
14,400.0	11,354.0	14,353.7	11,354.0	70.1	68.1	90.12	-3,878.0	-574.7	1,320.0	1,182.9	137.15	9.625	
14,500.0	11,354.0	14,453.7	11,354.0	71.3	69.3	90.12	-3,978.0	-573.9	1,320.0	1,180.5	139.50	9.462	
14,600.0	11,354.0	14,553.7	11,354.0	72.5	70.4	90.12	-4,078.0	-573.1	1,320.0	1,178.1	141.88	9.304	
14,700.0	11,354.0	14,653.7	11,354.0	73.7	71.6	90.12	-4,178.0	-572.3	1,320.0	1,175.7	144.27	9.150	
14,800.0	11,354.0	14,753.7	11,354.0	74.9	72.8	90.12	-4,278.0	-571.6	1,320.0	1,173.3	146.68	8.999	
14,900.0	11,354.0	14,853.7	11,354.0	76.1	74.0	90.12	-4,378.0	-570.8	1,320.0	1,170.9	149.11	8.853	
15,000.0	11,354.0	14,953.7	11,354.0	77.3	75.2	90.12	-4,478.0	-570.0	1,320.0	1,168.5	151.56	8.710	
15,100.0	11,354.0	15,053.7	11,354.0	78.5	76.5	90.12	-4,578.0	-569.2	1,320.0	1,166.0	154.02	8.571	
15,200.0	11,354.0	15,153.7	11,354.0	79.8	77.7	90.12	-4,678.0	-568.5	1,320.0	1,163.5	156.49	8.435	
15,300.0	11,354.0	15,253.7	11,354.0	81.0	78.9	90.12	-4,778.0	-567.7	1,320.0	1,161.0	158.98	8.303	
15,400.0	11,354.0	15,353.7	11,354.0	82.2	80.2	90.12	-4,878.0	-566.9	1,320.0	1,158.5	161.49	8.174	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error: 0.0 usft			
Survey Program: 0-B001Mb_MWD+HRGM				Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:				Offset Well Error: 0.0 usft	
Measured Depth (usft)	Reference Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
15,500.0	11,354.0	15,453.7	11,354.0	83.5	81.4	90.12	-4,978.0	-566.1	1,320.0	1,156.0	164.00	8.049			
15,600.0	11,354.0	15,553.7	11,354.0	84.8	82.7	90.12	-5,078.0	-565.3	1,320.0	1,153.5	166.53	7.927			
15,700.0	11,354.0	15,653.7	11,354.0	86.0	83.9	90.12	-5,178.0	-564.6	1,320.0	1,150.9	169.07	7.807			
15,800.0	11,354.0	15,753.7	11,354.0	87.3	85.2	90.12	-5,278.0	-563.8	1,320.0	1,148.4	171.62	7.691			
15,900.0	11,354.0	15,853.7	11,354.0	88.6	86.5	90.12	-5,378.0	-563.0	1,320.0	1,145.8	174.18	7.578			
16,000.0	11,354.0	15,953.7	11,354.0	89.8	87.8	90.12	-5,478.0	-562.2	1,320.0	1,143.3	176.76	7.468			
16,100.0	11,354.0	16,053.7	11,354.0	91.1	89.1	90.12	-5,578.0	-561.5	1,320.0	1,140.7	179.34	7.360			
16,200.0	11,354.0	16,153.7	11,354.0	92.4	90.3	90.12	-5,678.0	-560.7	1,320.0	1,138.1	181.93	7.256			
16,300.0	11,354.0	16,253.7	11,354.0	93.7	91.6	90.12	-5,778.0	-559.9	1,320.0	1,135.5	184.53	7.153			
16,400.0	11,354.0	16,353.7	11,354.0	95.0	92.9	90.12	-5,878.0	-559.1	1,320.0	1,132.9	187.14	7.053			
16,500.0	11,354.0	16,453.7	11,354.0	96.3	94.2	90.12	-5,978.0	-558.4	1,320.0	1,130.2	189.76	6.956			
16,600.0	11,354.0	16,553.7	11,354.0	97.6	95.6	90.12	-6,078.0	-557.6	1,320.0	1,127.6	192.39	6.861			
16,700.0	11,354.0	16,653.7	11,354.0	98.9	96.9	90.12	-6,178.0	-556.8	1,320.0	1,125.0	195.02	6.769			
16,800.0	11,354.0	16,753.7	11,354.0	100.3	98.2	90.12	-6,278.0	-556.0	1,320.0	1,122.3	197.66	6.678			
16,900.0	11,354.0	16,853.7	11,354.0	101.6	99.5	90.12	-6,378.0	-555.3	1,320.0	1,119.7	200.31	6.590			
17,000.0	11,354.0	16,953.7	11,354.0	102.9	100.8	90.12	-6,478.0	-554.5	1,320.0	1,117.0	202.96	6.504			
17,100.0	11,354.0	17,053.7	11,354.0	104.2	102.1	90.12	-6,578.0	-553.7	1,320.0	1,114.4	205.63	6.419			
17,200.0	11,354.0	17,153.7	11,354.0	105.6	103.5	90.12	-6,678.0	-552.9	1,320.0	1,111.7	208.29	6.337			
17,300.0	11,354.0	17,253.7	11,354.0	106.9	104.8	90.12	-6,777.9	-552.2	1,320.0	1,109.0	210.97	6.257			
17,400.0	11,354.0	17,353.7	11,354.0	108.2	106.1	90.12	-6,877.9	-551.4	1,320.0	1,106.4	213.65	6.178			
17,500.0	11,354.0	17,453.7	11,354.0	109.6	107.5	90.12	-6,977.9	-550.6	1,320.0	1,103.7	216.33	6.102			
17,600.0	11,354.0	17,553.7	11,354.0	110.9	108.8	90.12	-7,077.9	-549.8	1,320.0	1,101.0	219.02	6.027			
17,700.0	11,354.0	17,653.7	11,354.0	112.2	110.2	90.12	-7,177.9	-549.1	1,320.0	1,098.3	221.72	5.954			
17,800.0	11,354.0	17,753.7	11,354.0	113.6	111.5	90.12	-7,277.9	-548.3	1,320.0	1,095.6	224.42	5.882			
17,900.0	11,354.0	17,853.7	11,354.0	114.9	112.9	90.12	-7,377.9	-547.5	1,320.0	1,092.9	227.12	5.812			
18,000.0	11,354.0	17,953.7	11,354.0	116.3	114.2	90.12	-7,477.9	-546.7	1,320.0	1,090.2	229.83	5.743			
18,100.0	11,354.0	18,053.7	11,354.0	117.6	115.6	90.12	-7,577.9	-545.9	1,320.0	1,087.5	232.55	5.676			
18,200.0	11,354.0	18,153.7	11,354.0	119.0	116.9	90.12	-7,677.9	-545.2	1,320.0	1,084.7	235.27	5.611			
18,300.0	11,354.0	18,253.7	11,354.0	120.3	118.3	90.12	-7,777.9	-544.4	1,320.0	1,082.0	237.99	5.546			
18,400.0	11,354.0	18,353.7	11,354.0	121.7	119.6	90.12	-7,877.9	-543.6	1,320.0	1,079.3	240.72	5.484			
18,500.0	11,354.0	18,453.7	11,354.0	123.1	121.0	90.12	-7,977.9	-542.8	1,320.0	1,076.6	243.45	5.422			
18,600.0	11,354.0	18,553.7	11,354.0	124.4	122.4	90.12	-8,077.9	-542.1	1,320.0	1,073.8	246.18	5.362			
18,700.0	11,354.0	18,653.7	11,354.0	125.8	123.7	90.12	-8,177.9	-541.3	1,320.0	1,071.1	248.92	5.303			
18,800.0	11,354.0	18,753.7	11,354.0	127.2	125.1	90.12	-8,277.9	-540.5	1,320.0	1,068.3	251.66	5.245			
18,900.0	11,354.0	18,853.7	11,354.0	128.5	126.5	90.12	-8,377.9	-539.7	1,320.0	1,065.6	254.41	5.189			
19,000.0	11,354.0	18,953.7	11,354.0	129.9	127.8	90.12	-8,477.9	-539.0	1,320.0	1,062.9	257.16	5.133			
19,100.0	11,354.0	19,053.7	11,354.0	131.3	129.2	90.12	-8,577.9	-538.2	1,320.0	1,060.1	259.91	5.079			
19,200.0	11,354.0	19,153.7	11,354.0	132.7	130.6	90.12	-8,677.9	-537.4	1,320.0	1,057.3	262.66	5.025			
19,300.0	11,354.0	19,253.7	11,354.0	134.0	132.0	90.12	-8,777.9	-536.6	1,320.0	1,054.6	265.42	4.973			
19,400.0	11,354.0	19,353.7	11,354.0	135.4	133.4	90.12	-8,877.9	-535.9	1,320.0	1,051.8	268.18	4.922			
19,500.0	11,354.0	19,453.7	11,354.0	136.8	134.7	90.12	-8,977.9	-535.1	1,320.0	1,049.1	270.95	4.872			
19,600.0	11,354.0	19,553.7	11,354.0	138.2	136.1	90.12	-9,077.9	-534.3	1,320.0	1,046.3	273.71	4.823			
19,700.0	11,354.0	19,653.7	11,354.0	139.5	137.5	90.12	-9,177.9	-533.5	1,320.0	1,043.5	276.48	4.774			
19,800.0	11,354.0	19,753.7	11,354.0	140.9	138.9	90.12	-9,277.9	-532.8	1,320.0	1,040.8	279.25	4.727			
19,900.0	11,354.0	19,853.7	11,354.0	142.3	140.3	90.12	-9,377.9	-532.0	1,320.0	1,038.0	282.03	4.680			
20,000.0	11,354.0	19,953.7	11,354.0	143.7	141.7	90.12	-9,477.9	-531.2	1,320.0	1,035.2	284.80	4.635			
20,100.0	11,354.0	20,053.7	11,354.0	145.1	143.0	90.12	-9,577.9	-530.4	1,320.0	1,032.4	287.58	4.590			
20,200.0	11,354.0	20,153.7	11,354.0	146.5	144.4	90.12	-9,677.9	-529.7	1,320.0	1,029.6	290.36	4.546			
20,300.0	11,354.0	20,253.7	11,354.0	147.9	145.8	90.12	-9,777.9	-528.9	1,320.0	1,026.9	293.15	4.503			
20,400.0	11,354.0	20,353.7	11,354.0	149.2	147.2	90.12	-9,877.9	-528.1	1,320.0	1,024.1	295.93	4.461			
20,500.0	11,354.0	20,453.7	11,354.0	150.6	148.6	90.12	-9,977.9	-527.3	1,320.0	1,021.3	298.72	4.419			
20,600.0	11,354.0	20,553.7	11,354.0	152.0	150.0	90.12	-10,077.9	-526.6	1,320.0	1,018.5	301.51	4.378			

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
20,700.0	11,354.0	20,653.7	11,354.0	153.4	151.4	90.12	-10,177.8	-525.8	1,320.0	1,015.7	304.30	4.338	
20,800.0	11,354.0	20,753.7	11,354.0	154.8	152.8	90.12	-10,277.8	-525.0	1,320.0	1,012.9	307.10	4.298	
20,900.0	11,354.0	20,853.7	11,354.0	156.2	154.2	90.12	-10,377.8	-524.2	1,320.0	1,010.1	309.89	4.260	
21,000.0	11,354.0	20,953.7	11,354.0	157.6	155.6	90.12	-10,477.8	-523.4	1,320.0	1,007.3	312.69	4.221	
21,100.0	11,354.0	21,053.7	11,354.0	159.0	157.0	90.12	-10,577.8	-522.7	1,320.0	1,004.5	315.49	4.184	
21,200.0	11,354.0	21,153.7	11,354.0	160.4	158.4	90.12	-10,677.8	-521.9	1,320.0	1,001.7	318.29	4.147	
21,300.0	11,354.0	21,253.7	11,354.0	161.8	159.8	90.12	-10,777.8	-521.1	1,320.0	998.9	321.09	4.111	
21,400.0	11,354.0	21,353.7	11,354.0	163.2	161.2	90.12	-10,877.8	-520.3	1,320.0	996.1	323.89	4.075	
21,500.0	11,354.0	21,453.7	11,354.0	164.6	162.6	90.12	-10,977.8	-519.6	1,320.0	993.3	326.70	4.040	
21,600.0	11,354.0	21,553.7	11,354.0	166.0	164.0	90.12	-11,077.8	-518.8	1,320.0	990.5	329.51	4.006	
21,647.1	11,354.0	21,600.7	11,354.0	166.7	164.6	90.12	-11,124.9	-518.4	1,320.0	989.2	330.83	3.990 SF	

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	158.59	-60.3	-4.3	170.7				
100.0	100.0	98.7	98.7	0.1	0.1	158.59	-60.3	-4.3	170.7	170.4	0.26	652.145	
200.0	200.0	198.7	198.7	0.5	0.5	158.59	-60.3	-4.3	170.7	169.7	0.98	174.949	
300.0	300.0	298.7	298.7	0.8	0.8	158.59	-60.3	-4.3	170.7	169.0	1.69	100.849	
400.0	400.0	398.7	398.7	1.2	1.2	158.59	-60.3	-4.3	170.7	168.3	2.41	70.844	
500.0	500.0	498.7	498.7	1.6	1.6	158.59	-60.3	-4.3	170.7	167.6	3.13	54.599	
600.0	600.0	598.7	598.7	1.9	1.9	158.59	-60.3	-4.3	170.7	166.9	3.84	44.414	
700.0	700.0	698.7	698.7	2.3	2.3	158.59	-60.3	-4.3	170.7	166.1	4.56	37.432	
800.0	800.0	798.7	798.7	2.6	2.6	158.59	-60.3	-4.3	170.7	165.4	5.28	32.347	
900.0	900.0	898.7	898.7	3.0	3.0	158.59	-60.3	-4.3	170.7	164.7	5.99	28.478	
1,000.0	1,000.0	998.7	998.7	3.4	3.4	158.59	-60.3	-4.3	170.7	164.0	6.71	25.436	
1,100.0	1,100.0	1,098.7	1,098.7	3.7	3.7	158.59	-60.3	-4.3	170.7	163.3	7.43	22.981	
1,200.0	1,200.0	1,198.7	1,198.7	4.1	4.1	158.59	-60.3	-4.3	170.7	162.6	8.15	20.958	
1,300.0	1,300.0	1,298.7	1,298.7	4.4	4.4	158.59	-60.3	-4.3	170.7	161.8	8.86	19.263	
1,400.0	1,400.0	1,398.7	1,398.7	4.8	4.8	158.59	-60.3	-4.3	170.7	161.1	9.58	17.821	
1,500.0	1,500.0	1,498.7	1,498.7	5.2	5.1	158.59	-60.3	-4.3	170.7	160.4	10.30	16.580	
1,600.0	1,600.0	1,598.7	1,598.7	5.5	5.5	158.59	-60.3	-4.3	170.7	159.7	11.01	15.501	
1,700.0	1,700.0	1,698.7	1,698.7	5.9	5.9	158.59	-60.3	-4.3	170.7	159.0	11.73	14.553	
1,800.0	1,800.0	1,798.7	1,798.7	6.2	6.2	158.59	-60.3	-4.3	170.7	158.3	12.45	13.715	
1,900.0	1,900.0	1,898.7	1,898.7	6.6	6.6	158.59	-60.3	-4.3	170.7	157.5	13.16	12.968	
2,000.0	2,000.0	1,998.7	1,998.7	6.9	6.9	158.59	-60.3	-4.3	170.7	156.8	13.88	12.298 CC, ES	
2,100.0	2,100.0	2,093.3	2,093.3	7.3	7.3	158.73	-61.8	-4.2	172.3	157.7	14.56	11.834	
2,200.0	2,200.0	2,187.7	2,187.5	7.7	7.6	159.13	-66.4	-3.7	177.0	161.8	15.20	11.642	
2,300.0	2,300.0	2,281.6	2,281.1	8.0	7.9	159.76	-74.0	-2.9	184.9	169.1	15.83	11.677	
2,400.0	2,400.0	2,375.7	2,374.6	8.4	8.2	160.55	-84.7	-1.9	196.0	179.5	16.46	11.906	
2,500.0	2,500.0	2,474.9	2,473.0	8.7	8.5	161.38	-97.2	-0.6	208.3	191.1	17.14	12.150	
2,600.0	2,600.0	2,574.2	2,571.5	9.1	8.9	26.62	-109.7	0.6	219.1	201.3	17.82	12.298	
2,700.0	2,699.8	2,673.8	2,670.3	9.4	9.2	27.81	-122.3	1.9	226.9	208.4	18.48	12.279	
2,800.0	2,799.5	2,773.4	2,769.2	9.7	9.6	29.35	-134.8	3.1	231.7	212.6	19.15	12.103	
2,900.0	2,898.7	2,873.1	2,868.0	10.1	9.9	31.29	-147.4	4.4	233.8	214.0	19.82	11.795	
3,000.0	2,997.5	2,972.6	2,966.8	10.4	10.3	33.64	-159.9	5.6	233.4	212.9	20.50	11.386	
3,100.0	3,096.2	3,072.1	3,065.5	10.8	10.6	36.08	-172.5	6.9	232.9	211.8	21.18	10.996	
3,158.0	3,153.4	3,129.8	3,122.7	11.0	10.8	37.49	-179.7	7.6	232.9	211.3	21.59	10.788	
3,200.0	3,195.0	3,171.6	3,164.2	11.1	11.0	38.52	-185.0	8.1	232.9	211.0	21.88	10.646	
3,300.0	3,293.7	3,271.1	3,262.9	11.5	11.3	40.96	-197.5	9.4	233.3	210.7	22.58	10.334	
3,400.0	3,392.4	3,370.6	3,361.6	11.8	11.7	43.39	-210.1	10.6	234.1	210.8	23.28	10.057	
3,500.0	3,491.1	3,470.1	3,460.3	12.2	12.1	45.79	-222.6	11.9	235.4	211.4	23.99	9.810	
3,600.0	3,589.8	3,569.6	3,559.0	12.6	12.5	48.17	-235.1	13.1	237.0	212.3	24.71	9.591	
3,700.0	3,688.5	3,669.1	3,657.7	13.0	12.8	50.51	-247.7	14.4	239.1	213.6	25.44	9.399	
3,800.0	3,787.3	3,768.6	3,756.4	13.3	13.2	52.80	-260.2	15.6	241.5	215.4	26.17	9.230	
3,900.0	3,886.0	3,868.1	3,855.1	13.7	13.6	55.05	-272.7	16.9	244.4	217.5	26.90	9.082	
4,000.0	3,984.7	3,967.6	3,953.8	14.1	14.0	57.24	-285.3	18.1	247.6	219.9	27.65	8.954	
4,100.0	4,083.4	4,067.1	4,052.5	14.5	14.3	59.38	-297.8	19.4	251.1	222.7	28.40	8.843	
4,200.0	4,182.1	4,166.6	4,151.2	14.9	14.7	61.45	-310.3	20.7	255.0	225.9	29.15	8.748	
4,300.0	4,280.9	4,266.2	4,249.9	15.2	15.1	63.45	-322.9	21.9	259.3	229.3	29.91	8.668	
4,400.0	4,379.6	4,365.7	4,348.6	15.6	15.5	65.40	-335.4	23.2	263.8	233.1	30.68	8.600	
4,500.0	4,478.3	4,465.2	4,447.3	16.0	15.9	67.27	-348.0	24.4	268.6	237.2	31.44	8.543	
4,600.0	4,577.0	4,564.7	4,546.0	16.4	16.2	69.08	-360.5	25.7	273.7	241.5	32.22	8.497	
4,700.0	4,675.7	4,664.2	4,644.7	16.8	16.6	70.82	-373.0	26.9	279.1	246.1	32.99	8.460	
4,800.0	4,774.5	4,763.7	4,743.4	17.2	17.0	72.49	-385.6	28.2	284.7	251.0	33.77	8.431	
4,900.0	4,873.2	4,863.2	4,842.1	17.6	17.4	74.09	-398.1	29.4	290.6	256.0	34.55	8.410	
5,000.0	4,971.9	4,962.7	4,940.8	18.0	17.8	75.64	-410.6	30.7	296.7	261.3	35.34	8.395	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.0	5,070.6	5,062.2	5,039.5	18.4	18.2	77.12	-423.2	31.9	303.0	266.8	36.13	8.386	
5,200.0	5,169.3	5,161.7	5,138.2	18.8	18.5	78.54	-435.7	33.2	309.4	272.5	36.92	8.382 SF	
5,300.0	5,268.0	5,261.2	5,236.9	19.2	18.9	79.90	-448.2	34.4	316.1	278.4	37.71	8.382	
5,400.0	5,366.8	5,360.7	5,335.6	19.6	19.3	81.20	-460.8	35.7	322.9	284.4	38.50	8.387	
5,500.0	5,465.5	5,460.2	5,434.3	20.0	19.7	82.45	-473.3	36.9	329.9	290.6	39.30	8.396	
5,600.0	5,564.2	5,559.7	5,533.0	20.4	20.1	83.65	-485.8	38.2	337.0	297.0	40.09	8.407	
5,700.0	5,662.9	5,659.2	5,631.7	20.8	20.5	84.80	-498.4	39.4	344.3	303.4	40.89	8.421	
5,800.0	5,761.6	5,758.7	5,730.4	21.2	20.9	85.90	-510.9	40.7	351.7	310.1	41.69	8.438	
5,900.0	5,860.4	5,858.2	5,829.1	21.6	21.3	86.95	-523.5	41.9	359.3	316.8	42.49	8.457	
6,000.0	5,959.1	5,957.7	5,927.8	22.0	21.7	87.96	-536.0	43.2	366.9	323.7	43.29	8.477	
6,100.0	6,057.8	6,057.2	6,026.5	22.4	22.0	88.93	-548.5	44.4	374.7	330.6	44.09	8.500	
6,200.0	6,156.5	6,156.7	6,125.2	22.9	22.4	89.86	-561.1	45.7	382.6	337.7	44.89	8.523	
6,300.0	6,255.2	6,256.2	6,223.9	23.3	22.8	90.75	-573.6	46.9	390.5	344.8	45.69	8.548	
6,400.0	6,354.0	6,355.7	6,322.6	23.7	23.2	91.61	-586.1	48.2	398.6	352.1	46.49	8.574	
6,500.0	6,452.7	6,455.2	6,421.3	24.1	23.6	92.43	-598.7	49.4	406.7	359.4	47.29	8.600	
6,600.0	6,551.4	6,554.7	6,520.0	24.5	24.0	93.22	-611.2	50.7	414.9	366.9	48.09	8.628	
6,700.0	6,650.1	6,654.2	6,618.7	24.9	24.4	93.98	-623.7	51.9	423.2	374.3	48.90	8.656	
6,800.0	6,748.8	6,753.7	6,717.4	25.3	24.8	94.71	-636.3	53.2	431.6	381.9	49.70	8.684	
6,900.0	6,847.5	6,853.2	6,816.1	25.7	25.2	95.41	-648.8	54.4	440.0	389.5	50.50	8.713	
7,000.0	6,946.3	6,952.7	6,914.8	26.1	25.6	96.09	-661.3	55.7	448.5	397.2	51.31	8.742	
7,100.0	7,045.0	7,052.2	7,013.5	26.5	26.0	96.74	-673.9	56.9	457.1	405.0	52.11	8.772	
7,200.0	7,143.7	7,151.7	7,112.2	27.0	26.4	97.37	-686.4	58.2	465.7	412.8	52.91	8.801	
7,300.0	7,242.4	7,257.9	7,217.7	27.4	26.8	98.13	-698.7	59.4	473.9	420.1	53.77	8.813	
7,400.0	7,341.1	7,366.2	7,325.6	27.8	27.2	99.29	-707.3	60.3	480.3	425.7	54.61	8.794	
7,500.0	7,439.9	7,474.0	7,433.3	28.2	27.6	100.83	-711.8	60.7	485.1	429.7	55.43	8.752	
7,600.0	7,538.6	7,578.0	7,537.3	28.6	27.9	102.67	-712.6	60.8	488.8	432.6	56.20	8.697	
7,700.0	7,637.3	7,676.7	7,636.0	29.0	28.2	104.45	-712.6	60.8	492.5	435.6	56.93	8.652	
7,800.0	7,736.0	7,775.4	7,734.7	29.4	28.5	106.22	-712.6	60.8	496.8	439.2	57.66	8.617	
7,900.0	7,834.7	7,874.1	7,833.4	29.9	28.8	107.95	-712.6	60.8	501.6	443.2	58.38	8.591	
8,000.0	7,933.5	7,972.8	7,932.2	30.3	29.2	109.64	-712.6	60.8	506.8	447.7	59.10	8.575	
8,100.0	8,032.2	8,071.6	8,030.9	30.7	29.5	111.31	-712.6	60.8	512.4	452.6	59.81	8.567	
8,200.0	8,130.9	8,170.3	8,129.6	31.1	29.8	112.93	-712.6	60.8	518.5	458.0	60.52	8.568	
8,300.0	8,229.6	8,269.0	8,228.3	31.5	30.1	114.52	-712.6	60.8	525.0	463.7	61.22	8.575	
8,400.0	8,328.3	8,367.7	8,327.0	31.9	30.4	116.07	-712.6	60.8	531.9	469.9	61.92	8.590	
8,500.0	8,427.0	8,450.0	8,409.2	32.3	30.7	117.01	-715.7	60.8	540.3	477.7	62.54	8.639	
8,600.0	8,525.8	8,525.0	8,482.7	32.8	31.0	116.67	-730.1	60.9	553.0	489.9	63.10	8.764	
8,700.0	8,624.5	8,595.1	8,548.6	33.2	31.4	115.33	-753.8	61.1	570.5	506.9	63.53	8.980	
8,800.0	8,723.2	8,660.3	8,606.2	33.6	31.7	113.30	-784.3	61.3	593.4	529.6	63.73	9.311	
8,900.0	8,821.9	8,718.1	8,653.4	34.0	32.0	110.96	-817.6	61.6	622.6	559.1	63.56	9.795	
9,000.0	8,920.6	8,768.3	8,690.8	34.4	32.3	108.60	-851.0	61.9	658.9	595.9	62.97	10.463	
9,100.0	9,019.4	8,811.4	8,720.0	34.8	32.6	106.38	-882.7	62.1	702.3	640.3	61.99	11.331	
9,200.0	9,118.1	8,850.0	8,743.6	35.3	32.8	104.30	-913.2	62.3	752.8	692.0	60.74	12.393	
9,300.0	9,216.8	8,875.0	8,757.6	35.7	33.0	102.91	-934.0	62.5	809.6	750.6	59.06	13.709	
9,400.0	9,315.5	8,900.0	8,770.4	36.1	33.1	101.50	-955.4	62.7	872.2	814.8	57.44	15.185	
9,500.0	9,414.2	8,925.0	8,782.1	36.5	33.3	100.08	-977.5	62.8	939.7	883.7	55.94	16.796	
9,600.0	9,513.0	8,950.0	8,792.6	36.9	33.4	99.66	-1,000.2	63.0	1,011.3	956.7	54.60	18.523	
9,700.0	9,612.2	8,975.0	8,802.0	37.3	33.6	100.41	-1,023.4	63.2	1,086.4	1,033.1	53.38	20.352	
9,800.0	9,711.8	8,975.0	8,802.0	37.7	33.6	102.83	-1,023.4	63.2	1,164.2	1,112.5	51.70	22.519	
9,900.0	9,811.6	9,000.0	8,810.1	38.1	33.8	103.86	-1,047.0	63.4	1,244.4	1,193.6	50.79	24.502	
10,000.0	9,911.6	9,000.0	8,810.1	38.4	33.8	106.63	-1,047.0	63.4	1,326.4	1,276.9	49.46	26.818	
10,100.0	10,011.6	9,010.6	8,813.2	38.7	33.8	-118.16	-1,057.2	63.5	1,410.3	1,361.8	48.53	29.061	
10,200.0	10,111.6	9,025.0	8,816.9	39.0	33.9	-119.09	-1,071.0	63.6	1,496.1	1,448.3	47.83	31.283	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1													Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.0	10,211.6	9,025.0	8,816.9	39.3	33.9	-119.09	-1,071.0	63.6	1,583.4	1,536.4	46.99	33.699		
10,400.0	10,311.6	9,025.0	8,816.9	39.6	33.9	-119.09	-1,071.0	63.6	1,672.1	1,625.8	46.29	36.124		
10,500.0	10,411.6	9,035.8	8,819.5	40.0	34.0	-119.79	-1,081.5	63.7	1,761.8	1,715.9	45.89	38.396		
10,600.0	10,511.6	9,050.0	8,822.5	40.3	34.1	-120.70	-1,095.4	63.8	1,852.7	1,807.0	45.62	40.607		
10,700.0	10,611.6	9,050.0	8,822.5	40.6	34.1	-120.70	-1,095.4	63.8	1,944.2	1,899.0	45.23	42.989		
10,800.0	10,711.6	9,050.0	8,822.5	40.9	34.1	-120.70	-1,095.4	63.8	2,036.5	1,991.6	44.91	45.347		
10,900.0	10,811.6	9,050.0	8,822.5	41.2	34.1	-120.70	-1,095.4	63.8	2,129.6	2,084.9	44.67	47.678		
11,000.0	10,911.6	9,050.0	8,822.5	41.5	34.1	50.93	-1,095.4	63.8	2,222.9	2,178.5	44.47	49.982		
11,100.0	11,009.8	9,063.2	8,825.0	41.9	34.2	34.14	-1,108.4	63.9	2,312.4	2,268.0	44.37	52.113		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	2.0	2.0	0.0	0.0	88.91	99.8	-6.6	60.1				
100.0	100.0	102.0	102.0	0.1	0.1	88.91	99.8	-6.6	60.1	59.8	0.27	221.953	
200.0	200.0	202.0	202.0	0.5	0.5	88.91	99.8	-6.6	60.1	59.1	0.99	60.826	
300.0	300.0	302.0	302.0	0.8	0.9	88.91	99.8	-6.6	60.1	58.4	1.70	35.242	
400.0	400.0	402.0	402.0	1.2	1.2	88.91	99.8	-6.6	60.1	57.6	2.42	24.808	
500.0	500.0	502.0	502.0	1.6	1.6	88.91	99.8	-6.6	60.1	56.9	3.14	19.140	
600.0	600.0	602.0	602.0	1.9	1.9	88.91	99.8	-6.6	60.1	56.2	3.86	15.581	
700.0	700.0	702.0	702.0	2.3	2.3	88.91	99.8	-6.6	60.1	55.5	4.57	13.138	
800.0	800.0	802.0	802.0	2.6	2.6	88.91	99.8	-6.6	60.1	54.8	5.29	11.357	
900.0	900.0	902.0	902.0	3.0	3.0	88.91	99.8	-6.6	60.1	54.1	6.01	10.001	
1,000.0	1,000.0	1,002.0	1,002.0	3.4	3.4	88.91	99.8	-6.6	60.1	53.3	6.72	8.935	
1,100.0	1,100.0	1,102.0	1,102.0	3.7	3.7	88.91	99.8	-6.6	60.1	52.6	7.44	8.074	
1,200.0	1,200.0	1,202.0	1,202.0	4.1	4.1	88.91	99.8	-6.6	60.1	51.9	8.16	7.364	
1,300.0	1,300.0	1,302.0	1,302.0	4.4	4.4	88.91	99.8	-6.6	60.1	51.2	8.87	6.769	
1,400.0	1,400.0	1,402.0	1,402.0	4.8	4.8	88.91	99.8	-6.6	60.1	50.5	9.59	6.263	
1,500.0	1,500.0	1,502.0	1,502.0	5.2	5.2	88.91	99.8	-6.6	60.1	49.8	10.31	5.828	
1,600.0	1,600.0	1,602.0	1,602.0	5.5	5.5	88.91	99.8	-6.6	60.1	49.0	11.02	5.449	
1,700.0	1,700.0	1,702.0	1,702.0	5.9	5.9	88.91	99.8	-6.6	60.1	48.3	11.74	5.116	
1,800.0	1,800.0	1,802.0	1,802.0	6.2	6.2	88.91	99.8	-6.6	60.1	47.6	12.46	4.822	
1,900.0	1,900.0	1,902.0	1,902.0	6.6	6.6	88.91	99.8	-6.6	60.1	46.9	13.18	4.559	
1,916.0	1,916.0	1,918.0	1,918.0	6.6	6.6	88.91	99.8	-6.6	60.1	46.8	13.29	4.520 CC	
2,000.0	2,000.0	2,002.0	2,002.0	6.9	6.9	88.91	99.8	-6.6	60.1	46.2	13.89	4.324 ES	
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	89.75	98.9	-5.0	61.6	47.0	14.58	4.225 SF	
2,200.0	2,200.0	2,198.1	2,198.0	7.7	7.6	91.97	96.4	-0.6	66.2	50.9	15.25	4.338	
2,300.0	2,300.0	2,295.6	2,295.1	8.0	7.9	95.04	92.2	6.7	73.9	58.0	15.90	4.646	
2,400.0	2,400.0	2,392.4	2,391.2	8.4	8.3	98.36	86.4	16.7	84.9	68.4	16.54	5.135	
2,500.0	2,500.0	2,488.4	2,486.0	8.7	8.6	101.51	79.1	29.4	99.3	82.2	17.15	5.792	
2,600.0	2,600.0	2,583.5	2,579.5	9.1	9.0	-31.57	70.3	44.8	115.7	98.0	17.72	6.527	
2,700.0	2,699.8	2,678.1	2,671.8	9.4	9.3	-30.04	60.0	62.7	132.4	114.1	18.27	7.246	
2,800.0	2,799.5	2,772.1	2,762.8	9.7	9.7	-29.17	48.2	83.1	149.3	130.5	18.80	7.940	
2,900.0	2,898.7	2,866.9	2,853.7	10.1	10.0	-28.75	34.9	106.3	166.3	146.9	19.35	8.593	
3,000.0	2,997.5	2,964.3	2,946.7	10.4	10.5	-28.82	20.4	131.4	182.2	162.2	20.00	9.110	
3,100.0	3,096.2	3,063.1	3,041.1	10.8	10.9	-29.03	5.8	157.0	197.5	176.8	20.69	9.546	
3,200.0	3,195.0	3,162.0	3,135.4	11.1	11.3	-29.22	-8.9	182.5	212.9	191.5	21.39	9.951	
3,300.0	3,293.7	3,260.8	3,229.7	11.5	11.8	-29.38	-23.6	208.0	228.3	206.1	22.11	10.326	
3,400.0	3,392.4	3,359.6	3,324.0	11.8	12.2	-29.52	-38.3	233.5	243.6	220.8	22.82	10.674	
3,500.0	3,491.1	3,458.4	3,418.3	12.2	12.7	-29.65	-53.0	259.1	259.0	235.4	23.55	10.999	
3,600.0	3,589.8	3,557.2	3,512.7	12.6	13.2	-29.76	-67.7	284.6	274.3	250.1	24.28	11.301	
3,700.0	3,688.5	3,656.0	3,607.0	13.0	13.6	-29.86	-82.3	310.1	289.7	264.7	25.01	11.584	
3,800.0	3,787.3	3,754.8	3,701.3	13.3	14.1	-29.95	-97.0	335.6	305.1	279.3	25.75	11.848	
3,900.0	3,886.0	3,853.6	3,795.6	13.7	14.6	-30.03	-111.7	361.2	320.4	293.9	26.49	12.095	
4,000.0	3,984.7	3,952.4	3,890.0	14.1	15.1	-30.10	-126.4	386.7	335.8	308.6	27.24	12.328	
4,100.0	4,083.4	4,051.3	3,984.3	14.5	15.6	-30.17	-141.1	412.2	351.2	323.2	27.99	12.546	
4,200.0	4,182.1	4,150.1	4,078.6	14.9	16.1	-30.23	-155.7	437.7	366.5	337.8	28.75	12.751	
4,300.0	4,280.9	4,248.9	4,172.9	15.2	16.6	-30.28	-170.4	463.3	381.9	352.4	29.50	12.944	
4,400.0	4,379.6	4,347.7	4,267.2	15.6	17.1	-30.33	-185.1	488.8	397.3	367.0	30.27	13.126	
4,500.0	4,478.3	4,446.5	4,361.6	16.0	17.7	-30.38	-199.8	514.3	412.7	381.6	31.03	13.299	
4,600.0	4,577.0	4,545.3	4,455.9	16.4	18.2	-30.43	-214.5	539.8	428.0	396.2	31.80	13.461	
4,700.0	4,675.7	4,644.1	4,550.2	16.8	18.7	-30.47	-229.2	565.4	443.4	410.8	32.56	13.616	
4,800.0	4,774.5	4,742.9	4,644.5	17.2	19.2	-30.51	-243.8	590.9	458.8	425.4	33.34	13.762	
4,900.0	4,873.2	4,841.7	4,738.8	17.6	19.7	-30.54	-258.5	616.4	474.1	440.0	34.11	13.901	
5,000.0	4,971.9	4,940.6	4,833.2	18.0	20.3	-30.58	-273.2	641.9	489.5	454.6	34.88	14.032	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.0	5,070.6	5,039.4	4,927.5	18.4	20.8	-30.61	-287.9	667.5	504.9	469.2	35.66	14.158	
5,200.0	5,169.3	5,138.2	5,021.8	18.8	21.3	-30.64	-302.6	693.0	520.2	483.8	36.44	14.277	
5,300.0	5,268.0	5,237.0	5,116.1	19.2	21.8	-30.67	-317.2	718.5	535.6	498.4	37.22	14.391	
5,400.0	5,366.8	5,335.8	5,210.5	19.6	22.4	-30.69	-331.9	744.0	551.0	513.0	38.00	14.500	
5,500.0	5,465.5	5,434.6	5,304.8	20.0	22.9	-30.72	-346.6	769.6	566.4	527.6	38.78	14.603	
5,600.0	5,564.2	5,533.4	5,399.1	20.4	23.4	-30.74	-361.3	795.1	581.7	542.2	39.57	14.702	
5,700.0	5,662.9	5,632.2	5,493.4	20.8	24.0	-30.76	-376.0	820.6	597.1	556.7	40.35	14.797	
5,800.0	5,761.6	5,731.0	5,587.7	21.2	24.5	-30.79	-390.7	846.1	612.5	571.3	41.14	14.888	
5,900.0	5,860.4	5,829.9	5,682.1	21.6	25.1	-30.81	-405.3	871.7	627.8	585.9	41.93	14.975	
6,000.0	5,959.1	5,928.7	5,776.4	22.0	25.6	-30.83	-420.0	897.2	643.2	600.5	42.72	15.058	
6,100.0	6,057.8	6,027.5	5,870.7	22.4	26.1	-30.84	-434.7	922.7	658.6	615.1	43.51	15.138	
6,200.0	6,156.5	6,126.3	5,965.0	22.9	26.7	-30.86	-449.4	948.2	674.0	629.7	44.30	15.215	
6,300.0	6,255.2	6,225.1	6,059.4	23.3	27.2	-30.88	-464.1	973.8	689.3	644.2	45.09	15.289	
6,400.0	6,354.0	6,323.9	6,153.7	23.7	27.8	-30.90	-478.7	999.3	704.7	658.8	45.88	15.359	
6,500.0	6,452.7	6,422.7	6,248.0	24.1	28.3	-30.91	-493.4	1,024.8	720.1	673.4	46.67	15.428	
6,600.0	6,551.4	6,521.5	6,342.3	24.5	28.8	-30.93	-508.1	1,050.3	735.4	688.0	47.47	15.494	
6,700.0	6,650.1	6,620.3	6,436.6	24.9	29.4	-30.94	-522.8	1,075.9	750.8	702.6	48.26	15.557	
6,800.0	6,748.8	6,719.2	6,531.0	25.3	29.9	-30.95	-537.5	1,101.4	766.2	717.1	49.06	15.618	
6,900.0	6,847.5	6,818.0	6,625.3	25.7	30.5	-30.97	-552.2	1,126.9	781.6	731.7	49.85	15.677	
7,000.0	6,946.3	6,916.8	6,719.6	26.1	31.0	-30.98	-566.8	1,152.4	796.9	746.3	50.65	15.734	
7,100.0	7,045.0	7,015.6	6,813.9	26.5	31.6	-30.99	-581.5	1,178.0	812.3	760.9	51.45	15.789	
7,200.0	7,143.7	7,114.4	6,908.2	27.0	32.1	-31.00	-596.2	1,203.5	827.7	775.4	52.25	15.842	
7,300.0	7,242.4	7,213.2	7,002.6	27.4	32.7	-31.01	-610.9	1,229.0	843.0	790.0	53.05	15.893	
7,400.0	7,341.1	7,312.0	7,096.9	27.8	33.2	-31.02	-625.6	1,254.5	858.4	804.6	53.84	15.943	
7,500.0	7,439.9	7,430.4	7,210.1	28.2	33.8	-31.05	-642.8	1,284.5	873.3	818.4	54.85	15.921	
7,600.0	7,538.6	7,511.4	7,346.6	28.6	34.6	-31.18	-660.5	1,315.3	884.1	828.1	56.01	15.784	
7,700.0	7,637.3	7,713.5	7,485.7	29.0	35.2	-31.44	-674.9	1,340.4	890.2	833.1	57.07	15.598	
7,800.0	7,736.0	7,856.0	7,626.4	29.4	35.8	-31.81	-686.0	1,359.5	891.5	833.5	58.01	15.368	
7,900.0	7,834.7	7,998.1	7,767.7	29.9	36.3	-32.32	-693.4	1,372.5	888.1	829.2	58.84	15.094	
8,000.0	7,933.5	8,139.3	7,908.6	30.3	36.8	-32.96	-697.4	1,379.5	880.0	820.4	59.54	14.779	
8,100.0	8,032.2	8,264.8	8,034.2	30.7	37.1	-33.66	-698.2	1,380.7	867.6	807.4	60.20	14.411	
8,200.0	8,130.9	8,363.5	8,132.9	31.1	37.4	-34.25	-698.2	1,380.7	854.3	793.3	60.96	14.015	
8,300.0	8,229.6	8,462.3	8,231.6	31.5	37.6	-34.86	-698.2	1,380.7	841.1	779.4	61.71	13.629	
8,400.0	8,328.3	8,561.0	8,330.3	31.9	37.9	-35.49	-698.2	1,380.7	828.0	765.5	62.48	13.253	
8,500.0	8,427.0	8,642.1	8,411.3	32.3	38.1	-35.78	-701.5	1,380.7	815.8	752.5	63.31	12.886	
8,600.0	8,525.8	8,717.1	8,484.7	32.8	38.4	-35.25	-716.2	1,380.9	806.5	742.4	64.08	12.585	
8,700.0	8,624.5	8,788.5	8,551.7	33.2	38.7	-33.97	-740.8	1,381.1	800.5	735.8	64.77	12.360	
8,781.0	8,704.5	8,841.9	8,599.0	33.5	38.9	-32.55	-765.5	1,381.2	798.9	733.7	65.23	12.248	
8,800.0	8,723.2	8,850.0	8,606.0	33.6	38.9	-32.30	-769.7	1,381.3	799.0	733.7	65.31	12.233	
8,900.0	8,821.9	8,911.4	8,655.9	34.0	39.2	-30.14	-805.3	1,381.6	803.0	737.4	65.66	12.230	
9,000.0	8,920.6	8,961.4	8,693.0	34.4	39.4	-28.07	-838.9	1,381.8	813.8	748.1	65.71	12.385	
9,100.0	9,019.4	9,000.0	8,719.1	34.8	39.6	-26.30	-867.3	1,382.0	832.2	766.8	65.36	12.733	
9,200.0	9,118.1	9,040.9	8,744.2	35.3	39.8	-24.30	-899.6	1,382.3	858.5	793.8	64.72	13.265	
9,300.0	9,216.8	9,075.0	8,762.8	35.7	40.0	-22.56	-928.1	1,382.5	892.7	829.0	63.75	14.004	
9,400.0	9,315.5	9,100.0	8,775.2	36.1	40.1	-21.25	-949.8	1,382.7	934.6	872.1	62.46	14.963	
9,500.0	9,414.2	9,125.0	8,786.5	36.5	40.3	-19.92	-972.1	1,382.8	983.3	922.3	61.06	16.105	
9,600.0	9,513.0	9,142.1	8,793.5	36.9	40.4	-19.21	-987.8	1,383.0	1,038.7	979.2	59.51	17.453	
9,700.0	9,612.2	9,158.9	8,799.8	37.3	40.4	-18.81	-1,003.3	1,383.1	1,101.7	1,043.7	58.04	18.982	
9,800.0	9,711.8	9,175.0	8,805.4	37.7	40.5	-18.50	-1,018.4	1,383.2	1,171.7	1,115.0	56.71	20.662	
9,900.0	9,811.6	9,184.3	8,808.4	38.1	40.6	-18.67	-1,027.3	1,383.3	1,247.4	1,192.0	55.44	22.500	
10,000.0	9,911.6	9,200.0	8,813.0	38.4	40.7	-18.55	-1,042.2	1,383.4	1,328.1	1,273.7	54.48	24.380	
10,100.0	10,011.6	9,200.0	8,813.0	38.7	40.7	116.95	-1,042.2	1,383.4	1,412.1	1,358.7	53.42	26.432	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor
10,200.0	10,111.6	9,200.0	8,813.0	39.0	40.7	116.95	-1,042.2	1,383.4	1,498.1	1,445.5		52.51	28.531
10,300.0	10,211.6	9,225.0	8,819.3	39.3	40.8	118.58	-1,066.4	1,383.6	1,585.5	1,533.4		52.08	30.442
10,400.0	10,311.6	9,225.0	8,819.3	39.6	40.8	118.58	-1,066.4	1,383.6	1,674.1	1,622.7		51.39	32.576
10,500.0	10,411.6	9,225.0	8,819.3	40.0	40.8	118.58	-1,066.4	1,383.6	1,763.9	1,713.1		50.80	34.723
10,600.0	10,511.6	9,225.0	8,819.3	40.3	40.8	118.58	-1,066.4	1,383.6	1,854.8	1,804.5		50.30	36.875
10,700.0	10,611.6	9,236.2	8,821.8	40.6	40.9	119.30	-1,077.3	1,383.7	1,946.4	1,896.4		50.02	38.911
10,800.0	10,711.6	9,250.0	8,824.4	40.9	41.0	120.18	-1,090.9	1,383.8	2,038.9	1,989.1		49.84	40.909
10,900.0	10,811.6	9,250.0	8,824.4	41.2	41.0	120.18	-1,090.9	1,383.8	2,131.9	2,082.4		49.55	43.027
11,000.0	10,911.6	9,250.0	8,824.4	41.5	41.0	-50.63	-1,090.9	1,383.8	2,225.3	2,176.0		49.30	45.133
11,100.0	11,009.8	9,250.0	8,824.4	41.9	41.0	-34.30	-1,090.9	1,383.8	2,314.8	2,265.8		49.02	47.218

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	172.03	-60.9	-44.3	161.2				
100.0	100.0	97.4	97.4	0.1	0.1	172.03	-60.9	-44.3	161.1	160.9	0.26	619.631	
200.0	200.0	197.4	197.4	0.5	0.5	172.03	-60.9	-44.3	161.1	160.2	0.97	165.932	
300.0	300.0	297.4	297.4	0.8	0.8	172.03	-60.9	-44.3	161.1	159.4	1.69	95.457	
400.0	400.0	397.4	397.4	1.2	1.2	172.03	-60.9	-44.3	161.1	158.7	2.40	67.001	
500.0	500.0	497.4	497.4	1.6	1.6	172.03	-60.9	-44.3	161.1	158.0	3.12	51.614	
600.0	600.0	597.4	597.4	1.9	1.9	172.03	-60.9	-44.3	161.1	157.3	3.84	41.975	
700.0	700.0	697.4	697.4	2.3	2.3	172.03	-60.9	-44.3	161.1	156.6	4.56	35.369	
800.0	800.0	797.4	797.4	2.6	2.6	172.03	-60.9	-44.3	161.1	155.9	5.27	30.560	
900.0	900.0	897.4	897.4	3.0	3.0	172.03	-60.9	-44.3	161.1	155.1	5.99	26.902	
1,000.0	1,000.0	997.4	997.4	3.4	3.3	172.03	-60.9	-44.3	161.1	154.4	6.71	24.026	
1,100.0	1,100.0	1,097.4	1,097.4	3.7	3.7	172.03	-60.9	-44.3	161.1	153.7	7.42	21.706	
1,200.0	1,200.0	1,197.4	1,197.4	4.1	4.1	172.03	-60.9	-44.3	161.1	153.0	8.14	19.794	
1,300.0	1,300.0	1,297.4	1,297.4	4.4	4.4	172.03	-60.9	-44.3	161.1	152.3	8.86	18.192	
1,400.0	1,400.0	1,397.4	1,397.4	4.8	4.8	172.03	-60.9	-44.3	161.1	151.6	9.57	16.830	
1,500.0	1,500.0	1,497.4	1,497.4	5.2	5.1	172.03	-60.9	-44.3	161.1	150.8	10.29	15.657	
1,600.0	1,600.0	1,597.4	1,597.4	5.5	5.5	172.03	-60.9	-44.3	161.1	150.1	11.01	14.638	
1,700.0	1,700.0	1,697.4	1,697.4	5.9	5.9	172.03	-60.9	-44.3	161.1	149.4	11.73	13.743	
1,800.0	1,800.0	1,797.4	1,797.4	6.2	6.2	172.03	-60.9	-44.3	161.1	148.7	12.44	12.951	
1,900.0	1,900.0	1,897.4	1,897.4	6.6	6.6	172.03	-60.9	-44.3	161.1	148.0	13.16	12.245	
2,000.0	2,000.0	1,997.4	1,997.4	6.9	6.9	172.03	-60.9	-44.3	161.1	147.3	13.88	11.613	
2,100.0	2,100.0	2,097.4	2,097.4	7.3	7.3	172.03	-60.9	-44.3	161.1	146.5	14.59	11.042	
2,200.0	2,200.0	2,197.4	2,197.4	7.7	7.7	172.03	-60.9	-44.3	161.1	145.8	15.31	10.525 CC, ES	
2,300.0	2,300.0	2,293.8	2,293.8	8.0	8.0	172.43	-62.1	-45.3	162.2	146.2	16.00	10.140	
2,400.0	2,400.0	2,390.0	2,399.8	8.4	8.3	173.65	-65.7	-48.3	165.6	148.9	16.66	9.939	
2,500.0	2,500.0	2,485.7	2,485.2	8.7	8.6	175.58	-71.8	-53.4	171.4	154.1	17.31	9.900	
2,600.0	2,600.0	2,581.1	2,580.0	9.1	8.9	42.73	-80.3	-60.6	178.6	160.7	17.94	9.954	
2,700.0	2,699.8	2,680.2	2,678.2	9.4	9.3	46.40	-90.1	-68.9	184.9	166.3	18.60	9.944	
2,800.0	2,799.5	2,779.0	2,776.2	9.7	9.6	50.60	-99.9	-77.2	189.8	170.5	19.26	9.855	
2,900.0	2,898.7	2,877.6	2,874.0	10.1	10.0	55.39	-109.8	-85.4	193.6	173.7	19.92	9.722	
3,000.0	2,997.5	2,975.8	2,971.3	10.4	10.3	60.75	-119.5	-93.6	197.3	176.7	20.58	9.585	
3,100.0	3,096.2	3,073.8	3,068.5	10.8	10.7	66.05	-129.3	-101.8	202.4	181.2	21.25	9.523	
3,200.0	3,195.0	3,171.9	3,165.8	11.1	11.0	71.07	-139.0	-110.1	209.2	187.3	21.94	9.539	
3,300.0	3,293.7	3,270.0	3,263.0	11.5	11.4	75.74	-148.8	-118.3	217.6	195.0	22.62	9.619	
3,400.0	3,392.4	3,368.1	3,360.3	11.8	11.7	80.05	-158.5	-126.5	227.4	204.0	23.32	9.749	
3,500.0	3,491.1	3,466.2	3,457.5	12.2	12.1	84.00	-168.3	-134.7	238.3	214.3	24.02	9.920	
3,600.0	3,589.8	3,564.2	3,554.8	12.6	12.4	87.59	-178.0	-142.9	250.3	225.6	24.73	10.121	
3,700.0	3,688.5	3,662.3	3,652.0	13.0	12.8	90.85	-187.8	-151.1	263.2	237.7	25.44	10.343	
3,800.0	3,787.3	3,760.4	3,749.3	13.3	13.2	93.80	-197.5	-159.4	276.8	250.7	26.16	10.582	
3,900.0	3,886.0	3,858.5	3,846.5	13.7	13.5	96.48	-207.3	-167.6	291.2	264.3	26.89	10.830	
4,000.0	3,984.7	3,956.6	3,943.8	14.1	13.9	98.90	-217.1	-175.8	306.1	278.5	27.61	11.085	
4,100.0	4,083.4	4,054.6	4,041.0	14.5	14.3	101.10	-226.8	-184.0	321.5	293.1	28.34	11.343	
4,200.0	4,182.1	4,152.7	4,138.2	14.9	14.7	103.09	-236.6	-192.2	337.3	308.2	29.07	11.602	
4,300.0	4,280.9	4,250.8	4,235.5	15.2	15.0	104.91	-246.3	-200.4	353.5	323.7	29.81	11.859	
4,400.0	4,379.6	4,348.9	4,332.7	15.6	15.4	106.57	-256.1	-208.6	370.0	339.5	30.55	12.113	
4,500.0	4,478.3	4,447.0	4,430.0	16.0	15.8	108.09	-265.8	-216.9	386.8	355.5	31.28	12.363	
4,600.0	4,577.0	4,545.0	4,527.2	16.4	16.2	109.48	-275.6	-225.1	403.8	371.8	32.03	12.609	
4,700.0	4,675.7	4,643.1	4,624.5	16.8	16.5	110.76	-285.3	-233.3	421.1	388.3	32.77	12.849	
4,800.0	4,774.5	4,741.2	4,721.7	17.2	16.9	111.94	-295.1	-241.5	438.5	405.0	33.52	13.084	
4,900.0	4,873.2	4,839.3	4,819.0	17.6	17.3	113.03	-304.8	-249.7	456.1	421.8	34.26	13.312	
5,000.0	4,971.9	4,937.3	4,916.2	18.0	17.7	114.03	-314.6	-257.9	473.9	438.9	35.01	13.535	
5,100.0	5,070.6	5,035.4	5,013.5	18.4	18.0	114.97	-324.4	-266.2	491.7	456.0	35.76	13.751	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.0	5,169.3	5,133.5	5,110.7	18.8	18.4	115.84	-334.1	-274.4	509.8	473.2	36.51	13.962	
5,300.0	5,268.0	5,231.6	5,208.0	19.2	18.8	116.65	-343.9	-282.6	527.9	490.6	37.26	14.166	
5,400.0	5,366.8	5,329.7	5,305.2	19.6	19.2	117.41	-353.6	-290.8	546.1	508.1	38.02	14.364	
5,500.0	5,465.5	5,427.7	5,402.5	20.0	19.6	118.12	-363.4	-299.0	564.4	525.6	38.77	14.557	
5,600.0	5,564.2	5,525.8	5,499.7	20.4	20.0	118.78	-373.1	-307.2	582.7	543.2	39.53	14.743	
5,700.0	5,662.9	5,623.9	5,597.0	20.8	20.3	119.41	-382.9	-315.4	601.2	560.9	40.28	14.924	
5,800.0	5,761.6	5,722.0	5,694.2	21.2	20.7	119.99	-392.6	-323.7	619.7	578.6	41.04	15.100	
5,900.0	5,860.4	5,820.1	5,791.4	21.6	21.1	120.54	-402.4	-331.9	638.3	596.5	41.80	15.270	
6,000.0	5,959.1	5,918.1	5,888.7	22.0	21.5	121.07	-412.1	-340.1	656.9	614.3	42.56	15.436	
6,100.0	6,057.8	6,016.2	5,985.9	22.4	21.9	121.56	-421.9	-348.3	675.5	632.2	43.32	15.596	
6,200.0	6,156.5	6,114.3	6,083.2	22.9	22.3	122.03	-431.7	-356.5	694.3	650.2	44.08	15.752	
6,300.0	6,255.2	6,212.4	6,180.4	23.3	22.7	122.47	-441.4	-364.7	713.0	668.2	44.84	15.903	
6,400.0	6,354.0	6,310.5	6,277.7	23.7	23.0	122.89	-451.2	-373.0	731.8	686.2	45.60	16.049	
6,500.0	6,452.7	6,408.5	6,374.9	24.1	23.4	123.29	-460.9	-381.2	750.7	704.3	46.36	16.192	
6,600.0	6,551.4	6,506.6	6,472.2	24.5	23.8	123.66	-470.7	-389.4	769.5	722.4	47.12	16.330	
6,700.0	6,650.1	6,604.7	6,569.4	24.9	24.2	124.02	-480.4	-397.6	788.4	740.5	47.89	16.464	
6,800.0	6,748.8	6,702.8	6,666.7	25.3	24.6	124.37	-490.2	-405.8	807.4	758.7	48.65	16.595	
6,900.0	6,847.5	6,800.9	6,763.9	25.7	25.0	124.70	-499.9	-414.0	826.3	776.9	49.42	16.722	
7,000.0	6,946.3	6,898.9	6,861.2	26.1	25.4	125.01	-509.7	-422.2	845.3	795.1	50.18	16.845	
7,100.0	7,045.0	6,997.0	6,958.4	26.5	25.8	125.31	-519.4	-430.5	864.3	813.3	50.95	16.965	
7,200.0	7,143.7	7,095.1	7,055.7	27.0	26.1	125.60	-529.2	-438.7	883.3	831.6	51.71	17.081	
7,300.0	7,242.4	7,193.2	7,152.9	27.4	26.5	125.87	-539.0	-446.9	902.4	849.9	52.48	17.195	
7,400.0	7,341.1	7,291.3	7,250.1	27.8	26.9	126.13	-548.7	-455.1	921.4	868.2	53.25	17.305	
7,500.0	7,439.9	7,389.3	7,347.4	28.2	27.3	126.39	-558.5	-463.3	940.5	886.5	54.01	17.412	
7,600.0	7,538.6	7,487.4	7,444.6	28.6	27.7	126.63	-568.2	-471.5	959.6	904.8	54.78	17.517	
7,700.0	7,637.3	7,585.5	7,541.9	29.0	28.1	126.86	-578.0	-479.8	978.7	923.2	55.55	17.619	
7,800.0	7,736.0	7,683.6	7,639.1	29.4	28.5	127.09	-587.7	-488.0	997.9	941.5	56.32	17.718	
7,900.0	7,834.7	7,781.7	7,736.4	29.9	28.9	127.30	-597.5	-496.2	1,017.0	959.9	57.09	17.815	
8,000.0	7,933.5	7,879.7	7,833.6	30.3	29.3	127.51	-607.2	-504.4	1,036.2	978.3	57.86	17.909	
8,100.0	8,032.2	7,977.8	7,930.9	30.7	29.6	127.71	-617.0	-512.6	1,055.3	996.7	58.63	18.001	
8,200.0	8,130.9	8,075.9	8,028.1	31.1	30.0	127.91	-626.7	-520.8	1,074.5	1,015.1	59.40	18.091	
8,300.0	8,229.6	8,174.0	8,125.4	31.5	30.4	128.09	-636.5	-529.0	1,093.7	1,033.5	60.17	18.178	
8,400.0	8,328.3	8,272.0	8,222.6	31.9	30.8	128.27	-646.3	-537.3	1,112.9	1,052.0	60.94	18.263	
8,500.0	8,427.0	8,370.1	8,319.9	32.3	31.2	128.45	-656.0	-545.5	1,132.1	1,070.4	61.71	18.347	
8,600.0	8,525.8	8,468.2	8,417.1	32.8	31.6	128.61	-665.8	-553.7	1,151.4	1,088.9	62.48	18.428	
8,700.0	8,624.5	8,566.3	8,514.4	33.2	32.0	128.78	-675.5	-561.9	1,170.6	1,107.3	63.25	18.507	
8,800.0	8,723.2	8,664.4	8,611.6	33.6	32.4	128.93	-685.3	-570.1	1,189.8	1,125.8	64.02	18.585	
8,900.0	8,821.9	8,762.4	8,708.8	34.0	32.8	129.09	-695.0	-578.3	1,209.1	1,144.3	64.79	18.660	
9,000.0	8,920.6	8,876.2	8,821.7	34.4	33.2	129.27	-706.0	-587.6	1,228.1	1,162.4	65.68	18.698	
9,100.0	9,019.4	9,017.2	8,962.1	34.8	33.8	129.68	-715.4	-595.5	1,244.5	1,177.7	66.71	18.654	
9,200.0	9,118.1	9,158.9	9,103.7	35.3	34.2	130.30	-719.6	-599.0	1,257.4	1,189.8	67.65	18.586	
9,300.0	9,216.8	9,269.4	9,214.2	35.7	34.6	130.90	-719.8	-599.2	1,268.0	1,199.6	68.41	18.536	
9,400.0	9,315.5	9,361.3	9,305.9	36.1	34.9	131.21	-724.0	-599.1	1,278.8	1,209.7	69.12	18.501	
9,500.0	9,414.2	9,450.0	9,392.3	36.5	35.3	130.79	-743.8	-599.0	1,290.4	1,220.5	69.88	18.465	
9,600.0	9,513.0	9,531.4	9,467.0	36.9	35.6	129.87	-775.8	-598.7	1,302.9	1,232.2	70.63	18.445	
9,700.0	9,612.2	9,603.0	9,527.4	37.3	36.0	128.66	-814.0	-598.4	1,315.5	1,244.2	71.31	18.449	
9,800.0	9,711.8	9,662.4	9,572.8	37.7	36.3	127.35	-852.4	-598.1	1,329.3	1,257.5	71.82	18.508	
9,900.0	9,811.6	9,710.5	9,605.8	38.1	36.5	126.17	-887.4	-597.9	1,345.3	1,273.2	72.12	18.653	
10,000.0	9,911.6	9,750.0	9,630.2	38.4	36.7	125.18	-918.4	-597.6	1,364.3	1,292.1	72.18	18.900	
10,100.0	10,011.6	9,775.0	9,644.2	38.7	36.9	-100.05	-939.1	-597.5	1,387.6	1,315.7	71.90	19.299	
10,200.0	10,111.6	9,800.0	9,657.2	39.0	37.0	-100.95	-960.5	-597.3	1,416.5	1,345.1	71.46	19.822	
10,300.0	10,211.6	9,825.0	9,669.0	39.3	37.1	-101.88	-982.5	-597.1	1,451.0	1,380.1	70.89	20.468	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,400.0	10,311.6	9,850.0	9,679.6	39.6	37.3	-102.82	-1,005.1	-597.0	1,490.7	1,420.5	70.22	21.231	
10,500.0	10,411.6	9,860.8	9,683.9	40.0	37.4	-103.22	-1,015.0	-596.9	1,535.5	1,466.3	69.28	22.164	
10,600.0	10,511.6	9,875.0	9,689.1	40.3	37.4	-103.77	-1,028.2	-596.8	1,585.1	1,516.7	68.34	23.193	
10,700.0	10,611.6	9,885.9	9,692.8	40.6	37.5	-104.19	-1,038.5	-596.7	1,638.9	1,571.6	67.34	24.337	
10,800.0	10,711.6	9,900.0	9,697.3	40.9	37.6	-104.74	-1,051.8	-596.6	1,696.8	1,630.4	66.39	25.558	
10,900.0	10,811.6	9,900.0	9,697.3	41.2	37.6	-104.74	-1,051.8	-596.6	1,758.2	1,692.9	65.28	26.935	
11,000.0	10,911.6	9,913.7	9,701.3	41.5	37.7	71.73	-1,065.0	-596.5	1,822.6	1,758.3	64.38	28.310	
11,100.0	11,009.8	9,925.0	9,704.3	41.9	37.7	62.35	-1,075.8	-596.4	1,885.8	1,822.4	63.49	29.701	
11,200.0	11,102.2	9,940.3	9,708.0	42.3	37.8	54.59	-1,090.7	-596.3	1,944.4	1,881.6	62.71	31.003	
11,300.0	11,184.8	9,950.0	9,710.0	42.8	37.9	48.74	-1,100.2	-596.2	1,995.9	1,933.9	61.96	32.213	
11,400.0	11,253.9	9,975.0	9,714.5	43.3	38.0	44.32	-1,124.8	-596.0	2,038.2	1,976.8	61.49	33.149	
11,500.0	11,306.4	10,000.0	9,717.6	43.9	38.2	41.35	-1,149.6	-595.8	2,070.1	2,009.0	61.15	33.851	
11,600.0	11,340.2	10,025.0	9,719.5	44.5	38.3	39.62	-1,174.5	-595.6	2,090.4	2,029.5	60.99	34.272	
11,700.0	11,353.8	10,047.7	9,720.0	45.0	38.5	38.98	-1,197.2	-595.5	2,098.4	2,037.4	61.02	34.387	
11,800.0	11,354.0	10,128.6	9,720.0	45.6	39.0	38.98	-1,278.1	-594.8	2,098.5	2,036.9	61.65	34.042	
11,900.0	11,354.0	10,228.6	9,720.0	46.2	39.6	38.98	-1,378.1	-594.1	2,098.5	2,036.1	62.47	33.592	
12,000.0	11,354.0	10,328.6	9,720.0	46.9	40.3	38.98	-1,478.1	-593.3	2,098.5	2,035.2	63.36	33.121	
12,100.0	11,354.0	10,428.6	9,720.0	47.6	41.0	38.98	-1,578.1	-592.5	2,098.5	2,034.2	64.31	32.631	
12,200.0	11,354.0	10,528.6	9,720.0	48.3	41.8	38.98	-1,678.1	-591.7	2,098.5	2,033.2	65.32	32.126	
12,300.0	11,354.0	10,628.6	9,720.0	49.1	42.6	38.98	-1,778.1	-591.0	2,098.5	2,032.2	66.39	31.610	
12,400.0	11,354.0	10,728.6	9,720.0	49.9	43.5	38.98	-1,878.1	-590.2	2,098.5	2,031.0	67.51	31.085	
12,500.0	11,354.0	10,828.6	9,720.0	50.7	44.3	38.98	-1,978.1	-589.4	2,098.5	2,029.9	68.68	30.554	
12,600.0	11,354.0	10,928.6	9,720.0	51.5	45.2	38.98	-2,078.1	-588.6	2,098.5	2,028.6	69.90	30.020	
12,700.0	11,354.0	11,028.6	9,720.0	52.4	46.1	38.98	-2,178.1	-587.9	2,098.5	2,027.4	71.17	29.485	
12,800.0	11,354.0	11,128.6	9,720.0	53.3	47.1	38.98	-2,278.1	-587.1	2,098.5	2,026.1	72.48	28.952	
12,900.0	11,354.0	11,228.6	9,720.0	54.2	48.1	38.98	-2,378.1	-586.3	2,098.5	2,024.7	73.84	28.421	
13,000.0	11,354.0	11,328.6	9,720.0	55.1	49.1	38.98	-2,478.1	-585.5	2,098.5	2,023.3	75.23	27.895	
13,100.0	11,354.0	11,428.6	9,720.0	56.1	50.1	38.98	-2,578.1	-584.7	2,098.5	2,021.9	76.66	27.375	
13,200.0	11,354.0	11,528.6	9,720.0	57.1	51.1	38.98	-2,678.1	-584.0	2,098.5	2,020.4	78.12	26.862	
13,300.0	11,354.0	11,628.6	9,720.0	58.1	52.2	38.98	-2,778.1	-583.2	2,098.5	2,018.9	79.62	26.357	
13,400.0	11,354.0	11,728.6	9,720.0	59.1	53.3	38.98	-2,878.1	-582.4	2,098.5	2,017.4	81.15	25.860	
13,500.0	11,354.0	11,828.6	9,720.0	60.1	54.4	38.98	-2,978.1	-581.6	2,098.5	2,015.8	82.71	25.373	
13,600.0	11,354.0	11,928.6	9,720.0	61.2	55.5	38.98	-3,078.1	-580.9	2,098.5	2,014.2	84.30	24.895	
13,700.0	11,354.0	12,028.6	9,720.0	62.3	56.6	38.98	-3,178.1	-580.1	2,098.5	2,012.6	85.91	24.428	
13,800.0	11,354.0	12,128.6	9,720.0	63.4	57.8	38.98	-3,278.1	-579.3	2,098.5	2,011.0	87.55	23.971	
13,900.0	11,354.0	12,228.6	9,720.0	64.5	58.9	38.98	-3,378.1	-578.5	2,098.5	2,009.3	89.21	23.524	
14,000.0	11,354.0	12,328.6	9,720.0	65.6	60.1	38.98	-3,478.0	-577.8	2,098.5	2,007.6	90.89	23.088	
14,100.0	11,354.0	12,428.6	9,720.0	66.7	61.3	38.98	-3,578.0	-577.0	2,098.5	2,005.9	92.60	22.663	
14,200.0	11,354.0	12,528.6	9,720.0	67.8	62.5	38.98	-3,678.0	-576.2	2,098.5	2,004.2	94.32	22.248	
14,300.0	11,354.0	12,628.6	9,720.0	69.0	63.7	38.98	-3,778.0	-575.4	2,098.5	2,002.5	96.07	21.844	
14,400.0	11,354.0	12,728.6	9,720.0	70.1	64.9	38.98	-3,878.0	-574.7	2,098.5	2,000.7	97.83	21.451	
14,500.0	11,354.0	12,828.6	9,720.0	71.3	66.1	38.98	-3,978.0	-573.9	2,098.5	1,998.9	99.61	21.068	
14,600.0	11,354.0	12,928.6	9,720.0	72.5	67.3	38.98	-4,078.0	-573.1	2,098.5	1,997.1	101.40	20.695	
14,700.0	11,354.0	13,028.6	9,720.0	73.7	68.6	38.98	-4,178.0	-572.3	2,098.5	1,995.3	103.21	20.332	
14,800.0	11,354.0	13,128.6	9,720.0	74.9	69.8	38.98	-4,278.0	-571.6	2,098.5	1,993.5	105.04	19.979	
14,900.0	11,354.0	13,228.6	9,720.0	76.1	71.1	38.98	-4,378.0	-570.8	2,098.5	1,991.7	106.88	19.635	
15,000.0	11,354.0	13,328.6	9,720.0	77.3	72.3	38.98	-4,478.0	-570.0	2,098.5	1,989.8	108.73	19.300	
15,100.0	11,354.0	13,428.6	9,720.0	78.5	73.6	38.98	-4,578.0	-569.2	2,098.5	1,987.9	110.59	18.975	
15,200.0	11,354.0	13,528.6	9,720.0	79.8	74.9	38.98	-4,678.0	-568.5	2,098.5	1,986.1	112.47	18.659	
15,300.0	11,354.0	13,628.6	9,720.0	81.0	76.2	38.98	-4,778.0	-567.7	2,098.5	1,984.2	114.36	18.351	
15,400.0	11,354.0	13,728.6	9,720.0	82.2	77.4	38.98	-4,878.0	-566.9	2,098.5	1,982.3	116.25	18.051	
15,500.0	11,354.0	13,828.6	9,720.0	83.5	78.7	38.98	-4,978.0	-566.1	2,098.5	1,980.4	118.16	17.760	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,600.0	11,354.0	13,928.6	9,720.0	84.8	80.0	38.98	-5,078.0	-565.3	2,098.5	1,978.5	120.08	17.476	
15,700.0	11,354.0	14,028.6	9,720.0	86.0	81.3	38.98	-5,178.0	-564.6	2,098.5	1,976.5	122.01	17.200	
15,800.0	11,354.0	14,128.6	9,720.0	87.3	82.6	38.98	-5,278.0	-563.8	2,098.5	1,974.6	123.94	16.932	
15,900.0	11,354.0	14,228.6	9,720.0	88.6	84.0	38.98	-5,378.0	-563.0	2,098.5	1,972.7	125.89	16.670	
16,000.0	11,354.0	14,328.6	9,720.0	89.8	85.3	38.98	-5,478.0	-562.2	2,098.5	1,970.7	127.84	16.416	
16,100.0	11,354.0	14,428.6	9,720.0	91.1	86.6	38.98	-5,578.0	-561.5	2,098.5	1,968.7	129.80	16.168	
16,200.0	11,354.0	14,528.6	9,720.0	92.4	87.9	38.98	-5,678.0	-560.7	2,098.5	1,966.8	131.76	15.927	
16,300.0	11,354.0	14,628.6	9,720.0	93.7	89.2	38.98	-5,778.0	-559.9	2,098.5	1,964.8	133.74	15.692	
16,400.0	11,354.0	14,728.6	9,720.0	95.0	90.6	38.98	-5,878.0	-559.1	2,098.5	1,962.8	135.72	15.463	
16,500.0	11,354.0	14,828.6	9,720.0	96.3	91.9	38.98	-5,978.0	-558.4	2,098.5	1,960.8	137.70	15.239	
16,600.0	11,354.0	14,928.6	9,720.0	97.6	93.3	38.98	-6,078.0	-557.6	2,098.5	1,958.8	139.70	15.022	
16,700.0	11,354.0	15,028.6	9,720.0	98.9	94.6	38.98	-6,178.0	-556.8	2,098.5	1,956.8	141.70	14.810	
16,800.0	11,354.0	15,128.6	9,720.0	100.3	95.9	38.98	-6,278.0	-556.0	2,098.5	1,954.8	143.70	14.604	
16,900.0	11,354.0	15,228.6	9,720.0	101.6	97.3	38.98	-6,378.0	-555.3	2,098.5	1,952.8	145.71	14.402	
17,000.0	11,354.0	15,328.6	9,720.0	102.9	98.6	38.98	-6,478.0	-554.5	2,098.5	1,950.8	147.72	14.206	
17,100.0	11,354.0	15,428.6	9,720.0	104.2	100.0	38.98	-6,578.0	-553.7	2,098.5	1,948.8	149.74	14.014	
17,200.0	11,354.0	15,528.6	9,720.0	105.6	101.4	38.98	-6,678.0	-552.9	2,098.5	1,946.8	151.77	13.827	
17,300.0	11,354.0	15,628.6	9,720.0	106.9	102.7	38.98	-6,777.9	-552.2	2,098.5	1,944.7	153.80	13.645	
17,400.0	11,354.0	15,728.6	9,720.0	108.2	104.1	38.98	-6,877.9	-551.4	2,098.5	1,942.7	155.83	13.467	
17,500.0	11,354.0	15,828.6	9,720.0	109.6	105.4	38.98	-6,977.9	-550.6	2,098.5	1,940.7	157.87	13.293	
17,600.0	11,354.0	15,928.6	9,720.0	110.9	106.8	38.98	-7,077.9	-549.8	2,098.5	1,938.6	159.91	13.123	
17,700.0	11,354.0	16,028.6	9,720.0	112.2	108.2	38.98	-7,177.9	-549.1	2,098.5	1,936.6	161.96	12.958	
17,800.0	11,354.0	16,128.6	9,720.0	113.6	109.5	38.98	-7,277.9	-548.3	2,098.5	1,934.5	164.00	12.796	
17,900.0	11,354.0	16,228.6	9,720.0	114.9	110.9	38.98	-7,377.9	-547.5	2,098.5	1,932.5	166.06	12.637	
18,000.0	11,354.0	16,328.6	9,720.0	116.3	112.3	38.98	-7,477.9	-546.7	2,098.5	1,930.4	168.11	12.483	
18,100.0	11,354.0	16,428.6	9,720.0	117.6	113.7	38.98	-7,577.9	-545.9	2,098.5	1,928.4	170.17	12.332	
18,200.0	11,354.0	16,528.6	9,720.0	119.0	115.0	38.98	-7,677.9	-545.2	2,098.5	1,926.3	172.24	12.184	
18,300.0	11,354.0	16,628.6	9,720.0	120.3	116.4	38.98	-7,777.9	-544.4	2,098.5	1,924.2	174.30	12.040	
18,400.0	11,354.0	16,728.6	9,720.0	121.7	117.8	38.98	-7,877.9	-543.6	2,098.5	1,922.2	176.37	11.898	
18,500.0	11,354.0	16,828.6	9,720.0	123.1	119.2	38.98	-7,977.9	-542.8	2,098.5	1,920.1	178.44	11.760	
18,600.0	11,354.0	16,928.6	9,720.0	124.4	120.6	38.98	-8,077.9	-542.1	2,098.5	1,918.0	180.52	11.625	
18,700.0	11,354.0	17,028.6	9,720.0	125.8	122.0	38.98	-8,177.9	-541.3	2,098.5	1,915.9	182.60	11.493	
18,800.0	11,354.0	17,128.6	9,720.0	127.2	123.3	38.98	-8,277.9	-540.5	2,098.5	1,913.9	184.68	11.363	
18,900.0	11,354.0	17,228.6	9,720.0	128.5	124.7	38.98	-8,377.9	-539.7	2,098.5	1,911.8	186.76	11.237	
19,000.0	11,354.0	17,328.6	9,720.0	129.9	126.1	38.98	-8,477.9	-539.0	2,098.5	1,909.7	188.84	11.113	
19,100.0	11,354.0	17,428.6	9,720.0	131.3	127.5	38.98	-8,577.9	-538.2	2,098.5	1,907.6	190.93	10.991	
19,200.0	11,354.0	17,528.6	9,720.0	132.7	128.9	38.98	-8,677.9	-537.4	2,098.5	1,905.5	193.02	10.872	
19,300.0	11,354.0	17,628.6	9,720.0	134.0	130.3	38.98	-8,777.9	-536.6	2,098.5	1,903.4	195.11	10.755	
19,400.0	11,354.0	17,728.6	9,720.0	135.4	131.7	38.98	-8,877.9	-535.9	2,098.5	1,901.3	197.21	10.641	
19,500.0	11,354.0	17,828.6	9,720.0	136.8	133.1	38.98	-8,977.9	-535.1	2,098.5	1,899.2	199.30	10.529	
19,600.0	11,354.0	17,928.6	9,720.0	138.2	134.5	38.98	-9,077.9	-534.3	2,098.5	1,897.1	201.40	10.420	
19,700.0	11,354.0	18,028.6	9,720.0	139.5	135.9	38.98	-9,177.9	-533.5	2,098.5	1,895.0	203.50	10.312	
19,800.0	11,354.0	18,128.6	9,720.0	140.9	137.3	38.98	-9,277.9	-532.8	2,098.5	1,892.9	205.61	10.207	
19,900.0	11,354.0	18,228.6	9,720.0	142.3	138.7	38.98	-9,377.9	-532.0	2,098.5	1,890.8	207.71	10.103	
20,000.0	11,354.0	18,328.6	9,720.0	143.7	140.1	38.98	-9,477.9	-531.2	2,098.5	1,888.7	209.82	10.002	
20,100.0	11,354.0	18,428.6	9,720.0	145.1	141.5	38.98	-9,577.9	-530.4	2,098.5	1,886.6	211.92	9.902	
20,200.0	11,354.0	18,528.6	9,720.0	146.5	142.9	38.98	-9,677.9	-529.7	2,098.5	1,884.5	214.03	9.805	
20,300.0	11,354.0	18,628.6	9,720.0	147.9	144.3	38.98	-9,777.9	-528.9	2,098.5	1,882.4	216.14	9.709	
20,400.0	11,354.0	18,728.6	9,720.0	149.2	145.7	38.98	-9,877.9	-528.1	2,098.5	1,880.3	218.25	9.615	
20,500.0	11,354.0	18,828.6	9,720.0	150.6	147.1	38.98	-9,977.9	-527.3	2,098.5	1,878.2	220.37	9.523	
20,600.0	11,354.0	18,928.6	9,720.0	152.0	148.5	38.98	-10,077.9	-526.6	2,098.5	1,876.1	222.48	9.432	
20,700.0	11,354.0	19,028.6	9,720.0	153.4	149.9	38.98	-10,177.8	-525.8	2,098.5	1,873.9	224.60	9.343	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
20,800.0	11,354.0	19,128.6	9,720.0	154.8	151.3	38.98	-10,277.8	-525.0	2,098.5	1,871.8	226.72	9.256	
20,900.0	11,354.0	19,228.6	9,720.0	156.2	152.7	38.98	-10,377.8	-524.2	2,098.5	1,869.7	228.84	9.170	
21,000.0	11,354.0	19,328.6	9,720.0	157.6	154.1	38.98	-10,477.8	-523.4	2,098.5	1,867.6	230.96	9.086	
21,100.0	11,354.0	19,428.6	9,720.0	159.0	155.5	38.98	-10,577.8	-522.7	2,098.5	1,865.5	233.08	9.003	
21,200.0	11,354.0	19,528.6	9,720.0	160.4	157.0	38.98	-10,677.8	-521.9	2,098.5	1,863.3	235.21	8.922	
21,300.0	11,354.0	19,628.6	9,720.0	161.8	158.4	38.98	-10,777.8	-521.1	2,098.5	1,861.2	237.33	8.842	
21,400.0	11,354.0	19,728.6	9,720.0	163.2	159.8	38.98	-10,877.8	-520.3	2,098.5	1,859.1	239.46	8.764	
21,500.0	11,354.0	19,828.6	9,720.0	164.6	161.2	38.98	-10,977.8	-519.6	2,098.5	1,857.0	241.58	8.687	
21,600.0	11,354.0	19,928.6	9,720.0	166.0	162.6	38.98	-11,077.8	-518.8	2,098.5	1,854.8	243.71	8.611	
21,647.1	11,354.0	19,975.7	9,720.0	166.7	163.3	38.98	-11,124.9	-518.4	2,098.5	1,853.8	244.71	8.576 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 504H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.1	0.1	0.0	0.0	89.03	99.0	-46.5	20.1				
100.0	100.0	100.1	100.1	0.1	0.1	89.03	99.0	-46.5	20.1	19.8	0.26	76.119	
200.0	200.0	200.1	200.1	0.5	0.5	89.03	99.0	-46.5	20.1	19.1	0.98	20.476	
300.0	300.0	300.1	300.1	0.8	0.8	89.03	99.0	-46.5	20.1	18.4	1.70	11.829	
400.0	400.0	400.1	400.1	1.2	1.2	89.03	99.0	-46.5	20.1	17.7	2.41	8.317	
500.0	500.0	500.1	500.1	1.6	1.6	89.03	99.0	-46.5	20.1	17.0	3.13	6.413	
600.0	600.0	600.1	600.1	1.9	1.9	89.03	99.0	-46.5	20.1	16.2	3.85	5.218	
700.0	700.0	700.1	700.1	2.3	2.3	89.03	99.0	-46.5	20.1	15.5	4.57	4.399	
800.0	800.0	800.1	800.1	2.6	2.6	89.03	99.0	-46.5	20.1	14.8	5.28	3.802	
900.0	900.0	900.1	900.1	3.0	3.0	89.03	99.0	-46.5	20.1	14.1	6.00	3.347	
1,000.0	1,000.0	1,000.1	1,000.1	3.4	3.4	89.03	99.0	-46.5	20.1	13.4	6.72	2.990	
1,100.0	1,100.0	1,100.1	1,100.1	3.7	3.7	89.03	99.0	-46.5	20.1	12.6	7.43	2.702	
1,200.0	1,200.0	1,200.1	1,200.1	4.1	4.1	89.03	99.0	-46.5	20.1	11.9	8.15	2.464	
1,300.0	1,300.0	1,300.1	1,300.1	4.4	4.4	89.03	99.0	-46.5	20.1	11.2	8.87	2.265	
1,400.0	1,400.0	1,400.1	1,400.1	4.8	4.8	89.03	99.0	-46.5	20.1	10.5	9.58	2.095	
1,500.0	1,500.0	1,500.1	1,500.1	5.2	5.2	89.03	99.0	-46.5	20.1	9.8	10.30	1.950	
1,600.0	1,600.0	1,600.1	1,600.1	5.5	5.5	89.03	99.0	-46.5	20.1	9.1	11.02	1.823	
1,700.0	1,700.0	1,700.1	1,700.1	5.9	5.9	89.03	99.0	-46.5	20.1	8.3	11.73	1.711	
1,800.0	1,800.0	1,800.1	1,800.1	6.2	6.2	89.03	99.0	-46.5	20.1	7.6	12.45	1.613	
1,900.0	1,900.0	1,900.1	1,900.1	6.6	6.6	89.03	99.0	-46.5	20.1	6.9	13.17	1.525	
1,916.6	1,916.6	1,916.7	1,916.7	6.6	6.6	89.03	99.0	-46.5	20.1	6.8	13.29	1.511 CC	
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	89.03	99.0	-46.5	20.1	6.2	13.89	1.446 Level 3	
2,100.0	2,100.0	2,099.6	2,099.6	7.3	7.3	92.46	97.8	-45.3	21.3	6.7	14.58	1.461 Level 3	
2,200.0	2,200.0	2,198.8	2,198.7	7.7	7.6	100.60	94.0	-41.8	25.3	10.1	15.25	1.660	
2,300.0	2,300.0	2,297.6	2,297.1	8.0	7.9	109.42	87.8	-35.9	32.7	16.8	15.90	2.059	
2,400.0	2,400.0	2,395.7	2,394.4	8.4	8.3	116.50	79.3	-27.7	43.8	27.3	16.53	2.653	
2,500.0	2,500.0	2,492.9	2,490.4	8.7	8.6	121.56	68.4	-17.3	58.6	41.5	17.14	3.421	
2,600.0	2,600.0	2,591.7	2,587.8	9.1	9.0	-10.92	56.2	-5.7	73.5	55.7	17.81	4.129	
2,700.0	2,699.8	2,691.0	2,685.7	9.4	9.3	-9.23	44.0	5.9	85.1	66.7	18.47	4.611	
2,800.0	2,799.5	2,790.6	2,783.9	9.7	9.7	-8.25	31.7	17.6	93.4	74.2	19.14	4.880	
2,900.0	2,898.7	2,890.5	2,882.3	10.1	10.1	-7.70	19.4	29.4	98.2	78.4	19.81	4.956	
3,000.0	2,997.5	2,990.5	2,980.8	10.4	10.4	-7.44	7.1	41.1	99.8	79.3	20.49	4.871	
3,100.0	3,096.2	3,090.5	3,079.3	10.8	10.8	-7.23	-5.2	52.9	100.9	79.7	21.18	4.762	
3,200.0	3,195.0	3,190.5	3,177.9	11.1	11.2	-7.03	-17.5	64.6	101.9	80.0	21.87	4.659	
3,300.0	3,293.7	3,290.5	3,276.4	11.5	11.6	-6.83	-29.8	76.4	103.0	80.4	22.57	4.562	
3,400.0	3,392.4	3,390.5	3,374.9	11.8	12.0	-6.64	-42.1	88.1	104.0	80.7	23.27	4.470	
3,500.0	3,491.1	3,490.5	3,473.5	12.2	12.4	-6.45	-54.5	99.9	105.0	81.1	23.97	4.382	
3,600.0	3,589.8	3,590.4	3,572.0	12.6	12.8	-6.27	-66.8	111.6	106.1	81.4	24.68	4.299	
3,700.0	3,688.5	3,690.4	3,670.5	13.0	13.2	-6.08	-79.1	123.3	107.1	81.8	25.39	4.221	
3,800.0	3,787.3	3,790.4	3,769.1	13.3	13.5	-5.91	-91.4	135.1	108.2	82.1	26.10	4.146	
3,900.0	3,886.0	3,890.4	3,867.6	13.7	14.0	-5.73	-103.7	146.8	109.2	82.4	26.81	4.074	
4,000.0	3,984.7	3,990.4	3,966.1	14.1	14.4	-5.56	-116.0	158.6	110.3	82.8	27.53	4.007	
4,100.0	4,083.4	4,090.4	4,064.7	14.5	14.8	-5.39	-128.3	170.3	111.3	83.1	28.24	3.942	
4,200.0	4,182.1	4,190.4	4,163.2	14.9	15.2	-5.23	-140.7	182.1	112.4	83.4	28.96	3.880	
4,300.0	4,280.9	4,290.4	4,261.7	15.2	15.6	-5.07	-153.0	193.8	113.4	83.8	29.69	3.822	
4,400.0	4,379.6	4,390.4	4,360.3	15.6	16.0	-4.91	-165.3	205.6	114.5	84.1	30.41	3.765	
4,500.0	4,478.3	4,490.4	4,458.8	16.0	16.4	-4.75	-177.6	217.3	115.6	84.4	31.13	3.712	
4,600.0	4,577.0	4,590.4	4,557.4	16.4	16.8	-4.60	-189.9	229.1	116.6	84.8	31.86	3.660	
4,700.0	4,675.7	4,690.4	4,655.9	16.8	17.2	-4.45	-202.2	240.8	117.7	85.1	32.59	3.611	
4,800.0	4,774.5	4,790.4	4,754.4	17.2	17.6	-4.30	-214.5	252.6	118.7	85.4	33.31	3.564	
4,900.0	4,873.2	4,890.4	4,853.0	17.6	18.0	-4.15	-226.9	264.3	119.8	85.7	34.04	3.519	
5,000.0	4,971.9	4,990.4	4,951.5	18.0	18.5	-4.01	-239.2	276.1	120.8	86.1	34.77	3.475	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 504H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.0	5,070.6	5,090.4	5,050.0	18.4	18.9	-3.87	-251.5	287.8	121.9	86.4	35.51	3.433	
5,200.0	5,169.3	5,190.3	5,148.6	18.8	19.3	-3.73	-263.8	299.6	123.0	86.7	36.24	3.393	
5,300.0	5,268.0	5,290.3	5,247.1	19.2	19.7	-3.60	-276.1	311.3	124.0	87.1	36.97	3.355	
5,400.0	5,366.8	5,390.3	5,345.6	19.6	20.1	-3.46	-288.4	323.1	125.1	87.4	37.70	3.318	
5,500.0	5,465.5	5,490.3	5,444.2	20.0	20.5	-3.33	-300.8	334.8	126.2	87.7	38.44	3.282	
5,600.0	5,564.2	5,590.3	5,542.7	20.4	21.0	-3.21	-313.1	346.6	127.2	88.0	39.18	3.247	
5,700.0	5,662.9	5,690.3	5,641.2	20.8	21.4	-3.08	-325.4	358.3	128.3	88.4	39.91	3.214	
5,800.0	5,761.6	5,790.3	5,739.8	21.2	21.8	-2.95	-337.7	370.0	129.3	88.7	40.65	3.182	
5,900.0	5,860.4	5,890.3	5,838.3	21.6	22.2	-2.83	-350.0	381.8	130.4	89.0	41.39	3.151	
6,000.0	5,959.1	5,990.3	5,936.8	22.0	22.6	-2.71	-362.3	393.5	131.5	89.4	42.12	3.121	
6,100.0	6,057.8	6,090.3	6,035.4	22.4	23.1	-2.59	-374.6	405.3	132.5	89.7	42.86	3.092	
6,200.0	6,156.5	6,190.3	6,133.9	22.9	23.5	-2.48	-387.0	417.0	133.6	90.0	43.60	3.064	
6,300.0	6,255.2	6,290.3	6,232.4	23.3	23.9	-2.36	-399.3	428.8	134.7	90.3	44.34	3.037	
6,400.0	6,354.0	6,390.3	6,331.0	23.7	24.3	-2.25	-411.6	440.5	135.7	90.7	45.08	3.011	
6,500.0	6,452.7	6,490.3	6,429.5	24.1	24.7	-2.14	-423.9	452.3	136.8	91.0	45.82	2.986	
6,600.0	6,551.4	6,590.3	6,528.0	24.5	25.2	-2.03	-436.2	464.0	137.9	91.3	46.56	2.961	
6,700.0	6,650.1	6,690.3	6,626.6	24.9	25.6	-1.92	-448.5	475.8	139.0	91.6	47.30	2.938	
6,800.0	6,748.8	6,790.3	6,725.1	25.3	26.0	-1.81	-460.8	487.5	140.0	92.0	48.04	2.914	
6,900.0	6,847.5	6,890.2	6,823.7	25.7	26.4	-1.71	-473.2	499.3	141.1	92.3	48.79	2.892	
7,000.0	6,946.3	6,990.2	6,922.2	26.1	26.9	-1.61	-485.5	511.0	142.2	92.6	49.53	2.870	
7,100.0	7,045.0	7,090.2	7,020.7	26.5	27.3	-1.51	-497.8	522.8	143.2	93.0	50.27	2.849	
7,200.0	7,143.7	7,190.2	7,119.3	27.0	27.7	-1.41	-510.1	534.5	144.3	93.3	51.01	2.829	
7,300.0	7,242.4	7,290.2	7,217.8	27.4	28.1	-1.31	-522.4	546.3	145.4	93.6	51.76	2.809	
7,400.0	7,341.1	7,390.2	7,316.3	27.8	28.6	-1.21	-534.7	558.0	146.5	94.0	52.50	2.790	
7,500.0	7,439.9	7,490.2	7,414.9	28.2	29.0	-1.11	-547.1	569.8	147.5	94.3	53.24	2.771	
7,600.0	7,538.6	7,590.2	7,513.4	28.6	29.4	-1.02	-559.4	581.5	148.6	94.6	53.99	2.752	
7,700.0	7,637.3	7,690.2	7,611.9	29.0	29.8	-0.93	-571.7	593.3	149.7	94.9	54.73	2.735	
7,800.0	7,736.0	7,790.2	7,710.5	29.4	30.3	-0.84	-584.0	605.0	150.7	95.3	55.48	2.717	
7,900.0	7,834.7	7,890.2	7,809.0	29.9	30.7	-0.75	-596.3	616.8	151.8	95.6	56.22	2.700	
8,000.0	7,933.5	7,990.2	7,907.5	30.3	31.1	-0.66	-608.6	628.5	152.9	95.9	56.97	2.684	
8,100.0	8,032.2	8,090.2	8,006.1	30.7	31.5	-0.57	-620.9	640.2	154.0	96.3	57.71	2.668	
8,200.0	8,130.9	8,190.2	8,104.6	31.1	32.0	-0.48	-633.3	652.0	155.0	96.6	58.46	2.652	
8,300.0	8,229.6	8,290.2	8,203.1	31.5	32.4	-0.40	-645.6	663.7	156.1	96.9	59.20	2.637	
8,400.0	8,328.3	8,390.2	8,301.7	31.9	32.8	-0.31	-657.9	675.5	157.2	97.3	59.95	2.622	
8,500.0	8,427.0	8,490.1	8,400.2	32.3	33.2	-0.23	-670.2	687.2	158.3	97.6	60.70	2.608	
8,600.0	8,525.8	8,593.7	8,502.3	32.8	33.7	-0.15	-682.5	698.9	158.7	97.2	61.50	2.580	
8,700.0	8,624.5	8,699.4	8,607.2	33.2	34.1	-0.09	-692.4	708.4	155.7	93.4	62.28	2.500	
8,800.0	8,723.2	8,804.8	8,712.1	33.6	34.5	-0.04	-699.5	715.2	149.0	86.0	62.99	2.366	
8,900.0	8,821.9	8,909.6	8,816.7	34.0	34.9	-0.01	-703.8	719.3	138.7	75.1	63.62	2.180	
9,000.0	8,920.6	9,013.4	8,920.5	34.4	35.2	0.00	-705.3	720.8	124.7	60.6	64.18	1.944	
9,100.0	9,019.4	9,112.4	9,019.5	34.8	35.5	0.00	-705.4	720.8	108.8	43.9	64.86	1.677	
9,200.0	9,118.1	9,211.1	9,118.2	35.3	35.8	0.00	-705.4	720.8	92.8	27.3	65.55	1.416 Level 3	
9,300.0	9,216.8	9,309.8	9,216.9	35.7	36.1	0.00	-705.4	720.8	76.9	10.6	66.24	1.161 Level 2	
9,400.0	9,315.5	9,401.9	9,308.8	36.1	36.4	2.85	-710.0	720.8	64.7	-2.6	67.26	0.962 Level 1	
9,432.7	9,347.8	9,431.4	9,337.8	36.2	36.5	6.00	-715.0	720.8	63.8	-3.7	67.47	0.945 Level 1, ES, SF	
9,500.0	9,414.2	9,490.6	9,395.0	36.5	36.8	14.89	-730.3	721.0	68.1	0.7	67.46	1.010 Level 2	
9,600.0	9,513.0	9,572.8	9,470.3	36.9	37.2	27.70	-763.2	721.2	92.2	26.2	65.99	1.396 Level 3	
9,700.0	9,612.2	9,644.3	9,530.3	37.3	37.5	35.27	-801.8	721.5	136.6	73.3	63.28	2.158	
9,800.0	9,711.8	9,700.0	9,572.7	37.7	37.8	39.12	-837.9	721.8	196.2	136.5	59.67	3.288	
9,900.0	9,811.6	9,750.0	9,606.9	38.1	38.1	41.70	-874.3	722.1	266.5	209.2	57.29	4.651	
10,000.0	9,911.6	9,789.5	9,631.2	38.4	38.3	43.74	-905.5	722.3	344.6	289.5	55.13	6.250	
10,100.0	10,011.6	9,825.0	9,650.7	38.7	38.5	179.56	-935.1	722.5	427.9	374.3	53.65	7.976	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 504H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.0	10,111.6	9,850.0	9,663.1	39.0	38.7	179.56	-956.8	722.7	514.3	462.3	52.01	9.888	
10,300.0	10,211.6	9,866.9	9,670.8	39.3	38.8	179.56	-971.8	722.8	602.9	552.5	50.45	11.950	
10,400.0	10,311.6	9,884.9	9,678.5	39.6	38.9	179.56	-988.1	723.0	693.5	644.0	49.48	14.017	
10,500.0	10,411.6	9,900.0	9,684.4	40.0	39.0	179.56	-1,002.0	723.1	785.4	736.8	48.69	16.132	
10,600.0	10,511.6	9,913.6	9,689.4	40.3	39.1	179.56	-1,014.7	723.2	878.6	830.4	48.10	18.264	
10,700.0	10,611.6	9,925.0	9,693.3	40.6	39.2	179.56	-1,025.4	723.2	972.6	924.9	47.63	20.418	
10,800.0	10,711.6	9,935.4	9,696.6	40.9	39.2	179.56	-1,035.2	723.3	1,067.3	1,020.1	47.30	22.568	
10,900.0	10,811.6	9,950.0	9,700.9	41.2	39.3	179.56	-1,049.2	723.4	1,162.8	1,115.6	47.21	24.632	
11,000.0	10,911.6	9,950.0	9,700.9	41.5	39.3	0.00	-1,049.2	723.4	1,258.3	1,211.5	46.78	26.899	
11,100.0	11,009.8	9,964.2	9,704.7	41.9	39.4	0.00	-1,062.9	723.5	1,348.4	1,301.9	46.50	29.001	
11,200.0	11,102.2	9,975.0	9,707.3	42.3	39.5	0.00	-1,073.3	723.6	1,429.4	1,383.5	45.90	31.144	
11,300.0	11,184.8	10,000.0	9,712.4	42.8	39.6	0.00	-1,097.8	723.8	1,498.8	1,453.4	45.44	32.988	
11,400.0	11,253.9	10,025.0	9,716.2	43.3	39.8	0.00	-1,122.5	724.0	1,555.2	1,510.3	44.87	34.658	
11,500.0	11,306.4	10,037.5	9,717.6	43.9	39.9	0.00	-1,135.0	724.1	1,597.0	1,552.9	44.11	36.201	
11,600.0	11,340.2	10,050.0	9,718.7	44.5	40.0	0.00	-1,147.4	724.2	1,623.5	1,580.1	43.47	37.348	
11,700.0	11,353.8	10,085.4	9,720.0	45.0	40.2	0.00	-1,182.8	724.5	1,633.9	1,590.7	43.20	37.822	
11,800.0	11,354.0	10,170.5	9,720.0	45.6	40.7	0.00	-1,267.9	725.1	1,634.1	1,590.7	43.42	37.632	
11,900.0	11,354.0	10,270.5	9,720.0	46.2	41.4	0.00	-1,367.9	725.9	1,634.1	1,590.3	43.82	37.293	
12,000.0	11,354.0	10,370.5	9,720.0	46.9	42.2	0.00	-1,467.9	726.7	1,634.1	1,589.8	44.27	36.915	
12,100.0	11,354.0	10,470.5	9,720.0	47.6	43.0	0.00	-1,567.9	727.5	1,634.1	1,589.3	44.77	36.504	
12,200.0	11,354.0	10,570.5	9,720.0	48.3	43.8	0.00	-1,667.9	728.2	1,634.1	1,588.8	45.31	36.062	
12,300.0	11,354.0	10,670.5	9,720.0	49.1	44.6	0.00	-1,767.9	729.0	1,634.1	1,588.2	45.91	35.594	
12,400.0	11,354.0	10,770.5	9,720.0	49.9	45.5	0.00	-1,867.9	729.8	1,634.1	1,587.5	46.55	35.104	
12,500.0	11,354.0	10,870.5	9,720.0	50.7	46.4	0.00	-1,967.9	730.6	1,634.1	1,586.9	47.24	34.595	
12,600.0	11,354.0	10,970.5	9,720.0	51.5	47.3	0.00	-2,067.8	731.3	1,634.1	1,586.1	47.96	34.071	
12,700.0	11,354.0	11,070.5	9,720.0	52.4	48.2	0.00	-2,167.8	732.1	1,634.1	1,585.4	48.73	33.535	
12,800.0	11,354.0	11,170.5	9,720.0	53.3	49.2	0.00	-2,267.8	732.9	1,634.1	1,584.6	49.53	32.991	
12,900.0	11,354.0	11,270.5	9,720.0	54.2	50.2	0.00	-2,367.8	733.7	1,634.1	1,583.7	50.37	32.441	
13,000.0	11,354.0	11,370.5	9,720.0	55.1	51.2	0.00	-2,467.8	734.4	1,634.1	1,582.9	51.25	31.887	
13,100.0	11,354.0	11,470.5	9,720.0	56.1	52.3	0.00	-2,567.8	735.2	1,634.1	1,581.9	52.15	31.333	
13,200.0	11,354.0	11,570.5	9,720.0	57.1	53.3	0.00	-2,667.8	736.0	1,634.1	1,581.0	53.09	30.779	
13,300.0	11,354.0	11,670.5	9,720.0	58.1	54.4	0.00	-2,767.8	736.8	1,634.1	1,580.0	54.06	30.229	
13,400.0	11,354.0	11,770.5	9,720.0	59.1	55.5	0.00	-2,867.8	737.5	1,634.1	1,579.0	55.05	29.683	
13,500.0	11,354.0	11,870.5	9,720.0	60.1	56.6	0.00	-2,967.8	738.3	1,634.1	1,578.0	56.07	29.142	
13,600.0	11,354.0	11,970.5	9,720.0	61.2	57.7	0.00	-3,067.8	739.1	1,634.1	1,577.0	57.12	28.609	
13,700.0	11,354.0	12,070.5	9,720.0	62.3	58.9	0.00	-3,167.8	739.9	1,634.1	1,575.9	58.19	28.084	
13,800.0	11,354.0	12,170.5	9,720.0	63.4	60.0	0.00	-3,267.8	740.6	1,634.1	1,574.8	59.28	27.567	
13,900.0	11,354.0	12,270.5	9,720.0	64.5	61.2	0.00	-3,367.8	741.4	1,634.1	1,573.7	60.39	27.059	
14,000.0	11,354.0	12,370.5	9,720.0	65.6	62.3	0.00	-3,467.8	742.2	1,634.1	1,572.6	61.52	26.561	
14,100.0	11,354.0	12,470.5	9,720.0	66.7	63.5	0.00	-3,567.8	743.0	1,634.1	1,571.4	62.67	26.074	
14,200.0	11,354.0	12,570.5	9,720.0	67.8	64.7	0.00	-3,667.8	743.8	1,634.1	1,570.3	63.84	25.597	
14,300.0	11,354.0	12,670.5	9,720.0	69.0	65.9	0.00	-3,767.8	744.5	1,634.1	1,569.1	65.02	25.130	
14,400.0	11,354.0	12,770.5	9,720.0	70.1	67.1	0.00	-3,867.8	745.3	1,634.1	1,567.9	66.23	24.675	
14,500.0	11,354.0	12,870.5	9,720.0	71.3	68.4	0.00	-3,967.8	746.1	1,634.1	1,566.7	67.44	24.230	
14,600.0	11,354.0	12,970.5	9,720.0	72.5	69.6	0.00	-4,067.8	746.9	1,634.1	1,565.4	68.67	23.796	
14,700.0	11,354.0	13,070.5	9,720.0	73.7	70.8	0.00	-4,167.8	747.6	1,634.1	1,564.2	69.91	23.373	
14,800.0	11,354.0	13,170.5	9,720.0	74.9	72.1	0.00	-4,267.8	748.4	1,634.1	1,562.9	71.17	22.960	
14,900.0	11,354.0	13,270.5	9,720.0	76.1	73.4	0.00	-4,367.8	749.2	1,634.1	1,561.7	72.44	22.558	
15,000.0	11,354.0	13,370.5	9,720.0	77.3	74.6	0.00	-4,467.8	750.0	1,634.1	1,560.4	73.72	22.167	
15,100.0	11,354.0	13,470.5	9,720.0	78.5	75.9	0.00	-4,567.8	750.7	1,634.1	1,559.1	75.01	21.785	
15,200.0	11,354.0	13,570.5	9,720.0	79.8	77.2	0.00	-4,667.8	751.5	1,634.1	1,557.8	76.31	21.414	
15,300.0	11,354.0	13,670.5	9,720.0	81.0	78.4	0.00	-4,767.8	752.3	1,634.1	1,556.5	77.62	21.052	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 504H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,400.0	11,354.0	13,770.5	9,720.0	82.2	79.7	0.00	-4,867.8	753.1	1,634.1	1,555.2	78.94	20.700	
15,500.0	11,354.0	13,870.5	9,720.0	83.5	81.0	0.00	-4,967.8	753.8	1,634.1	1,553.8	80.27	20.357	
15,600.0	11,354.0	13,970.5	9,720.0	84.8	82.3	0.00	-5,067.8	754.6	1,634.1	1,552.5	81.61	20.023	
15,700.0	11,354.0	14,070.5	9,720.0	86.0	83.6	0.00	-5,167.8	755.4	1,634.1	1,551.1	82.96	19.699	
15,800.0	11,354.0	14,170.5	9,720.0	87.3	84.9	0.00	-5,267.8	756.2	1,634.1	1,549.8	84.31	19.382	
15,900.0	11,354.0	14,270.5	9,720.0	88.6	86.2	0.00	-5,367.7	756.9	1,634.1	1,548.4	85.67	19.074	
16,000.0	11,354.0	14,370.5	9,720.0	89.8	87.6	0.00	-5,467.7	757.7	1,634.1	1,547.1	87.04	18.775	
16,100.0	11,354.0	14,470.5	9,720.0	91.1	88.9	0.00	-5,567.7	758.5	1,634.1	1,545.7	88.41	18.483	
16,200.0	11,354.0	14,570.5	9,720.0	92.4	90.2	0.00	-5,667.7	759.3	1,634.1	1,544.3	89.79	18.199	
16,300.0	11,354.0	14,670.5	9,720.0	93.7	91.5	0.00	-5,767.7	760.0	1,634.1	1,542.9	91.18	17.922	
16,400.0	11,354.0	14,770.5	9,720.0	95.0	92.9	0.00	-5,867.7	760.8	1,634.1	1,541.5	92.57	17.652	
16,500.0	11,354.0	14,870.5	9,720.0	96.3	94.2	0.00	-5,967.7	761.6	1,634.1	1,540.1	93.97	17.390	
16,600.0	11,354.0	14,970.5	9,720.0	97.6	95.5	0.00	-6,067.7	762.4	1,634.1	1,538.7	95.37	17.134	
16,700.0	11,354.0	15,070.5	9,720.0	98.9	96.9	0.00	-6,167.7	763.2	1,634.1	1,537.3	96.78	16.884	
16,800.0	11,354.0	15,170.5	9,720.0	100.3	98.2	0.00	-6,267.7	763.9	1,634.1	1,535.9	98.20	16.641	
16,900.0	11,354.0	15,270.5	9,720.0	101.6	99.6	0.00	-6,367.7	764.7	1,634.1	1,534.5	99.61	16.404	
17,000.0	11,354.0	15,370.5	9,720.0	102.9	100.9	0.00	-6,467.7	765.5	1,634.1	1,533.1	101.04	16.173	
17,100.0	11,354.0	15,470.5	9,720.0	104.2	102.3	0.00	-6,567.7	766.3	1,634.1	1,531.6	102.46	15.948	
17,200.0	11,354.0	15,570.5	9,720.0	105.6	103.6	0.00	-6,667.7	767.0	1,634.1	1,530.2	103.89	15.729	
17,300.0	11,354.0	15,670.5	9,720.0	106.9	105.0	0.00	-6,767.7	767.8	1,634.1	1,528.8	105.33	15.514	
17,400.0	11,354.0	15,770.5	9,720.0	108.2	106.4	0.00	-6,867.7	768.6	1,634.1	1,527.3	106.77	15.305	
17,500.0	11,354.0	15,870.5	9,720.0	109.6	107.7	0.00	-6,967.7	769.4	1,634.1	1,525.9	108.21	15.101	
17,600.0	11,354.0	15,970.5	9,720.0	110.9	109.1	0.00	-7,067.7	770.1	1,634.1	1,524.4	109.66	14.902	
17,700.0	11,354.0	16,070.5	9,720.0	112.2	110.4	0.00	-7,167.7	770.9	1,634.1	1,523.0	111.10	14.708	
17,800.0	11,354.0	16,170.5	9,720.0	113.6	111.8	0.00	-7,267.7	771.7	1,634.1	1,521.5	112.56	14.518	
17,900.0	11,354.0	16,270.5	9,720.0	114.9	113.2	0.00	-7,367.7	772.5	1,634.1	1,520.1	114.01	14.333	
18,000.0	11,354.0	16,370.5	9,720.0	116.3	114.6	0.00	-7,467.7	773.2	1,634.1	1,518.6	115.47	14.152	
18,100.0	11,354.0	16,470.5	9,720.0	117.6	115.9	0.00	-7,567.7	774.0	1,634.1	1,517.2	116.93	13.975	
18,200.0	11,354.0	16,570.5	9,720.0	119.0	117.3	0.00	-7,667.7	774.8	1,634.1	1,515.7	118.40	13.802	
18,300.0	11,354.0	16,670.5	9,720.0	120.3	118.7	0.00	-7,767.7	775.6	1,634.1	1,514.2	119.86	13.633	
18,400.0	11,354.0	16,770.5	9,720.0	121.7	120.1	0.00	-7,867.7	776.3	1,634.1	1,512.8	121.33	13.468	
18,500.0	11,354.0	16,870.5	9,720.0	123.1	121.4	0.00	-7,967.7	777.1	1,634.1	1,511.3	122.80	13.307	
18,600.0	11,354.0	16,970.5	9,720.0	124.4	122.8	0.00	-8,067.7	777.9	1,634.1	1,509.8	124.28	13.149	
18,700.0	11,354.0	17,070.5	9,720.0	125.8	124.2	0.00	-8,167.7	778.7	1,634.1	1,508.3	125.75	12.995	
18,800.0	11,354.0	17,170.5	9,720.0	127.2	125.6	0.00	-8,267.7	779.4	1,634.1	1,506.9	127.23	12.844	
18,900.0	11,354.0	17,270.5	9,720.0	128.5	127.0	0.00	-8,367.7	780.2	1,634.1	1,505.4	128.71	12.696	
19,000.0	11,354.0	17,370.5	9,720.0	129.9	128.4	0.00	-8,467.7	781.0	1,634.1	1,503.9	130.20	12.551	
19,100.0	11,354.0	17,470.5	9,720.0	131.3	129.8	0.00	-8,567.7	781.8	1,634.1	1,502.4	131.68	12.410	
19,200.0	11,354.0	17,570.5	9,720.0	132.7	131.2	0.00	-8,667.6	782.6	1,634.1	1,500.9	133.17	12.271	
19,300.0	11,354.0	17,670.5	9,720.0	134.0	132.6	0.00	-8,767.6	783.3	1,634.1	1,499.4	134.66	12.135	
19,400.0	11,354.0	17,770.5	9,720.0	135.4	133.9	0.00	-8,867.6	784.1	1,634.1	1,498.0	136.15	12.003	
19,500.0	11,354.0	17,870.5	9,720.0	136.8	135.3	0.00	-8,967.6	784.9	1,634.1	1,496.5	137.64	11.872	
19,600.0	11,354.0	17,970.5	9,720.0	138.2	136.7	0.00	-9,067.6	785.7	1,634.1	1,495.0	139.13	11.745	
19,700.0	11,354.0	18,070.5	9,720.0	139.5	138.1	0.00	-9,167.6	786.4	1,634.1	1,493.5	140.63	11.620	
19,800.0	11,354.0	18,170.5	9,720.0	140.9	139.5	0.00	-9,267.6	787.2	1,634.1	1,492.0	142.12	11.498	
19,900.0	11,354.0	18,270.5	9,720.0	142.3	140.9	0.00	-9,367.6	788.0	1,634.1	1,490.5	143.62	11.378	
20,000.0	11,354.0	18,370.5	9,720.0	143.7	142.3	0.00	-9,467.6	788.8	1,634.1	1,489.0	145.12	11.260	
20,100.0	11,354.0	18,470.5	9,720.0	145.1	143.7	0.00	-9,567.6	789.5	1,634.1	1,487.5	146.62	11.145	
20,200.0	11,354.0	18,570.5	9,720.0	146.5	145.1	0.00	-9,667.6	790.3	1,634.1	1,486.0	148.13	11.032	
20,300.0	11,354.0	18,670.5	9,720.0	147.9	146.5	0.00	-9,767.6	791.1	1,634.1	1,484.5	149.63	10.921	
20,400.0	11,354.0	18,770.5	9,720.0	149.2	147.9	0.00	-9,867.6	791.9	1,634.1	1,483.0	151.14	10.812	
20,500.0	11,354.0	18,870.5	9,720.0	150.6	149.3	0.00	-9,967.6	792.6	1,634.1	1,481.5	152.64	10.705	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 504H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
20,600.0	11,354.0	18,970.5	9,720.0	152.0	150.7	0.00	-10,067.6	793.4	1,634.1	1,479.9	154.15	10.601	
20,700.0	11,354.0	19,070.5	9,720.0	153.4	152.2	0.00	-10,167.6	794.2	1,634.1	1,478.4	155.66	10.498	
20,800.0	11,354.0	19,170.5	9,720.0	154.8	153.6	0.00	-10,267.6	795.0	1,634.1	1,476.9	157.17	10.397	
20,900.0	11,354.0	19,270.5	9,720.0	156.2	155.0	0.00	-10,367.6	795.7	1,634.1	1,475.4	158.68	10.298	
21,000.0	11,354.0	19,370.5	9,720.0	157.6	156.4	0.00	-10,467.6	796.5	1,634.1	1,473.9	160.20	10.201	
21,100.0	11,354.0	19,470.5	9,720.0	159.0	157.8	0.00	-10,567.6	797.3	1,634.1	1,472.4	161.71	10.105	
21,200.0	11,354.0	19,570.5	9,720.0	160.4	159.2	0.00	-10,667.6	798.1	1,634.1	1,470.9	163.23	10.011	
21,300.0	11,354.0	19,670.5	9,720.0	161.8	160.6	0.00	-10,767.6	798.8	1,634.1	1,469.4	164.74	9.919	
21,400.0	11,354.0	19,770.5	9,720.0	163.2	162.0	0.00	-10,867.6	799.6	1,634.1	1,467.8	166.26	9.829	
21,500.0	11,354.0	19,870.5	9,720.0	164.6	163.4	0.00	-10,967.6	800.4	1,634.1	1,466.3	167.78	9.740	
21,600.0	11,354.0	19,970.5	9,720.0	166.0	164.8	0.00	-11,067.6	801.2	1,634.1	1,464.8	169.30	9.652	
21,647.1	11,354.0	20,017.6	9,720.0	166.7	165.5	0.00	-11,114.6	801.5	1,634.1	1,464.1	170.01	9.612	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 603H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	165.12	-60.6	-24.3	164.8				
100.0	100.0	97.7	97.7	0.1	0.1	165.12	-60.6	-24.3	164.8	164.5	0.26	632.671	
200.0	200.0	197.7	197.7	0.5	0.5	165.12	-60.6	-24.3	164.8	163.8	0.97	169.493	
300.0	300.0	297.7	297.7	0.8	0.8	165.12	-60.6	-24.3	164.8	163.1	1.69	97.552	
400.0	400.0	397.7	397.7	1.2	1.2	165.12	-60.6	-24.3	164.8	162.4	2.41	68.484	
500.0	500.0	497.7	497.7	1.6	1.6	165.12	-60.6	-24.3	164.8	161.7	3.12	52.762	
600.0	600.0	597.7	597.7	1.9	1.9	165.12	-60.6	-24.3	164.8	160.9	3.84	42.911	
700.0	700.0	697.7	697.7	2.3	2.3	165.12	-60.6	-24.3	164.8	160.2	4.56	36.160	
800.0	800.0	797.7	797.7	2.6	2.6	165.12	-60.6	-24.3	164.8	159.5	5.27	31.244	
900.0	900.0	897.7	897.7	3.0	3.0	165.12	-60.6	-24.3	164.8	158.8	5.99	27.505	
1,000.0	1,000.0	997.7	997.7	3.4	3.3	165.12	-60.6	-24.3	164.8	158.1	6.71	24.565	
1,100.0	1,100.0	1,097.7	1,097.7	3.7	3.7	165.12	-60.6	-24.3	164.8	157.4	7.42	22.193	
1,200.0	1,200.0	1,197.7	1,197.7	4.1	4.1	165.12	-60.6	-24.3	164.8	156.6	8.14	20.239	
1,300.0	1,300.0	1,297.7	1,297.7	4.4	4.4	165.12	-60.6	-24.3	164.8	155.9	8.86	18.601	
1,400.0	1,400.0	1,397.7	1,397.7	4.8	4.8	165.12	-60.6	-24.3	164.8	155.2	9.58	17.208	
1,500.0	1,500.0	1,497.7	1,497.7	5.2	5.1	165.12	-60.6	-24.3	164.8	154.5	10.29	16.010	
1,600.0	1,600.0	1,597.7	1,597.7	5.5	5.5	165.12	-60.6	-24.3	164.8	153.8	11.01	14.967	
1,700.0	1,700.0	1,697.7	1,697.7	5.9	5.9	165.12	-60.6	-24.3	164.8	153.1	11.73	14.052	
1,800.0	1,800.0	1,797.7	1,797.7	6.2	6.2	165.12	-60.6	-24.3	164.8	152.3	12.44	13.242	
1,900.0	1,900.0	1,897.7	1,897.7	6.6	6.6	165.12	-60.6	-24.3	164.8	151.6	13.16	12.521	
2,000.0	2,000.0	1,997.7	1,997.7	6.9	6.9	165.12	-60.6	-24.3	164.8	150.9	13.88	11.874 CC, ES	
2,100.0	2,100.0	2,092.4	2,092.4	7.3	7.3	165.18	-62.1	-24.1	166.3	151.8	14.55	11.430	
2,200.0	2,200.0	2,186.8	2,186.6	7.7	7.6	165.38	-66.6	-23.5	171.2	156.0	15.20	11.262	
2,300.0	2,300.0	2,282.1	2,281.7	8.0	7.9	165.69	-74.2	-22.5	179.2	163.3	15.84	11.309	
2,400.0	2,400.0	2,381.7	2,380.9	8.4	8.2	166.02	-83.2	-21.4	188.1	171.6	16.53	11.382	
2,500.0	2,500.0	2,481.3	2,480.0	8.7	8.5	166.32	-92.1	-20.2	197.1	179.9	17.22	11.448	
2,600.0	2,600.0	2,581.0	2,579.3	9.1	8.9	31.17	-101.0	-19.0	204.6	186.7	17.89	11.433	
2,700.0	2,699.8	2,680.8	2,678.8	9.4	9.2	32.11	-109.9	-17.9	209.1	190.5	18.56	11.268	
2,800.0	2,799.5	2,780.7	2,778.2	9.7	9.6	33.56	-118.8	-16.7	210.8	191.5	19.23	10.963	
2,900.0	2,898.7	2,880.4	2,877.5	10.1	9.9	35.55	-127.7	-15.5	209.7	189.8	19.90	10.539	
3,000.0	2,997.5	2,979.9	2,976.6	10.4	10.3	38.10	-136.6	-14.4	206.4	185.8	20.58	10.030	
3,100.0	3,096.2	3,079.4	3,075.7	10.8	10.6	40.82	-145.5	-13.2	203.1	181.8	21.27	9.549	
3,200.0	3,195.0	3,178.8	3,174.7	11.1	11.0	43.63	-154.4	-12.1	200.2	178.2	21.96	9.117	
3,300.0	3,293.7	3,278.3	3,273.8	11.5	11.3	46.51	-163.3	-10.9	197.8	175.2	22.66	8.731	
3,400.0	3,392.4	3,377.8	3,372.9	11.8	11.7	49.45	-172.2	-9.7	196.0	172.6	23.37	8.387	
3,500.0	3,491.1	3,477.2	3,471.9	12.2	12.0	52.43	-181.1	-8.6	194.6	170.6	24.08	8.083	
3,600.0	3,589.8	3,576.7	3,571.0	12.6	12.4	55.45	-190.0	-7.4	193.8	169.0	24.80	7.816	
3,694.2	3,682.8	3,670.4	3,664.3	12.9	12.7	58.31	-198.3	-6.3	193.6	168.1	25.48	7.597	
3,700.0	3,688.5	3,676.2	3,670.0	13.0	12.7	58.49	-198.9	-6.3	193.6	168.1	25.53	7.584	
3,800.0	3,787.3	3,775.6	3,769.1	13.3	13.1	61.52	-207.8	-5.1	193.9	167.6	26.26	7.384	
3,900.0	3,886.0	3,875.1	3,868.2	13.7	13.5	64.54	-216.6	-3.9	194.8	167.8	27.00	7.213	
4,000.0	3,984.7	3,974.6	3,967.2	14.1	13.8	67.52	-225.5	-2.8	196.2	168.4	27.75	7.070	
4,100.0	4,083.4	4,074.0	4,066.3	14.5	14.2	70.45	-234.4	-1.6	198.1	169.6	28.50	6.951	
4,200.0	4,182.1	4,173.5	4,165.3	14.9	14.6	73.32	-243.3	-0.4	200.5	171.3	29.25	6.855	
4,300.0	4,280.9	4,273.0	4,264.4	15.2	14.9	76.12	-252.2	0.7	203.4	173.4	30.01	6.779	
4,400.0	4,379.6	4,372.4	4,363.5	15.6	15.3	78.83	-261.1	1.9	206.8	176.1	30.77	6.722	
4,500.0	4,478.3	4,471.9	4,462.5	16.0	15.7	81.44	-270.0	3.0	210.7	179.2	31.54	6.681	
4,600.0	4,577.0	4,571.4	4,561.6	16.4	16.0	83.96	-278.9	4.2	215.0	182.7	32.31	6.655	
4,700.0	4,675.7	4,670.8	4,660.6	16.8	16.4	86.38	-287.8	5.4	219.7	186.6	33.07	6.642	
4,800.0	4,774.5	4,770.3	4,759.7	17.2	16.8	88.69	-296.7	6.5	224.7	190.9	33.84	6.640	
4,900.0	4,873.2	4,869.8	4,858.8	17.6	17.1	90.90	-305.6	7.7	230.1	195.5	34.61	6.649	
5,000.0	4,971.9	4,969.2	4,957.8	18.0	17.5	93.00	-314.5	8.8	235.9	200.5	35.38	6.666	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 603H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,070.6	5,068.7	5,056.9	18.4	17.9	95.01	-323.3	10.0	241.9	205.8	36.15	6.692	
5,200.0	5,169.3	5,168.2	5,156.0	18.8	18.2	96.91	-332.2	11.2	248.2	211.3	36.92	6.723	
5,300.0	5,268.0	5,267.6	5,255.0	19.2	18.6	98.72	-341.1	12.3	254.8	217.1	37.69	6.761	
5,400.0	5,366.8	5,367.1	5,354.1	19.6	19.0	100.43	-350.0	13.5	261.7	223.2	38.46	6.803	
5,500.0	5,465.5	5,466.6	5,453.1	20.0	19.3	102.06	-358.9	14.6	268.7	229.5	39.23	6.849	
5,600.0	5,564.2	5,566.0	5,552.2	20.4	19.7	103.61	-367.8	15.8	276.0	236.0	40.00	6.899	
5,700.0	5,662.9	5,665.5	5,651.3	20.8	20.1	105.07	-376.7	17.0	283.4	242.6	40.77	6.952	
5,800.0	5,761.6	5,764.9	5,750.3	21.2	20.5	106.46	-385.6	18.1	291.0	249.5	41.53	7.007	
5,900.0	5,860.4	5,864.4	5,849.4	21.6	20.8	107.78	-394.5	19.3	298.8	256.5	42.30	7.064	
6,000.0	5,959.1	5,963.9	5,948.4	22.0	21.2	109.03	-403.4	20.4	306.8	263.7	43.07	7.122	
6,100.0	6,057.8	6,063.3	6,047.5	22.4	21.6	110.21	-412.3	21.6	314.8	271.0	43.83	7.182	
6,200.0	6,156.5	6,162.8	6,146.6	22.9	22.0	111.34	-421.1	22.8	323.0	278.4	44.60	7.243	
6,300.0	6,255.2	6,262.3	6,245.6	23.3	22.3	112.41	-430.0	23.9	331.3	286.0	45.37	7.304	
6,400.0	6,354.0	6,361.7	6,344.7	23.7	22.7	113.43	-438.9	25.1	339.8	293.6	46.13	7.365	
6,500.0	6,452.7	6,461.2	6,443.7	24.1	23.1	114.40	-447.8	26.2	348.3	301.4	46.90	7.427	
6,600.0	6,551.4	6,560.7	6,542.8	24.5	23.4	115.32	-456.7	27.4	356.9	309.3	47.66	7.489	
6,700.0	6,650.1	6,660.1	6,641.9	24.9	23.8	116.20	-465.6	28.6	365.6	317.2	48.42	7.551	
6,800.0	6,748.8	6,759.6	6,740.9	25.3	24.2	117.04	-474.5	29.7	374.4	325.2	49.19	7.612	
6,900.0	6,847.5	6,859.1	6,840.0	25.7	24.6	117.84	-483.4	30.9	383.3	333.3	49.95	7.673	
7,000.0	6,946.3	6,958.5	6,939.1	26.1	24.9	118.60	-492.3	32.0	392.2	341.5	50.72	7.734	
7,100.0	7,045.0	7,058.0	7,038.1	26.5	25.3	119.33	-501.2	33.2	401.2	349.8	51.48	7.794	
7,200.0	7,143.7	7,157.5	7,137.2	27.0	25.7	120.03	-510.1	34.4	410.3	358.1	52.24	7.854	
7,300.0	7,242.4	7,256.9	7,236.2	27.4	26.1	120.70	-519.0	35.5	419.4	366.4	53.01	7.913	
7,400.0	7,341.1	7,356.4	7,335.3	27.8	26.4	121.33	-527.8	36.7	428.6	374.9	53.77	7.971	
7,500.0	7,439.9	7,455.9	7,434.4	28.2	26.8	121.95	-536.7	37.8	437.9	383.3	54.53	8.029	
7,600.0	7,538.6	7,555.3	7,533.4	28.6	27.2	122.53	-545.6	39.0	447.1	391.8	55.30	8.086	
7,700.0	7,637.3	7,654.8	7,632.5	29.0	27.6	123.10	-554.5	40.2	456.5	400.4	56.06	8.142	
7,800.0	7,736.0	7,754.3	7,731.5	29.4	27.9	123.64	-563.4	41.3	465.8	409.0	56.82	8.198	
7,900.0	7,834.7	7,853.7	7,830.6	29.9	28.3	124.15	-572.3	42.5	475.2	417.6	57.58	8.253	
8,000.0	7,933.5	7,953.2	7,929.7	30.3	28.7	124.65	-581.2	43.6	484.7	426.3	58.35	8.307	
8,100.0	8,032.2	8,052.7	8,028.7	30.7	29.1	125.13	-590.1	44.8	494.1	435.0	59.11	8.360	
8,200.0	8,130.9	8,152.1	8,127.8	31.1	29.4	125.59	-599.0	46.0	503.7	443.8	59.87	8.412	
8,300.0	8,229.6	8,251.6	8,226.9	31.5	29.8	126.04	-607.9	47.1	513.2	452.6	60.64	8.463	
8,400.0	8,328.3	8,351.1	8,325.9	31.9	30.2	126.47	-616.8	48.3	522.8	461.4	61.40	8.514	
8,500.0	8,427.0	8,450.5	8,425.0	32.3	30.6	126.88	-625.7	49.5	532.4	470.2	62.16	8.564	
8,600.0	8,525.8	8,550.0	8,524.0	32.8	31.0	127.28	-634.5	50.6	542.0	479.1	62.93	8.613	
8,700.0	8,624.5	8,649.5	8,623.1	33.2	31.3	127.66	-643.4	51.8	551.6	488.0	63.69	8.661	
8,800.0	8,723.2	8,748.9	8,722.2	33.6	31.7	128.03	-652.3	52.9	561.3	496.9	64.45	8.709	
8,900.0	8,821.9	8,848.4	8,821.2	34.0	32.1	128.39	-661.2	54.1	571.0	505.8	65.22	8.756	
9,000.0	8,920.6	8,947.9	8,920.3	34.4	32.5	128.74	-670.1	55.3	580.7	514.8	65.98	8.802	
9,100.0	9,019.4	9,047.3	9,019.3	34.8	32.8	129.07	-679.0	56.4	590.5	523.7	66.74	8.847	
9,200.0	9,118.1	9,146.8	9,118.4	35.3	33.2	129.40	-687.9	57.6	600.2	532.7	67.51	8.892	
9,300.0	9,216.8	9,246.3	9,217.5	35.7	33.6	129.71	-696.8	58.7	610.0	541.7	68.27	8.935	
9,400.0	9,315.5	9,345.1	9,315.9	36.1	34.0	130.06	-705.2	59.8	619.8	550.8	69.02	8.980	
9,500.0	9,414.2	9,442.9	9,413.6	36.5	34.3	130.66	-710.5	60.5	629.9	560.1	69.75	9.031	
9,600.0	9,513.0	9,540.3	9,510.9	36.9	34.7	131.58	-712.5	60.8	640.0	569.6	70.44	9.086	
9,700.0	9,612.2	9,639.3	9,609.9	37.3	35.0	132.53	-712.6	60.8	648.5	577.4	71.10	9.120	
9,800.0	9,711.8	9,738.8	9,709.5	37.7	35.3	133.21	-712.6	60.8	654.7	582.9	71.76	9.123	
9,900.0	9,811.6	9,837.0	9,807.1	38.1	35.7	132.89	-720.8	60.9	658.6	586.1	72.49	9.085	
10,000.0	9,911.6	9,928.7	9,895.0	38.4	36.1	130.84	-746.4	61.1	661.1	587.8	73.30	9.020	
10,100.0	10,011.6	10,008.1	9,966.1	38.7	36.4	-96.61	-781.7	61.3	665.2	591.3	73.97	8.993	
10,200.0	10,111.6	10,075.0	10,020.7	39.0	36.8	-99.89	-820.3	61.6	674.9	600.6	74.33	9.080	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 603H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,300.0	10,211.6	10,125.0	10,057.6	39.3	37.1	-102.70	-853.9	61.9	692.2	618.2	74.07	9.345	
10,400.0	10,311.6	10,175.0	10,090.9	39.6	37.4	-105.76	-891.2	62.2	718.3	644.9	73.45	9.780	
10,500.0	10,411.6	10,208.1	10,110.8	40.0	37.5	-107.88	-917.7	62.4	753.5	681.4	72.07	10.455	
10,600.0	10,511.6	10,237.6	10,126.8	40.3	37.7	-109.81	-942.4	62.6	797.3	727.0	70.35	11.333	
10,700.0	10,611.6	10,262.1	10,138.9	40.6	37.9	-111.43	-963.7	62.7	849.1	780.7	68.42	12.410	
10,800.0	10,711.6	10,282.7	10,148.3	40.9	38.0	-112.81	-982.0	62.9	907.8	841.4	66.42	13.666	
10,900.0	10,811.6	10,300.0	10,155.6	41.2	38.1	-113.97	-997.7	63.0	972.4	907.9	64.48	15.080	
11,000.0	10,911.6	10,315.5	10,161.6	41.5	38.2	61.77	-1,012.1	63.1	1,041.5	978.9	62.68	16.618	
11,100.0	11,009.8	10,334.0	10,168.2	41.9	38.3	51.64	-1,029.4	63.3	1,109.1	1,048.1	61.01	18.180	
11,200.0	11,102.2	10,350.0	10,173.3	42.3	38.4	44.04	-1,044.5	63.4	1,171.0	1,111.6	59.33	19.735	
11,300.0	11,184.8	10,375.0	10,180.3	42.8	38.6	38.35	-1,068.5	63.6	1,224.8	1,166.8	57.97	21.127	
11,400.0	11,253.9	10,400.0	10,186.0	43.3	38.7	34.42	-1,092.8	63.7	1,268.9	1,212.1	56.76	22.356	
11,500.0	11,306.4	10,435.1	10,191.9	43.9	38.9	31.78	-1,127.4	64.0	1,301.7	1,245.8	55.91	23.283	
11,600.0	11,340.2	10,463.8	10,194.8	44.5	39.1	30.29	-1,155.9	64.2	1,322.5	1,267.3	55.19	23.962	
11,700.0	11,353.8	10,497.9	10,196.0	45.0	39.3	29.74	-1,190.0	64.5	1,330.8	1,275.9	54.85	24.264	
11,800.0	11,354.0	10,580.9	10,196.0	45.6	39.8	29.73	-1,273.0	65.1	1,330.9	1,275.7	55.23	24.098	
11,900.0	11,354.0	10,680.9	10,196.0	46.2	40.5	29.73	-1,373.0	65.9	1,330.9	1,275.0	55.84	23.833	
12,000.0	11,354.0	10,780.9	10,196.0	46.9	41.2	29.73	-1,473.0	66.7	1,330.9	1,274.4	56.52	23.547	
12,100.0	11,354.0	10,880.9	10,196.0	47.6	41.9	29.73	-1,573.0	67.5	1,330.9	1,273.6	57.26	23.244	
12,200.0	11,354.0	10,980.9	10,196.0	48.3	42.7	29.73	-1,673.0	68.2	1,330.9	1,272.8	58.05	22.925	
12,300.0	11,354.0	11,080.9	10,196.0	49.1	43.5	29.73	-1,773.0	69.0	1,330.9	1,272.0	58.90	22.594	
12,400.0	11,354.0	11,180.9	10,196.0	49.9	44.3	29.73	-1,873.0	69.8	1,330.9	1,271.1	59.81	22.252	
12,500.0	11,354.0	11,280.9	10,196.0	50.7	45.2	29.73	-1,973.0	70.6	1,330.9	1,270.1	60.76	21.902	
12,600.0	11,354.0	11,380.9	10,196.0	51.5	46.1	29.73	-2,073.0	71.3	1,330.9	1,269.1	61.77	21.546	
12,700.0	11,354.0	11,480.9	10,196.0	52.4	47.0	29.73	-2,173.0	72.1	1,330.9	1,268.1	62.82	21.186	
12,800.0	11,354.0	11,580.9	10,196.0	53.3	48.0	29.73	-2,273.0	72.9	1,330.9	1,267.0	63.91	20.823	
12,900.0	11,354.0	11,680.9	10,196.0	54.2	49.0	29.73	-2,373.0	73.7	1,330.9	1,265.8	65.05	20.460	
13,000.0	11,354.0	11,780.9	10,196.0	55.1	50.0	29.73	-2,473.0	74.5	1,330.9	1,264.7	66.23	20.096	
13,100.0	11,354.0	11,880.9	10,196.0	56.1	51.0	29.73	-2,573.0	75.2	1,330.9	1,263.4	67.44	19.735	
13,200.0	11,354.0	11,980.9	10,196.0	57.1	52.0	29.73	-2,673.0	76.0	1,330.9	1,262.2	68.69	19.376	
13,300.0	11,354.0	12,080.9	10,196.0	58.1	53.1	29.73	-2,772.9	76.8	1,330.9	1,260.9	69.97	19.021	
13,400.0	11,354.0	12,180.9	10,196.0	59.1	54.2	29.73	-2,872.9	77.6	1,330.9	1,259.6	71.28	18.671	
13,500.0	11,354.0	12,280.9	10,196.0	60.1	55.3	29.73	-2,972.9	78.3	1,330.9	1,258.3	72.63	18.325	
13,600.0	11,354.0	12,380.9	10,196.0	61.2	56.4	29.73	-3,072.9	79.1	1,330.9	1,256.9	74.00	17.985	
13,700.0	11,354.0	12,480.9	10,196.0	62.3	57.5	29.73	-3,172.9	79.9	1,330.9	1,255.5	75.40	17.652	
13,800.0	11,354.0	12,580.9	10,196.0	63.4	58.7	29.73	-3,272.9	80.7	1,330.9	1,254.1	76.82	17.324	
13,900.0	11,354.0	12,680.9	10,196.0	64.5	59.8	29.73	-3,372.9	81.4	1,330.9	1,252.6	78.27	17.004	
14,000.0	11,354.0	12,780.9	10,196.0	65.6	61.0	29.73	-3,472.9	82.2	1,330.9	1,251.1	79.74	16.690	
14,100.0	11,354.0	12,880.9	10,196.0	66.7	62.2	29.73	-3,572.9	83.0	1,330.9	1,249.6	81.23	16.383	
14,200.0	11,354.0	12,980.9	10,196.0	67.8	63.3	29.73	-3,672.9	83.8	1,330.9	1,248.1	82.75	16.084	
14,300.0	11,354.0	13,080.9	10,196.0	69.0	64.5	29.73	-3,772.9	84.5	1,330.9	1,246.6	84.28	15.791	
14,400.0	11,354.0	13,180.9	10,196.0	70.1	65.8	29.73	-3,872.9	85.3	1,330.9	1,245.1	85.83	15.506	
14,500.0	11,354.0	13,280.9	10,196.0	71.3	67.0	29.73	-3,972.9	86.1	1,330.9	1,243.5	87.40	15.228	
14,600.0	11,354.0	13,380.9	10,196.0	72.5	68.2	29.73	-4,072.9	86.9	1,330.9	1,241.9	88.98	14.957	
14,700.0	11,354.0	13,480.9	10,196.0	73.7	69.4	29.73	-4,172.9	87.6	1,330.9	1,240.3	90.58	14.693	
14,800.0	11,354.0	13,580.9	10,196.0	74.9	70.7	29.73	-4,272.9	88.4	1,330.9	1,238.7	92.20	14.435	
14,900.0	11,354.0	13,680.9	10,196.0	76.1	71.9	29.73	-4,372.9	89.2	1,330.9	1,237.1	93.82	14.185	
15,000.0	11,354.0	13,780.9	10,196.0	77.3	73.2	29.73	-4,472.9	90.0	1,330.9	1,235.4	95.47	13.941	
15,100.0	11,354.0	13,880.9	10,196.0	78.5	74.5	29.73	-4,572.9	90.8	1,330.9	1,233.8	97.12	13.704	
15,200.0	11,354.0	13,980.9	10,196.0	79.8	75.7	29.73	-4,672.9	91.5	1,330.9	1,232.1	98.79	13.472	
15,300.0	11,354.0	14,080.9	10,196.0	81.0	77.0	29.73	-4,772.9	92.3	1,330.9	1,230.4	100.46	13.248	
15,400.0	11,354.0	14,180.9	10,196.0	82.2	78.3	29.73	-4,872.9	93.1	1,330.9	1,228.7	102.15	13.029	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 603H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,500.0	11,354.0	14,280.9	10,196.0	83.5	79.6	29.73	-4,972.9	93.9	1,330.9	1,227.0	103.85	12.816	
15,600.0	11,354.0	14,380.9	10,196.0	84.8	80.9	29.73	-5,072.9	94.6	1,330.9	1,225.3	105.56	12.608	
15,700.0	11,354.0	14,480.9	10,196.0	86.0	82.2	29.73	-5,172.9	95.4	1,330.9	1,223.6	107.27	12.406	
15,800.0	11,354.0	14,580.9	10,196.0	87.3	83.5	29.73	-5,272.9	96.2	1,330.9	1,221.9	109.00	12.210	
15,900.0	11,354.0	14,680.9	10,196.0	88.6	84.8	29.73	-5,372.9	97.0	1,330.9	1,220.1	110.73	12.019	
16,000.0	11,354.0	14,780.9	10,196.0	89.8	86.1	29.73	-5,472.9	97.7	1,330.9	1,218.4	112.48	11.833	
16,100.0	11,354.0	14,880.9	10,196.0	91.1	87.4	29.73	-5,572.9	98.5	1,330.9	1,216.7	114.23	11.651	
16,200.0	11,354.0	14,980.9	10,196.0	92.4	88.8	29.73	-5,672.9	99.3	1,330.9	1,214.9	115.98	11.475	
16,300.0	11,354.0	15,080.9	10,196.0	93.7	90.1	29.73	-5,772.9	100.1	1,330.9	1,213.1	117.75	11.303	
16,400.0	11,354.0	15,180.9	10,196.0	95.0	91.4	29.73	-5,872.9	100.8	1,330.9	1,211.4	119.52	11.135	
16,500.0	11,354.0	15,280.9	10,196.0	96.3	92.8	29.73	-5,972.9	101.6	1,330.9	1,209.6	121.30	10.972	
16,600.0	11,354.0	15,380.9	10,196.0	97.6	94.1	29.73	-6,072.8	102.4	1,330.9	1,207.8	123.08	10.813	
16,700.0	11,354.0	15,480.9	10,196.0	98.9	95.4	29.73	-6,172.8	103.2	1,330.9	1,206.0	124.87	10.658	
16,800.0	11,354.0	15,580.9	10,196.0	100.3	96.8	29.73	-6,272.8	103.9	1,330.9	1,204.2	126.67	10.507	
16,900.0	11,354.0	15,680.9	10,196.0	101.6	98.1	29.73	-6,372.8	104.7	1,330.9	1,202.4	128.47	10.360	
17,000.0	11,354.0	15,780.9	10,196.0	102.9	99.5	29.73	-6,472.8	105.5	1,330.9	1,200.6	130.27	10.216	
17,100.0	11,354.0	15,880.9	10,196.0	104.2	100.8	29.73	-6,572.8	106.3	1,330.9	1,198.8	132.08	10.076	
17,200.0	11,354.0	15,980.9	10,196.0	105.6	102.2	29.73	-6,672.8	107.0	1,330.9	1,197.0	133.90	9.940	
17,300.0	11,354.0	16,080.9	10,196.0	106.9	103.5	29.73	-6,772.8	107.8	1,330.9	1,195.2	135.72	9.806	
17,400.0	11,354.0	16,180.9	10,196.0	108.2	104.9	29.73	-6,872.8	108.6	1,330.9	1,193.3	137.54	9.676	
17,500.0	11,354.0	16,280.9	10,196.0	109.6	106.3	29.73	-6,972.8	109.4	1,330.9	1,191.5	139.37	9.549	
17,600.0	11,354.0	16,380.9	10,196.0	110.9	107.6	29.73	-7,072.8	110.2	1,330.9	1,189.7	141.20	9.425	
17,700.0	11,354.0	16,480.9	10,196.0	112.2	109.0	29.73	-7,172.8	110.9	1,330.9	1,187.8	143.04	9.304	
17,800.0	11,354.0	16,580.9	10,196.0	113.6	110.4	29.73	-7,272.8	111.7	1,330.9	1,186.0	144.88	9.186	
17,900.0	11,354.0	16,680.9	10,196.0	114.9	111.7	29.73	-7,372.8	112.5	1,330.9	1,184.2	146.72	9.071	
18,000.0	11,354.0	16,780.9	10,196.0	116.3	113.1	29.73	-7,472.8	113.3	1,330.9	1,182.3	148.57	8.958	
18,100.0	11,354.0	16,880.9	10,196.0	117.6	114.5	29.73	-7,572.8	114.0	1,330.9	1,180.5	150.42	8.848	
18,200.0	11,354.0	16,980.9	10,196.0	119.0	115.9	29.73	-7,672.8	114.8	1,330.9	1,178.6	152.27	8.740	
18,300.0	11,354.0	17,080.9	10,196.0	120.3	117.2	29.73	-7,772.8	115.6	1,330.9	1,176.8	154.13	8.635	
18,400.0	11,354.0	17,180.9	10,196.0	121.7	118.6	29.73	-7,872.8	116.4	1,330.9	1,174.9	155.99	8.532	
18,500.0	11,354.0	17,280.9	10,196.0	123.1	120.0	29.73	-7,972.8	117.1	1,330.9	1,173.0	157.85	8.431	
18,600.0	11,354.0	17,380.9	10,196.0	124.4	121.4	29.73	-8,072.8	117.9	1,330.9	1,171.2	159.72	8.333	
18,700.0	11,354.0	17,480.9	10,196.0	125.8	122.8	29.73	-8,172.8	118.7	1,330.9	1,169.3	161.59	8.236	
18,800.0	11,354.0	17,580.9	10,196.0	127.2	124.2	29.73	-8,272.8	119.5	1,330.9	1,167.4	163.46	8.142	
18,900.0	11,354.0	17,680.9	10,196.0	128.5	125.5	29.73	-8,372.8	120.2	1,330.9	1,165.6	165.33	8.050	
19,000.0	11,354.0	17,780.9	10,196.0	129.9	126.9	29.73	-8,472.8	121.0	1,330.9	1,163.7	167.21	7.959	
19,100.0	11,354.0	17,880.9	10,196.0	131.3	128.3	29.73	-8,572.8	121.8	1,330.9	1,161.8	169.09	7.871	
19,200.0	11,354.0	17,980.9	10,196.0	132.7	129.7	29.73	-8,672.8	122.6	1,330.9	1,159.9	170.97	7.785	
19,300.0	11,354.0	18,080.9	10,196.0	134.0	131.1	29.73	-8,772.8	123.3	1,330.9	1,158.0	172.85	7.700	
19,400.0	11,354.0	18,180.9	10,196.0	135.4	132.5	29.73	-8,872.8	124.1	1,330.9	1,156.2	174.73	7.617	
19,500.0	11,354.0	18,280.9	10,196.0	136.8	133.9	29.73	-8,972.8	124.9	1,330.9	1,154.3	176.62	7.535	
19,600.0	11,354.0	18,380.9	10,196.0	138.2	135.3	29.73	-9,072.8	125.7	1,330.9	1,152.4	178.51	7.456	
19,700.0	11,354.0	18,480.9	10,196.0	139.5	136.7	29.73	-9,172.8	126.4	1,330.9	1,150.5	180.40	7.377	
19,800.0	11,354.0	18,580.9	10,196.0	140.9	138.1	29.73	-9,272.8	127.2	1,330.9	1,148.6	182.29	7.301	
19,900.0	11,354.0	18,680.9	10,196.0	142.3	139.5	29.73	-9,372.8	128.0	1,330.9	1,146.7	184.18	7.226	
20,000.0	11,354.0	18,780.9	10,196.0	143.7	140.9	29.73	-9,472.7	128.8	1,330.9	1,144.8	186.08	7.152	
20,100.0	11,354.0	18,880.9	10,196.0	145.1	142.3	29.73	-9,572.7	129.6	1,330.9	1,142.9	187.98	7.080	
20,200.0	11,354.0	18,980.9	10,196.0	146.5	143.7	29.73	-9,672.7	130.3	1,330.9	1,141.0	189.88	7.009	
20,300.0	11,354.0	19,080.9	10,196.0	147.9	145.1	29.73	-9,772.7	131.1	1,330.9	1,139.1	191.78	6.940	
20,400.0	11,354.0	19,180.9	10,196.0	149.2	146.5	29.73	-9,872.7	131.9	1,330.9	1,137.2	193.68	6.872	
20,500.0	11,354.0	19,280.9	10,196.0	150.6	147.9	29.73	-9,972.7	132.7	1,330.9	1,135.3	195.59	6.805	
20,600.0	11,354.0	19,380.9	10,196.0	152.0	149.3	29.73	-10,072.7	133.4	1,330.9	1,133.4	197.49	6.739	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 603H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
20,700.0	11,354.0	19,480.9	10,196.0	153.4	150.7	29.73	-10,172.7	134.2	1,330.9	1,131.5	199.40	6.675	
20,800.0	11,354.0	19,580.9	10,196.0	154.8	152.1	29.73	-10,272.7	135.0	1,330.9	1,129.6	201.31	6.611	
20,900.0	11,354.0	19,680.9	10,196.0	156.2	153.5	29.73	-10,372.7	135.8	1,330.9	1,127.7	203.22	6.549	
21,000.0	11,354.0	19,780.9	10,196.0	157.6	154.9	29.73	-10,472.7	136.5	1,330.9	1,125.8	205.13	6.488	
21,100.0	11,354.0	19,880.9	10,196.0	159.0	156.3	29.73	-10,572.7	137.3	1,330.9	1,123.8	207.04	6.428	
21,200.0	11,354.0	19,980.9	10,196.0	160.4	157.8	29.73	-10,672.7	138.1	1,330.9	1,121.9	208.95	6.369	
21,300.0	11,354.0	20,080.9	10,196.0	161.8	159.2	29.73	-10,772.7	138.9	1,330.9	1,120.0	210.87	6.311	
21,400.0	11,354.0	20,180.9	10,196.0	163.2	160.6	29.73	-10,872.7	139.6	1,330.9	1,118.1	212.78	6.255	
21,500.0	11,354.0	20,280.9	10,196.0	164.6	162.0	29.73	-10,972.7	140.4	1,330.9	1,116.2	214.70	6.199	
21,600.0	11,354.0	20,380.9	10,196.0	166.0	163.4	29.73	-11,072.7	141.2	1,330.9	1,114.3	216.62	6.144	
21,647.1	11,354.0	20,427.9	10,196.0	166.7	164.1	29.73	-11,119.8	141.6	1,330.9	1,113.4	217.52	6.118 SF	

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.6	0.6	0.0	0.0	88.97	99.4	-26.7	39.9				
100.0	100.0	100.6	100.6	0.1	0.1	88.97	99.4	-26.7	39.9	39.7	0.27	150.348	
200.0	200.0	200.6	200.6	0.5	0.5	88.97	99.4	-26.7	39.9	39.0	0.98	40.645	
300.0	300.0	300.6	300.6	0.8	0.9	88.97	99.4	-26.7	39.9	38.2	1.70	23.499	
400.0	400.0	400.6	400.6	1.2	1.2	88.97	99.4	-26.7	39.9	37.5	2.42	16.527	
500.0	500.0	500.6	500.6	1.6	1.6	88.97	99.4	-26.7	39.9	36.8	3.13	12.745	
600.0	600.0	600.6	600.6	1.9	1.9	88.97	99.4	-26.7	39.9	36.1	3.85	10.372	
700.0	700.0	700.6	700.6	2.3	2.3	88.97	99.4	-26.7	39.9	35.4	4.57	8.744	
800.0	800.0	800.6	800.6	2.6	2.6	88.97	99.4	-26.7	39.9	34.7	5.28	7.558	
900.0	900.0	900.6	900.6	3.0	3.0	88.97	99.4	-26.7	39.9	33.9	6.00	6.655	
1,000.0	1,000.0	1,000.6	1,000.6	3.4	3.4	88.97	99.4	-26.7	39.9	33.2	6.72	5.945	
1,100.0	1,100.0	1,100.6	1,100.6	3.7	3.7	88.97	99.4	-26.7	39.9	32.5	7.44	5.371	
1,200.0	1,200.0	1,200.6	1,200.6	4.1	4.1	88.97	99.4	-26.7	39.9	31.8	8.15	4.899	
1,300.0	1,300.0	1,300.6	1,300.6	4.4	4.4	88.97	99.4	-26.7	39.9	31.1	8.87	4.503	
1,400.0	1,400.0	1,400.6	1,400.6	4.8	4.8	88.97	99.4	-26.7	39.9	30.4	9.59	4.166	
1,500.0	1,500.0	1,500.6	1,500.6	5.2	5.2	88.97	99.4	-26.7	39.9	29.6	10.30	3.876	
1,600.0	1,600.0	1,600.6	1,600.6	5.5	5.5	88.97	99.4	-26.7	39.9	28.9	11.02	3.624	
1,700.0	1,700.0	1,700.6	1,700.6	5.9	5.9	88.97	99.4	-26.7	39.9	28.2	11.74	3.403	
1,800.0	1,800.0	1,800.6	1,800.6	6.2	6.2	88.97	99.4	-26.7	39.9	27.5	12.45	3.207	
1,900.0	1,900.0	1,900.6	1,900.6	6.6	6.6	88.97	99.4	-26.7	39.9	26.8	13.17	3.032	
1,916.5	1,916.5	1,917.1	1,917.1	6.6	6.6	88.97	99.4	-26.7	39.9	26.6	13.29	3.005 CC	
2,000.0	2,000.0	2,000.0	2,000.0	6.9	6.9	88.97	99.4	-26.7	39.9	26.1	13.88	2.877 ES	
2,100.0	2,100.0	2,099.4	2,099.3	7.3	7.3	90.18	98.5	-25.2	41.4	26.9	14.58	2.843 SF	
2,200.0	2,200.0	2,197.9	2,197.7	7.7	7.6	93.30	96.0	-20.7	46.0	30.8	15.25	3.019	
2,300.0	2,300.0	2,296.0	2,295.5	8.0	7.9	97.29	91.9	-13.4	53.9	38.0	15.90	3.390	
2,400.0	2,400.0	2,393.4	2,392.1	8.4	8.3	101.22	86.1	-3.2	65.2	48.6	16.53	3.942	
2,500.0	2,500.0	2,489.8	2,487.4	8.7	8.6	104.61	78.8	9.7	79.9	62.8	17.14	4.661	
2,600.0	2,600.0	2,585.5	2,581.4	9.1	9.0	-28.57	70.0	25.2	96.6	78.8	17.72	5.449	
2,700.0	2,699.8	2,681.3	2,674.9	9.4	9.3	-27.30	59.7	43.4	113.4	95.1	18.28	6.204	
2,800.0	2,799.5	2,780.2	2,771.1	9.7	9.7	-26.93	48.5	63.2	128.3	109.4	18.95	6.772	
2,900.0	2,898.7	2,879.4	2,867.8	10.1	10.1	-27.28	37.2	83.0	140.2	120.5	19.63	7.141	
3,000.0	2,997.5	2,979.0	2,964.7	10.4	10.5	-28.19	26.0	102.9	149.2	128.9	20.32	7.344	
3,100.0	3,096.2	3,078.6	3,061.6	10.8	10.9	-29.15	14.7	122.8	157.8	136.7	21.02	7.506	
3,200.0	3,195.0	3,178.2	3,158.5	11.1	11.3	-30.01	3.4	142.7	166.3	144.6	21.72	7.657	
3,300.0	3,293.7	3,277.8	3,255.5	11.5	11.7	-30.79	-7.9	162.6	174.9	152.5	22.44	7.797	
3,400.0	3,392.4	3,377.4	3,352.4	11.8	12.1	-31.49	-19.2	182.5	183.6	160.4	23.16	7.929	
3,500.0	3,491.1	3,477.0	3,449.4	12.2	12.6	-32.13	-30.4	202.4	192.3	168.4	23.88	8.051	
3,600.0	3,589.8	3,576.6	3,546.3	12.6	13.0	-32.72	-41.7	222.3	201.0	176.3	24.61	8.165	
3,700.0	3,688.5	3,676.2	3,643.2	13.0	13.4	-33.26	-53.0	242.2	209.7	184.3	25.35	8.272	
3,800.0	3,787.3	3,775.8	3,740.2	13.3	13.9	-33.75	-64.3	262.1	218.4	192.3	26.09	8.372	
3,900.0	3,886.0	3,875.4	3,837.1	13.7	14.3	-34.20	-75.5	282.0	227.1	200.3	26.83	8.465	
4,000.0	3,984.7	3,975.0	3,934.1	14.1	14.7	-34.63	-86.8	301.9	235.9	208.3	27.58	8.553	
4,100.0	4,083.4	4,074.6	4,031.0	14.5	15.2	-35.02	-98.1	321.8	244.6	216.3	28.33	8.635	
4,200.0	4,182.1	4,174.2	4,127.9	14.9	15.6	-35.38	-109.4	341.7	253.4	224.3	29.09	8.713	
4,300.0	4,280.9	4,273.8	4,224.9	15.2	16.1	-35.72	-120.6	361.6	262.2	232.4	29.84	8.786	
4,400.0	4,379.6	4,373.4	4,321.8	15.6	16.5	-36.04	-131.9	381.5	271.0	240.4	30.61	8.854	
4,500.0	4,478.3	4,473.0	4,418.7	16.0	17.0	-36.34	-143.2	401.4	279.8	248.4	31.37	8.919	
4,600.0	4,577.0	4,572.6	4,515.7	16.4	17.4	-36.62	-154.5	421.3	288.6	256.5	32.14	8.980	
4,700.0	4,675.7	4,672.2	4,612.6	16.8	17.9	-36.88	-165.8	441.2	297.4	264.5	32.91	9.038	
4,800.0	4,774.5	4,771.8	4,709.6	17.2	18.4	-37.13	-177.0	461.1	306.2	272.6	33.68	9.093	
4,900.0	4,873.2	4,871.4	4,806.5	17.6	18.8	-37.37	-188.3	481.0	315.1	280.6	34.45	9.145	
5,000.0	4,971.9	4,971.0	4,903.4	18.0	19.3	-37.59	-199.6	500.9	323.9	288.7	35.23	9.194	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1													Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
5,100.0	5,070.6	5,070.6	5,000.4	18.4	19.7	-37.80	-210.9	520.8	332.7	296.7	36.01	9.241		
5,200.0	5,169.3	5,170.2	5,097.3	18.8	20.2	-38.00	-222.1	540.7	341.6	304.8	36.79	9.285		
5,300.0	5,268.0	5,269.8	5,194.3	19.2	20.7	-38.18	-233.4	560.6	350.4	312.9	37.57	9.328		
5,400.0	5,366.8	5,369.4	5,291.2	19.6	21.1	-38.36	-244.7	580.5	359.3	320.9	38.35	9.368		
5,500.0	5,465.5	5,469.0	5,388.1	20.0	21.6	-38.53	-256.0	600.4	368.1	329.0	39.14	9.406		
5,600.0	5,564.2	5,568.6	5,485.1	20.4	22.1	-38.70	-267.3	620.3	377.0	337.1	39.92	9.443		
5,700.0	5,662.9	5,668.3	5,582.0	20.8	22.5	-38.85	-278.5	640.2	385.8	345.1	40.71	9.478		
5,800.0	5,761.6	5,767.9	5,679.0	21.2	23.0	-39.00	-289.8	660.1	394.7	353.2	41.50	9.511		
5,900.0	5,860.4	5,867.5	5,775.9	21.6	23.5	-39.14	-301.1	680.0	403.6	361.3	42.29	9.543		
6,000.0	5,959.1	5,967.1	5,872.8	22.0	23.9	-39.28	-312.4	699.9	412.4	369.3	43.08	9.574		
6,100.0	6,057.8	6,066.7	5,969.8	22.4	24.4	-39.41	-323.6	719.8	421.3	377.4	43.87	9.603		
6,200.0	6,156.5	6,166.3	6,066.7	22.9	24.9	-39.53	-334.9	739.7	430.2	385.5	44.66	9.631		
6,300.0	6,255.2	6,265.9	6,163.7	23.3	25.3	-39.65	-346.2	759.6	439.0	393.6	45.46	9.658		
6,400.0	6,354.0	6,365.5	6,260.6	23.7	25.8	-39.77	-357.5	779.5	447.9	401.7	46.25	9.684		
6,500.0	6,452.7	6,465.1	6,357.5	24.1	26.3	-39.88	-368.7	799.4	456.8	409.7	47.05	9.709		
6,600.0	6,551.4	6,564.7	6,454.5	24.5	26.8	-39.99	-380.0	819.3	465.7	417.8	47.85	9.733		
6,700.0	6,650.1	6,664.3	6,551.4	24.9	27.2	-40.09	-391.3	839.2	474.5	425.9	48.64	9.756		
6,800.0	6,748.8	6,763.9	6,648.4	25.3	27.7	-40.19	-402.6	859.1	483.4	434.0	49.44	9.778		
6,900.0	6,847.5	6,863.5	6,745.3	25.7	28.2	-40.28	-413.9	879.0	492.3	442.1	50.24	9.799		
7,000.0	6,946.3	6,963.1	6,842.2	26.1	28.7	-40.37	-425.1	898.9	501.2	450.1	51.04	9.819		
7,100.0	7,045.0	7,062.7	6,939.2	26.5	29.1	-40.46	-436.4	918.8	510.1	458.2	51.84	9.839		
7,200.0	7,143.7	7,162.3	7,036.1	27.0	29.6	-40.55	-447.7	938.7	518.9	466.3	52.64	9.858		
7,300.0	7,242.4	7,261.9	7,133.1	27.4	30.1	-40.63	-459.0	958.6	527.8	474.4	53.44	9.877		
7,400.0	7,341.1	7,361.5	7,230.0	27.8	30.6	-40.71	-470.2	978.5	536.7	482.5	54.24	9.894		
7,500.0	7,439.9	7,461.1	7,326.9	28.2	31.0	-40.79	-481.5	998.4	545.6	490.6	55.05	9.911		
7,600.0	7,538.6	7,560.7	7,423.9	28.6	31.5	-40.86	-492.8	1,018.3	554.5	498.6	55.85	9.928		
7,700.0	7,637.3	7,660.3	7,520.8	29.0	32.0	-40.93	-504.1	1,038.2	563.4	506.7	56.65	9.944		
7,800.0	7,736.0	7,759.9	7,617.8	29.4	32.5	-41.00	-515.4	1,058.1	572.3	514.8	57.46	9.960		
7,900.0	7,834.7	7,859.5	7,714.7	29.9	32.9	-41.07	-526.6	1,078.0	581.2	522.9	58.26	9.975		
8,000.0	7,933.5	7,959.1	7,811.6	30.3	33.4	-41.14	-537.9	1,097.9	590.1	531.0	59.07	9.989		
8,100.0	8,032.2	8,058.7	7,908.6	30.7	33.9	-41.20	-549.2	1,117.8	598.9	539.1	59.87	10.003		
8,200.0	8,130.9	8,158.3	8,005.5	31.1	34.4	-41.26	-560.5	1,137.7	607.8	547.2	60.68	10.017		
8,300.0	8,229.6	8,257.9	8,102.5	31.5	34.8	-41.32	-571.7	1,157.6	616.7	555.2	61.49	10.030		
8,400.0	8,328.3	8,357.5	8,199.4	31.9	35.3	-41.38	-583.0	1,177.5	625.6	563.3	62.29	10.043		
8,500.0	8,427.0	8,457.1	8,296.3	32.3	35.8	-41.44	-594.3	1,197.4	634.5	571.4	63.10	10.056		
8,600.0	8,525.8	8,556.7	8,393.3	32.8	36.3	-41.49	-605.6	1,217.3	643.4	579.5	63.91	10.068		
8,700.0	8,624.5	8,656.3	8,490.2	33.2	36.8	-41.55	-616.8	1,237.2	652.3	587.6	64.72	10.079		
8,800.0	8,723.2	8,755.9	8,587.1	33.6	37.2	-41.60	-628.1	1,257.1	661.2	595.7	65.53	10.091		
8,900.0	8,821.9	8,855.5	8,684.1	34.0	37.7	-41.65	-639.4	1,277.0	670.1	603.8	66.33	10.102		
9,000.0	8,920.6	8,955.1	8,781.0	34.4	38.2	-41.70	-650.7	1,297.0	679.0	611.9	67.14	10.113		
9,100.0	9,019.4	9,058.5	8,881.7	34.8	38.7	-41.75	-662.4	1,317.6	687.9	619.9	67.99	10.117		
9,200.0	9,118.1	9,185.9	9,006.4	35.3	39.3	-41.94	-675.0	1,339.9	694.2	625.2	69.04	10.056		
9,300.0	9,216.8	9,313.6	9,132.5	35.7	39.8	-42.34	-685.0	1,357.5	696.6	626.6	70.01	9.950		
9,400.0	9,315.5	9,441.1	9,259.2	36.1	40.3	-42.94	-692.2	1,370.2	695.0	624.1	70.89	9.804		
9,500.0	9,414.2	9,567.9	9,385.6	36.5	40.7	-43.76	-696.5	1,377.9	689.6	617.9	71.70	9.617		
9,600.0	9,513.0	9,693.6	9,511.3	36.9	41.1	-44.71	-698.1	1,380.7	680.7	608.2	72.43	9.397		
9,700.0	9,612.2	9,795.1	9,612.8	37.3	41.4	-45.36	-698.2	1,380.7	671.8	598.6	73.21	9.176		
9,800.0	9,711.8	9,894.7	9,712.4	37.7	41.7	-45.82	-698.2	1,380.7	665.4	591.4	73.97	8.996		
9,900.0	9,811.6	9,993.5	9,810.6	38.1	42.0	-45.33	-707.1	1,380.8	661.5	586.9	74.62	8.866		
9,965.1	9,876.7	10,054.6	9,869.7	38.3	42.2	-44.07	-722.7	1,380.9	660.7	585.7	74.96	8.814		
10,000.0	9,911.6	10,085.5	9,898.7	38.4	42.3	-43.16	-733.4	1,381.0	661.0	585.8	75.14	8.797		
10,100.0	10,011.6	10,165.0	9,969.5	38.7	42.7	95.54	-769.4	1,381.3	665.0	589.4	75.57	8.800		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	10,111.6	10,231.1	10,023.1	39.0	43.0	98.82	-807.9	1,381.6	674.6	598.8	75.86	8.893	
10,300.0	10,211.6	10,284.8	10,062.5	39.3	43.2	101.88	-844.4	1,381.9	692.0	616.1	75.84	9.124	
10,400.0	10,311.6	10,325.0	10,089.1	39.6	43.4	104.35	-874.5	1,382.1	718.2	642.8	75.34	9.533	
10,500.0	10,411.6	10,364.0	10,112.4	40.0	43.6	106.85	-905.7	1,382.3	753.5	679.0	74.44	10.122	
10,600.0	10,511.6	10,393.2	10,128.1	40.3	43.7	108.77	-930.3	1,382.5	797.5	724.4	73.13	10.905	
10,700.0	10,611.6	10,417.4	10,140.1	40.6	43.8	110.39	-951.4	1,382.7	849.5	777.9	71.58	11.867	
10,800.0	10,711.6	10,437.8	10,149.2	40.9	43.9	111.75	-969.5	1,382.8	908.3	838.4	69.93	12.990	
10,900.0	10,811.6	10,450.0	10,154.4	41.2	44.0	112.58	-980.6	1,382.9	973.1	904.9	68.18	14.273	
11,000.0	10,911.6	10,475.0	10,164.0	41.5	44.1	-61.64	-1,003.7	1,383.1	1,042.5	975.7	66.77	15.612	
11,100.0	11,009.8	10,488.7	10,168.7	41.9	44.2	-51.74	-1,016.6	1,383.2	1,110.2	1,044.9	65.26	17.012	
11,200.0	11,102.2	10,510.6	10,175.6	42.3	44.3	-43.92	-1,037.4	1,383.4	1,172.2	1,108.2	64.00	18.317	
11,300.0	11,184.8	10,535.1	10,182.1	42.8	44.4	-38.25	-1,061.0	1,383.5	1,226.3	1,163.3	62.94	19.482	
11,400.0	11,253.9	10,561.6	10,187.7	43.3	44.6	-34.32	-1,086.9	1,383.7	1,270.6	1,208.4	62.14	20.446	
11,500.0	11,306.4	10,589.4	10,192.0	43.9	44.7	-31.75	-1,114.3	1,384.0	1,303.7	1,242.1	61.65	21.148	
11,600.0	11,340.2	10,625.0	10,195.3	44.5	44.9	-30.22	-1,149.8	1,384.2	1,324.8	1,263.3	61.56	21.522	
11,700.0	11,353.8	10,650.8	10,196.0	45.0	45.1	-29.68	-1,175.6	1,384.4	1,333.3	1,271.5	61.79	21.578	
11,800.0	11,354.0	10,738.0	10,196.0	45.6	45.6	-29.67	-1,262.8	1,385.1	1,333.4	1,270.9	62.54	21.321	
11,900.0	11,354.0	10,838.0	10,196.0	46.2	46.2	-29.67	-1,362.7	1,385.9	1,333.4	1,270.0	63.39	21.036	
12,000.0	11,354.0	10,938.0	10,196.0	46.9	46.8	-29.67	-1,462.7	1,386.7	1,333.4	1,269.1	64.28	20.742	
12,100.0	11,354.0	11,038.0	10,196.0	47.6	47.5	-29.67	-1,562.7	1,387.4	1,333.4	1,268.2	65.23	20.441	
12,200.0	11,354.0	11,138.0	10,196.0	48.3	48.2	-29.67	-1,662.7	1,388.2	1,333.4	1,267.2	66.22	20.136	
12,300.0	11,354.0	11,238.0	10,196.0	49.1	48.9	-29.67	-1,762.7	1,389.0	1,333.4	1,266.1	67.26	19.826	
12,400.0	11,354.0	11,338.0	10,196.0	49.9	49.7	-29.67	-1,862.7	1,389.8	1,333.4	1,265.1	68.33	19.514	
12,500.0	11,354.0	11,438.0	10,196.0	50.7	50.5	-29.67	-1,962.7	1,390.5	1,333.4	1,264.0	69.45	19.200	
12,600.0	11,354.0	11,538.0	10,196.0	51.5	51.3	-29.67	-2,062.7	1,391.3	1,333.4	1,262.8	70.60	18.887	
12,700.0	11,354.0	11,638.0	10,196.0	52.4	52.2	-29.67	-2,162.7	1,392.1	1,333.4	1,261.6	71.79	18.574	
12,800.0	11,354.0	11,738.0	10,196.0	53.3	53.1	-29.67	-2,262.7	1,392.9	1,333.4	1,260.4	73.01	18.262	
12,900.0	11,354.0	11,838.0	10,196.0	54.2	54.0	-29.67	-2,362.7	1,393.6	1,333.4	1,259.1	74.27	17.953	
13,000.0	11,354.0	11,938.0	10,196.0	55.1	54.9	-29.67	-2,462.7	1,394.4	1,333.4	1,257.8	75.56	17.648	
13,100.0	11,354.0	12,038.0	10,196.0	56.1	55.9	-29.67	-2,562.7	1,395.2	1,333.4	1,256.5	76.87	17.345	
13,200.0	11,354.0	12,138.0	10,196.0	57.1	56.8	-29.67	-2,662.7	1,396.0	1,333.4	1,255.2	78.22	17.047	
13,300.0	11,354.0	12,238.0	10,196.0	58.1	57.8	-29.67	-2,762.7	1,396.7	1,333.4	1,253.8	79.59	16.753	
13,400.0	11,354.0	12,338.0	10,196.0	59.1	58.9	-29.67	-2,862.7	1,397.5	1,333.4	1,252.4	80.99	16.465	
13,500.0	11,354.0	12,438.0	10,196.0	60.1	59.9	-29.67	-2,962.7	1,398.3	1,333.4	1,251.0	82.41	16.181	
13,600.0	11,354.0	12,538.0	10,196.0	61.2	60.9	-29.67	-3,062.7	1,399.1	1,333.4	1,249.5	83.85	15.902	
13,700.0	11,354.0	12,638.0	10,196.0	62.3	62.0	-29.67	-3,162.7	1,399.8	1,333.4	1,248.1	85.31	15.630	
13,800.0	11,354.0	12,738.0	10,196.0	63.4	63.1	-29.67	-3,262.7	1,400.6	1,333.4	1,246.6	86.80	15.362	
13,900.0	11,354.0	12,838.0	10,196.0	64.5	64.2	-29.67	-3,362.7	1,401.4	1,333.4	1,245.1	88.30	15.100	
14,000.0	11,354.0	12,938.0	10,196.0	65.6	65.3	-29.67	-3,462.7	1,402.2	1,333.4	1,243.6	89.82	14.845	
14,100.0	11,354.0	13,038.0	10,196.0	66.7	66.4	-29.67	-3,562.7	1,403.0	1,333.4	1,242.0	91.36	14.594	
14,200.0	11,354.0	13,138.0	10,196.0	67.8	67.5	-29.67	-3,662.7	1,403.7	1,333.4	1,240.5	92.92	14.350	
14,300.0	11,354.0	13,238.0	10,196.0	69.0	68.7	-29.67	-3,762.7	1,404.5	1,333.4	1,238.9	94.49	14.111	
14,400.0	11,354.0	13,338.0	10,196.0	70.1	69.8	-29.67	-3,862.7	1,405.3	1,333.4	1,237.3	96.08	13.878	
14,500.0	11,354.0	13,438.0	10,196.0	71.3	71.0	-29.67	-3,962.7	1,406.1	1,333.4	1,235.7	97.68	13.650	
14,600.0	11,354.0	13,538.0	10,196.0	72.5	72.2	-29.67	-4,062.7	1,406.8	1,333.4	1,234.1	99.30	13.428	
14,700.0	11,354.0	13,638.0	10,196.0	73.7	73.4	-29.67	-4,162.7	1,407.6	1,333.4	1,232.5	100.93	13.211	
14,800.0	11,354.0	13,738.0	10,196.0	74.9	74.6	-29.67	-4,262.7	1,408.4	1,333.4	1,230.8	102.57	13.000	
14,900.0	11,354.0	13,838.0	10,196.0	76.1	75.8	-29.67	-4,362.7	1,409.2	1,333.4	1,229.2	104.22	12.794	
15,000.0	11,354.0	13,938.0	10,196.0	77.3	77.0	-29.67	-4,462.7	1,409.9	1,333.4	1,227.5	105.89	12.593	
15,100.0	11,354.0	14,038.0	10,196.0	78.5	78.2	-29.67	-4,562.7	1,410.7	1,333.4	1,225.8	107.56	12.397	
15,200.0	11,354.0	14,138.0	10,196.0	79.8	79.4	-29.67	-4,662.6	1,411.5	1,333.4	1,224.2	109.24	12.206	
15,300.0	11,354.0	14,238.0	10,196.0	81.0	80.7	-29.67	-4,762.6	1,412.3	1,333.4	1,222.5	110.94	12.019	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,400.0	11,354.0	14,338.0	10,196.0	82.2	81.9	-29.67	-4,862.6	1,413.0	1,333.4	1,220.8	112.64	11.837	
15,500.0	11,354.0	14,438.0	10,196.0	83.5	83.2	-29.67	-4,962.6	1,413.8	1,333.4	1,219.0	114.36	11.660	
15,600.0	11,354.0	14,538.0	10,196.0	84.8	84.4	-29.67	-5,062.6	1,414.6	1,333.4	1,217.3	116.08	11.487	
15,700.0	11,354.0	14,638.0	10,196.0	86.0	85.7	-29.67	-5,162.6	1,415.4	1,333.4	1,215.6	117.81	11.318	
15,800.0	11,354.0	14,738.0	10,196.0	87.3	86.9	-29.67	-5,262.6	1,416.1	1,333.4	1,213.9	119.54	11.154	
15,900.0	11,354.0	14,838.0	10,196.0	88.6	88.2	-29.67	-5,362.6	1,416.9	1,333.4	1,212.1	121.29	10.994	
16,000.0	11,354.0	14,938.0	10,196.0	89.8	89.5	-29.67	-5,462.6	1,417.7	1,333.4	1,210.4	123.04	10.837	
16,100.0	11,354.0	15,038.0	10,196.0	91.1	90.8	-29.67	-5,562.6	1,418.5	1,333.4	1,208.6	124.80	10.684	
16,200.0	11,354.0	15,138.0	10,196.0	92.4	92.1	-29.67	-5,662.6	1,419.2	1,333.4	1,206.8	126.57	10.535	
16,300.0	11,354.0	15,238.0	10,196.0	93.7	93.4	-29.67	-5,762.6	1,420.0	1,333.4	1,205.1	128.34	10.390	
16,400.0	11,354.0	15,338.0	10,196.0	95.0	94.7	-29.67	-5,862.6	1,420.8	1,333.4	1,203.3	130.11	10.248	
16,500.0	11,354.0	15,438.0	10,196.0	96.3	96.0	-29.67	-5,962.6	1,421.6	1,333.4	1,201.5	131.90	10.109	
16,600.0	11,354.0	15,538.0	10,196.0	97.6	97.3	-29.67	-6,062.6	1,422.4	1,333.4	1,199.7	133.69	9.974	
16,700.0	11,354.0	15,638.0	10,196.0	98.9	98.6	-29.67	-6,162.6	1,423.1	1,333.4	1,197.9	135.48	9.842	
16,800.0	11,354.0	15,738.0	10,196.0	100.3	99.9	-29.67	-6,262.6	1,423.9	1,333.4	1,196.1	137.28	9.713	
16,900.0	11,354.0	15,838.0	10,196.0	101.6	101.2	-29.67	-6,362.6	1,424.7	1,333.4	1,194.3	139.08	9.587	
17,000.0	11,354.0	15,938.0	10,196.0	102.9	102.5	-29.67	-6,462.6	1,425.5	1,333.4	1,192.5	140.89	9.464	
17,100.0	11,354.0	16,038.0	10,196.0	104.2	103.9	-29.67	-6,562.6	1,426.2	1,333.4	1,190.7	142.71	9.344	
17,200.0	11,354.0	16,138.0	10,196.0	105.6	105.2	-29.67	-6,662.6	1,427.0	1,333.4	1,188.9	144.52	9.226	
17,300.0	11,354.0	16,238.0	10,196.0	106.9	106.5	-29.67	-6,762.6	1,427.8	1,333.4	1,187.1	146.35	9.111	
17,400.0	11,354.0	16,338.0	10,196.0	108.2	107.8	-29.67	-6,862.6	1,428.6	1,333.4	1,185.2	148.17	8.999	
17,500.0	11,354.0	16,438.0	10,196.0	109.6	109.2	-29.67	-6,962.6	1,429.3	1,333.4	1,183.4	150.00	8.889	
17,600.0	11,354.0	16,538.0	10,196.0	110.9	110.5	-29.67	-7,062.6	1,430.1	1,333.4	1,181.6	151.84	8.782	
17,700.0	11,354.0	16,638.0	10,196.0	112.2	111.9	-29.67	-7,162.6	1,430.9	1,333.4	1,179.7	153.67	8.677	
17,800.0	11,354.0	16,738.0	10,196.0	113.6	113.2	-29.67	-7,262.6	1,431.7	1,333.4	1,177.9	155.51	8.574	
17,900.0	11,354.0	16,838.0	10,196.0	114.9	114.6	-29.67	-7,362.6	1,432.4	1,333.4	1,176.0	157.36	8.474	
18,000.0	11,354.0	16,938.0	10,196.0	116.3	115.9	-29.67	-7,462.6	1,433.2	1,333.4	1,174.2	159.21	8.375	
18,100.0	11,354.0	17,038.0	10,196.0	117.6	117.3	-29.67	-7,562.6	1,434.0	1,333.4	1,172.3	161.06	8.279	
18,200.0	11,354.0	17,138.0	10,196.0	119.0	118.6	-29.67	-7,662.6	1,434.8	1,333.4	1,170.5	162.91	8.185	
18,300.0	11,354.0	17,238.0	10,196.0	120.3	120.0	-29.67	-7,762.6	1,435.5	1,333.4	1,168.6	164.77	8.093	
18,400.0	11,354.0	17,338.0	10,196.0	121.7	121.3	-29.67	-7,862.6	1,436.3	1,333.4	1,166.8	166.63	8.002	
18,500.0	11,354.0	17,438.0	10,196.0	123.1	122.7	-29.67	-7,962.5	1,437.1	1,333.4	1,164.9	168.49	7.914	
18,600.0	11,354.0	17,538.0	10,196.0	124.4	124.1	-29.67	-8,062.5	1,437.9	1,333.4	1,163.0	170.35	7.827	
18,700.0	11,354.0	17,638.0	10,196.0	125.8	125.4	-29.67	-8,162.5	1,438.6	1,333.4	1,161.2	172.22	7.742	
18,800.0	11,354.0	17,738.0	10,196.0	127.2	126.8	-29.67	-8,262.5	1,439.4	1,333.4	1,159.3	174.09	7.659	
18,900.0	11,354.0	17,838.0	10,196.0	128.5	128.2	-29.67	-8,362.5	1,440.2	1,333.4	1,157.4	175.96	7.578	
19,000.0	11,354.0	17,938.0	10,196.0	129.9	129.5	-29.67	-8,462.5	1,441.0	1,333.4	1,155.6	177.84	7.498	
19,100.0	11,354.0	18,038.0	10,196.0	131.3	130.9	-29.67	-8,562.5	1,441.8	1,333.4	1,153.7	179.72	7.419	
19,200.0	11,354.0	18,138.0	10,196.0	132.7	132.3	-29.67	-8,662.5	1,442.5	1,333.4	1,151.8	181.60	7.343	
19,300.0	11,354.0	18,238.0	10,196.0	134.0	133.6	-29.67	-8,762.5	1,443.3	1,333.4	1,149.9	183.48	7.267	
19,400.0	11,354.0	18,338.0	10,196.0	135.4	135.0	-29.67	-8,862.5	1,444.1	1,333.4	1,148.0	185.36	7.194	
19,500.0	11,354.0	18,438.0	10,196.0	136.8	136.4	-29.67	-8,962.5	1,444.9	1,333.4	1,146.2	187.25	7.121	
19,600.0	11,354.0	18,538.0	10,196.0	138.2	137.8	-29.67	-9,062.5	1,445.6	1,333.4	1,144.3	189.13	7.050	
19,700.0	11,354.0	18,638.0	10,196.0	139.5	139.2	-29.67	-9,162.5	1,446.4	1,333.4	1,142.4	191.02	6.980	
19,800.0	11,354.0	18,738.0	10,196.0	140.9	140.5	-29.67	-9,262.5	1,447.2	1,333.4	1,140.5	192.91	6.912	
19,900.0	11,354.0	18,838.0	10,196.0	142.3	141.9	-29.67	-9,362.5	1,448.0	1,333.4	1,138.6	194.81	6.845	
20,000.0	11,354.0	18,938.0	10,196.0	143.7	143.3	-29.67	-9,462.5	1,448.7	1,333.4	1,136.7	196.70	6.779	
20,100.0	11,354.0	19,038.0	10,196.0	145.1	144.7	-29.67	-9,562.5	1,449.5	1,333.4	1,134.8	198.60	6.714	
20,200.0	11,354.0	19,138.0	10,196.0	146.5	146.1	-29.67	-9,662.5	1,450.3	1,333.4	1,132.9	200.49	6.651	
20,300.0	11,354.0	19,238.0	10,196.0	147.9	147.5	-29.67	-9,762.5	1,451.1	1,333.4	1,131.0	202.39	6.588	
20,400.0	11,354.0	19,338.0	10,196.0	149.2	148.9	-29.67	-9,862.5	1,451.8	1,333.4	1,129.1	204.29	6.527	
20,500.0	11,354.0	19,438.0	10,196.0	150.6	150.3	-29.67	-9,962.5	1,452.6	1,333.4	1,127.2	206.20	6.467	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1													Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
20,600.0	11,354.0	19,538.0	10,196.0	152.0	151.6	-29.67	-10,062.5	1,453.4	1,333.4	1,125.3	208.10	6.407		
20,700.0	11,354.0	19,638.0	10,196.0	153.4	153.0	-29.67	-10,162.5	1,454.2	1,333.4	1,123.4	210.01	6.349		
20,800.0	11,354.0	19,738.0	10,196.0	154.8	154.4	-29.67	-10,262.5	1,454.9	1,333.4	1,121.5	211.91	6.292		
20,900.0	11,354.0	19,838.0	10,196.0	156.2	155.8	-29.67	-10,362.5	1,455.7	1,333.4	1,119.6	213.82	6.236		
21,000.0	11,354.0	19,938.0	10,196.0	157.6	157.2	-29.67	-10,462.5	1,456.5	1,333.4	1,117.7	215.73	6.181		
21,100.0	11,354.0	20,038.0	10,196.0	159.0	158.6	-29.67	-10,562.5	1,457.3	1,333.4	1,115.8	217.64	6.127		
21,200.0	11,354.0	20,138.0	10,196.0	160.4	160.0	-29.67	-10,662.5	1,458.0	1,333.4	1,113.8	219.55	6.073		
21,300.0	11,354.0	20,238.0	10,196.0	161.8	161.4	-29.67	-10,762.5	1,458.8	1,333.4	1,111.9	221.47	6.021		
21,400.0	11,354.0	20,338.0	10,196.0	163.2	162.8	-29.67	-10,862.5	1,459.6	1,333.4	1,110.0	223.38	5.969		
21,500.0	11,354.0	20,438.0	10,196.0	164.6	164.2	-29.67	-10,962.5	1,460.4	1,333.4	1,108.1	225.30	5.918		
21,600.0	11,354.0	20,538.0	10,196.0	166.0	165.6	-29.67	-11,062.5	1,461.2	1,333.4	1,106.2	227.21	5.869		
21,644.9	11,354.0	20,582.9	10,196.0	166.6	166.2	-29.67	-11,107.3	1,461.5	1,333.4	1,105.3	228.07	5.846		
21,647.1	11,354.0	20,583.2	10,196.0	166.7	166.3	-29.67	-11,107.7	1,461.5	1,333.4	1,105.3	228.12	5.845		

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
2,500.0	2,500.0	2,752.4	2,749.9	8.7	9.6	-113.85	-841.0	-2,192.3	2,342.3	2,324.1	18.20	128.686	
2,600.0	2,600.0	2,851.7	2,848.3	9.1	10.0	110.73	-839.3	-2,179.6	2,330.5	2,311.6	18.89	123.372	
2,700.0	2,699.8	2,951.1	2,946.9	9.4	10.3	110.96	-837.7	-2,166.8	2,319.9	2,300.3	19.57	118.565	
2,800.0	2,799.5	3,050.6	3,045.5	9.7	10.7	111.24	-836.0	-2,154.1	2,310.5	2,290.3	20.25	114.116	
2,900.0	2,898.7	3,149.9	3,144.0	10.1	11.1	111.59	-834.4	-2,141.3	2,302.5	2,281.6	20.93	109.992	
3,000.0	2,997.5	3,249.1	3,242.4	10.4	11.4	111.93	-832.7	-2,128.6	2,295.7	2,274.0	21.62	106.158	
3,100.0	3,096.2	3,348.2	3,340.7	10.8	11.8	112.22	-831.1	-2,115.9	2,289.1	2,266.8	22.32	102.543	
3,200.0	3,195.0	3,447.4	3,439.0	11.1	12.2	112.50	-829.4	-2,103.2	2,282.6	2,259.6	23.03	99.125	
3,300.0	3,293.7	3,546.5	3,537.3	11.5	12.5	112.79	-827.8	-2,090.4	2,276.1	2,252.4	23.74	95.891	
3,400.0	3,392.4	3,645.6	3,635.6	11.8	12.9	113.08	-826.1	-2,077.7	2,269.7	2,245.3	24.45	92.829	
3,500.0	3,491.1	3,744.8	3,733.9	12.2	13.3	113.37	-824.5	-2,065.0	2,263.4	2,238.2	25.17	89.928	
3,600.0	3,589.8	3,843.9	3,832.2	12.6	13.7	113.66	-822.8	-2,052.3	2,257.1	2,231.3	25.89	87.178	
3,700.0	3,688.5	3,943.0	3,930.5	13.0	14.0	113.95	-821.2	-2,039.5	2,250.9	2,224.3	26.62	84.568	
3,800.0	3,787.3	4,042.2	4,028.8	13.3	14.4	114.25	-819.5	-2,026.8	2,244.8	2,217.4	27.35	82.090	
3,900.0	3,886.0	4,141.3	4,127.1	13.7	14.8	114.54	-817.9	-2,014.1	2,238.7	2,210.6	28.08	79.734	
4,000.0	3,984.7	4,240.4	4,225.4	14.1	15.2	114.84	-816.2	-2,001.4	2,232.7	2,203.8	28.81	77.493	
4,100.0	4,083.4	4,339.6	4,323.7	14.5	15.6	115.14	-814.6	-1,988.7	2,226.7	2,197.1	29.55	75.360	
4,200.0	4,182.1	4,438.7	4,422.0	14.9	15.9	115.44	-812.9	-1,975.9	2,220.8	2,190.5	30.29	73.327	
4,300.0	4,280.9	4,537.8	4,520.3	15.2	16.3	115.74	-811.3	-1,963.2	2,214.9	2,183.9	31.03	71.389	
4,400.0	4,379.6	4,637.0	4,618.6	15.6	16.7	116.05	-809.6	-1,950.5	2,209.1	2,177.4	31.77	69.539	
4,500.0	4,478.3	4,736.1	4,716.9	16.0	17.1	116.35	-808.0	-1,937.8	2,203.4	2,170.9	32.51	67.773	
4,600.0	4,577.0	4,835.2	4,815.1	16.4	17.5	116.66	-806.3	-1,925.1	2,197.8	2,164.5	33.26	66.084	
4,700.0	4,675.7	4,934.4	4,913.4	16.8	17.9	116.97	-804.7	-1,912.3	2,192.2	2,158.2	34.00	64.469	
4,800.0	4,774.5	5,033.5	5,011.7	17.2	18.2	117.28	-803.0	-1,899.6	2,186.6	2,151.9	34.75	62.923	
4,900.0	4,873.2	5,132.6	5,110.0	17.6	18.6	117.59	-801.4	-1,886.9	2,181.2	2,145.7	35.50	61.442	
5,000.0	4,971.9	5,231.7	5,208.3	18.0	19.0	117.91	-799.7	-1,874.2	2,175.8	2,139.5	36.25	60.023	
5,100.0	5,070.6	5,330.9	5,306.6	18.4	19.4	118.22	-798.1	-1,861.5	2,170.5	2,133.5	37.00	58.662	
5,200.0	5,169.3	5,430.0	5,404.9	18.8	19.8	118.54	-796.4	-1,848.7	2,165.2	2,127.4	37.75	57.355	
5,300.0	5,268.0	5,529.1	5,503.2	19.2	20.2	118.86	-794.8	-1,836.0	2,160.0	2,121.5	38.50	56.100	
5,400.0	5,366.8	5,628.3	5,601.5	19.6	20.6	119.17	-793.1	-1,823.3	2,154.9	2,115.6	39.26	54.894	
5,500.0	5,465.5	5,727.4	5,699.8	20.0	20.9	119.50	-791.5	-1,810.6	2,149.8	2,109.8	40.01	53.734	
5,600.0	5,564.2	5,826.5	5,798.1	20.4	21.3	119.82	-789.8	-1,797.9	2,144.8	2,104.1	40.76	52.619	
5,700.0	5,662.9	5,925.7	5,896.4	20.8	21.7	120.14	-788.2	-1,785.1	2,139.9	2,098.4	41.52	51.545	
5,800.0	5,761.6	6,024.8	5,994.7	21.2	22.1	120.47	-786.5	-1,772.4	2,135.0	2,092.8	42.27	50.510	
5,900.0	5,860.4	6,123.9	6,093.0	21.6	22.5	120.79	-784.9	-1,759.7	2,130.3	2,087.2	43.02	49.513	
6,000.0	5,959.1	6,223.1	6,191.3	22.0	22.9	121.12	-783.2	-1,747.0	2,125.5	2,081.8	43.78	48.552	
6,100.0	6,057.8	6,322.2	6,289.6	22.4	23.3	121.45	-781.6	-1,734.3	2,120.9	2,076.4	44.53	47.625	
6,200.0	6,156.5	6,421.3	6,387.9	22.9	23.7	121.78	-779.9	-1,721.5	2,116.3	2,071.0	45.29	46.730	
6,300.0	6,255.2	6,520.5	6,486.2	23.3	24.1	122.12	-778.3	-1,708.8	2,111.8	2,065.8	46.04	45.866	
6,400.0	6,354.0	6,619.6	6,584.5	23.7	24.4	122.45	-776.6	-1,696.1	2,107.4	2,060.6	46.80	45.031	
6,500.0	6,452.7	6,718.7	6,682.8	24.1	24.8	122.79	-775.0	-1,683.4	2,103.1	2,055.5	47.55	44.224	
6,600.0	6,551.4	6,817.9	6,781.1	24.5	25.2	123.12	-773.3	-1,670.7	2,098.8	2,050.5	48.31	43.444	
6,700.0	6,650.1	6,917.0	6,879.4	24.9	25.6	123.46	-771.7	-1,657.9	2,094.6	2,045.5	49.07	42.690	
6,800.0	6,748.8	7,016.1	6,977.7	25.3	26.0	123.80	-770.0	-1,645.2	2,090.4	2,040.6	49.82	41.960	
6,900.0	6,847.5	7,115.3	7,076.0	25.7	26.4	124.14	-768.4	-1,632.5	2,086.4	2,035.8	50.58	41.253	
7,000.0	6,946.3	7,214.4	7,174.3	26.1	26.8	124.48	-766.7	-1,619.8	2,082.4	2,031.1	51.33	40.568	
7,100.0	7,045.0	7,313.5	7,272.6	26.5	27.2	124.83	-765.1	-1,607.0	2,078.5	2,026.4	52.09	39.905	
7,200.0	7,143.7	7,412.6	7,370.9	27.0	27.6	125.17	-763.4	-1,594.3	2,074.7	2,021.8	52.84	39.263	
7,300.0	7,242.4	7,511.8	7,469.2	27.4	28.0	125.52	-761.8	-1,581.6	2,070.9	2,017.3	53.60	38.640	
7,400.0	7,341.1	7,610.9	7,567.5	27.8	28.3	125.86	-760.1	-1,568.9	2,067.2	2,012.9	54.35	38.035	
7,500.0	7,439.9	7,710.0	7,665.8	28.2	28.7	126.21	-758.5	-1,556.2	2,063.6	2,008.5	55.10	37.449	
7,600.0	7,538.6	7,809.2	7,764.1	28.6	29.1	126.56	-756.8	-1,543.4	2,060.1	2,004.3	55.86	36.881	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
7,700.0	7,637.3	7,908.3	7,862.4	29.0	29.5	126.91	-755.2	-1,530.7	2,056.7	2,000.1	56.61	36.329	
7,800.0	7,736.0	8,007.4	7,960.7	29.4	29.9	127.26	-753.5	-1,518.0	2,053.3	1,995.9	57.37	35.793	
7,900.0	7,834.7	8,106.6	8,059.0	29.9	30.3	127.62	-751.9	-1,505.3	2,050.0	1,991.9	58.12	35.272	
8,000.0	7,933.5	8,205.7	8,157.3	30.3	30.7	127.97	-750.2	-1,492.6	2,046.8	1,987.9	58.87	34.766	
8,100.0	8,032.2	8,304.8	8,255.6	30.7	31.1	128.33	-748.6	-1,479.8	2,043.7	1,984.1	59.63	34.274	
8,200.0	8,130.9	8,404.0	8,353.9	31.1	31.5	128.68	-746.9	-1,467.1	2,040.6	1,980.3	60.38	33.797	
8,300.0	8,229.6	8,503.1	8,452.2	31.5	31.9	129.04	-745.3	-1,454.4	2,037.7	1,976.5	61.13	33.332	
8,400.0	8,328.3	8,602.2	8,550.5	31.9	32.3	129.40	-743.6	-1,441.7	2,034.8	1,972.9	61.88	32.880	
8,500.0	8,427.0	8,701.4	8,648.8	32.3	32.7	129.76	-742.0	-1,429.0	2,032.0	1,969.3	62.64	32.441	
8,600.0	8,525.8	8,800.5	8,747.1	32.8	33.1	130.12	-740.4	-1,416.2	2,029.3	1,965.9	63.39	32.013	
8,700.0	8,624.5	8,899.6	8,845.4	33.2	33.4	130.48	-738.7	-1,403.5	2,026.6	1,962.5	64.14	31.597	
8,800.0	8,723.2	8,998.8	8,943.7	33.6	33.8	130.84	-737.1	-1,390.8	2,024.1	1,959.2	64.89	31.191	
8,900.0	8,821.9	9,097.9	9,042.0	34.0	34.2	131.20	-735.4	-1,378.1	2,021.6	1,955.9	65.64	30.797	
9,000.0	8,920.6	9,197.0	9,140.3	34.4	34.6	131.57	-733.8	-1,365.4	2,019.2	1,952.8	66.39	30.413	
9,100.0	9,019.4	9,296.1	9,204.7	34.8	34.9	131.80	-732.7	-1,357.4	2,017.6	1,950.5	67.05	30.090	
9,128.2	9,047.2	9,278.4	9,221.0	35.0	34.9	131.86	-732.5	-1,355.6	2,017.5	1,950.3	67.23	30.010 CC, ES	
9,200.0	9,118.1	9,300.0	9,242.6	35.3	35.0	131.94	-732.2	-1,353.4	2,018.2	1,950.6	67.60	29.854	
9,300.0	9,216.8	9,378.5	9,320.7	35.7	35.3	132.22	-731.3	-1,346.8	2,020.6	1,952.3	68.27	29.598	
9,400.0	9,315.5	9,436.7	9,378.8	36.1	35.5	132.43	-730.9	-1,343.2	2,025.2	1,956.4	68.84	29.419	
9,500.0	9,414.2	9,500.0	9,442.1	36.5	35.8	132.64	-730.5	-1,340.6	2,031.9	1,962.5	69.41	29.272	
9,600.0	9,513.0	9,552.7	9,494.8	36.9	35.9	132.88	-730.4	-1,339.6	2,040.4	1,970.5	69.91	29.186	
9,700.0	9,612.2	9,629.1	9,571.2	37.3	36.2	133.20	-730.4	-1,339.4	2,048.7	1,978.2	70.50	29.059	
9,800.0	9,711.8	9,728.7	9,670.8	37.7	36.5	133.47	-730.4	-1,339.4	2,055.0	1,983.8	71.20	28.861	
9,900.0	9,811.6	9,877.1	9,818.4	38.1	37.0	133.39	-740.9	-1,338.1	2,058.2	1,986.1	72.14	28.529	
10,000.0	9,911.6	10,044.4	9,972.6	38.4	37.5	131.68	-803.0	-1,330.1	2,055.7	1,982.6	73.14	28.107	
10,100.0	10,011.6	10,161.3	10,063.0	38.7	37.8	-94.78	-876.1	-1,320.8	2,050.8	1,976.9	73.89	27.755	
10,200.0	10,111.6	10,239.0	10,112.1	39.0	37.9	-96.46	-935.8	-1,313.2	2,047.4	1,973.0	74.46	27.498	
10,259.6	10,171.2	10,272.8	10,130.2	39.2	38.0	-97.26	-964.1	-1,309.6	2,046.8	1,972.1	74.71	27.395	
10,300.0	10,211.6	10,291.9	10,139.5	39.3	38.0	-97.73	-980.6	-1,307.5	2,047.1	1,972.2	74.85	27.348	
10,400.0	10,311.6	10,329.3	10,155.9	39.6	38.1	-98.67	-1,013.9	-1,303.3	2,050.6	1,975.5	75.09	27.310	
10,500.0	10,411.6	10,356.8	10,166.2	40.0	38.2	-99.38	-1,039.3	-1,300.0	2,058.4	1,983.2	75.16	27.386	
10,600.0	10,511.6	10,375.0	10,172.2	40.3	38.2	-99.86	-1,056.3	-1,297.9	2,070.5	1,995.5	75.08	27.579	
10,700.0	10,611.6	10,400.0	10,179.4	40.6	38.2	-100.53	-1,080.0	-1,294.8	2,087.1	2,012.2	74.93	27.853	
10,800.0	10,711.6	10,407.7	10,181.3	40.9	38.3	-100.74	-1,087.4	-1,293.9	2,108.1	2,033.6	74.58	28.267	
10,900.0	10,811.6	10,425.0	10,185.3	41.2	38.3	-101.21	-1,104.1	-1,291.8	2,133.5	2,059.3	74.21	28.752	
11,000.0	10,911.6	10,425.0	10,185.3	41.5	38.3	77.93	-1,104.1	-1,291.8	2,162.9	2,089.2	73.64	29.370	
11,100.0	11,009.8	10,442.2	10,188.6	41.9	38.3	73.84	-1,120.8	-1,289.6	2,192.8	2,119.6	73.16	29.971	
11,200.0	11,102.2	10,460.9	10,191.5	42.3	38.4	70.06	-1,139.2	-1,287.3	2,221.0	2,148.3	72.69	30.554	
11,300.0	11,184.8	10,475.0	10,193.2	42.8	38.4	66.89	-1,153.1	-1,285.5	2,246.0	2,173.8	72.22	31.098	
11,400.0	11,253.9	10,500.0	10,195.3	43.3	38.5	64.18	-1,177.8	-1,282.4	2,266.4	2,194.5	71.89	31.526	
11,500.0	11,306.4	10,552.4	10,196.0	43.9	38.6	61.93	-1,229.7	-1,275.8	2,281.0	2,209.2	71.80	31.771	
11,600.0	11,340.2	10,626.5	10,196.0	44.5	38.8	60.57	-1,303.3	-1,266.4	2,287.4	2,215.4	71.97	31.784	
11,700.0	11,353.8	10,700.0	10,196.0	45.0	39.0	60.50	-1,376.3	-1,258.0	2,284.8	2,212.5	72.36	31.577	
11,800.0	11,354.0	10,754.5	10,196.0	45.6	39.2	60.56	-1,430.6	-1,253.1	2,277.6	2,204.8	72.81	31.280	
11,900.0	11,354.0	10,800.0	10,196.0	46.2	39.4	60.53	-1,475.9	-1,249.7	2,272.1	2,198.8	73.24	31.021	
12,000.0	11,354.0	10,872.6	10,196.0	46.9	39.7	60.48	-1,548.5	-1,245.8	2,268.2	2,194.3	73.91	30.689	
12,100.0	11,354.0	10,931.8	10,196.0	47.6	39.9	60.47	-1,607.6	-1,244.0	2,266.3	2,191.7	74.53	30.407	
12,162.2	11,354.0	10,969.6	10,196.0	48.0	40.1	60.47	-1,645.4	-1,243.5	2,265.9	2,191.0	74.95	30.234	
12,200.0	11,354.0	11,005.8	10,196.0	48.3	40.3	60.47	-1,681.6	-1,243.2	2,266.0	2,190.6	75.31	30.088	
12,300.0	11,354.0	11,105.8	10,196.0	49.1	40.7	60.47	-1,781.6	-1,242.5	2,266.0	2,189.7	76.37	29.673	
12,400.0	11,354.0	11,205.8	10,196.0	49.9	41.3	60.47	-1,881.6	-1,241.8	2,266.1	2,188.6	77.50	29.239	
12,500.0	11,354.0	11,305.8	10,196.0	50.7	41.8	60.47	-1,981.6	-1,241.1	2,266.2	2,187.5	78.71	28.792	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error: 0.0 usft	
Survey Program: 0-B001Mb_MWD+HRGM				Rule Assigned:								Offset Well Error: 0.0 usft	
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,600.0	11,354.0	11,405.8	10,196.0	51.5	42.4	60.47	-2,081.6	-1,240.4	2,266.2	2,186.2	79.98	28.334	
12,700.0	11,354.0	11,505.8	10,196.0	52.4	43.1	60.47	-2,181.6	-1,239.7	2,266.3	2,185.0	81.33	27.867	
12,800.0	11,354.0	11,605.8	10,196.0	53.3	43.8	60.47	-2,281.6	-1,239.0	2,266.4	2,183.6	82.73	27.394	
12,900.0	11,354.0	11,705.8	10,196.0	54.2	44.5	60.47	-2,381.6	-1,238.3	2,266.4	2,182.2	84.20	26.918	
13,000.0	11,354.0	11,805.8	10,196.0	55.1	45.2	60.47	-2,481.6	-1,237.6	2,266.5	2,180.8	85.72	26.440	
13,100.0	11,354.0	11,905.8	10,196.0	56.1	46.0	60.47	-2,581.6	-1,236.9	2,266.6	2,179.3	87.30	25.964	
13,200.0	11,354.0	12,005.8	10,196.0	57.1	46.9	60.48	-2,681.6	-1,236.3	2,266.6	2,177.7	88.93	25.489	
13,300.0	11,354.0	12,105.8	10,196.0	58.1	47.7	60.48	-2,781.6	-1,235.6	2,266.7	2,176.1	90.60	25.018	
13,400.0	11,354.0	12,205.8	10,196.0	59.1	48.6	60.48	-2,881.6	-1,234.9	2,266.8	2,174.4	92.32	24.552	
13,500.0	11,354.0	12,305.8	10,196.0	60.1	49.5	60.48	-2,981.6	-1,234.2	2,266.8	2,172.7	94.09	24.092	
13,600.0	11,354.0	12,405.8	10,196.0	61.2	50.4	60.48	-3,081.6	-1,233.5	2,266.9	2,171.0	95.90	23.639	
13,700.0	11,354.0	12,505.8	10,196.0	62.3	51.4	60.48	-3,181.6	-1,232.8	2,267.0	2,169.2	97.74	23.194	
13,800.0	11,354.0	12,605.8	10,196.0	63.4	52.4	60.48	-3,281.6	-1,232.1	2,267.0	2,167.4	99.62	22.757	
13,900.0	11,354.0	12,705.8	10,196.0	64.5	53.4	60.48	-3,381.6	-1,231.4	2,267.1	2,165.6	101.54	22.328	
14,000.0	11,354.0	12,805.8	10,196.0	65.6	54.4	60.48	-3,481.6	-1,230.7	2,267.2	2,163.7	103.48	21.909	
14,100.0	11,354.0	12,905.8	10,196.0	66.7	55.4	60.48	-3,581.6	-1,230.0	2,267.2	2,161.8	105.46	21.499	
14,200.0	11,354.0	13,005.8	10,196.0	67.8	56.5	60.48	-3,681.6	-1,229.3	2,267.3	2,159.8	107.47	21.098	
14,300.0	11,354.0	13,105.8	10,196.0	69.0	57.6	60.49	-3,781.6	-1,228.6	2,267.4	2,157.9	109.50	20.707	
14,400.0	11,354.0	13,205.8	10,196.0	70.1	58.7	60.49	-3,881.6	-1,227.9	2,267.4	2,155.9	111.56	20.325	
14,500.0	11,354.0	13,305.8	10,196.0	71.3	59.8	60.49	-3,981.6	-1,227.2	2,267.5	2,153.9	113.64	19.953	
14,600.0	11,354.0	13,405.8	10,196.0	72.5	60.9	60.49	-4,081.6	-1,226.5	2,267.6	2,151.8	115.75	19.591	
14,700.0	11,354.0	13,505.8	10,196.0	73.7	62.0	60.49	-4,181.6	-1,225.8	2,267.6	2,149.8	117.88	19.238	
14,800.0	11,354.0	13,605.8	10,196.0	74.9	63.2	60.49	-4,281.6	-1,225.1	2,267.7	2,147.7	120.02	18.894	
14,900.0	11,354.0	13,705.8	10,196.0	76.1	64.3	60.49	-4,381.6	-1,224.4	2,267.8	2,145.6	122.19	18.559	
15,000.0	11,354.0	13,805.8	10,196.0	77.3	65.5	60.49	-4,481.6	-1,223.7	2,267.8	2,143.5	124.38	18.234	
15,100.0	11,354.0	13,905.8	10,196.0	78.5	66.7	60.49	-4,581.6	-1,223.0	2,267.9	2,141.3	126.58	17.917	
15,200.0	11,354.0	14,005.8	10,196.0	79.8	67.9	60.49	-4,681.6	-1,222.3	2,268.0	2,139.2	128.80	17.609	
15,300.0	11,354.0	14,105.8	10,196.0	81.0	69.1	60.50	-4,781.6	-1,221.6	2,268.0	2,137.0	131.03	17.309	
15,400.0	11,354.0	14,205.8	10,196.0	82.2	70.3	60.50	-4,881.6	-1,220.9	2,268.1	2,134.8	133.28	17.017	
15,500.0	11,354.0	14,305.8	10,196.0	83.5	71.5	60.50	-4,981.6	-1,220.2	2,268.2	2,132.6	135.55	16.733	
15,600.0	11,354.0	14,405.8	10,196.0	84.8	72.7	60.50	-5,081.6	-1,219.5	2,268.2	2,130.4	137.83	16.457	
15,700.0	11,354.0	14,505.8	10,196.0	86.0	74.0	60.50	-5,181.5	-1,218.8	2,268.3	2,128.2	140.12	16.189	
15,800.0	11,354.0	14,605.8	10,196.0	87.3	75.2	60.50	-5,281.5	-1,218.1	2,268.4	2,126.0	142.42	15.928	
15,900.0	11,354.0	14,705.8	10,196.0	88.6	76.5	60.50	-5,381.5	-1,217.4	2,268.4	2,123.7	144.73	15.673	
16,000.0	11,354.0	14,805.8	10,196.0	89.8	77.7	60.50	-5,481.5	-1,216.7	2,268.5	2,121.5	147.06	15.426	
16,100.0	11,354.0	14,905.8	10,196.0	91.1	79.0	60.50	-5,581.5	-1,216.0	2,268.6	2,119.2	149.39	15.185	
16,200.0	11,354.0	15,005.8	10,196.0	92.4	80.3	60.50	-5,681.5	-1,215.3	2,268.6	2,116.9	151.74	14.951	
16,300.0	11,354.0	15,105.8	10,196.0	93.7	81.5	60.50	-5,781.5	-1,214.6	2,268.7	2,114.6	154.09	14.723	
16,400.0	11,354.0	15,205.8	10,196.0	95.0	82.8	60.51	-5,881.5	-1,213.9	2,268.8	2,112.3	156.46	14.501	
16,500.0	11,354.0	15,305.8	10,196.0	96.3	84.1	60.51	-5,981.5	-1,213.2	2,268.9	2,110.0	158.83	14.285	
16,600.0	11,354.0	15,405.8	10,196.0	97.6	85.4	60.51	-6,081.5	-1,212.5	2,268.9	2,107.7	161.21	14.074	
16,700.0	11,354.0	15,505.8	10,196.0	98.9	86.7	60.51	-6,181.5	-1,211.8	2,269.0	2,105.4	163.60	13.869	
16,800.0	11,354.0	15,605.8	10,196.0	100.3	88.0	60.51	-6,281.5	-1,211.1	2,269.1	2,103.1	165.99	13.670	
16,900.0	11,354.0	15,705.8	10,196.0	101.6	89.3	60.51	-6,381.5	-1,210.4	2,269.1	2,100.7	168.40	13.475	
17,000.0	11,354.0	15,805.8	10,196.0	102.9	90.6	60.51	-6,481.5	-1,209.7	2,269.2	2,098.4	170.81	13.285	
17,100.0	11,354.0	15,905.8	10,196.0	104.2	91.9	60.51	-6,581.5	-1,209.0	2,269.3	2,096.0	173.22	13.100	
17,200.0	11,354.0	16,005.8	10,196.0	105.6	93.3	60.51	-6,681.5	-1,208.3	2,269.3	2,093.7	175.65	12.920	
17,300.0	11,354.0	16,105.8	10,196.0	106.9	94.6	60.51	-6,781.5	-1,207.6	2,269.4	2,091.3	178.08	12.744	
17,400.0	11,354.0	16,205.8	10,196.0	108.2	95.9	60.52	-6,881.5	-1,206.9	2,269.5	2,088.9	180.51	12.572	
17,500.0	11,354.0	16,305.8	10,196.0	109.6	97.2	60.52	-6,981.5	-1,206.2	2,269.5	2,086.6	182.95	12.405	
17,600.0	11,354.0	16,405.8	10,196.0	110.9	98.6	60.52	-7,081.5	-1,205.5	2,269.6	2,084.2	185.40	12.242	
17,700.0	11,354.0	16,505.8	10,196.0	112.2	99.9	60.52	-7,181.5	-1,204.8	2,269.7	2,081.8	187.85	12.082	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
17,800.0	11,354.0	16,605.8	10,196.0	113.6	101.2	60.52	-7,281.5	-1,204.1	2,269.7	2,079.4	190.31	11.927	
17,900.0	11,354.0	16,705.8	10,196.0	114.9	102.6	60.52	-7,381.5	-1,203.4	2,269.8	2,077.0	192.77	11.775	
18,000.0	11,354.0	16,805.8	10,196.0	116.3	103.9	60.52	-7,481.5	-1,202.7	2,269.9	2,074.6	195.23	11.626	
18,100.0	11,354.0	16,905.8	10,196.0	117.6	105.3	60.52	-7,581.5	-1,202.0	2,269.9	2,072.2	197.70	11.481	
18,200.0	11,354.0	17,005.8	10,196.0	119.0	106.6	60.52	-7,681.5	-1,201.3	2,270.0	2,069.8	200.18	11.340	
18,300.0	11,354.0	17,105.8	10,196.0	120.3	108.0	60.52	-7,781.5	-1,200.6	2,270.1	2,067.4	202.66	11.202	
18,400.0	11,354.0	17,205.8	10,196.0	121.7	109.3	60.53	-7,881.5	-1,199.9	2,270.1	2,065.0	205.14	11.066	
18,500.0	11,354.0	17,305.8	10,196.0	123.1	110.7	60.53	-7,981.5	-1,199.2	2,270.2	2,062.6	207.63	10.934	
18,600.0	11,354.0	17,405.8	10,196.0	124.4	112.1	60.53	-8,081.5	-1,198.5	2,270.3	2,060.1	210.12	10.805	
18,700.0	11,354.0	17,505.8	10,196.0	125.8	113.4	60.53	-8,181.5	-1,197.8	2,270.3	2,057.7	212.61	10.678	
18,800.0	11,354.0	17,605.8	10,196.0	127.2	114.8	60.53	-8,281.5	-1,197.1	2,270.4	2,055.3	215.11	10.555	
18,900.0	11,354.0	17,705.8	10,196.0	128.5	116.1	60.53	-8,381.5	-1,196.4	2,270.5	2,052.9	217.61	10.434	
19,000.0	11,354.0	17,805.8	10,196.0	129.9	117.5	60.53	-8,481.5	-1,195.7	2,270.5	2,050.4	220.11	10.315	
19,100.0	11,354.0	17,905.8	10,196.0	131.3	118.9	60.53	-8,581.5	-1,195.0	2,270.6	2,048.0	222.62	10.200	
19,200.0	11,354.0	18,005.8	10,196.0	132.7	120.3	60.53	-8,681.5	-1,194.3	2,270.7	2,045.5	225.13	10.086	
19,300.0	11,354.0	18,105.8	10,196.0	134.0	121.6	60.53	-8,781.5	-1,193.6	2,270.7	2,043.1	227.64	9.975	
19,400.0	11,354.0	18,205.8	10,196.0	135.4	123.0	60.53	-8,881.5	-1,192.9	2,270.8	2,040.6	230.16	9.866	
19,500.0	11,354.0	18,305.8	10,196.0	136.8	124.4	60.54	-8,981.5	-1,192.2	2,270.9	2,038.2	232.67	9.760	
19,600.0	11,354.0	18,405.8	10,196.0	138.2	125.8	60.54	-9,081.5	-1,191.5	2,270.9	2,035.7	235.20	9.656	
19,700.0	11,354.0	18,505.8	10,196.0	139.5	127.1	60.54	-9,181.5	-1,190.8	2,271.0	2,033.3	237.72	9.553	
19,800.0	11,354.0	18,605.8	10,196.0	140.9	128.5	60.54	-9,281.4	-1,190.1	2,271.1	2,030.8	240.25	9.453	
19,900.0	11,354.0	18,705.8	10,196.0	142.3	129.9	60.54	-9,381.4	-1,189.4	2,271.1	2,028.4	242.77	9.355	
20,000.0	11,354.0	18,805.8	10,196.0	143.7	131.3	60.54	-9,481.4	-1,188.7	2,271.2	2,025.9	245.30	9.259	
20,100.0	11,354.0	18,905.8	10,196.0	145.1	132.7	60.54	-9,581.4	-1,188.0	2,271.3	2,023.4	247.84	9.164	
20,200.0	11,354.0	19,005.8	10,196.0	146.5	134.1	60.54	-9,681.4	-1,187.3	2,271.3	2,021.0	250.37	9.072	
20,300.0	11,354.0	19,105.8	10,196.0	147.9	135.5	60.54	-9,781.4	-1,186.6	2,271.4	2,018.5	252.91	8.981	
20,400.0	11,354.0	19,205.8	10,196.0	149.2	136.8	60.54	-9,881.4	-1,185.9	2,271.5	2,016.0	255.45	8.892	
20,500.0	11,354.0	19,305.8	10,196.0	150.6	138.2	60.55	-9,981.4	-1,185.2	2,271.5	2,013.6	257.99	8.805	
20,600.0	11,354.0	19,405.8	10,196.0	152.0	139.6	60.55	-10,081.4	-1,184.5	2,271.6	2,011.1	260.53	8.719	
20,700.0	11,354.0	19,505.8	10,196.0	153.4	141.0	60.55	-10,181.4	-1,183.8	2,271.7	2,008.6	263.08	8.635	
20,800.0	11,354.0	19,605.8	10,196.0	154.8	142.4	60.55	-10,281.4	-1,183.1	2,271.7	2,006.1	265.63	8.552	
20,900.0	11,354.0	19,705.8	10,196.0	156.2	143.8	60.55	-10,381.4	-1,182.4	2,271.8	2,003.6	268.17	8.471	
21,000.0	11,354.0	19,805.8	10,196.0	157.6	145.2	60.55	-10,481.4	-1,181.8	2,271.9	2,001.2	270.72	8.392	
21,100.0	11,354.0	19,905.8	10,196.0	159.0	146.6	60.55	-10,581.4	-1,181.1	2,271.9	1,998.7	273.28	8.314	
21,200.0	11,354.0	20,005.8	10,196.0	160.4	148.0	60.55	-10,681.4	-1,180.4	2,272.0	1,996.2	275.83	8.237	
21,300.0	11,354.0	20,105.8	10,196.0	161.8	149.4	60.55	-10,781.4	-1,179.7	2,272.1	1,993.7	278.39	8.162	
21,400.0	11,354.0	20,205.8	10,196.0	163.2	150.8	60.55	-10,881.4	-1,179.0	2,272.1	1,991.2	280.94	8.088	
21,500.0	11,354.0	20,305.8	10,196.0	164.6	152.2	60.55	-10,981.4	-1,178.3	2,272.2	1,988.7	283.50	8.015	
21,600.0	11,354.0	20,405.8	10,196.0	166.0	153.6	60.56	-11,081.4	-1,177.6	2,272.3	1,986.2	286.06	7.943	
21,647.1	11,354.0	20,452.9	10,196.0	166.7	154.3	60.56	-11,128.5	-1,177.2	2,272.3	1,985.0	287.27	7.910 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 007H - OH - Plan 0.1													Offset Site Error: 0.0 usft	
Survey Program: Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error: 0.0 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,100.0	4,083.4	4,114.6	4,114.4	14.5	14.5	-28.12	-773.9	2,316.6	2,342.4	2,313.7	28.74	81.510		
4,200.0	4,182.1	4,213.2	4,213.0	14.9	14.9	-28.33	-772.7	2,316.6	2,327.9	2,298.5	29.45	79.045		
4,300.0	4,280.9	4,311.7	4,311.6	15.2	15.2	-28.55	-771.4	2,316.6	2,313.5	2,283.3	30.17	76.694		
4,400.0	4,379.6	4,410.3	4,410.1	15.6	15.6	-28.76	-770.2	2,316.6	2,299.1	2,268.2	30.88	74.449		
4,500.0	4,478.3	4,508.9	4,508.7	16.0	15.9	-28.99	-769.0	2,316.6	2,284.7	2,253.1	31.60	72.304		
4,600.0	4,577.0	4,607.4	4,607.2	16.4	16.3	-29.21	-767.7	2,316.6	2,270.3	2,238.0	32.32	70.251		
4,700.0	4,675.7	4,706.0	4,705.8	16.8	16.6	-29.44	-766.5	2,316.6	2,256.0	2,223.0	33.04	68.287		
4,800.0	4,774.5	4,804.6	4,804.4	17.2	17.0	-29.67	-765.2	2,316.6	2,241.8	2,208.0	33.76	66.404		
4,900.0	4,873.2	4,903.2	4,902.9	17.6	17.4	-29.90	-764.0	2,316.6	2,227.5	2,193.0	34.48	64.600		
5,000.0	4,971.9	5,001.7	5,001.5	18.0	17.7	-30.14	-762.8	2,316.6	2,213.3	2,178.1	35.21	62.868		
5,100.0	5,070.6	5,100.3	5,100.0	18.4	18.1	-30.38	-761.5	2,316.6	2,199.1	2,163.2	35.93	61.205		
5,200.0	5,169.3	5,198.9	5,198.6	18.8	18.4	-30.62	-760.3	2,316.6	2,185.0	2,148.4	36.66	59.607		
5,300.0	5,268.0	5,297.4	5,297.2	19.2	18.8	-30.86	-759.0	2,316.6	2,170.9	2,133.5	37.38	58.071		
5,400.0	5,366.8	5,396.0	5,395.7	19.6	19.1	-31.11	-757.8	2,316.6	2,156.9	2,118.8	38.11	56.593		
5,500.0	5,465.5	5,494.6	5,494.3	20.0	19.5	-31.36	-756.5	2,316.6	2,142.9	2,104.0	38.84	55.169		
5,600.0	5,564.2	5,593.1	5,592.8	20.4	19.8	-31.62	-755.3	2,316.6	2,128.9	2,089.3	39.57	53.798		
5,700.0	5,662.9	5,691.7	5,691.4	20.8	20.2	-31.88	-754.1	2,316.6	2,115.0	2,074.7	40.30	52.476		
5,800.0	5,761.6	5,790.3	5,790.0	21.2	20.5	-32.14	-752.8	2,316.6	2,101.1	2,060.1	41.04	51.202		
5,900.0	5,860.4	5,888.8	5,888.5	21.6	20.9	-32.40	-751.6	2,316.6	2,087.3	2,045.5	41.77	49.971		
6,000.0	5,959.1	5,987.4	5,987.1	22.0	21.2	-32.67	-750.3	2,316.6	2,073.5	2,031.0	42.50	48.783		
6,100.0	6,057.8	6,086.0	6,085.6	22.4	21.6	-32.95	-749.1	2,316.6	2,059.7	2,016.5	43.24	47.636		
6,200.0	6,156.5	6,184.5	6,184.2	22.9	21.9	-33.22	-747.8	2,316.6	2,046.0	2,002.1	43.98	46.527		
6,300.0	6,255.2	6,283.1	6,282.8	23.3	22.3	-33.50	-746.6	2,316.6	2,032.4	1,987.7	44.71	45.455		
6,400.0	6,354.0	6,381.7	6,381.3	23.7	22.7	-33.78	-745.4	2,316.6	2,018.8	1,973.3	45.45	44.417		
6,500.0	6,452.7	6,480.2	6,479.9	24.1	23.0	-34.07	-744.1	2,316.6	2,005.2	1,959.0	46.19	43.413		
6,600.0	6,551.4	6,578.8	6,578.4	24.5	23.4	-34.36	-742.9	2,316.6	1,991.7	1,944.8	46.93	42.441		
6,700.0	6,650.1	6,677.4	6,677.0	24.9	23.7	-34.66	-741.6	2,316.6	1,978.3	1,930.6	47.67	41.499		
6,800.0	6,748.8	6,775.9	6,775.6	25.3	24.1	-34.96	-740.4	2,316.6	1,964.9	1,916.5	48.41	40.586		
6,900.0	6,847.5	6,874.5	6,874.1	25.7	24.4	-35.26	-739.2	2,316.6	1,951.5	1,902.4	49.15	39.702		
7,000.0	6,946.3	6,973.1	6,972.7	26.1	24.8	-35.57	-737.9	2,316.6	1,938.2	1,888.3	49.90	38.843		
7,100.0	7,045.0	7,071.6	7,071.2	26.5	25.1	-35.88	-736.7	2,316.6	1,925.0	1,874.4	50.64	38.011		
7,200.0	7,143.7	7,170.2	7,169.8	27.0	25.5	-36.19	-735.4	2,316.6	1,911.8	1,860.4	51.39	37.203		
7,300.0	7,242.4	7,268.8	7,268.4	27.4	25.8	-36.51	-734.2	2,316.6	1,898.7	1,846.6	52.14	36.419		
7,400.0	7,341.1	7,367.3	7,366.9	27.8	26.2	-36.84	-732.9	2,316.6	1,885.6	1,832.8	52.88	35.657		
7,500.0	7,439.9	7,465.9	7,465.5	28.2	26.5	-37.17	-731.7	2,316.6	1,872.6	1,819.0	53.63	34.917		
7,600.0	7,538.6	7,564.5	7,564.0	28.6	26.9	-37.50	-730.5	2,316.6	1,859.7	1,805.3	54.38	34.198		
7,700.0	7,637.3	7,663.0	7,662.6	29.0	27.2	-37.84	-729.2	2,316.6	1,846.8	1,791.7	55.13	33.499		
7,800.0	7,736.0	7,761.6	7,761.1	29.4	27.6	-38.18	-728.0	2,316.6	1,834.0	1,778.2	55.88	32.820		
7,900.0	7,834.7	7,860.2	7,859.7	29.9	28.0	-38.53	-726.7	2,316.6	1,821.3	1,764.7	56.63	32.159		
8,000.0	7,933.5	7,958.7	7,958.3	30.3	28.3	-38.88	-725.5	2,316.6	1,808.6	1,751.2	57.39	31.516		
8,100.0	8,032.2	8,057.3	8,056.8	30.7	28.7	-39.23	-724.2	2,316.6	1,796.0	1,737.9	58.14	30.890		
8,200.0	8,130.9	8,155.9	8,155.4	31.1	29.0	-39.60	-723.0	2,316.6	1,783.5	1,724.6	58.90	30.281		
8,300.0	8,229.6	8,254.4	8,253.9	31.5	29.4	-39.96	-721.8	2,316.6	1,771.0	1,711.4	59.65	29.688		
8,400.0	8,328.3	8,353.0	8,352.5	31.9	29.7	-40.33	-720.5	2,316.6	1,758.6	1,698.2	60.41	29.111		
8,500.0	8,427.0	8,451.6	8,451.1	32.3	30.1	-40.71	-719.3	2,316.6	1,746.3	1,685.1	61.17	28.549		
8,600.0	8,525.8	8,550.1	8,549.6	32.8	30.4	-41.09	-718.0	2,316.6	1,734.1	1,672.1	61.93	28.001		
8,700.0	8,624.5	8,648.7	8,648.2	33.2	30.8	-41.48	-716.8	2,316.6	1,721.9	1,659.2	62.69	27.468		
8,800.0	8,723.2	8,747.3	8,746.7	33.6	31.1	-41.88	-715.6	2,316.6	1,709.8	1,646.4	63.45	26.948		
8,900.0	8,821.9	8,845.8	8,845.3	34.0	31.5	-42.27	-714.3	2,316.6	1,697.8	1,633.6	64.21	26.441		
9,000.0	8,920.6	8,944.4	8,943.9	34.4	31.8	-42.68	-713.1	2,316.6	1,685.9	1,621.0	64.98	25.947		
9,100.0	9,019.4	9,043.0	9,042.4	34.8	32.2	-43.09	-711.8	2,316.6	1,674.1	1,608.4	65.74	25.465		
9,200.0	9,118.1	9,141.5	9,141.0	35.3	32.5	-43.50	-710.6	2,316.6	1,662.4	1,595.8	66.51	24.995		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 007H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
9,300.0	9,216.8	9,240.1	9,239.5	35.7	32.9	-43.93	-709.3	2,316.6	1,650.7	1,583.4	67.27	24.537	
9,400.0	9,315.5	9,338.7	9,338.1	36.1	33.3	-44.35	-708.1	2,316.6	1,639.1	1,571.1	68.04	24.090	
9,500.0	9,414.2	9,437.2	9,436.7	36.5	33.6	-44.79	-706.9	2,316.6	1,627.7	1,558.9	68.81	23.654	
9,600.0	9,513.0	9,535.9	9,535.3	36.9	34.0	-45.14	-705.6	2,316.6	1,616.6	1,547.0	69.58	23.233	
9,700.0	9,612.2	9,635.0	9,634.4	37.3	34.3	-45.37	-704.4	2,316.6	1,607.7	1,537.3	70.34	22.857	
9,800.0	9,711.8	9,734.5	9,733.8	37.7	34.7	-45.56	-703.1	2,316.6	1,601.3	1,530.2	71.08	22.529	
9,900.0	9,811.6	9,834.2	9,833.6	38.1	35.0	-45.69	-701.9	2,316.6	1,597.4	1,525.6	71.80	22.247	
10,000.0	9,911.6	9,934.2	9,933.6	38.4	35.4	-45.77	-700.6	2,316.6	1,595.9	1,523.4	72.51	22.010	
10,087.0	9,998.6	10,021.2	10,020.5	38.7	35.7	-45.81	-699.5	2,316.6	1,595.8	1,522.7	73.10	21.831	
10,100.0	10,011.6	10,034.2	10,033.5	38.7	35.7	-45.81	-699.3	2,316.6	1,595.9	1,522.7	73.18	21.806	
10,200.0	10,111.6	10,134.2	10,133.5	39.0	36.1	-45.74	-698.1	2,316.6	1,595.9	1,522.0	73.86	21.606	
10,300.0	10,211.6	10,234.2	10,233.5	39.3	36.5	-45.69	-696.8	2,316.6	1,595.9	1,521.3	74.54	21.410	
10,400.0	10,311.6	10,334.1	10,333.5	39.6	36.8	-45.65	-695.6	2,316.6	1,595.9	1,520.7	75.22	21.217	
10,500.0	10,411.6	10,434.1	10,433.5	40.0	37.2	-45.60	-694.3	2,316.6	1,595.9	1,520.0	75.90	21.027	
10,600.0	10,511.6	10,534.1	10,533.5	40.3	37.5	-45.56	-693.0	2,316.6	1,595.9	1,519.3	76.58	20.841	
10,700.0	10,611.6	10,634.1	10,633.4	40.6	37.9	-45.51	-691.8	2,316.6	1,595.9	1,518.7	77.26	20.657	
10,800.0	10,711.6	10,734.1	10,733.4	40.9	38.3	-45.47	-690.5	2,316.6	1,595.9	1,518.0	77.94	20.477	
10,900.0	10,811.6	10,834.1	10,833.4	41.2	38.6	-45.43	-689.2	2,316.6	1,595.9	1,517.3	78.62	20.300	
11,000.0	10,911.6	10,937.2	10,936.6	41.5	39.0	-45.39	-687.9	2,316.6	1,595.9	1,516.6	79.31	20.123	
11,100.0	11,009.8	11,064.6	11,064.1	41.9	39.4	-45.34	-686.6	2,315.5	1,594.9	1,515.9	80.05	19.925	
11,200.0	11,102.2	11,191.3	11,176.7	42.3	39.7	-45.29	-685.3	2,312.7	1,592.4	1,511.6	80.78	19.713	
11,300.0	11,184.8	11,315.3	11,272.0	42.8	40.0	-45.24	-684.0	2,308.5	1,588.4	1,506.9	81.51	19.487	
11,400.0	11,253.9	11,434.8	11,341.7	43.3	40.3	-45.19	-682.7	2,303.4	1,583.3	1,501.0	82.26	19.247	
11,500.0	11,306.4	11,549.0	11,383.9	43.9	40.5	-45.14	-681.4	2,297.7	1,577.4	1,494.3	83.04	18.995	
11,600.0	11,340.2	11,657.7	11,399.7	44.5	40.7	-45.09	-680.1	2,292.0	1,571.0	1,487.2	83.83	18.741	
11,700.0	11,353.8	11,731.6	11,400.0	45.0	40.9	-45.04	-678.8	2,288.5	1,565.4	1,480.7	84.63	18.496	
11,800.0	11,354.0	11,800.0	11,400.0	45.6	41.0	-45.00	-677.5	2,286.8	1,562.1	1,476.6	85.44	18.282	
11,900.0	11,354.0	11,862.3	11,400.0	46.2	41.2	-44.96	-676.2	2,286.7	1,561.0	1,474.7	86.33	18.083	
12,000.0	11,354.0	11,962.3	11,400.0	46.9	41.5	-44.91	-674.9	2,287.4	1,561.0	1,473.7	87.29	17.882	
12,100.0	11,354.0	12,062.3	11,400.0	47.6	41.8	-44.87	-673.6	2,288.2	1,561.0	1,472.6	88.34	17.670	
12,200.0	11,354.0	12,162.3	11,400.0	48.3	42.2	-44.82	-672.3	2,289.0	1,561.0	1,471.5	89.47	17.447	
12,300.0	11,354.0	12,262.3	11,400.0	49.1	42.6	-44.78	-671.0	2,289.7	1,561.0	1,470.3	90.67	17.215	
12,400.0	11,354.0	12,362.3	11,400.0	49.9	43.1	-44.73	-669.7	2,290.5	1,561.0	1,469.0	91.95	16.976	
12,500.0	11,354.0	12,462.3	11,400.0	50.7	43.6	-44.69	-668.4	2,291.3	1,560.9	1,467.6	93.30	16.729	
12,600.0	11,354.0	12,562.3	11,400.0	51.5	44.2	-44.64	-667.1	2,292.0	1,560.9	1,466.2	94.73	16.478	
12,700.0	11,354.0	12,662.3	11,400.0	52.4	44.8	-44.59	-665.8	2,292.8	1,560.9	1,464.7	96.21	16.223	
12,800.0	11,354.0	12,762.3	11,400.0	53.3	45.5	-44.54	-664.5	2,293.6	1,560.9	1,463.2	97.77	15.966	
12,900.0	11,354.0	12,862.3	11,400.0	54.2	46.1	-44.50	-663.2	2,294.3	1,560.9	1,461.5	99.38	15.707	
13,000.0	11,354.0	12,962.3	11,400.0	55.1	46.9	-44.45	-661.9	2,295.1	1,560.9	1,459.9	101.05	15.447	
13,100.0	11,354.0	13,062.3	11,400.0	56.1	47.6	-44.40	-660.6	2,295.9	1,560.9	1,458.1	102.77	15.188	
13,200.0	11,354.0	13,162.3	11,400.0	57.1	48.4	-44.36	-659.3	2,296.6	1,560.9	1,456.3	104.55	14.930	
13,300.0	11,354.0	13,262.3	11,400.0	58.1	49.2	-44.31	-658.0	2,297.4	1,560.9	1,454.5	106.37	14.674	
13,400.0	11,354.0	13,362.3	11,400.0	59.1	50.0	-44.27	-656.7	2,298.2	1,560.9	1,452.6	108.24	14.420	
13,500.0	11,354.0	13,462.3	11,400.0	60.1	50.9	-44.22	-655.4	2,298.9	1,560.9	1,450.7	110.16	14.169	
13,600.0	11,354.0	13,562.3	11,400.0	61.2	51.8	-44.18	-654.1	2,299.7	1,560.9	1,448.7	112.12	13.921	
13,700.0	11,354.0	13,662.3	11,400.0	62.3	52.7	-44.13	-652.8	2,300.5	1,560.8	1,446.7	114.12	13.677	
13,800.0	11,354.0	13,762.3	11,400.0	63.4	53.7	-44.09	-651.5	2,301.3	1,560.8	1,444.7	116.16	13.437	
13,900.0	11,354.0	13,862.3	11,400.0	64.5	54.6	-44.04	-650.2	2,302.0	1,560.8	1,442.6	118.23	13.201	
14,000.0	11,354.0	13,962.3	11,400.0	65.6	55.6	-44.00	-648.9	2,302.8	1,560.8	1,440.5	120.34	12.970	
14,100.0	11,354.0	14,062.3	11,400.0	66.7	56.6	-43.95	-647.6	2,303.6	1,560.8	1,438.3	122.48	12.743	
14,200.0	11,354.0	14,162.3	11,400.0	67.8	57.6	-43.91	-646.3	2,304.3	1,560.8	1,436.1	124.66	12.521	
14,300.0	11,354.0	14,262.3	11,400.0	69.0	58.7	-43.86	-645.0	2,305.1	1,560.8	1,433.9	126.86	12.304	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 007H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,400.0	11,354.0	14,362.3	11,400.0	70.1	59.7	-90.88	-3,855.8	2,305.9	1,560.8	1,431.7	129.09	12.091	
14,500.0	11,354.0	14,462.3	11,400.0	71.3	60.8	-90.88	-3,955.8	2,306.6	1,560.8	1,429.4	131.34	11.883	
14,600.0	11,354.0	14,562.3	11,400.0	72.5	61.9	-90.88	-4,055.8	2,307.4	1,560.8	1,427.1	133.62	11.680	
14,700.0	11,354.0	14,662.3	11,400.0	73.7	63.0	-90.88	-4,155.8	2,308.2	1,560.8	1,424.8	135.93	11.482	
14,800.0	11,354.0	14,762.3	11,400.0	74.9	64.1	-90.88	-4,255.8	2,308.9	1,560.7	1,422.5	138.25	11.289	
14,900.0	11,354.0	14,862.3	11,400.0	76.1	65.2	-90.88	-4,355.8	2,309.7	1,560.7	1,420.1	140.60	11.101	
15,000.0	11,354.0	14,962.3	11,400.0	77.3	66.4	-90.88	-4,455.8	2,310.5	1,560.7	1,417.8	142.97	10.917	
15,100.0	11,354.0	15,062.3	11,400.0	78.5	67.5	-90.88	-4,555.8	2,311.2	1,560.7	1,415.4	145.36	10.737	
15,200.0	11,354.0	15,162.3	11,400.0	79.8	68.7	-90.88	-4,655.8	2,312.0	1,560.7	1,413.0	147.76	10.562	
15,300.0	11,354.0	15,262.3	11,400.0	81.0	69.9	-90.88	-4,755.8	2,312.8	1,560.7	1,410.5	150.19	10.392	
15,400.0	11,354.0	15,362.3	11,400.0	82.2	71.1	-90.88	-4,855.8	2,313.5	1,560.7	1,408.1	152.63	10.226	
15,500.0	11,354.0	15,462.3	11,400.0	83.5	72.3	-90.88	-4,955.8	2,314.3	1,560.7	1,405.6	155.08	10.064	
15,600.0	11,354.0	15,562.3	11,400.0	84.8	73.5	-90.88	-5,055.8	2,315.1	1,560.7	1,403.1	157.55	9.906	
15,700.0	11,354.0	15,662.3	11,400.0	86.0	74.7	-90.88	-5,155.8	2,315.8	1,560.7	1,400.6	160.04	9.752	
15,800.0	11,354.0	15,762.3	11,400.0	87.3	75.9	-90.88	-5,255.8	2,316.6	1,560.7	1,398.1	162.54	9.602	
15,900.0	11,354.0	15,862.3	11,400.0	88.6	77.1	-90.88	-5,355.8	2,317.4	1,560.7	1,395.6	165.05	9.456	
16,000.0	11,354.0	15,962.3	11,400.0	89.8	78.4	-90.88	-5,455.8	2,318.1	1,560.6	1,393.1	167.58	9.313	
16,100.0	11,354.0	16,062.3	11,400.0	91.1	79.6	-90.88	-5,555.8	2,318.9	1,560.6	1,390.5	170.11	9.174	
16,200.0	11,354.0	16,162.3	11,400.0	92.4	80.9	-90.88	-5,655.8	2,319.7	1,560.6	1,388.0	172.66	9.039	
16,300.0	11,354.0	16,262.3	11,400.0	93.7	82.1	-90.88	-5,755.8	2,320.4	1,560.6	1,385.4	175.22	8.907	
16,400.0	11,354.0	16,362.3	11,400.0	95.0	83.4	-90.88	-5,855.8	2,321.2	1,560.6	1,382.8	177.79	8.778	
16,500.0	11,354.0	16,462.3	11,400.0	96.3	84.7	-90.88	-5,955.8	2,322.0	1,560.6	1,380.2	180.37	8.652	
16,600.0	11,354.0	16,562.3	11,400.0	97.6	85.9	-90.88	-6,055.7	2,322.7	1,560.6	1,377.6	182.96	8.530	
16,700.0	11,354.0	16,662.3	11,400.0	98.9	87.2	-90.88	-6,155.7	2,323.5	1,560.6	1,375.0	185.56	8.410	
16,800.0	11,354.0	16,762.3	11,400.0	100.3	88.5	-90.88	-6,255.7	2,324.3	1,560.6	1,372.4	188.17	8.294	
16,900.0	11,354.0	16,862.3	11,400.0	101.6	89.8	-90.88	-6,355.7	2,325.0	1,560.6	1,369.8	190.78	8.180	
17,000.0	11,354.0	16,962.3	11,400.0	102.9	91.1	-90.88	-6,455.7	2,325.8	1,560.6	1,367.2	193.41	8.069	
17,100.0	11,354.0	17,062.3	11,400.0	104.2	92.4	-90.88	-6,555.7	2,326.6	1,560.6	1,364.5	196.04	7.961	
17,200.0	11,354.0	17,162.3	11,400.0	105.6	93.7	-90.88	-6,655.7	2,327.3	1,560.5	1,361.9	198.68	7.855	
17,300.0	11,354.0	17,262.3	11,400.0	106.9	95.0	-90.88	-6,755.7	2,328.1	1,560.5	1,359.2	201.32	7.751	
17,400.0	11,354.0	17,362.3	11,400.0	108.2	96.3	-90.88	-6,855.7	2,328.9	1,560.5	1,356.6	203.97	7.651	
17,500.0	11,354.0	17,462.3	11,400.0	109.6	97.6	-90.88	-6,955.7	2,329.7	1,560.5	1,353.9	206.63	7.552	
17,600.0	11,354.0	17,562.3	11,400.0	110.9	98.9	-90.88	-7,055.7	2,330.4	1,560.5	1,351.2	209.30	7.456	
17,700.0	11,354.0	17,662.3	11,400.0	112.2	100.3	-90.88	-7,155.7	2,331.2	1,560.5	1,348.5	211.97	7.362	
17,800.0	11,354.0	17,762.3	11,400.0	113.6	101.6	-90.88	-7,255.7	2,332.0	1,560.5	1,345.8	214.65	7.270	
17,900.0	11,354.0	17,862.3	11,400.0	114.9	102.9	-90.88	-7,355.7	2,332.7	1,560.5	1,343.2	217.33	7.180	
18,000.0	11,354.0	17,962.3	11,400.0	116.3	104.3	-90.88	-7,455.7	2,333.5	1,560.5	1,340.5	220.02	7.092	
18,100.0	11,354.0	18,062.3	11,400.0	117.6	105.6	-90.88	-7,555.7	2,334.3	1,560.5	1,337.8	222.71	7.007	
18,200.0	11,354.0	18,162.3	11,400.0	119.0	106.9	-90.88	-7,655.7	2,335.0	1,560.5	1,335.1	225.41	6.923	
18,300.0	11,354.0	18,262.3	11,400.0	120.3	108.3	-90.88	-7,755.7	2,335.8	1,560.5	1,332.3	228.12	6.841	
18,400.0	11,354.0	18,362.3	11,400.0	121.7	109.6	-90.88	-7,855.7	2,336.6	1,560.4	1,329.6	230.83	6.760	
18,500.0	11,354.0	18,462.3	11,400.0	123.1	111.0	-90.88	-7,955.7	2,337.3	1,560.4	1,326.9	233.54	6.682	
18,600.0	11,354.0	18,562.3	11,400.0	124.4	112.3	-90.88	-8,055.7	2,338.1	1,560.4	1,324.2	236.26	6.605	
18,700.0	11,354.0	18,662.3	11,400.0	125.8	113.7	-90.88	-8,155.7	2,338.9	1,560.4	1,321.4	238.98	6.530	
18,800.0	11,354.0	18,762.3	11,400.0	127.2	115.0	-90.88	-8,255.7	2,339.6	1,560.4	1,318.7	241.70	6.456	
18,900.0	11,354.0	18,862.3	11,400.0	128.5	116.4	-90.88	-8,355.7	2,340.4	1,560.4	1,316.0	244.43	6.384	
19,000.0	11,354.0	18,962.3	11,400.0	129.9	117.7	-90.88	-8,455.7	2,341.2	1,560.4	1,313.2	247.17	6.313	
19,100.0	11,354.0	19,062.3	11,400.0	131.3	119.1	-90.88	-8,555.7	2,341.9	1,560.4	1,310.5	249.90	6.244	
19,200.0	11,354.0	19,162.3	11,400.0	132.7	120.5	-90.88	-8,655.7	2,342.7	1,560.4	1,307.7	252.64	6.176	
19,300.0	11,354.0	19,262.3	11,400.0	134.0	121.8	-90.88	-8,755.7	2,343.5	1,560.4	1,305.0	255.39	6.110	
19,400.0	11,354.0	19,362.3	11,400.0	135.4	123.2	-90.88	-8,855.7	2,344.2	1,560.4	1,302.2	258.14	6.045	
19,500.0	11,354.0	19,462.3	11,400.0	136.8	124.6	-90.88	-8,955.7	2,345.0	1,560.4	1,299.5	260.89	5.981	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 007H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning	
19,600.0	11,354.0	19,562.3	11,400.0	138.2	125.9	-90.88	-9,055.7	2,345.8	1,560.3	1,296.7	263.64	5.918	
19,700.0	11,354.0	19,662.3	11,400.0	139.5	127.3	-90.88	-9,155.7	2,346.5	1,560.3	1,293.9	266.40	5.857	
19,800.0	11,354.0	19,762.3	11,400.0	140.9	128.7	-90.88	-9,255.7	2,347.3	1,560.3	1,291.2	269.16	5.797	
19,900.0	11,354.0	19,862.3	11,400.0	142.3	130.1	-90.88	-9,355.7	2,348.1	1,560.3	1,288.4	271.92	5.738	
20,000.0	11,354.0	19,962.3	11,400.0	143.7	131.4	-90.88	-9,455.6	2,348.8	1,560.3	1,285.6	274.68	5.680	
20,100.0	11,354.0	20,062.3	11,400.0	145.1	132.8	-90.88	-9,555.6	2,349.6	1,560.3	1,282.9	277.45	5.624	
20,200.0	11,354.0	20,162.3	11,400.0	146.5	134.2	-90.88	-9,655.6	2,350.4	1,560.3	1,280.1	280.22	5.568	
20,300.0	11,354.0	20,262.3	11,400.0	147.9	135.6	-90.88	-9,755.6	2,351.1	1,560.3	1,277.3	283.00	5.513	
20,400.0	11,354.0	20,362.3	11,400.0	149.2	137.0	-90.88	-9,855.6	2,351.9	1,560.3	1,274.5	285.77	5.460	
20,500.0	11,354.0	20,462.3	11,400.0	150.6	138.3	-90.88	-9,955.6	2,352.7	1,560.3	1,271.7	288.55	5.407	
20,600.0	11,354.0	20,562.3	11,400.0	152.0	139.7	-90.88	-10,055.6	2,353.4	1,560.3	1,268.9	291.33	5.356	
20,700.0	11,354.0	20,662.3	11,400.0	153.4	141.1	-90.88	-10,155.6	2,354.2	1,560.3	1,266.1	294.11	5.305	
20,800.0	11,354.0	20,762.3	11,400.0	154.8	142.5	-90.88	-10,255.6	2,355.0	1,560.2	1,263.4	296.90	5.255	
20,900.0	11,354.0	20,862.3	11,400.0	156.2	143.9	-90.88	-10,355.6	2,355.8	1,560.2	1,260.6	299.68	5.206	
21,000.0	11,354.0	20,962.3	11,400.0	157.6	145.3	-90.88	-10,455.6	2,356.5	1,560.2	1,257.8	302.47	5.158	
21,100.0	11,354.0	21,062.3	11,400.0	159.0	146.7	-90.88	-10,555.6	2,357.3	1,560.2	1,255.0	305.26	5.111	
21,200.0	11,354.0	21,162.3	11,400.0	160.4	148.1	-90.88	-10,655.6	2,358.1	1,560.2	1,252.2	308.05	5.065	
21,300.0	11,354.0	21,262.3	11,400.0	161.8	149.5	-90.88	-10,755.6	2,358.8	1,560.2	1,249.4	310.85	5.019	
21,400.0	11,354.0	21,362.3	11,400.0	163.2	150.8	-90.88	-10,855.6	2,359.6	1,560.2	1,246.6	313.65	4.974	
21,500.0	11,354.0	21,462.3	11,400.0	164.6	152.2	-90.88	-10,955.6	2,360.4	1,560.2	1,243.7	316.44	4.930	
21,600.0	11,354.0	21,562.3	11,400.0	166.0	153.6	-90.88	-11,055.6	2,361.1	1,560.2	1,240.9	319.24	4.887	
21,642.6	11,354.0	21,604.9	11,400.0	166.6	154.2	-90.88	-11,098.2	2,361.5	1,560.2	1,239.7	320.44	4.869 CC	
21,647.1	11,354.0	21,608.0	11,400.0	166.7	154.3	-90.88	-11,101.3	2,361.5	1,560.2	1,239.6	320.55	4.867 ES, SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 3936.5usft (3936.5)

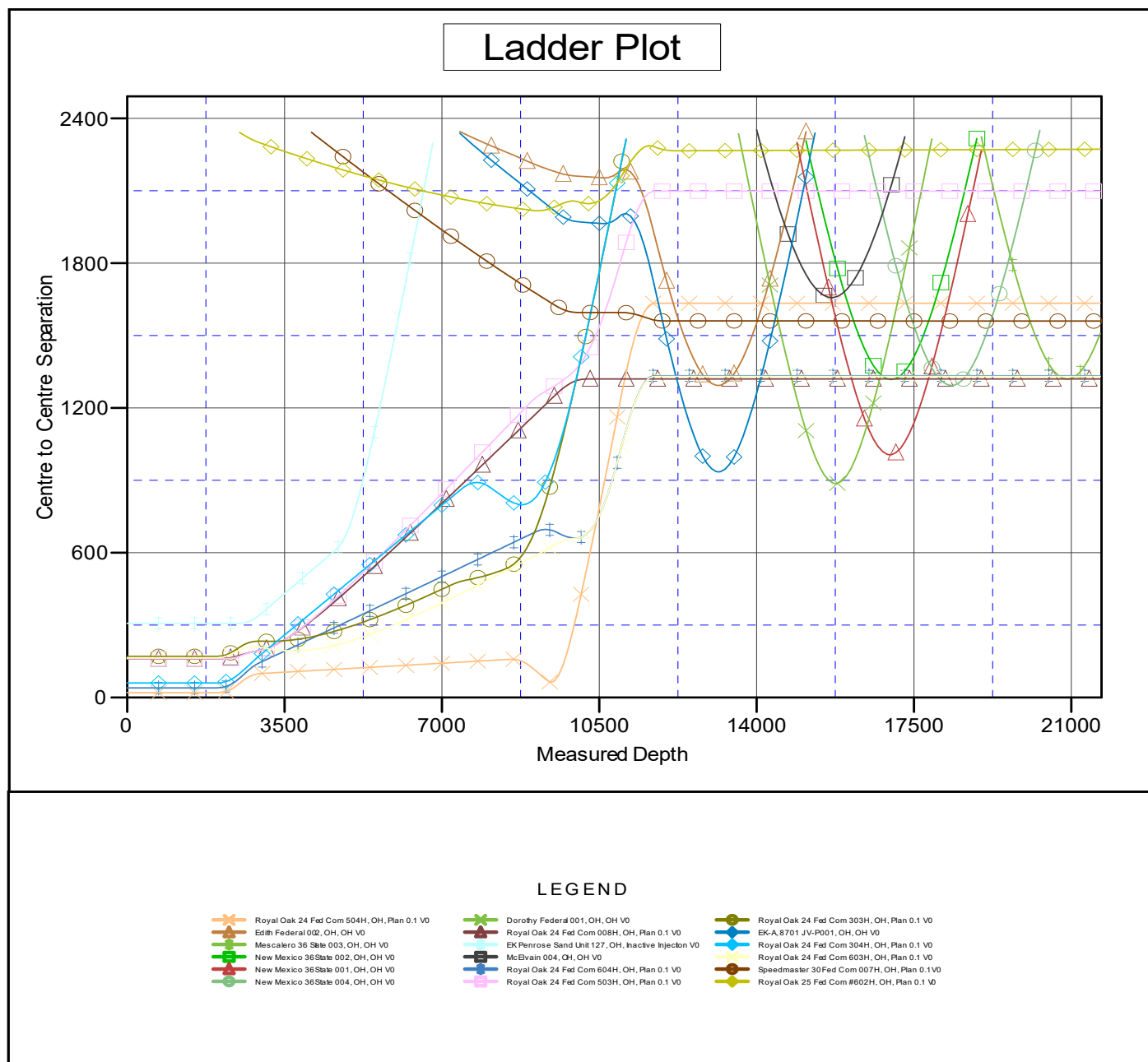
Offset Depths are relative to Offset Datum

Central Meridian is -104.333334

Coordinates are relative to: Royal Oak 24 Fed Com Pad 1

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

Grid Convergence at Surface is: 0.39°



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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Site Royal Oak 24 Fed Com Pad 1
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3936.5usft (3936.5)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3936.5usft (3936.5)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 009H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 3936.5usft (3936.5)

Offset Depths are relative to Offset Datum

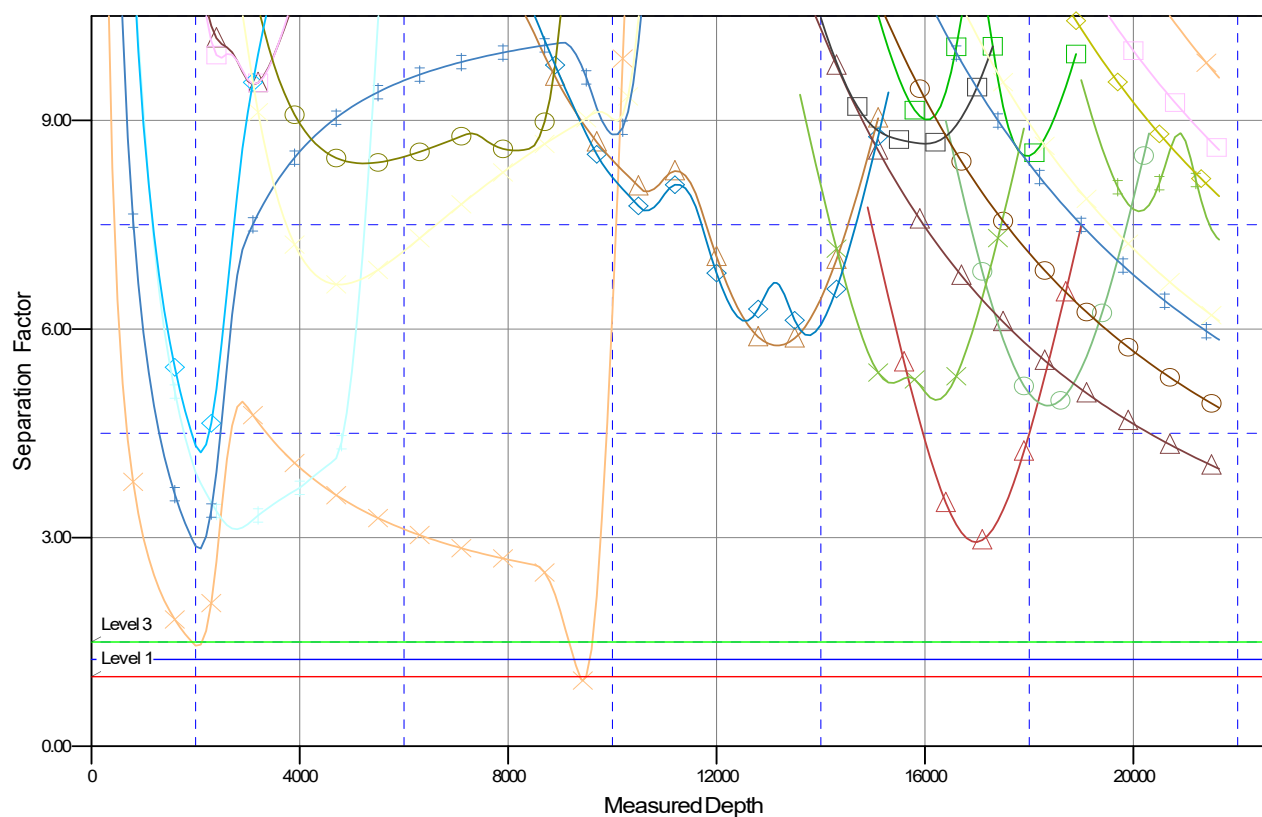
Central Meridian is -104.333334

Coordinates are relative to: Royal Oak 24 Fed Com Pad 1

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

Grid Convergence at Surface is: 0.39°

Separation Factor Plot



LEGEND

Royal Oak 24 Fed Com 504H, OH, Plan 0.1 V0	Dorothy Federal 001, OH, OH V0	Royal Oak 24 Fed Com 303H, OH, Plan 0.1 V0
Edith Federal 002, OH, OH V0	Royal Oak 24 Fed Com 008H, OH, Plan 0.1 V0	EK-A-8701 JV-P001, OH, OH V0
Mescalero 36 State 003, OH, OH V0	EK Penrose Sand Unit 127, OH, Inactive Injection V0	Royal Oak 24 Fed Com 304H, OH, Plan 0.1 V0
New Mexico 36 State 002, OH, OH V0	McElvain 004, OH, OH V0	Royal Oak 24 Fed Com 603H, OH, Plan 0.1 V0
New Mexico 36 State 001, OH, OH V0	Royal Oak 24 Fed Com 604H, OH, Plan 0.1 V0	Speedmaster 30 Fed Com 007H, OH, Plan 0.1 V0
New Mexico 36 State 004, OH, OH V0	Royal Oak 24 Fed Com 503H, OH, Plan 0.1 V0	Royal Oak 25 Fed Com #602H, OH, Plan 0.1 V0

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

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Avant Operating LLC
LOCATION:	Section 25, T.18 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Royal Oak 25 Fed Com 9H
ATS/API ID:	ATS-24-644
APD ID:	10400094569
Sundry ID:	N/a

COA

H2S	Yes		
Potash	None	None	
Cave/Karst Potential	Low		
Cave/Karst Potential	☐ Critical		
Variance	☒ None	☒ Flex Hose	☒ Other
Wellhead	Conventional and Multibowl		
Other	☐ 4 String ☐ 5 String	Capitan Reef None	☐ WIPP
Other	Pilot Hole None	☐ Open Annulus	
Cementing	Contingency Squeeze None	Echo-Meter None	Primary Cement Squeeze None
Special Requirements	☐ Water Disposal/Injection	☒ COM	☐ Unit
Special Requirements	☐ Batch Sundry	Waste Prevention None	
Special Requirements Variance	☐ Break Testing	☒ Offline Cementing	☐ Casing Clearance

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H₂S) 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.
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.
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.

Offline Cementing

Operator has been (**Approved**) to pump the proposed cement program offline in the **Surface and intermediate(s) intervals**.

Offline cementing should commence within 24 hours of landing the casing for the interval.

Notify the BLM 4hrs prior to cementing offline at **Lea County: 575-689-5981**.

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 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per **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) 10/18/2024

Hydrogen Sulfide Plan Summary

- A. All personnel shall receive proper H₂S 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

- H₂S 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

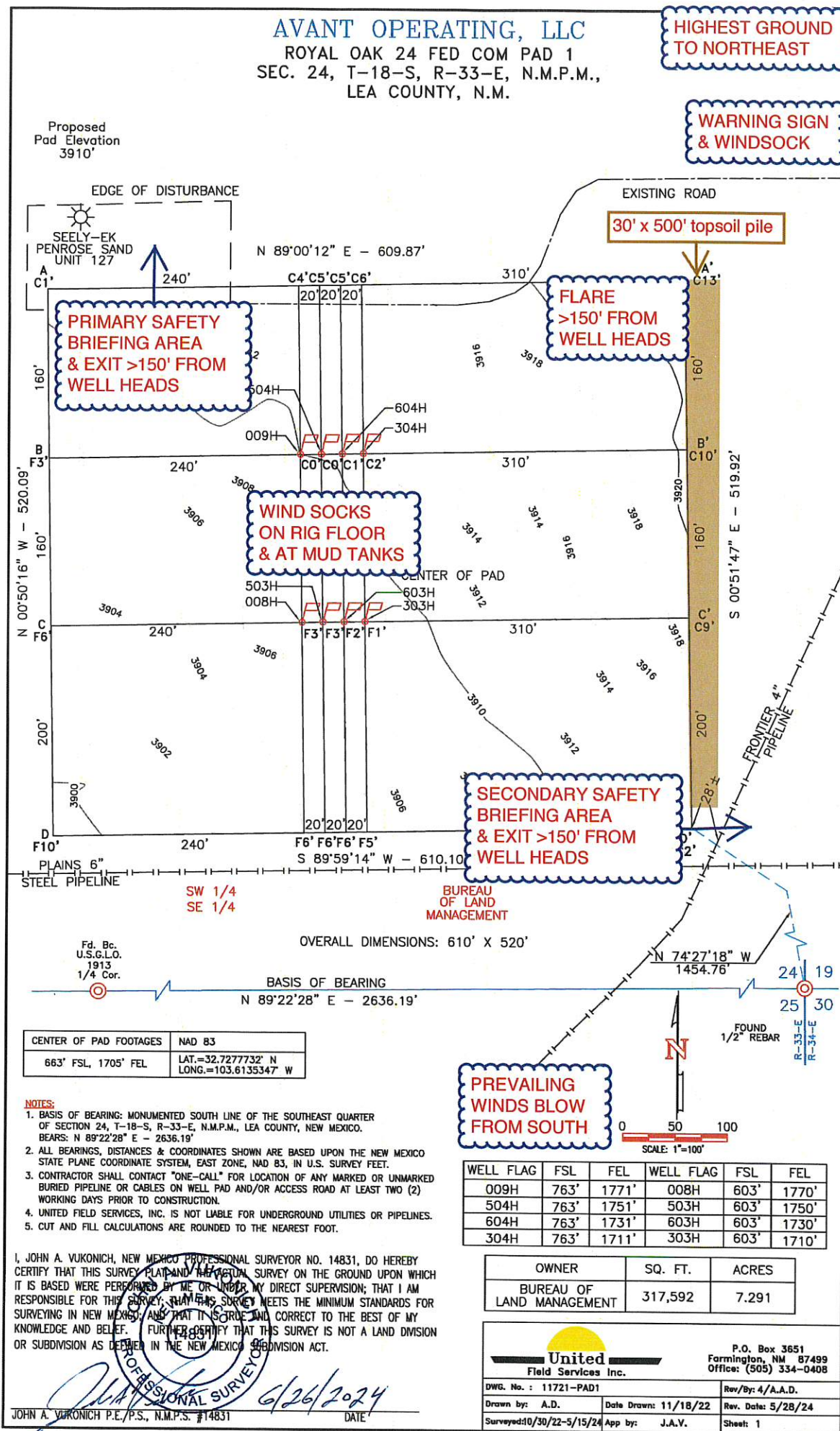
Residents within 2 miles

None

Air Evacuation

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

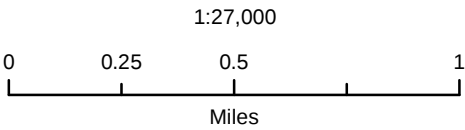
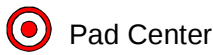




Avant Operating, LLC

Royal Oak 24 Federal Com
Pad 1
H2S Contingency Plan:
Radius Map

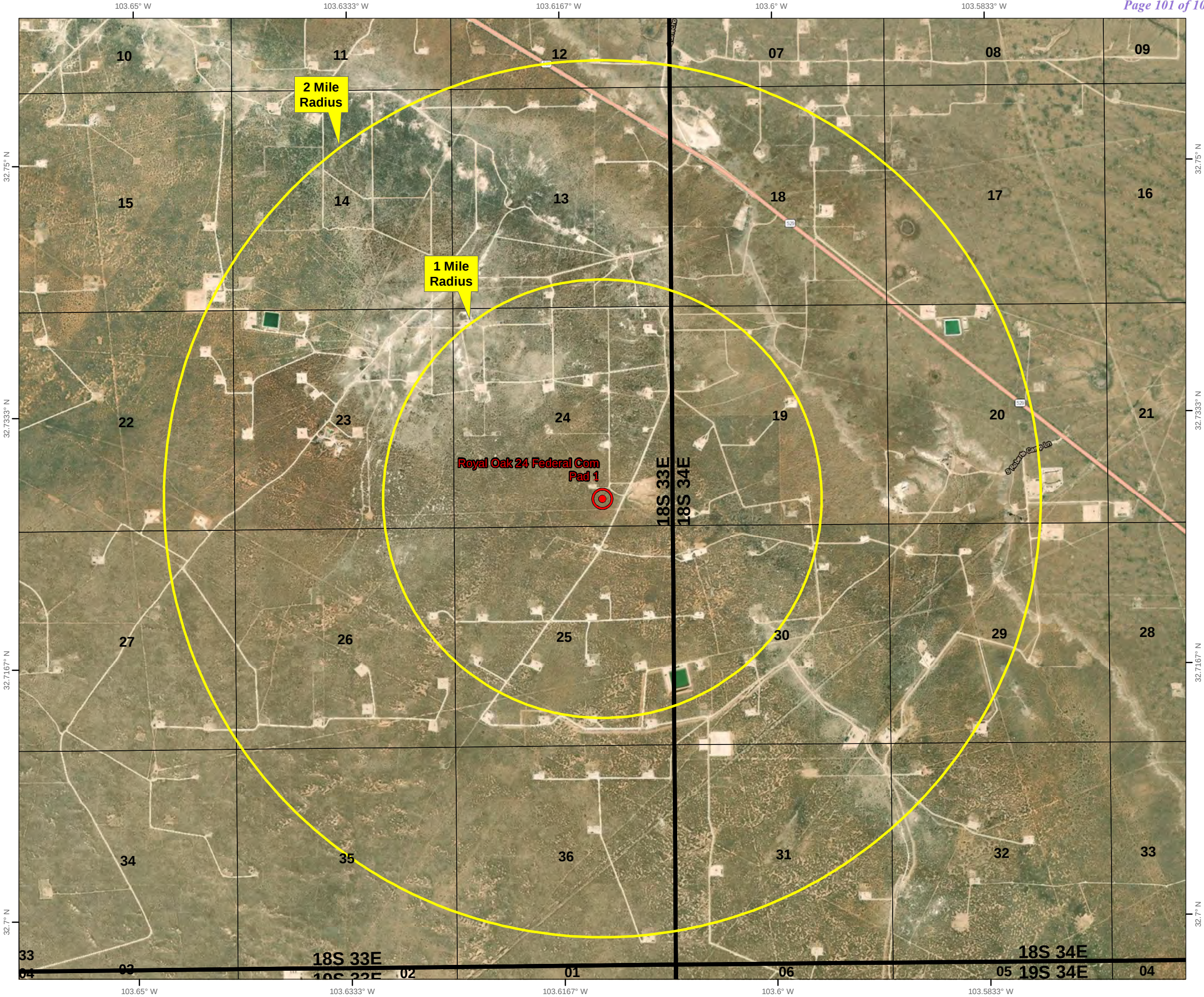
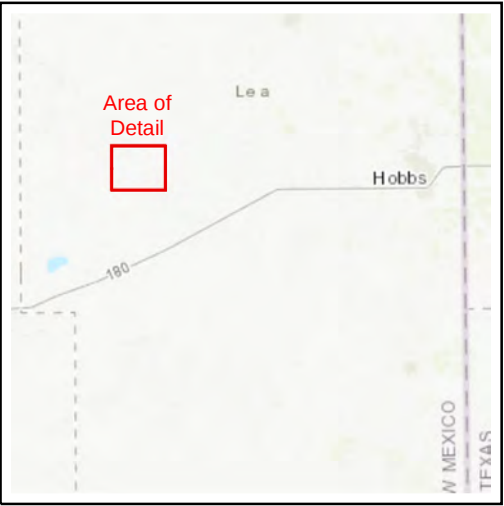
Section 24, Township 18S, Range 33E
Lea County, New Mexico



NAD 1983 New Mexico State Plane East
FIPS 3001 Feet



Prepared by Permits West, Inc., July 24, 2024
for Avant Operating, LLC



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

CONDITIONS

Action 410357

CONDITIONS

Operator: Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202	OGRID: 330396
	Action Number: 410357
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
twelem	Cement is required to circulate on both surface and intermediate1 strings of casing.	12/10/2024
twelem	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	12/10/2024
pkautz	File As Drilled C-102 and a directional Survey with C-104 completion packet.	12/28/2024
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.	12/28/2024
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.	12/28/2024