

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. 30-025-54153
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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature	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)



Approval Date: 11/14/2024

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 30-025-54153	Pool Code 21650	Pool Name E-K; Bone Spring
Property Code 335845	Property Name ROYAL OAK 24 FED COM	Well Number 303H
OGRID No. 330396	Operator Name AVANT OPERATING, LLC	Ground Level Elevation 3908.7
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		603 FSL	1710 FEL	32.7276077° N	103.6135500° W	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
O	36	18 S	33 E		100 FSL	1650 FEL	32.6972032° N	103.6133200° W	LEA

Dedicated Acres 1280	Infill or Defining Well Infill	Defining Well API	Overlapping Spacing Unit (Y/N) No	Consolidation Code
Order Numbers. R-23452			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
B	25	18 S	33 E		50 FNL	1650 FEL	32.7258136° N	103.6133528° W	LEA

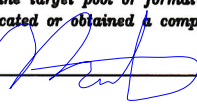
First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
B	25	18 S	33 E		100 FNL	1650 FEL	32.7256762° N	103.6133526° W	LEA

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
O	36	18 S	33 E		100 FSL	1650 FEL	32.6972032° N	103.6133200° 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
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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.

ACREAGE DEDICATION PLATS

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

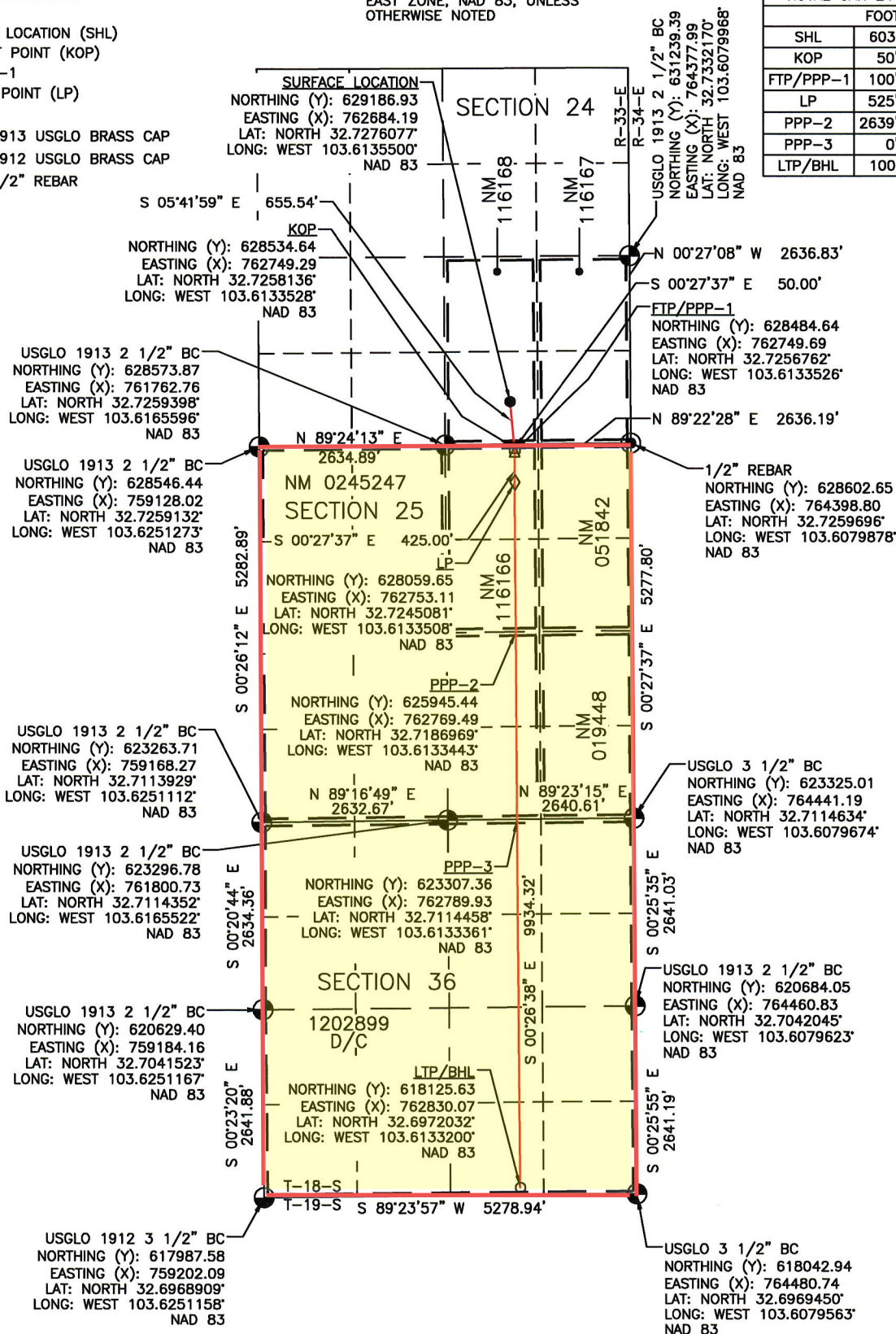
UFSI PROJECT NO. 11721

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 303H		
FOOTAGES		
SHL	603' FSL	1710' FEL
KOP	50' FNL	1650' FEL
FTP/PPP-1	100' FNL	1650' FEL
LP	525' FNL	1650' FEL
PPP-2	2639' FNL	1651' FEL
PPP-3	0' FNL	1651' FEL
LTP/BHL	100' FSL	1650' FEL



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

Submit Electronically
Via E-permitting

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

11/14/2024

APD ID: 10400094681

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: 303H

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
14497982	QUATERNARY	3909	0	0	OTHER : Caliche	USEABLE WATER	N
14497983	RUSTLER ANHYDRITE	2295	1614	1614	ANHYDRITE	NONE	N
14497987	SALADO	2110	1799	1799	SALT	NONE	N
14497986	YATES	287	3622	3633	DOLOMITE	NATURAL GAS, OIL	N
14497988	CAPITAN REEF	-957	4866	4887	LIMESTONE	USEABLE WATER	N
14497993	CHERRY CANYON	-1613	5522	5549	SANDSTONE	NATURAL GAS, OIL	N
14497994	BRUSHY CANYON	-2283	6192	6224	SANDSTONE	NATURAL GAS, OIL	N
14497991	BONE SPRING	-3590	7499	7540	SANDSTONE	NATURAL GAS, OIL	N
14497996	FIRST BONE SPRING SAND	-4873	8782	8925	SHALE	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

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

Operator Name: AVANT OPERATING LLC**Well Name:** ROYAL OAK 25 FED COM**Well Number:** 303H

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	17.5	13.375	NEW	API	N	0	1639	0	1639	3909	2270	1639	J-55	54.5	OTHER - BTC	1.125	1.125	DRY	1.6	DRY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	4000	0	4000	3869	-91	4000	J-55	40	OTHER - BTC	1.125	1.125	DRY	1.6	DRY	1.6
3	INTERMEDIATE	12.25	9.625	NEW	API	Y	4000	5499	4000	5472	-95	-1563	1499	HCL-80	40	OTHER - BTC	1.125	1.125	DRY	1.6	DRY	1.6
4	PRODUCTION	8.75	5.5	NEW	NON API	N	0	19077	0	8832	3869	-4923	19077	HCP-110	20	OTHER - GBCD	1.125	1.125	DRY	1.6	DRY	1.6

Casing Attachments

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 303H

Casing Attachments

Casing ID: 1	String	SURFACE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Updated_Royal_Oak_Casing_Design_Criteria_20240821135117.pdf		
Casing ID: 2	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Updated_Royal_Oak_Casing_Design_Criteria_20240821135135.pdf		
Casing Design Assumptions and Worksheet(s):		
Updated_Royal_Oak_Casing_Design_Criteria_20240821135142.pdf		
Casing ID: 3	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Updated_Royal_Oak_Casing_Design_Criteria_20240821135212.pdf		
Casing Design Assumptions and Worksheet(s):		
Updated_Royal_Oak_Casing_Design_Criteria_20240821135217.pdf		

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 303H

Casing Attachments

Casing ID: 4 String PRODUCTION

Inspection Document:

Spec Document:
5.5in_GBCD_Casing_Spec_20240110100324.pdf

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):
Updated_Royal_Oak_Casing_Design_Criteria_20240821135047.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
SURFACE	Lead		0	1639	720	1.9	12.8	1368	50	35% Class B Poz + 65% Class C	6% Gel+5% SALT+0.25PPS Pol-E-Flake+0.005GPS
SURFACE	Tail		1311	1639	235	1.33	14.8	313	20	Class C	1% CaCl2 + 0.005 gal/sack No Foam V1A
INTERMEDIATE	Lead		0	5499	865	1.9	12.8	1643	20	35% Class B Poz + 65% Class C	6% Gel+5% SALT+0.25PPS Pol-E-Flake+0.005GPS
INTERMEDIATE	Tail		4399	5499	320	1.36	14.8	435	20	Class C	5% SALT+0.005GPS NoFoam V1A
PRODUCTION	Lead		0	1907 7	750	3.38	10.7	2535	50	100% ProLite	5PPS Plexcrete STE+2% SMS+0.65% R-1300+0.2% FL-17+0.005GPS NoFoam V1A
PRODUCTION	Tail		8395	1907 7	2685	1.21	14.5	3249	20	50% Class B Poz + 50% Class H	5% SALT+0.05% RCKCAS-100+0.5% R-33+0.5% FL-17+0.5% MagBond+0.005GPS NoFoam V1A

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 303H

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

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	9.9							
1639	5499	OTHER : Brine	10	10							
5499	8395	OTHER : Cut Brine	9.2	9.5							
8395	9145	OTHER : Cut Brine	9.5	9.5							
9145	1907 7	OIL-BASED MUD	9.2	9.2							

Operator Name: AVANT OPERATING LLC**Well Name:** ROYAL OAK 25 FED COM**Well Number:** 303H

Section 6 - Test, Logging, Coring

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

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

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

GAMMA RAY LOG,

Coring operation description for the well:

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

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5335**Anticipated Surface Pressure:** 3391**Anticipated Bottom Hole Temperature(F):** 151**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_20240821140403.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Royal_Oak_24_Fed_Com_303H_Plan_0.1_Report_20240821140424.pdf

Royal_Oak_24_Fed_Com_303H_Plan_0.1_Anti_Collision_20240821140437.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:

Flex_Line_Certification_20240310213115.pdf

Royal_Oak_25_Fed_Com_303H_Cement_Proposal_20240821140442.pdf

Royal_Oak_25_Fed_Com_303H_WBS_Prelim_20240821140446.pdf

Avant_Natural_Resources___3_String_Bone_Spring_Well___AES_VERT_MP_20240821140521.pdf

3_string_Multi_Wellhead_Specs_20240913152857.pdf

Other Variance attachment:

303H_Royal_Casing_Cementing_Variance_Request_20230927180844.pdf

Avant___Offline_Cementing_Procedure_20240808130107.pdf

Operator Name: AVANT OPERATING LLC

Well Name: ROYAL OAK 25 FED COM

Well Number: 303H

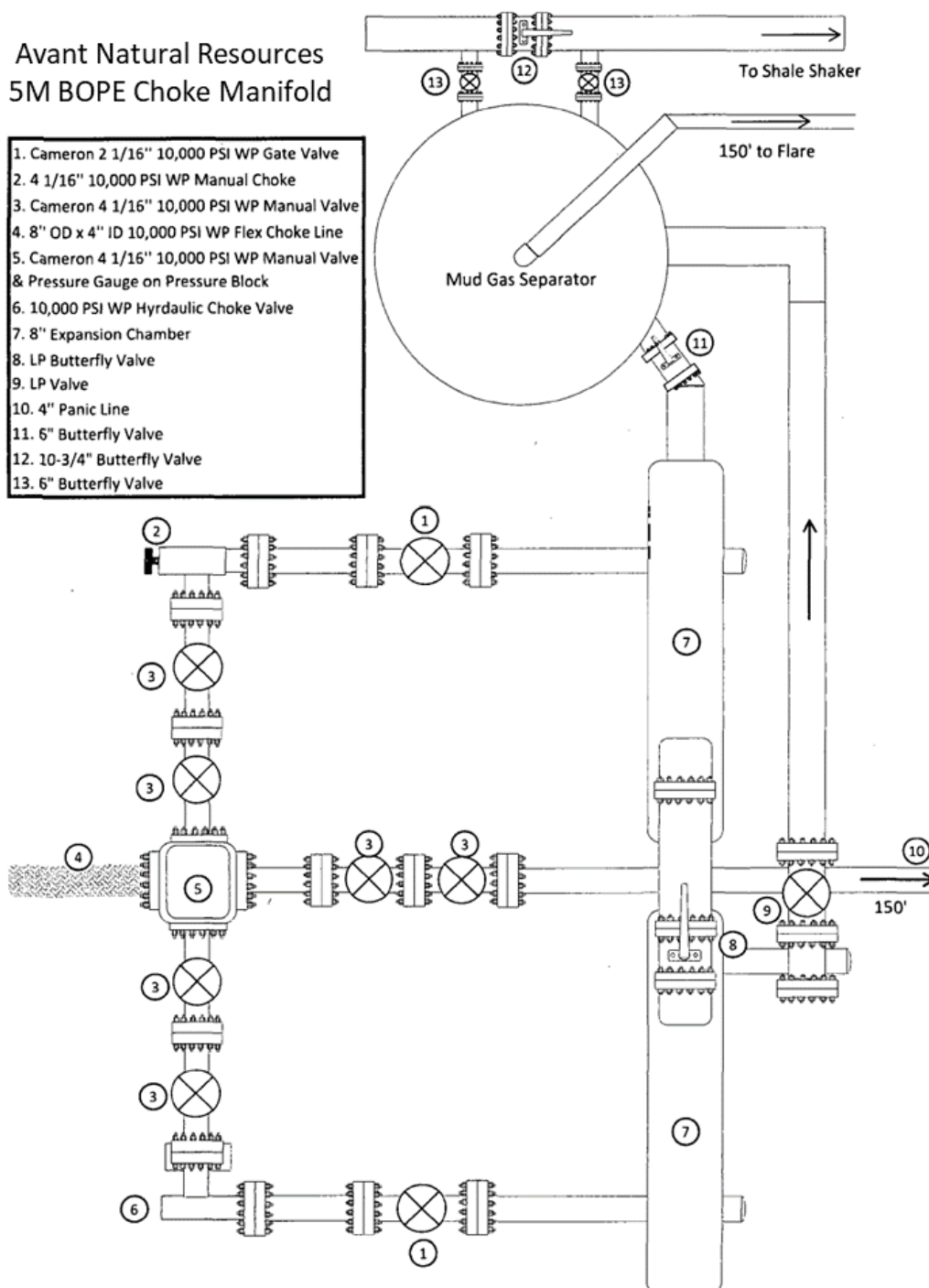
Avant_Surface_Casing_Cement_Variance_20240808130114.pdf

CONFIDENTIAL

Choke Manifold Diagram

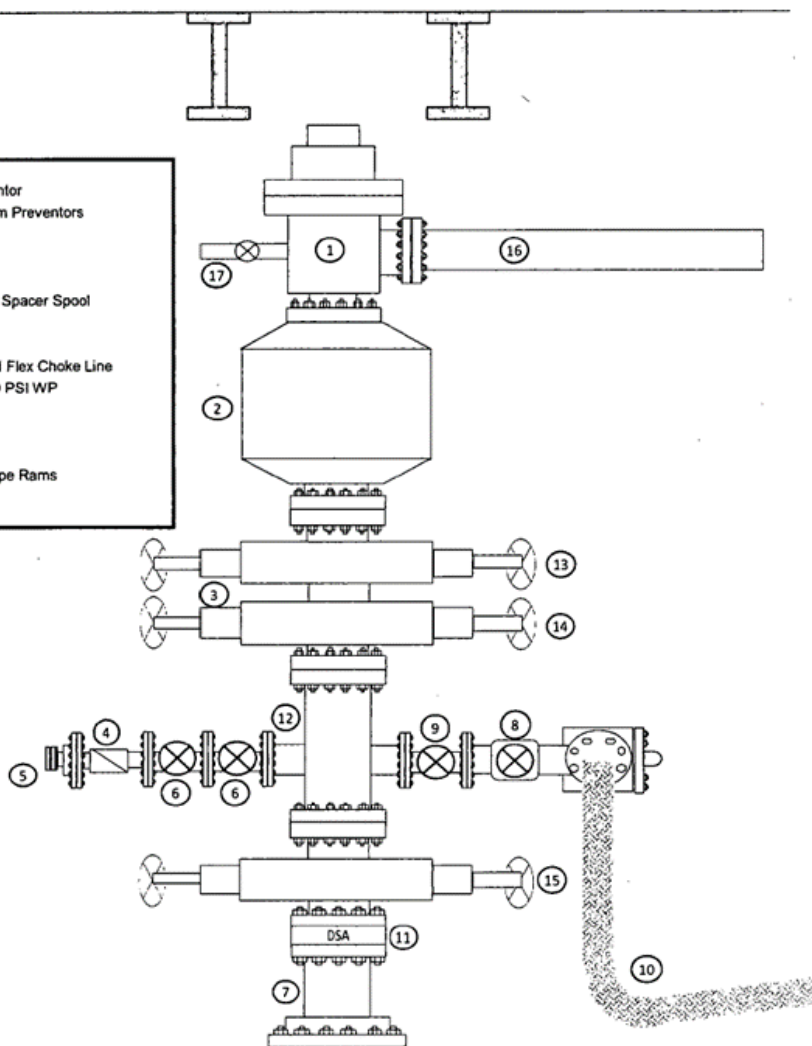
Avant Natural Resources
5M BOPE Choke Manifold

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:

This document is for general information only. It should not, therefore, be relied upon for any specific application without independent competent professional examination and verification of its accuracy, suitability, and applicability. Anyone making use of this material does so at his own risk and assumes any and all liability resulting from such use. Centric Pipe, LLC disclaims any and all expressed or implied warranties of merchantability and/or fitness for any general or particular purpose.

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.

Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 303H

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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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 303H					
Well Position	+N/-S	-60.3 usft	Northing:	629,186.93 usft	Latitude:	32.727608
	+E/-W	-4.3 usft	Easting:	762,684.19 usft	Longitude:	-103.613550
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,908.7 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	49,721.29026818

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	-60.3	-4.3	179.24

Plan Survey Tool Program	Date	7/22/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	19,077.1 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	-60.3	-4.3	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	-60.3	-4.3	0.00	0.00	0.00	0.00	
2,363.7	7.27	174.30	2,362.7	-83.2	-2.0	2.00	2.00	0.00	174.30	
7,177.0	7.27	174.30	7,137.3	-689.6	58.5	0.00	0.00	0.00	0.00	
7,540.7	0.00	0.00	7,500.0	-712.6	60.8	2.00	-2.00	0.00	180.00	
8,395.2	0.00	0.00	8,354.5	-712.6	60.8	0.00	0.00	0.00	0.00	
9,145.2	90.00	179.56	8,832.0	-1,190.0	64.5	12.00	12.00	0.00	179.56	
19,077.1	90.00	179.56	8,832.0	-11,121.6	141.6	0.00	0.00	0.00	0.00	LTP/BHL - Royal Oak

Planning Report

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Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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	-60.3	-4.3	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	-60.3	-4.3	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	-60.3	-4.3	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	-60.3	-4.3	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	-60.3	-4.3	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	-60.3	-4.3	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	-60.3	-4.3	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	-60.3	-4.3	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	-60.3	-4.3	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,614.0	0.00	0.00	1,614.0	-60.3	-4.3	0.0	0.00	0.00	0.00
RUSTLER									
1,700.0	0.00	0.00	1,700.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,799.0	0.00	0.00	1,799.0	-60.3	-4.3	0.0	0.00	0.00	0.00
SOLADO									
1,800.0	0.00	0.00	1,800.0	-60.3	-4.3	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	-60.3	-4.3	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	-60.3	-4.3	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
2,100.0	2.00	174.30	2,100.0	-62.0	-4.1	1.7	2.00	2.00	0.00
2,200.0	4.00	174.30	2,199.8	-67.2	-3.6	7.0	2.00	2.00	0.00
2,300.0	6.00	174.30	2,299.5	-75.9	-2.7	15.6	2.00	2.00	0.00
2,363.7	7.27	174.30	2,362.7	-83.2	-2.0	23.0	2.00	2.00	0.00
Start 4813.3 hold at 2363.7 MD									
2,400.0	7.27	174.30	2,398.7	-87.8	-1.6	27.5	0.00	0.00	0.00
2,500.0	7.27	174.30	2,497.9	-100.4	-0.3	40.2	0.00	0.00	0.00
2,600.0	7.27	174.30	2,597.1	-113.0	1.0	52.8	0.00	0.00	0.00
2,700.0	7.27	174.30	2,696.3	-125.6	2.2	65.4	0.00	0.00	0.00
2,800.0	7.27	174.30	2,795.5	-138.2	3.5	78.0	0.00	0.00	0.00
2,900.0	7.27	174.30	2,894.7	-150.8	4.7	90.6	0.00	0.00	0.00
3,000.0	7.27	174.30	2,993.9	-163.4	6.0	103.2	0.00	0.00	0.00
3,100.0	7.27	174.30	3,093.1	-176.0	7.2	115.8	0.00	0.00	0.00
3,200.0	7.27	174.30	3,192.3	-188.6	8.5	128.5	0.00	0.00	0.00
3,300.0	7.27	174.30	3,291.5	-201.2	9.8	141.1	0.00	0.00	0.00
3,400.0	7.27	174.30	3,390.7	-213.8	11.0	153.7	0.00	0.00	0.00
3,500.0	7.27	174.30	3,489.9	-226.4	12.3	166.3	0.00	0.00	0.00
3,600.0	7.27	174.30	3,589.1	-239.0	13.5	178.9	0.00	0.00	0.00
3,633.2	7.27	174.30	3,622.0	-243.1	13.9	183.1	0.00	0.00	0.00
YATES									
3,700.0	7.27	174.30	3,688.3	-251.6	14.8	191.5	0.00	0.00	0.00
3,800.0	7.27	174.30	3,787.5	-264.2	16.0	204.1	0.00	0.00	0.00
3,900.0	7.27	174.30	3,886.7	-276.8	17.3	216.8	0.00	0.00	0.00
4,000.0	7.27	174.30	3,985.9	-289.4	18.6	229.4	0.00	0.00	0.00
4,100.0	7.27	174.30	4,085.1	-302.0	19.8	242.0	0.00	0.00	0.00
4,200.0	7.27	174.30	4,184.2	-314.5	21.1	254.6	0.00	0.00	0.00
4,300.0	7.27	174.30	4,283.4	-327.1	22.3	267.2	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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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	7.27	174.30	4,382.6	-339.7	23.6	279.8	0.00	0.00	0.00
4,500.0	7.27	174.30	4,481.8	-352.3	24.8	292.4	0.00	0.00	0.00
4,600.0	7.27	174.30	4,581.0	-364.9	26.1	305.1	0.00	0.00	0.00
4,700.0	7.27	174.30	4,680.2	-377.5	27.4	317.7	0.00	0.00	0.00
4,800.0	7.27	174.30	4,779.4	-390.1	28.6	330.3	0.00	0.00	0.00
4,887.3	7.27	174.30	4,866.0	-401.1	29.7	341.3	0.00	0.00	0.00
CAPITAN_REEF									
4,900.0	7.27	174.30	4,878.6	-402.7	29.9	342.9	0.00	0.00	0.00
5,000.0	7.27	174.30	4,977.8	-415.3	31.1	355.5	0.00	0.00	0.00
5,100.0	7.27	174.30	5,077.0	-427.9	32.4	368.1	0.00	0.00	0.00
5,200.0	7.27	174.30	5,176.2	-440.5	33.6	380.7	0.00	0.00	0.00
5,300.0	7.27	174.30	5,275.4	-453.1	34.9	393.4	0.00	0.00	0.00
5,400.0	7.27	174.30	5,374.6	-465.7	36.2	406.0	0.00	0.00	0.00
5,500.0	7.27	174.30	5,473.8	-478.3	37.4	418.6	0.00	0.00	0.00
5,548.6	7.27	174.30	5,522.0	-484.5	38.0	424.7	0.00	0.00	0.00
CHERRY_CNYN									
5,600.0	7.27	174.30	5,573.0	-490.9	38.7	431.2	0.00	0.00	0.00
5,700.0	7.27	174.30	5,672.2	-503.5	39.9	443.8	0.00	0.00	0.00
5,800.0	7.27	174.30	5,771.4	-516.1	41.2	456.4	0.00	0.00	0.00
5,900.0	7.27	174.30	5,870.6	-528.7	42.4	469.0	0.00	0.00	0.00
6,000.0	7.27	174.30	5,969.8	-541.3	43.7	481.7	0.00	0.00	0.00
6,100.0	7.27	174.30	6,069.0	-553.9	45.0	494.3	0.00	0.00	0.00
6,200.0	7.27	174.30	6,168.2	-566.5	46.2	506.9	0.00	0.00	0.00
6,224.0	7.27	174.30	6,192.0	-569.6	46.5	509.9	0.00	0.00	0.00
BRUSHY_CNYN									
6,300.0	7.27	174.30	6,267.3	-579.1	47.5	519.5	0.00	0.00	0.00
6,400.0	7.27	174.30	6,366.5	-591.7	48.7	532.1	0.00	0.00	0.00
6,500.0	7.27	174.30	6,465.7	-604.3	50.0	544.7	0.00	0.00	0.00
6,600.0	7.27	174.30	6,564.9	-616.9	51.2	557.3	0.00	0.00	0.00
6,700.0	7.27	174.30	6,664.1	-629.5	52.5	570.0	0.00	0.00	0.00
6,800.0	7.27	174.30	6,763.3	-642.1	53.8	582.6	0.00	0.00	0.00
6,900.0	7.27	174.30	6,862.5	-654.7	55.0	595.2	0.00	0.00	0.00
7,000.0	7.27	174.30	6,961.7	-667.3	56.3	607.8	0.00	0.00	0.00
7,100.0	7.27	174.30	7,060.9	-679.9	57.5	620.4	0.00	0.00	0.00
7,177.0	7.27	174.30	7,137.3	-689.6	58.5	630.1	0.00	0.00	0.00
Start Drop -2.00									
7,200.0	6.81	174.30	7,160.1	-692.4	58.8	632.9	2.00	-2.00	0.00
7,252.2	5.77	174.30	7,212.0	-698.1	59.4	638.6	2.00	-2.00	0.00
LWR_BYCN_MKR									
7,300.0	4.81	174.30	7,259.6	-702.5	59.8	643.0	2.00	-2.00	0.00
7,400.0	2.81	174.30	7,359.4	-709.1	60.4	649.7	2.00	-2.00	0.00
7,500.0	0.81	174.30	7,459.3	-712.3	60.8	652.8	2.00	-2.00	0.00
7,539.7	0.02	174.30	7,499.0	-712.5	60.8	653.1	2.00	-2.00	0.00
BSPG_LIME *									
7,540.7	0.00	0.00	7,500.0	-712.6	60.8	653.1	2.00	-2.00	0.00
Start 854.5 hold at 7540.7 MD									
7,600.0	0.00	0.00	7,559.3	-712.6	60.8	653.1	0.00	0.00	0.00
7,700.0	0.00	0.00	7,659.3	-712.6	60.8	653.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,759.3	-712.6	60.8	653.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,859.3	-712.6	60.8	653.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,959.3	-712.6	60.8	653.1	0.00	0.00	0.00
8,100.0	0.00	0.00	8,059.3	-712.6	60.8	653.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,159.3	-712.6	60.8	653.1	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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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)
8,300.0	0.00	0.00	8,259.3	-712.6	60.8	653.1	0.00	0.00	0.00
8,395.2	0.00	0.00	8,354.5	-712.6	60.8	653.1	0.00	0.00	0.00
KOP #2 - Start Build 12.00 - KOP - Royal Oak 24 Fed Com 303H									
8,400.0	0.57	179.56	8,359.3	-712.6	60.8	653.1	11.91	11.91	0.00
8,425.0	3.57	179.56	8,384.3	-713.5	60.8	654.0	12.00	12.00	0.00
8,450.0	6.57	179.56	8,409.2	-715.7	60.8	656.2	12.00	12.00	0.00
8,475.0	9.57	179.56	8,433.9	-719.2	60.8	659.7	12.00	12.00	0.00
8,500.0	12.57	179.56	8,458.5	-724.0	60.9	664.5	12.00	12.00	0.00
8,525.0	15.57	179.56	8,482.7	-730.1	60.9	670.6	12.00	12.00	0.00
8,550.0	18.57	179.56	8,506.6	-737.4	61.0	678.0	12.00	12.00	0.00
8,575.0	21.57	179.56	8,530.1	-746.0	61.1	686.5	12.00	12.00	0.00
8,600.0	24.57	179.56	8,553.1	-755.8	61.1	696.3	12.00	12.00	0.00
8,625.0	27.57	179.56	8,575.5	-766.8	61.2	707.3	12.00	12.00	0.00
8,650.0	30.57	179.56	8,597.4	-778.9	61.3	719.5	12.00	12.00	0.00
8,675.0	33.57	179.56	8,618.6	-792.2	61.4	732.7	12.00	12.00	0.00
8,700.0	36.57	179.56	8,639.0	-806.6	61.5	747.1	12.00	12.00	0.00
8,725.0	39.57	179.56	8,658.7	-822.0	61.6	762.5	12.00	12.00	0.00
8,750.0	42.57	179.56	8,677.6	-838.4	61.8	778.9	12.00	12.00	0.00
8,775.0	45.57	179.56	8,695.5	-855.8	61.9	796.3	12.00	12.00	0.00
8,799.7	48.54	179.56	8,712.3	-873.9	62.0	814.4	12.00	12.00	0.00
FTP - Royal Oak 24 Fed Com 303H									
8,800.0	48.57	179.56	8,712.5	-874.1	62.0	814.6	12.00	12.00	0.00
8,825.0	51.57	179.56	8,728.6	-893.3	62.2	833.8	12.00	12.00	0.00
8,850.0	54.57	179.56	8,743.6	-913.2	62.3	853.8	12.00	12.00	0.00
8,875.0	57.57	179.56	8,757.6	-934.0	62.5	874.5	12.00	12.00	0.00
8,900.0	60.57	179.56	8,770.4	-955.4	62.7	896.0	12.00	12.00	0.00
8,924.8	63.54	179.56	8,782.0	-977.3	62.8	917.8	12.00	12.00	0.00
FBSG_SD *									
8,925.0	63.57	179.56	8,782.1	-977.5	62.8	918.1	12.00	12.00	0.00
8,950.0	66.57	179.56	8,792.6	-1,000.2	63.0	940.7	12.00	12.00	0.00
8,975.0	69.57	179.56	8,802.0	-1,023.4	63.2	963.9	12.00	12.00	0.00
9,000.0	72.57	179.56	8,810.1	-1,047.0	63.4	987.6	12.00	12.00	0.00
9,025.0	75.57	179.56	8,816.9	-1,071.0	63.6	1,011.6	12.00	12.00	0.00
9,050.0	78.57	179.56	8,822.5	-1,095.4	63.8	1,036.0	12.00	12.00	0.00
9,075.0	81.57	179.56	8,826.8	-1,120.0	64.0	1,060.6	12.00	12.00	0.00
9,100.0	84.57	179.56	8,829.9	-1,144.8	64.1	1,085.4	12.00	12.00	0.00
9,125.0	87.57	179.56	8,831.6	-1,169.8	64.3	1,110.3	12.00	12.00	0.00
9,145.2	90.00	179.56	8,832.0	-1,190.0	64.5	1,130.5	12.00	12.00	0.00
LP - Start 9931.9 hold at 9145.2 MD									
9,200.0	90.00	179.56	8,832.0	-1,244.8	64.9	1,185.3	0.00	0.00	0.00
9,300.0	90.00	179.56	8,832.0	-1,344.8	65.7	1,285.3	0.00	0.00	0.00
9,400.0	90.00	179.56	8,832.0	-1,444.8	66.5	1,385.3	0.00	0.00	0.00
9,500.0	90.00	179.56	8,832.0	-1,544.8	67.3	1,485.3	0.00	0.00	0.00
9,600.0	90.00	179.56	8,832.0	-1,644.8	68.0	1,585.3	0.00	0.00	0.00
9,700.0	90.00	179.56	8,832.0	-1,744.8	68.8	1,685.3	0.00	0.00	0.00
9,800.0	90.00	179.56	8,832.0	-1,844.8	69.6	1,785.3	0.00	0.00	0.00
9,900.0	90.00	179.56	8,832.0	-1,944.8	70.4	1,885.3	0.00	0.00	0.00
10,000.0	90.00	179.56	8,832.0	-2,044.8	71.1	1,985.3	0.00	0.00	0.00
10,100.0	90.00	179.56	8,832.0	-2,144.7	71.9	2,085.3	0.00	0.00	0.00
10,200.0	90.00	179.56	8,832.0	-2,244.7	72.7	2,185.3	0.00	0.00	0.00
10,300.0	90.00	179.56	8,832.0	-2,344.7	73.5	2,285.3	0.00	0.00	0.00
10,400.0	90.00	179.56	8,832.0	-2,444.7	74.2	2,385.3	0.00	0.00	0.00
10,500.0	90.00	179.56	8,832.0	-2,544.7	75.0	2,485.3	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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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)
10,600.0	90.00	179.56	8,832.0	-2,644.7	75.8	2,585.3	0.00	0.00	0.00
10,700.0	90.00	179.56	8,832.0	-2,744.7	76.6	2,685.3	0.00	0.00	0.00
10,800.0	90.00	179.56	8,832.0	-2,844.7	77.3	2,785.3	0.00	0.00	0.00
10,900.0	90.00	179.56	8,832.0	-2,944.7	78.1	2,885.3	0.00	0.00	0.00
11,000.0	90.00	179.56	8,832.0	-3,044.7	78.9	2,985.3	0.00	0.00	0.00
11,100.0	90.00	179.56	8,832.0	-3,144.7	79.7	3,085.3	0.00	0.00	0.00
11,200.0	90.00	179.56	8,832.0	-3,244.7	80.4	3,185.3	0.00	0.00	0.00
11,300.0	90.00	179.56	8,832.0	-3,344.7	81.2	3,285.3	0.00	0.00	0.00
11,400.0	90.00	179.56	8,832.0	-3,444.7	82.0	3,385.3	0.00	0.00	0.00
11,500.0	90.00	179.56	8,832.0	-3,544.7	82.8	3,485.3	0.00	0.00	0.00
11,600.0	90.00	179.56	8,832.0	-3,644.7	83.5	3,585.3	0.00	0.00	0.00
11,700.0	90.00	179.56	8,832.0	-3,744.7	84.3	3,685.3	0.00	0.00	0.00
11,800.0	90.00	179.56	8,832.0	-3,844.7	85.1	3,785.3	0.00	0.00	0.00
11,900.0	90.00	179.56	8,832.0	-3,944.7	85.9	3,885.3	0.00	0.00	0.00
12,000.0	90.00	179.56	8,832.0	-4,044.7	86.7	3,985.3	0.00	0.00	0.00
12,100.0	90.00	179.56	8,832.0	-4,144.7	87.4	4,085.3	0.00	0.00	0.00
12,200.0	90.00	179.56	8,832.0	-4,244.7	88.2	4,185.3	0.00	0.00	0.00
12,300.0	90.00	179.56	8,832.0	-4,344.7	89.0	4,285.3	0.00	0.00	0.00
12,400.0	90.00	179.56	8,832.0	-4,444.7	89.8	4,385.3	0.00	0.00	0.00
12,500.0	90.00	179.56	8,832.0	-4,544.7	90.5	4,485.3	0.00	0.00	0.00
12,600.0	90.00	179.56	8,832.0	-4,644.7	91.3	4,585.3	0.00	0.00	0.00
12,700.0	90.00	179.56	8,832.0	-4,744.7	92.1	4,685.3	0.00	0.00	0.00
12,800.0	90.00	179.56	8,832.0	-4,844.7	92.9	4,785.3	0.00	0.00	0.00
12,900.0	90.00	179.56	8,832.0	-4,944.7	93.6	4,885.3	0.00	0.00	0.00
13,000.0	90.00	179.56	8,832.0	-5,044.7	94.4	4,985.3	0.00	0.00	0.00
13,100.0	90.00	179.56	8,832.0	-5,144.7	95.2	5,085.3	0.00	0.00	0.00
13,200.0	90.00	179.56	8,832.0	-5,244.7	96.0	5,185.3	0.00	0.00	0.00
13,300.0	90.00	179.56	8,832.0	-5,344.7	96.7	5,285.3	0.00	0.00	0.00
13,400.0	90.00	179.56	8,832.0	-5,444.6	97.5	5,385.3	0.00	0.00	0.00
13,500.0	90.00	179.56	8,832.0	-5,544.6	98.3	5,485.3	0.00	0.00	0.00
13,600.0	90.00	179.56	8,832.0	-5,644.6	99.1	5,585.3	0.00	0.00	0.00
13,700.0	90.00	179.56	8,832.0	-5,744.6	99.8	5,685.3	0.00	0.00	0.00
13,800.0	90.00	179.56	8,832.0	-5,844.6	100.6	5,785.3	0.00	0.00	0.00
13,900.0	90.00	179.56	8,832.0	-5,944.6	101.4	5,885.3	0.00	0.00	0.00
14,000.0	90.00	179.56	8,832.0	-6,044.6	102.2	5,985.3	0.00	0.00	0.00
14,100.0	90.00	179.56	8,832.0	-6,144.6	102.9	6,085.3	0.00	0.00	0.00
14,200.0	90.00	179.56	8,832.0	-6,244.6	103.7	6,185.3	0.00	0.00	0.00
14,300.0	90.00	179.56	8,832.0	-6,344.6	104.5	6,285.3	0.00	0.00	0.00
14,400.0	90.00	179.56	8,832.0	-6,444.6	105.3	6,385.2	0.00	0.00	0.00
14,500.0	90.00	179.56	8,832.0	-6,544.6	106.1	6,485.2	0.00	0.00	0.00
14,600.0	90.00	179.56	8,832.0	-6,644.6	106.8	6,585.2	0.00	0.00	0.00
14,700.0	90.00	179.56	8,832.0	-6,744.6	107.6	6,685.2	0.00	0.00	0.00
14,800.0	90.00	179.56	8,832.0	-6,844.6	108.4	6,785.2	0.00	0.00	0.00
14,900.0	90.00	179.56	8,832.0	-6,944.6	109.2	6,885.2	0.00	0.00	0.00
15,000.0	90.00	179.56	8,832.0	-7,044.6	109.9	6,985.2	0.00	0.00	0.00
15,100.0	90.00	179.56	8,832.0	-7,144.6	110.7	7,085.2	0.00	0.00	0.00
15,200.0	90.00	179.56	8,832.0	-7,244.6	111.5	7,185.2	0.00	0.00	0.00
15,300.0	90.00	179.56	8,832.0	-7,344.6	112.3	7,285.2	0.00	0.00	0.00
15,400.0	90.00	179.56	8,832.0	-7,444.6	113.0	7,385.2	0.00	0.00	0.00
15,500.0	90.00	179.56	8,832.0	-7,544.6	113.8	7,485.2	0.00	0.00	0.00
15,600.0	90.00	179.56	8,832.0	-7,644.6	114.6	7,585.2	0.00	0.00	0.00
15,700.0	90.00	179.56	8,832.0	-7,744.6	115.4	7,685.2	0.00	0.00	0.00
15,800.0	90.00	179.56	8,832.0	-7,844.6	116.1	7,785.2	0.00	0.00	0.00
15,900.0	90.00	179.56	8,832.0	-7,944.6	116.9	7,885.2	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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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)	
16,000.0	90.00	179.56	8,832.0	-8,044.6	117.7	7,985.2	0.00	0.00	0.00	
16,100.0	90.00	179.56	8,832.0	-8,144.6	118.5	8,085.2	0.00	0.00	0.00	
16,200.0	90.00	179.56	8,832.0	-8,244.6	119.2	8,185.2	0.00	0.00	0.00	
16,300.0	90.00	179.56	8,832.0	-8,344.6	120.0	8,285.2	0.00	0.00	0.00	
16,400.0	90.00	179.56	8,832.0	-8,444.6	120.8	8,385.2	0.00	0.00	0.00	
16,500.0	90.00	179.56	8,832.0	-8,544.6	121.6	8,485.2	0.00	0.00	0.00	
16,600.0	90.00	179.56	8,832.0	-8,644.6	122.3	8,585.2	0.00	0.00	0.00	
16,700.0	90.00	179.56	8,832.0	-8,744.5	123.1	8,685.2	0.00	0.00	0.00	
16,800.0	90.00	179.56	8,832.0	-8,844.5	123.9	8,785.2	0.00	0.00	0.00	
16,900.0	90.00	179.56	8,832.0	-8,944.5	124.7	8,885.2	0.00	0.00	0.00	
17,000.0	90.00	179.56	8,832.0	-9,044.5	125.5	8,985.2	0.00	0.00	0.00	
17,100.0	90.00	179.56	8,832.0	-9,144.5	126.2	9,085.2	0.00	0.00	0.00	
17,200.0	90.00	179.56	8,832.0	-9,244.5	127.0	9,185.2	0.00	0.00	0.00	
17,300.0	90.00	179.56	8,832.0	-9,344.5	127.8	9,285.2	0.00	0.00	0.00	
17,400.0	90.00	179.56	8,832.0	-9,444.5	128.6	9,385.2	0.00	0.00	0.00	
17,500.0	90.00	179.56	8,832.0	-9,544.5	129.3	9,485.2	0.00	0.00	0.00	
17,600.0	90.00	179.56	8,832.0	-9,644.5	130.1	9,585.2	0.00	0.00	0.00	
17,700.0	90.00	179.56	8,832.0	-9,744.5	130.9	9,685.2	0.00	0.00	0.00	
17,800.0	90.00	179.56	8,832.0	-9,844.5	131.7	9,785.2	0.00	0.00	0.00	
17,900.0	90.00	179.56	8,832.0	-9,944.5	132.4	9,885.2	0.00	0.00	0.00	
18,000.0	90.00	179.56	8,832.0	-10,044.5	133.2	9,985.2	0.00	0.00	0.00	
18,100.0	90.00	179.56	8,832.0	-10,144.5	134.0	10,085.2	0.00	0.00	0.00	
18,200.0	90.00	179.56	8,832.0	-10,244.5	134.8	10,185.2	0.00	0.00	0.00	
18,300.0	90.00	179.56	8,832.0	-10,344.5	135.5	10,285.2	0.00	0.00	0.00	
18,400.0	90.00	179.56	8,832.0	-10,444.5	136.3	10,385.2	0.00	0.00	0.00	
18,500.0	90.00	179.56	8,832.0	-10,544.5	137.1	10,485.2	0.00	0.00	0.00	
18,600.0	90.00	179.56	8,832.0	-10,644.5	137.9	10,585.2	0.00	0.00	0.00	
18,700.0	90.00	179.56	8,832.0	-10,744.5	138.6	10,685.2	0.00	0.00	0.00	
18,800.0	90.00	179.56	8,832.0	-10,844.5	139.4	10,785.2	0.00	0.00	0.00	
18,900.0	90.00	179.56	8,832.0	-10,944.5	140.2	10,885.2	0.00	0.00	0.00	
19,000.0	90.00	179.56	8,832.0	-11,044.5	141.0	10,985.2	0.00	0.00	0.00	
19,077.1	90.00	179.56	8,832.0	-11,121.6	141.6	11,062.3	0.00	0.00	0.00	
TD at 19077.1 - LTP/BHL - Royal Oak 24 Fed Com 303H										

Design Targets										
Target Name										
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
- Shape										
KOP - Royal Oak 24 Fed - plan hits target center - Point	0.00	0.00	8,354.5	-712.6	60.8	628,534.64	762,749.29	32.725814		-103.613353
FTP - Royal Oak 24 Fed - plan misses target center by 163.4usft at 8799.7usft MD (8712.3 TVD, -873.9 N, 62.0 E) - Point	0.00	0.01	8,832.0	-762.6	61.2	628,484.64	762,749.69	32.725676		-103.613353
LTP/BHL - Royal Oak 24 - plan hits target center - Point	0.00	0.00	8,832.0	-11,121.6	141.6	618,125.63	762,830.07	32.697203		-103.613320

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 @ 3935.2usft (3935.2)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3935.2usft (3935.2)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 303H	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				
3,633.2	3,622.0	YATES				
4,887.3	4,866.0	CAPITAN_REEF				
5,548.6	5,522.0	CHERRY_CNYN				
6,224.0	6,192.0	BRUSHY_CNYN				
7,252.2	7,212.0	LWR_BYCN_MKR				
7,539.7	7,499.0	BSPG_LIME *				
8,924.8	8,782.0	FBSG__SD *				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,000.0	2,000.0	-60.3	-4.3	KOP - Start Build 2.00	
2,363.7	2,362.7	-83.2	-2.0	Start 4813.3 hold at 2363.7 MD	
7,177.0	7,137.3	-689.6	58.5	Start Drop -2.00	
7,540.7	7,500.0	-712.6	60.8	Start 854.5 hold at 7540.7 MD	
8,395.2	8,354.5	-712.6	60.8	KOP #2 - Start Build 12.00	
9,145.2	8,832.0	-1,190.0	64.5	LP - Start 9931.9 hold at 9145.2 MD	
19,077.1	8,832.0	-11,121.6	141.6	TD at 19077.1	

Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 303H

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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	19,077.1	Plan 0.1 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Royal Oak 24 Fed Com Pad 1						
Dorothy Federal 001 - OH - OH	13,212.2	8,768.9	1,081.7	814.3	4.046	CC, ES
Dorothy Federal 001 - OH - OH	13,300.0	8,767.4	1,085.2	816.9	4.045	SF
Edith Federal 002 - OH - OH	10,595.2	8,796.9	342.5	97.6	1.399	Level 3, CC
Edith Federal 002 - OH - OH	10,600.0	8,796.8	342.5	97.6	1.399	Level 3, ES, SF
EK-A, 8701 JV-P 001 - OH - OH	10,607.5	8,817.5	1,079.3	848.2	4.669	CC, ES
EK-A, 8701 JV-P 001 - OH - OH	10,700.0	8,816.4	1,083.3	851.2	4.667	SF
McElvain 004 - OH - OH	13,126.9	8,797.0	345.2	82.4	1.314	Level 3, CC, ES, SF
McElvain 007 - OH - OH	11,795.9	8,786.0	343.9	96.4	1.390	Level 3, CC
McElvain 007 - OH - OH	11,800.0	8,786.0	343.9	96.4	1.390	Level 3, ES, SF
Mescalero 36 State 003 - OH - OH	18,385.9	8,724.0	971.0	629.6	2.844	CC
Mescalero 36 State 003 - OH - OH	18,400.0	8,723.5	971.1	629.5	2.843	ES, SF
New Mexico 36 State 001 - OH - OH	14,450.0	8,763.8	346.6	64.0	1.227	Level 2, CC, ES, SF
New Mexico 36 State 002 - OH - OH	14,443.2	8,758.7	974.6	692.7	3.457	CC, ES
New Mexico 36 State 002 - OH - OH	14,500.0	8,758.0	976.2	693.7	3.455	SF
New Mexico 36 State 004 - OH - OH	15,787.6	8,739.5	348.0	55.6	1.190	Level 2, CC, ES, SF
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,000.0	1,998.6	60.0	46.1	4.323	CC, ES
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,200.0	2,196.9	63.3	48.1	4.164	SF
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	2,000.0	2,001.3	170.7	156.8	12.290	CC, ES
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	5,200.0	5,217.8	311.3	274.1	8.369	SF
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,003.7	2,007.2	160.1	146.2	11.498	CC, ES
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	19,077.1	19,267.6	1,320.0	992.6	4.032	SF
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,000.0	1,998.7	40.0	26.1	2.880	CC
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,100.0	2,098.7	40.2	25.6	2.755	ES
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,200.0	2,198.5	41.1	25.9	2.696	SF
Royal Oak 24 Fed Com 504H - OH - Plan 0.1	2,020.0	2,022.5	164.8	150.7	11.744	CC
Royal Oak 24 Fed Com 504H - OH - Plan 0.1	2,700.0	2,723.3	166.9	148.4	8.980	ES
Royal Oak 24 Fed Com 504H - OH - Plan 0.1	19,077.1	20,017.6	1,105.3	870.3	4.704	SF
Royal Oak 24 Fed Com 603H - OH - Plan 0.1	2,328.1	2,327.3	19.5	3.5	1.218	Level 2, CC
Royal Oak 24 Fed Com 603H - OH - Plan 0.1	2,400.0	2,399.2	19.8	3.3	1.200	Level 2, ES, SF
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,003.3	2,005.3	161.2	147.3	11.585	CC
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,100.0	2,105.5	161.8	147.2	11.094	ES
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	19,077.1	20,583.2	1,896.8	1,642.3	7.454	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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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						
Edith Federal 001 - OH - OH	13,103.8	8,778.4	1,325.9	1,051.8	4.837	CC, ES
Edith Federal 001 - OH - OH	13,200.0	8,776.7	1,329.4	1,054.3	4.832	SF
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	8,942.3	8,895.6	1,311.8	1,246.9	20.209	CC
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	19,077.1	19,039.4	1,319.4	1,004.1	4.184	ES, SF
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	8,812.4	8,922.2	1,481.8	1,417.4	23.031	CC, ES
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	19,077.1	20,455.2	1,926.0	1,674.2	7.648	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
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,200.0	8,832.0	8,804.0	8,802.8	55.3	186.9	-91.85	-5,247.8	1,177.7	2,284.2	2,059.5	224.71	10.165	
11,300.0	8,832.0	8,802.3	8,801.0	56.5	186.9	-91.76	-5,247.9	1,177.7	2,196.7	1,971.1	225.59	9.737	
11,400.0	8,832.0	8,800.5	8,799.3	57.7	186.9	-91.67	-5,247.9	1,177.7	2,110.2	1,883.6	226.58	9.313	
11,500.0	8,832.0	8,798.8	8,797.5	58.9	186.8	-91.57	-5,247.9	1,177.7	2,025.0	1,797.3	227.70	8.893	
11,600.0	8,832.0	8,797.0	8,795.8	60.2	186.8	-91.48	-5,248.0	1,177.7	1,941.2	1,712.3	228.96	8.478	
11,700.0	8,832.0	8,795.3	8,794.0	61.4	186.8	-91.39	-5,248.0	1,177.7	1,859.0	1,628.7	230.37	8.070	
11,800.0	8,832.0	8,793.6	8,792.3	62.7	186.7	-91.30	-5,248.0	1,177.7	1,778.7	1,546.7	231.95	7.668	
11,900.0	8,832.0	8,791.8	8,790.5	63.9	186.7	-91.20	-5,248.0	1,177.7	1,700.4	1,466.7	233.72	7.275	
12,000.0	8,832.0	8,790.1	8,788.8	65.2	186.6	-91.11	-5,248.1	1,177.7	1,624.5	1,388.8	235.68	6.893	
12,100.0	8,832.0	8,788.3	8,787.1	66.5	186.6	-91.02	-5,248.1	1,177.7	1,551.3	1,313.5	237.84	6.523	
12,200.0	8,832.0	8,786.6	8,785.3	67.8	186.6	-90.93	-5,248.1	1,177.7	1,481.3	1,241.1	240.21	6.167	
12,300.0	8,832.0	8,784.8	8,783.6	69.1	186.5	-90.84	-5,248.2	1,177.7	1,414.8	1,172.1	242.79	5.828	
12,400.0	8,832.0	8,783.1	8,781.8	70.4	186.5	-90.74	-5,248.2	1,177.7	1,352.6	1,107.0	245.56	5.508	
12,500.0	8,832.0	8,781.3	8,780.1	71.7	186.5	-90.65	-5,248.2	1,177.7	1,295.0	1,046.5	248.49	5.211	
12,600.0	8,832.0	8,779.6	8,778.3	73.0	186.4	-90.56	-5,248.3	1,177.7	1,242.8	991.3	251.54	4.941	
12,700.0	8,832.0	8,777.8	8,776.6	74.3	186.4	-90.47	-5,248.3	1,177.7	1,196.8	942.1	254.64	4.700	
12,800.0	8,832.0	8,776.1	8,774.8	75.6	186.4	-90.37	-5,248.3	1,177.7	1,157.5	899.8	257.69	4.492	
12,900.0	8,832.0	8,774.4	8,773.1	77.0	186.3	-90.28	-5,248.3	1,177.7	1,125.8	865.2	260.59	4.320	
13,000.0	8,832.0	8,772.6	8,771.4	78.3	186.3	-90.19	-5,248.4	1,177.7	1,102.3	839.0	263.21	4.188	
13,100.0	8,832.0	8,770.9	8,769.6	79.6	186.2	-90.10	-5,248.4	1,177.7	1,087.5	822.0	265.44	4.097	
13,200.0	8,832.0	8,769.1	8,767.9	81.0	186.2	-90.00	-5,248.4	1,177.7	1,081.7	814.6	267.16	4.049	
13,212.2	8,832.0	8,768.9	8,767.7	81.1	186.2	-89.99	-5,248.4	1,177.7	1,081.7	814.3	267.33	4.046	CC, ES
13,300.0	8,832.0	8,767.4	8,766.1	82.3	186.2	-89.91	-5,248.5	1,177.7	1,085.2	816.9	268.31	4.045	SF
13,400.0	8,832.0	8,765.6	8,764.4	83.6	186.1	-89.82	-5,248.5	1,177.7	1,097.8	829.0	268.86	4.083	
13,500.0	8,832.0	8,763.9	8,762.6	85.0	186.1	-89.73	-5,248.5	1,177.7	1,119.3	850.4	268.85	4.163	
13,600.0	8,832.0	8,762.1	8,760.9	86.3	186.1	-89.63	-5,248.6	1,177.7	1,149.1	880.7	268.34	4.282	
13,700.0	8,832.0	8,760.4	8,759.1	87.7	186.0	-89.54	-5,248.6	1,177.7	1,186.5	919.1	267.40	4.437	
13,800.0	8,832.0	8,758.7	8,757.4	89.1	186.0	-89.45	-5,248.6	1,177.7	1,231.0	964.9	266.14	4.626	
13,900.0	8,832.0	8,756.9	8,755.7	90.4	186.0	-89.36	-5,248.7	1,177.7	1,281.8	1,017.1	264.65	4.843	
14,000.0	8,832.0	8,755.2	8,753.9	91.8	185.9	-89.26	-5,248.7	1,177.7	1,338.1	1,075.1	263.01	5.088	
14,100.0	8,832.0	8,753.4	8,752.2	93.1	185.9	-89.17	-5,248.7	1,177.7	1,399.3	1,138.0	261.30	5.355	
14,200.0	8,832.0	8,751.7	8,750.4	94.5	185.9	-89.08	-5,248.7	1,177.7	1,464.7	1,205.2	259.57	5.643	
14,300.0	8,832.0	8,749.9	8,748.7	95.9	185.8	-88.99	-5,248.8	1,177.7	1,533.9	1,276.1	257.86	5.949	
14,400.0	8,832.0	8,748.2	8,746.9	97.3	185.8	-88.89	-5,248.8	1,177.7	1,606.4	1,350.2	256.19	6.270	
14,500.0	8,832.0	8,746.4	8,745.2	98.6	185.7	-88.80	-5,248.8	1,177.7	1,681.6	1,427.1	254.59	6.605	
14,600.0	8,832.0	8,744.7	8,743.4	100.0	185.7	-88.71	-5,248.9	1,177.7	1,759.4	1,506.3	253.07	6.952	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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	
14,700.0	8,832.0	8,742.9	8,741.7	101.4	185.7	-88.62	-5,248.9	1,177.7	1,839.3	1,587.6	251.62	7.310		
14,800.0	8,832.0	8,741.2	8,739.9	102.8	185.6	-88.52	-5,248.9	1,177.7	1,921.0	1,670.8	250.26	7.676		
14,900.0	8,832.0	8,739.5	8,738.2	104.1	185.6	-88.43	-5,249.0	1,177.7	2,004.5	1,755.5	248.99	8.050		
15,000.0	8,832.0	8,737.7	8,736.5	105.5	185.6	-88.34	-5,249.0	1,177.7	2,089.3	1,841.5	247.80	8.432		
15,100.0	8,832.0	8,736.0	8,734.7	106.9	185.5	-88.25	-5,249.0	1,177.7	2,175.5	1,928.8	246.68	8.819		
15,200.0	8,832.0	8,734.2	8,733.0	108.3	185.5	-88.16	-5,249.0	1,177.7	2,262.8	2,017.1	245.64	9.212		
15,300.0	8,832.0	8,732.5	8,731.2	109.7	185.5	-88.06	-5,249.1	1,177.7	2,351.1	2,106.4	244.66	9.610		

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
4,900.0	4,878.6	4,919.7	4,918.8	17.5	104.9	13.11	-2,732.6	-266.7	2,350.0	2,228.1	121.82	19.291	
5,000.0	4,977.8	5,020.5	5,019.5	17.9	107.7	13.19	-2,729.2	-266.7	2,334.3	2,209.4	124.94	18.684	
5,100.0	5,077.0	5,120.9	5,119.9	18.3	110.4	13.28	-2,725.8	-266.7	2,318.6	2,190.5	128.05	18.106	
5,200.0	5,176.2	5,217.6	5,216.6	18.7	113.1	13.36	-2,722.4	-266.7	2,302.9	2,171.8	131.13	17.562	
5,300.0	5,275.4	5,314.4	5,313.3	19.1	115.9	13.44	-2,719.2	-266.7	2,287.3	2,153.1	134.21	17.042	
5,400.0	5,374.6	5,411.2	5,410.1	19.5	118.6	13.52	-2,716.0	-266.7	2,271.7	2,134.4	137.29	16.547	
5,500.0	5,473.8	5,508.1	5,506.9	19.9	121.3	13.61	-2,712.9	-266.7	2,256.3	2,115.9	140.37	16.074	
5,600.0	5,573.0	5,604.9	5,603.7	20.3	124.0	13.69	-2,709.9	-266.7	2,240.9	2,097.5	143.45	15.622	
5,700.0	5,672.2	5,700.8	5,699.5	20.6	126.5	13.78	-2,707.1	-266.7	2,225.7	2,079.4	146.27	15.216	
5,800.0	5,771.4	5,796.7	5,795.4	21.0	128.9	13.86	-2,704.3	-266.7	2,210.6	2,061.5	149.08	14.828	
5,900.0	5,870.6	5,892.7	5,891.3	21.4	131.3	13.95	-2,701.7	-266.7	2,195.6	2,043.7	151.89	14.455	
6,000.0	5,969.8	5,987.2	5,985.8	21.8	133.6	14.04	-2,699.3	-266.7	2,180.8	2,026.3	154.53	14.113	
6,100.0	6,069.0	6,081.0	6,079.5	22.2	135.8	14.12	-2,697.1	-266.7	2,166.2	2,009.1	157.07	13.791	
6,200.0	6,168.2	6,181.1	6,179.6	22.6	138.1	14.21	-2,694.8	-266.7	2,151.7	1,992.0	159.77	13.467	
6,300.0	6,267.3	6,282.7	6,281.2	23.0	140.5	14.31	-2,692.4	-266.7	2,137.2	1,974.6	162.51	13.151	
6,400.0	6,366.5	6,384.3	6,382.7	23.4	142.9	14.41	-2,689.9	-266.7	2,122.5	1,957.2	165.25	12.844	
6,500.0	6,465.7	6,484.6	6,483.1	23.8	145.3	14.50	-2,687.3	-266.7	2,107.6	1,939.6	167.99	12.546	
6,600.0	6,564.9	6,583.5	6,581.9	24.2	147.7	14.60	-2,684.7	-266.7	2,092.8	1,922.1	170.75	12.256	
6,700.0	6,664.1	6,682.3	6,680.7	24.6	150.1	14.70	-2,682.1	-266.7	2,078.0	1,904.4	173.55	11.973	
6,800.0	6,763.3	6,781.1	6,779.5	25.0	152.6	14.80	-2,679.6	-266.7	2,063.2	1,886.8	176.38	11.697	
6,900.0	6,862.5	6,880.0	6,878.3	25.4	155.0	14.90	-2,677.0	-266.7	2,048.4	1,869.2	179.20	11.431	
7,000.0	6,961.7	6,978.8	6,977.1	25.8	157.5	15.01	-2,674.4	-266.7	2,033.6	1,851.5	182.02	11.172	
7,100.0	7,060.9	7,077.6	7,075.9	26.2	159.9	15.11	-2,671.8	-266.7	2,018.8	1,833.9	184.85	10.921	
7,200.0	7,160.1	7,173.3	7,171.5	26.5	162.2	15.20	-2,669.3	-266.7	2,004.1	1,816.6	187.50	10.689	
7,300.0	7,259.6	7,266.8	7,265.0	26.9	164.4	15.21	-2,667.2	-266.7	1,992.1	1,802.1	190.02	10.483	
7,400.0	7,359.4	7,360.8	7,359.0	27.3	166.5	15.23	-2,665.3	-266.7	1,983.7	1,791.1	192.55	10.302	
7,500.0	7,459.3	7,457.1	7,455.2	27.7	168.6	15.23	-2,663.6	-266.7	1,978.9	1,783.9	194.98	10.149	
7,600.0	7,559.3	7,555.3	7,553.4	28.0	170.6	-170.46	-2,661.9	-266.7	1,977.0	1,779.6	197.32	10.019	
7,700.0	7,659.3	7,653.5	7,651.6	28.3	172.6	-170.46	-2,660.4	-266.7	1,975.4	1,775.8	199.65	9.894	
7,800.0	7,759.3	7,751.6	7,749.8	28.6	174.6	-170.45	-2,659.0	-266.7	1,974.0	1,772.0	201.99	9.773	
7,900.0	7,859.3	7,849.8	7,847.9	28.9	176.6	-170.44	-2,657.6	-266.7	1,972.6	1,768.3	204.33	9.654	
8,000.0	7,959.3	7,949.5	7,947.6	29.2	178.6	-170.44	-2,656.3	-266.7	1,971.3	1,764.7	206.65	9.539	
8,100.0	8,059.3	8,049.5	8,047.5	29.6	180.6	-170.43	-2,655.0	-266.7	1,970.0	1,761.1	208.98	9.427	
8,200.0	8,159.3	8,149.5	8,147.5	29.9	182.6	-170.42	-2,653.7	-266.7	1,968.8	1,757.5	211.30	9.317	
8,300.0	8,259.3	8,249.4	8,247.5	30.2	184.5	-170.42	-2,652.4	-266.7	1,967.5	1,753.8	213.63	9.210	
8,400.0	8,359.3	8,349.4	8,347.5	30.5	186.5	10.04	-2,651.1	-266.7	1,966.2	1,750.2	215.95	9.104	
8,500.0	8,458.5	8,453.5	8,451.6	30.9	188.9	10.38	-2,649.6	-266.7	1,953.5	1,734.9	218.63	8.935	
8,600.0	8,553.1	8,552.9	8,550.9	31.4	191.1	11.37	-2,647.9	-266.7	1,920.6	1,699.4	221.23	8.682	
8,700.0	8,639.0	8,642.5	8,640.5	31.9	193.1	13.27	-2,646.1	-266.7	1,869.0	1,645.4	223.59	8.359	
8,800.0	8,712.5	8,718.4	8,716.4	32.5	194.8	16.74	-2,644.5	-266.7	1,801.1	1,575.5	225.59	7.984	
8,900.0	8,770.4	8,777.1	8,775.1	33.1	196.2	23.40	-2,643.0	-266.7	1,720.0	1,492.8	227.15	7.572	
9,000.0	8,810.1	8,816.3	8,814.3	33.8	197.0	38.06	-2,642.0	-266.7	1,629.4	1,401.2	228.21	7.140	
9,100.0	8,829.9	8,834.3	8,832.2	34.5	197.4	73.43	-2,641.6	-266.7	1,533.4	1,304.6	228.73	6.704	
9,200.0	8,832.0	8,833.8	8,831.7	35.1	197.4	96.15	-2,641.6	-266.7	1,436.1	1,207.3	228.82	6.276	
9,300.0	8,832.0	8,831.0	8,829.0	35.9	197.4	95.70	-2,641.7	-266.7	1,339.3	1,110.4	228.87	5.851	
9,400.0	8,832.0	8,828.3	8,826.3	36.6	197.3	95.25	-2,641.7	-266.7	1,242.9	1,013.9	228.96	5.428	
9,500.0	8,832.0	8,825.6	8,823.5	37.4	197.2	94.80	-2,641.8	-266.7	1,147.1	918.0	229.09	5.007	
9,600.0	8,832.0	8,822.9	8,820.9	38.3	197.2	94.35	-2,641.9	-266.7	1,052.1	822.8	229.29	4.589	
9,700.0	8,832.0	8,820.2	8,818.2	39.1	197.1	93.90	-2,641.9	-266.7	958.2	728.6	229.57	4.174	
9,800.0	8,832.0	8,817.5	8,815.5	40.1	197.1	93.46	-2,642.0	-266.7	865.5	635.6	229.97	3.764	
9,900.0	8,832.0	8,814.9	8,812.9	41.0	197.0	93.02	-2,642.1	-266.7	774.7	544.2	230.56	3.360	
10,000.0	8,832.0	8,812.3	8,810.2	42.0	196.9	92.58	-2,642.2	-266.7	686.5	455.1	231.40	2.967	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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)			
10,100.0	8,832.0	8,809.6	8,807.6	43.0	196.9	92.14	-2,642.2	-266.7	601.9	369.3	232.62	2.588	
10,200.0	8,832.0	8,807.0	8,805.0	44.0	196.8	91.71	-2,642.3	-266.7	522.8	288.4	234.38	2.231	
10,300.0	8,832.0	8,804.5	8,802.4	45.0	196.8	91.27	-2,642.4	-266.7	452.1	215.2	236.83	1.909	
10,400.0	8,832.0	8,801.9	8,799.8	46.1	196.7	90.84	-2,642.4	-266.7	394.2	154.2	239.92	1.643	
10,500.0	8,832.0	8,799.3	8,797.3	47.2	196.7	90.42	-2,642.5	-266.7	355.4	112.4	243.04	1.463	Level 3
10,595.2	8,832.0	8,796.9	8,794.9	48.3	196.6	90.01	-2,642.5	-266.7	342.5	97.6	244.85	1.399	Level 3, CC
10,600.0	8,832.0	8,796.8	8,794.7	48.3	196.6	89.99	-2,642.5	-266.7	342.5	97.6	244.89	1.399	Level 3, ES, SF
10,700.0	8,832.0	8,794.2	8,792.2	49.4	196.5	89.57	-2,642.6	-266.7	358.2	113.7	244.51	1.465	Level 3
10,800.0	8,832.0	8,791.7	8,789.7	50.6	196.5	89.15	-2,642.7	-266.7	399.0	156.6	242.47	1.646	
10,900.0	8,832.0	8,789.2	8,787.2	51.7	196.4	88.73	-2,642.7	-266.7	458.4	218.5	239.97	1.910	
11,000.0	8,832.0	8,786.7	8,784.7	52.9	196.4	88.31	-2,642.8	-266.7	530.2	292.5	237.71	2.230	
11,100.0	8,832.0	8,784.3	8,782.2	54.1	196.3	87.90	-2,642.9	-266.7	609.9	374.0	235.89	2.586	
11,200.0	8,832.0	8,781.8	8,779.8	55.3	196.3	87.49	-2,642.9	-266.7	694.9	460.4	234.49	2.964	
11,300.0	8,832.0	8,779.4	8,777.3	56.5	196.2	87.08	-2,643.0	-266.7	783.4	550.1	233.40	3.357	
11,400.0	8,832.0	8,776.9	8,774.9	57.7	196.2	86.67	-2,643.0	-266.7	874.5	641.9	232.55	3.760	
11,500.0	8,832.0	8,774.5	8,772.5	58.9	196.1	86.27	-2,643.1	-266.7	967.2	735.3	231.89	4.171	
11,600.0	8,832.0	8,772.1	8,770.1	60.2	196.0	85.87	-2,643.2	-266.7	1,061.3	830.0	231.36	4.587	
11,700.0	8,832.0	8,769.7	8,767.7	61.4	196.0	85.47	-2,643.2	-266.7	1,156.4	925.5	230.93	5.008	
11,800.0	8,832.0	8,767.3	8,765.3	62.7	195.9	85.08	-2,643.3	-266.7	1,252.2	1,021.6	230.57	5.431	
11,900.0	8,832.0	8,764.9	8,762.9	63.9	195.9	84.68	-2,643.3	-266.7	1,348.7	1,118.4	230.28	5.857	
12,000.0	8,832.0	8,762.6	8,760.6	65.2	195.8	84.29	-2,643.4	-266.7	1,445.6	1,215.5	230.03	6.284	
12,100.0	8,832.0	8,760.2	8,758.2	66.5	195.8	83.90	-2,643.5	-266.7	1,542.9	1,313.1	229.82	6.713	
12,200.0	8,832.0	8,757.9	8,755.9	67.8	195.7	83.52	-2,643.5	-266.7	1,640.5	1,410.9	229.64	7.144	
12,300.0	8,832.0	8,755.6	8,753.6	69.1	195.7	83.14	-2,643.6	-266.7	1,738.4	1,508.9	229.48	7.575	
12,400.0	8,832.0	8,753.3	8,751.3	70.4	195.6	82.76	-2,643.6	-266.7	1,836.5	1,607.2	229.35	8.008	
12,500.0	8,832.0	8,751.0	8,749.0	71.7	195.6	82.38	-2,643.7	-266.7	1,934.8	1,705.6	229.23	8.441	
12,600.0	8,832.0	8,748.7	8,746.7	73.0	195.5	82.01	-2,643.7	-266.7	2,033.3	1,804.2	229.12	8.874	
12,700.0	8,832.0	8,746.5	8,744.4	74.3	195.5	81.63	-2,643.8	-266.7	2,131.9	1,902.9	229.03	9.308	
12,800.0	8,832.0	8,744.2	8,742.2	75.6	195.4	81.27	-2,643.8	-266.7	2,230.6	2,001.7	228.94	9.743	
12,900.0	8,832.0	8,741.9	8,739.9	77.0	195.4	80.90	-2,643.9	-266.7	2,329.5	2,100.6	228.87	10.178	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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				Rule Assigned:								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)			Minimum Separation (usft)
6,500.0	6,465.7	6,483.3	6,482.7	23.8	132.1	-22.30	-2,685.7	1,147.6	2,353.3	2,198.3	154.98	15.184	
6,600.0	6,564.9	6,585.5	6,584.8	24.2	134.3	-22.45	-2,684.0	1,147.9	2,340.2	2,182.7	157.51	14.857	
6,700.0	6,664.1	6,687.3	6,686.6	24.6	136.6	-22.60	-2,682.1	1,148.2	2,327.0	2,166.8	160.21	14.525	
6,800.0	6,763.3	6,789.0	6,788.4	25.0	138.9	-22.76	-2,680.0	1,148.6	2,313.7	2,150.8	162.90	14.203	
6,900.0	6,862.5	6,890.8	6,890.1	25.4	141.3	-22.92	-2,677.7	1,149.0	2,300.3	2,134.7	165.58	13.892	
7,000.0	6,961.7	6,992.4	6,991.7	25.8	143.6	-23.09	-2,675.3	1,149.5	2,286.7	2,118.4	168.27	13.589	
7,100.0	7,060.9	7,092.2	7,091.4	26.2	146.0	-23.26	-2,672.7	1,150.1	2,273.1	2,102.1	171.02	13.291	
7,200.0	7,160.1	7,191.0	7,190.1	26.5	148.4	-23.40	-2,670.2	1,150.7	2,259.6	2,085.8	173.81	13.001	
7,300.0	7,259.6	7,290.1	7,289.2	26.9	150.8	-23.46	-2,667.7	1,151.3	2,248.4	2,071.8	176.59	12.732	
7,400.0	7,359.4	7,389.6	7,388.7	27.3	153.2	-23.51	-2,665.1	1,151.8	2,240.3	2,060.9	179.38	12.489	
7,500.0	7,459.3	7,489.4	7,488.5	27.7	155.7	-23.55	-2,662.6	1,152.4	2,235.5	2,053.3	182.17	12.271	
7,600.0	7,559.3	7,586.7	7,585.7	28.0	157.9	150.72	-2,660.2	1,153.0	2,233.3	2,048.6	184.75	12.088	
7,700.0	7,659.3	7,682.7	7,681.7	28.3	160.0	150.68	-2,658.0	1,153.4	2,231.6	2,044.4	187.22	11.919	
7,800.0	7,759.3	7,778.8	7,777.8	28.6	162.2	150.65	-2,656.1	1,153.8	2,230.0	2,040.3	189.70	11.756	
7,900.0	7,859.3	7,874.8	7,873.8	28.9	164.3	150.62	-2,654.4	1,154.1	2,228.7	2,036.5	192.17	11.597	
8,000.0	7,959.3	7,970.9	7,969.8	29.2	166.4	150.60	-2,653.0	1,154.3	2,227.5	2,032.8	194.65	11.444	
8,100.0	8,059.3	8,068.7	8,067.6	29.6	168.4	150.58	-2,651.7	1,154.4	2,226.4	2,029.5	196.94	11.305	
8,200.0	8,159.3	8,167.1	8,166.1	29.9	170.3	150.56	-2,650.5	1,154.6	2,225.4	2,026.3	199.16	11.174	
8,300.0	8,259.3	8,265.5	8,264.5	30.2	172.2	150.54	-2,649.5	1,154.7	2,224.5	2,023.1	201.39	11.046	
8,400.0	8,359.3	8,363.9	8,362.9	30.5	174.1	-29.03	-2,648.5	1,154.7	2,223.7	2,020.1	203.61	10.921	
8,500.0	8,458.5	8,464.0	8,463.0	30.9	176.0	-29.83	-2,647.5	1,154.8	2,212.9	2,007.0	205.90	10.747	
8,600.0	8,553.1	8,557.2	8,556.1	31.4	177.8	-32.10	-2,646.7	1,154.9	2,184.5	1,976.4	208.09	10.498	
8,700.0	8,639.0	8,643.9	8,642.9	31.9	179.4	-36.22	-2,645.8	1,155.0	2,139.8	1,929.7	210.15	10.182	
8,800.0	8,712.5	8,717.8	8,716.7	32.5	180.9	-42.85	-2,645.0	1,155.0	2,081.2	1,869.2	211.95	9.819	
8,900.0	8,770.4	8,775.5	8,774.5	33.1	182.0	-52.84	-2,644.4	1,155.1	2,011.5	1,798.1	213.42	9.425	
9,000.0	8,810.1	8,814.6	8,813.6	33.8	182.7	-66.74	-2,643.9	1,155.1	1,934.5	1,720.0	214.52	9.018	
9,100.0	8,829.9	8,833.5	8,832.4	34.5	183.1	-83.35	-2,643.7	1,155.2	1,854.0	1,638.7	215.22	8.614	
9,200.0	8,832.0	8,834.4	8,833.4	35.1	183.1	-90.83	-2,643.7	1,155.2	1,773.7	1,558.0	215.60	8.226	
9,300.0	8,832.0	8,833.2	8,832.1	35.9	183.1	-90.76	-2,643.7	1,155.2	1,695.4	1,479.4	216.02	7.848	
9,400.0	8,832.0	8,832.0	8,830.9	36.6	183.0	-90.70	-2,643.7	1,155.2	1,619.5	1,403.0	216.54	7.479	
9,500.0	8,832.0	8,830.8	8,829.7	37.4	183.0	-90.63	-2,643.7	1,155.2	1,546.4	1,329.3	217.17	7.121	
9,600.0	8,832.0	8,829.6	8,828.5	38.3	183.0	-90.57	-2,643.8	1,155.2	1,476.5	1,258.5	217.92	6.775	
9,700.0	8,832.0	8,828.3	8,827.3	39.1	183.0	-90.50	-2,643.8	1,155.2	1,410.1	1,191.3	218.81	6.445	
9,800.0	8,832.0	8,827.1	8,826.1	40.1	182.9	-90.44	-2,643.8	1,155.2	1,348.0	1,128.1	219.84	6.131	
9,900.0	8,832.0	8,825.9	8,824.9	41.0	182.9	-90.38	-2,643.8	1,155.2	1,290.5	1,069.5	221.02	5.839	
10,000.0	8,832.0	8,824.7	8,823.7	42.0	182.9	-90.31	-2,643.8	1,155.2	1,238.5	1,016.2	222.34	5.571	
10,100.0	8,832.0	8,823.5	8,822.5	43.0	182.9	-90.25	-2,643.8	1,155.1	1,192.7	968.9	223.77	5.330	
10,200.0	8,832.0	8,822.3	8,821.3	44.0	182.9	-90.18	-2,643.8	1,155.1	1,153.7	928.4	225.29	5.121	
10,300.0	8,832.0	8,821.1	8,820.1	45.0	182.8	-90.12	-2,643.9	1,155.1	1,122.3	895.4	226.84	4.947	
10,400.0	8,832.0	8,819.9	8,818.9	46.1	182.8	-90.06	-2,643.9	1,155.1	1,099.1	870.7	228.36	4.813	
10,500.0	8,832.0	8,818.7	8,817.7	47.2	182.8	-89.99	-2,643.9	1,155.1	1,084.7	854.9	229.79	4.720	
10,600.0	8,832.0	8,817.5	8,816.5	48.3	182.8	-89.93	-2,643.9	1,155.1	1,079.4	848.3	231.06	4.671	
10,607.5	8,832.0	8,817.5	8,816.4	48.4	182.8	-89.93	-2,643.9	1,155.1	1,079.3	848.2	231.15	4.669 CC, ES	
10,700.0	8,832.0	8,816.4	8,815.3	49.4	182.7	-89.87	-2,643.9	1,155.1	1,083.3	851.2	232.11	4.667 SF	
10,800.0	8,832.0	8,815.2	8,814.1	50.6	182.7	-89.80	-2,643.9	1,155.1	1,096.4	863.4	232.91	4.707	
10,900.0	8,832.0	8,814.0	8,812.9	51.7	182.7	-89.74	-2,643.9	1,155.1	1,118.2	884.8	233.45	4.790	
11,000.0	8,832.0	8,812.8	8,811.7	52.9	182.7	-89.68	-2,644.0	1,155.1	1,148.5	914.7	233.75	4.913	
11,100.0	8,832.0	8,811.6	8,810.6	54.1	182.7	-89.62	-2,644.0	1,155.1	1,186.4	952.5	233.82	5.074	
11,200.0	8,832.0	8,810.4	8,809.4	55.3	182.6	-89.55	-2,644.0	1,155.1	1,231.2	997.5	233.71	5.268	
11,300.0	8,832.0	8,809.3	8,808.2	56.5	182.6	-89.49	-2,644.0	1,155.1	1,282.3	1,048.9	233.45	5.493	
11,400.0	8,832.0	8,808.1	8,807.0	57.7	182.6	-89.43	-2,644.0	1,155.1	1,339.0	1,105.9	233.09	5.744	
11,500.0	8,832.0	8,806.9	8,805.9	58.9	182.6	-89.37	-2,644.0	1,155.1	1,400.5	1,167.8	232.65	6.020	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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		
11,600.0	8,832.0	8,805.8	8,804.7	60.2	182.5	-89.30	-2,644.0	1,155.1	1,466.2	1,234.0	232.17	6.315		
11,700.0	8,832.0	8,804.6	8,803.5	61.4	182.5	-89.24	-2,644.1	1,155.1	1,535.7	1,304.0	231.67	6.629		
11,800.0	8,832.0	8,803.4	8,802.4	62.7	182.5	-89.18	-2,644.1	1,155.1	1,608.3	1,377.2	231.15	6.958		
11,900.0	8,832.0	8,802.3	8,801.2	63.9	182.5	-89.12	-2,644.1	1,155.1	1,683.8	1,453.2	230.64	7.300		
12,000.0	8,832.0	8,801.1	8,800.0	65.2	182.4	-89.06	-2,644.1	1,155.1	1,761.7	1,531.6	230.15	7.655		
12,100.0	8,832.0	8,799.9	8,798.9	66.5	182.4	-89.00	-2,644.1	1,155.1	1,841.8	1,612.1	229.67	8.019		
12,200.0	8,832.0	8,798.8	8,797.7	67.8	182.4	-88.93	-2,644.1	1,155.1	1,923.7	1,694.5	229.21	8.393		
12,300.0	8,832.0	8,797.6	8,796.6	69.1	182.4	-88.87	-2,644.1	1,155.1	2,007.2	1,778.5	228.77	8.774		
12,400.0	8,832.0	8,796.5	8,795.4	70.4	182.4	-88.81	-2,644.1	1,155.1	2,092.2	1,863.9	228.36	9.162		
12,500.0	8,832.0	8,795.3	8,794.3	71.7	182.3	-88.75	-2,644.2	1,155.1	2,178.5	1,950.5	227.97	9.556		
12,600.0	8,832.0	8,794.2	8,793.1	73.0	182.3	-88.69	-2,644.2	1,155.1	2,265.9	2,038.3	227.60	9.955		

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
10,800.0	8,832.0	8,841.2	8,840.0	50.6	183.9	97.30	-5,173.4	-249.8	2,351.9	2,135.9	215.98	10.890	
10,900.0	8,832.0	8,839.4	8,838.2	51.7	183.8	97.00	-5,173.4	-249.8	2,253.1	2,037.0	216.07	10.428	
11,000.0	8,832.0	8,837.5	8,836.3	52.9	183.8	96.70	-5,173.4	-249.8	2,154.3	1,938.2	216.17	9.966	
11,100.0	8,832.0	8,835.7	8,834.5	54.1	183.8	96.39	-5,173.5	-249.8	2,055.7	1,839.4	216.30	9.504	
11,200.0	8,832.0	8,833.8	8,832.6	55.3	183.7	96.09	-5,173.5	-249.8	1,957.2	1,740.8	216.45	9.042	
11,300.0	8,832.0	8,832.0	8,830.8	56.5	183.7	95.78	-5,173.5	-249.8	1,858.9	1,642.2	216.63	8.581	
11,400.0	8,832.0	8,830.1	8,828.9	57.7	183.6	95.48	-5,173.6	-249.8	1,760.7	1,543.9	216.85	8.119	
11,500.0	8,832.0	8,828.2	8,827.0	58.9	183.6	95.17	-5,173.6	-249.8	1,662.8	1,445.7	217.12	7.659	
11,600.0	8,832.0	8,826.3	8,825.2	60.2	183.6	94.86	-5,173.7	-249.8	1,565.1	1,347.7	217.44	7.198	
11,700.0	8,832.0	8,824.5	8,823.3	61.4	183.5	94.55	-5,173.7	-249.8	1,467.8	1,250.0	217.83	6.738	
11,800.0	8,832.0	8,822.6	8,821.4	62.7	183.5	94.24	-5,173.7	-249.8	1,370.8	1,152.5	218.32	6.279	
11,900.0	8,832.0	8,820.7	8,819.5	63.9	183.4	93.93	-5,173.8	-249.8	1,274.3	1,055.4	218.92	5.821	
12,000.0	8,832.0	8,818.8	8,817.6	65.2	183.4	93.61	-5,173.8	-249.8	1,178.4	958.7	219.67	5.364	
12,100.0	8,832.0	8,816.9	8,815.7	66.5	183.4	93.30	-5,173.8	-249.8	1,083.2	862.6	220.62	4.910	
12,200.0	8,832.0	8,815.0	8,813.8	67.8	183.3	92.98	-5,173.9	-249.8	988.9	767.1	221.84	4.458	
12,300.0	8,832.0	8,813.1	8,811.9	69.1	183.3	92.67	-5,173.9	-249.8	895.9	672.5	223.41	4.010	
12,400.0	8,832.0	8,811.1	8,810.0	70.4	183.2	92.35	-5,173.9	-249.8	804.6	579.1	225.47	3.569	
12,500.0	8,832.0	8,809.2	8,808.0	71.7	183.2	92.03	-5,174.0	-249.8	715.6	487.4	228.18	3.136	
12,600.0	8,832.0	8,807.3	8,806.1	73.0	183.2	91.71	-5,174.0	-249.8	629.8	398.0	231.78	2.717	
12,700.0	8,832.0	8,805.4	8,804.2	74.3	183.1	91.39	-5,174.1	-249.8	549.0	312.4	236.54	2.321	
12,800.0	8,832.0	8,803.4	8,802.2	75.6	183.1	91.07	-5,174.1	-249.8	475.4	232.7	242.68	1.959	
12,900.0	8,832.0	8,801.5	8,800.3	77.0	183.0	90.74	-5,174.1	-249.8	413.1	163.1	250.04	1.652	
13,000.0	8,832.0	8,799.5	8,798.3	78.3	183.0	90.42	-5,174.2	-249.8	367.8	110.3	257.46	1.429	Level 3
13,100.0	8,832.0	8,797.6	8,796.4	79.6	182.9	90.10	-5,174.2	-249.8	346.3	84.0	262.31	1.320	Level 3
13,126.9	8,832.0	8,797.0	8,795.9	80.0	182.9	90.01	-5,174.2	-249.8	345.2	82.4	262.80	1.314	Level 3, CC, ES, SF
13,200.0	8,832.0	8,795.6	8,794.4	81.0	182.9	89.77	-5,174.2	-249.8	352.9	90.8	262.13	1.346	Level 3
13,300.0	8,832.0	8,793.6	8,792.5	82.3	182.9	89.44	-5,174.3	-249.8	386.2	128.8	257.42	1.500	
13,400.0	8,832.0	8,791.7	8,790.5	83.6	182.8	89.12	-5,174.3	-249.8	440.2	189.3	250.91	1.754	
13,500.0	8,832.0	8,789.7	8,788.5	85.0	182.8	88.79	-5,174.4	-249.8	508.3	263.6	244.66	2.078	
13,600.0	8,832.0	8,787.7	8,786.5	86.3	182.7	88.46	-5,174.4	-249.8	585.6	346.2	239.42	2.446	
13,700.0	8,832.0	8,785.7	8,784.5	87.7	182.7	88.13	-5,174.4	-249.8	669.0	433.7	235.27	2.843	
13,800.0	8,832.0	8,783.7	8,782.5	89.1	182.6	87.80	-5,174.5	-249.8	756.4	524.4	232.02	3.260	
13,900.0	8,832.0	8,781.7	8,780.5	90.4	182.6	87.47	-5,174.5	-249.8	846.6	617.1	229.48	3.689	
14,000.0	8,832.0	8,779.7	8,778.5	91.8	182.6	87.13	-5,174.6	-249.8	938.7	711.3	227.47	4.127	
14,100.0	8,832.0	8,777.7	8,776.5	93.1	182.5	86.80	-5,174.6	-249.8	1,032.4	806.5	225.87	4.571	
14,200.0	8,832.0	8,775.7	8,774.5	94.5	182.5	86.47	-5,174.6	-249.8	1,127.1	902.5	224.58	5.019	
14,300.0	8,832.0	8,773.6	8,772.5	95.9	182.4	86.13	-5,174.7	-249.8	1,222.6	999.1	223.53	5.470	
14,400.0	8,832.0	8,771.6	8,770.4	97.3	182.4	85.80	-5,174.7	-249.8	1,318.9	1,096.2	222.67	5.923	
14,500.0	8,832.0	8,769.6	8,768.4	98.6	182.3	85.46	-5,174.8	-249.8	1,415.6	1,193.6	221.95	6.378	
14,600.0	8,832.0	8,767.5	8,766.4	100.0	182.3	85.13	-5,174.8	-249.8	1,512.7	1,291.4	221.34	6.834	
14,700.0	8,832.0	8,765.5	8,764.3	101.4	182.3	84.79	-5,174.8	-249.8	1,610.3	1,389.4	220.83	7.292	
14,800.0	8,832.0	8,763.4	8,762.3	102.8	182.2	84.45	-5,174.9	-249.8	1,708.0	1,487.6	220.40	7.750	
14,900.0	8,832.0	8,761.4	8,760.2	104.1	182.2	84.11	-5,174.9	-249.8	1,806.1	1,586.0	220.02	8.209	
15,000.0	8,832.0	8,759.3	8,758.1	105.5	182.1	83.77	-5,175.0	-249.8	1,904.3	1,684.6	219.70	8.668	
15,100.0	8,832.0	8,757.2	8,756.1	106.9	182.1	83.43	-5,175.0	-249.8	2,002.7	1,783.3	219.42	9.127	
15,200.0	8,832.0	8,755.2	8,754.0	108.3	182.0	83.09	-5,175.1	-249.8	2,101.3	1,882.1	219.18	9.587	
15,300.0	8,832.0	8,753.1	8,751.9	109.7	182.0	82.75	-5,175.1	-249.8	2,199.9	1,981.0	218.96	10.047	
15,400.0	8,832.0	8,751.0	8,749.8	111.1	181.9	82.41	-5,175.1	-249.8	2,298.7	2,080.0	218.78	10.507	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 007 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 227-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)			
9,500.0	8,832.0	8,826.1	8,824.9	37.4	185.7	96.65	-3,842.6	-258.8	2,321.2	2,104.1	217.07	10.694	
9,600.0	8,832.0	8,824.4	8,823.2	38.3	185.6	96.37	-3,842.6	-258.8	2,222.4	2,005.3	217.09	10.237	
9,700.0	8,832.0	8,822.6	8,821.4	39.1	185.6	96.08	-3,842.7	-258.8	2,123.6	1,906.5	217.12	9.781	
9,800.0	8,832.0	8,820.9	8,819.7	40.1	185.6	95.79	-3,842.7	-258.8	2,025.0	1,807.9	217.17	9.325	
9,900.0	8,832.0	8,819.1	8,817.9	41.0	185.5	95.50	-3,842.7	-258.8	1,926.6	1,709.4	217.23	8.869	
10,000.0	8,832.0	8,817.4	8,816.2	42.0	185.5	95.21	-3,842.8	-258.8	1,828.3	1,611.0	217.31	8.413	
10,100.0	8,832.0	8,815.6	8,814.4	43.0	185.5	94.93	-3,842.8	-258.8	1,730.2	1,512.8	217.41	7.958	
10,200.0	8,832.0	8,813.9	8,812.7	44.0	185.4	94.64	-3,842.8	-258.8	1,632.3	1,414.8	217.53	7.504	
10,300.0	8,832.0	8,812.1	8,810.9	45.0	185.4	94.35	-3,842.8	-258.8	1,534.7	1,317.0	217.69	7.050	
10,400.0	8,832.0	8,810.4	8,809.2	46.1	185.3	94.06	-3,842.9	-258.8	1,437.5	1,219.6	217.90	6.597	
10,500.0	8,832.0	8,808.6	8,807.5	47.2	185.3	93.77	-3,842.9	-258.8	1,340.6	1,122.4	218.15	6.145	
10,600.0	8,832.0	8,806.9	8,805.7	48.3	185.3	93.48	-3,842.9	-258.8	1,244.2	1,025.7	218.49	5.695	
10,700.0	8,832.0	8,805.2	8,804.0	49.4	185.2	93.19	-3,843.0	-258.8	1,148.5	929.5	218.91	5.246	
10,800.0	8,832.0	8,803.4	8,802.2	50.6	185.2	92.90	-3,843.0	-258.8	1,053.5	834.0	219.47	4.800	
10,900.0	8,832.0	8,801.7	8,800.5	51.7	185.2	92.61	-3,843.0	-258.8	959.5	739.3	220.20	4.357	
11,000.0	8,832.0	8,799.9	8,798.7	52.9	185.1	92.32	-3,843.1	-258.8	866.9	645.7	221.18	3.920	
11,100.0	8,832.0	8,798.2	8,797.0	54.1	185.1	92.03	-3,843.1	-258.8	776.2	553.7	222.50	3.488	
11,200.0	8,832.0	8,796.4	8,795.2	55.3	185.0	91.74	-3,843.1	-258.8	688.0	463.6	224.31	3.067	
11,300.0	8,832.0	8,794.7	8,793.5	56.5	185.0	91.45	-3,843.1	-258.8	603.4	376.7	226.78	2.661	
11,400.0	8,832.0	8,792.9	8,791.8	57.7	185.0	91.16	-3,843.2	-258.8	524.4	294.2	230.13	2.279	
11,500.0	8,832.0	8,791.2	8,790.0	58.9	184.9	90.87	-3,843.2	-258.8	453.7	219.1	234.54	1.934	
11,600.0	8,832.0	8,789.4	8,788.3	60.2	184.9	90.58	-3,843.2	-258.8	395.8	156.0	239.81	1.650	
11,700.0	8,832.0	8,787.7	8,786.5	61.4	184.9	90.29	-3,843.3	-258.8	357.0	112.2	244.82	1.458 Level 3	
11,795.9	8,832.0	8,786.0	8,784.8	62.6	184.8	90.01	-3,843.3	-258.8	343.9	96.4	247.46	1.390 Level 3, CC	
11,800.0	8,832.0	8,786.0	8,784.8	62.7	184.8	90.00	-3,843.3	-258.8	343.9	96.4	247.49	1.390 Level 3, ES, SF	
11,900.0	8,832.0	8,784.2	8,783.0	63.9	184.8	89.71	-3,843.3	-258.8	359.3	112.8	246.48	1.458 Level 3	
12,000.0	8,832.0	8,782.5	8,781.3	65.2	184.8	89.41	-3,843.4	-258.8	399.9	157.1	242.80	1.647	
12,100.0	8,832.0	8,780.7	8,779.5	66.5	184.7	89.12	-3,843.4	-258.8	459.0	220.6	238.38	1.925	
12,200.0	8,832.0	8,779.0	8,777.8	67.8	184.7	88.83	-3,843.4	-258.8	530.5	296.1	234.40	2.263	
12,300.0	8,832.0	8,777.2	8,776.1	69.1	184.6	88.54	-3,843.5	-258.8	610.1	379.0	231.18	2.639	
12,400.0	8,832.0	8,775.5	8,774.3	70.4	184.6	88.25	-3,843.5	-258.8	695.0	466.3	228.67	3.039	
12,500.0	8,832.0	8,773.7	8,772.6	71.7	184.6	87.96	-3,843.5	-258.8	783.5	556.7	226.72	3.456	
12,600.0	8,832.0	8,772.0	8,770.8	73.0	184.5	87.67	-3,843.5	-258.8	874.4	649.2	225.21	3.883	
12,700.0	8,832.0	8,770.2	8,769.1	74.3	184.5	87.38	-3,843.6	-258.8	967.1	743.1	224.03	4.317	
12,800.0	8,832.0	8,768.5	8,767.3	75.6	184.5	87.09	-3,843.6	-258.8	1,061.2	838.1	223.09	4.757	
12,900.0	8,832.0	8,766.8	8,765.6	77.0	184.4	86.80	-3,843.6	-258.8	1,156.2	933.9	222.33	5.200	
13,000.0	8,832.0	8,765.0	8,763.8	78.3	184.4	86.51	-3,843.7	-258.8	1,252.0	1,030.3	221.72	5.647	
13,100.0	8,832.0	8,763.3	8,762.1	79.6	184.3	86.22	-3,843.7	-258.8	1,348.5	1,127.2	221.21	6.096	
13,200.0	8,832.0	8,761.5	8,760.3	81.0	184.3	85.93	-3,843.7	-258.8	1,445.4	1,224.6	220.79	6.546	
13,300.0	8,832.0	8,759.8	8,758.6	82.3	184.3	85.64	-3,843.8	-258.8	1,542.7	1,322.2	220.43	6.998	
13,400.0	8,832.0	8,758.0	8,756.9	83.6	184.2	85.35	-3,843.8	-258.8	1,640.3	1,420.1	220.14	7.451	
13,500.0	8,832.0	8,756.3	8,755.1	85.0	184.2	85.07	-3,843.8	-258.8	1,738.2	1,518.3	219.88	7.905	
13,600.0	8,832.0	8,754.5	8,753.4	86.3	184.2	84.78	-3,843.8	-258.8	1,836.3	1,616.6	219.66	8.359	
13,700.0	8,832.0	8,752.8	8,751.6	87.7	184.1	84.49	-3,843.9	-258.8	1,934.6	1,715.1	219.48	8.815	
13,800.0	8,832.0	8,751.1	8,749.9	89.1	184.1	84.20	-3,843.9	-258.8	2,033.1	1,813.7	219.32	9.270	
13,900.0	8,832.0	8,749.3	8,748.1	90.4	184.0	83.91	-3,843.9	-258.8	2,131.7	1,912.5	219.18	9.726	
14,000.0	8,832.0	8,747.6	8,746.4	91.8	184.0	83.63	-3,844.0	-258.8	2,230.4	2,011.3	219.05	10.182	
14,100.0	8,832.0	8,745.8	8,744.6	93.1	184.0	83.34	-3,844.0	-258.8	2,329.2	2,110.3	218.95	10.638	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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
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
16,300.0	8,832.0	8,793.9	8,792.4	123.7	190.3	-94.10	-10,420.5	1,107.2	2,299.7	2,049.5	250.27	9.189	
16,400.0	8,832.0	8,790.5	8,789.0	125.1	190.2	-93.90	-10,420.6	1,107.2	2,209.5	1,957.1	252.45	8.752	
16,500.0	8,832.0	8,787.1	8,785.6	126.5	190.1	-93.70	-10,420.7	1,107.2	2,120.2	1,865.4	254.83	8.320	
16,600.0	8,832.0	8,783.7	8,782.2	127.9	190.0	-93.50	-10,420.8	1,107.2	2,031.9	1,774.4	257.45	7.892	
16,700.0	8,832.0	8,780.3	8,778.8	129.3	189.9	-93.30	-10,421.0	1,107.2	1,944.7	1,684.4	260.31	7.471	
16,800.0	8,832.0	8,776.9	8,775.4	130.7	189.8	-93.10	-10,421.1	1,107.2	1,858.8	1,595.3	263.45	7.055	
16,900.0	8,832.0	8,773.5	8,772.0	132.1	189.7	-92.90	-10,421.2	1,107.2	1,774.3	1,507.4	266.89	6.648	
17,000.0	8,832.0	8,770.1	8,768.7	133.5	189.6	-92.70	-10,421.3	1,107.2	1,691.5	1,420.9	270.66	6.250	
17,100.0	8,832.0	8,766.8	8,765.3	134.9	189.5	-92.51	-10,421.4	1,107.2	1,610.7	1,335.9	274.78	5.862	
17,200.0	8,832.0	8,763.4	8,761.9	136.3	189.4	-92.31	-10,421.5	1,107.2	1,532.2	1,252.9	279.28	5.486	
17,300.0	8,832.0	8,760.1	8,758.6	137.7	189.3	-92.11	-10,421.6	1,107.2	1,456.2	1,172.1	284.16	5.125	
17,400.0	8,832.0	8,756.7	8,755.2	139.1	189.2	-91.91	-10,421.7	1,107.2	1,383.4	1,093.9	289.44	4.779	
17,500.0	8,832.0	8,753.4	8,751.9	140.6	189.2	-91.72	-10,421.8	1,107.2	1,314.0	1,018.9	295.09	4.453	
17,600.0	8,832.0	8,750.0	8,748.6	142.0	189.1	-91.52	-10,422.0	1,107.2	1,248.9	947.8	301.09	4.148	
17,700.0	8,832.0	8,746.7	8,745.2	143.4	189.0	-91.32	-10,422.1	1,107.2	1,188.6	881.2	307.36	3.867	
17,800.0	8,832.0	8,743.4	8,741.9	144.8	188.9	-91.13	-10,422.2	1,107.2	1,133.9	820.1	313.76	3.614	
17,900.0	8,832.0	8,740.0	8,738.6	146.2	188.8	-90.93	-10,422.3	1,107.2	1,085.6	765.5	320.13	3.391	
18,000.0	8,832.0	8,736.7	8,735.3	147.6	188.7	-90.74	-10,422.4	1,107.2	1,044.8	718.6	326.20	3.203	
18,100.0	8,832.0	8,733.4	8,732.0	149.0	188.6	-90.54	-10,422.5	1,107.2	1,012.1	680.5	331.69	3.051	
18,200.0	8,832.0	8,730.1	8,728.7	150.5	188.5	-90.35	-10,422.6	1,107.2	988.6	652.3	336.28	2.940	
18,300.0	8,832.0	8,726.8	8,725.4	151.9	188.4	-90.15	-10,422.7	1,107.2	974.8	635.1	339.66	2.870	
18,385.9	8,832.0	8,724.0	8,722.6	153.1	188.4	-89.99	-10,422.8	1,107.2	971.0	629.6	341.43	2.844 CC	
18,400.0	8,832.0	8,723.5	8,722.1	153.3	188.3	-89.96	-10,422.8	1,107.2	971.1	629.5	341.61	2.843 ES, SF	
18,500.0	8,832.0	8,720.2	8,718.8	154.7	188.3	-89.76	-10,422.9	1,107.2	977.7	635.6	342.04	2.858	
18,600.0	8,832.0	8,717.0	8,715.5	156.1	188.2	-89.57	-10,423.1	1,107.2	994.3	653.3	340.99	2.916	
18,700.0	8,832.0	8,713.7	8,712.3	157.6	188.1	-89.38	-10,423.2	1,107.2	1,020.5	681.9	338.62	3.014	
18,800.0	8,832.0	8,710.4	8,709.0	159.0	188.0	-89.18	-10,423.3	1,107.2	1,055.5	720.3	335.20	3.149	
18,900.0	8,832.0	8,707.2	8,705.7	160.4	187.9	-88.99	-10,423.4	1,107.2	1,098.6	767.6	331.02	3.319	
19,000.0	8,832.0	8,703.9	8,702.5	161.8	187.8	-88.80	-10,423.5	1,107.2	1,148.7	822.4	326.36	3.520	
19,077.1	8,832.0	8,701.4	8,700.0	162.9	187.7	-88.65	-10,423.6	1,107.2	1,191.7	869.1	322.58	3.694	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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
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)			
12,200.0	8,832.0	8,803.1	8,802.2	67.8	185.4	96.48	-6,496.6	-240.9	2,276.2	2,057.4	218.78	10.404	
12,300.0	8,832.0	8,801.4	8,800.4	69.1	185.3	96.19	-6,496.7	-240.9	2,177.4	1,958.5	218.98	9.944	
12,400.0	8,832.0	8,799.6	8,798.6	70.4	185.3	95.90	-6,496.7	-240.9	2,078.8	1,859.6	219.21	9.483	
12,500.0	8,832.0	8,797.8	8,796.8	71.7	185.3	95.61	-6,496.7	-240.9	1,980.3	1,760.8	219.48	9.023	
12,600.0	8,832.0	8,796.0	8,795.1	73.0	185.2	95.32	-6,496.7	-240.9	1,881.9	1,662.1	219.79	8.562	
12,700.0	8,832.0	8,794.3	8,793.3	74.3	185.2	95.03	-6,496.8	-240.9	1,783.7	1,563.6	220.16	8.102	
12,800.0	8,832.0	8,792.5	8,791.5	75.6	185.2	94.74	-6,496.8	-240.9	1,685.8	1,465.2	220.59	7.642	
12,900.0	8,832.0	8,790.7	8,789.8	77.0	185.1	94.45	-6,496.8	-240.9	1,588.0	1,366.9	221.11	7.182	
13,000.0	8,832.0	8,789.0	8,788.0	78.3	185.1	94.16	-6,496.9	-240.9	1,490.6	1,268.9	221.73	6.723	
13,100.0	8,832.0	8,787.2	8,786.2	79.6	185.1	93.87	-6,496.9	-240.9	1,393.6	1,171.1	222.47	6.264	
13,200.0	8,832.0	8,785.5	8,784.5	81.0	185.0	93.58	-6,496.9	-240.9	1,297.0	1,073.6	223.38	5.806	
13,300.0	8,832.0	8,783.7	8,782.7	82.3	185.0	93.29	-6,497.0	-240.9	1,200.9	976.4	224.50	5.349	
13,400.0	8,832.0	8,782.0	8,781.0	83.6	185.0	93.00	-6,497.0	-240.9	1,105.6	879.7	225.88	4.895	
13,500.0	8,832.0	8,780.2	8,779.2	85.0	184.9	92.72	-6,497.0	-240.9	1,011.1	783.5	227.61	4.442	
13,600.0	8,832.0	8,778.5	8,777.5	86.3	184.9	92.43	-6,497.1	-240.9	917.8	688.0	229.80	3.994	
13,700.0	8,832.0	8,776.7	8,775.8	87.7	184.8	92.14	-6,497.1	-240.9	826.1	593.5	232.60	3.552	
13,800.0	8,832.0	8,775.0	8,774.0	89.1	184.8	91.86	-6,497.1	-240.9	736.5	500.3	236.22	3.118	
13,900.0	8,832.0	8,773.3	8,772.3	90.4	184.8	91.57	-6,497.1	-240.9	650.0	409.1	240.92	2.698	
14,000.0	8,832.0	8,771.5	8,770.6	91.8	184.7	91.29	-6,497.2	-240.9	567.9	320.9	247.02	2.299	
14,100.0	8,832.0	8,769.8	8,768.9	93.1	184.7	91.00	-6,497.2	-240.9	492.5	237.7	254.79	1.933	
14,200.0	8,832.0	8,768.1	8,767.1	94.5	184.7	90.72	-6,497.2	-240.9	427.3	163.2	264.14	1.618	
14,300.0	8,832.0	8,766.4	8,765.4	95.9	184.6	90.43	-6,497.3	-240.9	377.6	103.7	273.90	1.379	Level 3
14,400.0	8,832.0	8,764.7	8,763.7	97.3	184.6	90.15	-6,497.3	-240.9	350.2	69.1	281.09	1.246	Level 2
14,450.0	8,832.0	8,763.8	8,762.8	97.9	184.6	90.01	-6,497.3	-240.9	346.6	64.0	282.53	1.227	Level 2, CC, ES, SF
14,500.0	8,832.0	8,763.0	8,762.0	98.6	184.6	89.87	-6,497.3	-240.9	350.2	68.0	282.19	1.241	Level 2
14,600.0	8,832.0	8,761.2	8,760.3	100.0	184.5	89.58	-6,497.3	-240.9	377.6	100.7	276.95	1.364	Level 3
14,700.0	8,832.0	8,759.5	8,758.6	101.4	184.5	89.30	-6,497.4	-240.9	427.3	158.8	268.54	1.591	
14,800.0	8,832.0	8,757.8	8,756.9	102.8	184.5	89.02	-6,497.4	-240.9	492.5	232.5	260.01	1.894	
14,900.0	8,832.0	8,756.1	8,755.2	104.1	184.4	88.74	-6,497.4	-240.9	567.9	315.3	252.67	2.248	
15,000.0	8,832.0	8,754.4	8,753.5	105.5	184.4	88.46	-6,497.5	-240.9	650.0	403.3	246.76	2.634	
15,100.0	8,832.0	8,752.7	8,751.8	106.9	184.4	88.18	-6,497.5	-240.9	736.5	494.4	242.09	3.042	
15,200.0	8,832.0	8,751.1	8,750.1	108.3	184.3	87.90	-6,497.5	-240.9	826.1	587.7	238.42	3.465	
15,300.0	8,832.0	8,749.4	8,748.4	109.7	184.3	87.62	-6,497.6	-240.9	917.8	682.3	235.50	3.897	
15,400.0	8,832.0	8,747.7	8,746.7	111.1	184.3	87.35	-6,497.6	-240.9	1,011.1	777.9	233.18	4.336	
15,500.0	8,832.0	8,746.0	8,745.1	112.5	184.2	87.07	-6,497.6	-240.9	1,105.6	874.3	231.30	4.780	
15,600.0	8,832.0	8,744.3	8,743.4	113.9	184.2	86.79	-6,497.6	-240.9	1,200.9	971.2	229.77	5.227	
15,700.0	8,832.0	8,742.7	8,741.7	115.3	184.2	86.52	-6,497.7	-240.9	1,297.0	1,068.5	228.51	5.676	
15,800.0	8,832.0	8,741.0	8,740.0	116.7	184.1	86.24	-6,497.7	-240.9	1,393.6	1,166.1	227.46	6.127	
15,900.0	8,832.0	8,739.3	8,738.4	118.1	184.1	85.97	-6,497.7	-240.9	1,490.6	1,264.1	226.58	6.579	
16,000.0	8,832.0	8,737.7	8,736.7	119.5	184.1	85.69	-6,497.7	-240.9	1,588.1	1,362.2	225.84	7.032	
16,100.0	8,832.0	8,736.0	8,735.0	120.9	184.0	85.42	-6,497.8	-240.9	1,685.8	1,460.6	225.21	7.485	
16,200.0	8,832.0	8,734.3	8,733.4	122.3	184.0	85.15	-6,497.8	-240.9	1,783.7	1,559.1	224.67	7.939	
16,300.0	8,832.0	8,732.7	8,731.7	123.7	184.0	84.88	-6,497.8	-240.9	1,881.9	1,657.7	224.21	8.394	
16,400.0	8,832.0	8,731.0	8,730.1	125.1	183.9	84.61	-6,497.9	-240.9	1,980.3	1,756.5	223.81	8.848	
16,500.0	8,832.0	8,729.4	8,728.4	126.5	183.9	84.34	-6,497.9	-240.9	2,078.8	1,855.3	223.46	9.303	
16,600.0	8,832.0	8,727.7	8,726.8	127.9	183.9	84.07	-6,497.9	-240.9	2,177.4	1,954.3	223.16	9.757	
16,700.0	8,832.0	8,726.1	8,725.1	129.3	183.8	83.80	-6,497.9	-240.9	2,276.2	2,053.3	222.90	10.212	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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			Offset Wellbore Centre		Distance		Minimum Separation	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)			
12,300.0	8,832.0	8,786.8	8,785.8	69.1	184.6	-91.65	-6,479.9	1,080.2	2,354.2	2,129.3	224.96	10.465	
12,400.0	8,832.0	8,785.5	8,784.5	70.4	184.6	-91.57	-6,479.9	1,080.2	2,263.6	2,037.6	225.99	10.016	
12,500.0	8,832.0	8,784.2	8,783.2	71.7	184.6	-91.49	-6,480.0	1,080.2	2,173.8	1,946.6	227.14	9.570	
12,600.0	8,832.0	8,782.8	8,781.8	73.0	184.5	-91.41	-6,480.0	1,080.2	2,084.9	1,856.5	228.42	9.127	
12,700.0	8,832.0	8,781.5	8,780.5	74.3	184.5	-91.34	-6,480.0	1,080.2	1,997.0	1,767.2	229.85	8.688	
12,800.0	8,832.0	8,780.2	8,779.2	75.6	184.5	-91.26	-6,480.0	1,080.2	1,910.4	1,678.9	231.46	8.254	
12,900.0	8,832.0	8,778.9	8,777.9	77.0	184.5	-91.18	-6,480.0	1,080.2	1,825.1	1,591.8	233.24	7.825	
13,000.0	8,832.0	8,777.6	8,776.6	78.3	184.4	-91.10	-6,480.0	1,080.2	1,741.4	1,506.1	235.24	7.403	
13,100.0	8,832.0	8,776.3	8,775.3	79.6	184.4	-91.03	-6,480.1	1,080.2	1,659.4	1,422.0	237.46	6.988	
13,200.0	8,832.0	8,775.0	8,774.0	81.0	184.4	-90.95	-6,480.1	1,080.2	1,579.6	1,339.7	239.92	6.584	
13,300.0	8,832.0	8,773.7	8,772.7	82.3	184.3	-90.87	-6,480.1	1,080.2	1,502.2	1,259.5	242.65	6.191	
13,400.0	8,832.0	8,772.4	8,771.4	83.6	184.3	-90.80	-6,480.1	1,080.2	1,427.6	1,181.9	245.65	5.811	
13,500.0	8,832.0	8,771.0	8,770.0	85.0	184.3	-90.72	-6,480.1	1,080.2	1,356.2	1,107.3	248.93	5.448	
13,600.0	8,832.0	8,769.7	8,768.7	86.3	184.3	-90.64	-6,480.1	1,080.2	1,288.7	1,036.2	252.49	5.104	
13,700.0	8,832.0	8,768.4	8,767.4	87.7	184.2	-90.57	-6,480.2	1,080.2	1,225.6	969.3	256.29	4.782	
13,800.0	8,832.0	8,767.1	8,766.1	89.1	184.2	-90.49	-6,480.2	1,080.2	1,167.7	907.4	260.29	4.486	
13,900.0	8,832.0	8,765.8	8,764.8	90.4	184.2	-90.41	-6,480.2	1,080.2	1,115.7	851.3	264.40	4.220	
14,000.0	8,832.0	8,764.5	8,763.5	91.8	184.2	-90.34	-6,480.2	1,080.2	1,070.6	802.1	268.49	3.987	
14,100.0	8,832.0	8,763.2	8,762.2	93.1	184.1	-90.26	-6,480.2	1,080.2	1,033.2	760.8	272.42	3.793	
14,200.0	8,832.0	8,761.9	8,760.9	94.5	184.1	-90.18	-6,480.2	1,080.2	1,004.5	728.5	275.97	3.640	
14,300.0	8,832.0	8,760.6	8,759.6	95.9	184.1	-90.10	-6,480.3	1,080.2	985.0	706.1	278.96	3.531	
14,400.0	8,832.0	8,759.3	8,758.3	97.3	184.1	-90.03	-6,480.3	1,080.2	975.5	694.3	281.20	3.469	
14,443.2	8,832.0	8,758.7	8,757.7	97.8	184.1	-89.99	-6,480.3	1,080.2	974.6	692.7	281.90	3.457 CC, ES	
14,500.0	8,832.0	8,758.0	8,757.0	98.6	184.0	-89.95	-6,480.3	1,080.2	976.2	693.7	282.56	3.455 SF	
14,600.0	8,832.0	8,756.6	8,755.6	100.0	184.0	-89.87	-6,480.3	1,080.2	987.1	704.1	283.01	3.488	
14,700.0	8,832.0	8,755.3	8,754.3	101.4	184.0	-89.80	-6,480.3	1,080.2	1,007.8	725.2	282.59	3.566	
14,800.0	8,832.0	8,754.0	8,753.0	102.8	184.0	-89.72	-6,480.4	1,080.2	1,037.8	756.4	281.40	3.688	
14,900.0	8,832.0	8,752.7	8,751.7	104.1	183.9	-89.64	-6,480.4	1,080.2	1,076.3	796.7	279.62	3.849	
15,000.0	8,832.0	8,751.4	8,750.4	105.5	183.9	-89.57	-6,480.4	1,080.2	1,122.4	845.0	277.41	4.046	
15,100.0	8,832.0	8,750.1	8,749.1	106.9	183.9	-89.49	-6,480.4	1,080.2	1,175.2	900.3	274.93	4.275	
15,200.0	8,832.0	8,748.8	8,747.8	108.3	183.9	-89.41	-6,480.4	1,080.2	1,233.9	961.5	272.31	4.531	
15,300.0	8,832.0	8,747.5	8,746.5	109.7	183.8	-89.33	-6,480.4	1,080.2	1,297.6	1,027.9	269.65	4.812	
15,400.0	8,832.0	8,746.2	8,745.2	111.1	183.8	-89.26	-6,480.5	1,080.2	1,365.7	1,098.6	267.04	5.114	
15,500.0	8,832.0	8,744.9	8,743.9	112.5	183.8	-89.18	-6,480.5	1,080.2	1,437.5	1,173.0	264.52	5.434	
15,600.0	8,832.0	8,743.6	8,742.6	113.9	183.8	-89.10	-6,480.5	1,080.2	1,512.5	1,250.4	262.12	5.770	
15,700.0	8,832.0	8,742.2	8,741.3	115.3	183.7	-89.03	-6,480.5	1,080.2	1,590.3	1,330.4	259.85	6.120	
15,800.0	8,832.0	8,740.9	8,739.9	116.7	183.7	-88.95	-6,480.5	1,080.2	1,670.4	1,412.7	257.73	6.481	
15,900.0	8,832.0	8,739.6	8,738.6	118.1	183.7	-88.87	-6,480.5	1,080.2	1,752.6	1,496.8	255.76	6.852	
16,000.0	8,832.0	8,738.3	8,737.3	119.5	183.7	-88.80	-6,480.6	1,080.2	1,836.5	1,582.6	253.93	7.232	
16,100.0	8,832.0	8,737.0	8,736.0	120.9	183.6	-88.72	-6,480.6	1,080.2	1,922.0	1,669.8	252.23	7.620	
16,200.0	8,832.0	8,735.7	8,734.7	122.3	183.6	-88.64	-6,480.6	1,080.2	2,008.9	1,758.2	250.66	8.014	
16,300.0	8,832.0	8,734.4	8,733.4	123.7	183.6	-88.57	-6,480.6	1,080.2	2,096.9	1,847.6	249.21	8.414	
16,400.0	8,832.0	8,733.1	8,732.1	125.1	183.5	-88.49	-6,480.6	1,080.2	2,185.9	1,938.0	247.87	8.819	
16,500.0	8,832.0	8,731.8	8,730.8	126.5	183.5	-88.41	-6,480.6	1,080.2	2,275.8	2,029.2	246.62	9.228	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
13,500.0	8,832.0	8,769.5	8,768.8	85.0	176.5	94.92	-7,834.5	-231.9	2,313.8	2,102.4	211.40	10.945	
13,600.0	8,832.0	8,768.2	8,767.5	86.3	176.5	94.71	-7,834.5	-231.9	2,215.0	2,003.3	211.70	10.463	
13,700.0	8,832.0	8,766.8	8,766.2	87.7	176.4	94.50	-7,834.6	-231.9	2,116.3	1,904.2	212.05	9.980	
13,800.0	8,832.0	8,765.5	8,764.8	89.1	176.4	94.28	-7,834.6	-231.9	2,017.7	1,805.3	212.44	9.498	
13,900.0	8,832.0	8,764.2	8,763.5	90.4	176.4	94.07	-7,834.6	-231.9	1,919.3	1,706.4	212.89	9.016	
14,000.0	8,832.0	8,762.9	8,762.2	91.8	176.4	93.85	-7,834.6	-231.9	1,821.1	1,607.6	213.41	8.533	
14,100.0	8,832.0	8,761.6	8,760.9	93.1	176.3	93.64	-7,834.6	-231.9	1,723.0	1,509.0	214.01	8.051	
14,200.0	8,832.0	8,760.3	8,759.6	94.5	176.3	93.42	-7,834.7	-231.9	1,625.2	1,410.5	214.72	7.569	
14,300.0	8,832.0	8,759.0	8,758.3	95.9	176.3	93.21	-7,834.7	-231.9	1,527.7	1,312.1	215.56	7.087	
14,400.0	8,832.0	8,757.7	8,757.0	97.3	176.3	92.99	-7,834.7	-231.9	1,430.5	1,213.9	216.55	6.606	
14,500.0	8,832.0	8,756.4	8,755.7	98.6	176.2	92.78	-7,834.7	-231.9	1,333.7	1,116.0	217.74	6.125	
14,600.0	8,832.0	8,755.1	8,754.4	100.0	176.2	92.56	-7,834.7	-231.9	1,237.5	1,018.3	219.18	5.646	
14,700.0	8,832.0	8,753.8	8,753.1	101.4	176.2	92.35	-7,834.7	-231.9	1,141.9	920.9	220.94	5.168	
14,800.0	8,832.0	8,752.4	8,751.8	102.8	176.2	92.13	-7,834.8	-231.9	1,047.1	824.0	223.10	4.693	
14,900.0	8,832.0	8,751.1	8,750.5	104.1	176.1	91.92	-7,834.8	-231.9	953.4	727.6	225.78	4.222	
15,000.0	8,832.0	8,749.8	8,749.1	105.5	176.1	91.70	-7,834.8	-231.9	861.0	631.9	229.16	3.757	
15,100.0	8,832.0	8,748.5	8,747.8	106.9	176.1	91.49	-7,834.8	-231.9	770.6	537.2	233.45	3.301	
15,200.0	8,832.0	8,747.2	8,746.5	108.3	176.1	91.27	-7,834.8	-231.9	682.9	444.0	238.93	2.858	
15,300.0	8,832.0	8,745.9	8,745.2	109.7	176.0	91.06	-7,834.8	-231.9	599.0	353.1	245.96	2.436	
15,400.0	8,832.0	8,744.6	8,743.9	111.1	176.0	90.84	-7,834.9	-231.9	520.9	266.0	254.88	2.044	
15,500.0	8,832.0	8,743.3	8,742.6	112.5	176.0	90.63	-7,834.9	-231.9	451.5	185.7	265.78	1.699	
15,600.0	8,832.0	8,742.0	8,741.3	113.9	176.0	90.41	-7,834.9	-231.9	395.4	117.5	277.82	1.423 Level 3	
15,700.0	8,832.0	8,740.7	8,740.0	115.3	175.9	90.19	-7,834.9	-231.9	358.9	70.7	288.20	1.245 Level 2	
15,787.6	8,832.0	8,739.5	8,738.8	116.5	175.9	90.01	-7,834.9	-231.9	348.0	55.6	292.39	1.190 Level 2, CC, ES, SF	
15,800.0	8,832.0	8,739.4	8,738.7	116.7	175.9	89.98	-7,834.9	-231.9	348.2	55.8	292.46	1.191 Level 2	
15,900.0	8,832.0	8,738.0	8,737.4	118.1	175.9	89.76	-7,834.9	-231.9	365.7	77.2	288.46	1.268 Level 3	
16,000.0	8,832.0	8,736.7	8,736.1	119.5	175.8	89.55	-7,835.0	-231.9	407.7	128.7	278.94	1.461 Level 3	
16,100.0	8,832.0	8,735.4	8,734.7	120.9	175.8	89.33	-7,835.0	-231.9	467.6	199.5	268.10	1.744	
16,200.0	8,832.0	8,734.1	8,733.4	122.3	175.8	89.12	-7,835.0	-231.9	539.5	281.2	258.30	2.089	
16,300.0	8,832.0	8,732.8	8,732.1	123.7	175.8	88.90	-7,835.0	-231.9	619.3	369.1	250.22	2.475	
16,400.0	8,832.0	8,731.5	8,730.8	125.1	175.7	88.69	-7,835.0	-231.9	704.3	460.5	243.77	2.889	
16,500.0	8,832.0	8,730.2	8,729.5	126.5	175.7	88.47	-7,835.0	-231.9	792.8	554.1	238.66	3.322	
16,600.0	8,832.0	8,728.9	8,728.2	127.9	175.7	88.26	-7,835.1	-231.9	883.7	649.1	234.60	3.767	
16,700.0	8,832.0	8,727.6	8,726.9	129.3	175.7	88.04	-7,835.1	-231.9	976.4	745.0	231.35	4.220	
16,800.0	8,832.0	8,726.3	8,725.6	130.7	175.6	87.83	-7,835.1	-231.9	1,070.4	841.7	228.73	4.680	
16,900.0	8,832.0	8,725.0	8,724.3	132.1	175.6	87.61	-7,835.1	-231.9	1,165.4	938.8	226.58	5.144	
17,000.0	8,832.0	8,723.6	8,723.0	133.5	175.6	87.40	-7,835.1	-231.9	1,261.2	1,036.4	224.82	5.610	
17,100.0	8,832.0	8,722.3	8,721.7	134.9	175.6	87.18	-7,835.1	-231.9	1,357.6	1,134.3	223.35	6.078	
17,200.0	8,832.0	8,721.0	8,720.4	136.3	175.5	86.97	-7,835.2	-231.9	1,454.5	1,232.4	222.12	6.548	
17,300.0	8,832.0	8,719.7	8,719.0	137.7	175.5	86.75	-7,835.2	-231.9	1,551.7	1,330.7	221.08	7.019	
17,400.0	8,832.0	8,718.4	8,717.7	139.1	175.5	86.54	-7,835.2	-231.9	1,649.3	1,429.1	220.20	7.490	
17,500.0	8,832.0	8,717.1	8,716.4	140.6	175.5	86.32	-7,835.2	-231.9	1,747.2	1,527.8	219.44	7.962	
17,600.0	8,832.0	8,715.8	8,715.1	142.0	175.4	86.11	-7,835.2	-231.9	1,845.3	1,626.5	218.80	8.434	
17,700.0	8,832.0	8,714.5	8,713.8	143.4	175.4	85.89	-7,835.3	-231.9	1,943.6	1,725.4	218.24	8.906	
17,800.0	8,832.0	8,713.2	8,712.5	144.8	175.4	85.68	-7,835.3	-231.9	2,042.1	1,824.3	217.75	9.378	
17,900.0	8,832.0	8,711.9	8,711.2	146.2	175.4	85.46	-7,835.3	-231.9	2,140.6	1,923.3	217.33	9.850	
18,000.0	8,832.0	8,710.6	8,709.9	147.6	175.3	85.25	-7,835.3	-231.9	2,239.4	2,022.4	216.96	10.321	
18,100.0	8,832.0	8,709.3	8,708.6	149.0	175.3	85.04	-7,835.3	-231.9	2,338.2	2,121.6	216.64	10.793	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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
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	-90.98	-61.3	-64.3	60.0				
100.0	100.0	98.6	98.6	0.1	0.1	-90.98	-61.3	-64.3	60.0	59.7	0.26	229.325	
200.0	200.0	198.6	198.6	0.5	0.5	-90.98	-61.3	-64.3	60.0	59.0	0.98	61.512	
300.0	300.0	298.6	298.6	0.8	0.8	-90.98	-61.3	-64.3	60.0	58.3	1.69	35.453	
400.0	400.0	398.6	398.6	1.2	1.2	-90.98	-61.3	-64.3	60.0	57.6	2.41	24.903	
500.0	500.0	498.6	498.6	1.6	1.6	-90.98	-61.3	-64.3	60.0	56.9	3.13	19.192	
600.0	600.0	598.6	598.6	1.9	1.9	-90.98	-61.3	-64.3	60.0	56.2	3.84	15.612	
700.0	700.0	698.6	698.6	2.3	2.3	-90.98	-61.3	-64.3	60.0	55.4	4.56	13.157	
800.0	800.0	798.6	798.6	2.6	2.6	-90.98	-61.3	-64.3	60.0	54.7	5.28	11.370	
900.0	900.0	898.6	898.6	3.0	3.0	-90.98	-61.3	-64.3	60.0	54.0	5.99	10.010	
1,000.0	1,000.0	998.6	998.6	3.4	3.4	-90.98	-61.3	-64.3	60.0	53.3	6.71	8.940	
1,100.0	1,100.0	1,098.6	1,098.6	3.7	3.7	-90.98	-61.3	-64.3	60.0	52.6	7.43	8.078	
1,200.0	1,200.0	1,198.6	1,198.6	4.1	4.1	-90.98	-61.3	-64.3	60.0	51.9	8.14	7.366	
1,300.0	1,300.0	1,298.6	1,298.6	4.4	4.4	-90.98	-61.3	-64.3	60.0	51.1	8.86	6.771	
1,400.0	1,400.0	1,398.6	1,398.6	4.8	4.8	-90.98	-61.3	-64.3	60.0	50.4	9.58	6.264	
1,500.0	1,500.0	1,498.6	1,498.6	5.2	5.1	-90.98	-61.3	-64.3	60.0	49.7	10.30	5.828	
1,600.0	1,600.0	1,598.6	1,598.6	5.5	5.5	-90.98	-61.3	-64.3	60.0	49.0	11.01	5.448	
1,700.0	1,700.0	1,698.6	1,698.6	5.9	5.9	-90.98	-61.3	-64.3	60.0	48.3	11.73	5.115	
1,800.0	1,800.0	1,798.6	1,798.6	6.2	6.2	-90.98	-61.3	-64.3	60.0	47.6	12.45	4.821	
1,900.0	1,900.0	1,898.6	1,898.6	6.6	6.6	-90.98	-61.3	-64.3	60.0	46.8	13.16	4.558	
2,000.0	2,000.0	1,998.6	1,998.6	6.9	6.9	-90.98	-61.3	-64.3	60.0	46.1	13.88	4.323 CC, ES	
2,100.0	2,100.0	2,097.8	2,097.8	7.3	7.3	95.81	-61.8	-64.9	60.8	46.2	14.56	4.175	
2,200.0	2,199.8	2,196.9	2,196.9	7.6	7.6	98.89	-63.6	-66.8	63.3	48.1	15.21	4.164 SF	
2,300.0	2,299.5	2,295.9	2,295.8	7.9	7.9	103.45	-66.4	-70.0	67.9	52.1	15.86	4.283	
2,400.0	2,398.7	2,394.7	2,394.4	8.3	8.3	108.72	-70.4	-74.4	74.9	58.4	16.52	4.536	
2,500.0	2,497.9	2,493.5	2,492.8	8.6	8.6	112.56	-75.5	-80.1	83.6	66.5	17.19	4.867	
2,600.0	2,597.1	2,592.2	2,591.1	8.9	8.9	114.74	-81.7	-87.0	93.5	75.6	17.86	5.234	
2,700.0	2,696.3	2,691.2	2,689.6	9.3	9.3	115.80	-89.0	-95.1	104.1	85.5	18.54	5.612	
2,800.0	2,795.5	2,790.7	2,788.4	9.6	9.6	116.59	-96.3	-103.2	114.7	95.5	19.24	5.965	
2,900.0	2,894.7	2,890.1	2,887.2	10.0	10.0	117.25	-103.7	-111.4	125.5	105.5	19.94	6.293	
3,000.0	2,993.9	2,989.5	2,986.0	10.4	10.3	117.80	-111.1	-119.6	136.2	115.5	20.64	6.598	
3,100.0	3,093.1	3,088.9	3,084.8	10.7	10.7	118.27	-118.5	-127.8	146.9	125.6	21.35	6.881	
3,200.0	3,192.3	3,190.6	3,185.9	11.1	11.1	118.65	-126.2	-135.9	157.4	135.3	22.09	7.125	
3,300.0	3,291.5	3,290.8	3,285.4	11.5	11.4	118.79	-135.0	-142.7	166.3	143.5	22.81	7.291	
3,400.0	3,390.7	3,390.4	3,384.4	11.8	11.8	118.91	-143.7	-149.5	175.3	151.7	23.53	7.447	
3,500.0	3,489.9	3,490.0	3,483.4	12.2	12.1	119.02	-152.4	-156.3	184.2	159.9	24.26	7.592	
3,600.0	3,589.1	3,589.6	3,582.4	12.6	12.5	119.13	-161.1	-163.1	193.1	168.1	24.99	7.728	
3,700.0	3,688.3	3,689.2	3,681.4	12.9	12.9	119.22	-169.8	-169.9	202.1	176.3	25.72	7.855	
3,800.0	3,787.5	3,788.8	3,780.4	13.3	13.2	119.30	-178.5	-176.7	211.0	184.5	26.46	7.974	
3,900.0	3,886.7	3,888.4	3,879.4	13.7	13.6	119.38	-187.2	-183.5	219.9	192.7	27.20	8.086	
4,000.0	3,985.9	3,988.0	3,978.4	14.1	14.0	119.45	-195.8	-190.3	228.9	200.9	27.94	8.192	
4,100.0	4,085.1	4,087.6	4,077.3	14.5	14.4	119.52	-204.5	-197.1	237.8	209.1	28.68	8.291	
4,200.0	4,184.2	4,187.2	4,176.3	14.8	14.7	119.58	-213.2	-203.8	246.8	217.3	29.43	8.385	
4,300.0	4,283.4	4,286.8	4,275.3	15.2	15.1	119.64	-221.9	-210.6	255.7	225.5	30.17	8.474	
4,400.0	4,382.6	4,386.4	4,374.3	15.6	15.5	119.69	-230.6	-217.4	264.6	233.7	30.92	8.558	
4,500.0	4,481.8	4,486.0	4,473.3	16.0	15.8	119.74	-239.3	-224.2	273.6	241.9	31.67	8.638	
4,600.0	4,581.0	4,585.6	4,572.3	16.4	16.2	119.79	-248.0	-231.0	282.5	250.1	32.43	8.713	
4,700.0	4,680.2	4,685.2	4,671.3	16.8	16.6	119.83	-256.7	-237.8	291.5	258.3	33.18	8.785	
4,800.0	4,779.4	4,784.8	4,770.2	17.1	17.0	119.87	-265.4	-244.6	300.4	266.5	33.93	8.853	
4,900.0	4,878.6	4,884.4	4,869.2	17.5	17.3	119.91	-274.1	-251.4	309.4	274.7	34.69	8.918	
5,000.0	4,977.8	4,984.0	4,968.2	17.9	17.7	119.95	-282.8	-258.2	318.3	282.8	35.45	8.980	
5,100.0	5,077.0	5,083.6	5,067.2	18.3	18.1	119.98	-291.5	-264.9	327.2	291.0	36.20	9.039	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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	5,176.2	5,183.2	5,166.2	18.7	18.5	120.01	-300.2	-271.7	336.2	299.2	36.96	9.095	
5,300.0	5,275.4	5,282.8	5,265.2	19.1	18.9	120.05	-308.9	-278.5	345.1	307.4	37.72	9.149	
5,400.0	5,374.6	5,382.4	5,364.2	19.5	19.2	120.08	-317.6	-285.3	354.1	315.6	38.48	9.200	
5,500.0	5,473.8	5,482.0	5,463.1	19.9	19.6	120.10	-326.3	-292.1	363.0	323.8	39.24	9.250	
5,600.0	5,573.0	5,581.6	5,562.1	20.3	20.0	120.13	-335.0	-298.9	371.9	331.9	40.01	9.297	
5,700.0	5,672.2	5,681.2	5,661.1	20.6	20.4	120.16	-343.7	-305.7	380.9	340.1	40.77	9.342	
5,800.0	5,771.4	5,780.8	5,760.1	21.0	20.8	120.18	-352.4	-312.5	389.8	348.3	41.53	9.386	
5,900.0	5,870.6	5,880.4	5,859.1	21.4	21.1	120.20	-361.1	-319.2	398.8	356.5	42.30	9.428	
6,000.0	5,969.8	5,980.0	5,958.1	21.8	21.5	120.23	-369.8	-326.0	407.7	364.7	43.06	9.468	
6,100.0	6,069.0	6,079.6	6,057.1	22.2	21.9	120.25	-378.5	-332.8	416.7	372.8	43.83	9.507	
6,200.0	6,168.2	6,179.2	6,156.0	22.6	22.3	120.27	-387.2	-339.6	425.6	381.0	44.59	9.544	
6,300.0	6,267.3	6,278.8	6,255.0	23.0	22.7	120.29	-395.9	-346.4	434.5	389.2	45.36	9.580	
6,400.0	6,366.5	6,378.4	6,354.0	23.4	23.1	120.30	-404.6	-353.2	443.5	397.4	46.13	9.614	
6,500.0	6,465.7	6,478.0	6,453.0	23.8	23.4	120.32	-413.3	-360.0	452.4	405.5	46.90	9.647	
6,600.0	6,564.9	6,577.6	6,552.0	24.2	23.8	120.34	-422.0	-366.8	461.4	413.7	47.66	9.680	
6,700.0	6,664.1	6,677.2	6,651.0	24.6	24.2	120.36	-430.7	-373.6	470.3	421.9	48.43	9.711	
6,800.0	6,763.3	6,776.8	6,750.0	25.0	24.6	120.37	-439.4	-380.3	479.3	430.1	49.20	9.741	
6,900.0	6,862.5	6,876.4	6,849.0	25.4	25.0	120.39	-448.1	-387.1	488.2	438.2	49.97	9.770	
7,000.0	6,961.7	6,976.0	6,947.9	25.8	25.4	120.40	-456.8	-393.9	497.1	446.4	50.74	9.798	
7,100.0	7,060.9	7,075.6	7,046.9	26.2	25.7	120.42	-465.5	-400.7	506.1	454.6	51.51	9.825	
7,200.0	7,160.1	7,175.2	7,145.9	26.5	26.1	120.46	-474.2	-407.5	515.0	462.7	52.28	9.850	
7,300.0	7,259.6	7,274.8	7,245.0	26.9	26.5	120.36	-482.9	-414.3	522.6	469.6	53.05	9.853	
7,400.0	7,359.4	7,374.5	7,344.1	27.3	26.9	119.92	-491.6	-421.1	528.6	474.8	53.80	9.824	
7,500.0	7,459.3	7,474.1	7,443.0	27.7	27.3	119.13	-500.3	-427.9	532.8	478.3	54.54	9.769	
7,600.0	7,559.3	7,573.5	7,541.8	28.0	27.7	-67.66	-509.0	-434.6	535.9	480.6	55.26	9.697	
7,700.0	7,659.3	7,672.9	7,640.6	28.3	28.1	-68.79	-517.6	-441.4	539.0	483.0	55.97	9.630	
7,800.0	7,759.3	7,772.3	7,739.4	28.6	28.4	-69.90	-526.3	-448.2	542.3	485.6	56.68	9.568	
7,900.0	7,859.3	7,871.7	7,838.1	28.9	28.8	-71.00	-535.0	-455.0	545.8	488.4	57.38	9.512	
8,000.0	7,959.3	7,971.1	7,936.9	29.2	29.2	-72.09	-543.7	-461.7	549.5	491.5	58.09	9.460	
8,100.0	8,059.3	8,070.4	8,035.7	29.6	29.6	-73.16	-552.4	-468.5	553.5	494.7	58.79	9.414	
8,200.0	8,159.3	8,169.8	8,134.5	29.9	30.0	-74.22	-561.0	-475.3	557.6	498.1	59.50	9.371	
8,300.0	8,259.3	8,269.2	8,233.2	30.2	30.4	-75.26	-569.7	-482.1	561.9	501.7	60.20	9.333	
8,400.0	8,359.3	8,368.6	8,332.0	30.5	30.7	104.14	-578.4	-488.8	566.4	505.5	60.90	9.299	
8,500.0	8,458.5	8,468.1	8,430.9	30.9	31.1	103.38	-587.1	-495.6	573.7	512.0	61.67	9.303	
8,600.0	8,553.1	8,564.9	8,527.1	31.4	31.5	103.94	-595.5	-502.2	586.2	523.7	62.50	9.379	
8,700.0	8,639.0	8,654.8	8,616.4	31.9	31.9	105.17	-603.4	-508.3	605.4	542.0	63.35	9.556	
8,800.0	8,712.5	8,733.7	8,694.8	32.5	32.2	106.07	-610.3	-513.7	633.5	569.4	64.15	9.876	
8,900.0	8,770.4	8,798.2	8,759.0	33.1	32.4	105.50	-615.9	-518.1	672.8	608.0	64.82	10.380	
9,000.0	8,810.1	8,845.6	8,806.1	33.8	32.6	102.30	-620.1	-521.3	724.0	658.7	65.31	11.086	
9,100.0	8,829.9	8,873.8	8,834.1	34.5	32.7	95.43	-622.5	-523.3	786.1	720.5	65.58	11.986	
9,200.0	8,832.0	8,884.6	8,844.8	35.1	32.7	91.39	-623.5	-524.0	856.2	790.5	65.67	13.038	
9,300.0	8,832.0	8,893.2	8,853.4	35.9	32.8	92.24	-624.2	-524.6	931.8	866.1	65.70	14.181	
9,400.0	8,832.0	8,901.9	8,862.1	36.6	32.8	93.08	-625.0	-525.2	1,011.5	945.8	65.72	15.392	
9,500.0	8,832.0	8,910.6	8,870.7	37.4	32.8	93.91	-625.7	-525.8	1,094.5	1,028.8	65.72	16.654	
9,600.0	8,832.0	8,919.3	8,879.3	38.3	32.9	94.75	-626.5	-526.4	1,180.1	1,114.4	65.72	17.956	
9,700.0	8,832.0	8,928.0	8,887.9	39.1	32.9	95.58	-627.2	-527.0	1,267.7	1,202.0	65.72	19.289	
9,800.0	8,832.0	8,936.6	8,896.6	40.1	33.0	96.40	-628.0	-527.6	1,357.0	1,291.3	65.72	20.647	
9,900.0	8,832.0	8,945.3	8,905.2	41.0	33.0	97.23	-628.8	-528.1	1,447.6	1,381.9	65.73	22.023	
10,000.0	8,832.0	8,954.0	8,913.8	42.0	33.0	98.04	-629.5	-528.7	1,539.4	1,473.6	65.74	23.416	
10,100.0	8,832.0	8,962.7	8,922.4	43.0	33.1	98.86	-630.3	-529.3	1,632.0	1,566.3	65.76	24.820	
10,200.0	8,832.0	8,971.4	8,931.1	44.0	33.1	99.66	-631.0	-529.9	1,725.5	1,659.7	65.78	26.233	
10,300.0	8,832.0	8,980.0	8,939.7	45.0	33.1	100.46	-631.8	-530.5	1,819.6	1,753.8	65.80	27.654	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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:			
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	
10,400.0	8,832.0	8,988.7	8,948.3	46.1	33.2	101.26	-632.5	-531.1	1,914.2	1,848.4	65.83	29.080		
10,500.0	8,832.0	8,997.4	8,956.9	47.2	33.2	102.05	-633.3	-531.7	2,009.4	1,943.5	65.86	30.511		
10,600.0	8,832.0	9,006.1	8,965.6	48.3	33.2	102.83	-634.1	-532.3	2,104.9	2,039.0	65.89	31.945		
10,700.0	8,832.0	9,014.8	8,974.2	49.4	33.3	103.61	-634.8	-532.9	2,200.9	2,134.9	65.93	33.381		
10,800.0	8,832.0	9,023.4	8,982.8	50.6	33.3	104.38	-635.6	-533.5	2,297.1	2,231.1	65.97	34.819		

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 009H - 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	1.3	1.3	0.0	0.0	-21.41	98.7	-66.6	170.7				
100.0	100.0	101.3	101.3	0.1	0.1	-21.41	98.7	-66.6	170.7	170.4	0.27	636.645	
200.0	200.0	201.3	201.3	0.5	0.5	-21.41	98.7	-66.6	170.7	169.7	0.99	173.294	
300.0	300.0	301.3	301.3	0.8	0.9	-21.41	98.7	-66.6	170.7	169.0	1.70	100.297	
400.0	400.0	401.3	401.3	1.2	1.2	-21.41	98.7	-66.6	170.7	168.3	2.42	70.571	
500.0	500.0	501.3	501.3	1.6	1.6	-21.41	98.7	-66.6	170.7	167.6	3.14	54.437	
600.0	600.0	601.3	601.3	1.9	1.9	-21.41	98.7	-66.6	170.7	166.9	3.85	44.307	
700.0	700.0	701.3	701.3	2.3	2.3	-21.41	98.7	-66.6	170.7	166.1	4.57	37.356	
800.0	800.0	801.3	801.3	2.6	2.6	-21.41	98.7	-66.6	170.7	165.4	5.29	32.290	
900.0	900.0	901.3	901.3	3.0	3.0	-21.41	98.7	-66.6	170.7	164.7	6.00	28.434	
1,000.0	1,000.0	1,001.3	1,001.3	3.4	3.4	-21.41	98.7	-66.6	170.7	164.0	6.72	25.401	
1,100.0	1,100.0	1,101.3	1,101.3	3.7	3.7	-21.41	98.7	-66.6	170.7	163.3	7.44	22.952	
1,200.0	1,200.0	1,201.3	1,201.3	4.1	4.1	-21.41	98.7	-66.6	170.7	162.6	8.15	20.934	
1,300.0	1,300.0	1,301.3	1,301.3	4.4	4.4	-21.41	98.7	-66.6	170.7	161.8	8.87	19.242	
1,400.0	1,400.0	1,401.3	1,401.3	4.8	4.8	-21.41	98.7	-66.6	170.7	161.1	9.59	17.804	
1,500.0	1,500.0	1,501.3	1,501.3	5.2	5.2	-21.41	98.7	-66.6	170.7	160.4	10.31	16.565	
1,600.0	1,600.0	1,601.3	1,601.3	5.5	5.5	-21.41	98.7	-66.6	170.7	159.7	11.02	15.488	
1,700.0	1,700.0	1,701.3	1,701.3	5.9	5.9	-21.41	98.7	-66.6	170.7	159.0	11.74	14.542	
1,800.0	1,800.0	1,801.3	1,801.3	6.2	6.2	-21.41	98.7	-66.6	170.7	158.3	12.46	13.705	
1,900.0	1,900.0	1,901.3	1,901.3	6.6	6.6	-21.41	98.7	-66.6	170.7	157.5	13.17	12.959	
2,000.0	2,000.0	2,001.3	2,001.3	6.9	6.9	-21.41	98.7	-66.6	170.7	156.8	13.89	12.290 CC, ES	
2,100.0	2,100.0	2,101.3	2,101.3	7.3	7.3	164.44	98.7	-66.6	172.4	157.8	14.59	11.817	
2,200.0	2,199.8	2,201.1	2,201.1	7.6	7.7	164.87	98.7	-66.6	177.4	162.2	15.27	11.619	
2,300.0	2,299.5	2,300.8	2,300.8	7.9	8.0	165.53	98.7	-66.6	185.9	169.9	15.96	11.648	
2,400.0	2,398.7	2,400.0	2,400.0	8.3	8.4	166.36	98.7	-66.6	197.5	180.8	16.64	11.865	
2,500.0	2,497.9	2,499.2	2,499.2	8.6	8.7	167.17	98.7	-66.6	209.8	192.5	17.33	12.107	
2,600.0	2,597.1	2,605.7	2,605.7	8.9	9.1	168.18	97.3	-65.3	220.5	202.5	18.02	12.239	
2,700.0	2,696.3	2,712.7	2,712.5	9.3	9.5	169.55	93.0	-61.1	228.1	209.4	18.69	12.203	
2,800.0	2,795.5	2,820.0	2,819.3	9.6	9.8	171.32	85.9	-54.1	232.5	213.1	19.35	12.014	
2,900.0	2,894.7	2,927.1	2,925.5	10.0	10.2	173.53	76.0	-44.4	233.9	213.9	20.00	11.691	
3,000.0	2,993.9	3,028.8	3,025.9	10.4	10.5	175.99	64.5	-33.2	233.2	212.6	20.68	11.278	
3,100.0	3,093.1	3,128.3	3,124.2	10.7	10.9	178.43	53.2	-22.0	232.9	211.5	21.38	10.895	
3,129.8	3,122.7	3,158.0	3,153.4	10.8	11.0	179.16	49.8	-18.7	232.9	211.3	21.59	10.788	
3,200.0	3,192.3	3,227.8	3,222.4	11.1	11.2	-179.13	41.8	-10.9	233.0	210.9	22.08	10.552	
3,300.0	3,291.5	3,327.3	3,320.6	11.5	11.6	-176.69	30.5	0.2	233.5	210.7	22.79	10.247	
3,400.0	3,390.7	3,426.8	3,418.8	11.8	11.9	-174.27	19.1	11.3	234.4	210.9	23.50	9.975	
3,500.0	3,489.9	3,526.3	3,517.1	12.2	12.3	-171.87	7.8	22.4	235.8	211.6	24.22	9.735	
3,600.0	3,589.1	3,625.8	3,615.3	12.6	12.7	-169.51	-3.6	33.5	237.6	212.6	24.95	9.522	
3,700.0	3,688.3	3,725.3	3,713.5	12.9	13.0	-167.18	-14.9	44.6	239.7	214.0	25.68	9.335	
3,800.0	3,787.5	3,824.8	3,811.8	13.3	13.4	-164.90	-26.2	55.7	242.3	215.9	26.42	9.171	
3,900.0	3,886.7	3,924.3	3,910.0	13.7	13.8	-162.67	-37.6	66.8	245.2	218.1	27.16	9.029	
4,000.0	3,985.9	4,023.8	4,008.2	14.1	14.2	-160.49	-48.9	77.9	248.5	220.6	27.91	8.905	
4,100.0	4,085.1	4,123.3	4,106.4	14.5	14.6	-158.37	-60.3	89.0	252.2	223.5	28.66	8.799	
4,200.0	4,184.2	4,222.8	4,204.7	14.8	14.9	-156.32	-71.6	100.1	256.2	226.8	29.42	8.708	
4,300.0	4,283.4	4,322.3	4,302.9	15.2	15.3	-154.33	-83.0	111.3	260.5	230.3	30.18	8.631	
4,400.0	4,382.6	4,421.8	4,401.1	15.6	15.7	-152.41	-94.3	122.4	265.1	234.2	30.95	8.566	
4,500.0	4,481.8	4,521.3	4,499.3	16.0	16.1	-150.55	-105.6	133.5	270.0	238.3	31.72	8.513	
4,600.0	4,581.0	4,620.8	4,597.6	16.4	16.5	-148.76	-117.0	144.6	275.2	242.7	32.49	8.470	
4,700.0	4,680.2	4,720.3	4,695.8	16.8	16.9	-147.04	-128.3	155.7	280.7	247.4	33.27	8.436	
4,800.0	4,779.4	4,819.8	4,794.0	17.1	17.3	-145.39	-139.7	166.8	286.4	252.3	34.05	8.410	
4,900.0	4,878.6	4,919.3	4,892.2	17.5	17.7	-143.80	-151.0	177.9	292.3	257.4	34.83	8.391	
5,000.0	4,977.8	5,018.8	4,990.5	17.9	18.1	-142.28	-162.4	189.0	298.4	262.8	35.62	8.378	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 009H - OH - Plan 0.1													Offset Site Error:	0.0 usft	
Survey Program:		0-B001Mb_MWD+HRGM				Rule Assigned:								Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside		Offset Wellbore Centre		Distance		Separation		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
5,100.0	5,077.0	5,118.3	5,088.7	18.3	18.5	-140.81	-173.7	200.1	304.8	268.3	36.41	8.371			
5,200.0	5,176.2	5,217.8	5,186.9	18.7	18.9	-139.41	-185.1	211.2	311.3	274.1	37.19	8.369 SF			
5,300.0	5,275.4	5,317.3	5,285.1	19.1	19.3	-138.07	-196.4	222.3	318.0	280.0	37.98	8.372			
5,400.0	5,374.6	5,416.8	5,383.4	19.5	19.7	-136.78	-207.7	233.4	324.9	286.1	38.78	8.378			
5,500.0	5,473.8	5,516.3	5,481.6	19.9	20.1	-135.54	-219.1	244.6	331.9	292.3	39.57	8.388			
5,600.0	5,573.0	5,615.8	5,579.8	20.3	20.5	-134.36	-230.4	255.7	339.1	298.7	40.36	8.401			
5,700.0	5,672.2	5,715.3	5,678.0	20.6	20.9	-133.23	-241.8	266.8	346.4	305.2	41.16	8.416			
5,800.0	5,771.4	5,814.8	5,776.3	21.0	21.3	-132.14	-253.1	277.9	353.9	311.9	41.96	8.434			
5,900.0	5,870.6	5,914.3	5,874.5	21.4	21.7	-131.10	-264.5	289.0	361.4	318.7	42.75	8.454			
6,000.0	5,969.8	6,013.8	5,972.7	21.8	22.1	-130.10	-275.8	300.1	369.1	325.6	43.55	8.476			
6,100.0	6,069.0	6,113.3	6,071.0	22.2	22.5	-129.14	-287.1	311.2	376.9	332.6	44.35	8.499			
6,200.0	6,168.2	6,212.8	6,169.2	22.6	22.9	-128.22	-298.5	322.3	384.8	339.7	45.15	8.523			
6,300.0	6,267.3	6,312.3	6,267.4	23.0	23.3	-127.34	-309.8	333.4	392.8	346.8	45.95	8.549			
6,400.0	6,366.5	6,411.8	6,365.6	23.4	23.7	-126.49	-321.2	344.5	400.9	354.1	46.75	8.575			
6,500.0	6,465.7	6,511.3	6,463.9	23.8	24.1	-125.68	-332.5	355.6	409.0	361.5	47.55	8.602			
6,600.0	6,564.9	6,610.8	6,562.1	24.2	24.5	-124.90	-343.9	366.7	417.3	368.9	48.35	8.630			
6,700.0	6,664.1	6,710.3	6,660.3	24.6	24.9	-124.15	-355.2	377.9	425.6	376.4	49.15	8.659			
6,800.0	6,763.3	6,809.8	6,758.5	25.0	25.4	-123.43	-366.5	389.0	434.0	384.0	49.95	8.688			
6,900.0	6,862.5	6,909.3	6,856.8	25.4	25.8	-122.73	-377.9	400.1	442.4	391.7	50.75	8.717			
7,000.0	6,961.7	7,008.8	6,955.0	25.8	26.2	-122.06	-389.2	411.2	450.9	399.4	51.56	8.747			
7,100.0	7,060.9	7,108.3	7,053.2	26.2	26.6	-121.42	-400.6	422.3	459.5	407.2	52.36	8.776			
7,200.0	7,160.1	7,207.8	7,151.4	26.5	27.0	-120.82	-411.9	433.4	468.1	414.9	53.16	8.805			
7,300.0	7,259.6	7,307.3	7,249.6	26.9	27.4	-120.09	-423.3	444.5	475.5	421.6	53.96	8.813			
7,400.0	7,359.4	7,406.6	7,347.7	27.3	27.8	-119.00	-434.6	455.6	481.3	426.6	54.74	8.793			
7,500.0	7,459.3	7,505.7	7,445.5	27.7	28.2	-117.55	-445.9	466.6	485.7	430.2	55.51	8.751			
7,600.0	7,559.3	7,604.4	7,543.0	28.0	28.6	-116.50	-457.1	477.7	489.2	433.0	56.25	8.698			
7,700.0	7,659.3	7,703.2	7,640.4	28.3	29.0	-115.50	-468.4	488.7	493.1	436.1	56.97	8.655			
7,800.0	7,759.3	7,801.9	7,737.9	28.6	29.4	-114.50	-479.6	499.7	497.4	439.7	57.70	8.621			
7,900.0	7,859.3	7,900.6	7,835.3	28.9	29.9	-113.50	-490.9	510.7	502.2	443.8	58.41	8.598			
8,000.0	7,959.3	7,999.3	7,932.8	29.2	30.3	-112.50	-502.1	521.8	507.5	448.4	59.12	8.583			
8,100.0	8,059.3	8,098.0	8,030.2	29.6	30.7	-111.50	-513.4	532.8	513.2	453.4	59.83	8.577			
8,200.0	8,159.3	8,196.8	8,127.7	29.9	31.1	-110.50	-524.6	543.8	519.3	458.8	60.53	8.579			
8,300.0	8,259.3	8,295.5	8,225.1	30.2	31.5	-109.50	-535.9	554.8	525.9	464.6	61.23	8.588			
8,400.0	8,359.3	8,394.2	8,322.6	30.5	31.9	-107.65	-547.2	565.8	532.8	470.9	61.93	8.604			
8,500.0	8,458.5	8,493.4	8,420.5	30.9	32.3	-106.08	-558.5	576.9	543.4	480.6	62.71	8.665			
8,600.0	8,553.1	8,590.5	8,516.3	31.4	32.7	-105.84	-569.5	587.8	559.9	496.3	63.59	8.804			
8,700.0	8,639.0	8,681.1	8,605.9	31.9	33.1	-106.38	-579.9	597.9	583.3	518.8	64.53	9.039			
8,800.0	8,712.5	8,761.4	8,685.1	32.5	33.4	-106.72	-589.0	606.8	615.5	550.1	65.43	9.407			
8,900.0	8,770.4	8,827.9	8,750.8	33.1	33.7	-105.71	-596.6	614.3	658.4	592.1	66.22	9.943			
9,000.0	8,810.1	8,877.6	8,799.8	33.8	33.9	-102.18	-602.3	619.8	712.4	645.6	66.80	10.665			
9,100.0	8,829.9	8,908.4	8,830.2	34.5	34.0	-95.03	-605.8	623.2	776.7	709.5	67.14	11.567			
9,200.0	8,832.0	8,922.0	8,843.6	35.1	34.1	-91.04	-607.3	624.8	848.5	781.2	67.28	12.612			
9,300.0	8,832.0	8,933.4	8,854.9	35.9	34.2	-92.19	-608.6	626.0	925.4	858.1	67.34	13.742			
9,400.0	8,832.0	8,944.9	8,866.3	36.6	34.2	-93.33	-609.9	627.3	1,006.3	938.9	67.38	14.935			
9,500.0	8,832.0	8,956.4	8,877.6	37.4	34.2	-94.46	-611.3	628.6	1,090.2	1,022.8	67.39	16.176			
9,600.0	8,832.0	8,967.9	8,889.0	38.3	34.3	-95.58	-612.6	629.9	1,176.5	1,109.1	67.41	17.454			
9,700.0	8,832.0	8,979.4	8,900.3	39.1	34.3	-96.69	-613.9	631.2	1,264.8	1,197.4	67.42	18.761			
9,800.0	8,832.0	8,990.9	8,911.6	40.1	34.4	-97.79	-615.2	632.5	1,354.6	1,287.1	67.43	20.089			
9,900.0	8,832.0	9,002.4	8,923.0	41.0	34.4	-98.88	-616.5	633.7	1,445.6	1,378.1	67.44	21.434			
10,000.0	8,832.0	9,013.8	8,934.3	42.0	34.5	-99.96	-617.8	635.0	1,537.7	1,470.2	67.46	22.793			
10,100.0	8,832.0	9,025.3	8,945.7	43.0	34.5	-101.03	-619.1	636.3	1,630.6	1,563.1	67.48	24.162			
10,200.0	8,832.0	9,036.8	8,957.0	44.0	34.6	-102.09	-620.4	637.6	1,724.2	1,656.7	67.51	25.539			

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 009H - 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	8,832.0	9,048.3	8,968.3	45.0	34.6	-103.13	-621.7	638.9	1,818.4	1,750.9	67.55	26.922		
10,400.0	8,832.0	9,059.8	8,979.7	46.1	34.7	-104.16	-623.0	640.2	1,913.2	1,845.6	67.58	28.309		
10,500.0	8,832.0	9,071.3	8,991.0	47.2	34.7	-105.18	-624.3	641.4	2,008.4	1,940.8	67.62	29.699		
10,600.0	8,832.0	9,082.8	9,002.3	48.3	34.8	-106.18	-625.7	642.7	2,104.0	2,036.3	67.67	31.092		
10,700.0	8,832.0	9,094.3	9,013.7	49.4	34.8	-107.17	-627.0	644.0	2,199.9	2,132.2	67.72	32.485		
10,800.0	8,832.0	9,105.7	9,025.0	50.6	34.9	-108.14	-628.3	645.3	2,296.1	2,228.3	67.77	33.879		

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	3.3	3.3	0.0	0.0	-0.81	99.8	-6.6	160.1				
100.0	100.0	103.3	103.3	0.1	0.1	-0.81	99.8	-6.6	160.1	159.8	0.28	581.482	
200.0	200.0	203.3	203.3	0.5	0.5	-0.81	99.8	-6.6	160.1	159.1	0.99	161.336	
300.0	300.0	303.3	303.3	0.8	0.9	-0.81	99.8	-6.6	160.1	158.4	1.71	93.662	
400.0	400.0	403.3	403.3	1.2	1.2	-0.81	99.8	-6.6	160.1	157.7	2.43	65.984	
500.0	500.0	503.3	503.3	1.6	1.6	-0.81	99.8	-6.6	160.1	156.9	3.14	50.933	
600.0	600.0	603.3	603.3	1.9	1.9	-0.81	99.8	-6.6	160.1	156.2	3.86	41.473	
700.0	700.0	703.3	703.3	2.3	2.3	-0.81	99.8	-6.6	160.1	155.5	4.58	34.976	
800.0	800.0	803.3	803.3	2.6	2.7	-0.81	99.8	-6.6	160.1	154.8	5.29	30.240	
900.0	900.0	903.3	903.3	3.0	3.0	-0.81	99.8	-6.6	160.1	154.1	6.01	26.633	
1,000.0	1,000.0	1,003.3	1,003.3	3.4	3.4	-0.81	99.8	-6.6	160.1	153.4	6.73	23.795	
1,100.0	1,100.0	1,103.3	1,103.3	3.7	3.7	-0.81	99.8	-6.6	160.1	152.6	7.44	21.503	
1,200.0	1,200.0	1,203.3	1,203.3	4.1	4.1	-0.81	99.8	-6.6	160.1	151.9	8.16	19.614	
1,300.0	1,300.0	1,303.3	1,303.3	4.4	4.4	-0.81	99.8	-6.6	160.1	151.2	8.88	18.030	
1,400.0	1,400.0	1,403.3	1,403.3	4.8	4.8	-0.81	99.8	-6.6	160.1	150.5	9.60	16.683	
1,500.0	1,500.0	1,503.3	1,503.3	5.2	5.2	-0.81	99.8	-6.6	160.1	149.8	10.31	15.523	
1,600.0	1,600.0	1,603.3	1,603.3	5.5	5.5	-0.81	99.8	-6.6	160.1	149.1	11.03	14.514	
1,700.0	1,700.0	1,703.3	1,703.3	5.9	5.9	-0.81	99.8	-6.6	160.1	148.3	11.75	13.629	
1,800.0	1,800.0	1,803.3	1,803.3	6.2	6.2	-0.81	99.8	-6.6	160.1	147.6	12.46	12.845	
1,900.0	1,900.0	1,903.3	1,903.3	6.6	6.6	-0.81	99.8	-6.6	160.1	146.9	13.18	12.146	
2,000.0	2,000.0	2,003.4	2,003.4	6.9	7.0	-0.80	99.8	-6.6	160.1	146.2	13.90	11.519	
2,003.7	2,003.7	2,007.2	2,007.2	7.0	7.0	-175.10	99.8	-6.6	160.1	146.2	13.92	11.498	CC, ES
2,100.0	2,100.0	2,106.3	2,106.3	7.3	7.3	-174.56	98.8	-4.8	160.9	146.3	14.59	11.025	
2,200.0	2,199.8	2,209.0	2,208.9	7.6	7.7	-173.01	96.0	0.0	163.4	148.1	15.25	10.709	
2,300.0	2,299.5	2,311.4	2,310.8	7.9	8.0	-170.59	91.4	8.1	167.8	151.9	15.92	10.540	
2,400.0	2,398.7	2,413.4	2,411.9	8.3	8.4	-167.42	85.0	19.2	174.3	157.7	16.60	10.501	
2,500.0	2,497.9	2,514.7	2,512.0	8.6	8.7	-163.52	76.8	33.4	180.7	163.4	17.28	10.455	
2,600.0	2,597.1	2,615.3	2,610.6	8.9	9.1	-158.89	67.0	50.5	186.9	168.9	17.99	10.393	
2,700.0	2,696.3	2,715.0	2,707.6	9.3	9.4	-153.63	55.6	70.4	193.7	175.0	18.71	10.353	
2,800.0	2,795.5	2,813.4	2,802.5	9.6	9.8	-147.85	42.6	92.9	201.7	182.3	19.45	10.373	
2,900.0	2,894.7	2,910.5	2,895.4	10.0	10.2	-141.83	28.4	117.5	211.8	191.6	20.19	10.488	
3,000.0	2,993.9	3,007.4	2,987.9	10.4	10.6	-136.26	14.0	142.6	224.1	203.1	20.94	10.703	
3,100.0	3,093.1	3,104.3	3,080.3	10.7	11.1	-131.30	-0.4	167.6	238.3	216.7	21.68	10.993	
3,200.0	3,192.3	3,201.2	3,172.8	11.1	11.5	-126.90	-14.8	192.6	254.2	231.8	22.43	11.336	
3,300.0	3,291.5	3,298.1	3,265.3	11.5	11.9	-123.02	-29.2	217.7	271.4	248.3	23.17	11.713	
3,400.0	3,390.7	3,394.9	3,357.8	11.8	12.4	-119.61	-43.6	242.7	289.7	265.8	23.92	12.111	
3,500.0	3,489.9	3,491.8	3,450.3	12.2	12.9	-116.60	-57.9	267.7	309.0	284.3	24.68	12.520	
3,600.0	3,589.1	3,588.7	3,542.8	12.6	13.3	-113.94	-72.3	292.7	328.9	303.5	25.43	12.932	
3,700.0	3,688.3	3,685.6	3,635.2	12.9	13.8	-111.58	-86.7	317.8	349.5	323.3	26.19	13.342	
3,800.0	3,787.5	3,782.5	3,727.7	13.3	14.3	-109.48	-101.1	342.8	370.6	343.6	26.96	13.747	
3,900.0	3,886.7	3,879.4	3,820.2	13.7	14.8	-107.61	-115.5	367.8	392.1	364.4	27.72	14.143	
4,000.0	3,985.9	3,976.3	3,912.7	14.1	15.2	-105.93	-129.9	392.8	414.0	385.5	28.49	14.529	
4,100.0	4,085.1	4,073.1	4,005.2	14.5	15.7	-104.42	-144.3	417.9	436.1	406.9	29.26	14.903	
4,200.0	4,184.2	4,170.0	4,097.7	14.8	16.2	-103.05	-158.7	442.9	458.6	428.5	30.04	15.266	
4,300.0	4,283.4	4,266.9	4,190.1	15.2	16.7	-101.81	-173.1	467.9	481.3	450.4	30.82	15.616	
4,400.0	4,382.6	4,363.8	4,282.6	15.6	17.2	-100.68	-187.5	492.9	504.1	472.5	31.60	15.954	
4,500.0	4,481.8	4,460.7	4,375.1	16.0	17.7	-99.65	-201.9	518.0	527.2	494.8	32.38	16.280	
4,600.0	4,581.0	4,557.6	4,467.6	16.4	18.2	-98.71	-216.3	543.0	550.4	517.2	33.17	16.594	
4,700.0	4,680.2	4,654.5	4,560.1	16.8	18.7	-97.84	-230.7	568.0	573.7	539.7	33.95	16.896	
4,800.0	4,779.4	4,751.3	4,652.6	17.1	19.3	-97.04	-245.1	593.1	597.1	562.4	34.74	17.187	
4,900.0	4,878.6	4,848.2	4,745.0	17.5	19.8	-96.29	-259.5	618.1	620.7	585.2	35.53	17.468	
5,000.0	4,977.8	4,945.1	4,837.5	17.9	20.3	-95.61	-273.9	643.1	644.3	608.0	36.33	17.737	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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	5,077.0	5,042.0	4,930.0	18.3	20.8	-94.97	-288.3	668.1	668.0	630.9	37.12	17.997	
5,200.0	5,176.2	5,138.9	5,022.5	18.7	21.3	-94.37	-302.7	693.2	691.8	653.9	37.92	18.247	
5,300.0	5,275.4	5,235.8	5,115.0	19.1	21.8	-93.82	-317.1	718.2	715.7	677.0	38.71	18.487	
5,400.0	5,374.6	5,332.6	5,207.4	19.5	22.4	-93.30	-331.5	743.2	739.6	700.1	39.51	18.719	
5,500.0	5,473.8	5,429.5	5,299.9	19.9	22.9	-92.81	-345.9	768.2	763.6	723.3	40.31	18.943	
5,600.0	5,573.0	5,526.4	5,392.4	20.3	23.4	-92.35	-360.3	793.3	787.6	746.5	41.11	19.158	
5,700.0	5,672.2	5,623.3	5,484.9	20.6	23.9	-91.92	-374.6	818.3	811.7	769.7	41.91	19.366	
5,800.0	5,771.4	5,720.2	5,577.4	21.0	24.5	-91.51	-389.0	843.3	835.8	793.1	42.71	19.566	
5,900.0	5,870.6	5,817.1	5,669.9	21.4	25.0	-91.13	-403.4	868.4	859.9	816.4	43.52	19.760	
6,000.0	5,969.8	5,914.0	5,762.3	21.8	25.5	-90.77	-417.8	893.4	884.1	839.8	44.32	19.947	
6,100.0	6,069.0	6,010.8	5,854.8	22.2	26.0	-90.43	-432.2	918.4	908.3	863.2	45.13	20.127	
6,200.0	6,168.2	6,107.7	5,947.3	22.6	26.6	-90.10	-446.6	943.4	932.5	886.6	45.93	20.302	
6,300.0	6,267.3	6,204.6	6,039.8	23.0	27.1	-89.79	-461.0	968.5	956.8	910.1	46.74	20.470	
6,400.0	6,366.5	6,301.5	6,132.3	23.4	27.6	-89.50	-475.4	993.5	981.1	933.5	47.55	20.634	
6,500.0	6,465.7	6,398.4	6,224.8	23.8	28.2	-89.22	-489.8	1,018.5	1,005.4	957.0	48.36	20.791	
6,600.0	6,564.9	6,495.3	6,317.2	24.2	28.7	-88.95	-504.2	1,043.5	1,029.7	980.6	49.17	20.944	
6,700.0	6,664.1	6,592.2	6,409.7	24.6	29.2	-88.70	-518.6	1,068.6	1,054.1	1,004.1	49.98	21.092	
6,800.0	6,763.3	6,689.0	6,502.2	25.0	29.8	-88.45	-533.0	1,093.6	1,078.5	1,027.7	50.79	21.236	
6,900.0	6,862.5	6,785.9	6,594.7	25.4	30.3	-88.22	-547.4	1,118.6	1,102.9	1,051.3	51.60	21.375	
7,000.0	6,961.7	6,882.8	6,687.2	25.8	30.8	-88.00	-561.8	1,143.7	1,127.3	1,074.9	52.41	21.509	
7,100.0	7,060.9	6,979.7	6,779.7	26.2	31.4	-87.79	-576.2	1,168.7	1,151.7	1,098.5	53.22	21.640	
7,200.0	7,160.1	7,076.6	6,872.1	26.5	31.9	-87.70	-590.6	1,193.7	1,176.1	1,122.1	54.03	21.767	
7,300.0	7,259.6	7,173.3	6,964.5	26.9	32.4	-87.88	-605.0	1,218.7	1,200.7	1,145.9	54.82	21.902	
7,400.0	7,359.4	7,269.7	7,056.5	27.3	33.0	-87.92	-619.3	1,243.6	1,225.4	1,169.8	55.57	22.050	
7,500.0	7,459.3	7,366.7	7,149.1	27.7	33.5	-87.81	-633.7	1,268.7	1,250.4	1,194.1	56.30	22.208	
7,600.0	7,559.3	7,520.4	7,297.0	28.0	34.3	-87.33	-654.5	1,304.8	1,273.4	1,215.9	57.50	22.146	
7,700.0	7,659.3	7,678.2	7,451.0	28.3	35.1	-88.16	-671.7	1,334.7	1,292.0	1,233.4	58.60	22.047	
7,800.0	7,759.3	7,839.5	7,610.1	28.6	35.7	-88.78	-684.9	1,357.6	1,306.1	1,246.5	59.60	21.915	
7,900.0	7,859.3	8,003.3	7,772.9	28.9	36.3	-89.18	-693.7	1,372.9	1,315.3	1,254.8	60.47	21.752	
8,000.0	7,959.3	8,168.7	7,938.0	29.2	36.8	-89.36	-697.8	1,380.1	1,319.7	1,258.5	61.20	21.562	
8,100.0	8,059.3	8,293.3	8,062.6	29.6	37.2	-89.37	-698.2	1,380.7	1,320.0	1,258.2	61.83	21.351	
8,200.0	8,159.3	8,393.3	8,162.6	29.9	37.5	-89.37	-698.2	1,380.7	1,320.0	1,257.6	62.44	21.140	
8,300.0	8,259.3	8,493.3	8,262.6	30.2	37.7	-89.37	-698.2	1,380.7	1,320.0	1,257.0	63.06	20.934	
8,400.0	8,359.3	8,593.3	8,362.7	30.5	38.0	-90.18	-698.2	1,380.7	1,320.0	1,256.3	63.68	20.730	
8,500.0	8,458.5	8,694.1	8,462.5	30.9	38.3	-90.14	-710.5	1,380.8	1,320.0	1,255.6	64.41	20.493	
8,600.0	8,553.1	8,794.7	8,557.4	31.4	38.7	-90.10	-743.4	1,381.1	1,320.0	1,254.7	65.30	20.214	
8,700.0	8,639.0	8,895.1	8,643.1	31.9	39.1	-90.06	-795.2	1,381.5	1,320.0	1,253.7	66.33	19.900	
8,800.0	8,712.5	8,995.3	8,716.0	32.5	39.6	-90.01	-863.7	1,382.0	1,320.0	1,252.5	67.48	19.561	
8,825.7	8,729.0	9,021.0	8,732.3	32.6	39.7	-90.00	-883.6	1,382.2	1,320.0	1,252.2	67.80	19.470	
8,900.0	8,770.4	9,095.2	8,772.9	33.1	40.1	-89.96	-945.6	1,382.6	1,320.0	1,251.3	68.73	19.206	
9,000.0	8,810.1	9,194.9	8,811.5	33.8	40.6	-89.92	-1,037.3	1,383.4	1,320.0	1,250.0	70.05	18.844	
9,100.0	8,829.9	9,294.4	8,830.3	34.5	41.2	-89.87	-1,134.9	1,384.1	1,320.0	1,248.6	71.40	18.487	
9,200.0	8,832.0	9,394.1	8,832.0	35.1	41.8	-89.86	-1,234.5	1,384.9	1,320.0	1,247.2	72.76	18.141	
9,300.0	8,832.0	9,494.1	8,832.0	35.9	42.4	-89.86	-1,334.5	1,385.7	1,320.0	1,245.8	74.20	17.789	
9,400.0	8,832.0	9,594.1	8,832.0	36.6	43.1	-89.86	-1,434.5	1,386.4	1,320.0	1,244.3	75.73	17.431	
9,500.0	8,832.0	9,694.1	8,832.0	37.4	43.8	-89.86	-1,534.5	1,387.2	1,320.0	1,242.7	77.33	17.070	
9,600.0	8,832.0	9,794.1	8,832.0	38.3	44.6	-89.86	-1,634.5	1,388.0	1,320.0	1,241.0	79.00	16.708	
9,700.0	8,832.0	9,894.1	8,832.0	39.1	45.4	-89.86	-1,734.5	1,388.8	1,320.0	1,239.3	80.75	16.347	
9,800.0	8,832.0	9,994.1	8,832.0	40.1	46.2	-89.86	-1,834.5	1,389.5	1,320.0	1,237.4	82.56	15.989	
9,900.0	8,832.0	10,094.1	8,832.0	41.0	47.0	-89.86	-1,934.5	1,390.3	1,320.0	1,235.6	84.43	15.634	
10,000.0	8,832.0	10,194.1	8,832.0	42.0	47.9	-89.86	-2,034.5	1,391.1	1,320.0	1,233.6	86.36	15.286	
10,100.0	8,832.0	10,294.1	8,832.0	43.0	48.8	-89.86	-2,134.5	1,391.9	1,320.0	1,231.7	88.34	14.943	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	8,832.0	10,394.1	8,832.0	44.0	49.7	-89.86	-2,234.5	1,392.6	1,320.0	1,229.6	90.37	14.607	
10,300.0	8,832.0	10,494.1	8,832.0	45.0	50.7	-89.86	-2,334.5	1,393.4	1,320.0	1,227.6	92.44	14.279	
10,400.0	8,832.0	10,594.1	8,832.0	46.1	51.7	-89.86	-2,434.5	1,394.2	1,320.0	1,225.4	94.56	13.959	
10,500.0	8,832.0	10,694.1	8,832.0	47.2	52.7	-89.86	-2,534.5	1,395.0	1,320.0	1,223.3	96.72	13.648	
10,600.0	8,832.0	10,794.1	8,832.0	48.3	53.7	-89.86	-2,634.5	1,395.7	1,320.0	1,221.1	98.92	13.345	
10,700.0	8,832.0	10,894.1	8,832.0	49.4	54.7	-89.86	-2,734.5	1,396.5	1,320.0	1,218.9	101.15	13.050	
10,800.0	8,832.0	10,994.1	8,832.0	50.6	55.8	-89.86	-2,834.5	1,397.3	1,320.0	1,216.6	103.41	12.764	
10,900.0	8,832.0	11,094.1	8,832.0	51.7	56.9	-89.86	-2,934.5	1,398.1	1,320.0	1,214.3	105.71	12.487	
11,000.0	8,832.0	11,194.1	8,832.0	52.9	58.0	-89.86	-3,034.5	1,398.9	1,320.0	1,212.0	108.03	12.219	
11,100.0	8,832.0	11,294.1	8,832.0	54.1	59.1	-89.86	-3,134.5	1,399.6	1,320.0	1,209.6	110.38	11.958	
11,200.0	8,832.0	11,394.1	8,832.0	55.3	60.2	-89.86	-3,234.5	1,400.4	1,320.0	1,207.2	112.76	11.706	
11,300.0	8,832.0	11,494.1	8,832.0	56.5	61.3	-89.86	-3,334.5	1,401.2	1,320.0	1,204.8	115.16	11.462	
11,400.0	8,832.0	11,594.1	8,832.0	57.7	62.5	-89.86	-3,434.5	1,402.0	1,320.0	1,202.4	117.59	11.226	
11,500.0	8,832.0	11,694.1	8,832.0	58.9	63.6	-89.86	-3,534.5	1,402.7	1,320.0	1,200.0	120.03	10.997	
11,600.0	8,832.0	11,794.1	8,832.0	60.2	64.8	-89.86	-3,634.5	1,403.5	1,320.0	1,197.5	122.49	10.776	
11,700.0	8,832.0	11,894.1	8,832.0	61.4	66.0	-89.86	-3,734.5	1,404.3	1,320.0	1,195.0	124.97	10.562	
11,800.0	8,832.0	11,994.1	8,832.0	62.7	67.2	-89.86	-3,834.5	1,405.1	1,320.0	1,192.5	127.47	10.355	
11,900.0	8,832.0	12,094.1	8,832.0	63.9	68.4	-89.86	-3,934.5	1,405.8	1,320.0	1,190.0	129.99	10.155	
12,000.0	8,832.0	12,194.1	8,832.0	65.2	69.6	-89.86	-4,034.4	1,406.6	1,320.0	1,187.5	132.52	9.961	
12,100.0	8,832.0	12,294.1	8,832.0	66.5	70.8	-89.86	-4,134.4	1,407.4	1,320.0	1,184.9	135.07	9.773	
12,200.0	8,832.0	12,394.1	8,832.0	67.8	72.1	-89.86	-4,234.4	1,408.2	1,320.0	1,182.4	137.63	9.591	
12,300.0	8,832.0	12,494.1	8,832.0	69.1	73.3	-89.86	-4,334.4	1,408.9	1,320.0	1,179.8	140.20	9.415	
12,400.0	8,832.0	12,594.1	8,832.0	70.4	74.6	-89.86	-4,434.4	1,409.7	1,320.0	1,177.2	142.79	9.245	
12,500.0	8,832.0	12,694.1	8,832.0	71.7	75.8	-89.86	-4,534.4	1,410.5	1,320.0	1,174.6	145.38	9.079	
12,600.0	8,832.0	12,794.1	8,832.0	73.0	77.1	-89.86	-4,634.4	1,411.3	1,320.0	1,172.0	147.99	8.919	
12,700.0	8,832.0	12,894.1	8,832.0	74.3	78.3	-89.86	-4,734.4	1,412.0	1,320.0	1,169.4	150.61	8.764	
12,800.0	8,832.0	12,994.1	8,832.0	75.6	79.6	-89.86	-4,834.4	1,412.8	1,320.0	1,166.8	153.24	8.614	
12,900.0	8,832.0	13,094.1	8,832.0	77.0	80.9	-89.86	-4,934.4	1,413.6	1,320.0	1,164.1	155.88	8.468	
13,000.0	8,832.0	13,194.1	8,832.0	78.3	82.2	-89.86	-5,034.4	1,414.4	1,320.0	1,161.5	158.52	8.327	
13,100.0	8,832.0	13,294.1	8,832.0	79.6	83.5	-89.86	-5,134.4	1,415.1	1,320.0	1,158.8	161.18	8.190	
13,200.0	8,832.0	13,394.1	8,832.0	81.0	84.8	-89.86	-5,234.4	1,415.9	1,320.0	1,156.2	163.84	8.056	
13,300.0	8,832.0	13,494.1	8,832.0	82.3	86.1	-89.86	-5,334.4	1,416.7	1,320.0	1,153.5	166.52	7.927	
13,400.0	8,832.0	13,594.1	8,832.0	83.6	87.4	-89.86	-5,434.4	1,417.5	1,320.0	1,150.8	169.20	7.802	
13,500.0	8,832.0	13,694.1	8,832.0	85.0	88.7	-89.86	-5,534.4	1,418.3	1,320.0	1,148.1	171.88	7.680	
13,600.0	8,832.0	13,794.1	8,832.0	86.3	90.0	-89.86	-5,634.4	1,419.0	1,320.0	1,145.4	174.57	7.561	
13,700.0	8,832.0	13,894.1	8,832.0	87.7	91.3	-89.86	-5,734.4	1,419.8	1,320.0	1,142.7	177.27	7.446	
13,800.0	8,832.0	13,994.1	8,832.0	89.1	92.6	-89.86	-5,834.4	1,420.6	1,320.0	1,140.0	179.98	7.334	
13,900.0	8,832.0	14,094.1	8,832.0	90.4	94.0	-89.86	-5,934.4	1,421.4	1,320.0	1,137.3	182.69	7.225	
14,000.0	8,832.0	14,194.1	8,832.0	91.8	95.3	-89.86	-6,034.4	1,422.1	1,320.0	1,134.6	185.41	7.120	
14,100.0	8,832.0	14,294.1	8,832.0	93.1	96.6	-89.86	-6,134.4	1,422.9	1,320.0	1,131.9	188.13	7.017	
14,200.0	8,832.0	14,394.1	8,832.0	94.5	98.0	-89.86	-6,234.4	1,423.7	1,320.0	1,129.1	190.86	6.916	
14,300.0	8,832.0	14,494.1	8,832.0	95.9	99.3	-89.86	-6,334.4	1,424.5	1,320.0	1,126.4	193.59	6.819	
14,400.0	8,832.0	14,594.1	8,832.0	97.3	100.6	-89.86	-6,434.4	1,425.2	1,320.0	1,123.7	196.32	6.724	
14,500.0	8,832.0	14,694.1	8,832.0	98.6	102.0	-89.86	-6,534.4	1,426.0	1,320.0	1,120.9	199.07	6.631	
14,600.0	8,832.0	14,794.1	8,832.0	100.0	103.3	-89.86	-6,634.4	1,426.8	1,320.0	1,118.2	201.81	6.541	
14,700.0	8,832.0	14,894.1	8,832.0	101.4	104.7	-89.86	-6,734.4	1,427.6	1,320.0	1,115.4	204.56	6.453	
14,800.0	8,832.0	14,994.1	8,832.0	102.8	106.0	-89.86	-6,834.4	1,428.3	1,320.0	1,112.7	207.31	6.367	
14,900.0	8,832.0	15,094.1	8,832.0	104.1	107.4	-89.86	-6,934.4	1,429.1	1,320.0	1,109.9	210.07	6.284	
15,000.0	8,832.0	15,194.1	8,832.0	105.5	108.7	-89.86	-7,034.4	1,429.9	1,320.0	1,107.2	212.83	6.202	
15,100.0	8,832.0	15,294.1	8,832.0	106.9	110.1	-89.86	-7,134.4	1,430.7	1,320.0	1,104.4	215.60	6.123	
15,200.0	8,832.0	15,394.1	8,832.0	108.3	111.5	-89.86	-7,234.4	1,431.4	1,320.0	1,101.6	218.37	6.045	
15,300.0	8,832.0	15,494.1	8,832.0	109.7	112.8	-89.86	-7,334.3	1,432.2	1,320.0	1,098.9	221.14	5.969	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		Reference			Offset		Semi Major Axis		Highside		Offset Wellbore Centre		Rule Assigned:		Distance	Between	Between	Minimum	Separation	Warning
Measured	Vertical	Measured	Vertical	Reference	Offset	Reference	Offset	Highside	Toolface	+N/-S	+E/-W	Between	Between	Minimum	Separation	Factor	Centres	Ellipses	Separation	Factor	Warning	
Depth	Depth	Depth	Depth																			
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(usft)		(usft)	(usft)	(usft)			
15,400.0	8,832.0	15,594.1	8,832.0	111.1	114.2	-89.86	-7,434.3	1,433.0	1,320.0	1,096.1	223.91	5.895										
15,500.0	8,832.0	15,694.1	8,832.0	112.5	115.6	-89.86	-7,534.3	1,433.8	1,320.0	1,093.3	226.69	5.823										
15,600.0	8,832.0	15,794.1	8,832.0	113.9	116.9	-89.86	-7,634.3	1,434.5	1,320.0	1,090.5	229.47	5.752										
15,700.0	8,832.0	15,894.1	8,832.0	115.3	118.3	-89.86	-7,734.3	1,435.3	1,320.0	1,087.7	232.25	5.683										
15,800.0	8,832.0	15,994.1	8,832.0	116.7	119.7	-89.86	-7,834.3	1,436.1	1,320.0	1,085.0	235.04	5.616										
15,900.0	8,832.0	16,094.1	8,832.0	118.1	121.1	-89.86	-7,934.3	1,436.9	1,320.0	1,082.2	237.83	5.550										
16,000.0	8,832.0	16,194.1	8,832.0	119.5	122.4	-89.86	-8,034.3	1,437.7	1,320.0	1,079.4	240.62	5.486										
16,100.0	8,832.0	16,294.1	8,832.0	120.9	123.8	-89.86	-8,134.3	1,438.4	1,320.0	1,076.6	243.41	5.423										
16,200.0	8,832.0	16,394.1	8,832.0	122.3	125.2	-89.86	-8,234.3	1,439.2	1,320.0	1,073.8	246.21	5.361										
16,300.0	8,832.0	16,494.1	8,832.0	123.7	126.6	-89.86	-8,334.3	1,440.0	1,320.0	1,071.0	249.01	5.301										
16,400.0	8,832.0	16,594.1	8,832.0	125.1	128.0	-89.86	-8,434.3	1,440.8	1,320.0	1,068.2	251.81	5.242										
16,500.0	8,832.0	16,694.1	8,832.0	126.5	129.4	-89.86	-8,534.3	1,441.5	1,320.0	1,065.4	254.61	5.184										
16,600.0	8,832.0	16,794.1	8,832.0	127.9	130.7	-89.86	-8,634.3	1,442.3	1,320.0	1,062.6	257.42	5.128										
16,700.0	8,832.0	16,894.1	8,832.0	129.3	132.1	-89.86	-8,734.3	1,443.1	1,320.0	1,059.8	260.22	5.073										
16,800.0	8,832.0	16,994.1	8,832.0	130.7	133.5	-89.86	-8,834.3	1,443.9	1,320.0	1,057.0	263.03	5.018										
16,900.0	8,832.0	17,094.1	8,832.0	132.1	134.9	-89.86	-8,934.3	1,444.6	1,320.0	1,054.2	265.84	4.965										
17,000.0	8,832.0	17,194.1	8,832.0	133.5	136.3	-89.86	-9,034.3	1,445.4	1,320.0	1,051.3	268.65	4.913										
17,100.0	8,832.0	17,294.1	8,832.0	134.9	137.7	-89.86	-9,134.3	1,446.2	1,320.0	1,048.5	271.47	4.862										
17,200.0	8,832.0	17,394.1	8,832.0	136.3	139.1	-89.86	-9,234.3	1,447.0	1,320.0	1,045.7	274.28	4.813										
17,300.0	8,832.0	17,494.1	8,832.0	137.7	140.5	-89.86	-9,334.3	1,447.7	1,320.0	1,042.9	277.10	4.764										
17,400.0	8,832.0	17,594.1	8,832.0	139.1	141.9	-89.86	-9,434.3	1,448.5	1,320.0	1,040.1	279.92	4.716										
17,500.0	8,832.0	17,694.1	8,832.0	140.6	143.3	-89.86	-9,534.3	1,449.3	1,320.0	1,037.3	282.74	4.669										
17,600.0	8,832.0	17,794.1	8,832.0	142.0	144.7	-89.86	-9,634.3	1,450.1	1,320.0	1,034.4	285.56	4.622										
17,700.0	8,832.0	17,894.1	8,832.0	143.4	146.1	-89.86	-9,734.3	1,450.8	1,320.0	1,031.6	288.39	4.577										
17,800.0	8,832.0	17,994.1	8,832.0	144.8	147.5	-89.86	-9,834.3	1,451.6	1,320.0	1,028.8	291.21	4.533										
17,900.0	8,832.0	18,094.1	8,832.0	146.2	148.9	-89.86	-9,934.3	1,452.4	1,320.0	1,026.0	294.04	4.489										
18,000.0	8,832.0	18,194.1	8,832.0	147.6	150.3	-89.86	-10,034.3	1,453.2	1,320.0	1,023.1	296.87	4.446										
18,100.0	8,832.0	18,294.1	8,832.0	149.0	151.7	-89.86	-10,134.3	1,453.9	1,320.0	1,020.3	299.69	4.404										
18,200.0	8,832.0	18,394.1	8,832.0	150.5	153.1	-89.86	-10,234.3	1,454.7	1,320.0	1,017.5	302.52	4.363										
18,300.0	8,832.0	18,494.1	8,832.0	151.9	154.5	-89.86	-10,334.3	1,455.5	1,320.0	1,014.6	305.36	4.323										
18,400.0	8,832.0	18,594.1	8,832.0	153.3	155.9	-89.86	-10,434.3	1,456.3	1,320.0	1,011.8	308.19	4.283										
18,500.0	8,832.0	18,694.1	8,832.0	154.7	157.3	-89.86	-10,534.3	1,457.1	1,320.0	1,009.0	311.02	4.244										
18,600.0	8,832.0	18,794.1	8,832.0	156.1	158.7	-89.86	-10,634.2	1,457.8	1,320.0	1,006.1	313.86	4.206										
18,700.0	8,832.0	18,894.1	8,832.0	157.6	160.1	-89.86	-10,734.2	1,458.6	1,320.0	1,003.3	316.69	4.168										
18,800.0	8,832.0	18,994.1	8,832.0	159.0	161.5	-89.86	-10,834.2	1,459.4	1,320.0	1,000.5	319.53	4.131										
18,900.0	8,832.0	19,094.1	8,832.0	160.4	162.9	-89.86	-10,934.2	1,460.2	1,320.0	997.6	322.37	4.095										
19,000.0	8,832.0	19,194.1	8,832.0	161.8	164.3	-89.86	-11,034.2	1,460.9	1,320.0	994.8	325.21	4.059										
19,073.5	8,832.0	19,267.6	8,832.0	162.9	165.4	-89.86	-11,107.7	1,461.5	1,320.0	992.7	327.30	4.033										
19,077.1	8,832.0	19,267.6	8,832.0	162.9	165.4	-89.86	-11,107.7	1,461.5	1,320.0	992.6	327.39	4.032 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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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	-90.93	-60.9	-44.3	40.0				
100.0	100.0	98.7	98.7	0.1	0.1	-90.93	-60.9	-44.3	40.0	39.7	0.26	152.715	
200.0	200.0	198.7	198.7	0.5	0.5	-90.93	-60.9	-44.3	40.0	39.0	0.98	40.968	
300.0	300.0	298.7	298.7	0.8	0.8	-90.93	-60.9	-44.3	40.0	38.3	1.69	23.616	
400.0	400.0	398.7	398.7	1.2	1.2	-90.93	-60.9	-44.3	40.0	37.6	2.41	16.590	
500.0	500.0	498.7	498.7	1.6	1.6	-90.93	-60.9	-44.3	40.0	36.8	3.13	12.786	
600.0	600.0	598.7	598.7	1.9	1.9	-90.93	-60.9	-44.3	40.0	36.1	3.84	10.401	
700.0	700.0	698.7	698.7	2.3	2.3	-90.93	-60.9	-44.3	40.0	35.4	4.56	8.766	
800.0	800.0	798.7	798.7	2.6	2.6	-90.93	-60.9	-44.3	40.0	34.7	5.28	7.575	
900.0	900.0	898.7	898.7	3.0	3.0	-90.93	-60.9	-44.3	40.0	34.0	5.99	6.669	
1,000.0	1,000.0	998.7	998.7	3.4	3.4	-90.93	-60.9	-44.3	40.0	33.3	6.71	5.956	
1,100.0	1,100.0	1,098.7	1,098.7	3.7	3.7	-90.93	-60.9	-44.3	40.0	32.5	7.43	5.382	
1,200.0	1,200.0	1,198.7	1,198.7	4.1	4.1	-90.93	-60.9	-44.3	40.0	31.8	8.15	4.908	
1,300.0	1,300.0	1,298.7	1,298.7	4.4	4.4	-90.93	-60.9	-44.3	40.0	31.1	8.86	4.511	
1,400.0	1,400.0	1,398.7	1,398.7	4.8	4.8	-90.93	-60.9	-44.3	40.0	30.4	9.58	4.173	
1,500.0	1,500.0	1,498.7	1,498.7	5.2	5.1	-90.93	-60.9	-44.3	40.0	29.7	10.30	3.883	
1,600.0	1,600.0	1,598.7	1,598.7	5.5	5.5	-90.93	-60.9	-44.3	40.0	29.0	11.01	3.630	
1,700.0	1,700.0	1,698.7	1,698.7	5.9	5.9	-90.93	-60.9	-44.3	40.0	28.2	11.73	3.408	
1,800.0	1,800.0	1,798.7	1,798.7	6.2	6.2	-90.93	-60.9	-44.3	40.0	27.5	12.45	3.212	
1,900.0	1,900.0	1,898.7	1,898.7	6.6	6.6	-90.93	-60.9	-44.3	40.0	26.8	13.16	3.037	
2,000.0	2,000.0	1,998.7	1,998.7	6.9	6.9	-90.93	-60.9	-44.3	40.0	26.1	13.88	2.880 CC	
2,100.0	2,100.0	2,098.7	2,098.7	7.3	7.3	97.25	-60.9	-44.3	40.2	25.6	14.58	2.755 ES	
2,200.0	2,199.8	2,198.5	2,198.5	7.6	7.7	104.46	-60.9	-44.3	41.1	25.9	15.26	2.696 SF	
2,300.0	2,299.5	2,297.6	2,297.6	7.9	8.0	113.33	-62.2	-45.3	44.8	28.8	15.93	2.810	
2,400.0	2,398.7	2,396.6	2,396.5	8.3	8.3	120.14	-66.1	-48.6	51.8	35.3	16.58	3.126	
2,500.0	2,497.9	2,495.8	2,495.2	8.6	8.6	122.67	-72.6	-54.1	60.6	43.3	17.24	3.513	
2,600.0	2,597.1	2,594.9	2,593.7	8.9	9.0	121.86	-81.6	-61.7	70.1	52.2	17.91	3.915	
2,700.0	2,696.3	2,694.4	2,692.3	9.3	9.3	120.50	-91.5	-70.1	79.9	61.3	18.59	4.300	
2,800.0	2,795.5	2,793.9	2,791.0	9.6	9.7	119.44	-101.4	-78.4	89.8	70.5	19.28	4.658	
2,900.0	2,894.7	2,893.4	2,889.6	10.0	10.0	118.59	-111.3	-86.7	99.7	79.7	19.97	4.990	
3,000.0	2,993.9	2,992.9	2,988.3	10.4	10.4	117.89	-121.2	-95.1	109.6	88.9	20.68	5.299	
3,100.0	3,093.1	3,092.4	3,086.9	10.7	10.7	117.31	-131.1	-103.4	119.5	98.1	21.39	5.587	
3,200.0	3,192.3	3,191.9	3,185.6	11.1	11.1	116.82	-141.0	-111.7	129.4	107.3	22.10	5.855	
3,300.0	3,291.5	3,291.4	3,284.3	11.5	11.4	116.40	-150.9	-120.1	139.3	116.5	22.82	6.105	
3,400.0	3,390.7	3,390.9	3,382.9	11.8	11.8	116.03	-160.8	-128.4	149.3	125.7	23.55	6.339	
3,500.0	3,489.9	3,490.4	3,481.6	12.2	12.2	115.71	-170.7	-136.7	159.2	134.9	24.28	6.558	
3,600.0	3,589.1	3,589.9	3,580.2	12.6	12.5	115.43	-180.6	-145.1	169.2	144.2	25.01	6.763	
3,700.0	3,688.3	3,689.4	3,678.9	12.9	12.9	115.18	-190.5	-153.4	179.1	153.4	25.75	6.956	
3,800.0	3,787.5	3,788.9	3,777.5	13.3	13.3	114.95	-200.4	-161.7	189.1	162.6	26.49	7.137	
3,900.0	3,886.7	3,888.4	3,876.2	13.7	13.7	114.75	-210.3	-170.1	199.0	171.8	27.23	7.308	
4,000.0	3,985.9	3,987.9	3,974.9	14.1	14.0	114.57	-220.2	-178.4	209.0	181.0	27.98	7.469	
4,100.0	4,085.1	4,087.4	4,073.5	14.5	14.4	114.40	-230.1	-186.7	218.9	190.2	28.73	7.621	
4,200.0	4,184.2	4,186.9	4,172.2	14.8	14.8	114.25	-240.0	-195.1	228.9	199.4	29.48	7.765	
4,300.0	4,283.4	4,286.4	4,270.8	15.2	15.2	114.11	-249.9	-203.4	238.9	208.6	30.23	7.901	
4,400.0	4,382.6	4,385.9	4,369.5	15.6	15.5	113.98	-259.8	-211.8	248.8	217.9	30.99	8.031	
4,500.0	4,481.8	4,485.4	4,468.1	16.0	15.9	113.86	-269.7	-220.1	258.8	227.1	31.74	8.153	
4,600.0	4,581.0	4,584.9	4,566.8	16.4	16.3	113.75	-279.6	-228.4	268.8	236.3	32.50	8.269	
4,700.0	4,680.2	4,684.4	4,665.4	16.8	16.7	113.65	-289.4	-236.8	278.7	245.5	33.26	8.380	
4,800.0	4,779.4	4,783.9	4,764.1	17.1	17.1	113.56	-299.3	-245.1	288.7	254.7	34.02	8.486	
4,900.0	4,878.6	4,883.4	4,862.8	17.5	17.5	113.47	-309.2	-253.4	298.7	263.9	34.79	8.586	
5,000.0	4,977.8	4,982.9	4,961.4	17.9	17.8	113.39	-319.1	-261.8	308.7	273.1	35.55	8.682	
5,100.0	5,077.0	5,082.4	5,060.1	18.3	18.2	113.31	-329.0	-270.1	318.6	282.3	36.32	8.773	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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	5,176.2	5,181.9	5,158.7	18.7	18.6	113.24	-338.9	-278.4	328.6	291.5	37.08	8.861	
5,300.0	5,275.4	5,281.4	5,257.4	19.1	19.0	113.17	-348.8	-286.8	338.6	300.7	37.85	8.945	
5,400.0	5,374.6	5,380.9	5,356.0	19.5	19.4	113.10	-358.7	-295.1	348.5	309.9	38.62	9.025	
5,500.0	5,473.8	5,480.4	5,454.7	19.9	19.8	113.04	-368.6	-303.4	358.5	319.1	39.39	9.102	
5,600.0	5,573.0	5,579.9	5,553.4	20.3	20.2	112.98	-378.5	-311.8	368.5	328.3	40.16	9.175	
5,700.0	5,672.2	5,679.4	5,652.0	20.6	20.6	112.93	-388.4	-320.1	378.5	337.5	40.93	9.246	
5,800.0	5,771.4	5,778.9	5,750.7	21.0	20.9	112.88	-398.3	-328.4	388.4	346.7	41.70	9.314	
5,900.0	5,870.6	5,878.4	5,849.3	21.4	21.3	112.83	-408.2	-336.8	398.4	355.9	42.48	9.379	
6,000.0	5,969.8	5,977.9	5,948.0	21.8	21.7	112.78	-418.1	-345.1	408.4	365.1	43.25	9.442	
6,100.0	6,069.0	6,077.4	6,046.6	22.2	22.1	112.74	-428.0	-353.4	418.4	374.3	44.03	9.503	
6,200.0	6,168.2	6,176.9	6,145.3	22.6	22.5	112.69	-437.9	-361.8	428.3	383.5	44.80	9.561	
6,300.0	6,267.3	6,276.4	6,243.9	23.0	22.9	112.65	-447.8	-370.1	438.3	392.7	45.58	9.617	
6,400.0	6,366.5	6,375.9	6,342.6	23.4	23.3	112.62	-457.7	-378.4	448.3	401.9	46.35	9.671	
6,500.0	6,465.7	6,475.4	6,441.3	23.8	23.7	112.58	-467.6	-386.8	458.3	411.1	47.13	9.723	
6,600.0	6,564.9	6,574.9	6,539.9	24.2	24.1	112.54	-477.5	-395.1	468.2	420.3	47.91	9.774	
6,700.0	6,664.1	6,674.4	6,638.6	24.6	24.5	112.51	-487.4	-403.4	478.2	429.5	48.68	9.823	
6,800.0	6,763.3	6,773.9	6,737.2	25.0	24.9	112.48	-497.3	-411.8	488.2	438.7	49.46	9.870	
6,900.0	6,862.5	6,873.4	6,835.9	25.4	25.3	112.44	-507.2	-420.1	498.2	447.9	50.24	9.915	
7,000.0	6,961.7	6,972.9	6,934.5	25.8	25.7	112.41	-517.1	-428.4	508.1	457.1	51.02	9.959	
7,100.0	7,060.9	7,072.4	7,033.2	26.2	26.0	112.39	-526.9	-436.8	518.1	466.3	51.80	10.002	
7,200.0	7,160.1	7,171.9	7,131.9	26.5	26.4	112.39	-536.8	-445.1	528.1	475.5	52.58	10.043	
7,300.0	7,259.6	7,271.5	7,230.6	26.9	26.8	112.28	-546.7	-453.5	537.1	483.7	53.35	10.067	
7,400.0	7,359.4	7,371.0	7,329.2	27.3	27.2	111.81	-556.6	-461.8	544.8	490.7	54.10	10.069	
7,500.0	7,459.3	7,470.4	7,427.8	27.7	27.6	111.01	-566.5	-470.1	551.3	496.5	54.84	10.053	
7,600.0	7,559.3	7,569.6	7,526.1	28.0	28.0	-75.83	-576.4	-478.4	557.1	501.5	55.55	10.028	
7,700.0	7,659.3	7,668.7	7,624.4	28.3	28.4	-77.01	-586.3	-486.7	562.9	506.7	56.25	10.008	
7,800.0	7,759.3	7,767.9	7,722.7	28.6	28.8	-78.17	-596.1	-495.0	569.0	512.0	56.94	9.992	
7,900.0	7,859.3	7,867.0	7,821.0	28.9	29.2	-79.30	-606.0	-503.3	575.3	517.7	57.64	9.981	
8,000.0	7,959.3	7,966.2	7,919.4	29.2	29.6	-80.41	-615.8	-511.6	581.8	523.5	58.33	9.975	
8,100.0	8,059.3	8,065.3	8,017.7	29.6	30.0	-81.49	-625.7	-519.9	588.6	529.6	59.02	9.972	
8,200.0	8,159.3	8,164.5	8,116.0	29.9	30.4	-82.55	-635.6	-528.2	595.5	535.8	59.72	9.973	
8,300.0	8,259.3	8,263.6	8,214.3	30.2	30.8	-83.59	-645.4	-536.6	602.7	542.3	60.41	9.977	
8,400.0	8,359.3	8,362.8	8,312.6	30.5	31.2	95.81	-655.3	-544.9	610.0	549.0	61.10	9.985	
8,500.0	8,458.5	8,462.2	8,411.2	30.9	31.6	94.85	-665.2	-553.2	618.6	556.7	61.87	9.998	
8,600.0	8,553.1	8,559.2	8,507.3	31.4	32.0	95.47	-674.8	-561.3	629.3	566.5	62.74	10.029	
8,700.0	8,639.0	8,649.4	8,596.8	31.9	32.3	97.08	-683.8	-568.9	643.5	579.9	63.67	10.108	
8,800.0	8,712.5	8,729.0	8,675.7	32.5	32.6	98.69	-691.7	-575.5	664.1	599.5	64.58	10.283	
8,900.0	8,770.4	8,794.4	8,740.5	33.1	32.9	99.20	-698.2	-581.0	693.8	628.4	65.41	10.607	
9,000.0	8,810.1	8,843.9	8,789.6	33.8	33.1	97.60	-703.1	-585.1	734.3	668.3	66.06	11.116	
9,100.0	8,829.9	8,873.5	8,819.0	34.5	33.2	92.87	-705.7	-587.4	785.7	719.3	66.47	11.821	
9,200.0	8,832.0	8,884.3	8,829.7	35.1	33.2	89.91	-706.7	-588.1	846.2	779.6	66.65	12.697	
9,300.0	8,832.0	8,892.4	8,837.8	35.9	33.3	90.62	-707.3	-588.7	913.6	846.8	66.73	13.690	
9,400.0	8,832.0	8,900.0	8,845.4	36.6	33.3	91.29	-707.9	-589.2	986.4	919.7	66.77	14.774	
9,500.0	8,832.0	8,907.4	8,852.7	37.4	33.3	91.94	-708.5	-589.7	1,063.7	996.9	66.78	15.929	
9,600.0	8,832.0	10,500.4	9,720.0	38.3	41.6	143.42	-1,649.9	-592.0	1,107.5	1,052.8	54.61	20.279	
9,700.0	8,832.0	10,600.4	9,720.0	39.1	42.4	143.42	-1,749.9	-591.2	1,107.5	1,051.7	55.71	19.880	
9,800.0	8,832.0	10,700.4	9,720.0	40.1	43.2	143.42	-1,849.9	-590.4	1,107.5	1,050.6	56.86	19.476	
9,900.0	8,832.0	10,800.4	9,720.0	41.0	44.1	143.42	-1,949.9	-589.6	1,107.5	1,049.4	58.07	19.070	
10,000.0	8,832.0	10,900.4	9,720.0	42.0	45.0	143.42	-2,049.9	-588.8	1,107.5	1,048.1	59.34	18.664	
10,100.0	8,832.0	11,000.4	9,720.0	43.0	45.9	143.42	-2,149.9	-588.1	1,107.5	1,046.8	60.65	18.260	
10,200.0	8,832.0	11,100.4	9,720.0	44.0	46.8	143.42	-2,249.9	-587.3	1,107.5	1,045.4	62.01	17.861	
10,300.0	8,832.0	11,200.4	9,720.0	45.0	47.8	143.42	-2,349.9	-586.5	1,107.5	1,044.0	63.41	17.466	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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		
10,400.0	8,832.0	11,300.4	9,720.0	46.1	48.8	143.42	-2,449.9	-585.7	1,107.5	1,042.6	64.85	17.078			
10,500.0	8,832.0	11,400.4	9,720.0	47.2	49.8	143.42	-2,549.9	-585.0	1,107.5	1,041.1	66.33	16.697			
10,600.0	8,832.0	11,500.4	9,720.0	48.3	50.8	143.42	-2,649.9	-584.2	1,107.5	1,039.6	67.84	16.324			
10,700.0	8,832.0	11,600.4	9,720.0	49.4	51.9	143.42	-2,749.9	-583.4	1,107.5	1,038.1	69.39	15.961			
10,800.0	8,832.0	11,700.4	9,720.0	50.6	53.0	143.42	-2,849.8	-582.6	1,107.5	1,036.5	70.96	15.606			
10,900.0	8,832.0	11,800.4	9,720.0	51.7	54.1	143.42	-2,949.8	-581.9	1,107.5	1,034.9	72.57	15.260			
11,000.0	8,832.0	11,900.4	9,720.0	52.9	55.2	143.42	-3,049.8	-581.1	1,107.5	1,033.2	74.20	14.925			
11,100.0	8,832.0	12,000.4	9,720.0	54.1	56.3	143.42	-3,149.8	-580.3	1,107.5	1,031.6	75.86	14.598			
11,200.0	8,832.0	12,100.4	9,720.0	55.3	57.4	143.42	-3,249.8	-579.5	1,107.5	1,029.9	77.54	14.282			
11,300.0	8,832.0	12,200.4	9,720.0	56.5	58.6	143.42	-3,349.8	-578.8	1,107.5	1,028.2	79.25	13.975			
11,400.0	8,832.0	12,300.4	9,720.0	57.7	59.8	143.42	-3,449.8	-578.0	1,107.5	1,026.5	80.97	13.677			
11,500.0	8,832.0	12,400.4	9,720.0	58.9	60.9	143.42	-3,549.8	-577.2	1,107.5	1,024.7	82.71	13.389			
11,600.0	8,832.0	12,500.4	9,720.0	60.2	62.1	143.42	-3,649.8	-576.4	1,107.5	1,023.0	84.48	13.110			
11,700.0	8,832.0	12,600.4	9,720.0	61.4	63.3	143.42	-3,749.8	-575.7	1,107.5	1,021.2	86.25	12.839			
11,800.0	8,832.0	12,700.4	9,720.0	62.7	64.5	143.42	-3,849.8	-574.9	1,107.5	1,019.4	88.05	12.578			
11,900.0	8,832.0	12,800.4	9,720.0	63.9	65.8	143.42	-3,949.8	-574.1	1,107.5	1,017.6	89.86	12.324			
12,000.0	8,832.0	12,900.4	9,720.0	65.2	67.0	143.42	-4,049.8	-573.3	1,107.5	1,015.8	91.68	12.079			
12,100.0	8,832.0	13,000.4	9,720.0	66.5	68.2	143.42	-4,149.8	-572.6	1,107.5	1,013.9	93.52	11.842			
12,200.0	8,832.0	13,100.4	9,720.0	67.8	69.5	143.42	-4,249.8	-571.8	1,107.5	1,012.1	95.37	11.612			
12,300.0	8,832.0	13,200.4	9,720.0	69.1	70.7	143.42	-4,349.8	-571.0	1,107.5	1,010.2	97.23	11.390			
12,400.0	8,832.0	13,300.4	9,720.0	70.4	72.0	143.42	-4,449.8	-570.2	1,107.5	1,008.3	99.10	11.175			
12,500.0	8,832.0	13,400.4	9,720.0	71.7	73.2	143.42	-4,549.8	-569.4	1,107.5	1,006.5	100.99	10.966			
12,600.0	8,832.0	13,500.4	9,720.0	73.0	74.5	143.42	-4,649.8	-568.7	1,107.5	1,004.6	102.88	10.764			
12,700.0	8,832.0	13,600.4	9,720.0	74.3	75.8	143.42	-4,749.8	-567.9	1,107.5	1,002.7	104.78	10.569			
12,800.0	8,832.0	13,700.4	9,720.0	75.6	77.1	143.42	-4,849.8	-567.1	1,107.5	1,000.8	106.70	10.380			
12,900.0	8,832.0	13,800.4	9,720.0	77.0	78.4	143.42	-4,949.8	-566.3	1,107.5	998.8	108.62	10.196			
13,000.0	8,832.0	13,900.4	9,720.0	78.3	79.7	143.42	-5,049.8	-565.6	1,107.5	996.9	110.54	10.018			
13,100.0	8,832.0	14,000.4	9,720.0	79.6	81.0	143.42	-5,149.8	-564.8	1,107.5	995.0	112.48	9.846			
13,200.0	8,832.0	14,100.4	9,720.0	81.0	82.3	143.42	-5,249.8	-564.0	1,107.5	993.0	114.42	9.679			
13,300.0	8,832.0	14,200.4	9,720.0	82.3	83.6	143.42	-5,349.8	-563.2	1,107.5	991.1	116.37	9.516			
13,400.0	8,832.0	14,300.4	9,720.0	83.6	84.9	143.42	-5,449.8	-562.5	1,107.5	989.1	118.33	9.359			
13,500.0	8,832.0	14,400.4	9,720.0	85.0	86.2	143.42	-5,549.8	-561.7	1,107.5	987.2	120.29	9.206			
13,600.0	8,832.0	14,500.4	9,720.0	86.3	87.5	143.42	-5,649.8	-560.9	1,107.5	985.2	122.26	9.058			
13,700.0	8,832.0	14,600.4	9,720.0	87.7	88.9	143.42	-5,749.8	-560.1	1,107.5	983.2	124.24	8.914			
13,800.0	8,832.0	14,700.4	9,720.0	89.1	90.2	143.42	-5,849.8	-559.4	1,107.5	981.2	126.22	8.774			
13,900.0	8,832.0	14,800.4	9,720.0	90.4	91.5	143.42	-5,949.8	-558.6	1,107.5	979.3	128.20	8.638			
14,000.0	8,832.0	14,900.4	9,720.0	91.8	92.9	143.42	-6,049.8	-557.8	1,107.5	977.3	130.19	8.506			
14,100.0	8,832.0	15,000.4	9,720.0	93.1	94.2	143.42	-6,149.7	-557.0	1,107.5	975.3	132.18	8.378			
14,200.0	8,832.0	15,100.4	9,720.0	94.5	95.6	143.42	-6,249.7	-556.3	1,107.5	973.3	134.18	8.253			
14,300.0	8,832.0	15,200.4	9,720.0	95.9	96.9	143.42	-6,349.7	-555.5	1,107.5	971.3	136.19	8.132			
14,400.0	8,832.0	15,300.4	9,720.0	97.3	98.3	143.42	-6,449.7	-554.7	1,107.5	969.3	138.19	8.014			
14,500.0	8,832.0	15,400.4	9,720.0	98.6	99.6	143.42	-6,549.7	-553.9	1,107.5	967.3	140.20	7.899			
14,600.0	8,832.0	15,500.4	9,720.0	100.0	101.0	143.42	-6,649.7	-553.2	1,107.5	965.2	142.22	7.787			
14,700.0	8,832.0	15,600.4	9,720.0	101.4	102.3	143.42	-6,749.7	-552.4	1,107.5	963.2	144.24	7.678			
14,800.0	8,832.0	15,700.4	9,720.0	102.8	103.7	143.42	-6,849.7	-551.6	1,107.5	961.2	146.26	7.572			
14,900.0	8,832.0	15,800.4	9,720.0	104.1	105.1	143.42	-6,949.7	-550.8	1,107.5	959.2	148.28	7.469			
15,000.0	8,832.0	15,900.4	9,720.0	105.5	106.4	143.42	-7,049.7	-550.0	1,107.5	957.1	150.31	7.368			
15,100.0	8,832.0	16,000.4	9,720.0	106.9	107.8	143.42	-7,149.7	-549.3	1,107.5	955.1	152.34	7.270			
15,200.0	8,832.0	16,100.4	9,720.0	108.3	109.2	143.42	-7,249.7	-548.5	1,107.5	953.1	154.38	7.174			
15,300.0	8,832.0	16,200.4	9,720.0	109.7	110.5	143.42	-7,349.7	-547.7	1,107.5	951.0	156.41	7.080			
15,400.0	8,832.0	16,300.4	9,720.0	111.1	111.9	143.42	-7,449.7	-546.9	1,107.5	949.0	158.45	6.989			
15,500.0	8,832.0	16,400.4	9,720.0	112.5	113.3	143.42	-7,549.7	-546.2	1,107.5	947.0	160.49	6.900			

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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	8,832.0	16,500.4	9,720.0	113.9	114.7	143.42	-7,649.7	-545.4	1,107.5	944.9	162.54	6.813	
15,700.0	8,832.0	16,600.4	9,720.0	115.3	116.0	143.42	-7,749.7	-544.6	1,107.5	942.9	164.59	6.729	
15,800.0	8,832.0	16,700.4	9,720.0	116.7	117.4	143.42	-7,849.7	-543.8	1,107.5	940.8	166.64	6.646	
15,900.0	8,832.0	16,800.4	9,720.0	118.1	118.8	143.42	-7,949.7	-543.1	1,107.5	938.8	168.69	6.565	
16,000.0	8,832.0	16,900.4	9,720.0	119.5	120.2	143.42	-8,049.7	-542.3	1,107.5	936.7	170.74	6.486	
16,100.0	8,832.0	17,000.4	9,720.0	120.9	121.6	143.42	-8,149.7	-541.5	1,107.5	934.7	172.80	6.409	
16,200.0	8,832.0	17,100.4	9,720.0	122.3	122.9	143.42	-8,249.7	-540.7	1,107.5	932.6	174.85	6.334	
16,300.0	8,832.0	17,200.4	9,720.0	123.7	124.3	143.42	-8,349.7	-540.0	1,107.5	930.5	176.91	6.260	
16,400.0	8,832.0	17,300.4	9,720.0	125.1	125.7	143.42	-8,449.7	-539.2	1,107.5	928.5	178.98	6.188	
16,500.0	8,832.0	17,400.4	9,720.0	126.5	127.1	143.42	-8,549.7	-538.4	1,107.5	926.4	181.04	6.117	
16,600.0	8,832.0	17,500.4	9,720.0	127.9	128.5	143.42	-8,649.7	-537.6	1,107.5	924.4	183.10	6.048	
16,700.0	8,832.0	17,600.4	9,720.0	129.3	129.9	143.42	-8,749.7	-536.9	1,107.5	922.3	185.17	5.981	
16,800.0	8,832.0	17,700.4	9,720.0	130.7	131.3	143.42	-8,849.7	-536.1	1,107.5	920.2	187.24	5.915	
16,900.0	8,832.0	17,800.4	9,720.0	132.1	132.7	143.42	-8,949.7	-535.3	1,107.5	918.1	189.31	5.850	
17,000.0	8,832.0	17,900.4	9,720.0	133.5	134.1	143.42	-9,049.7	-534.5	1,107.5	916.1	191.38	5.787	
17,100.0	8,832.0	18,000.4	9,720.0	134.9	135.5	143.42	-9,149.7	-533.8	1,107.5	914.0	193.45	5.725	
17,200.0	8,832.0	18,100.4	9,720.0	136.3	136.9	143.42	-9,249.7	-533.0	1,107.5	911.9	195.53	5.664	
17,300.0	8,832.0	18,200.4	9,720.0	137.7	138.3	143.42	-9,349.7	-532.2	1,107.5	909.9	197.60	5.604	
17,400.0	8,832.0	18,300.4	9,720.0	139.1	139.7	143.42	-9,449.6	-531.4	1,107.5	907.8	199.68	5.546	
17,500.0	8,832.0	18,400.4	9,720.0	140.6	141.1	143.42	-9,549.6	-530.6	1,107.5	905.7	201.76	5.489	
17,600.0	8,832.0	18,500.4	9,720.0	142.0	142.5	143.42	-9,649.6	-529.9	1,107.5	903.6	203.84	5.433	
17,700.0	8,832.0	18,600.4	9,720.0	143.4	143.9	143.42	-9,749.6	-529.1	1,107.5	901.5	205.92	5.378	
17,800.0	8,832.0	18,700.4	9,720.0	144.8	145.3	143.42	-9,849.6	-528.3	1,107.5	899.5	208.00	5.324	
17,900.0	8,832.0	18,800.4	9,720.0	146.2	146.7	143.42	-9,949.6	-527.5	1,107.5	897.4	210.08	5.272	
18,000.0	8,832.0	18,900.4	9,720.0	147.6	148.1	143.42	-10,049.6	-526.8	1,107.5	895.3	212.17	5.220	
18,100.0	8,832.0	19,000.4	9,720.0	149.0	149.5	143.42	-10,149.6	-526.0	1,107.5	893.2	214.25	5.169	
18,200.0	8,832.0	19,100.4	9,720.0	150.5	150.9	143.42	-10,249.6	-525.2	1,107.5	891.1	216.34	5.119	
18,300.0	8,832.0	19,200.4	9,720.0	151.9	152.3	143.42	-10,349.6	-524.4	1,107.5	889.0	218.43	5.070	
18,400.0	8,832.0	19,300.4	9,720.0	153.3	153.7	143.42	-10,449.6	-523.7	1,107.5	886.9	220.51	5.022	
18,500.0	8,832.0	19,400.4	9,720.0	154.7	155.2	143.42	-10,549.6	-522.9	1,107.5	884.9	222.60	4.975	
18,600.0	8,832.0	19,500.4	9,720.0	156.1	156.6	143.42	-10,649.6	-522.1	1,107.5	882.8	224.69	4.929	
18,700.0	8,832.0	19,600.4	9,720.0	157.6	158.0	143.42	-10,749.6	-521.3	1,107.5	880.7	226.79	4.883	
18,800.0	8,832.0	19,700.4	9,720.0	159.0	159.4	143.42	-10,849.6	-520.6	1,107.5	878.6	228.88	4.839	
18,900.0	8,832.0	19,800.4	9,720.0	160.4	160.8	143.42	-10,949.6	-519.8	1,107.5	876.5	230.97	4.795	
19,000.0	8,832.0	19,900.4	9,720.0	161.8	162.2	143.42	-11,049.6	-519.0	1,107.5	874.4	233.06	4.752	
19,077.1	8,832.0	19,977.5	9,720.0	162.9	163.3	143.42	-11,126.7	-518.4	1,107.5	872.8	234.68	4.719	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.4	1.4	0.0	0.0	-14.85	99.0	-46.5	164.8				
100.0	100.0	101.4	101.4	0.1	0.1	-14.85	99.0	-46.5	164.8	164.5	0.27	613.692	
200.0	200.0	201.4	201.4	0.5	0.5	-14.85	99.0	-46.5	164.8	163.8	0.99	167.208	
300.0	300.0	301.4	301.4	0.8	0.9	-14.85	99.0	-46.5	164.8	163.1	1.70	96.790	
400.0	400.0	401.4	401.4	1.2	1.2	-14.85	99.0	-46.5	164.8	162.4	2.42	68.107	
500.0	500.0	501.4	501.4	1.6	1.6	-14.85	99.0	-46.5	164.8	161.6	3.14	52.538	
600.0	600.0	601.4	601.4	1.9	1.9	-14.85	99.0	-46.5	164.8	160.9	3.85	42.763	
700.0	700.0	701.4	701.4	2.3	2.3	-14.85	99.0	-46.5	164.8	160.2	4.57	36.054	
800.0	800.0	801.4	801.4	2.6	2.6	-14.85	99.0	-46.5	164.8	159.5	5.29	31.165	
900.0	900.0	901.4	901.4	3.0	3.0	-14.85	99.0	-46.5	164.8	158.8	6.00	27.444	
1,000.0	1,000.0	1,001.4	1,001.4	3.4	3.4	-14.85	99.0	-46.5	164.8	158.1	6.72	24.516	
1,100.0	1,100.0	1,101.4	1,101.4	3.7	3.7	-14.85	99.0	-46.5	164.8	157.3	7.44	22.153	
1,200.0	1,200.0	1,201.4	1,201.4	4.1	4.1	-14.85	99.0	-46.5	164.8	156.6	8.15	20.206	
1,300.0	1,300.0	1,301.4	1,301.4	4.4	4.4	-14.85	99.0	-46.5	164.8	155.9	8.87	18.573	
1,400.0	1,400.0	1,401.4	1,401.4	4.8	4.8	-14.85	99.0	-46.5	164.8	155.2	9.59	17.184	
1,500.0	1,500.0	1,501.4	1,501.4	5.2	5.2	-14.85	99.0	-46.5	164.8	154.5	10.31	15.989	
1,600.0	1,600.0	1,601.4	1,601.4	5.5	5.5	-14.85	99.0	-46.5	164.8	153.8	11.02	14.949	
1,700.0	1,700.0	1,701.4	1,701.4	5.9	5.9	-14.85	99.0	-46.5	164.8	153.0	11.74	14.036	
1,800.0	1,800.0	1,801.4	1,801.4	6.2	6.2	-14.85	99.0	-46.5	164.8	152.3	12.46	13.228	
1,900.0	1,900.0	1,901.4	1,901.4	6.6	6.6	-14.85	99.0	-46.5	164.8	151.6	13.17	12.508	
2,000.0	2,000.0	2,001.5	2,001.5	6.9	6.9	-14.85	99.0	-46.5	164.8	150.9	13.89	11.862	
2,020.0	2,020.0	2,022.5	2,022.5	7.0	7.0	170.87	98.9	-46.5	164.8	150.7	14.03	11.744	CC
2,100.0	2,100.0	2,106.8	2,106.7	7.3	7.3	171.28	97.6	-45.2	164.8	150.3	14.58	11.303	
2,200.0	2,199.8	2,212.0	2,211.8	7.6	7.7	172.56	93.3	-41.1	165.2	150.0	15.24	10.842	
2,300.0	2,299.5	2,317.0	2,316.3	7.9	8.0	174.67	86.3	-34.4	166.0	150.1	15.89	10.450	
2,400.0	2,398.7	2,421.7	2,420.2	8.3	8.4	177.55	76.6	-25.2	167.3	150.7	16.53	10.118	
2,500.0	2,497.9	2,524.4	2,521.5	8.6	8.7	-178.93	64.5	-13.6	166.9	149.7	17.19	9.709	
2,597.8	2,594.9	2,621.6	2,617.3	8.9	9.1	-175.43	52.5	-2.2	166.6	148.7	17.87	9.322	
2,600.0	2,597.1	2,623.9	2,619.5	8.9	9.1	-175.35	52.3	-2.0	166.6	148.7	17.89	9.314	
2,700.0	2,696.3	2,723.3	2,717.5	9.3	9.4	-171.76	40.0	9.7	166.9	148.4	18.59	8.980	ES
2,800.0	2,795.5	2,822.8	2,815.5	9.6	9.8	-168.20	27.8	21.4	168.0	148.6	19.31	8.700	
2,900.0	2,894.7	2,922.2	2,913.5	10.0	10.2	-164.70	15.5	33.1	169.6	149.6	20.03	8.468	
3,000.0	2,993.9	3,021.6	3,011.5	10.4	10.5	-161.28	3.3	44.8	171.9	151.1	20.76	8.280	
3,100.0	3,093.1	3,121.1	3,109.5	10.7	10.9	-157.95	-9.0	56.5	174.8	153.3	21.50	8.129	
3,200.0	3,192.3	3,220.5	3,207.5	11.1	11.3	-154.75	-21.2	68.1	178.2	156.0	22.24	8.012	
3,300.0	3,291.5	3,320.0	3,305.5	11.5	11.7	-151.67	-33.5	79.8	182.2	159.2	22.99	7.924	
3,400.0	3,390.7	3,419.4	3,403.5	11.8	12.1	-148.73	-45.7	91.5	186.7	162.9	23.75	7.860	
3,500.0	3,489.9	3,518.9	3,501.5	12.2	12.5	-145.94	-58.0	103.2	191.7	167.1	24.51	7.818	
3,600.0	3,589.1	3,618.3	3,599.5	12.6	12.9	-143.29	-70.2	114.9	197.1	171.8	25.28	7.794	
3,700.0	3,688.3	3,717.8	3,697.5	12.9	13.3	-140.79	-82.4	126.6	202.9	176.8	26.05	7.786	
3,800.0	3,787.5	3,817.2	3,795.5	13.3	13.7	-138.43	-94.7	138.2	209.0	182.2	26.83	7.791	
3,900.0	3,886.7	3,916.7	3,893.5	13.7	14.1	-136.20	-106.9	149.9	215.5	187.9	27.61	7.807	
4,000.0	3,985.9	4,016.1	3,991.5	14.1	14.5	-134.11	-119.2	161.6	222.3	194.0	28.39	7.832	
4,100.0	4,085.1	4,115.6	4,089.5	14.5	14.9	-132.15	-131.4	173.3	229.4	200.3	29.17	7.865	
4,200.0	4,184.2	4,215.0	4,187.5	14.8	15.3	-130.30	-143.7	185.0	236.8	206.8	29.96	7.904	
4,300.0	4,283.4	4,314.5	4,285.5	15.2	15.7	-128.57	-155.9	196.7	244.3	213.6	30.74	7.948	
4,400.0	4,382.6	4,413.9	4,383.5	15.6	16.1	-126.94	-168.2	208.3	252.1	220.6	31.53	7.996	
4,500.0	4,481.8	4,513.4	4,481.4	16.0	16.5	-125.41	-180.4	220.0	260.1	227.8	32.32	8.048	
4,600.0	4,581.0	4,612.8	4,579.4	16.4	16.9	-123.98	-192.7	231.7	268.3	235.1	33.11	8.102	
4,700.0	4,680.2	4,712.3	4,677.4	16.8	17.3	-122.62	-204.9	243.4	276.6	242.7	33.90	8.158	
4,800.0	4,779.4	4,811.7	4,775.4	17.1	17.7	-121.35	-217.2	255.1	285.0	250.3	34.69	8.215	
4,900.0	4,878.6	4,911.1	4,873.4	17.5	18.1	-120.15	-229.4	266.8	293.6	258.1	35.49	8.273	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
5,000.0	4,977.8	5,010.6	4,971.4	17.9	18.5	-119.02	-241.7	278.4	302.3	266.0	36.28	8.332	
5,100.0	5,077.0	5,110.0	5,069.4	18.3	19.0	-117.95	-253.9	290.1	311.1	274.0	37.08	8.391	
5,200.0	5,176.2	5,209.5	5,167.4	18.7	19.4	-116.94	-266.2	301.8	320.0	282.2	37.87	8.451	
5,300.0	5,275.4	5,308.9	5,265.4	19.1	19.8	-115.98	-278.4	313.5	329.0	290.4	38.67	8.510	
5,400.0	5,374.6	5,408.4	5,363.4	19.5	20.2	-115.08	-290.7	325.2	338.1	298.7	39.46	8.569	
5,500.0	5,473.8	5,507.8	5,461.4	19.9	20.6	-114.23	-302.9	336.9	347.3	307.1	40.26	8.627	
5,600.0	5,573.0	5,607.3	5,559.4	20.3	21.0	-113.41	-315.2	348.5	356.6	315.5	41.06	8.685	
5,700.0	5,672.2	5,706.7	5,657.4	20.6	21.4	-112.64	-327.4	360.2	365.9	324.0	41.85	8.742	
5,800.0	5,771.4	5,806.2	5,755.4	21.0	21.9	-111.91	-339.7	371.9	375.3	332.6	42.65	8.798	
5,900.0	5,870.6	5,905.6	5,853.4	21.4	22.3	-111.21	-351.9	383.6	384.7	341.3	43.45	8.854	
6,000.0	5,969.8	6,005.1	5,951.4	21.8	22.7	-110.55	-364.1	395.3	394.2	349.9	44.25	8.909	
6,100.0	6,069.0	6,104.5	6,049.4	22.2	23.1	-109.92	-376.4	407.0	403.7	358.7	45.05	8.962	
6,200.0	6,168.2	6,204.0	6,147.4	22.6	23.5	-109.32	-388.6	418.6	413.3	367.5	45.85	9.015	
6,300.0	6,267.3	6,303.4	6,245.4	23.0	24.0	-108.74	-400.9	430.3	423.0	376.3	46.65	9.067	
6,400.0	6,366.5	6,402.9	6,343.4	23.4	24.4	-108.19	-413.1	442.0	432.6	385.2	47.45	9.118	
6,500.0	6,465.7	6,502.3	6,441.4	23.8	24.8	-107.66	-425.4	453.7	442.3	394.1	48.25	9.168	
6,600.0	6,564.9	6,601.7	6,539.4	24.2	25.2	-107.16	-437.6	465.4	452.1	403.0	49.05	9.218	
6,700.0	6,664.1	6,701.2	6,637.4	24.6	25.6	-106.68	-449.9	477.1	461.9	412.0	49.85	9.266	
6,800.0	6,763.3	6,800.6	6,735.4	25.0	26.1	-106.22	-462.1	488.7	471.7	421.0	50.65	9.313	
6,900.0	6,862.5	6,900.1	6,833.4	25.4	26.5	-105.77	-474.4	500.4	481.5	430.1	51.45	9.359	
7,000.0	6,961.7	6,999.5	6,931.3	25.8	26.9	-105.35	-486.6	512.1	491.4	439.1	52.25	9.405	
7,100.0	7,060.9	7,099.0	7,029.3	26.2	27.3	-104.94	-498.9	523.8	501.3	448.2	53.05	9.449	
7,200.0	7,160.1	7,198.4	7,127.3	26.5	27.7	-104.58	-511.1	535.5	511.2	457.3	53.85	9.492	
7,300.0	7,259.6	7,297.8	7,225.3	26.9	28.2	-104.11	-523.4	547.2	520.5	465.8	54.64	9.526	
7,400.0	7,359.4	7,397.0	7,323.0	27.3	28.6	-103.29	-535.6	558.8	529.1	473.7	55.40	9.550	
7,500.0	7,459.3	7,495.9	7,420.5	27.7	29.0	-102.13	-547.8	570.4	537.1	480.9	56.13	9.568	
7,600.0	7,559.3	7,594.5	7,517.6	28.0	29.4	73.68	-559.9	582.0	544.8	488.0	56.83	9.588	
7,700.0	7,659.3	7,693.1	7,614.8	28.3	29.8	75.23	-572.0	593.6	552.9	495.4	57.51	9.615	
7,800.0	7,759.3	7,791.6	7,711.9	28.6	30.3	76.73	-584.2	605.2	561.4	503.3	58.19	9.649	
7,900.0	7,859.3	7,890.1	7,809.0	28.9	30.7	78.19	-596.3	616.7	570.3	511.5	58.86	9.689	
8,000.0	7,959.3	7,988.7	7,906.1	29.2	31.1	79.61	-608.4	628.3	579.6	520.0	59.54	9.735	
8,100.0	8,059.3	8,087.2	8,003.2	29.6	31.5	80.98	-620.6	639.9	589.2	529.0	60.21	9.785	
8,200.0	8,159.3	8,185.8	8,100.3	29.9	31.9	82.30	-632.7	651.5	599.1	538.2	60.88	9.841	
8,300.0	8,259.3	8,284.3	8,197.4	30.2	32.4	83.59	-644.9	663.1	609.4	547.8	61.55	9.900	
8,400.0	8,359.3	8,382.8	8,294.5	30.5	32.8	-94.67	-657.0	674.6	619.9	557.7	62.22	9.964	
8,500.0	8,458.5	8,482.0	8,392.2	30.9	33.2	-93.11	-669.2	686.3	631.4	568.4	63.00	10.023	
8,600.0	8,553.1	8,586.9	8,495.7	31.4	33.7	-93.45	-681.7	698.2	644.1	580.1	64.00	10.064	
8,700.0	8,639.0	8,690.7	8,598.5	31.9	34.1	-95.58	-691.7	707.7	657.7	592.5	65.13	10.098	
8,800.0	8,712.5	8,779.4	8,686.8	32.5	34.4	-98.09	-698.1	713.8	675.7	609.4	66.23	10.202	
8,900.0	8,770.4	8,848.5	8,755.7	33.1	34.7	-99.36	-701.6	717.2	702.2	635.0	67.21	10.448	
9,000.0	8,810.1	8,895.5	8,802.6	33.8	34.8	-98.04	-703.4	718.9	740.2	672.2	67.98	10.888	
9,100.0	8,829.9	8,919.5	8,826.6	34.5	34.9	-93.17	-704.1	719.5	789.8	721.4	68.47	11.535	
9,200.0	8,832.0	8,924.3	8,831.4	35.1	34.9	-89.82	-704.2	719.7	849.1	780.4	68.70	12.359	
9,300.0	8,832.0	8,926.7	8,833.8	35.9	34.9	-90.03	-704.3	719.7	915.4	846.6	68.81	13.303	
9,400.0	8,832.0	8,929.0	8,836.1	36.6	34.9	-90.23	-704.3	719.8	987.5	918.6	68.85	14.342	
9,500.0	8,832.0	8,931.2	8,838.3	37.4	34.9	-90.42	-704.4	719.8	1,064.0	995.2	68.84	15.457	
9,600.0	8,832.0	10,542.3	9,720.0	38.3	43.5	-143.34	-1,639.6	728.0	1,105.3	1,050.5	54.78	20.176	
9,700.0	8,832.0	10,642.3	9,720.0	39.1	44.4	-143.34	-1,739.6	728.8	1,105.3	1,049.4	55.89	19.776	
9,800.0	8,832.0	10,742.3	9,720.0	40.1	45.2	-143.34	-1,839.6	729.6	1,105.3	1,048.2	57.06	19.371	
9,900.0	8,832.0	10,842.3	9,720.0	41.0	46.1	-143.34	-1,939.6	730.3	1,105.3	1,047.0	58.28	18.965	
10,000.0	8,832.0	10,942.3	9,720.0	42.0	47.0	-143.34	-2,039.6	731.1	1,105.3	1,045.7	59.55	18.559	
10,100.0	8,832.0	11,042.3	9,720.0	43.0	48.0	-143.34	-2,139.6	731.9	1,105.3	1,044.4	60.88	18.156	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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		
10,200.0	8,832.0	11,142.3	9,720.0	44.0	48.9	-143.34	-2,239.6	732.7	1,105.3	1,043.0	62.24	17.757			
10,300.0	8,832.0	11,242.3	9,720.0	45.0	49.9	-143.34	-2,339.6	733.4	1,105.3	1,041.6	63.65	17.364			
10,400.0	8,832.0	11,342.3	9,720.0	46.1	50.9	-143.34	-2,439.6	734.2	1,105.3	1,040.2	65.10	16.977			
10,500.0	8,832.0	11,442.3	9,720.0	47.2	52.0	-143.34	-2,539.6	735.0	1,105.3	1,038.7	66.59	16.598			
10,600.0	8,832.0	11,542.3	9,720.0	48.3	53.0	-143.34	-2,639.6	735.8	1,105.3	1,037.2	68.11	16.228			
10,700.0	8,832.0	11,642.3	9,720.0	49.4	54.1	-143.34	-2,739.6	736.5	1,105.3	1,035.6	69.67	15.866			
10,800.0	8,832.0	11,742.3	9,720.0	50.6	55.2	-143.34	-2,839.6	737.3	1,105.3	1,034.0	71.25	15.513			
10,900.0	8,832.0	11,842.3	9,720.0	51.7	56.3	-143.34	-2,939.6	738.1	1,105.3	1,032.4	72.86	15.170			
11,000.0	8,832.0	11,942.3	9,720.0	52.9	57.4	-143.34	-3,039.6	738.9	1,105.3	1,030.8	74.50	14.836			
11,100.0	8,832.0	12,042.3	9,720.0	54.1	58.5	-143.34	-3,139.6	739.7	1,105.3	1,029.1	76.16	14.512			
11,200.0	8,832.0	12,142.3	9,720.0	55.3	59.7	-143.34	-3,239.6	740.4	1,105.3	1,027.4	77.85	14.198			
11,300.0	8,832.0	12,242.3	9,720.0	56.5	60.8	-143.34	-3,339.6	741.2	1,105.3	1,025.7	79.56	13.893			
11,400.0	8,832.0	12,342.3	9,720.0	57.7	62.0	-143.34	-3,439.6	742.0	1,105.3	1,024.0	81.28	13.598			
11,500.0	8,832.0	12,442.3	9,720.0	58.9	63.2	-143.34	-3,539.6	742.8	1,105.3	1,022.3	83.03	13.312			
11,600.0	8,832.0	12,542.3	9,720.0	60.2	64.4	-143.34	-3,639.6	743.5	1,105.3	1,020.5	84.80	13.035			
11,700.0	8,832.0	12,642.3	9,720.0	61.4	65.6	-143.34	-3,739.6	744.3	1,105.3	1,018.7	86.58	12.767			
11,800.0	8,832.0	12,742.3	9,720.0	62.7	66.8	-143.34	-3,839.6	745.1	1,105.3	1,016.9	88.37	12.507			
11,900.0	8,832.0	12,842.3	9,720.0	63.9	68.0	-143.34	-3,939.6	745.9	1,105.3	1,015.1	90.19	12.256			
12,000.0	8,832.0	12,942.3	9,720.0	65.2	69.3	-143.34	-4,039.6	746.6	1,105.3	1,013.3	92.01	12.012			
12,100.0	8,832.0	13,042.3	9,720.0	66.5	70.5	-143.34	-4,139.6	747.4	1,105.3	1,011.4	93.85	11.777			
12,200.0	8,832.0	13,142.3	9,720.0	67.8	71.7	-143.34	-4,239.6	748.2	1,105.3	1,009.6	95.70	11.549			
12,300.0	8,832.0	13,242.3	9,720.0	69.1	73.0	-143.34	-4,339.6	749.0	1,105.3	1,007.7	97.57	11.328			
12,400.0	8,832.0	13,342.3	9,720.0	70.4	74.3	-143.34	-4,439.6	749.7	1,105.3	1,005.8	99.44	11.115			
12,500.0	8,832.0	13,442.3	9,720.0	71.7	75.5	-143.34	-4,539.6	750.5	1,105.3	1,004.0	101.33	10.908			
12,600.0	8,832.0	13,542.3	9,720.0	73.0	76.8	-143.34	-4,639.6	751.3	1,105.3	1,002.1	103.22	10.708			
12,700.0	8,832.0	13,642.3	9,720.0	74.3	78.1	-143.34	-4,739.5	752.1	1,105.3	1,000.2	105.13	10.514			
12,800.0	8,832.0	13,742.3	9,720.0	75.6	79.4	-143.34	-4,839.5	752.8	1,105.3	998.3	107.04	10.326			
12,900.0	8,832.0	13,842.3	9,720.0	77.0	80.7	-143.34	-4,939.5	753.6	1,105.3	996.3	108.96	10.144			
13,000.0	8,832.0	13,942.3	9,720.0	78.3	82.0	-143.34	-5,039.5	754.4	1,105.3	994.4	110.89	9.968			
13,100.0	8,832.0	14,042.3	9,720.0	79.6	83.3	-143.34	-5,139.5	755.2	1,105.3	992.5	112.83	9.796			
13,200.0	8,832.0	14,142.3	9,720.0	81.0	84.6	-143.34	-5,239.5	755.9	1,105.3	990.5	114.77	9.631			
13,300.0	8,832.0	14,242.3	9,720.0	82.3	85.9	-143.34	-5,339.5	756.7	1,105.3	988.6	116.72	9.470			
13,400.0	8,832.0	14,342.3	9,720.0	83.6	87.2	-143.34	-5,439.5	757.5	1,105.3	986.6	118.68	9.314			
13,500.0	8,832.0	14,442.3	9,720.0	85.0	88.5	-143.34	-5,539.5	758.3	1,105.3	984.7	120.64	9.162			
13,600.0	8,832.0	14,542.3	9,720.0	86.3	89.8	-143.34	-5,639.5	759.1	1,105.3	982.7	122.61	9.015			
13,700.0	8,832.0	14,642.3	9,720.0	87.7	91.2	-143.34	-5,739.5	759.8	1,105.3	980.7	124.58	8.872			
13,800.0	8,832.0	14,742.3	9,720.0	89.1	92.5	-143.34	-5,839.5	760.6	1,105.3	978.7	126.56	8.733			
13,900.0	8,832.0	14,842.3	9,720.0	90.4	93.8	-143.34	-5,939.5	761.4	1,105.3	976.7	128.55	8.598			
14,000.0	8,832.0	14,942.3	9,720.0	91.8	95.2	-143.34	-6,039.5	762.2	1,105.3	974.8	130.54	8.467			
14,100.0	8,832.0	15,042.3	9,720.0	93.1	96.5	-143.34	-6,139.5	762.9	1,105.3	972.8	132.53	8.340			
14,200.0	8,832.0	15,142.3	9,720.0	94.5	97.8	-143.34	-6,239.5	763.7	1,105.3	970.8	134.53	8.216			
14,300.0	8,832.0	15,242.3	9,720.0	95.9	99.2	-143.34	-6,339.5	764.5	1,105.3	968.8	136.53	8.095			
14,400.0	8,832.0	15,342.3	9,720.0	97.3	100.5	-143.34	-6,439.5	765.3	1,105.3	966.8	138.54	7.978			
14,500.0	8,832.0	15,442.3	9,720.0	98.6	101.9	-143.34	-6,539.5	766.0	1,105.3	964.7	140.55	7.864			
14,600.0	8,832.0	15,542.3	9,720.0	100.0	103.3	-143.34	-6,639.5	766.8	1,105.3	962.7	142.56	7.753			
14,700.0	8,832.0	15,642.3	9,720.0	101.4	104.6	-143.34	-6,739.5	767.6	1,105.3	960.7	144.58	7.645			
14,800.0	8,832.0	15,742.3	9,720.0	102.8	106.0	-143.34	-6,839.5	768.4	1,105.3	958.7	146.60	7.539			
14,900.0	8,832.0	15,842.3	9,720.0	104.1	107.3	-143.34	-6,939.5	769.1	1,105.3	956.7	148.63	7.437			
15,000.0	8,832.0	15,942.3	9,720.0	105.5	108.7	-143.34	-7,039.5	769.9	1,105.3	954.6	150.65	7.337			
15,100.0	8,832.0	16,042.3	9,720.0	106.9	110.1	-143.34	-7,139.5	770.7	1,105.3	952.6	152.69	7.239			
15,200.0	8,832.0	16,142.3	9,720.0	108.3	111.4	-143.34	-7,239.5	771.5	1,105.3	950.6	154.72	7.144			
15,300.0	8,832.0	16,242.3	9,720.0	109.7	112.8	-143.34	-7,339.5	772.2	1,105.3	948.5	156.75	7.051			

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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									Rule Assigned:				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)	Minimum Separation (usft)			
15,400.0	8,832.0	16,342.3	9,720.0	111.1	114.2	-143.34	-7,439.5	773.0	1,105.3	946.5	158.79	6.961		
15,500.0	8,832.0	16,442.3	9,720.0	112.5	115.5	-143.34	-7,539.5	773.8	1,105.3	944.5	160.84	6.872		
15,600.0	8,832.0	16,542.3	9,720.0	113.9	116.9	-143.34	-7,639.5	774.6	1,105.3	942.4	162.88	6.786		
15,700.0	8,832.0	16,642.3	9,720.0	115.3	118.3	-143.34	-7,739.5	775.3	1,105.3	940.4	164.93	6.702		
15,800.0	8,832.0	16,742.3	9,720.0	116.7	119.7	-143.34	-7,839.5	776.1	1,105.3	938.3	166.97	6.620		
15,900.0	8,832.0	16,842.3	9,720.0	118.1	121.1	-143.34	-7,939.5	776.9	1,105.3	936.3	169.02	6.539		
16,000.0	8,832.0	16,942.3	9,720.0	119.5	122.4	-143.34	-8,039.4	777.7	1,105.3	934.2	171.08	6.461		
16,100.0	8,832.0	17,042.3	9,720.0	120.9	123.8	-143.34	-8,139.4	778.5	1,105.3	932.2	173.13	6.384		
16,200.0	8,832.0	17,142.3	9,720.0	122.3	125.2	-143.34	-8,239.4	779.2	1,105.3	930.1	175.19	6.309		
16,300.0	8,832.0	17,242.3	9,720.0	123.7	126.6	-143.34	-8,339.4	780.0	1,105.3	928.0	177.25	6.236		
16,400.0	8,832.0	17,342.3	9,720.0	125.1	128.0	-143.34	-8,439.4	780.8	1,105.3	926.0	179.31	6.164		
16,500.0	8,832.0	17,442.3	9,720.0	126.5	129.4	-143.34	-8,539.4	781.6	1,105.3	923.9	181.37	6.094		
16,600.0	8,832.0	17,542.3	9,720.0	127.9	130.8	-143.34	-8,639.4	782.3	1,105.3	921.9	183.44	6.025		
16,700.0	8,832.0	17,642.3	9,720.0	129.3	132.2	-143.34	-8,739.4	783.1	1,105.3	919.8	185.50	5.958		
16,800.0	8,832.0	17,742.3	9,720.0	130.7	133.6	-143.34	-8,839.4	783.9	1,105.3	917.7	187.57	5.893		
16,900.0	8,832.0	17,842.3	9,720.0	132.1	134.9	-143.34	-8,939.4	784.7	1,105.3	915.7	189.64	5.828		
17,000.0	8,832.0	17,942.3	9,720.0	133.5	136.3	-143.34	-9,039.4	785.4	1,105.3	913.6	191.71	5.765		
17,100.0	8,832.0	18,042.3	9,720.0	134.9	137.7	-143.34	-9,139.4	786.2	1,105.3	911.5	193.78	5.704		
17,200.0	8,832.0	18,142.3	9,720.0	136.3	139.1	-143.34	-9,239.4	787.0	1,105.3	909.4	195.85	5.643		
17,300.0	8,832.0	18,242.3	9,720.0	137.7	140.5	-143.34	-9,339.4	787.8	1,105.3	907.4	197.93	5.584		
17,400.0	8,832.0	18,342.3	9,720.0	139.1	141.9	-143.34	-9,439.4	788.5	1,105.3	905.3	200.00	5.526		
17,500.0	8,832.0	18,442.3	9,720.0	140.6	143.3	-143.34	-9,539.4	789.3	1,105.3	903.2	202.08	5.470		
17,600.0	8,832.0	18,542.3	9,720.0	142.0	144.7	-143.34	-9,639.4	790.1	1,105.3	901.1	204.16	5.414		
17,700.0	8,832.0	18,642.3	9,720.0	143.4	146.1	-143.34	-9,739.4	790.9	1,105.3	899.0	206.24	5.359		
17,800.0	8,832.0	18,742.3	9,720.0	144.8	147.5	-143.34	-9,839.4	791.6	1,105.3	897.0	208.32	5.306		
17,900.0	8,832.0	18,842.3	9,720.0	146.2	148.9	-143.34	-9,939.4	792.4	1,105.3	894.9	210.40	5.253		
18,000.0	8,832.0	18,942.3	9,720.0	147.6	150.3	-143.34	-10,039.4	793.2	1,105.3	892.8	212.49	5.202		
18,100.0	8,832.0	19,042.3	9,720.0	149.0	151.8	-143.34	-10,139.4	794.0	1,105.3	890.7	214.57	5.151		
18,200.0	8,832.0	19,142.3	9,720.0	150.5	153.2	-143.34	-10,239.4	794.7	1,105.3	888.6	216.66	5.102		
18,300.0	8,832.0	19,242.3	9,720.0	151.9	154.6	-143.34	-10,339.4	795.5	1,105.3	886.5	218.74	5.053		
18,400.0	8,832.0	19,342.3	9,720.0	153.3	156.0	-143.34	-10,439.4	796.3	1,105.3	884.5	220.83	5.005		
18,500.0	8,832.0	19,442.3	9,720.0	154.7	157.4	-143.34	-10,539.4	797.1	1,105.3	882.4	222.92	4.958		
18,600.0	8,832.0	19,542.3	9,720.0	156.1	158.8	-143.34	-10,639.4	797.9	1,105.3	880.3	225.01	4.912		
18,700.0	8,832.0	19,642.3	9,720.0	157.6	160.2	-143.34	-10,739.4	798.6	1,105.3	878.2	227.10	4.867		
18,800.0	8,832.0	19,742.3	9,720.0	159.0	161.6	-143.34	-10,839.4	799.4	1,105.3	876.1	229.19	4.823		
18,900.0	8,832.0	19,842.3	9,720.0	160.4	163.0	-143.34	-10,939.4	800.2	1,105.3	874.0	231.28	4.779		
19,000.0	8,832.0	19,942.3	9,720.0	161.8	164.4	-143.34	-11,039.4	801.0	1,105.3	871.9	233.37	4.736		
19,073.9	8,832.0	20,016.2	9,720.0	162.9	165.5	-143.34	-11,113.3	801.5	1,105.3	870.4	234.92	4.705		
19,077.1	8,832.0	20,017.6	9,720.0	162.9	165.5	-143.34	-11,114.6	801.5	1,105.3	870.3	234.99	4.704 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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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:		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	-90.92	-60.6	-24.3	20.0				
100.0	100.0	99.0	99.0	0.1	0.1	-90.92	-60.6	-24.3	20.0	19.7	0.26	76.261	
200.0	200.0	199.0	199.0	0.5	0.5	-90.92	-60.6	-24.3	20.0	19.0	0.98	20.467	
300.0	300.0	299.0	299.0	0.8	0.8	-90.92	-60.6	-24.3	20.0	18.3	1.69	11.804	
400.0	400.0	399.0	399.0	1.2	1.2	-90.92	-60.6	-24.3	20.0	17.6	2.41	8.293	
500.0	500.0	499.0	499.0	1.6	1.6	-90.92	-60.6	-24.3	20.0	16.9	3.13	6.392	
600.0	600.0	599.0	599.0	1.9	1.9	-90.92	-60.6	-24.3	20.0	16.1	3.84	5.200	
700.0	700.0	699.0	699.0	2.3	2.3	-90.92	-60.6	-24.3	20.0	15.4	4.56	4.383	
800.0	800.0	799.0	799.0	2.6	2.6	-90.92	-60.6	-24.3	20.0	14.7	5.28	3.788	
900.0	900.0	899.0	899.0	3.0	3.0	-90.92	-60.6	-24.3	20.0	14.0	6.00	3.335	
1,000.0	1,000.0	999.0	999.0	3.4	3.4	-90.92	-60.6	-24.3	20.0	13.3	6.71	2.978	
1,100.0	1,100.0	1,099.0	1,099.0	3.7	3.7	-90.92	-60.6	-24.3	20.0	12.6	7.43	2.691	
1,200.0	1,200.0	1,199.0	1,199.0	4.1	4.1	-90.92	-60.6	-24.3	20.0	11.8	8.15	2.454	
1,300.0	1,300.0	1,299.0	1,299.0	4.4	4.4	-90.92	-60.6	-24.3	20.0	11.1	8.86	2.256	
1,400.0	1,400.0	1,399.0	1,399.0	4.8	4.8	-90.92	-60.6	-24.3	20.0	10.4	9.58	2.087	
1,500.0	1,500.0	1,499.0	1,499.0	5.2	5.1	-90.92	-60.6	-24.3	20.0	9.7	10.30	1.942	
1,600.0	1,600.0	1,599.0	1,599.0	5.5	5.5	-90.92	-60.6	-24.3	20.0	9.0	11.01	1.815	
1,700.0	1,700.0	1,699.0	1,699.0	5.9	5.9	-90.92	-60.6	-24.3	20.0	8.3	11.73	1.704	
1,800.0	1,800.0	1,799.0	1,799.0	6.2	6.2	-90.92	-60.6	-24.3	20.0	7.5	12.45	1.606	
1,900.0	1,900.0	1,899.0	1,899.0	6.6	6.6	-90.92	-60.6	-24.3	20.0	6.8	13.16	1.519	
2,000.0	2,000.0	1,999.0	1,999.0	6.9	6.9	-90.92	-60.6	-24.3	20.0	6.1	13.88	1.440	Level 3
2,100.0	2,100.0	2,099.1	2,099.1	7.3	7.3	94.89	-62.3	-24.1	19.9	5.4	14.56	1.370	Level 3
2,200.0	2,199.8	2,199.2	2,199.0	7.6	7.6	95.03	-67.4	-23.4	19.8	4.6	15.21	1.301	Level 3
2,300.0	2,299.5	2,299.2	2,298.7	7.9	7.9	96.03	-75.8	-22.3	19.6	3.7	15.86	1.234	Level 2
2,328.1	2,327.4	2,327.3	2,326.7	8.0	8.0	97.50	-78.3	-22.0	19.5	3.5	16.05	1.218	Level 2, CC
2,400.0	2,398.7	2,399.2	2,398.2	8.3	8.3	104.66	-84.7	-21.1	19.8	3.3	16.52	1.200	Level 2, ES, SF
2,500.0	2,497.9	2,499.1	2,497.8	8.6	8.6	114.67	-93.6	-20.0	20.8	3.6	17.19	1.211	Level 2
2,600.0	2,597.1	2,599.0	2,597.3	8.9	8.9	123.54	-102.6	-18.8	22.4	4.5	17.86	1.253	Level 3
2,700.0	2,696.3	2,699.0	2,696.8	9.3	9.3	131.10	-111.5	-17.7	24.4	5.9	18.53	1.316	Level 3
2,800.0	2,795.5	2,798.9	2,796.3	9.6	9.6	137.42	-120.4	-16.5	26.8	7.5	19.21	1.393	Level 3
2,900.0	2,894.7	2,898.8	2,895.9	10.0	10.0	142.66	-129.4	-15.3	29.4	9.5	19.89	1.478	Level 3
3,000.0	2,993.9	2,998.8	2,995.4	10.4	10.3	147.01	-138.3	-14.2	32.2	11.7	20.57	1.567	
3,100.0	3,093.1	3,098.7	3,094.9	10.7	10.7	150.63	-147.2	-13.0	35.2	14.0	21.26	1.658	
3,200.0	3,192.3	3,198.6	3,194.4	11.1	11.0	153.68	-156.2	-11.8	38.4	16.4	21.95	1.748	
3,300.0	3,291.5	3,298.5	3,294.0	11.5	11.4	156.26	-165.1	-10.7	41.6	18.9	22.64	1.836	
3,400.0	3,390.7	3,398.5	3,393.5	11.8	11.7	158.47	-174.0	-9.5	44.9	21.5	23.34	1.922	
3,500.0	3,489.9	3,498.4	3,493.0	12.2	12.1	160.37	-183.0	-8.3	48.2	24.2	24.04	2.005	
3,600.0	3,589.1	3,598.3	3,592.5	12.6	12.5	162.03	-191.9	-7.2	51.6	26.9	24.74	2.086	
3,700.0	3,688.3	3,698.3	3,692.1	12.9	12.8	163.48	-200.8	-6.0	55.0	29.6	25.44	2.163	
3,800.0	3,787.5	3,798.2	3,791.6	13.3	13.2	164.76	-209.8	-4.8	58.5	32.3	26.14	2.237	
3,900.0	3,886.7	3,898.1	3,891.1	13.7	13.6	165.89	-218.7	-3.7	62.0	35.1	26.85	2.308	
4,000.0	3,985.9	3,998.1	3,990.6	14.1	13.9	166.91	-227.6	-2.5	65.5	37.9	27.55	2.376	
4,100.0	4,085.1	4,098.0	4,090.2	14.5	14.3	167.82	-236.6	-1.3	69.0	40.7	28.26	2.441	
4,200.0	4,184.2	4,197.9	4,189.7	14.8	14.6	168.64	-245.5	-0.2	72.5	43.6	28.97	2.503	
4,300.0	4,283.4	4,297.9	4,289.2	15.2	15.0	169.39	-254.4	1.0	76.1	46.4	29.68	2.563	
4,400.0	4,382.6	4,397.8	4,388.7	15.6	15.4	170.07	-263.4	2.2	79.6	49.2	30.39	2.620	
4,500.0	4,481.8	4,497.7	4,488.3	16.0	15.8	170.69	-272.3	3.3	83.2	52.1	31.11	2.675	
4,600.0	4,581.0	4,597.7	4,587.8	16.4	16.1	171.26	-281.2	4.5	86.8	55.0	31.82	2.728	
4,700.0	4,680.2	4,697.6	4,687.3	16.8	16.5	171.78	-290.2	5.7	90.4	57.9	32.53	2.778	
4,800.0	4,779.4	4,797.5	4,786.8	17.1	16.9	172.27	-299.1	6.8	94.0	60.7	33.25	2.827	
4,900.0	4,878.6	4,897.5	4,886.4	17.5	17.2	172.72	-308.0	8.0	97.6	63.6	33.97	2.873	
5,000.0	4,977.8	4,997.4	4,985.9	17.9	17.6	173.14	-317.0	9.2	101.2	66.5	34.68	2.918	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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:		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	
5,100.0	5,077.0	5,097.3	5,085.4	18.3	18.0	173.52	-325.9	10.3	104.8	69.4	35.40	2.961	
5,200.0	5,176.2	5,197.3	5,184.9	18.7	18.3	173.89	-334.8	11.5	108.4	72.3	36.12	3.002	
5,300.0	5,275.4	5,297.2	5,284.5	19.1	18.7	174.22	-343.8	12.7	112.1	75.2	36.84	3.042	
5,400.0	5,374.6	5,397.1	5,384.0	19.5	19.1	174.54	-352.7	13.8	115.7	78.1	37.56	3.080	
5,500.0	5,473.8	5,497.1	5,483.5	19.9	19.5	174.84	-361.6	15.0	119.3	81.0	38.28	3.117	
5,600.0	5,573.0	5,597.0	5,583.0	20.3	19.8	175.12	-370.6	16.2	122.9	84.0	39.00	3.153	
5,700.0	5,672.2	5,696.9	5,682.6	20.6	20.2	175.39	-379.5	17.3	126.6	86.9	39.72	3.187	
5,800.0	5,771.4	5,796.9	5,782.1	21.0	20.6	175.64	-388.4	18.5	130.2	89.8	40.44	3.220	
5,900.0	5,870.6	5,896.8	5,881.6	21.4	21.0	175.87	-397.4	19.7	133.9	92.7	41.16	3.252	
6,000.0	5,969.8	5,996.7	5,981.1	21.8	21.3	176.09	-406.3	20.8	137.5	95.6	41.88	3.283	
6,100.0	6,069.0	6,096.7	6,080.7	22.2	21.7	176.31	-415.2	22.0	141.2	98.5	42.60	3.313	
6,200.0	6,168.2	6,196.6	6,180.2	22.6	22.1	176.51	-424.2	23.2	144.8	101.5	43.33	3.342	
6,300.0	6,267.3	6,296.5	6,279.7	23.0	22.5	176.70	-433.1	24.3	148.4	104.4	44.05	3.370	
6,400.0	6,366.5	6,396.4	6,379.2	23.4	22.8	176.88	-442.0	25.5	152.1	107.3	44.77	3.397	
6,500.0	6,465.7	6,496.4	6,478.8	23.8	23.2	177.06	-451.0	26.7	155.7	110.3	45.50	3.423	
6,600.0	6,564.9	6,596.3	6,578.3	24.2	23.6	177.22	-459.9	27.8	159.4	113.2	46.22	3.449	
6,700.0	6,664.1	6,696.2	6,677.8	24.6	24.0	177.38	-468.8	29.0	163.1	116.1	46.95	3.473	
6,800.0	6,763.3	6,796.2	6,777.3	25.0	24.3	177.53	-477.8	30.1	166.7	119.0	47.67	3.497	
6,900.0	6,862.5	6,896.1	6,876.9	25.4	24.7	177.68	-486.7	31.3	170.4	122.0	48.40	3.520	
7,000.0	6,961.7	6,996.0	6,976.4	25.8	25.1	177.82	-495.6	32.5	174.0	124.9	49.12	3.543	
7,100.0	7,060.9	7,096.0	7,075.9	26.2	25.5	177.95	-504.6	33.6	177.7	127.8	49.85	3.565	
7,200.0	7,160.1	7,195.9	7,175.5	26.5	25.8	178.08	-513.5	34.8	181.3	130.7	50.57	3.584	
7,300.0	7,259.6	7,295.9	7,275.0	26.9	26.2	178.17	-522.4	36.0	182.4	131.1	51.30	3.555	
7,400.0	7,359.4	7,395.9	7,374.6	27.3	26.6	178.24	-531.4	37.1	180.0	128.0	52.02	3.460	
7,500.0	7,459.3	7,495.7	7,474.0	27.7	27.0	178.26	-540.3	38.3	174.1	121.4	52.73	3.302	
7,600.0	7,559.3	7,595.3	7,573.2	28.0	27.3	-7.44	-549.2	39.5	165.4	112.0	53.42	3.096	
7,700.0	7,659.3	7,694.9	7,672.4	28.3	27.7	-7.44	-558.1	40.6	156.4	102.3	54.11	2.890	
7,800.0	7,759.3	7,794.5	7,771.6	28.6	28.1	-7.44	-567.0	41.8	147.4	92.6	54.81	2.689	
7,900.0	7,859.3	7,894.1	7,870.8	28.9	28.5	-7.44	-575.9	43.0	138.4	82.9	55.50	2.493	
8,000.0	7,959.3	7,993.7	7,970.0	29.2	28.8	-7.44	-584.8	44.1	129.3	73.2	56.19	2.302	
8,100.0	8,059.3	8,093.3	8,069.2	29.6	29.2	-7.44	-593.7	45.3	120.3	63.4	56.88	2.115	
8,200.0	8,159.3	8,192.9	8,168.3	29.9	29.6	-7.44	-602.6	46.4	111.3	53.7	57.58	1.933	
8,300.0	8,259.3	8,292.5	8,267.5	30.2	30.0	-7.44	-611.5	47.6	102.3	44.0	58.27	1.756	
8,400.0	8,359.3	8,392.0	8,366.7	30.5	30.4	173.02	-620.4	48.8	93.3	34.3	58.97	1.582	
8,438.6	8,397.9	8,430.6	8,405.2	30.7	30.5	173.19	-623.9	49.2	91.8	32.5	59.25	1.549	
8,500.0	8,458.5	8,491.8	8,466.1	30.9	30.7	173.82	-629.3	49.9	95.7	36.0	59.69	1.603	
8,600.0	8,553.1	8,588.9	8,562.8	31.4	31.1	175.31	-638.0	51.1	118.7	58.3	60.41	1.964	
8,700.0	8,639.0	8,679.0	8,652.5	31.9	31.4	176.61	-646.1	52.1	161.4	100.3	61.10	2.642	
8,800.0	8,712.5	8,758.3	8,731.5	32.5	31.7	177.41	-653.2	53.0	222.0	160.3	61.69	3.599	
8,900.0	8,770.4	8,823.2	8,796.1	33.1	32.0	177.77	-659.0	53.8	297.8	235.6	62.17	4.790	
9,000.0	8,810.1	8,870.9	8,843.6	33.8	32.2	177.66	-663.2	54.4	385.4	322.9	62.50	6.167	
9,100.0	8,829.9	8,899.4	8,872.0	34.5	32.3	176.28	-665.8	54.7	481.1	418.4	62.69	7.674	
9,200.0	8,832.0	8,910.4	8,883.0	35.1	32.3	173.83	-666.8	54.8	580.4	517.7	62.76	9.248	
9,300.0	8,832.0	8,919.4	8,891.9	35.9	32.3	174.82	-667.6	54.9	680.0	617.2	62.82	10.826	
9,400.0	8,832.0	8,928.3	8,900.8	36.6	32.4	175.56	-668.4	55.0	779.6	716.8	62.87	12.400	
9,500.0	8,832.0	8,937.3	8,909.7	37.4	32.4	176.13	-669.2	55.1	879.2	816.3	62.93	13.972	
9,600.0	8,832.0	8,946.2	8,918.6	38.3	32.5	176.59	-670.0	55.2	978.8	915.8	62.99	15.540	
9,700.0	8,832.0	8,955.2	8,927.6	39.1	32.5	176.96	-670.8	55.3	1,078.4	1,015.4	63.05	17.105	
9,800.0	8,832.0	8,964.1	8,936.5	40.1	32.5	177.27	-671.6	55.4	1,178.0	1,114.9	63.11	18.667	
9,900.0	8,832.0	8,973.1	8,945.4	41.0	32.6	177.53	-672.4	55.5	1,277.6	1,214.4	63.17	20.225	
10,000.0	8,832.0	11,352.7	10,196.0	42.0	45.9	180.00	-2,044.8	71.1	1,365.0	1,324.1	40.88	33.388	
10,100.0	8,832.0	11,452.7	10,196.0	43.0	46.8	180.00	-2,144.7	71.9	1,365.0	1,323.3	41.69	32.739	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
10,200.0	8,832.0	11,552.7	10,196.0	44.0	47.7	180.00	-2,244.7	72.7	1,365.0	1,322.5	42.55	32.082	
10,300.0	8,832.0	11,652.7	10,196.0	45.0	48.7	180.00	-2,344.7	73.5	1,365.0	1,321.6	43.44	31.423	
10,400.0	8,832.0	11,752.7	10,196.0	46.1	49.7	180.00	-2,444.7	74.2	1,365.0	1,320.6	44.37	30.763	
10,500.0	8,832.0	11,852.7	10,196.0	47.2	50.7	180.00	-2,544.7	75.0	1,365.0	1,319.7	45.34	30.108	
10,600.0	8,832.0	11,952.7	10,196.0	48.3	51.7	180.00	-2,644.7	75.8	1,365.0	1,318.7	46.34	29.459	
10,700.0	8,832.0	12,052.7	10,196.0	49.4	52.8	180.00	-2,744.7	76.6	1,365.0	1,317.6	47.36	28.819	
10,800.0	8,832.0	12,152.7	10,196.0	50.6	53.9	180.00	-2,844.7	77.3	1,365.0	1,316.6	48.42	28.189	
10,900.0	8,832.0	12,252.7	10,196.0	51.7	55.0	180.00	-2,944.7	78.1	1,365.0	1,315.5	49.51	27.571	
11,000.0	8,832.0	12,352.7	10,196.0	52.9	56.1	180.00	-3,044.7	78.9	1,365.0	1,314.4	50.62	26.966	
11,100.0	8,832.0	12,452.7	10,196.0	54.1	57.2	180.00	-3,144.7	79.7	1,365.0	1,313.2	51.75	26.375	
11,200.0	8,832.0	12,552.7	10,196.0	55.3	58.3	180.00	-3,244.7	80.4	1,365.0	1,312.1	52.91	25.799	
11,300.0	8,832.0	12,652.7	10,196.0	56.5	59.5	180.00	-3,344.7	81.2	1,365.0	1,310.9	54.09	25.238	
11,400.0	8,832.0	12,752.7	10,196.0	57.7	60.6	180.00	-3,444.7	82.0	1,365.0	1,309.7	55.28	24.692	
11,500.0	8,832.0	12,852.7	10,196.0	58.9	61.8	180.00	-3,544.7	82.8	1,365.0	1,308.5	56.50	24.161	
11,600.0	8,832.0	12,952.7	10,196.0	60.2	63.0	180.00	-3,644.7	83.5	1,365.0	1,307.3	57.73	23.645	
11,700.0	8,832.0	13,052.7	10,196.0	61.4	64.2	180.00	-3,744.7	84.3	1,365.0	1,306.0	58.98	23.145	
11,800.0	8,832.0	13,152.7	10,196.0	62.7	65.4	180.00	-3,844.7	85.1	1,365.0	1,304.8	60.24	22.660	
11,900.0	8,832.0	13,252.7	10,196.0	63.9	66.6	180.00	-3,944.7	85.9	1,365.0	1,303.5	61.51	22.190	
12,000.0	8,832.0	13,352.7	10,196.0	65.2	67.9	180.00	-4,044.7	86.7	1,365.0	1,302.2	62.80	21.734	
12,100.0	8,832.0	13,452.7	10,196.0	66.5	69.1	180.00	-4,144.7	87.4	1,365.0	1,300.9	64.11	21.293	
12,200.0	8,832.0	13,552.7	10,196.0	67.8	70.3	180.00	-4,244.7	88.2	1,365.0	1,299.6	65.42	20.865	
12,300.0	8,832.0	13,652.7	10,196.0	69.1	71.6	180.00	-4,344.7	89.0	1,365.0	1,298.3	66.74	20.451	
12,400.0	8,832.0	13,752.7	10,196.0	70.4	72.8	180.00	-4,444.7	89.8	1,365.0	1,296.9	68.08	20.050	
12,500.0	8,832.0	13,852.7	10,196.0	71.7	74.1	180.00	-4,544.7	90.5	1,365.0	1,295.6	69.42	19.662	
12,600.0	8,832.0	13,952.7	10,196.0	73.0	75.4	180.00	-4,644.7	91.3	1,365.0	1,294.2	70.78	19.286	
12,700.0	8,832.0	14,052.7	10,196.0	74.3	76.7	180.00	-4,744.7	92.1	1,365.0	1,292.9	72.14	18.922	
12,800.0	8,832.0	14,152.7	10,196.0	75.6	77.9	180.00	-4,844.7	92.9	1,365.0	1,291.5	73.51	18.569	
12,900.0	8,832.0	14,252.7	10,196.0	77.0	79.2	180.00	-4,944.7	93.6	1,365.0	1,290.1	74.89	18.227	
13,000.0	8,832.0	14,352.7	10,196.0	78.3	80.5	180.00	-5,044.7	94.4	1,365.0	1,288.7	76.28	17.896	
13,100.0	8,832.0	14,452.7	10,196.0	79.6	81.8	180.00	-5,144.7	95.2	1,365.0	1,287.3	77.67	17.575	
13,200.0	8,832.0	14,552.7	10,196.0	81.0	83.1	180.00	-5,244.7	96.0	1,365.0	1,285.9	79.07	17.264	
13,300.0	8,832.0	14,652.7	10,196.0	82.3	84.4	180.00	-5,344.7	96.7	1,365.0	1,284.5	80.47	16.962	
13,400.0	8,832.0	14,752.7	10,196.0	83.6	85.8	180.00	-5,444.6	97.5	1,365.0	1,283.1	81.89	16.670	
13,500.0	8,832.0	14,852.7	10,196.0	85.0	87.1	180.00	-5,544.6	98.3	1,365.0	1,281.7	83.30	16.386	
13,600.0	8,832.0	14,952.7	10,196.0	86.3	88.4	180.00	-5,644.6	99.1	1,365.0	1,280.3	84.72	16.111	
13,700.0	8,832.0	15,052.7	10,196.0	87.7	89.7	180.00	-5,744.6	99.8	1,365.0	1,278.8	86.15	15.844	
13,800.0	8,832.0	15,152.7	10,196.0	89.1	91.1	180.00	-5,844.6	100.6	1,365.0	1,277.4	87.59	15.585	
13,900.0	8,832.0	15,252.7	10,196.0	90.4	92.4	180.00	-5,944.6	101.4	1,365.0	1,276.0	89.02	15.333	
14,000.0	8,832.0	15,352.7	10,196.0	91.8	93.7	180.00	-6,044.6	102.2	1,365.0	1,274.5	90.46	15.089	
14,100.0	8,832.0	15,452.7	10,196.0	93.1	95.1	180.00	-6,144.6	102.9	1,365.0	1,273.1	91.91	14.852	
14,200.0	8,832.0	15,552.7	10,196.0	94.5	96.4	180.00	-6,244.6	103.7	1,365.0	1,271.6	93.36	14.621	
14,300.0	8,832.0	15,652.7	10,196.0	95.9	97.8	180.00	-6,344.6	104.5	1,365.0	1,270.2	94.81	14.397	
14,400.0	8,832.0	15,752.7	10,196.0	97.3	99.1	180.00	-6,444.6	105.3	1,365.0	1,268.7	96.27	14.179	
14,500.0	8,832.0	15,852.7	10,196.0	98.6	100.5	180.00	-6,544.6	106.1	1,365.0	1,267.3	97.73	13.967	
14,600.0	8,832.0	15,952.7	10,196.0	100.0	101.8	180.00	-6,644.6	106.8	1,365.0	1,265.8	99.19	13.761	
14,700.0	8,832.0	16,052.7	10,196.0	101.4	103.2	180.00	-6,744.6	107.6	1,365.0	1,264.3	100.66	13.560	
14,800.0	8,832.0	16,152.7	10,196.0	102.8	104.5	180.00	-6,844.6	108.4	1,365.0	1,262.9	102.13	13.365	
14,900.0	8,832.0	16,252.7	10,196.0	104.1	105.9	180.00	-6,944.6	109.2	1,365.0	1,261.4	103.60	13.175	
15,000.0	8,832.0	16,352.7	10,196.0	105.5	107.2	180.00	-7,044.6	109.9	1,365.0	1,259.9	105.08	12.990	
15,100.0	8,832.0	16,452.7	10,196.0	106.9	108.6	180.00	-7,144.6	110.7	1,365.0	1,258.4	106.56	12.810	
15,200.0	8,832.0	16,552.7	10,196.0	108.3	110.0	180.00	-7,244.6	111.5	1,365.0	1,257.0	108.04	12.634	
15,300.0	8,832.0	16,652.7	10,196.0	109.7	111.4	180.00	-7,344.6	112.3	1,365.0	1,255.5	109.52	12.463	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
15,400.0	8,832.0	16,752.7	10,196.0	111.1	112.7	180.00	-7,444.6	113.0	1,365.0	1,254.0	111.01	12.296	
15,500.0	8,832.0	16,852.7	10,196.0	112.5	114.1	180.00	-7,544.6	113.8	1,365.0	1,252.5	112.50	12.134	
15,600.0	8,832.0	16,952.7	10,196.0	113.9	115.5	180.00	-7,644.6	114.6	1,365.0	1,251.0	113.99	11.975	
15,700.0	8,832.0	17,052.7	10,196.0	115.3	116.9	180.00	-7,744.6	115.4	1,365.0	1,249.5	115.48	11.820	
15,800.0	8,832.0	17,152.7	10,196.0	116.7	118.2	180.00	-7,844.6	116.1	1,365.0	1,248.0	116.97	11.669	
15,900.0	8,832.0	17,252.7	10,196.0	118.1	119.6	180.00	-7,944.6	116.9	1,365.0	1,246.5	118.47	11.522	
16,000.0	8,832.0	17,352.7	10,196.0	119.5	121.0	180.00	-8,044.6	117.7	1,365.0	1,245.0	119.97	11.378	
16,100.0	8,832.0	17,452.7	10,196.0	120.9	122.4	180.00	-8,144.6	118.5	1,365.0	1,243.5	121.47	11.237	
16,200.0	8,832.0	17,552.7	10,196.0	122.3	123.8	180.00	-8,244.6	119.2	1,365.0	1,242.0	122.97	11.100	
16,300.0	8,832.0	17,652.7	10,196.0	123.7	125.2	180.00	-8,344.6	120.0	1,365.0	1,240.5	124.47	10.966	
16,400.0	8,832.0	17,752.7	10,196.0	125.1	126.5	180.00	-8,444.6	120.8	1,365.0	1,239.0	125.98	10.835	
16,500.0	8,832.0	17,852.7	10,196.0	126.5	127.9	180.00	-8,544.6	121.6	1,365.0	1,237.5	127.49	10.707	
16,600.0	8,832.0	17,952.7	10,196.0	127.9	129.3	180.00	-8,644.6	122.3	1,365.0	1,236.0	128.99	10.582	
16,700.0	8,832.0	18,052.7	10,196.0	129.3	130.7	180.00	-8,744.5	123.1	1,365.0	1,234.5	130.50	10.460	
16,800.0	8,832.0	18,152.7	10,196.0	130.7	132.1	180.00	-8,844.5	123.9	1,365.0	1,233.0	132.01	10.340	
16,900.0	8,832.0	18,252.7	10,196.0	132.1	133.5	180.00	-8,944.5	124.7	1,365.0	1,231.5	133.53	10.223	
17,000.0	8,832.0	18,352.7	10,196.0	133.5	134.9	180.00	-9,044.5	125.5	1,365.0	1,230.0	135.04	10.108	
17,100.0	8,832.0	18,452.7	10,196.0	134.9	136.3	180.00	-9,144.5	126.2	1,365.0	1,228.4	136.55	9.996	
17,200.0	8,832.0	18,552.7	10,196.0	136.3	137.7	180.00	-9,244.5	127.0	1,365.0	1,226.9	138.07	9.886	
17,300.0	8,832.0	18,652.7	10,196.0	137.7	139.1	180.00	-9,344.5	127.8	1,365.0	1,225.4	139.59	9.779	
17,400.0	8,832.0	18,752.7	10,196.0	139.1	140.5	180.00	-9,444.5	128.6	1,365.0	1,223.9	141.11	9.674	
17,500.0	8,832.0	18,852.7	10,196.0	140.6	141.9	180.00	-9,544.5	129.3	1,365.0	1,222.4	142.63	9.571	
17,600.0	8,832.0	18,952.7	10,196.0	142.0	143.3	180.00	-9,644.5	130.1	1,365.0	1,220.9	144.15	9.470	
17,700.0	8,832.0	19,052.7	10,196.0	143.4	144.7	180.00	-9,744.5	130.9	1,365.0	1,219.3	145.67	9.371	
17,800.0	8,832.0	19,152.7	10,196.0	144.8	146.1	180.00	-9,844.5	131.7	1,365.0	1,217.8	147.19	9.274	
17,900.0	8,832.0	19,252.7	10,196.0	146.2	147.5	180.00	-9,944.5	132.4	1,365.0	1,216.3	148.71	9.179	
18,000.0	8,832.0	19,352.7	10,196.0	147.6	148.9	180.00	-10,044.5	133.2	1,365.0	1,214.8	150.24	9.086	
18,100.0	8,832.0	19,452.7	10,196.0	149.0	150.3	180.00	-10,144.5	134.0	1,365.0	1,213.2	151.76	8.994	
18,200.0	8,832.0	19,552.7	10,196.0	150.5	151.7	180.00	-10,244.5	134.8	1,365.0	1,211.7	153.29	8.905	
18,300.0	8,832.0	19,652.7	10,196.0	151.9	153.1	180.00	-10,344.5	135.5	1,365.0	1,210.2	154.82	8.817	
18,400.0	8,832.0	19,752.7	10,196.0	153.3	154.5	180.00	-10,444.5	136.3	1,365.0	1,208.7	156.35	8.731	
18,500.0	8,832.0	19,852.7	10,196.0	154.7	155.9	180.00	-10,544.5	137.1	1,365.0	1,207.1	157.87	8.646	
18,600.0	8,832.0	19,952.7	10,196.0	156.1	157.4	180.00	-10,644.5	137.9	1,365.0	1,205.6	159.40	8.563	
18,700.0	8,832.0	20,052.7	10,196.0	157.6	158.8	180.00	-10,744.5	138.6	1,365.0	1,204.1	160.93	8.482	
18,800.0	8,832.0	20,152.7	10,196.0	159.0	160.2	180.00	-10,844.5	139.4	1,365.0	1,202.5	162.47	8.402	
18,900.0	8,832.0	20,252.7	10,196.0	160.4	161.6	180.00	-10,944.5	140.2	1,365.0	1,201.0	164.00	8.323	
19,000.0	8,832.0	20,352.7	10,196.0	161.8	163.0	180.00	-11,044.5	141.0	1,365.0	1,199.5	165.53	8.246	
19,077.1	8,832.0	20,429.7	10,196.0	162.9	164.1	180.00	-11,121.6	141.6	1,365.0	1,198.3	166.71	8.188	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 (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
0.0	0.0	1.9	1.9	0.0	0.0	-7.98	99.4	-26.7	161.2				
100.0	100.0	101.9	101.9	0.1	0.1	-7.98	99.4	-26.7	161.2	160.9	0.27	596.442	
200.0	200.0	201.9	201.9	0.5	0.5	-7.98	99.4	-26.7	161.2	160.2	0.99	163.296	
300.0	300.0	301.9	301.9	0.8	0.9	-7.98	99.4	-26.7	161.2	159.5	1.70	94.598	
400.0	400.0	401.9	401.9	1.2	1.2	-7.98	99.4	-26.7	161.2	158.8	2.42	66.585	
500.0	500.0	501.9	501.9	1.6	1.6	-7.98	99.4	-26.7	161.2	158.1	3.14	51.373	
600.0	600.0	601.9	601.9	1.9	1.9	-7.98	99.4	-26.7	161.2	157.4	3.86	41.819	
700.0	700.0	701.9	701.9	2.3	2.3	-7.98	99.4	-26.7	161.2	156.6	4.57	35.261	
800.0	800.0	801.9	801.9	2.6	2.6	-7.98	99.4	-26.7	161.2	155.9	5.29	30.481	
900.0	900.0	901.9	901.9	3.0	3.0	-7.98	99.4	-26.7	161.2	155.2	6.01	26.842	
1,000.0	1,000.0	1,001.9	1,001.9	3.4	3.4	-7.98	99.4	-26.7	161.2	154.5	6.72	23.980	
1,100.0	1,100.0	1,101.9	1,101.9	3.7	3.7	-7.98	99.4	-26.7	161.2	153.8	7.44	21.669	
1,200.0	1,200.0	1,201.9	1,201.9	4.1	4.1	-7.98	99.4	-26.7	161.2	153.1	8.16	19.764	
1,300.0	1,300.0	1,301.9	1,301.9	4.4	4.4	-7.98	99.4	-26.7	161.2	152.3	8.87	18.167	
1,400.0	1,400.0	1,401.9	1,401.9	4.8	4.8	-7.98	99.4	-26.7	161.2	151.6	9.59	16.809	
1,500.0	1,500.0	1,501.9	1,501.9	5.2	5.2	-7.98	99.4	-26.7	161.2	150.9	10.31	15.640	
1,600.0	1,600.0	1,601.9	1,601.9	5.5	5.5	-7.98	99.4	-26.7	161.2	150.2	11.02	14.623	
1,700.0	1,700.0	1,701.9	1,701.9	5.9	5.9	-7.98	99.4	-26.7	161.2	149.5	11.74	13.730	
1,800.0	1,800.0	1,801.9	1,801.9	6.2	6.2	-7.98	99.4	-26.7	161.2	148.8	12.46	12.940	
1,900.0	1,900.0	1,901.9	1,901.9	6.6	6.6	-7.98	99.4	-26.7	161.2	148.0	13.18	12.236	
2,000.0	2,000.0	2,002.0	2,002.0	6.9	6.9	-7.98	99.4	-26.7	161.2	147.3	13.89	11.604	
2,003.3	2,003.3	2,005.3	2,005.3	7.0	7.0	177.72	99.4	-26.7	161.2	147.3	13.91	11.585 CC	
2,100.0	2,100.0	2,105.5	2,105.5	7.3	7.3	178.29	98.4	-25.0	161.8	147.2	14.59	11.094 ES	
2,200.0	2,199.8	2,208.8	2,208.6	7.6	7.7	179.93	95.6	-20.1	163.8	148.6	15.25	10.743	
2,300.0	2,299.5	2,311.8	2,311.2	7.9	8.0	-177.45	91.0	-11.9	167.5	151.5	15.91	10.522	
2,400.0	2,398.7	2,414.3	2,412.9	8.3	8.4	-174.01	84.6	-0.7	172.9	156.3	16.59	10.421	
2,500.0	2,497.9	2,516.3	2,513.5	8.6	8.7	-169.80	76.5	13.7	178.0	160.7	17.27	10.304	
2,600.0	2,597.1	2,617.5	2,612.7	8.9	9.1	-164.84	66.7	31.0	182.7	164.7	17.97	10.164	
2,700.0	2,696.3	2,716.7	2,709.4	9.3	9.5	-159.38	55.7	50.5	187.9	169.2	18.70	10.047	
2,800.0	2,795.5	2,814.9	2,805.0	9.6	9.8	-154.20	44.5	70.1	194.6	175.2	19.43	10.014	
2,900.0	2,894.7	2,913.2	2,900.6	10.0	10.2	-149.39	33.4	89.7	202.9	182.7	20.18	10.056	
3,000.0	2,993.9	3,011.4	2,996.2	10.4	10.6	-144.98	22.3	109.4	212.5	191.6	20.92	10.157	
3,100.0	3,093.1	3,109.6	3,091.8	10.7	11.0	-140.96	11.2	129.0	223.3	201.6	21.67	10.303	
3,200.0	3,192.3	3,207.8	3,187.4	11.1	11.4	-137.32	0.0	148.6	235.1	212.6	22.42	10.483	
3,300.0	3,291.5	3,306.1	3,283.0	11.5	11.8	-134.03	-11.1	168.2	247.7	224.5	23.18	10.686	
3,400.0	3,390.7	3,404.3	3,378.6	11.8	12.2	-131.06	-22.2	187.9	261.1	237.2	23.94	10.906	
3,500.0	3,489.9	3,502.5	3,474.2	12.2	12.7	-128.39	-33.3	207.5	275.1	250.4	24.70	11.137	
3,600.0	3,589.1	3,600.7	3,569.8	12.6	13.1	-125.97	-44.4	227.1	289.7	264.2	25.47	11.374	
3,700.0	3,688.3	3,698.9	3,665.4	12.9	13.5	-123.79	-55.6	246.7	304.7	278.5	26.24	11.614	
3,800.0	3,787.5	3,797.2	3,760.9	13.3	14.0	-121.81	-66.7	266.4	320.1	293.1	27.01	11.853	
3,900.0	3,886.7	3,895.4	3,856.5	13.7	14.4	-120.01	-77.8	286.0	335.9	308.1	27.78	12.091	
4,000.0	3,985.9	3,993.6	3,952.1	14.1	14.8	-118.38	-88.9	305.6	351.9	323.4	28.55	12.325	
4,100.0	4,085.1	4,091.8	4,047.7	14.5	15.3	-116.88	-100.0	325.2	368.2	338.9	29.33	12.555	
4,200.0	4,184.2	4,190.0	4,143.3	14.8	15.7	-115.52	-111.2	344.9	384.8	354.7	30.11	12.780	
4,300.0	4,283.4	4,288.3	4,238.9	15.2	16.1	-114.26	-122.3	364.5	401.5	370.6	30.89	12.998	
4,400.0	4,382.6	4,386.5	4,334.5	15.6	16.6	-113.11	-133.4	384.1	418.4	386.7	31.67	13.211	
4,500.0	4,481.8	4,484.7	4,430.1	16.0	17.0	-112.04	-144.5	403.7	435.5	403.0	32.45	13.418	
4,600.0	4,581.0	4,582.9	4,525.7	16.4	17.5	-111.06	-155.6	423.4	452.7	419.4	33.24	13.619	
4,700.0	4,680.2	4,681.2	4,621.3	16.8	17.9	-110.15	-166.8	443.0	470.0	436.0	34.03	13.813	
4,800.0	4,779.4	4,779.4	4,716.9	17.1	18.4	-109.30	-177.9	462.6	487.4	452.6	34.81	14.001	
4,900.0	4,878.6	4,877.6	4,812.5	17.5	18.8	-108.51	-189.0	482.2	504.9	469.3	35.60	14.183	
5,000.0	4,977.8	4,975.8	4,908.1	17.9	19.3	-107.77	-200.1	501.9	522.5	486.1	36.39	14.359	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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			Offset Wellbore Centre		Distance				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	
5,100.0	5,077.0	5,074.0	5,003.7	18.3	19.8	-107.08	-211.3	521.5	540.2	503.0	37.18	14.529	
5,200.0	5,176.2	5,172.3	5,099.3	18.7	20.2	-106.44	-222.4	541.1	558.0	520.0	37.97	14.693	
5,300.0	5,275.4	5,270.5	5,194.9	19.1	20.7	-105.83	-233.5	560.7	575.8	537.0	38.77	14.853	
5,400.0	5,374.6	5,368.7	5,290.5	19.5	21.1	-105.26	-244.6	580.4	593.7	554.1	39.56	15.006	
5,500.0	5,473.8	5,466.9	5,386.1	19.9	21.6	-104.73	-255.7	600.0	611.6	571.3	40.36	15.155	
5,600.0	5,573.0	5,565.2	5,481.7	20.3	22.0	-104.22	-266.9	619.6	629.6	588.4	41.15	15.299	
5,700.0	5,672.2	5,663.4	5,577.3	20.6	22.5	-103.74	-278.0	639.2	647.6	605.7	41.95	15.439	
5,800.0	5,771.4	5,761.6	5,672.9	21.0	23.0	-103.29	-289.1	658.9	665.7	623.0	42.75	15.573	
5,900.0	5,870.6	5,859.8	5,768.5	21.4	23.4	-102.86	-300.2	678.5	683.8	640.3	43.54	15.704	
6,000.0	5,969.8	5,958.0	5,864.1	21.8	23.9	-102.46	-311.3	698.1	702.0	657.6	44.34	15.830	
6,100.0	6,069.0	6,056.3	5,959.7	22.2	24.4	-102.07	-322.5	717.7	720.1	675.0	45.14	15.953	
6,200.0	6,168.2	6,154.5	6,055.3	22.6	24.8	-101.71	-333.6	737.4	738.3	692.4	45.94	16.071	
6,300.0	6,267.3	6,252.7	6,150.9	23.0	25.3	-101.36	-344.7	757.0	756.6	709.8	46.74	16.186	
6,400.0	6,366.5	6,350.9	6,246.5	23.4	25.8	-101.03	-355.8	776.6	774.8	727.3	47.54	16.297	
6,500.0	6,465.7	6,449.1	6,342.0	23.8	26.2	-100.71	-366.9	796.2	793.1	744.8	48.34	16.405	
6,600.0	6,564.9	6,547.4	6,437.6	24.2	26.7	-100.41	-378.1	815.9	811.4	762.3	49.15	16.510	
6,700.0	6,664.1	6,645.6	6,533.2	24.6	27.1	-100.12	-389.2	835.5	829.7	779.8	49.95	16.612	
6,800.0	6,763.3	6,743.8	6,628.8	25.0	27.6	-99.84	-400.3	855.1	848.1	797.3	50.75	16.710	
6,900.0	6,862.5	6,842.0	6,724.4	25.4	28.1	-99.57	-411.4	874.8	866.5	814.9	51.56	16.806	
7,000.0	6,961.7	6,940.3	6,820.0	25.8	28.5	-99.32	-422.6	894.4	884.8	832.5	52.36	16.899	
7,100.0	7,060.9	7,038.5	6,915.6	26.2	29.0	-99.08	-433.7	914.0	903.2	850.1	53.16	16.990	
7,200.0	7,160.1	7,136.7	7,011.2	26.5	29.5	-98.92	-444.8	933.6	921.6	867.7	53.97	17.078	
7,300.0	7,259.6	7,234.9	7,106.8	26.9	30.0	-98.90	-455.9	953.2	939.7	884.9	54.75	17.163	
7,400.0	7,359.4	7,332.9	7,202.1	27.3	30.4	-98.68	-467.0	972.8	957.3	901.8	55.51	17.246	
7,500.0	7,459.3	7,430.5	7,297.2	27.7	30.9	-98.27	-478.1	992.3	974.5	918.2	56.23	17.330	
7,600.0	7,559.3	7,527.9	7,392.0	28.0	31.4	-97.78	-489.1	1,011.8	991.5	934.5	56.91	17.421	
7,700.0	7,659.3	7,625.2	7,486.7	28.3	31.8	-97.65	-500.1	1,031.2	1,008.6	951.1	57.59	17.515	
7,800.0	7,759.3	7,722.6	7,581.4	28.6	32.3	-97.50	-511.1	1,050.7	1,026.1	967.8	58.26	17.612	
7,900.0	7,859.3	7,819.9	7,676.2	28.9	32.7	-97.32	-522.1	1,070.1	1,043.7	984.7	58.93	17.709	
8,000.0	7,959.3	7,917.2	7,770.9	29.2	33.2	-97.11	-533.2	1,089.6	1,061.5	1,001.9	59.61	17.808	
8,100.0	8,059.3	8,014.5	7,865.6	29.6	33.7	-96.88	-544.2	1,109.0	1,079.5	1,019.2	60.29	17.907	
8,200.0	8,159.3	8,111.9	7,960.3	29.9	34.1	-96.62	-555.2	1,128.5	1,097.7	1,036.8	60.96	18.007	
8,300.0	8,259.3	8,209.2	8,055.1	30.2	34.6	-96.33	-566.2	1,147.9	1,116.1	1,054.5	61.64	18.108	
8,400.0	8,359.3	8,306.5	8,149.8	30.5	35.1	-96.02	-577.2	1,167.4	1,134.7	1,072.4	62.32	18.209	
8,500.0	8,458.5	8,404.3	8,245.0	30.9	35.5	-95.69	-588.3	1,186.9	1,154.4	1,091.3	63.10	18.294	
8,600.0	8,553.1	8,500.1	8,338.2	31.4	36.0	-95.32	-599.2	1,206.0	1,175.7	1,111.7	64.05	18.358	
8,700.0	8,639.0	8,589.6	8,425.3	31.9	36.4	-94.92	-609.3	1,223.9	1,198.6	1,133.5	65.10	18.410	
8,800.0	8,712.5	8,668.9	8,502.4	32.5	36.8	-94.47	-618.3	1,239.8	1,223.7	1,157.4	66.24	18.475	
8,900.0	8,770.4	8,734.5	8,566.3	33.1	37.1	-93.98	-625.7	1,252.9	1,252.1	1,184.7	67.39	18.580	
9,000.0	8,810.1	8,783.6	8,614.1	33.8	37.4	-93.44	-631.3	1,262.7	1,284.6	1,216.1	68.50	18.754	
9,100.0	8,829.9	8,814.1	8,643.8	34.5	37.5	-92.86	-634.7	1,268.8	1,321.6	1,252.1	69.49	19.019	
9,200.0	8,832.0	8,827.7	8,657.0	35.1	37.6	-92.22	-636.3	1,271.5	1,362.9	1,292.5	70.32	19.380	
9,300.0	8,832.0	8,839.1	8,668.2	35.9	37.6	-91.53	-637.5	1,273.8	1,409.6	1,338.6	71.07	19.834	
9,400.0	8,832.0	8,850.6	8,679.3	36.6	37.7	-90.77	-638.8	1,276.1	1,461.7	1,389.9	71.75	20.372	
9,500.0	8,832.0	8,862.1	8,690.5	37.4	37.7	-89.95	-640.1	1,278.4	1,518.5	1,446.1	72.35	20.987	
9,600.0	8,832.0	8,873.6	8,701.7	38.3	37.8	-89.07	-641.4	1,280.7	1,579.4	1,506.6	72.88	21.671	
9,700.0	8,832.0	8,885.1	8,712.8	39.1	37.9	-88.13	-642.7	1,283.0	1,644.2	1,570.8	73.35	22.416	
9,800.0	8,832.0	8,896.5	8,724.0	40.1	37.9	-87.13	-644.0	1,285.2	1,712.2	1,638.4	73.76	23.215	
9,900.0	8,832.0	8,908.0	8,735.2	41.0	38.0	-86.08	-645.3	1,287.5	1,783.2	1,709.1	74.11	24.060	
10,000.0	8,832.0	8,919.5	8,746.4	42.0	38.0	-84.98	-646.6	1,289.8	1,856.8	1,782.3	74.43	24.948	
10,100.0	8,832.0	11,609.8	10,196.0	43.0	52.0	-135.90	-2,134.5	1,391.9	1,896.8	1,829.4	67.36	28.159	
10,200.0	8,832.0	11,709.8	10,196.0	44.0	52.8	-135.90	-2,234.5	1,392.6	1,896.8	1,827.9	68.82	27.562	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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			Offset Wellbore Centre		Distance			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	
10,300.0	8,832.0	11,809.8	10,196.0	45.0	53.7	-135.90	-2,334.5	1,393.4	1,896.8	1,826.4	70.32	26.973	
10,400.0	8,832.0	11,909.8	10,196.0	46.1	54.7	-135.90	-2,434.5	1,394.2	1,896.8	1,824.9	71.87	26.393	
10,500.0	8,832.0	12,009.8	10,196.0	47.2	55.6	-135.90	-2,534.5	1,395.0	1,896.8	1,823.3	73.45	25.823	
10,600.0	8,832.0	12,109.8	10,196.0	48.3	56.6	-135.90	-2,634.5	1,395.7	1,896.8	1,821.7	75.07	25.265	
10,700.0	8,832.0	12,209.8	10,196.0	49.4	57.6	-135.90	-2,734.5	1,396.5	1,896.8	1,820.0	76.73	24.720	
10,800.0	8,832.0	12,309.8	10,196.0	50.6	58.6	-135.90	-2,834.5	1,397.3	1,896.8	1,818.3	78.42	24.187	
10,900.0	8,832.0	12,409.8	10,196.0	51.7	59.6	-135.90	-2,934.5	1,398.1	1,896.8	1,816.6	80.14	23.668	
11,000.0	8,832.0	12,509.8	10,196.0	52.9	60.6	-135.90	-3,034.5	1,398.9	1,896.8	1,814.9	81.89	23.162	
11,100.0	8,832.0	12,609.8	10,196.0	54.1	61.7	-135.90	-3,134.5	1,399.6	1,896.8	1,813.1	83.67	22.670	
11,200.0	8,832.0	12,709.8	10,196.0	55.3	62.8	-135.90	-3,234.5	1,400.4	1,896.8	1,811.3	85.47	22.192	
11,300.0	8,832.0	12,809.8	10,196.0	56.5	63.9	-135.90	-3,334.5	1,401.2	1,896.8	1,809.5	87.30	21.728	
11,400.0	8,832.0	12,909.8	10,196.0	57.7	65.0	-135.90	-3,434.5	1,402.0	1,896.8	1,807.6	89.14	21.278	
11,500.0	8,832.0	13,009.8	10,196.0	58.9	66.1	-135.90	-3,534.5	1,402.7	1,896.8	1,805.8	91.01	20.841	
11,600.0	8,832.0	13,109.8	10,196.0	60.2	67.2	-135.90	-3,634.5	1,403.5	1,896.8	1,803.9	92.90	20.417	
11,700.0	8,832.0	13,209.8	10,196.0	61.4	68.4	-135.90	-3,734.5	1,404.3	1,896.8	1,802.0	94.81	20.007	
11,800.0	8,832.0	13,309.8	10,196.0	62.7	69.5	-135.90	-3,834.5	1,405.1	1,896.8	1,800.0	96.73	19.609	
11,900.0	8,832.0	13,409.8	10,196.0	63.9	70.7	-135.90	-3,934.5	1,405.8	1,896.8	1,798.1	98.67	19.223	
12,000.0	8,832.0	13,509.8	10,196.0	65.2	71.8	-135.90	-4,034.4	1,406.6	1,896.8	1,796.1	100.63	18.849	
12,100.0	8,832.0	13,609.8	10,196.0	66.5	73.0	-135.90	-4,134.4	1,407.4	1,896.8	1,794.2	102.60	18.487	
12,200.0	8,832.0	13,709.8	10,196.0	67.8	74.2	-135.90	-4,234.4	1,408.2	1,896.8	1,792.2	104.58	18.136	
12,300.0	8,832.0	13,809.8	10,196.0	69.1	75.4	-135.90	-4,334.4	1,408.9	1,896.8	1,790.2	106.58	17.797	
12,400.0	8,832.0	13,909.8	10,196.0	70.4	76.6	-135.90	-4,434.4	1,409.7	1,896.8	1,788.2	108.59	17.467	
12,500.0	8,832.0	14,009.8	10,196.0	71.7	77.9	-135.90	-4,534.4	1,410.5	1,896.8	1,786.2	110.61	17.148	
12,600.0	8,832.0	14,109.8	10,196.0	73.0	79.1	-135.90	-4,634.4	1,411.3	1,896.8	1,784.1	112.64	16.839	
12,700.0	8,832.0	14,209.8	10,196.0	74.3	80.3	-135.90	-4,734.4	1,412.0	1,896.8	1,782.1	114.69	16.539	
12,800.0	8,832.0	14,309.8	10,196.0	75.6	81.6	-135.90	-4,834.4	1,412.8	1,896.8	1,780.0	116.74	16.248	
12,900.0	8,832.0	14,409.8	10,196.0	77.0	82.8	-135.90	-4,934.4	1,413.6	1,896.8	1,778.0	118.80	15.966	
13,000.0	8,832.0	14,509.8	10,196.0	78.3	84.1	-135.90	-5,034.4	1,414.4	1,896.8	1,775.9	120.87	15.692	
13,100.0	8,832.0	14,609.8	10,196.0	79.6	85.3	-135.90	-5,134.4	1,415.1	1,896.8	1,773.8	122.95	15.427	
13,200.0	8,832.0	14,709.8	10,196.0	81.0	86.6	-135.90	-5,234.4	1,415.9	1,896.8	1,771.7	125.04	15.169	
13,300.0	8,832.0	14,809.8	10,196.0	82.3	87.9	-135.90	-5,334.4	1,416.7	1,896.8	1,769.6	127.13	14.920	
13,400.0	8,832.0	14,909.8	10,196.0	83.6	89.1	-135.90	-5,434.4	1,417.5	1,896.8	1,767.5	129.24	14.677	
13,500.0	8,832.0	15,009.8	10,196.0	85.0	90.4	-135.90	-5,534.4	1,418.3	1,896.8	1,765.4	131.34	14.441	
13,600.0	8,832.0	15,109.8	10,196.0	86.3	91.7	-135.90	-5,634.4	1,419.0	1,896.8	1,763.3	133.46	14.212	
13,700.0	8,832.0	15,209.8	10,196.0	87.7	93.0	-135.90	-5,734.4	1,419.8	1,896.8	1,761.2	135.58	13.990	
13,800.0	8,832.0	15,309.8	10,196.0	89.1	94.3	-135.90	-5,834.4	1,420.6	1,896.8	1,759.1	137.71	13.774	
13,900.0	8,832.0	15,409.8	10,196.0	90.4	95.6	-135.90	-5,934.4	1,421.4	1,896.8	1,756.9	139.84	13.564	
14,000.0	8,832.0	15,509.8	10,196.0	91.8	96.9	-135.90	-6,034.4	1,422.1	1,896.8	1,754.8	141.98	13.359	
14,100.0	8,832.0	15,609.8	10,196.0	93.1	98.2	-135.90	-6,134.4	1,422.9	1,896.8	1,752.6	144.13	13.160	
14,200.0	8,832.0	15,709.8	10,196.0	94.5	99.5	-135.90	-6,234.4	1,423.7	1,896.8	1,750.5	146.27	12.967	
14,300.0	8,832.0	15,809.8	10,196.0	95.9	100.8	-135.90	-6,334.4	1,424.5	1,896.8	1,748.3	148.43	12.779	
14,400.0	8,832.0	15,909.8	10,196.0	97.3	102.2	-135.90	-6,434.4	1,425.2	1,896.8	1,746.2	150.59	12.596	
14,500.0	8,832.0	16,009.8	10,196.0	98.6	103.5	-135.90	-6,534.4	1,426.0	1,896.8	1,744.0	152.75	12.417	
14,600.0	8,832.0	16,109.8	10,196.0	100.0	104.8	-135.90	-6,634.4	1,426.8	1,896.8	1,741.8	154.92	12.244	
14,700.0	8,832.0	16,209.8	10,196.0	101.4	106.1	-135.90	-6,734.4	1,427.6	1,896.8	1,739.7	157.09	12.075	
14,800.0	8,832.0	16,309.8	10,196.0	102.8	107.5	-135.90	-6,834.4	1,428.3	1,896.8	1,737.5	159.26	11.910	
14,900.0	8,832.0	16,409.8	10,196.0	104.1	108.8	-135.90	-6,934.4	1,429.1	1,896.8	1,735.3	161.44	11.749	
15,000.0	8,832.0	16,509.8	10,196.0	105.5	110.1	-135.90	-7,034.4	1,429.9	1,896.8	1,733.1	163.62	11.592	
15,100.0	8,832.0	16,609.8	10,196.0	106.9	111.5	-135.90	-7,134.4	1,430.7	1,896.8	1,731.0	165.81	11.440	
15,200.0	8,832.0	16,709.8	10,196.0	108.3	112.8	-135.90	-7,234.4	1,431.4	1,896.8	1,728.8	168.00	11.290	
15,300.0	8,832.0	16,809.8	10,196.0	109.7	114.2	-135.90	-7,334.3	1,432.2	1,896.8	1,726.6	170.19	11.145	
15,400.0	8,832.0	16,909.8	10,196.0	111.1	115.5	-135.90	-7,434.3	1,433.0	1,896.8	1,724.4	172.38	11.003	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
15,500.0	8,832.0	17,009.8	10,196.0	112.5	116.9	-135.90	-7,534.3	1,433.8	1,896.8	1,722.2	174.58	10.865	
15,600.0	8,832.0	17,109.8	10,196.0	113.9	118.2	-135.90	-7,634.3	1,434.5	1,896.8	1,720.0	176.78	10.729	
15,700.0	8,832.0	17,209.8	10,196.0	115.3	119.6	-135.90	-7,734.3	1,435.3	1,896.8	1,717.8	178.98	10.597	
15,800.0	8,832.0	17,309.8	10,196.0	116.7	120.9	-135.90	-7,834.3	1,436.1	1,896.8	1,715.6	181.19	10.468	
15,900.0	8,832.0	17,409.8	10,196.0	118.1	122.3	-135.90	-7,934.3	1,436.9	1,896.8	1,713.4	183.40	10.342	
16,000.0	8,832.0	17,509.8	10,196.0	119.5	123.7	-135.90	-8,034.3	1,437.7	1,896.8	1,711.2	185.61	10.219	
16,100.0	8,832.0	17,609.8	10,196.0	120.9	125.0	-135.90	-8,134.3	1,438.4	1,896.8	1,708.9	187.82	10.099	
16,200.0	8,832.0	17,709.8	10,196.0	122.3	126.4	-135.90	-8,234.3	1,439.2	1,896.8	1,706.7	190.04	9.981	
16,300.0	8,832.0	17,809.8	10,196.0	123.7	127.8	-135.90	-8,334.3	1,440.0	1,896.8	1,704.5	192.26	9.866	
16,400.0	8,832.0	17,909.8	10,196.0	125.1	129.1	-135.90	-8,434.3	1,440.8	1,896.8	1,702.3	194.48	9.753	
16,500.0	8,832.0	18,009.8	10,196.0	126.5	130.5	-135.90	-8,534.3	1,441.5	1,896.8	1,700.1	196.70	9.643	
16,600.0	8,832.0	18,109.8	10,196.0	127.9	131.9	-135.90	-8,634.3	1,442.3	1,896.8	1,697.8	198.92	9.535	
16,700.0	8,832.0	18,209.8	10,196.0	129.3	133.3	-135.90	-8,734.3	1,443.1	1,896.8	1,695.6	201.15	9.430	
16,800.0	8,832.0	18,309.8	10,196.0	130.7	134.6	-135.90	-8,834.3	1,443.9	1,896.8	1,693.4	203.37	9.327	
16,900.0	8,832.0	18,409.8	10,196.0	132.1	136.0	-135.90	-8,934.3	1,444.6	1,896.8	1,691.2	205.60	9.225	
17,000.0	8,832.0	18,509.8	10,196.0	133.5	137.4	-135.90	-9,034.3	1,445.4	1,896.8	1,688.9	207.83	9.126	
17,100.0	8,832.0	18,609.8	10,196.0	134.9	138.8	-135.90	-9,134.3	1,446.2	1,896.8	1,686.7	210.07	9.029	
17,200.0	8,832.0	18,709.8	10,196.0	136.3	140.2	-135.90	-9,234.3	1,447.0	1,896.8	1,684.5	212.30	8.934	
17,300.0	8,832.0	18,809.8	10,196.0	137.7	141.5	-135.90	-9,334.3	1,447.7	1,896.8	1,682.2	214.54	8.841	
17,400.0	8,832.0	18,909.8	10,196.0	139.1	142.9	-135.90	-9,434.3	1,448.5	1,896.8	1,680.0	216.77	8.750	
17,500.0	8,832.0	19,009.8	10,196.0	140.6	144.3	-135.90	-9,534.3	1,449.3	1,896.8	1,677.8	219.01	8.661	
17,600.0	8,832.0	19,109.8	10,196.0	142.0	145.7	-135.90	-9,634.3	1,450.1	1,896.8	1,675.5	221.25	8.573	
17,700.0	8,832.0	19,209.8	10,196.0	143.4	147.1	-135.90	-9,734.3	1,450.8	1,896.8	1,673.3	223.49	8.487	
17,800.0	8,832.0	19,309.8	10,196.0	144.8	148.5	-135.90	-9,834.3	1,451.6	1,896.8	1,671.0	225.73	8.403	
17,900.0	8,832.0	19,409.8	10,196.0	146.2	149.9	-135.90	-9,934.3	1,452.4	1,896.8	1,668.8	227.98	8.320	
18,000.0	8,832.0	19,509.8	10,196.0	147.6	151.3	-135.90	-10,034.3	1,453.2	1,896.8	1,666.5	230.22	8.239	
18,100.0	8,832.0	19,609.8	10,196.0	149.0	152.6	-135.90	-10,134.3	1,453.9	1,896.8	1,664.3	232.47	8.159	
18,200.0	8,832.0	19,709.8	10,196.0	150.5	154.0	-135.90	-10,234.3	1,454.7	1,896.8	1,662.0	234.72	8.081	
18,300.0	8,832.0	19,809.8	10,196.0	151.9	155.4	-135.90	-10,334.3	1,455.5	1,896.8	1,659.8	236.97	8.004	
18,400.0	8,832.0	19,909.8	10,196.0	153.3	156.8	-135.90	-10,434.3	1,456.3	1,896.8	1,657.5	239.22	7.929	
18,500.0	8,832.0	20,009.8	10,196.0	154.7	158.2	-135.90	-10,534.3	1,457.1	1,896.8	1,655.3	241.47	7.855	
18,600.0	8,832.0	20,109.8	10,196.0	156.1	159.6	-135.90	-10,634.2	1,457.8	1,896.8	1,653.0	243.72	7.783	
18,700.0	8,832.0	20,209.8	10,196.0	157.6	161.0	-135.90	-10,734.2	1,458.6	1,896.8	1,650.8	245.97	7.711	
18,800.0	8,832.0	20,309.8	10,196.0	159.0	162.4	-135.90	-10,834.2	1,459.4	1,896.8	1,648.5	248.23	7.641	
18,900.0	8,832.0	20,409.8	10,196.0	160.4	163.8	-135.90	-10,934.2	1,460.2	1,896.8	1,646.3	250.48	7.572	
19,000.0	8,832.0	20,509.8	10,196.0	161.8	165.2	-135.90	-11,034.2	1,460.9	1,896.8	1,644.0	252.74	7.505	
19,073.5	8,832.0	20,583.2	10,196.0	162.9	166.3	-135.90	-11,107.7	1,461.5	1,896.8	1,642.4	254.40	7.456	
19,077.1	8,832.0	20,583.2	10,196.0	162.9	166.3	-135.90	-11,107.7	1,461.5	1,896.8	1,642.3	254.48	7.454 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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 - Edith Federal 001 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 360-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)			
11,200.0	8,832.0	8,811.6	8,810.2	55.3	195.1	91.44	-5,158.1	-1,230.7	2,319.8	2,083.4	236.40	9.813	
11,300.0	8,832.0	8,809.9	8,808.5	56.5	195.1	91.37	-5,158.2	-1,230.7	2,238.4	2,000.9	237.56	9.423	
11,400.0	8,832.0	8,808.2	8,806.7	57.7	195.1	91.29	-5,158.2	-1,230.7	2,158.7	1,919.9	238.83	9.038	
11,500.0	8,832.0	8,806.4	8,805.0	58.9	195.0	91.22	-5,158.2	-1,230.7	2,080.7	1,840.5	240.24	8.661	
11,600.0	8,832.0	8,804.7	8,803.2	60.2	195.0	91.14	-5,158.3	-1,230.7	2,004.7	1,762.9	241.78	8.291	
11,700.0	8,832.0	8,802.9	8,801.5	61.4	195.0	91.07	-5,158.3	-1,230.7	1,930.8	1,687.4	243.46	7.931	
11,800.0	8,832.0	8,801.2	8,799.7	62.7	194.9	90.99	-5,158.3	-1,230.7	1,859.4	1,614.1	245.28	7.581	
11,900.0	8,832.0	8,799.4	8,798.0	63.9	194.9	90.92	-5,158.3	-1,230.7	1,790.7	1,543.5	247.25	7.243	
12,000.0	8,832.0	8,797.7	8,796.2	65.2	194.8	90.84	-5,158.4	-1,230.7	1,725.1	1,475.7	249.36	6.918	
12,100.0	8,832.0	8,795.9	8,794.5	66.5	194.8	90.76	-5,158.4	-1,230.7	1,662.9	1,411.3	251.61	6.609	
12,200.0	8,832.0	8,794.2	8,792.7	67.8	194.8	90.69	-5,158.4	-1,230.7	1,604.6	1,350.6	253.98	6.318	
12,300.0	8,832.0	8,792.5	8,791.0	69.1	194.7	90.61	-5,158.5	-1,230.7	1,550.5	1,294.0	256.44	6.046	
12,400.0	8,832.0	8,790.7	8,789.3	70.4	194.7	90.54	-5,158.5	-1,230.7	1,501.1	1,242.1	258.98	5.796	
12,500.0	8,832.0	8,789.0	8,787.5	71.7	194.7	90.46	-5,158.5	-1,230.7	1,456.9	1,195.3	261.53	5.571	
12,600.0	8,832.0	8,787.2	8,785.8	73.0	194.6	90.39	-5,158.6	-1,230.7	1,418.4	1,154.3	264.06	5.371	
12,700.0	8,832.0	8,785.5	8,784.0	74.3	194.6	90.31	-5,158.6	-1,230.7	1,386.0	1,119.5	266.50	5.201	
12,800.0	8,832.0	8,783.7	8,782.3	75.6	194.6	90.24	-5,158.6	-1,230.7	1,360.3	1,091.5	268.79	5.061	
12,900.0	8,832.0	8,782.0	8,780.5	77.0	194.5	90.16	-5,158.7	-1,230.7	1,341.5	1,070.6	270.85	4.953	
13,000.0	8,832.0	8,780.2	8,778.8	78.3	194.5	90.09	-5,158.7	-1,230.7	1,330.0	1,057.4	272.63	4.878	
13,100.0	8,832.0	8,778.5	8,777.0	79.6	194.4	90.01	-5,158.7	-1,230.7	1,325.9	1,051.9	274.07	4.838	
13,103.8	8,832.0	8,778.4	8,777.0	79.7	194.4	90.01	-5,158.7	-1,230.7	1,325.9	1,051.8	274.11	4.837 CC, ES	
13,200.0	8,832.0	8,776.7	8,775.3	81.0	194.4	89.94	-5,158.7	-1,230.7	1,329.4	1,054.3	275.13	4.832 SF	
13,300.0	8,832.0	8,775.0	8,773.6	82.3	194.4	89.86	-5,158.8	-1,230.7	1,340.4	1,064.6	275.81	4.860	
13,400.0	8,832.0	8,773.3	8,771.8	83.6	194.3	89.78	-5,158.8	-1,230.7	1,358.6	1,082.5	276.11	4.921	
13,500.0	8,832.0	8,771.5	8,770.1	85.0	194.3	89.71	-5,158.8	-1,230.7	1,383.8	1,107.8	276.05	5.013	
13,600.0	8,832.0	8,769.8	8,768.3	86.3	194.3	89.63	-5,158.9	-1,230.7	1,415.7	1,140.1	275.66	5.136	
13,700.0	8,832.0	8,768.0	8,766.6	87.7	194.2	89.56	-5,158.9	-1,230.7	1,453.8	1,178.8	275.01	5.286	
13,800.0	8,832.0	8,766.3	8,764.8	89.1	194.2	89.48	-5,158.9	-1,230.7	1,497.6	1,223.4	274.13	5.463	
13,900.0	8,832.0	8,764.5	8,763.1	90.4	194.2	89.41	-5,159.0	-1,230.7	1,546.6	1,273.5	273.09	5.663	
14,000.0	8,832.0	8,762.8	8,761.3	91.8	194.1	89.33	-5,159.0	-1,230.7	1,600.3	1,328.4	271.92	5.885	
14,100.0	8,832.0	8,761.0	8,759.6	93.1	194.1	89.26	-5,159.0	-1,230.7	1,658.4	1,387.7	270.66	6.127	
14,200.0	8,832.0	8,759.3	8,757.9	94.5	194.0	89.18	-5,159.0	-1,230.7	1,720.3	1,450.9	269.36	6.387	
14,300.0	8,832.0	8,757.5	8,756.1	95.9	194.0	89.11	-5,159.1	-1,230.7	1,785.7	1,517.6	268.04	6.662	
14,400.0	8,832.0	8,755.8	8,754.4	97.3	194.0	89.03	-5,159.1	-1,230.7	1,854.1	1,587.4	266.72	6.951	
14,500.0	8,832.0	8,754.1	8,752.6	98.6	193.9	88.96	-5,159.1	-1,230.7	1,925.3	1,659.9	265.43	7.254	
14,600.0	8,832.0	8,752.3	8,750.9	100.0	193.9	88.88	-5,159.2	-1,230.7	1,999.0	1,734.9	264.16	7.568	
14,700.0	8,832.0	8,750.6	8,749.1	101.4	193.9	88.80	-5,159.2	-1,230.7	2,074.9	1,812.0	262.93	7.891	
14,800.0	8,832.0	8,748.8	8,747.4	102.8	193.8	88.73	-5,159.2	-1,230.7	2,152.8	1,891.0	261.75	8.225	
14,900.0	8,832.0	8,747.1	8,745.6	104.1	193.8	88.65	-5,159.3	-1,230.7	2,232.4	1,971.8	260.62	8.566	
15,000.0	8,832.0	8,745.3	8,743.9	105.5	193.8	88.58	-5,159.3	-1,230.7	2,313.6	2,054.1	259.54	8.914	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 #302H - 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:	
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
0.0	0.0	0.0	0.0	0.0	0.0	-109.55	-846.8	-2,219.4	2,350.9			
100.0	100.0	60.3	60.3	0.1	0.1	-109.55	-846.8	-2,219.4	2,350.6	2,350.3	0.21	N/A
200.0	200.0	160.3	160.3	0.5	0.3	-109.55	-846.8	-2,219.4	2,350.6	2,349.7	0.84	2,804.608
300.0	300.0	260.3	260.3	0.8	0.7	-109.55	-846.8	-2,219.4	2,350.6	2,349.0	1.56	1,511.566
400.0	400.0	360.3	360.3	1.2	1.1	-109.55	-846.8	-2,219.4	2,350.6	2,348.3	2.27	1,034.581
500.0	500.0	460.3	460.3	1.6	1.4	-109.55	-846.8	-2,219.4	2,350.6	2,347.6	2.99	786.421
600.0	600.0	560.3	560.3	1.9	1.8	-109.55	-846.8	-2,219.4	2,350.6	2,346.9	3.71	634.279
700.0	700.0	660.3	660.3	2.3	2.1	-109.55	-846.8	-2,219.4	2,350.6	2,346.1	4.42	531.462
800.0	800.0	760.3	760.3	2.6	2.5	-109.55	-846.8	-2,219.4	2,350.6	2,345.4	5.14	457.328
900.0	900.0	860.3	860.3	3.0	2.9	-109.55	-846.8	-2,219.4	2,350.6	2,344.7	5.86	401.345
1,000.0	1,000.0	960.3	960.3	3.4	3.2	-109.55	-846.8	-2,219.4	2,350.6	2,344.0	6.57	357.573
1,100.0	1,100.0	1,060.3	1,060.3	3.7	3.6	-109.55	-846.8	-2,219.4	2,350.6	2,343.3	7.29	322.410
1,200.0	1,200.0	1,160.3	1,160.3	4.1	3.9	-109.55	-846.8	-2,219.4	2,350.6	2,342.6	8.01	293.544
1,300.0	1,300.0	1,260.3	1,260.3	4.4	4.3	-109.55	-846.8	-2,219.4	2,350.6	2,341.8	8.72	269.421
1,400.0	1,400.0	1,360.3	1,360.3	4.8	4.6	-109.55	-846.8	-2,219.4	2,350.6	2,341.1	9.44	248.963
1,500.0	1,500.0	1,460.3	1,460.3	5.2	5.0	-109.55	-846.8	-2,219.4	2,350.6	2,340.4	10.16	231.392
1,600.0	1,600.0	1,560.3	1,560.3	5.5	5.4	-109.55	-846.8	-2,219.4	2,350.6	2,339.7	10.88	216.137
1,700.0	1,700.0	1,660.3	1,660.3	5.9	5.7	-109.55	-846.8	-2,219.4	2,350.6	2,339.0	11.59	202.770
1,800.0	1,800.0	1,760.3	1,760.3	6.2	6.1	-109.55	-846.8	-2,219.4	2,350.6	2,338.3	12.31	190.960
1,900.0	1,900.0	1,860.3	1,860.3	6.6	6.4	-109.55	-846.8	-2,219.4	2,350.6	2,337.5	13.03	180.450
2,000.0	2,000.0	1,960.3	1,960.3	6.9	6.8	-109.55	-846.8	-2,219.4	2,350.6	2,336.8	13.74	171.036
2,100.0	2,100.0	2,280.0	2,279.5	7.3	7.9	76.29	-846.1	-2,205.7	2,347.3	2,332.2	15.14	155.039
2,200.0	2,199.8	2,549.2	2,546.0	7.6	8.9	76.63	-844.3	-2,167.4	2,331.2	2,315.0	16.28	143.230
2,300.0	2,299.5	2,647.4	2,642.7	7.9	9.2	77.09	-843.5	-2,150.4	2,312.7	2,295.7	16.94	136.490
2,400.0	2,398.7	2,745.3	2,739.1	8.3	9.6	77.50	-842.7	-2,133.5	2,293.4	2,275.8	17.62	130.182
2,500.0	2,497.9	2,843.1	2,835.4	8.6	10.0	77.69	-841.9	-2,116.6	2,274.0	2,255.7	18.30	124.289
2,600.0	2,597.1	2,941.0	2,931.8	8.9	10.3	77.88	-841.1	-2,099.8	2,254.6	2,235.6	18.98	118.775
2,700.0	2,696.3	3,038.8	3,028.1	9.3	10.7	78.08	-840.3	-2,082.9	2,235.3	2,215.6	19.67	113.612
2,800.0	2,795.5	3,136.6	3,124.5	9.6	11.1	78.28	-839.5	-2,066.0	2,215.9	2,195.6	20.37	108.770
2,900.0	2,894.7	3,234.4	3,220.8	10.0	11.5	78.48	-838.7	-2,049.1	2,196.6	2,175.6	21.08	104.226
3,000.0	2,993.9	3,332.2	3,317.2	10.4	11.9	78.69	-837.9	-2,032.2	2,177.4	2,155.6	21.78	99.956
3,100.0	3,093.1	3,430.0	3,413.5	10.7	12.3	78.90	-837.1	-2,015.3	2,158.1	2,135.6	22.49	95.939
3,200.0	3,192.3	3,527.9	3,509.8	11.1	12.6	79.11	-836.3	-1,998.4	2,138.9	2,115.7	23.21	92.155
3,300.0	3,291.5	3,625.7	3,606.2	11.5	13.0	79.33	-835.5	-1,981.5	2,119.7	2,095.8	23.93	88.585
3,400.0	3,390.7	3,723.5	3,702.5	11.8	13.4	79.56	-834.7	-1,964.6	2,100.5	2,075.9	24.65	85.215
3,500.0	3,489.9	3,821.3	3,798.9	12.2	13.8	79.78	-833.9	-1,947.7	2,081.4	2,056.0	25.37	82.029
3,600.0	3,589.1	3,919.1	3,895.2	12.6	14.2	80.01	-833.1	-1,930.8	2,062.3	2,036.2	26.10	79.013
3,700.0	3,688.3	4,016.9	3,991.6	12.9	14.6	80.25	-832.3	-1,914.0	2,043.3	2,016.4	26.83	76.155
3,800.0	3,787.5	4,114.8	4,087.9	13.3	15.0	80.49	-831.5	-1,897.1	2,024.2	1,996.7	27.56	73.445
3,900.0	3,886.7	4,212.6	4,184.2	13.7	15.4	80.73	-830.7	-1,880.2	2,005.2	1,976.9	28.29	70.870
4,000.0	3,985.9	4,310.4	4,280.6	14.1	15.8	80.98	-829.9	-1,863.3	1,986.3	1,957.2	29.03	68.423
4,100.0	4,085.1	4,408.2	4,376.9	14.5	16.2	81.23	-829.1	-1,846.4	1,967.4	1,937.6	29.77	66.094
4,200.0	4,184.2	4,506.0	4,473.3	14.8	16.6	81.49	-828.3	-1,829.5	1,948.5	1,918.0	30.50	63.876
4,300.0	4,283.4	4,603.8	4,569.6	15.2	17.0	81.75	-827.5	-1,812.6	1,929.6	1,898.4	31.24	61.761
4,400.0	4,382.6	4,701.6	4,666.0	15.6	17.4	82.02	-826.7	-1,795.7	1,910.8	1,878.8	31.98	59.743
4,500.0	4,481.8	4,799.5	4,762.3	16.0	17.9	82.30	-825.9	-1,778.8	1,892.1	1,859.3	32.73	57.816
4,600.0	4,581.0	4,897.3	4,858.6	16.4	18.3	82.57	-825.1	-1,761.9	1,873.4	1,839.9	33.47	55.973
4,700.0	4,680.2	4,995.1	4,955.0	16.8	18.7	82.86	-824.3	-1,745.0	1,854.7	1,820.5	34.21	54.210
4,800.0	4,779.4	5,092.9	5,051.3	17.1	19.1	83.15	-823.5	-1,728.1	1,836.0	1,801.1	34.96	52.521
4,900.0	4,878.6	5,190.7	5,147.7	17.5	19.5	83.45	-822.7	-1,711.3	1,817.5	1,781.8	35.70	50.904
5,000.0	4,977.8	5,288.5	5,244.0	17.9	19.9	83.75	-821.9	-1,694.4	1,798.9	1,762.5	36.45	49.352
5,100.0	5,077.0	5,386.4	5,340.4	18.3	20.3	84.06	-821.1	-1,677.5	1,780.4	1,743.3	37.20	47.864

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 #302H - 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	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.0	5,176.2	5,484.2	5,436.7	18.7	20.7	84.37	-820.2	-1,660.6	1,762.0	1,724.1	37.95	46.434	
5,300.0	5,275.4	5,582.0	5,533.0	19.1	21.1	84.69	-819.4	-1,643.7	1,743.6	1,704.9	38.70	45.060	
5,400.0	5,374.6	5,679.8	5,629.4	19.5	21.5	85.02	-818.6	-1,626.8	1,725.3	1,685.9	39.45	43.740	
5,500.0	5,473.8	5,777.6	5,725.7	19.9	21.9	85.36	-817.8	-1,609.9	1,707.0	1,666.8	40.20	42.469	
5,600.0	5,573.0	5,875.4	5,822.1	20.3	22.4	85.70	-817.0	-1,593.0	1,688.8	1,647.9	40.95	41.245	
5,700.0	5,672.2	5,973.2	5,918.4	20.6	22.8	86.05	-816.2	-1,576.1	1,670.7	1,629.0	41.70	40.067	
5,800.0	5,771.4	6,071.1	6,014.8	21.0	23.2	86.40	-815.4	-1,559.2	1,652.6	1,610.1	42.45	38.931	
5,900.0	5,870.6	6,168.9	6,111.1	21.4	23.6	86.77	-814.6	-1,542.3	1,634.6	1,591.4	43.20	37.836	
6,000.0	5,969.8	6,266.7	6,207.4	21.8	24.0	87.14	-813.8	-1,525.4	1,616.6	1,572.7	43.95	36.779	
6,100.0	6,069.0	6,364.5	6,303.8	22.2	24.4	87.52	-813.0	-1,508.6	1,598.7	1,554.0	44.71	35.760	
6,200.0	6,168.2	6,462.3	6,400.1	22.6	24.8	87.91	-812.2	-1,491.7	1,580.9	1,535.4	45.46	34.775	
6,300.0	6,267.3	6,560.1	6,496.5	23.0	25.3	88.31	-811.4	-1,474.8	1,563.2	1,516.9	46.22	33.823	
6,400.0	6,366.5	6,658.0	6,592.8	23.4	25.7	88.72	-810.6	-1,457.9	1,545.5	1,498.5	46.97	32.904	
6,500.0	6,465.7	6,755.8	6,689.2	23.8	26.1	89.14	-809.8	-1,441.0	1,527.9	1,480.2	47.72	32.015	
6,600.0	6,564.9	6,853.6	6,785.5	24.2	26.5	89.56	-809.0	-1,424.1	1,510.4	1,461.9	48.48	31.155	
6,700.0	6,664.1	6,951.4	6,881.8	24.6	26.9	90.00	-808.2	-1,407.2	1,493.0	1,443.7	49.24	30.323	
6,800.0	6,763.3	7,049.2	6,978.2	25.0	27.3	90.45	-807.4	-1,390.3	1,475.6	1,425.6	49.99	29.517	
6,900.0	6,862.5	7,147.0	7,074.5	25.4	27.7	90.90	-806.6	-1,373.4	1,458.4	1,407.6	50.75	28.738	
7,000.0	6,961.7	7,244.8	7,170.9	25.8	28.2	91.37	-805.8	-1,356.5	1,441.2	1,389.7	51.51	27.982	
7,100.0	7,060.9	7,342.7	7,267.2	26.2	28.6	91.85	-805.0	-1,339.6	1,424.2	1,371.9	52.26	27.250	
7,200.0	7,160.1	7,440.5	7,363.6	26.5	29.0	92.26	-804.2	-1,322.8	1,407.2	1,354.2	53.02	26.541	
7,300.0	7,259.6	7,538.6	7,460.2	26.9	29.4	92.31	-803.4	-1,305.8	1,390.2	1,336.5	53.77	25.857	
7,400.0	7,359.4	7,628.6	7,548.8	27.3	29.8	92.21	-802.7	-1,290.3	1,373.3	1,318.8	54.50	25.198	
7,500.0	7,459.3	7,700.0	7,619.4	27.7	30.1	91.98	-802.2	-1,279.3	1,357.8	1,302.6	55.20	24.600	
7,600.0	7,559.3	7,762.8	7,681.7	28.0	30.3	-93.83	-801.8	-1,271.0	1,344.6	1,288.8	55.83	24.084	
7,700.0	7,659.3	7,830.6	7,749.0	28.3	30.6	-93.84	-801.4	-1,263.7	1,333.7	1,277.3	56.44	23.630	
7,800.0	7,759.3	7,900.0	7,818.2	28.6	30.9	-93.84	-801.1	-1,257.8	1,325.2	1,268.2	57.03	23.236	
7,900.0	7,859.3	7,966.9	7,885.0	28.9	31.1	-93.85	-800.9	-1,253.7	1,319.1	1,261.5	57.59	22.905	
8,000.0	7,959.3	8,035.4	7,953.4	29.2	31.3	-93.85	-800.8	-1,251.1	1,315.3	1,257.2	58.12	22.632	
8,100.0	8,059.3	8,109.0	8,027.0	29.6	31.6	-93.85	-800.8	-1,250.2	1,314.0	1,255.3	58.65	22.404	
8,136.0	8,095.3	8,137.6	8,055.6	29.7	31.7	-93.85	-800.8	-1,250.2	1,313.9	1,255.1	58.85	22.329	
8,200.0	8,159.3	8,201.6	8,119.6	29.9	31.9	-93.85	-800.8	-1,250.2	1,313.9	1,254.7	59.27	22.170	
8,300.0	8,259.3	8,301.6	8,219.6	30.2	32.2	-93.85	-800.8	-1,250.2	1,313.9	1,254.0	59.92	21.927	
8,400.0	8,359.3	8,401.6	8,319.6	30.5	32.5	86.60	-800.8	-1,250.2	1,313.9	1,253.3	60.58	21.688	
8,500.0	8,458.5	8,492.6	8,410.4	30.9	32.8	86.94	-804.1	-1,250.2	1,313.5	1,252.3	61.25	21.445	
8,600.0	8,553.1	8,579.9	8,495.7	31.4	33.0	87.45	-822.1	-1,250.0	1,313.0	1,251.0	61.96	21.190	
8,700.0	8,639.0	8,669.0	8,577.9	31.9	33.3	88.06	-856.3	-1,249.8	1,312.4	1,249.7	62.74	20.917	
8,800.0	8,712.5	8,760.5	8,654.2	32.5	33.5	88.75	-906.5	-1,249.4	1,312.0	1,248.4	63.59	20.631	
8,900.0	8,770.4	8,854.8	8,721.3	33.1	33.7	89.49	-972.5	-1,249.0	1,311.8	1,247.3	64.50	20.336	
8,942.3	8,789.5	8,895.6	8,746.1	33.4	33.8	89.82	-1,005.0	-1,248.7	1,311.8	1,246.9	64.91	20.209 CC	
9,000.0	8,810.1	8,952.4	8,775.8	33.8	33.9	90.27	-1,053.4	-1,248.4	1,311.8	1,246.3	65.47	20.037	
9,100.0	8,829.9	9,054.0	8,813.7	34.5	34.0	91.06	-1,147.4	-1,247.7	1,312.1	1,245.6	66.47	19.741	
9,200.0	8,832.0	9,160.2	8,831.3	35.1	34.2	91.70	-1,251.9	-1,247.0	1,312.5	1,245.0	67.48	19.450	
9,300.0	8,832.0	9,262.3	8,832.0	35.9	34.5	91.73	-1,354.0	-1,246.3	1,312.6	1,244.1	68.53	19.154	
9,400.0	8,832.0	9,362.3	8,832.0	36.6	34.8	91.73	-1,454.0	-1,245.6	1,312.7	1,243.0	69.66	18.844	
9,500.0	8,832.0	9,462.3	8,832.0	37.4	35.2	91.73	-1,554.0	-1,244.9	1,312.7	1,241.9	70.89	18.518	
9,600.0	8,832.0	9,562.3	8,832.0	38.3	35.6	91.73	-1,654.0	-1,244.2	1,312.8	1,240.6	72.21	18.179	
9,700.0	8,832.0	9,662.3	8,832.0	39.1	36.1	91.73	-1,754.0	-1,243.4	1,312.9	1,239.3	73.63	17.831	
9,800.0	8,832.0	9,762.3	8,832.0	40.1	36.6	91.73	-1,854.0	-1,242.7	1,313.0	1,237.8	75.13	17.477	
9,900.0	8,832.0	9,862.3	8,832.0	41.0	37.2	91.73	-1,954.0	-1,242.0	1,313.0	1,236.3	76.70	17.118	
10,000.0	8,832.0	9,962.3	8,832.0	42.0	37.8	91.73	-2,054.0	-1,241.3	1,313.1	1,234.7	78.36	16.758	
10,100.0	8,832.0	10,062.3	8,832.0	43.0	38.5	91.73	-2,154.0	-1,240.6	1,313.2	1,233.1	80.08	16.398	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 #302H - 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	8,832.0	10,162.3	8,832.0	44.0	39.3	91.73	-2,254.0	-1,239.9	1,313.2	1,231.4	81.87	16.040	
10,300.0	8,832.0	10,262.3	8,832.0	45.0	40.0	91.73	-2,354.0	-1,239.2	1,313.3	1,229.6	83.73	15.686	
10,400.0	8,832.0	10,362.3	8,832.0	46.1	40.8	91.73	-2,454.0	-1,238.5	1,313.4	1,227.7	85.64	15.336	
10,500.0	8,832.0	10,462.3	8,832.0	47.2	41.7	91.73	-2,554.0	-1,237.8	1,313.4	1,225.8	87.60	14.993	
10,600.0	8,832.0	10,562.3	8,832.0	48.3	42.6	91.73	-2,654.0	-1,237.1	1,313.5	1,223.9	89.62	14.657	
10,700.0	8,832.0	10,662.3	8,832.0	49.4	43.5	91.73	-2,754.0	-1,236.4	1,313.6	1,221.9	91.68	14.327	
10,800.0	8,832.0	10,762.3	8,832.0	50.6	44.4	91.73	-2,854.0	-1,235.7	1,313.6	1,219.9	93.79	14.006	
10,900.0	8,832.0	10,862.3	8,832.0	51.7	45.4	91.73	-2,954.0	-1,235.0	1,313.7	1,217.8	95.94	13.693	
11,000.0	8,832.0	10,962.3	8,832.0	52.9	46.4	91.73	-3,054.0	-1,234.3	1,313.8	1,215.7	98.13	13.388	
11,100.0	8,832.0	11,062.3	8,832.0	54.1	47.4	91.73	-3,154.0	-1,233.6	1,313.9	1,213.5	100.36	13.092	
11,200.0	8,832.0	11,162.3	8,832.0	55.3	48.4	91.73	-3,254.0	-1,232.9	1,313.9	1,211.3	102.62	12.804	
11,300.0	8,832.0	11,262.3	8,832.0	56.5	49.5	91.73	-3,354.0	-1,232.1	1,314.0	1,209.1	104.91	12.525	
11,400.0	8,832.0	11,362.3	8,832.0	57.7	50.5	91.73	-3,454.0	-1,231.4	1,314.1	1,206.8	107.23	12.255	
11,500.0	8,832.0	11,462.3	8,832.0	58.9	51.6	91.73	-3,554.0	-1,230.7	1,314.1	1,204.6	109.58	11.993	
11,600.0	8,832.0	11,562.3	8,832.0	60.2	52.7	91.73	-3,654.0	-1,230.0	1,314.2	1,202.3	111.95	11.739	
11,700.0	8,832.0	11,662.3	8,832.0	61.4	53.9	91.73	-3,754.0	-1,229.3	1,314.3	1,199.9	114.35	11.494	
11,800.0	8,832.0	11,762.3	8,832.0	62.7	55.0	91.73	-3,854.0	-1,228.6	1,314.3	1,197.6	116.77	11.256	
11,900.0	8,832.0	11,862.3	8,832.0	63.9	56.2	91.73	-3,954.0	-1,227.9	1,314.4	1,195.2	119.21	11.026	
12,000.0	8,832.0	11,962.3	8,832.0	65.2	57.3	91.73	-4,054.0	-1,227.2	1,314.5	1,192.8	121.68	10.803	
12,100.0	8,832.0	12,062.3	8,832.0	66.5	58.5	91.73	-4,154.0	-1,226.5	1,314.6	1,190.4	124.16	10.588	
12,200.0	8,832.0	12,162.3	8,832.0	67.8	59.7	91.73	-4,254.0	-1,225.8	1,314.6	1,188.0	126.66	10.379	
12,300.0	8,832.0	12,262.3	8,832.0	69.1	60.9	91.73	-4,354.0	-1,225.1	1,314.7	1,185.5	129.17	10.178	
12,400.0	8,832.0	12,362.3	8,832.0	70.4	62.1	91.73	-4,454.0	-1,224.4	1,314.8	1,183.1	131.71	9.983	
12,500.0	8,832.0	12,462.3	8,832.0	71.7	63.4	91.73	-4,554.0	-1,223.7	1,314.8	1,180.6	134.25	9.794	
12,600.0	8,832.0	12,562.3	8,832.0	73.0	64.6	91.73	-4,654.0	-1,223.0	1,314.9	1,178.1	136.81	9.611	
12,700.0	8,832.0	12,662.3	8,832.0	74.3	65.8	91.73	-4,754.0	-1,222.3	1,315.0	1,175.6	139.39	9.434	
12,800.0	8,832.0	12,762.3	8,832.0	75.6	67.1	91.73	-4,854.0	-1,221.5	1,315.0	1,173.1	141.98	9.262	
12,900.0	8,832.0	12,862.3	8,832.0	77.0	68.3	91.73	-4,953.9	-1,220.8	1,315.1	1,170.5	144.57	9.096	
13,000.0	8,832.0	12,962.3	8,832.0	78.3	69.6	91.73	-5,053.9	-1,220.1	1,315.2	1,168.0	147.18	8.936	
13,100.0	8,832.0	13,062.3	8,832.0	79.6	70.9	91.73	-5,153.9	-1,219.4	1,315.3	1,165.4	149.80	8.780	
13,200.0	8,832.0	13,162.3	8,832.0	81.0	72.2	91.73	-5,253.9	-1,218.7	1,315.3	1,162.9	152.44	8.629	
13,300.0	8,832.0	13,262.3	8,832.0	82.3	73.5	91.73	-5,353.9	-1,218.0	1,315.4	1,160.3	155.08	8.482	
13,400.0	8,832.0	13,362.3	8,832.0	83.6	74.7	91.73	-5,453.9	-1,217.3	1,315.5	1,157.7	157.72	8.340	
13,500.0	8,832.0	13,462.3	8,832.0	85.0	76.0	91.73	-5,553.9	-1,216.6	1,315.5	1,155.1	160.38	8.202	
13,600.0	8,832.0	13,562.3	8,832.0	86.3	77.3	91.73	-5,653.9	-1,215.9	1,315.6	1,152.6	163.05	8.069	
13,700.0	8,832.0	13,662.3	8,832.0	87.7	78.7	91.73	-5,753.9	-1,215.2	1,315.7	1,149.9	165.72	7.939	
13,800.0	8,832.0	13,762.3	8,832.0	89.1	80.0	91.73	-5,853.9	-1,214.5	1,315.7	1,147.3	168.40	7.813	
13,900.0	8,832.0	13,862.3	8,832.0	90.4	81.3	91.73	-5,953.9	-1,213.8	1,315.8	1,144.7	171.09	7.691	
14,000.0	8,832.0	13,962.3	8,832.0	91.8	82.6	91.73	-6,053.9	-1,213.1	1,315.9	1,142.1	173.79	7.572	
14,100.0	8,832.0	14,062.3	8,832.0	93.1	83.9	91.73	-6,153.9	-1,212.4	1,315.9	1,139.5	176.49	7.456	
14,200.0	8,832.0	14,162.3	8,832.0	94.5	85.3	91.73	-6,253.9	-1,211.7	1,316.0	1,136.8	179.19	7.344	
14,300.0	8,832.0	14,262.3	8,832.0	95.9	86.6	91.73	-6,353.9	-1,211.0	1,316.1	1,134.2	181.91	7.235	
14,400.0	8,832.0	14,362.3	8,832.0	97.3	87.9	91.73	-6,453.9	-1,210.2	1,316.2	1,131.5	184.63	7.129	
14,500.0	8,832.0	14,462.3	8,832.0	98.6	89.3	91.73	-6,553.9	-1,209.5	1,316.2	1,128.9	187.35	7.025	
14,600.0	8,832.0	14,562.3	8,832.0	100.0	90.6	91.73	-6,653.9	-1,208.8	1,316.3	1,126.2	190.08	6.925	
14,700.0	8,832.0	14,662.3	8,832.0	101.4	92.0	91.73	-6,753.9	-1,208.1	1,316.4	1,123.6	192.81	6.827	
14,800.0	8,832.0	14,762.3	8,832.0	102.8	93.3	91.73	-6,853.9	-1,207.4	1,316.4	1,120.9	195.55	6.732	
14,900.0	8,832.0	14,862.3	8,832.0	104.1	94.7	91.73	-6,953.9	-1,206.7	1,316.5	1,118.2	198.30	6.639	
15,000.0	8,832.0	14,962.3	8,832.0	105.5	96.0	91.73	-7,053.9	-1,206.0	1,316.6	1,115.5	201.04	6.549	
15,100.0	8,832.0	15,062.3	8,832.0	106.9	97.4	91.73	-7,153.9	-1,205.3	1,316.6	1,112.9	203.79	6.461	
15,200.0	8,832.0	15,162.3	8,832.0	108.3	98.7	91.73	-7,253.9	-1,204.6	1,316.7	1,110.2	206.55	6.375	
15,300.0	8,832.0	15,262.3	8,832.0	109.7	100.1	91.73	-7,353.9	-1,203.9	1,316.8	1,107.5	209.31	6.291	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 #302H - 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	8,832.0	15,362.3	8,832.0	111.1	101.5	91.73	-7,453.9	-1,203.2	1,316.9	1,104.8	212.07	6.209	
15,500.0	8,832.0	15,462.3	8,832.0	112.5	102.8	91.73	-7,553.9	-1,202.5	1,316.9	1,102.1	214.84	6.130	
15,600.0	8,832.0	15,562.3	8,832.0	113.9	104.2	91.73	-7,653.9	-1,201.8	1,317.0	1,099.4	217.61	6.052	
15,700.0	8,832.0	15,662.3	8,832.0	115.3	105.6	91.73	-7,753.9	-1,201.1	1,317.1	1,096.7	220.38	5.976	
15,800.0	8,832.0	15,762.3	8,832.0	116.7	107.0	91.73	-7,853.9	-1,200.4	1,317.1	1,094.0	223.16	5.902	
15,900.0	8,832.0	15,862.3	8,832.0	118.1	108.3	91.73	-7,953.9	-1,199.7	1,317.2	1,091.3	225.94	5.830	
16,000.0	8,832.0	15,962.3	8,832.0	119.5	109.7	91.73	-8,053.9	-1,198.9	1,317.3	1,088.6	228.72	5.759	
16,100.0	8,832.0	16,062.3	8,832.0	120.9	111.1	91.73	-8,153.9	-1,198.2	1,317.3	1,085.8	231.50	5.690	
16,200.0	8,832.0	16,162.3	8,832.0	122.3	112.5	91.73	-8,253.9	-1,197.5	1,317.4	1,083.1	234.29	5.623	
16,300.0	8,832.0	16,262.3	8,832.0	123.7	113.9	91.73	-8,353.9	-1,196.8	1,317.5	1,080.4	237.08	5.557	
16,400.0	8,832.0	16,362.3	8,832.0	125.1	115.2	91.73	-8,453.9	-1,196.1	1,317.6	1,077.7	239.87	5.493	
16,500.0	8,832.0	16,462.3	8,832.0	126.5	116.6	91.73	-8,553.9	-1,195.4	1,317.6	1,075.0	242.67	5.430	
16,600.0	8,832.0	16,562.3	8,832.0	127.9	118.0	91.73	-8,653.9	-1,194.7	1,317.7	1,072.2	245.47	5.368	
16,700.0	8,832.0	16,662.3	8,832.0	129.3	119.4	91.73	-8,753.9	-1,194.0	1,317.8	1,069.5	248.27	5.308	
16,800.0	8,832.0	16,762.3	8,832.0	130.7	120.8	91.73	-8,853.9	-1,193.3	1,317.8	1,066.8	251.07	5.249	
16,900.0	8,832.0	16,862.3	8,832.0	132.1	122.2	91.73	-8,953.8	-1,192.6	1,317.9	1,064.0	253.87	5.191	
17,000.0	8,832.0	16,962.3	8,832.0	133.5	123.6	91.73	-9,053.8	-1,191.9	1,318.0	1,061.3	256.68	5.135	
17,100.0	8,832.0	17,062.3	8,832.0	134.9	125.0	91.73	-9,153.8	-1,191.2	1,318.0	1,058.6	259.49	5.079	
17,200.0	8,832.0	17,162.3	8,832.0	136.3	126.4	91.73	-9,253.8	-1,190.5	1,318.1	1,055.8	262.30	5.025	
17,300.0	8,832.0	17,262.3	8,832.0	137.7	127.8	91.73	-9,353.8	-1,189.8	1,318.2	1,053.1	265.11	4.972	
17,400.0	8,832.0	17,362.3	8,832.0	139.1	129.2	91.73	-9,453.8	-1,189.1	1,318.2	1,050.3	267.92	4.920	
17,500.0	8,832.0	17,462.3	8,832.0	140.6	130.6	91.73	-9,553.8	-1,188.4	1,318.3	1,047.6	270.74	4.869	
17,600.0	8,832.0	17,562.3	8,832.0	142.0	132.0	91.73	-9,653.8	-1,187.6	1,318.4	1,044.8	273.55	4.820	
17,700.0	8,832.0	17,662.3	8,832.0	143.4	133.4	91.73	-9,753.8	-1,186.9	1,318.5	1,042.1	276.37	4.771	
17,800.0	8,832.0	17,762.3	8,832.0	144.8	134.8	91.73	-9,853.8	-1,186.2	1,318.5	1,039.3	279.19	4.723	
17,900.0	8,832.0	17,862.3	8,832.0	146.2	136.2	91.73	-9,953.8	-1,185.5	1,318.6	1,036.6	282.01	4.676	
18,000.0	8,832.0	17,962.3	8,832.0	147.6	137.6	91.73	-10,053.8	-1,184.8	1,318.7	1,033.8	284.84	4.630	
18,100.0	8,832.0	18,062.3	8,832.0	149.0	139.0	91.73	-10,153.8	-1,184.1	1,318.7	1,031.1	287.66	4.584	
18,200.0	8,832.0	18,162.3	8,832.0	150.5	140.4	91.73	-10,253.8	-1,183.4	1,318.8	1,028.3	290.49	4.540	
18,300.0	8,832.0	18,262.3	8,832.0	151.9	141.8	91.72	-10,353.8	-1,182.7	1,318.9	1,025.6	293.31	4.496	
18,400.0	8,832.0	18,362.3	8,832.0	153.3	143.2	91.72	-10,453.8	-1,182.0	1,318.9	1,022.8	296.14	4.454	
18,500.0	8,832.0	18,462.3	8,832.0	154.7	144.6	91.72	-10,553.8	-1,181.3	1,319.0	1,020.0	298.97	4.412	
18,600.0	8,832.0	18,562.3	8,832.0	156.1	146.0	91.72	-10,653.8	-1,180.6	1,319.1	1,017.3	301.80	4.371	
18,700.0	8,832.0	18,662.3	8,832.0	157.6	147.4	91.72	-10,753.8	-1,179.9	1,319.2	1,014.5	304.63	4.330	
18,800.0	8,832.0	18,762.3	8,832.0	159.0	148.8	91.72	-10,853.8	-1,179.2	1,319.2	1,011.8	307.47	4.291	
18,900.0	8,832.0	18,862.3	8,832.0	160.4	150.2	91.72	-10,953.8	-1,178.5	1,319.3	1,009.0	310.30	4.252	
19,000.0	8,832.0	18,962.3	8,832.0	161.8	151.6	91.72	-11,053.8	-1,177.8	1,319.4	1,006.2	313.14	4.213	
19,077.1	8,832.0	19,039.4	8,832.0	162.9	152.7	91.72	-11,130.9	-1,177.2	1,319.4	1,004.1	315.32	4.184 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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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		
2,400.0	2,398.7	2,658.5	2,656.8	8.3	9.3	77.80	-842.5	-2,204.4	2,347.5	2,330.1	17.40	134.904			
2,500.0	2,497.9	2,756.8	2,754.2	8.6	9.6	78.04	-840.9	-2,191.8	2,332.1	2,314.0	18.08	129.002			
2,600.0	2,597.1	2,855.2	2,851.7	8.9	10.0	78.28	-839.3	-2,179.1	2,316.7	2,297.9	18.76	123.487			
2,700.0	2,696.3	2,953.5	2,949.2	9.3	10.3	78.53	-837.6	-2,166.5	2,301.3	2,281.9	19.45	118.324			
2,800.0	2,795.5	3,051.8	3,046.7	9.6	10.7	78.78	-836.0	-2,153.9	2,286.0	2,265.9	20.14	113.487			
2,900.0	2,894.7	3,150.1	3,144.2	10.0	11.1	79.04	-834.4	-2,141.3	2,270.8	2,249.9	20.84	108.948			
3,000.0	2,993.9	3,248.4	3,241.7	10.4	11.4	79.30	-832.7	-2,128.7	2,255.5	2,234.0	21.55	104.685			
3,100.0	3,093.1	3,346.7	3,339.2	10.7	11.8	79.56	-831.1	-2,116.1	2,240.4	2,218.1	22.25	100.676			
3,200.0	3,192.3	3,445.0	3,436.7	11.1	12.2	79.83	-829.5	-2,103.5	2,225.3	2,202.3	22.96	96.900			
3,300.0	3,291.5	3,543.3	3,534.1	11.5	12.5	80.09	-827.8	-2,090.8	2,210.2	2,186.5	23.68	93.341			
3,400.0	3,390.7	3,641.7	3,631.6	11.8	12.9	80.37	-826.2	-2,078.2	2,195.2	2,170.8	24.40	89.981			
3,500.0	3,489.9	3,740.0	3,729.1	12.2	13.3	80.64	-824.6	-2,065.6	2,180.2	2,155.1	25.12	86.805			
3,600.0	3,589.1	3,838.3	3,826.6	12.6	13.6	80.92	-822.9	-2,053.0	2,165.3	2,139.4	25.84	83.800			
3,700.0	3,688.3	3,936.6	3,924.1	12.9	14.0	81.21	-821.3	-2,040.4	2,150.4	2,123.8	26.56	80.954			
3,800.0	3,787.5	4,034.9	4,021.6	13.3	14.4	81.50	-819.6	-2,027.8	2,135.6	2,108.3	27.29	78.255			
3,900.0	3,886.7	4,133.2	4,119.1	13.7	14.8	81.79	-818.0	-2,015.1	2,120.8	2,092.8	28.02	75.692			
4,000.0	3,985.9	4,231.5	4,216.5	14.1	15.1	82.09	-816.4	-2,002.5	2,106.1	2,077.3	28.75	73.257			
4,100.0	4,085.1	4,329.9	4,314.0	14.5	15.5	82.39	-814.7	-1,989.9	2,091.4	2,062.0	29.48	70.941			
4,200.0	4,184.2	4,428.2	4,411.5	14.8	15.9	82.69	-813.1	-1,977.3	2,076.8	2,046.6	30.22	68.735			
4,300.0	4,283.4	4,526.5	4,509.0	15.2	16.3	83.00	-811.5	-1,964.7	2,062.3	2,031.4	30.95	66.632			
4,400.0	4,382.6	4,624.8	4,606.5	15.6	16.7	83.31	-809.8	-1,952.1	2,047.8	2,016.1	31.69	64.626			
4,500.0	4,481.8	4,723.1	4,704.0	16.0	17.0	83.63	-808.2	-1,939.4	2,033.4	2,001.0	32.43	62.711			
4,600.0	4,581.0	4,821.4	4,801.5	16.4	17.4	83.95	-806.6	-1,926.8	2,019.1	1,985.9	33.16	60.881			
4,700.0	4,680.2	4,919.7	4,898.9	16.8	17.8	84.28	-804.9	-1,914.2	2,004.8	1,970.9	33.90	59.130			
4,800.0	4,779.4	5,018.0	4,996.4	17.1	18.2	84.61	-803.3	-1,901.6	1,990.6	1,955.9	34.65	57.455			
4,900.0	4,878.6	5,116.4	5,093.9	17.5	18.6	84.94	-801.7	-1,889.0	1,976.4	1,941.0	35.39	55.850			
5,000.0	4,977.8	5,214.7	5,191.4	17.9	18.9	85.28	-800.0	-1,876.4	1,962.3	1,926.2	36.13	54.311			
5,100.0	5,077.0	5,313.0	5,288.9	18.3	19.3	85.63	-798.4	-1,863.8	1,948.3	1,911.4	36.87	52.835			
5,200.0	5,176.2	5,411.3	5,386.4	18.7	19.7	85.98	-796.7	-1,851.1	1,934.4	1,896.7	37.62	51.419			
5,300.0	5,275.4	5,509.6	5,483.9	19.1	20.1	86.34	-795.1	-1,838.5	1,920.5	1,882.1	38.37	50.058			
5,400.0	5,374.6	5,607.9	5,581.4	19.5	20.5	86.70	-793.5	-1,825.9	1,906.7	1,867.6	39.11	48.750			
5,500.0	5,473.8	5,706.2	5,678.8	19.9	20.9	87.06	-791.8	-1,813.3	1,893.0	1,853.1	39.86	47.492			
5,600.0	5,573.0	5,804.5	5,776.3	20.3	21.2	87.43	-790.2	-1,800.7	1,879.3	1,838.7	40.61	46.281			
5,700.0	5,672.2	5,902.9	5,873.8	20.6	21.6	87.81	-788.6	-1,788.1	1,865.8	1,824.4	41.35	45.116			
5,800.0	5,771.4	6,001.2	5,971.3	21.0	22.0	88.19	-786.9	-1,775.4	1,852.3	1,810.2	42.10	43.993			
5,900.0	5,870.6	6,099.5	6,068.8	21.4	22.4	88.58	-785.3	-1,762.8	1,838.9	1,796.0	42.85	42.911			
6,000.0	5,969.8	6,197.8	6,166.3	21.8	22.8	88.97	-783.7	-1,750.2	1,825.6	1,782.0	43.60	41.867			
6,100.0	6,069.0	6,296.1	6,263.8	22.2	23.2	89.37	-782.0	-1,737.6	1,812.3	1,768.0	44.35	40.861			
6,200.0	6,168.2	6,394.4	6,361.2	22.6	23.6	89.77	-780.4	-1,725.0	1,799.2	1,754.1	45.11	39.889			
6,300.0	6,267.3	6,492.7	6,458.7	23.0	23.9	90.18	-778.7	-1,712.4	1,786.1	1,740.3	45.86	38.951			
6,400.0	6,366.5	6,591.1	6,556.2	23.4	24.3	90.60	-777.1	-1,699.8	1,773.2	1,726.6	46.61	38.044			
6,500.0	6,465.7	6,689.4	6,653.7	23.8	24.7	91.02	-775.5	-1,687.1	1,760.3	1,713.0	47.36	37.168			
6,600.0	6,564.9	6,787.7	6,751.2	24.2	25.1	91.45	-773.8	-1,674.5	1,747.6	1,699.4	48.11	36.321			
6,700.0	6,664.1	6,886.0	6,848.7	24.6	25.5	91.88	-772.2	-1,661.9	1,734.9	1,686.0	48.87	35.502			
6,800.0	6,763.3	6,984.3	6,946.2	25.0	25.9	92.32	-770.6	-1,649.3	1,722.3	1,672.7	49.62	34.709			
6,900.0	6,862.5	7,082.6	7,043.7	25.4	26.3	92.77	-768.9	-1,636.7	1,709.9	1,659.5	50.38	33.942			
7,000.0	6,961.7	7,180.9	7,141.1	25.8	26.7	93.22	-767.3	-1,624.1	1,697.5	1,646.4	51.13	33.200			
7,100.0	7,060.9	7,279.2	7,238.6	26.2	27.0	93.68	-765.7	-1,611.4	1,685.3	1,633.4	51.89	32.481			
7,200.0	7,160.1	7,377.6	7,336.1	26.5	27.4	94.08	-764.0	-1,598.8	1,673.1	1,620.5	52.64	31.784			
7,300.0	7,259.6	7,476.2	7,433.9	26.9	27.8	94.23	-762.4	-1,586.2	1,660.9	1,607.5	53.38	31.112			
7,400.0	7,359.4	7,575.1	7,532.0	27.3	28.2	94.25	-760.7	-1,573.5	1,648.5	1,594.4	54.12	30.462			
7,500.0	7,459.3	7,674.2	7,630.2	27.7	28.6	94.15	-759.1	-1,560.8	1,635.8	1,581.0	54.83	29.835			

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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)			
7,600.0	7,559.3	7,773.3	7,728.6	28.0	29.0	-91.60	-757.4	-1,548.0	1,623.0	1,567.5	55.51	29.235	
7,700.0	7,659.3	7,872.5	7,826.9	28.3	29.4	-91.55	-755.8	-1,535.3	1,610.1	1,553.9	56.19	28.653	
7,800.0	7,759.3	7,971.7	7,925.2	28.6	29.8	-91.50	-754.1	-1,522.6	1,597.2	1,540.3	56.87	28.083	
7,900.0	7,859.3	8,070.8	8,023.5	28.9	30.2	-91.46	-752.5	-1,509.9	1,584.4	1,526.8	57.56	27.527	
8,000.0	7,959.3	8,170.0	8,121.9	29.2	30.6	-91.41	-750.8	-1,497.1	1,571.5	1,513.2	58.24	26.983	
8,100.0	8,059.3	8,269.1	8,220.2	29.6	31.0	-91.36	-749.2	-1,484.4	1,558.6	1,499.7	58.92	26.452	
8,200.0	8,159.3	8,368.3	8,318.5	29.9	31.3	-91.31	-747.5	-1,471.7	1,545.7	1,486.1	59.61	25.932	
8,300.0	8,259.3	8,467.4	8,416.8	30.2	31.7	-91.26	-745.9	-1,459.0	1,532.9	1,472.6	60.29	25.424	
8,400.0	8,359.3	8,566.6	8,515.2	30.5	32.1	89.32	-744.2	-1,446.3	1,520.0	1,459.0	60.98	24.927	
8,500.0	8,458.5	8,664.8	8,612.5	30.9	32.5	91.35	-742.6	-1,433.7	1,507.2	1,445.4	61.73	24.417	
8,600.0	8,553.1	8,758.1	8,705.0	31.4	32.9	94.00	-741.1	-1,421.7	1,495.2	1,432.7	62.53	23.911	
8,700.0	8,639.0	8,842.5	8,788.7	31.9	33.2	96.81	-739.7	-1,410.8	1,486.0	1,422.6	63.38	23.447	
8,800.0	8,712.5	8,914.3	8,860.0	32.5	33.5	99.23	-738.5	-1,401.6	1,481.8	1,417.6	64.23	23.070	
8,812.4	8,720.6	8,922.2	8,867.7	32.6	33.5	99.47	-738.3	-1,400.6	1,481.8	1,417.4	64.34	23.031	CC, ES
8,900.0	8,770.4	8,970.4	8,915.6	33.1	33.7	100.65	-737.5	-1,394.4	1,484.9	1,419.8	65.07	22.821	
9,000.0	8,810.1	9,008.4	8,953.2	33.8	33.9	100.57	-736.9	-1,389.6	1,496.9	1,431.0	65.85	22.732	
9,100.0	8,829.9	9,026.4	8,971.1	34.5	33.9	98.63	-736.6	-1,387.2	1,518.5	1,452.0	66.53	22.824	
9,200.0	8,832.0	9,027.0	8,971.7	35.1	34.0	97.06	-736.6	-1,387.2	1,548.9	1,481.8	67.10	23.083	
9,300.0	8,832.0	9,025.4	8,970.1	35.9	33.9	97.00	-736.6	-1,387.4	1,585.2	1,517.6	67.63	23.438	
9,400.0	8,832.0	9,023.9	8,968.6	36.6	33.9	96.94	-736.6	-1,387.6	1,626.9	1,558.8	68.14	23.875	
9,500.0	8,832.0	9,022.3	8,967.0	37.4	33.9	96.88	-736.7	-1,387.8	1,673.5	1,604.9	68.62	24.389	
9,600.0	8,832.0	9,020.7	8,965.5	38.3	33.9	96.82	-736.7	-1,388.0	1,724.7	1,655.6	69.05	24.976	
9,700.0	8,832.0	9,019.2	8,963.9	39.1	33.9	96.75	-736.7	-1,388.2	1,780.0	1,710.6	69.45	25.629	
9,800.0	8,832.0	9,017.6	8,962.4	40.1	33.9	96.69	-736.7	-1,388.4	1,839.1	1,769.3	69.81	26.344	
9,900.0	8,832.0	9,016.0	8,960.8	41.0	33.9	96.63	-736.8	-1,388.6	1,901.6	1,831.5	70.13	27.114	
10,000.0	8,832.0	11,378.1	10,196.0	42.0	42.3	136.94	-2,053.9	-1,240.6	1,921.2	1,854.7	66.51	28.888	
10,100.0	8,832.0	11,478.1	10,196.0	43.0	42.9	136.94	-2,153.9	-1,239.9	1,921.3	1,853.5	67.84	28.320	
10,200.0	8,832.0	11,578.1	10,196.0	44.0	43.6	136.93	-2,253.9	-1,239.2	1,921.4	1,852.1	69.23	27.755	
10,300.0	8,832.0	11,678.1	10,196.0	45.0	44.3	136.93	-2,353.9	-1,238.5	1,921.4	1,850.7	70.66	27.193	
10,400.0	8,832.0	11,778.1	10,196.0	46.1	45.0	136.93	-2,453.9	-1,237.8	1,921.5	1,849.3	72.13	26.638	
10,500.0	8,832.0	11,878.1	10,196.0	47.2	45.8	136.93	-2,553.9	-1,237.1	1,921.5	1,847.9	73.65	26.091	
10,600.0	8,832.0	11,978.1	10,196.0	48.3	46.6	136.93	-2,653.9	-1,236.4	1,921.6	1,846.4	75.20	25.552	
10,700.0	8,832.0	12,078.1	10,196.0	49.4	47.5	136.93	-2,753.9	-1,235.7	1,921.6	1,844.8	76.79	25.023	
10,800.0	8,832.0	12,178.1	10,196.0	50.6	48.3	136.92	-2,853.9	-1,235.0	1,921.7	1,843.3	78.42	24.506	
10,900.0	8,832.0	12,278.1	10,196.0	51.7	49.2	136.92	-2,953.9	-1,234.3	1,921.7	1,841.6	80.07	23.999	
11,000.0	8,832.0	12,378.1	10,196.0	52.9	50.2	136.92	-3,053.9	-1,233.6	1,921.8	1,840.0	81.76	23.504	
11,100.0	8,832.0	12,478.1	10,196.0	54.1	51.1	136.92	-3,153.9	-1,233.0	1,921.8	1,838.3	83.48	23.022	
11,200.0	8,832.0	12,578.1	10,196.0	55.3	52.1	136.92	-3,253.9	-1,232.3	1,921.9	1,836.7	85.22	22.552	
11,300.0	8,832.0	12,678.1	10,196.0	56.5	53.1	136.92	-3,353.9	-1,231.6	1,921.9	1,834.9	86.99	22.094	
11,400.0	8,832.0	12,778.1	10,196.0	57.7	54.1	136.91	-3,453.9	-1,230.9	1,922.0	1,833.2	88.78	21.649	
11,500.0	8,832.0	12,878.1	10,196.0	58.9	55.1	136.91	-3,553.9	-1,230.2	1,922.0	1,831.4	90.59	21.216	
11,600.0	8,832.0	12,978.1	10,196.0	60.2	56.2	136.91	-3,653.9	-1,229.5	1,922.1	1,829.7	92.43	20.795	
11,700.0	8,832.0	13,078.1	10,196.0	61.4	57.3	136.91	-3,753.9	-1,228.8	1,922.1	1,827.9	94.28	20.387	
11,800.0	8,832.0	13,178.1	10,196.0	62.7	58.4	136.91	-3,853.9	-1,228.1	1,922.2	1,826.0	96.16	19.990	
11,900.0	8,832.0	13,278.1	10,196.0	63.9	59.5	136.91	-3,953.9	-1,227.4	1,922.3	1,824.2	98.05	19.605	
12,000.0	8,832.0	13,378.1	10,196.0	65.2	60.6	136.90	-4,053.9	-1,226.7	1,922.3	1,822.3	99.95	19.232	
12,100.0	8,832.0	13,478.1	10,196.0	66.5	61.7	136.90	-4,153.9	-1,226.0	1,922.4	1,820.5	101.88	18.869	
12,200.0	8,832.0	13,578.1	10,196.0	67.8	62.9	136.90	-4,253.9	-1,225.3	1,922.4	1,818.6	103.82	18.517	
12,300.0	8,832.0	13,678.1	10,196.0	69.1	64.0	136.90	-4,353.9	-1,224.6	1,922.5	1,816.7	105.77	18.176	
12,400.0	8,832.0	13,778.1	10,196.0	70.4	65.2	136.90	-4,453.9	-1,223.9	1,922.5	1,814.8	107.73	17.845	
12,500.0	8,832.0	13,878.1	10,196.0	71.7	66.4	136.90	-4,553.9	-1,223.2	1,922.6	1,812.9	109.71	17.524	
12,600.0	8,832.0	13,978.1	10,196.0	73.0	67.5	136.89	-4,653.9	-1,222.5	1,922.6	1,810.9	111.70	17.212	

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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				Reference Offset		Semi Major Axis		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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
12,700.0	8,832.0	14,078.1	10,196.0	74.3	68.7	136.89	-4,753.9	-1,221.8	1,922.7	1,809.0	113.70	16.910			
12,800.0	8,832.0	14,178.1	10,196.0	75.6	70.0	136.89	-4,853.8	-1,221.1	1,922.7	1,807.0	115.72	16.616			
12,900.0	8,832.0	14,278.1	10,196.0	77.0	71.2	136.89	-4,953.8	-1,220.4	1,922.8	1,805.0	117.74	16.331			
13,000.0	8,832.0	14,378.1	10,196.0	78.3	72.4	136.89	-5,053.8	-1,219.7	1,922.8	1,803.1	119.77	16.054			
13,100.0	8,832.0	14,478.1	10,196.0	79.6	73.6	136.89	-5,153.8	-1,219.0	1,922.9	1,801.1	121.81	15.786			
13,200.0	8,832.0	14,578.1	10,196.0	81.0	74.9	136.88	-5,253.8	-1,218.3	1,922.9	1,799.1	123.86	15.525			
13,300.0	8,832.0	14,678.1	10,196.0	82.3	76.1	136.88	-5,353.8	-1,217.6	1,923.0	1,797.1	125.92	15.272			
13,400.0	8,832.0	14,778.1	10,196.0	83.6	77.4	136.88	-5,453.8	-1,216.9	1,923.0	1,795.1	127.98	15.026			
13,500.0	8,832.0	14,878.1	10,196.0	85.0	78.6	136.88	-5,553.8	-1,216.2	1,923.1	1,793.0	130.06	14.786			
13,600.0	8,832.0	14,978.1	10,196.0	86.3	79.9	136.88	-5,653.8	-1,215.5	1,923.1	1,791.0	132.14	14.554			
13,700.0	8,832.0	15,078.1	10,196.0	87.7	81.2	136.88	-5,753.8	-1,214.8	1,923.2	1,789.0	134.23	14.328			
13,800.0	8,832.0	15,178.1	10,196.0	89.1	82.5	136.87	-5,853.8	-1,214.1	1,923.3	1,786.9	136.32	14.108			
13,900.0	8,832.0	15,278.1	10,196.0	90.4	83.8	136.87	-5,953.8	-1,213.4	1,923.3	1,784.9	138.42	13.894			
14,000.0	8,832.0	15,378.1	10,196.0	91.8	85.0	136.87	-6,053.8	-1,212.7	1,923.4	1,782.8	140.53	13.687			
14,100.0	8,832.0	15,478.1	10,196.0	93.1	86.3	136.87	-6,153.8	-1,212.0	1,923.4	1,780.8	142.64	13.484			
14,200.0	8,832.0	15,578.1	10,196.0	94.5	87.6	136.87	-6,253.8	-1,211.3	1,923.5	1,778.7	144.76	13.287			
14,300.0	8,832.0	15,678.1	10,196.0	95.9	88.9	136.87	-6,353.8	-1,210.6	1,923.5	1,776.6	146.88	13.096			
14,400.0	8,832.0	15,778.1	10,196.0	97.3	90.3	136.86	-6,453.8	-1,209.9	1,923.6	1,774.6	149.01	12.909			
14,500.0	8,832.0	15,878.1	10,196.0	98.6	91.6	136.86	-6,553.8	-1,209.2	1,923.6	1,772.5	151.14	12.727			
14,600.0	8,832.0	15,978.1	10,196.0	100.0	92.9	136.86	-6,653.8	-1,208.5	1,923.7	1,770.4	153.28	12.550			
14,700.0	8,832.0	16,078.1	10,196.0	101.4	94.2	136.86	-6,753.8	-1,207.8	1,923.7	1,768.3	155.42	12.377			
14,800.0	8,832.0	16,178.1	10,196.0	102.8	95.5	136.86	-6,853.8	-1,207.1	1,923.8	1,766.2	157.57	12.209			
14,900.0	8,832.0	16,278.1	10,196.0	104.1	96.9	136.86	-6,953.8	-1,206.4	1,923.8	1,764.1	159.72	12.045			
15,000.0	8,832.0	16,378.1	10,196.0	105.5	98.2	136.85	-7,053.8	-1,205.7	1,923.9	1,762.0	161.88	11.885			
15,100.0	8,832.0	16,478.1	10,196.0	106.9	99.5	136.85	-7,153.8	-1,205.0	1,923.9	1,759.9	164.03	11.729			
15,200.0	8,832.0	16,578.1	10,196.0	108.3	100.9	136.85	-7,253.8	-1,204.3	1,924.0	1,757.8	166.20	11.577			
15,300.0	8,832.0	16,678.1	10,196.0	109.7	102.2	136.85	-7,353.8	-1,203.6	1,924.0	1,755.7	168.36	11.428			
15,400.0	8,832.0	16,778.1	10,196.0	111.1	103.6	136.85	-7,453.8	-1,202.9	1,924.1	1,753.6	170.53	11.283			
15,500.0	8,832.0	16,878.1	10,196.0	112.5	104.9	136.85	-7,553.8	-1,202.2	1,924.2	1,751.5	172.70	11.141			
15,600.0	8,832.0	16,978.1	10,196.0	113.9	106.3	136.84	-7,653.8	-1,201.5	1,924.2	1,749.3	174.88	11.003			
15,700.0	8,832.0	17,078.1	10,196.0	115.3	107.6	136.84	-7,753.8	-1,200.8	1,924.3	1,747.2	177.06	10.868			
15,800.0	8,832.0	17,178.1	10,196.0	116.7	109.0	136.84	-7,853.8	-1,200.1	1,924.3	1,745.1	179.24	10.736			
15,900.0	8,832.0	17,278.1	10,196.0	118.1	110.3	136.84	-7,953.8	-1,199.4	1,924.4	1,742.9	181.42	10.607			
16,000.0	8,832.0	17,378.1	10,196.0	119.5	111.7	136.84	-8,053.8	-1,198.7	1,924.4	1,740.8	183.61	10.481			
16,100.0	8,832.0	17,478.1	10,196.0	120.9	113.0	136.84	-8,153.8	-1,198.0	1,924.5	1,738.7	185.80	10.358			
16,200.0	8,832.0	17,578.1	10,196.0	122.3	114.4	136.83	-8,253.8	-1,197.3	1,924.5	1,736.5	187.99	10.237			
16,300.0	8,832.0	17,678.1	10,196.0	123.7	115.8	136.83	-8,353.8	-1,196.6	1,924.6	1,734.4	190.18	10.120			
16,400.0	8,832.0	17,778.1	10,196.0	125.1	117.1	136.83	-8,453.8	-1,195.9	1,924.6	1,732.2	192.38	10.004			
16,500.0	8,832.0	17,878.1	10,196.0	126.5	118.5	136.83	-8,553.8	-1,195.2	1,924.7	1,730.1	194.58	9.891			
16,600.0	8,832.0	17,978.1	10,196.0	127.9	119.9	136.83	-8,653.8	-1,194.5	1,924.7	1,728.0	196.78	9.781			
16,700.0	8,832.0	18,078.1	10,196.0	129.3	121.3	136.83	-8,753.8	-1,193.8	1,924.8	1,725.8	198.98	9.673			
16,800.0	8,832.0	18,178.1	10,196.0	130.7	122.6	136.82	-8,853.7	-1,193.1	1,924.8	1,723.7	201.19	9.567			
16,900.0	8,832.0	18,278.1	10,196.0	132.1	124.0	136.82	-8,953.7	-1,192.4	1,924.9	1,721.5	203.40	9.464			
17,000.0	8,832.0	18,378.1	10,196.0	133.5	125.4	136.82	-9,053.7	-1,191.7	1,924.9	1,719.3	205.61	9.362			
17,100.0	8,832.0	18,478.1	10,196.0	134.9	126.8	136.82	-9,153.7	-1,191.0	1,925.0	1,717.2	207.82	9.263			
17,200.0	8,832.0	18,578.1	10,196.0	136.3	128.1	136.82	-9,253.7	-1,190.3	1,925.1	1,715.0	210.03	9.166			
17,300.0	8,832.0	18,678.1	10,196.0	137.7	129.5	136.82	-9,353.7	-1,189.6	1,925.1	1,712.9	212.25	9.070			
17,400.0	8,832.0	18,778.1	10,196.0	139.1	130.9	136.81	-9,453.7	-1,188.9	1,925.2	1,710.7	214.46	8.977			
17,500.0	8,832.0	18,878.1	10,196.0	140.6	132.3	136.81	-9,553.7	-1,188.2	1,925.2	1,708.5	216.68	8.885			
17,600.0	8,832.0	18,978.1	10,196.0	142.0	133.7	136.81	-9,653.7	-1,187.5	1,925.3	1,706.4	218.90	8.795			
17,700.0	8,832.0	19,078.1	10,196.0	143.4	135.1	136.81	-9,753.7	-1,186.8	1,925.3	1,704.2	221.12	8.707			
17,800.0	8,832.0	19,178.1	10,196.0	144.8	136.5	136.81	-9,853.7	-1,186.1	1,925.4	1,702.0	223.35	8.621			

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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		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		
17,900.0	8,832.0	19,278.1	10,196.0	146.2	137.8	136.81	-9,953.7	-1,185.4	1,925.4	1,699.9	225.57	8.536		
18,000.0	8,832.0	19,378.1	10,196.0	147.6	139.2	136.80	-10,053.7	-1,184.7	1,925.5	1,697.7	227.80	8.453		
18,100.0	8,832.0	19,478.1	10,196.0	149.0	140.6	136.80	-10,153.7	-1,184.0	1,925.5	1,695.5	230.02	8.371		
18,200.0	8,832.0	19,578.1	10,196.0	150.5	142.0	136.80	-10,253.7	-1,183.3	1,925.6	1,693.3	232.25	8.291		
18,300.0	8,832.0	19,678.1	10,196.0	151.9	143.4	136.80	-10,353.7	-1,182.6	1,925.6	1,691.2	234.48	8.212		
18,400.0	8,832.0	19,778.1	10,196.0	153.3	144.8	136.80	-10,453.7	-1,181.9	1,925.7	1,689.0	236.71	8.135		
18,500.0	8,832.0	19,878.1	10,196.0	154.7	146.2	136.80	-10,553.7	-1,181.2	1,925.7	1,686.8	238.95	8.059		
18,600.0	8,832.0	19,978.1	10,196.0	156.1	147.6	136.79	-10,653.7	-1,180.5	1,925.8	1,684.6	241.18	7.985		
18,700.0	8,832.0	20,078.1	10,196.0	157.6	149.0	136.79	-10,753.7	-1,179.8	1,925.8	1,682.4	243.41	7.912		
18,800.0	8,832.0	20,178.1	10,196.0	159.0	150.4	136.79	-10,853.7	-1,179.2	1,925.9	1,680.2	245.65	7.840		
18,900.0	8,832.0	20,278.1	10,196.0	160.4	151.8	136.79	-10,953.7	-1,178.5	1,926.0	1,678.1	247.89	7.769		
19,000.0	8,832.0	20,378.1	10,196.0	161.8	153.2	136.79	-11,053.7	-1,177.8	1,926.0	1,675.9	250.13	7.700		
19,077.1	8,832.0	20,455.2	10,196.0	162.9	154.3	136.79	-11,130.8	-1,177.2	1,926.0	1,674.2	251.85	7.648 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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 @ 3935.2usft (3935.2)

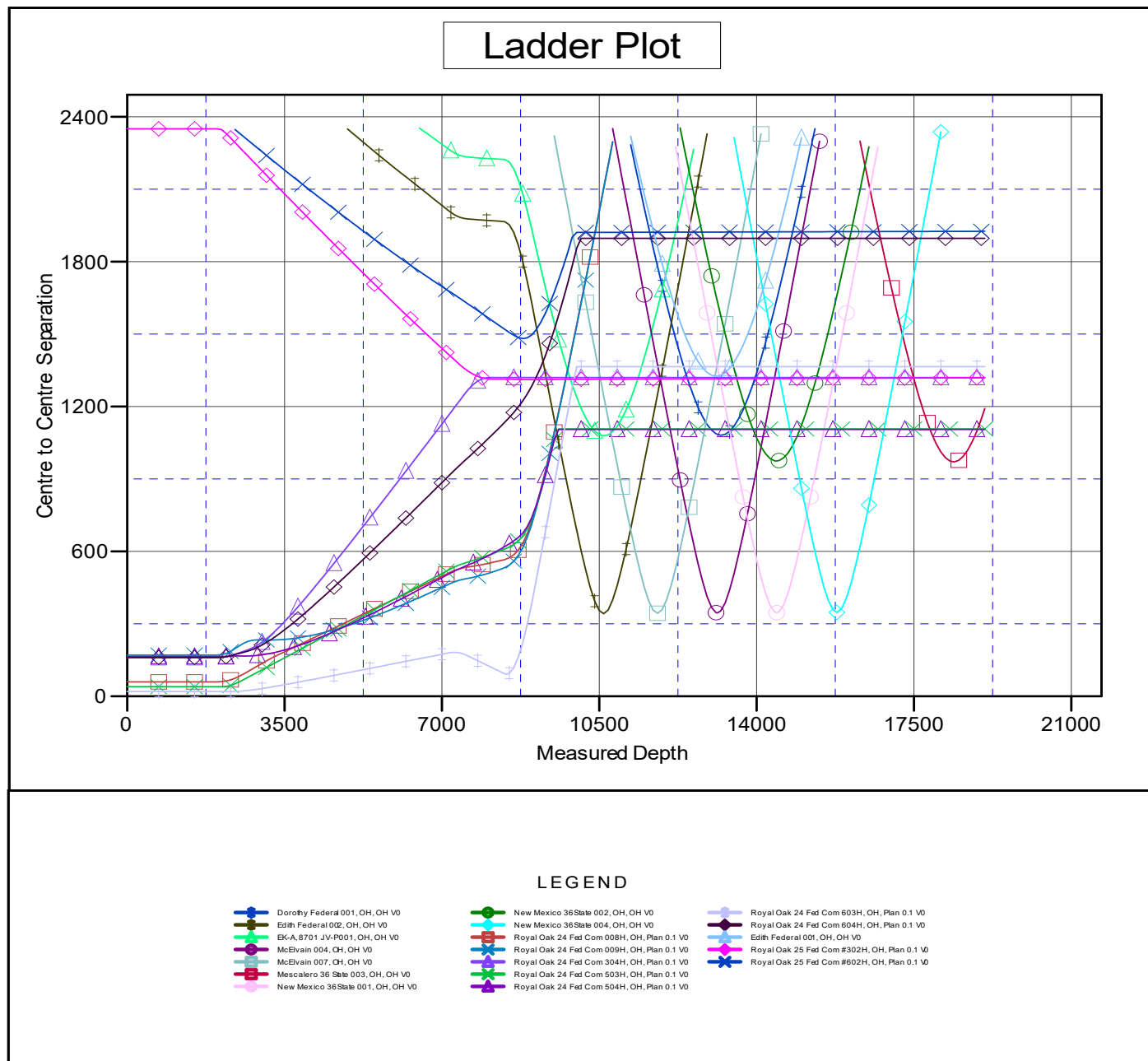
Offset Depths are relative to Offset Datum

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

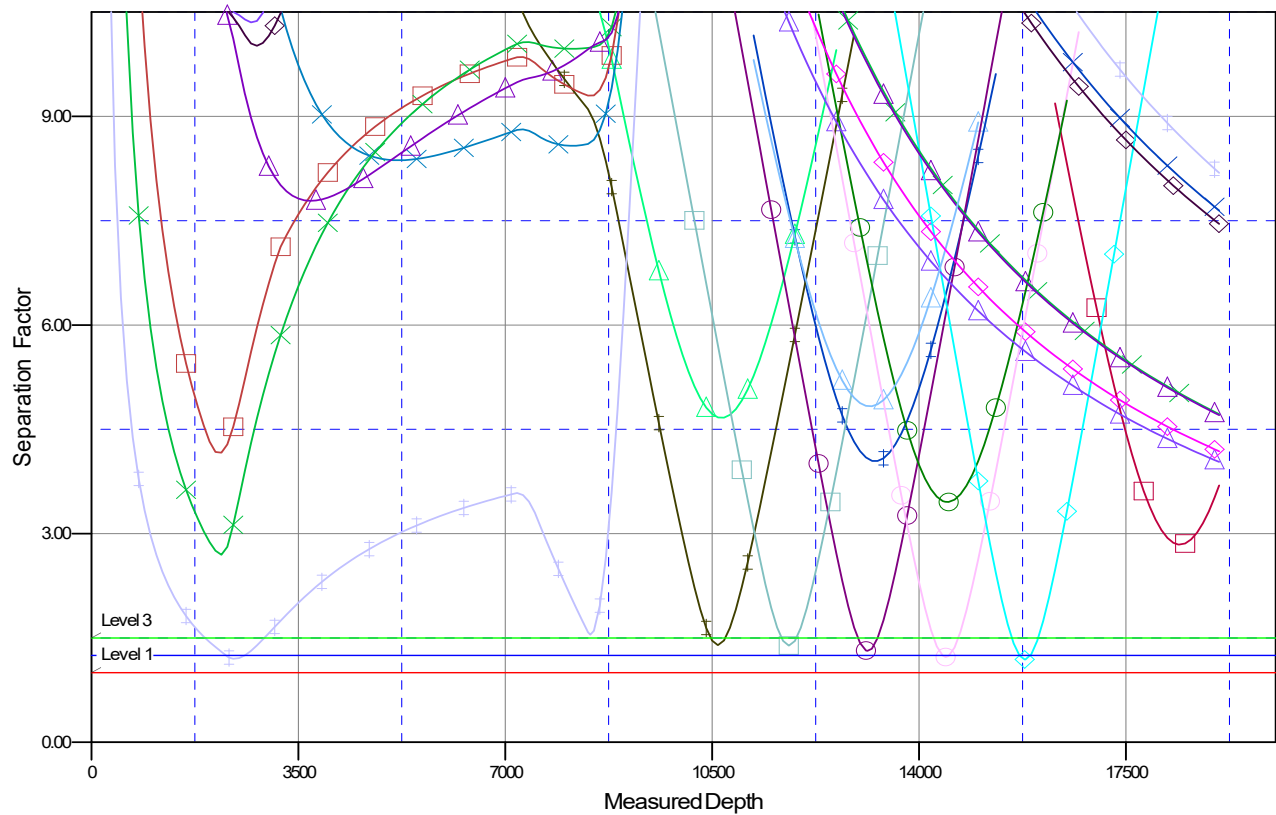
Anticollision Report

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 @ 3935.2usft (3935.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3935.2usft (3935.2)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 303H	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 @ 3935.2usft (3935.2)
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

Dorothy Federal 001, OH, OH V0	New Mexico 36 State 002, OH, OH V0	Royal Oak 24 Fed Com 603H, OH, Plan 0.1 V0
Edith Federal 002, OH, OH V0	New Mexico 36 State 004, OH, OH V0	Royal Oak 24 Fed Com 604H, OH, Plan 0.1 V0
EK-A, 8701 JV-P001, OH, OH V0	Royal Oak 24 Fed Com 008H, OH, Plan 0.1 V0	Edith Federal 001, OH, OH V0
McElvain 004, OH, OH V0	Royal Oak 24 Fed Com 009H, OH, Plan 0.1 V0	Royal Oak 25 Fed Com #302H, OH, Plan 0.1 V0
McElvain 007, OH, OH V0	Royal Oak 24 Fed Com 304H, OH, Plan 0.1 V0	Royal Oak 25 Fed Com #602H, OH, Plan 0.1 V0
Mescalero 36 State 003, OH, OH V0	Royal Oak 24 Fed Com 503H, OH, Plan 0.1 V0	
New Mexico 36 State 001, OH, OH V0	Royal Oak 24 Fed Com 504H, 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 303H
ATS/API ID:	ATS-24-645
APD ID:	10400094681
Sundry ID:	N/a

WELL NAME & NO.:	Royal Oak 25 Fed Com 503H
ATS/API ID:	ATS-24-647
APD ID:	10400094683
Sundry ID:	N/a

WELL NAME & NO.:	Royal Oak 25 Fed Com 504H
ATS/API ID:	ATS-24-648
APD ID:	10400094684
Sundry ID:	N/a

WELL NAME & NO.:	Royal Oak 25 Fed Com 603H
ATS/API ID:	ATS-24-649
APD ID:	10400094685
Sundry ID:	N/a

WELL NAME & NO.:	Royal Oak 25 Fed Com 604H
ATS/API ID:	ATS-24-650
APD ID:	10400094686
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 **13-3/8** 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 **17 1/2** 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 **9-5/8** inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

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

Option 1:

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** 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 **13-3/8** 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

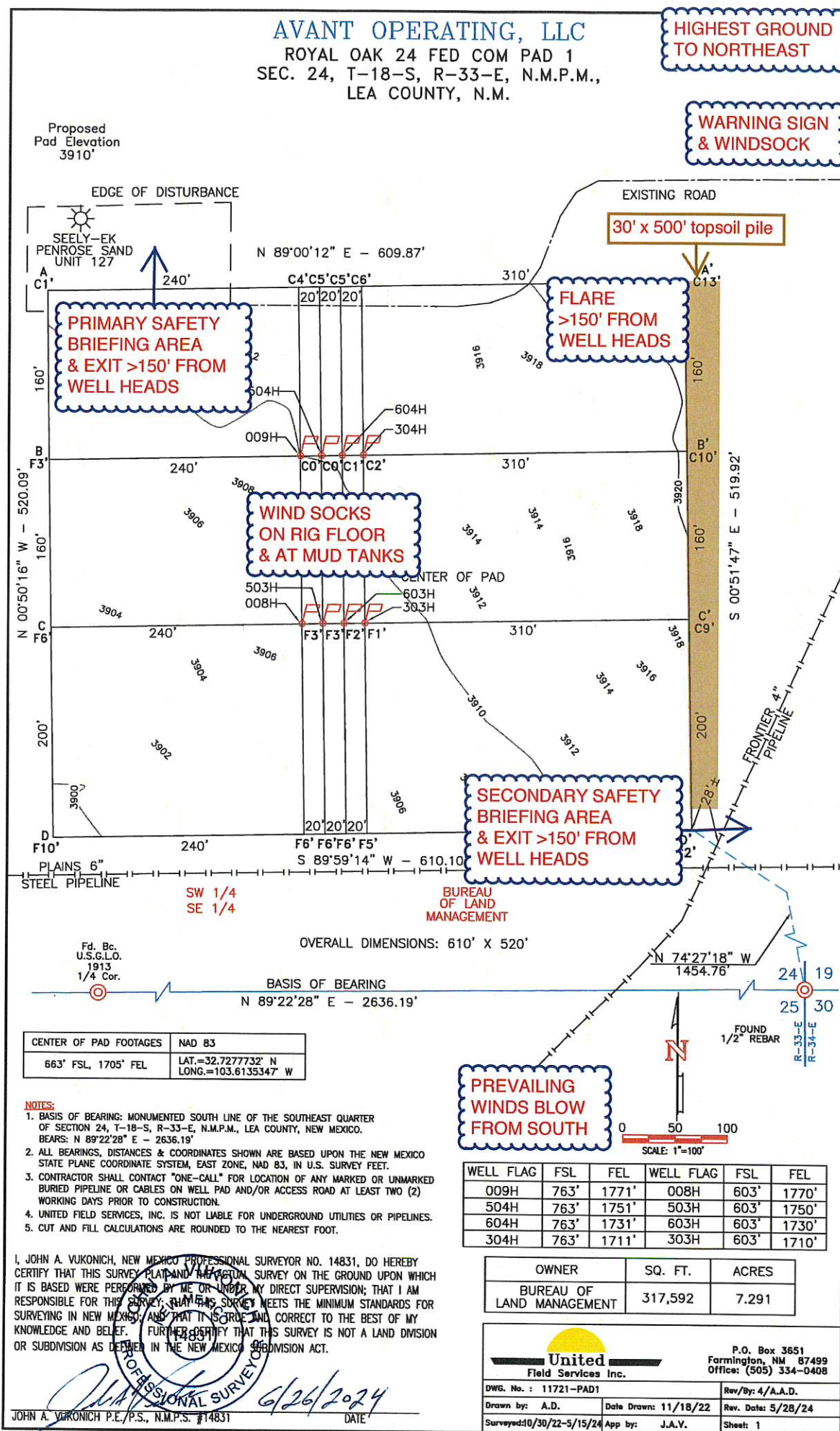
Residents within 2 miles

None

Air Evacuation

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

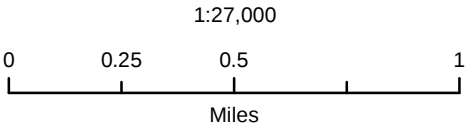
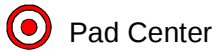




Avant Operating, LLC

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

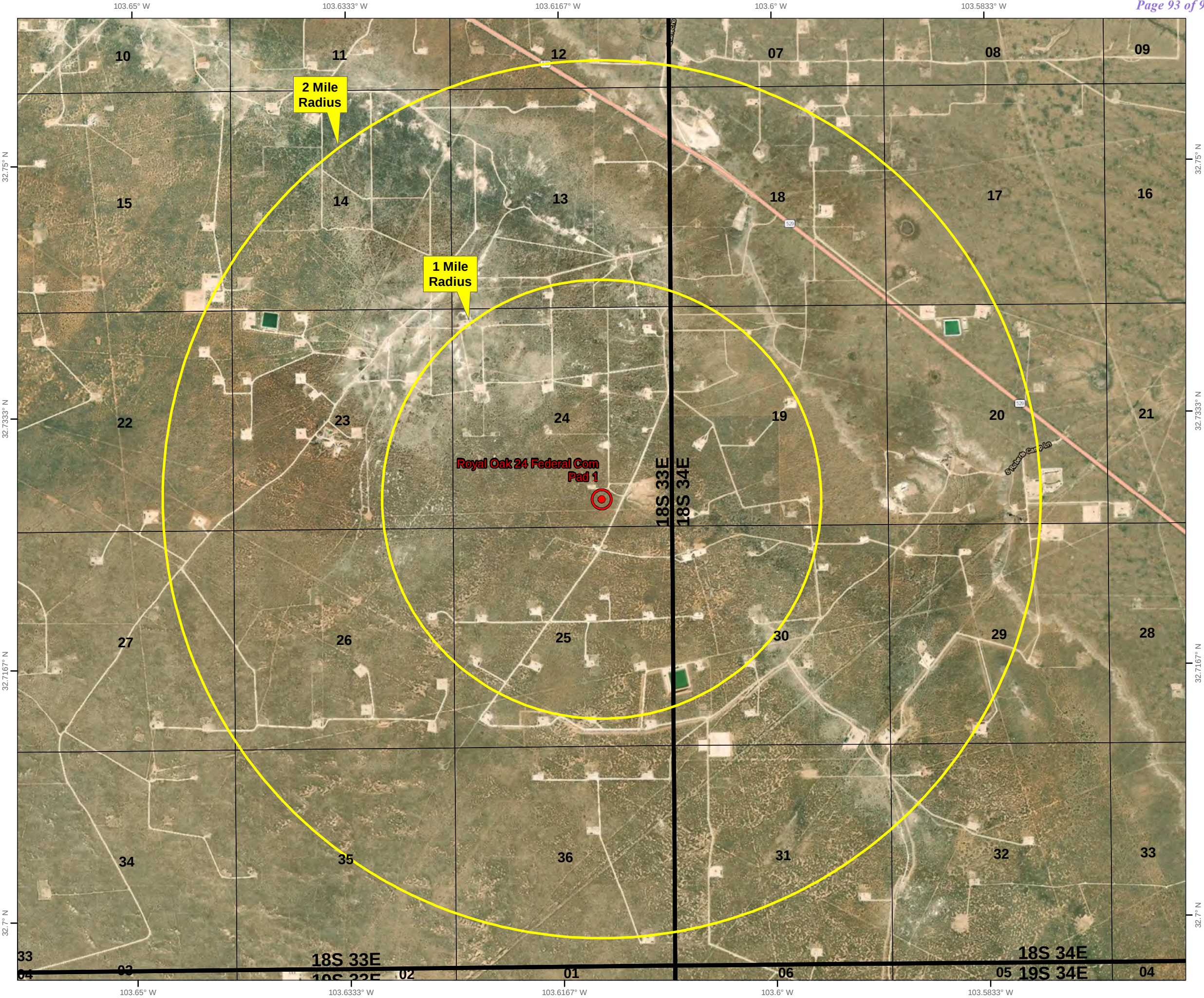
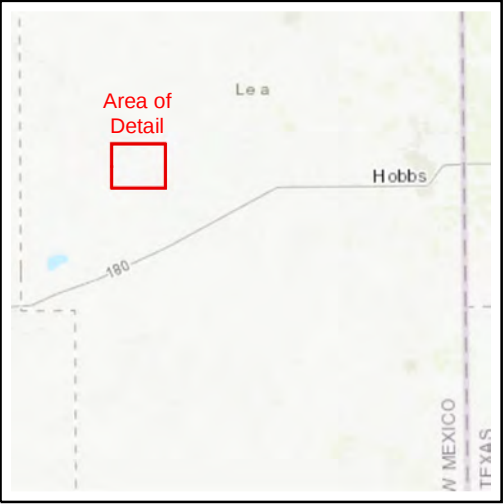
Section 24, Township 18S, Range 33E
Lea County, New Mexico



NAD 1983 New Mexico State Plane East
FIPS 3001 Feet



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



WELL DETAILS: Royal Oak 24 Fed Com 303H

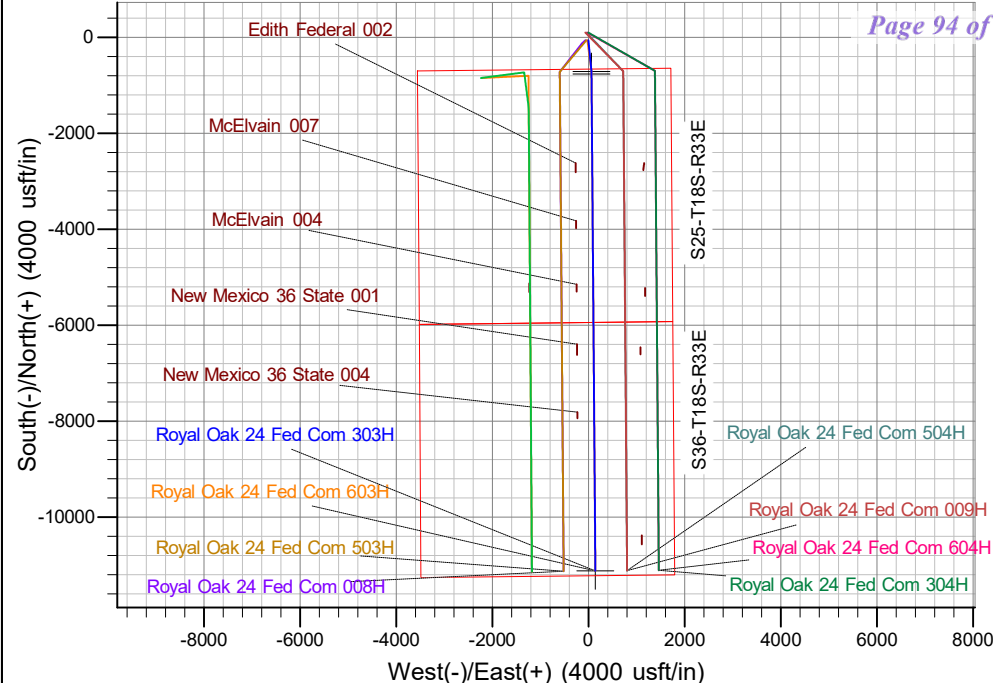
Ground Elev: 3908.7 KB: 3935.2

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
-60.3	-4.3	629186.93	762684.19	32.727608	-103.613550

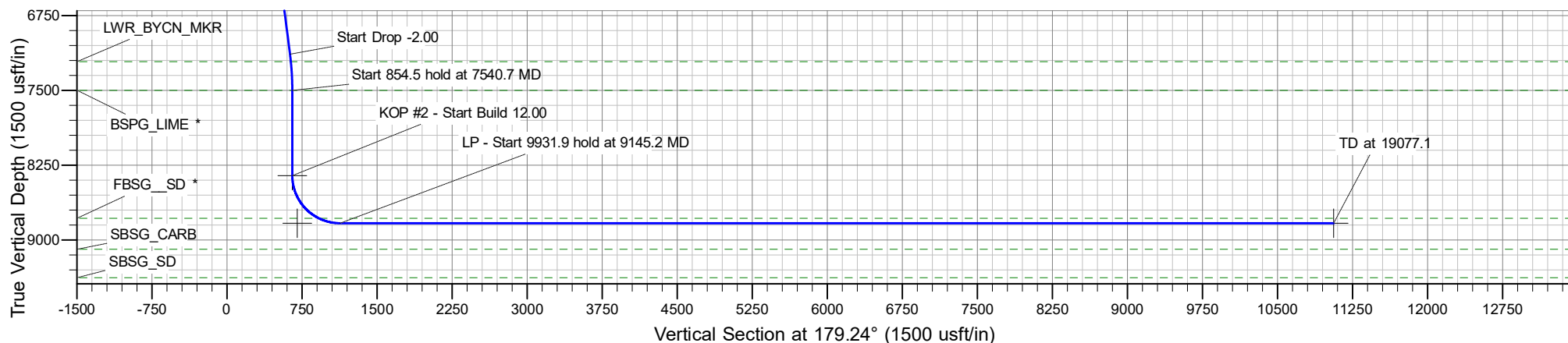
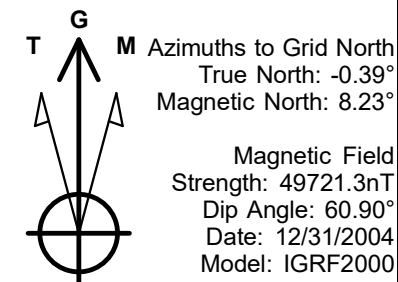
PROJECT DETAILS: Lea Co., NM (NAD 83)

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	-60.3	-4.3	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	-60.3	-4.3	0.00	0.00	0.0	KOP - Start Build 2.00
3	2363.7	7.27	174.30	2362.7	-83.2	-2.0	2.00	174.30	23.0	Start 4813.3 hold at 2363.7 MD
4	7177.0	7.27	174.30	7137.3	-689.6	58.5	0.00	0.00	630.1	Start Drop -2.00
5	7540.7	0.00	0.00	7500.0	-712.6	60.8	2.00	180.00	653.1	Start 854.5 hold at 7540.7 MD
6	8395.2	0.00	0.00	8354.5	-712.6	60.8	0.00	0.00	653.1	KOP #2 - Start Build 12.00
7	9145.2	90.00	179.56	8832.0	-1190.0	64.5	12.00	179.56	1130.5	LP - Start 9931.9 hold at 9145.2 MD
8	19077.1	90.00	179.56	8832.0	-11121.6	141.6	0.00	0.00	11062.3	TD at 19077.1



Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico

Energy, Minerals and Natural Resources

Oil Conservation Division

1220 S. St Francis Dr.

Santa Fe, NM 87505

CONDITIONS

Action 410366

CONDITIONS

Operator: Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202	OGRID: 330396
	Action Number: 410366
	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