Well Name: ROYAL OAK 25 FED COM

Well Location: T18S / R33E / SEC 24 / SWSE / 32.727607 / -103.61368

County or Parish/State: LEA / NM

Well Number: 503H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM116166

Unit or CA Name:

Unit or CA Number:

US Well Number: 3002554155

Operator: AVANT OPERATING LLC

Notice of Intent

Sundry ID: 2835874

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 02/07/2025

Time Sundry Submitted: 10:58

Date proposed operation will begin: 02/07/2025

Procedure Description: Avant Operating, LLC would like to change the SHL & BHL of this well. SHL from 603' FSL & 1750' FEL to 603' FSL & 1730' FEL. BHL from 100' FSL & 2310' FEL to 100' FSL & 1254' FEL, please see attached updated drilling info to reflect this change.

NOI Attachments

Procedure Description

Royal_Oak_24_Fed_Com_503H_APD_Change_Attachments_20250207102252.pdf

Conditions of Approval

Additional

25_18_33_B_Sundry_ID_2835874_Royal_Oak_25_Fed_Com_503H_Lea_NM116166_AVANT_OPERATING_LLC_13_22g_2_27_2024_LV_20250211104134.pdf

Well Name: ROYAL OAK 25 FED COM

Well Location: T18S / R33E / SEC 24 / SWSE / 32.727607 / -103.61368

County or Parish/State: LEA / NM

Well Number: 503H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM116166

Unit or CA Name:

Unit or CA Number:

US Well Number: 3002554155

Operator: AVANT OPERATING LLC

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: MEGHAN TWELE

Signed on: FEB 07, 2025 10:58 AM

Name: AVANT OPERATING LLC

Title: Contract Regulatory Analyst

Street Address: 1515 WYNKOOP ST SUITE 700

City: DENVER **State:** CO

Phone: (720) 339-6880

Email address: MTWELE@OUTLOOK.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5752342234

BLM POC Email Address: cwalls@blm.gov

Disposition: Approved

Disposition Date: 02/12/2025

Signature: Chris Walls

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

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

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

8. Well Name and No.

2. Name of Operator

9. API Well No.

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool or Exploratory Area

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*

11. Country or Parish, State

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*

Title

Signature

Date

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

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.

(Instructions on page 2)

GENERAL INSTRUCTIONS

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

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.
PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.
ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.
EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.
Response to this request is mandatory.
The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

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

Additional Information

Location of Well

0. SHL: SWSE / 603 FSL / 1750 FEL / TWSP: 18S / RANGE: 33E / SECTION: 24 / LAT: 32.727607 / LONG: -103.61368 (TVD: 0 feet, MD: 0 feet)

PPP: NWSE / 2639 FNL / 2311 FEL / TWSP: 18S / RANGE: 33E / SECTION: 25 / LAT: 32.718689 / LONG: -103.61549 (TVD: 9720 feet, MD: 12587 feet)

PPP: NWNE / 100 FNL / 2310 FEL / TWSP: 18S / RANGE: 33E / SECTION: 25 / LAT: 32.725669 / LONG: -103.615499 (TVD: 9720 feet, MD: 10048 feet)

BHL: SWSE / 100 FSL / 2310 FEL / TWSP: 18S / RANGE: 33E / SECTION: 36 / LAT: 32.6971965 / LONG: -103.615465 (TVD: 9720 feet, MD: 19979 feet)

25-18-33-B Sundry ID 2835874 Royal Oak 25 Fed Com 503H Lea NM116166 AVANT OPERATING LLC 13-22g 2-27-2024 LV

Royal Oak 25 Fed Com 503H

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors			Surface				
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	54.50	j 55	ltc	5.48	1.28	0.95	1,720	4	1.65	2.23	93,740
"B"			ltc				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig: 1,167		Tail Cmt	does not	circ to sfc.	Totals:	1,720				93,740

Comparison of Proposed to Minimum Required Cement Volumes

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	965	1745	1195	46	9.90	1663	2M	2.06

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the	13 3/8			Design Factors			Int 1			
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.00	j 55	ltc	2.33	1.24	0.82	4,000	1	1.49	2.15	160,000
"B"	40.00	hcl 80	ltc	13.21	1.47	1.2	1,584	2	2.16	2.54	63,360
	w/8.4#/g mud, 30min Sfc Csg Test psig: 1,020					Totals:	5,584				223,360
	The cement volume(s) are intended to achieve a top of			0	ft from surface or a		1720				overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	1109	2118	1834	15	10.00	2658	3M	0.81
D V Tool(s):							sum of sx	Σ CuFt	Σ%excess
by stage % :		#VALUE!	#VALUE!				1109	2118	15

Class 'H' tail cmt yld > 1.20

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.99, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8			Design Factors			Prod 1			
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	20.00	p 110	gbcd	3.30	2.31	2.64	19,978	3	4.75	4.18	399,560
"B"							0				0
"C"							0				0
"D"							0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig: 2,138					Totals:	19,978				399,560
	The cement volume(s) are intended to achieve a top of			3800	ft from surface or a		1784				overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.2526	3540	6127	4101	49	9.50			1.23

Class 'C' tail cmt yld > 1.35

#N/A

0		5 1/2			Design Factors			<Choose Casing>			
Segment	#/ft	Grade	Coupling	#N/A	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"			0.00				0				0
"B"			0.00				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig:					Totals:	0				0
	Cmt vol calc below includes this csg, TOC intended			#N/A	ft from surface or a		#N/A				overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
0		#N/A	#N/A	0	#N/A				

#N/A Capitan Reef est top XXXX.

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

WELL LOCATION INFORMATION

API Number	Pool Code	Pool Name	
30-025-54155	21650	E-K; BONE SPRING	
Property Code: 335845	Property Name: ROYAL OAK 24 FED COM		Well Number: 503H
OGRID No.: 330396	Operator Name: AVANT OPERATING, LLC		Ground Level Elevation: 3907.7
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	1730 FEL	32.7276072° N	103.6136150° W	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
P	36	18 S	33 E		100 FSL	1254 FEL	32.6972072° N	103.6120327° W	LEA

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidation Code
1280			No	
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
A	25	18 S	33 E		50 FNL	1254 FEL	32.7258181° N	103.6120651° W	LEA

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
A	25	18 S	33 E		100 FNL	1254 FEL	32.7256807° N	103.6120649° W	LEA

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
P	36	18 S	33 E		100 FSL	1254 FEL	32.6972072° N	103.6120327° W	LEA

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

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: 2/7/2025

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.

JOHN A VUKONICH NEW MEXICO 14831 PROFESSIONAL SURVEYOR

Signature and Seal of Professional Surveyor

Certificate Number	Date of Field Survey	Date of Certification
14831	1/29/25	2/5/2025

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.

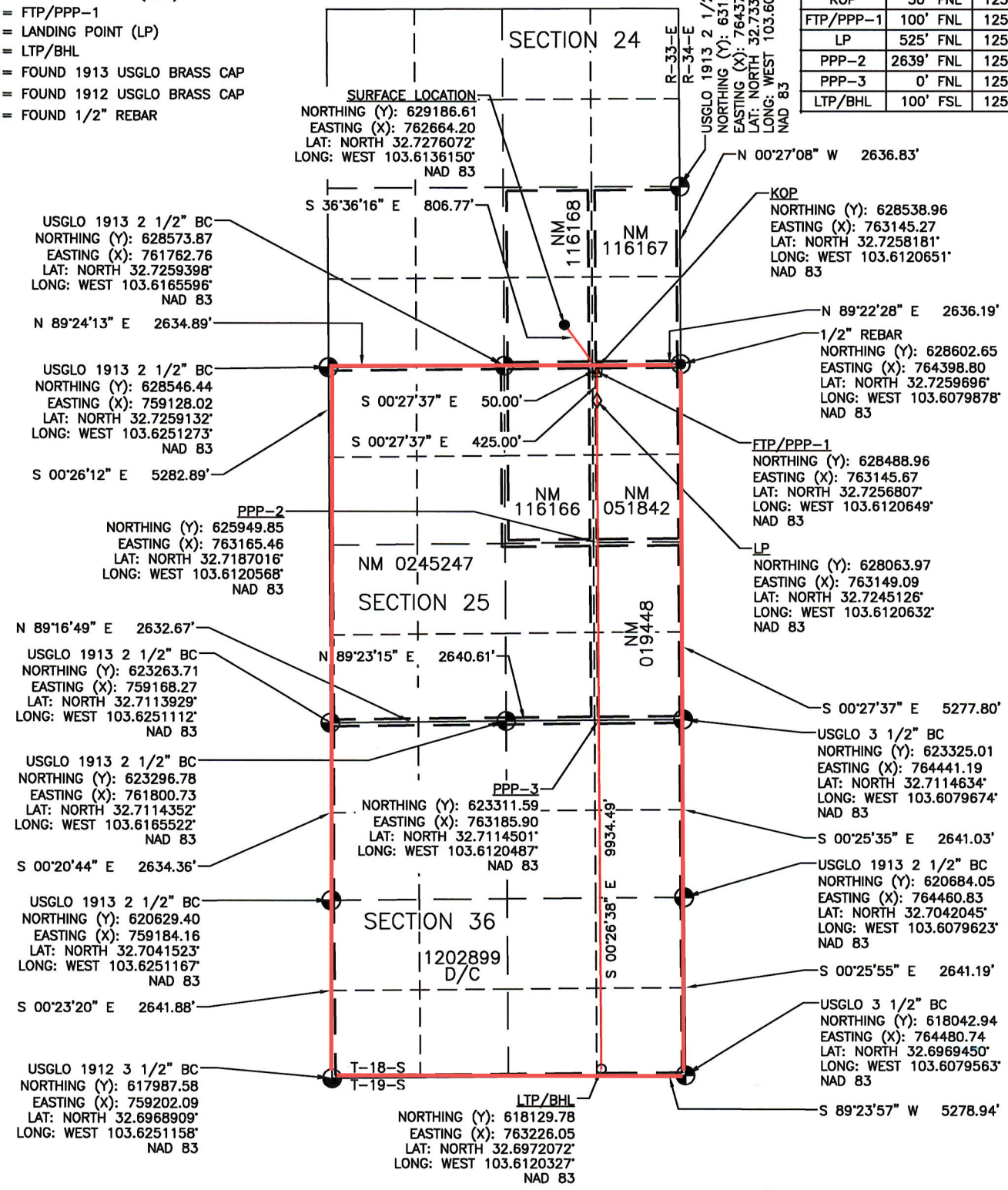
Plat Revised: 2/3/25

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

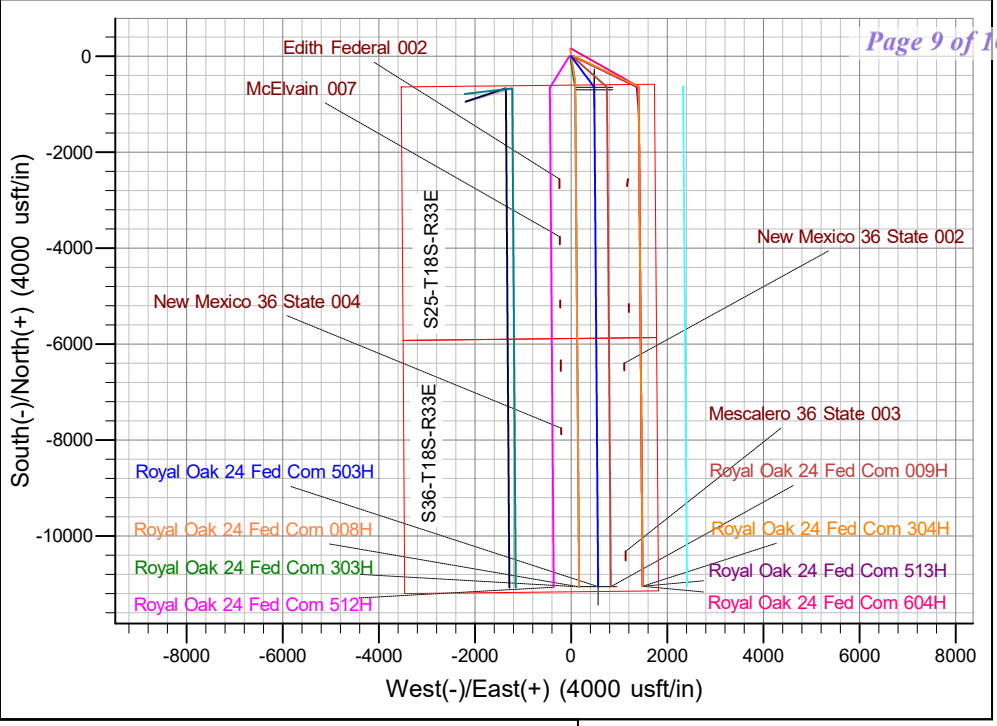
AVANT OPERATING, LLC			
ROYAL OAK 24 FED COM 503H			
FOOTAGES			SEC.
SHL	603' FSL	1730' FEL	24
KOP	50' FNL	1254' FEL	25
FTP/PPP-1	100' FNL	1254' FEL	25
LP	525' FNL	1254' FEL	25
PPP-2	2639' FNL	1255' FEL	25
PPP-3	0' FNL	1255' FEL	36
LTP/BHL	100' FSL	1254' FEL	36



AVANT NATURAL RESOURCES

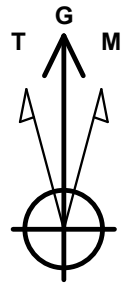
WELL DETAILS: Royal Oak 24 Fed Com 503H					
Ground Elev: 3907.7		KB: 3934.2			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	629186.61	762664.20	32.727607	-103.613615

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



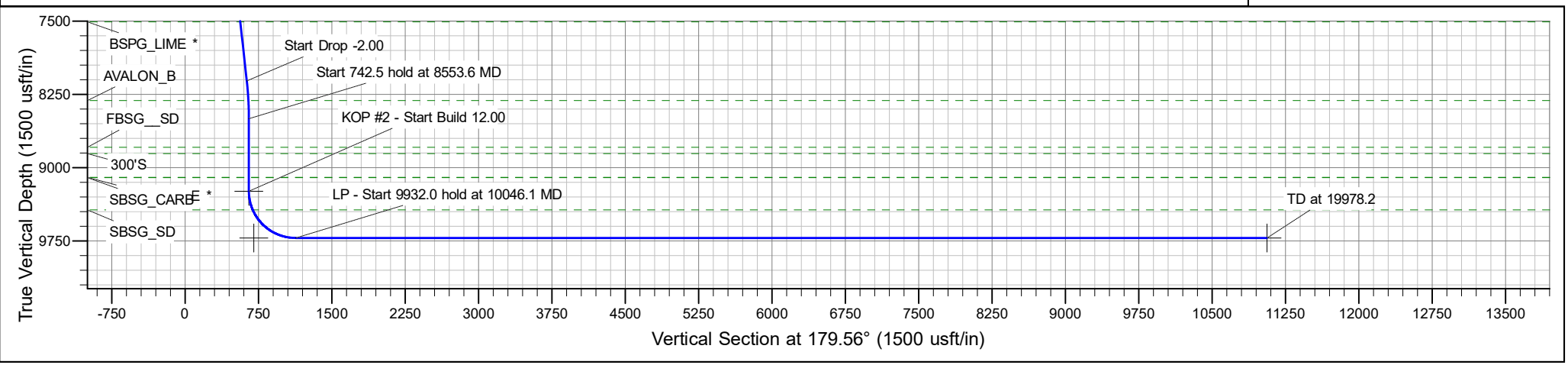
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	KOP - Start Build 2.00
3	2588.6	7.77	143.40	2587.4	-21.1	15.7	2.00	143.40	21.2	Start 5576.4 hold at 2588.6 MD
4	8165.0	7.77	143.40	8112.6	-626.5	465.4	0.00	0.00	630.1	Start Drop -2.00
5	8553.6	0.00	0.00	8500.0	-647.7	481.1	2.00	180.00	651.3	Start 742.5 hold at 8553.6 MD
6	9296.1	0.00	0.00	9242.5	-647.7	481.1	0.00	0.00	651.3	KOP #2 - Start Build 12.00
7	10046.1	90.00	179.56	9720.0	-1125.1	484.8	12.00	179.56	1128.8	LP - Start 9932.0 hold at 10046.1 MD
8	19978.2	90.00	179.56	9720.0	-11056.8	561.9	0.00	0.00	11060.8	TD at 19978.2



Azimuths to Grid North
True North: -0.39°
Magnetic North: 8.23°

Magnetic Field
Strength: 49721.3nT
Dip Angle: 60.90°
Date: 12/31/2004
Model: IGRF2000



Avant Operating, LLC

Lea Co., NM (NAD 83)
Royal Oak 24 Fed Com Pad 1
Royal Oak 24 Fed Com 503H

OH

Plan: Plan 0.1

Standard Planning Report

05 February, 2025

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**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 503H

Well Position	**+N/-S**	0.0 usft	**Northing:**	629,186.61 usft	**Latitude:**	32.727607
	+E/-W	0.0 usft	**Easting:**	762,664.20 usft	**Longitude:**	-103.613615
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,907.7 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	49,721.28966597

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	0.0	0.0	179.56

Plan Survey Tool Program **Date** 2/5/2025

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,978.2	Plan 0.1 (OH)	B001Mb_MWD+HRGM OWSG MWD + HRGM	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,588.6	7.77	143.40	2,587.4	-21.1	15.7	2.00	2.00	0.00	143.40	
8,165.0	7.77	143.40	8,112.6	-626.5	465.4	0.00	0.00	0.00	0.00	
8,553.6	0.00	0.00	8,500.0	-647.7	481.1	2.00	-2.00	0.00	180.00	
9,296.1	0.00	0.00	9,242.5	-647.7	481.1	0.00	0.00	0.00	0.00	
10,046.1	90.00	179.56	9,720.0	-1,125.1	484.8	12.00	12.00	0.00	179.56	
19,978.2	90.00	179.56	9,720.0	-11,056.8	561.9	0.00	0.00	0.00	0.00	LTP/BHL - Royal Oak

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**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	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,628.0	0.00	0.00	1,628.0	0.0	0.0	0.0	0.00	0.00	0.00
RUSTLER									
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,951.0	0.00	0.00	1,951.0	0.0	0.0	0.0	0.00	0.00	0.00
SOLADO									
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
2,300.0	2.00	143.40	2,300.0	-1.4	1.0	1.4	2.00	2.00	0.00
2,400.0	4.00	143.40	2,399.8	-5.6	4.2	5.6	2.00	2.00	0.00
2,500.0	6.00	143.40	2,499.5	-12.6	9.4	12.7	2.00	2.00	0.00
2,588.6	7.77	143.40	2,587.4	-21.1	15.7	21.2	2.00	2.00	0.00
Start 5576.4 hold at 2588.6 MD									
2,600.0	7.77	143.40	2,598.7	-22.4	16.6	22.5	0.00	0.00	0.00
2,700.0	7.77	143.40	2,697.8	-33.2	24.7	33.4	0.00	0.00	0.00
2,800.0	7.77	143.40	2,796.9	-44.1	32.7	44.3	0.00	0.00	0.00
2,900.0	7.77	143.40	2,895.9	-54.9	40.8	55.2	0.00	0.00	0.00
3,000.0	7.77	143.40	2,995.0	-65.8	48.9	66.2	0.00	0.00	0.00
3,100.0	7.77	143.40	3,094.1	-76.6	56.9	77.1	0.00	0.00	0.00
3,200.0	7.77	143.40	3,193.2	-87.5	65.0	88.0	0.00	0.00	0.00
3,300.0	7.77	143.40	3,292.3	-98.4	73.1	98.9	0.00	0.00	0.00
3,400.0	7.77	143.40	3,391.4	-109.2	81.1	109.8	0.00	0.00	0.00
3,500.0	7.77	143.40	3,490.4	-120.1	89.2	120.8	0.00	0.00	0.00
3,600.0	7.77	143.40	3,589.5	-130.9	97.3	131.7	0.00	0.00	0.00
3,652.0	7.77	143.40	3,641.0	-136.6	101.4	137.3	0.00	0.00	0.00
YATES									
3,700.0	7.77	143.40	3,688.6	-141.8	105.3	142.6	0.00	0.00	0.00
3,800.0	7.77	143.40	3,787.7	-152.6	113.4	153.5	0.00	0.00	0.00
3,900.0	7.77	143.40	3,886.8	-163.5	121.4	164.4	0.00	0.00	0.00
4,000.0	7.77	143.40	3,985.8	-174.4	129.5	175.3	0.00	0.00	0.00
4,100.0	7.77	143.40	4,084.9	-185.2	137.6	186.3	0.00	0.00	0.00
4,200.0	7.77	143.40	4,184.0	-196.1	145.6	197.2	0.00	0.00	0.00
4,300.0	7.77	143.40	4,283.1	-206.9	153.7	208.1	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**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	7.77	143.40	4,382.2	-217.8	161.8	219.0	0.00	0.00	0.00
4,500.0	7.77	143.40	4,481.2	-228.6	169.8	229.9	0.00	0.00	0.00
4,600.0	7.77	143.40	4,580.3	-239.5	177.9	240.9	0.00	0.00	0.00
4,700.0	7.77	143.40	4,679.4	-250.4	186.0	251.8	0.00	0.00	0.00
4,800.0	7.77	143.40	4,778.5	-261.2	194.0	262.7	0.00	0.00	0.00
4,900.0	7.77	143.40	4,877.6	-272.1	202.1	273.6	0.00	0.00	0.00
5,000.0	7.77	143.40	4,976.7	-282.9	210.2	284.5	0.00	0.00	0.00
5,100.0	7.77	143.40	5,075.7	-293.8	218.2	295.4	0.00	0.00	0.00
5,200.0	7.77	143.40	5,174.8	-304.6	226.3	306.4	0.00	0.00	0.00
5,300.0	7.77	143.40	5,273.9	-315.5	234.3	317.3	0.00	0.00	0.00
5,400.0	7.77	143.40	5,373.0	-326.3	242.4	328.2	0.00	0.00	0.00
5,500.0	7.77	143.40	5,472.1	-337.2	250.5	339.1	0.00	0.00	0.00
5,600.0	7.77	143.40	5,571.1	-348.1	258.5	350.0	0.00	0.00	0.00
5,683.6	7.77	143.40	5,654.0	-357.1	265.3	359.2	0.00	0.00	0.00
CHERRY_CNYN									
5,700.0	7.77	143.40	5,670.2	-358.9	266.6	361.0	0.00	0.00	0.00
5,800.0	7.77	143.40	5,769.3	-369.8	274.7	371.9	0.00	0.00	0.00
5,900.0	7.77	143.40	5,868.4	-380.6	282.7	382.8	0.00	0.00	0.00
6,000.0	7.77	143.40	5,967.5	-391.5	290.8	393.7	0.00	0.00	0.00
6,100.0	7.77	143.40	6,066.6	-402.3	298.9	404.6	0.00	0.00	0.00
6,200.0	7.77	143.40	6,165.6	-413.2	306.9	415.5	0.00	0.00	0.00
6,300.0	7.77	143.40	6,264.7	-424.1	315.0	426.5	0.00	0.00	0.00
6,400.0	7.77	143.40	6,363.8	-434.9	323.1	437.4	0.00	0.00	0.00
6,500.0	7.77	143.40	6,462.9	-445.8	331.1	448.3	0.00	0.00	0.00
6,600.0	7.77	143.40	6,562.0	-456.6	339.2	459.2	0.00	0.00	0.00
6,700.0	7.77	143.40	6,661.0	-467.5	347.2	470.1	0.00	0.00	0.00
6,800.0	7.77	143.40	6,760.1	-478.3	355.3	481.1	0.00	0.00	0.00
6,900.0	7.77	143.40	6,859.2	-489.2	363.4	492.0	0.00	0.00	0.00
7,000.0	7.77	143.40	6,958.3	-500.1	371.4	502.9	0.00	0.00	0.00
7,100.0	7.77	143.40	7,057.4	-510.9	379.5	513.8	0.00	0.00	0.00
7,200.0	7.77	143.40	7,156.4	-521.8	387.6	524.7	0.00	0.00	0.00
7,280.3	7.77	143.40	7,236.0	-530.5	394.0	533.5	0.00	0.00	0.00
BYCN_MKR									
7,300.0	7.77	143.40	7,255.5	-532.6	395.6	535.6	0.00	0.00	0.00
7,400.0	7.77	143.40	7,354.6	-543.5	403.7	546.6	0.00	0.00	0.00
7,500.0	7.77	143.40	7,453.7	-554.3	411.8	557.5	0.00	0.00	0.00
7,554.8	7.77	143.40	7,508.0	-560.3	416.2	563.5	0.00	0.00	0.00
BSPG_LIME *									
7,600.0	7.77	143.40	7,552.8	-565.2	419.8	568.4	0.00	0.00	0.00
7,700.0	7.77	143.40	7,651.9	-576.0	427.9	579.3	0.00	0.00	0.00
7,800.0	7.77	143.40	7,750.9	-586.9	436.0	590.2	0.00	0.00	0.00
7,900.0	7.77	143.40	7,850.0	-597.8	444.0	601.2	0.00	0.00	0.00
8,000.0	7.77	143.40	7,949.1	-608.6	452.1	612.1	0.00	0.00	0.00
8,100.0	7.77	143.40	8,048.2	-619.5	460.1	623.0	0.00	0.00	0.00
8,165.0	7.77	143.40	8,112.6	-626.5	465.4	630.1	0.00	0.00	0.00
Start Drop -2.00									
8,200.0	7.07	143.40	8,147.3	-630.2	468.1	633.7	2.00	-2.00	0.00
8,300.0	5.07	143.40	8,246.7	-638.6	474.4	642.3	2.00	-2.00	0.00
8,366.5	3.74	143.40	8,313.0	-642.8	477.4	646.4	2.00	-2.00	0.00
AVALON_B									
8,400.0	3.07	143.40	8,346.5	-644.4	478.6	648.0	2.00	-2.00	0.00
8,500.0	1.07	143.40	8,446.4	-647.3	480.8	650.9	2.00	-2.00	0.00
8,553.6	0.00	0.00	8,500.0	-647.7	481.1	651.3	2.00	-2.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**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)
Start 742.5 hold at 8553.6 MD									
8,600.0	0.00	0.00	8,546.4	-647.7	481.1	651.3	0.00	0.00	0.00
8,700.0	0.00	0.00	8,646.4	-647.7	481.1	651.3	0.00	0.00	0.00
8,800.0	0.00	0.00	8,746.4	-647.7	481.1	651.3	0.00	0.00	0.00
8,845.6	0.00	0.00	8,792.0	-647.7	481.1	651.3	0.00	0.00	0.00
FBSG__SD									
8,900.0	0.00	0.00	8,846.4	-647.7	481.1	651.3	0.00	0.00	0.00
8,910.6	0.00	0.00	8,857.0	-647.7	481.1	651.3	0.00	0.00	0.00
300'S									
9,000.0	0.00	0.00	8,946.4	-647.7	481.1	651.3	0.00	0.00	0.00
9,100.0	0.00	0.00	9,046.4	-647.7	481.1	651.3	0.00	0.00	0.00
9,153.6	0.00	0.00	9,100.0	-647.7	481.1	651.3	0.00	0.00	0.00
SBSG_SHALE *									
9,156.6	0.00	0.00	9,103.0	-647.7	481.1	651.3	0.00	0.00	0.00
SBSG_CARB									
9,200.0	0.00	0.00	9,146.4	-647.7	481.1	651.3	0.00	0.00	0.00
9,296.1	0.00	0.00	9,242.5	-647.7	481.1	651.3	0.00	0.00	0.00
KOP #2 - Start Build 12.00 - KOP - Royal Oak 24 Fed Com 503H									
9,300.0	0.46	179.56	9,246.4	-647.7	481.1	651.3	11.89	11.89	0.00
9,325.0	3.46	179.56	9,271.4	-648.5	481.1	652.2	12.00	12.00	0.00
9,350.0	6.46	179.56	9,296.3	-650.7	481.1	654.4	12.00	12.00	0.00
9,375.0	9.46	179.56	9,321.0	-654.2	481.1	657.8	12.00	12.00	0.00
9,400.0	12.46	179.56	9,345.6	-658.9	481.2	662.6	12.00	12.00	0.00
9,425.0	15.46	179.56	9,369.8	-664.9	481.2	668.6	12.00	12.00	0.00
9,450.0	18.46	179.56	9,393.7	-672.2	481.3	675.9	12.00	12.00	0.00
9,475.0	21.46	179.56	9,417.2	-680.8	481.3	684.4	12.00	12.00	0.00
9,491.0	23.38	179.56	9,432.0	-686.9	481.4	690.5	12.00	12.00	0.00
SBSG_SD									
9,500.0	24.46	179.56	9,440.3	-690.5	481.4	694.2	12.00	12.00	0.00
9,525.0	27.46	179.56	9,462.7	-701.5	481.5	705.1	12.00	12.00	0.00
9,550.0	30.46	179.56	9,484.6	-713.6	481.6	717.2	12.00	12.00	0.00
9,575.0	33.46	179.56	9,505.8	-726.8	481.7	730.5	12.00	12.00	0.00
9,600.0	36.46	179.56	9,526.3	-741.1	481.8	744.8	12.00	12.00	0.00
9,625.0	39.46	179.56	9,546.0	-756.5	481.9	760.2	12.00	12.00	0.00
9,650.0	42.46	179.56	9,564.9	-772.9	482.0	776.6	12.00	12.00	0.00
9,675.0	45.46	179.56	9,582.9	-790.2	482.2	793.9	12.00	12.00	0.00
9,700.0	48.46	179.56	9,599.9	-808.5	482.3	812.2	12.00	12.00	0.00
FTP - Royal Oak 24 Fed Com 503H									
9,725.0	51.46	179.56	9,616.0	-827.6	482.5	831.3	12.00	12.00	0.00
9,750.0	54.46	179.56	9,631.1	-847.6	482.6	851.3	12.00	12.00	0.00
9,775.0	57.46	179.56	9,645.1	-868.3	482.8	872.0	12.00	12.00	0.00
9,800.0	60.46	179.56	9,657.9	-889.7	483.0	893.4	12.00	12.00	0.00
9,825.0	63.46	179.56	9,669.7	-911.8	483.1	915.5	12.00	12.00	0.00
9,850.0	66.46	179.56	9,680.3	-934.4	483.3	938.1	12.00	12.00	0.00
9,875.0	69.46	179.56	9,689.7	-957.6	483.5	961.3	12.00	12.00	0.00
9,900.0	72.46	179.56	9,697.8	-981.2	483.7	984.9	12.00	12.00	0.00
9,925.0	75.46	179.56	9,704.7	-1,005.3	483.9	1,008.9	12.00	12.00	0.00
9,950.0	78.46	179.56	9,710.4	-1,029.6	484.0	1,033.3	12.00	12.00	0.00
9,975.0	81.46	179.56	9,714.7	-1,054.2	484.2	1,057.9	12.00	12.00	0.00
10,000.0	84.46	179.56	9,717.8	-1,079.0	484.4	1,082.7	12.00	12.00	0.00
10,025.0	87.46	179.56	9,719.5	-1,104.0	484.6	1,107.7	12.00	12.00	0.00
10,046.1	90.00	179.56	9,720.0	-1,125.1	484.8	1,128.8	12.00	12.00	0.00
LP - Start 9932.0 hold at 10046.1 MD									

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**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)
10,100.0	90.00	179.56	9,720.0	-1,179.0	485.2	1,182.6	0.00	0.00	0.00
10,200.0	90.00	179.56	9,720.0	-1,279.0	486.0	1,282.6	0.00	0.00	0.00
10,300.0	90.00	179.56	9,720.0	-1,379.0	486.8	1,382.6	0.00	0.00	0.00
10,400.0	90.00	179.56	9,720.0	-1,478.9	487.5	1,482.6	0.00	0.00	0.00
10,500.0	90.00	179.56	9,720.0	-1,578.9	488.3	1,582.6	0.00	0.00	0.00
10,600.0	90.00	179.56	9,720.0	-1,678.9	489.1	1,682.6	0.00	0.00	0.00
10,700.0	90.00	179.56	9,720.0	-1,778.9	489.9	1,782.6	0.00	0.00	0.00
10,800.0	90.00	179.56	9,720.0	-1,878.9	490.6	1,882.6	0.00	0.00	0.00
10,900.0	90.00	179.56	9,720.0	-1,978.9	491.4	1,982.6	0.00	0.00	0.00
11,000.0	90.00	179.56	9,720.0	-2,078.9	492.2	2,082.6	0.00	0.00	0.00
11,100.0	90.00	179.56	9,720.0	-2,178.9	493.0	2,182.6	0.00	0.00	0.00
11,200.0	90.00	179.56	9,720.0	-2,278.9	493.7	2,282.6	0.00	0.00	0.00
11,300.0	90.00	179.56	9,720.0	-2,378.9	494.5	2,382.6	0.00	0.00	0.00
11,400.0	90.00	179.56	9,720.0	-2,478.9	495.3	2,482.6	0.00	0.00	0.00
11,500.0	90.00	179.56	9,720.0	-2,578.9	496.1	2,582.6	0.00	0.00	0.00
11,600.0	90.00	179.56	9,720.0	-2,678.9	496.8	2,682.6	0.00	0.00	0.00
11,700.0	90.00	179.56	9,720.0	-2,778.9	497.6	2,782.6	0.00	0.00	0.00
11,800.0	90.00	179.56	9,720.0	-2,878.9	498.4	2,882.6	0.00	0.00	0.00
11,900.0	90.00	179.56	9,720.0	-2,978.9	499.2	2,982.6	0.00	0.00	0.00
12,000.0	90.00	179.56	9,720.0	-3,078.9	499.9	3,082.6	0.00	0.00	0.00
12,100.0	90.00	179.56	9,720.0	-3,178.9	500.7	3,182.6	0.00	0.00	0.00
12,200.0	90.00	179.56	9,720.0	-3,278.9	501.5	3,282.6	0.00	0.00	0.00
12,300.0	90.00	179.56	9,720.0	-3,378.9	502.3	3,382.6	0.00	0.00	0.00
12,400.0	90.00	179.56	9,720.0	-3,478.9	503.0	3,482.6	0.00	0.00	0.00
12,500.0	90.00	179.56	9,720.0	-3,578.9	503.8	3,582.6	0.00	0.00	0.00
12,600.0	90.00	179.56	9,720.0	-3,678.9	504.6	3,682.6	0.00	0.00	0.00
12,700.0	90.00	179.56	9,720.0	-3,778.9	505.4	3,782.6	0.00	0.00	0.00
12,800.0	90.00	179.56	9,720.0	-3,878.9	506.2	3,882.6	0.00	0.00	0.00
12,900.0	90.00	179.56	9,720.0	-3,978.9	506.9	3,982.6	0.00	0.00	0.00
13,000.0	90.00	179.56	9,720.0	-4,078.9	507.7	4,082.6	0.00	0.00	0.00
13,100.0	90.00	179.56	9,720.0	-4,178.9	508.5	4,182.6	0.00	0.00	0.00
13,200.0	90.00	179.56	9,720.0	-4,278.9	509.3	4,282.6	0.00	0.00	0.00
13,300.0	90.00	179.56	9,720.0	-4,378.9	510.0	4,382.6	0.00	0.00	0.00
13,400.0	90.00	179.56	9,720.0	-4,478.9	510.8	4,482.6	0.00	0.00	0.00
13,500.0	90.00	179.56	9,720.0	-4,578.9	511.6	4,582.6	0.00	0.00	0.00
13,600.0	90.00	179.56	9,720.0	-4,678.9	512.4	4,682.6	0.00	0.00	0.00
13,700.0	90.00	179.56	9,720.0	-4,778.8	513.1	4,782.6	0.00	0.00	0.00
13,800.0	90.00	179.56	9,720.0	-4,878.8	513.9	4,882.6	0.00	0.00	0.00
13,900.0	90.00	179.56	9,720.0	-4,978.8	514.7	4,982.6	0.00	0.00	0.00
14,000.0	90.00	179.56	9,720.0	-5,078.8	515.5	5,082.6	0.00	0.00	0.00
14,100.0	90.00	179.56	9,720.0	-5,178.8	516.2	5,182.6	0.00	0.00	0.00
14,200.0	90.00	179.56	9,720.0	-5,278.8	517.0	5,282.6	0.00	0.00	0.00
14,300.0	90.00	179.56	9,720.0	-5,378.8	517.8	5,382.6	0.00	0.00	0.00
14,400.0	90.00	179.56	9,720.0	-5,478.8	518.6	5,482.6	0.00	0.00	0.00
14,500.0	90.00	179.56	9,720.0	-5,578.8	519.3	5,582.6	0.00	0.00	0.00
14,600.0	90.00	179.56	9,720.0	-5,678.8	520.1	5,682.6	0.00	0.00	0.00
14,700.0	90.00	179.56	9,720.0	-5,778.8	520.9	5,782.6	0.00	0.00	0.00
14,800.0	90.00	179.56	9,720.0	-5,878.8	521.7	5,882.6	0.00	0.00	0.00
14,900.0	90.00	179.56	9,720.0	-5,978.8	522.4	5,982.6	0.00	0.00	0.00
15,000.0	90.00	179.56	9,720.0	-6,078.8	523.2	6,082.6	0.00	0.00	0.00
15,100.0	90.00	179.56	9,720.0	-6,178.8	524.0	6,182.6	0.00	0.00	0.00
15,200.0	90.00	179.56	9,720.0	-6,278.8	524.8	6,282.6	0.00	0.00	0.00
15,300.0	90.00	179.56	9,720.0	-6,378.8	525.6	6,382.6	0.00	0.00	0.00
15,400.0	90.00	179.56	9,720.0	-6,478.8	526.3	6,482.6	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,500.0	90.00	179.56	9,720.0	-6,578.8	527.1	6,582.6	0.00	0.00	0.00
15,600.0	90.00	179.56	9,720.0	-6,678.8	527.9	6,682.6	0.00	0.00	0.00
15,700.0	90.00	179.56	9,720.0	-6,778.8	528.7	6,782.6	0.00	0.00	0.00
15,800.0	90.00	179.56	9,720.0	-6,878.8	529.4	6,882.6	0.00	0.00	0.00
15,900.0	90.00	179.56	9,720.0	-6,978.8	530.2	6,982.6	0.00	0.00	0.00
16,000.0	90.00	179.56	9,720.0	-7,078.8	531.0	7,082.6	0.00	0.00	0.00
16,100.0	90.00	179.56	9,720.0	-7,178.8	531.8	7,182.6	0.00	0.00	0.00
16,200.0	90.00	179.56	9,720.0	-7,278.8	532.5	7,282.6	0.00	0.00	0.00
16,300.0	90.00	179.56	9,720.0	-7,378.8	533.3	7,382.6	0.00	0.00	0.00
16,400.0	90.00	179.56	9,720.0	-7,478.8	534.1	7,482.6	0.00	0.00	0.00
16,500.0	90.00	179.56	9,720.0	-7,578.8	534.9	7,582.6	0.00	0.00	0.00
16,600.0	90.00	179.56	9,720.0	-7,678.8	535.6	7,682.6	0.00	0.00	0.00
16,700.0	90.00	179.56	9,720.0	-7,778.8	536.4	7,782.6	0.00	0.00	0.00
16,800.0	90.00	179.56	9,720.0	-7,878.8	537.2	7,882.6	0.00	0.00	0.00
16,900.0	90.00	179.56	9,720.0	-7,978.8	538.0	7,982.6	0.00	0.00	0.00
17,000.0	90.00	179.56	9,720.0	-8,078.7	538.7	8,082.6	0.00	0.00	0.00
17,100.0	90.00	179.56	9,720.0	-8,178.7	539.5	8,182.6	0.00	0.00	0.00
17,200.0	90.00	179.56	9,720.0	-8,278.7	540.3	8,282.6	0.00	0.00	0.00
17,300.0	90.00	179.56	9,720.0	-8,378.7	541.1	8,382.6	0.00	0.00	0.00
17,400.0	90.00	179.56	9,720.0	-8,478.7	541.8	8,482.6	0.00	0.00	0.00
17,500.0	90.00	179.56	9,720.0	-8,578.7	542.6	8,582.6	0.00	0.00	0.00
17,600.0	90.00	179.56	9,720.0	-8,678.7	543.4	8,682.6	0.00	0.00	0.00
17,700.0	90.00	179.56	9,720.0	-8,778.7	544.2	8,782.6	0.00	0.00	0.00
17,800.0	90.00	179.56	9,720.0	-8,878.7	545.0	8,882.6	0.00	0.00	0.00
17,900.0	90.00	179.56	9,720.0	-8,978.7	545.7	8,982.6	0.00	0.00	0.00
18,000.0	90.00	179.56	9,720.0	-9,078.7	546.5	9,082.6	0.00	0.00	0.00
18,100.0	90.00	179.56	9,720.0	-9,178.7	547.3	9,182.6	0.00	0.00	0.00
18,200.0	90.00	179.56	9,720.0	-9,278.7	548.1	9,282.6	0.00	0.00	0.00
18,300.0	90.00	179.56	9,720.0	-9,378.7	548.8	9,382.6	0.00	0.00	0.00
18,400.0	90.00	179.56	9,720.0	-9,478.7	549.6	9,482.6	0.00	0.00	0.00
18,500.0	90.00	179.56	9,720.0	-9,578.7	550.4	9,582.6	0.00	0.00	0.00
18,600.0	90.00	179.56	9,720.0	-9,678.7	551.2	9,682.6	0.00	0.00	0.00
18,700.0	90.00	179.56	9,720.0	-9,778.7	551.9	9,782.6	0.00	0.00	0.00
18,800.0	90.00	179.56	9,720.0	-9,878.7	552.7	9,882.6	0.00	0.00	0.00
18,900.0	90.00	179.56	9,720.0	-9,978.7	553.5	9,982.6	0.00	0.00	0.00
19,000.0	90.00	179.56	9,720.0	-10,078.7	554.3	10,082.6	0.00	0.00	0.00
19,100.0	90.00	179.56	9,720.0	-10,178.7	555.0	10,182.6	0.00	0.00	0.00
19,200.0	90.00	179.56	9,720.0	-10,278.7	555.8	10,282.6	0.00	0.00	0.00
19,300.0	90.00	179.56	9,720.0	-10,378.7	556.6	10,382.6	0.00	0.00	0.00
19,400.0	90.00	179.56	9,720.0	-10,478.7	557.4	10,482.6	0.00	0.00	0.00
19,500.0	90.00	179.56	9,720.0	-10,578.7	558.1	10,582.6	0.00	0.00	0.00
19,600.0	90.00	179.56	9,720.0	-10,678.7	558.9	10,682.6	0.00	0.00	0.00
19,700.0	90.00	179.56	9,720.0	-10,778.7	559.7	10,782.6	0.00	0.00	0.00
19,800.0	90.00	179.56	9,720.0	-10,878.7	560.5	10,882.6	0.00	0.00	0.00
19,900.0	90.00	179.56	9,720.0	-10,978.7	561.2	10,982.6	0.00	0.00	0.00
19,978.2	90.00	179.56	9,720.0	-11,056.8	561.9	11,060.8	0.00	0.00	0.00
TD at 19978.2 - LTP/BHL - Royal Oak 24 Fed Com 503H									

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Company:	Avant Operating, LLC	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site:	Royal Oak 24 Fed Com Pad 1	**North Reference:**	Grid
Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - Royal Oak 24 Fed - plan hits target center - Point	0.00	0.00	9,242.5	-647.7	481.1	628,538.96	763,145.27	32.725818	-103.612065
FTP - Royal Oak 24 Fed - plan misses target center by 163.4usft at 9700.0usft MD (9599.9 TVD, -808.5 N, 482.3 E) - Point	0.00	0.01	9,720.0	-697.6	481.5	628,488.97	763,145.68	32.725681	-103.612065
LTP/BHL - Royal Oak 24 - plan hits target center - Point	0.00	0.00	9,720.0	-11,056.8	561.9	618,129.78	763,226.05	32.697207	-103.612033

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
19,977.6	9,720.0	20" Casing	20	24

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,628.0	1,628.0	RUSTLER			
1,951.0	1,951.0	SOLADO			
3,652.0	3,641.0	YATES			
5,683.6	5,654.0	CHERRY_CNYN			
7,280.3	7,236.0	BYCN_MKR			
7,554.8	7,508.0	BSPG_LIME *			
8,366.5	8,313.0	AVALON_B			
8,845.6	8,792.0	FBSG__SD			
8,910.6	8,857.0	300'S			
9,153.6	9,100.0	SBSG_SHALE *			
9,156.6	9,103.0	SBSG_CARB			
9,491.0	9,432.0	SBSG_SD			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,200.0	2,200.0	0.0	0.0	KOP - Start Build 2.00
2,588.6	2,587.4	-21.1	15.7	Start 5576.4 hold at 2588.6 MD
8,165.0	8,112.6	-626.5	465.4	Start Drop -2.00
8,553.6	8,500.0	-647.7	481.1	Start 742.5 hold at 8553.6 MD
9,296.1	9,242.5	-647.7	481.1	KOP #2 - Start Build 12.00
10,046.1	9,720.0	-1,125.1	484.8	LP - Start 9932.0 hold at 10046.1 MD
19,978.2	9,720.0	-11,056.8	561.9	TD at 19978.2

Avant Operating, LLC

Lea Co., NM (NAD 83)
Royal Oak 24 Fed Com Pad 1
Royal Oak 24 Fed Com 503H

OH
Plan 0.1

Anticollision Report

05 February, 2025

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum centre distance of 2,197.8usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 2/5/2025

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	19,978.2	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	14,101.0	9,658.1	685.8	399.9	2.399	CC, ES, SF
Edith Federal 002 - OH - OH	11,484.6	9,686.0	738.4	474.0	2.792	CC, ES
Edith Federal 002 - OH - OH	11,500.0	9,685.8	738.6	474.1	2.792	SF
EK-A, 8701 JV-P 001 - OH - OH	11,498.0	9,707.0	684.5	433.9	2.731	CC
EK-A, 8701 JV-P 001 - OH - OH	11,500.0	9,706.9	684.5	433.8	2.731	ES, SF
McElvain 004 - OH - OH	14,010.4	9,686.3	741.1	456.5	2.604	CC, ES, SF
McElvain 007 - OH - OH	12,682.6	9,675.2	739.8	469.2	2.734	CC, ES, SF
Mescalero 36 State 003 - OH - OH	19,257.2	9,613.6	575.2	208.6	1.569	CC, ES, SF
New Mexico 36 State 001 - OH - OH	15,334.0	9,653.1	742.4	439.9	2.454	CC, ES, SF
New Mexico 36 State 002 - OH - OH	15,331.1	9,647.8	578.7	277.3	1.920	CC, ES, SF
New Mexico 36 State 004 - OH - OH	16,678.2	9,628.6	743.9	433.7	2.398	CC, ES, SF
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,489.0	2,505.0	140.7	123.5	8.185	CC
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,500.0	2,516.0	140.7	123.4	8.152	ES
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	19,978.2	20,592.6	620.4	371.5	2.492	SF
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	1,916.3	1,917.3	20.0	6.7	1.505	CC
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	2,000.0	2,001.0	20.0	6.1	1.440	Level 3, ES, SF
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	2,128.0	2,127.7	19.8	5.0	1.338	Level 3, CC
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	2,200.0	2,199.6	20.2	4.9	1.323	Level 3, ES, SF
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	1,915.7	1,918.5	60.1	46.8	4.519	CC
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,000.0	2,002.7	60.1	46.2	4.323	ES
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,100.0	2,100.0	61.7	47.1	4.233	SF
Royal Oak 24 Fed Com 512H - OH - Plan 0.1	2,000.0	1,999.6	40.0	26.1	2.881	CC, ES
Royal Oak 24 Fed Com 512H - OH - Plan 0.1	2,100.0	2,098.8	41.0	26.4	2.809	SF
Royal Oak 24 Fed Com 513H - OH - Plan 0.1	1,915.7	1,918.5	40.1	26.8	3.014	CC
Royal Oak 24 Fed Com 513H - OH - Plan 0.1	2,000.0	2,002.8	40.1	26.2	2.883	ES
Royal Oak 24 Fed Com 513H - OH - Plan 0.1	2,100.0	2,101.5	41.7	27.1	2.858	SF
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,427.3	2,440.3	152.3	135.5	9.044	CC
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,500.0	2,514.0	152.8	135.5	8.810	ES
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	19,978.2	20,583.2	1,038.1	739.4	3.475	SF
Royal Oak 25 Fed Com Pad 2						
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	7,776.6	7,900.0	1,671.5	1,614.4	29.237	CC, ES
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	19,978.2	18,878.0	2,027.3	1,750.6	7.328	SF
Royal Oak 25 Fed Com #502H - OH - Plan 0.1	9,369.5	9,340.3	1,839.1	1,771.6	27.253	CC
Royal Oak 25 Fed Com #502H - OH - Plan 0.1	19,978.2	19,980.2	1,847.2	1,532.4	5.867	ES, SF
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	9,545.6	9,543.6	1,708.5	1,639.4	24.749	CC
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	19,978.2	20,460.3	1,790.4	1,481.2	5.790	ES, SF

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Speedmaster 30 Fed Com Pad 1B						
Speedmaster 30 Fed Com 501H - OH - Plan 0.1	8,572.2	8,539.0	1,848.1	1,786.2	29.894	CC
Speedmaster 30 Fed Com 501H - OH - Plan 0.1	19,978.2	19,707.2	1,864.1	1,549.7	5.930	ES, SF

Offset Design: Royal Oak 24 Fed Com Pad 1 - Dorothy Federal 001 - OH - OH

Offset Site Error: 0.0 usft

Survey Program: 370-INC-ONLY

Offset Well Error: 0.0 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,100.0	9,720.0	9,693.4	9,692.0	57.2	204.6	-92.94	-5,173.9	1,202.0	2,114.9	1,874.4	240.50	8.794	
12,200.0	9,720.0	9,691.7	9,690.3	58.4	204.6	-92.80	-5,173.9	1,202.0	2,020.6	1,779.8	240.80	8.391	
12,300.0	9,720.0	9,690.0	9,688.7	59.6	204.5	-92.66	-5,173.9	1,202.0	1,926.9	1,685.7	241.18	7.989	
12,400.0	9,720.0	9,688.3	9,687.0	60.7	204.5	-92.52	-5,174.0	1,202.0	1,833.8	1,592.1	241.64	7.589	
12,500.0	9,720.0	9,686.6	9,685.3	61.9	204.5	-92.38	-5,174.0	1,202.0	1,741.4	1,499.2	242.21	7.190	
12,600.0	9,720.0	9,684.9	9,683.5	63.1	204.4	-92.23	-5,174.0	1,202.0	1,650.0	1,407.1	242.91	6.793	
12,700.0	9,720.0	9,683.2	9,681.8	64.4	204.4	-92.09	-5,174.1	1,202.0	1,559.6	1,315.9	243.76	6.398	
12,800.0	9,720.0	9,681.5	9,680.1	65.6	204.4	-91.95	-5,174.1	1,202.0	1,470.5	1,225.7	244.80	6.007	
12,900.0	9,720.0	9,679.7	9,678.3	66.8	204.3	-91.80	-5,174.1	1,202.0	1,382.8	1,136.8	246.06	5.620	
13,000.0	9,720.0	9,678.0	9,676.6	68.0	204.3	-91.65	-5,174.2	1,202.0	1,296.9	1,049.3	247.60	5.238	
13,100.0	9,720.0	9,676.2	9,674.8	69.3	204.3	-91.51	-5,174.2	1,202.0	1,213.2	963.8	249.45	4.864	
13,200.0	9,720.0	9,674.4	9,673.1	70.5	204.2	-91.36	-5,174.2	1,202.0	1,132.2	880.5	251.69	4.498	
13,300.0	9,720.0	9,672.7	9,671.3	71.8	204.2	-91.21	-5,174.3	1,202.0	1,054.3	800.0	254.37	4.145	
13,400.0	9,720.0	9,670.9	9,669.5	73.1	204.2	-91.06	-5,174.3	1,202.0	980.6	723.0	257.53	3.808	
13,500.0	9,720.0	9,669.1	9,667.7	74.4	204.1	-90.91	-5,174.3	1,202.0	911.8	650.6	261.20	3.491	
13,600.0	9,720.0	9,667.3	9,665.9	75.6	204.1	-90.76	-5,174.4	1,202.0	849.2	583.9	265.36	3.200	
13,700.0	9,720.0	9,665.4	9,664.1	76.9	204.0	-90.61	-5,174.4	1,202.0	794.4	524.5	269.90	2.943	
13,800.0	9,720.0	9,663.6	9,662.3	78.2	204.0	-90.46	-5,174.4	1,202.0	748.9	474.3	274.61	2.727	
13,900.0	9,720.0	9,661.8	9,660.4	79.5	204.0	-90.30	-5,174.5	1,202.0	714.6	435.5	279.13	2.560	
14,000.0	9,720.0	9,659.9	9,658.6	80.8	203.9	-90.15	-5,174.5	1,202.0	693.1	410.1	283.00	2.449	
14,100.0	9,720.0	9,658.1	9,656.7	82.1	203.9	-89.99	-5,174.5	1,202.0	685.8	400.0	285.78	2.400	
14,101.0	9,720.0	9,658.1	9,656.7	82.1	203.9	-89.99	-5,174.5	1,202.0	685.8	399.9	285.80	2.399	CC, ES, SF
14,200.0	9,720.0	9,656.2	9,654.9	83.4	203.9	-89.84	-5,174.6	1,202.0	692.9	405.7	287.18	2.413	
14,300.0	9,720.0	9,654.3	9,653.0	84.8	203.8	-89.68	-5,174.6	1,202.0	714.0	426.8	287.20	2.486	
14,400.0	9,720.0	9,652.4	9,651.1	86.1	203.8	-89.52	-5,174.6	1,202.0	748.1	462.0	286.04	2.615	
14,500.0	9,720.0	9,650.6	9,649.2	87.4	203.7	-89.36	-5,174.7	1,202.0	793.3	509.3	284.05	2.793	
14,600.0	9,720.0	9,648.6	9,647.3	88.7	203.7	-89.20	-5,174.7	1,202.0	848.0	566.4	281.61	3.011	
14,700.0	9,720.0	9,646.7	9,645.4	90.1	203.7	-89.04	-5,174.7	1,202.0	910.5	631.5	278.97	3.264	
14,800.0	9,720.0	9,644.8	9,643.4	91.4	203.6	-88.88	-5,174.8	1,202.0	979.1	702.8	276.35	3.543	
14,900.0	9,720.0	9,642.9	9,641.5	92.8	203.6	-88.72	-5,174.8	1,202.0	1,052.8	779.0	273.84	3.845	
15,000.0	9,720.0	9,640.9	9,639.5	94.1	203.5	-88.56	-5,174.8	1,202.0	1,130.6	859.0	271.52	4.164	
15,100.0	9,720.0	9,638.9	9,637.6	95.4	203.5	-88.39	-5,174.9	1,202.0	1,211.6	942.2	269.39	4.497	
15,200.0	9,720.0	9,637.0	9,635.6	96.8	203.5	-88.23	-5,174.9	1,202.0	1,295.2	1,027.8	267.47	4.842	
15,300.0	9,720.0	9,635.0	9,633.6	98.1	203.4	-88.06	-5,175.0	1,202.0	1,381.1	1,115.3	265.74	5.197	
15,400.0	9,720.0	9,633.0	9,631.6	99.5	203.4	-87.90	-5,175.0	1,202.0	1,468.7	1,204.5	264.19	5.559	
15,500.0	9,720.0	9,631.0	9,629.6	100.9	203.3	-87.73	-5,175.0	1,202.0	1,557.8	1,295.0	262.79	5.928	
15,600.0	9,720.0	9,629.0	9,627.6	102.2	203.3	-87.56	-5,175.1	1,202.0	1,648.2	1,386.6	261.54	6.302	
15,700.0	9,720.0	9,626.9	9,625.6	103.6	203.3	-87.39	-5,175.1	1,202.0	1,739.6	1,479.2	260.41	6.680	
15,800.0	9,720.0	9,624.9	9,623.5	104.9	203.2	-87.22	-5,175.2	1,202.0	1,831.9	1,572.5	259.39	7.062	
15,900.0	9,720.0	9,622.8	9,621.5	106.3	203.2	-87.05	-5,175.2	1,202.0	1,925.0	1,666.5	258.48	7.447	
16,000.0	9,720.0	9,620.8	9,619.4	107.7	203.1	-86.88	-5,175.2	1,202.0	2,018.7	1,761.0	257.65	7.835	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
16,100.0	9,720.0	9,618.7	9,617.3	109.1	203.1	-86.71	-5,175.3	1,202.0	2,113.0	1,856.1	256.89	8.225	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,100.0	7,057.4	7,077.9	7,076.2	26.3	159.9	53.51	-2,611.2	-242.4	2,191.1	2,005.5	185.64	11.803	
7,200.0	7,156.4	7,173.3	7,171.5	26.7	162.2	53.80	-2,608.7	-242.4	2,180.6	1,992.3	188.31	11.580	
7,300.0	7,255.5	7,266.2	7,264.3	27.1	164.3	54.09	-2,606.6	-242.4	2,170.4	1,979.5	190.84	11.373	
7,400.0	7,354.6	7,359.1	7,357.3	27.5	166.5	54.37	-2,604.7	-242.4	2,160.5	1,967.1	193.38	11.172	
7,500.0	7,453.7	7,454.2	7,452.3	27.9	168.5	54.67	-2,603.0	-242.4	2,150.9	1,955.1	195.83	10.983	
7,600.0	7,552.8	7,551.2	7,549.3	28.3	170.5	54.97	-2,601.4	-242.4	2,141.5	1,943.3	198.21	10.804	
7,700.0	7,651.9	7,648.2	7,646.4	28.7	172.5	55.27	-2,599.9	-242.4	2,132.2	1,931.6	200.58	10.630	
7,800.0	7,750.9	7,745.3	7,743.4	29.1	174.5	55.57	-2,598.5	-242.4	2,123.1	1,920.1	202.95	10.461	
7,900.0	7,850.0	7,842.4	7,840.5	29.5	176.4	55.88	-2,597.1	-242.4	2,114.1	1,908.8	205.33	10.296	
8,000.0	7,949.1	7,940.8	7,938.9	29.9	178.4	56.19	-2,595.9	-242.4	2,105.3	1,897.6	207.70	10.136	
8,100.0	8,048.2	8,039.8	8,037.8	30.3	180.4	56.51	-2,594.6	-242.4	2,096.5	1,886.4	210.07	9.980	
8,200.0	8,147.3	8,138.7	8,136.8	30.7	182.3	56.78	-2,593.3	-242.4	2,087.9	1,875.5	212.43	9.828	
8,300.0	8,246.7	8,238.0	8,236.1	31.0	184.3	56.91	-2,592.0	-242.4	2,080.8	1,866.1	214.79	9.688	
8,400.0	8,346.5	8,337.7	8,335.7	31.4	186.3	57.00	-2,590.7	-242.4	2,075.7	1,858.6	217.15	9.559	
8,500.0	8,446.4	8,442.1	8,440.1	31.8	188.6	57.05	-2,589.2	-242.4	2,072.5	1,852.7	219.79	9.429	
8,600.0	8,546.4	8,547.8	8,545.8	32.1	191.0	-159.55	-2,587.4	-242.4	2,070.6	1,848.1	222.49	9.307	
8,700.0	8,646.4	8,653.6	8,651.6	32.4	193.4	-159.52	-2,585.3	-242.4	2,068.7	1,843.6	225.18	9.187	
8,800.0	8,746.4	8,759.3	8,757.3	32.7	195.8	-159.50	-2,582.9	-242.4	2,066.6	1,838.7	227.88	9.069	
8,900.0	8,846.4	8,860.3	8,858.2	33.0	198.0	-159.48	-2,580.3	-242.4	2,064.2	1,833.8	230.44	8.958	
9,000.0	8,946.4	8,953.4	8,951.3	33.4	200.0	-159.46	-2,578.2	-242.4	2,062.1	1,829.3	232.79	8.858	
9,100.0	9,046.4	9,046.5	9,044.4	33.7	202.0	-159.44	-2,576.4	-242.4	2,060.2	1,825.1	235.14	8.762	
9,200.0	9,146.4	9,139.6	9,137.5	34.0	204.0	-159.42	-2,574.9	-242.4	2,058.7	1,821.3	237.48	8.669	
9,300.0	9,246.4	9,232.8	9,230.7	34.3	206.0	21.04	-2,573.7	-242.4	2,057.6	1,817.7	239.83	8.579	
9,400.0	9,345.6	9,328.2	9,326.1	34.7	207.9	21.66	-2,572.9	-242.4	2,046.2	1,804.2	242.05	8.454	
9,500.0	9,440.3	9,423.3	9,421.2	35.1	209.5	23.47	-2,572.0	-242.4	2,016.0	1,771.9	244.11	8.259	
9,600.0	9,526.3	9,510.4	9,508.3	35.6	211.1	26.88	-2,571.2	-242.4	1,968.2	1,722.1	246.10	7.998	
9,700.0	9,599.9	9,584.6	9,582.5	36.1	212.5	32.69	-2,570.4	-242.4	1,905.2	1,657.4	247.84	7.688	
9,800.0	9,657.9	9,642.7	9,640.5	36.7	213.6	42.38	-2,569.8	-242.4	1,830.1	1,580.8	249.26	7.342	
9,900.0	9,697.8	9,682.1	9,680.0	37.3	214.3	58.12	-2,569.3	-242.4	1,746.3	1,496.0	250.33	6.976	
10,000.0	9,717.8	9,701.2	9,699.1	37.9	214.6	80.33	-2,569.1	-242.4	1,658.0	1,407.0	251.01	6.605	
10,100.0	9,720.0	9,702.3	9,700.1	38.5	214.7	91.27	-2,569.1	-242.4	1,569.1	1,317.8	251.38	6.242	
10,200.0	9,720.0	9,701.1	9,698.9	39.1	214.6	91.17	-2,569.1	-242.4	1,481.7	1,229.9	251.77	5.885	
10,300.0	9,720.0	9,699.9	9,697.8	39.8	214.6	91.08	-2,569.1	-242.4	1,395.9	1,143.6	252.23	5.534	
10,400.0	9,720.0	9,698.7	9,696.6	40.5	214.6	90.99	-2,569.1	-242.4	1,312.1	1,059.3	252.79	5.190	
10,500.0	9,720.0	9,697.5	9,695.4	41.3	214.6	90.90	-2,569.2	-242.4	1,230.7	977.3	253.44	4.856	
10,600.0	9,720.0	9,696.3	9,694.2	42.1	214.5	90.81	-2,569.2	-242.4	1,152.3	898.0	254.22	4.533	
10,700.0	9,720.0	9,695.2	9,693.0	42.9	214.5	90.72	-2,569.2	-242.4	1,077.4	822.3	255.14	4.223	
10,800.0	9,720.0	9,694.0	9,691.9	43.8	214.5	90.62	-2,569.2	-242.4	1,006.9	750.7	256.20	3.930	
10,900.0	9,720.0	9,692.8	9,690.7	44.7	214.5	90.53	-2,569.2	-242.4	941.8	684.4	257.42	3.659	
11,000.0	9,720.0	9,691.6	9,689.5	45.6	214.5	90.44	-2,569.2	-242.4	883.2	624.5	258.76	3.413	
11,100.0	9,720.0	9,690.5	9,688.3	46.6	214.4	90.35	-2,569.2	-242.4	832.6	572.4	260.19	3.200	
11,200.0	9,720.0	9,689.3	9,687.2	47.6	214.4	90.26	-2,569.3	-242.4	791.4	529.7	261.61	3.025	
11,300.0	9,720.0	9,688.1	9,686.0	48.6	214.4	90.17	-2,569.3	-242.4	761.1	498.2	262.90	2.895	
11,400.0	9,720.0	9,687.0	9,684.8	49.6	214.4	90.08	-2,569.3	-242.4	743.2	479.3	263.90	2.816	
11,484.6	9,720.0	9,686.0	9,683.9	50.5	214.4	90.01	-2,569.3	-242.4	738.4	474.0	264.44	2.792	CC, ES
11,500.0	9,720.0	9,685.8	9,683.7	50.6	214.4	89.99	-2,569.3	-242.4	738.6	474.1	264.50	2.792	SF
11,600.0	9,720.0	9,684.7	9,682.5	51.7	214.3	89.90	-2,569.3	-242.4	747.4	482.7	264.62	2.824	
11,700.0	9,720.0	9,683.5	9,681.4	52.8	214.3	89.81	-2,569.3	-242.4	769.2	504.9	264.29	2.910	
11,800.0	9,720.0	9,682.4	9,680.2	53.9	214.3	89.72	-2,569.3	-242.4	802.9	539.3	263.60	3.046	
11,900.0	9,720.0	9,681.2	9,679.1	55.0	214.3	89.63	-2,569.3	-242.4	847.2	584.5	262.68	3.225	
12,000.0	9,720.0	9,680.1	9,677.9	56.1	214.2	89.54	-2,569.4	-242.4	900.4	638.8	261.65	3.441	
12,100.0	9,720.0	9,678.9	9,676.8	57.2	214.2	89.45	-2,569.4	-242.4	961.2	700.6	260.60	3.688	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,200.0	9,720.0	9,677.8	9,675.6	58.4	214.2	89.37	-2,569.4	-242.4	1,028.1	768.5	259.58	3.960	
12,300.0	9,720.0	9,676.6	9,674.5	59.6	214.2	89.28	-2,569.4	-242.4	1,100.0	841.3	258.64	4.253	
12,400.0	9,720.0	9,675.5	9,673.3	60.7	214.2	89.19	-2,569.4	-242.4	1,176.0	918.2	257.79	4.562	
12,500.0	9,720.0	9,674.3	9,672.2	61.9	214.1	89.10	-2,569.4	-242.4	1,255.4	998.4	257.03	4.884	
12,600.0	9,720.0	9,673.2	9,671.1	63.1	214.1	89.01	-2,569.4	-242.4	1,337.6	1,081.2	256.35	5.218	
12,700.0	9,720.0	9,672.1	9,669.9	64.4	214.1	88.92	-2,569.5	-242.4	1,422.0	1,166.3	255.76	5.560	
12,800.0	9,720.0	9,670.9	9,668.8	65.6	214.1	88.84	-2,569.5	-242.4	1,508.4	1,253.1	255.24	5.910	
12,900.0	9,720.0	9,669.8	9,667.7	66.8	214.1	88.75	-2,569.5	-242.4	1,596.3	1,341.5	254.78	6.265	
13,000.0	9,720.0	9,668.7	9,666.5	68.0	214.0	88.66	-2,569.5	-242.4	1,685.6	1,431.2	254.38	6.626	
13,100.0	9,720.0	9,667.6	9,665.4	69.3	214.0	88.57	-2,569.5	-242.4	1,776.0	1,522.0	254.03	6.991	
13,200.0	9,720.0	9,666.4	9,664.3	70.5	214.0	88.49	-2,569.5	-242.4	1,867.4	1,613.7	253.71	7.360	
13,300.0	9,720.0	9,665.3	9,663.2	71.8	214.0	88.40	-2,569.5	-242.4	1,959.7	1,706.2	253.44	7.732	
13,400.0	9,720.0	9,664.2	9,662.1	73.1	214.0	88.31	-2,569.5	-242.4	2,052.6	1,799.4	253.20	8.107	
13,500.0	9,720.0	9,663.1	9,660.9	74.4	213.9	88.23	-2,569.6	-242.4	2,146.2	1,893.3	252.99	8.484	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,500.0	7,453.7	7,489.2	7,488.2	27.9	155.7	16.31	-2,602.0	1,176.7	2,186.4	2,004.3	182.08	12.008	
7,600.0	7,552.8	7,585.1	7,584.1	28.3	157.9	16.37	-2,599.6	1,177.3	2,171.3	1,986.7	184.66	11.758	
7,700.0	7,651.9	7,679.5	7,678.6	28.7	160.0	16.44	-2,597.5	1,177.7	2,156.4	1,969.3	187.14	11.523	
7,800.0	7,750.9	7,774.0	7,773.0	29.1	162.1	16.51	-2,595.6	1,178.1	2,141.7	1,952.1	189.62	11.295	
7,900.0	7,850.0	7,868.6	7,867.6	29.5	164.2	16.58	-2,593.9	1,178.4	2,127.2	1,935.1	192.10	11.073	
8,000.0	7,949.1	7,963.2	7,962.2	29.9	166.3	16.66	-2,592.5	1,178.6	2,112.9	1,918.3	194.58	10.859	
8,100.0	8,048.2	8,059.6	8,058.5	30.3	168.2	16.75	-2,591.2	1,178.7	2,098.8	1,901.9	196.90	10.659	
8,200.0	8,147.3	8,156.9	8,155.9	30.7	170.1	16.81	-2,590.1	1,178.8	2,084.9	1,885.8	199.14	10.469	
8,300.0	8,246.7	8,254.6	8,253.6	31.0	172.0	16.82	-2,589.0	1,178.9	2,073.8	1,872.4	201.39	10.298	
8,400.0	8,346.5	8,352.6	8,351.6	31.4	173.8	16.82	-2,588.0	1,179.0	2,066.1	1,862.4	203.63	10.146	
8,500.0	8,446.4	8,450.9	8,449.9	31.8	175.7	16.81	-2,587.1	1,179.1	2,061.8	1,855.9	205.87	10.015	
8,600.0	8,546.4	8,552.1	8,551.1	32.1	177.7	160.19	-2,586.2	1,179.2	2,060.5	1,852.3	208.15	9.899	
8,700.0	8,646.4	8,653.8	8,652.8	32.4	179.6	160.18	-2,585.1	1,179.3	2,059.5	1,849.1	210.43	9.787	
8,800.0	8,746.4	8,755.5	8,754.4	32.7	181.6	160.17	-2,584.0	1,179.4	2,058.6	1,845.8	212.71	9.678	
8,900.0	8,846.4	8,857.2	8,856.1	33.0	183.5	160.16	-2,582.8	1,179.5	2,057.5	1,842.5	214.99	9.570	
9,000.0	8,946.4	8,958.4	8,957.4	33.4	185.5	160.14	-2,581.5	1,179.6	2,056.3	1,839.0	217.28	9.464	
9,100.0	9,046.4	9,058.4	9,057.3	33.7	187.5	160.12	-2,580.2	1,179.8	2,055.2	1,835.5	219.61	9.358	
9,200.0	9,146.4	9,158.4	9,157.3	34.0	189.5	160.11	-2,578.9	1,179.9	2,054.0	1,832.0	221.94	9.255	
9,300.0	9,246.4	9,258.4	9,257.3	34.3	191.5	-19.47	-2,577.6	1,180.1	2,052.8	1,828.5	224.27	9.153	
9,400.0	9,345.6	9,357.4	9,356.3	34.7	193.5	-20.07	-2,576.4	1,180.2	2,041.0	1,814.4	226.60	9.007	
9,500.0	9,440.3	9,452.3	9,451.1	35.1	195.3	-21.81	-2,575.1	1,180.3	2,010.2	1,781.4	228.80	8.786	
9,600.0	9,526.3	9,538.8	9,537.7	35.6	197.0	-25.06	-2,574.0	1,180.4	1,961.6	1,730.8	230.81	8.499	
9,700.0	9,599.9	9,612.4	9,611.2	36.1	198.5	-30.64	-2,573.0	1,180.4	1,897.7	1,665.1	232.54	8.161	
9,800.0	9,657.9	9,669.8	9,668.7	36.7	199.6	-40.15	-2,572.1	1,180.5	1,821.4	1,587.5	233.88	7.788	
9,900.0	9,697.8	9,708.7	9,707.6	37.3	200.4	-56.16	-2,571.5	1,180.5	1,736.4	1,501.6	234.78	7.396	
10,000.0	9,717.8	9,727.4	9,726.3	37.9	200.8	-79.82	-2,571.3	1,180.5	1,646.7	1,411.5	235.23	7.001	
10,100.0	9,720.0	9,728.1	9,727.0	38.5	200.8	-91.69	-2,571.2	1,180.5	1,556.4	1,321.1	235.29	6.615	
10,200.0	9,720.0	9,726.6	9,725.4	39.1	200.8	-91.56	-2,571.3	1,180.5	1,467.3	1,231.9	235.35	6.234	
10,300.0	9,720.0	9,725.1	9,723.9	39.8	200.7	-91.43	-2,571.3	1,180.5	1,379.6	1,144.1	235.47	5.859	
10,400.0	9,720.0	9,723.5	9,722.4	40.5	200.7	-91.30	-2,571.3	1,180.5	1,293.7	1,058.1	235.66	5.490	
10,500.0	9,720.0	9,722.0	9,720.9	41.3	200.7	-91.18	-2,571.3	1,180.5	1,210.0	974.1	235.96	5.128	
10,600.0	9,720.0	9,720.5	9,719.4	42.1	200.6	-91.05	-2,571.4	1,180.5	1,129.0	892.6	236.40	4.776	
10,700.0	9,720.0	9,719.0	9,717.8	42.9	200.6	-90.92	-2,571.4	1,180.5	1,051.2	814.2	237.02	4.435	
10,800.0	9,720.0	9,717.5	9,716.3	43.8	200.6	-90.80	-2,571.4	1,180.5	977.5	739.6	237.88	4.109	
10,900.0	9,720.0	9,716.0	9,714.8	44.7	200.6	-90.67	-2,571.4	1,180.5	908.8	669.8	239.01	3.803	
11,000.0	9,720.0	9,714.4	9,713.3	45.6	200.5	-90.54	-2,571.5	1,180.5	846.4	606.0	240.46	3.520	
11,100.0	9,720.0	9,712.9	9,711.8	46.6	200.5	-90.42	-2,571.5	1,180.5	791.7	549.5	242.25	3.268	
11,200.0	9,720.0	9,711.4	9,710.3	47.6	200.5	-90.29	-2,571.5	1,180.5	746.5	502.2	244.32	3.055	
11,300.0	9,720.0	9,709.9	9,708.8	48.6	200.4	-90.17	-2,571.5	1,180.5	712.5	466.0	246.56	2.890	
11,400.0	9,720.0	9,708.4	9,707.3	49.6	200.4	-90.04	-2,571.5	1,180.5	691.4	442.7	248.74	2.780	
11,498.0	9,720.0	9,707.0	9,705.8	50.6	200.4	-89.92	-2,571.6	1,180.5	684.5	433.9	250.60	2.731 CC	
11,500.0	9,720.0	9,706.9	9,705.8	50.6	200.4	-89.92	-2,571.6	1,180.5	684.5	433.8	250.63	2.731 ES, SF	
11,600.0	9,720.0	9,705.4	9,704.3	51.7	200.3	-89.79	-2,571.6	1,180.5	692.0	440.0	252.02	2.746	
11,700.0	9,720.0	9,704.0	9,702.8	52.8	200.3	-89.67	-2,571.6	1,180.5	713.7	460.8	252.82	2.823	
11,800.0	9,720.0	9,702.5	9,701.3	53.9	200.3	-89.54	-2,571.6	1,180.5	748.1	495.1	253.05	2.956	
11,900.0	9,720.0	9,701.0	9,699.8	55.0	200.3	-89.42	-2,571.7	1,180.5	793.8	540.9	252.84	3.139	
12,000.0	9,720.0	9,699.5	9,698.4	56.1	200.2	-89.29	-2,571.7	1,180.5	848.8	596.5	252.34	3.364	
12,100.0	9,720.0	9,698.0	9,696.9	57.2	200.2	-89.17	-2,571.7	1,180.5	911.5	659.9	251.66	3.622	
12,200.0	9,720.0	9,696.5	9,695.4	58.4	200.2	-89.05	-2,571.7	1,180.5	980.4	729.5	250.90	3.908	
12,300.0	9,720.0	9,695.1	9,693.9	59.6	200.1	-88.92	-2,571.7	1,180.5	1,054.3	804.2	250.13	4.215	
12,400.0	9,720.0	9,693.6	9,692.4	60.7	200.1	-88.80	-2,571.8	1,180.5	1,132.2	882.9	249.39	4.540	
12,500.0	9,720.0	9,692.1	9,691.0	61.9	200.1	-88.68	-2,571.8	1,180.5	1,213.4	964.7	248.68	4.879	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,600.0	9,720.0	9,690.6	9,689.5	63.1	200.0	-88.55	-2,571.8	1,180.5	1,297.2	1,049.2	248.03	5.230	
12,700.0	9,720.0	9,689.2	9,688.0	64.4	200.0	-88.43	-2,571.8	1,180.5	1,383.1	1,135.7	247.44	5.590	
12,800.0	9,720.0	9,687.7	9,686.6	65.6	200.0	-88.31	-2,571.9	1,180.5	1,470.9	1,224.0	246.90	5.957	
12,900.0	9,720.0	9,686.3	9,685.1	66.8	200.0	-88.19	-2,571.9	1,180.5	1,560.1	1,313.7	246.40	6.331	
13,000.0	9,720.0	9,684.8	9,683.7	68.0	199.9	-88.06	-2,571.9	1,180.5	1,650.5	1,404.5	245.96	6.710	
13,100.0	9,720.0	9,683.3	9,682.2	69.3	199.9	-87.94	-2,571.9	1,180.5	1,742.0	1,496.4	245.56	7.094	
13,200.0	9,720.0	9,681.9	9,680.7	70.5	199.9	-87.82	-2,571.9	1,180.5	1,834.3	1,589.1	245.19	7.481	
13,300.0	9,720.0	9,680.4	9,679.3	71.8	199.8	-87.70	-2,572.0	1,180.5	1,927.5	1,682.6	244.86	7.872	
13,400.0	9,720.0	9,679.0	9,677.8	73.1	199.8	-87.58	-2,572.0	1,180.5	2,021.2	1,776.7	244.56	8.265	
13,500.0	9,720.0	9,677.5	9,676.4	74.4	199.8	-87.46	-2,572.0	1,180.5	2,115.6	1,871.3	244.28	8.660	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,000.0	9,720.0	9,739.3	9,737.9	56.1	205.2	94.10	-5,093.6	-225.5	2,142.0	1,896.2	245.74	8.717	
12,100.0	9,720.0	9,736.5	9,735.1	57.2	205.2	93.88	-5,093.6	-225.5	2,048.5	1,802.2	246.31	8.317	
12,200.0	9,720.0	9,733.7	9,732.3	58.4	205.1	93.67	-5,093.7	-225.5	1,955.6	1,708.6	246.97	7.919	
12,300.0	9,720.0	9,731.0	9,729.7	59.6	205.0	93.46	-5,093.8	-225.5	1,863.5	1,615.8	247.72	7.522	
12,400.0	9,720.0	9,728.4	9,727.0	60.7	205.0	93.26	-5,093.8	-225.5	1,772.2	1,523.6	248.59	7.129	
12,500.0	9,720.0	9,725.7	9,724.3	61.9	204.9	93.05	-5,093.9	-225.5	1,681.9	1,432.3	249.58	6.739	
12,600.0	9,720.0	9,723.1	9,721.7	63.1	204.8	92.85	-5,094.0	-225.5	1,592.8	1,342.1	250.72	6.353	
12,700.0	9,720.0	9,720.4	9,719.0	64.4	204.8	92.65	-5,094.1	-225.5	1,505.0	1,253.0	252.03	5.972	
12,800.0	9,720.0	9,717.8	9,716.4	65.6	204.7	92.44	-5,094.1	-225.5	1,418.9	1,165.3	253.54	5.596	
12,900.0	9,720.0	9,715.2	9,713.8	66.8	204.6	92.24	-5,094.2	-225.5	1,334.6	1,079.4	255.26	5.228	
13,000.0	9,720.0	9,712.5	9,711.1	68.0	204.6	92.04	-5,094.3	-225.5	1,252.7	995.5	257.24	4.870	
13,100.0	9,720.0	9,709.9	9,708.5	69.3	204.5	91.83	-5,094.3	-225.5	1,173.6	914.1	259.50	4.523	
13,200.0	9,720.0	9,707.3	9,705.9	70.5	204.4	91.63	-5,094.4	-225.5	1,097.9	835.9	262.06	4.190	
13,300.0	9,720.0	9,704.7	9,703.3	71.8	204.4	91.43	-5,094.5	-225.5	1,026.4	761.5	264.92	3.874	
13,400.0	9,720.0	9,702.1	9,700.7	73.1	204.3	91.23	-5,094.5	-225.5	959.9	691.9	268.06	3.581	
13,500.0	9,720.0	9,699.5	9,698.1	74.4	204.3	91.03	-5,094.6	-225.5	899.7	628.3	271.43	3.315	
13,600.0	9,720.0	9,696.9	9,695.5	75.6	204.2	90.83	-5,094.7	-225.5	847.1	572.2	274.88	3.081	
13,700.0	9,720.0	9,694.3	9,692.9	76.9	204.1	90.63	-5,094.7	-225.5	803.4	525.2	278.22	2.888	
13,800.0	9,720.0	9,691.7	9,690.4	78.2	204.1	90.43	-5,094.8	-225.5	770.4	489.2	281.14	2.740	
13,900.0	9,720.0	9,689.2	9,687.8	79.5	204.0	90.23	-5,094.9	-225.5	749.3	465.9	283.34	2.644	
14,000.0	9,720.0	9,686.6	9,685.2	80.8	203.9	90.03	-5,094.9	-225.5	741.2	456.7	284.51	2.605	
14,010.4	9,720.0	9,686.3	9,684.9	81.0	203.9	90.01	-5,094.9	-225.5	741.1	456.5	284.57	2.604	CC, ES, SF
14,100.0	9,720.0	9,684.0	9,682.7	82.1	203.9	89.83	-5,095.0	-225.5	746.5	462.0	284.53	2.624	
14,200.0	9,720.0	9,681.5	9,680.1	83.4	203.8	89.64	-5,095.1	-225.5	765.0	481.5	283.43	2.699	
14,300.0	9,720.0	9,678.9	9,677.5	84.8	203.8	89.44	-5,095.1	-225.5	795.7	514.2	281.42	2.827	
14,400.0	9,720.0	9,676.4	9,675.0	86.1	203.7	89.24	-5,095.2	-225.5	837.2	558.4	278.81	3.003	
14,500.0	9,720.0	9,673.8	9,672.5	87.4	203.6	89.05	-5,095.3	-225.5	888.2	612.3	275.89	3.219	
14,600.0	9,720.0	9,671.3	9,669.9	88.7	203.6	88.85	-5,095.3	-225.5	946.9	674.1	272.88	3.470	
14,700.0	9,720.0	9,668.8	9,667.4	90.1	203.5	88.66	-5,095.4	-225.5	1,012.2	742.2	269.97	3.749	
14,800.0	9,720.0	9,666.3	9,664.9	91.4	203.5	88.46	-5,095.4	-225.5	1,082.8	815.5	267.23	4.052	
14,900.0	9,720.0	9,663.7	9,662.4	92.8	203.4	88.27	-5,095.5	-225.5	1,157.7	893.0	264.71	4.373	
15,000.0	9,720.0	9,661.2	9,659.9	94.1	203.3	88.07	-5,095.6	-225.5	1,236.1	973.7	262.44	4.710	
15,100.0	9,720.0	9,658.7	9,657.3	95.4	203.3	87.88	-5,095.6	-225.5	1,317.5	1,057.1	260.40	5.059	
15,200.0	9,720.0	9,656.2	9,654.8	96.8	203.2	87.69	-5,095.7	-225.5	1,401.3	1,142.7	258.59	5.419	
15,300.0	9,720.0	9,653.7	9,652.4	98.1	203.2	87.49	-5,095.8	-225.5	1,487.1	1,230.1	256.97	5.787	
15,400.0	9,720.0	9,651.2	9,649.9	99.5	203.1	87.30	-5,095.8	-225.5	1,574.5	1,319.0	255.54	6.162	
15,500.0	9,720.0	9,648.7	9,647.4	100.9	203.0	87.11	-5,095.9	-225.5	1,663.4	1,409.1	254.26	6.542	
15,600.0	9,720.0	9,646.3	9,644.9	102.2	203.0	86.92	-5,096.0	-225.5	1,753.5	1,500.3	253.13	6.927	
15,700.0	9,720.0	9,643.8	9,642.4	103.6	202.9	86.73	-5,096.0	-225.5	1,844.5	1,592.4	252.11	7.316	
15,800.0	9,720.0	9,641.3	9,640.0	104.9	202.9	86.54	-5,096.1	-225.5	1,936.5	1,685.3	251.21	7.709	
15,900.0	9,720.0	9,638.9	9,637.5	106.3	202.8	86.35	-5,096.1	-225.5	2,029.2	1,778.8	250.40	8.104	
16,000.0	9,720.0	9,636.4	9,635.0	107.7	202.7	86.16	-5,096.2	-225.5	2,122.6	1,872.9	249.68	8.501	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,700.0	9,720.0	9,709.8	9,708.5	42.9	207.6	92.69	-3,766.6	-234.5	2,115.8	1,870.9	244.93	8.638	
10,800.0	9,720.0	9,708.1	9,706.7	43.8	207.5	92.55	-3,766.6	-234.5	2,022.4	1,777.2	245.26	8.246	
10,900.0	9,720.0	9,706.3	9,705.0	44.7	207.5	92.42	-3,766.7	-234.5	1,929.7	1,684.1	245.64	7.856	
11,000.0	9,720.0	9,704.6	9,703.3	45.6	207.5	92.28	-3,766.7	-234.5	1,837.8	1,591.7	246.09	7.468	
11,100.0	9,720.0	9,702.8	9,701.5	46.6	207.4	92.15	-3,766.7	-234.5	1,746.7	1,500.1	246.60	7.083	
11,200.0	9,720.0	9,701.1	9,699.8	47.6	207.4	92.01	-3,766.7	-234.5	1,656.7	1,409.5	247.20	6.702	
11,300.0	9,720.0	9,699.3	9,698.0	48.6	207.3	91.88	-3,766.8	-234.5	1,567.9	1,320.0	247.90	6.325	
11,400.0	9,720.0	9,697.6	9,696.3	49.6	207.3	91.74	-3,766.8	-234.5	1,480.5	1,231.7	248.72	5.952	
11,500.0	9,720.0	9,695.9	9,694.5	50.6	207.2	91.61	-3,766.8	-234.5	1,394.7	1,145.1	249.67	5.586	
11,600.0	9,720.0	9,694.1	9,692.8	51.7	207.2	91.47	-3,766.9	-234.5	1,311.1	1,060.3	250.78	5.228	
11,700.0	9,720.0	9,692.4	9,691.0	52.8	207.1	91.34	-3,766.9	-234.5	1,229.8	977.7	252.08	4.879	
11,800.0	9,720.0	9,690.6	9,689.3	53.9	207.1	91.20	-3,766.9	-234.5	1,151.5	897.9	253.57	4.541	
11,900.0	9,720.0	9,688.9	9,687.6	55.0	207.1	91.07	-3,767.0	-234.5	1,076.8	821.5	255.29	4.218	
12,000.0	9,720.0	9,687.1	9,685.8	56.1	207.0	90.93	-3,767.0	-234.5	1,006.5	749.3	257.24	3.913	
12,100.0	9,720.0	9,685.4	9,684.1	57.2	207.0	90.80	-3,767.0	-234.5	941.6	682.2	259.40	3.630	
12,200.0	9,720.0	9,683.6	9,682.3	58.4	206.9	90.66	-3,767.1	-234.5	883.2	621.5	261.73	3.375	
12,300.0	9,720.0	9,681.9	9,680.6	59.6	206.9	90.52	-3,767.1	-234.5	832.8	568.7	264.13	3.153	
12,400.0	9,720.0	9,680.1	9,678.8	60.7	206.8	90.39	-3,767.1	-234.5	791.9	525.5	266.43	2.972	
12,500.0	9,720.0	9,678.4	9,677.1	61.9	206.8	90.25	-3,767.1	-234.5	762.0	493.5	268.43	2.839	
12,600.0	9,720.0	9,676.7	9,675.3	63.1	206.8	90.12	-3,767.2	-234.5	744.4	474.5	269.89	2.758	
12,682.6	9,720.0	9,675.2	9,673.9	64.1	206.7	90.01	-3,767.2	-234.5	739.8	469.2	270.55	2.734	CC, ES, SF
12,700.0	9,720.0	9,674.9	9,673.6	64.4	206.7	89.98	-3,767.2	-234.5	740.0	469.3	270.62	2.734	
12,800.0	9,720.0	9,673.2	9,671.9	65.6	206.7	89.85	-3,767.2	-234.5	749.0	478.5	270.55	2.769	
12,900.0	9,720.0	9,671.4	9,670.1	66.8	206.6	89.71	-3,767.3	-234.5	771.0	501.3	269.72	2.859	
13,000.0	9,720.0	9,669.7	9,668.4	68.0	206.6	89.58	-3,767.3	-234.5	805.0	536.7	268.32	3.000	
13,100.0	9,720.0	9,667.9	9,666.6	69.3	206.5	89.44	-3,767.3	-234.5	849.4	582.8	266.55	3.187	
13,200.0	9,720.0	9,666.2	9,664.9	70.5	206.5	89.31	-3,767.4	-234.5	902.7	638.1	264.60	3.412	
13,300.0	9,720.0	9,664.4	9,663.1	71.8	206.4	89.17	-3,767.4	-234.5	963.5	700.9	262.64	3.669	
13,400.0	9,720.0	9,662.7	9,661.4	73.1	206.4	89.04	-3,767.4	-234.5	1,030.4	769.7	260.76	3.952	
13,500.0	9,720.0	9,661.0	9,659.6	74.4	206.4	88.90	-3,767.4	-234.5	1,102.4	843.4	259.01	4.256	
13,600.0	9,720.0	9,659.2	9,657.9	75.6	206.3	88.77	-3,767.5	-234.5	1,178.4	921.0	257.42	4.578	
13,700.0	9,720.0	9,657.5	9,656.1	76.9	206.3	88.63	-3,767.5	-234.5	1,257.8	1,001.8	256.00	4.913	
13,800.0	9,720.0	9,655.7	9,654.4	78.2	206.2	88.50	-3,767.5	-234.5	1,340.0	1,085.2	254.73	5.260	
13,900.0	9,720.0	9,654.0	9,652.7	79.5	206.2	88.36	-3,767.6	-234.5	1,424.4	1,170.8	253.60	5.617	
14,000.0	9,720.0	9,652.2	9,650.9	80.8	206.1	88.23	-3,767.6	-234.5	1,510.7	1,258.1	252.61	5.980	
14,100.0	9,720.0	9,650.5	9,649.2	82.1	206.1	88.09	-3,767.6	-234.5	1,598.7	1,346.9	251.73	6.351	
14,200.0	9,720.0	9,648.7	9,647.4	83.4	206.0	87.96	-3,767.7	-234.5	1,687.9	1,437.0	250.95	6.726	
14,300.0	9,720.0	9,647.0	9,645.7	84.8	206.0	87.82	-3,767.7	-234.5	1,778.3	1,528.1	250.27	7.106	
14,400.0	9,720.0	9,645.2	9,643.9	86.1	206.0	87.69	-3,767.7	-234.5	1,869.7	1,620.1	249.65	7.489	
14,500.0	9,720.0	9,643.5	9,642.2	87.4	205.9	87.55	-3,767.8	-234.5	1,962.0	1,712.8	249.11	7.876	
14,600.0	9,720.0	9,641.8	9,640.4	88.7	205.9	87.42	-3,767.8	-234.5	2,054.9	1,806.3	248.63	8.265	
14,700.0	9,720.0	9,640.0	9,638.7	90.1	205.8	87.28	-3,767.8	-234.5	2,148.5	1,900.3	248.19	8.657	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,200.0	9,720.0	9,687.8	9,685.7	124.3	215.9	-97.32	-10,328.8	1,131.5	2,134.9	1,873.6	261.28	8.171	
17,300.0	9,720.0	9,684.1	9,682.0	125.6	215.8	-96.96	-10,328.9	1,131.5	2,038.8	1,776.4	262.36	7.771	
17,400.0	9,720.0	9,680.4	9,678.4	127.0	215.7	-96.60	-10,329.0	1,131.5	1,943.1	1,679.5	263.59	7.372	
17,500.0	9,720.0	9,676.7	9,674.7	128.4	215.6	-96.24	-10,329.2	1,131.5	1,847.9	1,582.9	265.02	6.973	
17,600.0	9,720.0	9,673.1	9,671.0	129.8	215.5	-95.88	-10,329.3	1,131.5	1,753.2	1,486.5	266.67	6.574	
17,700.0	9,720.0	9,669.4	9,667.4	131.2	215.4	-95.52	-10,329.4	1,131.5	1,659.1	1,390.5	268.59	6.177	
17,800.0	9,720.0	9,665.8	9,663.7	132.6	215.3	-95.16	-10,329.6	1,131.5	1,565.8	1,295.0	270.81	5.782	
17,900.0	9,720.0	9,662.1	9,660.1	134.0	215.2	-94.80	-10,329.7	1,131.5	1,473.3	1,199.9	273.40	5.389	
18,000.0	9,720.0	9,658.5	9,656.5	135.4	215.1	-94.44	-10,329.8	1,131.5	1,381.8	1,105.4	276.43	4.999	
18,100.0	9,720.0	9,654.9	9,652.9	136.8	214.9	-94.08	-10,330.0	1,131.5	1,291.6	1,011.7	279.96	4.614	
18,200.0	9,720.0	9,651.3	9,649.3	138.2	214.8	-93.73	-10,330.1	1,131.5	1,203.0	918.9	284.10	4.234	
18,300.0	9,720.0	9,647.7	9,645.7	139.6	214.7	-93.37	-10,330.2	1,131.5	1,116.2	827.3	288.94	3.863	
18,400.0	9,720.0	9,644.1	9,642.1	141.0	214.6	-93.01	-10,330.3	1,131.5	1,031.9	737.2	294.62	3.502	
18,500.0	9,720.0	9,640.5	9,638.5	142.4	214.5	-92.66	-10,330.5	1,131.5	950.5	649.3	301.26	3.155	
18,600.0	9,720.0	9,636.9	9,634.9	143.8	214.4	-92.30	-10,330.6	1,131.5	873.1	564.1	308.96	2.826	
18,700.0	9,720.0	9,633.4	9,631.4	145.2	214.3	-91.95	-10,330.7	1,131.5	800.6	482.8	317.78	2.519	
18,800.0	9,720.0	9,629.8	9,627.8	146.6	214.2	-91.59	-10,330.9	1,131.5	734.6	407.0	327.63	2.242	
18,900.0	9,720.0	9,626.2	9,624.3	148.0	214.1	-91.24	-10,331.0	1,131.5	677.0	338.8	338.19	2.002	
19,000.0	9,720.0	9,622.7	9,620.7	149.4	214.0	-90.89	-10,331.1	1,131.5	630.0	281.3	348.71	1.807	
19,100.0	9,720.0	9,619.2	9,617.2	150.9	213.9	-90.54	-10,331.2	1,131.5	596.3	238.3	358.02	1.666	
19,200.0	9,720.0	9,615.6	9,613.7	152.3	213.8	-90.18	-10,331.3	1,131.5	578.1	213.4	364.61	1.585	
19,257.2	9,720.0	9,613.6	9,611.6	153.1	213.7	-89.98	-10,331.4	1,131.5	575.2	208.6	366.67	1.569	CC, ES, SF
19,300.0	9,720.0	9,612.1	9,610.1	153.7	213.7	-89.83	-10,331.5	1,131.5	576.8	209.5	367.29	1.570	
19,400.0	9,720.0	9,608.6	9,606.6	155.1	213.6	-89.49	-10,331.6	1,131.5	592.7	226.9	365.76	1.620	
19,500.0	9,720.0	9,605.1	9,603.1	156.5	213.5	-89.14	-10,331.7	1,131.5	624.3	263.5	360.76	1.731	
19,600.0	9,720.0	9,601.6	9,599.6	157.9	213.4	-88.79	-10,331.8	1,131.5	669.5	315.9	353.57	1.894	
19,700.0	9,720.0	9,598.1	9,596.2	159.3	213.3	-88.44	-10,332.0	1,131.5	725.7	380.3	345.45	2.101	
19,800.0	9,720.0	9,594.7	9,592.7	160.7	213.2	-88.10	-10,332.1	1,131.5	790.7	453.4	337.29	2.344	
19,900.0	9,720.0	9,590.0	9,588.0	162.1	213.1	-87.63	-10,332.2	1,131.5	862.3	532.7	329.56	2.617	
19,978.2	9,720.0	9,588.5	9,586.5	163.3	213.0	-87.48	-10,332.3	1,131.5	922.0	597.9	324.07	2.845	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,300.0	9,720.0	9,697.4	9,696.3	71.8	205.1	93.43	-6,417.6	-216.6	2,164.8	1,915.1	249.66	8.671	
13,400.0	9,720.0	9,695.3	9,694.1	73.1	205.1	93.26	-6,417.6	-216.6	2,071.1	1,820.6	250.55	8.266	
13,500.0	9,720.0	9,693.1	9,691.9	74.4	205.0	93.09	-6,417.6	-216.6	1,978.1	1,726.6	251.54	7.864	
13,600.0	9,720.0	9,690.9	9,689.7	75.6	205.0	92.93	-6,417.7	-216.6	1,885.8	1,633.2	252.66	7.464	
13,700.0	9,720.0	9,688.7	9,687.6	76.9	204.9	92.76	-6,417.7	-216.6	1,794.4	1,540.4	253.93	7.066	
13,800.0	9,720.0	9,686.5	9,685.4	78.2	204.9	92.59	-6,417.8	-216.6	1,703.9	1,448.5	255.36	6.672	
13,900.0	9,720.0	9,684.4	9,683.2	79.5	204.8	92.42	-6,417.8	-216.6	1,614.5	1,357.5	256.97	6.283	
14,000.0	9,720.0	9,682.2	9,681.0	80.8	204.8	92.25	-6,417.9	-216.6	1,526.4	1,267.6	258.81	5.898	
14,100.0	9,720.0	9,680.0	9,678.8	82.1	204.7	92.09	-6,417.9	-216.6	1,439.8	1,178.9	260.89	5.519	
14,200.0	9,720.0	9,677.8	9,676.7	83.4	204.7	91.92	-6,418.0	-216.6	1,355.2	1,091.9	263.25	5.148	
14,300.0	9,720.0	9,675.6	9,674.5	84.8	204.6	91.75	-6,418.0	-216.6	1,272.7	1,006.8	265.93	4.786	
14,400.0	9,720.0	9,673.4	9,672.3	86.1	204.6	91.58	-6,418.1	-216.6	1,192.9	924.0	268.95	4.435	
14,500.0	9,720.0	9,671.3	9,670.1	87.4	204.5	91.41	-6,418.1	-216.6	1,116.4	844.1	272.35	4.099	
14,600.0	9,720.0	9,669.1	9,667.9	88.7	204.5	91.24	-6,418.2	-216.6	1,043.9	767.7	276.12	3.780	
14,700.0	9,720.0	9,666.9	9,665.8	90.1	204.4	91.08	-6,418.2	-216.6	976.2	695.9	280.24	3.483	
14,800.0	9,720.0	9,664.7	9,663.6	91.4	204.4	90.91	-6,418.3	-216.6	914.4	629.8	284.64	3.213	
14,900.0	9,720.0	9,662.5	9,661.4	92.8	204.3	90.74	-6,418.3	-216.6	859.9	570.7	289.17	2.974	
15,000.0	9,720.0	9,660.4	9,659.2	94.1	204.3	90.57	-6,418.4	-216.6	814.1	520.5	293.56	2.773	
15,100.0	9,720.0	9,658.2	9,657.0	95.4	204.2	90.40	-6,418.4	-216.6	778.4	480.9	297.48	2.617	
15,200.0	9,720.0	9,656.0	9,654.8	96.8	204.2	90.24	-6,418.5	-216.6	754.4	453.9	300.51	2.510	
15,300.0	9,720.0	9,653.8	9,652.7	98.1	204.1	90.07	-6,418.5	-216.6	743.2	440.9	302.28	2.459	
15,334.0	9,720.0	9,653.1	9,651.9	98.6	204.1	90.01	-6,418.5	-216.6	742.4	439.9	302.54	2.454	CC, ES, SF
15,400.0	9,720.0	9,651.6	9,650.5	99.5	204.1	89.90	-6,418.6	-216.6	745.4	442.8	302.54	2.464	
15,500.0	9,720.0	9,649.5	9,648.3	100.9	204.1	89.73	-6,418.6	-216.6	760.8	459.4	301.32	2.525	
15,600.0	9,720.0	9,647.3	9,646.1	102.2	204.0	89.56	-6,418.6	-216.6	788.6	489.8	298.85	2.639	
15,700.0	9,720.0	9,645.1	9,643.9	103.6	204.0	89.39	-6,418.7	-216.6	827.7	532.2	295.50	2.801	
15,800.0	9,720.0	9,642.9	9,641.8	104.9	203.9	89.23	-6,418.7	-216.6	876.5	584.9	291.65	3.005	
15,900.0	9,720.0	9,640.7	9,639.6	106.3	203.9	89.06	-6,418.8	-216.6	933.5	645.9	287.64	3.245	
16,000.0	9,720.0	9,638.5	9,637.4	107.7	203.8	88.89	-6,418.8	-216.6	997.3	713.6	283.70	3.515	
16,100.0	9,720.0	9,636.4	9,635.2	109.1	203.8	88.72	-6,418.9	-216.6	1,066.6	786.7	279.96	3.810	
16,200.0	9,720.0	9,634.2	9,633.0	110.4	203.7	88.55	-6,418.9	-216.6	1,140.6	864.0	276.51	4.125	
16,300.0	9,720.0	9,632.0	9,630.9	111.8	203.7	88.38	-6,419.0	-216.6	1,218.2	944.8	273.37	4.456	
16,400.0	9,720.0	9,629.8	9,628.7	113.2	203.6	88.22	-6,419.0	-216.6	1,298.9	1,028.3	270.55	4.801	
16,500.0	9,720.0	9,627.6	9,626.5	114.6	203.6	88.05	-6,419.1	-216.6	1,382.1	1,114.1	268.02	5.157	
16,600.0	9,720.0	9,625.5	9,624.3	115.9	203.5	87.88	-6,419.1	-216.6	1,467.4	1,201.6	265.76	5.522	
16,700.0	9,720.0	9,623.3	9,622.1	117.3	203.5	87.71	-6,419.2	-216.6	1,554.5	1,290.7	263.75	5.894	
16,800.0	9,720.0	9,621.1	9,620.0	118.7	203.4	87.54	-6,419.2	-216.6	1,643.0	1,381.0	261.96	6.272	
16,900.0	9,720.0	9,618.9	9,617.8	120.1	203.4	87.38	-6,419.3	-216.6	1,732.8	1,472.4	260.36	6.655	
17,000.0	9,720.0	9,616.7	9,615.6	121.5	203.3	87.21	-6,419.3	-216.6	1,823.6	1,564.7	258.93	7.043	
17,100.0	9,720.0	9,614.5	9,613.4	122.9	203.3	87.04	-6,419.4	-216.6	1,915.4	1,657.7	257.65	7.434	
17,200.0	9,720.0	9,612.4	9,611.2	124.3	203.2	86.87	-6,419.4	-216.6	2,007.9	1,751.4	256.51	7.828	
17,300.0	9,720.0	9,610.2	9,609.0	125.6	203.2	86.70	-6,419.5	-216.6	2,101.1	1,845.6	255.48	8.224	
17,400.0	9,720.0	9,608.0	9,606.9	127.0	203.1	86.54	-6,419.5	-216.6	2,194.9	1,940.4	254.55	8.623	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,300.0	9,720.0	9,683.3	9,682.2	71.8	203.8	-93.50	-6,404.8	1,104.5	2,111.6	1,870.9	240.71	8.772	
13,400.0	9,720.0	9,681.5	9,680.4	73.1	203.7	-93.32	-6,404.8	1,104.5	2,015.6	1,774.5	241.10	8.360	
13,500.0	9,720.0	9,679.8	9,678.7	74.4	203.7	-93.15	-6,404.8	1,104.5	1,920.1	1,678.5	241.58	7.948	
13,600.0	9,720.0	9,678.0	9,676.9	75.6	203.7	-92.98	-6,404.8	1,104.5	1,825.0	1,582.8	242.15	7.537	
13,700.0	9,720.0	9,676.3	9,675.2	76.9	203.6	-92.81	-6,404.9	1,104.5	1,730.4	1,487.6	242.84	7.126	
13,800.0	9,720.0	9,674.6	9,673.4	78.2	203.6	-92.64	-6,404.9	1,104.5	1,636.6	1,392.9	243.67	6.716	
13,900.0	9,720.0	9,672.8	9,671.7	79.5	203.5	-92.46	-6,404.9	1,104.5	1,543.4	1,298.8	244.67	6.308	
14,000.0	9,720.0	9,671.1	9,669.9	80.8	203.5	-92.29	-6,405.0	1,104.5	1,451.2	1,205.3	245.89	5.902	
14,100.0	9,720.0	9,669.3	9,668.2	82.1	203.5	-92.12	-6,405.0	1,104.5	1,360.1	1,112.7	247.37	5.498	
14,200.0	9,720.0	9,667.6	9,666.5	83.4	203.4	-91.95	-6,405.0	1,104.5	1,270.3	1,021.2	249.16	5.098	
14,300.0	9,720.0	9,665.8	9,664.7	84.8	203.4	-91.77	-6,405.1	1,104.5	1,182.2	930.9	251.34	4.704	
14,400.0	9,720.0	9,664.1	9,663.0	86.1	203.3	-91.60	-6,405.1	1,104.5	1,096.1	842.1	253.98	4.316	
14,500.0	9,720.0	9,662.3	9,661.2	87.4	203.3	-91.43	-6,405.1	1,104.5	1,012.6	755.4	257.18	3.937	
14,600.0	9,720.0	9,660.6	9,659.5	88.7	203.3	-91.26	-6,405.1	1,104.5	932.3	671.3	261.03	3.572	
14,700.0	9,720.0	9,658.8	9,657.7	90.1	203.2	-91.08	-6,405.2	1,104.5	856.1	590.5	265.62	3.223	
14,800.0	9,720.0	9,657.1	9,656.0	91.4	203.2	-90.91	-6,405.2	1,104.5	785.4	514.4	270.99	2.898	
14,900.0	9,720.0	9,655.4	9,654.2	92.8	203.1	-90.74	-6,405.2	1,104.5	721.5	444.4	277.10	2.604	
15,000.0	9,720.0	9,653.6	9,652.5	94.1	203.1	-90.56	-6,405.3	1,104.5	666.7	382.9	283.73	2.350	
15,100.0	9,720.0	9,651.9	9,650.8	95.4	203.1	-90.39	-6,405.3	1,104.5	623.1	332.7	290.38	2.146	
15,200.0	9,720.0	9,650.1	9,649.0	96.8	203.0	-90.22	-6,405.3	1,104.5	593.3	297.1	296.28	2.003	
15,300.0	9,720.0	9,648.4	9,647.3	98.1	203.0	-90.05	-6,405.4	1,104.5	579.5	279.0	300.50	1.929	
15,331.1	9,720.0	9,647.8	9,646.7	98.6	203.0	-89.99	-6,405.4	1,104.5	578.7	277.3	301.34	1.920	CC, ES, SF
15,400.0	9,720.0	9,646.6	9,645.5	99.5	202.9	-89.87	-6,405.4	1,104.5	582.8	280.4	302.35	1.927	
15,500.0	9,720.0	9,644.9	9,643.8	100.9	202.9	-89.70	-6,405.4	1,104.5	602.8	301.1	301.73	1.998	
15,600.0	9,720.0	9,643.1	9,642.0	102.2	202.9	-89.53	-6,405.5	1,104.5	638.1	339.0	299.13	2.133	
15,700.0	9,720.0	9,641.4	9,640.3	103.6	202.8	-89.35	-6,405.5	1,104.5	686.3	390.9	295.32	2.324	
15,800.0	9,720.0	9,639.7	9,638.5	104.9	202.8	-89.18	-6,405.5	1,104.5	744.8	453.8	291.00	2.559	
15,900.0	9,720.0	9,637.9	9,636.8	106.3	202.8	-89.01	-6,405.5	1,104.5	811.5	524.8	286.66	2.831	
16,000.0	9,720.0	9,636.2	9,635.0	107.7	202.7	-88.84	-6,405.6	1,104.5	884.4	601.9	282.56	3.130	
16,100.0	9,720.0	9,634.4	9,633.3	109.1	202.7	-88.66	-6,405.6	1,104.5	962.3	683.4	278.84	3.451	
16,200.0	9,720.0	9,632.7	9,631.6	110.4	202.6	-88.49	-6,405.6	1,104.5	1,043.9	768.4	275.53	3.789	
16,300.0	9,720.0	9,630.9	9,629.8	111.8	202.6	-88.32	-6,405.7	1,104.5	1,128.5	855.9	272.60	4.140	
16,400.0	9,720.0	9,629.2	9,628.1	113.2	202.6	-88.15	-6,405.7	1,104.5	1,215.4	945.3	270.04	4.501	
16,500.0	9,720.0	9,627.4	9,626.3	114.6	202.5	-87.97	-6,405.7	1,104.5	1,304.2	1,036.4	267.78	4.870	
16,600.0	9,720.0	9,625.7	9,624.6	115.9	202.5	-87.80	-6,405.8	1,104.5	1,394.5	1,128.7	265.81	5.246	
16,700.0	9,720.0	9,623.9	9,622.8	117.3	202.4	-87.63	-6,405.8	1,104.5	1,486.0	1,222.0	264.07	5.628	
16,800.0	9,720.0	9,622.2	9,621.1	118.7	202.4	-87.46	-6,405.8	1,104.5	1,578.6	1,316.1	262.53	6.013	
16,900.0	9,720.0	9,620.5	9,619.3	120.1	202.4	-87.28	-6,405.8	1,104.5	1,672.0	1,410.9	261.17	6.402	
17,000.0	9,720.0	9,618.7	9,617.6	121.5	202.3	-87.11	-6,405.9	1,104.5	1,766.2	1,506.2	259.96	6.794	
17,100.0	9,720.0	9,617.0	9,615.9	122.9	202.3	-86.94	-6,405.9	1,104.5	1,860.9	1,602.0	258.89	7.188	
17,200.0	9,720.0	9,615.2	9,614.1	124.3	202.2	-86.77	-6,405.9	1,104.5	1,956.2	1,698.3	257.92	7.584	
17,300.0	9,720.0	9,613.5	9,612.4	125.6	202.2	-86.59	-6,406.0	1,104.5	2,051.9	1,794.9	257.06	7.982	
17,400.0	9,720.0	9,611.7	9,610.6	127.0	202.2	-86.42	-6,406.0	1,104.5	2,148.0	1,891.8	256.28	8.382	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,700.0	9,720.0	9,654.5	9,653.8	90.1	193.9	92.00	-7,762.4	-207.6	2,113.3	1,869.3	244.00	8.661	
14,800.0	9,720.0	9,653.2	9,652.5	91.4	193.8	91.90	-7,762.4	-207.6	2,020.0	1,774.7	245.30	8.235	
14,900.0	9,720.0	9,651.9	9,651.1	92.8	193.8	91.80	-7,762.4	-207.6	1,927.4	1,680.6	246.76	7.811	
15,000.0	9,720.0	9,650.6	9,649.8	94.1	193.8	91.70	-7,762.4	-207.6	1,835.5	1,587.2	248.38	7.390	
15,100.0	9,720.0	9,649.3	9,648.5	95.4	193.8	91.60	-7,762.4	-207.6	1,744.6	1,494.4	250.20	6.973	
15,200.0	9,720.0	9,648.0	9,647.2	96.8	193.7	91.50	-7,762.5	-207.6	1,654.7	1,402.5	252.24	6.560	
15,300.0	9,720.0	9,646.7	9,645.9	98.1	193.7	91.39	-7,762.5	-207.6	1,566.0	1,311.5	254.54	6.152	
15,400.0	9,720.0	9,645.4	9,644.6	99.5	193.7	91.29	-7,762.5	-207.6	1,478.8	1,221.7	257.12	5.751	
15,500.0	9,720.0	9,644.1	9,643.3	100.9	193.7	91.19	-7,762.5	-207.6	1,393.3	1,133.3	260.03	5.358	
15,600.0	9,720.0	9,642.7	9,642.0	102.2	193.6	91.09	-7,762.5	-207.6	1,309.8	1,046.5	263.30	4.975	
15,700.0	9,720.0	9,641.4	9,640.7	103.6	193.6	90.99	-7,762.5	-207.6	1,228.8	961.9	266.97	4.603	
15,800.0	9,720.0	9,640.1	9,639.4	104.9	193.6	90.89	-7,762.6	-207.6	1,150.9	879.8	271.07	4.246	
15,900.0	9,720.0	9,638.8	9,638.1	106.3	193.6	90.79	-7,762.6	-207.6	1,076.5	800.9	275.62	3.906	
16,000.0	9,720.0	9,637.5	9,636.8	107.7	193.5	90.69	-7,762.6	-207.6	1,006.6	726.0	280.61	3.587	
16,100.0	9,720.0	9,636.2	9,635.4	109.1	193.5	90.59	-7,762.6	-207.6	942.1	656.2	285.95	3.295	
16,200.0	9,720.0	9,634.9	9,634.1	110.4	193.5	90.49	-7,762.6	-207.6	884.3	592.8	291.52	3.033	
16,300.0	9,720.0	9,633.6	9,632.8	111.8	193.5	90.39	-7,762.6	-207.6	834.5	537.5	297.05	2.809	
16,400.0	9,720.0	9,632.3	9,631.5	113.2	193.4	90.29	-7,762.7	-207.6	794.2	492.1	302.16	2.628	
16,500.0	9,720.0	9,631.0	9,630.2	114.6	193.4	90.19	-7,762.7	-207.6	764.9	458.6	306.37	2.497	
16,600.0	9,720.0	9,629.7	9,628.9	115.9	193.4	90.08	-7,762.7	-207.6	748.0	438.8	309.20	2.419	
16,678.2	9,720.0	9,628.6	9,627.9	117.0	193.4	90.01	-7,762.7	-207.6	743.9	433.7	310.21	2.398	CC, ES, SF
16,700.0	9,720.0	9,628.3	9,627.6	117.3	193.4	89.98	-7,762.7	-207.6	744.2	434.0	310.28	2.399	
16,800.0	9,720.0	9,627.0	9,626.3	118.7	193.3	89.88	-7,762.7	-207.6	753.8	444.3	309.49	2.436	
16,900.0	9,720.0	9,625.7	9,625.0	120.1	193.3	89.78	-7,762.7	-207.6	776.3	469.3	307.00	2.529	
17,000.0	9,720.0	9,624.4	9,623.7	121.5	193.3	89.68	-7,762.8	-207.6	810.5	507.3	303.23	2.673	
17,100.0	9,720.0	9,623.1	9,622.4	122.9	193.2	89.58	-7,762.8	-207.6	855.2	556.5	298.65	2.863	
17,200.0	9,720.0	9,621.8	9,621.0	124.3	193.2	89.48	-7,762.8	-207.6	908.7	615.0	293.69	3.094	
17,300.0	9,720.0	9,620.5	9,619.7	125.6	193.2	89.38	-7,762.8	-207.6	969.5	680.8	288.71	3.358	
17,400.0	9,720.0	9,619.2	9,618.4	127.0	193.2	89.28	-7,762.8	-207.6	1,036.5	752.6	283.91	3.651	
17,500.0	9,720.0	9,617.9	9,617.1	128.4	193.1	89.18	-7,762.8	-207.6	1,108.5	829.0	279.43	3.967	
17,600.0	9,720.0	9,616.6	9,615.8	129.8	193.1	89.08	-7,762.9	-207.6	1,184.5	909.2	275.32	4.302	
17,700.0	9,720.0	9,615.3	9,614.5	131.2	193.1	88.98	-7,762.9	-207.6	1,263.9	992.3	271.60	4.653	
17,800.0	9,720.0	9,613.9	9,613.2	132.6	193.1	88.88	-7,762.9	-207.6	1,346.0	1,077.7	268.26	5.018	
17,900.0	9,720.0	9,612.6	9,611.9	134.0	193.0	88.77	-7,762.9	-207.6	1,430.4	1,165.1	265.26	5.392	
18,000.0	9,720.0	9,611.3	9,610.6	135.4	193.0	88.67	-7,762.9	-207.6	1,516.7	1,254.1	262.58	5.776	
18,100.0	9,720.0	9,610.0	9,609.3	136.8	193.0	88.57	-7,762.9	-207.6	1,604.6	1,344.4	260.19	6.167	
18,200.0	9,720.0	9,608.7	9,608.0	138.2	193.0	88.47	-7,763.0	-207.6	1,693.8	1,435.7	258.05	6.564	
18,300.0	9,720.0	9,607.4	9,606.6	139.6	192.9	88.37	-7,763.0	-207.6	1,784.2	1,528.0	256.14	6.966	
18,400.0	9,720.0	9,606.1	9,605.3	141.0	192.9	88.27	-7,763.0	-207.6	1,875.5	1,621.1	254.43	7.371	
18,500.0	9,720.0	9,604.8	9,604.0	142.4	192.9	88.17	-7,763.0	-207.6	1,967.7	1,714.8	252.90	7.781	
18,600.0	9,720.0	9,603.5	9,602.7	143.8	192.9	88.07	-7,763.0	-207.6	2,060.6	1,809.1	251.52	8.193	
18,700.0	9,720.0	9,602.2	9,601.4	145.2	192.8	87.97	-7,763.1	-207.6	2,154.2	1,903.9	250.29	8.607	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	2.4	2.4	0.0	0.0	-7.93	159.6	-22.2	161.1				
100.0	100.0	102.4	102.4	0.1	0.1	-7.93	159.6	-22.2	161.1	160.9	0.27	592.223	
200.0	200.0	202.4	202.4	0.5	0.5	-7.93	159.6	-22.2	161.1	160.1	0.99	162.921	
300.0	300.0	302.4	302.4	0.8	0.9	-7.93	159.6	-22.2	161.1	159.4	1.71	94.452	
400.0	400.0	402.4	402.4	1.2	1.2	-7.93	159.6	-22.2	161.1	158.7	2.42	66.504	
500.0	500.0	502.4	502.4	1.6	1.6	-7.93	159.6	-22.2	161.1	158.0	3.14	51.318	
600.0	600.0	602.4	602.4	1.9	1.9	-7.93	159.6	-22.2	161.1	157.3	3.86	41.779	
700.0	700.0	702.4	702.4	2.3	2.3	-7.93	159.6	-22.2	161.1	156.6	4.57	35.230	
800.0	800.0	802.4	802.4	2.6	2.6	-7.93	159.6	-22.2	161.1	155.8	5.29	30.456	
900.0	900.0	902.4	902.4	3.0	3.0	-7.93	159.6	-22.2	161.1	155.1	6.01	26.821	
1,000.0	1,000.0	1,002.4	1,002.4	3.4	3.4	-7.93	159.6	-22.2	161.1	154.4	6.72	23.962	
1,100.0	1,100.0	1,102.4	1,102.4	3.7	3.7	-7.93	159.6	-22.2	161.1	153.7	7.44	21.653	
1,200.0	1,200.0	1,202.4	1,202.4	4.1	4.1	-7.93	159.6	-22.2	161.1	153.0	8.16	19.750	
1,300.0	1,300.0	1,302.4	1,302.4	4.4	4.4	-7.93	159.6	-22.2	161.1	152.3	8.88	18.155	
1,400.0	1,400.0	1,402.4	1,402.4	4.8	4.8	-7.93	159.6	-22.2	161.1	151.5	9.59	16.798	
1,500.0	1,500.0	1,502.4	1,502.4	5.2	5.2	-7.93	159.6	-22.2	161.1	150.8	10.31	15.630	
1,600.0	1,600.0	1,602.4	1,602.4	5.5	5.5	-7.93	159.6	-22.2	161.1	150.1	11.03	14.614	
1,700.0	1,700.0	1,702.4	1,702.4	5.9	5.9	-7.93	159.6	-22.2	161.1	149.4	11.74	13.721	
1,800.0	1,800.0	1,802.4	1,802.4	6.2	6.2	-7.93	159.6	-22.2	161.1	148.7	12.46	12.932	
1,900.0	1,900.0	1,902.4	1,902.4	6.6	6.6	-7.93	159.6	-22.2	161.1	148.0	13.18	12.228	
2,000.0	2,000.0	2,002.5	2,002.5	6.9	7.0	-7.93	159.6	-22.2	161.1	147.2	13.89	11.597	
2,100.0	2,100.0	2,108.4	2,108.4	7.3	7.3	-7.92	157.6	-21.9	159.2	144.6	14.60	10.901	
2,200.0	2,200.0	2,214.1	2,213.9	7.7	7.7	-7.87	151.7	-21.0	153.6	138.3	15.28	10.051	
2,300.0	2,300.0	2,316.2	2,315.6	8.0	8.0	-151.59	142.9	-19.6	146.4	130.4	15.94	9.185	
2,400.0	2,399.8	2,416.1	2,415.1	8.3	8.3	-152.57	134.0	-18.1	141.9	125.4	16.59	8.554	
2,489.0	2,488.5	2,505.0	2,503.7	8.6	8.6	-154.01	126.0	-16.8	140.7	123.5	17.18	8.185	CC
2,500.0	2,499.5	2,516.0	2,514.6	8.7	8.7	-154.22	125.1	-16.7	140.7	123.4	17.26	8.152	ES
2,600.0	2,598.7	2,615.8	2,614.0	9.0	9.0	-156.44	116.1	-15.2	142.7	124.8	17.93	7.960	
2,700.0	2,697.8	2,715.6	2,713.3	9.3	9.3	-158.79	107.2	-13.8	146.2	127.6	18.60	7.861	
2,800.0	2,796.9	2,815.3	2,812.7	9.7	9.7	-161.04	98.3	-12.4	150.0	130.7	19.28	7.779	
2,900.0	2,895.9	2,915.1	2,912.1	10.0	10.0	-163.17	89.4	-10.9	153.9	134.0	19.96	7.712	
3,000.0	2,995.0	3,014.9	3,011.4	10.4	10.4	-165.20	80.5	-9.5	158.1	137.4	20.64	7.659	
3,100.0	3,094.1	3,114.6	3,110.8	10.7	10.7	-167.11	71.5	-8.1	162.4	141.1	21.33	7.616	
3,200.0	3,193.2	3,214.4	3,210.1	11.1	11.1	-168.93	62.6	-6.6	167.0	144.9	22.02	7.582	
3,300.0	3,292.3	3,314.1	3,309.5	11.5	11.4	-170.65	53.7	-5.2	171.7	148.9	22.72	7.557	
3,400.0	3,391.4	3,413.9	3,408.8	11.8	11.8	-172.27	44.8	-3.8	176.5	153.1	23.41	7.538	
3,500.0	3,490.4	3,513.7	3,508.2	12.2	12.2	-173.81	35.9	-2.3	181.5	157.3	24.11	7.525	
3,600.0	3,589.5	3,613.4	3,607.5	12.6	12.5	-175.27	26.9	-0.9	186.5	161.7	24.81	7.518	
3,700.0	3,688.6	3,713.2	3,706.9	13.0	12.9	-176.65	18.0	0.6	191.7	166.2	25.52	7.514	
3,800.0	3,787.7	3,812.9	3,806.2	13.3	13.2	-177.95	9.1	2.0	197.1	170.8	26.23	7.514	
3,900.0	3,886.8	3,912.7	3,905.6	13.7	13.6	-179.19	0.2	3.4	202.5	175.5	26.94	7.517	
4,000.0	3,985.8	4,012.5	4,004.9	14.1	14.0	179.64	-8.7	4.9	208.0	180.3	27.65	7.522	
4,100.0	4,084.9	4,112.2	4,104.3	14.5	14.3	178.53	-17.6	6.3	213.5	185.2	28.36	7.529	
4,200.0	4,184.0	4,212.0	4,203.6	14.9	14.7	177.48	-26.6	7.7	219.2	190.1	29.08	7.538	
4,300.0	4,283.1	4,311.8	4,303.0	15.2	15.1	176.48	-35.5	9.2	224.9	195.1	29.79	7.549	
4,400.0	4,382.2	4,411.5	4,402.3	15.6	15.4	175.53	-44.4	10.6	230.7	200.2	30.51	7.561	
4,500.0	4,481.2	4,511.3	4,501.7	16.0	15.8	174.62	-53.3	12.0	236.5	205.3	31.23	7.573	
4,600.0	4,580.3	4,611.0	4,601.0	16.4	16.2	173.76	-62.2	13.5	242.5	210.5	31.96	7.587	
4,700.0	4,679.4	4,710.8	4,700.4	16.8	16.5	172.95	-71.2	14.9	248.4	215.7	32.68	7.601	
4,800.0	4,778.5	4,810.6	4,799.7	17.2	16.9	172.17	-80.1	16.4	254.4	221.0	33.41	7.616	
4,900.0	4,877.6	4,910.3	4,899.1	17.6	17.3	171.42	-89.0	17.8	260.5	226.3	34.13	7.631	
5,000.0	4,976.7	5,010.1	4,998.4	18.0	17.7	170.71	-97.9	19.2	266.6	231.7	34.86	7.646	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.0	5,075.7	5,109.8	5,097.8	18.3	18.0	170.03	-106.8	20.7	272.7	237.1	35.59	7.661	
5,200.0	5,174.8	5,209.6	5,197.1	18.7	18.4	169.38	-115.8	22.1	278.9	242.5	36.32	7.677	
5,300.0	5,273.9	5,309.4	5,296.5	19.1	18.8	168.76	-124.7	23.5	285.1	248.0	37.06	7.693	
5,400.0	5,373.0	5,409.1	5,395.8	19.5	19.1	168.17	-133.6	25.0	291.3	253.5	37.79	7.708	
5,500.0	5,472.1	5,508.9	5,495.2	19.9	19.5	167.60	-142.5	26.4	297.6	259.0	38.52	7.724	
5,600.0	5,571.1	5,608.6	5,594.5	20.3	19.9	167.05	-151.4	27.8	303.8	264.6	39.26	7.739	
5,700.0	5,670.2	5,708.4	5,693.9	20.7	20.3	166.53	-160.3	29.3	310.2	270.2	40.00	7.755	
5,800.0	5,769.3	5,808.2	5,793.2	21.1	20.6	166.03	-169.3	30.7	316.5	275.8	40.73	7.770	
5,900.0	5,868.4	5,907.9	5,892.6	21.5	21.0	165.54	-178.2	32.2	322.9	281.4	41.47	7.785	
6,000.0	5,967.5	6,007.7	5,991.9	21.9	21.4	165.08	-187.1	33.6	329.3	287.0	42.21	7.800	
6,100.0	6,066.6	6,107.5	6,091.3	22.3	21.8	164.63	-196.0	35.0	335.7	292.7	42.95	7.815	
6,200.0	6,165.6	6,207.2	6,190.6	22.7	22.1	164.20	-204.9	36.5	342.1	298.4	43.69	7.830	
6,300.0	6,264.7	6,307.0	6,290.0	23.1	22.5	163.79	-213.9	37.9	348.5	304.1	44.43	7.844	
6,400.0	6,363.8	6,406.7	6,389.3	23.5	22.9	163.39	-222.8	39.3	355.0	309.8	45.17	7.859	
6,500.0	6,462.9	6,506.5	6,488.7	23.9	23.3	163.01	-231.7	40.8	361.5	315.6	45.92	7.873	
6,600.0	6,562.0	6,606.3	6,588.0	24.3	23.6	162.64	-240.6	42.2	368.0	321.3	46.66	7.886	
6,700.0	6,661.0	6,706.0	6,687.4	24.7	24.0	162.28	-249.5	43.6	374.5	327.1	47.40	7.900	
6,800.0	6,760.1	6,805.8	6,786.7	25.1	24.4	161.93	-258.5	45.1	381.0	332.9	48.15	7.913	
6,900.0	6,859.2	6,905.5	6,886.1	25.5	24.8	161.60	-267.4	46.5	387.6	338.7	48.89	7.926	
7,000.0	6,958.3	7,005.3	6,985.4	25.9	25.1	161.27	-276.3	48.0	394.1	344.5	49.64	7.939	
7,100.0	7,057.4	7,105.1	7,084.8	26.3	25.5	160.96	-285.2	49.4	400.7	350.3	50.39	7.952	
7,200.0	7,156.4	7,204.8	7,184.1	26.7	25.9	160.66	-294.1	50.8	407.2	356.1	51.13	7.964	
7,300.0	7,255.5	7,304.6	7,283.5	27.1	26.3	160.37	-303.0	52.3	413.8	361.9	51.88	7.977	
7,400.0	7,354.6	7,404.3	7,382.8	27.5	26.6	160.08	-312.0	53.7	420.4	367.8	52.63	7.989	
7,500.0	7,453.7	7,504.1	7,482.2	27.9	27.0	159.81	-320.9	55.1	427.0	373.7	53.38	8.000	
7,600.0	7,552.8	7,603.9	7,581.6	28.3	27.4	159.54	-329.8	56.6	433.6	379.5	54.12	8.012	
7,700.0	7,651.9	7,703.6	7,680.9	28.7	27.8	159.28	-338.7	58.0	440.3	385.4	54.87	8.023	
7,800.0	7,750.9	7,803.4	7,780.3	29.1	28.1	159.03	-347.6	59.5	446.9	391.3	55.62	8.035	
7,900.0	7,850.0	7,903.1	7,879.6	29.5	28.5	158.79	-356.6	60.9	453.5	397.2	56.37	8.045	
8,000.0	7,949.1	8,002.9	7,979.0	29.9	28.9	158.55	-365.5	62.3	460.2	403.1	57.12	8.056	
8,100.0	8,048.2	8,102.7	8,078.3	30.3	29.3	158.32	-374.4	63.8	466.9	409.0	57.87	8.067	
8,200.0	8,147.3	8,202.4	8,177.7	30.7	29.6	158.10	-383.3	65.2	473.3	414.7	58.62	8.074	
8,300.0	8,246.7	8,302.3	8,277.1	31.0	30.0	157.78	-392.2	66.6	477.2	417.9	59.37	8.038	
8,400.0	8,346.5	8,402.2	8,376.6	31.4	30.4	157.28	-401.2	68.1	478.0	417.8	60.12	7.950	
8,500.0	8,446.4	8,502.0	8,476.0	31.8	30.8	156.59	-410.1	69.5	475.5	414.7	60.87	7.812	
8,600.0	8,546.4	8,601.7	8,575.2	32.1	31.2	-60.86	-419.0	70.9	470.3	408.7	61.61	7.634	
8,700.0	8,646.4	8,701.2	8,674.4	32.4	31.5	-61.73	-427.9	72.4	464.7	402.4	62.34	7.455	
8,800.0	8,746.4	8,800.8	8,773.6	32.7	31.9	-62.63	-436.8	73.8	459.3	396.2	63.07	7.282	
8,900.0	8,846.4	8,900.4	8,872.8	33.0	32.3	-63.55	-445.7	75.2	453.9	390.1	63.81	7.114	
9,000.0	8,946.4	9,000.0	8,972.0	33.4	32.7	-64.48	-454.6	76.7	448.7	384.2	64.54	6.952	
9,100.0	9,046.4	9,099.6	9,071.1	33.7	33.0	-65.44	-463.5	78.1	443.6	378.3	65.28	6.795	
9,200.0	9,146.4	9,199.2	9,170.3	34.0	33.4	-66.42	-472.4	79.5	438.6	372.6	66.02	6.644	
9,300.0	9,246.4	9,298.3	9,269.0	34.3	33.8	113.04	-481.3	81.0	433.8	367.0	66.76	6.498	
9,343.9	9,290.2	9,338.9	9,309.5	34.5	33.9	113.04	-484.6	81.5	432.8	365.8	67.07	6.453	
9,400.0	9,345.6	9,390.6	9,361.1	34.7	34.1	113.48	-487.9	82.0	434.4	367.0	67.43	6.442	
9,500.0	9,440.3	9,478.9	9,449.3	35.1	34.5	115.18	-491.5	82.6	445.8	377.8	67.99	6.556	
9,600.0	9,526.3	9,558.3	9,528.7	35.6	34.7	117.02	-492.4	82.8	470.2	401.8	68.41	6.873	
9,700.0	9,599.9	9,631.9	9,602.3	36.1	35.0	118.06	-492.4	82.8	509.5	440.7	68.77	7.409	
9,800.0	9,657.9	9,689.9	9,660.3	36.7	35.1	116.43	-492.4	82.8	564.0	494.9	69.01	8.172	
9,900.0	9,697.8	9,729.8	9,700.2	37.3	35.3	110.47	-492.4	82.8	632.2	563.1	69.15	9.143	
10,000.0	9,717.8	10,614.5	10,200.0	37.9	40.0	140.26	-1,082.2	87.4	622.8	564.0	58.84	10.584	
10,096.0	9,722.6	10,710.3	10,200.0	38.5	40.7	140.11	-1,178.0	88.2	619.1	559.2	59.88	10.339	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.0	9,720.0	10,714.4	10,200.0	38.5	40.7	140.26	-1,182.1	88.2	621.1	561.3	59.81	10.384	
10,200.0	9,720.0	10,814.4	10,200.0	39.1	41.4	140.26	-1,282.1	89.0	621.1	560.3	60.75	10.223	
10,300.0	9,720.0	10,914.4	10,200.0	39.8	42.2	140.26	-1,382.1	89.8	621.1	559.3	61.76	10.056	
10,400.0	9,720.0	11,014.4	10,200.0	40.5	42.9	140.27	-1,482.1	90.5	621.1	558.2	62.83	9.884	
10,500.0	9,720.0	11,114.4	10,200.0	41.3	43.8	140.27	-1,582.1	91.3	621.0	557.1	63.96	9.709	
10,600.0	9,720.0	11,214.4	10,200.0	42.1	44.6	140.27	-1,682.1	92.1	621.0	555.9	65.15	9.533	
10,700.0	9,720.0	11,314.4	10,200.0	42.9	45.5	140.27	-1,782.1	92.9	621.0	554.6	66.39	9.355	
10,800.0	9,720.0	11,414.4	10,200.0	43.8	46.4	140.27	-1,882.1	93.7	621.0	553.4	67.67	9.177	
10,900.0	9,720.0	11,514.4	10,200.0	44.7	47.3	140.27	-1,982.1	94.5	621.0	552.0	69.01	8.999	
11,000.0	9,720.0	11,614.4	10,200.0	45.6	48.3	140.27	-2,082.1	95.3	621.0	550.6	70.39	8.823	
11,100.0	9,720.0	11,714.4	10,200.0	46.6	49.3	140.27	-2,182.0	96.0	621.0	549.2	71.81	8.648	
11,200.0	9,720.0	11,814.4	10,200.0	47.6	50.3	140.27	-2,282.0	96.8	621.0	547.7	73.26	8.476	
11,300.0	9,720.0	11,914.4	10,200.0	48.6	51.3	140.27	-2,382.0	97.6	621.0	546.2	74.76	8.306	
11,400.0	9,720.0	12,014.4	10,200.0	49.6	52.4	140.27	-2,482.0	98.4	621.0	544.7	76.29	8.140	
11,500.0	9,720.0	12,114.4	10,200.0	50.6	53.4	140.27	-2,582.0	99.2	621.0	543.1	77.85	7.976	
11,600.0	9,720.0	12,214.4	10,200.0	51.7	54.5	140.27	-2,682.0	100.0	621.0	541.5	79.45	7.816	
11,700.0	9,720.0	12,314.4	10,200.0	52.8	55.6	140.27	-2,782.0	100.8	621.0	539.9	81.07	7.659	
11,800.0	9,720.0	12,414.4	10,200.0	53.9	56.7	140.28	-2,882.0	101.6	621.0	538.2	82.72	7.507	
11,900.0	9,720.0	12,514.4	10,200.0	55.0	57.9	140.28	-2,982.0	102.3	621.0	536.6	84.40	7.357	
12,000.0	9,720.0	12,614.4	10,200.0	56.1	59.0	140.28	-3,082.0	103.1	620.9	534.9	86.10	7.212	
12,100.0	9,720.0	12,714.4	10,200.0	57.2	60.2	140.28	-3,182.0	103.9	620.9	533.1	87.82	7.071	
12,200.0	9,720.0	12,814.4	10,200.0	58.4	61.3	140.28	-3,282.0	104.7	620.9	531.4	89.56	6.933	
12,300.0	9,720.0	12,914.4	10,200.0	59.6	62.5	140.28	-3,382.0	105.5	620.9	529.6	91.33	6.799	
12,400.0	9,720.0	13,014.4	10,200.0	60.7	63.7	140.28	-3,482.0	106.3	620.9	527.8	93.11	6.669	
12,500.0	9,720.0	13,114.4	10,200.0	61.9	64.9	140.28	-3,582.0	107.1	620.9	526.0	94.91	6.542	
12,600.0	9,720.0	13,214.4	10,200.0	63.1	66.1	140.28	-3,682.0	107.8	620.9	524.2	96.73	6.419	
12,700.0	9,720.0	13,314.4	10,200.0	64.4	67.3	140.28	-3,782.0	108.6	620.9	522.3	98.57	6.299	
12,800.0	9,720.0	13,414.4	10,200.0	65.6	68.6	140.28	-3,882.0	109.4	620.9	520.5	100.42	6.183	
12,900.0	9,720.0	13,514.4	10,200.0	66.8	69.8	140.28	-3,982.0	110.2	620.9	518.6	102.28	6.071	
13,000.0	9,720.0	13,614.4	10,200.0	68.0	71.1	140.28	-4,082.0	111.0	620.9	516.7	104.16	5.961	
13,100.0	9,720.0	13,714.4	10,200.0	69.3	72.3	140.29	-4,182.0	111.8	620.9	514.8	106.05	5.855	
13,200.0	9,720.0	13,814.4	10,200.0	70.5	73.6	140.29	-4,282.0	112.6	620.9	512.9	107.95	5.752	
13,300.0	9,720.0	13,914.4	10,200.0	71.8	74.8	140.29	-4,382.0	113.3	620.9	511.0	109.86	5.651	
13,400.0	9,720.0	14,014.4	10,200.0	73.1	76.1	140.29	-4,482.0	114.1	620.9	509.1	111.79	5.554	
13,500.0	9,720.0	14,114.4	10,200.0	74.4	77.4	140.29	-4,582.0	114.9	620.8	507.1	113.72	5.459	
13,600.0	9,720.0	14,214.4	10,200.0	75.6	78.7	140.29	-4,682.0	115.7	620.8	505.2	115.67	5.368	
13,700.0	9,720.0	14,314.4	10,200.0	76.9	80.0	140.29	-4,782.0	116.5	620.8	503.2	117.62	5.278	
13,800.0	9,720.0	14,414.4	10,200.0	78.2	81.3	140.29	-4,882.0	117.3	620.8	501.2	119.58	5.192	
13,900.0	9,720.0	14,514.4	10,200.0	79.5	82.6	140.29	-4,982.0	118.1	620.8	499.3	121.56	5.107	
14,000.0	9,720.0	14,614.4	10,200.0	80.8	83.9	140.29	-5,082.0	118.9	620.8	497.3	123.53	5.025	
14,100.0	9,720.0	14,714.4	10,200.0	82.1	85.2	140.29	-5,182.0	119.6	620.8	495.3	125.52	4.946	
14,200.0	9,720.0	14,814.4	10,200.0	83.4	86.5	140.29	-5,282.0	120.4	620.8	493.3	127.52	4.868	
14,300.0	9,720.0	14,914.4	10,200.0	84.8	87.8	140.29	-5,381.9	121.2	620.8	491.3	129.52	4.793	
14,400.0	9,720.0	15,014.4	10,200.0	86.1	89.2	140.29	-5,481.9	122.0	620.8	489.3	131.53	4.720	
14,500.0	9,720.0	15,114.4	10,200.0	87.4	90.5	140.30	-5,581.9	122.8	620.8	487.2	133.54	4.649	
14,600.0	9,720.0	15,214.4	10,200.0	88.7	91.8	140.30	-5,681.9	123.6	620.8	485.2	135.56	4.579	
14,700.0	9,720.0	15,314.4	10,200.0	90.1	93.2	140.30	-5,781.9	124.4	620.8	483.2	137.59	4.512	
14,800.0	9,720.0	15,414.4	10,200.0	91.4	94.5	140.30	-5,881.9	125.1	620.8	481.1	139.62	4.446	
14,900.0	9,720.0	15,514.4	10,200.0	92.8	95.8	140.30	-5,981.9	125.9	620.8	479.1	141.66	4.382	
15,000.0	9,720.0	15,614.4	10,200.0	94.1	97.2	140.30	-6,081.9	126.7	620.8	477.1	143.70	4.320	
15,100.0	9,720.0	15,714.4	10,200.0	95.4	98.5	140.30	-6,181.9	127.5	620.7	475.0	145.75	4.259	
15,200.0	9,720.0	15,814.4	10,200.0	96.8	99.9	140.30	-6,281.9	128.3	620.7	472.9	147.80	4.200	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,300.0	9,720.0	15,914.4	10,200.0	98.1	101.2	140.30	-6,381.9	129.1	620.7	470.9	149.85	4.142	
15,400.0	9,720.0	16,014.4	10,200.0	99.5	102.6	140.30	-6,481.9	129.9	620.7	468.8	151.91	4.086	
15,500.0	9,720.0	16,114.4	10,200.0	100.9	103.9	140.30	-6,581.9	130.6	620.7	466.7	153.98	4.031	
15,600.0	9,720.0	16,214.4	10,200.0	102.2	105.3	140.30	-6,681.9	131.4	620.7	464.7	156.05	3.978	
15,700.0	9,720.0	16,314.4	10,200.0	103.6	106.7	140.30	-6,781.9	132.2	620.7	462.6	158.12	3.926	
15,800.0	9,720.0	16,414.4	10,200.0	104.9	108.0	140.31	-6,881.9	133.0	620.7	460.5	160.19	3.875	
15,900.0	9,720.0	16,514.4	10,200.0	106.3	109.4	140.31	-6,981.9	133.8	620.7	458.4	162.27	3.825	
16,000.0	9,720.0	16,614.4	10,200.0	107.7	110.8	140.31	-7,081.9	134.6	620.7	456.3	164.36	3.776	
16,100.0	9,720.0	16,714.4	10,200.0	109.1	112.1	140.31	-7,181.9	135.4	620.7	454.2	166.44	3.729	
16,200.0	9,720.0	16,814.4	10,200.0	110.4	113.5	140.31	-7,281.9	136.2	620.7	452.1	168.53	3.683	
16,300.0	9,720.0	16,914.4	10,200.0	111.8	114.9	140.31	-7,381.9	136.9	620.7	450.0	170.62	3.638	
16,400.0	9,720.0	17,014.4	10,200.0	113.2	116.3	140.31	-7,481.9	137.7	620.7	447.9	172.72	3.593	
16,500.0	9,720.0	17,114.4	10,200.0	114.6	117.6	140.31	-7,581.9	138.5	620.7	445.8	174.82	3.550	
16,600.0	9,720.0	17,214.4	10,200.0	115.9	119.0	140.31	-7,681.9	139.3	620.6	443.7	176.92	3.508	
16,700.0	9,720.0	17,314.4	10,200.0	117.3	120.4	140.31	-7,781.9	140.1	620.6	441.6	179.02	3.467	
16,800.0	9,720.0	17,414.4	10,200.0	118.7	121.8	140.31	-7,881.9	140.9	620.6	439.5	181.12	3.427	
16,900.0	9,720.0	17,514.4	10,200.0	120.1	123.2	140.31	-7,981.9	141.7	620.6	437.4	183.23	3.387	
17,000.0	9,720.0	17,614.4	10,200.0	121.5	124.6	140.31	-8,081.9	142.4	620.6	435.3	185.34	3.348	
17,100.0	9,720.0	17,714.4	10,200.0	122.9	125.9	140.31	-8,181.9	143.2	620.6	433.2	187.46	3.311	
17,200.0	9,720.0	17,814.4	10,200.0	124.3	127.3	140.32	-8,281.9	144.0	620.6	431.0	189.57	3.274	
17,300.0	9,720.0	17,914.4	10,200.0	125.6	128.7	140.32	-8,381.9	144.8	620.6	428.9	191.69	3.238	
17,400.0	9,720.0	18,014.4	10,200.0	127.0	130.1	140.32	-8,481.9	145.6	620.6	426.8	193.81	3.202	
17,500.0	9,720.0	18,114.4	10,200.0	128.4	131.5	140.32	-8,581.9	146.4	620.6	424.7	195.93	3.167	
17,600.0	9,720.0	18,214.4	10,200.0	129.8	132.9	140.32	-8,681.8	147.2	620.6	422.5	198.05	3.133	
17,700.0	9,720.0	18,314.4	10,200.0	131.2	134.3	140.32	-8,781.8	147.9	620.6	420.4	200.17	3.100	
17,800.0	9,720.0	18,414.4	10,200.0	132.6	135.7	140.32	-8,881.8	148.7	620.6	418.3	202.30	3.068	
17,900.0	9,720.0	18,514.4	10,200.0	134.0	137.1	140.32	-8,981.8	149.5	620.6	416.1	204.43	3.036	
18,000.0	9,720.0	18,614.4	10,200.0	135.4	138.5	140.32	-9,081.8	150.3	620.6	414.0	206.56	3.004	
18,100.0	9,720.0	18,714.4	10,200.0	136.8	139.9	140.32	-9,181.8	151.1	620.5	411.9	208.69	2.974	
18,200.0	9,720.0	18,814.4	10,200.0	138.2	141.3	140.32	-9,281.8	151.9	620.5	409.7	210.82	2.943	
18,300.0	9,720.0	18,914.4	10,200.0	139.6	142.7	140.32	-9,381.8	152.7	620.5	407.6	212.95	2.914	
18,400.0	9,720.0	19,014.4	10,200.0	141.0	144.1	140.32	-9,481.8	153.5	620.5	405.4	215.09	2.885	
18,500.0	9,720.0	19,114.4	10,200.0	142.4	145.5	140.33	-9,581.8	154.2	620.5	403.3	217.23	2.857	
18,600.0	9,720.0	19,214.4	10,200.0	143.8	146.9	140.33	-9,681.8	155.0	620.5	401.1	219.37	2.829	
18,700.0	9,720.0	19,314.4	10,200.0	145.2	148.3	140.33	-9,781.8	155.8	620.5	399.0	221.51	2.801	
18,800.0	9,720.0	19,414.4	10,200.0	146.6	149.7	140.33	-9,881.8	156.6	620.5	396.9	223.65	2.774	
18,900.0	9,720.0	19,514.4	10,200.0	148.0	151.1	140.33	-9,981.8	157.4	620.5	394.7	225.79	2.748	
19,000.0	9,720.0	19,614.4	10,200.0	149.4	152.5	140.33	-10,081.8	158.2	620.5	392.6	227.93	2.722	
19,100.0	9,720.0	19,714.4	10,200.0	150.9	153.9	140.33	-10,181.8	159.0	620.5	390.4	230.08	2.697	
19,200.0	9,720.0	19,814.4	10,200.0	152.3	155.3	140.33	-10,281.8	159.7	620.5	388.2	232.22	2.672	
19,300.0	9,720.0	19,914.4	10,200.0	153.7	156.8	140.33	-10,381.8	160.5	620.5	386.1	234.37	2.647	
19,400.0	9,720.0	20,014.4	10,200.0	155.1	158.2	140.33	-10,481.8	161.3	620.5	383.9	236.52	2.623	
19,500.0	9,720.0	20,114.4	10,200.0	156.5	159.6	140.33	-10,581.8	162.1	620.5	381.8	238.67	2.600	
19,600.0	9,720.0	20,214.4	10,200.0	157.9	161.0	140.33	-10,681.8	162.9	620.4	379.6	240.82	2.576	
19,700.0	9,720.0	20,314.4	10,200.0	159.3	162.4	140.33	-10,781.8	163.7	620.4	377.5	242.97	2.554	
19,800.0	9,720.0	20,414.4	10,200.0	160.7	163.8	140.33	-10,881.8	164.5	620.4	375.3	245.12	2.531	
19,900.0	9,720.0	20,514.4	10,200.0	162.1	165.2	140.34	-10,981.8	165.2	620.4	373.2	247.28	2.509	
19,978.2	9,720.0	20,592.6	10,200.0	163.3	166.3	140.34	-11,059.9	165.9	620.4	371.5	248.96	2.492	SF

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	89.04	0.3	20.0	20.0				
100.0	100.0	101.0	101.0	0.1	0.1	89.04	0.3	20.0	20.0	19.7	0.27	74.907	
200.0	200.0	201.0	201.0	0.5	0.5	89.04	0.3	20.0	20.0	19.0	0.98	20.330	
300.0	300.0	301.0	301.0	0.8	0.9	89.04	0.3	20.0	20.0	18.3	1.70	11.761	
400.0	400.0	401.0	401.0	1.2	1.2	89.04	0.3	20.0	20.0	17.6	2.42	8.274	
500.0	500.0	501.0	501.0	1.6	1.6	89.04	0.3	20.0	20.0	16.9	3.13	6.381	
600.0	600.0	601.0	601.0	1.9	1.9	89.04	0.3	20.0	20.0	16.2	3.85	5.194	
700.0	700.0	701.0	701.0	2.3	2.3	89.04	0.3	20.0	20.0	15.4	4.57	4.379	
800.0	800.0	801.0	801.0	2.6	2.6	89.04	0.3	20.0	20.0	14.7	5.29	3.785	
900.0	900.0	901.0	901.0	3.0	3.0	89.04	0.3	20.0	20.0	14.0	6.00	3.333	
1,000.0	1,000.0	1,001.0	1,001.0	3.4	3.4	89.04	0.3	20.0	20.0	13.3	6.72	2.977	
1,100.0	1,100.0	1,101.0	1,101.0	3.7	3.7	89.04	0.3	20.0	20.0	12.6	7.44	2.690	
1,200.0	1,200.0	1,201.0	1,201.0	4.1	4.1	89.04	0.3	20.0	20.0	11.9	8.15	2.454	
1,300.0	1,300.0	1,301.0	1,301.0	4.4	4.4	89.04	0.3	20.0	20.0	11.1	8.87	2.255	
1,400.0	1,400.0	1,401.0	1,401.0	4.8	4.8	89.04	0.3	20.0	20.0	10.4	9.59	2.087	
1,500.0	1,500.0	1,501.0	1,501.0	5.2	5.2	89.04	0.3	20.0	20.0	9.7	10.30	1.941	
1,600.0	1,600.0	1,601.0	1,601.0	5.5	5.5	89.04	0.3	20.0	20.0	9.0	11.02	1.815	
1,700.0	1,700.0	1,701.0	1,701.0	5.9	5.9	89.04	0.3	20.0	20.0	8.3	11.74	1.704	
1,800.0	1,800.0	1,801.0	1,801.0	6.2	6.2	89.04	0.3	20.0	20.0	7.5	12.46	1.606	
1,900.0	1,900.0	1,901.0	1,901.0	6.6	6.6	89.04	0.3	20.0	20.0	6.8	13.17	1.519	
1,916.3	1,916.3	1,917.3	1,917.3	6.6	6.6	89.04	0.3	20.0	20.0	6.7	13.29	1.505	CC
2,000.0	2,000.0	2,001.0	2,001.0	6.9	6.9	89.04	0.3	20.0	20.0	6.1	13.89	1.440	Level 3, ES, SF
2,100.0	2,100.0	2,100.4	2,100.4	7.3	7.3	92.24	-0.8	21.3	21.3	6.8	14.58	1.463	Level 3
2,200.0	2,200.0	2,200.0	2,199.8	7.7	7.6	99.68	-4.3	25.2	25.6	10.3	15.26	1.678	
2,300.0	2,300.0	2,298.5	2,298.0	8.0	7.9	-37.60	-10.0	31.6	31.9	16.0	15.89	2.008	
2,400.0	2,399.8	2,398.3	2,397.2	8.3	8.3	-35.31	-17.0	39.5	37.4	20.8	16.54	2.259	
2,500.0	2,499.5	2,498.3	2,496.6	8.7	8.6	-36.39	-24.1	47.5	40.0	22.8	17.21	2.326	
2,600.0	2,598.7	2,598.2	2,596.0	9.0	9.0	-40.37	-31.2	55.4	40.0	22.1	17.89	2.236	
2,700.0	2,697.8	2,698.1	2,695.3	9.3	9.3	-45.75	-38.3	63.4	39.2	20.6	18.57	2.110	
2,800.0	2,796.9	2,798.1	2,794.7	9.7	9.7	-51.29	-45.3	71.3	38.7	19.5	19.27	2.010	
2,870.7	2,866.9	2,868.7	2,864.9	9.9	9.9	-55.27	-50.3	76.9	38.6	18.9	19.78	1.954	
2,900.0	2,895.9	2,898.0	2,894.1	10.0	10.0	-56.91	-52.4	79.3	38.7	18.7	19.98	1.935	
3,000.0	2,995.0	2,997.9	2,993.4	10.4	10.4	-62.50	-59.5	87.2	39.0	18.2	20.71	1.881	
3,100.0	3,094.1	3,097.9	3,092.8	10.7	10.8	-67.96	-66.5	95.2	39.6	18.2	21.44	1.848	
3,200.0	3,193.2	3,197.8	3,192.1	11.1	11.1	-73.19	-73.6	103.1	40.6	18.4	22.17	1.832	
3,300.0	3,292.3	3,297.7	3,291.5	11.5	11.5	-78.13	-80.7	111.1	41.9	19.0	22.91	1.830	
3,400.0	3,391.4	3,397.6	3,390.9	11.8	11.8	-82.74	-87.7	119.0	43.6	19.9	23.66	1.841	
3,500.0	3,490.4	3,497.6	3,490.2	12.2	12.2	-86.99	-94.8	126.9	45.4	21.0	24.41	1.862	
3,600.0	3,589.5	3,597.5	3,589.6	12.6	12.6	-90.89	-101.9	134.9	47.6	22.4	25.16	1.890	
3,700.0	3,688.6	3,697.4	3,688.9	13.0	12.9	-94.43	-109.0	142.8	49.9	24.0	25.90	1.925	
3,800.0	3,787.7	3,797.3	3,788.3	13.3	13.3	-97.66	-116.0	150.8	52.3	25.7	26.65	1.964	
3,900.0	3,886.8	3,897.3	3,887.7	13.7	13.7	-100.58	-123.1	158.7	55.0	27.6	27.40	2.007	
4,000.0	3,985.8	3,997.2	3,987.0	14.1	14.1	-103.23	-130.2	166.7	57.7	29.6	28.14	2.052	
4,100.0	4,084.9	4,097.1	4,086.4	14.5	14.4	-105.64	-137.2	174.6	60.6	31.7	28.89	2.098	
4,200.0	4,184.0	4,197.1	4,185.7	14.9	14.8	-107.82	-144.3	182.6	63.6	34.0	29.64	2.146	
4,300.0	4,283.1	4,297.0	4,285.1	15.2	15.2	-109.81	-151.4	190.5	66.6	36.3	30.38	2.194	
4,400.0	4,382.2	4,396.9	4,384.5	15.6	15.6	-111.62	-158.4	198.5	69.8	38.7	31.13	2.242	
4,500.0	4,481.2	4,496.8	4,483.8	16.0	15.9	-113.27	-165.5	206.4	73.0	41.1	31.87	2.290	
4,600.0	4,580.3	4,596.8	4,583.2	16.4	16.3	-114.78	-172.6	214.4	76.2	43.6	32.62	2.337	
4,700.0	4,679.4	4,696.7	4,682.5	16.8	16.7	-116.17	-179.7	222.3	79.5	46.2	33.36	2.384	
4,800.0	4,778.5	4,796.6	4,781.9	17.2	17.1	-117.45	-186.7	230.2	82.9	48.8	34.11	2.430	
4,900.0	4,877.6	4,896.6	4,881.3	17.6	17.4	-118.63	-193.8	238.2	86.2	51.4	34.85	2.475	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,976.7	4,996.5	4,980.6	18.0	17.8	-119.71	-200.9	246.1	89.7	54.1	35.60	2.519	
5,100.0	5,075.7	5,096.4	5,080.0	18.3	18.2	-120.72	-207.9	254.1	93.1	56.8	36.34	2.562	
5,200.0	5,174.8	5,196.3	5,179.3	18.7	18.6	-121.66	-215.0	262.0	96.6	59.5	37.09	2.604	
5,300.0	5,273.9	5,296.3	5,278.7	19.1	19.0	-122.53	-222.1	270.0	100.1	62.2	37.83	2.645	
5,400.0	5,373.0	5,396.2	5,378.1	19.5	19.3	-123.34	-229.1	277.9	103.6	65.0	38.58	2.685	
5,500.0	5,472.1	5,496.1	5,477.4	19.9	19.7	-124.10	-236.2	285.9	107.1	67.8	39.32	2.724	
5,600.0	5,571.1	5,596.0	5,576.8	20.3	20.1	-124.81	-243.3	293.8	110.7	70.6	40.07	2.762	
5,700.0	5,670.2	5,696.0	5,676.1	20.7	20.5	-125.48	-250.3	301.8	114.2	73.4	40.82	2.798	
5,800.0	5,769.3	5,795.9	5,775.5	21.1	20.9	-126.10	-257.4	309.7	117.8	76.2	41.56	2.834	
5,900.0	5,868.4	5,895.8	5,874.9	21.5	21.2	-126.69	-264.5	317.6	121.4	79.1	42.31	2.869	
6,000.0	5,967.5	5,995.8	5,974.2	21.9	21.6	-127.25	-271.6	325.6	125.0	81.9	43.06	2.903	
6,100.0	6,066.6	6,095.7	6,073.6	22.3	22.0	-127.77	-278.6	333.5	128.6	84.8	43.81	2.936	
6,200.0	6,165.6	6,195.6	6,172.9	22.7	22.4	-128.26	-285.7	341.5	132.3	87.7	44.56	2.968	
6,300.0	6,264.7	6,295.5	6,272.3	23.1	22.8	-128.73	-292.8	349.4	135.9	90.6	45.30	3.000	
6,400.0	6,363.8	6,395.5	6,371.7	23.5	23.2	-129.18	-299.8	357.4	139.5	93.5	46.05	3.030	
6,500.0	6,462.9	6,495.4	6,471.0	23.9	23.5	-129.60	-306.9	365.3	143.2	96.4	46.80	3.060	
6,600.0	6,562.0	6,595.3	6,570.4	24.3	23.9	-130.00	-314.0	373.3	146.9	99.3	47.55	3.088	
6,700.0	6,661.0	6,695.3	6,669.7	24.7	24.3	-130.38	-321.0	381.2	150.5	102.2	48.30	3.116	
6,800.0	6,760.1	6,795.2	6,769.1	25.1	24.7	-130.74	-328.1	389.2	154.2	105.1	49.05	3.144	
6,900.0	6,859.2	6,895.1	6,868.5	25.5	25.1	-131.09	-335.2	397.1	157.9	108.1	49.80	3.170	
7,000.0	6,958.3	6,995.0	6,967.8	25.9	25.5	-131.42	-342.3	405.0	161.6	111.0	50.55	3.196	
7,100.0	7,057.4	7,095.0	7,067.2	26.3	25.8	-131.73	-349.3	413.0	165.3	114.0	51.30	3.221	
7,200.0	7,156.4	7,194.9	7,166.5	26.7	26.2	-132.03	-356.4	420.9	169.0	116.9	52.05	3.246	
7,300.0	7,255.5	7,294.8	7,265.9	27.1	26.6	-132.32	-363.5	428.9	172.7	119.9	52.80	3.270	
7,400.0	7,354.6	7,394.7	7,365.3	27.5	27.0	-132.60	-370.5	436.8	176.4	122.8	53.55	3.293	
7,500.0	7,453.7	7,494.7	7,464.6	27.9	27.4	-132.86	-377.6	444.8	180.1	125.8	54.30	3.316	
7,600.0	7,552.8	7,594.6	7,564.0	28.3	27.8	-133.12	-384.7	452.7	183.8	128.7	55.05	3.338	
7,700.0	7,651.9	7,694.5	7,663.3	28.7	28.1	-133.36	-391.7	460.7	187.5	131.7	55.80	3.360	
7,800.0	7,750.9	7,794.5	7,762.7	29.1	28.5	-133.60	-398.8	468.6	191.2	134.7	56.55	3.381	
7,900.0	7,850.0	7,894.4	7,862.1	29.5	28.9	-133.82	-405.9	476.6	194.9	137.6	57.31	3.402	
8,000.0	7,949.1	7,994.3	7,961.4	29.9	29.3	-134.04	-412.9	484.5	198.7	140.6	58.06	3.422	
8,100.0	8,048.2	8,094.2	8,060.8	30.3	29.7	-134.25	-420.0	492.5	202.4	143.6	58.81	3.441	
8,200.0	8,147.3	8,194.2	8,160.1	30.7	30.1	-134.43	-427.1	500.4	206.0	146.4	59.56	3.458	
8,300.0	8,246.7	8,294.1	8,259.6	31.0	30.5	-134.06	-434.2	508.3	207.6	147.3	60.33	3.441	
8,400.0	8,346.5	8,394.1	8,358.9	31.4	30.8	-132.97	-441.2	516.3	206.9	145.8	61.12	3.385	
8,500.0	8,446.4	8,493.8	8,458.1	31.8	31.2	-131.12	-448.3	524.2	203.9	142.0	61.94	3.293	
8,600.0	8,546.4	8,593.3	8,557.0	32.1	31.6	14.87	-455.3	532.1	199.2	136.5	62.76	3.174	
8,700.0	8,646.4	8,692.7	8,655.9	32.4	32.0	17.65	-462.4	540.0	194.6	131.1	63.59	3.061	
8,800.0	8,746.4	8,792.1	8,754.7	32.7	32.4	20.56	-469.4	547.9	190.5	126.1	64.41	2.958	
8,900.0	8,846.4	8,891.6	8,853.6	33.0	32.8	23.59	-476.4	555.9	186.9	121.7	65.23	2.866	
9,000.0	8,946.4	8,991.0	8,952.5	33.4	33.1	26.73	-483.5	563.8	183.9	117.9	66.05	2.784	
9,100.0	9,046.4	9,090.4	9,051.3	33.7	33.5	29.96	-490.5	571.7	181.4	114.6	66.86	2.714	
9,200.0	9,146.4	9,189.9	9,150.2	34.0	33.9	33.27	-497.5	579.6	179.6	111.9	67.66	2.654	
9,300.0	9,246.4	9,289.3	9,249.1	34.3	34.3	-142.93	-504.6	587.5	178.3	109.9	68.45	2.605	
9,301.7	9,248.1	9,291.0	9,250.8	34.3	34.3	-142.87	-504.7	587.6	178.3	109.9	68.46	2.605	
9,400.0	9,345.6	9,388.7	9,347.9	34.7	34.7	-141.16	-511.6	595.4	186.4	117.2	69.22	2.693	
9,500.0	9,440.3	9,485.1	9,443.8	35.1	35.1	-141.90	-518.4	603.0	210.8	140.8	69.94	3.013	
9,600.0	9,526.3	9,574.3	9,532.4	35.6	35.4	-143.59	-524.7	610.1	251.6	181.1	70.56	3.566	
9,700.0	9,599.9	9,652.3	9,610.0	36.1	35.7	-144.46	-530.2	616.3	309.0	237.9	71.05	4.349	
9,800.0	9,657.9	9,715.8	9,673.1	36.7	35.9	-142.92	-534.7	621.4	381.3	309.9	71.40	5.340	
9,900.0	9,697.8	9,762.0	9,719.0	37.3	36.1	-136.48	-538.0	625.1	465.7	394.1	71.61	6.503	
10,000.0	9,717.8	9,788.8	9,745.7	37.9	36.2	-118.18	-539.9	627.2	558.4	486.7	71.69	7.788	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.0	9,720.0	9,798.1	9,755.0	38.5	36.3	-102.97	-540.6	627.9	655.0	583.4	71.67	9.140	
10,200.0	9,720.0	9,805.3	9,762.1	39.1	36.3	-105.50	-541.1	628.5	752.6	681.0	71.65	10.505	
10,300.0	9,720.0	9,812.4	9,769.2	39.8	36.3	-107.95	-541.6	629.1	850.8	779.1	71.64	11.875	
10,400.0	9,720.0	9,819.6	9,776.3	40.5	36.3	-110.31	-542.1	629.6	949.2	877.6	71.65	13.248	
10,500.0	9,720.0	9,826.7	9,783.4	41.3	36.4	-112.59	-542.6	630.2	1,047.9	976.2	71.66	14.622	
10,600.0	9,720.0	9,833.8	9,790.5	42.1	36.4	-114.78	-543.1	630.8	1,146.8	1,075.1	71.69	15.997	
10,700.0	9,720.0	9,841.0	9,797.6	42.9	36.4	-116.88	-543.6	631.3	1,245.8	1,174.1	71.71	17.372	
10,800.0	9,720.0	9,848.1	9,804.7	43.8	36.5	-118.89	-544.1	631.9	1,344.9	1,273.2	71.74	18.746	
10,900.0	9,720.0	9,855.2	9,811.8	44.7	36.5	-120.81	-544.6	632.5	1,444.1	1,372.3	71.78	20.119	
11,000.0	9,720.0	9,862.4	9,818.9	45.6	36.5	-122.65	-545.1	633.0	1,543.4	1,471.6	71.82	21.490	
11,100.0	9,720.0	9,869.5	9,826.0	46.6	36.5	-124.40	-545.6	633.6	1,642.7	1,570.9	71.86	22.860	
11,200.0	9,720.0	9,876.6	9,833.1	47.6	36.6	-126.06	-546.1	634.2	1,742.1	1,670.2	71.90	24.228	
11,300.0	9,720.0	9,883.8	9,840.2	48.6	36.6	-127.65	-546.6	634.7	1,841.5	1,769.6	71.95	25.594	
11,400.0	9,720.0	9,890.9	9,847.3	49.6	36.6	-129.16	-547.1	635.3	1,941.0	1,869.0	72.00	26.958	
11,500.0	9,720.0	9,898.1	9,854.3	50.6	36.6	-130.60	-547.6	635.9	2,040.5	1,968.4	72.05	28.319	
11,600.0	9,720.0	9,905.2	9,861.4	51.7	36.7	-131.97	-548.1	636.4	2,140.0	2,067.9	72.10	29.679	
11,700.0	9,720.0	13,828.4	11,850.0	52.8	58.6	-172.93	-2,776.9	761.6	2,145.3	2,090.0	55.28	38.811	
11,800.0	9,720.0	13,928.4	11,850.0	53.9	59.5	-172.93	-2,876.9	762.4	2,145.3	2,089.0	56.27	38.128	
11,900.0	9,720.0	14,028.4	11,850.0	55.0	60.5	-172.93	-2,976.9	763.2	2,145.3	2,088.0	57.28	37.451	
12,000.0	9,720.0	14,128.4	11,850.0	56.1	61.6	-172.93	-3,076.9	763.9	2,145.3	2,087.0	58.33	36.781	
12,100.0	9,720.0	14,228.4	11,850.0	57.2	62.6	-172.93	-3,176.8	764.7	2,145.3	2,085.9	59.39	36.120	
12,200.0	9,720.0	14,328.4	11,850.0	58.4	63.7	-172.93	-3,276.8	765.5	2,145.3	2,084.8	60.48	35.469	
12,300.0	9,720.0	14,428.4	11,850.0	59.6	64.7	-172.93	-3,376.8	766.3	2,145.3	2,083.7	61.60	34.828	
12,400.0	9,720.0	14,528.4	11,850.0	60.7	65.8	-172.93	-3,476.8	767.0	2,145.3	2,082.6	62.73	34.199	
12,500.0	9,720.0	14,628.4	11,850.0	61.9	66.9	-172.93	-3,576.8	767.8	2,145.3	2,081.4	63.88	33.582	
12,600.0	9,720.0	14,728.4	11,850.0	63.1	68.0	-172.93	-3,676.8	768.6	2,145.3	2,080.3	65.05	32.977	
12,700.0	9,720.0	14,828.4	11,850.0	64.4	69.2	-172.93	-3,776.8	769.4	2,145.3	2,079.1	66.24	32.385	
12,800.0	9,720.0	14,928.4	11,850.0	65.6	70.3	-172.93	-3,876.8	770.1	2,145.3	2,077.9	67.45	31.807	
12,900.0	9,720.0	15,028.4	11,850.0	66.8	71.4	-172.93	-3,976.8	770.9	2,145.3	2,076.6	68.67	31.241	
13,000.0	9,720.0	15,128.4	11,850.0	68.0	72.6	-172.93	-4,076.8	771.7	2,145.3	2,075.4	69.91	30.689	
13,100.0	9,720.0	15,228.4	11,850.0	69.3	73.8	-172.93	-4,176.8	772.5	2,145.3	2,074.1	71.16	30.149	
13,200.0	9,720.0	15,328.4	11,850.0	70.5	74.9	-172.93	-4,276.8	773.2	2,145.3	2,072.9	72.42	29.623	
13,300.0	9,720.0	15,428.4	11,850.0	71.8	76.1	-172.93	-4,376.8	774.0	2,145.3	2,071.6	73.70	29.110	
13,400.0	9,720.0	15,528.4	11,850.0	73.1	77.3	-172.93	-4,476.8	774.8	2,145.3	2,070.3	74.98	28.610	
13,500.0	9,720.0	15,628.4	11,850.0	74.4	78.5	-172.93	-4,576.8	775.6	2,145.3	2,069.0	76.29	28.122	
13,600.0	9,720.0	15,728.4	11,850.0	75.6	79.7	-172.93	-4,676.8	776.4	2,145.3	2,067.7	77.60	27.647	
13,700.0	9,720.0	15,828.4	11,850.0	76.9	81.0	-172.93	-4,776.8	777.1	2,145.3	2,066.4	78.92	27.184	
13,800.0	9,720.0	15,928.4	11,850.0	78.2	82.2	-172.93	-4,876.8	777.9	2,145.3	2,065.1	80.25	26.733	
13,900.0	9,720.0	16,028.4	11,850.0	79.5	83.4	-172.93	-4,976.8	778.7	2,145.3	2,063.7	81.59	26.294	
14,000.0	9,720.0	16,128.4	11,850.0	80.8	84.7	-172.93	-5,076.8	779.5	2,145.3	2,062.4	82.94	25.866	
14,100.0	9,720.0	16,228.4	11,850.0	82.1	85.9	-172.93	-5,176.8	780.2	2,145.3	2,061.0	84.30	25.449	
14,200.0	9,720.0	16,328.4	11,850.0	83.4	87.2	-172.93	-5,276.8	781.0	2,145.3	2,059.6	85.66	25.043	
14,300.0	9,720.0	16,428.4	11,850.0	84.8	88.4	-172.93	-5,376.8	781.8	2,145.3	2,058.3	87.04	24.648	
14,400.0	9,720.0	16,528.4	11,850.0	86.1	89.7	-172.93	-5,476.8	782.6	2,145.3	2,056.9	88.42	24.263	
14,500.0	9,720.0	16,628.4	11,850.0	87.4	91.0	-172.93	-5,576.8	783.3	2,145.3	2,055.5	89.81	23.887	
14,600.0	9,720.0	16,728.4	11,850.0	88.7	92.2	-172.93	-5,676.8	784.1	2,145.3	2,054.1	91.20	23.522	
14,700.0	9,720.0	16,828.4	11,850.0	90.1	93.5	-172.93	-5,776.8	784.9	2,145.3	2,052.7	92.61	23.166	
14,800.0	9,720.0	16,928.4	11,850.0	91.4	94.8	-172.93	-5,876.8	785.7	2,145.3	2,051.3	94.01	22.819	
14,900.0	9,720.0	17,028.4	11,850.0	92.8	96.1	-172.93	-5,976.8	786.4	2,145.3	2,049.9	95.43	22.481	
15,000.0	9,720.0	17,128.4	11,850.0	94.1	97.4	-172.93	-6,076.8	787.2	2,145.3	2,048.5	96.85	22.151	
15,100.0	9,720.0	17,228.4	11,850.0	95.4	98.7	-172.93	-6,176.8	788.0	2,145.3	2,047.0	98.27	21.830	
15,200.0	9,720.0	17,328.4	11,850.0	96.8	100.0	-172.93	-6,276.8	788.8	2,145.3	2,045.6	99.70	21.517	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,300.0	9,720.0	17,428.4	11,850.0	98.1	101.3	-172.93	-6,376.8	789.5	2,145.3	2,044.2	101.14	21.212	
15,400.0	9,720.0	17,528.4	11,850.0	99.5	102.6	-172.93	-6,476.7	790.3	2,145.3	2,042.7	102.58	20.914	
15,500.0	9,720.0	17,628.4	11,850.0	100.9	103.9	-172.93	-6,576.7	791.1	2,145.3	2,041.3	104.02	20.623	
15,600.0	9,720.0	17,728.4	11,850.0	102.2	105.2	-172.93	-6,676.7	791.9	2,145.3	2,039.8	105.47	20.340	
15,700.0	9,720.0	17,828.4	11,850.0	103.6	106.6	-172.93	-6,776.7	792.6	2,145.3	2,038.4	106.92	20.064	
15,800.0	9,720.0	17,928.4	11,850.0	104.9	107.9	-172.93	-6,876.7	793.4	2,145.3	2,036.9	108.38	19.794	
15,900.0	9,720.0	18,028.4	11,850.0	106.3	109.2	-172.93	-6,976.7	794.2	2,145.3	2,035.5	109.84	19.531	
16,000.0	9,720.0	18,128.4	11,850.0	107.7	110.6	-172.93	-7,076.7	795.0	2,145.3	2,034.0	111.31	19.274	
16,100.0	9,720.0	18,228.4	11,850.0	109.1	111.9	-172.93	-7,176.7	795.8	2,145.3	2,032.5	112.77	19.023	
16,200.0	9,720.0	18,328.4	11,850.0	110.4	113.2	-172.93	-7,276.7	796.5	2,145.3	2,031.1	114.25	18.778	
16,300.0	9,720.0	18,428.4	11,850.0	111.8	114.6	-172.93	-7,376.7	797.3	2,145.3	2,029.6	115.72	18.539	
16,400.0	9,720.0	18,528.4	11,850.0	113.2	115.9	-172.93	-7,476.7	798.1	2,145.3	2,028.1	117.20	18.305	
16,500.0	9,720.0	18,628.4	11,850.0	114.6	117.2	-172.93	-7,576.7	798.9	2,145.3	2,026.6	118.68	18.076	
16,600.0	9,720.0	18,728.4	11,850.0	115.9	118.6	-172.93	-7,676.7	799.6	2,145.3	2,025.1	120.16	17.853	
16,700.0	9,720.0	18,828.4	11,850.0	117.3	119.9	-172.93	-7,776.7	800.4	2,145.3	2,023.7	121.65	17.635	
16,800.0	9,720.0	18,928.4	11,850.0	118.7	121.3	-172.93	-7,876.7	801.2	2,145.3	2,022.2	123.14	17.422	
16,900.0	9,720.0	19,028.4	11,850.0	120.1	122.6	-172.93	-7,976.7	802.0	2,145.3	2,020.7	124.63	17.213	
17,000.0	9,720.0	19,128.4	11,850.0	121.5	124.0	-172.93	-8,076.7	802.7	2,145.3	2,019.2	126.13	17.009	
17,100.0	9,720.0	19,228.4	11,850.0	122.9	125.4	-172.93	-8,176.7	803.5	2,145.3	2,017.7	127.63	16.809	
17,200.0	9,720.0	19,328.4	11,850.0	124.3	126.7	-172.93	-8,276.7	804.3	2,145.3	2,016.2	129.13	16.614	
17,300.0	9,720.0	19,428.4	11,850.0	125.6	128.1	-172.93	-8,376.7	805.1	2,145.3	2,014.7	130.63	16.423	
17,400.0	9,720.0	19,528.4	11,850.0	127.0	129.4	-172.93	-8,476.7	805.8	2,145.3	2,013.2	132.13	16.236	
17,500.0	9,720.0	19,628.4	11,850.0	128.4	130.8	-172.93	-8,576.7	806.6	2,145.3	2,011.7	133.64	16.053	
17,600.0	9,720.0	19,728.4	11,850.0	129.8	132.2	-172.93	-8,676.7	807.4	2,145.3	2,010.2	135.15	15.874	
17,700.0	9,720.0	19,828.4	11,850.0	131.2	133.5	-172.93	-8,776.7	808.2	2,145.3	2,008.6	136.66	15.698	
17,800.0	9,720.0	19,928.4	11,850.0	132.6	134.9	-172.93	-8,876.7	808.9	2,145.3	2,007.1	138.17	15.527	
17,900.0	9,720.0	20,028.4	11,850.0	134.0	136.3	-172.93	-8,976.7	809.7	2,145.3	2,005.6	139.68	15.358	
18,000.0	9,720.0	20,128.4	11,850.0	135.4	137.7	-172.93	-9,076.7	810.5	2,145.3	2,004.1	141.20	15.193	
18,100.0	9,720.0	20,228.4	11,850.0	136.8	139.0	-172.93	-9,176.7	811.3	2,145.3	2,002.6	142.72	15.032	
18,200.0	9,720.0	20,328.4	11,850.0	138.2	140.4	-172.93	-9,276.7	812.0	2,145.3	2,001.1	144.24	14.873	
18,300.0	9,720.0	20,428.4	11,850.0	139.6	141.8	-172.93	-9,376.7	812.8	2,145.3	1,999.5	145.76	14.718	
18,400.0	9,720.0	20,528.4	11,850.0	141.0	143.2	-172.93	-9,476.7	813.6	2,145.3	1,998.0	147.28	14.566	
18,500.0	9,720.0	20,628.4	11,850.0	142.4	144.6	-172.93	-9,576.7	814.4	2,145.3	1,996.5	148.81	14.417	
18,600.0	9,720.0	20,728.4	11,850.0	143.8	145.9	-172.93	-9,676.7	815.2	2,145.3	1,995.0	150.33	14.270	
18,700.0	9,720.0	20,828.4	11,850.0	145.2	147.3	-172.93	-9,776.6	815.9	2,145.3	1,993.4	151.86	14.127	
18,800.0	9,720.0	20,928.4	11,850.0	146.6	148.7	-172.93	-9,876.6	816.7	2,145.3	1,991.9	153.39	13.986	
18,900.0	9,720.0	21,028.4	11,850.0	148.0	150.1	-172.93	-9,976.6	817.5	2,145.3	1,990.4	154.92	13.848	
19,000.0	9,720.0	21,128.4	11,850.0	149.4	151.5	-172.93	-10,076.6	818.3	2,145.3	1,988.9	156.45	13.712	
19,100.0	9,720.0	21,228.4	11,850.0	150.9	152.9	-172.93	-10,176.6	819.0	2,145.3	1,987.3	157.98	13.579	
19,200.0	9,720.0	21,328.4	11,850.0	152.3	154.3	-172.93	-10,276.6	819.8	2,145.3	1,985.8	159.52	13.449	
19,300.0	9,720.0	21,428.4	11,850.0	153.7	155.6	-172.93	-10,376.6	820.6	2,145.3	1,984.3	161.05	13.321	
19,400.0	9,720.0	21,528.4	11,850.0	155.1	157.0	-172.93	-10,476.6	821.4	2,145.3	1,982.7	162.59	13.195	
19,500.0	9,720.0	21,628.4	11,850.0	156.5	158.4	-172.93	-10,576.6	822.1	2,145.3	1,981.2	164.13	13.071	
19,600.0	9,720.0	21,728.4	11,850.0	157.9	159.8	-172.93	-10,676.6	822.9	2,145.3	1,979.6	165.66	12.950	
19,700.0	9,720.0	21,828.4	11,850.0	159.3	161.2	-172.93	-10,776.6	823.7	2,145.3	1,978.1	167.20	12.830	
19,800.0	9,720.0	21,928.4	11,850.0	160.7	162.6	-172.93	-10,876.6	824.5	2,145.3	1,976.6	168.75	12.713	
19,900.0	9,720.0	22,028.4	11,850.0	162.1	164.0	-172.93	-10,976.6	825.2	2,145.3	1,975.0	170.29	12.598	
19,908.5	9,720.0	22,036.9	11,850.0	162.3	164.1	-172.93	-10,985.1	825.3	2,145.3	1,974.9	170.42	12.588	
19,978.2	9,720.0	22,105.9	11,850.0	163.3	165.1	-172.93	-11,054.1	825.8	2,145.3	1,973.8	171.49	12.510	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.96	-0.3	-20.0	20.0				
100.0	100.0	99.7	99.7	0.1	0.1	-90.96	-0.3	-20.0	20.0	19.7	0.26	75.932	
200.0	200.0	199.7	199.7	0.5	0.5	-90.96	-0.3	-20.0	20.0	19.0	0.98	20.398	
300.0	300.0	299.7	299.7	0.8	0.8	-90.96	-0.3	-20.0	20.0	18.3	1.70	11.776	
400.0	400.0	399.7	399.7	1.2	1.2	-90.96	-0.3	-20.0	20.0	17.6	2.41	8.278	
500.0	500.0	499.7	499.7	1.6	1.6	-90.96	-0.3	-20.0	20.0	16.8	3.13	6.382	
600.0	600.0	599.7	599.7	1.9	1.9	-90.96	-0.3	-20.0	20.0	16.1	3.85	5.193	
700.0	700.0	699.7	699.7	2.3	2.3	-90.96	-0.3	-20.0	20.0	15.4	4.56	4.377	
800.0	800.0	799.7	799.7	2.6	2.6	-90.96	-0.3	-20.0	20.0	14.7	5.28	3.783	
900.0	900.0	899.7	899.7	3.0	3.0	-90.96	-0.3	-20.0	20.0	14.0	6.00	3.331	
1,000.0	1,000.0	999.7	999.7	3.4	3.4	-90.96	-0.3	-20.0	20.0	13.3	6.71	2.975	
1,100.0	1,100.0	1,099.7	1,099.7	3.7	3.7	-90.96	-0.3	-20.0	20.0	12.5	7.43	2.688	
1,200.0	1,200.0	1,199.7	1,199.7	4.1	4.1	-90.96	-0.3	-20.0	20.0	11.8	8.15	2.451	
1,300.0	1,300.0	1,299.7	1,299.7	4.4	4.4	-90.96	-0.3	-20.0	20.0	11.1	8.87	2.253	
1,400.0	1,400.0	1,399.7	1,399.7	4.8	4.8	-90.96	-0.3	-20.0	20.0	10.4	9.58	2.085	
1,500.0	1,500.0	1,499.7	1,499.7	5.2	5.1	-90.96	-0.3	-20.0	20.0	9.7	10.30	1.940	
1,600.0	1,600.0	1,599.7	1,599.7	5.5	5.5	-90.96	-0.3	-20.0	20.0	9.0	11.02	1.813	
1,700.0	1,700.0	1,699.7	1,699.7	5.9	5.9	-90.96	-0.3	-20.0	20.0	8.2	11.73	1.703	
1,800.0	1,800.0	1,799.7	1,799.7	6.2	6.2	-90.96	-0.3	-20.0	20.0	7.5	12.45	1.604	
1,900.0	1,900.0	1,899.7	1,899.7	6.6	6.6	-90.96	-0.3	-20.0	20.0	6.8	13.17	1.517	
2,000.0	2,000.0	1,999.7	1,999.7	6.9	6.9	-90.96	-0.3	-20.0	20.0	6.1	13.88	1.439	Level 3
2,100.0	2,100.0	2,099.8	2,099.7	7.3	7.3	-95.94	-2.1	-19.7	19.8	5.2	14.58	1.358	Level 3
2,128.0	2,128.0	2,127.7	2,127.7	7.4	7.4	-99.16	-3.1	-19.5	19.8	5.0	14.77	1.338	Level 3, CC
2,200.0	2,200.0	2,199.6	2,199.4	7.7	7.6	-110.88	-7.2	-18.9	20.2	4.9	15.26	1.323	Level 3, ES, SF
2,300.0	2,300.0	2,299.0	2,298.5	8.0	7.9	88.79	-15.7	-17.5	23.5	7.5	15.92	1.474	Level 3
2,400.0	2,399.8	2,398.4	2,397.2	8.3	8.3	78.42	-27.5	-15.6	29.6	13.0	16.55	1.787	
2,500.0	2,499.5	2,498.2	2,496.1	8.7	8.6	76.08	-40.0	-13.6	35.9	18.7	17.21	2.085	
2,600.0	2,598.7	2,598.0	2,595.1	9.0	8.9	79.06	-52.6	-11.5	41.4	23.6	17.89	2.317	
2,700.0	2,697.8	2,697.8	2,694.1	9.3	9.3	83.06	-65.2	-9.5	46.9	28.3	18.58	2.525	
2,800.0	2,796.9	2,797.6	2,793.1	9.7	9.6	86.21	-77.7	-7.5	52.6	33.3	19.29	2.726	
2,900.0	2,895.9	2,897.4	2,892.1	10.0	10.0	88.75	-90.3	-5.5	58.3	38.4	19.99	2.918	
3,000.0	2,995.0	2,997.2	2,991.1	10.4	10.4	90.83	-102.9	-3.4	64.2	43.5	20.71	3.101	
3,100.0	3,094.1	3,097.0	3,090.1	10.7	10.7	92.55	-115.4	-1.4	70.2	48.7	21.43	3.275	
3,200.0	3,193.2	3,196.8	3,189.1	11.1	11.1	94.01	-128.0	0.6	76.2	54.0	22.15	3.438	
3,300.0	3,292.3	3,296.7	3,288.1	11.5	11.4	95.25	-140.6	2.6	82.2	59.3	22.88	3.592	
3,400.0	3,391.4	3,396.5	3,387.0	11.8	11.8	96.32	-153.1	4.7	88.3	64.7	23.62	3.737	
3,500.0	3,490.4	3,496.3	3,486.0	12.2	12.2	97.26	-165.7	6.7	94.4	70.0	24.36	3.874	
3,600.0	3,589.5	3,596.1	3,585.0	12.6	12.6	98.08	-178.3	8.7	100.5	75.4	25.10	4.003	
3,700.0	3,688.6	3,695.9	3,684.0	13.0	12.9	98.80	-190.8	10.7	106.6	80.8	25.85	4.125	
3,800.0	3,787.7	3,795.7	3,783.0	13.3	13.3	99.45	-203.4	12.8	112.8	86.2	26.60	4.240	
3,900.0	3,886.8	3,895.5	3,882.0	13.7	13.7	100.03	-216.0	14.8	118.9	91.6	27.35	4.349	
4,000.0	3,985.8	3,995.3	3,981.0	14.1	14.1	100.55	-228.5	16.8	125.1	97.0	28.10	4.452	
4,100.0	4,084.9	4,095.1	4,080.0	14.5	14.4	101.03	-241.1	18.8	131.3	102.4	28.86	4.549	
4,200.0	4,184.0	4,194.9	4,178.9	14.9	14.8	101.46	-253.7	20.9	137.5	107.9	29.62	4.642	
4,300.0	4,283.1	4,294.7	4,277.9	15.2	15.2	101.85	-266.2	22.9	143.7	113.3	30.39	4.729	
4,400.0	4,382.2	4,394.5	4,376.9	15.6	15.6	102.21	-278.8	24.9	149.9	118.8	31.15	4.813	
4,500.0	4,481.2	4,494.3	4,475.9	16.0	16.0	102.55	-291.4	26.9	156.1	124.2	31.92	4.892	
4,600.0	4,580.3	4,594.1	4,574.9	16.4	16.4	102.85	-303.9	29.0	162.3	129.7	32.68	4.967	
4,700.0	4,679.4	4,693.9	4,673.9	16.8	16.7	103.14	-316.5	31.0	168.6	135.1	33.45	5.039	
4,800.0	4,778.5	4,793.7	4,772.9	17.2	17.1	103.40	-329.1	33.0	174.8	140.6	34.23	5.107	
4,900.0	4,877.6	4,893.5	4,871.9	17.6	17.5	103.65	-341.6	35.1	181.0	146.0	35.00	5.172	
5,000.0	4,976.7	4,993.3	4,970.9	18.0	17.9	103.88	-354.2	37.1	187.3	151.5	35.77	5.234	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
5,100.0	5,075.7	5,093.1	5,069.8	18.3	18.3	104.09	-366.8	39.1	193.5	156.9	36.55	5.294	
5,200.0	5,174.8	5,192.9	5,168.8	18.7	18.7	104.29	-379.3	41.1	199.7	162.4	37.33	5.351	
5,300.0	5,273.9	5,292.7	5,267.8	19.1	19.1	104.48	-391.9	43.2	206.0	167.9	38.10	5.406	
5,400.0	5,373.0	5,392.5	5,366.8	19.5	19.5	104.66	-404.5	45.2	212.2	173.3	38.88	5.458	
5,500.0	5,472.1	5,492.3	5,465.8	19.9	19.8	104.83	-417.0	47.2	218.5	178.8	39.66	5.508	
5,600.0	5,571.1	5,592.1	5,564.8	20.3	20.2	104.99	-429.6	49.2	224.7	184.3	40.44	5.556	
5,700.0	5,670.2	5,691.9	5,663.8	20.7	20.6	105.14	-442.2	51.3	231.0	189.7	41.22	5.602	
5,800.0	5,769.3	5,791.7	5,762.8	21.1	21.0	105.28	-454.7	53.3	237.2	195.2	42.01	5.647	
5,900.0	5,868.4	5,891.5	5,861.7	21.5	21.4	105.41	-467.3	55.3	243.5	200.7	42.79	5.690	
6,000.0	5,967.5	5,991.3	5,960.7	21.9	21.8	105.54	-479.9	57.3	249.7	206.1	43.57	5.731	
6,100.0	6,066.6	6,091.1	6,059.7	22.3	22.2	105.66	-492.4	59.4	256.0	211.6	44.36	5.770	
6,200.0	6,165.6	6,190.9	6,158.7	22.7	22.6	105.78	-505.0	61.4	262.2	217.1	45.14	5.809	
6,300.0	6,264.7	6,290.7	6,257.7	23.1	23.0	105.89	-517.5	63.4	268.5	222.5	45.93	5.845	
6,400.0	6,363.8	6,390.5	6,356.7	23.5	23.4	106.00	-530.1	65.4	274.7	228.0	46.71	5.881	
6,500.0	6,462.9	6,490.3	6,455.7	23.9	23.8	106.10	-542.7	67.5	281.0	233.5	47.50	5.915	
6,600.0	6,562.0	6,590.1	6,554.7	24.3	24.2	106.19	-555.2	69.5	287.2	238.9	48.29	5.948	
6,700.0	6,661.0	6,689.9	6,653.6	24.7	24.6	106.28	-567.8	71.5	293.5	244.4	49.08	5.981	
6,800.0	6,760.1	6,789.8	6,752.6	25.1	25.0	106.37	-580.4	73.5	299.8	249.9	49.86	6.011	
6,900.0	6,859.2	6,889.6	6,851.6	25.5	25.3	106.46	-592.9	75.6	306.0	255.4	50.65	6.041	
7,000.0	6,958.3	6,989.4	6,950.6	25.9	25.7	106.54	-605.5	77.6	312.3	260.8	51.44	6.070	
7,100.0	7,057.4	7,089.2	7,049.6	26.3	26.1	106.62	-618.1	79.6	318.5	266.3	52.23	6.099	
7,200.0	7,156.4	7,189.3	7,148.9	26.7	26.5	106.70	-630.6	81.7	324.8	271.8	53.02	6.125	
7,300.0	7,255.5	7,291.1	7,250.2	27.1	26.9	107.17	-641.2	83.4	330.7	276.8	53.82	6.144	
7,400.0	7,354.6	7,392.8	7,351.6	27.5	27.3	108.23	-648.2	84.5	336.0	281.4	54.59	6.154	
7,500.0	7,453.7	7,493.9	7,452.7	27.9	27.7	109.84	-651.6	85.0	340.9	285.6	55.33	6.161	
7,600.0	7,552.8	7,593.7	7,552.5	28.3	28.0	111.89	-652.0	85.1	345.8	289.8	56.03	6.172	
7,700.0	7,651.9	7,692.8	7,651.6	28.7	28.3	113.92	-652.0	85.1	351.1	294.4	56.71	6.191	
7,800.0	7,750.9	7,791.9	7,750.6	29.1	28.6	115.89	-652.0	85.1	356.8	299.5	57.39	6.218	
7,900.0	7,850.0	7,891.0	7,849.7	29.5	28.9	117.80	-652.0	85.1	363.0	304.9	58.06	6.253	
8,000.0	7,949.1	7,990.1	7,948.8	29.9	29.2	119.64	-652.0	85.1	369.5	310.8	58.72	6.293	
8,100.0	8,048.2	8,089.1	8,047.9	30.3	29.6	121.42	-652.0	85.1	376.5	317.1	59.39	6.339	
8,200.0	8,147.3	8,188.2	8,147.0	30.7	29.9	123.14	-652.0	85.1	383.6	323.6	60.05	6.389	
8,300.0	8,246.7	8,287.7	8,246.4	31.0	30.2	124.54	-652.0	85.1	389.5	328.8	60.70	6.417	
8,400.0	8,346.5	8,387.4	8,346.2	31.4	30.5	125.46	-652.0	85.1	393.6	332.2	61.36	6.414	
8,500.0	8,446.4	8,486.0	8,444.2	31.8	30.9	124.68	-660.5	85.2	395.8	333.7	62.10	6.374	
8,600.0	8,546.4	8,577.5	8,531.9	32.1	31.3	-95.55	-686.1	85.4	397.8	335.0	62.88	6.327	
8,700.0	8,646.4	8,657.0	8,602.9	32.4	31.7	-100.60	-721.6	85.6	404.6	341.2	63.42	6.380	
8,800.0	8,746.4	8,725.0	8,658.3	32.7	32.1	-106.01	-761.0	85.9	420.4	357.0	63.36	6.634	
8,900.0	8,846.4	8,775.0	8,695.1	33.0	32.4	-110.44	-794.8	86.2	447.6	385.4	62.21	7.196	
9,000.0	8,946.4	8,825.0	8,728.2	33.4	32.7	-115.07	-832.2	86.5	487.1	426.5	60.58	8.040	
9,100.0	9,046.4	8,856.7	8,747.1	33.7	32.9	-118.04	-857.7	86.7	537.6	479.6	58.06	9.259	
9,200.0	9,146.4	8,886.1	8,763.1	34.0	33.0	-120.77	-882.3	86.9	597.6	542.0	55.58	10.753	
9,300.0	9,246.4	8,910.5	8,775.2	34.3	33.2	57.06	-903.6	87.0	665.2	612.0	53.22	12.500	
9,400.0	9,345.6	8,935.3	8,786.3	34.7	33.4	46.32	-925.7	87.2	734.0	682.9	51.07	14.374	
9,500.0	9,440.3	8,963.5	8,797.6	35.1	33.5	38.34	-951.5	87.4	797.5	748.4	49.09	16.246	
9,600.0	9,526.3	9,000.0	8,809.9	35.6	33.8	32.57	-985.9	87.7	853.2	805.8	47.46	17.979	
9,700.0	9,599.9	9,025.0	8,816.8	36.1	34.0	28.90	-1,009.9	87.9	899.4	853.8	45.60	19.723	
9,800.0	9,657.9	9,060.0	8,824.3	36.7	34.2	26.35	-1,044.1	88.1	935.0	890.7	44.25	21.130	
9,900.0	9,697.8	9,100.0	8,829.8	37.3	34.5	24.79	-1,083.7	88.4	959.0	915.7	43.26	22.166	
10,000.0	9,717.8	9,125.0	8,831.5	37.9	34.6	24.12	-1,108.6	88.6	970.8	928.4	42.37	22.913	
10,100.0	9,720.0	9,198.4	8,832.0	38.5	35.1	24.04	-1,182.0	89.2	972.0	929.5	42.53	22.856	
10,200.0	9,720.0	9,298.4	8,832.0	39.1	35.9	24.04	-1,282.0	90.0	972.0	928.9	43.14	22.534	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Offset Well Error:** 0.0 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.0	9,720.0	9,398.4	8,832.0	39.8	36.6	24.04	-1,382.0	90.8	972.0	928.2	43.81	22.187	
10,400.0	9,720.0	9,498.4	8,832.0	40.5	37.4	24.04	-1,482.0	91.5	972.0	927.5	44.55	21.816	
10,500.0	9,720.0	9,598.4	8,832.0	41.3	38.3	24.04	-1,582.0	92.3	972.0	926.7	45.36	21.428	
10,600.0	9,720.0	9,698.4	8,832.0	42.1	39.1	24.04	-1,682.0	93.1	972.0	925.8	46.23	21.027	
10,700.0	9,720.0	9,798.4	8,832.0	42.9	40.0	24.04	-1,782.0	93.9	972.0	924.9	47.15	20.614	
10,800.0	9,720.0	9,898.4	8,832.0	43.8	41.0	24.04	-1,882.0	94.6	972.0	923.9	48.13	20.196	
10,900.0	9,720.0	9,998.4	8,832.0	44.7	42.0	24.04	-1,982.0	95.4	972.0	922.9	49.16	19.773	
11,000.0	9,720.0	10,098.4	8,832.0	45.6	43.0	24.04	-2,082.0	96.2	972.0	921.8	50.23	19.350	
11,100.0	9,720.0	10,198.4	8,832.0	46.6	44.0	24.04	-2,182.0	97.0	972.0	920.7	51.35	18.928	
11,200.0	9,720.0	10,298.4	8,832.0	47.6	45.0	24.04	-2,282.0	97.7	972.0	919.5	52.52	18.509	
11,300.0	9,720.0	10,398.4	8,832.0	48.6	46.1	24.04	-2,382.0	98.5	972.0	918.3	53.72	18.096	
11,400.0	9,720.0	10,498.4	8,832.0	49.6	47.2	24.04	-2,482.0	99.3	972.0	917.1	54.95	17.688	
11,500.0	9,720.0	10,598.4	8,832.0	50.6	48.3	24.04	-2,582.0	100.1	972.0	915.8	56.22	17.289	
11,600.0	9,720.0	10,698.4	8,832.0	51.7	49.4	24.04	-2,682.0	100.8	972.0	914.5	57.53	16.897	
11,700.0	9,720.0	10,798.4	8,832.0	52.8	50.5	24.04	-2,782.0	101.6	972.0	913.2	58.86	16.515	
11,800.0	9,720.0	10,898.4	8,832.0	53.9	51.7	24.04	-2,882.0	102.4	972.0	911.8	60.22	16.142	
11,900.0	9,720.0	10,998.4	8,832.0	55.0	52.9	24.04	-2,982.0	103.2	972.0	910.4	61.60	15.779	
12,000.0	9,720.0	11,098.4	8,832.0	56.1	54.1	24.04	-3,082.0	103.9	972.0	909.0	63.01	15.426	
12,100.0	9,720.0	11,198.4	8,832.0	57.2	55.3	24.04	-3,182.0	104.7	972.0	907.6	64.44	15.083	
12,200.0	9,720.0	11,298.4	8,832.0	58.4	56.5	24.04	-3,282.0	105.5	972.0	906.1	65.90	14.751	
12,300.0	9,720.0	11,398.4	8,832.0	59.6	57.7	24.04	-3,382.0	106.3	972.0	904.7	67.37	14.428	
12,400.0	9,720.0	11,498.4	8,832.0	60.7	58.9	24.04	-3,482.0	107.1	972.0	903.2	68.86	14.116	
12,500.0	9,720.0	11,598.4	8,832.0	61.9	60.1	24.04	-3,582.0	107.8	972.0	901.7	70.37	13.813	
12,600.0	9,720.0	11,698.4	8,832.0	63.1	61.4	24.04	-3,682.0	108.6	972.0	900.1	71.89	13.520	
12,700.0	9,720.0	11,798.4	8,832.0	64.4	62.7	24.04	-3,782.0	109.4	972.0	898.6	73.43	13.237	
12,800.0	9,720.0	11,898.4	8,832.0	65.6	63.9	24.04	-3,881.9	110.2	972.0	897.0	74.99	12.962	
12,900.0	9,720.0	11,998.4	8,832.0	66.8	65.2	24.04	-3,981.9	110.9	972.0	895.5	76.56	12.697	
13,000.0	9,720.0	12,098.4	8,832.0	68.0	66.5	24.04	-4,081.9	111.7	972.0	893.9	78.14	12.440	
13,100.0	9,720.0	12,198.4	8,832.0	69.3	67.8	24.04	-4,181.9	112.5	972.0	892.3	79.73	12.192	
13,200.0	9,720.0	12,298.4	8,832.0	70.5	69.0	24.04	-4,281.9	113.3	972.0	890.7	81.33	11.952	
13,300.0	9,720.0	12,398.4	8,832.0	71.8	70.3	24.04	-4,381.9	114.0	972.0	889.1	82.94	11.719	
13,400.0	9,720.0	12,498.4	8,832.0	73.1	71.6	24.04	-4,481.9	114.8	972.0	887.5	84.57	11.494	
13,500.0	9,720.0	12,598.4	8,832.0	74.4	73.0	24.04	-4,581.9	115.6	972.0	885.8	86.20	11.276	
13,600.0	9,720.0	12,698.4	8,832.0	75.6	74.3	24.04	-4,681.9	116.4	972.0	884.2	87.84	11.066	
13,700.0	9,720.0	12,798.4	8,832.0	76.9	75.6	24.04	-4,781.9	117.1	972.0	882.5	89.49	10.862	
13,800.0	9,720.0	12,898.4	8,832.0	78.2	76.9	24.04	-4,881.9	117.9	972.0	880.9	91.15	10.664	
13,900.0	9,720.0	12,998.4	8,832.0	79.5	78.2	24.04	-4,981.9	118.7	972.0	879.2	92.82	10.473	
14,000.0	9,720.0	13,098.4	8,832.0	80.8	79.6	24.04	-5,081.9	119.5	972.0	877.5	94.49	10.287	
14,100.0	9,720.0	13,198.4	8,832.0	82.1	80.9	24.04	-5,181.9	120.2	972.0	875.9	96.17	10.108	
14,200.0	9,720.0	13,298.4	8,832.0	83.4	82.3	24.04	-5,281.9	121.0	972.0	874.2	97.85	9.934	
14,300.0	9,720.0	13,398.4	8,832.0	84.8	83.6	24.04	-5,381.9	121.8	972.0	872.5	99.54	9.765	
14,400.0	9,720.0	13,498.4	8,832.0	86.1	85.0	24.04	-5,481.9	122.6	972.0	870.8	101.24	9.601	
14,500.0	9,720.0	13,598.4	8,832.0	87.4	86.3	24.04	-5,581.9	123.3	972.0	869.1	102.94	9.442	
14,600.0	9,720.0	13,698.4	8,832.0	88.7	87.7	24.04	-5,681.9	124.1	972.0	867.4	104.65	9.288	
14,700.0	9,720.0	13,798.4	8,832.0	90.1	89.0	24.04	-5,781.9	124.9	972.0	865.7	106.36	9.139	
14,800.0	9,720.0	13,898.4	8,832.0	91.4	90.4	24.04	-5,881.9	125.7	972.0	863.9	108.08	8.993	
14,900.0	9,720.0	13,998.4	8,832.0	92.8	91.7	24.04	-5,981.9	126.5	972.0	862.2	109.80	8.852	
15,000.0	9,720.0	14,098.4	8,832.0	94.1	93.1	24.04	-6,081.9	127.2	972.0	860.5	111.53	8.715	
15,100.0	9,720.0	14,198.4	8,832.0	95.4	94.5	24.04	-6,181.9	128.0	972.0	858.8	113.26	8.582	
15,200.0	9,720.0	14,298.4	8,832.0	96.8	95.8	24.04	-6,281.9	128.8	972.0	857.0	114.99	8.453	
15,300.0	9,720.0	14,398.4	8,832.0	98.1	97.2	24.04	-6,381.9	129.6	972.0	855.3	116.73	8.327	
15,400.0	9,720.0	14,498.4	8,832.0	99.5	98.6	24.04	-6,481.9	130.3	972.0	853.6	118.47	8.205	

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

Anticollision Report

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Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,500.0	9,720.0	14,598.4	8,832.0	100.9	100.0	24.04	-6,581.9	131.1	972.0	851.8	120.22	8.086	
15,600.0	9,720.0	14,698.4	8,832.0	102.2	101.3	24.04	-6,681.9	131.9	972.0	850.1	121.97	7.970	
15,700.0	9,720.0	14,798.4	8,832.0	103.6	102.7	24.04	-6,781.9	132.7	972.0	848.3	123.72	7.857	
15,800.0	9,720.0	14,898.4	8,832.0	104.9	104.1	24.04	-6,881.9	133.4	972.0	846.6	125.47	7.747	
15,900.0	9,720.0	14,998.4	8,832.0	106.3	105.5	24.04	-6,981.9	134.2	972.0	844.8	127.23	7.640	
16,000.0	9,720.0	15,098.4	8,832.0	107.7	106.9	24.04	-7,081.9	135.0	972.0	843.0	128.99	7.536	
16,100.0	9,720.0	15,198.4	8,832.0	109.1	108.3	24.04	-7,181.8	135.8	972.0	841.3	130.75	7.434	
16,200.0	9,720.0	15,298.4	8,832.0	110.4	109.6	24.04	-7,281.8	136.5	972.0	839.5	132.51	7.335	
16,300.0	9,720.0	15,398.4	8,832.0	111.8	111.0	24.04	-7,381.8	137.3	972.0	837.7	134.28	7.239	
16,400.0	9,720.0	15,498.4	8,832.0	113.2	112.4	24.04	-7,481.8	138.1	972.0	836.0	136.05	7.145	
16,500.0	9,720.0	15,598.4	8,832.0	114.6	113.8	24.04	-7,581.8	138.9	972.0	834.2	137.82	7.053	
16,600.0	9,720.0	15,698.4	8,832.0	115.9	115.2	24.04	-7,681.8	139.6	972.0	832.4	139.60	6.963	
16,700.0	9,720.0	15,798.4	8,832.0	117.3	116.6	24.04	-7,781.8	140.4	972.0	830.7	141.37	6.876	
16,800.0	9,720.0	15,898.4	8,832.0	118.7	118.0	24.04	-7,881.8	141.2	972.0	828.9	143.15	6.790	
16,900.0	9,720.0	15,998.4	8,832.0	120.1	119.4	24.04	-7,981.8	142.0	972.0	827.1	144.93	6.707	
17,000.0	9,720.0	16,098.4	8,832.0	121.5	120.8	24.04	-8,081.8	142.7	972.0	825.3	146.71	6.625	
17,100.0	9,720.0	16,198.4	8,832.0	122.9	122.2	24.04	-8,181.8	143.5	972.0	823.5	148.50	6.546	
17,200.0	9,720.0	16,298.4	8,832.0	124.3	123.6	24.04	-8,281.8	144.3	972.0	821.7	150.28	6.468	
17,300.0	9,720.0	16,398.4	8,832.0	125.6	125.0	24.04	-8,381.8	145.1	972.0	820.0	152.07	6.392	
17,400.0	9,720.0	16,498.4	8,832.0	127.0	126.4	24.04	-8,481.8	145.9	972.0	818.2	153.86	6.318	
17,500.0	9,720.0	16,598.4	8,832.0	128.4	127.8	24.04	-8,581.8	146.6	972.0	816.4	155.65	6.245	
17,600.0	9,720.0	16,698.4	8,832.0	129.8	129.2	24.04	-8,681.8	147.4	972.0	814.6	157.44	6.174	
17,700.0	9,720.0	16,798.4	8,832.0	131.2	130.6	24.04	-8,781.8	148.2	972.0	812.8	159.23	6.104	
17,800.0	9,720.0	16,898.4	8,832.0	132.6	132.0	24.04	-8,881.8	149.0	972.0	811.0	161.03	6.036	
17,900.0	9,720.0	16,998.4	8,832.0	134.0	133.5	24.04	-8,981.8	149.7	972.0	809.2	162.83	5.970	
18,000.0	9,720.0	17,098.4	8,832.0	135.4	134.9	24.04	-9,081.8	150.5	972.0	807.4	164.62	5.905	
18,100.0	9,720.0	17,198.4	8,832.0	136.8	136.3	24.04	-9,181.8	151.3	972.0	805.6	166.42	5.841	
18,200.0	9,720.0	17,298.4	8,832.0	138.2	137.7	24.04	-9,281.8	152.1	972.0	803.8	168.22	5.778	
18,300.0	9,720.0	17,398.4	8,832.0	139.6	139.1	24.04	-9,381.8	152.8	972.0	802.0	170.02	5.717	
18,400.0	9,720.0	17,498.4	8,832.0	141.0	140.5	24.04	-9,481.8	153.6	972.0	800.2	171.82	5.657	
18,500.0	9,720.0	17,598.4	8,832.0	142.4	141.9	24.04	-9,581.8	154.4	972.0	798.4	173.63	5.598	
18,600.0	9,720.0	17,698.4	8,832.0	143.8	143.3	24.04	-9,681.8	155.2	972.0	796.6	175.43	5.541	
18,700.0	9,720.0	17,798.4	8,832.0	145.2	144.7	24.04	-9,781.8	155.9	972.0	794.8	177.24	5.484	
18,800.0	9,720.0	17,898.4	8,832.0	146.6	146.2	24.04	-9,881.8	156.7	972.0	793.0	179.04	5.429	
18,900.0	9,720.0	17,998.4	8,832.0	148.0	147.6	24.04	-9,981.8	157.5	972.0	791.2	180.85	5.375	
19,000.0	9,720.0	18,098.4	8,832.0	149.4	149.0	24.04	-10,081.8	158.3	972.0	789.4	182.66	5.322	
19,100.0	9,720.0	18,198.4	8,832.0	150.9	150.4	24.04	-10,181.8	159.0	972.0	787.6	184.47	5.269	
19,200.0	9,720.0	18,298.4	8,832.0	152.3	151.8	24.04	-10,281.8	159.8	972.0	785.7	186.28	5.218	
19,300.0	9,720.0	18,398.4	8,832.0	153.7	153.2	24.04	-10,381.8	160.6	972.0	783.9	188.09	5.168	
19,400.0	9,720.0	18,498.4	8,832.0	155.1	154.7	24.04	-10,481.8	161.4	972.0	782.1	189.90	5.119	
19,500.0	9,720.0	18,598.4	8,832.0	156.5	156.1	24.04	-10,581.7	162.2	972.0	780.3	191.71	5.070	
19,600.0	9,720.0	18,698.4	8,832.0	157.9	157.5	24.04	-10,681.7	162.9	972.0	778.5	193.53	5.023	
19,700.0	9,720.0	18,798.4	8,832.0	159.3	158.9	24.04	-10,781.7	163.7	972.0	776.7	195.34	4.976	
19,800.0	9,720.0	18,898.4	8,832.0	160.7	160.3	24.04	-10,881.7	164.5	972.0	774.9	197.16	4.930	
19,900.0	9,720.0	18,998.4	8,832.0	162.1	161.8	24.04	-10,981.7	165.3	972.0	773.1	198.97	4.885	
19,978.2	9,720.0	19,076.6	8,832.0	163.3	162.7	24.04	-11,059.9	165.9	972.0	771.9	200.15	4.857	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	2.8	2.8	0.0	0.0	89.08	1.0	60.1	60.1				
100.0	100.0	102.8	102.8	0.1	0.1	89.08	1.0	60.1	60.1	59.8	0.27	219.615	
200.0	200.0	202.8	202.8	0.5	0.5	89.08	1.0	60.1	60.1	59.1	0.99	60.646	
300.0	300.0	302.8	302.8	0.8	0.9	89.08	1.0	60.1	60.1	58.4	1.71	35.181	
400.0	400.0	402.8	402.8	1.2	1.2	89.08	1.0	60.1	60.1	57.6	2.42	24.777	
500.0	500.0	502.8	502.8	1.6	1.6	89.08	1.0	60.1	60.1	56.9	3.14	19.122	
600.0	600.0	602.8	602.8	1.9	1.9	89.08	1.0	60.1	60.1	56.2	3.86	15.569	
700.0	700.0	702.8	702.8	2.3	2.3	89.08	1.0	60.1	60.1	55.5	4.58	13.129	
800.0	800.0	802.8	802.8	2.6	2.7	89.08	1.0	60.1	60.1	54.8	5.29	11.350	
900.0	900.0	902.8	902.8	3.0	3.0	89.08	1.0	60.1	60.1	54.1	6.01	9.996	
1,000.0	1,000.0	1,002.8	1,002.8	3.4	3.4	89.08	1.0	60.1	60.1	53.3	6.73	8.931	
1,100.0	1,100.0	1,102.8	1,102.8	3.7	3.7	89.08	1.0	60.1	60.1	52.6	7.44	8.070	
1,200.0	1,200.0	1,202.8	1,202.8	4.1	4.1	89.08	1.0	60.1	60.1	51.9	8.16	7.361	
1,300.0	1,300.0	1,302.8	1,302.8	4.4	4.4	89.08	1.0	60.1	60.1	51.2	8.88	6.767	
1,400.0	1,400.0	1,402.8	1,402.8	4.8	4.8	89.08	1.0	60.1	60.1	50.5	9.59	6.261	
1,500.0	1,500.0	1,502.8	1,502.8	5.2	5.2	89.08	1.0	60.1	60.1	49.8	10.31	5.826	
1,600.0	1,600.0	1,602.8	1,602.8	5.5	5.5	89.08	1.0	60.1	60.1	49.0	11.03	5.447	
1,700.0	1,700.0	1,702.8	1,702.8	5.9	5.9	89.08	1.0	60.1	60.1	48.3	11.74	5.114	
1,800.0	1,800.0	1,802.8	1,802.8	6.2	6.2	89.08	1.0	60.1	60.1	47.6	12.46	4.820	
1,900.0	1,900.0	1,902.8	1,902.8	6.6	6.6	89.08	1.0	60.1	60.1	46.9	13.18	4.558	
1,915.7	1,915.7	1,918.5	1,918.5	6.6	6.7	89.08	1.0	60.1	60.1	46.8	13.29	4.519	CC
2,000.0	2,000.0	2,002.7	2,002.7	6.9	7.0	89.08	1.0	60.1	60.1	46.2	13.89	4.323	ES
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	89.80	0.2	61.6	61.7	47.1	14.58	4.233	SF
2,200.0	2,200.0	2,198.7	2,198.6	7.7	7.6	91.72	-2.0	66.3	66.4	51.2	15.25	4.357	
2,300.0	2,300.0	2,296.3	2,295.8	8.0	8.0	-49.96	-5.6	73.9	73.3	57.4	15.89	4.614	
2,400.0	2,399.8	2,393.6	2,392.3	8.3	8.3	-49.50	-10.6	84.4	81.1	64.6	16.49	4.917	
2,500.0	2,499.5	2,490.5	2,488.1	8.7	8.6	-49.97	-17.0	97.9	89.8	72.7	17.09	5.252	
2,600.0	2,598.7	2,587.1	2,583.0	9.0	9.0	-51.10	-24.7	114.2	99.4	81.7	17.68	5.619	
2,700.0	2,697.8	2,683.1	2,676.7	9.3	9.3	-51.99	-33.8	133.3	111.2	92.9	18.27	6.087	
2,800.0	2,796.9	2,778.4	2,768.9	9.7	9.7	-52.08	-44.1	155.0	126.1	107.2	18.84	6.691	
2,900.0	2,895.9	2,876.1	2,862.8	10.0	10.1	-51.78	-55.6	179.3	143.0	123.5	19.51	7.332	
3,000.0	2,995.0	2,974.7	2,957.5	10.4	10.5	-51.52	-67.3	203.8	160.1	139.9	20.21	7.919	
3,100.0	3,094.1	3,073.2	3,052.3	10.7	10.9	-51.31	-78.9	228.3	177.1	156.2	20.92	8.465	
3,200.0	3,193.2	3,171.7	3,147.0	11.1	11.4	-51.14	-90.6	252.8	194.1	172.5	21.64	8.971	
3,300.0	3,292.3	3,270.3	3,241.7	11.5	11.8	-51.00	-102.2	277.3	211.2	188.8	22.37	9.442	
3,400.0	3,391.4	3,368.8	3,336.4	11.8	12.2	-50.87	-113.8	301.9	228.2	205.1	23.10	9.881	
3,500.0	3,490.4	3,467.3	3,431.2	12.2	12.7	-50.77	-125.5	326.4	245.3	221.4	23.83	10.290	
3,600.0	3,589.5	3,565.9	3,525.9	12.6	13.1	-50.68	-137.1	350.9	262.3	237.7	24.58	10.673	
3,700.0	3,688.6	3,664.4	3,620.6	13.0	13.6	-50.60	-148.8	375.4	279.3	254.0	25.32	11.031	
3,800.0	3,787.7	3,763.0	3,715.3	13.3	14.1	-50.53	-160.4	400.0	296.4	270.3	26.07	11.368	
3,900.0	3,886.8	3,861.5	3,810.1	13.7	14.5	-50.46	-172.1	424.5	313.4	286.6	26.83	11.683	
4,000.0	3,985.8	3,960.0	3,904.8	14.1	15.0	-50.41	-183.7	449.0	330.4	302.9	27.58	11.980	
4,100.0	4,084.9	4,058.6	3,999.5	14.5	15.5	-50.35	-195.3	473.5	347.5	319.1	28.34	12.260	
4,200.0	4,184.0	4,157.1	4,094.2	14.9	16.0	-50.31	-207.0	498.1	364.5	335.4	29.11	12.524	
4,300.0	4,283.1	4,255.6	4,189.0	15.2	16.5	-50.27	-218.6	522.6	381.6	351.7	29.87	12.773	
4,400.0	4,382.2	4,354.2	4,283.7	15.6	17.0	-50.23	-230.3	547.1	398.6	368.0	30.64	13.009	
4,500.0	4,481.2	4,452.7	4,378.4	16.0	17.4	-50.19	-241.9	571.6	415.7	384.2	31.41	13.232	
4,600.0	4,580.3	4,551.2	4,473.1	16.4	17.9	-50.16	-253.5	596.1	432.7	400.5	32.19	13.443	
4,700.0	4,679.4	4,649.8	4,567.8	16.8	18.4	-50.13	-265.2	620.7	449.7	416.8	32.96	13.644	
4,800.0	4,778.5	4,748.3	4,662.6	17.2	18.9	-50.10	-276.8	645.2	466.8	433.0	33.74	13.835	
4,900.0	4,877.6	4,846.9	4,757.3	17.6	19.4	-50.07	-288.5	669.7	483.8	449.3	34.52	14.017	
5,000.0	4,976.7	4,945.4	4,852.0	18.0	19.9	-50.05	-300.1	694.2	500.9	465.6	35.30	14.190	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,075.7	5,043.9	4,946.7	18.3	20.4	-50.03	-311.8	718.8	517.9	481.8	36.08	14.354	
5,200.0	5,174.8	5,142.5	5,041.5	18.7	20.9	-50.01	-323.4	743.3	535.0	498.1	36.86	14.512	
5,300.0	5,273.9	5,241.0	5,136.2	19.1	21.4	-49.99	-335.0	767.8	552.0	514.3	37.65	14.662	
5,400.0	5,373.0	5,339.5	5,230.9	19.5	21.9	-49.97	-346.7	792.3	569.0	530.6	38.43	14.805	
5,500.0	5,472.1	5,438.1	5,325.6	19.9	22.4	-49.95	-358.3	816.8	586.1	546.9	39.22	14.943	
5,600.0	5,571.1	5,536.6	5,420.4	20.3	23.0	-49.93	-370.0	841.4	603.1	563.1	40.01	15.074	
5,700.0	5,670.2	5,635.2	5,515.1	20.7	23.5	-49.92	-381.6	865.9	620.2	579.4	40.80	15.200	
5,800.0	5,769.3	5,733.7	5,609.8	21.1	24.0	-49.90	-393.3	890.4	637.2	595.6	41.59	15.321	
5,900.0	5,868.4	5,832.2	5,704.5	21.5	24.5	-49.89	-404.9	914.9	654.2	611.9	42.38	15.437	
6,000.0	5,967.5	5,930.8	5,799.3	21.9	25.0	-49.87	-416.5	939.5	671.3	628.1	43.17	15.549	
6,100.0	6,066.6	6,029.3	5,894.0	22.3	25.5	-49.86	-428.2	964.0	688.3	644.4	43.97	15.656	
6,200.0	6,165.6	6,127.8	5,988.7	22.7	26.0	-49.85	-439.8	988.5	705.4	660.6	44.76	15.759	
6,300.0	6,264.7	6,226.4	6,083.4	23.1	26.5	-49.84	-451.5	1,013.0	722.4	676.9	45.56	15.858	
6,400.0	6,363.8	6,324.9	6,178.2	23.5	27.0	-49.83	-463.1	1,037.5	739.5	693.1	46.35	15.954	
6,500.0	6,462.9	6,423.5	6,272.9	23.9	27.6	-49.82	-474.8	1,062.1	756.5	709.4	47.15	16.046	
6,600.0	6,562.0	6,522.0	6,367.6	24.3	28.1	-49.81	-486.4	1,086.6	773.6	725.6	47.94	16.135	
6,700.0	6,661.0	6,620.5	6,462.3	24.7	28.6	-49.80	-498.0	1,111.1	790.6	741.9	48.74	16.220	
6,800.0	6,760.1	6,719.1	6,557.1	25.1	29.1	-49.79	-509.7	1,135.6	807.6	758.1	49.54	16.303	
6,900.0	6,859.2	6,817.6	6,651.8	25.5	29.6	-49.78	-521.3	1,160.2	824.7	774.3	50.34	16.383	
7,000.0	6,958.3	6,916.1	6,746.5	25.9	30.1	-49.77	-533.0	1,184.7	841.7	790.6	51.14	16.460	
7,100.0	7,057.4	7,014.7	6,841.2	26.3	30.7	-49.76	-544.6	1,209.2	858.8	806.8	51.94	16.535	
7,200.0	7,156.4	7,113.2	6,935.9	26.7	31.2	-49.75	-556.2	1,233.7	875.8	823.1	52.74	16.608	
7,300.0	7,255.5	7,211.7	7,030.7	27.1	31.7	-49.75	-567.9	1,258.2	892.9	839.3	53.54	16.678	
7,400.0	7,354.6	7,310.3	7,125.4	27.5	32.2	-49.74	-579.5	1,282.8	909.9	855.6	54.34	16.745	
7,500.0	7,453.7	7,413.0	7,224.1	27.9	32.8	-49.73	-591.7	1,308.3	926.9	871.7	55.18	16.798	
7,600.0	7,552.8	7,554.7	7,361.5	28.3	33.5	-49.82	-606.7	1,339.9	941.3	884.9	56.37	16.697	
7,700.0	7,651.9	7,697.9	7,501.8	28.7	34.1	-50.07	-618.9	1,365.6	951.0	893.6	57.47	16.549	
7,800.0	7,750.9	7,842.0	7,644.2	29.1	34.7	-50.48	-628.1	1,385.0	956.2	897.8	58.46	16.357	
7,900.0	7,850.0	7,986.1	7,787.6	29.5	35.2	-51.05	-634.2	1,397.9	956.8	897.5	59.34	16.123	
8,000.0	7,949.1	8,129.5	7,930.8	29.9	35.7	-51.80	-637.2	1,404.3	952.8	892.7	60.11	15.851	
8,100.0	8,048.2	8,249.6	8,051.0	30.3	36.0	-52.55	-637.6	1,405.0	945.1	884.2	60.84	15.533	
8,200.0	8,147.3	8,348.7	8,150.1	30.7	36.3	-53.15	-637.6	1,405.0	937.0	875.4	61.61	15.209	
8,300.0	8,246.7	8,448.2	8,249.5	31.0	36.6	-53.57	-637.6	1,405.0	930.6	868.3	62.35	14.926	
8,400.0	8,346.5	8,547.9	8,349.3	31.4	36.8	-53.85	-637.6	1,405.0	926.4	863.4	63.06	14.691	
8,500.0	8,446.4	8,647.1	8,447.9	31.8	37.1	-53.43	-646.8	1,405.1	924.3	860.6	63.71	14.507	
8,549.3	8,495.7	8,693.9	8,493.2	31.9	37.3	-52.75	-658.1	1,405.2	924.1	860.1	64.00	14.438	
8,600.0	8,546.4	8,739.1	8,535.7	32.1	37.5	91.59	-673.3	1,405.3	924.7	860.4	64.29	14.383	
8,700.0	8,646.4	8,818.5	8,606.4	32.4	37.8	93.82	-709.4	1,405.6	927.5	862.7	64.84	14.305	
8,800.0	8,746.4	8,884.4	8,659.8	32.7	38.0	96.19	-747.9	1,405.9	934.5	869.2	65.33	14.305	
8,900.0	8,846.4	8,938.1	8,699.1	33.0	38.3	98.41	-784.5	1,406.2	947.1	881.5	65.66	14.426	
9,000.0	8,946.4	8,981.6	8,727.7	33.4	38.5	100.38	-817.2	1,406.4	966.5	900.7	65.74	14.701	
9,100.0	9,046.4	9,017.0	8,748.8	33.7	38.6	102.08	-845.7	1,406.6	993.0	927.5	65.53	15.153	
9,200.0	9,146.4	9,050.0	8,766.4	34.0	38.8	103.71	-873.5	1,406.9	1,026.9	961.9	65.08	15.781	
9,300.0	9,246.4	9,075.0	8,778.5	34.3	38.9	-74.36	-895.4	1,407.0	1,067.8	1,003.5	64.35	16.593	
9,400.0	9,345.6	9,100.0	8,789.4	34.7	39.0	-67.62	-917.9	1,407.2	1,112.2	1,048.7	63.55	17.503	
9,500.0	9,440.3	9,125.0	8,799.1	35.1	39.1	-61.53	-940.9	1,407.4	1,155.3	1,092.6	62.75	18.412	
9,600.0	9,526.3	9,150.0	8,807.6	35.6	39.3	-56.39	-964.4	1,407.6	1,194.7	1,132.7	62.04	19.258	
9,700.0	9,599.9	9,185.6	8,817.6	36.1	39.4	-52.13	-998.6	1,407.8	1,228.5	1,166.9	61.61	19.941	
9,800.0	9,657.9	9,225.0	8,825.6	36.7	39.6	-49.01	-1,037.2	1,408.1	1,255.0	1,193.6	61.44	20.426	
9,900.0	9,697.8	9,250.0	8,829.0	37.3	39.8	-47.14	-1,061.9	1,408.3	1,273.2	1,211.7	61.50	20.703	
10,000.0	9,717.8	9,288.1	8,831.8	37.9	40.0	-46.16	-1,099.9	1,408.6	1,282.4	1,220.4	62.01	20.681	
10,100.0	9,720.0	9,360.0	8,832.0	38.5	40.3	-46.05	-1,171.8	1,409.2	1,283.5	1,220.5	62.94	20.391	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.0	9,720.0	9,460.0	8,832.0	39.1	40.9	-46.05	-1,271.8	1,409.9	1,283.5	1,219.4	64.05	20.039	
10,300.0	9,720.0	9,560.0	8,832.0	39.8	41.5	-46.05	-1,371.8	1,410.7	1,283.5	1,218.2	65.22	19.679	
10,400.0	9,720.0	9,660.0	8,832.0	40.5	42.2	-46.05	-1,471.8	1,411.5	1,283.5	1,217.0	66.45	19.314	
10,500.0	9,720.0	9,760.0	8,832.0	41.3	42.9	-46.05	-1,571.8	1,412.3	1,283.5	1,215.7	67.75	18.945	
10,600.0	9,720.0	9,860.0	8,832.0	42.1	43.6	-46.05	-1,671.8	1,413.0	1,283.5	1,214.4	69.10	18.575	
10,700.0	9,720.0	9,960.0	8,832.0	42.9	44.4	-46.05	-1,771.8	1,413.8	1,283.5	1,213.0	70.50	18.205	
10,800.0	9,720.0	10,060.0	8,832.0	43.8	45.2	-46.05	-1,871.8	1,414.6	1,283.5	1,211.5	71.95	17.838	
10,900.0	9,720.0	10,160.0	8,832.0	44.7	46.1	-46.05	-1,971.8	1,415.4	1,283.5	1,210.0	73.45	17.474	
11,000.0	9,720.0	10,260.0	8,832.0	45.6	46.9	-46.05	-2,071.8	1,416.1	1,283.5	1,208.5	74.99	17.115	
11,100.0	9,720.0	10,360.0	8,832.0	46.6	47.8	-46.05	-2,171.8	1,416.9	1,283.5	1,206.9	76.58	16.761	
11,200.0	9,720.0	10,460.0	8,832.0	47.6	48.7	-46.05	-2,271.8	1,417.7	1,283.5	1,205.3	78.20	16.413	
11,300.0	9,720.0	10,560.0	8,832.0	48.6	49.7	-46.05	-2,371.8	1,418.5	1,283.5	1,203.6	79.86	16.072	
11,400.0	9,720.0	10,660.0	8,832.0	49.6	50.7	-46.05	-2,471.7	1,419.3	1,283.5	1,201.9	81.55	15.738	
11,500.0	9,720.0	10,760.0	8,832.0	50.6	51.7	-46.05	-2,571.7	1,420.0	1,283.5	1,200.2	83.28	15.412	
11,600.0	9,720.0	10,860.0	8,832.0	51.7	52.7	-46.05	-2,671.7	1,420.8	1,283.5	1,198.4	85.03	15.094	
11,700.0	9,720.0	10,960.0	8,832.0	52.8	53.7	-46.05	-2,771.7	1,421.6	1,283.5	1,196.7	86.82	14.784	
11,800.0	9,720.0	11,060.0	8,832.0	53.9	54.8	-46.05	-2,871.7	1,422.4	1,283.5	1,194.8	88.63	14.482	
11,900.0	9,720.0	11,160.0	8,832.0	55.0	55.9	-46.05	-2,971.7	1,423.1	1,283.5	1,193.0	90.46	14.188	
12,000.0	9,720.0	11,260.0	8,832.0	56.1	56.9	-46.05	-3,071.7	1,423.9	1,283.5	1,191.1	92.32	13.902	
12,100.0	9,720.0	11,360.0	8,832.0	57.2	58.1	-46.05	-3,171.7	1,424.7	1,283.5	1,189.3	94.20	13.625	
12,200.0	9,720.0	11,460.0	8,832.0	58.4	59.2	-46.05	-3,271.7	1,425.5	1,283.5	1,187.4	96.10	13.355	
12,300.0	9,720.0	11,560.0	8,832.0	59.6	60.3	-46.05	-3,371.7	1,426.2	1,283.5	1,185.4	98.03	13.093	
12,400.0	9,720.0	11,660.0	8,832.0	60.7	61.5	-46.05	-3,471.7	1,427.0	1,283.5	1,183.5	99.97	12.839	
12,500.0	9,720.0	11,760.0	8,832.0	61.9	62.6	-46.05	-3,571.7	1,427.8	1,283.5	1,181.5	101.92	12.592	
12,600.0	9,720.0	11,860.0	8,832.0	63.1	63.8	-46.05	-3,671.7	1,428.6	1,283.5	1,179.6	103.90	12.353	
12,700.0	9,720.0	11,960.0	8,832.0	64.4	65.0	-46.05	-3,771.7	1,429.3	1,283.5	1,177.6	105.89	12.121	
12,800.0	9,720.0	12,060.0	8,832.0	65.6	66.2	-46.05	-3,871.7	1,430.1	1,283.5	1,175.6	107.89	11.896	
12,900.0	9,720.0	12,160.0	8,832.0	66.8	67.4	-46.05	-3,971.7	1,430.9	1,283.5	1,173.6	109.91	11.677	
13,000.0	9,720.0	12,260.0	8,832.0	68.0	68.6	-46.05	-4,071.7	1,431.7	1,283.5	1,171.5	111.94	11.465	
13,100.0	9,720.0	12,360.0	8,832.0	69.3	69.8	-46.05	-4,171.7	1,432.4	1,283.5	1,169.5	113.99	11.260	
13,200.0	9,720.0	12,460.0	8,832.0	70.5	71.0	-46.05	-4,271.7	1,433.2	1,283.5	1,167.4	116.04	11.060	
13,300.0	9,720.0	12,560.0	8,832.0	71.8	72.3	-46.05	-4,371.7	1,434.0	1,283.5	1,165.4	118.11	10.867	
13,400.0	9,720.0	12,660.0	8,832.0	73.1	73.5	-46.05	-4,471.7	1,434.8	1,283.5	1,163.3	120.19	10.679	
13,500.0	9,720.0	12,760.0	8,832.0	74.4	74.8	-46.05	-4,571.7	1,435.5	1,283.5	1,161.2	122.27	10.497	
13,600.0	9,720.0	12,860.0	8,832.0	75.6	76.1	-46.05	-4,671.7	1,436.3	1,283.5	1,159.1	124.37	10.320	
13,700.0	9,720.0	12,960.0	8,832.0	76.9	77.3	-46.05	-4,771.7	1,437.1	1,283.5	1,157.0	126.48	10.148	
13,800.0	9,720.0	13,060.0	8,832.0	78.2	78.6	-46.05	-4,871.7	1,437.9	1,283.5	1,154.9	128.59	9.981	
13,900.0	9,720.0	13,160.0	8,832.0	79.5	79.9	-46.05	-4,971.7	1,438.7	1,283.5	1,152.8	130.71	9.819	
14,000.0	9,720.0	13,260.0	8,832.0	80.8	81.2	-46.05	-5,071.7	1,439.4	1,283.5	1,150.6	132.84	9.662	
14,100.0	9,720.0	13,360.0	8,832.0	82.1	82.5	-46.05	-5,171.7	1,440.2	1,283.5	1,148.5	134.98	9.509	
14,200.0	9,720.0	13,460.0	8,832.0	83.4	83.8	-46.05	-5,271.7	1,441.0	1,283.5	1,146.3	137.13	9.360	
14,300.0	9,720.0	13,560.0	8,832.0	84.8	85.1	-46.05	-5,371.7	1,441.8	1,283.5	1,144.2	139.28	9.215	
14,400.0	9,720.0	13,660.0	8,832.0	86.1	86.4	-46.05	-5,471.7	1,442.5	1,283.5	1,142.0	141.44	9.075	
14,500.0	9,720.0	13,760.0	8,832.0	87.4	87.7	-46.05	-5,571.7	1,443.3	1,283.5	1,139.9	143.60	8.938	
14,600.0	9,720.0	13,860.0	8,832.0	88.7	89.0	-46.05	-5,671.7	1,444.1	1,283.5	1,137.7	145.77	8.805	
14,700.0	9,720.0	13,960.0	8,832.0	90.1	90.3	-46.05	-5,771.6	1,444.9	1,283.5	1,135.5	147.95	8.675	
14,800.0	9,720.0	14,060.0	8,832.0	91.4	91.6	-46.05	-5,871.6	1,445.6	1,283.5	1,133.3	150.13	8.549	
14,900.0	9,720.0	14,160.0	8,832.0	92.8	93.0	-46.05	-5,971.6	1,446.4	1,283.5	1,131.2	152.31	8.426	
15,000.0	9,720.0	14,260.0	8,832.0	94.1	94.3	-46.05	-6,071.6	1,447.2	1,283.5	1,129.0	154.50	8.307	
15,100.0	9,720.0	14,360.0	8,832.0	95.4	95.6	-46.05	-6,171.6	1,448.0	1,283.5	1,126.8	156.70	8.191	
15,200.0	9,720.0	14,460.0	8,832.0	96.8	97.0	-46.05	-6,271.6	1,448.7	1,283.5	1,124.6	158.90	8.077	
15,300.0	9,720.0	14,560.0	8,832.0	98.1	98.3	-46.05	-6,371.6	1,449.5	1,283.5	1,122.4	161.11	7.967	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,400.0	9,720.0	14,660.0	8,832.0	99.5	99.6	-46.05	-6,471.6	1,450.3	1,283.5	1,120.2	163.32	7.859	
15,500.0	9,720.0	14,760.0	8,832.0	100.9	101.0	-46.05	-6,571.6	1,451.1	1,283.5	1,117.9	165.53	7.754	
15,600.0	9,720.0	14,860.0	8,832.0	102.2	102.3	-46.05	-6,671.6	1,451.8	1,283.5	1,115.7	167.74	7.651	
15,700.0	9,720.0	14,960.0	8,832.0	103.6	103.7	-46.05	-6,771.6	1,452.6	1,283.5	1,113.5	169.97	7.551	
15,800.0	9,720.0	15,060.0	8,832.0	104.9	105.0	-46.05	-6,871.6	1,453.4	1,283.5	1,111.3	172.19	7.454	
15,900.0	9,720.0	15,160.0	8,832.0	106.3	106.4	-46.05	-6,971.6	1,454.2	1,283.5	1,109.0	174.42	7.359	
16,000.0	9,720.0	15,260.0	8,832.0	107.7	107.8	-46.05	-7,071.6	1,454.9	1,283.5	1,106.8	176.65	7.266	
16,100.0	9,720.0	15,360.0	8,832.0	109.1	109.1	-46.05	-7,171.6	1,455.7	1,283.5	1,104.6	178.88	7.175	
16,200.0	9,720.0	15,460.0	8,832.0	110.4	110.5	-46.05	-7,271.6	1,456.5	1,283.5	1,102.3	181.12	7.086	
16,300.0	9,720.0	15,560.0	8,832.0	111.8	111.9	-46.05	-7,371.6	1,457.3	1,283.5	1,100.1	183.36	7.000	
16,400.0	9,720.0	15,660.0	8,832.0	113.2	113.2	-46.05	-7,471.6	1,458.1	1,283.5	1,097.9	185.60	6.915	
16,500.0	9,720.0	15,760.0	8,832.0	114.6	114.6	-46.05	-7,571.6	1,458.8	1,283.5	1,095.6	187.85	6.833	
16,600.0	9,720.0	15,860.0	8,832.0	115.9	116.0	-46.05	-7,671.6	1,459.6	1,283.5	1,093.4	190.09	6.752	
16,700.0	9,720.0	15,960.0	8,832.0	117.3	117.3	-46.05	-7,771.6	1,460.4	1,283.5	1,091.1	192.35	6.673	
16,800.0	9,720.0	16,060.0	8,832.0	118.7	118.7	-46.05	-7,871.6	1,461.2	1,283.5	1,088.9	194.60	6.595	
16,900.0	9,720.0	16,160.0	8,832.0	120.1	120.1	-46.05	-7,971.6	1,461.9	1,283.5	1,086.6	196.85	6.520	
17,000.0	9,720.0	16,260.0	8,832.0	121.5	121.5	-46.05	-8,071.6	1,462.7	1,283.5	1,084.4	199.11	6.446	
17,100.0	9,720.0	16,360.0	8,832.0	122.9	122.9	-46.05	-8,171.6	1,463.5	1,283.5	1,082.1	201.37	6.374	
17,200.0	9,720.0	16,460.0	8,832.0	124.3	124.2	-46.05	-8,271.6	1,464.3	1,283.5	1,079.8	203.63	6.303	
17,300.0	9,720.0	16,560.0	8,832.0	125.6	125.6	-46.05	-8,371.6	1,465.0	1,283.5	1,077.6	205.90	6.234	
17,400.0	9,720.0	16,660.0	8,832.0	127.0	127.0	-46.05	-8,471.6	1,465.8	1,283.5	1,075.3	208.16	6.166	
17,500.0	9,720.0	16,760.0	8,832.0	128.4	128.4	-46.05	-8,571.6	1,466.6	1,283.5	1,073.0	210.43	6.099	
17,600.0	9,720.0	16,860.0	8,832.0	129.8	129.8	-46.05	-8,671.6	1,467.4	1,283.5	1,070.8	212.70	6.034	
17,700.0	9,720.0	16,960.0	8,832.0	131.2	131.2	-46.05	-8,771.6	1,468.1	1,283.5	1,068.5	214.97	5.970	
17,800.0	9,720.0	17,060.0	8,832.0	132.6	132.6	-46.05	-8,871.6	1,468.9	1,283.5	1,066.2	217.25	5.908	
17,900.0	9,720.0	17,160.0	8,832.0	134.0	133.9	-46.05	-8,971.6	1,469.7	1,283.5	1,063.9	219.52	5.847	
18,000.0	9,720.0	17,260.0	8,832.0	135.4	135.3	-46.05	-9,071.5	1,470.5	1,283.5	1,061.7	221.80	5.787	
18,100.0	9,720.0	17,360.0	8,832.0	136.8	136.7	-46.05	-9,171.5	1,471.2	1,283.5	1,059.4	224.08	5.728	
18,200.0	9,720.0	17,460.0	8,832.0	138.2	138.1	-46.05	-9,271.5	1,472.0	1,283.5	1,057.1	226.36	5.670	
18,300.0	9,720.0	17,560.0	8,832.0	139.6	139.5	-46.05	-9,371.5	1,472.8	1,283.5	1,054.8	228.64	5.614	
18,400.0	9,720.0	17,660.0	8,832.0	141.0	140.9	-46.05	-9,471.5	1,473.6	1,283.5	1,052.5	230.92	5.558	
18,500.0	9,720.0	17,760.0	8,832.0	142.4	142.3	-46.05	-9,571.5	1,474.3	1,283.5	1,050.3	233.21	5.504	
18,600.0	9,720.0	17,860.0	8,832.0	143.8	143.7	-46.05	-9,671.5	1,475.1	1,283.5	1,048.0	235.49	5.450	
18,700.0	9,720.0	17,960.0	8,832.0	145.2	145.1	-46.05	-9,771.5	1,475.9	1,283.5	1,045.7	237.78	5.398	
18,800.0	9,720.0	18,060.0	8,832.0	146.6	146.5	-46.05	-9,871.5	1,476.7	1,283.5	1,043.4	240.07	5.346	
18,900.0	9,720.0	18,160.0	8,832.0	148.0	147.9	-46.05	-9,971.5	1,477.5	1,283.5	1,041.1	242.36	5.296	
19,000.0	9,720.0	18,260.0	8,832.0	149.4	149.3	-46.05	-10,071.5	1,478.2	1,283.5	1,038.8	244.65	5.246	
19,100.0	9,720.0	18,360.0	8,832.0	150.9	150.7	-46.05	-10,171.5	1,479.0	1,283.5	1,036.5	246.94	5.198	
19,200.0	9,720.0	18,460.0	8,832.0	152.3	152.1	-46.05	-10,271.5	1,479.8	1,283.5	1,034.2	249.23	5.150	
19,300.0	9,720.0	18,560.0	8,832.0	153.7	153.5	-46.05	-10,371.5	1,480.6	1,283.5	1,031.9	251.53	5.103	
19,400.0	9,720.0	18,660.0	8,832.0	155.1	154.9	-46.05	-10,471.5	1,481.3	1,283.5	1,029.6	253.82	5.057	
19,500.0	9,720.0	18,760.0	8,832.0	156.5	156.4	-46.05	-10,571.5	1,482.1	1,283.5	1,027.3	256.12	5.011	
19,600.0	9,720.0	18,860.0	8,832.0	157.9	157.8	-46.05	-10,671.5	1,482.9	1,283.5	1,025.1	258.41	4.967	
19,700.0	9,720.0	18,960.0	8,832.0	159.3	159.2	-46.05	-10,771.5	1,483.7	1,283.5	1,022.8	260.71	4.923	
19,800.0	9,720.0	19,060.0	8,832.0	160.7	160.6	-46.05	-10,871.5	1,484.4	1,283.5	1,020.5	263.01	4.880	
19,900.0	9,720.0	19,160.0	8,832.0	162.1	162.0	-46.05	-10,971.5	1,485.2	1,283.5	1,018.2	265.31	4.838	
19,907.9	9,720.0	19,167.8	8,832.0	162.3	162.1	-46.05	-10,979.4	1,485.3	1,283.5	1,018.0	265.49	4.834	
19,978.2	9,720.0	19,235.6	8,832.0	163.3	163.1	-46.05	-11,047.1	1,485.8	1,283.5	1,016.4	267.11	4.805	

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 512H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-91.02	-0.7	-40.0	40.0				
100.0	100.0	99.6	99.6	0.1	0.1	-91.02	-0.7	-40.0	40.0	39.7	0.26	152.144	
200.0	200.0	199.6	199.6	0.5	0.5	-91.02	-0.7	-40.0	40.0	39.0	0.98	40.865	
300.0	300.0	299.6	299.6	0.8	0.8	-91.02	-0.7	-40.0	40.0	38.3	1.70	23.590	
400.0	400.0	399.6	399.6	1.2	1.2	-91.02	-0.7	-40.0	40.0	37.6	2.41	16.580	
500.0	500.0	499.6	499.6	1.6	1.6	-91.02	-0.7	-40.0	40.0	36.9	3.13	12.782	
600.0	600.0	599.6	599.6	1.9	1.9	-91.02	-0.7	-40.0	40.0	36.2	3.85	10.400	
700.0	700.0	699.6	699.6	2.3	2.3	-91.02	-0.7	-40.0	40.0	35.4	4.56	8.766	
800.0	800.0	799.6	799.6	2.6	2.6	-91.02	-0.7	-40.0	40.0	34.7	5.28	7.576	
900.0	900.0	899.6	899.6	3.0	3.0	-91.02	-0.7	-40.0	40.0	34.0	6.00	6.670	
1,000.0	1,000.0	999.6	999.6	3.4	3.4	-91.02	-0.7	-40.0	40.0	33.3	6.71	5.958	
1,100.0	1,100.0	1,099.6	1,099.6	3.7	3.7	-91.02	-0.7	-40.0	40.0	32.6	7.43	5.383	
1,200.0	1,200.0	1,199.6	1,199.6	4.1	4.1	-91.02	-0.7	-40.0	40.0	31.9	8.15	4.910	
1,300.0	1,300.0	1,299.6	1,299.6	4.4	4.4	-91.02	-0.7	-40.0	40.0	31.1	8.87	4.513	
1,400.0	1,400.0	1,399.6	1,399.6	4.8	4.8	-91.02	-0.7	-40.0	40.0	30.4	9.58	4.175	
1,500.0	1,500.0	1,499.6	1,499.6	5.2	5.1	-91.02	-0.7	-40.0	40.0	29.7	10.30	3.884	
1,600.0	1,600.0	1,599.6	1,599.6	5.5	5.5	-91.02	-0.7	-40.0	40.0	29.0	11.02	3.632	
1,700.0	1,700.0	1,699.6	1,699.6	5.9	5.9	-91.02	-0.7	-40.0	40.0	28.3	11.73	3.410	
1,800.0	1,800.0	1,799.6	1,799.6	6.2	6.2	-91.02	-0.7	-40.0	40.0	27.6	12.45	3.213	
1,900.0	1,900.0	1,899.6	1,899.6	6.6	6.6	-91.02	-0.7	-40.0	40.0	26.8	13.17	3.038	
2,000.0	2,000.0	1,999.6	1,999.6	6.9	6.9	-91.02	-0.7	-40.0	40.0	26.1	13.88	2.881	CC, ES
2,100.0	2,100.0	2,098.8	2,098.8	7.3	7.3	-93.03	-2.2	-40.9	41.0	26.4	14.58	2.809	SF
2,200.0	2,200.0	2,197.8	2,197.6	7.7	7.6	-98.52	-6.5	-43.6	44.1	28.8	15.25	2.892	
2,300.0	2,300.0	2,296.4	2,295.8	8.0	7.9	112.31	-13.8	-48.0	50.7	34.8	15.89	3.191	
2,400.0	2,399.8	2,394.6	2,393.4	8.3	8.3	108.86	-23.8	-54.2	61.4	44.9	16.52	3.717	
2,500.0	2,499.5	2,493.8	2,491.7	8.7	8.6	108.36	-34.9	-60.9	74.1	56.9	17.18	4.314	
2,600.0	2,598.7	2,592.8	2,589.8	9.0	8.9	110.12	-45.9	-67.7	88.0	70.1	17.85	4.928	
2,700.0	2,697.8	2,691.7	2,687.9	9.3	9.3	112.28	-57.0	-74.5	102.4	83.9	18.53	5.526	
2,800.0	2,796.9	2,790.5	2,785.9	9.7	9.6	113.91	-68.0	-81.3	117.0	97.7	19.22	6.086	
2,900.0	2,895.9	2,889.4	2,883.9	10.0	10.0	115.17	-79.0	-88.0	131.6	111.7	19.92	6.608	
3,000.0	2,995.0	2,988.3	2,982.0	10.4	10.3	116.19	-90.1	-94.8	146.3	125.6	20.62	7.095	
3,100.0	3,094.1	3,087.2	3,080.0	10.7	10.7	117.01	-101.1	-101.6	161.0	139.7	21.32	7.550	
3,200.0	3,193.2	3,186.1	3,178.0	11.1	11.1	117.70	-112.2	-108.3	175.7	153.7	22.03	7.975	
3,300.0	3,292.3	3,285.0	3,276.1	11.5	11.4	118.29	-123.2	-115.1	190.5	167.7	22.75	8.373	
3,400.0	3,391.4	3,383.9	3,374.1	11.8	11.8	118.78	-134.3	-121.9	205.2	181.8	23.47	8.745	
3,500.0	3,490.4	3,482.8	3,472.1	12.2	12.2	119.22	-145.3	-128.7	220.0	195.8	24.19	9.095	
3,600.0	3,589.5	3,581.7	3,570.2	12.6	12.5	119.59	-156.3	-135.4	234.8	209.9	24.92	9.423	
3,700.0	3,688.6	3,680.5	3,668.2	13.0	12.9	119.93	-167.4	-142.2	249.6	224.0	25.65	9.732	
3,800.0	3,787.7	3,779.4	3,766.3	13.3	13.3	120.22	-178.4	-149.0	264.5	238.1	26.39	10.023	
3,900.0	3,886.8	3,878.3	3,864.3	13.7	13.7	120.49	-189.5	-155.7	279.3	252.2	27.12	10.297	
4,000.0	3,985.8	3,977.2	3,962.3	14.1	14.0	120.72	-200.5	-162.5	294.1	266.2	27.86	10.556	
4,100.0	4,084.9	4,076.1	4,060.4	14.5	14.4	120.94	-211.6	-169.3	308.9	280.3	28.60	10.801	
4,200.0	4,184.0	4,175.0	4,158.4	14.9	14.8	121.13	-222.6	-176.1	323.8	294.4	29.35	11.033	
4,300.0	4,283.1	4,273.9	4,256.4	15.2	15.2	121.31	-233.6	-182.8	338.6	308.5	30.09	11.253	
4,400.0	4,382.2	4,372.8	4,354.5	15.6	15.6	121.47	-244.7	-189.6	353.5	322.6	30.84	11.461	
4,500.0	4,481.2	4,471.6	4,452.5	16.0	15.9	121.62	-255.7	-196.4	368.3	336.7	31.59	11.659	
4,600.0	4,580.3	4,570.5	4,550.5	16.4	16.3	121.76	-266.8	-203.1	383.1	350.8	32.34	11.847	
4,700.0	4,679.4	4,669.4	4,648.6	16.8	16.7	121.89	-277.8	-209.9	398.0	364.9	33.09	12.027	
4,800.0	4,778.5	4,768.3	4,746.6	17.2	17.1	122.01	-288.9	-216.7	412.8	379.0	33.85	12.198	
4,900.0	4,877.6	4,867.2	4,844.6	17.6	17.5	122.12	-299.9	-223.5	427.7	393.1	34.60	12.361	
5,000.0	4,976.7	4,966.1	4,942.7	18.0	17.9	122.22	-310.9	-230.2	442.5	407.2	35.36	12.516	
5,100.0	5,075.7	5,065.0	5,040.7	18.3	18.3	122.32	-322.0	-237.0	457.4	421.3	36.12	12.665	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 512H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.0	5,174.8	5,163.9	5,138.8	18.7	18.6	122.41	-333.0	-243.8	472.3	435.4	36.87	12.807	
5,300.0	5,273.9	5,262.7	5,236.8	19.1	19.0	122.49	-344.1	-250.5	487.1	449.5	37.63	12.943	
5,400.0	5,373.0	5,361.6	5,334.8	19.5	19.4	122.57	-355.1	-257.3	502.0	463.6	38.40	13.074	
5,500.0	5,472.1	5,460.5	5,432.9	19.9	19.8	122.65	-366.2	-264.1	516.8	477.7	39.16	13.199	
5,600.0	5,571.1	5,559.4	5,530.9	20.3	20.2	122.72	-377.2	-270.9	531.7	491.8	39.92	13.319	
5,700.0	5,670.2	5,658.3	5,628.9	20.7	20.6	122.79	-388.2	-277.6	546.6	505.9	40.68	13.434	
5,800.0	5,769.3	5,757.2	5,727.0	21.1	21.0	122.85	-399.3	-284.4	561.4	520.0	41.45	13.545	
5,900.0	5,868.4	5,856.1	5,825.0	21.5	21.4	122.91	-410.3	-291.2	576.3	534.1	42.21	13.652	
6,000.0	5,967.5	5,955.0	5,923.0	21.9	21.8	122.97	-421.4	-297.9	591.1	548.2	42.98	13.754	
6,100.0	6,066.6	6,053.8	6,021.1	22.3	22.2	123.02	-432.4	-304.7	606.0	562.3	43.74	13.853	
6,200.0	6,165.6	6,152.7	6,119.1	22.7	22.5	123.08	-443.5	-311.5	620.9	576.3	44.51	13.949	
6,300.0	6,264.7	6,251.6	6,217.1	23.1	22.9	123.12	-454.5	-318.3	635.7	590.4	45.28	14.040	
6,400.0	6,363.8	6,350.5	6,315.2	23.5	23.3	123.17	-465.5	-325.0	650.6	604.5	46.05	14.129	
6,500.0	6,462.9	6,449.4	6,413.2	23.9	23.7	123.22	-476.6	-331.8	665.5	618.6	46.82	14.214	
6,600.0	6,562.0	6,548.3	6,511.3	24.3	24.1	123.26	-487.6	-338.6	680.3	632.7	47.58	14.297	
6,700.0	6,661.0	6,647.2	6,609.3	24.7	24.5	123.30	-498.7	-345.3	695.2	646.8	48.35	14.377	
6,800.0	6,760.1	6,746.1	6,707.3	25.1	24.9	123.34	-509.7	-352.1	710.0	660.9	49.12	14.454	
6,900.0	6,859.2	6,844.9	6,805.4	25.5	25.3	123.38	-520.8	-358.9	724.9	675.0	49.89	14.529	
7,000.0	6,958.3	6,943.8	6,903.4	25.9	25.7	123.41	-531.8	-365.7	739.8	689.1	50.67	14.601	
7,100.0	7,057.4	7,042.7	7,001.4	26.3	26.1	123.45	-542.8	-372.4	754.6	703.2	51.44	14.671	
7,200.0	7,156.4	7,141.6	7,099.5	26.7	26.5	123.48	-553.9	-379.2	769.5	717.3	52.21	14.739	
7,300.0	7,255.5	7,240.5	7,197.5	27.1	26.9	123.52	-564.9	-386.0	784.4	731.4	52.98	14.805	
7,400.0	7,354.6	7,339.4	7,295.5	27.5	27.3	123.55	-576.0	-392.7	799.2	745.5	53.75	14.869	
7,500.0	7,453.7	7,438.3	7,393.6	27.9	27.6	123.58	-587.0	-399.5	814.1	759.6	54.53	14.930	
7,600.0	7,552.8	7,537.2	7,491.6	28.3	28.0	123.61	-598.0	-406.3	829.0	773.7	55.30	14.990	
7,700.0	7,651.9	7,636.0	7,589.6	28.7	28.4	123.63	-609.1	-413.0	843.9	787.8	56.07	15.049	
7,800.0	7,750.9	7,734.9	7,687.7	29.1	28.8	123.66	-620.1	-419.8	858.7	801.9	56.85	15.105	
7,900.0	7,850.0	7,833.8	7,785.7	29.5	29.2	123.69	-631.2	-426.6	873.6	816.0	57.62	15.160	
8,000.0	7,949.1	7,943.0	7,894.1	29.9	29.7	123.75	-642.8	-433.7	888.2	829.7	58.47	15.190	
8,100.0	8,048.2	8,063.0	8,013.6	30.3	30.1	124.04	-652.0	-439.4	900.7	841.4	59.36	15.173	
8,200.0	8,147.3	8,183.2	8,133.6	30.7	30.5	124.63	-656.9	-442.3	910.9	850.7	60.21	15.128	
8,300.0	8,246.7	8,295.9	8,246.3	31.0	30.9	125.31	-657.7	-442.9	917.5	856.5	60.97	15.048	
8,400.0	8,346.5	8,395.7	8,346.1	31.4	31.2	125.73	-657.7	-442.9	921.6	859.9	61.65	14.948	
8,500.0	8,446.4	8,495.6	8,446.0	31.8	31.5	125.95	-657.7	-442.9	923.7	861.4	62.32	14.821	
8,600.0	8,546.4	8,595.6	8,546.0	32.1	31.9	-90.63	-657.7	-442.9	924.0	861.0	62.97	14.674	
8,700.0	8,646.4	8,695.6	8,646.0	32.4	32.2	-90.63	-657.7	-442.9	924.0	860.4	63.61	14.526	
8,800.0	8,746.4	8,795.6	8,746.0	32.7	32.5	-90.63	-657.7	-442.9	924.0	859.8	64.25	14.381	
8,807.5	8,753.9	8,803.1	8,753.5	32.7	32.5	-90.63	-657.7	-442.9	924.0	859.7	64.30	14.371	
8,900.0	8,846.4	8,895.4	8,845.8	33.0	32.8	-90.66	-658.3	-442.9	924.0	859.1	64.90	14.238	
9,000.0	8,946.4	8,992.3	8,941.4	33.4	33.2	-91.56	-672.8	-442.8	924.2	858.6	65.60	14.088	
9,100.0	9,046.4	9,080.0	9,023.9	33.7	33.6	-93.38	-702.3	-442.5	925.5	859.2	66.31	13.957	
9,200.0	9,146.4	9,155.1	9,089.2	34.0	33.9	-95.66	-739.1	-442.2	929.6	862.7	66.93	13.889	
9,300.0	9,246.4	9,217.1	9,138.3	34.3	34.3	82.41	-777.0	-442.0	938.3	870.9	67.35	13.932	
9,400.0	9,345.6	9,275.0	9,179.3	34.7	34.6	78.74	-817.8	-441.6	951.0	883.4	67.61	14.065	
9,500.0	9,440.3	9,325.0	9,210.5	35.1	34.9	75.45	-856.9	-441.3	965.3	897.6	67.68	14.263	
9,600.0	9,526.3	9,382.0	9,240.9	35.6	35.2	72.27	-905.1	-441.0	979.6	911.8	67.76	14.457	
9,700.0	9,599.9	9,435.9	9,264.1	36.1	35.5	69.66	-953.6	-440.6	992.6	924.8	67.80	14.641	
9,800.0	9,657.9	9,489.4	9,281.7	36.7	35.9	67.65	-1,004.2	-440.2	1,003.3	935.4	67.91	14.774	
9,900.0	9,697.8	9,542.8	9,293.4	37.3	36.2	66.30	-1,056.2	-439.8	1,010.7	942.6	68.17	14.826	
10,000.0	9,717.8	9,600.0	9,299.5	37.9	36.6	65.63	-1,113.1	-439.3	1,014.5	945.8	68.69	14.768	
10,100.0	9,720.0	9,673.1	9,300.0	38.5	37.0	65.58	-1,186.1	-438.8	1,014.8	945.2	69.57	14.586	
10,200.0	9,720.0	9,773.1	9,300.0	39.1	37.7	65.58	-1,286.1	-438.0	1,014.8	944.0	70.78	14.337	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 512H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.0	9,720.0	9,873.1	9,300.0	39.8	38.4	65.58	-1,386.1	-437.2	1,014.8	942.7	72.08	14.080	
10,400.0	9,720.0	9,973.1	9,300.0	40.5	39.2	65.58	-1,486.1	-436.5	1,014.8	941.4	73.45	13.817	
10,500.0	9,720.0	10,073.1	9,300.0	41.3	40.0	65.58	-1,586.1	-435.7	1,014.8	939.9	74.89	13.551	
10,600.0	9,720.0	10,173.1	9,300.0	42.1	40.8	65.58	-1,686.1	-434.9	1,014.8	938.4	76.40	13.283	
10,700.0	9,720.0	10,273.1	9,300.0	42.9	41.7	65.58	-1,786.1	-434.1	1,014.8	936.8	77.98	13.014	
10,800.0	9,720.0	10,373.1	9,300.0	43.8	42.6	65.58	-1,886.1	-433.3	1,014.8	935.2	79.61	12.747	
10,900.0	9,720.0	10,473.1	9,300.0	44.7	43.5	65.58	-1,986.1	-432.6	1,014.8	933.5	81.31	12.481	
11,000.0	9,720.0	10,573.1	9,300.0	45.6	44.4	65.58	-2,086.1	-431.8	1,014.8	931.8	83.06	12.218	
11,100.0	9,720.0	10,673.1	9,300.0	46.6	45.4	65.58	-2,186.1	-431.0	1,014.8	930.0	84.86	11.959	
11,200.0	9,720.0	10,773.1	9,300.0	47.6	46.4	65.58	-2,286.1	-430.2	1,014.8	928.1	86.71	11.704	
11,300.0	9,720.0	10,873.1	9,300.0	48.6	47.5	65.58	-2,386.1	-429.5	1,014.8	926.2	88.60	11.454	
11,400.0	9,720.0	10,973.1	9,300.0	49.6	48.5	65.58	-2,486.1	-428.7	1,014.8	924.3	90.54	11.209	
11,500.0	9,720.0	11,073.1	9,300.0	50.6	49.6	65.58	-2,586.1	-427.9	1,014.8	922.3	92.51	10.970	
11,600.0	9,720.0	11,173.1	9,300.0	51.7	50.7	65.58	-2,686.1	-427.1	1,014.8	920.3	94.52	10.736	
11,700.0	9,720.0	11,273.1	9,300.0	52.8	51.8	65.58	-2,786.1	-426.4	1,014.8	918.3	96.57	10.509	
11,800.0	9,720.0	11,373.1	9,300.0	53.9	52.9	65.58	-2,886.1	-425.6	1,014.8	916.2	98.64	10.288	
11,900.0	9,720.0	11,473.1	9,300.0	55.0	54.0	65.58	-2,986.1	-424.8	1,014.8	914.1	100.75	10.072	
12,000.0	9,720.0	11,573.1	9,300.0	56.1	55.2	65.58	-3,086.1	-424.0	1,014.8	911.9	102.89	9.863	
12,100.0	9,720.0	11,673.1	9,300.0	57.2	56.3	65.58	-3,186.1	-423.3	1,014.8	909.8	105.05	9.660	
12,200.0	9,720.0	11,773.1	9,300.0	58.4	57.5	65.58	-3,286.1	-422.5	1,014.8	907.6	107.24	9.463	
12,300.0	9,720.0	11,873.1	9,300.0	59.6	58.7	65.58	-3,386.1	-421.7	1,014.8	905.4	109.45	9.272	
12,400.0	9,720.0	11,973.1	9,300.0	60.7	59.9	65.58	-3,486.1	-420.9	1,014.8	903.1	111.68	9.087	
12,500.0	9,720.0	12,073.1	9,300.0	61.9	61.1	65.58	-3,586.1	-420.2	1,014.8	900.9	113.94	8.907	
12,600.0	9,720.0	12,173.1	9,300.0	63.1	62.3	65.58	-3,686.1	-419.4	1,014.8	898.6	116.21	8.732	
12,700.0	9,720.0	12,273.1	9,300.0	64.4	63.6	65.58	-3,786.1	-418.6	1,014.8	896.3	118.51	8.563	
12,800.0	9,720.0	12,373.1	9,300.0	65.6	64.8	65.58	-3,886.0	-417.8	1,014.8	894.0	120.82	8.400	
12,900.0	9,720.0	12,473.1	9,300.0	66.8	66.1	65.58	-3,986.0	-417.0	1,014.8	891.7	123.14	8.241	
13,000.0	9,720.0	12,573.1	9,300.0	68.0	67.3	65.58	-4,086.0	-416.3	1,014.8	889.3	125.49	8.087	
13,100.0	9,720.0	12,673.1	9,300.0	69.3	68.6	65.58	-4,186.0	-415.5	1,014.8	887.0	127.84	7.938	
13,200.0	9,720.0	12,773.1	9,300.0	70.5	69.8	65.58	-4,286.0	-414.7	1,014.8	884.6	130.21	7.793	
13,300.0	9,720.0	12,873.1	9,300.0	71.8	71.1	65.58	-4,386.0	-413.9	1,014.8	882.2	132.60	7.653	
13,400.0	9,720.0	12,973.1	9,300.0	73.1	72.4	65.58	-4,486.0	-413.2	1,014.8	879.8	134.99	7.517	
13,500.0	9,720.0	13,073.1	9,300.0	74.4	73.7	65.58	-4,586.0	-412.4	1,014.8	877.4	137.40	7.386	
13,600.0	9,720.0	13,173.1	9,300.0	75.6	75.0	65.58	-4,686.0	-411.6	1,014.8	875.0	139.82	7.258	
13,700.0	9,720.0	13,273.1	9,300.0	76.9	76.3	65.58	-4,786.0	-410.8	1,014.8	872.6	142.25	7.134	
13,800.0	9,720.0	13,373.1	9,300.0	78.2	77.6	65.58	-4,886.0	-410.1	1,014.8	870.1	144.69	7.014	
13,900.0	9,720.0	13,473.1	9,300.0	79.5	78.9	65.58	-4,986.0	-409.3	1,014.8	867.7	147.14	6.897	
14,000.0	9,720.0	13,573.1	9,300.0	80.8	80.2	65.58	-5,086.0	-408.5	1,014.8	865.2	149.60	6.783	
14,100.0	9,720.0	13,673.1	9,300.0	82.1	81.6	65.58	-5,186.0	-407.7	1,014.8	862.7	152.07	6.673	
14,200.0	9,720.0	13,773.1	9,300.0	83.4	82.9	65.58	-5,286.0	-407.0	1,014.8	860.3	154.55	6.566	
14,300.0	9,720.0	13,873.1	9,300.0	84.8	84.2	65.58	-5,386.0	-406.2	1,014.8	857.8	157.03	6.463	
14,400.0	9,720.0	13,973.1	9,300.0	86.1	85.5	65.58	-5,486.0	-405.4	1,014.8	855.3	159.52	6.362	
14,500.0	9,720.0	14,073.1	9,300.0	87.4	86.9	65.58	-5,586.0	-404.6	1,014.8	852.8	162.02	6.263	
14,600.0	9,720.0	14,173.1	9,300.0	88.7	88.2	65.58	-5,686.0	-403.9	1,014.8	850.3	164.53	6.168	
14,700.0	9,720.0	14,273.1	9,300.0	90.1	89.6	65.58	-5,786.0	-403.1	1,014.8	847.8	167.04	6.075	
14,800.0	9,720.0	14,373.1	9,300.0	91.4	90.9	65.58	-5,886.0	-402.3	1,014.8	845.3	169.56	5.985	
14,900.0	9,720.0	14,473.1	9,300.0	92.8	92.3	65.58	-5,986.0	-401.5	1,014.8	842.7	172.08	5.897	
15,000.0	9,720.0	14,573.1	9,300.0	94.1	93.6	65.58	-6,086.0	-400.8	1,014.8	840.2	174.61	5.812	
15,100.0	9,720.0	14,673.1	9,300.0	95.4	95.0	65.58	-6,186.0	-400.0	1,014.8	837.7	177.15	5.729	
15,200.0	9,720.0	14,773.1	9,300.0	96.8	96.3	65.58	-6,286.0	-399.2	1,014.8	835.1	179.69	5.648	
15,300.0	9,720.0	14,873.1	9,300.0	98.1	97.7	65.58	-6,386.0	-398.4	1,014.8	832.6	182.23	5.569	
15,400.0	9,720.0	14,973.1	9,300.0	99.5	99.0	65.58	-6,486.0	-397.6	1,014.8	830.0	184.78	5.492	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 512H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,500.0	9,720.0	15,073.1	9,300.0	100.9	100.4	65.58	-6,586.0	-396.9	1,014.8	827.5	187.34	5.417	
15,600.0	9,720.0	15,173.1	9,300.0	102.2	101.8	65.58	-6,686.0	-396.1	1,014.8	824.9	189.90	5.344	
15,700.0	9,720.0	15,273.1	9,300.0	103.6	103.2	65.58	-6,786.0	-395.3	1,014.8	822.4	192.46	5.273	
15,800.0	9,720.0	15,373.1	9,300.0	104.9	104.5	65.58	-6,886.0	-394.5	1,014.8	819.8	195.03	5.203	
15,900.0	9,720.0	15,473.1	9,300.0	106.3	105.9	65.58	-6,986.0	-393.8	1,014.8	817.2	197.60	5.136	
16,000.0	9,720.0	15,573.1	9,300.0	107.7	107.3	65.58	-7,086.0	-393.0	1,014.8	814.6	200.18	5.070	
16,100.0	9,720.0	15,673.1	9,300.0	109.1	108.7	65.58	-7,185.9	-392.2	1,014.8	812.1	202.76	5.005	
16,200.0	9,720.0	15,773.1	9,300.0	110.4	110.0	65.58	-7,285.9	-391.4	1,014.8	809.5	205.34	4.942	
16,300.0	9,720.0	15,873.1	9,300.0	111.8	111.4	65.58	-7,385.9	-390.7	1,014.8	806.9	207.93	4.881	
16,400.0	9,720.0	15,973.1	9,300.0	113.2	112.8	65.58	-7,485.9	-389.9	1,014.8	804.3	210.52	4.821	
16,500.0	9,720.0	16,073.1	9,300.0	114.6	114.2	65.58	-7,585.9	-389.1	1,014.8	801.7	213.11	4.762	
16,600.0	9,720.0	16,173.1	9,300.0	115.9	115.6	65.58	-7,685.9	-388.3	1,014.8	799.1	215.70	4.705	
16,700.0	9,720.0	16,273.1	9,300.0	117.3	117.0	65.58	-7,785.9	-387.6	1,014.8	796.5	218.30	4.649	
16,800.0	9,720.0	16,373.1	9,300.0	118.7	118.3	65.58	-7,885.9	-386.8	1,014.8	793.9	220.90	4.594	
16,900.0	9,720.0	16,473.1	9,300.0	120.1	119.7	65.58	-7,985.9	-386.0	1,014.8	791.3	223.51	4.540	
17,000.0	9,720.0	16,573.1	9,300.0	121.5	121.1	65.58	-8,085.9	-385.2	1,014.8	788.7	226.11	4.488	
17,100.0	9,720.0	16,673.1	9,300.0	122.9	122.5	65.58	-8,185.9	-384.5	1,014.8	786.1	228.72	4.437	
17,200.0	9,720.0	16,773.1	9,300.0	124.3	123.9	65.58	-8,285.9	-383.7	1,014.8	783.5	231.33	4.387	
17,300.0	9,720.0	16,873.1	9,300.0	125.6	125.3	65.58	-8,385.9	-382.9	1,014.8	780.9	233.95	4.338	
17,400.0	9,720.0	16,973.1	9,300.0	127.0	126.7	65.58	-8,485.9	-382.1	1,014.8	778.3	236.56	4.290	
17,500.0	9,720.0	17,073.1	9,300.0	128.4	128.1	65.58	-8,585.9	-381.4	1,014.8	775.6	239.18	4.243	
17,600.0	9,720.0	17,173.1	9,300.0	129.8	129.5	65.58	-8,685.9	-380.6	1,014.8	773.0	241.80	4.197	
17,700.0	9,720.0	17,273.1	9,300.0	131.2	130.9	65.58	-8,785.9	-379.8	1,014.8	770.4	244.42	4.152	
17,800.0	9,720.0	17,373.1	9,300.0	132.6	132.3	65.58	-8,885.9	-379.0	1,014.8	767.8	247.05	4.108	
17,900.0	9,720.0	17,473.1	9,300.0	134.0	133.7	65.58	-8,985.9	-378.2	1,014.8	765.1	249.67	4.065	
18,000.0	9,720.0	17,573.1	9,300.0	135.4	135.1	65.58	-9,085.9	-377.5	1,014.8	762.5	252.30	4.022	
18,100.0	9,720.0	17,673.1	9,300.0	136.8	136.5	65.58	-9,185.9	-376.7	1,014.8	759.9	254.93	3.981	
18,200.0	9,720.0	17,773.1	9,300.0	138.2	137.9	65.58	-9,285.9	-375.9	1,014.8	757.2	257.56	3.940	
18,300.0	9,720.0	17,873.1	9,300.0	139.6	139.3	65.58	-9,385.9	-375.1	1,014.8	754.6	260.20	3.900	
18,400.0	9,720.0	17,973.1	9,300.0	141.0	140.7	65.58	-9,485.9	-374.4	1,014.8	752.0	262.83	3.861	
18,500.0	9,720.0	18,073.1	9,300.0	142.4	142.1	65.58	-9,585.9	-373.6	1,014.8	749.3	265.47	3.823	
18,600.0	9,720.0	18,173.1	9,300.0	143.8	143.5	65.58	-9,685.9	-372.8	1,014.8	746.7	268.11	3.785	
18,700.0	9,720.0	18,273.1	9,300.0	145.2	145.0	65.58	-9,785.9	-372.0	1,014.8	744.1	270.75	3.748	
18,800.0	9,720.0	18,373.1	9,300.0	146.6	146.4	65.58	-9,885.9	-371.3	1,014.8	741.4	273.39	3.712	
18,900.0	9,720.0	18,473.1	9,300.0	148.0	147.8	65.58	-9,985.9	-370.5	1,014.8	738.8	276.03	3.676	
19,000.0	9,720.0	18,573.1	9,300.0	149.4	149.2	65.58	-10,085.9	-369.7	1,014.8	736.1	278.67	3.642	
19,100.0	9,720.0	18,673.1	9,300.0	150.9	150.6	65.58	-10,185.9	-368.9	1,014.8	733.5	281.32	3.607	
19,200.0	9,720.0	18,773.1	9,300.0	152.3	152.0	65.58	-10,285.9	-368.2	1,014.8	730.8	283.97	3.574	
19,300.0	9,720.0	18,873.1	9,300.0	153.7	153.4	65.58	-10,385.9	-367.4	1,014.8	728.2	286.61	3.541	
19,400.0	9,720.0	18,973.1	9,300.0	155.1	154.8	65.58	-10,485.8	-366.6	1,014.8	725.5	289.26	3.508	
19,500.0	9,720.0	19,073.1	9,300.0	156.5	156.3	65.58	-10,585.8	-365.8	1,014.8	722.9	291.91	3.476	
19,600.0	9,720.0	19,173.1	9,300.0	157.9	157.7	65.58	-10,685.8	-365.1	1,014.8	720.2	294.57	3.445	
19,700.0	9,720.0	19,273.1	9,300.0	159.3	159.1	65.58	-10,785.8	-364.3	1,014.8	717.6	297.22	3.414	
19,800.0	9,720.0	19,373.1	9,300.0	160.7	160.5	65.58	-10,885.8	-363.5	1,014.8	714.9	299.87	3.384	
19,900.0	9,720.0	19,473.1	9,300.0	162.1	161.9	65.58	-10,985.8	-362.7	1,014.8	712.3	302.53	3.354	
19,978.2	9,720.0	19,551.3	9,300.0	163.3	163.0	65.58	-11,064.0	-362.1	1,014.8	710.2	304.60	3.332	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 513H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Offset Well Error:** 0.0 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	2.8	2.8	0.0	0.0	89.06	0.7	40.0	40.1				
100.0	100.0	102.8	102.8	0.1	0.1	89.06	0.7	40.0	40.1	39.8	0.27	146.447	
200.0	200.0	202.8	202.8	0.5	0.5	89.06	0.7	40.0	40.1	39.1	0.99	40.441	
300.0	300.0	302.8	302.8	0.8	0.9	89.06	0.7	40.0	40.1	38.3	1.71	23.460	
400.0	400.0	402.8	402.8	1.2	1.2	89.06	0.7	40.0	40.1	37.6	2.42	16.522	
500.0	500.0	502.8	502.8	1.6	1.6	89.06	0.7	40.0	40.1	36.9	3.14	12.751	
600.0	600.0	602.8	602.8	1.9	1.9	89.06	0.7	40.0	40.1	36.2	3.86	10.382	
700.0	700.0	702.8	702.8	2.3	2.3	89.06	0.7	40.0	40.1	35.5	4.58	8.755	
800.0	800.0	802.8	802.8	2.6	2.7	89.06	0.7	40.0	40.1	34.8	5.29	7.569	
900.0	900.0	902.8	902.8	3.0	3.0	89.06	0.7	40.0	40.1	34.0	6.01	6.666	
1,000.0	1,000.0	1,002.8	1,002.8	3.4	3.4	89.06	0.7	40.0	40.1	33.3	6.73	5.955	
1,100.0	1,100.0	1,102.8	1,102.8	3.7	3.7	89.06	0.7	40.0	40.1	32.6	7.44	5.382	
1,200.0	1,200.0	1,202.8	1,202.8	4.1	4.1	89.06	0.7	40.0	40.1	31.9	8.16	4.909	
1,300.0	1,300.0	1,302.8	1,302.8	4.4	4.4	89.06	0.7	40.0	40.1	31.2	8.88	4.512	
1,400.0	1,400.0	1,402.8	1,402.8	4.8	4.8	89.06	0.7	40.0	40.1	30.5	9.59	4.175	
1,500.0	1,500.0	1,502.8	1,502.8	5.2	5.2	89.06	0.7	40.0	40.1	29.7	10.31	3.885	
1,600.0	1,600.0	1,602.8	1,602.8	5.5	5.5	89.06	0.7	40.0	40.1	29.0	11.03	3.632	
1,700.0	1,700.0	1,702.8	1,702.8	5.9	5.9	89.06	0.7	40.0	40.1	28.3	11.74	3.411	
1,800.0	1,800.0	1,802.8	1,802.8	6.2	6.2	89.06	0.7	40.0	40.1	27.6	12.46	3.214	
1,900.0	1,900.0	1,902.8	1,902.8	6.6	6.6	89.06	0.7	40.0	40.1	26.9	13.18	3.039	
1,915.7	1,915.7	1,918.5	1,918.5	6.6	6.7	89.06	0.7	40.0	40.1	26.8	13.29	3.014 CC	
2,000.0	2,000.0	2,002.8	2,002.8	6.9	7.0	89.06	0.7	40.1	40.1	26.2	13.89	2.883 ES	
2,100.0	2,100.0	2,101.5	2,101.5	7.3	7.3	90.14	-0.1	41.7	41.7	27.1	14.59	2.858 SF	
2,200.0	2,200.0	2,200.0	2,199.8	7.7	7.6	92.83	-2.3	46.4	46.5	31.3	15.26	3.049	
2,300.0	2,300.0	2,298.1	2,297.6	8.0	8.0	-48.41	-5.9	54.1	53.5	37.6	15.89	3.366	
2,400.0	2,399.8	2,395.9	2,394.7	8.3	8.3	-48.07	-10.9	64.8	61.4	44.9	16.50	3.721	
2,500.0	2,499.5	2,493.5	2,491.0	8.7	8.6	-48.93	-17.3	78.5	70.2	53.1	17.10	4.104	
2,600.0	2,598.7	2,590.6	2,586.4	9.0	9.0	-50.55	-25.0	95.0	79.9	62.2	17.69	4.515	
2,700.0	2,697.8	2,687.2	2,680.6	9.3	9.3	-51.74	-34.1	114.4	91.9	73.6	18.28	5.027	
2,800.0	2,796.9	2,785.7	2,776.2	9.7	9.7	-52.18	-44.2	136.0	105.9	87.0	18.95	5.588	
2,900.0	2,895.9	2,884.7	2,872.2	10.0	10.1	-52.51	-54.4	157.8	120.0	100.3	19.65	6.105	
3,000.0	2,995.0	2,983.7	2,968.3	10.4	10.5	-52.77	-64.6	179.6	134.0	113.7	20.36	6.583	
3,100.0	3,094.1	3,082.7	3,064.3	10.7	10.9	-52.98	-74.8	201.4	148.1	127.0	21.08	7.028	
3,200.0	3,193.2	3,181.7	3,160.3	11.1	11.3	-53.16	-85.0	223.2	162.2	140.4	21.80	7.440	
3,300.0	3,292.3	3,280.7	3,256.4	11.5	11.8	-53.30	-95.2	245.0	176.3	153.7	22.53	7.824	
3,400.0	3,391.4	3,379.7	3,352.4	11.8	12.2	-53.43	-105.4	266.8	190.4	167.1	23.26	8.183	
3,500.0	3,490.4	3,478.7	3,448.4	12.2	12.6	-53.54	-115.6	288.6	204.4	180.4	24.00	8.517	
3,600.0	3,589.5	3,577.8	3,544.5	12.6	13.1	-53.63	-125.8	310.4	218.5	193.8	24.75	8.830	
3,700.0	3,688.6	3,676.8	3,640.5	13.0	13.5	-53.71	-135.9	332.2	232.6	207.1	25.50	9.123	
3,800.0	3,787.7	3,775.8	3,736.5	13.3	13.9	-53.79	-146.1	354.0	246.7	220.4	26.25	9.398	
3,900.0	3,886.8	3,874.8	3,832.6	13.7	14.4	-53.85	-156.3	375.8	260.8	233.8	27.00	9.656	
4,000.0	3,985.8	3,973.8	3,928.6	14.1	14.8	-53.91	-166.5	397.6	274.8	247.1	27.76	9.900	
4,100.0	4,084.9	4,072.8	4,024.6	14.5	15.3	-53.96	-176.7	419.4	288.9	260.4	28.53	10.129	
4,200.0	4,184.0	4,171.8	4,120.7	14.9	15.8	-54.01	-186.9	441.2	303.0	273.7	29.29	10.345	
4,300.0	4,283.1	4,270.8	4,216.7	15.2	16.2	-54.05	-197.1	463.0	317.1	287.0	30.06	10.550	
4,400.0	4,382.2	4,369.8	4,312.7	15.6	16.7	-54.09	-207.3	484.8	331.2	300.4	30.83	10.743	
4,500.0	4,481.2	4,468.8	4,408.8	16.0	17.1	-54.13	-217.5	506.6	345.3	313.7	31.60	10.926	
4,600.0	4,580.3	4,567.8	4,504.8	16.4	17.6	-54.16	-227.7	528.4	359.3	327.0	32.37	11.100	
4,700.0	4,679.4	4,666.8	4,600.9	16.8	18.1	-54.20	-237.9	550.2	373.4	340.3	33.15	11.265	
4,800.0	4,778.5	4,765.8	4,696.9	17.2	18.5	-54.22	-248.1	572.0	387.5	353.6	33.93	11.422	
4,900.0	4,877.6	4,864.8	4,792.9	17.6	19.0	-54.25	-258.3	593.8	401.6	366.9	34.71	11.572	
5,000.0	4,976.7	4,963.8	4,889.0	18.0	19.5	-54.28	-268.5	615.6	415.7	380.2	35.49	11.714	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 513H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,075.7	5,062.8	4,985.0	18.3	19.9	-54.30	-278.7	637.4	429.8	393.5	36.27	11.850	
5,200.0	5,174.8	5,161.8	5,081.0	18.7	20.4	-54.32	-288.8	659.2	443.9	406.8	37.05	11.979	
5,300.0	5,273.9	5,260.8	5,177.1	19.1	20.9	-54.34	-299.0	681.0	457.9	420.1	37.84	12.103	
5,400.0	5,373.0	5,359.8	5,273.1	19.5	21.4	-54.36	-309.2	702.8	472.0	433.4	38.62	12.221	
5,500.0	5,472.1	5,458.8	5,369.1	19.9	21.8	-54.38	-319.4	724.6	486.1	446.7	39.41	12.334	
5,600.0	5,571.1	5,557.8	5,465.2	20.3	22.3	-54.40	-329.6	746.4	500.2	460.0	40.20	12.443	
5,700.0	5,670.2	5,656.8	5,561.2	20.7	22.8	-54.41	-339.8	768.2	514.3	473.3	40.99	12.547	
5,800.0	5,769.3	5,755.8	5,657.2	21.1	23.3	-54.43	-350.0	790.0	528.4	486.6	41.78	12.647	
5,900.0	5,868.4	5,854.8	5,753.3	21.5	23.8	-54.44	-360.2	811.8	542.4	499.9	42.57	12.742	
6,000.0	5,967.5	5,953.8	5,849.3	21.9	24.2	-54.46	-370.4	833.6	556.5	513.2	43.36	12.835	
6,100.0	6,066.6	6,052.8	5,945.3	22.3	24.7	-54.47	-380.6	855.4	570.6	526.5	44.15	12.923	
6,200.0	6,165.6	6,151.8	6,041.4	22.7	25.2	-54.48	-390.8	877.2	584.7	539.7	44.95	13.008	
6,300.0	6,264.7	6,250.8	6,137.4	23.1	25.7	-54.50	-401.0	899.0	598.8	553.0	45.74	13.090	
6,400.0	6,363.8	6,349.8	6,233.4	23.5	26.2	-54.51	-411.2	920.8	612.9	566.3	46.54	13.169	
6,500.0	6,462.9	6,448.8	6,329.5	23.9	26.6	-54.52	-421.4	942.6	627.0	579.6	47.33	13.246	
6,600.0	6,562.0	6,547.8	6,425.5	24.3	27.1	-54.53	-431.5	964.4	641.0	592.9	48.13	13.319	
6,700.0	6,661.0	6,646.8	6,521.5	24.7	27.6	-54.54	-441.7	986.2	655.1	606.2	48.93	13.390	
6,800.0	6,760.1	6,745.8	6,617.6	25.1	28.1	-54.55	-451.9	1,008.0	669.2	619.5	49.72	13.458	
6,900.0	6,859.2	6,844.9	6,713.6	25.5	28.6	-54.56	-462.1	1,029.8	683.3	632.8	50.52	13.525	
7,000.0	6,958.3	6,943.9	6,809.6	25.9	29.1	-54.57	-472.3	1,051.6	697.4	646.1	51.32	13.589	
7,100.0	7,057.4	7,042.9	6,905.7	26.3	29.6	-54.57	-482.5	1,073.4	711.5	659.3	52.12	13.651	
7,200.0	7,156.4	7,141.9	7,001.7	26.7	30.0	-54.58	-492.7	1,095.2	725.5	672.6	52.92	13.711	
7,300.0	7,255.5	7,240.9	7,097.7	27.1	30.5	-54.59	-502.9	1,117.0	739.6	685.9	53.72	13.769	
7,400.0	7,354.6	7,339.9	7,193.8	27.5	31.0	-54.60	-513.1	1,138.8	753.7	699.2	54.52	13.825	
7,500.0	7,453.7	7,438.9	7,289.8	27.9	31.5	-54.61	-523.3	1,160.6	767.8	712.5	55.32	13.879	
7,600.0	7,552.8	7,537.9	7,385.8	28.3	32.0	-54.61	-533.5	1,182.4	781.9	725.8	56.12	13.932	
7,700.0	7,651.9	7,636.9	7,481.9	28.7	32.5	-54.62	-543.7	1,204.2	796.0	739.0	56.92	13.983	
7,800.0	7,750.9	7,735.9	7,577.9	29.1	33.0	-54.63	-553.9	1,226.0	810.1	752.3	57.73	14.033	
7,900.0	7,850.0	7,834.9	7,673.9	29.5	33.4	-54.63	-564.1	1,247.8	824.1	765.6	58.53	14.081	
8,000.0	7,949.1	7,933.9	7,770.0	29.9	33.9	-54.64	-574.3	1,269.6	838.2	778.9	59.33	14.128	
8,100.0	8,048.2	8,032.9	7,866.0	30.3	34.4	-54.64	-584.4	1,291.4	852.3	792.2	60.13	14.174	
8,200.0	8,147.3	8,131.9	7,962.0	30.7	34.9	-54.72	-594.6	1,313.2	866.5	805.6	60.93	14.220	
8,300.0	8,246.7	8,244.0	8,070.8	31.0	35.5	-54.81	-606.0	1,337.5	882.0	820.2	61.83	14.264	
8,400.0	8,346.5	8,380.9	8,204.9	31.4	36.1	-54.74	-617.8	1,362.7	896.2	833.3	62.88	14.253	
8,500.0	8,446.4	8,519.2	8,341.5	31.8	36.7	-54.59	-626.9	1,382.3	908.1	844.3	63.80	14.235	
8,600.0	8,546.4	8,658.6	8,480.0	32.1	37.2	89.10	-633.3	1,395.9	917.5	853.0	64.58	14.209	
8,700.0	8,646.4	8,799.0	8,620.2	32.4	37.7	89.33	-636.8	1,403.4	922.9	857.6	65.25	14.144	
8,800.0	8,746.4	8,928.0	8,749.2	32.7	38.0	89.37	-637.6	1,405.0	924.0	858.2	65.83	14.035	
8,900.0	8,846.4	9,028.1	8,849.3	33.0	38.3	89.42	-638.3	1,405.0	924.0	857.5	66.46	13.903	
8,925.2	8,871.6	9,053.3	8,874.4	33.1	38.4	89.55	-640.4	1,405.0	924.0	857.4	66.62	13.871	
9,000.0	8,946.4	9,125.9	8,945.7	33.4	38.6	90.38	-653.7	1,405.1	924.1	857.0	67.05	13.781	
9,100.0	9,046.4	9,214.1	9,028.3	33.7	39.0	92.26	-684.2	1,405.4	925.3	857.6	67.63	13.682	
9,200.0	9,146.4	9,289.2	9,093.3	34.0	39.3	94.58	-721.7	1,405.7	929.2	861.1	68.17	13.631	
9,300.0	9,246.4	9,350.0	9,141.0	34.3	39.5	-82.62	-759.3	1,406.0	937.9	869.2	68.62	13.668	
9,400.0	9,345.6	9,406.5	9,180.8	34.7	39.7	-78.96	-799.4	1,406.3	950.6	881.6	68.99	13.779	
9,500.0	9,440.3	9,461.1	9,214.5	35.1	40.0	-75.48	-842.4	1,406.6	965.0	895.7	69.32	13.921	
9,600.0	9,526.3	9,515.2	9,242.8	35.6	40.2	-72.33	-888.4	1,407.0	979.6	910.0	69.63	14.068	
9,700.0	9,599.9	9,568.8	9,265.5	36.1	40.5	-69.67	-936.9	1,407.3	992.9	922.9	69.98	14.188	
9,800.0	9,657.9	9,625.0	9,283.4	36.7	40.7	-67.57	-990.1	1,407.8	1,003.9	933.4	70.46	14.246	
9,900.0	9,697.8	9,675.0	9,293.9	37.3	41.0	-66.21	-1,039.0	1,408.1	1,011.6	940.5	71.12	14.223	
10,000.0	9,717.8	9,725.0	9,299.3	37.9	41.2	-65.51	-1,088.7	1,408.5	1,015.6	943.6	72.05	14.097	
10,100.0	9,720.0	9,808.1	9,300.0	38.5	41.7	-65.41	-1,171.8	1,409.2	1,016.1	942.9	73.21	13.881	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 513H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.0	9,720.0	9,908.1	9,300.0	39.1	42.2	-65.41	-1,271.8	1,409.9	1,016.1	941.7	74.45	13.648	
10,300.0	9,720.0	10,008.1	9,300.0	39.8	42.8	-65.41	-1,371.8	1,410.7	1,016.1	940.4	75.78	13.409	
10,400.0	9,720.0	10,108.1	9,300.0	40.5	43.5	-65.41	-1,471.8	1,411.5	1,016.1	939.0	77.18	13.166	
10,500.0	9,720.0	10,208.1	9,300.0	41.3	44.2	-65.41	-1,571.8	1,412.3	1,016.1	937.5	78.64	12.921	
10,600.0	9,720.0	10,308.1	9,300.0	42.1	44.9	-65.41	-1,671.8	1,413.0	1,016.1	936.0	80.17	12.674	
10,700.0	9,720.0	10,408.1	9,300.0	42.9	45.6	-65.41	-1,771.8	1,413.8	1,016.1	934.4	81.77	12.427	
10,800.0	9,720.0	10,508.1	9,300.0	43.8	46.4	-65.41	-1,871.8	1,414.6	1,016.1	932.7	83.42	12.181	
10,900.0	9,720.0	10,608.1	9,300.0	44.7	47.2	-65.41	-1,971.8	1,415.4	1,016.1	931.0	85.12	11.937	
11,000.0	9,720.0	10,708.1	9,300.0	45.6	48.1	-65.41	-2,071.8	1,416.1	1,016.1	929.3	86.88	11.696	
11,100.0	9,720.0	10,808.1	9,300.0	46.6	49.0	-65.41	-2,171.8	1,416.9	1,016.1	927.4	88.68	11.458	
11,200.0	9,720.0	10,908.1	9,300.0	47.6	49.9	-65.41	-2,271.8	1,417.7	1,016.1	925.6	90.54	11.224	
11,300.0	9,720.0	11,008.1	9,300.0	48.6	50.8	-65.41	-2,371.8	1,418.5	1,016.1	923.7	92.43	10.994	
11,400.0	9,720.0	11,108.1	9,300.0	49.6	51.8	-65.41	-2,471.7	1,419.3	1,016.1	921.8	94.36	10.768	
11,500.0	9,720.0	11,208.1	9,300.0	50.6	52.7	-65.41	-2,571.7	1,420.0	1,016.1	919.8	96.33	10.548	
11,600.0	9,720.0	11,308.1	9,300.0	51.7	53.7	-65.41	-2,671.7	1,420.8	1,016.1	917.8	98.34	10.333	
11,700.0	9,720.0	11,408.1	9,300.0	52.8	54.8	-65.41	-2,771.7	1,421.6	1,016.1	915.8	100.38	10.123	
11,800.0	9,720.0	11,508.1	9,300.0	53.9	55.8	-65.41	-2,871.7	1,422.4	1,016.1	913.7	102.45	9.918	
11,900.0	9,720.0	11,608.1	9,300.0	55.0	56.8	-65.41	-2,971.7	1,423.1	1,016.1	911.6	104.55	9.719	
12,000.0	9,720.0	11,708.1	9,300.0	56.1	57.9	-65.41	-3,071.7	1,423.9	1,016.1	909.5	106.68	9.525	
12,100.0	9,720.0	11,808.1	9,300.0	57.2	59.0	-65.41	-3,171.7	1,424.7	1,016.1	907.3	108.83	9.337	
12,200.0	9,720.0	11,908.1	9,300.0	58.4	60.1	-65.41	-3,271.7	1,425.5	1,016.1	905.1	111.01	9.153	
12,300.0	9,720.0	12,008.1	9,300.0	59.6	61.2	-65.41	-3,371.7	1,426.2	1,016.1	902.9	113.21	8.975	
12,400.0	9,720.0	12,108.1	9,300.0	60.7	62.4	-65.41	-3,471.7	1,427.0	1,016.1	900.7	115.44	8.802	
12,500.0	9,720.0	12,208.1	9,300.0	61.9	63.5	-65.41	-3,571.7	1,427.8	1,016.1	898.4	117.68	8.635	
12,600.0	9,720.0	12,308.1	9,300.0	63.1	64.7	-65.41	-3,671.7	1,428.6	1,016.1	896.2	119.95	8.472	
12,700.0	9,720.0	12,408.1	9,300.0	64.4	65.8	-65.41	-3,771.7	1,429.3	1,016.1	893.9	122.23	8.313	
12,800.0	9,720.0	12,508.1	9,300.0	65.6	67.0	-65.41	-3,871.7	1,430.1	1,016.1	891.6	124.53	8.160	
12,900.0	9,720.0	12,608.1	9,300.0	66.8	68.2	-65.41	-3,971.7	1,430.9	1,016.1	889.3	126.84	8.011	
13,000.0	9,720.0	12,708.1	9,300.0	68.0	69.4	-65.41	-4,071.7	1,431.7	1,016.1	887.0	129.17	7.866	
13,100.0	9,720.0	12,808.1	9,300.0	69.3	70.6	-65.41	-4,171.7	1,432.4	1,016.1	884.6	131.52	7.726	
13,200.0	9,720.0	12,908.1	9,300.0	70.5	71.8	-65.41	-4,271.7	1,433.2	1,016.1	882.3	133.88	7.590	
13,300.0	9,720.0	13,008.1	9,300.0	71.8	73.1	-65.41	-4,371.7	1,434.0	1,016.1	879.9	136.25	7.458	
13,400.0	9,720.0	13,108.1	9,300.0	73.1	74.3	-65.41	-4,471.7	1,434.8	1,016.1	877.5	138.64	7.329	
13,500.0	9,720.0	13,208.1	9,300.0	74.4	75.5	-65.41	-4,571.7	1,435.5	1,016.1	875.1	141.04	7.205	
13,600.0	9,720.0	13,308.1	9,300.0	75.6	76.8	-65.41	-4,671.7	1,436.3	1,016.1	872.7	143.45	7.084	
13,700.0	9,720.0	13,408.1	9,300.0	76.9	78.0	-65.41	-4,771.7	1,437.1	1,016.1	870.3	145.87	6.966	
13,800.0	9,720.0	13,508.1	9,300.0	78.2	79.3	-65.41	-4,871.7	1,437.9	1,016.1	867.8	148.29	6.852	
13,900.0	9,720.0	13,608.1	9,300.0	79.5	80.6	-65.41	-4,971.7	1,438.7	1,016.1	865.4	150.73	6.741	
14,000.0	9,720.0	13,708.1	9,300.0	80.8	81.9	-65.41	-5,071.7	1,439.4	1,016.1	862.9	153.18	6.633	
14,100.0	9,720.0	13,808.1	9,300.0	82.1	83.1	-65.41	-5,171.7	1,440.2	1,016.1	860.5	155.64	6.529	
14,200.0	9,720.0	13,908.1	9,300.0	83.4	84.4	-65.41	-5,271.7	1,441.0	1,016.1	858.0	158.11	6.427	
14,300.0	9,720.0	14,008.1	9,300.0	84.8	85.7	-65.41	-5,371.7	1,441.8	1,016.1	855.6	160.58	6.328	
14,400.0	9,720.0	14,108.1	9,300.0	86.1	87.0	-65.41	-5,471.7	1,442.5	1,016.1	853.1	163.06	6.232	
14,500.0	9,720.0	14,208.1	9,300.0	87.4	88.3	-65.41	-5,571.7	1,443.3	1,016.1	850.6	165.55	6.138	
14,600.0	9,720.0	14,308.1	9,300.0	88.7	89.6	-65.41	-5,671.7	1,444.1	1,016.1	848.1	168.05	6.047	
14,700.0	9,720.0	14,408.1	9,300.0	90.1	90.9	-65.41	-5,771.6	1,444.9	1,016.1	845.6	170.55	5.958	
14,800.0	9,720.0	14,508.1	9,300.0	91.4	92.2	-65.41	-5,871.6	1,445.6	1,016.1	843.1	173.06	5.872	
14,900.0	9,720.0	14,608.1	9,300.0	92.8	93.6	-65.41	-5,971.6	1,446.4	1,016.1	840.6	175.57	5.788	
15,000.0	9,720.0	14,708.1	9,300.0	94.1	94.9	-65.41	-6,071.6	1,447.2	1,016.1	838.0	178.09	5.706	
15,100.0	9,720.0	14,808.1	9,300.0	95.4	96.2	-65.41	-6,171.6	1,448.0	1,016.1	835.5	180.62	5.626	
15,200.0	9,720.0	14,908.1	9,300.0	96.8	97.5	-65.41	-6,271.6	1,448.7	1,016.1	833.0	183.15	5.548	
15,300.0	9,720.0	15,008.1	9,300.0	98.1	98.9	-65.41	-6,371.6	1,449.5	1,016.1	830.4	185.69	5.472	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 513H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,400.0	9,720.0	15,108.1	9,300.0	99.5	100.2	-65.41	-6,471.6	1,450.3	1,016.1	827.9	188.23	5.398	
15,500.0	9,720.0	15,208.1	9,300.0	100.9	101.5	-65.41	-6,571.6	1,451.1	1,016.1	825.4	190.78	5.326	
15,600.0	9,720.0	15,308.1	9,300.0	102.2	102.9	-65.41	-6,671.6	1,451.8	1,016.1	822.8	193.33	5.256	
15,700.0	9,720.0	15,408.1	9,300.0	103.6	104.2	-65.41	-6,771.6	1,452.6	1,016.1	820.2	195.88	5.187	
15,800.0	9,720.0	15,508.1	9,300.0	104.9	105.6	-65.41	-6,871.6	1,453.4	1,016.1	817.7	198.44	5.120	
15,900.0	9,720.0	15,608.1	9,300.0	106.3	106.9	-65.41	-6,971.6	1,454.2	1,016.1	815.1	201.01	5.055	
16,000.0	9,720.0	15,708.1	9,300.0	107.7	108.3	-65.41	-7,071.6	1,454.9	1,016.1	812.6	203.58	4.991	
16,100.0	9,720.0	15,808.1	9,300.0	109.1	109.6	-65.41	-7,171.6	1,455.7	1,016.1	810.0	206.15	4.929	
16,200.0	9,720.0	15,908.1	9,300.0	110.4	111.0	-65.41	-7,271.6	1,456.5	1,016.1	807.4	208.72	4.868	
16,300.0	9,720.0	16,008.1	9,300.0	111.8	112.3	-65.41	-7,371.6	1,457.3	1,016.1	804.8	211.30	4.809	
16,400.0	9,720.0	16,108.1	9,300.0	113.2	113.7	-65.41	-7,471.6	1,458.1	1,016.1	802.2	213.88	4.751	
16,500.0	9,720.0	16,208.1	9,300.0	114.6	115.1	-65.41	-7,571.6	1,458.8	1,016.1	799.7	216.47	4.694	
16,600.0	9,720.0	16,308.1	9,300.0	115.9	116.4	-65.41	-7,671.6	1,459.6	1,016.1	797.1	219.06	4.639	
16,700.0	9,720.0	16,408.1	9,300.0	117.3	117.8	-65.41	-7,771.6	1,460.4	1,016.1	794.5	221.65	4.584	
16,800.0	9,720.0	16,508.1	9,300.0	118.7	119.2	-65.41	-7,871.6	1,461.2	1,016.1	791.9	224.24	4.531	
16,900.0	9,720.0	16,608.1	9,300.0	120.1	120.5	-65.41	-7,971.6	1,461.9	1,016.1	789.3	226.84	4.480	
17,000.0	9,720.0	16,708.1	9,300.0	121.5	121.9	-65.41	-8,071.6	1,462.7	1,016.1	786.7	229.44	4.429	
17,100.0	9,720.0	16,808.1	9,300.0	122.9	123.3	-65.41	-8,171.6	1,463.5	1,016.1	784.1	232.04	4.379	
17,200.0	9,720.0	16,908.1	9,300.0	124.3	124.7	-65.41	-8,271.6	1,464.3	1,016.1	781.5	234.65	4.330	
17,300.0	9,720.0	17,008.1	9,300.0	125.6	126.1	-65.41	-8,371.6	1,465.0	1,016.1	778.9	237.25	4.283	
17,400.0	9,720.0	17,108.1	9,300.0	127.0	127.4	-65.41	-8,471.6	1,465.8	1,016.1	776.3	239.86	4.236	
17,500.0	9,720.0	17,208.1	9,300.0	128.4	128.8	-65.41	-8,571.6	1,466.6	1,016.1	773.7	242.47	4.191	
17,600.0	9,720.0	17,308.1	9,300.0	129.8	130.2	-65.41	-8,671.6	1,467.4	1,016.1	771.0	245.09	4.146	
17,700.0	9,720.0	17,408.1	9,300.0	131.2	131.6	-65.41	-8,771.6	1,468.1	1,016.1	768.4	247.71	4.102	
17,800.0	9,720.0	17,508.1	9,300.0	132.6	133.0	-65.41	-8,871.6	1,468.9	1,016.1	765.8	250.32	4.059	
17,900.0	9,720.0	17,608.1	9,300.0	134.0	134.4	-65.41	-8,971.6	1,469.7	1,016.1	763.2	252.94	4.017	
18,000.0	9,720.0	17,708.1	9,300.0	135.4	135.7	-65.41	-9,071.5	1,470.5	1,016.1	760.6	255.57	3.976	
18,100.0	9,720.0	17,808.1	9,300.0	136.8	137.1	-65.41	-9,171.5	1,471.2	1,016.1	757.9	258.19	3.936	
18,200.0	9,720.0	17,908.1	9,300.0	138.2	138.5	-65.41	-9,271.5	1,472.0	1,016.1	755.3	260.82	3.896	
18,300.0	9,720.0	18,008.1	9,300.0	139.6	139.9	-65.41	-9,371.5	1,472.8	1,016.1	752.7	263.45	3.857	
18,400.0	9,720.0	18,108.1	9,300.0	141.0	141.3	-65.41	-9,471.5	1,473.6	1,016.1	750.1	266.07	3.819	
18,500.0	9,720.0	18,208.1	9,300.0	142.4	142.7	-65.41	-9,571.5	1,474.3	1,016.1	747.4	268.71	3.782	
18,600.0	9,720.0	18,308.1	9,300.0	143.8	144.1	-65.41	-9,671.5	1,475.1	1,016.1	744.8	271.34	3.745	
18,700.0	9,720.0	18,408.1	9,300.0	145.2	145.5	-65.41	-9,771.5	1,475.9	1,016.1	742.2	273.97	3.709	
18,800.0	9,720.0	18,508.1	9,300.0	146.6	146.9	-65.41	-9,871.5	1,476.7	1,016.1	739.5	276.61	3.674	
18,900.0	9,720.0	18,608.1	9,300.0	148.0	148.3	-65.41	-9,971.5	1,477.5	1,016.1	736.9	279.25	3.639	
19,000.0	9,720.0	18,708.1	9,300.0	149.4	149.7	-65.41	-10,071.5	1,478.2	1,016.1	734.2	281.89	3.605	
19,100.0	9,720.0	18,808.1	9,300.0	150.9	151.1	-65.41	-10,171.5	1,479.0	1,016.1	731.6	284.53	3.571	
19,200.0	9,720.0	18,908.1	9,300.0	152.3	152.5	-65.41	-10,271.5	1,479.8	1,016.1	729.0	287.17	3.538	
19,300.0	9,720.0	19,008.1	9,300.0	153.7	153.9	-65.41	-10,371.5	1,480.6	1,016.1	726.3	289.81	3.506	
19,400.0	9,720.0	19,108.1	9,300.0	155.1	155.3	-65.41	-10,471.5	1,481.3	1,016.1	723.7	292.46	3.474	
19,500.0	9,720.0	19,208.1	9,300.0	156.5	156.7	-65.41	-10,571.5	1,482.1	1,016.1	721.0	295.10	3.443	
19,600.0	9,720.0	19,308.1	9,300.0	157.9	158.1	-65.41	-10,671.5	1,482.9	1,016.1	718.4	297.75	3.413	
19,700.0	9,720.0	19,408.1	9,300.0	159.3	159.5	-65.41	-10,771.5	1,483.7	1,016.1	715.7	300.40	3.383	
19,800.0	9,720.0	19,508.1	9,300.0	160.7	160.9	-65.41	-10,871.5	1,484.4	1,016.1	713.1	303.05	3.353	
19,900.0	9,720.0	19,608.1	9,300.0	162.1	162.3	-65.41	-10,971.5	1,485.2	1,016.1	710.4	305.70	3.324	
19,907.9	9,720.0	19,616.0	9,300.0	162.3	162.4	-65.41	-10,979.4	1,485.3	1,016.1	710.2	305.91	3.322	
19,978.2	9,720.0	19,683.8	9,300.0	163.3	163.4	-65.41	-11,047.1	1,485.8	1,016.1	708.3	307.78	3.301	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	2.9	2.9	0.0	0.0	-0.86	160.0	-2.4	160.0				
100.0	100.0	102.9	102.9	0.1	0.1	-0.86	160.0	-2.4	160.0	159.7	0.27	584.169	
200.0	200.0	202.9	202.9	0.5	0.5	-0.86	160.0	-2.4	160.0	159.0	0.99	161.471	
300.0	300.0	302.9	302.9	0.8	0.9	-0.86	160.0	-2.4	160.0	158.3	1.71	93.683	
400.0	400.0	402.9	402.9	1.2	1.2	-0.86	160.0	-2.4	160.0	157.6	2.42	65.982	
500.0	500.0	502.9	502.9	1.6	1.6	-0.86	160.0	-2.4	160.0	156.8	3.14	50.925	
600.0	600.0	602.9	602.9	1.9	1.9	-0.86	160.0	-2.4	160.0	156.1	3.86	41.463	
700.0	700.0	702.9	702.9	2.3	2.3	-0.86	160.0	-2.4	160.0	155.4	4.58	34.966	
800.0	800.0	802.9	802.9	2.6	2.7	-0.86	160.0	-2.4	160.0	154.7	5.29	30.229	
900.0	900.0	902.9	902.9	3.0	3.0	-0.86	160.0	-2.4	160.0	154.0	6.01	26.623	
1,000.0	1,000.0	1,002.9	1,002.9	3.4	3.4	-0.86	160.0	-2.4	160.0	153.3	6.73	23.785	
1,100.0	1,100.0	1,102.9	1,102.9	3.7	3.7	-0.86	160.0	-2.4	160.0	152.5	7.44	21.494	
1,200.0	1,200.0	1,202.9	1,202.9	4.1	4.1	-0.86	160.0	-2.4	160.0	151.8	8.16	19.606	
1,300.0	1,300.0	1,302.9	1,302.9	4.4	4.4	-0.86	160.0	-2.4	160.0	151.1	8.88	18.022	
1,400.0	1,400.0	1,402.9	1,402.9	4.8	4.8	-0.86	160.0	-2.4	160.0	150.4	9.59	16.676	
1,500.0	1,500.0	1,502.9	1,502.9	5.2	5.2	-0.86	160.0	-2.4	160.0	149.7	10.31	15.516	
1,600.0	1,600.0	1,602.9	1,602.9	5.5	5.5	-0.86	160.0	-2.4	160.0	149.0	11.03	14.507	
1,700.0	1,700.0	1,702.9	1,702.9	5.9	5.9	-0.86	160.0	-2.4	160.0	148.2	11.74	13.622	
1,800.0	1,800.0	1,802.9	1,802.9	6.2	6.2	-0.86	160.0	-2.4	160.0	147.5	12.46	12.838	
1,900.0	1,900.0	1,902.9	1,902.9	6.6	6.6	-0.86	160.0	-2.4	160.0	146.8	13.18	12.140	
2,000.0	2,000.0	2,003.0	2,003.0	6.9	7.0	-0.86	160.0	-2.4	160.0	146.1	13.90	11.513	
2,100.0	2,100.0	2,105.8	2,105.8	7.3	7.3	-0.25	159.0	-0.7	159.0	144.4	14.61	10.888	
2,200.0	2,200.0	2,208.4	2,208.2	7.7	7.7	1.54	156.2	4.2	156.4	141.1	15.30	10.219	
2,300.0	2,300.0	2,310.6	2,310.0	8.0	8.0	-139.25	151.7	12.2	153.7	137.7	15.99	9.612	
2,400.0	2,399.8	2,412.5	2,411.1	8.3	8.3	-136.21	145.4	23.4	152.4	135.7	16.66	9.149	
2,427.3	2,427.1	2,440.3	2,438.6	8.4	8.4	-135.32	143.3	27.0	152.3	135.5	16.84	9.044 CC	
2,500.0	2,499.5	2,514.0	2,511.3	8.7	8.7	-132.82	137.3	37.6	152.8	135.5	17.34	8.810 ES	
2,600.0	2,598.7	2,615.2	2,610.5	9.0	9.1	-129.17	127.5	54.9	154.9	136.9	18.05	8.587	
2,700.0	2,697.8	2,715.2	2,707.9	9.3	9.4	-125.03	116.4	74.5	157.9	139.1	18.77	8.411	
2,800.0	2,796.9	2,814.4	2,804.5	9.7	9.8	-120.94	105.2	94.3	161.5	142.0	19.50	8.281	
2,900.0	2,895.9	2,913.7	2,901.1	10.0	10.2	-117.04	93.9	114.2	166.0	145.7	20.25	8.196	
3,000.0	2,995.0	3,013.0	2,997.7	10.4	10.6	-113.37	82.7	134.0	171.1	150.1	21.00	8.149	
3,100.0	3,094.1	3,112.3	3,094.3	10.7	11.0	-109.92	71.4	153.8	177.0	155.2	21.76	8.133	
3,200.0	3,193.2	3,211.5	3,191.0	11.1	11.4	-106.70	60.2	173.7	183.4	160.9	22.53	8.144	
3,300.0	3,292.3	3,310.8	3,287.6	11.5	11.8	-103.71	49.0	193.5	190.4	167.1	23.29	8.175	
3,400.0	3,391.4	3,410.1	3,384.2	11.8	12.3	-100.93	37.7	213.3	197.9	173.9	24.07	8.224	
3,500.0	3,490.4	3,509.4	3,480.8	12.2	12.7	-98.36	26.5	233.2	205.8	181.0	24.84	8.286	
3,600.0	3,589.5	3,608.6	3,577.4	12.6	13.1	-95.98	15.2	253.0	214.1	188.5	25.62	8.359	
3,700.0	3,688.6	3,707.9	3,674.1	13.0	13.6	-93.78	4.0	272.8	222.8	196.4	26.40	8.439	
3,800.0	3,787.7	3,807.2	3,770.7	13.3	14.0	-91.75	-7.2	292.7	231.7	204.5	27.17	8.526	
3,900.0	3,886.8	3,906.4	3,867.3	13.7	14.4	-89.87	-18.5	312.5	240.9	213.0	27.96	8.617	
4,000.0	3,985.8	4,005.7	3,963.9	14.1	14.9	-88.13	-29.7	332.3	250.4	221.6	28.74	8.712	
4,100.0	4,084.9	4,105.0	4,060.6	14.5	15.3	-86.51	-41.0	352.2	260.0	230.5	29.52	8.808	
4,200.0	4,184.0	4,204.3	4,157.2	14.9	15.8	-85.02	-52.2	372.0	269.9	239.6	30.30	8.905	
4,300.0	4,283.1	4,303.5	4,253.8	15.2	16.2	-83.62	-63.4	391.8	279.9	248.8	31.09	9.003	
4,400.0	4,382.2	4,402.8	4,350.4	15.6	16.7	-82.33	-74.7	411.7	290.1	258.2	31.87	9.100	
4,500.0	4,481.2	4,502.1	4,447.0	16.0	17.1	-81.12	-85.9	431.5	300.4	267.7	32.66	9.197	
4,600.0	4,580.3	4,601.4	4,543.7	16.4	17.6	-80.00	-97.2	451.4	310.8	277.4	33.45	9.293	
4,700.0	4,679.4	4,700.6	4,640.3	16.8	18.0	-78.94	-108.4	471.2	321.4	287.1	34.23	9.387	
4,800.0	4,778.5	4,799.9	4,736.9	17.2	18.5	-77.96	-119.6	491.0	332.0	297.0	35.02	9.480	
4,900.0	4,877.6	4,899.2	4,833.5	17.6	18.9	-77.03	-130.9	510.9	342.8	306.9	35.81	9.571	
5,000.0	4,976.7	4,998.5	4,930.1	18.0	19.4	-76.16	-142.1	530.7	353.6	317.0	36.60	9.660	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,075.7	5,097.7	5,026.8	18.3	19.9	-75.34	-153.4	550.5	364.5	327.1	37.39	9.748	
5,200.0	5,174.8	5,197.0	5,123.4	18.7	20.3	-74.57	-164.6	570.4	375.4	337.3	38.18	9.833	
5,300.0	5,273.9	5,296.3	5,220.0	19.1	20.8	-73.85	-175.8	590.2	386.5	347.5	38.97	9.917	
5,400.0	5,373.0	5,395.6	5,316.6	19.5	21.3	-73.16	-187.1	610.0	397.6	357.8	39.76	9.998	
5,500.0	5,472.1	5,494.8	5,413.2	19.9	21.7	-72.51	-198.3	629.9	408.7	368.2	40.56	10.078	
5,600.0	5,571.1	5,594.1	5,509.9	20.3	22.2	-71.90	-209.6	649.7	419.9	378.6	41.35	10.155	
5,700.0	5,670.2	5,693.4	5,606.5	20.7	22.6	-71.32	-220.8	669.5	431.1	389.0	42.14	10.231	
5,800.0	5,769.3	5,792.6	5,703.1	21.1	23.1	-70.77	-232.0	689.4	442.4	399.5	42.93	10.305	
5,900.0	5,868.4	5,891.9	5,799.7	21.5	23.6	-70.24	-243.3	709.2	453.7	410.0	43.73	10.376	
6,000.0	5,967.5	5,991.2	5,896.3	21.9	24.1	-69.74	-254.5	729.0	465.1	420.6	44.52	10.446	
6,100.0	6,066.6	6,090.5	5,993.0	22.3	24.5	-69.27	-265.8	748.9	476.5	431.2	45.32	10.515	
6,200.0	6,165.6	6,189.7	6,089.6	22.7	25.0	-68.81	-277.0	768.7	487.9	441.8	46.11	10.581	
6,300.0	6,264.7	6,289.0	6,186.2	23.1	25.5	-68.38	-288.2	788.6	499.3	452.4	46.91	10.646	
6,400.0	6,363.8	6,388.3	6,282.8	23.5	25.9	-67.97	-299.5	808.4	510.8	463.1	47.70	10.709	
6,500.0	6,462.9	6,487.6	6,379.4	23.9	26.4	-67.57	-310.7	828.2	522.3	473.8	48.50	10.770	
6,600.0	6,562.0	6,586.8	6,476.1	24.3	26.9	-67.19	-322.0	848.1	533.8	484.5	49.29	10.830	
6,700.0	6,661.0	6,686.1	6,572.7	24.7	27.3	-66.83	-333.2	867.9	545.4	495.3	50.09	10.888	
6,800.0	6,760.1	6,785.4	6,669.3	25.1	27.8	-66.48	-344.4	887.7	556.9	506.1	50.89	10.945	
6,900.0	6,859.2	6,884.7	6,765.9	25.5	28.3	-66.15	-355.7	907.6	568.5	516.8	51.68	11.000	
7,000.0	6,958.3	6,983.9	6,862.5	25.9	28.8	-65.83	-366.9	927.4	580.1	527.6	52.48	11.054	
7,100.0	7,057.4	7,083.2	6,959.2	26.3	29.2	-65.52	-378.2	947.2	591.7	538.5	53.28	11.107	
7,200.0	7,156.4	7,182.5	7,055.8	26.7	29.7	-65.23	-389.4	967.1	603.4	549.3	54.07	11.158	
7,300.0	7,255.5	7,281.7	7,152.4	27.1	30.2	-64.94	-400.6	986.9	615.0	560.2	54.87	11.208	
7,400.0	7,354.6	7,381.0	7,249.0	27.5	30.7	-64.67	-411.9	1,006.7	626.7	571.0	55.67	11.257	
7,500.0	7,453.7	7,480.3	7,345.6	27.9	31.1	-64.41	-423.1	1,026.6	638.4	581.9	56.47	11.305	
7,600.0	7,552.8	7,579.6	7,442.3	28.3	31.6	-64.15	-434.4	1,046.4	650.1	592.8	57.27	11.351	
7,700.0	7,651.9	7,678.8	7,538.9	28.7	32.1	-63.91	-445.6	1,066.2	661.8	603.7	58.07	11.397	
7,800.0	7,750.9	7,778.1	7,635.5	29.1	32.5	-63.67	-456.8	1,086.1	673.5	614.6	58.87	11.441	
7,900.0	7,850.0	7,877.4	7,732.1	29.5	33.0	-63.44	-468.1	1,105.9	685.2	625.6	59.66	11.484	
8,000.0	7,949.1	7,976.7	7,828.7	29.9	33.5	-63.22	-479.3	1,125.8	697.0	636.5	60.46	11.527	
8,100.0	8,048.2	8,075.9	7,925.4	30.3	34.0	-63.01	-490.6	1,145.6	708.7	647.4	61.26	11.568	
8,200.0	8,147.3	8,175.2	8,022.0	30.7	34.5	-62.86	-501.8	1,165.4	720.6	658.5	62.06	11.610	
8,300.0	8,246.7	8,274.2	8,118.3	31.0	34.9	-62.69	-513.0	1,185.2	733.7	670.9	62.83	11.678	
8,400.0	8,346.5	8,372.8	8,214.2	31.4	35.4	-62.33	-524.2	1,204.9	748.4	684.9	63.55	11.778	
8,500.0	8,446.4	8,470.8	8,309.6	31.8	35.9	-61.79	-535.3	1,224.5	764.9	700.7	64.23	11.910	
8,600.0	8,546.4	8,568.2	8,404.5	32.1	36.3	82.43	-546.3	1,243.9	783.1	718.2	64.86	12.074	
8,700.0	8,646.4	8,665.5	8,499.2	32.4	36.8	83.41	-557.3	1,263.4	801.7	736.2	65.48	12.243	
8,800.0	8,746.4	8,762.9	8,593.9	32.7	37.3	84.35	-568.3	1,282.8	820.5	754.4	66.11	12.412	
8,900.0	8,846.4	8,860.2	8,688.6	33.0	37.7	85.25	-579.4	1,302.3	839.6	772.8	66.73	12.581	
9,000.0	8,946.4	8,957.5	8,783.4	33.4	38.2	86.10	-590.4	1,321.7	858.8	791.4	67.37	12.748	
9,100.0	9,046.4	9,059.7	8,882.9	33.7	38.7	86.96	-601.9	1,342.1	878.2	810.1	68.05	12.905	
9,200.0	9,146.4	9,192.8	9,013.2	34.0	39.3	87.89	-615.1	1,365.3	895.2	826.3	68.97	12.980	
9,300.0	9,246.4	9,328.1	9,146.9	34.3	39.9	-90.92	-625.4	1,383.5	908.5	838.7	69.82	13.012	
9,400.0	9,345.6	9,464.7	9,282.7	34.7	40.4	-90.28	-632.6	1,396.3	917.8	847.1	70.72	12.979	
9,500.0	9,440.3	9,595.9	9,413.7	35.1	40.8	-91.89	-636.6	1,403.2	923.9	852.1	71.73	12.880	
9,600.0	9,526.3	9,713.9	9,531.6	35.6	41.2	-94.88	-637.6	1,405.0	929.0	856.2	72.84	12.754	
9,700.0	9,599.9	9,785.1	9,602.8	36.1	41.4	-96.70	-637.6	1,405.0	938.4	864.3	74.12	12.660	
9,800.0	9,657.9	9,843.1	9,660.8	36.7	41.5	-97.45	-637.6	1,405.0	955.9	880.5	75.46	12.667	
9,900.0	9,697.8	9,883.0	9,700.7	37.3	41.7	-96.26	-637.6	1,405.0	983.4	906.6	76.76	12.811	
10,000.0	9,717.8	9,924.4	9,742.1	37.9	41.8	-93.91	-638.2	1,405.0	1,020.9	943.1	77.90	13.107	
10,100.0	9,720.0	10,707.6	10,196.0	38.5	45.4	-117.11	-1,171.8	1,409.2	1,038.1	967.4	70.65	14.692	
10,200.0	9,720.0	10,807.6	10,196.0	39.1	46.0	-117.11	-1,271.8	1,409.9	1,038.1	966.3	71.73	14.471	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.0	9,720.0	10,907.6	10,196.0	39.8	46.6	-117.11	-1,371.8	1,410.7	1,038.1	965.2	72.89	14.241	
10,400.0	9,720.0	11,007.6	10,196.0	40.5	47.3	-117.11	-1,471.8	1,411.5	1,038.1	963.9	74.13	14.003	
10,500.0	9,720.0	11,107.6	10,196.0	41.3	48.0	-117.11	-1,571.8	1,412.3	1,038.1	962.6	75.44	13.759	
10,600.0	9,720.0	11,207.6	10,196.0	42.1	48.7	-117.11	-1,671.8	1,413.0	1,038.1	961.2	76.83	13.512	
10,700.0	9,720.0	11,307.6	10,196.0	42.9	49.5	-117.11	-1,771.8	1,413.8	1,038.1	959.8	78.28	13.261	
10,800.0	9,720.0	11,407.6	10,196.0	43.8	50.3	-117.11	-1,871.8	1,414.6	1,038.1	958.3	79.79	13.009	
10,900.0	9,720.0	11,507.6	10,196.0	44.7	51.1	-117.11	-1,971.8	1,415.4	1,038.1	956.7	81.37	12.758	
11,000.0	9,720.0	11,607.6	10,196.0	45.6	51.9	-117.11	-2,071.8	1,416.1	1,038.1	955.1	83.00	12.507	
11,100.0	9,720.0	11,707.6	10,196.0	46.6	52.8	-117.11	-2,171.8	1,416.9	1,038.1	953.4	84.68	12.259	
11,200.0	9,720.0	11,807.6	10,196.0	47.6	53.7	-117.11	-2,271.8	1,417.7	1,038.1	951.7	86.41	12.013	
11,300.0	9,720.0	11,907.6	10,196.0	48.6	54.6	-117.11	-2,371.8	1,418.5	1,038.1	949.9	88.19	11.770	
11,400.0	9,720.0	12,007.6	10,196.0	49.6	55.6	-117.11	-2,471.7	1,419.3	1,038.1	948.1	90.02	11.532	
11,500.0	9,720.0	12,107.6	10,196.0	50.6	56.5	-117.11	-2,571.7	1,420.0	1,038.1	946.2	91.88	11.298	
11,600.0	9,720.0	12,207.6	10,196.0	51.7	57.5	-117.11	-2,671.7	1,420.8	1,038.1	944.3	93.79	11.068	
11,700.0	9,720.0	12,307.6	10,196.0	52.8	58.5	-117.11	-2,771.7	1,421.6	1,038.1	942.3	95.73	10.844	
11,800.0	9,720.0	12,407.6	10,196.0	53.9	59.6	-117.11	-2,871.7	1,422.4	1,038.1	940.4	97.71	10.624	
11,900.0	9,720.0	12,507.6	10,196.0	55.0	60.6	-117.11	-2,971.7	1,423.1	1,038.1	938.4	99.71	10.410	
12,000.0	9,720.0	12,607.6	10,196.0	56.1	61.7	-117.11	-3,071.7	1,423.9	1,038.1	936.3	101.75	10.202	
12,100.0	9,720.0	12,707.6	10,196.0	57.2	62.7	-117.11	-3,171.7	1,424.7	1,038.1	934.2	103.82	9.999	
12,200.0	9,720.0	12,807.6	10,196.0	58.4	63.8	-117.11	-3,271.7	1,425.5	1,038.1	932.2	105.92	9.801	
12,300.0	9,720.0	12,907.6	10,196.0	59.6	64.9	-117.11	-3,371.7	1,426.2	1,038.1	930.0	108.04	9.608	
12,400.0	9,720.0	13,007.6	10,196.0	60.7	66.1	-117.11	-3,471.7	1,427.0	1,038.1	927.9	110.18	9.421	
12,500.0	9,720.0	13,107.6	10,196.0	61.9	67.2	-117.11	-3,571.7	1,427.8	1,038.1	925.7	112.35	9.240	
12,600.0	9,720.0	13,207.6	10,196.0	63.1	68.3	-117.11	-3,671.7	1,428.6	1,038.1	923.5	114.54	9.063	
12,700.0	9,720.0	13,307.6	10,196.0	64.4	69.5	-117.11	-3,771.7	1,429.3	1,038.1	921.3	116.75	8.891	
12,800.0	9,720.0	13,407.6	10,196.0	65.6	70.6	-117.11	-3,871.7	1,430.1	1,038.1	919.1	118.98	8.725	
12,900.0	9,720.0	13,507.6	10,196.0	66.8	71.8	-117.11	-3,971.7	1,430.9	1,038.1	916.8	121.22	8.563	
13,000.0	9,720.0	13,607.6	10,196.0	68.0	73.0	-117.11	-4,071.7	1,431.7	1,038.1	914.6	123.49	8.406	
13,100.0	9,720.0	13,707.6	10,196.0	69.3	74.2	-117.11	-4,171.7	1,432.4	1,038.1	912.3	125.77	8.254	
13,200.0	9,720.0	13,807.6	10,196.0	70.5	75.4	-117.11	-4,271.7	1,433.2	1,038.1	910.0	128.06	8.106	
13,300.0	9,720.0	13,907.6	10,196.0	71.8	76.6	-117.11	-4,371.7	1,434.0	1,038.1	907.7	130.37	7.962	
13,400.0	9,720.0	14,007.6	10,196.0	73.1	77.8	-117.11	-4,471.7	1,434.8	1,038.1	905.4	132.69	7.823	
13,500.0	9,720.0	14,107.6	10,196.0	74.4	79.1	-117.11	-4,571.7	1,435.5	1,038.1	903.0	135.03	7.688	
13,600.0	9,720.0	14,207.6	10,196.0	75.6	80.3	-117.11	-4,671.7	1,436.3	1,038.1	900.7	137.38	7.556	
13,700.0	9,720.0	14,307.6	10,196.0	76.9	81.5	-117.11	-4,771.7	1,437.1	1,038.1	898.3	139.74	7.429	
13,800.0	9,720.0	14,407.6	10,196.0	78.2	82.8	-117.11	-4,871.7	1,437.9	1,038.1	896.0	142.11	7.305	
13,900.0	9,720.0	14,507.6	10,196.0	79.5	84.0	-117.11	-4,971.7	1,438.7	1,038.1	893.6	144.49	7.184	
14,000.0	9,720.0	14,607.6	10,196.0	80.8	85.3	-117.11	-5,071.7	1,439.4	1,038.1	891.2	146.88	7.067	
14,100.0	9,720.0	14,707.6	10,196.0	82.1	86.6	-117.11	-5,171.7	1,440.2	1,038.1	888.8	149.28	6.954	
14,200.0	9,720.0	14,807.6	10,196.0	83.4	87.8	-117.11	-5,271.7	1,441.0	1,038.1	886.4	151.69	6.843	
14,300.0	9,720.0	14,907.6	10,196.0	84.8	89.1	-117.11	-5,371.7	1,441.8	1,038.1	884.0	154.11	6.736	
14,400.0	9,720.0	15,007.6	10,196.0	86.1	90.4	-117.11	-5,471.7	1,442.5	1,038.1	881.5	156.54	6.631	
14,500.0	9,720.0	15,107.6	10,196.0	87.4	91.7	-117.11	-5,571.7	1,443.3	1,038.1	879.1	158.97	6.530	
14,600.0	9,720.0	15,207.6	10,196.0	88.7	93.0	-117.11	-5,671.7	1,444.1	1,038.1	876.7	161.42	6.431	
14,700.0	9,720.0	15,307.6	10,196.0	90.1	94.3	-117.11	-5,771.6	1,444.9	1,038.1	874.2	163.87	6.335	
14,800.0	9,720.0	15,407.6	10,196.0	91.4	95.6	-117.11	-5,871.6	1,445.6	1,038.1	871.7	166.32	6.241	
14,900.0	9,720.0	15,507.6	10,196.0	92.8	96.9	-117.11	-5,971.6	1,446.4	1,038.1	869.3	168.79	6.150	
15,000.0	9,720.0	15,607.6	10,196.0	94.1	98.2	-117.11	-6,071.6	1,447.2	1,038.1	866.8	171.26	6.061	
15,100.0	9,720.0	15,707.6	10,196.0	95.4	99.5	-117.11	-6,171.6	1,448.0	1,038.1	864.3	173.73	5.975	
15,200.0	9,720.0	15,807.6	10,196.0	96.8	100.8	-117.11	-6,271.6	1,448.7	1,038.1	861.9	176.21	5.891	
15,300.0	9,720.0	15,907.6	10,196.0	98.1	102.1	-117.11	-6,371.6	1,449.5	1,038.1	859.4	178.70	5.809	
15,400.0	9,720.0	16,007.6	10,196.0	99.5	103.5	-117.11	-6,471.6	1,450.3	1,038.1	856.9	181.19	5.729	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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

Rule Assigned:

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,500.0	9,720.0	16,107.6	10,196.0	100.9	104.8	-117.11	-6,571.6	1,451.1	1,038.1	854.4	183.69	5.651	
15,600.0	9,720.0	16,207.6	10,196.0	102.2	106.1	-117.11	-6,671.6	1,451.8	1,038.1	851.9	186.19	5.575	
15,700.0	9,720.0	16,307.6	10,196.0	103.6	107.4	-117.11	-6,771.6	1,452.6	1,038.1	849.4	188.70	5.501	
15,800.0	9,720.0	16,407.6	10,196.0	104.9	108.8	-117.11	-6,871.6	1,453.4	1,038.1	846.9	191.21	5.429	
15,900.0	9,720.0	16,507.6	10,196.0	106.3	110.1	-117.11	-6,971.6	1,454.2	1,038.1	844.3	193.73	5.358	
16,000.0	9,720.0	16,607.6	10,196.0	107.7	111.5	-117.11	-7,071.6	1,454.9	1,038.1	841.8	196.25	5.290	
16,100.0	9,720.0	16,707.6	10,196.0	109.1	112.8	-117.11	-7,171.6	1,455.7	1,038.1	839.3	198.77	5.222	
16,200.0	9,720.0	16,807.6	10,196.0	110.4	114.2	-117.11	-7,271.6	1,456.5	1,038.1	836.8	201.30	5.157	
16,300.0	9,720.0	16,907.6	10,196.0	111.8	115.5	-117.11	-7,371.6	1,457.3	1,038.1	834.2	203.83	5.093	
16,400.0	9,720.0	17,007.6	10,196.0	113.2	116.9	-117.11	-7,471.6	1,458.1	1,038.1	831.7	206.37	5.030	
16,500.0	9,720.0	17,107.6	10,196.0	114.6	118.2	-117.11	-7,571.6	1,458.8	1,038.1	829.2	208.91	4.969	
16,600.0	9,720.0	17,207.6	10,196.0	115.9	119.6	-117.11	-7,671.6	1,459.6	1,038.1	826.6	211.45	4.909	
16,700.0	9,720.0	17,307.6	10,196.0	117.3	120.9	-117.11	-7,771.6	1,460.4	1,038.1	824.1	213.99	4.851	
16,800.0	9,720.0	17,407.6	10,196.0	118.7	122.3	-117.11	-7,871.6	1,461.2	1,038.1	821.5	216.54	4.794	
16,900.0	9,720.0	17,507.6	10,196.0	120.1	123.6	-117.11	-7,971.6	1,461.9	1,038.1	819.0	219.09	4.738	
17,000.0	9,720.0	17,607.6	10,196.0	121.5	125.0	-117.11	-8,071.6	1,462.7	1,038.1	816.4	221.65	4.683	
17,100.0	9,720.0	17,707.6	10,196.0	122.9	126.4	-117.11	-8,171.6	1,463.5	1,038.1	813.9	224.21	4.630	
17,200.0	9,720.0	17,807.6	10,196.0	124.3	127.7	-117.11	-8,271.6	1,464.3	1,038.1	811.3	226.77	4.578	
17,300.0	9,720.0	17,907.6	10,196.0	125.6	129.1	-117.11	-8,371.6	1,465.0	1,038.1	808.7	229.33	4.527	
17,400.0	9,720.0	18,007.6	10,196.0	127.0	130.5	-117.11	-8,471.6	1,465.8	1,038.1	806.2	231.89	4.476	
17,500.0	9,720.0	18,107.6	10,196.0	128.4	131.9	-117.11	-8,571.6	1,466.6	1,038.1	803.6	234.46	4.427	
17,600.0	9,720.0	18,207.6	10,196.0	129.8	133.2	-117.11	-8,671.6	1,467.4	1,038.1	801.0	237.03	4.379	
17,700.0	9,720.0	18,307.6	10,196.0	131.2	134.6	-117.11	-8,771.6	1,468.1	1,038.1	798.5	239.60	4.332	
17,800.0	9,720.0	18,407.6	10,196.0	132.6	136.0	-117.11	-8,871.6	1,468.9	1,038.1	795.9	242.18	4.286	
17,900.0	9,720.0	18,507.6	10,196.0	134.0	137.4	-117.11	-8,971.6	1,469.7	1,038.1	793.3	244.75	4.241	
18,000.0	9,720.0	18,607.6	10,196.0	135.4	138.7	-117.11	-9,071.5	1,470.5	1,038.1	790.7	247.33	4.197	
18,100.0	9,720.0	18,707.6	10,196.0	136.8	140.1	-117.11	-9,171.5	1,471.2	1,038.1	788.2	249.91	4.154	
18,200.0	9,720.0	18,807.6	10,196.0	138.2	141.5	-117.11	-9,271.5	1,472.0	1,038.1	785.6	252.50	4.111	
18,300.0	9,720.0	18,907.6	10,196.0	139.6	142.9	-117.11	-9,371.5	1,472.8	1,038.1	783.0	255.08	4.070	
18,400.0	9,720.0	19,007.6	10,196.0	141.0	144.3	-117.11	-9,471.5	1,473.6	1,038.1	780.4	257.67	4.029	
18,500.0	9,720.0	19,107.6	10,196.0	142.4	145.7	-117.11	-9,571.5	1,474.3	1,038.1	777.8	260.25	3.989	
18,600.0	9,720.0	19,207.6	10,196.0	143.8	147.1	-117.11	-9,671.5	1,475.1	1,038.1	775.2	262.84	3.949	
18,700.0	9,720.0	19,307.6	10,196.0	145.2	148.4	-117.11	-9,771.5	1,475.9	1,038.1	772.6	265.43	3.911	
18,800.0	9,720.0	19,407.6	10,196.0	146.6	149.8	-117.11	-9,871.5	1,476.7	1,038.1	770.0	268.03	3.873	
18,900.0	9,720.0	19,507.6	10,196.0	148.0	151.2	-117.11	-9,971.5	1,477.5	1,038.1	767.4	270.62	3.836	
19,000.0	9,720.0	19,607.6	10,196.0	149.4	152.6	-117.11	-10,071.5	1,478.2	1,038.1	764.8	273.22	3.799	
19,100.0	9,720.0	19,707.6	10,196.0	150.9	154.0	-117.11	-10,171.5	1,479.0	1,038.1	762.3	275.82	3.764	
19,200.0	9,720.0	19,807.6	10,196.0	152.3	155.4	-117.11	-10,271.5	1,479.8	1,038.1	759.7	278.42	3.728	
19,300.0	9,720.0	19,907.6	10,196.0	153.7	156.8	-117.11	-10,371.5	1,480.6	1,038.1	757.1	281.02	3.694	
19,400.0	9,720.0	20,007.6	10,196.0	155.1	158.2	-117.11	-10,471.5	1,481.3	1,038.1	754.5	283.62	3.660	
19,500.0	9,720.0	20,107.6	10,196.0	156.5	159.6	-117.11	-10,571.5	1,482.1	1,038.1	751.8	286.22	3.627	
19,600.0	9,720.0	20,207.6	10,196.0	157.9	161.0	-117.11	-10,671.5	1,482.9	1,038.1	749.2	288.82	3.594	
19,700.0	9,720.0	20,307.6	10,196.0	159.3	162.4	-117.11	-10,771.5	1,483.7	1,038.1	746.6	291.43	3.562	
19,800.0	9,720.0	20,407.6	10,196.0	160.7	163.8	-117.11	-10,871.5	1,484.4	1,038.1	744.0	294.04	3.530	
19,900.0	9,720.0	20,507.6	10,196.0	162.1	165.2	-117.11	-10,971.5	1,485.2	1,038.1	741.4	296.65	3.499	
19,907.9	9,720.0	20,515.5	10,196.0	162.3	165.3	-117.11	-10,979.4	1,485.3	1,038.1	741.2	296.85	3.497	
19,978.2	9,720.0	20,583.2	10,196.0	163.3	166.3	-117.11	-11,047.1	1,485.8	1,038.1	739.4	298.71	3.475	SF

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,300.0	3,292.3	3,659.3	3,638.6	11.5	13.2	106.60	-877.1	-1,935.3	2,188.2	2,164.1	24.08	90.867	
3,400.0	3,391.4	3,757.7	3,735.4	11.8	13.6	106.91	-872.3	-1,918.6	2,174.3	2,149.5	24.80	87.659	
3,500.0	3,490.4	3,856.1	3,832.2	12.2	14.0	107.22	-867.4	-1,901.9	2,160.5	2,135.0	25.53	84.625	
3,600.0	3,589.5	3,954.4	3,929.0	12.6	14.4	107.53	-862.6	-1,885.2	2,146.8	2,120.5	26.26	81.754	
3,700.0	3,688.6	4,052.8	4,025.8	13.0	14.8	107.84	-857.8	-1,868.5	2,133.1	2,106.1	26.99	79.032	
3,800.0	3,787.7	4,151.1	4,122.6	13.3	15.2	108.16	-853.0	-1,851.9	2,119.5	2,091.8	27.72	76.451	
3,900.0	3,886.8	4,249.5	4,219.5	13.7	15.6	108.49	-848.1	-1,835.2	2,106.0	2,077.5	28.46	73.999	
4,000.0	3,985.8	4,347.9	4,316.3	14.1	16.0	108.82	-843.3	-1,818.5	2,092.5	2,063.3	29.20	71.669	
4,100.0	4,084.9	4,446.2	4,413.1	14.5	16.4	109.15	-838.5	-1,801.8	2,079.1	2,049.1	29.94	69.452	
4,200.0	4,184.0	4,544.6	4,509.9	14.9	16.8	109.48	-833.7	-1,785.1	2,065.7	2,035.1	30.68	67.341	
4,300.0	4,283.1	4,642.9	4,606.7	15.2	17.3	109.82	-828.8	-1,768.4	2,052.5	2,021.0	31.42	65.328	
4,400.0	4,382.2	4,741.3	4,703.5	15.6	17.7	110.17	-824.0	-1,751.7	2,039.3	2,007.1	32.16	63.408	
4,500.0	4,481.2	4,839.7	4,800.3	16.0	18.1	110.52	-819.2	-1,735.0	2,026.2	1,993.3	32.91	61.575	
4,600.0	4,580.3	4,938.0	4,897.2	16.4	18.5	110.87	-814.4	-1,718.4	2,013.1	1,979.5	33.65	59.823	
4,700.0	4,679.4	5,036.4	4,994.0	16.8	18.9	111.23	-809.5	-1,701.7	2,000.2	1,965.8	34.40	58.148	
4,800.0	4,778.5	5,134.7	5,090.8	17.2	19.3	111.59	-804.7	-1,685.0	1,987.3	1,952.1	35.15	56.544	
4,900.0	4,877.6	5,233.1	5,187.6	17.6	19.7	111.96	-799.9	-1,668.3	1,974.5	1,938.6	35.89	55.009	
5,000.0	4,976.7	5,331.4	5,284.4	18.0	20.1	112.33	-795.1	-1,651.6	1,961.7	1,925.1	36.64	53.537	
5,100.0	5,075.7	5,429.8	5,381.2	18.3	20.5	112.71	-790.2	-1,634.9	1,949.1	1,911.7	37.39	52.125	
5,200.0	5,174.8	5,528.2	5,478.0	18.7	21.0	113.09	-785.4	-1,618.2	1,936.6	1,898.4	38.14	50.770	
5,300.0	5,273.9	5,626.5	5,574.8	19.1	21.4	113.48	-780.6	-1,601.5	1,924.1	1,885.2	38.90	49.469	
5,400.0	5,373.0	5,724.9	5,671.7	19.5	21.8	113.87	-775.8	-1,584.8	1,911.7	1,872.1	39.65	48.218	
5,500.0	5,472.1	5,823.2	5,768.5	19.9	22.2	114.27	-770.9	-1,568.2	1,899.4	1,859.0	40.40	47.016	
5,600.0	5,571.1	5,921.6	5,865.3	20.3	22.6	114.67	-766.1	-1,551.5	1,887.2	1,846.1	41.15	45.860	
5,700.0	5,670.2	6,020.0	5,962.1	20.7	23.0	115.08	-761.3	-1,534.8	1,875.1	1,833.2	41.91	44.746	
5,800.0	5,769.3	6,118.3	6,058.9	21.1	23.5	115.49	-756.5	-1,518.1	1,863.1	1,820.5	42.66	43.674	
5,900.0	5,868.4	6,216.7	6,155.7	21.5	23.9	115.91	-751.6	-1,501.4	1,851.2	1,807.8	43.41	42.641	
6,000.0	5,967.5	6,315.0	6,252.5	21.9	24.3	116.33	-746.8	-1,484.7	1,839.4	1,795.3	44.17	41.645	
6,100.0	6,066.6	6,413.4	6,349.3	22.3	24.7	116.76	-742.0	-1,468.0	1,827.7	1,782.8	44.93	40.684	
6,200.0	6,165.6	6,511.8	6,446.2	22.7	25.1	117.19	-737.2	-1,451.3	1,816.1	1,770.5	45.68	39.757	
6,300.0	6,264.7	6,610.1	6,543.0	23.1	25.5	117.63	-732.3	-1,434.7	1,804.6	1,758.2	46.44	38.862	
6,400.0	6,363.8	6,708.5	6,639.8	23.5	26.0	118.07	-727.5	-1,418.0	1,793.3	1,746.1	47.19	37.998	
6,500.0	6,462.9	6,806.8	6,736.6	23.9	26.4	118.52	-722.7	-1,401.3	1,782.0	1,734.0	47.95	37.163	
6,600.0	6,562.0	6,905.2	6,833.4	24.3	26.8	118.98	-717.8	-1,384.6	1,770.8	1,722.1	48.71	36.356	
6,700.0	6,661.0	7,003.6	6,930.2	24.7	27.2	119.44	-713.0	-1,367.9	1,759.8	1,710.3	49.47	35.576	
6,800.0	6,760.1	7,101.9	7,027.0	25.1	27.6	119.91	-708.2	-1,351.2	1,748.8	1,698.6	50.22	34.822	
6,900.0	6,859.2	7,200.3	7,123.9	25.5	28.1	120.38	-703.4	-1,334.5	1,738.0	1,687.1	50.98	34.092	
7,000.0	6,958.3	7,298.6	7,220.7	25.9	28.5	120.86	-698.5	-1,317.8	1,727.3	1,675.6	51.74	33.385	
7,100.0	7,057.4	7,397.0	7,317.5	26.3	28.9	121.34	-693.7	-1,301.1	1,716.8	1,664.3	52.50	32.701	
7,200.0	7,156.4	7,495.4	7,414.3	26.7	29.3	121.83	-688.9	-1,284.5	1,706.3	1,653.1	53.26	32.039	
7,300.0	7,255.5	7,593.7	7,511.1	27.1	29.7	122.32	-684.1	-1,267.8	1,696.0	1,642.0	54.02	31.397	
7,400.0	7,354.6	7,659.8	7,576.2	27.5	30.0	122.66	-681.0	-1,257.1	1,686.7	1,631.9	54.72	30.823	
7,500.0	7,453.7	7,722.4	7,638.2	27.9	30.3	122.97	-678.4	-1,248.3	1,679.6	1,624.2	55.40	30.317	
7,600.0	7,552.8	7,800.0	7,715.2	28.3	30.6	123.34	-675.8	-1,239.2	1,674.8	1,618.7	56.10	29.855	
7,700.0	7,651.9	7,848.4	7,763.3	28.7	30.7	123.56	-674.4	-1,234.5	1,672.0	1,615.3	56.69	29.495	
7,776.6	7,727.7	7,900.0	7,814.8	29.0	30.9	123.79	-673.2	-1,230.4	1,671.5	1,614.4	57.17	29.237	CC, ES
7,800.0	7,750.9	7,900.0	7,814.8	29.1	30.9	123.79	-673.2	-1,230.4	1,671.7	1,614.4	57.25	29.199	
7,900.0	7,850.0	7,974.8	7,889.4	29.5	31.2	124.12	-672.0	-1,226.0	1,673.5	1,615.6	57.88	28.910	
8,000.0	7,949.1	8,038.1	7,952.6	29.9	31.4	124.38	-671.3	-1,223.7	1,677.5	1,619.1	58.45	28.702	
8,100.0	8,048.2	8,100.0	8,014.6	30.3	31.6	124.62	-671.1	-1,222.8	1,683.8	1,624.8	58.98	28.550	
8,200.0	8,147.3	8,194.0	8,108.6	30.7	31.9	125.01	-671.1	-1,222.8	1,691.4	1,631.7	59.67	28.347	
8,300.0	8,246.7	8,289.1	8,203.2	31.0	32.2	125.16	-677.9	-1,222.8	1,697.6	1,637.3	60.33	28.137	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,400.0	8,346.5	8,379.6	8,290.5	31.4	32.4	124.61	-701.6	-1,222.6	1,702.3	1,641.3	60.93	27.940	
8,500.0	8,446.4	8,459.7	8,362.8	31.8	32.6	123.60	-735.9	-1,222.4	1,706.0	1,644.6	61.41	27.779	
8,600.0	8,546.4	8,525.0	8,416.8	32.1	32.7	-94.19	-772.5	-1,222.1	1,710.2	1,648.4	61.75	27.695	
8,700.0	8,646.4	8,580.9	8,458.7	32.4	32.8	-95.43	-809.4	-1,221.9	1,717.1	1,655.1	61.97	27.709	
8,800.0	8,746.4	8,625.0	8,488.5	32.7	32.8	-96.51	-841.9	-1,221.7	1,727.7	1,665.7	62.04	27.849	
8,900.0	8,846.4	8,661.8	8,511.1	33.0	32.9	-97.47	-871.0	-1,221.5	1,742.6	1,680.6	61.97	28.118	
9,000.0	8,946.4	8,691.8	8,527.7	33.4	32.9	-98.30	-895.9	-1,221.3	1,761.8	1,700.1	61.76	28.526	
9,100.0	9,046.4	8,716.8	8,540.4	33.7	32.9	-99.01	-917.5	-1,221.1	1,785.7	1,724.3	61.42	29.071	
9,200.0	9,146.4	8,737.8	8,550.1	34.0	32.9	-99.62	-936.1	-1,221.0	1,814.2	1,753.2	60.97	29.755	
9,300.0	9,246.4	8,750.0	8,555.4	34.3	32.9	80.30	-947.1	-1,220.9	1,847.2	1,786.8	60.37	30.596	
9,400.0	9,345.6	8,775.0	8,565.4	34.7	33.0	75.18	-970.0	-1,220.8	1,882.4	1,822.5	59.85	31.454	
9,500.0	9,440.3	8,800.0	8,574.1	35.1	33.0	70.42	-993.4	-1,220.6	1,916.6	1,857.3	59.33	32.306	
9,600.0	9,526.3	8,825.0	8,581.6	35.6	33.0	66.25	-1,017.3	-1,220.5	1,948.0	1,889.2	58.85	33.101	
9,700.0	9,599.9	8,850.0	8,587.8	36.1	33.0	62.84	-1,041.5	-1,220.3	1,975.0	1,916.6	58.47	33.779	
9,800.0	9,657.9	8,875.0	8,592.8	36.7	33.0	60.27	-1,066.0	-1,220.1	1,996.3	1,938.1	58.22	34.286	
9,900.0	9,697.8	8,909.7	8,597.6	37.3	33.0	58.51	-1,100.3	-1,219.9	2,010.8	1,952.6	58.21	34.546	
10,000.0	9,717.8	8,940.2	8,599.7	37.9	33.0	57.69	-1,130.7	-1,219.7	2,017.9	1,959.5	58.37	34.573	
10,100.0	9,720.0	8,999.9	8,600.0	38.5	33.1	57.61	-1,190.4	-1,219.3	2,018.6	1,959.8	58.81	34.325	
10,200.0	9,720.0	9,099.9	8,600.0	39.1	33.3	57.61	-1,290.4	-1,218.6	2,018.7	1,959.2	59.49	33.934	
10,300.0	9,720.0	9,199.9	8,600.0	39.8	33.5	57.61	-1,390.4	-1,218.0	2,018.8	1,958.5	60.27	33.494	
10,400.0	9,720.0	9,299.9	8,600.0	40.5	33.8	57.62	-1,490.4	-1,217.3	2,018.9	1,957.7	61.16	33.011	
10,500.0	9,720.0	9,399.9	8,600.0	41.3	34.1	57.62	-1,590.4	-1,216.6	2,018.9	1,956.8	62.14	32.492	
10,600.0	9,720.0	9,499.9	8,600.0	42.1	34.6	57.62	-1,690.4	-1,215.9	2,019.0	1,955.8	63.21	31.942	
10,700.0	9,720.0	9,599.9	8,600.0	42.9	35.1	57.62	-1,790.4	-1,215.3	2,019.1	1,954.7	64.37	31.368	
10,800.0	9,720.0	9,699.9	8,600.0	43.8	35.6	57.62	-1,890.4	-1,214.6	2,019.2	1,953.6	65.61	30.774	
10,900.0	9,720.0	9,799.9	8,600.0	44.7	36.3	57.62	-1,990.4	-1,213.9	2,019.3	1,952.4	66.94	30.168	
11,000.0	9,720.0	9,899.9	8,600.0	45.6	36.9	57.62	-2,090.4	-1,213.3	2,019.4	1,951.0	68.33	29.553	
11,100.0	9,720.0	9,999.9	8,600.0	46.6	37.6	57.63	-2,190.4	-1,212.6	2,019.5	1,949.7	69.80	28.933	
11,200.0	9,720.0	10,099.9	8,600.0	47.6	38.4	57.63	-2,290.4	-1,211.9	2,019.6	1,948.2	71.33	28.313	
11,300.0	9,720.0	10,199.9	8,600.0	48.6	39.2	57.63	-2,390.4	-1,211.2	2,019.6	1,946.7	72.92	27.696	
11,400.0	9,720.0	10,299.9	8,600.0	49.6	40.0	57.63	-2,490.4	-1,210.6	2,019.7	1,945.2	74.57	27.084	
11,500.0	9,720.0	10,399.9	8,600.0	50.6	40.9	57.63	-2,590.4	-1,209.9	2,019.8	1,943.5	76.28	26.480	
11,600.0	9,720.0	10,499.9	8,600.0	51.7	41.8	57.63	-2,690.4	-1,209.2	2,019.9	1,941.9	78.03	25.886	
11,700.0	9,720.0	10,599.9	8,600.0	52.8	42.7	57.64	-2,790.4	-1,208.6	2,020.0	1,940.2	79.83	25.304	
11,800.0	9,720.0	10,699.9	8,600.0	53.9	43.7	57.64	-2,890.4	-1,207.9	2,020.1	1,938.4	81.67	24.734	
11,900.0	9,720.0	10,799.9	8,600.0	55.0	44.6	57.64	-2,990.4	-1,207.2	2,020.2	1,936.6	83.56	24.177	
12,000.0	9,720.0	10,899.9	8,600.0	56.1	45.6	57.64	-3,090.4	-1,206.5	2,020.3	1,934.8	85.48	23.634	
12,100.0	9,720.0	10,999.9	8,600.0	57.2	46.7	57.64	-3,190.4	-1,205.9	2,020.3	1,932.9	87.44	23.106	
12,200.0	9,720.0	11,099.9	8,600.0	58.4	47.7	57.64	-3,290.4	-1,205.2	2,020.4	1,931.0	89.43	22.593	
12,300.0	9,720.0	11,199.9	8,600.0	59.6	48.8	57.65	-3,390.4	-1,204.5	2,020.5	1,929.1	91.45	22.095	
12,400.0	9,720.0	11,299.9	8,600.0	60.7	49.9	57.65	-3,490.4	-1,203.9	2,020.6	1,927.1	93.50	21.612	
12,500.0	9,720.0	11,399.9	8,600.0	61.9	51.0	57.65	-3,590.4	-1,203.2	2,020.7	1,925.1	95.57	21.143	
12,600.0	9,720.0	11,499.9	8,600.0	63.1	52.1	57.65	-3,690.4	-1,202.5	2,020.8	1,923.1	97.67	20.690	
12,700.0	9,720.0	11,599.9	8,600.0	64.4	53.3	57.65	-3,790.4	-1,201.8	2,020.9	1,921.1	99.80	20.250	
12,800.0	9,720.0	11,699.9	8,600.0	65.6	54.4	57.65	-3,890.3	-1,201.2	2,021.0	1,919.0	101.94	19.825	
12,900.0	9,720.0	11,799.9	8,600.0	66.8	55.6	57.65	-3,990.3	-1,200.5	2,021.0	1,916.9	104.11	19.413	
13,000.0	9,720.0	11,899.9	8,600.0	68.0	56.8	57.66	-4,090.3	-1,199.8	2,021.1	1,914.8	106.29	19.015	
13,100.0	9,720.0	11,999.9	8,600.0	69.3	58.0	57.66	-4,190.3	-1,199.1	2,021.2	1,912.7	108.50	18.630	
13,200.0	9,720.0	12,099.9	8,600.0	70.5	59.2	57.66	-4,290.3	-1,198.5	2,021.3	1,910.6	110.72	18.257	
13,300.0	9,720.0	12,199.9	8,600.0	71.8	60.4	57.66	-4,390.3	-1,197.8	2,021.4	1,908.4	112.95	17.896	
13,400.0	9,720.0	12,299.9	8,600.0	73.1	61.6	57.66	-4,490.3	-1,197.1	2,021.5	1,906.3	115.20	17.547	
13,500.0	9,720.0	12,399.9	8,600.0	74.4	62.9	57.66	-4,590.3	-1,196.5	2,021.6	1,904.1	117.47	17.210	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,600.0	9,720.0	12,499.9	8,600.0	75.6	64.1	57.67	-4,690.3	-1,195.8	2,021.7	1,901.9	119.75	16.883	
13,700.0	9,720.0	12,599.9	8,600.0	76.9	65.4	57.67	-4,790.3	-1,195.1	2,021.7	1,899.7	122.04	16.567	
13,800.0	9,720.0	12,699.9	8,600.0	78.2	66.6	57.67	-4,890.3	-1,194.4	2,021.8	1,897.5	124.34	16.261	
13,900.0	9,720.0	12,799.9	8,600.0	79.5	67.9	57.67	-4,990.3	-1,193.8	2,021.9	1,895.3	126.65	15.964	
14,000.0	9,720.0	12,899.9	8,600.0	80.8	69.2	57.67	-5,090.3	-1,193.1	2,022.0	1,893.0	128.98	15.677	
14,100.0	9,720.0	12,999.9	8,600.0	82.1	70.4	57.67	-5,190.3	-1,192.4	2,022.1	1,890.8	131.31	15.399	
14,200.0	9,720.0	13,099.9	8,600.0	83.4	71.7	57.68	-5,290.3	-1,191.8	2,022.2	1,888.5	133.65	15.130	
14,300.0	9,720.0	13,199.9	8,600.0	84.8	73.0	57.68	-5,390.3	-1,191.1	2,022.3	1,886.3	136.01	14.869	
14,400.0	9,720.0	13,299.9	8,600.0	86.1	74.3	57.68	-5,490.3	-1,190.4	2,022.4	1,884.0	138.37	14.616	
14,500.0	9,720.0	13,399.9	8,600.0	87.4	75.6	57.68	-5,590.3	-1,189.7	2,022.5	1,881.7	140.74	14.370	
14,600.0	9,720.0	13,499.9	8,600.0	88.7	76.9	57.68	-5,690.3	-1,189.1	2,022.5	1,879.4	143.11	14.132	
14,700.0	9,720.0	13,599.9	8,600.0	90.1	78.2	57.68	-5,790.3	-1,188.4	2,022.6	1,877.1	145.50	13.901	
14,800.0	9,720.0	13,699.9	8,600.0	91.4	79.6	57.68	-5,890.3	-1,187.7	2,022.7	1,874.8	147.89	13.677	
14,900.0	9,720.0	13,799.9	8,600.0	92.8	80.9	57.69	-5,990.3	-1,187.1	2,022.8	1,872.5	150.29	13.460	
15,000.0	9,720.0	13,899.9	8,600.0	94.1	82.2	57.69	-6,090.3	-1,186.4	2,022.9	1,870.2	152.69	13.248	
15,100.0	9,720.0	13,999.9	8,600.0	95.4	83.6	57.69	-6,190.3	-1,185.7	2,023.0	1,867.9	155.10	13.043	
15,200.0	9,720.0	14,099.9	8,600.0	96.8	84.9	57.69	-6,290.3	-1,185.0	2,023.1	1,865.6	157.52	12.844	
15,300.0	9,720.0	14,199.9	8,600.0	98.1	86.2	57.69	-6,390.3	-1,184.4	2,023.2	1,863.2	159.94	12.650	
15,400.0	9,720.0	14,299.9	8,600.0	99.5	87.6	57.69	-6,490.3	-1,183.7	2,023.2	1,860.9	162.36	12.461	
15,500.0	9,720.0	14,399.9	8,600.0	100.9	88.9	57.70	-6,590.3	-1,183.0	2,023.3	1,858.5	164.79	12.278	
15,600.0	9,720.0	14,499.9	8,600.0	102.2	90.3	57.70	-6,690.3	-1,182.3	2,023.4	1,856.2	167.23	12.100	
15,700.0	9,720.0	14,599.9	8,600.0	103.6	91.6	57.70	-6,790.3	-1,181.7	2,023.5	1,853.8	169.67	11.926	
15,800.0	9,720.0	14,699.9	8,600.0	104.9	93.0	57.70	-6,890.3	-1,181.0	2,023.6	1,851.5	172.11	11.757	
15,900.0	9,720.0	14,799.9	8,600.0	106.3	94.3	57.70	-6,990.3	-1,180.3	2,023.7	1,849.1	174.56	11.593	
16,000.0	9,720.0	14,899.9	8,600.0	107.7	95.7	57.70	-7,090.3	-1,179.7	2,023.8	1,846.8	177.02	11.433	
16,100.0	9,720.0	14,999.9	8,600.0	109.1	97.1	57.71	-7,190.3	-1,179.0	2,023.9	1,844.4	179.47	11.277	
16,200.0	9,720.0	15,099.9	8,600.0	110.4	98.4	57.71	-7,290.3	-1,178.3	2,023.9	1,842.0	181.93	11.125	
16,300.0	9,720.0	15,199.9	8,600.0	111.8	99.8	57.71	-7,390.3	-1,177.6	2,024.0	1,839.6	184.40	10.976	
16,400.0	9,720.0	15,299.9	8,600.0	113.2	101.2	57.71	-7,490.3	-1,177.0	2,024.1	1,837.3	186.87	10.832	
16,500.0	9,720.0	15,399.9	8,600.0	114.6	102.5	57.71	-7,590.3	-1,176.3	2,024.2	1,834.9	189.34	10.691	
16,600.0	9,720.0	15,499.9	8,600.0	115.9	103.9	57.71	-7,690.3	-1,175.6	2,024.3	1,832.5	191.81	10.554	
16,700.0	9,720.0	15,599.9	8,600.0	117.3	105.3	57.71	-7,790.3	-1,175.0	2,024.4	1,830.1	194.29	10.420	
16,800.0	9,720.0	15,699.9	8,600.0	118.7	106.7	57.72	-7,890.3	-1,174.3	2,024.5	1,827.7	196.77	10.289	
16,900.0	9,720.0	15,799.9	8,600.0	120.1	108.0	57.72	-7,990.3	-1,173.6	2,024.6	1,825.3	199.25	10.161	
17,000.0	9,720.0	15,899.9	8,600.0	121.5	109.4	57.72	-8,090.3	-1,172.9	2,024.6	1,822.9	201.74	10.036	
17,100.0	9,720.0	15,999.9	8,600.0	122.9	110.8	57.72	-8,190.3	-1,172.3	2,024.7	1,820.5	204.22	9.914	
17,200.0	9,720.0	16,099.9	8,600.0	124.3	112.2	57.72	-8,290.2	-1,171.6	2,024.8	1,818.1	206.72	9.795	
17,300.0	9,720.0	16,199.9	8,600.0	125.6	113.6	57.72	-8,390.2	-1,170.9	2,024.9	1,815.7	209.21	9.679	
17,400.0	9,720.0	16,299.9	8,600.0	127.0	115.0	57.73	-8,490.2	-1,170.3	2,025.0	1,813.3	211.70	9.565	
17,500.0	9,720.0	16,399.9	8,600.0	128.4	116.3	57.73	-8,590.2	-1,169.6	2,025.1	1,810.9	214.20	9.454	
17,600.0	9,720.0	16,499.9	8,600.0	129.8	117.7	57.73	-8,690.2	-1,168.9	2,025.2	1,808.5	216.70	9.345	
17,700.0	9,720.0	16,599.9	8,600.0	131.2	119.1	57.73	-8,790.2	-1,168.2	2,025.3	1,806.1	219.20	9.239	
17,800.0	9,720.0	16,699.9	8,600.0	132.6	120.5	57.73	-8,890.2	-1,167.6	2,025.4	1,803.6	221.71	9.135	
17,900.0	9,720.0	16,799.9	8,600.0	134.0	121.9	57.73	-8,990.2	-1,166.9	2,025.4	1,801.2	224.21	9.034	
18,000.0	9,720.0	16,899.9	8,600.0	135.4	123.3	57.73	-9,090.2	-1,166.2	2,025.5	1,798.8	226.72	8.934	
18,100.0	9,720.0	16,999.9	8,600.0	136.8	124.7	57.74	-9,190.2	-1,165.5	2,025.6	1,796.4	229.23	8.837	
18,200.0	9,720.0	17,099.9	8,600.0	138.2	126.1	57.74	-9,290.2	-1,164.9	2,025.7	1,794.0	231.74	8.741	
18,300.0	9,720.0	17,199.9	8,600.0	139.6	127.5	57.74	-9,390.2	-1,164.2	2,025.8	1,791.5	234.26	8.648	
18,400.0	9,720.0	17,299.9	8,600.0	141.0	128.9	57.74	-9,490.2	-1,163.5	2,025.9	1,789.1	236.77	8.556	
18,500.0	9,720.0	17,399.9	8,600.0	142.4	130.3	57.74	-9,590.2	-1,162.9	2,026.0	1,786.7	239.29	8.467	
18,600.0	9,720.0	17,499.9	8,600.0	143.8	131.7	57.74	-9,690.2	-1,162.2	2,026.1	1,784.2	241.81	8.379	
18,700.0	9,720.0	17,599.9	8,600.0	145.2	133.1	57.75	-9,790.2	-1,161.5	2,026.1	1,781.8	244.33	8.293	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,800.0	9,720.0	17,699.9	8,600.0	146.6	134.5	57.75	-9,890.2	-1,160.8	2,026.2	1,779.4	246.85	8.208	
18,900.0	9,720.0	17,799.9	8,600.0	148.0	135.9	57.75	-9,990.2	-1,160.2	2,026.3	1,776.9	249.37	8.126	
19,000.0	9,720.0	17,899.9	8,600.0	149.4	137.3	57.75	-10,090.2	-1,159.5	2,026.4	1,774.5	251.89	8.045	
19,100.0	9,720.0	17,999.9	8,600.0	150.9	138.7	57.75	-10,190.2	-1,158.8	2,026.5	1,772.1	254.42	7.965	
19,200.0	9,720.0	18,099.9	8,600.0	152.3	140.1	57.75	-10,290.2	-1,158.2	2,026.6	1,769.6	256.95	7.887	
19,300.0	9,720.0	18,199.9	8,600.0	153.7	141.6	57.76	-10,390.2	-1,157.5	2,026.7	1,767.2	259.48	7.811	
19,400.0	9,720.0	18,299.9	8,600.0	155.1	143.0	57.76	-10,490.2	-1,156.8	2,026.8	1,764.8	262.01	7.736	
19,500.0	9,720.0	18,399.9	8,600.0	156.5	144.4	57.76	-10,590.2	-1,156.1	2,026.8	1,762.3	264.54	7.662	
19,600.0	9,720.0	18,499.9	8,600.0	157.9	145.8	57.76	-10,690.2	-1,155.5	2,026.9	1,759.9	267.07	7.590	
19,700.0	9,720.0	18,599.9	8,600.0	159.3	147.2	57.76	-10,790.2	-1,154.8	2,027.0	1,757.4	269.60	7.519	
19,800.0	9,720.0	18,699.9	8,600.0	160.7	148.6	57.76	-10,890.2	-1,154.1	2,027.1	1,755.0	272.13	7.449	
19,900.0	9,720.0	18,799.9	8,600.0	162.1	150.0	57.76	-10,990.2	-1,153.5	2,027.2	1,752.5	274.67	7.380	
19,978.2	9,720.0	18,878.0	8,600.0	163.3	151.1	57.77	-11,068.4	-1,152.9	2,027.3	1,750.6	276.65	7.328	SF

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 #502H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,400.0	4,382.2	4,681.8	4,660.8	15.6	16.9	110.49	-851.5	-1,909.5	2,189.0	2,157.1	31.90	68.629	
4,500.0	4,481.2	4,780.5	4,758.4	16.0	17.3	110.83	-847.0	-1,896.0	2,179.3	2,146.6	32.64	66.774	
4,600.0	4,580.3	4,879.1	4,856.0	16.4	17.7	111.18	-842.5	-1,882.5	2,169.5	2,136.2	33.38	65.001	
4,700.0	4,679.4	4,977.8	4,953.6	16.8	18.1	111.53	-838.0	-1,869.0	2,159.9	2,125.8	34.12	63.306	
4,800.0	4,778.5	5,076.4	5,051.2	17.2	18.5	111.88	-833.4	-1,855.4	2,150.4	2,115.5	34.86	61.684	
4,900.0	4,877.6	5,175.1	5,148.8	17.6	18.8	112.23	-828.9	-1,841.9	2,140.9	2,105.3	35.60	60.130	
5,000.0	4,976.7	5,273.7	5,246.4	18.0	19.2	112.59	-824.4	-1,828.4	2,131.5	2,095.2	36.35	58.641	
5,100.0	5,075.7	5,372.4	5,344.1	18.3	19.6	112.95	-819.9	-1,814.9	2,122.2	2,085.1	37.09	57.212	
5,200.0	5,174.8	5,471.0	5,441.7	18.7	20.0	113.32	-815.4	-1,801.3	2,113.0	2,075.2	37.84	55.841	
5,300.0	5,273.9	5,569.7	5,539.3	19.1	20.4	113.69	-810.9	-1,787.8	2,103.9	2,065.3	38.59	54.524	
5,400.0	5,373.0	5,668.3	5,636.9	19.5	20.8	114.06	-806.4	-1,774.3	2,094.9	2,055.5	39.33	53.259	
5,500.0	5,472.1	5,767.0	5,734.5	19.9	21.2	114.43	-801.9	-1,760.8	2,085.9	2,045.8	40.08	52.042	
5,600.0	5,571.1	5,865.6	5,832.1	20.3	21.6	114.81	-797.3	-1,747.2	2,077.1	2,036.2	40.83	50.872	
5,700.0	5,670.2	5,964.3	5,929.7	20.7	22.0	115.19	-792.8	-1,733.7	2,068.3	2,026.7	41.58	49.745	
5,800.0	5,769.3	6,062.9	6,027.4	21.1	22.4	115.57	-788.3	-1,720.2	2,059.6	2,017.3	42.33	48.660	
5,900.0	5,868.4	6,161.6	6,125.0	21.5	22.8	115.96	-783.8	-1,706.7	2,051.0	2,008.0	43.08	47.614	
6,000.0	5,967.5	6,260.2	6,222.6	21.9	23.1	116.35	-779.3	-1,693.1	2,042.6	1,998.7	43.83	46.606	
6,100.0	6,066.6	6,358.9	6,320.2	22.3	23.5	116.74	-774.8	-1,679.6	2,034.2	1,989.6	44.58	45.634	
6,200.0	6,165.6	6,457.5	6,417.8	22.7	23.9	117.14	-770.3	-1,666.1	2,025.9	1,980.6	45.33	44.695	
6,300.0	6,264.7	6,556.2	6,515.4	23.1	24.3	117.53	-765.8	-1,652.5	2,017.7	1,971.6	46.08	43.789	
6,400.0	6,363.8	6,654.8	6,613.0	23.5	24.7	117.94	-761.3	-1,639.0	2,009.6	1,962.8	46.83	42.914	
6,500.0	6,462.9	6,753.5	6,710.7	23.9	25.1	118.34	-756.7	-1,625.5	2,001.6	1,954.1	47.58	42.069	
6,600.0	6,562.0	6,852.1	6,808.3	24.3	25.5	118.75	-752.2	-1,612.0	1,993.8	1,945.4	48.33	41.252	
6,700.0	6,661.0	6,950.8	6,905.9	24.7	25.9	119.16	-747.7	-1,598.4	1,986.0	1,936.9	49.08	40.461	
6,800.0	6,760.1	7,049.4	7,003.5	25.1	26.3	119.58	-743.2	-1,584.9	1,978.3	1,928.5	49.84	39.697	
6,900.0	6,859.2	7,148.1	7,101.1	25.5	26.7	120.00	-738.7	-1,571.4	1,970.7	1,920.1	50.59	38.957	
7,000.0	6,958.3	7,246.7	7,198.7	25.9	27.1	120.42	-734.2	-1,557.9	1,963.3	1,911.9	51.34	38.241	
7,100.0	7,057.4	7,345.4	7,296.3	26.3	27.5	120.84	-729.7	-1,544.3	1,955.9	1,903.8	52.09	37.547	
7,200.0	7,156.4	7,444.0	7,394.0	26.7	27.9	121.27	-725.2	-1,530.8	1,948.7	1,895.8	52.84	36.876	
7,300.0	7,255.5	7,542.7	7,491.6	27.1	28.3	121.70	-720.7	-1,517.3	1,941.5	1,887.9	53.60	36.225	
7,400.0	7,354.6	7,641.3	7,589.2	27.5	28.7	122.13	-716.1	-1,503.8	1,934.5	1,880.2	54.35	35.594	
7,500.0	7,453.7	7,740.0	7,686.8	27.9	29.1	122.57	-711.6	-1,490.2	1,927.6	1,872.5	55.10	34.982	
7,600.0	7,552.8	7,838.6	7,784.4	28.3	29.5	123.01	-707.1	-1,476.7	1,920.8	1,865.0	55.86	34.389	
7,700.0	7,651.9	7,937.3	7,882.0	28.7	29.9	123.45	-702.6	-1,463.2	1,914.1	1,857.5	56.61	33.813	
7,800.0	7,750.9	8,035.9	7,979.6	29.1	30.3	123.90	-698.1	-1,449.7	1,907.6	1,850.2	57.36	33.255	
7,900.0	7,850.0	8,134.6	8,077.3	29.5	30.7	124.35	-693.6	-1,436.1	1,901.2	1,843.0	58.12	32.713	
8,000.0	7,949.1	8,233.2	8,174.9	29.9	31.1	124.80	-689.1	-1,422.6	1,894.8	1,836.0	58.87	32.187	
8,100.0	8,048.2	8,331.9	8,272.5	30.3	31.5	125.25	-684.6	-1,409.1	1,888.6	1,829.0	59.62	31.676	
8,200.0	8,147.3	8,430.5	8,370.1	30.7	31.9	125.67	-680.1	-1,395.6	1,882.4	1,822.1	60.38	31.179	
8,300.0	8,246.7	8,500.0	8,438.9	31.0	32.1	125.83	-676.9	-1,386.0	1,875.0	1,813.9	61.05	30.710	
8,400.0	8,346.5	8,578.1	8,516.3	31.4	32.5	125.94	-673.7	-1,376.4	1,866.8	1,805.1	61.73	30.242	
8,500.0	8,446.4	8,639.5	8,577.3	31.8	32.7	125.93	-671.6	-1,370.2	1,858.9	1,796.5	62.33	29.822	
8,600.0	8,546.4	8,700.0	8,637.6	32.1	32.9	-90.69	-670.0	-1,365.4	1,851.1	1,788.2	62.89	29.436	
8,700.0	8,646.4	8,762.9	8,700.4	32.4	33.1	-90.66	-668.7	-1,361.6	1,845.1	1,781.7	63.42	29.095	
8,800.0	8,746.4	8,824.9	8,762.3	32.7	33.4	-90.63	-667.9	-1,359.2	1,841.2	1,777.2	63.92	28.802	
8,900.0	8,846.4	8,900.0	8,837.4	33.0	33.6	-90.62	-667.5	-1,357.9	1,839.3	1,774.9	64.48	28.527	
8,949.1	8,895.5	8,920.3	8,857.8	33.2	33.7	-90.62	-667.5	-1,357.9	1,839.1	1,774.4	64.66	28.444	
9,000.0	8,946.4	8,971.3	8,908.7	33.4	33.9	-90.62	-667.5	-1,357.9	1,839.1	1,774.1	64.99	28.297	
9,100.0	9,046.4	9,071.3	9,008.7	33.7	34.2	-90.62	-667.5	-1,357.9	1,839.1	1,773.4	65.66	28.010	
9,200.0	9,146.4	9,171.3	9,108.7	34.0	34.5	-90.62	-667.5	-1,357.9	1,839.1	1,772.8	66.32	27.729	
9,300.0	9,246.4	9,271.3	9,208.7	34.3	34.8	89.83	-667.5	-1,357.9	1,839.1	1,772.1	66.99	27.453	
9,369.5	9,315.6	9,340.3	9,277.7	34.6	35.1	89.96	-668.8	-1,357.9	1,839.1	1,771.6	67.48	27.253 CC	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 #502H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Rule Assigned: Warning
9,400.0	9,345.6	9,370.6	9,307.8	34.7	35.2	90.04	-672.0	-1,357.9	1,839.1	1,771.4	67.69	27.170	
9,500.0	9,440.3	9,471.1	9,405.2	35.1	35.4	90.28	-696.1	-1,357.7	1,839.1	1,770.7	68.42	26.881	
9,600.0	9,526.3	9,573.3	9,496.9	35.6	35.7	90.52	-740.9	-1,357.4	1,839.2	1,770.0	69.17	26.588	
9,700.0	9,599.9	9,677.2	9,578.1	36.1	35.8	90.73	-805.3	-1,356.9	1,839.3	1,769.4	69.95	26.296	
9,800.0	9,657.9	9,782.7	9,644.4	36.7	35.9	90.91	-887.1	-1,356.4	1,839.5	1,768.7	70.74	26.005	
9,900.0	9,697.8	9,889.6	9,691.6	37.3	36.0	91.06	-982.8	-1,355.7	1,839.6	1,768.1	71.54	25.715	
10,000.0	9,717.8	9,997.5	9,716.5	37.9	36.1	91.15	-1,087.5	-1,355.0	1,839.8	1,767.4	72.35	25.429	
10,100.0	9,720.0	10,102.0	9,720.0	38.5	36.2	91.17	-1,191.9	-1,354.2	1,839.9	1,766.7	73.14	25.154	
10,200.0	9,720.0	10,202.0	9,720.0	39.1	36.3	91.17	-1,291.9	-1,353.5	1,839.9	1,765.9	74.01	24.860	
10,300.0	9,720.0	10,302.0	9,720.0	39.8	36.5	91.17	-1,391.9	-1,352.8	1,840.0	1,765.0	74.98	24.539	
10,400.0	9,720.0	10,402.0	9,720.0	40.5	36.8	91.17	-1,491.9	-1,352.1	1,840.1	1,764.0	76.05	24.196	
10,500.0	9,720.0	10,502.0	9,720.0	41.3	37.2	91.17	-1,591.9	-1,351.4	1,840.2	1,763.0	77.21	23.833	
10,600.0	9,720.0	10,602.0	9,720.0	42.1	37.6	91.17	-1,691.9	-1,350.7	1,840.2	1,761.8	78.46	23.455	
10,700.0	9,720.0	10,702.0	9,720.0	42.9	38.1	91.17	-1,791.8	-1,350.0	1,840.3	1,760.5	79.79	23.064	
10,800.0	9,720.0	10,802.0	9,720.0	43.8	38.6	91.17	-1,891.8	-1,349.3	1,840.4	1,759.2	81.21	22.663	
10,900.0	9,720.0	10,902.0	9,720.0	44.7	39.2	91.17	-1,991.8	-1,348.6	1,840.5	1,757.8	82.70	22.255	
11,000.0	9,720.0	11,002.0	9,720.0	45.6	39.8	91.17	-2,091.8	-1,347.9	1,840.5	1,756.3	84.26	21.843	
11,100.0	9,720.0	11,102.0	9,720.0	46.6	40.5	91.17	-2,191.8	-1,347.2	1,840.6	1,754.7	85.90	21.428	
11,200.0	9,720.0	11,202.0	9,720.0	47.6	41.2	91.17	-2,291.8	-1,346.5	1,840.7	1,753.1	87.60	21.013	
11,300.0	9,720.0	11,302.0	9,720.0	48.6	41.9	91.17	-2,391.8	-1,345.8	1,840.8	1,751.4	89.36	20.600	
11,400.0	9,720.0	11,402.0	9,720.0	49.6	42.7	91.17	-2,491.8	-1,345.1	1,840.8	1,749.7	91.18	20.190	
11,500.0	9,720.0	11,502.0	9,720.0	50.6	43.5	91.17	-2,591.8	-1,344.4	1,840.9	1,747.9	93.05	19.784	
11,600.0	9,720.0	11,602.0	9,720.0	51.7	44.4	91.17	-2,691.8	-1,343.7	1,841.0	1,746.0	94.98	19.383	
11,700.0	9,720.0	11,702.0	9,720.0	52.8	45.2	91.17	-2,791.8	-1,343.0	1,841.1	1,744.1	96.95	18.989	
11,800.0	9,720.0	11,802.0	9,720.0	53.9	46.1	91.17	-2,891.8	-1,342.3	1,841.1	1,742.2	98.98	18.602	
11,900.0	9,720.0	11,902.0	9,720.0	55.0	47.1	91.17	-2,991.8	-1,341.6	1,841.2	1,740.2	101.04	18.222	
12,000.0	9,720.0	12,002.0	9,720.0	56.1	48.0	91.17	-3,091.8	-1,340.9	1,841.3	1,738.1	103.15	17.851	
12,100.0	9,720.0	12,102.0	9,720.0	57.2	49.0	91.17	-3,191.8	-1,340.2	1,841.4	1,736.1	105.29	17.489	
12,200.0	9,720.0	12,202.0	9,720.0	58.4	50.0	91.17	-3,291.8	-1,339.5	1,841.4	1,734.0	107.47	17.135	
12,300.0	9,720.0	12,302.0	9,720.0	59.6	51.0	91.17	-3,391.8	-1,338.8	1,841.5	1,731.8	109.68	16.790	
12,400.0	9,720.0	12,402.0	9,720.0	60.7	52.1	91.17	-3,491.8	-1,338.1	1,841.6	1,729.7	111.92	16.454	
12,500.0	9,720.0	12,502.0	9,720.0	61.9	53.1	91.17	-3,591.8	-1,337.4	1,841.6	1,727.5	114.20	16.127	
12,600.0	9,720.0	12,602.0	9,720.0	63.1	54.2	91.17	-3,691.8	-1,336.7	1,841.7	1,725.2	116.50	15.809	
12,700.0	9,720.0	12,702.0	9,720.0	64.4	55.3	91.17	-3,791.8	-1,336.0	1,841.8	1,723.0	118.83	15.500	
12,800.0	9,720.0	12,802.0	9,720.0	65.6	56.4	91.17	-3,891.8	-1,335.3	1,841.9	1,720.7	121.18	15.199	
12,900.0	9,720.0	12,902.0	9,720.0	66.8	57.6	91.17	-3,991.8	-1,334.6	1,841.9	1,718.4	123.56	14.908	
13,000.0	9,720.0	13,002.0	9,720.0	68.0	58.7	91.17	-4,091.8	-1,333.9	1,842.0	1,716.1	125.96	14.624	
13,100.0	9,720.0	13,102.0	9,720.0	69.3	59.9	91.17	-4,191.8	-1,333.2	1,842.1	1,713.7	128.37	14.349	
13,200.0	9,720.0	13,202.0	9,720.0	70.5	61.0	91.17	-4,291.8	-1,332.5	1,842.2	1,711.4	130.81	14.082	
13,300.0	9,720.0	13,302.0	9,720.0	71.8	62.2	91.17	-4,391.8	-1,331.8	1,842.2	1,709.0	133.27	13.823	
13,400.0	9,720.0	13,402.0	9,720.0	73.1	63.4	91.17	-4,491.8	-1,331.1	1,842.3	1,706.6	135.75	13.572	
13,500.0	9,720.0	13,502.0	9,720.0	74.4	64.6	91.17	-4,591.8	-1,330.4	1,842.4	1,704.2	138.24	13.328	
13,600.0	9,720.0	13,602.0	9,720.0	75.6	65.8	91.17	-4,691.8	-1,329.7	1,842.5	1,701.7	140.74	13.091	
13,700.0	9,720.0	13,702.0	9,720.0	76.9	67.0	91.17	-4,791.8	-1,329.0	1,842.5	1,699.3	143.27	12.861	
13,800.0	9,720.0	13,802.0	9,720.0	78.2	68.3	91.17	-4,891.8	-1,328.3	1,842.6	1,696.8	145.80	12.638	
13,900.0	9,720.0	13,902.0	9,720.0	79.5	69.5	91.17	-4,991.8	-1,327.6	1,842.7	1,694.3	148.35	12.421	
14,000.0	9,720.0	14,002.0	9,720.0	80.8	70.7	91.17	-5,091.8	-1,326.9	1,842.8	1,691.9	150.91	12.211	
14,100.0	9,720.0	14,102.0	9,720.0	82.1	72.0	91.17	-5,191.8	-1,326.2	1,842.8	1,689.4	153.49	12.006	
14,200.0	9,720.0	14,202.0	9,720.0	83.4	73.3	91.17	-5,291.8	-1,325.5	1,842.9	1,686.8	156.07	11.808	
14,300.0	9,720.0	14,302.0	9,720.0	84.8	74.5	91.17	-5,391.8	-1,324.8	1,843.0	1,684.3	158.67	11.615	
14,400.0	9,720.0	14,402.0	9,720.0	86.1	75.8	91.17	-5,491.8	-1,324.1	1,843.1	1,681.8	161.28	11.428	
14,500.0	9,720.0	14,502.0	9,720.0	87.4	77.1	91.17	-5,591.8	-1,323.4	1,843.1	1,679.2	163.89	11.246	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 #502H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,600.0	9,720.0	14,602.0	9,720.0	88.7	78.4	91.17	-5,691.8	-1,322.7	1,843.2	1,676.7	166.52	11.069	
14,700.0	9,720.0	14,702.0	9,720.0	90.1	79.7	91.17	-5,791.7	-1,322.0	1,843.3	1,674.1	169.15	10.897	
14,800.0	9,720.0	14,802.0	9,720.0	91.4	80.9	91.17	-5,891.7	-1,321.3	1,843.4	1,671.6	171.80	10.730	
14,900.0	9,720.0	14,902.0	9,720.0	92.8	82.3	91.17	-5,991.7	-1,320.6	1,843.4	1,669.0	174.45	10.567	
15,000.0	9,720.0	15,002.0	9,720.0	94.1	83.6	91.17	-6,091.7	-1,319.9	1,843.5	1,666.4	177.11	10.409	
15,100.0	9,720.0	15,102.0	9,720.0	95.4	84.9	91.17	-6,191.7	-1,319.2	1,843.6	1,663.8	179.77	10.255	
15,200.0	9,720.0	15,202.0	9,720.0	96.8	86.2	91.17	-6,291.7	-1,318.5	1,843.7	1,661.2	182.45	10.105	
15,300.0	9,720.0	15,302.0	9,720.0	98.1	87.5	91.17	-6,391.7	-1,317.7	1,843.7	1,658.6	185.13	9.959	
15,400.0	9,720.0	15,402.0	9,720.0	99.5	88.8	91.17	-6,491.7	-1,317.0	1,843.8	1,656.0	187.81	9.817	
15,500.0	9,720.0	15,502.0	9,720.0	100.9	90.2	91.17	-6,591.7	-1,316.3	1,843.9	1,653.4	190.51	9.679	
15,600.0	9,720.0	15,602.0	9,720.0	102.2	91.5	91.17	-6,691.7	-1,315.6	1,844.0	1,650.8	193.21	9.544	
15,700.0	9,720.0	15,702.0	9,720.0	103.6	92.8	91.17	-6,791.7	-1,314.9	1,844.0	1,648.1	195.91	9.413	
15,800.0	9,720.0	15,802.0	9,720.0	104.9	94.2	91.17	-6,891.7	-1,314.2	1,844.1	1,645.5	198.62	9.285	
15,900.0	9,720.0	15,902.0	9,720.0	106.3	95.5	91.17	-6,991.7	-1,313.5	1,844.2	1,642.8	201.33	9.160	
16,000.0	9,720.0	16,002.0	9,720.0	107.7	96.8	91.17	-7,091.7	-1,312.8	1,844.3	1,640.2	204.05	9.038	
16,100.0	9,720.0	16,102.0	9,720.0	109.1	98.2	91.17	-7,191.7	-1,312.1	1,844.3	1,637.5	206.78	8.919	
16,200.0	9,720.0	16,202.0	9,720.0	110.4	99.5	91.17	-7,291.7	-1,311.4	1,844.4	1,634.9	209.51	8.803	
16,300.0	9,720.0	16,302.0	9,720.0	111.8	100.9	91.17	-7,391.7	-1,310.7	1,844.5	1,632.2	212.24	8.690	
16,400.0	9,720.0	16,402.0	9,720.0	113.2	102.2	91.17	-7,491.7	-1,310.0	1,844.6	1,629.6	214.98	8.580	
16,500.0	9,720.0	16,502.0	9,720.0	114.6	103.6	91.17	-7,591.7	-1,309.3	1,844.6	1,626.9	217.72	8.472	
16,600.0	9,720.0	16,602.0	9,720.0	115.9	105.0	91.17	-7,691.7	-1,308.6	1,844.7	1,624.2	220.47	8.367	
16,700.0	9,720.0	16,702.0	9,720.0	117.3	106.3	91.17	-7,791.7	-1,307.9	1,844.8	1,621.6	223.22	8.264	
16,800.0	9,720.0	16,802.0	9,720.0	118.7	107.7	91.17	-7,891.7	-1,307.2	1,844.8	1,618.9	225.97	8.164	
16,900.0	9,720.0	16,902.0	9,720.0	120.1	109.1	91.17	-7,991.7	-1,306.5	1,844.9	1,616.2	228.73	8.066	
17,000.0	9,720.0	17,002.0	9,720.0	121.5	110.4	91.17	-8,091.7	-1,305.8	1,845.0	1,613.5	231.49	7.970	
17,100.0	9,720.0	17,102.0	9,720.0	122.9	111.8	91.17	-8,191.7	-1,305.1	1,845.1	1,610.8	234.25	7.876	
17,200.0	9,720.0	17,202.0	9,720.0	124.3	113.2	91.17	-8,291.7	-1,304.4	1,845.1	1,608.1	237.02	7.785	
17,300.0	9,720.0	17,302.0	9,720.0	125.6	114.5	91.17	-8,391.7	-1,303.7	1,845.2	1,605.4	239.79	7.695	
17,400.0	9,720.0	17,402.0	9,720.0	127.0	115.9	91.17	-8,491.7	-1,303.0	1,845.3	1,602.7	242.56	7.607	
17,500.0	9,720.0	17,502.0	9,720.0	128.4	117.3	91.17	-8,591.7	-1,302.3	1,845.4	1,600.0	245.34	7.522	
17,600.0	9,720.0	17,602.0	9,720.0	129.8	118.7	91.17	-8,691.7	-1,301.6	1,845.4	1,597.3	248.12	7.438	
17,700.0	9,720.0	17,702.0	9,720.0	131.2	120.1	91.17	-8,791.7	-1,300.9	1,845.5	1,594.6	250.90	7.356	
17,800.0	9,720.0	17,802.0	9,720.0	132.6	121.4	91.17	-8,891.7	-1,300.2	1,845.6	1,591.9	253.68	7.275	
17,900.0	9,720.0	17,902.0	9,720.0	134.0	122.8	91.17	-8,991.7	-1,299.5	1,845.7	1,589.2	256.47	7.196	
18,000.0	9,720.0	18,002.0	9,720.0	135.4	124.2	91.17	-9,091.7	-1,298.8	1,845.7	1,586.5	259.26	7.119	
18,100.0	9,720.0	18,102.0	9,720.0	136.8	125.6	91.17	-9,191.7	-1,298.1	1,845.8	1,583.8	262.05	7.044	
18,200.0	9,720.0	18,202.0	9,720.0	138.2	127.0	91.17	-9,291.7	-1,297.4	1,845.9	1,581.0	264.84	6.970	
18,300.0	9,720.0	18,302.0	9,720.0	139.6	128.4	91.17	-9,391.7	-1,296.7	1,846.0	1,578.3	267.64	6.897	
18,400.0	9,720.0	18,402.0	9,720.0	141.0	129.8	91.17	-9,491.7	-1,296.0	1,846.0	1,575.6	270.44	6.826	
18,500.0	9,720.0	18,502.0	9,720.0	142.4	131.2	91.17	-9,591.7	-1,295.3	1,846.1	1,572.9	273.24	6.756	
18,600.0	9,720.0	18,602.0	9,720.0	143.8	132.6	91.17	-9,691.7	-1,294.6	1,846.2	1,570.2	276.04	6.688	
18,700.0	9,720.0	18,702.0	9,720.0	145.2	133.9	91.17	-9,791.6	-1,293.9	1,846.3	1,567.4	278.84	6.621	
18,800.0	9,720.0	18,802.0	9,720.0	146.6	135.3	91.17	-9,891.6	-1,293.2	1,846.3	1,564.7	281.65	6.556	
18,900.0	9,720.0	18,902.0	9,720.0	148.0	136.7	91.17	-9,991.6	-1,292.5	1,846.4	1,562.0	284.45	6.491	
19,000.0	9,720.0	19,002.0	9,720.0	149.4	138.1	91.17	-10,091.6	-1,291.8	1,846.5	1,559.2	287.26	6.428	
19,100.0	9,720.0	19,102.0	9,720.0	150.9	139.5	91.17	-10,191.6	-1,291.1	1,846.6	1,556.5	290.07	6.366	
19,200.0	9,720.0	19,202.0	9,720.0	152.3	140.9	91.17	-10,291.6	-1,290.4	1,846.6	1,553.7	292.89	6.305	
19,300.0	9,720.0	19,302.0	9,720.0	153.7	142.3	91.17	-10,391.6	-1,289.7	1,846.7	1,551.0	295.70	6.245	
19,400.0	9,720.0	19,402.0	9,720.0	155.1	143.7	91.17	-10,491.6	-1,289.0	1,846.8	1,548.3	298.52	6.187	
19,500.0	9,720.0	19,502.0	9,720.0	156.5	145.1	91.17	-10,591.6	-1,288.3	1,846.9	1,545.5	301.33	6.129	
19,600.0	9,720.0	19,602.0	9,720.0	157.9	146.5	91.17	-10,691.6	-1,287.6	1,846.9	1,542.8	304.15	6.072	
19,700.0	9,720.0	19,702.0	9,720.0	159.3	147.9	91.17	-10,791.6	-1,286.9	1,847.0	1,540.0	306.97	6.017	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 #502H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,800.0	9,720.0	19,802.0	9,720.0	160.7	149.4	91.17	-10,891.6	-1,286.2	1,847.1	1,537.3	309.79	5.962	
19,900.0	9,720.0	19,902.0	9,720.0	162.1	150.8	91.17	-10,991.6	-1,285.5	1,847.2	1,534.5	312.61	5.909	
19,978.2	9,720.0	19,980.2	9,720.0	163.3	151.9	91.17	-11,069.8	-1,284.9	1,847.2	1,532.4	314.82	5.867	ES, SF

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,900.0	3,886.8	4,173.9	4,156.5	13.7	15.0	111.58	-757.0	-1,964.6	2,190.6	2,162.4	28.18	77.746	
4,000.0	3,985.8	4,272.9	4,254.5	14.1	15.4	111.85	-755.3	-1,950.5	2,181.4	2,152.5	28.91	75.454	
4,100.0	4,084.9	4,371.9	4,352.5	14.5	15.8	112.12	-753.7	-1,936.5	2,172.3	2,142.6	29.65	73.274	
4,200.0	4,184.0	4,471.0	4,450.6	14.9	16.1	112.40	-752.0	-1,922.5	2,163.2	2,132.8	30.38	71.198	
4,300.0	4,283.1	4,570.0	4,548.6	15.2	16.5	112.68	-750.3	-1,908.5	2,154.2	2,123.0	31.12	69.218	
4,400.0	4,382.2	4,669.0	4,646.6	15.6	16.9	112.96	-748.7	-1,894.4	2,145.2	2,113.3	31.86	67.329	
4,500.0	4,481.2	4,768.1	4,744.6	16.0	17.3	113.25	-747.0	-1,880.4	2,136.2	2,103.6	32.60	65.525	
4,600.0	4,580.3	4,867.1	4,842.6	16.4	17.7	113.53	-745.4	-1,866.4	2,127.4	2,094.0	33.34	63.801	
4,700.0	4,679.4	4,966.1	4,940.7	16.8	18.1	113.82	-743.7	-1,852.4	2,118.5	2,084.5	34.09	62.152	
4,800.0	4,778.5	5,065.2	5,038.7	17.2	18.5	114.12	-742.1	-1,838.4	2,109.8	2,074.9	34.83	60.573	
4,900.0	4,877.6	5,164.2	5,136.7	17.6	18.9	114.41	-740.4	-1,824.3	2,101.1	2,065.5	35.57	59.061	
5,000.0	4,976.7	5,263.2	5,234.7	18.0	19.3	114.71	-738.8	-1,810.3	2,092.4	2,056.1	36.32	57.611	
5,100.0	5,075.7	5,362.2	5,332.7	18.3	19.7	115.00	-737.1	-1,796.3	2,083.8	2,046.7	37.07	56.220	
5,200.0	5,174.8	5,461.3	5,430.7	18.7	20.1	115.31	-735.5	-1,782.3	2,075.2	2,037.4	37.81	54.884	
5,300.0	5,273.9	5,560.3	5,528.8	19.1	20.4	115.61	-733.8	-1,768.2	2,066.8	2,028.2	38.56	53.601	
5,400.0	5,373.0	5,659.3	5,626.8	19.5	20.8	115.92	-732.2	-1,754.2	2,058.3	2,019.0	39.31	52.367	
5,500.0	5,472.1	5,758.4	5,724.8	19.9	21.2	116.22	-730.5	-1,740.2	2,050.0	2,009.9	40.05	51.181	
5,600.0	5,571.1	5,857.4	5,822.8	20.3	21.6	116.54	-728.8	-1,726.2	2,041.7	2,000.9	40.80	50.039	
5,700.0	5,670.2	5,956.4	5,920.8	20.7	22.0	116.85	-727.2	-1,712.1	2,033.4	1,991.9	41.55	48.939	
5,800.0	5,769.3	6,055.4	6,018.8	21.1	22.4	117.17	-725.5	-1,698.1	2,025.2	1,982.9	42.30	47.879	
5,900.0	5,868.4	6,154.5	6,116.9	21.5	22.8	117.48	-723.9	-1,684.1	2,017.1	1,974.1	43.05	46.858	
6,000.0	5,967.5	6,253.5	6,214.9	21.9	23.2	117.81	-722.2	-1,670.1	2,009.0	1,965.3	43.80	45.872	
6,100.0	6,066.6	6,352.5	6,312.9	22.3	23.6	118.13	-720.6	-1,656.1	2,001.1	1,956.5	44.55	44.921	
6,200.0	6,165.6	6,451.6	6,410.9	22.7	24.0	118.46	-718.9	-1,642.0	1,993.1	1,947.8	45.30	44.003	
6,300.0	6,264.7	6,550.6	6,508.9	23.1	24.4	118.78	-717.3	-1,628.0	1,985.3	1,939.2	46.05	43.115	
6,400.0	6,363.8	6,649.6	6,607.0	23.5	24.8	119.12	-715.6	-1,614.0	1,977.5	1,930.7	46.80	42.258	
6,500.0	6,462.9	6,748.7	6,705.0	23.9	25.2	119.45	-714.0	-1,600.0	1,969.7	1,922.2	47.55	41.429	
6,600.0	6,562.0	6,847.7	6,803.0	24.3	25.6	119.79	-712.3	-1,585.9	1,962.1	1,913.8	48.30	40.627	
6,700.0	6,661.0	6,946.7	6,901.0	24.7	26.0	120.13	-710.7	-1,571.9	1,954.5	1,905.4	49.05	39.851	
6,800.0	6,760.1	7,045.7	6,999.0	25.1	26.4	120.47	-709.0	-1,557.9	1,947.0	1,897.2	49.80	39.099	
6,900.0	6,859.2	7,144.8	7,097.0	25.5	26.8	120.81	-707.3	-1,543.9	1,939.5	1,889.0	50.55	38.372	
7,000.0	6,958.3	7,243.8	7,195.1	25.9	27.2	121.16	-705.7	-1,529.8	1,932.1	1,880.8	51.30	37.667	
7,100.0	7,057.4	7,342.8	7,293.1	26.3	27.6	121.51	-704.0	-1,515.8	1,924.8	1,872.8	52.05	36.983	
7,200.0	7,156.4	7,441.9	7,391.1	26.7	28.0	121.86	-702.4	-1,501.8	1,917.6	1,864.8	52.80	36.321	
7,300.0	7,255.5	7,540.9	7,489.1	27.1	28.4	122.22	-700.7	-1,487.8	1,910.4	1,856.9	53.55	35.678	
7,400.0	7,354.6	7,639.9	7,587.1	27.5	28.8	122.57	-699.1	-1,473.8	1,903.3	1,849.0	54.30	35.055	
7,500.0	7,453.7	7,739.0	7,685.1	27.9	29.2	122.93	-697.4	-1,459.7	1,896.3	1,841.3	55.05	34.450	
7,600.0	7,552.8	7,838.0	7,783.2	28.3	29.6	123.30	-695.8	-1,445.7	1,889.4	1,833.6	55.79	33.863	
7,700.0	7,651.9	7,937.0	7,881.2	28.7	30.0	123.66	-694.1	-1,431.7	1,882.5	1,826.0	56.54	33.292	
7,800.0	7,750.9	8,036.0	7,979.2	29.1	30.4	124.03	-692.5	-1,417.7	1,875.7	1,818.4	57.29	32.738	
7,900.0	7,850.0	8,135.1	8,077.2	29.5	30.8	124.40	-690.8	-1,403.6	1,869.0	1,811.0	58.04	32.200	
8,000.0	7,949.1	8,234.1	8,175.2	29.9	31.2	124.77	-689.2	-1,389.6	1,862.4	1,803.6	58.79	31.677	
8,100.0	8,048.2	8,333.1	8,273.3	30.3	31.6	125.15	-687.5	-1,375.6	1,855.8	1,796.3	59.54	31.168	
8,200.0	8,147.3	8,432.2	8,371.3	30.7	32.0	125.48	-685.8	-1,361.6	1,849.3	1,789.0	60.29	30.672	
8,300.0	8,246.7	8,531.3	8,469.4	31.0	32.4	125.66	-684.2	-1,347.5	1,841.1	1,780.1	61.03	30.167	
8,400.0	8,346.5	8,630.6	8,567.7	31.4	32.8	125.72	-682.5	-1,333.5	1,831.0	1,769.3	61.76	29.648	
8,500.0	8,446.4	8,729.7	8,665.8	31.8	33.2	125.66	-680.9	-1,319.4	1,818.9	1,756.5	62.48	29.115	
8,600.0	8,546.4	8,828.7	8,763.8	32.1	33.6	-91.01	-679.2	-1,305.4	1,805.0	1,741.9	63.17	28.576	
8,700.0	8,646.4	8,927.7	8,861.8	32.4	34.0	-90.97	-677.6	-1,291.4	1,790.8	1,727.0	63.85	28.048	
8,800.0	8,746.4	9,026.7	8,959.7	32.7	34.4	-90.92	-675.9	-1,277.4	1,776.7	1,712.1	64.53	27.531	
8,900.0	8,846.4	9,125.7	9,057.7	33.0	34.8	-90.87	-674.3	-1,263.4	1,762.5	1,697.3	65.22	27.024	
9,000.0	8,946.4	9,200.0	9,131.3	33.4	35.1	-90.84	-673.0	-1,252.9	1,748.5	1,682.6	65.86	26.551	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.0	9,046.4	9,272.3	9,203.0	33.7	35.4	-90.81	-672.0	-1,243.9	1,736.1	1,669.6	66.48	26.117	
9,200.0	9,146.4	9,334.4	9,264.8	34.0	35.6	-90.79	-671.2	-1,237.5	1,725.9	1,658.9	67.05	25.741	
9,300.0	9,246.4	9,400.0	9,330.2	34.3	35.8	89.71	-670.6	-1,232.3	1,717.9	1,650.3	67.62	25.407	
9,400.0	9,345.6	9,458.8	9,388.9	34.7	36.1	90.66	-670.2	-1,228.9	1,712.1	1,643.9	68.17	25.113	
9,500.0	9,440.3	9,518.2	9,448.2	35.1	36.3	91.68	-669.9	-1,226.7	1,708.8	1,640.1	68.76	24.852	
9,545.6	9,480.8	9,543.6	9,473.6	35.3	36.4	92.12	-669.9	-1,226.1	1,708.5	1,639.4	69.03	24.749 CC	
9,600.0	9,526.3	9,572.2	9,502.2	35.6	36.4	92.57	-669.8	-1,225.7	1,709.1	1,639.7	69.34	24.646	
9,700.0	9,599.9	9,631.2	9,561.2	36.1	36.6	93.38	-669.8	-1,225.6	1,713.5	1,643.6	69.99	24.481	
9,800.0	9,657.9	9,689.2	9,619.2	36.7	36.8	93.85	-669.8	-1,225.6	1,722.7	1,652.0	70.68	24.372	
9,900.0	9,697.8	9,729.1	9,659.1	37.3	37.0	93.28	-669.8	-1,225.6	1,737.4	1,666.1	71.30	24.367	
10,000.0	9,717.8	9,749.1	9,679.1	37.9	37.0	91.37	-669.8	-1,225.6	1,758.3	1,686.5	71.82	24.483	
10,100.0	9,720.0	10,582.2	10,196.0	38.5	38.7	106.78	-1,190.9	-1,222.0	1,783.1	1,709.0	74.14	24.052	
10,200.0	9,720.0	10,682.2	10,196.0	39.1	39.0	106.78	-1,290.9	-1,221.3	1,783.2	1,708.1	75.08	23.751	
10,300.0	9,720.0	10,782.2	10,196.0	39.8	39.3	106.78	-1,390.9	-1,220.6	1,783.2	1,707.1	76.11	23.431	
10,400.0	9,720.0	10,882.2	10,196.0	40.5	39.6	106.78	-1,490.9	-1,219.9	1,783.3	1,706.1	77.23	23.092	
10,500.0	9,720.0	10,982.2	10,196.0	41.3	40.0	106.77	-1,590.9	-1,219.2	1,783.4	1,705.0	78.43	22.740	
10,600.0	9,720.0	11,082.2	10,196.0	42.1	40.4	106.77	-1,690.9	-1,218.5	1,783.5	1,703.8	79.71	22.375	
10,700.0	9,720.0	11,182.2	10,196.0	42.9	40.9	106.77	-1,790.9	-1,217.8	1,783.5	1,702.5	81.07	22.001	
10,800.0	9,720.0	11,282.2	10,196.0	43.8	41.5	106.77	-1,890.9	-1,217.1	1,783.6	1,701.1	82.50	21.620	
10,900.0	9,720.0	11,382.2	10,196.0	44.7	42.1	106.77	-1,990.9	-1,216.4	1,783.7	1,699.7	84.00	21.235	
11,000.0	9,720.0	11,482.2	10,196.0	45.6	42.7	106.77	-2,090.9	-1,215.7	1,783.8	1,698.2	85.56	20.847	
11,100.0	9,720.0	11,582.2	10,196.0	46.6	43.4	106.77	-2,190.9	-1,215.0	1,783.8	1,696.6	87.19	20.459	
11,200.0	9,720.0	11,682.2	10,196.0	47.6	44.1	106.77	-2,290.9	-1,214.3	1,783.9	1,695.0	88.88	20.072	
11,300.0	9,720.0	11,782.2	10,196.0	48.6	44.8	106.77	-2,390.9	-1,213.6	1,784.0	1,693.4	90.62	19.687	
11,400.0	9,720.0	11,882.2	10,196.0	49.6	45.6	106.77	-2,490.9	-1,212.9	1,784.1	1,691.6	92.41	19.305	
11,500.0	9,720.0	11,982.2	10,196.0	50.6	46.4	106.77	-2,590.9	-1,212.2	1,784.1	1,689.9	94.26	18.928	
11,600.0	9,720.0	12,082.2	10,196.0	51.7	47.2	106.77	-2,690.9	-1,211.5	1,784.2	1,688.1	96.15	18.556	
11,700.0	9,720.0	12,182.2	10,196.0	52.8	48.1	106.77	-2,790.8	-1,210.8	1,784.3	1,686.2	98.09	18.191	
11,800.0	9,720.0	12,282.2	10,196.0	53.9	49.0	106.77	-2,890.8	-1,210.1	1,784.4	1,684.3	100.06	17.832	
11,900.0	9,720.0	12,382.2	10,196.0	55.0	49.9	106.76	-2,990.8	-1,209.4	1,784.4	1,682.4	102.08	17.481	
12,000.0	9,720.0	12,482.2	10,196.0	56.1	50.9	106.76	-3,090.8	-1,208.7	1,784.5	1,680.4	104.13	17.137	
12,100.0	9,720.0	12,582.2	10,196.0	57.2	51.8	106.76	-3,190.8	-1,208.0	1,784.6	1,678.4	106.22	16.801	
12,200.0	9,720.0	12,682.2	10,196.0	58.4	52.8	106.76	-3,290.8	-1,207.3	1,784.7	1,676.3	108.34	16.473	
12,300.0	9,720.0	12,782.2	10,196.0	59.6	53.9	106.76	-3,390.8	-1,206.6	1,784.7	1,674.2	110.49	16.153	
12,400.0	9,720.0	12,882.2	10,196.0	60.7	54.9	106.76	-3,490.8	-1,205.9	1,784.8	1,672.1	112.67	15.841	
12,500.0	9,720.0	12,982.2	10,196.0	61.9	55.9	106.76	-3,590.8	-1,205.2	1,784.9	1,670.0	114.88	15.537	
12,600.0	9,720.0	13,082.2	10,196.0	63.1	57.0	106.76	-3,690.8	-1,204.5	1,784.9	1,667.8	117.12	15.241	
12,700.0	9,720.0	13,182.2	10,196.0	64.4	58.1	106.76	-3,790.8	-1,203.8	1,785.0	1,665.6	119.37	14.953	
12,800.0	9,720.0	13,282.2	10,196.0	65.6	59.2	106.76	-3,890.8	-1,203.1	1,785.1	1,663.4	121.66	14.673	
12,900.0	9,720.0	13,382.2	10,196.0	66.8	60.3	106.76	-3,990.8	-1,202.4	1,785.2	1,661.2	123.96	14.401	
13,000.0	9,720.0	13,482.2	10,196.0	68.0	61.4	106.76	-4,090.8	-1,201.7	1,785.2	1,659.0	126.28	14.137	
13,100.0	9,720.0	13,582.2	10,196.0	69.3	62.6	106.76	-4,190.8	-1,201.0	1,785.3	1,656.7	128.63	13.880	
13,200.0	9,720.0	13,682.2	10,196.0	70.5	63.7	106.76	-4,290.8	-1,200.3	1,785.4	1,654.4	130.99	13.630	
13,300.0	9,720.0	13,782.2	10,196.0	71.8	64.9	106.75	-4,390.8	-1,199.6	1,785.5	1,652.1	133.37	13.387	
13,400.0	9,720.0	13,882.2	10,196.0	73.1	66.1	106.75	-4,490.8	-1,198.9	1,785.5	1,649.8	135.77	13.151	
13,500.0	9,720.0	13,982.2	10,196.0	74.4	67.3	106.75	-4,590.8	-1,198.2	1,785.6	1,647.4	138.18	12.922	
13,600.0	9,720.0	14,082.2	10,196.0	75.6	68.5	106.75	-4,690.8	-1,197.5	1,785.7	1,645.1	140.61	12.700	
13,700.0	9,720.0	14,182.2	10,196.0	76.9	69.7	106.75	-4,790.8	-1,196.8	1,785.8	1,642.7	143.05	12.484	
13,800.0	9,720.0	14,282.2	10,196.0	78.2	70.9	106.75	-4,890.8	-1,196.1	1,785.8	1,640.3	145.50	12.273	
13,900.0	9,720.0	14,382.2	10,196.0	79.5	72.1	106.75	-4,990.8	-1,195.4	1,785.9	1,637.9	147.97	12.069	
14,000.0	9,720.0	14,482.2	10,196.0	80.8	73.4	106.75	-5,090.8	-1,194.7	1,786.0	1,635.5	150.45	11.871	
14,100.0	9,720.0	14,582.2	10,196.0	82.1	74.6	106.75	-5,190.8	-1,194.0	1,786.1	1,633.1	152.94	11.678	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.0	9,720.0	14,682.2	10,196.0	83.4	75.8	106.75	-5,290.8	-1,193.3	1,786.1	1,630.7	155.45	11.490	
14,300.0	9,720.0	14,782.2	10,196.0	84.8	77.1	106.75	-5,390.8	-1,192.6	1,786.2	1,628.2	157.96	11.308	
14,400.0	9,720.0	14,882.2	10,196.0	86.1	78.4	106.75	-5,490.8	-1,191.9	1,786.3	1,625.8	160.48	11.131	
14,500.0	9,720.0	14,982.2	10,196.0	87.4	79.6	106.75	-5,590.8	-1,191.2	1,786.4	1,623.3	163.01	10.958	
14,600.0	9,720.0	15,082.2	10,196.0	88.7	80.9	106.75	-5,690.8	-1,190.5	1,786.4	1,620.9	165.55	10.791	
14,700.0	9,720.0	15,182.2	10,196.0	90.1	82.2	106.74	-5,790.8	-1,189.8	1,786.5	1,618.4	168.10	10.627	
14,800.0	9,720.0	15,282.2	10,196.0	91.4	83.5	106.74	-5,890.8	-1,189.1	1,786.6	1,615.9	170.66	10.468	
14,900.0	9,720.0	15,382.2	10,196.0	92.8	84.8	106.74	-5,990.8	-1,188.4	1,786.6	1,613.4	173.23	10.314	
15,000.0	9,720.0	15,482.2	10,196.0	94.1	86.1	106.74	-6,090.8	-1,187.7	1,786.7	1,610.9	175.80	10.163	
15,100.0	9,720.0	15,582.2	10,196.0	95.4	87.4	106.74	-6,190.8	-1,187.0	1,786.8	1,608.4	178.38	10.017	
15,200.0	9,720.0	15,682.2	10,196.0	96.8	88.7	106.74	-6,290.8	-1,186.3	1,786.9	1,605.9	180.97	9.874	
15,300.0	9,720.0	15,782.2	10,196.0	98.1	90.0	106.74	-6,390.8	-1,185.6	1,786.9	1,603.4	183.56	9.735	
15,400.0	9,720.0	15,882.2	10,196.0	99.5	91.3	106.74	-6,490.8	-1,184.9	1,787.0	1,600.9	186.17	9.599	
15,500.0	9,720.0	15,982.2	10,196.0	100.9	92.6	106.74	-6,590.8	-1,184.2	1,787.1	1,598.3	188.77	9.467	
15,600.0	9,720.0	16,082.2	10,196.0	102.2	93.9	106.74	-6,690.8	-1,183.5	1,787.2	1,595.8	191.38	9.338	
15,700.0	9,720.0	16,182.2	10,196.0	103.6	95.3	106.74	-6,790.7	-1,182.8	1,787.2	1,593.2	194.00	9.212	
15,800.0	9,720.0	16,282.2	10,196.0	104.9	96.6	106.74	-6,890.7	-1,182.1	1,787.3	1,590.7	196.63	9.090	
15,900.0	9,720.0	16,382.2	10,196.0	106.3	97.9	106.74	-6,990.7	-1,181.4	1,787.4	1,588.1	199.25	8.970	
16,000.0	9,720.0	16,482.2	10,196.0	107.7	99.3	106.74	-7,090.7	-1,180.7	1,787.5	1,585.6	201.89	8.854	
16,100.0	9,720.0	16,582.2	10,196.0	109.1	100.6	106.73	-7,190.7	-1,180.0	1,787.5	1,583.0	204.53	8.740	
16,200.0	9,720.0	16,682.2	10,196.0	110.4	101.9	106.73	-7,290.7	-1,179.3	1,787.6	1,580.4	207.17	8.629	
16,300.0	9,720.0	16,782.2	10,196.0	111.8	103.3	106.73	-7,390.7	-1,178.6	1,787.7	1,577.9	209.82	8.520	
16,400.0	9,720.0	16,882.2	10,196.0	113.2	104.6	106.73	-7,490.7	-1,177.9	1,787.8	1,575.3	212.47	8.414	
16,500.0	9,720.0	16,982.2	10,196.0	114.6	106.0	106.73	-7,590.7	-1,177.2	1,787.8	1,572.7	215.12	8.311	
16,600.0	9,720.0	17,082.2	10,196.0	115.9	107.3	106.73	-7,690.7	-1,176.5	1,787.9	1,570.1	217.78	8.210	
16,700.0	9,720.0	17,182.2	10,196.0	117.3	108.7	106.73	-7,790.7	-1,175.8	1,788.0	1,567.5	220.45	8.111	
16,800.0	9,720.0	17,282.2	10,196.0	118.7	110.0	106.73	-7,890.7	-1,175.1	1,788.1	1,564.9	223.11	8.014	
16,900.0	9,720.0	17,382.2	10,196.0	120.1	111.4	106.73	-7,990.7	-1,174.4	1,788.1	1,562.3	225.78	7.920	
17,000.0	9,720.0	17,482.2	10,196.0	121.5	112.8	106.73	-8,090.7	-1,173.7	1,788.2	1,559.7	228.46	7.827	
17,100.0	9,720.0	17,582.2	10,196.0	122.9	114.1	106.73	-8,190.7	-1,173.0	1,788.3	1,557.1	231.14	7.737	
17,200.0	9,720.0	17,682.2	10,196.0	124.3	115.5	106.73	-8,290.7	-1,172.3	1,788.3	1,554.5	233.82	7.649	
17,300.0	9,720.0	17,782.2	10,196.0	125.6	116.9	106.73	-8,390.7	-1,171.6	1,788.4	1,551.9	236.50	7.562	
17,400.0	9,720.0	17,882.2	10,196.0	127.0	118.2	106.73	-8,490.7	-1,170.9	1,788.5	1,549.3	239.19	7.477	
17,500.0	9,720.0	17,982.2	10,196.0	128.4	119.6	106.72	-8,590.7	-1,170.2	1,788.6	1,546.7	241.88	7.395	
17,600.0	9,720.0	18,082.2	10,196.0	129.8	121.0	106.72	-8,690.7	-1,169.5	1,788.6	1,544.1	244.57	7.313	
17,700.0	9,720.0	18,182.2	10,196.0	131.2	122.3	106.72	-8,790.7	-1,168.8	1,788.7	1,541.5	247.26	7.234	
17,800.0	9,720.0	18,282.2	10,196.0	132.6	123.7	106.72	-8,890.7	-1,168.1	1,788.8	1,538.8	249.96	7.156	
17,900.0	9,720.0	18,382.2	10,196.0	134.0	125.1	106.72	-8,990.7	-1,167.4	1,788.9	1,536.2	252.66	7.080	
18,000.0	9,720.0	18,482.2	10,196.0	135.4	126.5	106.72	-9,090.7	-1,166.7	1,788.9	1,533.6	255.36	7.006	
18,100.0	9,720.0	18,582.2	10,196.0	136.8	127.9	106.72	-9,190.7	-1,166.1	1,789.0	1,530.9	258.07	6.932	
18,200.0	9,720.0	18,682.2	10,196.0	138.2	129.2	106.72	-9,290.7	-1,165.4	1,789.1	1,528.3	260.77	6.861	
18,300.0	9,720.0	18,782.2	10,196.0	139.6	130.6	106.72	-9,390.7	-1,164.7	1,789.2	1,525.7	263.48	6.790	
18,400.0	9,720.0	18,882.2	10,196.0	141.0	132.0	106.72	-9,490.7	-1,164.0	1,789.2	1,523.0	266.19	6.722	
18,500.0	9,720.0	18,982.2	10,196.0	142.4	133.4	106.72	-9,590.7	-1,163.3	1,789.3	1,520.4	268.91	6.654	
18,600.0	9,720.0	19,082.2	10,196.0	143.8	134.8	106.72	-9,690.7	-1,162.6	1,789.4	1,517.8	271.62	6.588	
18,700.0	9,720.0	19,182.2	10,196.0	145.2	136.2	106.72	-9,790.7	-1,161.9	1,789.5	1,515.1	274.34	6.523	
18,800.0	9,720.0	19,282.2	10,196.0	146.6	137.6	106.72	-9,890.7	-1,161.2	1,789.5	1,512.5	277.06	6.459	
18,900.0	9,720.0	19,382.2	10,196.0	148.0	139.0	106.71	-9,990.7	-1,160.5	1,789.6	1,509.8	279.78	6.396	
19,000.0	9,720.0	19,482.2	10,196.0	149.4	140.4	106.71	-10,090.7	-1,159.8	1,789.7	1,507.2	282.50	6.335	
19,100.0	9,720.0	19,582.2	10,196.0	150.9	141.7	106.71	-10,190.7	-1,159.1	1,789.8	1,504.5	285.23	6.275	
19,200.0	9,720.0	19,682.2	10,196.0	152.3	143.1	106.71	-10,290.7	-1,158.4	1,789.8	1,501.9	287.95	6.216	
19,300.0	9,720.0	19,782.2	10,196.0	153.7	144.5	106.71	-10,390.7	-1,157.7	1,789.9	1,499.2	290.68	6.158	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.0	9,720.0	19,882.2	10,196.0	155.1	145.9	106.71	-10,490.7	-1,157.0	1,790.0	1,496.6	293.41	6.101	
19,500.0	9,720.0	19,982.2	10,196.0	156.5	147.3	106.71	-10,590.7	-1,156.3	1,790.0	1,493.9	296.14	6.045	
19,600.0	9,720.0	20,082.2	10,196.0	157.9	148.7	106.71	-10,690.7	-1,155.6	1,790.1	1,491.2	298.87	5.990	
19,700.0	9,720.0	20,182.2	10,196.0	159.3	150.1	106.71	-10,790.7	-1,154.9	1,790.2	1,488.6	301.61	5.936	
19,800.0	9,720.0	20,282.2	10,196.0	160.7	151.5	106.71	-10,890.6	-1,154.2	1,790.3	1,485.9	304.34	5.882	
19,900.0	9,720.0	20,382.2	10,196.0	162.1	152.9	106.71	-10,990.6	-1,153.5	1,790.3	1,483.3	307.08	5.830	
19,978.2	9,720.0	20,460.3	10,196.0	163.3	154.0	106.71	-11,068.8	-1,152.9	1,790.4	1,481.2	309.22	5.790	ES, SF

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 501H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,700.0	4,679.4	4,703.7	4,703.7	16.8	16.6	-40.75	-739.7	2,320.8	2,190.2	2,157.1	33.13	66.117	
4,800.0	4,778.5	4,802.8	4,802.8	17.2	17.0	-40.98	-739.7	2,320.8	2,179.9	2,146.1	33.86	64.390	
4,900.0	4,877.6	4,901.9	4,901.9	17.6	17.3	-41.21	-739.7	2,320.8	2,169.7	2,135.1	34.58	62.736	
5,000.0	4,976.7	5,001.0	5,001.0	18.0	17.7	-41.45	-739.7	2,320.8	2,159.5	2,124.2	35.32	61.150	
5,100.0	5,075.7	5,100.0	5,100.0	18.3	18.1	-41.68	-739.7	2,320.8	2,149.4	2,113.3	36.05	59.627	
5,200.0	5,174.8	5,199.1	5,199.1	18.7	18.4	-41.92	-739.7	2,320.8	2,139.2	2,102.4	36.78	58.165	
5,300.0	5,273.9	5,298.2	5,298.2	19.1	18.8	-42.17	-739.7	2,320.8	2,129.1	2,091.6	37.51	56.759	
5,400.0	5,373.0	5,397.3	5,397.3	19.5	19.1	-42.41	-739.7	2,320.8	2,119.1	2,080.9	38.25	55.408	
5,500.0	5,472.1	5,496.4	5,496.4	19.9	19.5	-42.66	-739.7	2,320.8	2,109.1	2,070.1	38.98	54.107	
5,600.0	5,571.1	5,603.4	5,603.4	20.3	19.9	-42.98	-737.8	2,321.0	2,098.9	2,059.2	39.74	52.816	
5,700.0	5,670.2	5,701.8	5,701.7	20.7	20.2	-43.32	-734.4	2,321.2	2,088.7	2,048.2	40.47	51.605	
5,800.0	5,769.3	5,800.5	5,800.4	21.1	20.6	-43.67	-731.0	2,321.5	2,078.5	2,037.3	41.21	50.436	
5,900.0	5,868.4	5,899.2	5,899.0	21.5	20.9	-44.02	-727.5	2,321.8	2,068.4	2,026.4	41.95	49.309	
6,000.0	5,967.5	5,997.8	5,997.6	21.9	21.3	-44.38	-724.1	2,322.1	2,058.3	2,015.7	42.69	48.222	
6,100.0	6,066.6	6,096.5	6,096.2	22.3	21.6	-44.73	-720.7	2,322.4	2,048.4	2,005.0	43.42	47.172	
6,200.0	6,165.6	6,195.2	6,194.8	22.7	22.0	-45.09	-717.2	2,322.6	2,038.5	1,994.4	44.16	46.159	
6,300.0	6,264.7	6,293.8	6,293.4	23.1	22.3	-45.46	-713.8	2,322.9	2,028.7	1,983.8	44.90	45.179	
6,400.0	6,363.8	6,392.5	6,392.0	23.5	22.7	-45.83	-710.4	2,323.2	2,019.0	1,973.4	45.65	44.233	
6,500.0	6,462.9	6,491.2	6,490.6	23.9	23.0	-46.20	-706.9	2,323.5	2,009.4	1,963.0	46.39	43.318	
6,600.0	6,562.0	6,589.8	6,589.2	24.3	23.4	-46.58	-703.5	2,323.8	1,999.9	1,952.8	47.13	42.433	
6,700.0	6,661.0	6,688.5	6,687.8	24.7	23.7	-46.96	-700.1	2,324.0	1,990.4	1,942.6	47.87	41.576	
6,800.0	6,760.1	6,787.2	6,786.4	25.1	24.1	-47.34	-696.6	2,324.3	1,981.1	1,932.5	48.62	40.747	
6,900.0	6,859.2	6,885.8	6,885.0	25.5	24.5	-47.72	-693.2	2,324.6	1,971.8	1,922.5	49.37	39.943	
7,000.0	6,958.3	6,984.5	6,983.6	25.9	24.8	-48.11	-689.8	2,324.9	1,962.6	1,912.5	50.11	39.165	
7,100.0	7,057.4	7,083.2	7,082.2	26.3	25.2	-48.51	-686.3	2,325.2	1,953.6	1,902.7	50.86	38.411	
7,200.0	7,156.4	7,181.8	7,180.8	26.7	25.5	-48.90	-682.9	2,325.4	1,944.6	1,893.0	51.61	37.680	
7,300.0	7,255.5	7,280.5	7,279.4	27.1	25.9	-49.30	-679.5	2,325.7	1,935.7	1,883.3	52.36	36.971	
7,400.0	7,354.6	7,379.2	7,378.0	27.5	26.2	-49.71	-676.1	2,326.0	1,926.9	1,873.8	53.11	36.284	
7,500.0	7,453.7	7,477.8	7,476.7	27.9	26.6	-50.12	-672.6	2,326.3	1,918.2	1,864.3	53.86	35.617	
7,600.0	7,552.8	7,576.5	7,575.3	28.3	26.9	-50.53	-669.2	2,326.6	1,909.6	1,855.0	54.61	34.969	
7,700.0	7,651.9	7,675.2	7,673.9	28.7	27.3	-50.94	-665.8	2,326.9	1,901.1	1,845.7	55.36	34.341	
7,800.0	7,750.9	7,773.8	7,772.5	29.1	27.6	-51.36	-662.3	2,327.1	1,892.7	1,836.6	56.11	33.730	
7,900.0	7,850.0	7,872.5	7,871.1	29.5	28.0	-51.78	-658.9	2,327.4	1,884.4	1,827.5	56.87	33.137	
8,000.0	7,949.1	7,971.1	7,969.7	29.9	28.3	-52.21	-655.5	2,327.7	1,876.2	1,818.6	57.62	32.561	
8,100.0	8,048.2	8,069.8	8,068.3	30.3	28.7	-52.64	-652.0	2,328.0	1,868.1	1,809.7	58.38	32.002	
8,200.0	8,147.3	8,168.5	8,166.9	30.7	29.1	-53.02	-648.6	2,328.3	1,860.3	1,801.1	59.13	31.461	
8,300.0	8,246.7	8,267.6	8,266.0	31.0	29.4	-53.29	-645.1	2,328.5	1,854.2	1,794.3	59.88	30.967	
8,400.0	8,346.5	8,367.1	8,365.4	31.4	29.8	-53.51	-641.7	2,328.8	1,850.2	1,789.6	60.61	30.528	
8,500.0	8,446.4	8,466.9	8,465.1	31.8	30.1	-53.68	-638.2	2,329.1	1,848.4	1,787.0	61.32	30.141	
8,572.2	8,518.5	8,539.0	8,537.2	32.0	30.4	-53.77	-635.7	2,329.3	1,848.1	1,786.2	61.82	29.894 CC	
8,600.0	8,546.4	8,566.8	8,565.0	32.1	30.5	89.60	-634.7	2,329.4	1,848.4	1,786.4	62.01	29.807	
8,700.0	8,646.4	8,667.0	8,665.2	32.4	30.8	89.49	-631.3	2,329.7	1,848.7	1,786.0	62.69	29.487	
8,800.0	8,746.4	8,772.6	8,770.7	32.7	31.2	89.44	-629.7	2,329.8	1,848.8	1,785.4	63.39	29.165	
8,900.0	8,846.4	8,872.6	8,870.7	33.0	31.6	89.44	-629.7	2,329.8	1,848.8	1,784.7	64.07	28.856	
9,000.0	8,946.4	8,972.6	8,970.7	33.4	31.9	89.44	-629.7	2,329.8	1,848.8	1,784.1	64.75	28.553	
9,100.0	9,046.4	9,072.8	9,070.8	33.7	32.3	89.52	-632.1	2,329.8	1,848.8	1,783.4	65.42	28.262	
9,111.7	9,058.1	9,084.4	9,082.4	33.7	32.3	89.56	-633.5	2,329.8	1,848.8	1,783.3	65.49	28.231	
9,200.0	9,146.4	9,169.2	9,165.1	34.0	32.6	90.12	-651.5	2,330.0	1,848.9	1,782.9	66.02	28.006	
9,300.0	9,246.4	9,254.9	9,244.1	34.3	32.8	-88.42	-684.2	2,330.2	1,849.7	1,783.1	66.57	27.787	
9,400.0	9,345.6	9,332.0	9,309.3	34.7	33.0	-87.15	-725.4	2,330.5	1,851.6	1,784.4	67.12	27.586	
9,500.0	9,440.3	9,405.6	9,364.4	35.1	33.2	-85.97	-773.9	2,330.9	1,854.1	1,786.4	67.71	27.384	
9,600.0	9,526.3	9,475.0	9,409.1	35.6	33.3	-84.91	-827.0	2,331.3	1,856.9	1,788.6	68.32	27.181	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 501H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,700.0	9,599.9	9,545.5	9,446.2	36.1	33.5	-83.99	-886.9	2,331.8	1,859.7	1,790.7	68.96	26.968	
9,800.0	9,657.9	9,613.2	9,473.0	36.7	33.7	-83.27	-949.0	2,332.3	1,862.0	1,792.4	69.64	26.739	
9,900.0	9,697.8	9,680.1	9,490.7	37.3	33.8	-82.77	-1,013.4	2,332.8	1,863.8	1,793.4	70.36	26.491	
10,000.0	9,717.8	9,750.0	9,499.4	37.9	34.0	-82.50	-1,082.7	2,333.3	1,864.7	1,793.6	71.12	26.219	
10,100.0	9,720.0	9,832.1	9,500.0	38.5	34.2	-82.47	-1,164.8	2,333.9	1,864.8	1,792.9	71.94	25.920	
10,200.0	9,720.0	9,932.1	9,500.0	39.1	34.5	-82.47	-1,264.8	2,334.7	1,864.8	1,791.9	72.88	25.587	
10,300.0	9,720.0	10,032.1	9,500.0	39.8	34.8	-82.47	-1,364.7	2,335.5	1,864.8	1,790.9	73.92	25.227	
10,400.0	9,720.0	10,132.1	9,500.0	40.5	35.2	-82.47	-1,464.7	2,336.2	1,864.8	1,789.8	75.05	24.846	
10,500.0	9,720.0	10,232.1	9,500.0	41.3	35.7	-82.47	-1,564.7	2,337.0	1,864.8	1,788.5	76.28	24.447	
10,600.0	9,720.0	10,332.1	9,500.0	42.1	36.2	-82.47	-1,664.7	2,337.8	1,864.8	1,787.2	77.59	24.034	
10,700.0	9,720.0	10,432.1	9,500.0	42.9	36.7	-82.47	-1,764.7	2,338.5	1,864.8	1,785.8	78.99	23.609	
10,800.0	9,720.0	10,532.1	9,500.0	43.8	37.4	-82.47	-1,864.7	2,339.3	1,864.8	1,784.3	80.46	23.177	
10,900.0	9,720.0	10,632.1	9,500.0	44.7	38.0	-82.47	-1,964.7	2,340.1	1,864.8	1,782.8	82.01	22.739	
11,000.0	9,720.0	10,732.1	9,500.0	45.6	38.7	-82.47	-2,064.7	2,340.8	1,864.8	1,781.1	83.63	22.298	
11,100.0	9,720.0	10,832.1	9,500.0	46.6	39.4	-82.47	-2,164.7	2,341.6	1,864.8	1,779.4	85.32	21.857	
11,200.0	9,720.0	10,932.1	9,500.0	47.6	40.2	-82.47	-2,264.7	2,342.4	1,864.8	1,777.7	87.07	21.418	
11,300.0	9,720.0	11,032.1	9,500.0	48.6	41.0	-82.47	-2,364.7	2,343.1	1,864.7	1,775.9	88.88	20.981	
11,400.0	9,720.0	11,132.1	9,500.0	49.6	41.9	-82.47	-2,464.7	2,343.9	1,864.7	1,774.0	90.74	20.550	
11,500.0	9,720.0	11,232.1	9,500.0	50.6	42.8	-82.47	-2,564.7	2,344.7	1,864.7	1,772.1	92.66	20.125	
11,600.0	9,720.0	11,332.1	9,500.0	51.7	43.7	-82.47	-2,664.7	2,345.4	1,864.7	1,770.1	94.63	19.706	
11,700.0	9,720.0	11,432.1	9,500.0	52.8	44.6	-82.47	-2,764.7	2,346.2	1,864.7	1,768.1	96.64	19.295	
11,800.0	9,720.0	11,532.1	9,500.0	53.9	45.6	-82.47	-2,864.7	2,347.0	1,864.7	1,766.0	98.70	18.893	
11,900.0	9,720.0	11,632.1	9,500.0	55.0	46.6	-82.47	-2,964.7	2,347.7	1,864.7	1,763.9	100.79	18.500	
12,000.0	9,720.0	11,732.1	9,500.0	56.1	47.6	-82.47	-3,064.7	2,348.5	1,864.7	1,761.8	102.93	18.116	
12,100.0	9,720.0	11,832.1	9,500.0	57.2	48.6	-82.47	-3,164.7	2,349.3	1,864.7	1,759.6	105.10	17.742	
12,200.0	9,720.0	11,932.1	9,500.0	58.4	49.7	-82.47	-3,264.7	2,350.0	1,864.7	1,757.4	107.31	17.377	
12,300.0	9,720.0	12,032.1	9,500.0	59.6	50.7	-82.47	-3,364.7	2,350.8	1,864.7	1,755.1	109.55	17.022	
12,400.0	9,720.0	12,132.1	9,500.0	60.7	51.8	-82.47	-3,464.7	2,351.6	1,864.7	1,752.8	111.81	16.677	
12,500.0	9,720.0	12,232.1	9,500.0	61.9	52.9	-82.47	-3,564.7	2,352.4	1,864.7	1,750.5	114.11	16.341	
12,600.0	9,720.0	12,332.1	9,500.0	63.1	54.1	-82.47	-3,664.7	2,353.1	1,864.6	1,748.2	116.43	16.015	
12,700.0	9,720.0	12,432.1	9,500.0	64.4	55.2	-82.47	-3,764.7	2,353.9	1,864.6	1,745.9	118.78	15.699	
12,800.0	9,720.0	12,532.1	9,500.0	65.6	56.4	-82.47	-3,864.7	2,354.7	1,864.6	1,743.5	121.14	15.392	
12,900.0	9,720.0	12,632.1	9,500.0	66.8	57.5	-82.47	-3,964.7	2,355.4	1,864.6	1,741.1	123.54	15.094	
13,000.0	9,720.0	12,732.1	9,500.0	68.0	58.7	-82.47	-4,064.7	2,356.2	1,864.6	1,738.7	125.95	14.805	
13,100.0	9,720.0	12,832.1	9,500.0	69.3	59.9	-82.47	-4,164.7	2,357.0	1,864.6	1,736.2	128.38	14.524	
13,200.0	9,720.0	12,932.1	9,500.0	70.5	61.1	-82.47	-4,264.7	2,357.7	1,864.6	1,733.8	130.83	14.252	
13,300.0	9,720.0	13,032.1	9,500.0	71.8	62.3	-82.47	-4,364.7	2,358.5	1,864.6	1,731.3	133.30	13.988	
13,400.0	9,720.0	13,132.1	9,500.0	73.1	63.5	-82.47	-4,464.7	2,359.3	1,864.6	1,728.8	135.78	13.732	
13,500.0	9,720.0	13,232.1	9,500.0	74.4	64.8	-82.47	-4,564.7	2,360.0	1,864.6	1,726.3	138.28	13.484	
13,600.0	9,720.0	13,332.1	9,500.0	75.6	66.0	-82.47	-4,664.7	2,360.8	1,864.6	1,723.8	140.79	13.243	
13,700.0	9,720.0	13,432.1	9,500.0	76.9	67.3	-82.47	-4,764.6	2,361.6	1,864.6	1,721.2	143.32	13.010	
13,800.0	9,720.0	13,532.1	9,500.0	78.2	68.5	-82.47	-4,864.6	2,362.3	1,864.6	1,718.7	145.86	12.783	
13,900.0	9,720.0	13,632.1	9,500.0	79.5	69.8	-82.47	-4,964.6	2,363.1	1,864.5	1,716.1	148.41	12.563	
14,000.0	9,720.0	13,732.1	9,500.0	80.8	71.1	-82.47	-5,064.6	2,363.9	1,864.5	1,713.6	150.98	12.350	
14,100.0	9,720.0	13,832.1	9,500.0	82.1	72.3	-82.47	-5,164.6	2,364.6	1,864.5	1,711.0	153.56	12.142	
14,200.0	9,720.0	13,932.1	9,500.0	83.4	73.6	-82.47	-5,264.6	2,365.4	1,864.5	1,708.4	156.14	11.941	
14,300.0	9,720.0	14,032.1	9,500.0	84.8	74.9	-82.47	-5,364.6	2,366.2	1,864.5	1,705.8	158.74	11.746	
14,400.0	9,720.0	14,132.1	9,500.0	86.1	76.2	-82.47	-5,464.6	2,366.9	1,864.5	1,703.2	161.35	11.556	
14,500.0	9,720.0	14,232.1	9,500.0	87.4	77.5	-82.47	-5,564.6	2,367.7	1,864.5	1,700.5	163.96	11.372	
14,600.0	9,720.0	14,332.1	9,500.0	88.7	78.8	-82.47	-5,664.6	2,368.5	1,864.5	1,697.9	166.59	11.192	
14,700.0	9,720.0	14,432.1	9,500.0	90.1	80.1	-82.47	-5,764.6	2,369.3	1,864.5	1,695.3	169.22	11.018	
14,800.0	9,720.0	14,532.1	9,500.0	91.4	81.5	-82.47	-5,864.6	2,370.0	1,864.5	1,692.6	171.86	10.849	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 501H - OH - Plan 0.1

Offset Site Error: 0.0 usft

Survey Program: 0-B001Mb_MWD+HRGM

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,900.0	9,720.0	14,632.1	9,500.0	92.8	82.8	-82.47	-5,964.6	2,370.8	1,864.5	1,690.0	174.51	10.684	
15,000.0	9,720.0	14,732.1	9,500.0	94.1	84.1	-82.47	-6,064.6	2,371.6	1,864.5	1,687.3	177.17	10.524	
15,100.0	9,720.0	14,832.1	9,500.0	95.4	85.4	-82.47	-6,164.6	2,372.3	1,864.5	1,684.6	179.83	10.368	
15,200.0	9,720.0	14,932.1	9,500.0	96.8	86.8	-82.47	-6,264.6	2,373.1	1,864.4	1,681.9	182.50	10.216	
15,300.0	9,720.0	15,032.1	9,500.0	98.1	88.1	-82.47	-6,364.6	2,373.9	1,864.4	1,679.3	185.17	10.069	
15,400.0	9,720.0	15,132.1	9,500.0	99.5	89.4	-82.47	-6,464.6	2,374.6	1,864.4	1,676.6	187.85	9.925	
15,500.0	9,720.0	15,232.1	9,500.0	100.9	90.8	-82.47	-6,564.6	2,375.4	1,864.4	1,673.9	190.54	9.785	
15,600.0	9,720.0	15,332.1	9,500.0	102.2	92.1	-82.47	-6,664.6	2,376.2	1,864.4	1,671.2	193.23	9.648	
15,700.0	9,720.0	15,432.1	9,500.0	103.6	93.5	-82.47	-6,764.6	2,376.9	1,864.4	1,668.5	195.93	9.516	
15,800.0	9,720.0	15,532.1	9,500.0	104.9	94.8	-82.47	-6,864.6	2,377.7	1,864.4	1,665.8	198.64	9.386	
15,900.0	9,720.0	15,632.1	9,500.0	106.3	96.2	-82.47	-6,964.6	2,378.5	1,864.4	1,663.0	201.34	9.260	
16,000.0	9,720.0	15,732.1	9,500.0	107.7	97.5	-82.47	-7,064.6	2,379.2	1,864.4	1,660.3	204.06	9.137	
16,100.0	9,720.0	15,832.1	9,500.0	109.1	98.9	-82.47	-7,164.6	2,380.0	1,864.4	1,657.6	206.77	9.016	
16,200.0	9,720.0	15,932.1	9,500.0	110.4	100.3	-82.47	-7,264.6	2,380.8	1,864.4	1,654.9	209.50	8.899	
16,300.0	9,720.0	16,032.1	9,500.0	111.8	101.6	-82.47	-7,364.6	2,381.5	1,864.4	1,652.1	212.22	8.785	
16,400.0	9,720.0	16,132.1	9,500.0	113.2	103.0	-82.47	-7,464.6	2,382.3	1,864.4	1,649.4	214.95	8.673	
16,500.0	9,720.0	16,232.1	9,500.0	114.6	104.4	-82.47	-7,564.6	2,383.1	1,864.3	1,646.7	217.69	8.564	
16,600.0	9,720.0	16,332.1	9,500.0	115.9	105.7	-82.47	-7,664.6	2,383.8	1,864.3	1,643.9	220.42	8.458	
16,700.0	9,720.0	16,432.1	9,500.0	117.3	107.1	-82.47	-7,764.6	2,384.6	1,864.3	1,641.2	223.16	8.354	
16,800.0	9,720.0	16,532.1	9,500.0	118.7	108.5	-82.47	-7,864.6	2,385.4	1,864.3	1,638.4	225.91	8.253	
16,900.0	9,720.0	16,632.1	9,500.0	120.1	109.9	-82.47	-7,964.6	2,386.2	1,864.3	1,635.7	228.66	8.153	
17,000.0	9,720.0	16,732.1	9,500.0	121.5	111.3	-82.47	-8,064.6	2,386.9	1,864.3	1,632.9	231.41	8.056	
17,100.0	9,720.0	16,832.1	9,500.0	122.9	112.6	-82.47	-8,164.5	2,387.7	1,864.3	1,630.1	234.16	7.962	
17,200.0	9,720.0	16,932.1	9,500.0	124.3	114.0	-82.47	-8,264.5	2,388.5	1,864.3	1,627.4	236.92	7.869	
17,300.0	9,720.0	17,032.1	9,500.0	125.6	115.4	-82.47	-8,364.5	2,389.2	1,864.3	1,624.6	239.68	7.778	
17,400.0	9,720.0	17,132.1	9,500.0	127.0	116.8	-82.47	-8,464.5	2,390.0	1,864.3	1,621.8	242.44	7.690	
17,500.0	9,720.0	17,232.1	9,500.0	128.4	118.2	-82.47	-8,564.5	2,390.8	1,864.3	1,619.1	245.21	7.603	
17,600.0	9,720.0	17,332.1	9,500.0	129.8	119.6	-82.47	-8,664.5	2,391.5	1,864.3	1,616.3	247.98	7.518	
17,700.0	9,720.0	17,432.1	9,500.0	131.2	121.0	-82.47	-8,764.5	2,392.3	1,864.3	1,613.5	250.75	7.435	
17,800.0	9,720.0	17,532.1	9,500.0	132.6	122.3	-82.47	-8,864.5	2,393.1	1,864.2	1,610.7	253.52	7.353	
17,900.0	9,720.0	17,632.1	9,500.0	134.0	123.7	-82.47	-8,964.5	2,393.8	1,864.2	1,607.9	256.29	7.274	
18,000.0	9,720.0	17,732.1	9,500.0	135.4	125.1	-82.47	-9,064.5	2,394.6	1,864.2	1,605.2	259.07	7.196	
18,100.0	9,720.0	17,832.1	9,500.0	136.8	126.5	-82.47	-9,164.5	2,395.4	1,864.2	1,602.4	261.85	7.119	
18,200.0	9,720.0	17,932.1	9,500.0	138.2	127.9	-82.47	-9,264.5	2,396.1	1,864.2	1,599.6	264.63	7.045	
18,300.0	9,720.0	18,032.1	9,500.0	139.6	129.3	-82.47	-9,364.5	2,396.9	1,864.2	1,596.8	267.42	6.971	
18,400.0	9,720.0	18,132.1	9,500.0	141.0	130.7	-82.47	-9,464.5	2,397.7	1,864.2	1,594.0	270.20	6.899	
18,500.0	9,720.0	18,232.1	9,500.0	142.4	132.1	-82.47	-9,564.5	2,398.4	1,864.2	1,591.2	272.99	6.829	
18,600.0	9,720.0	18,332.1	9,500.0	143.8	133.5	-82.47	-9,664.5	2,399.2	1,864.2	1,588.4	275.78	6.760	
18,700.0	9,720.0	18,432.1	9,500.0	145.2	134.9	-82.47	-9,764.5	2,400.0	1,864.2	1,585.6	278.57	6.692	
18,800.0	9,720.0	18,532.1	9,500.0	146.6	136.3	-82.47	-9,864.5	2,400.7	1,864.2	1,582.8	281.36	6.625	
18,900.0	9,720.0	18,632.1	9,500.0	148.0	137.7	-82.47	-9,964.5	2,401.5	1,864.2	1,580.0	284.16	6.560	
19,000.0	9,720.0	18,732.1	9,500.0	149.4	139.1	-82.47	-10,064.5	2,402.3	1,864.2	1,577.2	286.96	6.496	
19,100.0	9,720.0	18,832.1	9,500.0	150.9	140.5	-82.47	-10,164.5	2,403.1	1,864.1	1,574.4	289.75	6.434	
19,200.0	9,720.0	18,932.1	9,500.0	152.3	141.9	-82.47	-10,264.5	2,403.8	1,864.1	1,571.6	292.55	6.372	
19,300.0	9,720.0	19,032.1	9,500.0	153.7	143.3	-82.47	-10,364.5	2,404.6	1,864.1	1,568.8	295.36	6.311	
19,400.0	9,720.0	19,132.1	9,500.0	155.1	144.8	-82.47	-10,464.5	2,405.4	1,864.1	1,566.0	298.16	6.252	
19,500.0	9,720.0	19,232.1	9,500.0	156.5	146.2	-82.47	-10,564.5	2,406.1	1,864.1	1,563.2	300.96	6.194	
19,600.0	9,720.0	19,332.1	9,500.0	157.9	147.6	-82.47	-10,664.5	2,406.9	1,864.1	1,560.3	303.77	6.137	
19,700.0	9,720.0	19,432.1	9,500.0	159.3	149.0	-82.47	-10,764.5	2,407.7	1,864.1	1,557.5	306.58	6.080	
19,800.0	9,720.0	19,532.1	9,500.0	160.7	150.4	-82.47	-10,864.5	2,408.4	1,864.1	1,554.7	309.38	6.025	
19,900.0	9,720.0	19,632.1	9,500.0	162.1	151.8	-82.47	-10,964.5	2,409.2	1,864.1	1,551.9	312.19	5.971	
19,976.0	9,720.0	19,707.2	9,500.0	163.2	152.9	-82.47	-11,039.6	2,409.8	1,864.1	1,549.8	314.32	5.931	

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

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	**Offset TVD Reference:**	Offset Datum

Offset Design: Speedmaster 30 Fed Com Pad 1B - Speedmaster 30 Fed Com 501H - 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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,978.2	9,720.0	19,707.2	9,500.0	163.3	152.9	-82.47	-11,039.6	2,409.8	1,864.1	1,549.7	314.36	5.930	ES, SF

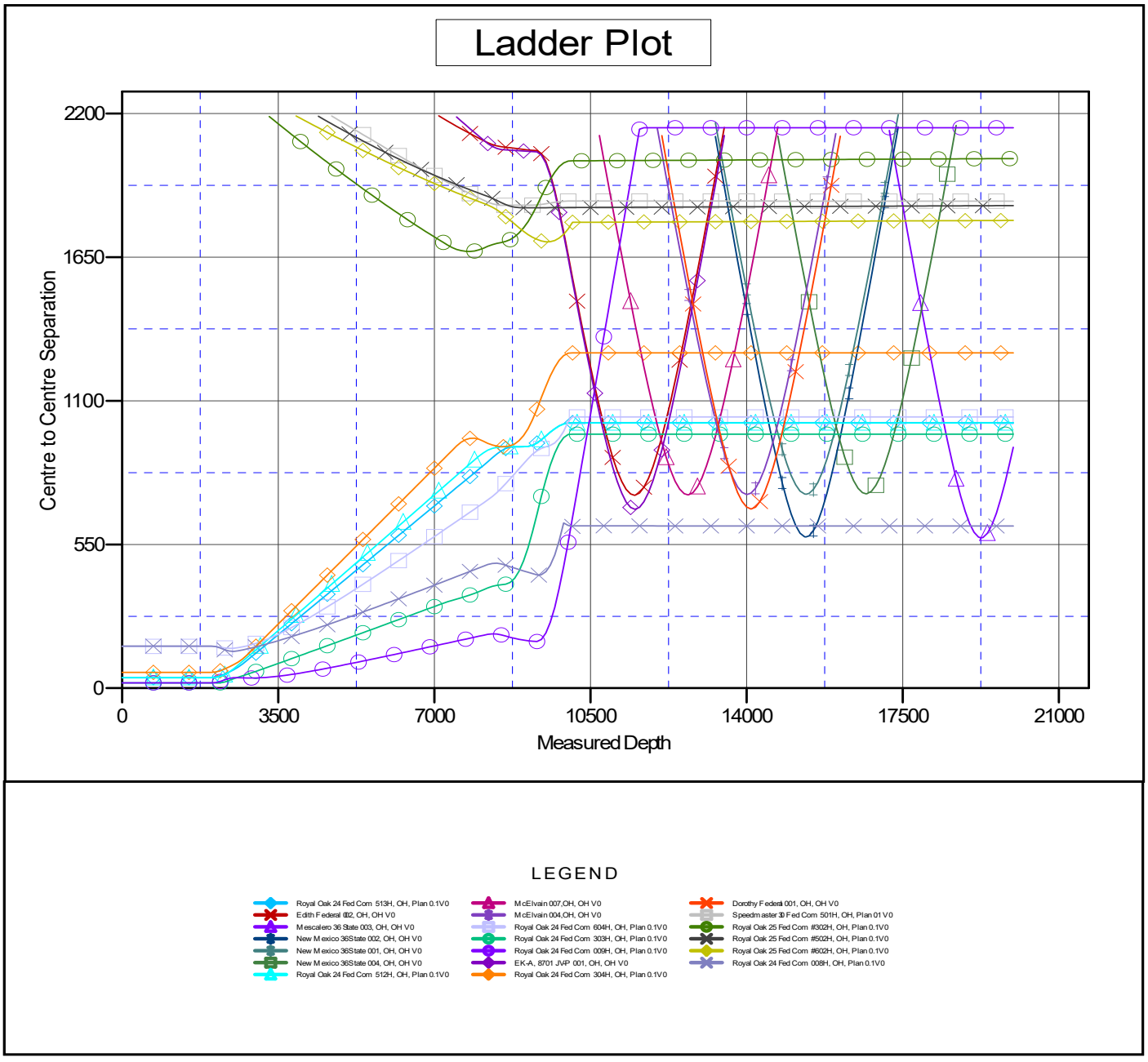
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 @ 3934.2usft (3934.2)
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Royal Oak 24 Fed Com 503H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.39°

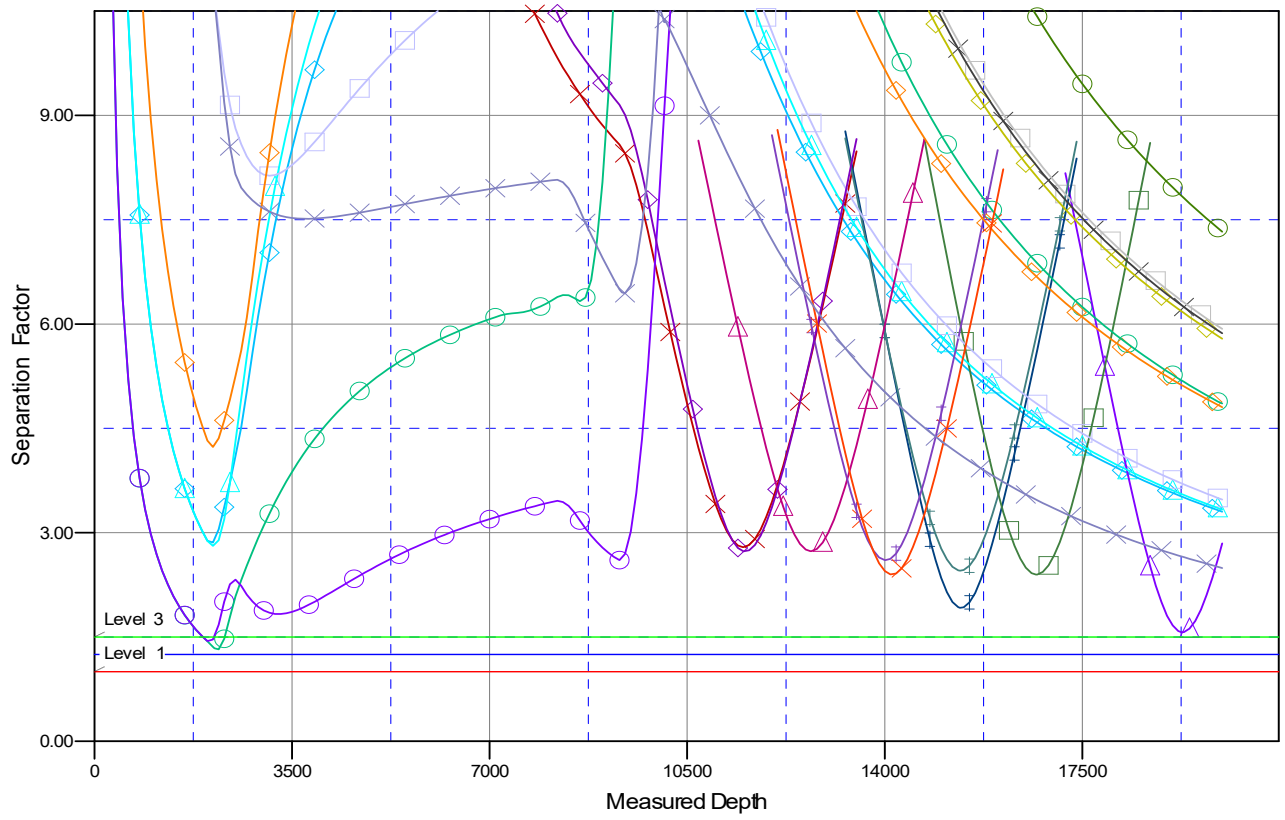


Anticollision Report

Company:	Avant Operating, LLC	**Local Co-ordinate Reference:**	Well Royal Oak 24 Fed Com 503H
Project:	Lea Co., NM (NAD 83)	**TVD Reference:**	Well @ 3934.2usft (3934.2)
Reference Site:	Royal Oak 24 Fed Com Pad 1	**MD Reference:**	Well @ 3934.2usft (3934.2)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Royal Oak 24 Fed Com 503H	**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 @ 3934.2usft (3934.2)	Coordinates are relative to: Royal Oak 24 Fed Com 503H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is -104.333334	Grid Convergence at Surface is: 0.39°

Separation Factor Plot



LEGEND

Royal Oak 24 Fed Com 513H, OH, Plan 0.1V0
Edith Federal 002, OH, OH V0
Mescalero 36 State 003, OH, OH V0
New Mexico 36State 002, OH, OH V0
New Mexico 36State 001, OH, OH V0
New Mexico 36State 004, OH, OH V0
Royal Oak 24 Fed Com 512H, OH, Plan 0.1V0
McElvain 007,OH, OH V0
McElvain 004,OH, OH V0
Royal Oak 24 Fed Com 604H, OH, Plan 0.1V0
Royal Oak 24 Fed Com 303H, OH, Plan 0.1V0
Royal Oak 24 Fed Com 009H, OH, Plan 0.1V0
EK-A, 8701 JVP 001, OH, OH V0
Royal Oak 24 Fed Com 304H, OH, Plan 0.1V0
Dorothy Federal 001, OH, OH V0
Speedmaster 30 Fed Com 501H, OH, Plan 01 V0
Royal Oak 25 Fed Com #302H, OH, Plan 0.1V0
Royal Oak 25 Fed Com #502H, OH, Plan 0.1V0
Royal Oak 25 Fed Com #602H, OH, Plan 0.1V0
Royal Oak 24 Fed Com 008H, OH, Plan 0.1V0

AFE:

API:

REGULATORY: BLM

PERMIT #

RIG: H&P 460

KB: 3934.5 (26.5')

GL: 3908'

CAMERON WELLHEAD
9-5/8" x 7"11"
5K SSD-II

Royal Oak 24 Fed Com #503H

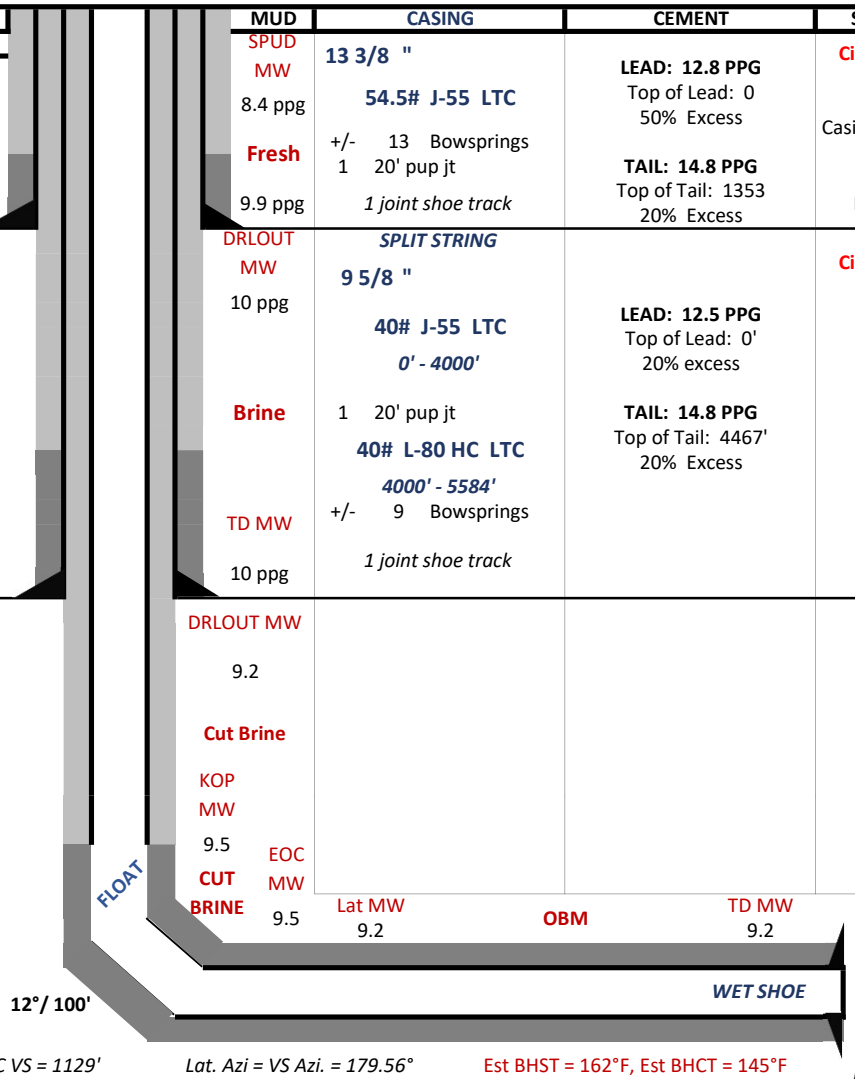
Bone Springs

Lea County, NM

SHL: *Sec. 24, T-18S, R-33E; 603 FSL, 1730 FEL*

Lat: 32.7276072, Long: -103.613615 (NAD83)

HOLE SIZE	MD	FORMATION	TVD	MUD	CASING	CEMENT	SPECIAL INSTRUCTIONS
	120	20" Conductor	120	SPUD MW 8.4 ppg	**13 3/8 "** **54.5# J-55 LTC** +/- 13 Bowsprings 1 20' pup jt *1 joint shoe track*	**LEAD: 12.8 PPG** Top of Lead: 0 50% Excess **TAIL: 14.8 PPG** Top of Tail: 1353 20% Excess	**Circ cement to surface is a NMOCD requirement** Casing must be set 25' into the Rustler MUD: Fresh water only
17 1/2 "	1,628	Rustler	1,628	Fresh			
	1,653	SURF CSG PT	1,653	9.9 ppg			
	1,951	Solado	1,951	DRLOUT MW 10 ppg	***SPLIT STRING*** **9 5/8 "** **40# J-55 LTC** ***0' - 4000'*** 1 20' pup jt **40# L-80 HC LTC** ***4000' - 5584'*** +/- 9 Bowsprings *1 joint shoe track*	**LEAD: 12.5 PPG** Top of Lead: 0' 20% excess **TAIL: 14.8 PPG** Top of Tail: 4467' 20% Excess	**Circ cement to surface is a NMOCD requirement**
	3,652	Yates	3,641	Brine			
12 1/4 "	5,584	INTRM CSG PT	5,554	TD MW 10 ppg			
	5,684	Cherry Canyon	5,654	DRLOUT MW 9.2			
	7,280	Brushy Canyon	7,236	Cut Brine			
	7,555	Bone Springs	7,508	KOP MW 9.5			
8 3/4 " VERTICAL	8,846	1st BS Sand	8,792				
	9,296	**KOP**	**9,243**				
8 3/4 " CURVE	9,491	2nd BS Sand	9,432				
	10,046	**EOC**	**9,720**	EOC MW 9.5			
8 3/4 " LATERAL				CUT BRINE	**5 1/2 "** **20# P-110 HC GBCD** 1 20' pup jt 2 20' Marker Jts +/- 30 Bowsprings +/- 27 Doublebows +/- 236 Solid Bodies	**LEAD: 10.7 PPG** Top of Lead: 0 50% Excess **TAIL: 14.8 PPG** Top of Tail: 9296 20% Excess All aqueous fluids (spacer and disp) left inside or outside of pipe must have biocide & corrision inhibitor	Expected BH Pressure 4665.6 psi



EOC VS = 1129' *Lat. Azi = VS Azi. = 179.56°* Est BHST = 162°F, Est BHCT = 145°F

DIRECTIONAL PLAN

MD	INC	INC	TVD	ANNOTATION

PRELIMINARY

DIRECTIONS TO LOCAITON:

Drilling Engineer: Ryan Harris

Royal Oak 24 Fed Com #503H (H&P 460)

Date: 2/5/2025

Coterra Energy Inc.
CEMENT PROPOSAL #81443

Surface Proposal

Royal Oak 24 Fed Com #503H 30-025-54155
S:24 T:18S R:33E Lea NM

February 06, 2025

AMERICAN CEMENTING

Surface Proposal

CEMENT PROPOSAL

Attention: Kyle Adamek | (660) 247-2024 | kyle@deepenergyllc.com
Coterra Energy Inc.
202 S. Cheyenne Ave Suite 1000 | Tulsa, OK 74103
February 06, 2025

Dear Kyle Adamek,

Thank you for the opportunity to submit pricing for cementing services on the attached wellbore. American Cementing's priority is to provide premium customer service while operating in a safe, efficient manner. If you have any questions regarding the proposal or services offered, please contact American Cementing at any time.

Sincerely,

Will Bautista
Sales | (432) 254-0261 | will.bautista@americancementing.com

Prepared By
Meseret Belayneh
Field Engineer III | (801) 513-8231 | meseret.belayneh@americancementing.com

Field Office 6165 W Murphy St, Odessa, TX 79763
Phone: (432) 208-6452

Disclaimer

1. Proposal is valid for 30 days
2. Proposal is for pricing purposes only; actual job procedure to be confirmed prior to job
3. American Cementing recommends proper hole conditioning prior to initiating cementing; please discuss procedures with your American Cementing representative
4. Applicable sales tax will be added to the final invoice
5. American Cementing's general terms and conditions are hereby incorporated into this Proposal

Well Information

Well Name: **Royal Oak 24 Fed Com #503H**
Well API: **30-025-54155**
Latitude: **32.727607**
Longitude: **-103.613680**
Section: **24**
Township: **18S**
Range: **33E**
County: **Lea, NM**

Job: Surface (Surface) - Well Information

Drilling Fluid Density: **8.40 lb/gal**
Drilling Fluid: **Water**
Total Measured Depth: **1653 ft**
Total Vertical Depth: **1653 ft**
BHCT: **86 °F**
BHST: **95 °F**
Temperature Gradient: **0.90 °F/100ft**
Surface Temp: **80 °F**

Geometry

#	Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Grade	Thread	Top	Bottom	Excess (%)
1	Casing	Outer	20.000	19.500	53.00		n/a	0	120	0.0
2	OpenHole	Outer		17.500			n/a	120	1353	50.0
3	OpenHole	Outer		17.500			n/a	1353	1653	20.0
1	Casing	Inner	13.375	12.615	54.50		n/a	0	1653	0.0

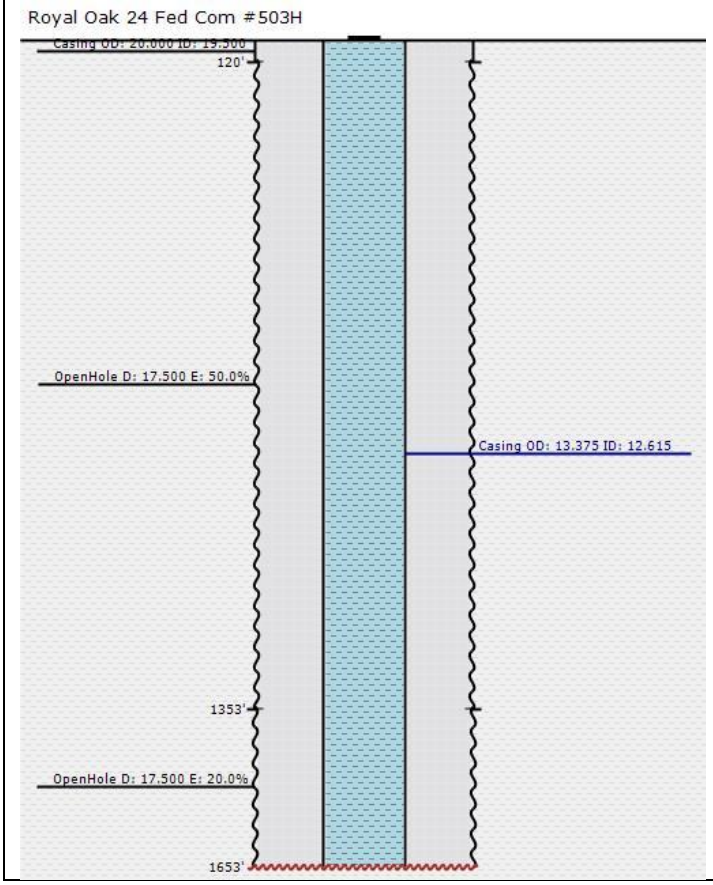
Capacities

Excess added to Capacity Factor

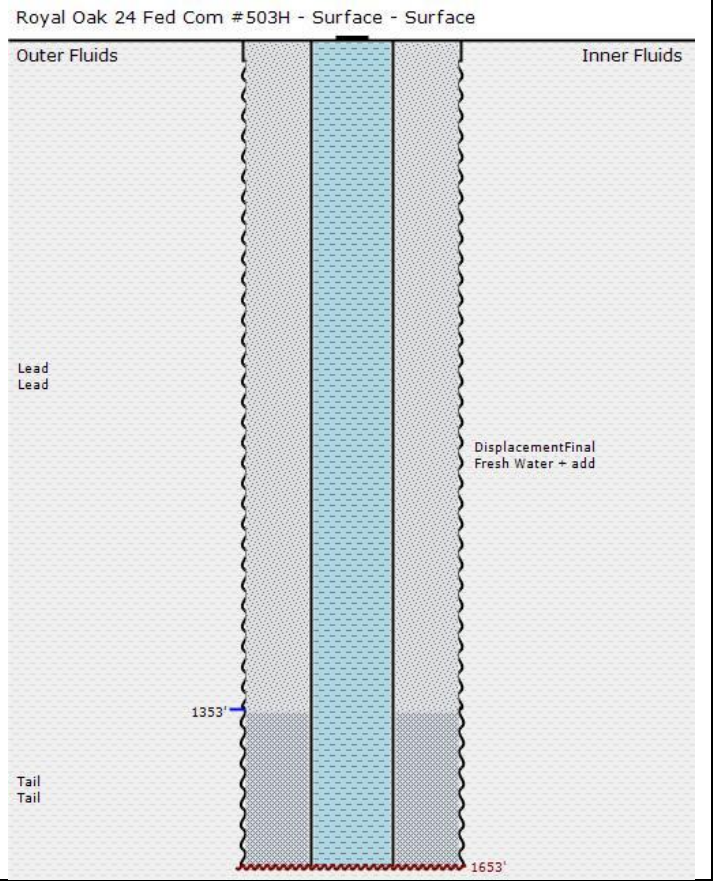
Type	TopDepth (ft)	Length (ft)	OD (in)	ID (in)	Capacity (bbl/ft)	Capacity ($ft^{3/ft}$)	Fill (ft/bbl)	Fill (ft/ft^{3})
DisplacementFinal	0	1568	12.615	0.000	0.1546	0.8679	6.47	1.15
ShoeJoint	1568	85	12.615	0.000	0.1546	0.8679	6.47	1.15
Casing to OpenHole	1353	300	17.500	13.375	0.1485	0.8335	6.74	1.20
Casing to OpenHole	120	1233	17.500	13.375	0.1856	1.0419	5.39	0.96
Casing to Casing	0	120	19.500	13.375	0.1956	1.0982	5.11	0.91

Job: Surface (Surface) - Well & Fluid Diagrams

Well Diagram



Fluid Diagram



Job: Surface (Surface) - Material Information

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
1	Flush	FW with dye	0.00	8.34	42.0	n/a		20.00
DYE, LIQUID, BLUE - Other - 0.050 gal/bbl								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
2	Lead	Lead	0.00	12.80	10.8	1.97	721	252.57
CEMENT, CLASS C, HSR - Cement - 100.000 %								
Cement Additive, Sodium Metasilicate A-2 - Accelerator - 1.200 %BWOB								
ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS - Accelerator - 0.500 %BWOB								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
IntegraSeal CELLO - LostCirculation - 0.250 lb/sk								
IntegraSeal KOL - LostCirculation - 2.500 lb/sk								
RETARDER, R-7C - Retarder - 0.170 %BWOB								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
3	Tail	Tail	1353.00	14.80	6.3	1.33	244	57.82
CEMENT, CLASS C, HSR - Cement - 100.000 %								
ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS - Accelerator - 0.500 %BWOB								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
ANTI STATIC ADDITIVE, STATIC FREE - Other - 0.005 lb/sk								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
4	DisplacementFinal	Fresh Water + add	0.00	8.34	42.0	n/a		243.00

Job: Surface (Surface) - Pump Schedule

Sequence	Type	Fluid	Density (lb/gal)	Pump Rate (bpm)	Volume (bbls)	Volume (sks)	Cum. Vol. (bbls)	Stage Time (min)	Cum. Time (min)
1	Flush	FW with dye	8.34	5.00	20.00		20.00	4.00	4.00
2	Lead	Lead	12.80	5.00	252.57	721	272.57	50.51	54.51
3	Tail	Tail	14.80	5.00	57.82	244	330.39	11.56	66.07
4	DisplacementFinal	Fresh Water + add	8.34	5.00	243.00		573.39	48.60	114.67

General Terms and Conditions

AMERICAN CEMENTING, LLC TERMS AND CONDITIONS

These Terms and Conditions (these "T&Cs") contain INDEMNIFICATION, LIMITATION OF LIABILITY AND RISK SHIFTING PROVISIONS. The provision of Work by American Cementing, LLC or its affiliated companies ("Contractor" or "American") to any person or entity placing an Order for such Work ("Company" or "Customer") is subject to these T&Cs. By requesting the Work, Company voluntarily elects to enter into and be bound by these T&Cs, and any Order for Work shall constitute acceptance of these T&Cs, *unless* Contractor and Company have entered into a Master Service Agreement or other agreement expressly accepted in writing by Contractor's authorized representative, in which case the terms and conditions of such agreements shall govern the provision of the Work and completely supersede these T&Cs in all respects.

1. DEFINITIONS. "Claims" means all claims, lawsuits, demands, causes of action, liabilities, damages (including punitive damages), judgments, awards, fines, penalties, losses, costs, expenses (including, without limitation, reasonable attorneys' fees, expert fees, and costs of litigation) of any kind or character, without limit, which arise out of or are related to the Work. "COMPANY GROUP" means (i) COMPANY, and any of its parent, subsidiary and affiliated or related entities; (ii) the working interest owners, co-owners, co-lessees, co-lessors, partners and joint venturers of (i); (iii) any person or entity with an economic interest or property rights in the well, premises or the property in relation to or upon which Work is performed; and (iv) the officers, directors, employees, shareholders, agents, representatives, contractors (except CONTRACTOR), subcontractors, consultants, and invitees of (i), (ii) and (iii) above. "CONTRACTOR GROUP" means (i) CONTRACTOR and any of its subsidiary and affiliated or related entities; and (ii) the officers, directors, employees, shareholders, agents, representatives, contractors, subcontractors, consultants, and invitees of all of the foregoing. "Order" means a written or verbal request for specific Work, including by way of a purchase order, work order, service order, work authorization, or similar instrument issued by COMPANY to CONTRACTOR, and which shall incorporate the pricing proposal submitted by CONTRACTOR for such Work. A request will be considered written if exchanges, whether by correspondence, letter, fax, or email include all material terms and conditions and they have been accepted or ratified by both COMPANY and CONTRACTOR; *provided, however*, if verbal, such request shall be confirmed in writing as soon as practicable, and the terms of the written Order shall control. "Work" means any cementing services and other related services provided by CONTRACTOR, along with all related personnel, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items used in connection with such services.

2. INDEPENDENT CONTRACTOR. This Agreement does not create any agency, partnership, joint venture, or similar business relationship between parties. COMPANY will have the right generally to oversee and inspect the performance of the Work to ensure the reasonable satisfactory completion thereof; it being understood and agreed that CONTRACTOR shall have exclusive control over the operational details of the Work.

3. PRICING AND PAYMENT. 3.1 COMPANY will pay CONTRACTOR for the Work according to the prices and rates contained the applicable Order; *provided, however*, that if there are no such prices and rates, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for the Work shall apply. The pricing proposals submitted by CONTRACTOR are generally valid sixty (60) days from submission of such proposal, unless otherwise set forth in such pricing proposal. Notwithstanding the foregoing, before commencing the Work and until an agreement is reached between the parties regarding such prices and rates, CONTRACTOR has the right to revise and shall advise COMPANY of any changes in the pricing proposal, and COMPANY may either accept or reject such changes, and proceed with the Work or not. **3.2** COMPANY shall pay CONTRACTOR's invoices within thirty (30) days of receipt of invoice. In the event COMPANY disputes any amount, it shall do so in good faith and shall notify CONTRACTOR of such dispute within thirty (30) days of receipt of invoice; *provided, however*, that COMPANY shall pay any undisputed portion of the invoice within the time for payment noted above and shall endeavor to expeditiously resolve such disputes. Any undisputed invoices, remaining unpaid for sixty (60) days after receipt by COMPANY, shall accrue interest at the rate of 1.5% per month or the maximum interest rate allowed by applicable law, whichever is less, through the time of collection. **3.3** Prices quoted by CONTRACTOR do not include sales, VAT, use or similar taxes, and such taxes, where applicable, shall be added to the quoted prices and invoiced accordingly. Each party shall pay all taxes levied or assessed by any governmental authority in connection with or incident to its performance under an Order; *provided, however,* that CONTRACTOR shall pay any assessments or taxes upon wages of CONTRACTOR, social security, unemployment insurance, old age benefits, or any other employment taxes, contributions or withholdings.

4. ORDERS; STANDARD OF PERFORMANCE; WARRANTIES. 4.1 COMPANY may from time to time place an Order for Work, and CONTRACTOR may provide such Work to COMPANY, subject to these T&Cs. Orders shall become binding only after signed or acknowledged by an authorized representative of each party. **4.2** CONTRACTOR shall provide all labor, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items required for the execution and completion of the Work, as more fully described in the applicable Order. **4.3** CONTRACTOR shall perform the Work with due diligence and care, in a good and workmanlike manner, using skilled, competent, experienced, and, where applicable, licensed personnel in accordance with the specifications represented by CONTRACTOR and with generally accepted oilfield practices. **4.4** CONTRACTOR shall conduct its Work, in all material respects, in accordance with all applicable laws, rules, regulations, decrees, and/or official government orders of any governing body having jurisdiction over the Work. **4.5** CONTRACTOR's Work is designed to operate under conditions normally encountered in a wellbore. COMPANY shall notify CONTRACTOR in advance and make special arrangements for Work in which hazardous or unusual conditions exist. COMPANY has complete care, custody, and control of the well, the premises around the well, and the drilling and production equipment of the well (other than such equipment provided by CONTRACTOR hereunder), and Company shall furnish directions and requirements for Work performed hereunder. CONTRACTOR is relying on COMPANY to provide such directions and requirements without further investigation by CONTRACTOR. CONTRACTOR agrees to observe and abide by COMPANY's safety policies and procedures communicated to and acknowledged by CONTRACTOR. CONTRACTOR shall as promptly as possible under the circumstances report to COMPANY's representative all accidents or occurrences resulting in injuries, illness or death to person(s) or damage to property, arising out of or occurring during the Work. **4.6** CONTRACTOR's sole liability, and COMPANY's exclusive remedy, for any Claims for breach of warranty under this Section 4 are limited to, at CONTRACTOR's sole option, (i) if practical, the re-performance of the defective Work or portion thereof, at no additional cost to COMPANY; or (ii) a refund or credit to COMPANY of any amount paid to CONTRACTOR for such defective Work or portion thereof. In the event that CONTRACTOR materially fails to perform the Work or if CONTRACTOR provides defective Work for reasons solely within CONTRACTOR's control, COMPANY shall give notice to CONTRACTOR of such non-performance or defective performance immediately upon discovery and prior to CONTRACTOR's departure from the worksite, otherwise such warranty Claim is waived. **4.7** Due to the nature of the Work to be performed in unpredictable wellbore conditions, CONTRACTOR does not warrant the accuracy, correctness, or completeness of any interpretations, analysis, recommendations, or advice, nor that COMPANY's or any third party's reliance on such interpretations, analysis, recommendations, or advice will accomplish any particular results, and which in any event are opinions only. Accordingly, it is COMPANY's responsibility, and sole risk, to determine the completion, well treatment, production, or financial decision involving any risk. Any outcomes that are less than expected will not relieve COMPANY of its responsibility to pay for the Work in accordance with these T&Cs. **4.8** THE WARRANTIES PROVIDED IN THIS SECTION 4 ARE THE SOLE AND EXCLUSIVE WARRANTIES RELATING TO THE WORK AND ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

5. ORDER CHANGES; PROJECT ADMINISTRATION. 5.1 COMPANY may ask for and CONTRACTOR may agree to variations in the Work, whether by way of addition, modification or omission, which variations shall be in writing and signed by authorized representatives of both parties. The value of any such variations shall be ascertained by reference to the prices and rates specified in the applicable Order for like or analogous Work; *provided, however,* that if there are no such prices and rates or if they are otherwise inapplicable, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for such additional Work shall apply. **5.2** To acknowledge or document various events during the provision of the Work, a party may from time to time sign the other party's forms, such as Orders, delivery tickets, job tickets, invoices, or similar instruments used by the parties in the normal course of business. In the event of a conflict between these T&Cs and any such documents, these T&Cs shall control, *unless* specific reference is made that these T&Cs are modified and the intention to modify is explicitly stated in such documents. **5.3** It is understood and agreed between the parties that COMPANY's representative (appointed in accordance with Section 5.4 below) shall have the authority to approve any job tickets, delivery tickets, or similar forms attesting to the completion of the Work by CONTRACTOR ("Job Tickets"). A COMPANY representative's signature on such Tickets shall indicate acceptance of the Work. If the Job Tickets are not acknowledged within forty-eight (48) hours of receipt through no fault of CONTRACTOR, CONTRACTOR may submit invoices for payment as if such Tickets had been acknowledged. **5.4** COMPANY will appoint a representative who will be responsible for the supervision of the Work, and who shall have full authority to represent and make decisions on behalf of COMPANY with respect to the Work, or otherwise to resolve the day-to-day issues which may arise related to the Work. Likewise, CONTRACTOR shall designate a representative with similar responsibilities and authority to liaise with COMPANY's representative.

6. CONTRACTOR'S EQUIPMENT. 6.1 Title to CONTRACTOR's equipment, including any lost, damaged, or confiscated equipment, shall remain in CONTRACTOR, and COMPANY shall have no right to assign, transfer, hypothecate, or remove such equipment from the place of its intended use without CONTRACTOR's prior written consent. **6.2** COMPANY shall be responsible for and agrees to compensate CONTRACTOR for all damages, losses, or any abnormal wear to CONTRACTOR GROUP's equipment: (i) while in COMPANY GROUP's care, custody or control, including while being transported by any member of COMPANY GROUP; (ii) as a result of operations conducted out of specifications at COMPANY GROUP's request, or in corrosive, abnormal temperatures or other

unusual conditions; (iii) due to fishing operations (if any); or (iv) if lost in the hole or damaged beyond repair while in the hole or used in the hole. COMPANY will replace such equipment or reimburse CONTRACTOR with the current replacement price of such equipment.

7. INDEMNITY.

7.1 Application of Indemnities. 7.1.1 In those matters in which a party is required by these T&Cs to RELEASE, DEFEND, PROTECT, INDEMNIFY, AND HOLD HARMLESS the other party and/or members of its respective Group, SUCH OBLIGATIONS SHALL, EXCEPT TO THE EXTENT EXPRESSLY PROVIDED OTHERWISE IN THESE T&CS, APPLY TO INDEMNITOR REGARDLESS OF THE CAUSE OR REASON, OR WHO MAY BE AT FAULT OR OTHERWISE RESPONSIBLE UNDER ANY CONTRACT, STATUTE, RULE, OR THEORY OF LAW, INCLUDING WITHOUT LIMITATION STRICT LIABILITY, TORT, BREACH OF DUTY (STATUTORY OR OTHERWISE), BREACH OF CONTRACT, BREACH OF REPRESENTATION OR WARRANTY, BREACH OF ANY SAFETY REQUIREMENT OR REGULATION, DUE TO ANY LATENT, PATENT, OR PRE-EXISTING DEFECTS OR CONDITIONS, IMPERFECTION OF MATERIAL, FAILURE OF EQUIPMENT, OR ANY LEGAL FAULT OR RESPONSIBILITY OF EITHER PARTY, INCLUDING THE SOLE, JOINT, AND/OR CONCURRENT NEGLIGENCE OR FAULT, WHETHER ACTIVE OR PASSIVE, OF THE INDEMNIFIED PARTY, OR OTHER PERSONS OR ENTITIES. **7.1.2** In the event these T&Cs are subject to the indemnity limitations in Chapter 127 of the Texas Civil Practice and Remedies Code (or any successor statute), and so long as such limitations are in force, each party covenants and agrees to support the mutual indemnity and release obligations contained herein by carrying insurance in an amount and of a type sufficient to cover their indemnity obligations**. 7.1.3** Notwithstanding any provisions in these T&Cs to the contrary, the following provision applies where Work is to be performed in New Mexico or Wyoming, as applicable: to the extent this Section 7 is governed by New Mexico or Wyoming law, then the provisions herein shall be read not to include indemnification for the indemnified party's own negligence. **7.1.4** If any defense, indemnity, or insurance provision contained in these T&Cs conflicts with, is prohibited by or violates public policy under any federal, state or other law determined to be applicable to a particular situation arising or involving these T&Cs, it is understood and agreed that the conflicting, prohibited or violating provision shall be deemed automatically amended in that situation to the extent—but only to the extent—necessary to conform with, not be prohibited by, and avoid violating public policy under such applicable law. The parties agree that the exculpatory, indemnification, and hold harmless provisions herein shall be modified or altered only insofar as required by a jurisdiction purporting to limit such provisions, it being the intention of both parties to enforce to the fullest extent, all terms and conditions herein agreed to.

7.2 CONTRACTOR's Indemnification. CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of CONTRACTOR GROUP, and any and all Claims for damage to or loss of any property of CONTRACTOR GROUP.

7.3 COMPANY's Indemnification. COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of COMPANY GROUP, and any and all Claims for damage to or loss of any property of COMPANY GROUP.

7.4 Pollution and Contamination; Catastrophic Damages or Losses. Notwithstanding each party's obligations pursuant to Sections 7.2 and 7.3 hereof, it is understood and agreed between the parties that the following additional terms shall apply: 7.4.1 (a) CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims arising from pollution or contamination, which originates above the surface of the land or water, and which shall directly result from or be caused by CONTRACTOR GROUP's equipment, vehicles, or other tools and instruments while in CONTRACTOR GROUP's sole care, custody or control, and shall assume all responsibility for control and removal of same; and (b) COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all pollution or contamination other than that described under Section 7.4.1 (a) above, and including but not limited to, that which may result from cratering, seepage or any other uncontrolled flow of oil, gas, water or other substance, and shall assume all responsibility for control and removal of same. 7.4.2 COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all catastrophic damages or losses, including but not limited to those on account of injury, destruction of, loss or impairment (i) of any formation, strata, or reservoir beneath the surface of the earth; (ii) of any property rights in or to oil, gas, or other mineral substance or water, or the quiet enjoyment thereof, including subsurface trespass; (iii) to the well or the hole, including its casing; (iv) from radioactive sources; and (v) from fire, explosion, blowout, or any other uncontrolled well conditions, and the cost of controlling or regaining control of a wild well or out of control well.

7.5 Incidental or Consequential Damages. Notwithstanding any provisions to the contrary in these T&Cs, neither party shall be liable to the other party for, and parties shall RELEASE, PROTECT, DEFEND, INDEMNIFY AND HOLD EACH OTHER HARMLESS from and against any special, punitive, indirect, incidental or consequential damages or losses suffered by the other party and its Group resulting from or arising, directly or indirectly, out of or in connection with the Work, including, without limitation, loss and/or deferral of production, loss of product, loss of use, loss of bargain, contract expectations, or opportunity to contract with others, loss of revenue, profit, or anticipated profit, loss of business, business interruption, or downtime, whether direct or indirect, and whether or not such loss was foreseeable at the time of placing of an Order.

8. INSURANCE. **8.1** CONTRACTOR and COMPANY agree, at their sole cost and expense, to procure and continuously maintain in full force and effect throughout the term of this Agreement the following insurance coverage which may be met by a combination of primary and excess/umbrella insurance: A. Statutory Workers' Compensation Insurance and Employer's Liability in the amount of $1,000,000 per occurrence and in the aggregate; B. Commercial General Liability insurance providing for third party property damage and personal injury, including broad form contractual liability for any agreement and broad form property damage in the amount of $1,000,000 per occurrence and $2,000,000 in the aggregate; C. Owned and Non-Owned Automobile Liability Insurance for bodily injury and property damage combined single limit in the amount of $1,000,000 per occurrence and in the aggregate; D. Excess/Umbrella Liability Insurance providing coverage in excess of the foregoing insurances in the amount of $5,000,000 per occurrence and in the aggregate, excluding statutory insurance coverage. **8.2** Each party agrees that, to the extent it assumes liability herein, it shall endorse the above coverages to name the indemnified parties as additional insureds (except for Workers' Compensation), shall waive its right of subrogation against the indemnified parties and their insurers, and agrees that its insurance shall be primary to that carried by the indemnified parties and non-contributory as per negligence for third party Claims, and shall not contribute in case of any Claim of exhaustion of horizontal limits. **8.3** Each party shall furnish an insurance certificate to the other to evidence the insurance required herein, and such certificates shall contain an endorsement stating that the insurer will endeavor to provide a thirty (30) days prior written notice of alteration or material change to such coverage. All deductible amounts, premiums, franchise amounts, or other charges due with respect to each party's required insurance should be the sole obligation of the insured party.

9. CONFIDENTIALITY. Each party contemplates that the other party may be provided and exposed to confidential and proprietary information ("Confidential Information"), which includes information relating to specifications of its tools, designs, inventions, component parts, parts list, software, firmware, hardware, processes, computer interfaces, operational parameters, and terms and pricing of Work. All Confidential Information shall remain the property of the party disclosing the same and no license is granted to the receiving party by virtue of the provision of such information. Confidential Information shall (i) be used by the recipient solely for the purpose of the provision of the Work and (ii) kept confidential and not disclosed to any person, except authorized representatives of the receiving Party, without written permission of the disclosing party. The receiving party shall take all reasonable steps to require its authorized representatives to keep such information confidential during and after the Work. Confidential Information shall not include information which: (i) at the time of placement of the Order is in the public domain or subsequently comes into the public domain through no fault of the receiving party and not in breach of these T&Cs; (ii) was already known to the receiving party on the date of disclosure, provided that such prior knowledge can be substantiated and proved by documentation; or (iii) properly and lawfully available to the receiving party from sources independent of the disclosing party.

10. INTELLECTUAL PROPERTY. While performing the Work, CONTRACTOR may utilize CONTRACTOR's intellectual property (including, without limitation, copyrights, registered marks, trademarks, service marks, patents, know-how, trade secrets, inventions, discoveries, techniques. technical information, technologies, designs, software, computer programs, formulae, calculations, computations, expertise, ideas, concepts, improvements, sketches, drawings, models, methods, practices, and/or processes, whether patentable or not) and/or develop, conceive, create, acquire, obtain, collect, generate, or make such additional intellectual property, which is and shall be CONTRACTOR's exclusive property. *Except if* expressly and specifically agreed in writing in a separate development agreement executed by the parties, and in exchange for appropriate payment, CONTRACTOR shall not develop any intellectual property for ownership by COMPANY in association with Work performed under a specific Order. Notwithstanding the foregoing, COMPANY or COMPANY GROUP shall own any intellectual property solely developed by COMPANY or COMPANY GROUP, respectively.

11. FORCE MAJEURE. 11.1 "Force Majeure" means (to the extent and only to the extent that any of the following are not reasonably within the control of the party claiming a Force Majeure and by the exercise of due diligence such party could not have mitigated, avoided, or overcome such condition) acts of God, fire, floods, lightning, blizzards, tornadoes, earthquakes, ice storms, named tropical storms and hurricanes, pandemics, terrorism, insurrection, revolution, war, strikes, lockouts, federal or state laws, rules and regulations of any governmental or public authorities having or asserting jurisdiction over the premises of either or both parties, inability to procure material due to industry wide shortages or soaring commodity costs, equipment, or necessary labor despite reasonable efforts, or similar causes. 11.2 If a party is rendered unable, wholly or in part, by a Force Majeure event to perform, that party will give written notice detailing such Force Majeure event to the other party as soon as reasonably possible. If a Force Majeure event continues without interruption for ten (10) days, either Party may cancel the applicable Order by giving prompt, written cancellation notice to the other party. Nothing in this Section 14.2 shall excuse COMPANY from its payment obligations of any invoices due and owing for Work performed under a specific Order.

12. LIMITATION OF LIABILITY. Notwithstanding anything to the contrary in these T&Cs, CONTRACTOR's liability arising from or in connection with its performance of the Work shall be limited to the value of the consideration paid to CONTRACTOR under the applicable Order.

13. GOVERNING LAW; VENUE. 13.1 For Work performed on a worksite within the **United States,** these T&Cs shall be exclusively governed by the laws of the **State of Texas**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction. Venue shall lie exclusively in the state or federal courts of Harris County, Texas, and the parties consent to personal

jurisdiction therein. **13.2** For Work performed on a worksite within **Canada,** these T&Cs shall be exclusively governed by the laws of **Province of Alberta**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction.

14. MISCELLANEOUS. 14.1 Notices. Notices shall be sent by registered post, or delivered in person, to the address for notices communicated by the other party. Said notices shall be deemed received (i) upon delivery if hand delivered, (ii) upon delivery if sent by registered post, and (iii) upon recipient's confirmation of receipt if faxed. **14.2 Waiver.** No benefit or right accruing to either party under these T&Cs shall be deemed to be waived unless the waiver is in writing, expressly refers to these T&Cs, and is signed by a duly authorized representative of both parties. A waiver in any one or more instances shall not constitute a continuing waiver, unless specifically so stated in the written waiver. **14.3 Severability.** In the event one or more of the provisions contained in these T&Cs shall be held, for any reason, to be invalid, void, illegal, contrary to law and/or unenforceable in any respect, these T&Cs shall be deemed to be amended to partially or completely modify such provision or portion thereof to the extent necessary to make it enforceable. If necessary, these T&Cs shall be deemed to be amended to delete the unenforceable provision or portion thereof, in which event such invalidity, illegality or unenforceability shall not affect the remaining provisions hereof, and these T&Cs shall remain unaffected and shall be construed as if such invalid, void, illegal or unenforceable provision never had been contained herein. **14.4 Independent Representation.** COMPANY AND CONTRACTOR ACKNOWLEDGE THAT THEY HAVE CONSULTED AN ATTORNEY CONCERNING THESE T&Cs OR HAVE ELECTED NOT TO DO SO, BUT REPRESENT THAT THEY FULLY UNDERSTAND THEIR RIGHTS AND OBLIGATIONS HEREUNDER

Company: _____

Signature: _____
Name: _____
Title:_____
Date: _____

Coterra Energy Inc.
CEMENT PROPOSAL #81465

Intermediate Proposal

Royal Oak 24 Fed Com #503H 30-025-54155
S:24 T:18S R:33E Lea NM

February 06, 2025

CEMENT PROPOSAL

Attention: Kyle Adamek | (660) 247-2024 | kyle@deepenergyllc.com
Coterra Energy Inc.
202 S. Cheyenne Ave Suite 1000 | Tulsa, OK 74103
February 06, 2025

Dear Kyle Adamek,

Thank you for the opportunity to submit pricing for cementing services on the attached wellbore. American Cementing's priority is to provide premium customer service while operating in a safe, efficient manner. If you have any questions regarding the proposal or services offered, please contact American Cementing at any time.

Sincerely,

Will Bautista
Sales | (432) 254-0261 | will.bautista@americancementing.com

Prepared By
Meseret Belayneh
Field Engineer III | (801) 513-8231 | meseret.belayneh@americancementing.com

Field Office 6165 W Murphy St, Odessa, TX 79763
Phone: (432) 208-6452

Disclaimer

1. Proposal is valid for 30 days
2. Proposal is for pricing purposes only; actual job procedure to be confirmed prior to job
3. American Cementing recommends proper hole conditioning prior to initiating cementing; please discuss procedures with your American Cementing representative
4. Applicable sales tax will be added to the final invoice
5. American Cementing's general terms and conditions are hereby incorporated into this Proposal

Well Information

Well Name: **Royal Oak 24 Fed Com #503H**
Well API: **30-025-54155**
Latitude: **32.727607**
Longitude: **-103.613680**
Section: **24**
Township: **18S**
Range: **33E**
County: **Lea, NM**

Job: Intermediate (Intermediate) - Well Information

Drilling Fluid Density: **10.00 lb/gal**
Drilling Fluid: **WBM**
Total Measured Depth: **5584 ft**
Total Vertical Depth: **5584 ft**
BHCT: **109 °F**
BHST: **130 °F**
Temperature Gradient: **0.90 °F/100ft**
Surface Temp: **80 °F**

Geometry

#	Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Grade	Thread	Top	Bottom	Excess (%)
1	Casing	Outer	13.375	12.615	54.50		n/a	0	1653	0.0
2	OpenHole	Outer		12.250			n/a	1653	4467	20.0
3	OpenHole	Outer		12.250			n/a	4467	5584	20.0
1	Casing	Inner	9.625	8.835	40.00		n/a	0	5584	0.0

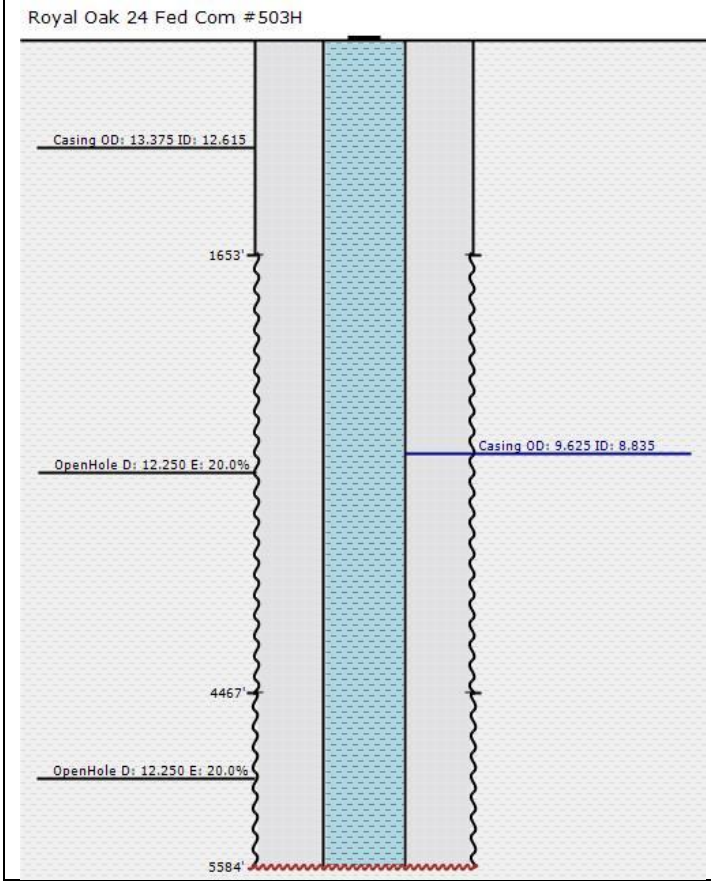
Capacities

Excess added to Capacity Factor

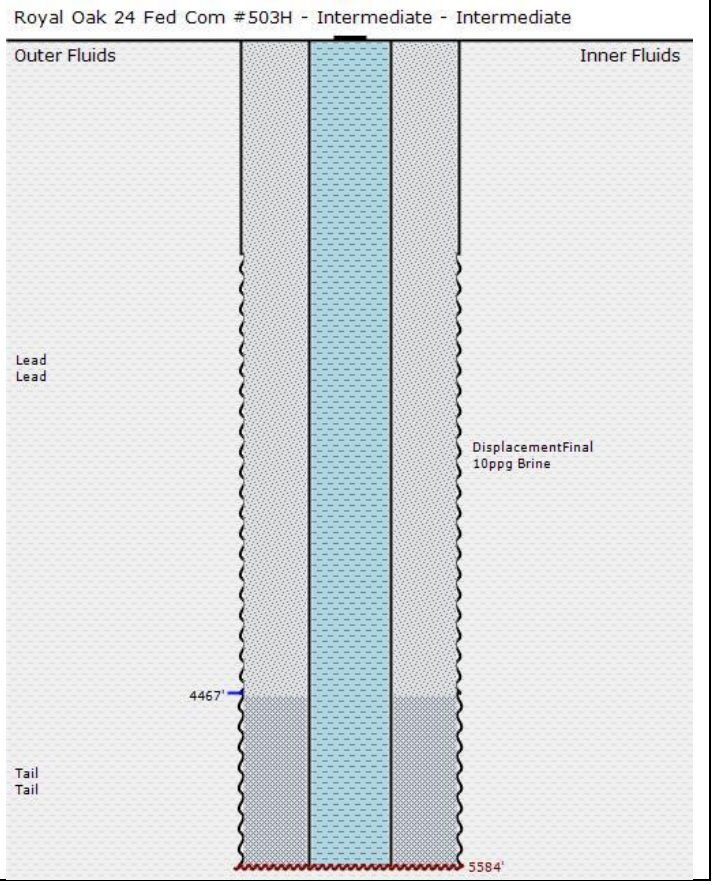
Type	TopDepth (ft)	Length (ft)	OD (in)	ID (in)	Capacity (bbl/ft)	Capacity ($ft^{3/ft}$)	Fill (ft/bbl)	Fill (ft/ft^{3})
DisplacementFinal	0	5499	8.835	0.000	0.0758	0.4257	13.19	2.35
ShoeJoint	5499	85	8.835	0.000	0.0758	0.4257	13.19	2.35
Casing to OpenHole	4467	1117	12.250	9.625	0.0669	0.3758	14.94	2.66
Casing to OpenHole	1653	2814	12.250	9.625	0.0669	0.3758	14.94	2.66
Casing to Casing	0	1653	12.615	9.625	0.0646	0.3627	15.48	2.76

Job: Intermediate (Intermediate) - Well & Fluid Diagrams

Well Diagram



Fluid Diagram



Job: Intermediate (Intermediate) - Material Information

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
1	Flush	Fresh Water	0.00	8.34	42.0	n/a		20.00

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
2	Lead	Lead	0.00	12.50	12.4	2.17	765	295.42
CEMENT, CLASS C, HSR - Cement - 100.000 %								
Cement Additive, Sodium Metasilicate A-2 - Accelerator - 2.000 %BWOB								
SALT,SODIUM CHLORIDE, A-5 - Accelerator - 3.000 %BWOW								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
RETARDER, R-7C - Retarder - 0.430 %BWOB								
ANTI STATIC ADDITIVE, STATIC FREE - Other - 0.005 lb/sk								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
3	Tail	Tail	4467.00	14.80	6.3	1.33	344	81.41
CEMENT, CLASS C, HSR - Cement - 100.000 %								
Cement Additive, Sodium Metasilicate A-2 - Accelerator - 0.250 %BWOB								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
RETARDER, R-7C - Retarder - 0.050 %BWOB								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
4	DisplacementFinal	10ppg Brine	0.00	8.34	42.0	n/a		417.00

Job: Intermediate (Intermediate) - Pump Schedule

Sequence	Type	Fluid	Density (lb/gal)	Pump Rate (bpm)	Volume (bbls)	Volume (sks)	Cum. Vol. (bbls)	Stage Time (min)	Cum. Time (min)
1	Flush	Fresh Water	8.34	5.00	20.00		20.00	4.00	4.00
2	Lead	Lead	12.50	5.00	295.42	765	315.42	59.08	63.08
3	Tail	Tail	14.80	5.00	81.41	344	396.83	16.28	79.36
4	DisplacementFinal	10ppg Brine	8.34	5.00	417.00		813.83	83.40	162.76

General Terms and Conditions

AMERICAN CEMENTING, LLC TERMS AND CONDITIONS

These Terms and Conditions (these "T&Cs") contain INDEMNIFICATION, LIMITATION OF LIABILITY AND RISK SHIFTING PROVISIONS. The provision of Work by American Cementing, LLC or its affiliated companies ("Contractor" or "American") to any person or entity placing an Order for such Work ("Company" or "Customer") is subject to these T&Cs. By requesting the Work, Company voluntarily elects to enter into and be bound by these T&Cs, and any Order for Work shall constitute acceptance of these T&Cs, *unless* Contractor and Company have entered into a Master Service Agreement or other agreement expressly accepted in writing by Contractor's authorized representative, in which case the terms and conditions of such agreements shall govern the provision of the Work and completely supersede these T&Cs in all respects.

1. DEFINITIONS. "Claims" means all claims, lawsuits, demands, causes of action, liabilities, damages (including punitive damages), judgments, awards, fines, penalties, losses, costs, expenses (including, without limitation, reasonable attorneys' fees, expert fees, and costs of litigation) of any kind or character, without limit, which arise out of or are related to the Work. "COMPANY GROUP" means (i) COMPANY, and any of its parent, subsidiary and affiliated or related entities; (ii) the working interest owners, co-owners, co-lessees, co-lessors, partners and joint venturers of (i); (iii) any person or entity with an economic interest or property rights in the well, premises or the property in relation to or upon which Work is performed; and (iv) the officers, directors, employees, shareholders, agents, representatives, contractors (except CONTRACTOR), subcontractors, consultants, and invitees of (i), (ii) and (iii) above. "CONTRACTOR GROUP" means (i) CONTRACTOR and any of its subsidiary and affiliated or related entities; and (ii) the officers, directors, employees, shareholders, agents, representatives, contractors, subcontractors, consultants, and invitees of all of the foregoing. "Order" means a written or verbal request for specific Work, including by way of a purchase order, work order, service order, work authorization, or similar instrument issued by COMPANY to CONTRACTOR, and which shall incorporate the pricing proposal submitted by CONTRACTOR for such Work. A request will be considered written if exchanges, whether by correspondence, letter, fax, or email include all material terms and conditions and they have been accepted or ratified by both COMPANY and CONTRACTOR; *provided, however*, if verbal, such request shall be confirmed in writing as soon as practicable, and the terms of the written Order shall control. "Work" means any cementing services and other related services provided by CONTRACTOR, along with all related personnel, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items used in connection with such services.

2. INDEPENDENT CONTRACTOR. This Agreement does not create any agency, partnership, joint venture, or similar business relationship between parties. COMPANY will have the right generally to oversee and inspect the performance of the Work to ensure the reasonable satisfactory completion thereof; it being understood and agreed that CONTRACTOR shall have exclusive control over the operational details of the Work.

3. PRICING AND PAYMENT. 3.1 COMPANY will pay CONTRACTOR for the Work according to the prices and rates contained the applicable Order; *provided, however*, that if there are no such prices and rates, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for the Work shall apply. The pricing proposals submitted by CONTRACTOR are generally valid sixty (60) days from submission of such proposal, unless otherwise set forth in such pricing proposal. Notwithstanding the foregoing, before commencing the Work and until an agreement is reached between the parties regarding such prices and rates, CONTRACTOR has the right to revise and shall advise COMPANY of any changes in the pricing proposal, and COMPANY may either accept or reject such changes, and proceed with the Work or not. **3.2** COMPANY shall pay CONTRACTOR's invoices within thirty (30) days of receipt of invoice. In the event COMPANY disputes any amount, it shall do so in good faith and shall notify CONTRACTOR of such dispute within thirty (30) days of receipt of invoice; *provided, however*, that COMPANY shall pay any undisputed portion of the invoice within the time for payment noted above and shall endeavor to expeditiously resolve such disputes. Any undisputed invoices, remaining unpaid for sixty (60) days after receipt by COMPANY, shall accrue interest at the rate of 1.5% per month or the maximum interest rate allowed by applicable law, whichever is less, through the time of collection. **3.3** Prices quoted by CONTRACTOR do not include sales, VAT, use or similar taxes, and such taxes, where applicable, shall be added to the quoted prices and invoiced accordingly. Each party shall pay all taxes levied or assessed by any governmental authority in connection with or incident to its performance under an Order; *provided, however,* that CONTRACTOR shall pay any assessments or taxes upon wages of CONTRACTOR, social security, unemployment insurance, old age benefits, or any other employment taxes, contributions or withholdings.

4. ORDERS; STANDARD OF PERFORMANCE; WARRANTIES. 4.1 COMPANY may from time to time place an Order for Work, and CONTRACTOR may provide such Work to COMPANY, subject to these T&Cs. Orders shall become binding only after signed or acknowledged by an authorized representative of each party. **4.2** CONTRACTOR shall provide all labor, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items required for the execution and completion of the Work, as more fully described in the applicable Order. **4.3** CONTRACTOR shall perform the Work with due diligence and care, in a good and workmanlike manner, using skilled, competent, experienced, and, where applicable, licensed personnel in accordance with the specifications represented by CONTRACTOR and with generally accepted oilfield practices. **4.4** CONTRACTOR shall conduct its Work, in all material respects, in accordance with all applicable laws, rules, regulations, decrees, and/or official government orders of any governing body having jurisdiction over the Work. **4.5** CONTRACTOR's Work is designed to operate under conditions normally encountered in a wellbore. COMPANY shall notify CONTRACTOR in advance and make special arrangements for Work in which hazardous or unusual conditions exist. COMPANY has complete care, custody, and control of the well, the premises around the well, and the drilling and production equipment of the well (other than such equipment provided by CONTRACTOR hereunder), and Company shall furnish directions and requirements for Work performed hereunder. CONTRACTOR is relying on COMPANY to provide such directions and requirements without further investigation by CONTRACTOR. CONTRACTOR agrees to observe and abide by COMPANY's safety policies and procedures communicated to and acknowledged by CONTRACTOR. CONTRACTOR shall as promptly as possible under the circumstances report to COMPANY's representative all accidents or occurrences resulting in injuries, illness or death to person(s) or damage to property, arising out of or occurring during the Work. **4.6** CONTRACTOR's sole liability, and COMPANY's exclusive remedy, for any Claims for breach of warranty under this Section 4 are limited to, at CONTRACTOR's sole option, (i) if practical, the re-performance of the defective Work or portion thereof, at no additional cost to COMPANY; or (ii) a refund or credit to COMPANY of any amount paid to CONTRACTOR for such defective Work or portion thereof. In the event that CONTRACTOR materially fails to perform the Work or if CONTRACTOR provides defective Work for reasons solely within CONTRACTOR's control, COMPANY shall give notice to CONTRACTOR of such non-performance or defective performance immediately upon discovery and prior to CONTRACTOR's departure from the worksite, otherwise such warranty Claim is waived. **4.7** Due to the nature of the Work to be performed in unpredictable wellbore conditions, CONTRACTOR does not warrant the accuracy, correctness, or completeness of any interpretations, analysis, recommendations, or advice, nor that COMPANY's or any third party's reliance on such interpretations, analysis, recommendations, or advice will accomplish any particular results, and which in any event are opinions only. Accordingly, it is COMPANY's responsibility, and sole risk, to determine the completion, well treatment, production, or financial decision involving any risk. Any outcomes that are less than expected will not relieve COMPANY of its responsibility to pay for the Work in accordance with these T&Cs. **4.8** THE WARRANTIES PROVIDED IN THIS SECTION 4 ARE THE SOLE AND EXCLUSIVE WARRANTIES RELATING TO THE WORK AND ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

5. ORDER CHANGES; PROJECT ADMINISTRATION. 5.1 COMPANY may ask for and CONTRACTOR may agree to variations in the Work, whether by way of addition, modification or omission, which variations shall be in writing and signed by authorized representatives of both parties. The value of any such variations shall be ascertained by reference to the prices and rates specified in the applicable Order for like or analogous Work; *provided, however,* that if there are no such prices and rates or if they are otherwise inapplicable, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for such additional Work shall apply. **5.2** To acknowledge or document various events during the provision of the Work, a party may from time to time sign the other party's forms, such as Orders, delivery tickets, job tickets, invoices, or similar instruments used by the parties in the normal course of business. In the event of a conflict between these T&Cs and any such documents, these T&Cs shall control, *unless* specific reference is made that these T&Cs are modified and the intention to modify is explicitly stated in such documents. **5.3** It is understood and agreed between the parties that COMPANY's representative (appointed in accordance with Section 5.4 below) shall have the authority to approve any job tickets, delivery tickets, or similar forms attesting to the completion of the Work by CONTRACTOR ("Job Tickets"). A COMPANY representative's signature on such Tickets shall indicate acceptance of the Work. If the Job Tickets are not acknowledged within forty-eight (48) hours of receipt through no fault of CONTRACTOR, CONTRACTOR may submit invoices for payment as if such Tickets had been acknowledged. **5.4** COMPANY will appoint a representative who will be responsible for the supervision of the Work, and who shall have full authority to represent and make decisions on behalf of COMPANY with respect to the Work, or otherwise to resolve the day-to-day issues which may arise related to the Work. Likewise, CONTRACTOR shall designate a representative with similar responsibilities and authority to liaise with COMPANY's representative.

6. CONTRACTOR'S EQUIPMENT. 6.1 Title to CONTRACTOR's equipment, including any lost, damaged, or confiscated equipment, shall remain in CONTRACTOR, and COMPANY shall have no right to assign, transfer, hypothecate, or remove such equipment from the place of its intended use without CONTRACTOR's prior written consent. **6.2** COMPANY shall be responsible for and agrees to compensate CONTRACTOR for all damages, losses, or any abnormal wear to CONTRACTOR GROUP's equipment: (i) while in COMPANY GROUP's care, custody or control, including while being transported by any member of COMPANY GROUP; (ii) as a result of operations conducted out of specifications at COMPANY GROUP's request, or in corrosive, abnormal temperatures or other

unusual conditions; (iii) due to fishing operations (if any); or (iv) if lost in the hole or damaged beyond repair while in the hole or used in the hole. COMPANY will replace such equipment or reimburse CONTRACTOR with the current replacement price of such equipment.

7. INDEMNITY.

7.1 Application of Indemnities. 7.1.1 In those matters in which a party is required by these T&Cs to RELEASE, DEFEND, PROTECT, INDEMNIFY, AND HOLD HARMLESS the other party and/or members of its respective Group, SUCH OBLIGATIONS SHALL, EXCEPT TO THE EXTENT EXPRESSLY PROVIDED OTHERWISE IN THESE T&CS, APPLY TO INDEMNITOR REGARDLESS OF THE CAUSE OR REASON, OR WHO MAY BE AT FAULT OR OTHERWISE RESPONSIBLE UNDER ANY CONTRACT, STATUTE, RULE, OR THEORY OF LAW, INCLUDING WITHOUT LIMITATION STRICT LIABILITY, TORT, BREACH OF DUTY (STATUTORY OR OTHERWISE), BREACH OF CONTRACT, BREACH OF REPRESENTATION OR WARRANTY, BREACH OF ANY SAFETY REQUIREMENT OR REGULATION, DUE TO ANY LATENT, PATENT, OR PRE-EXISTING DEFECTS OR CONDITIONS, IMPERFECTION OF MATERIAL, FAILURE OF EQUIPMENT, OR ANY LEGAL FAULT OR RESPONSIBILITY OF EITHER PARTY, INCLUDING THE SOLE, JOINT, AND/OR CONCURRENT NEGLIGENCE OR FAULT, WHETHER ACTIVE OR PASSIVE, OF THE INDEMNIFIED PARTY, OR OTHER PERSONS OR ENTITIES. **7.1.2** In the event these T&Cs are subject to the indemnity limitations in Chapter 127 of the Texas Civil Practice and Remedies Code (or any successor statute), and so long as such limitations are in force, each party covenants and agrees to support the mutual indemnity and release obligations contained herein by carrying insurance in an amount and of a type sufficient to cover their indemnity obligations**. 7.1.3** Notwithstanding any provisions in these T&Cs to the contrary, the following provision applies where Work is to be performed in New Mexico or Wyoming, as applicable: to the extent this Section 7 is governed by New Mexico or Wyoming law, then the provisions herein shall be read not to include indemnification for the indemnified party's own negligence. **7.1.4** If any defense, indemnity, or insurance provision contained in these T&Cs conflicts with, is prohibited by or violates public policy under any federal, state or other law determined to be applicable to a particular situation arising or involving these T&Cs, it is understood and agreed that the conflicting, prohibited or violating provision shall be deemed automatically amended in that situation to the extent—but only to the extent—necessary to conform with, not be prohibited by, and avoid violating public policy under such applicable law. The parties agree that the exculpatory, indemnification, and hold harmless provisions herein shall be modified or altered only insofar as required by a jurisdiction purporting to limit such provisions, it being the intention of both parties to enforce to the fullest extent, all terms and conditions herein agreed to.

7.2 CONTRACTOR's Indemnification. CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of CONTRACTOR GROUP, and any and all Claims for damage to or loss of any property of CONTRACTOR GROUP.

7.3 COMPANY's Indemnification. COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of COMPANY GROUP, and any and all Claims for damage to or loss of any property of COMPANY GROUP.

7.4 Pollution and Contamination; Catastrophic Damages or Losses. Notwithstanding each party's obligations pursuant to Sections 7.2 and 7.3 hereof, it is understood and agreed between the parties that the following additional terms shall apply: 7.4.1 (a) CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims arising from pollution or contamination, which originates above the surface of the land or water, and which shall directly result from or be caused by CONTRACTOR GROUP's equipment, vehicles, or other tools and instruments while in CONTRACTOR GROUP's sole care, custody or control, and shall assume all responsibility for control and removal of same; and (b) COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all pollution or contamination other than that described under Section 7.4.1 (a) above, and including but not limited to, that which may result from cratering, seepage or any other uncontrolled flow of oil, gas, water or other substance, and shall assume all responsibility for control and removal of same. 7.4.2 COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all catastrophic damages or losses, including but not limited to those on account of injury, destruction of, loss or impairment (i) of any formation, strata, or reservoir beneath the surface of the earth; (ii) of any property rights in or to oil, gas, or other mineral substance or water, or the quiet enjoyment thereof, including subsurface trespass; (iii) to the well or the hole, including its casing; (iv) from radioactive sources; and (v) from fire, explosion, blowout, or any other uncontrolled well conditions, and the cost of controlling or regaining control of a wild well or out of control well.

7.5 Incidental or Consequential Damages. Notwithstanding any provisions to the contrary in these T&Cs, neither party shall be liable to the other party for, and parties shall RELEASE, PROTECT, DEFEND, INDEMNIFY AND HOLD EACH OTHER HARMLESS from and against any special, punitive, indirect, incidental or consequential damages or losses suffered by the other party and its Group resulting from or arising, directly or indirectly, out of or in connection with the Work, including, without limitation, loss and/or deferral of production, loss of product, loss of use, loss of bargain, contract expectations, or opportunity to contract with others, loss of revenue, profit, or anticipated profit, loss of business, business interruption, or downtime, whether direct or indirect, and whether or not such loss was foreseeable at the time of placing of an Order.

8. INSURANCE. **8.1** CONTRACTOR and COMPANY agree, at their sole cost and expense, to procure and continuously maintain in full force and effect throughout the term of this Agreement the following insurance coverage which may be met by a combination of primary and excess/umbrella insurance: A. Statutory Workers' Compensation Insurance and Employer's Liability in the amount of $1,000,000 per occurrence and in the aggregate; B. Commercial General Liability insurance providing for third party property damage and personal injury, including broad form contractual liability for any agreement and broad form property damage in the amount of $1,000,000 per occurrence and $2,000,000 in the aggregate; C. Owned and Non-Owned Automobile Liability Insurance for bodily injury and property damage combined single limit in the amount of $1,000,000 per occurrence and in the aggregate; D. Excess/Umbrella Liability Insurance providing coverage in excess of the foregoing insurances in the amount of $5,000,000 per occurrence and in the aggregate, excluding statutory insurance coverage. **8.2** Each party agrees that, to the extent it assumes liability herein, it shall endorse the above coverages to name the indemnified parties as additional insureds (except for Workers' Compensation), shall waive its right of subrogation against the indemnified parties and their insurers, and agrees that its insurance shall be primary to that carried by the indemnified parties and non-contributory as per negligence for third party Claims, and shall not contribute in case of any Claim of exhaustion of horizontal limits. **8.3** Each party shall furnish an insurance certificate to the other to evidence the insurance required herein, and such certificates shall contain an endorsement stating that the insurer will endeavor to provide a thirty (30) days prior written notice of alteration or material change to such coverage. All deductible amounts, premiums, franchise amounts, or other charges due with respect to each party's required insurance should be the sole obligation of the insured party.

9. CONFIDENTIALITY. Each party contemplates that the other party may be provided and exposed to confidential and proprietary information ("Confidential Information"), which includes information relating to specifications of its tools, designs, inventions, component parts, parts list, software, firmware, hardware, processes, computer interfaces, operational parameters, and terms and pricing of Work. All Confidential Information shall remain the property of the party disclosing the same and no license is granted to the receiving party by virtue of the provision of such information. Confidential Information shall (i) be used by the recipient solely for the purpose of the provision of the Work and (ii) kept confidential and not disclosed to any person, except authorized representatives of the receiving Party, without written permission of the disclosing party. The receiving party shall take all reasonable steps to require its authorized representatives to keep such information confidential during and after the Work. Confidential Information shall not include information which: (i) at the time of placement of the Order is in the public domain or subsequently comes into the public domain through no fault of the receiving party and not in breach of these T&Cs; (ii) was already known to the receiving party on the date of disclosure, provided that such prior knowledge can be substantiated and proved by documentation; or (iii) properly and lawfully available to the receiving party from sources independent of the disclosing party.

10. INTELLECTUAL PROPERTY. While performing the Work, CONTRACTOR may utilize CONTRACTOR's intellectual property (including, without limitation, copyrights, registered marks, trademarks, service marks, patents, know-how, trade secrets, inventions, discoveries, techniques. technical information, technologies, designs, software, computer programs, formulae, calculations, computations, expertise, ideas, concepts, improvements, sketches, drawings, models, methods, practices, and/or processes, whether patentable or not) and/or develop, conceive, create, acquire, obtain, collect, generate, or make such additional intellectual property, which is and shall be CONTRACTOR's exclusive property. *Except if* expressly and specifically agreed in writing in a separate development agreement executed by the parties, and in exchange for appropriate payment, CONTRACTOR shall not develop any intellectual property for ownership by COMPANY in association with Work performed under a specific Order. Notwithstanding the foregoing, COMPANY or COMPANY GROUP shall own any intellectual property solely developed by COMPANY or COMPANY GROUP, respectively.

11. FORCE MAJEURE. 11.1 "Force Majeure" means (to the extent and only to the extent that any of the following are not reasonably within the control of the party claiming a Force Majeure and by the exercise of due diligence such party could not have mitigated, avoided, or overcome such condition) acts of God, fire, floods, lightning, blizzards, tornadoes, earthquakes, ice storms, named tropical storms and hurricanes, pandemics, terrorism, insurrection, revolution, war, strikes, lockouts, federal or state laws, rules and regulations of any governmental or public authorities having or asserting jurisdiction over the premises of either or both parties, inability to procure material due to industry wide shortages or soaring commodity costs, equipment, or necessary labor despite reasonable efforts, or similar causes. 11.2 If a party is rendered unable, wholly or in part, by a Force Majeure event to perform, that party will give written notice detailing such Force Majeure event to the other party as soon as reasonably possible. If a Force Majeure event continues without interruption for ten (10) days, either Party may cancel the applicable Order by giving prompt, written cancellation notice to the other party. Nothing in this Section 14.2 shall excuse COMPANY from its payment obligations of any invoices due and owing for Work performed under a specific Order.

12. LIMITATION OF LIABILITY. Notwithstanding anything to the contrary in these T&Cs, CONTRACTOR's liability arising from or in connection with its performance of the Work shall be limited to the value of the consideration paid to CONTRACTOR under the applicable Order.

13. GOVERNING LAW; VENUE. 13.1 For Work performed on a worksite within the **United States,** these T&Cs shall be exclusively governed by the laws of the **State of Texas**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction. Venue shall lie exclusively in the state or federal courts of Harris County, Texas, and the parties consent to personal

jurisdiction therein. **13.2** For Work performed on a worksite within **Canada,** these T&Cs shall be exclusively governed by the laws of **Province of Alberta**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction.

14. MISCELLANEOUS. 14.1 Notices. Notices shall be sent by registered post, or delivered in person, to the address for notices communicated by the other party. Said notices shall be deemed received (i) upon delivery if hand delivered, (ii) upon delivery if sent by registered post, and (iii) upon recipient's confirmation of receipt if faxed. **14.2 Waiver.** No benefit or right accruing to either party under these T&Cs shall be deemed to be waived unless the waiver is in writing, expressly refers to these T&Cs, and is signed by a duly authorized representative of both parties. A waiver in any one or more instances shall not constitute a continuing waiver, unless specifically so stated in the written waiver. **14.3 Severability.** In the event one or more of the provisions contained in these T&Cs shall be held, for any reason, to be invalid, void, illegal, contrary to law and/or unenforceable in any respect, these T&Cs shall be deemed to be amended to partially or completely modify such provision or portion thereof to the extent necessary to make it enforceable. If necessary, these T&Cs shall be deemed to be amended to delete the unenforceable provision or portion thereof, in which event such invalidity, illegality or unenforceability shall not affect the remaining provisions hereof, and these T&Cs shall remain unaffected and shall be construed as if such invalid, void, illegal or unenforceable provision never had been contained herein. **14.4 Independent Representation.** COMPANY AND CONTRACTOR ACKNOWLEDGE THAT THEY HAVE CONSULTED AN ATTORNEY CONCERNING THESE T&Cs OR HAVE ELECTED NOT TO DO SO, BUT REPRESENT THAT THEY FULLY UNDERSTAND THEIR RIGHTS AND OBLIGATIONS HEREUNDER

Company: _____

Signature: _____
Name: _____
Title:_____
Date: _____

Coterra Energy Inc.
CEMENT PROPOSAL #81473

Long String Proposal

Royal Oak 24 Fed Com #503H 30-025-54155
S:24 T:18S R:33E Lea NM

February 06, 2025

CEMENT PROPOSAL

Attention: Kyle Adamek | (660) 247-2024 | kyle@deepenergyllc.com
Coterra Energy Inc.
202 S. Cheyenne Ave Suite 1000 | Tulsa, OK 74103
February 06, 2025

Dear Kyle Adamek,

Thank you for the opportunity to submit pricing for cementing services on the attached wellbore. American Cementing's priority is to provide premium customer service while operating in a safe, efficient manner. If you have any questions regarding the proposal or services offered, please contact American Cementing at any time.

Sincerely,

Will Bautista
Sales | (432) 254-0261 | will.bautista@americancementing.com

Prepared By
Meseret Belayneh
Field Engineer III | (801) 513-8231 | meseret.belayneh@americancementing.com

Field Office 6165 W Murphy St, Odessa, TX 79763
Phone: (432) 208-6452

Disclaimer

1. Proposal is valid for 30 days
2. Proposal is for pricing purposes only; actual job procedure to be confirmed prior to job
3. American Cementing recommends proper hole conditioning prior to initiating cementing; please discuss procedures with your American Cementing representative
4. Applicable sales tax will be added to the final invoice
5. American Cementing's general terms and conditions are hereby incorporated into this Proposal

Well Information

Well Name: **Royal Oak 24 Fed Com #503H**
Well API: **30-025-54155**
Latitude: **32.727607**
Longitude: **-103.613680**
Section: **24**
Township: **18S**
Range: **33E**
County: **Lea, NM**

Job: Long String (Long String) - Well Information

Drilling Fluid Density: **9.20 lb/gal**
Drilling Fluid: **OBM**
Total Measured Depth: **19978 ft**
Total Vertical Depth: **9720 ft**
BHCT: **175 °F**
BHST: **175 °F**
Temperature Gradient: **0.98 °F/100ft**
Surface Temp: **80 °F**

Geometry

#	Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Grade	Thread	Top	Bottom	Excess (%)
1	Casing	Outer	9.625	8.835	40.00		n/a	0	5554	0.0
2	OpenHole	Outer		8.750			n/a	5554	9296	50.0
3	OpenHole	Outer		8.750			n/a	9296	19978	20.0
1	Casing	Inner	5.500	4.778	20.00		n/a	0	19978	0.0

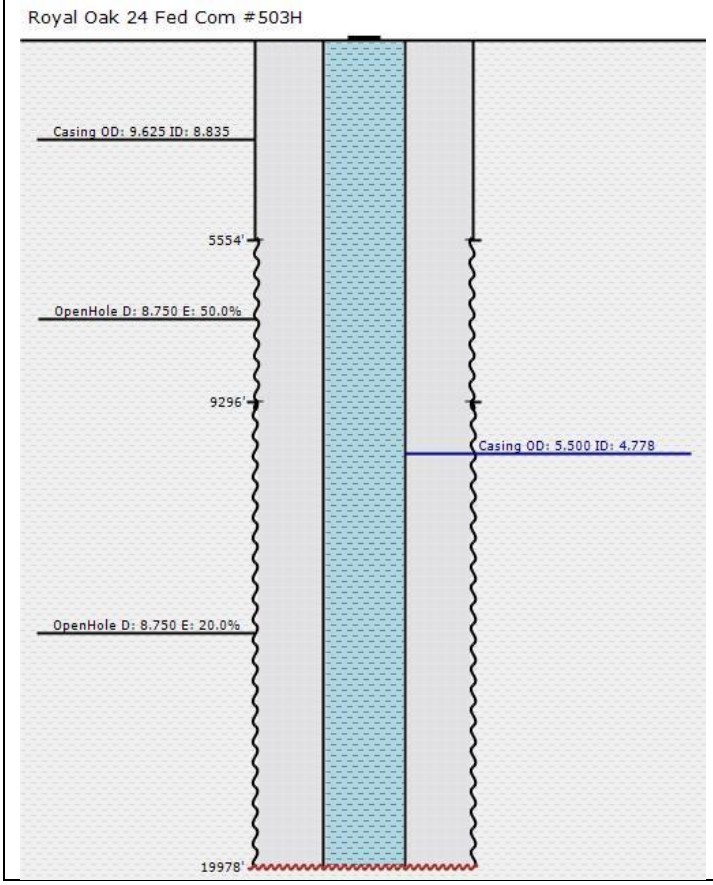
Capacities

Excess added to Capacity Factor

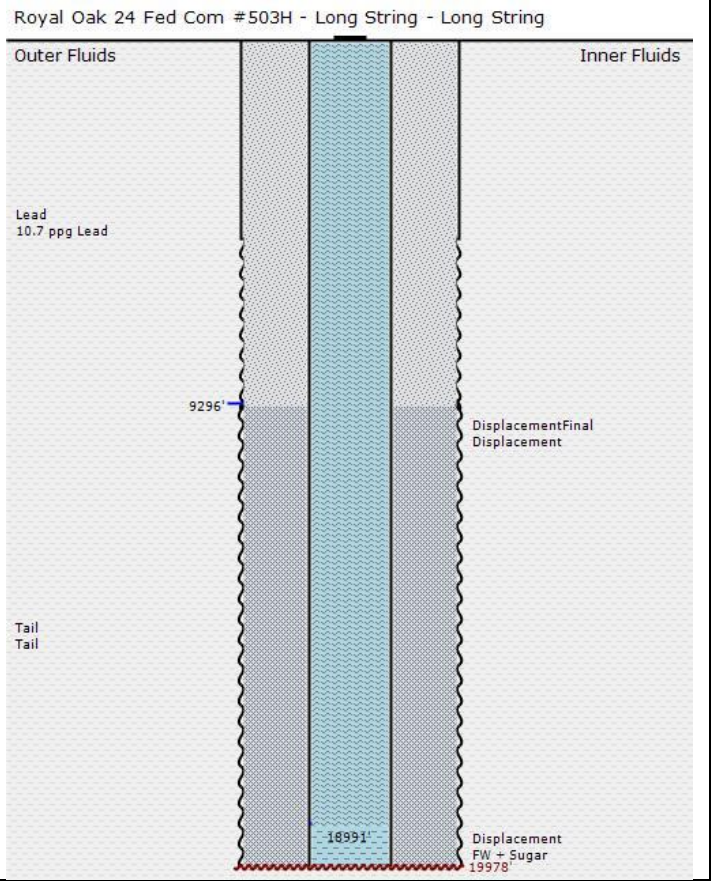
Type	TopDepth (ft)	Length (ft)	OD (in)	ID (in)	Capacity (bbl/ft)	Capacity ($ft^{3/ft}$)	Fill (ft/bbl)	Fill (ft/ft^{3})
DisplacementFinal	0	19893	4.778	0.000	0.0222	0.1245	45.09	8.03
ShoeJoint	19893	85	4.778	0.000	0.0222	0.1245	45.09	8.03
Casing to OpenHole	9296	10682	8.750	5.500	0.0540	0.3031	18.52	3.30
Casing to OpenHole	5554	3742	8.750	5.500	0.0675	0.3789	14.82	2.64
Casing to Casing	0	5554	8.835	5.500	0.0464	0.2607	21.53	3.84

Job: Long String (Long String) - Well & Fluid Diagrams

Well Diagram



Fluid Diagram



Job: Long String (Long String) - Material Information

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
1	Spacer	Spacer + LCM	0.00	9.70	38.5	n/a		40.00
WEIGHTING ADDITIVE, BARITE - Heavyweight - 65.072 lb/bbl								
IntegraSeal HOLD, ALOC-1212 - LostCirculation - 10.000 lb/bbl								
BIOSUITE GQ2510 - Biocide - 0.010 gal/bbl								
DYE, LIQUID, BLUE - Other - 0.050 gal/bbl								
CORROSION INHIBITORS, HS-2 - Other - 0.050 gal/bbl								
XCem-621 - Viscosifier - 10.000 lb/bbl								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
2	Lead	10.7 ppg Lead	0.00	10.70	24.5	3.92	732	510.88
CEMENT, CLASS C, HSR - Cement - 75.000 %								
CEMENT, FLY ASH (OTX1) - Extender - 25.000 %								
CEMENT EXTENDER, GYPSUM, A-10 - Accelerator - 5.000 %BWOB								
Cement Additive, Sodium Metasilicate A-2 - Accelerator - 2.000 %BWOB								
FLUID LOSS, AFL-533 - FluidLoss - 0.500 %BWOB								
Viscosifier, AVIS-617 - Viscosifier - 0.300 %BWOB								
BONDING AGENT, BA-95 - BondEnhancer - 15.000 lb/sk								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
RETARDER, R-21 - Retarder - 0.100 %BWOB								
RETARDER, R-7C - Retarder - 0.500 %BWOB								
DISPERSANT, XCem-403 - Dispersant - 0.100 %BWOB								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/sk)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
3	Tail	Tail	9296.00	14.80	4.9	1.16	2808	578.64
IntegraCem XTL, AEXT-1012 - Extender - 5.000 %								
CEMENT, CLASS H, HSR - Cement - 70.000 %								
CEMENT, FLY ASH (OTX1) - Extender - 25.000 %								
SALT,SODIUM CHLORIDE, A-5 - Accelerator - 3.000 %BWOW								
ANTI SETTLING, ASA-301 - Viscosifier - 0.150 %BWOB								
FLUID LOSS, FL-66 - FluidLoss - 0.700 %BWOB								
FOAM PREVENTER, FP-28L - Defoamer - 0.005 gal/sk								
RETARDER, R-3 - Retarder - 0.080 %BWOB								
DISPERSANT, XCem-403 - Dispersant - 0.700 %BWOB								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
4	Displacement	FW + Sugar	18991.00	8.36	41.8	n/a		20.00
RETARDER, SUGAR, GRANULAR - Retarder - 2.500 lb/bbl								

Pump Order	Type	Fluid	Fluid Top (ft)	Density (lb/gal)	Water Req. (gal/bbl)	Yield ($ft^{3/sk}$)	Proposed Volume (sks)	Proposed Volume (bbl)
5	DisplacementFinal	Displacement	0.00	8.34	41.9	n/a		422.00
BIOSUITE GQ2510 - Biocide - 0.010 gal/bbl								
CORROSION INHIBITORS, HS-2 - Other - 0.050 gal/bbl								

Job: Long String (Long String) - Pump Schedule

Sequence	Type	Fluid	Density (lb/gal)	Pump Rate (bpm)	Volume (bbls)	Volume (sks)	Cum. Vol. (bbls)	Stage Time (min)	Cum. Time (min)
1	Spacer	Spacer + LCM	9.70	5.00	40.00		40.00	8.00	8.00
2	Lead	10.7 ppg Lead	10.70	5.00	510.88	732	550.88	102.18	110.18
3	Tail	Tail	14.80	5.00	578.64	2808	1129.53	115.73	225.91
4	Displacement	FW + Sugar	8.36	5.00	20.00		1149.53	4.00	229.91
5	DisplacementFinal	Displacement	8.34	5.00	422.00		1571.53	84.40	314.31

General Terms and Conditions

AMERICAN CEMENTING, LLC TERMS AND CONDITIONS

These Terms and Conditions (these "T&Cs") contain INDEMNIFICATION, LIMITATION OF LIABILITY AND RISK SHIFTING PROVISIONS. The provision of Work by American Cementing, LLC or its affiliated companies ("Contractor" or "American") to any person or entity placing an Order for such Work ("Company" or "Customer") is subject to these T&Cs. By requesting the Work, Company voluntarily elects to enter into and be bound by these T&Cs, and any Order for Work shall constitute acceptance of these T&Cs, *unless* Contractor and Company have entered into a Master Service Agreement or other agreement expressly accepted in writing by Contractor's authorized representative, in which case the terms and conditions of such agreements shall govern the provision of the Work and completely supersede these T&Cs in all respects.

1. DEFINITIONS. "Claims" means all claims, lawsuits, demands, causes of action, liabilities, damages (including punitive damages), judgments, awards, fines, penalties, losses, costs, expenses (including, without limitation, reasonable attorneys' fees, expert fees, and costs of litigation) of any kind or character, without limit, which arise out of or are related to the Work. "COMPANY GROUP" means (i) COMPANY, and any of its parent, subsidiary and affiliated or related entities; (ii) the working interest owners, co-owners, co-lessees, co-lessors, partners and joint venturers of (i); (iii) any person or entity with an economic interest or property rights in the well, premises or the property in relation to or upon which Work is performed; and (iv) the officers, directors, employees, shareholders, agents, representatives, contractors (except CONTRACTOR), subcontractors, consultants, and invitees of (i), (ii) and (iii) above. "CONTRACTOR GROUP" means (i) CONTRACTOR and any of its subsidiary and affiliated or related entities; and (ii) the officers, directors, employees, shareholders, agents, representatives, contractors, subcontractors, consultants, and invitees of all of the foregoing. "Order" means a written or verbal request for specific Work, including by way of a purchase order, work order, service order, work authorization, or similar instrument issued by COMPANY to CONTRACTOR, and which shall incorporate the pricing proposal submitted by CONTRACTOR for such Work. A request will be considered written if exchanges, whether by correspondence, letter, fax, or email include all material terms and conditions and they have been accepted or ratified by both COMPANY and CONTRACTOR; *provided, however*, if verbal, such request shall be confirmed in writing as soon as practicable, and the terms of the written Order shall control. "Work" means any cementing services and other related services provided by CONTRACTOR, along with all related personnel, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items used in connection with such services.

2. INDEPENDENT CONTRACTOR. This Agreement does not create any agency, partnership, joint venture, or similar business relationship between parties. COMPANY will have the right generally to oversee and inspect the performance of the Work to ensure the reasonable satisfactory completion thereof; it being understood and agreed that CONTRACTOR shall have exclusive control over the operational details of the Work.

3. PRICING AND PAYMENT. 3.1 COMPANY will pay CONTRACTOR for the Work according to the prices and rates contained the applicable Order; *provided, however*, that if there are no such prices and rates, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for the Work shall apply. The pricing proposals submitted by CONTRACTOR are generally valid sixty (60) days from submission of such proposal, unless otherwise set forth in such pricing proposal. Notwithstanding the foregoing, before commencing the Work and until an agreement is reached between the parties regarding such prices and rates, CONTRACTOR has the right to revise and shall advise COMPANY of any changes in the pricing proposal, and COMPANY may either accept or reject such changes, and proceed with the Work or not. **3.2** COMPANY shall pay CONTRACTOR's invoices within thirty (30) days of receipt of invoice. In the event COMPANY disputes any amount, it shall do so in good faith and shall notify CONTRACTOR of such dispute within thirty (30) days of receipt of invoice; *provided, however*, that COMPANY shall pay any undisputed portion of the invoice within the time for payment noted above and shall endeavor to expeditiously resolve such disputes. Any undisputed invoices, remaining unpaid for sixty (60) days after receipt by COMPANY, shall accrue interest at the rate of 1.5% per month or the maximum interest rate allowed by applicable law, whichever is less, through the time of collection. **3.3** Prices quoted by CONTRACTOR do not include sales, VAT, use or similar taxes, and such taxes, where applicable, shall be added to the quoted prices and invoiced accordingly. Each party shall pay all taxes levied or assessed by any governmental authority in connection with or incident to its performance under an Order; *provided, however,* that CONTRACTOR shall pay any assessments or taxes upon wages of CONTRACTOR, social security, unemployment insurance, old age benefits, or any other employment taxes, contributions or withholdings.

4. ORDERS; STANDARD OF PERFORMANCE; WARRANTIES. 4.1 COMPANY may from time to time place an Order for Work, and CONTRACTOR may provide such Work to COMPANY, subject to these T&Cs. Orders shall become binding only after signed or acknowledged by an authorized representative of each party. **4.2** CONTRACTOR shall provide all labor, equipment, machinery, tools, supplies, materials, vehicles, facilities, consumables, goods, and any other items required for the execution and completion of the Work, as more fully described in the applicable Order. **4.3** CONTRACTOR shall perform the Work with due diligence and care, in a good and workmanlike manner, using skilled, competent, experienced, and, where applicable, licensed personnel in accordance with the specifications represented by CONTRACTOR and with generally accepted oilfield practices. **4.4** CONTRACTOR shall conduct its Work, in all material respects, in accordance with all applicable laws, rules, regulations, decrees, and/or official government orders of any governing body having jurisdiction over the Work. **4.5** CONTRACTOR's Work is designed to operate under conditions normally encountered in a wellbore. COMPANY shall notify CONTRACTOR in advance and make special arrangements for Work in which hazardous or unusual conditions exist. COMPANY has complete care, custody, and control of the well, the premises around the well, and the drilling and production equipment of the well (other than such equipment provided by CONTRACTOR hereunder), and Company shall furnish directions and requirements for Work performed hereunder. CONTRACTOR is relying on COMPANY to provide such directions and requirements without further investigation by CONTRACTOR. CONTRACTOR agrees to observe and abide by COMPANY's safety policies and procedures communicated to and acknowledged by CONTRACTOR. CONTRACTOR shall as promptly as possible under the circumstances report to COMPANY's representative all accidents or occurrences resulting in injuries, illness or death to person(s) or damage to property, arising out of or occurring during the Work. **4.6** CONTRACTOR's sole liability, and COMPANY's exclusive remedy, for any Claims for breach of warranty under this Section 4 are limited to, at CONTRACTOR's sole option, (i) if practical, the re-performance of the defective Work or portion thereof, at no additional cost to COMPANY; or (ii) a refund or credit to COMPANY of any amount paid to CONTRACTOR for such defective Work or portion thereof. In the event that CONTRACTOR materially fails to perform the Work or if CONTRACTOR provides defective Work for reasons solely within CONTRACTOR's control, COMPANY shall give notice to CONTRACTOR of such non-performance or defective performance immediately upon discovery and prior to CONTRACTOR's departure from the worksite, otherwise such warranty Claim is waived. **4.7** Due to the nature of the Work to be performed in unpredictable wellbore conditions, CONTRACTOR does not warrant the accuracy, correctness, or completeness of any interpretations, analysis, recommendations, or advice, nor that COMPANY's or any third party's reliance on such interpretations, analysis, recommendations, or advice will accomplish any particular results, and which in any event are opinions only. Accordingly, it is COMPANY's responsibility, and sole risk, to determine the completion, well treatment, production, or financial decision involving any risk. Any outcomes that are less than expected will not relieve COMPANY of its responsibility to pay for the Work in accordance with these T&Cs. **4.8** THE WARRANTIES PROVIDED IN THIS SECTION 4 ARE THE SOLE AND EXCLUSIVE WARRANTIES RELATING TO THE WORK AND ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

5. ORDER CHANGES; PROJECT ADMINISTRATION. 5.1 COMPANY may ask for and CONTRACTOR may agree to variations in the Work, whether by way of addition, modification or omission, which variations shall be in writing and signed by authorized representatives of both parties. The value of any such variations shall be ascertained by reference to the prices and rates specified in the applicable Order for like or analogous Work; *provided, however,* that if there are no such prices and rates or if they are otherwise inapplicable, then the prices and rates set forth in the pricing proposal submitted by CONTRACTOR for such additional Work shall apply. **5.2** To acknowledge or document various events during the provision of the Work, a party may from time to time sign the other party's forms, such as Orders, delivery tickets, job tickets, invoices, or similar instruments used by the parties in the normal course of business. In the event of a conflict between these T&Cs and any such documents, these T&Cs shall control, *unless* specific reference is made that these T&Cs are modified and the intention to modify is explicitly stated in such documents. **5.3** It is understood and agreed between the parties that COMPANY's representative (appointed in accordance with Section 5.4 below) shall have the authority to approve any job tickets, delivery tickets, or similar forms attesting to the completion of the Work by CONTRACTOR ("Job Tickets"). A COMPANY representative's signature on such Tickets shall indicate acceptance of the Work. If the Job Tickets are not acknowledged within forty-eight (48) hours of receipt through no fault of CONTRACTOR, CONTRACTOR may submit invoices for payment as if such Tickets had been acknowledged. **5.4** COMPANY will appoint a representative who will be responsible for the supervision of the Work, and who shall have full authority to represent and make decisions on behalf of COMPANY with respect to the Work, or otherwise to resolve the day-to-day issues which may arise related to the Work. Likewise, CONTRACTOR shall designate a representative with similar responsibilities and authority to liaise with COMPANY's representative.

6. CONTRACTOR'S EQUIPMENT. 6.1 Title to CONTRACTOR's equipment, including any lost, damaged, or confiscated equipment, shall remain in CONTRACTOR, and COMPANY shall have no right to assign, transfer, hypothecate, or remove such equipment from the place of its intended use without CONTRACTOR's prior written consent. **6.2** COMPANY shall be responsible for and agrees to compensate CONTRACTOR for all damages, losses, or any abnormal wear to CONTRACTOR GROUP's equipment: (i) while in COMPANY GROUP's care, custody or control, including while being transported by any member of COMPANY GROUP; (ii) as a result of operations conducted out of specifications at COMPANY GROUP's request, or in corrosive, abnormal temperatures or other

unusual conditions; (iii) due to fishing operations (if any); or (iv) if lost in the hole or damaged beyond repair while in the hole or used in the hole. COMPANY will replace such equipment or reimburse CONTRACTOR with the current replacement price of such equipment.

7. INDEMNITY.

7.1 Application of Indemnities. 7.1.1 In those matters in which a party is required by these T&Cs to RELEASE, DEFEND, PROTECT, INDEMNIFY, AND HOLD HARMLESS the other party and/or members of its respective Group, SUCH OBLIGATIONS SHALL, EXCEPT TO THE EXTENT EXPRESSLY PROVIDED OTHERWISE IN THESE T&CS, APPLY TO INDEMNITOR REGARDLESS OF THE CAUSE OR REASON, OR WHO MAY BE AT FAULT OR OTHERWISE RESPONSIBLE UNDER ANY CONTRACT, STATUTE, RULE, OR THEORY OF LAW, INCLUDING WITHOUT LIMITATION STRICT LIABILITY, TORT, BREACH OF DUTY (STATUTORY OR OTHERWISE), BREACH OF CONTRACT, BREACH OF REPRESENTATION OR WARRANTY, BREACH OF ANY SAFETY REQUIREMENT OR REGULATION, DUE TO ANY LATENT, PATENT, OR PRE-EXISTING DEFECTS OR CONDITIONS, IMPERFECTION OF MATERIAL, FAILURE OF EQUIPMENT, OR ANY LEGAL FAULT OR RESPONSIBILITY OF EITHER PARTY, INCLUDING THE SOLE, JOINT, AND/OR CONCURRENT NEGLIGENCE OR FAULT, WHETHER ACTIVE OR PASSIVE, OF THE INDEMNIFIED PARTY, OR OTHER PERSONS OR ENTITIES. **7.1.2** In the event these T&Cs are subject to the indemnity limitations in Chapter 127 of the Texas Civil Practice and Remedies Code (or any successor statute), and so long as such limitations are in force, each party covenants and agrees to support the mutual indemnity and release obligations contained herein by carrying insurance in an amount and of a type sufficient to cover their indemnity obligations**. 7.1.3** Notwithstanding any provisions in these T&Cs to the contrary, the following provision applies where Work is to be performed in New Mexico or Wyoming, as applicable: to the extent this Section 7 is governed by New Mexico or Wyoming law, then the provisions herein shall be read not to include indemnification for the indemnified party's own negligence. **7.1.4** If any defense, indemnity, or insurance provision contained in these T&Cs conflicts with, is prohibited by or violates public policy under any federal, state or other law determined to be applicable to a particular situation arising or involving these T&Cs, it is understood and agreed that the conflicting, prohibited or violating provision shall be deemed automatically amended in that situation to the extent—but only to the extent—necessary to conform with, not be prohibited by, and avoid violating public policy under such applicable law. The parties agree that the exculpatory, indemnification, and hold harmless provisions herein shall be modified or altered only insofar as required by a jurisdiction purporting to limit such provisions, it being the intention of both parties to enforce to the fullest extent, all terms and conditions herein agreed to.

7.2 CONTRACTOR's Indemnification. CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of CONTRACTOR GROUP, and any and all Claims for damage to or loss of any property of CONTRACTOR GROUP.

7.3 COMPANY's Indemnification. COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims for personal or bodily injury to, sickness, disease or death of any member of COMPANY GROUP, and any and all Claims for damage to or loss of any property of COMPANY GROUP.

7.4 Pollution and Contamination; Catastrophic Damages or Losses. Notwithstanding each party's obligations pursuant to Sections 7.2 and 7.3 hereof, it is understood and agreed between the parties that the following additional terms shall apply: 7.4.1 (a) CONTRACTOR shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD COMPANY GROUP HARMLESS from and against any and all Claims arising from pollution or contamination, which originates above the surface of the land or water, and which shall directly result from or be caused by CONTRACTOR GROUP's equipment, vehicles, or other tools and instruments while in CONTRACTOR GROUP's sole care, custody or control, and shall assume all responsibility for control and removal of same; and (b) COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all pollution or contamination other than that described under Section 7.4.1 (a) above, and including but not limited to, that which may result from cratering, seepage or any other uncontrolled flow of oil, gas, water or other substance, and shall assume all responsibility for control and removal of same. 7.4.2 COMPANY shall be liable for, and hereby agrees to RELEASE, DEFEND, PROTECT, INDEMNIFY AND HOLD CONTRACTOR GROUP HARMLESS from and against any and all Claims arising from any and all catastrophic damages or losses, including but not limited to those on account of injury, destruction of, loss or impairment (i) of any formation, strata, or reservoir beneath the surface of the earth; (ii) of any property rights in or to oil, gas, or other mineral substance or water, or the quiet enjoyment thereof, including subsurface trespass; (iii) to the well or the hole, including its casing; (iv) from radioactive sources; and (v) from fire, explosion, blowout, or any other uncontrolled well conditions, and the cost of controlling or regaining control of a wild well or out of control well.

7.5 Incidental or Consequential Damages. Notwithstanding any provisions to the contrary in these T&Cs, neither party shall be liable to the other party for, and parties shall RELEASE, PROTECT, DEFEND, INDEMNIFY AND HOLD EACH OTHER HARMLESS from and against any special, punitive, indirect, incidental or consequential damages or losses suffered by the other party and its Group resulting from or arising, directly or indirectly, out of or in connection with the Work, including, without limitation, loss and/or deferral of production, loss of product, loss of use, loss of bargain, contract expectations, or opportunity to contract with others, loss of revenue, profit, or anticipated profit, loss of business, business interruption, or downtime, whether direct or indirect, and whether or not such loss was foreseeable at the time of placing of an Order.

8. INSURANCE. **8.1** CONTRACTOR and COMPANY agree, at their sole cost and expense, to procure and continuously maintain in full force and effect throughout the term of this Agreement the following insurance coverage which may be met by a combination of primary and excess/umbrella insurance: A. Statutory Workers' Compensation Insurance and Employer's Liability in the amount of $1,000,000 per occurrence and in the aggregate; B. Commercial General Liability insurance providing for third party property damage and personal injury, including broad form contractual liability for any agreement and broad form property damage in the amount of $1,000,000 per occurrence and $2,000,000 in the aggregate; C. Owned and Non-Owned Automobile Liability Insurance for bodily injury and property damage combined single limit in the amount of $1,000,000 per occurrence and in the aggregate; D. Excess/Umbrella Liability Insurance providing coverage in excess of the foregoing insurances in the amount of $5,000,000 per occurrence and in the aggregate, excluding statutory insurance coverage. **8.2** Each party agrees that, to the extent it assumes liability herein, it shall endorse the above coverages to name the indemnified parties as additional insureds (except for Workers' Compensation), shall waive its right of subrogation against the indemnified parties and their insurers, and agrees that its insurance shall be primary to that carried by the indemnified parties and non-contributory as per negligence for third party Claims, and shall not contribute in case of any Claim of exhaustion of horizontal limits. **8.3** Each party shall furnish an insurance certificate to the other to evidence the insurance required herein, and such certificates shall contain an endorsement stating that the insurer will endeavor to provide a thirty (30) days prior written notice of alteration or material change to such coverage. All deductible amounts, premiums, franchise amounts, or other charges due with respect to each party's required insurance should be the sole obligation of the insured party.

9. CONFIDENTIALITY. Each party contemplates that the other party may be provided and exposed to confidential and proprietary information ("Confidential Information"), which includes information relating to specifications of its tools, designs, inventions, component parts, parts list, software, firmware, hardware, processes, computer interfaces, operational parameters, and terms and pricing of Work. All Confidential Information shall remain the property of the party disclosing the same and no license is granted to the receiving party by virtue of the provision of such information. Confidential Information shall (i) be used by the recipient solely for the purpose of the provision of the Work and (ii) kept confidential and not disclosed to any person, except authorized representatives of the receiving Party, without written permission of the disclosing party. The receiving party shall take all reasonable steps to require its authorized representatives to keep such information confidential during and after the Work. Confidential Information shall not include information which: (i) at the time of placement of the Order is in the public domain or subsequently comes into the public domain through no fault of the receiving party and not in breach of these T&Cs; (ii) was already known to the receiving party on the date of disclosure, provided that such prior knowledge can be substantiated and proved by documentation; or (iii) properly and lawfully available to the receiving party from sources independent of the disclosing party.

10. INTELLECTUAL PROPERTY. While performing the Work, CONTRACTOR may utilize CONTRACTOR's intellectual property (including, without limitation, copyrights, registered marks, trademarks, service marks, patents, know-how, trade secrets, inventions, discoveries, techniques. technical information, technologies, designs, software, computer programs, formulae, calculations, computations, expertise, ideas, concepts, improvements, sketches, drawings, models, methods, practices, and/or processes, whether patentable or not) and/or develop, conceive, create, acquire, obtain, collect, generate, or make such additional intellectual property, which is and shall be CONTRACTOR's exclusive property. *Except if* expressly and specifically agreed in writing in a separate development agreement executed by the parties, and in exchange for appropriate payment, CONTRACTOR shall not develop any intellectual property for ownership by COMPANY in association with Work performed under a specific Order. Notwithstanding the foregoing, COMPANY or COMPANY GROUP shall own any intellectual property solely developed by COMPANY or COMPANY GROUP, respectively.

11. FORCE MAJEURE. 11.1 "Force Majeure" means (to the extent and only to the extent that any of the following are not reasonably within the control of the party claiming a Force Majeure and by the exercise of due diligence such party could not have mitigated, avoided, or overcome such condition) acts of God, fire, floods, lightning, blizzards, tornadoes, earthquakes, ice storms, named tropical storms and hurricanes, pandemics, terrorism, insurrection, revolution, war, strikes, lockouts, federal or state laws, rules and regulations of any governmental or public authorities having or asserting jurisdiction over the premises of either or both parties, inability to procure material due to industry wide shortages or soaring commodity costs, equipment, or necessary labor despite reasonable efforts, or similar causes. 11.2 If a party is rendered unable, wholly or in part, by a Force Majeure event to perform, that party will give written notice detailing such Force Majeure event to the other party as soon as reasonably possible. If a Force Majeure event continues without interruption for ten (10) days, either Party may cancel the applicable Order by giving prompt, written cancellation notice to the other party. Nothing in this Section 14.2 shall excuse COMPANY from its payment obligations of any invoices due and owing for Work performed under a specific Order.

12. LIMITATION OF LIABILITY. Notwithstanding anything to the contrary in these T&Cs, CONTRACTOR's liability arising from or in connection with its performance of the Work shall be limited to the value of the consideration paid to CONTRACTOR under the applicable Order.

13. GOVERNING LAW; VENUE. 13.1 For Work performed on a worksite within the **United States,** these T&Cs shall be exclusively governed by the laws of the **State of Texas**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction. Venue shall lie exclusively in the state or federal courts of Harris County, Texas, and the parties consent to personal

jurisdiction therein. **13.2** For Work performed on a worksite within **Canada,** these T&Cs shall be exclusively governed by the laws of **Province of Alberta**, excluding any conflict of laws principle that would refer to the laws of another jurisdiction.

14. MISCELLANEOUS. 14.1 Notices. Notices shall be sent by registered post, or delivered in person, to the address for notices communicated by the other party. Said notices shall be deemed received (i) upon delivery if hand delivered, (ii) upon delivery if sent by registered post, and (iii) upon recipient's confirmation of receipt if faxed. **14.2 Waiver.** No benefit or right accruing to either party under these T&Cs shall be deemed to be waived unless the waiver is in writing, expressly refers to these T&Cs, and is signed by a duly authorized representative of both parties. A waiver in any one or more instances shall not constitute a continuing waiver, unless specifically so stated in the written waiver. **14.3 Severability.** In the event one or more of the provisions contained in these T&Cs shall be held, for any reason, to be invalid, void, illegal, contrary to law and/or unenforceable in any respect, these T&Cs shall be deemed to be amended to partially or completely modify such provision or portion thereof to the extent necessary to make it enforceable. If necessary, these T&Cs shall be deemed to be amended to delete the unenforceable provision or portion thereof, in which event such invalidity, illegality or unenforceability shall not affect the remaining provisions hereof, and these T&Cs shall remain unaffected and shall be construed as if such invalid, void, illegal or unenforceable provision never had been contained herein. **14.4 Independent Representation.** COMPANY AND CONTRACTOR ACKNOWLEDGE THAT THEY HAVE CONSULTED AN ATTORNEY CONCERNING THESE T&Cs OR HAVE ELECTED NOT TO DO SO, BUT REPRESENT THAT THEY FULLY UNDERSTAND THEIR RIGHTS AND OBLIGATIONS HEREUNDER

Company: _____

Signature: _____
Name: _____
Title:_____
Date: _____

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

Operator: Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202	OGRID: 330396
	Action Number: 431505
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	If cement is not circulated to surface during cementing operations, a Cement Bond Log (CBL) is required.	2/14/2025
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing.	2/14/2025