

Well Name: ROYAL OAK 25 FED COM	Well Location: T18S / R33E / SEC 24 / SWSE / 32.727607 / -103.613615	County or Parish/State: LEA / NM
Well Number: 603H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM116166	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002554157	Operator: AVANT OPERATING LLC	

Notice of Intent

Sundry ID: 2835877

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 02/07/2025	Time Sundry Submitted: 10:59
Date proposed operation will begin: 02/07/2025	

Procedure Description: Avant Operating, LLC would like to make the following changes to the Royal Oak 603H well (API #30-025-54157). Name change from the Royal Oak 25 Fed Com 603H to the Royal Oak 25 fed Com 512H. SHL change from 603' FSL & 1730' FEL to 603' FSL & 1770' FEL. BHL change from 100' FSL & 1650' FEL to 100' FSL & 2178' FEL. Target change from 3BS to 2BS. Please see attached updated drilling info to reflect these changes.

NOI Attachments

Procedure Description

Royal_Oak_24_Fed_Com_512H_APD_Change_Attachments_20250207103304.pdf

Received by OCD: 2/12/2025 3:47:09 PM

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Lease Number: NMNM116166	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002554157	Operator: AVANT OPERATING LLC	

Conditions of Approval

Additional

25_18_33_B_Sundry_ID_2835877_Royal_Oak_25_Fed_Com_512H_Lea_NM116166_AVANT_OPERATING_LLC_13_22g_2_27_2024_LV_20250211123343.pdf

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 10:59 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.		5. Lease Serial No.
		6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2		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
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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 recompleate 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 OFFICE 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 of this form to U.S. Department of the Interior, Bureau of Land 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 / 1730 FEL / TWSP: 18S / RANGE: 33E / SECTION: 24 / LAT: 32.727607 / LONG: -103.613615 (TVD: 0 feet, MD: 0 feet)

PPP: NESE / 2639 FNL / 1651 FEL / TWSP: 18S / RANGE: 33E / SECTION: 25 / LAT: 32.718697 / LONG: -103.613344 (TVD: 10196 feet, MD: 13037 feet)

PPP: NWNE / 100 FNL / 1650 FEL / TWSP: 18S / RANGE: 33E / SECTION: 25 / LAT: 32.725676 / LONG: -103.613353 (TVD: 10196 feet, MD: 10498 feet)

BHL: SWSE / 100 FSL / 1650 FEL / TWSP: 18S / RANGE: 33E / SECTION: 36 / LAT: 32.697203 / LONG: -103.61332 (TVD: 10196 feet, MD: 20430 feet)

CONFIDENTIAL

25-18-33-B Sundry ID 2835877 Royal Oak 25 Fed Com 512H Lea NM116166 AVANT OPERATING LLC 13-22g 2-27-2024 LV

Royal Oak 25 Fed Com 512H

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	1	1,720	4	1.80	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	1519	2M			2.06	
Site plot (pipe racks 3 or 4) as per O.D. 1.38, D.3.1, not found														

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	1.3	0.86	4,000	1	1.55	2.35	160,000
"B"	40.00		hcl 80	ltc	13.21	1.54	1.25	1,584	2	2.26	2.78	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	9.50	2544	3M	0.81			
r D V Tool(s):								sum of sx	Σ CuFt	Σ% excess		
t by stage % :								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	3.45	2.42	2.75	19,554	3	4.97	4.36	391,080	
"B"								0				0	
"C"								0				0	
"D"								0				0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,046								Totals:	19,554				391,080
The cement volume(s) are intended to achieve a top of								3800	ft from surface or a		1784	overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE			Min Dist Hole-Cplg		
8 3/4	0.2526	3498	5962	3994	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 Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE			Min Dist Hole-Cplg
0		#N/A	#N/A	0	#N/A						
#N/A Capitan Reef est top XXXX.											

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

WELL LOCATION INFORMATION

API Number 30-025-54157	Pool Code 21650	Pool Name E-K; BONE SPRING
Property Code 335845	Property Name ROYAL OAK 24 FED COM	Well Number 512H
OGRID No. 330396	Operator Name AVANT OPERATING, LLC	Ground Level Elevation 3907.3
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	1770 FEL	32.7276060° N	103.6137451° W	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
O	36	18 S	33 E		100 FSL	2178 FEL	32.6971978° N	103.6150363° W	LEA

Dedicated Acres 1280	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N) No	Consolidation Code
Order Numbers. R-23452			Well setbacks are under Common Ownership: ☐ Yes ☒ No	

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
B	25	18 S	33 E		50 FNL	2178 FEL	32.7258076° N	103.6150696° W	LEA

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
B	25	18 S	33 E		100 FNL	2178 FEL	32.7256702° N	103.6150694° W	LEA

Last Take Point (LTP)

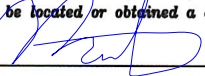
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
O	36	18 S	33 E		100 FSL	2178 FEL	32.6971978° N	103.6150363° W	LEA

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

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is vertical or directional well, that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

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

Signature  Date 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.



Signature and Seal of Professional Surveyor

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

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

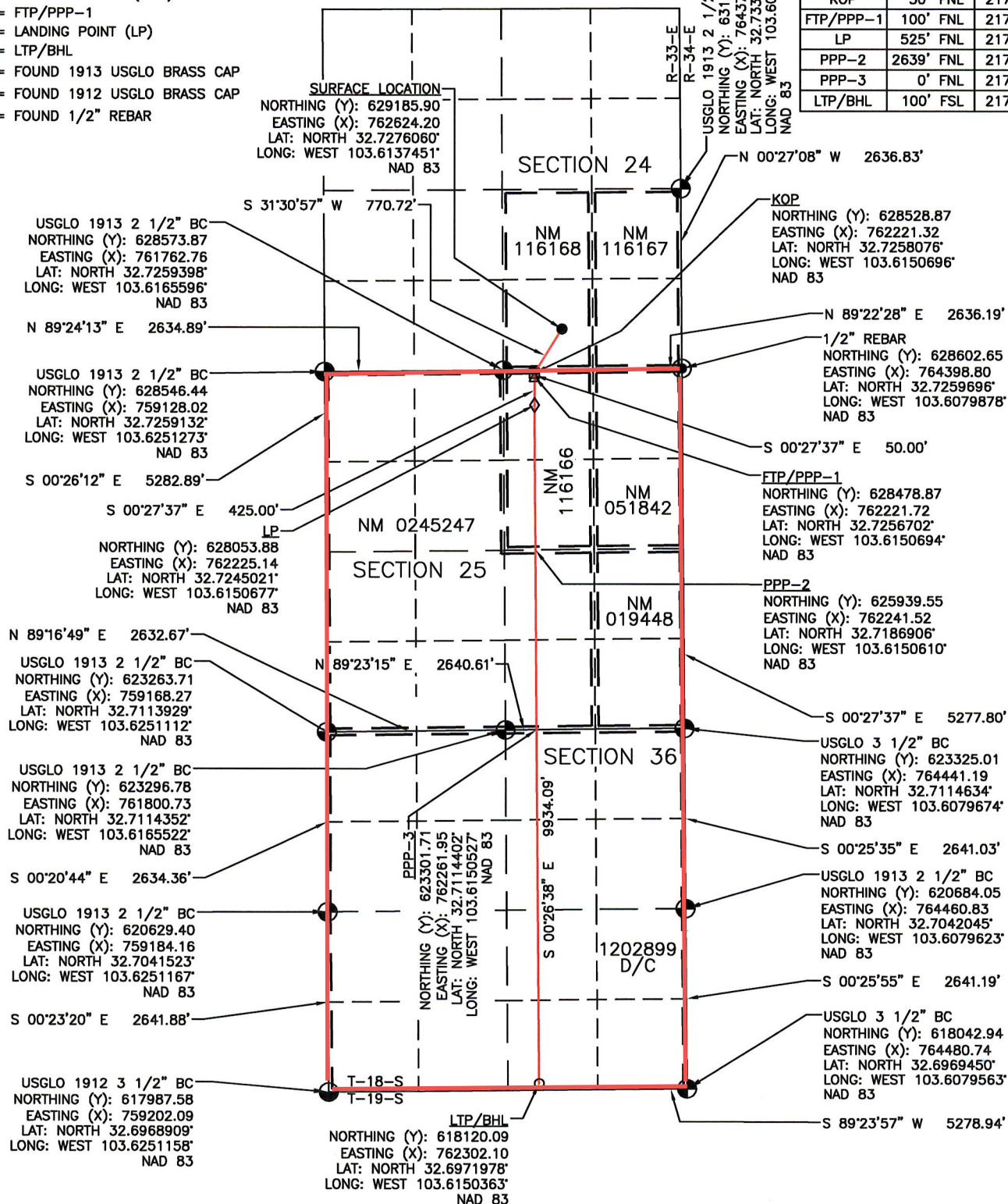
UFSI PROJECT NO. 11721

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 512H			
FOOTAGES			SEC.
SHL	603' FSL	1770' FEL	24
KOP	50' FNL	2178' FEL	25
FTP/PPP-1	100' FNL	2178' FEL	25
LP	525' FNL	2178' FEL	25
PPP-2	2639' FNL	2179' FEL	25
PPP-3	0' FNL	2179' FEL	36
LTP/BHL	100' FSL	2178' FEL	36



AFE: NM1048

API:

REGULATORY: NMOCD

PERMIT #



Royal Oak 24 Fed Com 512H

Bone Springs
Lea County, NM

RIG: H&P 460

KB: 3933.5 (26.5')

GL: 3907'

CAMERON WELLHEAD

13" x 7-1/16" NOM

SHL:

Sec. 24, T-18S, R-33E; 603 FSL, 1770 FEL

Lat: 32.727606, Long: -103.6137451 (NAD83)

HOLE SIZE	MD	FORMATION	TVD	MUD	CASING	CEMENT	SPECIAL INSTRUCTIONS
	120	20" Conductor	120	SPUD MW	13 3/8 "	LEAD: 12.8 PPG Top of Lead: 0 50% Excess	Circ cement to surface is a NMOCD requirement
17 1/2 "				8.4 ppg	54.5# J-55 LTC		
	1,628	Rustler	1,628	Fresh	+/- 13 Bowsprings	TAIL: 14.8 PPG Top of Tail: 1322.4'	Casing must be set 25' into the Rustler
	1,653	SURF CSG PT	1,653	9 ppg	1 joint shoe track	20% Excess	MUD: Fresh water only
12 1/4 "	1,951	Solado	1,951	DRLOUT MW	9 5/8 "	LEAD: 12.5 PPG Top of Lead: 0' 50% excess	Circ cement to surface is a NMOCD requirement
	3,653	Yates	3,641	9.5 ppg	40# J-55 LTC		
				Brine	0' - 4000'	TAIL: 14.8 PPG Top of Tail: 4467'	
				TD MW	40# L-80 HC LTC	20% Excess	
8 3/4 " VERTICAL	5,584	INTRM CSG PT	5,554	9.5 ppg	+/- 9 Bowsprings		
	5,684	Cherry Canyon	5,654	DRLOUT MW			
	7,279	Brushy Canyon	7,236	9.2 ppg			
	8,363	Avalon	8,313	Cut Brine			
	8,842	1st BS Sand	8,792	KOP MW			
8 3/4 " CURVE	8,872	KOP	9,003	9.5 ppg	EOC MW		
	9,586	2nd BS Sand	9,432	OBM	9.5	Lat MW 9.5 ppg	
	9,622	EOC	9,300			OBM	
8 3/4 " LATERAL						TD MW 9.5 ppg	
DIRECTIONAL PLAN				5 1/2 "			
MD	INC	INC	TVD	ANNOTATION	20# P-110 HC GBCD	LEAD: 10.7 PPG Top of Lead: 0 50% Excess	Expected BH Pressure 4464 psi
					1 15' pup joints	TAIL: 14.8 PPG Top of Tail: 8872 20% Excess	
					2 20' Marker Jts		
					+/- 27 Bowsprings	All aqueous fluids (spacer and disp) left inside or outside of pipe must have biocide & corrosion inhibitor	
					+/- 27 Doublebows		
					+/- 236 Solid Bodies		

Preliminary

DIRECTIONS TO LOCAITON:



Coterra Energy Inc. CEMENT PROPOSAL #81442

Surface Proposal

Royal Oak 24 Fed Com 512H 30-025-53264
S:25 T:18S R:33E Lea NM

February 06, 2025



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



Surface Proposal

Well Information

Well Name: **Royal Oak 24 Fed Com 512H**

Well API: **30-025-53264**

Latitude: **32.725074**

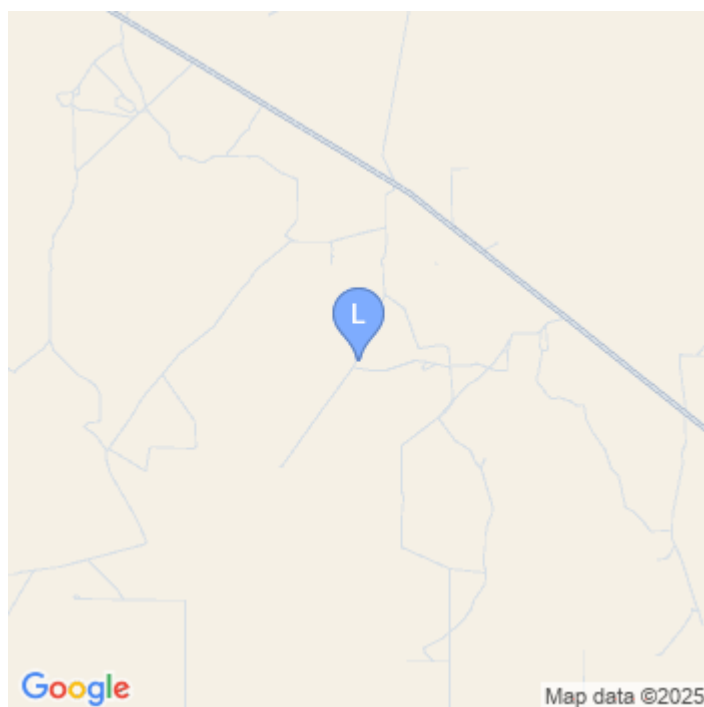
Longitude: **-103.612799**

Section: **25**

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

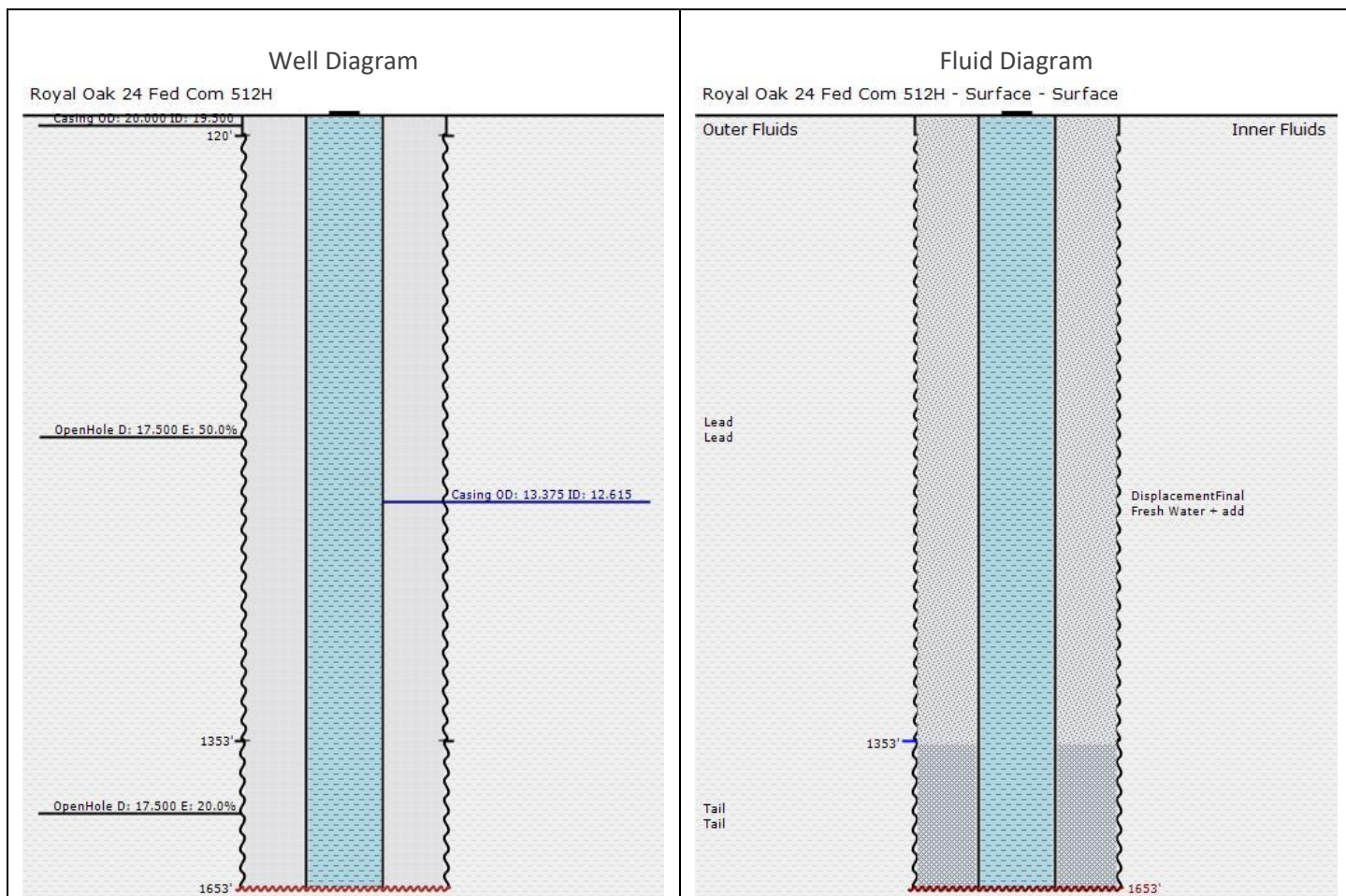
Excess added to Capacity Factor

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



Surface Proposal

Job: Surface (Surface) - Well & Fluid Diagrams





Surface Proposal

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



Surface Proposal

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 any and all 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 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 11.2 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



Surface Proposal

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 #81463

Intermediate Proposal

Royal Oak 24 Fed Com 512H 30-025-53264
S:25 T:18S R:33E Lea NM

February 06, 2025



Intermediate 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



Intermediate Proposal

Well Information

Well Name: **Royal Oak 24 Fed Com 512H**

Well API: **30-025-53264**

Latitude: **32.725074**

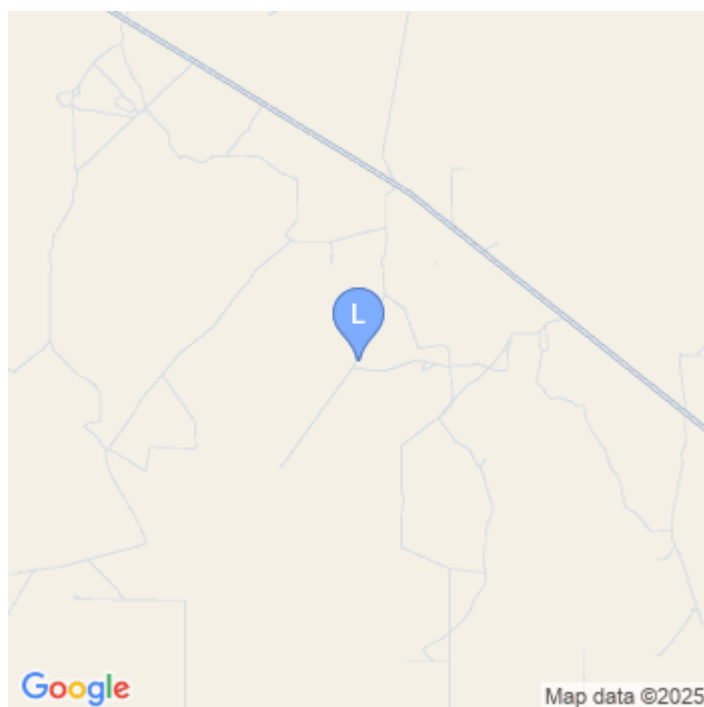
Longitude: **-103.612799**

Section: **25**

Township: **18S**

Range: **33E**

County: **Lea, NM**





Intermediate Proposal

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

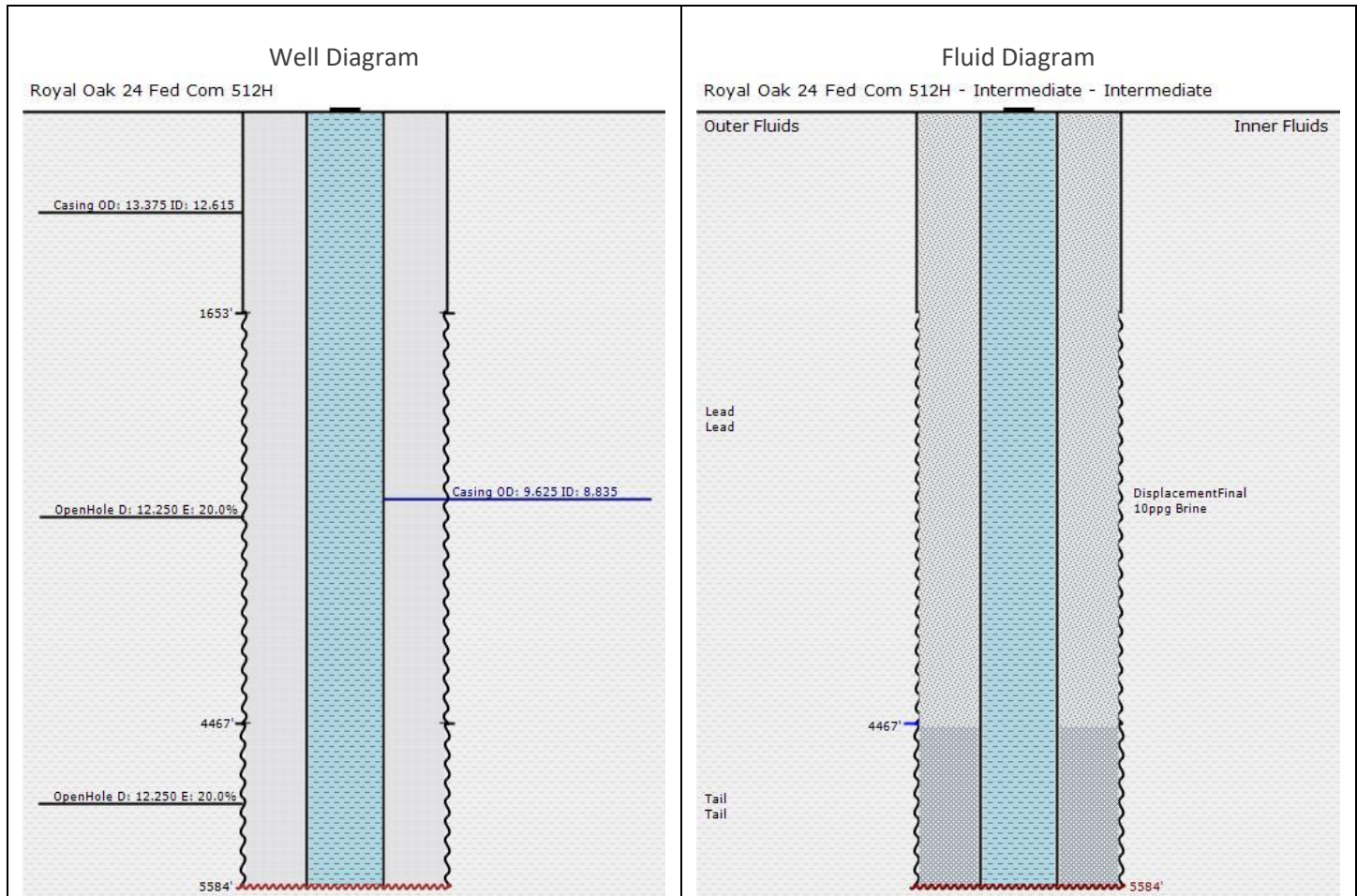
Excess added to Capacity Factor

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



Intermediate Proposal

Job: Intermediate (Intermediate) - Well & Fluid Diagrams





Intermediate Proposal

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



Intermediate Proposal

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 any and all 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 11.2 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



Intermediate Proposal

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 #81472

Long String Proposal

Royal Oak 24 Fed Com 512H 30-025-53264
S:25 T:18S R:33E Lea NM

February 06, 2025



Long String 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 512H**

Well API: **30-025-53264**

Latitude: **32.725074**

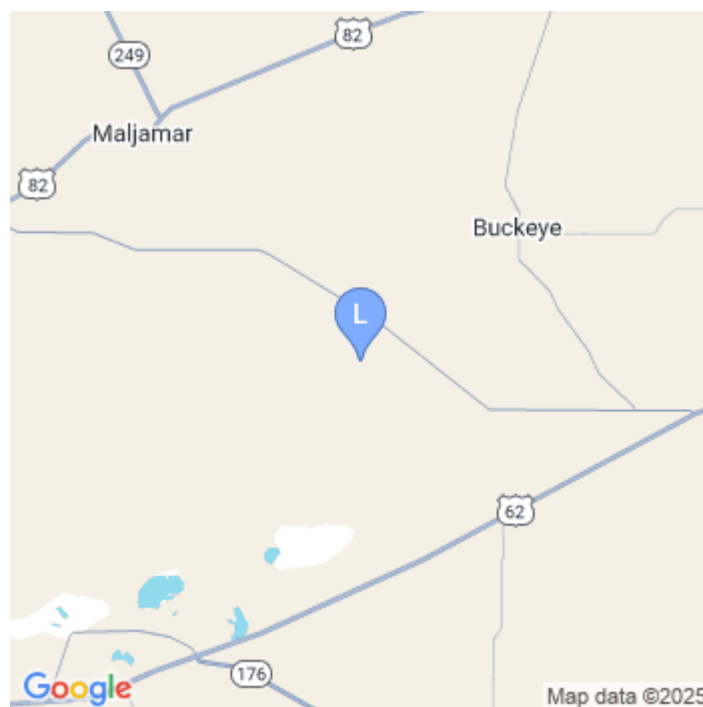
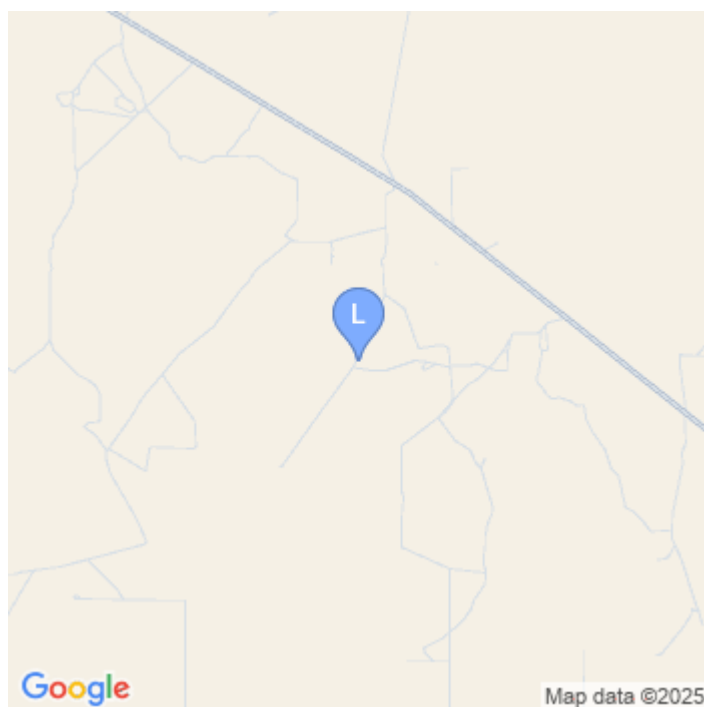
Longitude: **-103.612799**

Section: **25**

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: **19554 ft**
 Total Vertical Depth: **9300 ft**
 BHCT: **171 °F**
 BHST: **171 °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	5584	0.0
2	OpenHole	Outer		8.750			n/a	5584	8872	50.0
3	OpenHole	Outer		8.750			n/a	8872	19554	20.0
1	Casing	Inner	5.500	4.778	20.00		n/a	0	19554	0.0

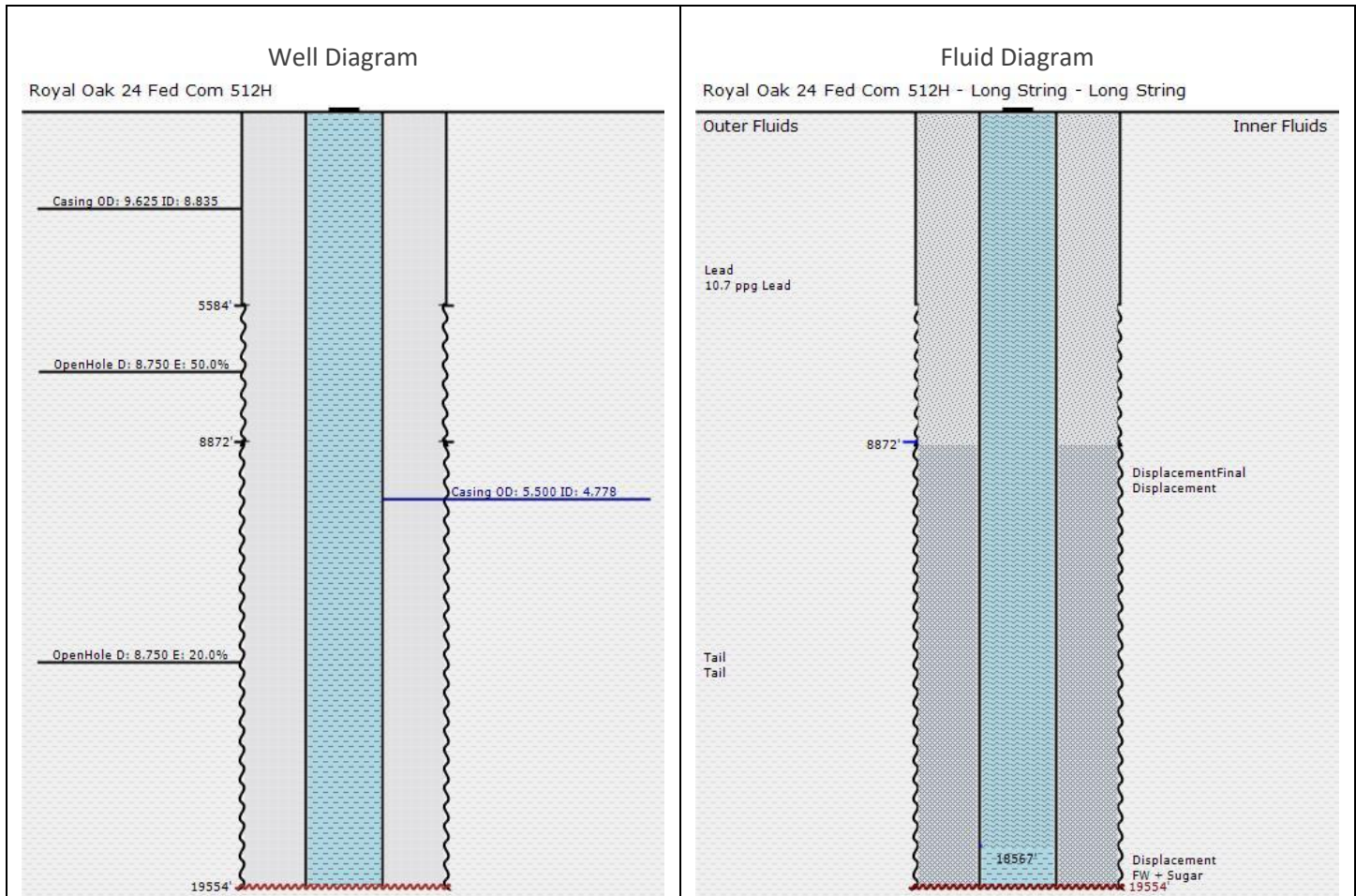
Capacities

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	19469	4.778	0.000	0.0222	0.1245	45.09	8.03
ShoeJoint	19469	85	4.778	0.000	0.0222	0.1245	45.09	8.03
Casing to OpenHole	8872	10682	8.750	5.500	0.0540	0.3031	18.52	3.30
Casing to OpenHole	5584	3288	8.750	5.500	0.0675	0.3789	14.82	2.64
Casing to Casing	0	5584	8.835	5.500	0.0464	0.2607	21.53	3.84



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





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	690	481.57

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	8872.00	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	18567.00	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		412.00

BIOSUITE GQ2510 - Biocide - 0.010 gal/bbl

CORROSION INHIBITORS, HS-2 - Other - 0.050 gal/bbl



Long String Proposal

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	481.57	690	521.57	96.31	104.31
3	Tail	Tail	14.80	5.00	578.64	2808	1100.22	115.73	220.04
4	Displacement	FW + Sugar	8.36	5.00	20.00		1120.22	4.00	224.04
5	DisplacementFinal	Displacement	8.34	5.00	412.00		1532.22	82.40	306.44



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



Long String Proposal

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 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 11.2 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



Long String Proposal

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: _____

WELL DETAILS: Royal Oak 24 Fed Com 512H

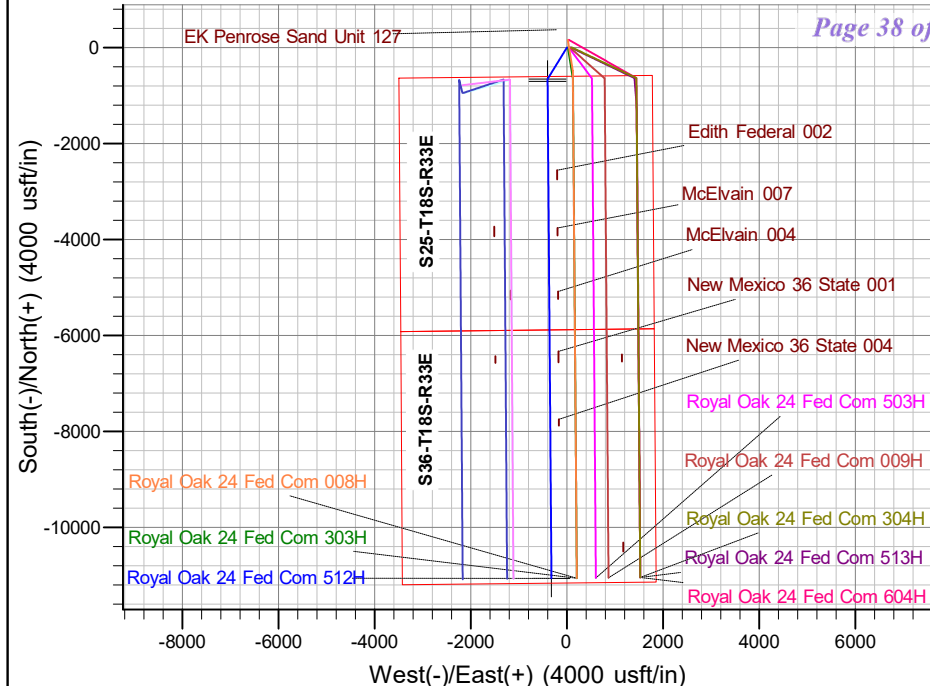
Ground Elev: 3907.3 KB: 3933.8

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	629185.90	762624.20	32.727606	-103.613745

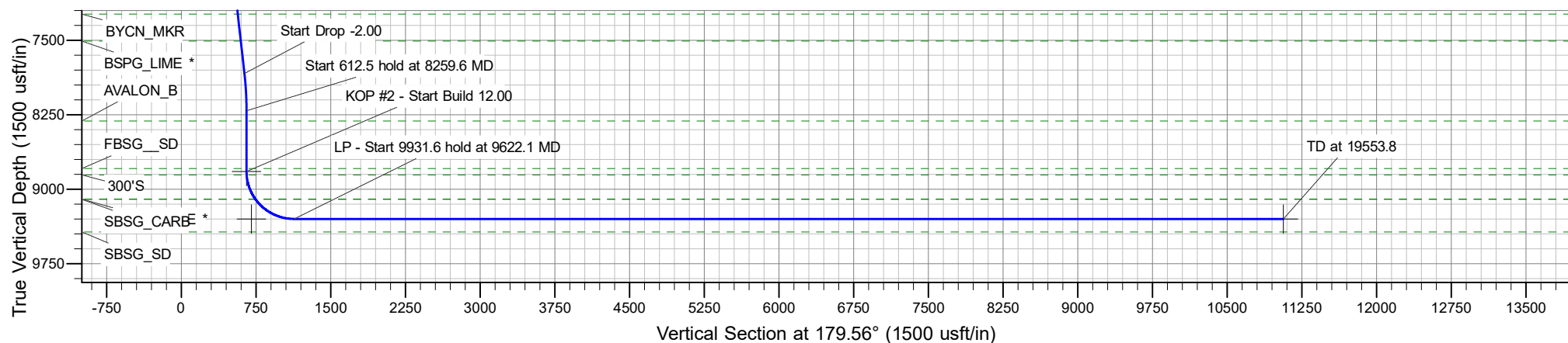
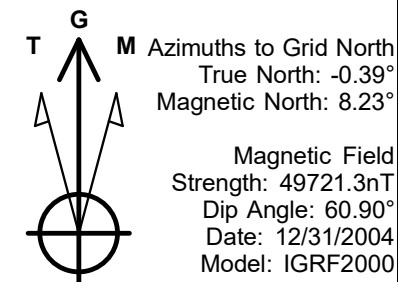
PROJECT DETAILS: Lea Co., NM (NAD 83)

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

System Datum: Mean Sea Level

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	KOP - Start Build 2.00
3	2376.3	7.53	211.52	2375.3	-21.0	-12.9	2.00	211.52	20.9	Start 5506.9 hold at 2376.3 MD
4	7883.3	7.53	211.52	7834.7	-636.0	-390.0	0.00	0.00	633.0	Start Drop -2.00
5	8259.6	0.00	0.00	8210.0	-657.0	-402.9	2.00	180.00	653.9	Start 612.5 hold at 8259.6 MD
6	8872.1	0.00	0.00	8822.5	-657.0	-402.9	0.00	0.00	653.9	KOP #2 - Start Build 12.00
7	9622.1	90.00	179.56	9300.0	-1134.5	-399.2	12.00	179.56	1131.4	LP - Start 9931.6 hold at 9622.1 MD
8	19553.8	90.00	179.56	9300.0	-11065.8	-322.1	0.00	0.00	11063.0	TD at 19553.8



Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 512H

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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	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 512H					
Well Position	+N/-S	0.0 usft	Northing:	629,185.90 usft	Latitude:	32.727606
	+E/-W	0.0 usft	Easting:	762,624.20 usft	Longitude:	-103.613745
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,907.3 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	49,721.27604387

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	19,553.8	Plan 0.1 (OH)	B001Mb_MWD+HRGM	
				OWSG MWD + HRGM	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,376.3	7.53	211.52	2,375.3	-21.0	-12.9	2.00	2.00	0.00	211.52	
7,883.3	7.53	211.52	7,834.7	-636.0	-390.0	0.00	0.00	0.00	0.00	
8,259.6	0.00	0.01	8,210.0	-657.0	-402.9	2.00	-2.00	0.00	180.00	
8,872.1	0.00	0.00	8,822.5	-657.0	-402.9	0.00	0.00	0.00	0.00	
9,622.1	90.00	179.56	9,300.0	-1,134.5	-399.2	12.00	12.00	0.00	179.56	
19,553.8	90.00	179.56	9,300.0	-11,065.8	-322.1	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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	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
KOP - Start Build 2.00									
2,100.0	2.00	211.52	2,100.0	-1.5	-0.9	1.5	2.00	2.00	0.00
2,200.0	4.00	211.52	2,199.8	-5.9	-3.6	5.9	2.00	2.00	0.00
2,300.0	6.00	211.52	2,299.5	-13.4	-8.2	13.3	2.00	2.00	0.00
2,376.3	7.53	211.52	2,375.3	-21.0	-12.9	20.9	2.00	2.00	0.00
Start 5506.9 hold at 2376.3 MD									
2,400.0	7.53	211.52	2,398.7	-23.7	-14.5	23.6	0.00	0.00	0.00
2,500.0	7.53	211.52	2,497.9	-34.9	-21.4	34.7	0.00	0.00	0.00
2,600.0	7.53	211.52	2,597.0	-46.0	-28.2	45.8	0.00	0.00	0.00
2,700.0	7.53	211.52	2,696.1	-57.2	-35.1	56.9	0.00	0.00	0.00
2,800.0	7.53	211.52	2,795.3	-68.4	-41.9	68.0	0.00	0.00	0.00
2,900.0	7.53	211.52	2,894.4	-79.5	-48.8	79.1	0.00	0.00	0.00
3,000.0	7.53	211.52	2,993.5	-90.7	-55.6	90.3	0.00	0.00	0.00
3,100.0	7.53	211.52	3,092.7	-101.9	-62.5	101.4	0.00	0.00	0.00
3,200.0	7.53	211.52	3,191.8	-113.0	-69.3	112.5	0.00	0.00	0.00
3,300.0	7.53	211.52	3,291.0	-124.2	-76.1	123.6	0.00	0.00	0.00
3,400.0	7.53	211.52	3,390.1	-135.4	-83.0	134.7	0.00	0.00	0.00
3,500.0	7.53	211.52	3,489.2	-146.5	-89.8	145.8	0.00	0.00	0.00
3,600.0	7.53	211.52	3,588.4	-157.7	-96.7	156.9	0.00	0.00	0.00
3,653.1	7.53	211.52	3,641.0	-163.6	-100.3	162.8	0.00	0.00	0.00
YATES									
3,700.0	7.53	211.52	3,687.5	-168.9	-103.5	168.1	0.00	0.00	0.00
3,800.0	7.53	211.52	3,786.7	-180.0	-110.4	179.2	0.00	0.00	0.00
3,900.0	7.53	211.52	3,885.8	-191.2	-117.2	190.3	0.00	0.00	0.00
4,000.0	7.53	211.52	3,984.9	-202.4	-124.1	201.4	0.00	0.00	0.00
4,100.0	7.53	211.52	4,084.1	-213.5	-130.9	212.5	0.00	0.00	0.00
4,200.0	7.53	211.52	4,183.2	-224.7	-137.8	223.6	0.00	0.00	0.00
4,300.0	7.53	211.52	4,282.3	-235.9	-144.6	234.7	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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	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	7.53	211.52	4,381.5	-247.0	-151.5	245.8	0.00	0.00	0.00
4,500.0	7.53	211.52	4,480.6	-258.2	-158.3	257.0	0.00	0.00	0.00
4,600.0	7.53	211.52	4,579.8	-269.4	-165.2	268.1	0.00	0.00	0.00
4,700.0	7.53	211.52	4,678.9	-280.5	-172.0	279.2	0.00	0.00	0.00
4,800.0	7.53	211.52	4,778.0	-291.7	-178.9	290.3	0.00	0.00	0.00
4,900.0	7.53	211.52	4,877.2	-302.9	-185.7	301.4	0.00	0.00	0.00
5,000.0	7.53	211.52	4,976.3	-314.0	-192.6	312.5	0.00	0.00	0.00
5,100.0	7.53	211.52	5,075.5	-325.2	-199.4	323.6	0.00	0.00	0.00
5,200.0	7.53	211.52	5,174.6	-336.4	-206.2	334.8	0.00	0.00	0.00
5,300.0	7.53	211.52	5,273.7	-347.5	-213.1	345.9	0.00	0.00	0.00
5,400.0	7.53	211.52	5,372.9	-358.7	-219.9	357.0	0.00	0.00	0.00
5,500.0	7.53	211.52	5,472.0	-369.9	-226.8	368.1	0.00	0.00	0.00
5,600.0	7.53	211.52	5,571.1	-381.0	-233.6	379.2	0.00	0.00	0.00
5,683.6	7.53	211.52	5,654.0	-390.4	-239.4	388.5	0.00	0.00	0.00
CHERRY_CNYN									
5,700.0	7.53	211.52	5,670.3	-392.2	-240.5	390.3	0.00	0.00	0.00
5,800.0	7.53	211.52	5,769.4	-403.4	-247.3	401.4	0.00	0.00	0.00
5,900.0	7.53	211.52	5,868.6	-414.5	-254.2	412.6	0.00	0.00	0.00
6,000.0	7.53	211.52	5,967.7	-425.7	-261.0	423.7	0.00	0.00	0.00
6,100.0	7.53	211.52	6,066.8	-436.9	-267.9	434.8	0.00	0.00	0.00
6,200.0	7.53	211.52	6,166.0	-448.0	-274.7	445.9	0.00	0.00	0.00
6,300.0	7.53	211.52	6,265.1	-459.2	-281.6	457.0	0.00	0.00	0.00
6,400.0	7.53	211.52	6,364.2	-470.4	-288.4	468.1	0.00	0.00	0.00
6,500.0	7.53	211.52	6,463.4	-481.5	-295.3	479.2	0.00	0.00	0.00
6,600.0	7.53	211.52	6,562.5	-492.7	-302.1	490.4	0.00	0.00	0.00
6,700.0	7.53	211.52	6,661.7	-503.9	-309.0	501.5	0.00	0.00	0.00
6,800.0	7.53	211.52	6,760.8	-515.0	-315.8	512.6	0.00	0.00	0.00
6,900.0	7.53	211.52	6,859.9	-526.2	-322.6	523.7	0.00	0.00	0.00
7,000.0	7.53	211.52	6,959.1	-537.4	-329.5	534.8	0.00	0.00	0.00
7,100.0	7.53	211.52	7,058.2	-548.5	-336.3	545.9	0.00	0.00	0.00
7,200.0	7.53	211.52	7,157.4	-559.7	-343.2	557.0	0.00	0.00	0.00
7,279.3	7.53	211.52	7,236.0	-568.5	-348.6	565.9	0.00	0.00	0.00
BYCN_MKR									
7,300.0	7.53	211.52	7,256.5	-570.9	-350.0	568.1	0.00	0.00	0.00
7,400.0	7.53	211.52	7,355.6	-582.0	-356.9	579.3	0.00	0.00	0.00
7,500.0	7.53	211.52	7,454.8	-593.2	-363.7	590.4	0.00	0.00	0.00
7,553.7	7.53	211.52	7,508.0	-599.2	-367.4	596.3	0.00	0.00	0.00
BSPG_LIME *									
7,600.0	7.53	211.52	7,553.9	-604.4	-370.6	601.5	0.00	0.00	0.00
7,700.0	7.53	211.52	7,653.0	-615.5	-377.4	612.6	0.00	0.00	0.00
7,800.0	7.53	211.52	7,752.2	-626.7	-384.3	623.7	0.00	0.00	0.00
7,883.3	7.53	211.52	7,834.7	-636.0	-390.0	633.0	0.00	0.00	0.00
Start Drop -2.00									
7,900.0	7.19	211.52	7,851.3	-637.8	-391.1	634.8	2.00	-2.00	0.00
8,000.0	5.19	211.52	7,950.7	-647.0	-396.7	643.9	2.00	-2.00	0.00
8,100.0	3.19	211.52	8,050.5	-653.2	-400.6	650.1	2.00	-2.00	0.00
8,200.0	1.19	211.52	8,150.4	-656.5	-402.6	653.4	2.00	-2.00	0.00
8,259.6	0.00	0.01	8,210.0	-657.0	-402.9	653.9	2.00	-2.00	0.00
Start 612.5 hold at 8259.6 MD									
8,300.0	0.00	0.00	8,250.4	-657.0	-402.9	653.9	0.00	0.00	0.00
8,362.6	0.00	0.00	8,313.0	-657.0	-402.9	653.9	0.00	0.00	0.00
AVALON_B									
8,400.0	0.00	0.00	8,350.4	-657.0	-402.9	653.9	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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,500.0	0.00	0.00	8,450.4	-657.0	-402.9	653.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,550.4	-657.0	-402.9	653.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,650.4	-657.0	-402.9	653.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,750.4	-657.0	-402.9	653.9	0.00	0.00	0.00
8,841.6	0.00	0.00	8,792.0	-657.0	-402.9	653.9	0.00	0.00	0.00
FBSG_SD									
8,872.1	0.00	0.00	8,822.5	-657.0	-402.9	653.9	0.00	0.00	0.00
KOP #2 - Start Build 12.00 - KOP - Royal Oak 24 Fed Com 512H									
8,875.0	0.34	179.56	8,825.4	-657.0	-402.9	653.9	11.85	11.85	0.00
8,900.0	3.34	179.56	8,850.4	-657.8	-402.9	654.7	12.00	12.00	0.00
8,906.6	4.14	179.56	8,857.0	-658.3	-402.9	655.2	12.00	12.00	0.00
300'S									
8,925.0	6.34	179.56	8,875.3	-660.0	-402.9	656.8	12.00	12.00	0.00
8,950.0	9.34	179.56	8,900.0	-663.4	-402.8	660.2	12.00	12.00	0.00
8,975.0	12.34	179.56	8,924.6	-668.1	-402.8	665.0	12.00	12.00	0.00
9,000.0	15.34	179.56	8,948.9	-674.0	-402.7	670.9	12.00	12.00	0.00
9,025.0	18.34	179.56	8,972.8	-681.3	-402.7	678.2	12.00	12.00	0.00
9,050.0	21.34	179.56	8,996.3	-689.8	-402.6	686.7	12.00	12.00	0.00
9,075.0	24.34	179.56	9,019.3	-699.5	-402.6	696.4	12.00	12.00	0.00
9,100.0	27.34	179.56	9,041.8	-710.4	-402.5	707.3	12.00	12.00	0.00
9,125.0	30.34	179.56	9,063.7	-722.4	-402.4	719.3	12.00	12.00	0.00
9,150.0	33.34	179.56	9,085.0	-735.6	-402.3	732.5	12.00	12.00	0.00
9,168.2	35.53	179.56	9,100.0	-745.9	-402.2	742.8	12.00	12.00	0.00
SBSG_SHALE *									
9,171.9	35.97	179.56	9,103.0	-748.1	-402.2	745.0	12.00	12.00	0.00
SBSG_CARB									
9,175.0	36.34	179.56	9,105.5	-749.9	-402.2	746.8	12.00	12.00	0.00
9,200.0	39.34	179.56	9,125.2	-765.2	-402.0	762.1	12.00	12.00	0.00
9,225.0	42.34	179.56	9,144.1	-781.6	-401.9	778.5	12.00	12.00	0.00
9,250.0	45.34	179.56	9,162.2	-798.9	-401.8	795.8	12.00	12.00	0.00
9,275.0	48.34	179.56	9,179.3	-817.1	-401.6	814.0	12.00	12.00	0.00
FTP - Royal Oak 24 Fed Com 512H									
9,300.0	51.34	179.56	9,195.4	-836.2	-401.5	833.1	12.00	12.00	0.00
9,325.0	54.34	179.56	9,210.5	-856.2	-401.3	853.0	12.00	12.00	0.00
9,350.0	57.34	179.56	9,224.5	-876.8	-401.2	873.7	12.00	12.00	0.00
9,375.0	60.34	179.56	9,237.5	-898.2	-401.0	895.1	12.00	12.00	0.00
9,400.0	63.34	179.56	9,249.2	-920.3	-400.8	917.2	12.00	12.00	0.00
9,425.0	66.34	179.56	9,259.9	-942.9	-400.7	939.8	12.00	12.00	0.00
9,450.0	69.34	179.56	9,269.3	-966.0	-400.5	962.9	12.00	12.00	0.00
9,475.0	72.34	179.56	9,277.5	-989.7	-400.3	986.6	12.00	12.00	0.00
9,500.0	75.34	179.56	9,284.5	-1,013.7	-400.1	1,010.6	12.00	12.00	0.00
9,525.0	78.34	179.56	9,290.2	-1,038.0	-399.9	1,034.9	12.00	12.00	0.00
9,550.0	81.34	179.56	9,294.6	-1,062.6	-399.7	1,059.5	12.00	12.00	0.00
9,575.0	84.34	179.56	9,297.7	-1,087.4	-399.5	1,084.3	12.00	12.00	0.00
9,600.0	87.34	179.56	9,299.5	-1,112.3	-399.3	1,109.2	12.00	12.00	0.00
9,622.1	90.00	179.56	9,300.0	-1,134.5	-399.2	1,131.4	12.00	12.00	0.00
LP - Start 9931.6 hold at 9622.1 MD									
9,700.0	90.00	179.56	9,300.0	-1,212.3	-398.6	1,209.2	0.00	0.00	0.00
9,800.0	90.00	179.56	9,300.0	-1,312.3	-397.8	1,309.2	0.00	0.00	0.00
9,900.0	90.00	179.56	9,300.0	-1,412.3	-397.0	1,409.2	0.00	0.00	0.00
10,000.0	90.00	179.56	9,300.0	-1,512.3	-396.2	1,509.2	0.00	0.00	0.00
10,100.0	90.00	179.56	9,300.0	-1,612.3	-395.5	1,609.2	0.00	0.00	0.00
10,200.0	90.00	179.56	9,300.0	-1,712.3	-394.7	1,709.2	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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	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)
10,300.0	90.00	179.56	9,300.0	-1,812.3	-393.9	1,809.2	0.00	0.00	0.00
10,400.0	90.00	179.56	9,300.0	-1,912.3	-393.1	1,909.2	0.00	0.00	0.00
10,500.0	90.00	179.56	9,300.0	-2,012.3	-392.4	2,009.2	0.00	0.00	0.00
10,600.0	90.00	179.56	9,300.0	-2,112.3	-391.6	2,109.2	0.00	0.00	0.00
10,700.0	90.00	179.56	9,300.0	-2,212.3	-390.8	2,209.2	0.00	0.00	0.00
10,800.0	90.00	179.56	9,300.0	-2,312.3	-390.0	2,309.2	0.00	0.00	0.00
10,900.0	90.00	179.56	9,300.0	-2,412.3	-389.3	2,409.2	0.00	0.00	0.00
11,000.0	90.00	179.56	9,300.0	-2,512.3	-388.5	2,509.2	0.00	0.00	0.00
11,100.0	90.00	179.56	9,300.0	-2,612.3	-387.7	2,609.2	0.00	0.00	0.00
11,200.0	90.00	179.56	9,300.0	-2,712.3	-386.9	2,709.2	0.00	0.00	0.00
11,300.0	90.00	179.56	9,300.0	-2,812.3	-386.2	2,809.2	0.00	0.00	0.00
11,400.0	90.00	179.56	9,300.0	-2,912.3	-385.4	2,909.2	0.00	0.00	0.00
11,500.0	90.00	179.56	9,300.0	-3,012.3	-384.6	3,009.2	0.00	0.00	0.00
11,600.0	90.00	179.56	9,300.0	-3,112.3	-383.8	3,109.2	0.00	0.00	0.00
11,700.0	90.00	179.56	9,300.0	-3,212.3	-383.0	3,209.2	0.00	0.00	0.00
11,800.0	90.00	179.56	9,300.0	-3,312.3	-382.3	3,309.2	0.00	0.00	0.00
11,900.0	90.00	179.56	9,300.0	-3,412.3	-381.5	3,409.2	0.00	0.00	0.00
12,000.0	90.00	179.56	9,300.0	-3,512.3	-380.7	3,509.2	0.00	0.00	0.00
12,100.0	90.00	179.56	9,300.0	-3,612.3	-379.9	3,609.2	0.00	0.00	0.00
12,200.0	90.00	179.56	9,300.0	-3,712.3	-379.2	3,709.2	0.00	0.00	0.00
12,300.0	90.00	179.56	9,300.0	-3,812.3	-378.4	3,809.2	0.00	0.00	0.00
12,400.0	90.00	179.56	9,300.0	-3,912.2	-377.6	3,909.2	0.00	0.00	0.00
12,500.0	90.00	179.56	9,300.0	-4,012.2	-376.8	4,009.2	0.00	0.00	0.00
12,600.0	90.00	179.56	9,300.0	-4,112.2	-376.1	4,109.2	0.00	0.00	0.00
12,700.0	90.00	179.56	9,300.0	-4,212.2	-375.3	4,209.2	0.00	0.00	0.00
12,800.0	90.00	179.56	9,300.0	-4,312.2	-374.5	4,309.2	0.00	0.00	0.00
12,900.0	90.00	179.56	9,300.0	-4,412.2	-373.7	4,409.2	0.00	0.00	0.00
13,000.0	90.00	179.56	9,300.0	-4,512.2	-373.0	4,509.2	0.00	0.00	0.00
13,100.0	90.00	179.56	9,300.0	-4,612.2	-372.2	4,609.2	0.00	0.00	0.00
13,200.0	90.00	179.56	9,300.0	-4,712.2	-371.4	4,709.2	0.00	0.00	0.00
13,300.0	90.00	179.56	9,300.0	-4,812.2	-370.6	4,809.2	0.00	0.00	0.00
13,400.0	90.00	179.56	9,300.0	-4,912.2	-369.9	4,909.2	0.00	0.00	0.00
13,500.0	90.00	179.56	9,300.0	-5,012.2	-369.1	5,009.2	0.00	0.00	0.00
13,600.0	90.00	179.56	9,300.0	-5,112.2	-368.3	5,109.2	0.00	0.00	0.00
13,700.0	90.00	179.56	9,300.0	-5,212.2	-367.5	5,209.2	0.00	0.00	0.00
13,800.0	90.00	179.56	9,300.0	-5,312.2	-366.8	5,309.2	0.00	0.00	0.00
13,900.0	90.00	179.56	9,300.0	-5,412.2	-366.0	5,409.2	0.00	0.00	0.00
14,000.0	90.00	179.56	9,300.0	-5,512.2	-365.2	5,509.2	0.00	0.00	0.00
14,100.0	90.00	179.56	9,300.0	-5,612.2	-364.4	5,609.2	0.00	0.00	0.00
14,200.0	90.00	179.56	9,300.0	-5,712.2	-363.6	5,709.2	0.00	0.00	0.00
14,300.0	90.00	179.56	9,300.0	-5,812.2	-362.9	5,809.2	0.00	0.00	0.00
14,400.0	90.00	179.56	9,300.0	-5,912.2	-362.1	5,909.2	0.00	0.00	0.00
14,500.0	90.00	179.56	9,300.0	-6,012.2	-361.3	6,009.2	0.00	0.00	0.00
14,600.0	90.00	179.56	9,300.0	-6,112.2	-360.5	6,109.2	0.00	0.00	0.00
14,700.0	90.00	179.56	9,300.0	-6,212.2	-359.8	6,209.2	0.00	0.00	0.00
14,800.0	90.00	179.56	9,300.0	-6,312.2	-359.0	6,309.2	0.00	0.00	0.00
14,900.0	90.00	179.56	9,300.0	-6,412.2	-358.2	6,409.2	0.00	0.00	0.00
15,000.0	90.00	179.56	9,300.0	-6,512.2	-357.4	6,509.2	0.00	0.00	0.00
15,100.0	90.00	179.56	9,300.0	-6,612.2	-356.7	6,609.2	0.00	0.00	0.00
15,200.0	90.00	179.56	9,300.0	-6,712.2	-355.9	6,709.2	0.00	0.00	0.00
15,300.0	90.00	179.56	9,300.0	-6,812.2	-355.1	6,809.2	0.00	0.00	0.00
15,400.0	90.00	179.56	9,300.0	-6,912.2	-354.3	6,909.2	0.00	0.00	0.00
15,500.0	90.00	179.56	9,300.0	-7,012.2	-353.6	7,009.2	0.00	0.00	0.00
15,600.0	90.00	179.56	9,300.0	-7,112.2	-352.8	7,109.2	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 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	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)
15,700.0	90.00	179.56	9,300.0	-7,212.2	-352.0	7,209.2	0.00	0.00	0.00
15,800.0	90.00	179.56	9,300.0	-7,312.1	-351.2	7,309.2	0.00	0.00	0.00
15,900.0	90.00	179.56	9,300.0	-7,412.1	-350.5	7,409.2	0.00	0.00	0.00
16,000.0	90.00	179.56	9,300.0	-7,512.1	-349.7	7,509.2	0.00	0.00	0.00
16,100.0	90.00	179.56	9,300.0	-7,612.1	-348.9	7,609.2	0.00	0.00	0.00
16,200.0	90.00	179.56	9,300.0	-7,712.1	-348.1	7,709.2	0.00	0.00	0.00
16,300.0	90.00	179.56	9,300.0	-7,812.1	-347.4	7,809.2	0.00	0.00	0.00
16,400.0	90.00	179.56	9,300.0	-7,912.1	-346.6	7,909.2	0.00	0.00	0.00
16,500.0	90.00	179.56	9,300.0	-8,012.1	-345.8	8,009.2	0.00	0.00	0.00
16,600.0	90.00	179.56	9,300.0	-8,112.1	-345.0	8,109.2	0.00	0.00	0.00
16,700.0	90.00	179.56	9,300.0	-8,212.1	-344.2	8,209.2	0.00	0.00	0.00
16,800.0	90.00	179.56	9,300.0	-8,312.1	-343.5	8,309.2	0.00	0.00	0.00
16,900.0	90.00	179.56	9,300.0	-8,412.1	-342.7	8,409.2	0.00	0.00	0.00
17,000.0	90.00	179.56	9,300.0	-8,512.1	-341.9	8,509.2	0.00	0.00	0.00
17,100.0	90.00	179.56	9,300.0	-8,612.1	-341.1	8,609.2	0.00	0.00	0.00
17,200.0	90.00	179.56	9,300.0	-8,712.1	-340.4	8,709.2	0.00	0.00	0.00
17,300.0	90.00	179.56	9,300.0	-8,812.1	-339.6	8,809.2	0.00	0.00	0.00
17,400.0	90.00	179.56	9,300.0	-8,912.1	-338.8	8,909.2	0.00	0.00	0.00
17,500.0	90.00	179.56	9,300.0	-9,012.1	-338.0	9,009.2	0.00	0.00	0.00
17,600.0	90.00	179.56	9,300.0	-9,112.1	-337.3	9,109.2	0.00	0.00	0.00
17,700.0	90.00	179.56	9,300.0	-9,212.1	-336.5	9,209.2	0.00	0.00	0.00
17,800.0	90.00	179.56	9,300.0	-9,312.1	-335.7	9,309.2	0.00	0.00	0.00
17,900.0	90.00	179.56	9,300.0	-9,412.1	-334.9	9,409.2	0.00	0.00	0.00
18,000.0	90.00	179.56	9,300.0	-9,512.1	-334.2	9,509.2	0.00	0.00	0.00
18,100.0	90.00	179.56	9,300.0	-9,612.1	-333.4	9,609.2	0.00	0.00	0.00
18,200.0	90.00	179.56	9,300.0	-9,712.1	-332.6	9,709.2	0.00	0.00	0.00
18,300.0	90.00	179.56	9,300.0	-9,812.1	-331.8	9,809.2	0.00	0.00	0.00
18,400.0	90.00	179.56	9,300.0	-9,912.1	-331.1	9,909.2	0.00	0.00	0.00
18,500.0	90.00	179.56	9,300.0	-10,012.1	-330.3	10,009.2	0.00	0.00	0.00
18,600.0	90.00	179.56	9,300.0	-10,112.1	-329.5	10,109.2	0.00	0.00	0.00
18,700.0	90.00	179.56	9,300.0	-10,212.1	-328.7	10,209.2	0.00	0.00	0.00
18,800.0	90.00	179.56	9,300.0	-10,312.1	-327.9	10,309.2	0.00	0.00	0.00
18,900.0	90.00	179.56	9,300.0	-10,412.1	-327.2	10,409.2	0.00	0.00	0.00
19,000.0	90.00	179.56	9,300.0	-10,512.1	-326.4	10,509.2	0.00	0.00	0.00
19,100.0	90.00	179.56	9,300.0	-10,612.0	-325.6	10,609.2	0.00	0.00	0.00
19,200.0	90.00	179.56	9,300.0	-10,712.0	-324.8	10,709.2	0.00	0.00	0.00
19,300.0	90.00	179.56	9,300.0	-10,812.0	-324.1	10,809.2	0.00	0.00	0.00
19,400.0	90.00	179.56	9,300.0	-10,912.0	-323.3	10,909.2	0.00	0.00	0.00
19,500.0	90.00	179.56	9,300.0	-11,012.0	-322.5	11,009.2	0.00	0.00	0.00
19,553.8	90.00	179.56	9,300.0	-11,065.8	-322.1	11,063.0	0.00	0.00	0.00
TD at 19553.8 - LTP/BHL - Royal Oak 24 Fed Com 512H									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Company:	Avant Operating, LLC	TVD Reference:	WELL @ 3933.8usft (3933.8)
Project:	Lea Co., NM (NAD 83)	MD Reference:	WELL @ 3933.8usft (3933.8)
Site:	Royal Oak 24 Fed Com Pad 1	North Reference:	Grid
Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
KOP - Royal Oak 24 Fed - plan hits target center - Point	0.00	0.00	8,822.5	-657.0	-402.9	628,528.87	762,221.32	32.725808	-103.615070
LTP/BHL - Royal Oak 24 - plan hits target center - Point	0.00	0.00	9,300.0	-11,065.8	-322.1	618,120.09	762,302.10	32.697198	-103.615037
FTP - Royal Oak 24 Fed - plan misses target center by 163.4usft at 9275.0usft MD (9179.3 TVD, -817.1 N, -401.6 E) - Point	0.00	0.00	9,300.0	-707.0	-402.5	628,478.87	762,221.72	32.725670	-103.615070

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
21,613.7		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			
3,653.1	3,641.0	YATES			
5,683.6	5,654.0	CHERRY_CNYN			
7,279.3	7,236.0	BYCN_MKR			
7,553.7	7,508.0	BSPG_LIME *			
8,362.6	8,313.0	AVALON_B			
8,841.6	8,792.0	FBSG__SD			
8,906.6	8,857.0	300'S			
9,168.2	9,100.0	SBSG_SHALE *			
9,171.9	9,103.0	SBSG_CARB			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00
2,376.3	2,375.3	-21.0	-12.9	Start 5506.9 hold at 2376.3 MD
7,883.3	7,834.7	-636.0	-390.0	Start Drop -2.00
8,259.6	8,210.0	-657.0	-402.9	Start 612.5 hold at 8259.6 MD
8,872.1	8,822.5	-657.0	-402.9	KOP #2 - Start Build 12.00
9,622.1	9,300.0	-1,134.5	-399.2	LP - Start 9931.6 hold at 9622.1 MD
19,553.8	9,300.0	-11,065.8	-322.1	TD at 19553.8

Avant Operating, LLC

Lea Co., NM (NAD 83)

Royal Oak 24 Fed Com Pad 1

Royal Oak 24 Fed Com 512H

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 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Reference	Plan 0.1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 2,122.6usft	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	19,553.8	Plan 0.1 (OH)	B001Mb_MWD+HRGM	OWSG MWD + HRGM

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Royal Oak 24 Fed Com Pad 1						
Edith Federal 002 - OH - OH	11,061.8	9,266.3	185.6	-70.3	0.725	Level 1, CC, ES, SF
EK Penrose Sand Unit 127 - OH - Inactive Injection	2,000.0	1,999.2	434.3	356.1	5.554	CC
EK Penrose Sand Unit 127 - OH - Inactive Injection	2,200.0	2,199.0	437.6	353.0	5.177	ES
EK Penrose Sand Unit 127 - OH - Inactive Injection	4,000.0	3,984.1	582.4	444.9	4.237	SF
McElvain 004 - OH - OH	13,593.2	9,266.4	182.8	-91.2	0.667	Level 1, CC, ES, SF
McElvain 007 - OH - OH	12,262.9	9,255.4	184.2	-75.2	0.710	Level 1, CC, ES, SF
Mescalero 36 State 003 - OH - OH	18,845.0	9,193.5	1,499.1	1,144.6	4.229	CC, ES
Mescalero 36 State 003 - OH - OH	18,900.0	9,191.6	1,500.1	1,145.2	4.227	SF
New Mexico 36 State 001 - OH - OH	14,916.2	9,233.2	181.5	-111.3	0.620	Level 1, CC, ES, SF
New Mexico 36 State 002 - OH - OH	14,911.5	9,228.1	1,502.6	1,211.0	5.152	CC, ES
New Mexico 36 State 002 - OH - OH	15,000.0	9,226.5	1,505.2	1,212.8	5.148	SF
New Mexico 36 State 004 - OH - OH	16,256.7	9,208.9	180.0	-121.6	0.597	Level 1, CC, ES, SF
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,265.4	2,282.0	160.0	144.3	10.216	CC
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	2,300.0	2,316.5	160.2	144.3	10.082	ES
Royal Oak 24 Fed Com 008H - OH - Plan 0.1	19,553.8	20,593.6	1,041.0	819.1	4.690	SF
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	1,916.2	1,917.6	60.0	46.7	4.516	CC
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	2,000.0	2,001.4	60.0	46.1	4.320	ES
Royal Oak 24 Fed Com 009H - OH - Plan 0.1	2,100.0	2,100.0	62.2	47.7	4.273	SF
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	1,916.6	1,916.7	20.0	6.7	1.507	CC
Royal Oak 24 Fed Com 303H - OH - Plan 0.1	2,000.0	2,000.1	20.0	6.1	1.442	Level 3, ES, SF
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	1,915.6	1,918.8	100.1	86.8	7.529	CC
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	2,000.0	2,003.1	100.1	86.2	7.202	ES
Royal Oak 24 Fed Com 304H - OH - Plan 0.1	19,553.8	19,226.4	1,907.1	1,588.2	5.980	SF
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,000.0	2,000.4	40.0	26.1	2.881	CC, ES
Royal Oak 24 Fed Com 503H - OH - Plan 0.1	2,100.0	2,100.4	41.0	26.4	2.809	SF
Royal Oak 24 Fed Com 513H - OH - Plan 0.1	2,000.0	2,003.2	80.1	66.2	5.761	CC, ES
Royal Oak 24 Fed Com 513H - OH - Plan 0.1	2,100.0	2,101.9	81.4	66.9	5.584	SF
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	2,000.0	2,003.3	165.0	151.1	11.875	CC, ES
Royal Oak 24 Fed Com 604H - OH - Plan 0.1	19,553.8	20,594.8	2,052.3	1,749.6	6.779	SF

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Royal Oak 25 Fed Com Pad 2						
Edith Federal 001 - OH - OH	13,570.8	9,247.8	797.9	513.7	2.808	CC, ES
Edith Federal 001 - OH - OH	13,600.0	9,247.3	798.4	513.8	2.805	SF
Edith Federal 004 - OH - P&A	12,234.5	9,237.7	1,132.0	859.9	4.161	CC, ES
Edith Federal 004 - OH - P&A	12,300.0	9,234.6	1,133.9	860.9	4.154	SF
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	8,279.7	8,275.6	779.9	719.7	12.957	CC, ES
Royal Oak 25 Fed Com #302H - OH - Plan 0.1	19,553.8	18,881.5	1,031.1	769.4	3.939	SF
Royal Oak 25 Fed Com #502H - OH - Plan 0.1	8,935.2	8,911.1	915.1	850.5	14.181	CC
Royal Oak 25 Fed Com #502H - OH - Plan 0.1	19,553.8	19,983.4	1,029.9	737.4	3.520	ES, SF
Royal Oak 25 Fed Com #511H - OH - Plan 0.1	8,154.9	8,043.0	1,835.9	1,777.2	31.278	CC
Royal Oak 25 Fed Com #511H - OH - Plan 0.1	19,553.8	19,389.7	1,848.7	1,534.7	5.887	ES, SF
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	9,212.3	9,258.8	815.2	748.1	12.145	CC, ES
Royal Oak 25 Fed Com #602H - OH - Plan 0.1	19,553.8	20,463.6	1,224.1	980.8	5.031	SF
State LG 2484 001 - OH - OH	14,926.6	9,218.4	1,130.4	842.5	3.926	CC, ES
State LG 2484 001 - OH - OH	15,000.0	9,217.1	1,132.8	843.8	3.919	SF

Offset Design: Royal Oak 24 Fed Com Pad 1 - Edith Federal 002 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 350-INC-ONLY												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,700.0	6,661.7	6,682.9	6,681.3	24.7	150.1	-34.74	-2,620.8	-202.4	2,120.4	1,946.4	173.94	12.190	
6,800.0	6,760.8	6,781.7	6,780.1	25.1	152.6	-34.95	-2,618.2	-202.4	2,107.0	1,930.2	176.77	11.919	
6,900.0	6,859.9	6,880.6	6,878.9	25.5	155.0	-35.16	-2,615.7	-202.4	2,093.6	1,914.0	179.61	11.657	
7,000.0	6,959.1	6,979.4	6,977.6	25.9	157.5	-35.37	-2,613.1	-202.4	2,080.3	1,897.9	182.44	11.402	
7,100.0	7,058.2	7,078.2	7,076.4	26.3	160.0	-35.58	-2,610.5	-202.4	2,067.0	1,881.7	185.28	11.156	
7,200.0	7,157.4	7,173.6	7,171.8	26.7	162.2	-35.79	-2,608.0	-202.4	2,053.8	1,865.9	187.94	10.928	
7,300.0	7,256.5	7,266.7	7,264.8	27.1	164.4	-36.00	-2,605.9	-202.4	2,040.9	1,850.4	190.47	10.715	
7,400.0	7,355.6	7,359.8	7,357.9	27.5	166.5	-36.20	-2,604.0	-202.4	2,028.2	1,835.2	192.99	10.509	
7,500.0	7,454.8	7,455.0	7,453.1	27.9	168.5	-36.42	-2,602.3	-202.4	2,015.9	1,820.4	195.44	10.315	
7,600.0	7,553.9	7,552.1	7,550.2	28.3	170.5	-36.64	-2,600.7	-202.4	2,003.7	1,805.9	197.80	10.130	
7,700.0	7,653.0	7,649.2	7,647.3	28.7	172.5	-36.86	-2,599.2	-202.4	1,991.6	1,791.4	200.16	9.950	
7,800.0	7,752.2	7,746.4	7,744.5	29.1	174.5	-37.09	-2,597.8	-202.4	1,979.6	1,777.1	202.53	9.775	
7,900.0	7,851.3	7,843.6	7,841.7	29.5	176.5	-37.29	-2,596.4	-202.4	1,967.8	1,763.0	204.89	9.604	
8,000.0	7,950.7	7,942.4	7,940.4	29.9	178.4	-37.37	-2,595.1	-202.4	1,957.9	1,750.7	207.25	9.447	
8,100.0	8,050.5	8,042.0	8,040.1	30.2	180.4	-37.41	-2,593.8	-202.4	1,950.8	1,741.2	209.60	9.307	
8,200.0	8,150.4	8,141.9	8,139.9	30.6	182.4	-37.43	-2,592.5	-202.4	1,946.5	1,734.6	211.94	9.184	
8,300.0	8,250.4	8,241.8	8,239.9	30.9	184.4	174.08	-2,591.2	-202.4	1,944.7	1,730.4	214.26	9.076	
8,400.0	8,350.4	8,341.8	8,339.9	31.2	186.4	174.08	-2,589.9	-202.4	1,943.4	1,726.8	216.58	8.973	
8,500.0	8,450.4	8,446.5	8,444.6	31.6	188.7	174.07	-2,588.4	-202.4	1,942.0	1,722.8	219.21	8.859	
8,600.0	8,550.4	8,552.3	8,550.3	31.9	191.1	174.07	-2,586.6	-202.4	1,940.3	1,718.4	221.91	8.744	
8,700.0	8,650.4	8,658.0	8,656.0	32.2	193.5	174.06	-2,584.5	-202.4	1,938.3	1,713.7	224.60	8.630	
8,800.0	8,750.4	8,763.7	8,761.7	32.5	195.9	174.06	-2,582.1	-202.4	1,936.0	1,708.7	227.30	8.518	
8,900.0	8,850.4	8,864.1	8,862.0	32.8	198.1	-5.53	-2,579.5	-202.4	1,932.7	1,702.8	229.85	8.408	
9,000.0	8,948.9	8,955.5	8,953.4	33.2	200.0	-5.80	-2,577.4	-202.4	1,914.3	1,682.1	232.20	8.244	
9,100.0	9,041.8	9,041.6	9,039.5	33.7	201.9	-6.44	-2,575.8	-202.4	1,876.4	1,641.9	234.44	8.004	
9,200.0	9,125.2	9,118.7	9,116.5	34.2	203.6	-7.64	-2,574.5	-202.4	1,820.4	1,584.0	236.45	7.699	
9,300.0	9,195.4	9,183.4	9,181.3	34.7	205.0	-9.85	-2,573.6	-202.4	1,748.9	1,510.7	238.15	7.344	
9,400.0	9,249.2	9,233.1	9,231.0	35.3	206.0	-14.33	-2,573.0	-202.4	1,664.7	1,425.3	239.45	6.952	
9,500.0	9,284.5	9,265.4	9,263.3	35.9	206.7	-25.99	-2,572.7	-202.4	1,571.6	1,331.3	240.32	6.540	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Edith Federal 002 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 350-INC-ONLY													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,600.0	9,299.5	9,283.0	9,280.9	36.6	207.1	-74.75	-2,572.5	-202.4	1,473.5	1,232.7	240.79	6.119	
9,700.0	9,300.0	9,283.0	9,280.9	37.2	207.1	-95.14	-2,572.5	-202.4	1,374.4	1,133.5	240.87	5.706	
9,800.0	9,300.0	9,283.0	9,280.9	37.9	207.1	-95.14	-2,572.5	-202.4	1,275.4	1,034.4	240.97	5.293	
9,900.0	9,300.0	9,283.0	9,280.9	38.6	207.1	-95.14	-2,572.5	-202.4	1,176.5	935.5	241.08	4.880	
10,000.0	9,300.0	9,283.0	9,280.9	39.4	207.1	-95.14	-2,572.5	-202.4	1,077.9	836.7	241.22	4.469	
10,100.0	9,300.0	9,283.0	9,280.9	40.2	207.1	-95.14	-2,572.5	-202.4	979.6	738.2	241.39	4.058	
10,200.0	9,300.0	9,274.1	9,272.0	41.0	206.9	-92.41	-2,572.6	-202.4	881.6	640.1	241.47	3.651	
10,300.0	9,300.0	9,273.2	9,271.1	41.9	206.9	-92.13	-2,572.6	-202.4	784.1	542.3	241.76	3.243	
10,400.0	9,300.0	9,272.3	9,270.2	42.8	206.9	-91.86	-2,572.6	-202.4	687.3	445.2	242.15	2.838	
10,500.0	9,300.0	9,271.5	9,269.3	43.7	206.8	-91.59	-2,572.6	-202.4	591.7	348.9	242.72	2.438	
10,600.0	9,300.0	9,270.6	9,268.4	44.7	206.8	-91.31	-2,572.6	-202.4	497.7	254.1	243.58	2.043	
10,700.0	9,300.0	9,269.6	9,267.5	45.7	206.8	-91.03	-2,572.7	-202.4	406.6	161.7	244.94	1.660	
10,800.0	9,300.0	9,268.7	9,266.6	46.7	206.8	-90.75	-2,572.7	-202.4	320.9	73.7	247.20	1.298	Level 3
10,900.0	9,300.0	9,267.8	9,265.7	47.7	206.8	-90.46	-2,572.7	-202.4	246.2	-4.6	250.87	0.982	Level 1
11,000.0	9,300.0	9,266.9	9,264.8	48.8	206.8	-90.17	-2,572.7	-202.4	195.6	-59.5	255.15	0.767	Level 1
11,061.8	9,300.0	9,266.3	9,264.2	49.4	206.7	-90.00	-2,572.7	-202.4	185.6	-70.3	255.90	0.725	Level 1, CC, ES, SF
11,100.0	9,300.0	9,265.9	9,263.8	49.9	206.7	-89.89	-2,572.7	-202.4	189.5	-65.5	254.96	0.743	Level 1
11,200.0	9,300.0	9,265.0	9,262.9	50.9	206.7	-89.59	-2,572.7	-202.4	231.4	-18.5	249.85	0.926	Level 1
11,300.0	9,300.0	9,264.1	9,261.9	52.1	206.7	-89.30	-2,572.7	-202.4	301.9	56.3	245.61	1.229	Level 2
11,400.0	9,300.0	9,263.1	9,261.0	53.2	206.7	-89.01	-2,572.7	-202.4	385.7	142.5	243.24	1.586	
11,500.0	9,300.0	9,262.1	9,260.0	54.3	206.6	-88.71	-2,572.7	-202.4	475.8	233.8	241.98	1.966	
11,600.0	9,300.0	9,261.2	9,259.0	55.5	206.6	-88.41	-2,572.7	-202.4	569.2	328.0	241.27	2.359	
11,700.0	9,300.0	9,260.2	9,258.1	56.6	206.6	-88.11	-2,572.7	-202.4	664.6	423.7	240.85	2.759	
11,800.0	9,300.0	9,259.2	9,257.1	57.8	206.6	-87.80	-2,572.8	-202.4	761.1	520.5	240.60	3.163	
11,900.0	9,300.0	9,258.2	9,256.1	59.0	206.6	-87.49	-2,572.8	-202.4	858.4	618.0	240.44	3.570	
12,000.0	9,300.0	9,257.2	9,255.1	60.2	206.5	-87.19	-2,572.8	-202.4	956.3	716.0	240.33	3.979	
12,100.0	9,300.0	9,256.2	9,254.1	61.4	206.5	-86.87	-2,572.8	-202.4	1,054.6	814.3	240.27	4.389	
12,200.0	9,300.0	9,255.2	9,253.0	62.7	206.5	-86.56	-2,572.8	-202.4	1,153.1	912.9	240.22	4.800	
12,300.0	9,300.0	9,254.1	9,252.0	63.9	206.5	-86.24	-2,572.8	-202.4	1,251.9	1,011.7	240.20	5.212	
12,400.0	9,300.0	9,253.1	9,251.0	65.1	206.5	-85.93	-2,572.8	-202.4	1,350.9	1,110.7	240.18	5.625	
12,500.0	9,300.0	9,252.1	9,249.9	66.4	206.4	-85.61	-2,572.8	-202.4	1,450.0	1,209.8	240.18	6.037	
12,600.0	9,300.0	9,251.0	9,248.9	67.6	206.4	-85.28	-2,572.8	-202.4	1,549.2	1,309.1	240.18	6.450	
12,700.0	9,300.0	9,249.9	9,247.8	68.9	206.4	-84.96	-2,572.8	-202.4	1,648.6	1,408.4	240.18	6.864	
12,800.0	9,300.0	9,248.9	9,246.8	70.2	206.4	-84.63	-2,572.9	-202.4	1,748.0	1,507.8	240.19	7.277	
12,900.0	9,300.0	9,247.8	9,245.7	71.5	206.3	-84.30	-2,572.9	-202.4	1,847.4	1,607.2	240.21	7.691	
13,000.0	9,300.0	9,246.7	9,244.6	72.8	206.3	-83.97	-2,572.9	-202.4	1,946.9	1,706.7	240.22	8.105	
13,100.0	9,300.0	9,245.6	9,243.5	74.0	206.3	-83.63	-2,572.9	-202.4	2,046.5	1,806.3	240.24	8.519	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK Penrose Sand Unit 127 - OH - Inactive Injection													Offset Site Error:	0.0 usft
Survey Program: Reference		1000-INC-ONLY Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance				Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-31.32	371.1	-225.8	434.3					
100.0	100.0	99.2	99.2	0.1	3.0	-31.32	371.1	-225.8	434.3	431.2	3.14	138.232		
200.0	200.0	199.2	199.2	0.5	6.0	-31.32	371.1	-225.8	434.3	427.8	6.54	66.462		
300.0	300.0	299.2	299.2	0.8	9.1	-31.32	371.1	-225.8	434.3	424.4	9.93	43.748		
400.0	400.0	399.2	399.2	1.2	12.1	-31.32	371.1	-225.8	434.3	421.0	13.32	32.605		
500.0	500.0	499.2	499.2	1.6	15.1	-31.32	371.1	-225.8	434.3	417.6	16.71	25.986		
600.0	600.0	599.2	599.2	1.9	18.2	-31.32	371.1	-225.8	434.3	414.2	20.11	21.601		
700.0	700.0	699.2	699.2	2.3	21.2	-31.32	371.1	-225.8	434.3	410.8	23.50	18.482		
800.0	800.0	799.2	799.2	2.6	24.3	-31.32	371.1	-225.8	434.3	407.4	26.89	16.150		
900.0	900.0	899.2	899.2	3.0	27.3	-31.32	371.1	-225.8	434.3	404.0	30.29	14.341		
1,000.0	1,000.0	999.2	999.2	3.4	30.3	-31.32	371.1	-225.8	434.3	400.7	33.68	12.896		
1,100.0	1,100.0	1,099.2	1,099.2	3.7	34.4	-31.32	371.1	-225.8	434.3	396.2	38.12	11.393		
1,200.0	1,200.0	1,199.2	1,199.2	4.1	38.5	-31.32	371.1	-225.8	434.3	391.8	42.58	10.201		
1,300.0	1,300.0	1,299.2	1,299.2	4.4	42.6	-31.32	371.1	-225.8	434.3	387.3	47.03	9.235		
1,400.0	1,400.0	1,399.2	1,399.2	4.8	46.7	-31.32	371.1	-225.8	434.3	382.9	51.48	8.437		
1,500.0	1,500.0	1,499.2	1,499.2	5.2	50.8	-31.32	371.1	-225.8	434.3	378.4	55.93	7.765		
1,600.0	1,600.0	1,599.2	1,599.2	5.5	54.9	-31.32	371.1	-225.8	434.3	373.9	60.39	7.192		
1,700.0	1,700.0	1,699.2	1,699.2	5.9	59.0	-31.32	371.1	-225.8	434.3	369.5	64.84	6.699		
1,800.0	1,800.0	1,799.2	1,799.2	6.2	63.1	-31.32	371.1	-225.8	434.3	365.0	69.29	6.268		
1,900.0	1,900.0	1,899.2	1,899.2	6.6	67.2	-31.32	371.1	-225.8	434.3	360.6	73.75	5.890		
2,000.0	2,000.0	1,999.2	1,999.2	6.9	71.3	-31.32	371.1	-225.8	434.3	356.1	78.20	5.554 CC		
2,100.0	2,100.0	2,099.2	2,099.2	7.3	74.1	117.36	371.1	-225.8	435.1	353.8	81.38	5.347		
2,200.0	2,199.8	2,199.0	2,199.0	7.6	76.9	117.92	371.1	-225.8	437.6	353.0	84.53	5.177 ES		
2,300.0	2,299.5	2,298.7	2,298.7	7.9	79.7	118.85	371.1	-225.8	441.7	354.1	87.67	5.038		
2,400.0	2,398.7	2,397.9	2,397.9	8.3	82.5	120.12	371.1	-225.8	447.7	356.9	90.81	4.930		
2,500.0	2,497.9	2,497.1	2,497.1	8.6	85.3	121.54	371.1	-225.8	454.5	360.5	93.95	4.837		
2,600.0	2,597.0	2,596.2	2,596.2	9.0	88.1	122.91	371.1	-225.8	461.5	364.4	97.10	4.753		
2,700.0	2,696.1	2,695.3	2,695.3	9.3	90.9	124.25	371.1	-225.8	468.8	368.5	100.25	4.676		
2,800.0	2,795.3	2,794.5	2,794.5	9.7	93.7	125.55	371.1	-225.8	476.3	372.9	103.40	4.607		
2,900.0	2,894.4	2,893.6	2,893.6	10.0	96.5	126.80	371.1	-225.8	484.1	377.5	106.55	4.543		
3,000.0	2,993.5	2,992.7	2,992.7	10.4	99.3	128.02	371.1	-225.8	492.1	382.4	109.71	4.486		
3,100.0	3,092.7	3,091.9	3,091.9	10.8	101.8	129.19	371.1	-225.8	500.3	387.8	112.50	4.447		
3,200.0	3,191.8	3,191.0	3,191.0	11.1	104.2	130.33	371.1	-225.8	508.7	393.5	115.27	4.413		
3,300.0	3,291.0	3,290.2	3,290.2	11.5	106.6	131.43	371.1	-225.8	517.3	399.3	118.04	4.383		
3,400.0	3,390.1	3,389.3	3,389.3	11.9	109.0	132.49	371.1	-225.8	526.1	405.3	120.81	4.355		
3,500.0	3,489.2	3,488.4	3,488.4	12.2	111.4	133.52	371.1	-225.8	535.1	411.5	123.59	4.330		
3,600.0	3,588.4	3,587.6	3,587.6	12.6	113.8	134.52	371.1	-225.8	544.3	417.9	126.36	4.307		
3,700.0	3,687.5	3,686.7	3,686.7	13.0	116.3	135.48	371.1	-225.8	553.6	424.4	129.13	4.287		
3,800.0	3,786.7	3,785.9	3,785.9	13.4	118.7	136.41	371.1	-225.8	563.0	431.1	131.91	4.268		
3,900.0	3,885.8	3,885.0	3,885.0	13.8	121.1	137.31	371.1	-225.8	572.6	437.9	134.68	4.252		
4,000.0	3,984.9	3,984.1	3,984.1	14.1	123.5	138.18	371.1	-225.8	582.4	444.9	137.45	4.237 SF		
4,100.0	4,084.1	4,083.3	4,083.3	14.5	125.2	139.02	371.1	-225.8	592.2	452.7	139.48	4.246		
4,200.0	4,183.2	4,182.4	4,182.4	14.9	126.7	139.84	371.1	-225.8	602.2	460.8	141.37	4.260		
4,300.0	4,282.3	4,281.5	4,281.5	15.3	128.2	140.63	371.1	-225.8	612.3	469.1	143.25	4.274		
4,400.0	4,381.5	4,380.7	4,380.7	15.7	129.7	141.39	371.1	-225.8	622.5	477.4	145.13	4.289		
4,500.0	4,480.6	4,479.8	4,479.8	16.1	131.2	142.13	371.1	-225.8	632.8	485.8	147.02	4.305		
4,600.0	4,579.8	4,579.0	4,579.0	16.4	132.8	142.84	371.1	-225.8	643.3	494.4	148.90	4.320		
4,700.0	4,678.9	4,657.0	4,657.0	16.8	134.0	143.39	371.1	-225.8	654.1	503.8	150.36	4.350		
4,800.0	4,778.0	4,657.0	4,657.0	17.2	134.0	143.39	371.1	-225.8	675.2	526.8	148.34	4.552		
4,900.0	4,877.2	4,657.0	4,657.0	17.6	134.0	143.39	371.1	-225.8	709.8	566.1	143.76	4.938		
5,000.0	4,976.3	4,657.0	4,657.0	18.0	134.0	143.39	371.1	-225.8	756.2	618.7	137.53	5.499		
5,100.0	5,075.5	4,657.0	4,657.0	18.4	134.0	143.39	371.1	-225.8	812.3	681.8	130.55	6.223		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - EK Penrose Sand Unit 127 - OH - Inactive Injection													Offset Site Error:	0.0 usft
Survey Program: 1000-INC-ONLY													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Rule Assigned:				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.0	5,174.6	4,657.0	4,657.0	18.8	134.0	143.39	371.1	-225.8	876.3	752.9	123.44	7.099		
5,300.0	5,273.7	4,657.0	4,657.0	19.2	134.0	143.39	371.1	-225.8	946.5	829.9	116.60	8.118		
5,400.0	5,372.9	4,657.0	4,657.0	19.6	134.0	143.39	371.1	-225.8	1,021.7	911.5	110.24	9.268		
5,500.0	5,472.0	4,657.0	4,657.0	20.0	134.0	143.39	371.1	-225.8	1,100.9	996.4	104.45	10.540		
5,600.0	5,571.1	4,657.0	4,657.0	20.4	134.0	143.39	371.1	-225.8	1,183.2	1,083.9	99.23	11.923		
5,700.0	5,670.3	4,657.0	4,657.0	20.8	134.0	143.39	371.1	-225.8	1,268.0	1,173.5	94.56	13.410		
5,800.0	5,769.4	4,657.0	4,657.0	21.1	134.0	143.39	371.1	-225.8	1,354.9	1,264.6	90.39	14.990		
5,900.0	5,868.6	4,657.0	4,657.0	21.5	134.0	143.39	371.1	-225.8	1,443.6	1,356.9	86.68	16.655		
6,000.0	5,967.7	4,657.0	4,657.0	21.9	134.0	143.39	371.1	-225.8	1,533.6	1,450.2	83.36	18.397		
6,100.0	6,066.8	4,657.0	4,657.0	22.3	134.0	143.39	371.1	-225.8	1,624.8	1,544.4	80.40	20.210		
6,200.0	6,166.0	4,657.0	4,657.0	22.7	134.0	143.39	371.1	-225.8	1,716.9	1,639.2	77.75	22.084		
6,300.0	6,265.1	4,657.0	4,657.0	23.1	134.0	143.39	371.1	-225.8	1,809.9	1,734.6	75.37	24.015		
6,400.0	6,364.2	4,657.0	4,657.0	23.5	134.0	143.39	371.1	-225.8	1,903.6	1,830.4	73.23	25.995		
6,500.0	6,463.4	4,657.0	4,657.0	23.9	134.0	143.39	371.1	-225.8	1,998.0	1,926.7	71.31	28.018		
6,600.0	6,562.5	4,657.0	4,657.0	24.3	134.0	143.39	371.1	-225.8	2,092.8	2,023.2	69.58	30.080		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
11,500.0	9,300.0	9,311.4	9,310.1	54.3	194.9	-103.80	-5,103.1	-185.5	2,100.7	1,871.3	229.40	9.158		
11,600.0	9,300.0	9,309.2	9,307.9	55.5	194.9	-103.15	-5,103.1	-185.5	2,001.1	1,771.7	229.46	8.721		
11,700.0	9,300.0	9,307.0	9,305.7	56.6	194.8	-102.50	-5,103.2	-185.5	1,901.6	1,672.1	229.53	8.285		
11,800.0	9,300.0	9,304.8	9,303.5	57.8	194.8	-101.84	-5,103.2	-185.5	1,802.1	1,572.5	229.62	7.848		
11,900.0	9,300.0	9,302.6	9,301.4	59.0	194.7	-101.19	-5,103.2	-185.5	1,702.7	1,473.0	229.73	7.412		
12,000.0	9,300.0	9,300.5	9,299.2	60.2	194.7	-100.53	-5,103.3	-185.5	1,603.3	1,373.5	229.86	6.975		
12,100.0	9,300.0	9,298.3	9,297.0	61.4	194.6	-99.87	-5,103.3	-185.5	1,504.0	1,274.0	230.02	6.539		
12,200.0	9,300.0	9,296.1	9,294.8	62.7	194.6	-99.21	-5,103.4	-185.5	1,404.9	1,174.6	230.21	6.103		
12,300.0	9,300.0	9,294.0	9,292.7	63.9	194.5	-98.55	-5,103.4	-185.5	1,305.8	1,075.4	230.44	5.666		
12,400.0	9,300.0	9,291.8	9,290.5	65.1	194.4	-97.89	-5,103.5	-185.5	1,206.9	976.1	230.73	5.231		
12,500.0	9,300.0	9,289.6	9,288.4	66.4	194.4	-97.22	-5,103.5	-185.5	1,108.2	877.1	231.10	4.795		
12,600.0	9,300.0	9,287.5	9,286.2	67.6	194.3	-96.56	-5,103.6	-185.5	1,009.7	778.1	231.57	4.360		
12,700.0	9,300.0	9,285.4	9,284.1	68.9	194.3	-95.90	-5,103.6	-185.5	911.5	679.4	232.18	3.926		
12,800.0	9,300.0	9,283.2	9,282.0	70.2	194.2	-95.23	-5,103.7	-185.5	813.8	580.9	232.99	3.493		
12,900.0	9,300.0	9,281.1	9,279.8	71.5	194.2	-94.57	-5,103.7	-185.5	716.8	482.7	234.10	3.062		
13,000.0	9,300.0	9,279.0	9,277.7	72.8	194.1	-93.91	-5,103.8	-185.5	620.6	385.0	235.66	2.634		
13,100.0	9,300.0	9,276.8	9,275.6	74.0	194.1	-93.25	-5,103.8	-185.5	525.9	287.9	237.97	2.210		
13,200.0	9,300.0	9,274.7	9,273.5	75.3	194.0	-92.58	-5,103.8	-185.5	433.6	192.1	241.49	1.795		
13,300.0	9,300.0	9,272.6	9,271.3	76.6	194.0	-91.92	-5,103.9	-185.5	345.5	98.4	247.10	1.398 Level 3		
13,400.0	9,300.0	9,270.5	9,269.2	78.0	193.9	-91.26	-5,103.9	-185.5	266.0	9.9	256.05	1.039 Level 2		
13,500.0	9,300.0	9,268.4	9,267.1	79.3	193.9	-90.60	-5,104.0	-185.5	205.2	-62.9	268.14	0.765 Level 1		
13,593.2	9,300.0	9,266.4	9,265.2	80.5	193.8	-89.99	-5,104.0	-185.5	182.8	-91.2	274.05	0.667 Level 1, CC, ES, SF		
13,600.0	9,300.0	9,266.3	9,265.0	80.6	193.8	-89.95	-5,104.0	-185.5	183.0	-91.0	273.91	0.668 Level 1		
13,700.0	9,300.0	9,264.2	9,262.9	81.9	193.8	-89.29	-5,104.1	-185.5	211.7	-52.2	263.92	0.802 Level 1		
13,800.0	9,300.0	9,262.1	9,260.8	83.2	193.7	-88.64	-5,104.1	-185.5	276.0	25.0	251.02	1.099 Level 2		
13,900.0	9,300.0	9,260.0	9,258.8	84.6	193.7	-87.98	-5,104.1	-185.5	357.1	114.6	242.45	1.473 Level 3		
14,000.0	9,300.0	9,257.9	9,256.7	85.9	193.6	-87.33	-5,104.2	-185.5	445.9	208.5	237.38	1.878		
14,100.0	9,300.0	9,255.9	9,254.6	87.2	193.6	-86.68	-5,104.2	-185.5	538.6	304.3	234.34	2.299		
14,200.0	9,300.0	9,253.8	9,252.5	88.6	193.5	-86.04	-5,104.3	-185.5	633.6	401.1	232.45	2.726		
14,300.0	9,300.0	9,251.7	9,250.5	89.9	193.5	-85.39	-5,104.3	-185.5	729.9	498.7	231.23	3.157		
14,400.0	9,300.0	9,249.7	9,248.4	91.3	193.4	-84.75	-5,104.4	-185.5	827.1	596.7	230.40	3.590		
14,500.0	9,300.0	9,247.6	9,246.3	92.6	193.4	-84.11	-5,104.4	-185.5	924.8	695.0	229.82	4.024		
14,600.0	9,300.0	9,245.6	9,244.3	94.0	193.3	-83.48	-5,104.4	-185.5	1,023.0	793.6	229.41	4.459		
14,700.0	9,300.0	9,243.5	9,242.2	95.3	193.3	-82.84	-5,104.5	-185.5	1,121.5	892.4	229.12	4.895		
14,800.0	9,300.0	9,241.5	9,240.2	96.7	193.2	-82.21	-5,104.5	-185.5	1,220.3	991.4	228.89	5.331		
14,900.0	9,300.0	9,239.4	9,238.2	98.1	193.2	-81.59	-5,104.6	-185.5	1,319.2	1,090.5	228.73	5.768		
15,000.0	9,300.0	9,237.4	9,236.1	99.4	193.1	-80.96	-5,104.6	-185.5	1,418.3	1,189.7	228.60	6.204		
15,100.0	9,300.0	9,235.4	9,234.1	100.8	193.1	-80.34	-5,104.7	-185.5	1,517.5	1,289.0	228.51	6.641		
15,200.0	9,300.0	9,233.3	9,232.1	102.1	193.0	-79.73	-5,104.7	-185.5	1,616.8	1,388.4	228.43	7.078		
15,300.0	9,300.0	9,231.3	9,230.0	103.5	193.0	-79.12	-5,104.7	-185.5	1,716.2	1,487.8	228.38	7.515		
15,400.0	9,300.0	9,229.3	9,228.0	104.9	192.9	-78.51	-5,104.8	-185.5	1,815.6	1,587.3	228.34	7.951		
15,500.0	9,300.0	9,227.3	9,226.0	106.3	192.9	-77.90	-5,104.8	-185.5	1,915.1	1,686.8	228.31	8.388		
15,600.0	9,300.0	9,225.3	9,224.0	107.6	192.8	-77.30	-5,104.9	-185.5	2,014.7	1,786.4	228.29	8.825		
15,700.0	9,300.0	9,223.3	9,222.0	109.0	192.8	-76.71	-5,104.9	-185.5	2,114.2	1,886.0	228.27	9.262		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - McElvain 007 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 227-INC-ONLY												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance		Minimum Separation	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	9,300.0	9,291.4	9,290.2	41.0	197.1	-101.05	-3,773.2	-194.5	2,070.9	1,840.0	230.87	8.970	
10,300.0	9,300.0	9,289.7	9,288.4	41.9	197.0	-100.53	-3,773.2	-194.5	1,971.3	1,740.4	230.89	8.538	
10,400.0	9,300.0	9,287.9	9,286.7	42.8	197.0	-100.00	-3,773.2	-194.5	1,871.8	1,640.9	230.93	8.105	
10,500.0	9,300.0	9,286.2	9,284.9	43.7	196.9	-99.47	-3,773.3	-194.5	1,772.3	1,541.3	230.98	7.673	
10,600.0	9,300.0	9,284.4	9,283.2	44.7	196.9	-98.95	-3,773.3	-194.5	1,672.9	1,441.9	231.03	7.241	
10,700.0	9,300.0	9,282.7	9,281.4	45.7	196.8	-98.42	-3,773.3	-194.5	1,573.6	1,342.5	231.11	6.809	
10,800.0	9,300.0	9,281.0	9,279.7	46.7	196.8	-97.88	-3,773.4	-194.5	1,474.3	1,243.1	231.20	6.377	
10,900.0	9,300.0	9,279.2	9,278.0	47.7	196.7	-97.35	-3,773.4	-194.5	1,375.2	1,143.9	231.31	5.945	
11,000.0	9,300.0	9,277.5	9,276.2	48.8	196.7	-96.82	-3,773.4	-194.5	1,276.2	1,044.7	231.45	5.514	
11,100.0	9,300.0	9,275.7	9,274.5	49.9	196.7	-96.28	-3,773.5	-194.5	1,177.3	945.7	231.63	5.083	
11,200.0	9,300.0	9,274.0	9,272.7	50.9	196.6	-95.74	-3,773.5	-194.5	1,078.7	846.8	231.87	4.652	
11,300.0	9,300.0	9,272.2	9,271.0	52.1	196.6	-95.21	-3,773.5	-194.5	980.3	748.1	232.16	4.222	
11,400.0	9,300.0	9,270.5	9,269.2	53.2	196.5	-94.67	-3,773.6	-194.5	882.3	649.7	232.56	3.794	
11,500.0	9,300.0	9,268.7	9,267.5	54.3	196.5	-94.13	-3,773.6	-194.5	784.8	551.7	233.09	3.367	
11,600.0	9,300.0	9,267.0	9,265.7	55.5	196.4	-93.59	-3,773.6	-194.5	688.0	454.2	233.84	2.942	
11,700.0	9,300.0	9,265.3	9,264.0	56.6	196.4	-93.05	-3,773.6	-194.5	592.3	357.4	234.91	2.521	
11,800.0	9,300.0	9,263.5	9,262.3	57.8	196.4	-92.50	-3,773.7	-194.5	498.2	261.7	236.53	2.106	
11,900.0	9,300.0	9,261.8	9,260.5	59.0	196.3	-91.96	-3,773.7	-194.5	407.0	167.9	239.08	1.702	
12,000.0	9,300.0	9,260.0	9,258.8	60.2	196.3	-91.42	-3,773.7	-194.5	321.0	77.8	243.25	1.320	Level 3
12,100.0	9,300.0	9,258.3	9,257.0	61.4	196.2	-90.88	-3,773.8	-194.5	245.9	-4.0	249.90	0.984	Level 1
12,200.0	9,300.0	9,256.5	9,255.3	62.7	196.2	-90.33	-3,773.8	-194.5	194.7	-63.0	257.70	0.755	Level 1
12,262.9	9,300.0	9,255.4	9,254.2	63.4	196.1	-89.99	-3,773.8	-194.5	184.2	-75.2	259.36	0.710	Level 1, CC, ES, SF
12,300.0	9,300.0	9,254.8	9,253.5	63.9	196.1	-89.79	-3,773.8	-194.5	187.9	-70.1	258.00	0.728	Level 1
12,400.0	9,300.0	9,253.0	9,251.8	65.1	196.1	-89.25	-3,773.9	-194.5	229.5	-19.8	249.34	0.921	Level 1
12,500.0	9,300.0	9,251.3	9,250.0	66.4	196.0	-88.71	-3,773.9	-194.5	300.1	58.6	241.56	1.242	Level 2
12,600.0	9,300.0	9,249.5	9,248.3	67.6	196.0	-88.16	-3,773.9	-194.5	384.0	147.1	236.91	1.621	
12,700.0	9,300.0	9,247.8	9,246.5	68.9	196.0	-87.62	-3,773.9	-194.5	474.2	239.9	234.28	2.024	
12,800.0	9,300.0	9,246.1	9,244.8	70.2	195.9	-87.08	-3,774.0	-194.5	567.6	334.9	232.74	2.439	
12,900.0	9,300.0	9,244.3	9,243.1	71.5	195.9	-86.54	-3,774.0	-194.5	663.0	431.2	231.79	2.860	
13,000.0	9,300.0	9,242.6	9,241.3	72.8	195.8	-86.00	-3,774.0	-194.5	759.6	528.4	231.19	3.286	
13,100.0	9,300.0	9,240.8	9,239.6	74.0	195.8	-85.46	-3,774.1	-194.5	856.9	626.1	230.78	3.713	
13,200.0	9,300.0	9,239.1	9,237.8	75.3	195.7	-84.92	-3,774.1	-194.5	954.8	724.3	230.50	4.142	
13,300.0	9,300.0	9,237.3	9,236.1	76.6	195.7	-84.38	-3,774.1	-194.5	1,053.1	822.8	230.30	4.573	
13,400.0	9,300.0	9,235.6	9,234.3	78.0	195.6	-83.84	-3,774.2	-194.5	1,151.7	921.5	230.16	5.004	
13,500.0	9,300.0	9,233.8	9,232.6	79.3	195.6	-83.31	-3,774.2	-194.5	1,250.5	1,020.4	230.05	5.436	
13,600.0	9,300.0	9,232.1	9,230.8	80.6	195.6	-82.77	-3,774.2	-194.5	1,349.4	1,119.5	229.98	5.868	
13,700.0	9,300.0	9,230.3	9,229.1	81.9	195.5	-82.24	-3,774.3	-194.5	1,448.5	1,218.6	229.92	6.300	
13,800.0	9,300.0	9,228.6	9,227.4	83.2	195.5	-81.71	-3,774.3	-194.5	1,547.8	1,317.9	229.88	6.733	
13,900.0	9,300.0	9,226.9	9,225.6	84.6	195.4	-81.18	-3,774.3	-194.5	1,647.1	1,417.2	229.84	7.166	
14,000.0	9,300.0	9,225.1	9,223.9	85.9	195.4	-80.65	-3,774.3	-194.5	1,746.5	1,516.7	229.82	7.599	
14,100.0	9,300.0	9,223.4	9,222.1	87.2	195.3	-80.12	-3,774.4	-194.5	1,845.9	1,616.1	229.81	8.033	
14,200.0	9,300.0	9,221.6	9,220.4	88.6	195.3	-79.59	-3,774.4	-194.5	1,945.5	1,715.7	229.80	8.466	
14,300.0	9,300.0	9,219.9	9,218.6	89.9	195.3	-79.07	-3,774.4	-194.5	2,045.0	1,815.2	229.79	8.899	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Mescalero 36 State 003 - OH - OH													Offset Site Error:	0.0 usft
Survey Program: 281-INC-ONLY													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
17,400.0	9,300.0	9,243.9	9,242.2	132.7	203.0	-91.91	-10,343.6	1,171.5	2,081.5	1,776.2	305.35	6.817		
17,500.0	9,300.0	9,240.5	9,238.7	134.1	202.9	-91.78	-10,343.7	1,171.5	2,013.5	1,704.4	309.05	6.515		
17,600.0	9,300.0	9,237.0	9,235.2	135.5	202.8	-91.64	-10,343.9	1,171.5	1,948.2	1,635.3	312.89	6.226		
17,700.0	9,300.0	9,233.5	9,231.7	136.9	202.7	-91.51	-10,344.0	1,171.5	1,885.9	1,569.0	316.86	5.952		
17,800.0	9,300.0	9,230.0	9,228.2	138.3	202.6	-91.38	-10,344.1	1,171.5	1,827.0	1,506.1	320.92	5.693		
17,900.0	9,300.0	9,226.5	9,224.8	139.7	202.5	-91.24	-10,344.2	1,171.5	1,771.8	1,446.7	325.05	5.451		
18,000.0	9,300.0	9,223.0	9,221.3	141.1	202.4	-91.11	-10,344.3	1,171.5	1,720.6	1,391.4	329.18	5.227		
18,100.0	9,300.0	9,219.5	9,217.8	142.5	202.3	-90.98	-10,344.5	1,171.5	1,673.8	1,340.5	333.27	5.022		
18,200.0	9,300.0	9,216.0	9,214.3	143.9	202.2	-90.84	-10,344.6	1,171.5	1,631.8	1,294.6	337.24	4.839		
18,300.0	9,300.0	9,212.5	9,210.8	145.3	202.1	-90.71	-10,344.7	1,171.5	1,595.0	1,254.0	341.02	4.677		
18,400.0	9,300.0	9,209.0	9,207.3	146.7	202.0	-90.58	-10,344.8	1,171.5	1,563.7	1,219.2	344.51	4.539		
18,500.0	9,300.0	9,205.6	9,203.8	148.2	201.9	-90.44	-10,345.0	1,171.5	1,538.2	1,190.6	347.63	4.425		
18,600.0	9,300.0	9,202.1	9,200.3	149.6	201.8	-90.31	-10,345.1	1,171.5	1,519.0	1,168.7	350.30	4.336		
18,700.0	9,300.0	9,198.6	9,196.8	151.0	201.7	-90.18	-10,345.2	1,171.5	1,506.1	1,153.7	352.44	4.273		
18,800.0	9,300.0	9,195.1	9,193.4	152.4	201.6	-90.04	-10,345.3	1,171.5	1,499.8	1,145.8	353.98	4.237		
18,845.0	9,300.0	9,193.5	9,191.8	153.0	201.6	-89.98	-10,345.4	1,171.5	1,499.1	1,144.6	354.48	4.229 CC, ES		
18,900.0	9,300.0	9,191.6	9,189.9	153.8	201.5	-89.91	-10,345.4	1,171.5	1,500.1	1,145.2	354.90	4.227 SF		
19,000.0	9,300.0	9,188.1	9,186.4	155.2	201.4	-89.78	-10,345.6	1,171.5	1,507.1	1,151.9	355.18	4.243		
19,100.0	9,300.0	9,184.6	9,182.9	156.6	201.3	-89.64	-10,345.7	1,171.5	1,520.6	1,165.8	354.83	4.285		
19,200.0	9,300.0	9,181.1	9,179.4	158.1	201.2	-89.51	-10,345.8	1,171.5	1,540.5	1,186.6	353.89	4.353		
19,300.0	9,300.0	9,177.6	9,175.9	159.5	201.1	-89.38	-10,345.9	1,171.5	1,566.6	1,214.2	352.42	4.445		
19,400.0	9,300.0	9,174.1	9,172.4	160.9	201.0	-89.24	-10,346.1	1,171.5	1,598.4	1,248.0	350.48	4.561		
19,500.0	9,300.0	9,170.7	9,168.9	162.3	200.9	-89.11	-10,346.2	1,171.5	1,635.8	1,287.7	348.15	4.699		
19,553.8	9,300.0	9,168.8	9,167.1	163.1	200.8	-89.04	-10,346.2	1,171.5	1,658.1	1,311.3	346.76	4.782		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 001 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 308-INC-ONLY												Offset Well Error:	0.0 usft
Reference	Offset	Rule Assigned:											
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	Distance	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,900.0	9,300.0	9,277.3	9,276.2	71.5	195.7	-103.63	-6,426.0	-176.6	2,023.9	1,792.7	231.18	8.754	
13,000.0	9,300.0	9,275.1	9,274.0	72.8	195.6	-102.97	-6,426.1	-176.6	1,924.3	1,693.0	231.31	8.319	
13,100.0	9,300.0	9,272.8	9,271.8	74.0	195.6	-102.30	-6,426.1	-176.6	1,824.8	1,593.4	231.46	7.884	
13,200.0	9,300.0	9,270.6	9,269.6	75.3	195.5	-101.63	-6,426.2	-176.6	1,725.4	1,493.7	231.63	7.449	
13,300.0	9,300.0	9,268.4	9,267.3	76.6	195.5	-100.96	-6,426.2	-176.6	1,626.0	1,394.1	231.84	7.013	
13,400.0	9,300.0	9,266.2	9,265.1	78.0	195.4	-100.29	-6,426.3	-176.6	1,526.7	1,294.6	232.08	6.578	
13,500.0	9,300.0	9,264.0	9,262.9	79.3	195.4	-99.61	-6,426.3	-176.6	1,427.5	1,195.1	232.36	6.143	
13,600.0	9,300.0	9,261.8	9,260.7	80.6	195.3	-98.94	-6,426.3	-176.6	1,328.3	1,095.6	232.71	5.708	
13,700.0	9,300.0	9,259.6	9,258.5	81.9	195.3	-98.26	-6,426.4	-176.6	1,229.4	996.3	233.13	5.273	
13,800.0	9,300.0	9,257.4	9,256.4	83.2	195.2	-97.58	-6,426.4	-176.6	1,130.6	896.9	233.66	4.839	
13,900.0	9,300.0	9,255.2	9,254.2	84.6	195.2	-96.90	-6,426.5	-176.6	1,032.0	797.7	234.31	4.405	
14,000.0	9,300.0	9,253.0	9,252.0	85.9	195.1	-96.22	-6,426.5	-176.6	933.8	698.6	235.16	3.971	
14,100.0	9,300.0	9,250.9	9,249.8	87.2	195.1	-95.54	-6,426.6	-176.6	836.0	599.7	236.26	3.538	
14,200.0	9,300.0	9,248.7	9,247.6	88.6	195.0	-94.86	-6,426.6	-176.6	738.7	500.9	237.75	3.107	
14,300.0	9,300.0	9,246.5	9,245.5	89.9	195.0	-94.18	-6,426.7	-176.6	642.2	402.4	239.82	2.678	
14,400.0	9,300.0	9,244.3	9,243.3	91.3	194.9	-93.50	-6,426.7	-176.6	547.1	304.3	242.79	2.253	
14,500.0	9,300.0	9,242.2	9,241.1	92.6	194.9	-92.82	-6,426.8	-176.6	454.0	206.7	247.25	1.836	
14,600.0	9,300.0	9,240.0	9,239.0	94.0	194.8	-92.14	-6,426.8	-176.6	364.5	110.3	254.18	1.434	Level 3
14,700.0	9,300.0	9,237.9	9,236.8	95.3	194.8	-91.46	-6,426.9	-176.6	282.2	17.1	265.15	1.064	Level 2
14,800.0	9,300.0	9,235.7	9,234.7	96.7	194.8	-90.78	-6,426.9	-176.6	215.5	-65.4	280.90	0.767	Level 1
14,900.0	9,300.0	9,233.6	9,232.5	98.1	194.7	-90.10	-6,427.0	-176.6	182.2	-110.5	292.73	0.623	Level 1
14,916.2	9,300.0	9,233.2	9,232.2	98.3	194.7	-89.99	-6,427.0	-176.6	181.5	-111.3	292.82	0.620	Level 1, CC, ES, SF
15,000.0	9,300.0	9,231.4	9,230.4	99.4	194.7	-89.42	-6,427.0	-176.6	199.9	-83.9	283.82	0.704	Level 1
15,100.0	9,300.0	9,229.3	9,228.2	100.8	194.6	-88.75	-6,427.0	-176.6	258.3	-7.8	266.10	0.971	Level 1
15,200.0	9,300.0	9,227.1	9,226.1	102.1	194.6	-88.08	-6,427.1	-176.6	336.8	83.7	253.13	1.331	Level 3
15,300.0	9,300.0	9,225.0	9,224.0	103.5	194.5	-87.40	-6,427.1	-176.6	424.5	179.3	245.17	1.731	
15,400.0	9,300.0	9,222.9	9,221.8	104.9	194.5	-86.73	-6,427.2	-176.6	516.6	276.3	240.32	2.150	
15,500.0	9,300.0	9,220.8	9,219.7	106.3	194.4	-86.07	-6,427.2	-176.6	611.2	374.0	237.26	2.576	
15,600.0	9,300.0	9,218.6	9,217.6	107.6	194.4	-85.40	-6,427.3	-176.6	707.3	472.1	235.26	3.007	
15,700.0	9,300.0	9,216.5	9,215.5	109.0	194.3	-84.74	-6,427.3	-176.6	804.4	570.5	233.90	3.439	
15,800.0	9,300.0	9,214.4	9,213.4	110.4	194.3	-84.08	-6,427.4	-176.6	902.0	669.1	232.95	3.872	
15,900.0	9,300.0	9,212.3	9,211.3	111.8	194.2	-83.42	-6,427.4	-176.6	1,000.2	767.9	232.27	4.306	
16,000.0	9,300.0	9,210.2	9,209.2	113.2	194.2	-82.77	-6,427.5	-176.6	1,098.7	866.9	231.77	4.740	
16,100.0	9,300.0	9,208.1	9,207.1	114.6	194.2	-82.11	-6,427.5	-176.6	1,197.4	966.0	231.40	5.174	
16,200.0	9,300.0	9,206.0	9,205.0	115.9	194.1	-81.47	-6,427.5	-176.6	1,296.3	1,065.2	231.12	5.609	
16,300.0	9,300.0	9,203.9	9,202.9	117.3	194.1	-80.82	-6,427.6	-176.6	1,395.3	1,164.4	230.91	6.043	
16,400.0	9,300.0	9,201.8	9,200.8	118.7	194.0	-80.18	-6,427.6	-176.6	1,494.5	1,263.8	230.75	6.477	
16,500.0	9,300.0	9,199.7	9,198.7	120.1	194.0	-79.54	-6,427.7	-176.6	1,593.8	1,363.2	230.62	6.911	
16,600.0	9,300.0	9,197.7	9,196.6	121.5	193.9	-78.91	-6,427.7	-176.6	1,693.2	1,462.6	230.53	7.345	
16,700.0	9,300.0	9,195.6	9,194.5	122.9	193.9	-78.28	-6,427.8	-176.6	1,792.6	1,562.2	230.46	7.778	
16,800.0	9,300.0	9,193.5	9,192.5	124.3	193.8	-77.65	-6,427.8	-176.6	1,892.1	1,661.7	230.41	8.212	
16,900.0	9,300.0	9,191.4	9,190.4	125.7	193.8	-77.03	-6,427.9	-176.6	1,991.6	1,761.3	230.37	8.645	
17,000.0	9,300.0	9,189.4	9,188.3	127.1	193.8	-76.41	-6,427.9	-176.6	2,091.2	1,860.9	230.34	9.079	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 002 - OH - OH													Offset Site Error: 0.0 usft
Survey Program: 307-INC-ONLY													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,500.0	9,300.0	9,252.4	9,251.4	79.3	194.1	-90.92	-6,411.6	1,144.5	2,061.4	1,802.0	259.47	7.945	
13,600.0	9,300.0	9,250.7	9,249.6	80.6	194.1	-90.85	-6,411.6	1,144.5	1,994.3	1,732.6	261.76	7.619	
13,700.0	9,300.0	9,248.9	9,247.9	81.9	194.0	-90.79	-6,411.6	1,144.5	1,930.1	1,665.9	264.17	7.306	
13,800.0	9,300.0	9,247.2	9,246.1	83.2	194.0	-90.72	-6,411.6	1,144.5	1,868.9	1,602.2	266.68	7.008	
13,900.0	9,300.0	9,245.4	9,244.4	84.6	194.0	-90.66	-6,411.7	1,144.5	1,811.3	1,542.0	269.26	6.727	
14,000.0	9,300.0	9,243.7	9,242.7	85.9	193.9	-90.59	-6,411.7	1,144.5	1,757.4	1,485.5	271.91	6.463	
14,100.0	9,300.0	9,242.0	9,240.9	87.2	193.9	-90.52	-6,411.7	1,144.5	1,707.7	1,433.1	274.59	6.219	
14,200.0	9,300.0	9,240.3	9,239.2	88.6	193.9	-90.46	-6,411.8	1,144.5	1,662.5	1,385.2	277.26	5.996	
14,300.0	9,300.0	9,238.5	9,237.5	89.9	193.8	-90.39	-6,411.8	1,144.5	1,622.2	1,342.4	279.87	5.796	
14,400.0	9,300.0	9,236.8	9,235.8	91.3	193.8	-90.33	-6,411.8	1,144.5	1,587.3	1,304.9	282.39	5.621	
14,500.0	9,300.0	9,235.1	9,234.0	92.6	193.8	-90.26	-6,411.9	1,144.5	1,557.9	1,273.2	284.75	5.471	
14,600.0	9,300.0	9,233.4	9,232.3	94.0	193.7	-90.20	-6,411.9	1,144.5	1,534.6	1,247.7	286.90	5.349	
14,700.0	9,300.0	9,231.7	9,230.6	95.3	193.7	-90.13	-6,411.9	1,144.5	1,517.4	1,228.7	288.78	5.255	
14,800.0	9,300.0	9,230.0	9,228.9	96.7	193.7	-90.06	-6,411.9	1,144.5	1,506.8	1,216.4	290.34	5.190	
14,900.0	9,300.0	9,228.2	9,227.2	98.1	193.6	-90.00	-6,412.0	1,144.5	1,502.7	1,211.1	291.56	5.154	
14,911.5	9,300.0	9,228.1	9,227.0	98.2	193.6	-89.99	-6,412.0	1,144.5	1,502.6	1,211.0	291.67	5.152 CC, ES	
15,000.0	9,300.0	9,226.5	9,225.5	99.4	193.6	-89.93	-6,412.0	1,144.5	1,505.2	1,212.8	292.40	5.148 SF	
15,100.0	9,300.0	9,224.8	9,223.8	100.8	193.6	-89.87	-6,412.0	1,144.5	1,514.4	1,221.6	292.85	5.171	
15,200.0	9,300.0	9,223.1	9,222.1	102.1	193.5	-89.81	-6,412.1	1,144.5	1,530.1	1,237.1	292.93	5.223	
15,300.0	9,300.0	9,221.5	9,220.4	103.5	193.5	-89.74	-6,412.1	1,144.5	1,552.0	1,259.4	292.66	5.303	
15,400.0	9,300.0	9,219.8	9,218.7	104.9	193.5	-89.68	-6,412.1	1,144.5	1,580.0	1,288.0	292.06	5.410	
15,500.0	9,300.0	9,218.1	9,217.0	106.3	193.4	-89.61	-6,412.1	1,144.5	1,613.7	1,322.6	291.18	5.542	
15,600.0	9,300.0	9,216.4	9,215.3	107.6	193.4	-89.55	-6,412.2	1,144.5	1,652.8	1,362.8	290.07	5.698	
15,700.0	9,300.0	9,214.7	9,213.7	109.0	193.3	-89.48	-6,412.2	1,144.5	1,696.9	1,408.1	288.76	5.877	
15,800.0	9,300.0	9,213.0	9,212.0	110.4	193.3	-89.42	-6,412.2	1,144.5	1,745.6	1,458.3	287.31	6.076	
15,900.0	9,300.0	9,211.4	9,210.3	111.8	193.3	-89.36	-6,412.3	1,144.5	1,798.6	1,512.8	285.76	6.294	
16,000.0	9,300.0	9,209.7	9,208.6	113.2	193.2	-89.29	-6,412.3	1,144.5	1,855.4	1,571.3	284.13	6.530	
16,100.0	9,300.0	9,208.0	9,207.0	114.6	193.2	-89.23	-6,412.3	1,144.5	1,915.8	1,633.3	282.47	6.782	
16,200.0	9,300.0	9,206.3	9,205.3	115.9	193.2	-89.16	-6,412.3	1,144.5	1,979.3	1,698.5	280.80	7.049	
16,300.0	9,300.0	9,204.7	9,203.6	117.3	193.1	-89.10	-6,412.4	1,144.5	2,045.8	1,766.7	279.14	7.329	
16,400.0	9,300.0	9,203.0	9,202.0	118.7	193.1	-89.04	-6,412.4	1,144.5	2,114.9	1,837.4	277.51	7.621	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - New Mexico 36 State 004 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 251-INC-ONLY												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,200.0	9,300.0	9,235.8	9,235.1	88.6	185.6	-98.50	-7,767.1	-167.6	2,064.4	1,842.2	222.27	9.288	
14,300.0	9,300.0	9,234.5	9,233.8	89.9	185.6	-98.09	-7,767.2	-167.6	1,964.9	1,742.4	222.46	8.832	
14,400.0	9,300.0	9,233.2	9,232.5	91.3	185.5	-97.68	-7,767.2	-167.6	1,865.3	1,642.6	222.69	8.376	
14,500.0	9,300.0	9,231.9	9,231.2	92.6	185.5	-97.27	-7,767.2	-167.6	1,765.8	1,542.9	222.94	7.921	
14,600.0	9,300.0	9,230.6	9,229.9	94.0	185.5	-96.86	-7,767.2	-167.6	1,666.4	1,443.1	223.23	7.465	
14,700.0	9,300.0	9,229.3	9,228.6	95.3	185.5	-96.45	-7,767.2	-167.6	1,567.0	1,343.4	223.56	7.009	
14,800.0	9,300.0	9,228.0	9,227.2	96.7	185.4	-96.04	-7,767.2	-167.6	1,467.7	1,243.8	223.95	6.554	
14,900.0	9,300.0	9,226.7	9,225.9	98.1	185.4	-95.63	-7,767.3	-167.6	1,368.5	1,144.1	224.41	6.098	
15,000.0	9,300.0	9,225.4	9,224.6	99.4	185.4	-95.21	-7,767.3	-167.6	1,269.5	1,044.5	224.96	5.643	
15,100.0	9,300.0	9,224.0	9,223.3	100.8	185.3	-94.80	-7,767.3	-167.6	1,170.6	945.0	225.63	5.188	
15,200.0	9,300.0	9,222.7	9,222.0	102.1	185.3	-94.39	-7,767.3	-167.6	1,071.9	845.4	226.46	4.733	
15,300.0	9,300.0	9,221.4	9,220.7	103.5	185.3	-93.97	-7,767.3	-167.6	973.5	746.0	227.49	4.279	
15,400.0	9,300.0	9,220.1	9,219.4	104.9	185.3	-93.56	-7,767.3	-167.6	875.4	646.6	228.83	3.826	
15,500.0	9,300.0	9,218.8	9,218.1	106.3	185.2	-93.14	-7,767.4	-167.6	777.8	547.2	230.59	3.373	
15,600.0	9,300.0	9,217.5	9,216.8	107.6	185.2	-92.73	-7,767.4	-167.6	680.9	447.9	232.98	2.923	
15,700.0	9,300.0	9,216.2	9,215.5	109.0	185.2	-92.31	-7,767.4	-167.6	585.1	348.8	236.34	2.476	
15,800.0	9,300.0	9,214.9	9,214.2	110.4	185.2	-91.90	-7,767.4	-167.6	490.9	249.7	241.22	2.035	
15,900.0	9,300.0	9,213.6	9,212.9	111.8	185.1	-91.48	-7,767.4	-167.6	399.6	151.0	248.62	1.607	
16,000.0	9,300.0	9,212.3	9,211.5	113.2	185.1	-91.06	-7,767.4	-167.6	313.6	53.4	260.20	1.205	Level 2
16,100.0	9,300.0	9,211.0	9,210.2	114.6	185.1	-90.65	-7,767.5	-167.6	238.7	-39.1	277.84	0.859	Level 1
16,200.0	9,300.0	9,209.6	9,208.9	115.9	185.1	-90.23	-7,767.5	-167.6	188.8	-108.8	297.61	0.634	Level 1
16,256.7	9,300.0	9,208.9	9,208.2	116.7	185.0	-89.99	-7,767.5	-167.6	180.0	-121.6	301.65	0.597	Level 1, CC, ES, SF
16,300.0	9,300.0	9,208.3	9,207.6	117.3	185.0	-89.81	-7,767.5	-167.6	185.2	-112.9	298.07	0.621	Level 1
16,400.0	9,300.0	9,207.0	9,206.3	118.7	185.0	-89.40	-7,767.5	-167.6	230.1	-47.2	277.28	0.830	Level 1
16,500.0	9,300.0	9,205.7	9,205.0	120.1	185.0	-88.98	-7,767.5	-167.6	302.6	44.5	258.09	1.173	Level 2
16,600.0	9,300.0	9,204.4	9,203.7	121.5	185.0	-88.56	-7,767.5	-167.6	387.6	141.9	245.72	1.577	
16,700.0	9,300.0	9,203.1	9,202.4	122.9	184.9	-88.15	-7,767.6	-167.6	478.4	240.3	238.09	2.009	
16,800.0	9,300.0	9,201.8	9,201.1	124.3	184.9	-87.73	-7,767.6	-167.6	572.3	339.0	233.27	2.453	
16,900.0	9,300.0	9,200.5	9,199.8	125.7	184.9	-87.32	-7,767.6	-167.6	667.9	437.8	230.12	2.902	
17,000.0	9,300.0	9,199.2	9,198.5	127.1	184.9	-86.90	-7,767.6	-167.6	764.7	536.7	227.98	3.354	
17,100.0	9,300.0	9,197.9	9,197.1	128.5	184.8	-86.49	-7,767.6	-167.6	862.2	635.7	226.50	3.807	
17,200.0	9,300.0	9,196.6	9,195.8	129.9	184.8	-86.07	-7,767.7	-167.6	960.2	734.8	225.44	4.259	
17,300.0	9,300.0	9,195.2	9,194.5	131.3	184.8	-85.66	-7,767.7	-167.6	1,058.6	833.9	224.67	4.712	
17,400.0	9,300.0	9,193.9	9,193.2	132.7	184.8	-85.24	-7,767.7	-167.6	1,157.2	933.1	224.10	5.164	
17,500.0	9,300.0	9,192.6	9,191.9	134.1	184.7	-84.83	-7,767.7	-167.6	1,256.1	1,032.4	223.67	5.616	
17,600.0	9,300.0	9,191.3	9,190.6	135.5	184.7	-84.42	-7,767.7	-167.6	1,355.1	1,131.8	223.35	6.067	
17,700.0	9,300.0	9,190.0	9,189.3	136.9	184.7	-84.00	-7,767.7	-167.6	1,454.3	1,231.2	223.10	6.519	
17,800.0	9,300.0	9,188.7	9,188.0	138.3	184.6	-83.59	-7,767.8	-167.6	1,553.6	1,330.7	222.92	6.969	
17,900.0	9,300.0	9,187.4	9,186.7	139.7	184.6	-83.18	-7,767.8	-167.6	1,652.9	1,430.2	222.78	7.420	
18,000.0	9,300.0	9,186.1	9,185.4	141.1	184.6	-82.77	-7,767.8	-167.6	1,752.4	1,529.7	222.68	7.870	
18,100.0	9,300.0	9,184.8	9,184.1	142.5	184.6	-82.36	-7,767.8	-167.6	1,851.9	1,629.3	222.60	8.319	
18,200.0	9,300.0	9,183.5	9,182.7	143.9	184.5	-81.95	-7,767.8	-167.6	1,951.4	1,728.9	222.55	8.768	
18,300.0	9,300.0	9,182.2	9,181.4	145.3	184.5	-81.55	-7,767.8	-167.6	2,051.0	1,828.5	222.51	9.217	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	2.8	2.8	0.0	0.0	6.32	160.3	17.8	161.3				
100.0	100.0	102.8	102.8	0.1	0.1	6.32	160.3	17.8	161.3	161.0	0.27	589.662	
200.0	200.0	202.8	202.8	0.5	0.5	6.32	160.3	17.8	161.3	160.3	0.99	162.835	
300.0	300.0	302.8	302.8	0.8	0.9	6.32	160.3	17.8	161.3	159.6	1.71	94.460	
400.0	400.0	402.8	402.8	1.2	1.2	6.32	160.3	17.8	161.3	158.9	2.42	66.526	
500.0	500.0	502.8	502.8	1.6	1.6	6.32	160.3	17.8	161.3	158.1	3.14	51.342	
600.0	600.0	602.8	602.8	1.9	1.9	6.32	160.3	17.8	161.3	157.4	3.86	41.802	
700.0	700.0	702.8	702.8	2.3	2.3	6.32	160.3	17.8	161.3	156.7	4.58	35.251	
800.0	800.0	802.8	802.8	2.6	2.7	6.32	160.3	17.8	161.3	156.0	5.29	30.476	
900.0	900.0	902.8	902.8	3.0	3.0	6.32	160.3	17.8	161.3	155.3	6.01	26.840	
1,000.0	1,000.0	1,002.8	1,002.8	3.4	3.4	6.32	160.3	17.8	161.3	154.6	6.73	23.979	
1,100.0	1,100.0	1,102.8	1,102.8	3.7	3.7	6.32	160.3	17.8	161.3	153.8	7.44	21.669	
1,200.0	1,200.0	1,202.8	1,202.8	4.1	4.1	6.32	160.3	17.8	161.3	153.1	8.16	19.765	
1,300.0	1,300.0	1,302.8	1,302.8	4.4	4.4	6.32	160.3	17.8	161.3	152.4	8.88	18.169	
1,400.0	1,400.0	1,402.8	1,402.8	4.8	4.8	6.32	160.3	17.8	161.3	151.7	9.59	16.811	
1,500.0	1,500.0	1,502.8	1,502.8	5.2	5.2	6.32	160.3	17.8	161.3	151.0	10.31	15.642	
1,600.0	1,600.0	1,602.8	1,602.8	5.5	5.5	6.32	160.3	17.8	161.3	150.3	11.03	14.625	
1,700.0	1,700.0	1,702.8	1,702.8	5.9	5.9	6.32	160.3	17.8	161.3	149.5	11.74	13.732	
1,800.0	1,800.0	1,802.8	1,802.8	6.2	6.2	6.32	160.3	17.8	161.3	148.8	12.46	12.942	
1,900.0	1,900.0	1,902.8	1,902.8	6.6	6.6	6.32	160.3	17.8	161.3	148.1	13.18	12.238	
2,000.0	2,000.0	2,003.0	2,003.0	6.9	7.0	6.32	160.3	17.8	161.3	147.4	13.90	11.607	
2,100.0	2,100.0	2,108.7	2,108.7	7.3	7.3	155.28	158.3	18.1	161.0	146.4	14.59	11.036	
2,200.0	2,199.8	2,214.3	2,214.1	7.6	7.7	156.70	152.4	19.0	160.4	145.1	15.23	10.526	
2,265.4	2,265.0	2,282.0	2,281.5	7.8	7.9	158.09	146.7	20.0	160.0	144.3	15.66	10.216 CC	
2,300.0	2,299.5	2,316.5	2,315.9	7.9	8.0	158.91	143.6	20.4	160.2	144.3	15.89	10.082 ES	
2,400.0	2,398.7	2,416.2	2,415.2	8.3	8.3	161.48	134.7	21.9	163.1	146.5	16.55	9.854	
2,500.0	2,497.9	2,515.8	2,514.4	8.6	8.7	164.07	125.8	23.3	167.3	150.1	17.22	9.716	
2,600.0	2,597.0	2,615.5	2,613.6	9.0	9.0	166.53	116.9	24.8	171.9	154.0	17.89	9.604	
2,700.0	2,696.1	2,715.1	2,712.9	9.3	9.3	168.85	108.0	26.2	176.7	158.1	18.57	9.513	
2,800.0	2,795.3	2,814.7	2,812.1	9.7	9.7	171.05	99.1	27.6	181.8	162.6	19.26	9.441	
2,900.0	2,894.4	2,914.4	2,911.3	10.0	10.0	173.13	90.2	29.1	187.2	167.3	19.95	9.385	
3,000.0	2,993.5	3,014.0	3,010.5	10.4	10.4	175.09	81.3	30.5	192.8	172.2	20.64	9.343	
3,100.0	3,092.7	3,113.6	3,109.8	10.8	10.7	176.94	72.3	31.9	198.6	177.3	21.33	9.311	
3,200.0	3,191.8	3,213.3	3,209.0	11.1	11.1	178.68	63.4	33.4	204.7	182.6	22.03	9.289	
3,300.0	3,291.0	3,312.9	3,308.2	11.5	11.4	-179.68	54.5	34.8	210.8	188.1	22.73	9.275	
3,400.0	3,390.1	3,412.5	3,407.4	11.9	11.8	-178.14	45.6	36.2	217.2	193.8	23.44	9.267	
3,500.0	3,489.2	3,512.1	3,506.6	12.2	12.2	-176.68	36.7	37.7	223.7	199.6	24.15	9.265	
3,600.0	3,588.4	3,611.8	3,605.9	12.6	12.5	-175.31	27.8	39.1	230.4	205.5	24.86	9.268	
3,700.0	3,687.5	3,711.4	3,705.1	13.0	12.9	-174.01	18.9	40.5	237.1	211.6	25.57	9.274	
3,800.0	3,786.7	3,811.0	3,804.3	13.4	13.2	-172.79	10.0	42.0	244.0	217.7	26.28	9.283	
3,900.0	3,885.8	3,910.7	3,903.5	13.8	13.6	-171.63	1.1	43.4	251.0	224.0	27.00	9.295	
4,000.0	3,984.9	4,010.3	4,002.7	14.1	14.0	-170.54	-7.8	44.8	258.1	230.3	27.72	9.310	
4,100.0	4,084.1	4,109.9	4,102.0	14.5	14.3	-169.50	-16.7	46.3	265.2	236.8	28.44	9.325	
4,200.0	4,183.2	4,209.6	4,201.2	14.9	14.7	-168.52	-25.6	47.7	272.5	243.3	29.17	9.343	
4,300.0	4,282.3	4,309.2	4,300.4	15.3	15.1	-167.60	-34.5	49.1	279.8	249.9	29.89	9.361	
4,400.0	4,381.5	4,408.8	4,399.6	15.7	15.4	-166.71	-43.5	50.6	287.2	256.6	30.62	9.380	
4,500.0	4,480.6	4,508.5	4,498.9	16.1	15.8	-165.88	-52.4	52.0	294.7	263.3	31.35	9.400	
4,600.0	4,579.8	4,608.1	4,598.1	16.4	16.2	-165.08	-61.3	53.4	302.2	270.1	32.08	9.420	
4,700.0	4,678.9	4,707.7	4,697.3	16.8	16.5	-164.32	-70.2	54.9	309.8	277.0	32.81	9.441	
4,800.0	4,778.0	4,807.3	4,796.5	17.2	16.9	-163.60	-79.1	56.3	317.4	283.9	33.55	9.462	
4,900.0	4,877.2	4,907.0	4,895.7	17.6	17.3	-162.92	-88.0	57.7	325.1	290.8	34.28	9.483	
5,000.0	4,976.3	5,006.6	4,995.0	18.0	17.6	-162.26	-96.9	59.2	332.8	297.8	35.02	9.504	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.0	5,075.5	5,106.2	5,094.2	18.4	18.0	-161.63	-105.8	60.6	340.6	304.8	35.76	9.525	
5,200.0	5,174.6	5,205.9	5,193.4	18.8	18.4	-161.04	-114.7	62.1	348.4	311.9	36.49	9.546	
5,300.0	5,273.7	5,305.5	5,292.6	19.2	18.8	-160.47	-123.6	63.5	356.2	319.0	37.23	9.567	
5,400.0	5,372.9	5,405.1	5,391.9	19.6	19.1	-159.92	-132.5	64.9	364.1	326.1	37.97	9.588	
5,500.0	5,472.0	5,504.8	5,491.1	20.0	19.5	-159.40	-141.4	66.4	372.0	333.3	38.72	9.608	
5,600.0	5,571.1	5,604.4	5,590.3	20.4	19.9	-158.89	-150.3	67.8	379.9	340.5	39.46	9.628	
5,700.0	5,670.3	5,704.0	5,689.5	20.8	20.2	-158.41	-159.2	69.2	387.9	347.7	40.20	9.648	
5,800.0	5,769.4	5,803.7	5,788.7	21.1	20.6	-157.95	-168.2	70.7	395.9	354.9	40.95	9.668	
5,900.0	5,868.6	5,903.3	5,888.0	21.5	21.0	-157.51	-177.1	72.1	403.9	362.2	41.69	9.687	
6,000.0	5,967.7	6,002.9	5,987.2	21.9	21.4	-157.08	-186.0	73.5	411.9	369.5	42.44	9.706	
6,100.0	6,066.8	6,102.5	6,086.4	22.3	21.7	-156.67	-194.9	75.0	420.0	376.8	43.19	9.725	
6,200.0	6,166.0	6,202.2	6,185.6	22.7	22.1	-156.28	-203.8	76.4	428.0	384.1	43.93	9.743	
6,300.0	6,265.1	6,301.8	6,284.8	23.1	22.5	-155.90	-212.7	77.8	436.1	391.5	44.68	9.761	
6,400.0	6,364.2	6,401.4	6,384.1	23.5	22.9	-155.53	-221.6	79.3	444.2	398.8	45.43	9.779	
6,500.0	6,463.4	6,501.1	6,483.3	23.9	23.2	-155.18	-230.5	80.7	452.4	406.2	46.18	9.796	
6,600.0	6,562.5	6,600.7	6,582.5	24.3	23.6	-154.84	-239.4	82.1	460.5	413.6	46.93	9.813	
6,700.0	6,661.7	6,700.3	6,681.7	24.7	24.0	-154.51	-248.3	83.6	468.7	421.0	47.68	9.830	
6,800.0	6,760.8	6,800.0	6,781.0	25.1	24.4	-154.19	-257.2	85.0	476.9	428.4	48.43	9.847	
6,900.0	6,859.9	6,899.6	6,880.2	25.5	24.7	-153.88	-266.1	86.4	485.1	435.9	49.18	9.863	
7,000.0	6,959.1	6,999.2	6,979.4	25.9	25.1	-153.59	-275.0	87.9	493.3	443.3	49.93	9.879	
7,100.0	7,058.2	7,098.9	7,078.6	26.3	25.5	-153.30	-283.9	89.3	501.5	450.8	50.68	9.894	
7,200.0	7,157.4	7,198.5	7,177.8	26.7	25.9	-153.02	-292.9	90.7	509.7	458.3	51.44	9.909	
7,300.0	7,256.5	7,298.1	7,277.1	27.1	26.2	-152.75	-301.8	92.2	518.0	465.8	52.19	9.924	
7,400.0	7,355.6	7,397.7	7,376.3	27.5	26.6	-152.49	-310.7	93.6	526.2	473.3	52.94	9.939	
7,500.0	7,454.8	7,497.4	7,475.5	27.9	27.0	-152.24	-319.6	95.0	534.5	480.8	53.70	9.953	
7,600.0	7,553.9	7,597.0	7,574.7	28.3	27.4	-152.00	-328.5	96.5	542.7	488.3	54.45	9.967	
7,700.0	7,653.0	7,696.6	7,673.9	28.7	27.7	-151.76	-337.4	97.9	551.0	495.8	55.21	9.981	
7,800.0	7,752.2	7,796.3	7,773.2	29.1	28.1	-151.53	-346.3	99.3	559.3	503.4	55.96	9.995	
7,900.0	7,851.3	7,895.9	7,872.4	29.5	28.5	-151.32	-355.2	100.8	567.6	510.9	56.72	10.007	
8,000.0	7,950.7	7,995.6	7,971.7	29.9	28.9	-151.05	-364.1	102.2	573.9	516.4	57.47	9.985	
8,100.0	8,050.5	8,095.5	8,071.1	30.2	29.2	-150.59	-373.0	103.7	577.1	518.9	58.22	9.912	
8,200.0	8,150.4	8,195.2	8,170.5	30.6	29.6	-149.93	-382.0	105.1	577.4	518.4	58.98	9.790	
8,300.0	8,250.4	8,294.9	8,269.7	30.9	30.0	62.41	-390.9	106.5	575.0	515.3	59.71	9.630	
8,400.0	8,350.4	8,394.5	8,368.9	31.2	30.4	63.27	-399.8	108.0	572.2	511.7	60.44	9.467	
8,500.0	8,450.4	8,494.0	8,468.1	31.6	30.8	64.14	-408.7	109.4	569.5	508.3	61.16	9.311	
8,600.0	8,550.4	8,593.6	8,567.3	31.9	31.1	65.01	-417.6	110.8	566.9	505.1	61.89	9.160	
8,700.0	8,650.4	8,693.2	8,666.4	32.2	31.5	65.89	-426.5	112.3	564.5	501.9	62.62	9.015	
8,800.0	8,750.4	8,792.8	8,765.6	32.5	31.9	66.78	-435.4	113.7	562.3	498.9	63.35	8.875	
8,898.6	8,848.9	8,891.2	8,863.6	32.8	32.3	-112.19	-444.2	115.1	561.2	497.1	64.07	8.759	
8,900.0	8,850.4	8,892.5	8,864.9	32.8	32.3	-111.99	-444.3	115.1	560.4	496.3	64.09	8.744	
9,000.0	8,948.9	8,992.0	8,964.0	33.2	32.6	-112.17	-453.2	116.6	564.5	499.6	64.83	8.707	
9,100.0	9,041.8	9,087.8	9,059.4	33.7	33.0	-113.21	-461.8	117.9	576.9	511.4	65.54	8.803	
9,200.0	9,125.2	9,175.8	9,147.0	34.2	33.3	-114.40	-469.6	119.2	599.5	533.4	66.17	9.061	
9,300.0	9,195.4	9,252.0	9,222.9	34.7	33.6	-114.72	-476.4	120.3	634.3	567.6	66.68	9.512	
9,400.0	9,249.2	9,310.9	9,281.6	35.3	33.8	-112.85	-481.7	121.1	682.4	615.4	67.04	10.179	
9,500.0	9,284.5	9,348.1	9,318.6	35.9	34.0	-107.24	-484.5	121.6	743.8	676.6	67.21	11.066	
9,600.0	9,299.5	9,366.5	9,337.0	36.6	34.0	-96.89	-485.7	121.8	815.7	748.5	67.23	12.133	
9,700.0	9,300.0	9,372.2	9,342.7	37.2	34.1	-94.34	-486.1	121.9	894.4	827.2	67.17	13.315	
9,800.0	9,300.0	9,377.1	9,347.6	37.9	34.1	-94.87	-486.4	121.9	976.9	909.8	67.11	14.557	
9,900.0	9,300.0	10,941.2	10,200.0	38.6	42.4	-149.57	-1,408.2	130.0	1,040.5	987.0	53.53	19.438	
10,000.0	9,300.0	11,041.2	10,200.0	39.4	43.2	-149.57	-1,508.2	130.8	1,040.5	986.1	54.46	19.106	
10,100.0	9,300.0	11,141.2	10,200.0	40.2	44.0	-149.57	-1,608.2	131.5	1,040.5	985.1	55.45	18.767	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	9,300.0	11,241.2	10,200.0	41.0	44.8	-149.57	-1,708.2	132.3	1,040.5	984.1	56.48	18.422	
10,300.0	9,300.0	11,341.2	10,200.0	41.9	45.7	-149.57	-1,808.2	133.1	1,040.5	983.0	57.57	18.074	
10,400.0	9,300.0	11,441.2	10,200.0	42.8	46.6	-149.57	-1,908.2	133.9	1,040.6	981.8	58.71	17.724	
10,500.0	9,300.0	11,541.2	10,200.0	43.7	47.6	-149.57	-2,008.2	134.7	1,040.6	980.7	59.89	17.375	
10,600.0	9,300.0	11,641.2	10,200.0	44.7	48.6	-149.57	-2,108.2	135.5	1,040.6	979.5	61.11	17.027	
10,700.0	9,300.0	11,741.2	10,200.0	45.7	49.5	-149.57	-2,208.2	136.3	1,040.6	978.2	62.38	16.682	
10,800.0	9,300.0	11,841.2	10,200.0	46.7	50.6	-149.57	-2,308.2	137.0	1,040.6	976.9	63.68	16.342	
10,900.0	9,300.0	11,941.2	10,200.0	47.7	51.6	-149.57	-2,408.2	137.8	1,040.6	975.6	65.01	16.006	
11,000.0	9,300.0	12,041.2	10,200.0	48.8	52.6	-149.57	-2,508.1	138.6	1,040.6	974.2	66.38	15.676	
11,100.0	9,300.0	12,141.2	10,200.0	49.9	53.7	-149.56	-2,608.1	139.4	1,040.6	972.8	67.78	15.352	
11,200.0	9,300.0	12,241.2	10,200.0	50.9	54.8	-149.56	-2,708.1	140.2	1,040.6	971.4	69.21	15.035	
11,300.0	9,300.0	12,341.2	10,200.0	52.1	55.9	-149.56	-2,808.1	141.0	1,040.6	969.9	70.67	14.726	
11,400.0	9,300.0	12,441.2	10,200.0	53.2	57.0	-149.56	-2,908.1	141.8	1,040.6	968.5	72.15	14.423	
11,500.0	9,300.0	12,541.2	10,200.0	54.3	58.2	-149.56	-3,008.1	142.5	1,040.6	967.0	73.65	14.128	
11,600.0	9,300.0	12,641.2	10,200.0	55.5	59.3	-149.56	-3,108.1	143.3	1,040.6	965.4	75.18	13.841	
11,700.0	9,300.0	12,741.2	10,200.0	56.6	60.5	-149.56	-3,208.1	144.1	1,040.6	963.9	76.73	13.561	
11,800.0	9,300.0	12,841.2	10,200.0	57.8	61.6	-149.56	-3,308.1	144.9	1,040.6	962.3	78.31	13.289	
11,900.0	9,300.0	12,941.2	10,200.0	59.0	62.8	-149.56	-3,408.1	145.7	1,040.6	960.7	79.89	13.025	
12,000.0	9,300.0	13,041.2	10,200.0	60.2	64.0	-149.56	-3,508.1	146.5	1,040.6	959.1	81.50	12.768	
12,100.0	9,300.0	13,141.2	10,200.0	61.4	65.2	-149.56	-3,608.1	147.3	1,040.6	957.5	83.13	12.519	
12,200.0	9,300.0	13,241.2	10,200.0	62.7	66.4	-149.56	-3,708.1	148.1	1,040.6	955.9	84.77	12.277	
12,300.0	9,300.0	13,341.2	10,200.0	63.9	67.7	-149.56	-3,808.1	148.8	1,040.7	954.2	86.42	12.042	
12,400.0	9,300.0	13,441.2	10,200.0	65.1	68.9	-149.56	-3,908.1	149.6	1,040.7	952.6	88.09	11.814	
12,500.0	9,300.0	13,541.2	10,200.0	66.4	70.1	-149.56	-4,008.1	150.4	1,040.7	950.9	89.77	11.592	
12,600.0	9,300.0	13,641.2	10,200.0	67.6	71.4	-149.56	-4,108.1	151.2	1,040.7	949.2	91.47	11.377	
12,700.0	9,300.0	13,741.2	10,200.0	68.9	72.6	-149.56	-4,208.1	152.0	1,040.7	947.5	93.17	11.169	
12,800.0	9,300.0	13,841.2	10,200.0	70.2	73.9	-149.56	-4,308.1	152.8	1,040.7	945.8	94.89	10.967	
12,900.0	9,300.0	13,941.2	10,200.0	71.5	75.2	-149.56	-4,408.1	153.6	1,040.7	944.1	96.62	10.771	
13,000.0	9,300.0	14,041.2	10,200.0	72.8	76.5	-149.56	-4,508.1	154.3	1,040.7	942.3	98.36	10.580	
13,100.0	9,300.0	14,141.2	10,200.0	74.0	77.7	-149.56	-4,608.1	155.1	1,040.7	940.6	100.11	10.396	
13,200.0	9,300.0	14,241.2	10,200.0	75.3	79.0	-149.55	-4,708.1	155.9	1,040.7	938.8	101.87	10.216	
13,300.0	9,300.0	14,341.2	10,200.0	76.6	80.3	-149.55	-4,808.1	156.7	1,040.7	937.1	103.63	10.042	
13,400.0	9,300.0	14,441.2	10,200.0	78.0	81.6	-149.55	-4,908.1	157.5	1,040.7	935.3	105.41	9.873	
13,500.0	9,300.0	14,541.2	10,200.0	79.3	82.9	-149.55	-5,008.1	158.3	1,040.7	933.5	107.19	9.709	
13,600.0	9,300.0	14,641.2	10,200.0	80.6	84.2	-149.55	-5,108.1	159.1	1,040.7	931.7	108.98	9.550	
13,700.0	9,300.0	14,741.2	10,200.0	81.9	85.5	-149.55	-5,208.1	159.8	1,040.7	930.0	110.77	9.395	
13,800.0	9,300.0	14,841.2	10,200.0	83.2	86.9	-149.55	-5,308.1	160.6	1,040.7	928.2	112.58	9.245	
13,900.0	9,300.0	14,941.2	10,200.0	84.6	88.2	-149.55	-5,408.1	161.4	1,040.7	926.3	114.39	9.098	
14,000.0	9,300.0	15,041.2	10,200.0	85.9	89.5	-149.55	-5,508.1	162.2	1,040.7	924.5	116.20	8.956	
14,100.0	9,300.0	15,141.2	10,200.0	87.2	90.8	-149.55	-5,608.1	163.0	1,040.7	922.7	118.03	8.818	
14,200.0	9,300.0	15,241.2	10,200.0	88.6	92.2	-149.55	-5,708.0	163.8	1,040.8	920.9	119.85	8.684	
14,300.0	9,300.0	15,341.2	10,200.0	89.9	93.5	-149.55	-5,808.0	164.6	1,040.8	919.1	121.68	8.553	
14,400.0	9,300.0	15,441.2	10,200.0	91.3	94.9	-149.55	-5,908.0	165.4	1,040.8	917.2	123.52	8.426	
14,500.0	9,300.0	15,541.2	10,200.0	92.6	96.2	-149.55	-6,008.0	166.1	1,040.8	915.4	125.36	8.302	
14,600.0	9,300.0	15,641.2	10,200.0	94.0	97.5	-149.55	-6,108.0	166.9	1,040.8	913.6	127.21	8.181	
14,700.0	9,300.0	15,741.2	10,200.0	95.3	98.9	-149.55	-6,208.0	167.7	1,040.8	911.7	129.06	8.064	
14,800.0	9,300.0	15,841.2	10,200.0	96.7	100.2	-149.55	-6,308.0	168.5	1,040.8	909.9	130.92	7.950	
14,900.0	9,300.0	15,941.2	10,200.0	98.1	101.6	-149.55	-6,408.0	169.3	1,040.8	908.0	132.78	7.839	
15,000.0	9,300.0	16,041.2	10,200.0	99.4	102.9	-149.55	-6,508.0	170.1	1,040.8	906.2	134.64	7.730	
15,100.0	9,300.0	16,141.2	10,200.0	100.8	104.3	-149.55	-6,608.0	170.9	1,040.8	904.3	136.51	7.624	
15,200.0	9,300.0	16,241.2	10,200.0	102.1	105.7	-149.54	-6,708.0	171.6	1,040.8	902.4	138.38	7.521	
15,300.0	9,300.0	16,341.2	10,200.0	103.5	107.0	-149.54	-6,808.0	172.4	1,040.8	900.6	140.25	7.421	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 008H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,400.0	9,300.0	16,441.2	10,200.0	104.9	108.4	-149.54	-6,908.0	173.2	1,040.8	898.7	142.13	7.323	
15,500.0	9,300.0	16,541.2	10,200.0	106.3	109.8	-149.54	-7,008.0	174.0	1,040.8	896.8	144.01	7.227	
15,600.0	9,300.0	16,641.2	10,200.0	107.6	111.1	-149.54	-7,108.0	174.8	1,040.8	894.9	145.90	7.134	
15,700.0	9,300.0	16,741.2	10,200.0	109.0	112.5	-149.54	-7,208.0	175.6	1,040.8	893.0	147.78	7.043	
15,800.0	9,300.0	16,841.2	10,200.0	110.4	113.9	-149.54	-7,308.0	176.4	1,040.8	891.2	149.67	6.954	
15,900.0	9,300.0	16,941.2	10,200.0	111.8	115.3	-149.54	-7,408.0	177.1	1,040.8	889.3	151.57	6.867	
16,000.0	9,300.0	17,041.2	10,200.0	113.2	116.6	-149.54	-7,508.0	177.9	1,040.8	887.4	153.46	6.782	
16,100.0	9,300.0	17,141.2	10,200.0	114.6	118.0	-149.54	-7,608.0	178.7	1,040.9	885.5	155.36	6.700	
16,200.0	9,300.0	17,241.2	10,200.0	115.9	119.4	-149.54	-7,708.0	179.5	1,040.9	883.6	157.26	6.619	
16,300.0	9,300.0	17,341.2	10,200.0	117.3	120.8	-149.54	-7,808.0	180.3	1,040.9	881.7	159.16	6.540	
16,400.0	9,300.0	17,441.2	10,200.0	118.7	122.2	-149.54	-7,908.0	181.1	1,040.9	879.8	161.07	6.462	
16,500.0	9,300.0	17,541.2	10,200.0	120.1	123.5	-149.54	-8,008.0	181.9	1,040.9	877.9	162.97	6.387	
16,600.0	9,300.0	17,641.2	10,200.0	121.5	124.9	-149.54	-8,108.0	182.7	1,040.9	876.0	164.88	6.313	
16,700.0	9,300.0	17,741.2	10,200.0	122.9	126.3	-149.54	-8,208.0	183.4	1,040.9	874.1	166.79	6.241	
16,800.0	9,300.0	17,841.2	10,200.0	124.3	127.7	-149.54	-8,308.0	184.2	1,040.9	872.2	168.71	6.170	
16,900.0	9,300.0	17,941.2	10,200.0	125.7	129.1	-149.54	-8,408.0	185.0	1,040.9	870.3	170.62	6.101	
17,000.0	9,300.0	18,041.2	10,200.0	127.1	130.5	-149.54	-8,508.0	185.8	1,040.9	868.4	172.54	6.033	
17,100.0	9,300.0	18,141.2	10,200.0	128.5	131.9	-149.54	-8,608.0	186.6	1,040.9	866.4	174.46	5.967	
17,200.0	9,300.0	18,241.2	10,200.0	129.9	133.3	-149.53	-8,708.0	187.4	1,040.9	864.5	176.38	5.902	
17,300.0	9,300.0	18,341.2	10,200.0	131.3	134.7	-149.53	-8,808.0	188.2	1,040.9	862.6	178.30	5.838	
17,400.0	9,300.0	18,441.2	10,200.0	132.7	136.1	-149.53	-8,907.9	188.9	1,040.9	860.7	180.22	5.776	
17,500.0	9,300.0	18,541.2	10,200.0	134.1	137.5	-149.53	-9,007.9	189.7	1,040.9	858.8	182.15	5.715	
17,600.0	9,300.0	18,641.2	10,200.0	135.5	138.9	-149.53	-9,107.9	190.5	1,040.9	856.9	184.08	5.655	
17,700.0	9,300.0	18,741.2	10,200.0	136.9	140.3	-149.53	-9,207.9	191.3	1,040.9	854.9	186.00	5.596	
17,800.0	9,300.0	18,841.2	10,200.0	138.3	141.7	-149.53	-9,307.9	192.1	1,040.9	853.0	187.93	5.539	
17,900.0	9,300.0	18,941.2	10,200.0	139.7	143.1	-149.53	-9,407.9	192.9	1,040.9	851.1	189.87	5.483	
18,000.0	9,300.0	19,041.2	10,200.0	141.1	144.5	-149.53	-9,507.9	193.7	1,041.0	849.2	191.80	5.427	
18,100.0	9,300.0	19,141.2	10,200.0	142.5	145.9	-149.53	-9,607.9	194.4	1,041.0	847.2	193.73	5.373	
18,200.0	9,300.0	19,241.2	10,200.0	143.9	147.3	-149.53	-9,707.9	195.2	1,041.0	845.3	195.67	5.320	
18,300.0	9,300.0	19,341.2	10,200.0	145.3	148.7	-149.53	-9,807.9	196.0	1,041.0	843.4	197.60	5.268	
18,400.0	9,300.0	19,441.2	10,200.0	146.7	150.1	-149.53	-9,907.9	196.8	1,041.0	841.4	199.54	5.217	
18,500.0	9,300.0	19,541.2	10,200.0	148.2	151.5	-149.53	-10,007.9	197.6	1,041.0	839.5	201.48	5.167	
18,600.0	9,300.0	19,641.2	10,200.0	149.6	152.9	-149.53	-10,107.9	198.4	1,041.0	837.6	203.42	5.117	
18,700.0	9,300.0	19,741.2	10,200.0	151.0	154.3	-149.53	-10,207.9	199.2	1,041.0	835.6	205.36	5.069	
18,800.0	9,300.0	19,841.2	10,200.0	152.4	155.7	-149.53	-10,307.9	200.0	1,041.0	833.7	207.30	5.022	
18,900.0	9,300.0	19,941.2	10,200.0	153.8	157.1	-149.53	-10,407.9	200.7	1,041.0	831.8	209.25	4.975	
19,000.0	9,300.0	20,041.2	10,200.0	155.2	158.5	-149.53	-10,507.9	201.5	1,041.0	829.8	211.19	4.929	
19,100.0	9,300.0	20,141.2	10,200.0	156.6	160.0	-149.53	-10,607.9	202.3	1,041.0	827.9	213.13	4.884	
19,200.0	9,300.0	20,241.2	10,200.0	158.1	161.4	-149.53	-10,707.9	203.1	1,041.0	825.9	215.08	4.840	
19,300.0	9,300.0	20,341.2	10,200.0	159.5	162.8	-149.52	-10,807.9	203.9	1,041.0	824.0	217.03	4.797	
19,400.0	9,300.0	20,441.2	10,200.0	160.9	164.2	-149.52	-10,907.9	204.7	1,041.0	822.0	218.98	4.754	
19,500.0	9,300.0	20,541.2	10,200.0	162.3	165.6	-149.52	-11,007.9	205.5	1,041.0	820.1	220.92	4.712	
19,504.4	9,300.0	20,545.6	10,200.0	162.4	165.7	-149.52	-11,012.3	205.5	1,041.0	820.0	221.01	4.710	
19,553.8	9,300.0	20,593.6	10,200.0	163.1	166.3	-149.52	-11,060.3	205.9	1,041.0	819.1	221.96	4.690 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 009H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	1.4	1.4	0.0	0.0	89.00	1.0	60.0	60.0				
100.0	100.0	101.4	101.4	0.1	0.1	89.00	1.0	60.0	60.0	59.7	0.27	223.509	
200.0	200.0	201.4	201.4	0.5	0.5	89.00	1.0	60.0	60.0	59.0	0.99	60.898	
300.0	300.0	301.4	301.4	0.8	0.9	89.00	1.0	60.0	60.0	58.3	1.70	35.251	
400.0	400.0	401.4	401.4	1.2	1.2	89.00	1.0	60.0	60.0	57.6	2.42	24.805	
500.0	500.0	501.4	501.4	1.6	1.6	89.00	1.0	60.0	60.0	56.9	3.14	19.135	
600.0	600.0	601.4	601.4	1.9	1.9	89.00	1.0	60.0	60.0	56.2	3.85	15.574	
700.0	700.0	701.4	701.4	2.3	2.3	89.00	1.0	60.0	60.0	55.4	4.57	13.131	
800.0	800.0	801.4	801.4	2.6	2.6	89.00	1.0	60.0	60.0	54.7	5.29	11.351	
900.0	900.0	901.4	901.4	3.0	3.0	89.00	1.0	60.0	60.0	54.0	6.00	9.995	
1,000.0	1,000.0	1,001.4	1,001.4	3.4	3.4	89.00	1.0	60.0	60.0	53.3	6.72	8.929	
1,100.0	1,100.0	1,101.4	1,101.4	3.7	3.7	89.00	1.0	60.0	60.0	52.6	7.44	8.068	
1,200.0	1,200.0	1,201.4	1,201.4	4.1	4.1	89.00	1.0	60.0	60.0	51.9	8.15	7.359	
1,300.0	1,300.0	1,301.4	1,301.4	4.4	4.4	89.00	1.0	60.0	60.0	51.1	8.87	6.764	
1,400.0	1,400.0	1,401.4	1,401.4	4.8	4.8	89.00	1.0	60.0	60.0	50.4	9.59	6.258	
1,500.0	1,500.0	1,501.4	1,501.4	5.2	5.2	89.00	1.0	60.0	60.0	49.7	10.31	5.823	
1,600.0	1,600.0	1,601.4	1,601.4	5.5	5.5	89.00	1.0	60.0	60.0	49.0	11.02	5.444	
1,700.0	1,700.0	1,701.4	1,701.4	5.9	5.9	89.00	1.0	60.0	60.0	48.3	11.74	5.112	
1,800.0	1,800.0	1,801.4	1,801.4	6.2	6.2	89.00	1.0	60.0	60.0	47.6	12.46	4.818	
1,900.0	1,900.0	1,901.4	1,901.4	6.6	6.6	89.00	1.0	60.0	60.0	46.8	13.17	4.555	
1,916.2	1,916.2	1,917.6	1,917.6	6.6	6.6	89.00	1.0	60.0	60.0	46.7	13.29	4.516 CC	
2,000.0	2,000.0	2,001.4	2,001.4	6.9	6.9	89.00	1.0	60.0	60.0	46.1	13.89	4.320 ES	
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	-122.73	-0.1	61.3	62.2	47.7	14.57	4.273 SF	
2,200.0	2,199.8	2,198.0	2,197.8	7.6	7.6	-123.33	-3.5	65.1	68.9	53.7	15.20	4.531	
2,300.0	2,299.5	2,295.5	2,295.0	7.9	7.9	-124.10	-9.1	71.4	79.9	64.1	15.84	5.045	
2,400.0	2,398.7	2,394.2	2,393.2	8.3	8.3	-125.48	-16.1	79.2	94.3	77.8	16.50	5.715	
2,500.0	2,497.9	2,493.1	2,491.4	8.6	8.6	-127.06	-23.0	87.1	109.4	92.2	17.17	6.368	
2,600.0	2,597.0	2,591.9	2,589.7	9.0	9.0	-128.26	-30.0	94.9	124.5	106.6	17.85	6.973	
2,700.0	2,696.1	2,690.7	2,687.9	9.3	9.3	-129.19	-37.0	102.8	139.7	121.1	18.54	7.534	
2,800.0	2,795.3	2,789.5	2,786.2	9.7	9.7	-129.94	-44.0	110.6	154.8	135.6	19.23	8.053	
2,900.0	2,894.4	2,888.3	2,884.5	10.0	10.0	-130.56	-51.0	118.5	170.1	150.1	19.92	8.536	
3,000.0	2,993.5	2,987.2	2,982.7	10.4	10.4	-131.08	-58.0	126.4	185.3	164.7	20.62	8.984	
3,100.0	3,092.7	3,086.0	3,081.0	10.8	10.7	-131.52	-65.0	134.2	200.5	179.2	21.33	9.402	
3,200.0	3,191.8	3,184.8	3,179.2	11.1	11.1	-131.89	-72.0	142.1	215.8	193.7	22.04	9.792	
3,300.0	3,291.0	3,283.6	3,277.5	11.5	11.4	-132.22	-79.0	149.9	231.0	208.3	22.75	10.156	
3,400.0	3,390.1	3,382.5	3,375.8	11.9	11.8	-132.50	-86.0	157.8	246.3	222.8	23.46	10.497	
3,500.0	3,489.2	3,481.3	3,474.0	12.2	12.2	-132.76	-93.0	165.7	261.6	237.4	24.18	10.817	
3,600.0	3,588.4	3,580.1	3,572.3	12.6	12.5	-132.98	-99.9	173.5	276.9	252.0	24.90	11.118	
3,700.0	3,687.5	3,678.9	3,670.5	13.0	12.9	-133.18	-106.9	181.4	292.1	266.5	25.63	11.400	
3,800.0	3,786.7	3,777.7	3,768.8	13.4	13.2	-133.36	-113.9	189.2	307.4	281.1	26.35	11.666	
3,900.0	3,885.8	3,876.6	3,867.1	13.8	13.6	-133.53	-120.9	197.1	322.7	295.6	27.08	11.917	
4,000.0	3,984.9	3,975.4	3,965.3	14.1	14.0	-133.68	-127.9	204.9	338.0	310.2	27.81	12.155	
4,100.0	4,084.1	4,074.2	4,063.6	14.5	14.4	-133.81	-134.9	212.8	353.3	324.7	28.54	12.379	
4,200.0	4,183.2	4,173.0	4,161.8	14.9	14.7	-133.94	-141.9	220.7	368.6	339.3	29.27	12.592	
4,300.0	4,282.3	4,271.8	4,260.1	15.3	15.1	-134.05	-148.9	228.5	383.9	353.9	30.00	12.793	
4,400.0	4,381.5	4,370.7	4,358.4	15.7	15.5	-134.16	-155.9	236.4	399.2	368.4	30.74	12.985	
4,500.0	4,480.6	4,469.5	4,456.6	16.1	15.8	-134.26	-162.9	244.2	414.5	383.0	31.48	13.167	
4,600.0	4,579.8	4,568.3	4,554.9	16.4	16.2	-134.35	-169.9	252.1	429.8	397.5	32.22	13.340	
4,700.0	4,678.9	4,667.1	4,653.1	16.8	16.6	-134.43	-176.8	259.9	445.1	412.1	32.95	13.505	
4,800.0	4,778.0	4,765.9	4,751.4	17.2	17.0	-134.51	-183.8	267.8	460.3	426.7	33.69	13.662	
4,900.0	4,877.2	4,864.8	4,849.6	17.6	17.3	-134.59	-190.8	275.7	475.6	441.2	34.44	13.813	
5,000.0	4,976.3	4,963.6	4,947.9	18.0	17.7	-134.66	-197.8	283.5	491.0	455.8	35.18	13.956	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 009H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.0	5,075.5	5,062.4	5,046.2	18.4	18.1	-134.72	-204.8	291.4	506.3	470.3	35.92	14.093	
5,200.0	5,174.6	5,161.2	5,144.4	18.8	18.4	-134.79	-211.8	299.2	521.6	484.9	36.67	14.225	
5,300.0	5,273.7	5,260.0	5,242.7	19.2	18.8	-134.84	-218.8	307.1	536.9	499.4	37.41	14.351	
5,400.0	5,372.9	5,358.9	5,340.9	19.6	19.2	-134.90	-225.8	314.9	552.2	514.0	38.16	14.471	
5,500.0	5,472.0	5,457.7	5,439.2	20.0	19.6	-134.95	-232.8	322.8	567.5	528.6	38.90	14.587	
5,600.0	5,571.1	5,556.5	5,537.5	20.4	20.0	-135.00	-239.8	330.7	582.8	543.1	39.65	14.699	
5,700.0	5,670.3	5,655.3	5,635.7	20.8	20.3	-135.05	-246.8	338.5	598.1	557.7	40.40	14.805	
5,800.0	5,769.4	5,754.2	5,734.0	21.1	20.7	-135.09	-253.8	346.4	613.4	572.2	41.14	14.908	
5,900.0	5,868.6	5,853.0	5,832.2	21.5	21.1	-135.13	-260.7	354.2	628.7	586.8	41.89	15.007	
6,000.0	5,967.7	5,951.8	5,930.5	21.9	21.5	-135.17	-267.7	362.1	644.0	601.3	42.64	15.103	
6,100.0	6,066.8	6,050.6	6,028.8	22.3	21.8	-135.21	-274.7	370.0	659.3	615.9	43.39	15.194	
6,200.0	6,166.0	6,149.4	6,127.0	22.7	22.2	-135.25	-281.7	377.8	674.6	630.5	44.14	15.283	
6,300.0	6,265.1	6,248.3	6,225.3	23.1	22.6	-135.28	-288.7	385.7	689.9	645.0	44.89	15.368	
6,400.0	6,364.2	6,347.1	6,323.5	23.5	23.0	-135.32	-295.7	393.5	705.2	659.6	45.64	15.451	
6,500.0	6,463.4	6,445.9	6,421.8	23.9	23.4	-135.35	-302.7	401.4	720.5	674.1	46.39	15.531	
6,600.0	6,562.5	6,544.7	6,520.1	24.3	23.7	-135.38	-309.7	409.2	735.8	688.7	47.14	15.608	
6,700.0	6,661.7	6,643.5	6,618.3	24.7	24.1	-135.41	-316.7	417.1	751.1	703.2	47.90	15.682	
6,800.0	6,760.8	6,742.4	6,716.6	25.1	24.5	-135.44	-323.7	425.0	766.4	717.8	48.65	15.754	
6,900.0	6,859.9	6,841.2	6,814.8	25.5	24.9	-135.46	-330.7	432.8	781.7	732.3	49.40	15.824	
7,000.0	6,959.1	6,940.0	6,913.1	25.9	25.2	-135.49	-337.6	440.7	797.0	746.9	50.16	15.892	
7,100.0	7,058.2	7,038.8	7,011.4	26.3	25.6	-135.52	-344.6	448.5	812.4	761.4	50.91	15.957	
7,200.0	7,157.4	7,137.6	7,109.6	26.7	26.0	-135.54	-351.6	456.4	827.7	776.0	51.66	16.021	
7,300.0	7,256.5	7,236.5	7,207.9	27.1	26.4	-135.56	-358.6	464.2	843.0	790.6	52.42	16.082	
7,400.0	7,355.6	7,335.3	7,306.1	27.5	26.8	-135.59	-365.6	472.1	858.3	805.1	53.17	16.142	
7,500.0	7,454.8	7,434.1	7,404.4	27.9	27.1	-135.61	-372.6	480.0	873.6	819.7	53.93	16.200	
7,600.0	7,553.9	7,532.9	7,502.7	28.3	27.5	-135.63	-379.6	487.8	888.9	834.2	54.68	16.256	
7,700.0	7,653.0	7,631.7	7,600.9	28.7	27.9	-135.65	-386.6	495.7	904.2	848.8	55.44	16.311	
7,800.0	7,752.2	7,730.6	7,699.2	29.1	28.3	-135.67	-393.6	503.5	919.5	863.3	56.19	16.364	
7,900.0	7,851.3	7,829.4	7,797.4	29.5	28.7	-135.72	-400.6	511.4	934.8	877.8	56.95	16.415	
8,000.0	7,950.7	7,928.4	7,895.9	29.9	29.0	-135.83	-407.6	519.3	948.4	890.7	57.70	16.438	
8,100.0	8,050.5	8,027.7	7,994.7	30.2	29.4	-135.76	-414.6	527.2	959.6	901.2	58.44	16.420	
8,200.0	8,150.4	8,127.2	8,093.5	30.6	29.8	-135.52	-421.6	535.1	968.3	909.2	59.18	16.364	
8,300.0	8,250.4	8,226.6	8,192.4	30.9	30.2	76.43	-428.7	543.0	974.8	915.0	59.89	16.279	
8,400.0	8,350.4	8,326.0	8,291.3	31.2	30.6	76.94	-435.7	550.9	981.0	920.4	60.59	16.191	
8,500.0	8,450.4	8,425.5	8,390.1	31.6	31.0	77.44	-442.7	558.8	987.2	925.9	61.29	16.107	
8,600.0	8,550.4	8,524.9	8,489.0	31.9	31.3	77.93	-449.8	566.7	993.5	931.5	61.99	16.025	
8,700.0	8,650.4	8,624.3	8,587.9	32.2	31.7	78.42	-456.8	574.6	999.8	937.1	62.70	15.947	
8,800.0	8,750.4	8,723.8	8,686.7	32.5	32.1	78.91	-463.8	582.5	1,006.3	942.9	63.40	15.872	
8,900.0	8,850.4	8,823.2	8,785.6	32.8	32.5	-99.98	-470.9	590.4	1,012.9	948.8	64.11	15.800	
9,000.0	8,948.9	8,922.3	8,884.2	33.2	32.9	-99.30	-477.9	598.3	1,022.2	957.3	64.87	15.757	
9,100.0	9,041.8	9,017.4	8,978.7	33.7	33.2	-99.22	-484.6	605.9	1,035.3	969.6	65.67	15.764	
9,200.0	9,125.2	9,104.2	9,065.0	34.2	33.6	-99.33	-490.8	612.8	1,053.1	986.6	66.47	15.842	
9,300.0	9,195.4	9,179.0	9,139.4	34.7	33.9	-99.04	-496.1	618.7	1,076.9	1,009.7	67.22	16.020	
9,400.0	9,249.2	9,238.6	9,198.6	35.3	34.1	-97.67	-500.3	623.4	1,108.3	1,040.4	67.89	16.326	
9,500.0	9,284.5	9,280.3	9,240.1	35.9	34.3	-94.59	-503.2	626.8	1,147.7	1,079.2	68.41	16.776	
9,600.0	9,299.5	9,302.2	9,261.9	36.6	34.3	-89.38	-504.8	628.5	1,194.6	1,125.9	68.76	17.373	
9,700.0	9,300.0	9,309.9	9,269.5	37.2	34.4	-88.23	-505.3	629.1	1,247.8	1,178.8	68.98	18.090	
9,800.0	9,300.0	9,317.0	9,276.6	37.9	34.4	-88.63	-505.8	629.7	1,306.4	1,237.3	69.15	18.893	
9,900.0	9,300.0	9,324.2	9,283.7	38.6	34.4	-89.02	-506.3	630.2	1,369.8	1,300.5	69.29	19.769	
10,000.0	9,300.0	9,331.3	9,290.8	39.4	34.5	-89.41	-506.8	630.8	1,437.4	1,367.9	69.41	20.708	
10,100.0	9,300.0	9,338.4	9,297.9	40.2	34.5	-89.81	-507.3	631.4	1,508.5	1,438.9	69.50	21.703	
10,200.0	9,300.0	9,345.6	9,305.0	41.0	34.5	-90.20	-507.8	632.0	1,582.7	1,513.1	69.58	22.745	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 009H - OH - Plan 0.1													Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.0	9,300.0	9,352.7	9,312.1	41.9	34.5	-90.59	-508.3	632.5	1,659.5	1,589.9	69.65	23.827		
10,400.0	9,300.0	9,359.8	9,319.2	42.8	34.6	-90.98	-508.8	633.1	1,738.7	1,669.0	69.71	24.943		
10,500.0	9,300.0	9,367.0	9,326.3	43.7	34.6	-91.37	-509.3	633.7	1,819.9	1,750.2	69.76	26.090		
10,600.0	9,300.0	9,374.1	9,333.4	44.7	34.6	-91.76	-509.9	634.2	1,902.9	1,833.1	69.80	27.262		
10,700.0	9,300.0	9,381.2	9,340.5	45.7	34.6	-92.15	-510.4	634.8	1,987.5	1,917.6	69.84	28.456		
10,800.0	9,300.0	9,388.4	9,347.6	46.7	34.7	-92.54	-510.9	635.4	2,073.3	2,003.5	69.88	29.669		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	0.1	0.1	0.0	0.0	88.93	0.4	20.0	20.0				
100.0	100.0	100.1	100.1	0.1	0.1	88.93	0.4	20.0	20.0	19.8	0.26	75.919	
200.0	200.0	200.1	200.1	0.5	0.5	88.93	0.4	20.0	20.0	19.0	0.98	20.423	
300.0	300.0	300.1	300.1	0.8	0.8	88.93	0.4	20.0	20.0	18.3	1.70	11.798	
400.0	400.0	400.1	400.1	1.2	1.2	88.93	0.4	20.0	20.0	17.6	2.41	8.295	
500.0	500.0	500.1	500.1	1.6	1.6	88.93	0.4	20.0	20.0	16.9	3.13	6.396	
600.0	600.0	600.1	600.1	1.9	1.9	88.93	0.4	20.0	20.0	16.2	3.85	5.205	
700.0	700.0	700.1	700.1	2.3	2.3	88.93	0.4	20.0	20.0	15.5	4.57	4.387	
800.0	800.0	800.1	800.1	2.6	2.6	88.93	0.4	20.0	20.0	14.7	5.28	3.792	
900.0	900.0	900.1	900.1	3.0	3.0	88.93	0.4	20.0	20.0	14.0	6.00	3.339	
1,000.0	1,000.0	1,000.1	1,000.1	3.4	3.4	88.93	0.4	20.0	20.0	13.3	6.72	2.982	
1,100.0	1,100.0	1,100.1	1,100.1	3.7	3.7	88.93	0.4	20.0	20.0	12.6	7.43	2.695	
1,200.0	1,200.0	1,200.1	1,200.1	4.1	4.1	88.93	0.4	20.0	20.0	11.9	8.15	2.458	
1,300.0	1,300.0	1,300.1	1,300.1	4.4	4.4	88.93	0.4	20.0	20.0	11.2	8.87	2.259	
1,400.0	1,400.0	1,400.1	1,400.1	4.8	4.8	88.93	0.4	20.0	20.0	10.4	9.58	2.090	
1,500.0	1,500.0	1,500.1	1,500.1	5.2	5.2	88.93	0.4	20.0	20.0	9.7	10.30	1.944	
1,600.0	1,600.0	1,600.1	1,600.1	5.5	5.5	88.93	0.4	20.0	20.0	9.0	11.02	1.818	
1,700.0	1,700.0	1,700.1	1,700.1	5.9	5.9	88.93	0.4	20.0	20.0	8.3	11.73	1.707	
1,800.0	1,800.0	1,800.1	1,800.1	6.2	6.2	88.93	0.4	20.0	20.0	7.6	12.45	1.609	
1,900.0	1,900.0	1,900.1	1,900.1	6.6	6.6	88.93	0.4	20.0	20.0	6.9	13.17	1.521	
1,916.6	1,916.6	1,916.7	1,916.7	6.6	6.6	88.93	0.4	20.0	20.0	6.7	13.29	1.507 CC	
2,000.0	2,000.0	2,000.1	2,000.1	6.9	6.9	88.93	0.4	20.0	20.0	6.1	13.89	1.442 Level 3, ES, SF	
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	-121.87	-1.3	20.3	21.2	6.7	14.57	1.457 Level 3	
2,200.0	2,199.8	2,199.8	2,199.6	7.6	7.6	-120.14	-6.5	21.1	24.8	9.6	15.21	1.629	
2,300.0	2,299.5	2,299.4	2,298.9	7.9	7.9	-118.14	-15.1	22.5	30.8	14.9	15.87	1.939	
2,400.0	2,398.7	2,398.9	2,397.6	8.3	8.3	-116.51	-26.8	24.4	39.1	22.6	16.53	2.364	
2,500.0	2,497.9	2,498.5	2,496.4	8.6	8.6	-115.72	-39.4	26.4	48.0	30.8	17.20	2.793	
2,600.0	2,597.0	2,598.1	2,595.2	9.0	8.9	-115.17	-51.9	28.5	57.0	39.1	17.88	3.188	
2,700.0	2,696.1	2,697.7	2,694.0	9.3	9.3	-114.78	-64.4	30.5	66.0	47.4	18.57	3.552	
2,800.0	2,795.3	2,797.3	2,792.8	9.7	9.6	-114.48	-77.0	32.5	75.0	55.7	19.27	3.889	
2,900.0	2,894.4	2,896.9	2,891.5	10.0	10.0	-114.24	-89.5	34.5	83.9	63.9	19.98	4.200	
3,000.0	2,993.5	2,996.5	2,990.3	10.4	10.3	-114.05	-102.1	36.5	92.9	72.2	20.70	4.489	
3,100.0	3,092.7	3,096.1	3,089.1	10.8	10.7	-113.89	-114.6	38.6	101.9	80.5	21.42	4.758	
3,200.0	3,191.8	3,195.7	3,187.9	11.1	11.1	-113.76	-127.1	40.6	110.9	88.7	22.14	5.007	
3,300.0	3,291.0	3,295.2	3,286.7	11.5	11.4	-113.65	-139.7	42.6	119.8	97.0	22.87	5.240	
3,400.0	3,390.1	3,394.8	3,385.4	11.9	11.8	-113.55	-152.2	44.6	128.8	105.2	23.60	5.458	
3,500.0	3,489.2	3,494.4	3,484.2	12.2	12.2	-113.47	-164.8	46.7	137.8	113.5	24.34	5.661	
3,600.0	3,588.4	3,594.0	3,583.0	12.6	12.5	-113.39	-177.3	48.7	146.8	121.7	25.08	5.852	
3,700.0	3,687.5	3,693.6	3,681.8	13.0	12.9	-113.33	-189.8	50.7	155.8	129.9	25.83	6.031	
3,800.0	3,786.7	3,793.2	3,780.6	13.4	13.3	-113.27	-202.4	52.7	164.7	138.2	26.57	6.199	
3,900.0	3,885.8	3,892.8	3,879.4	13.8	13.7	-113.22	-214.9	54.7	173.7	146.4	27.33	6.358	
4,000.0	3,984.9	3,992.4	3,978.1	14.1	14.1	-113.17	-227.5	56.8	182.7	154.6	28.08	6.507	
4,100.0	4,084.1	4,092.0	4,076.9	14.5	14.4	-113.13	-240.0	58.8	191.7	162.9	28.83	6.648	
4,200.0	4,183.2	4,191.6	4,175.7	14.9	14.8	-113.09	-252.5	60.8	200.7	171.1	29.59	6.781	
4,300.0	4,282.3	4,291.2	4,274.5	15.3	15.2	-113.05	-265.1	62.8	209.6	179.3	30.35	6.908	
4,400.0	4,381.5	4,390.8	4,373.3	15.7	15.6	-113.02	-277.6	64.8	218.6	187.5	31.11	7.027	
4,500.0	4,480.6	4,490.4	4,472.1	16.1	16.0	-112.99	-290.2	66.9	227.6	195.7	31.87	7.141	
4,600.0	4,579.8	4,590.0	4,570.8	16.4	16.3	-112.96	-302.7	68.9	236.6	204.0	32.64	7.249	
4,700.0	4,678.9	4,689.6	4,669.6	16.8	16.7	-112.94	-315.2	70.9	245.6	212.2	33.40	7.351	
4,800.0	4,778.0	4,789.2	4,768.4	17.2	17.1	-112.91	-327.8	72.9	254.6	220.4	34.17	7.449	
4,900.0	4,877.2	4,888.8	4,867.2	17.6	17.5	-112.89	-340.3	75.0	263.5	228.6	34.94	7.542	
5,000.0	4,976.3	4,988.4	4,966.0	18.0	17.9	-112.87	-352.9	77.0	272.5	236.8	35.71	7.631	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.0	5,075.5	5,088.0	5,064.7	18.4	18.3	-112.85	-365.4	79.0	281.5	245.0	36.48	7.716	
5,200.0	5,174.6	5,187.6	5,163.5	18.8	18.7	-112.83	-377.9	81.0	290.5	253.2	37.25	7.797	
5,300.0	5,273.7	5,287.2	5,262.3	19.2	19.0	-112.82	-390.5	83.0	299.5	261.4	38.03	7.875	
5,400.0	5,372.9	5,386.8	5,361.1	19.6	19.4	-112.80	-403.0	85.1	308.4	269.6	38.80	7.950	
5,500.0	5,472.0	5,486.4	5,459.9	20.0	19.8	-112.78	-415.6	87.1	317.4	277.8	39.57	8.021	
5,600.0	5,571.1	5,585.9	5,558.7	20.4	20.2	-112.77	-428.1	89.1	326.4	286.1	40.35	8.089	
5,700.0	5,670.3	5,685.5	5,657.4	20.8	20.6	-112.76	-440.6	91.1	335.4	294.3	41.13	8.155	
5,800.0	5,769.4	5,785.1	5,756.2	21.1	21.0	-112.74	-453.2	93.2	344.4	302.5	41.90	8.218	
5,900.0	5,868.6	5,884.7	5,855.0	21.5	21.4	-112.73	-465.7	95.2	353.3	310.7	42.68	8.279	
6,000.0	5,967.7	5,984.3	5,953.8	21.9	21.8	-112.72	-478.3	97.2	362.3	318.9	43.46	8.337	
6,100.0	6,066.8	6,083.9	6,052.6	22.3	22.2	-112.71	-490.8	99.2	371.3	327.1	44.24	8.393	
6,200.0	6,166.0	6,183.5	6,151.4	22.7	22.6	-112.70	-503.3	101.2	380.3	335.3	45.02	8.447	
6,300.0	6,265.1	6,283.1	6,250.1	23.1	23.0	-112.69	-515.9	103.3	389.3	343.5	45.80	8.499	
6,400.0	6,364.2	6,382.7	6,348.9	23.5	23.3	-112.68	-528.4	105.3	398.3	351.7	46.58	8.550	
6,500.0	6,463.4	6,482.3	6,447.7	23.9	23.7	-112.67	-541.0	107.3	407.2	359.9	47.36	8.598	
6,600.0	6,562.5	6,581.9	6,546.5	24.3	24.1	-112.66	-553.5	109.3	416.2	368.1	48.14	8.645	
6,700.0	6,661.7	6,681.5	6,645.3	24.7	24.5	-112.65	-566.0	111.4	425.2	376.3	48.93	8.691	
6,800.0	6,760.8	6,781.1	6,744.1	25.1	24.9	-112.64	-578.6	113.4	434.2	384.5	49.71	8.734	
6,900.0	6,859.9	6,880.7	6,842.8	25.5	25.3	-112.64	-591.1	115.4	443.2	392.7	50.49	8.777	
7,000.0	6,959.1	6,980.3	6,941.6	25.9	25.7	-112.63	-603.7	117.4	452.1	400.9	51.28	8.818	
7,100.0	7,058.2	7,079.9	7,040.4	26.3	26.1	-112.62	-616.2	119.4	461.1	409.1	52.06	8.858	
7,200.0	7,157.4	7,179.7	7,139.4	26.7	26.5	-112.62	-628.8	121.5	470.1	417.3	52.85	8.896	
7,300.0	7,256.5	7,284.6	7,243.7	27.1	26.9	-112.61	-639.9	123.3	478.5	424.8	53.66	8.917	
7,400.0	7,355.6	7,389.4	7,348.3	27.5	27.3	-113.51	-647.3	124.4	485.8	431.3	54.45	8.922	
7,500.0	7,454.8	7,493.9	7,452.6	27.9	27.7	-114.57	-650.9	125.0	492.2	436.9	55.21	8.914	
7,600.0	7,553.9	7,595.3	7,554.0	28.3	28.0	-115.91	-651.3	125.1	497.9	442.0	55.93	8.903	
7,700.0	7,653.0	7,694.4	7,653.1	28.7	28.3	-117.25	-651.3	125.1	503.8	447.2	56.62	8.898	
7,800.0	7,752.2	7,793.5	7,752.3	29.1	28.6	-118.55	-651.3	125.1	510.0	452.6	57.31	8.899	
7,900.0	7,851.3	7,892.7	7,851.4	29.5	28.9	-119.83	-651.3	125.1	516.4	458.4	58.00	8.903	
8,000.0	7,950.7	7,992.1	7,950.8	29.9	29.2	-120.95	-651.3	125.1	521.8	463.2	58.68	8.893	
8,100.0	8,050.5	8,091.8	8,050.6	30.2	29.6	-121.69	-651.3	125.1	525.7	466.3	59.35	8.856	
8,200.0	8,150.4	8,191.8	8,150.5	30.6	29.9	-122.08	-651.3	125.1	527.7	467.6	60.02	8.791	
8,300.0	8,250.4	8,291.8	8,250.5	30.9	30.2	89.37	-651.3	125.1	528.0	467.3	60.67	8.703	
8,400.0	8,350.4	8,391.8	8,350.5	31.2	30.5	89.37	-651.3	125.1	528.0	466.7	61.31	8.612	
8,444.0	8,394.4	8,435.8	8,394.5	31.4	30.7	89.56	-652.9	125.1	528.0	466.4	61.61	8.570	
8,500.0	8,450.4	8,490.8	8,448.9	31.6	30.9	90.40	-660.7	125.2	528.1	466.0	62.02	8.515	
8,600.0	8,550.4	8,582.3	8,536.4	31.9	31.3	93.27	-687.2	125.4	529.3	466.5	62.76	8.433	
8,700.0	8,650.4	8,681.5	8,606.7	32.2	31.7	97.15	-723.3	125.6	534.5	471.1	63.37	8.435	
8,800.0	8,750.4	8,725.0	8,658.3	32.5	32.1	101.05	-760.3	125.9	546.6	483.1	63.52	8.606	
8,900.0	8,850.4	8,821.1	8,699.4	32.8	32.4	-73.81	-798.5	126.2	567.9	504.8	63.14	8.995	
9,000.0	8,948.9	8,932.0	8,732.5	33.2	32.7	-67.53	-837.0	126.5	594.6	532.3	62.26	9.550	
9,100.0	9,041.8	8,882.7	8,761.3	33.7	33.0	-61.89	-878.7	126.9	622.3	561.2	61.11	10.184	
9,200.0	9,125.2	8,933.3	8,785.5	34.2	33.3	-57.16	-923.2	127.2	648.5	588.6	59.85	10.834	
9,300.0	9,195.4	8,983.9	8,804.8	34.7	33.7	-53.47	-969.9	127.6	671.1	612.4	58.67	11.439	
9,400.0	9,249.2	9,034.4	8,819.1	35.3	34.0	-50.82	-1,018.4	127.9	688.7	631.0	57.70	11.936	
9,500.0	9,284.5	9,085.0	8,828.1	35.9	34.4	-49.16	-1,068.0	128.3	700.4	643.3	57.12	12.262	
9,600.0	9,299.5	9,135.5	8,831.9	36.6	34.7	-48.47	-1,118.4	128.7	705.4	648.4	57.03	12.370	
9,700.0	9,300.0	9,225.3	8,832.0	37.2	35.3	-48.44	-1,208.2	129.4	705.6	647.7	57.87	12.193	
9,800.0	9,300.0	9,325.3	8,832.0	37.9	36.1	-48.44	-1,308.2	130.2	705.6	646.7	58.94	11.971	
9,900.0	9,300.0	9,425.3	8,832.0	38.6	36.8	-48.44	-1,408.2	131.0	705.6	645.5	60.09	11.742	
10,000.0	9,300.0	9,525.3	8,832.0	39.4	37.6	-48.44	-1,508.2	131.7	705.6	644.3	61.31	11.509	
10,100.0	9,300.0	9,625.3	8,832.0	40.2	38.5	-48.44	-1,608.2	132.5	705.6	643.0	62.60	11.272	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	9,300.0	9,725.3	8,832.0	41.0	39.4	-48.44	-1,708.2	133.3	705.6	641.7	63.96	11.033	
10,300.0	9,300.0	9,825.3	8,832.0	41.9	40.3	-48.44	-1,808.2	134.1	705.6	640.2	65.37	10.794	
10,400.0	9,300.0	9,925.3	8,832.0	42.8	41.2	-48.44	-1,908.2	134.8	705.6	638.8	66.84	10.557	
10,500.0	9,300.0	10,025.3	8,832.0	43.7	42.2	-48.44	-2,008.2	135.6	705.6	637.3	68.37	10.321	
10,600.0	9,300.0	10,125.3	8,832.0	44.7	43.2	-48.44	-2,108.2	136.4	705.6	635.7	69.94	10.089	
10,700.0	9,300.0	10,225.3	8,832.0	45.7	44.3	-48.44	-2,208.2	137.2	705.6	634.1	71.56	9.861	
10,800.0	9,300.0	10,325.3	8,832.0	46.7	45.3	-48.44	-2,308.2	137.9	705.6	632.4	73.22	9.637	
10,900.0	9,300.0	10,425.3	8,832.0	47.7	46.4	-48.44	-2,408.2	138.7	705.6	630.7	74.93	9.418	
11,000.0	9,300.0	10,525.3	8,832.0	48.8	47.5	-48.44	-2,508.2	139.5	705.6	629.0	76.67	9.204	
11,100.0	9,300.0	10,625.3	8,832.0	49.9	48.6	-48.44	-2,608.2	140.3	705.6	627.2	78.44	8.995	
11,200.0	9,300.0	10,725.3	8,832.0	50.9	49.7	-48.44	-2,708.2	141.1	705.6	625.4	80.25	8.793	
11,300.0	9,300.0	10,825.3	8,832.0	52.1	50.9	-48.44	-2,808.2	141.8	705.6	623.5	82.09	8.596	
11,400.0	9,300.0	10,925.3	8,832.0	53.2	52.0	-48.44	-2,908.2	142.6	705.6	621.7	83.96	8.404	
11,500.0	9,300.0	11,025.3	8,832.0	54.3	53.2	-48.44	-3,008.2	143.4	705.6	619.8	85.85	8.219	
11,600.0	9,300.0	11,125.3	8,832.0	55.5	54.4	-48.44	-3,108.2	144.2	705.6	617.8	87.77	8.039	
11,700.0	9,300.0	11,225.3	8,832.0	56.6	55.6	-48.44	-3,208.2	144.9	705.6	615.9	89.72	7.865	
11,800.0	9,300.0	11,325.3	8,832.0	57.8	56.8	-48.44	-3,308.2	145.7	705.6	613.9	91.68	7.696	
11,900.0	9,300.0	11,425.3	8,832.0	59.0	58.0	-48.44	-3,408.2	146.5	705.6	612.0	93.67	7.533	
12,000.0	9,300.0	11,525.3	8,832.0	60.2	59.2	-48.44	-3,508.2	147.3	705.6	609.9	95.67	7.375	
12,100.0	9,300.0	11,625.3	8,832.0	61.4	60.5	-48.44	-3,608.2	148.0	705.6	607.9	97.70	7.223	
12,200.0	9,300.0	11,725.3	8,832.0	62.7	61.7	-48.44	-3,708.2	148.8	705.6	605.9	99.74	7.075	
12,300.0	9,300.0	11,825.3	8,832.0	63.9	63.0	-48.44	-3,808.2	149.6	705.6	603.8	101.79	6.932	
12,400.0	9,300.0	11,925.3	8,832.0	65.1	64.3	-48.44	-3,908.2	150.4	705.6	601.8	103.86	6.794	
12,500.0	9,300.0	12,025.3	8,832.0	66.4	65.5	-48.44	-4,008.1	151.1	705.6	599.7	105.95	6.660	
12,600.0	9,300.0	12,125.3	8,832.0	67.6	66.8	-48.44	-4,108.1	151.9	705.6	597.6	108.05	6.531	
12,700.0	9,300.0	12,225.3	8,832.0	68.9	68.1	-48.44	-4,208.1	152.7	705.6	595.5	110.16	6.405	
12,800.0	9,300.0	12,325.3	8,832.0	70.2	69.4	-48.44	-4,308.1	153.5	705.6	593.3	112.28	6.284	
12,900.0	9,300.0	12,425.3	8,832.0	71.5	70.7	-48.44	-4,408.1	154.2	705.6	591.2	114.42	6.167	
13,000.0	9,300.0	12,525.3	8,832.0	72.8	72.0	-48.44	-4,508.1	155.0	705.6	589.1	116.56	6.054	
13,100.0	9,300.0	12,625.3	8,832.0	74.0	73.3	-48.44	-4,608.1	155.8	705.6	586.9	118.72	5.944	
13,200.0	9,300.0	12,725.3	8,832.0	75.3	74.6	-48.44	-4,708.1	156.6	705.6	584.7	120.88	5.837	
13,300.0	9,300.0	12,825.3	8,832.0	76.6	76.0	-48.44	-4,808.1	157.3	705.6	582.6	123.05	5.734	
13,400.0	9,300.0	12,925.3	8,832.0	78.0	77.3	-48.44	-4,908.1	158.1	705.6	580.4	125.24	5.634	
13,500.0	9,300.0	13,025.3	8,832.0	79.3	78.6	-48.44	-5,008.1	158.9	705.6	578.2	127.43	5.538	
13,600.0	9,300.0	13,125.3	8,832.0	80.6	79.9	-48.44	-5,108.1	159.7	705.6	576.0	129.62	5.444	
13,700.0	9,300.0	13,225.3	8,832.0	81.9	81.3	-48.44	-5,208.1	160.5	705.6	573.8	131.83	5.353	
13,800.0	9,300.0	13,325.3	8,832.0	83.2	82.6	-48.44	-5,308.1	161.2	705.6	571.6	134.04	5.264	
13,900.0	9,300.0	13,425.3	8,832.0	84.6	84.0	-48.44	-5,408.1	162.0	705.6	569.4	136.26	5.179	
14,000.0	9,300.0	13,525.3	8,832.0	85.9	85.3	-48.44	-5,508.1	162.8	705.6	567.1	138.48	5.095	
14,100.0	9,300.0	13,625.3	8,832.0	87.2	86.7	-48.44	-5,608.1	163.6	705.6	564.9	140.71	5.015	
14,200.0	9,300.0	13,725.3	8,832.0	88.6	88.0	-48.44	-5,708.1	164.3	705.6	562.7	142.95	4.936	
14,300.0	9,300.0	13,825.3	8,832.0	89.9	89.4	-48.44	-5,808.1	165.1	705.6	560.4	145.19	4.860	
14,400.0	9,300.0	13,925.3	8,832.0	91.3	90.7	-48.44	-5,908.1	165.9	705.6	558.2	147.44	4.786	
14,500.0	9,300.0	14,025.3	8,832.0	92.6	92.1	-48.44	-6,008.1	166.7	705.6	555.9	149.69	4.714	
14,600.0	9,300.0	14,125.3	8,832.0	94.0	93.5	-48.44	-6,108.1	167.4	705.6	553.7	151.94	4.644	
14,700.0	9,300.0	14,225.3	8,832.0	95.3	94.8	-48.44	-6,208.1	168.2	705.6	551.4	154.21	4.576	
14,800.0	9,300.0	14,325.3	8,832.0	96.7	96.2	-48.44	-6,308.1	169.0	705.6	549.1	156.47	4.510	
14,900.0	9,300.0	14,425.3	8,832.0	98.1	97.6	-48.44	-6,408.1	169.8	705.6	546.9	158.74	4.445	
15,000.0	9,300.0	14,525.3	8,832.0	99.4	99.0	-48.44	-6,508.1	170.5	705.6	544.6	161.01	4.382	
15,100.0	9,300.0	14,625.3	8,832.0	100.8	100.3	-48.44	-6,608.1	171.3	705.6	542.3	163.29	4.321	
15,200.0	9,300.0	14,725.3	8,832.0	102.1	101.7	-48.44	-6,708.1	172.1	705.6	540.0	165.57	4.262	
15,300.0	9,300.0	14,825.3	8,832.0	103.5	103.1	-48.44	-6,808.1	172.9	705.6	537.8	167.86	4.204	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 303H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,400.0	9,300.0	14,925.3	8,832.0	104.9	104.5	-48.44	-6,908.1	173.6	705.6	535.5	170.14	4.147	
15,500.0	9,300.0	15,025.3	8,832.0	106.3	105.9	-48.44	-7,008.1	174.4	705.6	533.2	172.43	4.092	
15,600.0	9,300.0	15,125.3	8,832.0	107.6	107.2	-48.44	-7,108.1	175.2	705.6	530.9	174.73	4.038	
15,700.0	9,300.0	15,225.3	8,832.0	109.0	108.6	-48.44	-7,208.1	176.0	705.6	528.6	177.02	3.986	
15,800.0	9,300.0	15,325.3	8,832.0	110.4	110.0	-48.44	-7,308.1	176.8	705.6	526.3	179.32	3.935	
15,900.0	9,300.0	15,425.3	8,832.0	111.8	111.4	-48.44	-7,408.0	177.5	705.6	524.0	181.63	3.885	
16,000.0	9,300.0	15,525.3	8,832.0	113.2	112.8	-48.44	-7,508.0	178.3	705.6	521.7	183.93	3.836	
16,100.0	9,300.0	15,625.3	8,832.0	114.6	114.2	-48.44	-7,608.0	179.1	705.6	519.4	186.24	3.789	
16,200.0	9,300.0	15,725.3	8,832.0	115.9	115.6	-48.44	-7,708.0	179.9	705.6	517.1	188.55	3.742	
16,300.0	9,300.0	15,825.3	8,832.0	117.3	117.0	-48.44	-7,808.0	180.6	705.6	514.8	190.86	3.697	
16,400.0	9,300.0	15,925.3	8,832.0	118.7	118.4	-48.44	-7,908.0	181.4	705.6	512.4	193.18	3.653	
16,500.0	9,300.0	16,025.3	8,832.0	120.1	119.8	-48.44	-8,008.0	182.2	705.6	510.1	195.49	3.609	
16,600.0	9,300.0	16,125.3	8,832.0	121.5	121.2	-48.44	-8,108.0	183.0	705.6	507.8	197.81	3.567	
16,700.0	9,300.0	16,225.3	8,832.0	122.9	122.6	-48.44	-8,208.0	183.7	705.6	505.5	200.13	3.526	
16,800.0	9,300.0	16,325.3	8,832.0	124.3	124.0	-48.44	-8,308.0	184.5	705.6	503.2	202.46	3.485	
16,900.0	9,300.0	16,425.3	8,832.0	125.7	125.4	-48.44	-8,408.0	185.3	705.6	500.8	204.78	3.446	
17,000.0	9,300.0	16,525.3	8,832.0	127.1	126.8	-48.44	-8,508.0	186.1	705.6	498.5	207.11	3.407	
17,100.0	9,300.0	16,625.3	8,832.0	128.5	128.2	-48.44	-8,608.0	186.8	705.6	496.2	209.44	3.369	
17,200.0	9,300.0	16,725.3	8,832.0	129.9	129.6	-48.44	-8,708.0	187.6	705.6	493.9	211.77	3.332	
17,300.0	9,300.0	16,825.3	8,832.0	131.3	131.0	-48.44	-8,808.0	188.4	705.6	491.5	214.10	3.296	
17,400.0	9,300.0	16,925.3	8,832.0	132.7	132.4	-48.44	-8,908.0	189.2	705.6	489.2	216.43	3.260	
17,500.0	9,300.0	17,025.3	8,832.0	134.1	133.8	-48.44	-9,008.0	189.9	705.6	486.9	218.77	3.225	
17,600.0	9,300.0	17,125.3	8,832.0	135.5	135.2	-48.44	-9,108.0	190.7	705.6	484.5	221.11	3.191	
17,700.0	9,300.0	17,225.3	8,832.0	136.9	136.7	-48.44	-9,208.0	191.5	705.6	482.2	223.44	3.158	
17,800.0	9,300.0	17,325.3	8,832.0	138.3	138.1	-48.44	-9,308.0	192.3	705.6	479.8	225.78	3.125	
17,900.0	9,300.0	17,425.3	8,832.0	139.7	139.5	-48.44	-9,408.0	193.0	705.6	477.5	228.12	3.093	
18,000.0	9,300.0	17,525.3	8,832.0	141.1	140.9	-48.44	-9,508.0	193.8	705.6	475.2	230.47	3.062	
18,100.0	9,300.0	17,625.3	8,832.0	142.5	142.3	-48.44	-9,608.0	194.6	705.6	472.8	232.81	3.031	
18,200.0	9,300.0	17,725.3	8,832.0	143.9	143.7	-48.44	-9,708.0	195.4	705.6	470.5	235.15	3.001	
18,300.0	9,300.0	17,825.3	8,832.0	145.3	145.1	-48.44	-9,808.0	196.2	705.6	468.1	237.50	2.971	
18,400.0	9,300.0	17,925.3	8,832.0	146.7	146.5	-48.44	-9,908.0	196.9	705.6	465.8	239.85	2.942	
18,500.0	9,300.0	18,025.3	8,832.0	148.2	148.0	-48.44	-10,008.0	197.7	705.6	463.4	242.20	2.913	
18,600.0	9,300.0	18,125.3	8,832.0	149.6	149.4	-48.44	-10,108.0	198.5	705.6	461.1	244.55	2.885	
18,700.0	9,300.0	18,225.3	8,832.0	151.0	150.8	-48.44	-10,208.0	199.3	705.6	458.7	246.90	2.858	
18,800.0	9,300.0	18,325.3	8,832.0	152.4	152.2	-48.44	-10,308.0	200.0	705.6	456.4	249.25	2.831	
18,900.0	9,300.0	18,425.3	8,832.0	153.8	153.6	-48.44	-10,408.0	200.8	705.6	454.0	251.60	2.805	
19,000.0	9,300.0	18,525.3	8,832.0	155.2	155.0	-48.44	-10,508.0	201.6	705.6	451.7	253.95	2.779	
19,100.0	9,300.0	18,625.3	8,832.0	156.6	156.5	-48.44	-10,608.0	202.4	705.6	449.3	256.31	2.753	
19,200.0	9,300.0	18,725.3	8,832.0	158.1	157.9	-48.44	-10,707.9	203.1	705.6	447.0	258.66	2.728	
19,300.0	9,300.0	18,825.3	8,832.0	159.5	159.3	-48.44	-10,807.9	203.9	705.6	444.6	261.02	2.703	
19,400.0	9,300.0	18,925.3	8,832.0	160.9	160.7	-48.44	-10,907.9	204.7	705.6	442.2	263.38	2.679	
19,500.0	9,300.0	19,025.3	8,832.0	162.3	162.1	-48.44	-11,007.9	205.5	705.6	439.9	265.67	2.656	
19,551.5	9,300.0	19,076.8	8,832.0	163.0	162.7	-48.44	-11,059.4	205.9	705.6	438.9	266.75	2.645	
19,553.8	9,300.0	19,077.7	8,832.0	163.1	162.7	-48.44	-11,060.3	205.9	705.6	438.8	266.77	2.645	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	3.2	3.2	0.0	0.0	89.04	1.7	100.1	100.1				
100.0	100.0	103.2	103.2	0.1	0.1	89.04	1.7	100.1	100.1	99.8	0.27	363.974	
200.0	200.0	203.2	203.2	0.5	0.5	89.04	1.7	100.1	100.1	99.1	0.99	100.892	
300.0	300.0	303.2	303.2	0.8	0.9	89.04	1.7	100.1	100.1	98.4	1.71	58.563	
400.0	400.0	403.2	403.2	1.2	1.2	89.04	1.7	100.1	100.1	97.6	2.43	41.254	
500.0	500.0	503.2	503.2	1.6	1.6	89.04	1.7	100.1	100.1	96.9	3.14	31.843	
600.0	600.0	603.2	603.2	1.9	1.9	89.04	1.7	100.1	100.1	96.2	3.86	25.928	
700.0	700.0	703.2	703.2	2.3	2.3	89.04	1.7	100.1	100.1	95.5	4.58	21.866	
800.0	800.0	803.2	803.2	2.6	2.7	89.04	1.7	100.1	100.1	94.8	5.29	18.905	
900.0	900.0	903.2	903.2	3.0	3.0	89.04	1.7	100.1	100.1	94.1	6.01	16.650	
1,000.0	1,000.0	1,003.2	1,003.2	3.4	3.4	89.04	1.7	100.1	100.1	93.3	6.73	14.875	
1,100.0	1,100.0	1,103.2	1,103.2	3.7	3.7	89.04	1.7	100.1	100.1	92.6	7.44	13.443	
1,200.0	1,200.0	1,203.2	1,203.2	4.1	4.1	89.04	1.7	100.1	100.1	91.9	8.16	12.262	
1,300.0	1,300.0	1,303.2	1,303.2	4.4	4.4	89.04	1.7	100.1	100.1	91.2	8.88	11.272	
1,400.0	1,400.0	1,403.2	1,403.2	4.8	4.8	89.04	1.7	100.1	100.1	90.5	9.60	10.430	
1,500.0	1,500.0	1,503.2	1,503.2	5.2	5.2	89.04	1.7	100.1	100.1	89.8	10.31	9.704	
1,600.0	1,600.0	1,603.2	1,603.2	5.5	5.5	89.04	1.7	100.1	100.1	89.0	11.03	9.074	
1,700.0	1,700.0	1,703.2	1,703.2	5.9	5.9	89.04	1.7	100.1	100.1	88.3	11.75	8.520	
1,800.0	1,800.0	1,803.2	1,803.2	6.2	6.2	89.04	1.7	100.1	100.1	87.6	12.46	8.030	
1,900.0	1,900.0	1,903.2	1,903.2	6.6	6.6	89.04	1.7	100.1	100.1	86.9	13.18	7.593	
1,915.6	1,915.6	1,918.8	1,918.8	6.6	6.7	89.04	1.7	100.1	100.1	86.8	13.29	7.529 CC	
2,000.0	2,000.0	2,003.1	2,003.1	6.9	7.0	89.04	1.7	100.1	100.1	86.2	13.90	7.202 ES	
2,100.0	2,100.0	2,100.0	2,100.0	7.3	7.3	-122.79	0.9	101.6	102.6	88.1	14.57	7.045	
2,200.0	2,199.8	2,196.5	2,196.4	7.6	7.6	-123.72	-1.2	106.1	110.1	94.9	15.20	7.244	
2,300.0	2,299.5	2,292.3	2,291.8	7.9	7.9	-125.00	-4.7	113.5	122.5	106.7	15.82	7.743	
2,400.0	2,398.7	2,387.0	2,385.8	8.3	8.3	-126.43	-9.5	123.6	139.8	123.4	16.44	8.506	
2,500.0	2,497.9	2,480.6	2,478.3	8.6	8.6	-127.38	-15.6	136.4	160.5	143.5	17.04	9.421	
2,600.0	2,597.0	2,573.1	2,569.3	9.0	8.9	-127.60	-22.8	151.7	184.0	166.4	17.63	10.433	
2,700.0	2,696.1	2,664.3	2,658.4	9.3	9.3	-127.32	-31.2	169.3	210.1	191.9	18.22	11.532	
2,800.0	2,795.3	2,754.1	2,745.4	9.7	9.6	-126.73	-40.6	189.2	238.7	220.0	18.78	12.711	
2,900.0	2,894.4	2,849.0	2,837.0	10.0	10.0	-126.05	-51.3	211.7	268.9	249.4	19.45	13.821	
3,000.0	2,993.5	2,944.4	2,929.0	10.4	10.4	-125.50	-62.0	234.2	299.0	278.9	20.14	14.847	
3,100.0	3,092.7	3,039.7	3,021.0	10.8	10.8	-125.05	-72.7	256.8	329.2	308.3	20.83	15.800	
3,200.0	3,191.8	3,135.0	3,113.0	11.1	11.2	-124.68	-83.4	279.3	359.3	337.8	21.53	16.687	
3,300.0	3,291.0	3,230.3	3,205.0	11.5	11.6	-124.36	-94.1	301.9	389.5	367.3	22.24	17.513	
3,400.0	3,390.1	3,325.6	3,297.0	11.9	12.0	-124.09	-104.8	324.4	419.7	396.8	22.96	18.285	
3,500.0	3,489.2	3,420.9	3,389.0	12.2	12.4	-123.86	-115.5	347.0	450.0	426.3	23.68	19.006	
3,600.0	3,588.4	3,516.2	3,480.9	12.6	12.9	-123.66	-126.3	369.5	480.2	455.8	24.40	19.680	
3,700.0	3,687.5	3,611.5	3,572.9	13.0	13.3	-123.48	-137.0	392.1	510.4	485.3	25.13	20.313	
3,800.0	3,786.7	3,706.9	3,664.9	13.4	13.7	-123.32	-147.7	414.6	540.6	514.8	25.86	20.907	
3,900.0	3,885.8	3,802.2	3,756.9	13.8	14.2	-123.17	-158.4	437.2	570.9	544.3	26.59	21.466	
4,000.0	3,984.9	3,897.5	3,848.9	14.1	14.6	-123.04	-169.1	459.7	601.1	573.8	27.33	21.992	
4,100.0	4,084.1	3,992.8	3,940.9	14.5	15.1	-122.93	-179.8	482.3	631.3	603.2	28.07	22.488	
4,200.0	4,183.2	4,088.1	4,032.9	14.9	15.5	-122.82	-190.5	504.8	661.6	632.7	28.82	22.956	
4,300.0	4,282.3	4,183.4	4,124.8	15.3	16.0	-122.73	-201.2	527.4	691.8	662.2	29.57	23.399	
4,400.0	4,381.5	4,278.7	4,216.8	15.7	16.4	-122.64	-211.9	549.9	722.0	691.7	30.31	23.818	
4,500.0	4,480.6	4,374.0	4,308.8	16.1	16.9	-122.56	-222.6	572.5	752.3	721.2	31.07	24.215	
4,600.0	4,579.8	4,469.3	4,400.8	16.4	17.4	-122.48	-233.3	595.0	782.5	750.7	31.82	24.592	
4,700.0	4,678.9	4,564.7	4,492.8	16.8	17.8	-122.41	-244.0	617.6	812.8	780.2	32.58	24.950	
4,800.0	4,778.0	4,660.0	4,584.8	17.2	18.3	-122.35	-254.7	640.1	843.0	809.7	33.33	25.290	
4,900.0	4,877.2	4,755.3	4,676.8	17.6	18.8	-122.29	-265.4	662.7	873.3	839.2	34.09	25.614	
5,000.0	4,976.3	4,850.6	4,768.7	18.0	19.2	-122.23	-276.1	685.2	903.5	868.6	34.85	25.923	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.0	5,075.5	4,945.9	4,860.7	18.4	19.7	-122.18	-286.8	707.8	933.8	898.1	35.62	26.218	
5,200.0	5,174.6	5,041.2	4,952.7	18.8	20.2	-122.13	-297.5	730.3	964.0	927.6	36.38	26.499	
5,300.0	5,273.7	5,136.5	5,044.7	19.2	20.6	-122.08	-308.2	752.9	994.2	957.1	37.14	26.768	
5,400.0	5,372.9	5,231.8	5,136.7	19.6	21.1	-122.04	-319.0	775.4	1,024.5	986.6	37.91	27.025	
5,500.0	5,472.0	5,327.2	5,228.7	20.0	21.6	-122.00	-329.7	798.0	1,054.7	1,016.1	38.68	27.271	
5,600.0	5,571.1	5,422.5	5,320.7	20.4	22.1	-121.96	-340.4	820.5	1,085.0	1,045.6	39.45	27.506	
5,700.0	5,670.3	5,517.8	5,412.6	20.8	22.5	-121.92	-351.1	843.1	1,115.2	1,075.0	40.21	27.732	
5,800.0	5,769.4	5,613.1	5,504.6	21.1	23.0	-121.89	-361.8	865.6	1,145.5	1,104.5	40.99	27.949	
5,900.0	5,868.6	5,708.4	5,596.6	21.5	23.5	-121.86	-372.5	888.2	1,175.8	1,134.0	41.76	28.157	
6,000.0	5,967.7	5,803.7	5,688.6	21.9	24.0	-121.83	-383.2	910.7	1,206.0	1,163.5	42.53	28.357	
6,100.0	6,066.8	5,899.0	5,780.6	22.3	24.5	-121.80	-393.9	933.3	1,236.3	1,193.0	43.30	28.549	
6,200.0	6,166.0	5,994.3	5,872.6	22.7	24.9	-121.77	-404.6	955.8	1,266.5	1,222.4	44.08	28.734	
6,300.0	6,265.1	6,089.7	5,964.6	23.1	25.4	-121.74	-415.3	978.4	1,296.8	1,251.9	44.85	28.913	
6,400.0	6,364.2	6,185.0	6,056.5	23.5	25.9	-121.72	-426.0	1,000.9	1,327.0	1,281.4	45.63	29.084	
6,500.0	6,463.4	6,280.3	6,148.5	23.9	26.4	-121.69	-436.7	1,023.5	1,357.3	1,310.9	46.40	29.250	
6,600.0	6,562.5	6,375.6	6,240.5	24.3	26.9	-121.67	-447.4	1,046.0	1,387.5	1,340.3	47.18	29.409	
6,700.0	6,661.7	6,470.9	6,332.5	24.7	27.4	-121.64	-458.1	1,068.6	1,417.8	1,369.8	47.96	29.563	
6,800.0	6,760.8	6,566.2	6,424.5	25.1	27.8	-121.62	-468.8	1,091.1	1,448.0	1,399.3	48.74	29.712	
6,900.0	6,859.9	6,661.5	6,516.5	25.5	28.3	-121.60	-479.5	1,113.7	1,478.3	1,428.8	49.51	29.855	
7,000.0	6,959.1	6,756.8	6,608.5	25.9	28.8	-121.58	-490.2	1,136.2	1,508.5	1,458.2	50.29	29.994	
7,100.0	7,058.2	6,852.2	6,700.4	26.3	29.3	-121.56	-501.0	1,158.8	1,538.8	1,487.7	51.07	30.128	
7,200.0	7,157.4	6,947.5	6,792.4	26.7	29.8	-121.55	-511.7	1,181.3	1,569.0	1,517.2	51.86	30.258	
7,300.0	7,256.5	7,042.8	6,884.4	27.1	30.3	-121.53	-522.4	1,203.9	1,599.3	1,546.7	52.64	30.384	
7,400.0	7,355.6	7,138.1	6,976.4	27.5	30.8	-121.51	-533.1	1,226.4	1,629.6	1,576.1	53.42	30.506	
7,500.0	7,454.8	7,233.4	7,068.4	27.9	31.2	-121.49	-543.8	1,248.9	1,659.8	1,605.6	54.20	30.624	
7,600.0	7,553.9	7,328.7	7,160.4	28.3	31.7	-121.48	-554.5	1,271.5	1,690.1	1,635.1	54.98	30.738	
7,700.0	7,653.0	7,424.0	7,252.4	28.7	32.2	-121.46	-565.2	1,294.0	1,720.3	1,664.6	55.77	30.849	
7,800.0	7,752.2	7,519.3	7,344.3	29.1	32.7	-121.45	-575.9	1,316.6	1,750.6	1,694.0	56.55	30.956	
7,900.0	7,851.3	7,614.7	7,436.3	29.5	33.2	-121.52	-586.6	1,339.2	1,780.8	1,723.5	57.33	31.060	
8,000.0	7,950.7	7,749.5	7,566.7	29.9	33.9	-121.92	-601.4	1,370.3	1,809.6	1,751.1	58.43	30.968	
8,100.0	8,050.5	7,976.6	7,789.2	30.2	34.9	-122.10	-620.9	1,411.3	1,831.4	1,771.3	60.10	30.474	
8,200.0	8,150.4	8,210.6	8,021.4	30.6	35.8	-122.17	-632.9	1,436.8	1,844.2	1,782.7	61.47	30.003	
8,300.0	8,250.4	8,431.6	8,242.1	30.9	36.5	89.37	-636.8	1,445.0	1,848.0	1,785.5	62.46	29.585	
8,400.0	8,350.4	8,543.1	8,353.6	31.2	36.8	89.37	-636.9	1,445.0	1,848.0	1,784.9	63.11	29.285	
8,475.1	8,425.5	8,618.5	8,428.7	31.5	37.0	89.55	-642.7	1,445.1	1,848.0	1,784.4	63.59	29.063	
8,500.0	8,450.4	8,642.9	8,452.7	31.6	37.1	89.69	-647.1	1,445.1	1,848.0	1,784.3	63.75	28.989	
8,600.0	8,550.4	8,734.7	8,540.2	31.9	37.4	90.54	-674.4	1,445.3	1,848.3	1,783.9	64.40	28.698	
8,700.0	8,650.4	8,813.8	8,610.2	32.2	37.8	91.68	-711.1	1,445.6	1,849.8	1,784.7	65.05	28.438	
8,800.0	8,750.4	8,879.3	8,662.9	32.5	38.0	92.87	-749.8	1,445.9	1,853.3	1,787.7	65.64	28.234	
8,900.0	8,850.4	8,932.9	8,701.8	32.8	38.3	-85.31	-786.7	1,446.2	1,859.7	1,793.6	66.17	28.106	
9,000.0	8,948.9	8,983.5	8,734.5	33.2	38.5	-83.30	-825.2	1,446.5	1,868.1	1,801.4	66.73	27.996	
9,100.0	9,041.8	9,034.0	8,762.9	33.7	38.7	-81.34	-866.9	1,446.8	1,877.2	1,809.9	67.33	27.879	
9,200.0	9,125.2	9,084.4	8,786.7	34.2	38.9	-79.55	-911.4	1,447.2	1,886.2	1,818.2	67.99	27.744	
9,300.0	9,195.4	9,134.8	8,805.7	34.7	39.2	-78.03	-958.0	1,447.5	1,894.2	1,825.5	68.69	27.574	
9,400.0	9,249.2	9,185.1	8,819.6	35.3	39.4	-76.85	-1,006.4	1,447.9	1,900.7	1,831.2	69.48	27.357	
9,500.0	9,284.5	9,235.5	8,828.4	35.9	39.7	-76.06	-1,055.9	1,448.3	1,905.0	1,834.7	70.34	27.083	
9,600.0	9,299.5	9,285.8	8,831.9	36.6	40.0	-75.71	-1,106.1	1,448.7	1,907.0	1,835.7	71.29	26.751	
9,700.0	9,300.0	9,377.7	8,832.0	37.2	40.5	-75.70	-1,198.0	1,449.4	1,907.1	1,834.6	72.51	26.303	
9,800.0	9,300.0	9,477.7	8,832.0	37.9	41.1	-75.70	-1,298.0	1,450.2	1,907.1	1,833.3	73.85	25.826	
9,900.0	9,300.0	9,577.7	8,832.0	38.6	41.7	-75.70	-1,398.0	1,450.9	1,907.1	1,831.9	75.27	25.338	
10,000.0	9,300.0	9,677.7	8,832.0	39.4	42.4	-75.70	-1,498.0	1,451.7	1,907.1	1,830.4	76.77	24.842	
10,100.0	9,300.0	9,777.7	8,832.0	40.2	43.1	-75.70	-1,598.0	1,452.5	1,907.1	1,828.8	78.34	24.343	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.0	9,300.0	9,877.7	8,832.0	41.0	43.8	-75.70	-1,698.0	1,453.3	1,907.1	1,827.1	79.99	23.843	
10,300.0	9,300.0	9,977.7	8,832.0	41.9	44.6	-75.70	-1,798.0	1,454.0	1,907.1	1,825.4	81.70	23.344	
10,400.0	9,300.0	10,077.7	8,832.0	42.8	45.4	-75.70	-1,898.0	1,454.8	1,907.1	1,823.7	83.47	22.849	
10,500.0	9,300.0	10,177.7	8,832.0	43.7	46.3	-75.70	-1,998.0	1,455.6	1,907.1	1,821.8	85.29	22.359	
10,600.0	9,300.0	10,277.7	8,832.0	44.7	47.2	-75.70	-2,098.0	1,456.4	1,907.1	1,820.0	87.18	21.877	
10,700.0	9,300.0	10,377.7	8,832.0	45.7	48.1	-75.70	-2,198.0	1,457.1	1,907.1	1,818.0	89.11	21.402	
10,800.0	9,300.0	10,477.7	8,832.0	46.7	49.0	-75.70	-2,298.0	1,457.9	1,907.1	1,816.0	91.09	20.937	
10,900.0	9,300.0	10,577.7	8,832.0	47.7	50.0	-75.70	-2,398.0	1,458.7	1,907.1	1,814.0	93.11	20.482	
11,000.0	9,300.0	10,677.7	8,832.0	48.8	50.9	-75.70	-2,498.0	1,459.5	1,907.1	1,812.0	95.18	20.038	
11,100.0	9,300.0	10,777.7	8,832.0	49.9	51.9	-75.70	-2,597.9	1,460.2	1,907.1	1,809.8	97.28	19.605	
11,200.0	9,300.0	10,877.7	8,832.0	50.9	53.0	-75.70	-2,697.9	1,461.0	1,907.1	1,807.7	99.42	19.183	
11,300.0	9,300.0	10,977.7	8,832.0	52.1	54.0	-75.70	-2,797.9	1,461.8	1,907.1	1,805.5	101.59	18.772	
11,400.0	9,300.0	11,077.7	8,832.0	53.2	55.1	-75.70	-2,897.9	1,462.6	1,907.1	1,803.3	103.80	18.374	
11,500.0	9,300.0	11,177.7	8,832.0	54.3	56.2	-75.70	-2,997.9	1,463.3	1,907.1	1,801.1	106.03	17.986	
11,600.0	9,300.0	11,277.7	8,832.0	55.5	57.2	-75.70	-3,097.9	1,464.1	1,907.1	1,798.8	108.30	17.610	
11,700.0	9,300.0	11,377.7	8,832.0	56.6	58.4	-75.70	-3,197.9	1,464.9	1,907.1	1,796.5	110.59	17.246	
11,800.0	9,300.0	11,477.7	8,832.0	57.8	59.5	-75.70	-3,297.9	1,465.7	1,907.1	1,794.2	112.90	16.892	
11,900.0	9,300.0	11,577.7	8,832.0	59.0	60.6	-75.70	-3,397.9	1,466.4	1,907.1	1,791.9	115.24	16.550	
12,000.0	9,300.0	11,677.7	8,832.0	60.2	61.8	-75.70	-3,497.9	1,467.2	1,907.1	1,789.5	117.60	16.217	
12,100.0	9,300.0	11,777.7	8,832.0	61.4	62.9	-75.70	-3,597.9	1,468.0	1,907.1	1,787.1	119.98	15.896	
12,200.0	9,300.0	11,877.7	8,832.0	62.7	64.1	-75.70	-3,697.9	1,468.8	1,907.1	1,784.7	122.38	15.584	
12,300.0	9,300.0	11,977.7	8,832.0	63.9	65.3	-75.70	-3,797.9	1,469.6	1,907.1	1,782.3	124.79	15.282	
12,400.0	9,300.0	12,077.7	8,832.0	65.1	66.5	-75.70	-3,897.9	1,470.3	1,907.1	1,779.9	127.23	14.990	
12,500.0	9,300.0	12,177.7	8,832.0	66.4	67.7	-75.70	-3,997.9	1,471.1	1,907.1	1,777.4	129.68	14.707	
12,600.0	9,300.0	12,277.7	8,832.0	67.6	68.9	-75.70	-4,097.9	1,471.9	1,907.1	1,775.0	132.15	14.432	
12,700.0	9,300.0	12,377.7	8,832.0	68.9	70.2	-75.70	-4,197.9	1,472.7	1,907.1	1,772.5	134.63	14.166	
12,800.0	9,300.0	12,477.7	8,832.0	70.2	71.4	-75.70	-4,297.9	1,473.4	1,907.1	1,770.0	137.12	13.908	
12,900.0	9,300.0	12,577.7	8,832.0	71.5	72.6	-75.70	-4,397.9	1,474.2	1,907.1	1,767.5	139.63	13.659	
13,000.0	9,300.0	12,677.7	8,832.0	72.8	73.9	-75.70	-4,497.9	1,475.0	1,907.1	1,765.0	142.15	13.417	
13,100.0	9,300.0	12,777.7	8,832.0	74.0	75.1	-75.70	-4,597.9	1,475.8	1,907.1	1,762.4	144.68	13.182	
13,200.0	9,300.0	12,877.7	8,832.0	75.3	76.4	-75.70	-4,697.9	1,476.5	1,907.1	1,759.9	147.22	12.954	
13,300.0	9,300.0	12,977.7	8,832.0	76.6	77.7	-75.70	-4,797.9	1,477.3	1,907.1	1,757.4	149.77	12.734	
13,400.0	9,300.0	13,077.7	8,832.0	78.0	79.0	-75.70	-4,897.9	1,478.1	1,907.1	1,754.8	152.33	12.519	
13,500.0	9,300.0	13,177.7	8,832.0	79.3	80.2	-75.70	-4,997.9	1,478.9	1,907.1	1,752.2	154.91	12.311	
13,600.0	9,300.0	13,277.7	8,832.0	80.6	81.5	-75.70	-5,097.9	1,479.6	1,907.1	1,749.6	157.49	12.110	
13,700.0	9,300.0	13,377.7	8,832.0	81.9	82.8	-75.70	-5,197.9	1,480.4	1,907.1	1,747.0	160.08	11.914	
13,800.0	9,300.0	13,477.7	8,832.0	83.2	84.1	-75.70	-5,297.9	1,481.2	1,907.1	1,744.5	162.67	11.724	
13,900.0	9,300.0	13,577.7	8,832.0	84.6	85.4	-75.70	-5,397.9	1,482.0	1,907.1	1,741.8	165.28	11.539	
14,000.0	9,300.0	13,677.7	8,832.0	85.9	86.7	-75.70	-5,497.9	1,482.7	1,907.1	1,739.2	167.89	11.359	
14,100.0	9,300.0	13,777.7	8,832.0	87.2	88.0	-75.70	-5,597.9	1,483.5	1,907.1	1,736.6	170.51	11.185	
14,200.0	9,300.0	13,877.7	8,832.0	88.6	89.4	-75.70	-5,697.9	1,484.3	1,907.1	1,734.0	173.14	11.015	
14,300.0	9,300.0	13,977.7	8,832.0	89.9	90.7	-75.70	-5,797.9	1,485.1	1,907.1	1,731.4	175.77	10.850	
14,400.0	9,300.0	14,077.7	8,832.0	91.3	92.0	-75.70	-5,897.8	1,485.8	1,907.1	1,728.7	178.41	10.690	
14,500.0	9,300.0	14,177.7	8,832.0	92.6	93.3	-75.70	-5,997.8	1,486.6	1,907.1	1,726.1	181.06	10.533	
14,600.0	9,300.0	14,277.7	8,832.0	94.0	94.7	-75.70	-6,097.8	1,487.4	1,907.1	1,723.4	183.71	10.381	
14,700.0	9,300.0	14,377.7	8,832.0	95.3	96.0	-75.70	-6,197.8	1,488.2	1,907.1	1,720.8	186.36	10.233	
14,800.0	9,300.0	14,477.7	8,832.0	96.7	97.3	-75.70	-6,297.8	1,489.0	1,907.1	1,718.1	189.02	10.089	
14,900.0	9,300.0	14,577.7	8,832.0	98.1	98.7	-75.70	-6,397.8	1,489.7	1,907.1	1,715.4	191.69	9.949	
15,000.0	9,300.0	14,677.7	8,832.0	99.4	100.0	-75.70	-6,497.8	1,490.5	1,907.1	1,712.8	194.36	9.812	
15,100.0	9,300.0	14,777.7	8,832.0	100.8	101.4	-75.70	-6,597.8	1,491.3	1,907.1	1,710.1	197.04	9.679	
15,200.0	9,300.0	14,877.7	8,832.0	102.1	102.7	-75.70	-6,697.8	1,492.1	1,907.1	1,707.4	199.72	9.549	
15,300.0	9,300.0	14,977.7	8,832.0	103.5	104.1	-75.70	-6,797.8	1,492.8	1,907.1	1,704.7	202.40	9.423	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 304H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,400.0	9,300.0	15,077.7	8,832.0	104.9	105.4	-75.70	-6,897.8	1,493.6	1,907.1	1,702.0	205.09	9.299	
15,500.0	9,300.0	15,177.7	8,832.0	106.3	106.8	-75.70	-6,997.8	1,494.4	1,907.1	1,699.3	207.78	9.179	
15,600.0	9,300.0	15,277.7	8,832.0	107.6	108.1	-75.70	-7,097.8	1,495.2	1,907.1	1,696.6	210.47	9.061	
15,700.0	9,300.0	15,377.7	8,832.0	109.0	109.5	-75.70	-7,197.8	1,495.9	1,907.1	1,693.9	213.17	8.946	
15,800.0	9,300.0	15,477.7	8,832.0	110.4	110.9	-75.70	-7,297.8	1,496.7	1,907.1	1,691.2	215.88	8.834	
15,900.0	9,300.0	15,577.7	8,832.0	111.8	112.2	-75.70	-7,397.8	1,497.5	1,907.1	1,688.5	218.58	8.725	
16,000.0	9,300.0	15,677.7	8,832.0	113.2	113.6	-75.70	-7,497.8	1,498.3	1,907.1	1,685.8	221.29	8.618	
16,100.0	9,300.0	15,777.7	8,832.0	114.6	115.0	-75.70	-7,597.8	1,499.0	1,907.1	1,683.1	224.00	8.514	
16,200.0	9,300.0	15,877.7	8,832.0	115.9	116.4	-75.70	-7,697.8	1,499.8	1,907.1	1,680.4	226.72	8.412	
16,300.0	9,300.0	15,977.7	8,832.0	117.3	117.7	-75.70	-7,797.8	1,500.6	1,907.1	1,677.7	229.44	8.312	
16,400.0	9,300.0	16,077.7	8,832.0	118.7	119.1	-75.70	-7,897.8	1,501.4	1,907.1	1,675.0	232.16	8.215	
16,500.0	9,300.0	16,177.7	8,832.0	120.1	120.5	-75.70	-7,997.8	1,502.1	1,907.1	1,672.2	234.88	8.120	
16,600.0	9,300.0	16,277.7	8,832.0	121.5	121.9	-75.70	-8,097.8	1,502.9	1,907.1	1,669.5	237.61	8.026	
16,700.0	9,300.0	16,377.7	8,832.0	122.9	123.2	-75.70	-8,197.8	1,503.7	1,907.1	1,666.8	240.33	7.935	
16,800.0	9,300.0	16,477.7	8,832.0	124.3	124.6	-75.70	-8,297.8	1,504.5	1,907.1	1,664.1	243.07	7.846	
16,900.0	9,300.0	16,577.7	8,832.0	125.7	126.0	-75.70	-8,397.8	1,505.2	1,907.1	1,661.3	245.80	7.759	
17,000.0	9,300.0	16,677.7	8,832.0	127.1	127.4	-75.70	-8,497.8	1,506.0	1,907.1	1,658.6	248.53	7.673	
17,100.0	9,300.0	16,777.7	8,832.0	128.5	128.8	-75.70	-8,597.8	1,506.8	1,907.1	1,655.9	251.27	7.590	
17,200.0	9,300.0	16,877.7	8,832.0	129.9	130.2	-75.70	-8,697.8	1,507.6	1,907.1	1,653.1	254.01	7.508	
17,300.0	9,300.0	16,977.7	8,832.0	131.3	131.6	-75.70	-8,797.8	1,508.3	1,907.1	1,650.4	256.75	7.428	
17,400.0	9,300.0	17,077.7	8,832.0	132.7	132.9	-75.70	-8,897.8	1,509.1	1,907.1	1,647.6	259.50	7.349	
17,500.0	9,300.0	17,177.7	8,832.0	134.1	134.3	-75.70	-8,997.8	1,509.9	1,907.1	1,644.9	262.24	7.272	
17,600.0	9,300.0	17,277.7	8,832.0	135.5	135.7	-75.70	-9,097.8	1,510.7	1,907.1	1,642.1	264.99	7.197	
17,700.0	9,300.0	17,377.7	8,832.0	136.9	137.1	-75.70	-9,197.7	1,511.5	1,907.1	1,639.4	267.74	7.123	
17,800.0	9,300.0	17,477.7	8,832.0	138.3	138.5	-75.70	-9,297.7	1,512.2	1,907.1	1,636.6	270.49	7.051	
17,900.0	9,300.0	17,577.7	8,832.0	139.7	139.9	-75.70	-9,397.7	1,513.0	1,907.1	1,633.9	273.24	6.980	
18,000.0	9,300.0	17,677.7	8,832.0	141.1	141.3	-75.70	-9,497.7	1,513.8	1,907.1	1,631.1	276.00	6.910	
18,100.0	9,300.0	17,777.7	8,832.0	142.5	142.7	-75.70	-9,597.7	1,514.6	1,907.1	1,628.4	278.75	6.842	
18,200.0	9,300.0	17,877.7	8,832.0	143.9	144.1	-75.70	-9,697.7	1,515.3	1,907.1	1,625.6	281.51	6.775	
18,300.0	9,300.0	17,977.7	8,832.0	145.3	145.5	-75.70	-9,797.7	1,516.1	1,907.1	1,622.9	284.27	6.709	
18,400.0	9,300.0	18,077.7	8,832.0	146.7	146.9	-75.70	-9,897.7	1,516.9	1,907.1	1,620.1	287.03	6.644	
18,500.0	9,300.0	18,177.7	8,832.0	148.2	148.3	-75.70	-9,997.7	1,517.7	1,907.1	1,617.3	289.79	6.581	
18,600.0	9,300.0	18,277.7	8,832.0	149.6	149.7	-75.70	-10,097.7	1,518.4	1,907.1	1,614.6	292.55	6.519	
18,700.0	9,300.0	18,377.7	8,832.0	151.0	151.1	-75.70	-10,197.7	1,519.2	1,907.1	1,611.8	295.32	6.458	
18,800.0	9,300.0	18,477.7	8,832.0	152.4	152.5	-75.70	-10,297.7	1,520.0	1,907.1	1,609.0	298.08	6.398	
18,900.0	9,300.0	18,577.7	8,832.0	153.8	153.9	-75.70	-10,397.7	1,520.8	1,907.1	1,606.3	300.85	6.339	
19,000.0	9,300.0	18,677.7	8,832.0	155.2	155.3	-75.70	-10,497.7	1,521.5	1,907.1	1,603.5	303.62	6.281	
19,100.0	9,300.0	18,777.7	8,832.0	156.6	156.7	-75.70	-10,597.7	1,522.3	1,907.1	1,600.7	306.39	6.225	
19,200.0	9,300.0	18,877.7	8,832.0	158.1	158.2	-75.70	-10,697.7	1,523.1	1,907.1	1,598.0	309.16	6.169	
19,300.0	9,300.0	18,977.7	8,832.0	159.5	159.6	-75.70	-10,797.7	1,523.9	1,907.1	1,595.2	311.93	6.114	
19,400.0	9,300.0	19,077.7	8,832.0	160.9	161.0	-75.70	-10,897.7	1,524.6	1,907.1	1,592.4	314.70	6.060	
19,500.0	9,300.0	19,177.7	8,832.0	162.3	162.4	-75.70	-10,997.7	1,525.4	1,907.1	1,589.6	317.48	6.007	
19,546.9	9,300.0	19,224.6	8,832.0	163.0	163.0	-75.70	-11,044.6	1,525.8	1,907.1	1,588.3	318.78	5.983	
19,553.8	9,300.0	19,226.4	8,832.0	163.1	163.1	-75.70	-11,046.4	1,525.8	1,907.1	1,588.2	318.92	5.980 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.4	0.4	0.0	0.0	88.98	0.7	40.0	40.0				
100.0	100.0	100.4	100.4	0.1	0.1	88.98	0.7	40.0	40.0	39.7	0.26	151.018	
200.0	200.0	200.4	200.4	0.5	0.5	88.98	0.7	40.0	40.0	39.0	0.98	40.746	
300.0	300.0	300.4	300.4	0.8	0.9	88.98	0.7	40.0	40.0	38.3	1.70	23.550	
400.0	400.0	400.4	400.4	1.2	1.2	88.98	0.7	40.0	40.0	37.6	2.42	16.561	
500.0	500.0	500.4	500.4	1.6	1.6	88.98	0.7	40.0	40.0	36.9	3.13	12.771	
600.0	600.0	600.4	600.4	1.9	1.9	88.98	0.7	40.0	40.0	36.2	3.85	10.392	
700.0	700.0	700.4	700.4	2.3	2.3	88.98	0.7	40.0	40.0	35.4	4.57	8.761	
800.0	800.0	800.4	800.4	2.6	2.6	88.98	0.7	40.0	40.0	34.7	5.28	7.572	
900.0	900.0	900.4	900.4	3.0	3.0	88.98	0.7	40.0	40.0	34.0	6.00	6.667	
1,000.0	1,000.0	1,000.4	1,000.4	3.4	3.4	88.98	0.7	40.0	40.0	33.3	6.72	5.956	
1,100.0	1,100.0	1,100.4	1,100.4	3.7	3.7	88.98	0.7	40.0	40.0	32.6	7.43	5.381	
1,200.0	1,200.0	1,200.4	1,200.4	4.1	4.1	88.98	0.7	40.0	40.0	31.9	8.15	4.908	
1,300.0	1,300.0	1,300.4	1,300.4	4.4	4.4	88.98	0.7	40.0	40.0	31.1	8.87	4.511	
1,400.0	1,400.0	1,400.4	1,400.4	4.8	4.8	88.98	0.7	40.0	40.0	30.4	9.59	4.174	
1,500.0	1,500.0	1,500.4	1,500.4	5.2	5.2	88.98	0.7	40.0	40.0	29.7	10.30	3.883	
1,600.0	1,600.0	1,600.4	1,600.4	5.5	5.5	88.98	0.7	40.0	40.0	29.0	11.02	3.631	
1,700.0	1,700.0	1,700.4	1,700.4	5.9	5.9	88.98	0.7	40.0	40.0	28.3	11.74	3.409	
1,800.0	1,800.0	1,800.4	1,800.4	6.2	6.2	88.98	0.7	40.0	40.0	27.6	12.45	3.213	
1,900.0	1,900.0	1,900.4	1,900.4	6.6	6.6	88.98	0.7	40.0	40.0	26.8	13.17	3.038	
2,000.0	2,000.0	2,000.4	2,000.4	6.9	6.9	88.98	0.7	40.0	40.0	26.1	13.89	2.881 CC, ES	
2,100.0	2,100.0	2,100.4	2,100.4	7.3	7.3	-124.57	0.7	40.0	41.0	26.4	14.59	2.809 SF	
2,200.0	2,199.8	2,200.0	2,200.0	7.6	7.7	-130.11	0.7	40.0	44.2	28.9	15.27	2.892	
2,300.0	2,299.5	2,299.2	2,299.2	7.9	8.0	-135.78	-0.7	41.0	50.8	34.9	15.94	3.190	
2,400.0	2,398.7	2,397.9	2,397.7	8.3	8.3	-139.05	-4.8	44.1	61.6	45.0	16.59	3.712	
2,500.0	2,497.9	2,496.4	2,495.8	8.6	8.7	-139.37	-11.6	49.1	74.3	57.0	17.24	4.308	
2,600.0	2,597.0	2,594.5	2,593.3	9.0	9.0	-137.51	-21.1	56.2	88.1	70.2	17.90	4.921	
2,700.0	2,696.1	2,693.4	2,691.2	9.3	9.3	-135.35	-31.8	64.1	102.5	84.0	18.57	5.521	
2,800.0	2,795.3	2,792.3	2,789.2	9.7	9.7	-133.73	-42.5	72.1	117.1	97.8	19.26	6.081	
2,900.0	2,894.4	2,891.2	2,887.2	10.0	10.0	-132.46	-53.3	80.1	131.7	111.8	19.95	6.604	
3,000.0	2,993.5	2,990.1	2,985.2	10.4	10.4	-131.45	-64.0	88.1	146.4	125.8	20.64	7.092	
3,100.0	3,092.7	3,088.9	3,083.2	10.8	10.7	-130.63	-74.7	96.0	161.1	139.8	21.35	7.547	
3,200.0	3,191.8	3,187.8	3,181.1	11.1	11.1	-129.94	-85.5	104.0	175.8	153.8	22.05	7.973	
3,300.0	3,291.0	3,286.7	3,279.1	11.5	11.4	-129.36	-96.2	112.0	190.6	167.8	22.77	8.372	
3,400.0	3,390.1	3,385.6	3,377.1	11.9	11.8	-128.86	-106.9	120.0	205.4	181.9	23.49	8.745	
3,500.0	3,489.2	3,484.5	3,475.1	12.2	12.2	-128.43	-117.7	127.9	220.2	196.0	24.21	9.095	
3,600.0	3,588.4	3,583.4	3,573.1	12.6	12.5	-128.05	-128.4	135.9	235.0	210.0	24.93	9.423	
3,700.0	3,687.5	3,682.3	3,671.0	13.0	12.9	-127.72	-139.1	143.9	249.8	224.1	25.66	9.733	
3,800.0	3,786.7	3,781.2	3,769.0	13.4	13.3	-127.42	-149.9	151.9	264.6	238.2	26.40	10.024	
3,900.0	3,885.8	3,880.0	3,867.0	13.8	13.6	-127.16	-160.6	159.8	279.4	252.3	27.13	10.298	
4,000.0	3,984.9	3,978.9	3,965.0	14.1	14.0	-126.92	-171.4	167.8	294.2	266.4	27.87	10.558	
4,100.0	4,084.1	4,077.8	4,062.9	14.5	14.4	-126.71	-182.1	175.8	309.1	280.5	28.61	10.803	
4,200.0	4,183.2	4,176.7	4,160.9	14.9	14.8	-126.51	-192.8	183.8	323.9	294.6	29.35	11.035	
4,300.0	4,282.3	4,275.6	4,258.9	15.3	15.1	-126.33	-203.6	191.7	338.7	308.6	30.10	11.254	
4,400.0	4,381.5	4,374.5	4,356.9	15.7	15.5	-126.17	-214.3	199.7	353.6	322.7	30.85	11.463	
4,500.0	4,480.6	4,473.4	4,454.9	16.1	15.9	-126.02	-225.0	207.7	368.4	336.8	31.59	11.661	
4,600.0	4,579.8	4,572.3	4,552.8	16.4	16.3	-125.88	-235.8	215.7	383.3	350.9	32.34	11.850	
4,700.0	4,678.9	4,671.1	4,650.8	16.8	16.7	-125.75	-246.5	223.6	398.1	365.0	33.10	12.029	
4,800.0	4,778.0	4,770.0	4,748.8	17.2	17.1	-125.64	-257.2	231.6	413.0	379.1	33.85	12.200	
4,900.0	4,877.2	4,868.9	4,846.8	17.6	17.4	-125.53	-268.0	239.6	427.8	393.2	34.60	12.363	
5,000.0	4,976.3	4,967.8	4,944.8	18.0	17.8	-125.42	-278.7	247.6	442.7	407.3	35.36	12.519	
5,100.0	5,075.5	5,066.7	5,042.7	18.4	18.2	-125.33	-289.5	255.5	457.5	421.4	36.12	12.668	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.0	5,174.6	5,165.6	5,140.7	18.8	18.6	-125.24	-300.2	263.5	472.4	435.5	36.88	12.810	
5,300.0	5,273.7	5,264.5	5,238.7	19.2	19.0	-125.15	-310.9	271.5	487.2	449.6	37.64	12.946	
5,400.0	5,372.9	5,363.4	5,336.7	19.6	19.4	-125.07	-321.7	279.5	502.1	463.7	38.40	13.077	
5,500.0	5,472.0	5,462.2	5,434.7	20.0	19.8	-125.00	-332.4	287.4	517.0	477.8	39.16	13.202	
5,600.0	5,571.1	5,561.1	5,532.6	20.4	20.2	-124.93	-343.1	295.4	531.8	491.9	39.92	13.322	
5,700.0	5,670.3	5,660.0	5,630.6	20.8	20.5	-124.86	-353.9	303.4	546.7	506.0	40.68	13.437	
5,800.0	5,769.4	5,758.9	5,728.6	21.1	20.9	-124.79	-364.6	311.4	561.5	520.1	41.45	13.548	
5,900.0	5,868.6	5,857.8	5,826.6	21.5	21.3	-124.73	-375.3	319.3	576.4	534.2	42.21	13.655	
6,000.0	5,967.7	5,956.7	5,924.6	21.9	21.7	-124.68	-386.1	327.3	591.3	548.3	42.98	13.757	
6,100.0	6,066.8	6,055.6	6,022.5	22.3	22.1	-124.62	-396.8	335.3	606.1	562.4	43.74	13.856	
6,200.0	6,166.0	6,154.5	6,120.5	22.7	22.5	-124.57	-407.5	343.3	621.0	576.5	44.51	13.952	
6,300.0	6,265.1	6,253.3	6,218.5	23.1	22.9	-124.52	-418.3	351.2	635.9	590.6	45.28	14.043	
6,400.0	6,364.2	6,352.2	6,316.5	23.5	23.3	-124.47	-429.0	359.2	650.7	604.7	46.05	14.132	
6,500.0	6,463.4	6,451.1	6,414.4	23.9	23.7	-124.43	-439.8	367.2	665.6	618.8	46.81	14.217	
6,600.0	6,562.5	6,550.0	6,512.4	24.3	24.1	-124.39	-450.5	375.1	680.4	632.9	47.58	14.300	
6,700.0	6,661.7	6,648.9	6,610.4	24.7	24.5	-124.35	-461.2	383.1	695.3	647.0	48.35	14.380	
6,800.0	6,760.8	6,747.8	6,708.4	25.1	24.9	-124.31	-472.0	391.1	710.2	661.1	49.12	14.457	
6,900.0	6,859.9	6,846.7	6,806.4	25.5	25.2	-124.27	-482.7	399.1	725.0	675.1	49.89	14.532	
7,000.0	6,959.1	6,945.6	6,904.3	25.9	25.6	-124.23	-493.4	407.0	739.9	689.2	50.66	14.604	
7,100.0	7,058.2	7,044.5	7,002.3	26.3	26.0	-124.20	-504.2	415.0	754.8	703.3	51.44	14.674	
7,200.0	7,157.4	7,143.3	7,100.3	26.7	26.4	-124.16	-514.9	423.0	769.6	717.4	52.21	14.742	
7,300.0	7,256.5	7,242.2	7,198.3	27.1	26.8	-124.13	-525.6	431.0	784.5	731.5	52.98	14.808	
7,400.0	7,355.6	7,341.1	7,296.3	27.5	27.2	-124.10	-536.4	438.9	799.4	745.6	53.75	14.872	
7,500.0	7,454.8	7,440.0	7,394.2	27.9	27.6	-124.07	-547.1	446.9	814.2	759.7	54.53	14.933	
7,600.0	7,553.9	7,538.9	7,492.2	28.3	28.0	-124.04	-557.8	454.9	829.1	773.8	55.30	14.993	
7,700.0	7,653.0	7,637.8	7,590.2	28.7	28.4	-124.01	-568.6	462.9	844.0	787.9	56.07	15.052	
7,800.0	7,752.2	7,736.7	7,688.2	29.1	28.8	-123.99	-579.3	470.8	858.8	802.0	56.85	15.108	
7,900.0	7,851.3	7,835.6	7,786.2	29.5	29.2	-124.00	-590.1	478.8	873.7	816.1	57.62	15.163	
8,000.0	7,950.7	7,934.6	7,884.3	29.9	29.6	-124.07	-600.8	486.8	887.3	828.9	58.39	15.197	
8,100.0	8,050.5	8,033.8	7,982.6	30.2	30.0	-123.94	-611.6	494.8	898.9	839.8	59.14	15.200	
8,200.0	8,150.4	8,133.0	8,080.8	30.6	30.4	-123.59	-622.3	502.8	908.7	848.8	59.88	15.175	
8,300.0	8,250.4	8,247.3	8,194.3	30.9	30.8	88.55	-633.8	511.3	916.2	855.5	60.70	15.095	
8,400.0	8,350.4	8,369.8	8,316.3	31.2	31.3	89.08	-642.2	517.6	921.2	859.7	61.53	14.972	
8,500.0	8,450.4	8,492.9	8,439.3	31.6	31.7	89.34	-646.4	520.7	923.7	861.4	62.31	14.824	
8,600.0	8,550.4	8,604.4	8,550.8	31.9	32.1	89.37	-646.9	521.1	924.0	861.0	63.00	14.668	
8,700.0	8,650.4	8,704.4	8,650.8	32.2	32.4	89.37	-646.9	521.1	924.0	860.4	63.64	14.520	
8,800.0	8,750.4	8,804.4	8,750.8	32.5	32.7	89.37	-646.9	521.1	924.0	859.7	64.28	14.375	
8,800.1	8,750.5	8,804.5	8,750.9	32.5	32.7	89.37	-646.9	521.1	924.0	859.7	64.28	14.375	
8,900.0	8,850.4	8,904.4	8,850.8	32.8	33.1	-90.23	-646.9	521.1	924.0	859.1	64.93	14.231	
9,000.0	8,948.9	9,002.9	8,949.3	33.2	33.4	-91.19	-646.9	521.1	924.2	858.6	65.65	14.079	
9,100.0	9,041.8	9,095.8	9,042.2	33.7	33.7	-93.10	-646.9	521.1	925.7	859.3	66.41	13.940	
9,200.0	9,125.2	9,179.2	9,125.6	34.2	33.9	-95.31	-646.9	521.1	930.7	863.5	67.17	13.856	
9,300.0	9,195.4	9,249.4	9,195.8	34.7	34.2	-97.02	-646.9	521.1	941.8	873.9	67.89	13.872	
9,400.0	9,249.2	9,312.2	9,258.6	35.3	34.4	-97.84	-647.2	521.1	961.5	893.0	68.56	14.026	
9,500.0	9,284.5	9,443.6	9,387.6	35.9	34.9	-101.30	-669.6	521.3	988.8	919.5	69.34	14.262	
9,600.0	9,299.5	9,891.7	9,695.2	36.6	37.2	-113.46	-972.6	523.6	1,013.7	945.0	68.75	14.746	
9,700.0	9,300.0	10,126.9	9,720.0	37.2	38.6	-114.42	-1,205.2	525.4	1,014.8	944.9	69.89	14.520	
9,800.0	9,300.0	10,226.9	9,720.0	37.9	39.3	-114.42	-1,305.2	526.2	1,014.8	943.7	71.12	14.268	
9,900.0	9,300.0	10,326.9	9,720.0	38.6	40.0	-114.42	-1,405.2	527.0	1,014.8	942.4	72.44	14.010	
10,000.0	9,300.0	10,426.9	9,720.0	39.4	40.7	-114.42	-1,505.2	527.7	1,014.8	941.0	73.83	13.746	
10,100.0	9,300.0	10,526.9	9,720.0	40.2	41.5	-114.42	-1,605.1	528.5	1,014.8	939.5	75.29	13.479	
10,200.0	9,300.0	10,626.9	9,720.0	41.0	42.3	-114.42	-1,705.1	529.3	1,014.8	938.0	76.82	13.211	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.0	9,300.0	10,726.9	9,720.0	41.9	43.2	-114.42	-1,805.1	530.1	1,014.8	936.4	78.41	12.942	
10,400.0	9,300.0	10,826.9	9,720.0	42.8	44.0	-114.42	-1,905.1	530.8	1,014.8	934.8	80.07	12.675	
10,500.0	9,300.0	10,926.9	9,720.0	43.7	45.0	-114.42	-2,005.1	531.6	1,014.8	933.0	81.78	12.410	
10,600.0	9,300.0	11,026.9	9,720.0	44.7	45.9	-114.42	-2,105.1	532.4	1,014.8	931.3	83.54	12.148	
10,700.0	9,300.0	11,126.9	9,720.0	45.7	46.8	-114.42	-2,205.1	533.2	1,014.8	929.5	85.35	11.890	
10,800.0	9,300.0	11,226.9	9,720.0	46.7	47.8	-114.42	-2,305.1	533.9	1,014.8	927.6	87.21	11.636	
10,900.0	9,300.0	11,326.9	9,720.0	47.7	48.8	-114.42	-2,405.1	534.7	1,014.8	925.7	89.12	11.387	
11,000.0	9,300.0	11,426.9	9,720.0	48.8	49.9	-114.42	-2,505.1	535.5	1,014.8	923.8	91.06	11.144	
11,100.0	9,300.0	11,526.9	9,720.0	49.9	50.9	-114.42	-2,605.1	536.3	1,014.8	921.8	93.05	10.906	
11,200.0	9,300.0	11,626.9	9,720.0	50.9	52.0	-114.42	-2,705.1	537.0	1,014.8	919.7	95.07	10.675	
11,300.0	9,300.0	11,726.9	9,720.0	52.1	53.1	-114.42	-2,805.1	537.8	1,014.8	917.7	97.12	10.449	
11,400.0	9,300.0	11,826.9	9,720.0	53.2	54.2	-114.42	-2,905.1	538.6	1,014.8	915.6	99.21	10.229	
11,500.0	9,300.0	11,926.9	9,720.0	54.3	55.3	-114.42	-3,005.1	539.4	1,014.8	913.5	101.32	10.016	
11,600.0	9,300.0	12,026.9	9,720.0	55.5	56.4	-114.42	-3,105.1	540.2	1,014.8	911.3	103.47	9.808	
11,700.0	9,300.0	12,126.9	9,720.0	56.6	57.5	-114.42	-3,205.1	540.9	1,014.8	909.2	105.64	9.607	
11,800.0	9,300.0	12,226.9	9,720.0	57.8	58.7	-114.42	-3,305.1	541.7	1,014.8	907.0	107.83	9.411	
11,900.0	9,300.0	12,326.9	9,720.0	59.0	59.9	-114.42	-3,405.1	542.5	1,014.8	904.8	110.05	9.221	
12,000.0	9,300.0	12,426.9	9,720.0	60.2	61.1	-114.42	-3,505.1	543.3	1,014.8	902.5	112.29	9.038	
12,100.0	9,300.0	12,526.9	9,720.0	61.4	62.3	-114.42	-3,605.1	544.0	1,014.8	900.3	114.55	8.859	
12,200.0	9,300.0	12,626.9	9,720.0	62.7	63.5	-114.42	-3,705.1	544.8	1,014.8	898.0	116.83	8.686	
12,300.0	9,300.0	12,726.9	9,720.0	63.9	64.7	-114.42	-3,805.1	545.6	1,014.8	895.7	119.13	8.519	
12,400.0	9,300.0	12,826.9	9,720.0	65.1	65.9	-114.42	-3,905.1	546.4	1,014.8	893.4	121.44	8.356	
12,500.0	9,300.0	12,926.9	9,720.0	66.4	67.1	-114.42	-4,005.1	547.1	1,014.8	891.0	123.77	8.199	
12,600.0	9,300.0	13,026.9	9,720.0	67.6	68.4	-114.42	-4,105.1	547.9	1,014.8	888.7	126.12	8.047	
12,700.0	9,300.0	13,126.9	9,720.0	68.9	69.6	-114.42	-4,205.1	548.7	1,014.8	886.3	128.48	7.899	
12,800.0	9,300.0	13,226.9	9,720.0	70.2	70.9	-114.42	-4,305.1	549.5	1,014.8	884.0	130.85	7.755	
12,900.0	9,300.0	13,326.9	9,720.0	71.5	72.2	-114.42	-4,405.1	550.2	1,014.8	881.6	133.24	7.616	
13,000.0	9,300.0	13,426.9	9,720.0	72.8	73.4	-114.42	-4,505.1	551.0	1,014.8	879.2	135.64	7.482	
13,100.0	9,300.0	13,526.9	9,720.0	74.0	74.7	-114.42	-4,605.1	551.8	1,014.8	876.8	138.05	7.351	
13,200.0	9,300.0	13,626.9	9,720.0	75.3	76.0	-114.42	-4,705.1	552.6	1,014.8	874.3	140.48	7.224	
13,300.0	9,300.0	13,726.9	9,720.0	76.6	77.3	-114.42	-4,805.1	553.3	1,014.8	871.9	142.91	7.101	
13,400.0	9,300.0	13,826.9	9,720.0	78.0	78.6	-114.42	-4,905.0	554.1	1,014.8	869.5	145.35	6.982	
13,500.0	9,300.0	13,926.9	9,720.0	79.3	79.9	-114.42	-5,005.0	554.9	1,014.8	867.0	147.80	6.866	
13,600.0	9,300.0	14,026.9	9,720.0	80.6	81.2	-114.42	-5,105.0	555.7	1,014.8	864.5	150.27	6.753	
13,700.0	9,300.0	14,126.9	9,720.0	81.9	82.5	-114.42	-5,205.0	556.4	1,014.8	862.1	152.74	6.644	
13,800.0	9,300.0	14,226.9	9,720.0	83.2	83.8	-114.42	-5,305.0	557.2	1,014.8	859.6	155.21	6.538	
13,900.0	9,300.0	14,326.9	9,720.0	84.6	85.1	-114.42	-5,405.0	558.0	1,014.8	857.1	157.70	6.435	
14,000.0	9,300.0	14,426.9	9,720.0	85.9	86.4	-114.42	-5,505.0	558.8	1,014.8	854.6	160.19	6.335	
14,100.0	9,300.0	14,526.9	9,720.0	87.2	87.8	-114.42	-5,605.0	559.6	1,014.8	852.1	162.69	6.238	
14,200.0	9,300.0	14,626.9	9,720.0	88.6	89.1	-114.42	-5,705.0	560.3	1,014.8	849.6	165.20	6.143	
14,300.0	9,300.0	14,726.9	9,720.0	89.9	90.4	-114.42	-5,805.0	561.1	1,014.8	847.1	167.72	6.051	
14,400.0	9,300.0	14,826.9	9,720.0	91.3	91.8	-114.42	-5,905.0	561.9	1,014.8	844.6	170.24	5.961	
14,500.0	9,300.0	14,926.9	9,720.0	92.6	93.1	-114.42	-6,005.0	562.7	1,014.8	842.1	172.76	5.874	
14,600.0	9,300.0	15,026.9	9,720.0	94.0	94.5	-114.42	-6,105.0	563.4	1,014.8	839.5	175.29	5.789	
14,700.0	9,300.0	15,126.9	9,720.0	95.3	95.8	-114.42	-6,205.0	564.2	1,014.8	837.0	177.83	5.707	
14,800.0	9,300.0	15,226.9	9,720.0	96.7	97.2	-114.42	-6,305.0	565.0	1,014.8	834.4	180.37	5.626	
14,900.0	9,300.0	15,326.9	9,720.0	98.1	98.5	-114.42	-6,405.0	565.8	1,014.8	831.9	182.92	5.548	
15,000.0	9,300.0	15,426.9	9,720.0	99.4	99.9	-114.42	-6,505.0	566.5	1,014.8	829.3	185.47	5.472	
15,100.0	9,300.0	15,526.9	9,720.0	100.8	101.2	-114.42	-6,605.0	567.3	1,014.8	826.8	188.03	5.397	
15,200.0	9,300.0	15,626.9	9,720.0	102.1	102.6	-114.42	-6,705.0	568.1	1,014.8	824.2	190.59	5.325	
15,300.0	9,300.0	15,726.9	9,720.0	103.5	103.9	-114.42	-6,805.0	568.9	1,014.8	821.7	193.15	5.254	
15,400.0	9,300.0	15,826.9	9,720.0	104.9	105.3	-114.42	-6,905.0	569.6	1,014.8	819.1	195.72	5.185	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 503H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,500.0	9,300.0	15,926.9	9,720.0	106.3	106.7	-114.42	-7,005.0	570.4	1,014.8	816.5	198.30	5.118	
15,600.0	9,300.0	16,026.9	9,720.0	107.6	108.1	-114.42	-7,105.0	571.2	1,014.8	813.9	200.87	5.052	
15,700.0	9,300.0	16,126.9	9,720.0	109.0	109.4	-114.42	-7,205.0	572.0	1,014.8	811.4	203.45	4.988	
15,800.0	9,300.0	16,226.9	9,720.0	110.4	110.8	-114.42	-7,305.0	572.7	1,014.8	808.8	206.04	4.925	
15,900.0	9,300.0	16,326.9	9,720.0	111.8	112.2	-114.42	-7,405.0	573.5	1,014.8	806.2	208.62	4.864	
16,000.0	9,300.0	16,426.9	9,720.0	113.2	113.5	-114.42	-7,505.0	574.3	1,014.8	803.6	211.21	4.805	
16,100.0	9,300.0	16,526.9	9,720.0	114.6	114.9	-114.42	-7,605.0	575.1	1,014.8	801.0	213.81	4.746	
16,200.0	9,300.0	16,626.9	9,720.0	115.9	116.3	-114.42	-7,705.0	575.8	1,014.8	798.4	216.40	4.689	
16,300.0	9,300.0	16,726.9	9,720.0	117.3	117.7	-114.42	-7,805.0	576.6	1,014.8	795.8	219.00	4.634	
16,400.0	9,300.0	16,826.9	9,720.0	118.7	119.1	-114.42	-7,905.0	577.4	1,014.8	793.2	221.60	4.579	
16,500.0	9,300.0	16,926.9	9,720.0	120.1	120.5	-114.42	-8,005.0	578.2	1,014.8	790.6	224.21	4.526	
16,600.0	9,300.0	17,026.9	9,720.0	121.5	121.8	-114.42	-8,105.0	579.0	1,014.8	788.0	226.81	4.474	
16,700.0	9,300.0	17,126.9	9,720.0	122.9	123.2	-114.42	-8,205.0	579.7	1,014.8	785.4	229.42	4.423	
16,800.0	9,300.0	17,226.9	9,720.0	124.3	124.6	-114.42	-8,304.9	580.5	1,014.8	782.8	232.04	4.374	
16,900.0	9,300.0	17,326.9	9,720.0	125.7	126.0	-114.42	-8,404.9	581.3	1,014.8	780.2	234.65	4.325	
17,000.0	9,300.0	17,426.9	9,720.0	127.1	127.4	-114.42	-8,504.9	582.1	1,014.8	777.5	237.27	4.277	
17,100.0	9,300.0	17,526.9	9,720.0	128.5	128.8	-114.42	-8,604.9	582.8	1,014.8	774.9	239.89	4.230	
17,200.0	9,300.0	17,626.9	9,720.0	129.9	130.2	-114.42	-8,704.9	583.6	1,014.8	772.3	242.51	4.185	
17,300.0	9,300.0	17,726.9	9,720.0	131.3	131.6	-114.42	-8,804.9	584.4	1,014.8	769.7	245.13	4.140	
17,400.0	9,300.0	17,826.9	9,720.0	132.7	133.0	-114.42	-8,904.9	585.2	1,014.8	767.1	247.75	4.096	
17,500.0	9,300.0	17,926.9	9,720.0	134.1	134.4	-114.42	-9,004.9	585.9	1,014.8	764.4	250.38	4.053	
17,600.0	9,300.0	18,026.9	9,720.0	135.5	135.8	-114.42	-9,104.9	586.7	1,014.8	761.8	253.01	4.011	
17,700.0	9,300.0	18,126.9	9,720.0	136.9	137.2	-114.42	-9,204.9	587.5	1,014.8	759.2	255.64	3.970	
17,800.0	9,300.0	18,226.9	9,720.0	138.3	138.6	-114.42	-9,304.9	588.3	1,014.8	756.5	258.27	3.929	
17,900.0	9,300.0	18,326.9	9,720.0	139.7	140.0	-114.42	-9,404.9	589.0	1,014.8	753.9	260.91	3.890	
18,000.0	9,300.0	18,426.9	9,720.0	141.1	141.4	-114.42	-9,504.9	589.8	1,014.8	751.3	263.54	3.851	
18,100.0	9,300.0	18,526.9	9,720.0	142.5	142.8	-114.42	-9,604.9	590.6	1,014.8	748.6	266.18	3.813	
18,200.0	9,300.0	18,626.9	9,720.0	143.9	144.2	-114.42	-9,704.9	591.4	1,014.8	746.0	268.82	3.775	
18,300.0	9,300.0	18,726.9	9,720.0	145.3	145.6	-114.42	-9,804.9	592.1	1,014.8	743.4	271.46	3.738	
18,400.0	9,300.0	18,826.9	9,720.0	146.7	147.0	-114.42	-9,904.9	592.9	1,014.8	740.7	274.10	3.702	
18,500.0	9,300.0	18,926.9	9,720.0	148.2	148.4	-114.42	-10,004.9	593.7	1,014.8	738.1	276.74	3.667	
18,600.0	9,300.0	19,026.9	9,720.0	149.6	149.8	-114.42	-10,104.9	594.5	1,014.8	735.4	279.39	3.632	
18,700.0	9,300.0	19,126.9	9,720.0	151.0	151.2	-114.42	-10,204.9	595.2	1,014.8	732.8	282.03	3.598	
18,800.0	9,300.0	19,226.9	9,720.0	152.4	152.6	-114.42	-10,304.9	596.0	1,014.8	730.1	284.68	3.565	
18,900.0	9,300.0	19,326.9	9,720.0	153.8	154.1	-114.42	-10,404.9	596.8	1,014.8	727.5	287.33	3.532	
19,000.0	9,300.0	19,426.9	9,720.0	155.2	155.5	-114.42	-10,504.9	597.6	1,014.8	724.8	289.98	3.500	
19,100.0	9,300.0	19,526.9	9,720.0	156.6	156.9	-114.42	-10,604.9	598.4	1,014.8	722.2	292.63	3.468	
19,200.0	9,300.0	19,626.9	9,720.0	158.1	158.3	-114.42	-10,704.9	599.1	1,014.8	719.5	295.28	3.437	
19,300.0	9,300.0	19,726.9	9,720.0	159.5	159.7	-114.42	-10,804.9	599.9	1,014.8	716.9	297.93	3.406	
19,400.0	9,300.0	19,826.9	9,720.0	160.9	161.1	-114.42	-10,904.9	600.7	1,014.8	714.2	300.59	3.376	
19,500.0	9,300.0	19,926.9	9,720.0	162.3	162.5	-114.42	-11,004.9	601.5	1,014.8	711.6	303.24	3.347	
19,551.2	9,300.0	19,978.1	9,720.0	163.0	163.3	-114.42	-11,056.1	601.9	1,014.8	710.2	304.60	3.332	
19,553.8	9,300.0	19,978.2	9,720.0	163.1	163.3	-114.42	-11,056.1	601.9	1,014.8	710.2	304.64	3.331	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	3.2	3.2	0.0	0.0	89.02	1.4	80.0	80.1				
100.0	100.0	103.2	103.2	0.1	0.1	89.02	1.4	80.0	80.1	79.8	0.27	291.189	
200.0	200.0	203.2	203.2	0.5	0.5	89.02	1.4	80.0	80.1	79.1	0.99	80.716	
300.0	300.0	303.2	303.2	0.8	0.9	89.02	1.4	80.0	80.1	78.4	1.71	46.852	
400.0	400.0	403.2	403.2	1.2	1.2	89.02	1.4	80.0	80.1	77.6	2.43	33.005	
500.0	500.0	503.2	503.2	1.6	1.6	89.02	1.4	80.0	80.1	76.9	3.14	25.475	
600.0	600.0	603.2	603.2	1.9	1.9	89.02	1.4	80.0	80.1	76.2	3.86	20.743	
700.0	700.0	703.2	703.2	2.3	2.3	89.02	1.4	80.0	80.1	75.5	4.58	17.494	
800.0	800.0	803.2	803.2	2.6	2.7	89.02	1.4	80.0	80.1	74.8	5.29	15.124	
900.0	900.0	903.2	903.2	3.0	3.0	89.02	1.4	80.0	80.1	74.1	6.01	13.320	
1,000.0	1,000.0	1,003.2	1,003.2	3.4	3.4	89.02	1.4	80.0	80.1	73.3	6.73	11.901	
1,100.0	1,100.0	1,103.2	1,103.2	3.7	3.7	89.02	1.4	80.0	80.1	72.6	7.44	10.755	
1,200.0	1,200.0	1,203.2	1,203.2	4.1	4.1	89.02	1.4	80.0	80.1	71.9	8.16	9.810	
1,300.0	1,300.0	1,303.2	1,303.2	4.4	4.4	89.02	1.4	80.0	80.1	71.2	8.88	9.018	
1,400.0	1,400.0	1,403.2	1,403.2	4.8	4.8	89.02	1.4	80.0	80.1	70.5	9.60	8.344	
1,500.0	1,500.0	1,503.2	1,503.2	5.2	5.2	89.02	1.4	80.0	80.1	69.7	10.31	7.764	
1,600.0	1,600.0	1,603.2	1,603.2	5.5	5.5	89.02	1.4	80.0	80.1	69.0	11.03	7.259	
1,700.0	1,700.0	1,703.2	1,703.2	5.9	5.9	89.02	1.4	80.0	80.1	68.3	11.75	6.816	
1,800.0	1,800.0	1,803.2	1,803.2	6.2	6.2	89.02	1.4	80.0	80.1	67.6	12.46	6.424	
1,900.0	1,900.0	1,903.2	1,903.2	6.6	6.6	89.02	1.4	80.0	80.1	66.9	13.18	6.075	
2,000.0	2,000.0	2,003.2	2,003.2	6.9	7.0	89.02	1.4	80.0	80.1	66.2	13.90	5.761 CC, ES	
2,100.0	2,100.0	2,101.9	2,101.9	7.3	7.3	-123.34	1.2	80.5	81.4	66.9	14.58	5.584 SF	
2,200.0	2,199.8	2,200.0	2,199.9	7.6	7.6	-125.02	-0.3	83.6	87.5	72.2	15.23	5.743	
2,300.0	2,299.5	2,295.8	2,295.5	7.9	8.0	-126.96	-3.2	89.5	98.5	82.7	15.86	6.215	
2,400.0	2,398.7	2,391.4	2,390.6	8.3	8.3	-128.88	-7.4	98.4	114.6	98.1	16.48	6.954	
2,500.0	2,497.9	2,486.0	2,484.4	8.6	8.6	-130.00	-13.0	109.9	134.1	117.0	17.09	7.846	
2,600.0	2,597.0	2,579.7	2,576.7	9.0	8.9	-130.16	-19.8	124.0	156.3	138.6	17.70	8.831	
2,700.0	2,696.1	2,672.1	2,667.2	9.3	9.3	-129.71	-27.8	140.7	181.0	162.7	18.29	9.899	
2,800.0	2,795.3	2,764.5	2,757.1	9.7	9.6	-128.90	-37.1	159.8	208.3	189.4	18.89	11.027	
2,900.0	2,894.4	2,860.4	2,850.3	10.0	10.0	-128.14	-47.0	180.5	236.3	216.7	19.57	12.076	
3,000.0	2,993.5	2,956.4	2,943.4	10.4	10.4	-127.53	-56.9	201.1	264.4	244.1	20.26	13.051	
3,100.0	3,092.7	3,052.3	3,036.6	10.8	10.8	-127.04	-66.9	221.8	292.4	271.5	20.95	13.958	
3,200.0	3,191.8	3,148.3	3,129.8	11.1	11.2	-126.64	-76.8	242.4	320.5	298.9	21.65	14.803	
3,300.0	3,291.0	3,244.2	3,223.0	11.5	11.6	-126.30	-86.8	263.1	348.6	326.3	22.36	15.591	
3,400.0	3,390.1	3,340.2	3,316.1	11.9	12.0	-126.01	-96.7	283.7	376.7	353.7	23.07	16.327	
3,500.0	3,489.2	3,436.1	3,409.3	12.2	12.4	-125.76	-106.7	304.4	404.9	381.1	23.79	17.016	
3,600.0	3,588.4	3,532.1	3,502.5	12.6	12.8	-125.55	-116.6	325.0	433.0	408.5	24.52	17.662	
3,700.0	3,687.5	3,628.0	3,595.6	13.0	13.2	-125.36	-126.6	345.7	461.1	435.9	25.24	18.267	
3,800.0	3,786.7	3,724.0	3,688.8	13.4	13.6	-125.19	-136.5	366.3	489.3	463.3	25.97	18.837	
3,900.0	3,885.8	3,819.9	3,782.0	13.8	14.1	-125.04	-146.5	387.0	517.4	490.7	26.71	19.373	
4,000.0	3,984.9	3,915.9	3,875.2	14.1	14.5	-124.91	-156.4	407.7	545.5	518.1	27.44	19.878	
4,100.0	4,084.1	4,011.8	3,968.3	14.5	14.9	-124.79	-166.4	428.3	573.7	545.5	28.18	20.355	
4,200.0	4,183.2	4,107.8	4,061.5	14.9	15.4	-124.68	-176.3	449.0	601.8	572.9	28.93	20.805	
4,300.0	4,282.3	4,203.7	4,154.7	15.3	15.8	-124.58	-186.3	469.6	630.0	600.3	29.67	21.232	
4,400.0	4,381.5	4,299.7	4,247.9	15.7	16.2	-124.49	-196.2	490.3	658.1	627.7	30.42	21.636	
4,500.0	4,480.6	4,395.6	4,341.0	16.1	16.7	-124.40	-206.2	510.9	686.3	655.1	31.17	22.019	
4,600.0	4,579.8	4,491.6	4,434.2	16.4	17.1	-124.33	-216.1	531.6	714.4	682.5	31.92	22.383	
4,700.0	4,678.9	4,587.5	4,527.4	16.8	17.6	-124.26	-226.1	552.2	742.6	709.9	32.67	22.728	
4,800.0	4,778.0	4,683.5	4,620.5	17.2	18.0	-124.19	-236.0	572.9	770.7	737.3	33.43	23.058	
4,900.0	4,877.2	4,779.4	4,713.7	17.6	18.5	-124.13	-246.0	593.5	798.9	764.7	34.18	23.371	
5,000.0	4,976.3	4,875.4	4,806.9	18.0	18.9	-124.07	-255.9	614.2	827.0	792.1	34.94	23.670	
5,100.0	5,075.5	4,971.3	4,900.1	18.4	19.4	-124.02	-265.9	634.8	855.2	819.5	35.70	23.955	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.0	5,174.6	5,067.3	4,993.2	18.8	19.8	-123.97	-275.8	655.5	883.4	846.9	36.46	24.228	
5,300.0	5,273.7	5,163.2	5,086.4	19.2	20.3	-123.92	-285.8	676.1	911.5	874.3	37.22	24.489	
5,400.0	5,372.9	5,259.2	5,179.6	19.6	20.7	-123.88	-295.7	696.8	939.7	901.7	37.98	24.738	
5,500.0	5,472.0	5,355.1	5,272.8	20.0	21.2	-123.83	-305.7	717.4	967.8	929.1	38.75	24.977	
5,600.0	5,571.1	5,451.1	5,365.9	20.4	21.6	-123.80	-315.6	738.1	996.0	956.5	39.51	25.206	
5,700.0	5,670.3	5,547.0	5,459.1	20.8	22.1	-123.76	-325.6	758.8	1,024.1	983.9	40.28	25.426	
5,800.0	5,769.4	5,643.0	5,552.3	21.1	22.5	-123.72	-335.5	779.4	1,052.3	1,011.3	41.05	25.636	
5,900.0	5,868.6	5,738.9	5,645.4	21.5	23.0	-123.69	-345.4	800.1	1,080.5	1,038.6	41.82	25.839	
6,000.0	5,967.7	5,834.9	5,738.6	21.9	23.5	-123.66	-355.4	820.7	1,108.6	1,066.0	42.58	26.034	
6,100.0	6,066.8	5,930.8	5,831.8	22.3	23.9	-123.63	-365.3	841.4	1,136.8	1,093.4	43.35	26.221	
6,200.0	6,166.0	6,026.8	5,925.0	22.7	24.4	-123.60	-375.3	862.0	1,164.9	1,120.8	44.12	26.402	
6,300.0	6,265.1	6,122.8	6,018.1	23.1	24.8	-123.57	-385.2	882.7	1,193.1	1,148.2	44.90	26.575	
6,400.0	6,364.2	6,218.7	6,111.3	23.5	25.3	-123.55	-395.2	903.3	1,221.3	1,175.6	45.67	26.743	
6,500.0	6,463.4	6,314.7	6,204.5	23.9	25.8	-123.52	-405.1	924.0	1,249.4	1,203.0	46.44	26.904	
6,600.0	6,562.5	6,410.6	6,297.7	24.3	26.2	-123.50	-415.1	944.6	1,277.6	1,230.4	47.21	27.060	
6,700.0	6,661.7	6,506.6	6,390.8	24.7	26.7	-123.48	-425.0	965.3	1,305.8	1,257.8	47.99	27.211	
6,800.0	6,760.8	6,602.5	6,484.0	25.1	27.2	-123.45	-435.0	985.9	1,333.9	1,285.2	48.76	27.356	
6,900.0	6,859.9	6,698.5	6,577.2	25.5	27.6	-123.43	-444.9	1,006.6	1,362.1	1,312.5	49.54	27.497	
7,000.0	6,959.1	6,794.4	6,670.3	25.9	28.1	-123.41	-454.9	1,027.2	1,390.2	1,339.9	50.31	27.633	
7,100.0	7,058.2	6,890.4	6,763.5	26.3	28.6	-123.39	-464.8	1,047.9	1,418.4	1,367.3	51.09	27.764	
7,200.0	7,157.4	6,986.3	6,856.7	26.7	29.0	-123.38	-474.8	1,068.5	1,446.6	1,394.7	51.86	27.891	
7,300.0	7,256.5	7,082.3	6,949.9	27.1	29.5	-123.36	-484.7	1,089.2	1,474.7	1,422.1	52.64	28.015	
7,400.0	7,355.6	7,178.2	7,043.0	27.5	30.0	-123.34	-494.7	1,109.9	1,502.9	1,449.5	53.42	28.134	
7,500.0	7,454.8	7,274.2	7,136.2	27.9	30.4	-123.32	-504.6	1,130.5	1,531.1	1,476.9	54.20	28.250	
7,600.0	7,553.9	7,370.1	7,229.4	28.3	30.9	-123.31	-514.6	1,151.2	1,559.2	1,504.2	54.98	28.362	
7,700.0	7,653.0	7,466.1	7,322.6	28.7	31.4	-123.29	-524.5	1,171.8	1,587.4	1,531.6	55.76	28.471	
7,800.0	7,752.2	7,562.0	7,415.7	29.1	31.8	-123.28	-534.5	1,192.5	1,615.5	1,559.0	56.53	28.576	
7,900.0	7,851.3	7,658.0	7,508.9	29.5	32.3	-123.34	-544.4	1,213.1	1,643.7	1,586.4	57.31	28.678	
8,000.0	7,950.7	7,754.3	7,602.4	29.9	32.8	-123.73	-554.4	1,233.8	1,670.6	1,612.5	58.08	28.762	
8,100.0	8,050.5	7,850.9	7,696.3	30.2	33.2	-123.98	-564.4	1,254.7	1,695.7	1,636.8	58.84	28.819	
8,200.0	8,150.4	7,947.9	7,790.4	30.6	33.7	-124.10	-574.5	1,275.5	1,718.9	1,659.3	59.58	28.851	
8,300.0	8,250.4	8,044.9	7,884.7	30.9	34.2	87.56	-584.5	1,296.4	1,740.4	1,680.1	60.29	28.868	
8,400.0	8,350.4	8,142.0	7,978.9	31.2	34.7	87.92	-594.6	1,317.3	1,761.6	1,700.6	60.99	28.885	
8,500.0	8,450.4	8,245.1	8,118.1	31.6	35.3	88.43	-608.9	1,347.1	1,782.5	1,720.4	62.06	28.923	
8,600.0	8,550.4	8,348.3	8,217.9	31.9	36.3	88.99	-625.6	1,381.7	1,797.9	1,734.3	63.57	28.982	
8,700.0	8,650.4	8,448.2	8,317.8	32.2	37.1	89.30	-635.0	1,401.2	1,806.4	1,741.6	64.80	29.044	
8,800.0	8,750.4	8,548.1	8,417.7	32.5	37.7	89.36	-636.9	1,405.0	1,808.0	1,742.4	65.67	29.103	
8,900.0	8,850.4	8,648.1	8,517.7	32.8	38.0	90.19	-637.5	1,405.1	1,808.1	1,741.8	66.30	29.162	
9,000.0	8,948.9	8,747.6	8,617.2	33.2	38.2	90.15	-648.5	1,406.0	1,809.1	1,742.0	67.02	29.221	
9,100.0	9,041.8	8,846.5	8,716.7	33.7	38.5	90.07	-672.1	1,407.8	1,811.2	1,743.3	67.85	29.280	
9,200.0	9,125.2	8,940.9	8,810.0	34.2	38.9	89.96	-708.8	1,410.7	1,814.4	1,745.6	68.77	29.339	
9,300.0	9,195.4	9,015.8	8,885.1	34.7	39.3	89.84	-758.1	1,414.6	1,818.7	1,748.9	69.79	29.398	
9,400.0	9,249.2	9,069.6	8,939.7	35.3	39.7	89.71	-819.4	1,419.4	1,823.8	1,753.0	70.89	29.457	
9,500.0	9,284.5	9,113.9	8,984.0	35.9	40.1	89.57	-892.1	1,425.1	1,829.8	1,757.7	72.05	29.516	
9,600.0	9,299.5	9,128.9	9,009.0	36.6	40.6	89.46	-975.2	1,431.7	1,836.3	1,763.0	73.25	29.575	
9,700.0	9,300.0	9,129.0	9,010.0	37.2	41.1	89.83	-1,068.2	1,439.0	1,843.2	1,768.7	74.48	29.634	
9,800.0	9,300.0	9,129.0	9,010.0	37.9	42.3	89.90	-1,266.3	1,450.5	1,848.8	1,772.6	76.19	29.693	
9,900.0	9,300.0	9,129.0	9,010.0	38.6	43.1	89.90	-1,398.2	1,451.9	1,849.0	1,771.2	77.72	29.752	
10,000.0	9,300.0	9,129.0	9,010.0	39.4	43.8	89.90	-1,498.2	1,452.7	1,849.0	1,769.7	79.22	29.811	
10,100.0	9,300.0	9,129.0	9,010.0	40.2	44.5	89.90	-1,598.2	1,453.4	1,848.9	1,768.2	80.79	29.870	
10,200.0	9,300.0	9,129.0	9,010.0	41.0	45.2	89.90	-1,698.2	1,454.2	1,848.9	1,766.5	82.44	29.929	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
10,300.0	9,300.0	10,429.6	9,300.0	41.9	46.0	-89.90	-1,798.2	1,455.0	1,848.9	1,764.8	84.15	21.972	
10,400.0	9,300.0	10,529.6	9,300.0	42.8	46.8	-89.90	-1,898.1	1,455.7	1,848.9	1,763.0	85.93	21.518	
10,500.0	9,300.0	10,629.6	9,300.0	43.7	47.6	-89.90	-1,998.1	1,456.5	1,848.9	1,761.1	87.76	21.067	
10,600.0	9,300.0	10,729.6	9,300.0	44.7	48.4	-89.90	-2,098.1	1,457.3	1,848.9	1,759.2	89.65	20.623	
10,700.0	9,300.0	10,829.6	9,300.0	45.7	49.3	-89.90	-2,198.1	1,458.0	1,848.9	1,757.3	91.60	20.185	
10,800.0	9,300.0	10,929.6	9,300.0	46.7	50.2	-89.90	-2,298.1	1,458.8	1,848.9	1,755.3	93.59	19.755	
10,900.0	9,300.0	11,029.6	9,300.0	47.7	51.2	-89.90	-2,398.1	1,459.6	1,848.9	1,753.2	95.63	19.334	
11,000.0	9,300.0	11,129.6	9,300.0	48.8	52.1	-89.90	-2,498.1	1,460.3	1,848.9	1,751.1	97.71	18.922	
11,100.0	9,300.0	11,229.6	9,300.0	49.9	53.1	-89.90	-2,598.1	1,461.1	1,848.8	1,749.0	99.83	18.519	
11,200.0	9,300.0	11,329.6	9,300.0	50.9	54.1	-89.90	-2,698.1	1,461.8	1,848.8	1,746.8	101.99	18.127	
11,300.0	9,300.0	11,429.6	9,300.0	52.1	55.2	-89.90	-2,798.1	1,462.6	1,848.8	1,744.6	104.19	17.745	
11,400.0	9,300.0	11,529.6	9,300.0	53.2	56.2	-89.90	-2,898.1	1,463.4	1,848.8	1,742.4	106.42	17.373	
11,500.0	9,300.0	11,629.6	9,300.0	54.3	57.3	-89.90	-2,998.1	1,464.1	1,848.8	1,740.1	108.68	17.011	
11,600.0	9,300.0	11,729.6	9,300.0	55.5	58.3	-89.90	-3,098.1	1,464.9	1,848.8	1,737.8	110.97	16.660	
11,700.0	9,300.0	11,829.6	9,300.0	56.6	59.4	-89.90	-3,198.1	1,465.7	1,848.8	1,735.5	113.29	16.319	
11,800.0	9,300.0	11,929.6	9,300.0	57.8	60.5	-89.90	-3,298.1	1,466.4	1,848.8	1,733.1	115.64	15.988	
11,900.0	9,300.0	12,029.6	9,300.0	59.0	61.7	-89.90	-3,398.1	1,467.2	1,848.8	1,730.8	118.01	15.667	
12,000.0	9,300.0	12,129.6	9,300.0	60.2	62.8	-89.90	-3,498.1	1,468.0	1,848.8	1,728.4	120.40	15.355	
12,100.0	9,300.0	12,229.6	9,300.0	61.4	64.0	-89.90	-3,598.1	1,468.7	1,848.7	1,725.9	122.81	15.053	
12,200.0	9,300.0	12,329.6	9,300.0	62.7	65.1	-89.90	-3,698.1	1,469.5	1,848.7	1,723.5	125.25	14.761	
12,300.0	9,300.0	12,429.6	9,300.0	63.9	66.3	-89.90	-3,798.1	1,470.3	1,848.7	1,721.0	127.70	14.477	
12,400.0	9,300.0	12,529.6	9,300.0	65.1	67.5	-89.90	-3,898.1	1,471.0	1,848.7	1,718.5	130.17	14.202	
12,500.0	9,300.0	12,629.6	9,300.0	66.4	68.7	-89.90	-3,998.1	1,471.8	1,848.7	1,716.0	132.66	13.936	
12,600.0	9,300.0	12,729.6	9,300.0	67.6	69.9	-89.90	-4,098.1	1,472.6	1,848.7	1,713.5	135.17	13.677	
12,700.0	9,300.0	12,829.6	9,300.0	68.9	71.1	-89.90	-4,198.1	1,473.3	1,848.7	1,711.0	137.69	13.427	
12,800.0	9,300.0	12,929.6	9,300.0	70.2	72.3	-89.90	-4,298.1	1,474.1	1,848.7	1,708.5	140.22	13.184	
12,900.0	9,300.0	13,029.6	9,300.0	71.5	73.5	-89.90	-4,398.1	1,474.9	1,848.7	1,705.9	142.77	12.949	
13,000.0	9,300.0	13,129.6	9,300.0	72.8	74.8	-89.90	-4,498.1	1,475.6	1,848.7	1,703.3	145.33	12.720	
13,100.0	9,300.0	13,229.6	9,300.0	74.0	76.0	-89.90	-4,598.1	1,476.4	1,848.6	1,700.7	147.91	12.499	
13,200.0	9,300.0	13,329.6	9,300.0	75.3	77.3	-89.90	-4,698.1	1,477.2	1,848.6	1,698.1	150.49	12.284	
13,300.0	9,300.0	13,429.6	9,300.0	76.6	78.5	-89.90	-4,798.1	1,477.9	1,848.6	1,695.5	153.09	12.076	
13,400.0	9,300.0	13,529.6	9,300.0	78.0	79.8	-89.90	-4,898.1	1,478.7	1,848.6	1,692.9	155.70	11.873	
13,500.0	9,300.0	13,629.6	9,300.0	79.3	81.1	-89.90	-4,998.1	1,479.5	1,848.6	1,690.3	158.31	11.677	
13,600.0	9,300.0	13,729.6	9,300.0	80.6	82.3	-89.90	-5,098.1	1,480.2	1,848.6	1,687.7	160.94	11.486	
13,700.0	9,300.0	13,829.6	9,300.0	81.9	83.6	-89.90	-5,198.1	1,481.0	1,848.6	1,685.0	163.58	11.301	
13,800.0	9,300.0	13,929.6	9,300.0	83.2	84.9	-89.90	-5,298.0	1,481.8	1,848.6	1,682.4	166.22	11.121	
13,900.0	9,300.0	14,029.6	9,300.0	84.6	86.2	-89.90	-5,398.0	1,482.5	1,848.6	1,679.7	168.87	10.946	
14,000.0	9,300.0	14,129.6	9,300.0	85.9	87.5	-89.90	-5,498.0	1,483.3	1,848.6	1,677.0	171.53	10.777	
14,100.0	9,300.0	14,229.6	9,300.0	87.2	88.8	-89.90	-5,598.0	1,484.1	1,848.5	1,674.3	174.20	10.611	
14,200.0	9,300.0	14,329.6	9,300.0	88.6	90.1	-89.90	-5,698.0	1,484.8	1,848.5	1,671.7	176.88	10.451	
14,300.0	9,300.0	14,429.6	9,300.0	89.9	91.4	-89.90	-5,798.0	1,485.6	1,848.5	1,669.0	179.56	10.295	
14,400.0	9,300.0	14,529.6	9,300.0	91.3	92.7	-89.90	-5,898.0	1,486.4	1,848.5	1,666.3	182.25	10.143	
14,500.0	9,300.0	14,629.6	9,300.0	92.6	94.0	-89.90	-5,998.0	1,487.1	1,848.5	1,663.6	184.94	9.995	
14,600.0	9,300.0	14,729.6	9,300.0	94.0	95.4	-89.90	-6,098.0	1,487.9	1,848.5	1,660.8	187.65	9.851	
14,700.0	9,300.0	14,829.6	9,300.0	95.3	96.7	-89.90	-6,198.0	1,488.7	1,848.5	1,658.1	190.35	9.711	
14,800.0	9,300.0	14,929.6	9,300.0	96.7	98.0	-89.90	-6,298.0	1,489.4	1,848.5	1,655.4	193.06	9.574	
14,900.0	9,300.0	15,029.6	9,300.0	98.1	99.4	-89.90	-6,398.0	1,490.2	1,848.5	1,652.7	195.78	9.441	
15,000.0	9,300.0	15,129.6	9,300.0	99.4	100.7	-89.90	-6,498.0	1,491.0	1,848.5	1,649.9	198.50	9.312	
15,100.0	9,300.0	15,229.6	9,300.0	100.8	102.0	-89.90	-6,598.0	1,491.7	1,848.4	1,647.2	201.23	9.186	
15,200.0	9,300.0	15,329.6	9,300.0	102.1	103.4	-89.90	-6,698.0	1,492.5	1,848.4	1,644.5	203.96	9.063	
15,300.0	9,300.0	15,429.6	9,300.0	103.5	104.7	-89.90	-6,798.0	1,493.3	1,848.4	1,641.7	206.70	8.943	
15,400.0	9,300.0	15,529.6	9,300.0	104.9	106.1	-89.90	-6,898.0	1,494.0	1,848.4	1,639.0	209.44	8.825	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
15,500.0	9,300.0	15,629.6	9,300.0	106.3	107.4	-89.90	-6,998.0	1,494.8	1,848.4	1,636.2	212.19	8.711	
15,600.0	9,300.0	15,729.6	9,300.0	107.6	108.8	-89.90	-7,098.0	1,495.6	1,848.4	1,633.5	214.94	8.600	
15,700.0	9,300.0	15,829.6	9,300.0	109.0	110.1	-89.90	-7,198.0	1,496.3	1,848.4	1,630.7	217.69	8.491	
15,800.0	9,300.0	15,929.6	9,300.0	110.4	111.5	-89.90	-7,298.0	1,497.1	1,848.4	1,627.9	220.44	8.385	
15,900.0	9,300.0	16,029.6	9,300.0	111.8	112.8	-89.90	-7,398.0	1,497.9	1,848.4	1,625.2	223.20	8.281	
16,000.0	9,300.0	16,129.6	9,300.0	113.2	114.2	-89.90	-7,498.0	1,498.6	1,848.4	1,622.4	225.97	8.180	
16,100.0	9,300.0	16,229.6	9,300.0	114.6	115.6	-89.90	-7,598.0	1,499.4	1,848.3	1,619.6	228.73	8.081	
16,200.0	9,300.0	16,329.6	9,300.0	115.9	116.9	-89.90	-7,698.0	1,500.1	1,848.3	1,616.8	231.50	7.984	
16,300.0	9,300.0	16,429.6	9,300.0	117.3	118.3	-89.90	-7,798.0	1,500.9	1,848.3	1,614.0	234.28	7.889	
16,400.0	9,300.0	16,529.6	9,300.0	118.7	119.7	-89.90	-7,898.0	1,501.7	1,848.3	1,611.3	237.05	7.797	
16,500.0	9,300.0	16,629.6	9,300.0	120.1	121.1	-89.90	-7,998.0	1,502.4	1,848.3	1,608.5	239.83	7.707	
16,600.0	9,300.0	16,729.6	9,300.0	121.5	122.4	-89.90	-8,098.0	1,503.2	1,848.3	1,605.7	242.61	7.618	
16,700.0	9,300.0	16,829.6	9,300.0	122.9	123.8	-89.90	-8,198.0	1,504.0	1,848.3	1,602.9	245.40	7.532	
16,800.0	9,300.0	16,929.6	9,300.0	124.3	125.2	-89.90	-8,298.0	1,504.7	1,848.3	1,600.1	248.18	7.447	
16,900.0	9,300.0	17,029.6	9,300.0	125.7	126.6	-89.90	-8,398.0	1,505.5	1,848.3	1,597.3	250.97	7.364	
17,000.0	9,300.0	17,129.6	9,300.0	127.1	127.9	-89.90	-8,498.0	1,506.3	1,848.3	1,594.5	253.76	7.283	
17,100.0	9,300.0	17,229.6	9,300.0	128.5	129.3	-89.90	-8,598.0	1,507.0	1,848.2	1,591.7	256.56	7.204	
17,200.0	9,300.0	17,329.6	9,300.0	129.9	130.7	-89.90	-8,697.9	1,507.8	1,848.2	1,588.9	259.35	7.126	
17,300.0	9,300.0	17,429.6	9,300.0	131.3	132.1	-89.90	-8,797.9	1,508.6	1,848.2	1,586.1	262.15	7.050	
17,400.0	9,300.0	17,529.6	9,300.0	132.7	133.5	-89.90	-8,897.9	1,509.3	1,848.2	1,583.3	264.95	6.976	
17,500.0	9,300.0	17,629.6	9,300.0	134.1	134.9	-89.90	-8,997.9	1,510.1	1,848.2	1,580.4	267.75	6.903	
17,600.0	9,300.0	17,729.6	9,300.0	135.5	136.2	-89.90	-9,097.9	1,510.9	1,848.2	1,577.6	270.56	6.831	
17,700.0	9,300.0	17,829.6	9,300.0	136.9	137.6	-89.90	-9,197.9	1,511.6	1,848.2	1,574.8	273.36	6.761	
17,800.0	9,300.0	17,929.6	9,300.0	138.3	139.0	-89.90	-9,297.9	1,512.4	1,848.2	1,572.0	276.17	6.692	
17,900.0	9,300.0	18,029.6	9,300.0	139.7	140.4	-89.90	-9,397.9	1,513.2	1,848.2	1,569.2	278.98	6.625	
18,000.0	9,300.0	18,129.6	9,300.0	141.1	141.8	-89.90	-9,497.9	1,513.9	1,848.2	1,566.4	281.79	6.559	
18,100.0	9,300.0	18,229.6	9,300.0	142.5	143.2	-89.90	-9,597.9	1,514.7	1,848.1	1,563.5	284.61	6.494	
18,200.0	9,300.0	18,329.6	9,300.0	143.9	144.6	-89.90	-9,697.9	1,515.5	1,848.1	1,560.7	287.42	6.430	
18,300.0	9,300.0	18,429.6	9,300.0	145.3	146.0	-89.90	-9,797.9	1,516.2	1,848.1	1,557.9	290.24	6.368	
18,400.0	9,300.0	18,529.6	9,300.0	146.7	147.4	-89.90	-9,897.9	1,517.0	1,848.1	1,555.1	293.06	6.306	
18,500.0	9,300.0	18,629.6	9,300.0	148.2	148.8	-89.90	-9,997.9	1,517.8	1,848.1	1,552.2	295.88	6.246	
18,600.0	9,300.0	18,729.6	9,300.0	149.6	150.2	-89.90	-10,097.9	1,518.5	1,848.1	1,549.4	298.70	6.187	
18,700.0	9,300.0	18,829.6	9,300.0	151.0	151.6	-89.90	-10,197.9	1,519.3	1,848.1	1,546.6	301.52	6.129	
18,800.0	9,300.0	18,929.6	9,300.0	152.4	153.0	-89.90	-10,297.9	1,520.1	1,848.1	1,543.7	304.34	6.072	
18,900.0	9,300.0	19,029.6	9,300.0	153.8	154.4	-89.90	-10,397.9	1,520.8	1,848.1	1,540.9	307.17	6.016	
19,000.0	9,300.0	19,129.6	9,300.0	155.2	155.8	-89.90	-10,497.9	1,521.6	1,848.1	1,538.1	309.99	5.962	
19,100.0	9,300.0	19,229.6	9,300.0	156.6	157.2	-89.90	-10,597.9	1,522.4	1,848.0	1,535.2	312.82	5.908	
19,200.0	9,300.0	19,329.6	9,300.0	158.1	158.6	-89.90	-10,697.9	1,523.1	1,848.0	1,532.4	315.65	5.855	
19,300.0	9,300.0	19,429.6	9,300.0	159.5	160.0	-89.90	-10,797.9	1,523.9	1,848.0	1,529.5	318.48	5.803	
19,400.0	9,300.0	19,529.6	9,300.0	160.9	161.4	-89.90	-10,897.9	1,524.7	1,848.0	1,526.7	321.31	5.751	
19,500.0	9,300.0	19,629.6	9,300.0	162.3	162.8	-89.90	-10,997.9	1,525.4	1,848.0	1,523.9	324.08	5.702	
19,547.9	9,300.0	19,677.5	9,300.0	163.0	163.4	-89.90	-11,045.8	1,525.8	1,848.0	1,522.7	325.34	5.680	
19,553.8	9,300.0	19,678.1	9,300.0	163.1	163.4	-89.90	-11,046.4	1,525.8	1,848.0	1,522.5	325.46	5.678	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.0	0.0	3.3	3.3	0.0	0.0	13.17	160.7	37.6	165.0				
100.0	100.0	103.3	103.3	0.1	0.1	13.17	160.7	37.6	165.0	164.7	0.28	599.415	
200.0	200.0	203.3	203.3	0.5	0.5	13.17	160.7	37.6	165.0	164.0	0.99	166.312	
300.0	300.0	303.3	303.3	0.8	0.9	13.17	160.7	37.6	165.0	163.3	1.71	96.550	
400.0	400.0	403.3	403.3	1.2	1.2	13.17	160.7	37.6	165.0	162.6	2.43	68.019	
500.0	500.0	503.3	503.3	1.6	1.6	13.17	160.7	37.6	165.0	161.9	3.14	52.504	
600.0	600.0	603.3	603.3	1.9	1.9	13.17	160.7	37.6	165.0	161.2	3.86	42.752	
700.0	700.0	703.3	703.3	2.3	2.3	13.17	160.7	37.6	165.0	160.4	4.58	36.055	
800.0	800.0	803.3	803.3	2.6	2.7	13.17	160.7	37.6	165.0	159.7	5.29	31.172	
900.0	900.0	903.3	903.3	3.0	3.0	13.17	160.7	37.6	165.0	159.0	6.01	27.454	
1,000.0	1,000.0	1,003.3	1,003.3	3.4	3.4	13.17	160.7	37.6	165.0	158.3	6.73	24.529	
1,100.0	1,100.0	1,103.3	1,103.3	3.7	3.7	13.17	160.7	37.6	165.0	157.6	7.44	22.166	
1,200.0	1,200.0	1,203.3	1,203.3	4.1	4.1	13.17	160.7	37.6	165.0	156.9	8.16	20.219	
1,300.0	1,300.0	1,303.3	1,303.3	4.4	4.4	13.17	160.7	37.6	165.0	156.1	8.88	18.587	
1,400.0	1,400.0	1,403.3	1,403.3	4.8	4.8	13.17	160.7	37.6	165.0	155.4	9.60	17.198	
1,500.0	1,500.0	1,503.3	1,503.3	5.2	5.2	13.17	160.7	37.6	165.0	154.7	10.31	16.002	
1,600.0	1,600.0	1,603.3	1,603.3	5.5	5.5	13.17	160.7	37.6	165.0	154.0	11.03	14.962	
1,700.0	1,700.0	1,703.3	1,703.3	5.9	5.9	13.17	160.7	37.6	165.0	153.3	11.75	14.049	
1,800.0	1,800.0	1,803.3	1,803.3	6.2	6.2	13.17	160.7	37.6	165.0	152.6	12.46	13.241	
1,900.0	1,900.0	1,903.3	1,903.3	6.6	6.6	13.17	160.7	37.6	165.0	151.8	13.18	12.520	
2,000.0	2,000.0	2,003.3	2,003.3	6.9	7.0	13.17	160.7	37.6	165.0	151.1	13.90	11.875 CC, ES	
2,100.0	2,100.0	2,103.3	2,103.3	7.3	7.3	161.84	160.7	37.6	166.7	152.1	14.60	11.418	
2,200.0	2,199.8	2,203.1	2,203.1	7.6	7.7	162.35	160.7	37.6	171.7	156.4	15.28	11.232	
2,300.0	2,299.5	2,302.8	2,302.8	7.9	8.0	163.14	160.7	37.6	180.0	164.0	15.97	11.270	
2,400.0	2,398.7	2,402.0	2,402.0	8.3	8.4	164.14	160.7	37.6	191.6	174.9	16.66	11.500	
2,500.0	2,497.9	2,501.2	2,501.2	8.6	8.7	165.15	160.7	37.6	204.2	186.9	17.35	11.773	
2,600.0	2,597.0	2,601.8	2,601.8	9.0	9.1	166.52	159.8	39.2	216.6	198.5	18.03	12.011	
2,700.0	2,696.1	2,702.2	2,702.0	9.3	9.4	168.61	157.2	43.8	228.4	209.7	18.70	12.213	
2,800.0	2,795.3	2,802.1	2,801.5	9.7	9.8	171.31	152.8	51.5	240.1	220.7	19.38	12.390	
2,900.0	2,894.4	2,901.2	2,899.9	10.0	10.1	174.52	146.9	62.0	252.0	232.0	20.06	12.565	
3,000.0	2,993.5	2,999.3	2,996.7	10.4	10.4	178.13	139.3	75.4	264.7	243.9	20.74	12.761	
3,100.0	3,092.7	3,096.2	3,091.9	10.8	10.8	-177.95	130.2	91.4	278.5	257.0	21.42	13.000	
3,200.0	3,191.8	3,191.7	3,185.0	11.1	11.1	-173.84	119.7	109.9	293.9	271.8	22.10	13.300	
3,300.0	3,291.0	3,287.4	3,277.8	11.5	11.5	-169.74	108.2	130.3	311.2	288.5	22.78	13.662	
3,400.0	3,390.1	3,383.5	3,370.9	11.9	11.9	-166.06	96.6	150.7	330.0	306.6	23.47	14.061	
3,500.0	3,489.2	3,479.5	3,464.0	12.2	12.2	-162.77	85.0	171.2	350.1	325.9	24.17	14.484	
3,600.0	3,588.4	3,575.5	3,557.1	12.6	12.6	-159.83	73.4	191.6	371.1	346.2	24.87	14.921	
3,700.0	3,687.5	3,671.5	3,650.2	13.0	13.0	-157.20	61.8	212.1	393.0	367.4	25.58	15.364	
3,800.0	3,786.7	3,767.5	3,743.3	13.4	13.4	-154.84	50.2	232.5	415.7	389.4	26.29	15.808	
3,900.0	3,885.8	3,863.5	3,836.4	13.8	13.8	-152.73	38.6	253.0	438.9	411.9	27.01	16.248	
4,000.0	3,984.9	3,959.5	3,929.5	14.1	14.2	-150.82	27.0	273.4	462.7	435.0	27.74	16.681	
4,100.0	4,084.1	4,055.5	4,022.5	14.5	14.6	-149.10	15.5	293.9	486.9	458.5	28.47	17.106	
4,200.0	4,183.2	4,151.5	4,115.6	14.9	15.1	-147.54	3.9	314.3	511.5	482.3	29.20	17.520	
4,300.0	4,282.3	4,247.5	4,208.7	15.3	15.5	-146.13	-7.7	334.8	536.5	506.5	29.93	17.922	
4,400.0	4,381.5	4,343.6	4,301.8	15.7	15.9	-144.83	-19.3	355.2	561.7	531.0	30.67	18.312	
4,500.0	4,480.6	4,439.6	4,394.9	16.1	16.3	-143.65	-30.9	375.7	587.2	555.7	31.41	18.691	
4,600.0	4,579.8	4,535.6	4,488.0	16.4	16.8	-142.57	-42.5	396.1	612.8	580.7	32.16	19.056	
4,700.0	4,678.9	4,631.6	4,581.1	16.8	17.2	-141.57	-54.1	416.6	638.7	605.8	32.91	19.410	
4,800.0	4,778.0	4,727.6	4,674.2	17.2	17.6	-140.64	-65.7	437.0	664.8	631.1	33.66	19.751	
4,900.0	4,877.2	4,823.6	4,767.2	17.6	18.1	-139.79	-77.3	457.5	691.0	656.6	34.41	20.081	
5,000.0	4,976.3	4,919.6	4,860.3	18.0	18.5	-139.00	-88.9	478.0	717.3	682.1	35.16	20.399	
5,100.0	5,075.5	5,015.6	4,953.4	18.4	18.9	-138.26	-100.4	498.4	743.7	707.8	35.92	20.706	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.0	5,174.6	5,111.6	5,046.5	18.8	19.4	-137.58	-112.0	518.9	770.3	733.6	36.68	21.002	
5,300.0	5,273.7	5,207.6	5,139.6	19.2	19.8	-136.94	-123.6	539.3	797.0	759.5	37.44	21.287	
5,400.0	5,372.9	5,303.7	5,232.7	19.6	20.3	-136.34	-135.2	559.8	823.7	785.5	38.20	21.563	
5,500.0	5,472.0	5,399.7	5,325.8	20.0	20.7	-135.78	-146.8	580.2	850.5	811.5	38.96	21.829	
5,600.0	5,571.1	5,495.7	5,418.9	20.4	21.2	-135.25	-158.4	600.7	877.4	837.7	39.73	22.086	
5,700.0	5,670.3	5,591.7	5,511.9	20.8	21.6	-134.76	-170.0	621.1	904.4	863.9	40.49	22.334	
5,800.0	5,769.4	5,687.7	5,605.0	21.1	22.1	-134.29	-181.6	641.6	931.4	890.1	41.26	22.574	
5,900.0	5,868.6	5,783.7	5,698.1	21.5	22.5	-133.85	-193.2	662.0	958.4	916.4	42.03	22.805	
6,000.0	5,967.7	5,879.7	5,791.2	21.9	23.0	-133.43	-204.7	682.5	985.6	942.8	42.80	23.029	
6,100.0	6,066.8	5,975.7	5,884.3	22.3	23.5	-133.04	-216.3	702.9	1,012.7	969.2	43.57	23.246	
6,200.0	6,166.0	6,071.7	5,977.4	22.7	23.9	-132.66	-227.9	723.4	1,039.9	995.6	44.34	23.455	
6,300.0	6,265.1	6,167.7	6,070.5	23.1	24.4	-132.31	-239.5	743.8	1,067.2	1,022.1	45.11	23.657	
6,400.0	6,364.2	6,263.8	6,163.6	23.5	24.8	-131.97	-251.1	764.3	1,094.5	1,048.6	45.88	23.853	
6,500.0	6,463.4	6,359.8	6,256.6	23.9	25.3	-131.65	-262.7	784.7	1,121.8	1,075.1	46.66	24.043	
6,600.0	6,562.5	6,455.8	6,349.7	24.3	25.8	-131.34	-274.3	805.2	1,149.1	1,101.7	47.43	24.227	
6,700.0	6,661.7	6,551.8	6,442.8	24.7	26.2	-131.05	-285.9	825.6	1,176.5	1,128.3	48.21	24.405	
6,800.0	6,760.8	6,647.8	6,535.9	25.1	26.7	-130.77	-297.5	846.1	1,203.9	1,154.9	48.98	24.578	
6,900.0	6,859.9	6,743.8	6,629.0	25.5	27.1	-130.51	-309.1	866.5	1,231.3	1,181.6	49.76	24.745	
7,000.0	6,959.1	6,839.8	6,722.1	25.9	27.6	-130.25	-320.6	887.0	1,258.8	1,208.3	50.54	24.908	
7,100.0	7,058.2	6,935.8	6,815.2	26.3	28.1	-130.01	-332.2	907.5	1,286.3	1,235.0	51.32	25.065	
7,200.0	7,157.4	7,031.8	6,908.3	26.7	28.5	-129.78	-343.8	927.9	1,313.8	1,261.7	52.10	25.218	
7,300.0	7,256.5	7,127.8	7,001.3	27.1	29.0	-129.55	-355.4	948.4	1,341.3	1,288.4	52.88	25.367	
7,400.0	7,355.6	7,223.9	7,094.4	27.5	29.5	-129.34	-367.0	968.8	1,368.8	1,315.2	53.66	25.511	
7,500.0	7,454.8	7,319.9	7,187.5	27.9	29.9	-129.13	-378.6	989.3	1,396.4	1,341.9	54.44	25.651	
7,600.0	7,553.9	7,415.9	7,280.6	28.3	30.4	-128.93	-390.2	1,009.7	1,423.9	1,368.7	55.22	25.787	
7,700.0	7,653.0	7,511.9	7,373.7	28.7	30.9	-128.74	-401.8	1,030.2	1,451.5	1,395.5	56.00	25.920	
7,800.0	7,752.2	7,607.9	7,466.8	29.1	31.3	-128.56	-413.4	1,050.6	1,479.1	1,422.3	56.78	26.049	
7,900.0	7,851.3	7,703.9	7,559.9	29.5	31.8	-128.45	-425.0	1,071.1	1,506.7	1,449.1	57.57	26.174	
8,000.0	7,950.7	7,800.2	7,653.2	29.9	32.3	-128.64	-436.6	1,091.6	1,532.9	1,474.6	58.34	26.276	
8,100.0	8,050.5	7,896.8	7,746.9	30.2	32.8	-128.69	-448.2	1,112.2	1,557.1	1,498.0	59.10	26.348	
8,200.0	8,150.4	7,993.7	7,840.8	30.6	33.2	-128.62	-459.9	1,132.8	1,579.2	1,519.4	59.84	26.390	
8,300.0	8,250.4	8,090.6	7,934.8	30.9	33.7	83.21	-471.6	1,153.5	1,599.4	1,538.9	60.55	26.414	
8,400.0	8,350.4	8,187.6	8,028.8	31.2	34.2	83.71	-483.3	1,174.1	1,619.4	1,558.2	61.26	26.437	
8,500.0	8,450.4	8,284.5	8,122.8	31.6	34.7	84.21	-495.0	1,194.8	1,639.6	1,577.6	61.96	26.462	
8,600.0	8,550.4	8,381.5	8,216.8	31.9	35.1	84.69	-506.8	1,215.4	1,659.8	1,597.1	62.66	26.487	
8,700.0	8,650.4	8,478.5	8,310.8	32.2	35.6	85.17	-518.5	1,236.1	1,680.2	1,616.8	63.37	26.514	
8,800.0	8,750.4	8,575.4	8,404.8	32.5	36.1	85.63	-530.2	1,256.7	1,700.6	1,636.5	64.07	26.542	
8,900.0	8,850.4	8,672.5	8,498.9	32.8	36.6	-92.79	-541.9	1,277.4	1,721.2	1,656.4	64.79	26.568	
9,000.0	8,948.9	8,769.9	8,593.4	33.2	37.0	-90.29	-553.6	1,298.2	1,742.5	1,676.9	65.60	26.593	
9,100.0	9,041.8	8,864.5	8,685.2	33.7	37.5	-88.40	-565.1	1,318.3	1,764.0	1,697.5	66.50	26.525	
9,200.0	9,125.2	8,952.1	8,770.1	34.2	37.9	-87.00	-575.6	1,337.0	1,785.7	1,718.2	67.47	26.466	
9,300.0	9,195.4	9,028.8	8,844.4	34.7	38.3	-85.83	-584.9	1,353.3	1,807.8	1,739.3	68.46	26.405	
9,400.0	9,249.2	9,091.3	8,905.0	35.3	38.6	-84.53	-592.4	1,366.6	1,830.9	1,761.4	69.44	26.365	
9,500.0	9,284.5	9,168.3	8,979.8	35.9	39.0	-83.70	-601.4	1,382.4	1,855.3	1,784.7	70.63	26.267	
9,600.0	9,299.5	9,216.4	9,026.8	36.6	39.2	-81.98	-606.5	1,391.4	1,881.2	1,809.5	71.62	26.264	
9,700.0	9,300.0	9,236.0	9,046.1	37.2	39.3	-81.86	-608.4	1,394.8	1,909.8	1,837.4	72.39	26.382	
9,800.0	9,300.0	9,253.6	9,063.3	37.9	39.4	-82.41	-610.1	1,397.9	1,942.9	1,869.8	73.13	26.570	
9,900.0	9,300.0	9,270.2	9,079.5	38.6	39.5	-82.93	-611.7	1,400.6	1,980.5	1,906.7	73.83	26.827	
10,000.0	9,300.0	9,285.8	9,094.9	39.4	39.5	-83.42	-613.1	1,403.1	2,022.3	1,947.8	74.49	27.148	
10,100.0	9,300.0	11,146.1	10,196.0	40.2	48.2	-115.78	-1,598.0	1,452.5	2,052.3	1,975.6	76.71	26.754	
10,200.0	9,300.0	11,246.1	10,196.0	41.0	48.9	-115.78	-1,698.0	1,453.3	2,052.3	1,974.1	78.19	26.249	
10,300.0	9,300.0	11,346.1	10,196.0	41.9	49.7	-115.78	-1,798.0	1,454.0	2,052.3	1,972.6	79.73	25.742	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,400.0	9,300.0	11,446.1	10,196.0	42.8	50.5	-115.78	-1,898.0	1,454.8	2,052.3	1,971.0	81.33	25.235	
10,500.0	9,300.0	11,546.1	10,196.0	43.7	51.3	-115.78	-1,998.0	1,455.6	2,052.3	1,969.3	82.98	24.731	
10,600.0	9,300.0	11,646.1	10,196.0	44.7	52.2	-115.78	-2,098.0	1,456.4	2,052.3	1,967.6	84.69	24.232	
10,700.0	9,300.0	11,746.1	10,196.0	45.7	53.0	-115.78	-2,198.0	1,457.1	2,052.3	1,965.9	86.45	23.739	
10,800.0	9,300.0	11,846.1	10,196.0	46.7	53.9	-115.78	-2,298.0	1,457.9	2,052.3	1,964.1	88.26	23.253	
10,900.0	9,300.0	11,946.1	10,196.0	47.7	54.9	-115.78	-2,398.0	1,458.7	2,052.3	1,962.2	90.11	22.775	
11,000.0	9,300.0	12,046.1	10,196.0	48.8	55.8	-115.78	-2,498.0	1,459.5	2,052.3	1,960.3	92.00	22.307	
11,100.0	9,300.0	12,146.1	10,196.0	49.9	56.8	-115.78	-2,597.9	1,460.2	2,052.3	1,958.4	93.94	21.848	
11,200.0	9,300.0	12,246.1	10,196.0	50.9	57.8	-115.78	-2,697.9	1,461.0	2,052.3	1,956.4	95.90	21.400	
11,300.0	9,300.0	12,346.1	10,196.0	52.1	58.8	-115.78	-2,797.9	1,461.8	2,052.3	1,954.4	97.91	20.962	
11,400.0	9,300.0	12,446.1	10,196.0	53.2	59.8	-115.78	-2,897.9	1,462.6	2,052.3	1,952.4	99.94	20.535	
11,500.0	9,300.0	12,546.1	10,196.0	54.3	60.9	-115.78	-2,997.9	1,463.3	2,052.3	1,950.3	102.01	20.119	
11,600.0	9,300.0	12,646.1	10,196.0	55.5	61.9	-115.78	-3,097.9	1,464.1	2,052.3	1,948.2	104.10	19.714	
11,700.0	9,300.0	12,746.1	10,196.0	56.6	63.0	-115.78	-3,197.9	1,464.9	2,052.3	1,946.1	106.23	19.320	
11,800.0	9,300.0	12,846.1	10,196.0	57.8	64.1	-115.78	-3,297.9	1,465.7	2,052.3	1,943.9	108.37	18.938	
11,900.0	9,300.0	12,946.1	10,196.0	59.0	65.2	-115.78	-3,397.9	1,466.4	2,052.3	1,941.8	110.54	18.566	
12,000.0	9,300.0	13,046.1	10,196.0	60.2	66.3	-115.78	-3,497.9	1,467.2	2,052.3	1,939.6	112.74	18.204	
12,100.0	9,300.0	13,146.1	10,196.0	61.4	67.5	-115.78	-3,597.9	1,468.0	2,052.3	1,937.4	114.95	17.854	
12,200.0	9,300.0	13,246.1	10,196.0	62.7	68.6	-115.78	-3,697.9	1,468.8	2,052.3	1,935.1	117.19	17.513	
12,300.0	9,300.0	13,346.1	10,196.0	63.9	69.8	-115.78	-3,797.9	1,469.6	2,052.3	1,932.9	119.44	17.183	
12,400.0	9,300.0	13,446.1	10,196.0	65.1	70.9	-115.78	-3,897.9	1,470.3	2,052.3	1,930.6	121.71	16.862	
12,500.0	9,300.0	13,546.1	10,196.0	66.4	72.1	-115.78	-3,997.9	1,471.1	2,052.3	1,928.3	124.00	16.551	
12,600.0	9,300.0	13,646.1	10,196.0	67.6	73.3	-115.78	-4,097.9	1,471.9	2,052.3	1,926.0	126.31	16.249	
12,700.0	9,300.0	13,746.1	10,196.0	68.9	74.5	-115.78	-4,197.9	1,472.7	2,052.3	1,923.7	128.63	15.956	
12,800.0	9,300.0	13,846.1	10,196.0	70.2	75.7	-115.78	-4,297.9	1,473.4	2,052.3	1,921.4	130.96	15.671	
12,900.0	9,300.0	13,946.1	10,196.0	71.5	76.9	-115.78	-4,397.9	1,474.2	2,052.3	1,919.0	133.31	15.395	
13,000.0	9,300.0	14,046.1	10,196.0	72.8	78.1	-115.78	-4,497.9	1,475.0	2,052.3	1,916.6	135.67	15.127	
13,100.0	9,300.0	14,146.1	10,196.0	74.0	79.4	-115.78	-4,597.9	1,475.8	2,052.3	1,914.3	138.04	14.867	
13,200.0	9,300.0	14,246.1	10,196.0	75.3	80.6	-115.78	-4,697.9	1,476.5	2,052.3	1,911.9	140.43	14.615	
13,300.0	9,300.0	14,346.1	10,196.0	76.6	81.8	-115.78	-4,797.9	1,477.3	2,052.3	1,909.5	142.82	14.370	
13,400.0	9,300.0	14,446.1	10,196.0	78.0	83.1	-115.78	-4,897.9	1,478.1	2,052.3	1,907.1	145.23	14.132	
13,500.0	9,300.0	14,546.1	10,196.0	79.3	84.4	-115.78	-4,997.9	1,478.9	2,052.3	1,904.7	147.64	13.901	
13,600.0	9,300.0	14,646.1	10,196.0	80.6	85.6	-115.78	-5,097.9	1,479.6	2,052.3	1,902.2	150.07	13.676	
13,700.0	9,300.0	14,746.1	10,196.0	81.9	86.9	-115.78	-5,197.9	1,480.4	2,052.3	1,899.8	152.50	13.458	
13,800.0	9,300.0	14,846.1	10,196.0	83.2	88.2	-115.78	-5,297.9	1,481.2	2,052.3	1,897.4	154.95	13.245	
13,900.0	9,300.0	14,946.1	10,196.0	84.6	89.4	-115.78	-5,397.9	1,482.0	2,052.3	1,894.9	157.40	13.039	
14,000.0	9,300.0	15,046.1	10,196.0	85.9	90.7	-115.78	-5,497.9	1,482.7	2,052.3	1,892.5	159.86	12.839	
14,100.0	9,300.0	15,146.1	10,196.0	87.2	92.0	-115.78	-5,597.9	1,483.5	2,052.3	1,890.0	162.32	12.643	
14,200.0	9,300.0	15,246.1	10,196.0	88.6	93.3	-115.78	-5,697.9	1,484.3	2,052.3	1,887.5	164.80	12.454	
14,300.0	9,300.0	15,346.1	10,196.0	89.9	94.6	-115.78	-5,797.9	1,485.1	2,052.3	1,885.0	167.28	12.269	
14,400.0	9,300.0	15,446.1	10,196.0	91.3	95.9	-115.78	-5,897.8	1,485.8	2,052.3	1,882.6	169.76	12.089	
14,500.0	9,300.0	15,546.1	10,196.0	92.6	97.2	-115.78	-5,997.8	1,486.6	2,052.3	1,880.1	172.26	11.914	
14,600.0	9,300.0	15,646.1	10,196.0	94.0	98.5	-115.78	-6,097.8	1,487.4	2,052.3	1,877.6	174.76	11.744	
14,700.0	9,300.0	15,746.1	10,196.0	95.3	99.8	-115.78	-6,197.8	1,488.2	2,052.3	1,875.1	177.26	11.578	
14,800.0	9,300.0	15,846.1	10,196.0	96.7	101.1	-115.78	-6,297.8	1,489.0	2,052.3	1,872.5	179.77	11.416	
14,900.0	9,300.0	15,946.1	10,196.0	98.1	102.5	-115.78	-6,397.8	1,489.7	2,052.3	1,870.0	182.29	11.259	
15,000.0	9,300.0	16,046.1	10,196.0	99.4	103.8	-115.78	-6,497.8	1,490.5	2,052.3	1,867.5	184.81	11.105	
15,100.0	9,300.0	16,146.1	10,196.0	100.8	105.1	-115.78	-6,597.8	1,491.3	2,052.3	1,865.0	187.33	10.955	
15,200.0	9,300.0	16,246.1	10,196.0	102.1	106.5	-115.78	-6,697.8	1,492.1	2,052.3	1,862.5	189.86	10.809	
15,300.0	9,300.0	16,346.1	10,196.0	103.5	107.8	-115.78	-6,797.8	1,492.8	2,052.3	1,859.9	192.40	10.667	
15,400.0	9,300.0	16,446.1	10,196.0	104.9	109.1	-115.78	-6,897.8	1,493.6	2,052.3	1,857.4	194.94	10.528	
15,500.0	9,300.0	16,546.1	10,196.0	106.3	110.5	-115.78	-6,997.8	1,494.4	2,052.3	1,854.8	197.48	10.393	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 24 Fed Com Pad 1 - Royal Oak 24 Fed Com 604H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance			Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,600.0	9,300.0	16,646.1	10,196.0	107.6	111.8	-115.78	-7,097.8	1,495.2	2,052.3	1,852.3	200.03	10.260	
15,700.0	9,300.0	16,746.1	10,196.0	109.0	113.2	-115.78	-7,197.8	1,495.9	2,052.3	1,849.7	202.58	10.131	
15,800.0	9,300.0	16,846.1	10,196.0	110.4	114.5	-115.78	-7,297.8	1,496.7	2,052.3	1,847.2	205.13	10.005	
15,900.0	9,300.0	16,946.1	10,196.0	111.8	115.8	-115.78	-7,397.8	1,497.5	2,052.3	1,844.6	207.69	9.882	
16,000.0	9,300.0	17,046.1	10,196.0	113.2	117.2	-115.78	-7,497.8	1,498.3	2,052.3	1,842.1	210.25	9.761	
16,100.0	9,300.0	17,146.1	10,196.0	114.6	118.6	-115.78	-7,597.8	1,499.0	2,052.3	1,839.5	212.82	9.644	
16,200.0	9,300.0	17,246.1	10,196.0	115.9	119.9	-115.78	-7,697.8	1,499.8	2,052.3	1,836.9	215.38	9.529	
16,300.0	9,300.0	17,346.1	10,196.0	117.3	121.3	-115.78	-7,797.8	1,500.6	2,052.3	1,834.4	217.96	9.416	
16,400.0	9,300.0	17,446.1	10,196.0	118.7	122.6	-115.78	-7,897.8	1,501.4	2,052.3	1,831.8	220.53	9.306	
16,500.0	9,300.0	17,546.1	10,196.0	120.1	124.0	-115.78	-7,997.8	1,502.1	2,052.3	1,829.2	223.11	9.199	
16,600.0	9,300.0	17,646.1	10,196.0	121.5	125.4	-115.78	-8,097.8	1,502.9	2,052.3	1,826.6	225.69	9.094	
16,700.0	9,300.0	17,746.1	10,196.0	122.9	126.7	-115.78	-8,197.8	1,503.7	2,052.3	1,824.0	228.27	8.991	
16,800.0	9,300.0	17,846.1	10,196.0	124.3	128.1	-115.78	-8,297.8	1,504.5	2,052.3	1,821.5	230.85	8.890	
16,900.0	9,300.0	17,946.1	10,196.0	125.7	129.5	-115.78	-8,397.8	1,505.2	2,052.3	1,818.9	233.44	8.792	
17,000.0	9,300.0	18,046.1	10,196.0	127.1	130.8	-115.78	-8,497.8	1,506.0	2,052.3	1,816.3	236.03	8.695	
17,100.0	9,300.0	18,146.1	10,196.0	128.5	132.2	-115.78	-8,597.8	1,506.8	2,052.3	1,813.7	238.62	8.601	
17,200.0	9,300.0	18,246.1	10,196.0	129.9	133.6	-115.78	-8,697.8	1,507.6	2,052.3	1,811.1	241.22	8.508	
17,300.0	9,300.0	18,346.1	10,196.0	131.3	135.0	-115.78	-8,797.8	1,508.3	2,052.3	1,808.5	243.81	8.418	
17,400.0	9,300.0	18,446.1	10,196.0	132.7	136.3	-115.78	-8,897.8	1,509.1	2,052.3	1,805.9	246.41	8.329	
17,500.0	9,300.0	18,546.1	10,196.0	134.1	137.7	-115.78	-8,997.8	1,509.9	2,052.3	1,803.3	249.01	8.242	
17,600.0	9,300.0	18,646.1	10,196.0	135.5	139.1	-115.78	-9,097.8	1,510.7	2,052.3	1,800.7	251.61	8.157	
17,700.0	9,300.0	18,746.1	10,196.0	136.9	140.5	-115.78	-9,197.7	1,511.5	2,052.3	1,798.1	254.22	8.073	
17,800.0	9,300.0	18,846.1	10,196.0	138.3	141.9	-115.78	-9,297.7	1,512.2	2,052.3	1,795.5	256.82	7.991	
17,900.0	9,300.0	18,946.1	10,196.0	139.7	143.3	-115.78	-9,397.7	1,513.0	2,052.3	1,792.9	259.43	7.911	
18,000.0	9,300.0	19,046.1	10,196.0	141.1	144.6	-115.78	-9,497.7	1,513.8	2,052.3	1,790.3	262.04	7.832	
18,100.0	9,300.0	19,146.1	10,196.0	142.5	146.0	-115.78	-9,597.7	1,514.6	2,052.3	1,787.7	264.65	7.755	
18,200.0	9,300.0	19,246.1	10,196.0	143.9	147.4	-115.78	-9,697.7	1,515.3	2,052.3	1,785.0	267.27	7.679	
18,300.0	9,300.0	19,346.1	10,196.0	145.3	148.8	-115.78	-9,797.7	1,516.1	2,052.3	1,782.4	269.88	7.604	
18,400.0	9,300.0	19,446.1	10,196.0	146.7	150.2	-115.78	-9,897.7	1,516.9	2,052.3	1,779.8	272.50	7.531	
18,500.0	9,300.0	19,546.1	10,196.0	148.2	151.6	-115.78	-9,997.7	1,517.7	2,052.3	1,777.2	275.12	7.460	
18,600.0	9,300.0	19,646.1	10,196.0	149.6	153.0	-115.78	-10,097.7	1,518.4	2,052.3	1,774.6	277.74	7.389	
18,700.0	9,300.0	19,746.1	10,196.0	151.0	154.4	-115.78	-10,197.7	1,519.2	2,052.3	1,772.0	280.36	7.320	
18,800.0	9,300.0	19,846.1	10,196.0	152.4	155.8	-115.78	-10,297.7	1,520.0	2,052.3	1,769.3	282.98	7.253	
18,900.0	9,300.0	19,946.1	10,196.0	153.8	157.2	-115.78	-10,397.7	1,520.8	2,052.3	1,766.7	285.60	7.186	
19,000.0	9,300.0	20,046.1	10,196.0	155.2	158.6	-115.78	-10,497.7	1,521.5	2,052.3	1,764.1	288.23	7.120	
19,100.0	9,300.0	20,146.1	10,196.0	156.6	160.0	-115.78	-10,597.7	1,522.3	2,052.3	1,761.5	290.85	7.056	
19,200.0	9,300.0	20,246.1	10,196.0	158.1	161.4	-115.78	-10,697.7	1,523.1	2,052.3	1,758.8	293.48	6.993	
19,300.0	9,300.0	20,346.1	10,196.0	159.5	162.8	-115.78	-10,797.7	1,523.9	2,052.3	1,756.2	296.11	6.931	
19,400.0	9,300.0	20,446.1	10,196.0	160.9	164.2	-115.78	-10,897.7	1,524.6	2,052.3	1,753.6	298.74	6.870	
19,500.0	9,300.0	20,546.1	10,196.0	162.3	165.6	-115.78	-10,997.7	1,525.4	2,052.3	1,750.9	301.37	6.810	
19,546.9	9,300.0	20,593.0	10,196.0	163.0	166.2	-115.78	-11,044.6	1,525.8	2,052.3	1,749.7	302.60	6.782	
19,553.8	9,300.0	20,594.8	10,196.0	163.1	166.2	-115.78	-11,046.4	1,525.8	2,052.3	1,749.6	302.75	6.779 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Edith Federal 001 - OH - OH												Offset Site Error:	0.0 usft
Survey Program:		360-INC-ONLY				Rule Assigned:				Offset Well Error:	0.0 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Minimum Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor		
11,700.0	9,300.0	9,280.5	9,279.0	56.6	204.8	92.35	-5,088.7	-1,166.4	2,033.6	1,793.1	8.455		
11,800.0	9,300.0	9,278.7	9,277.2	57.8	204.7	92.23	-5,088.7	-1,166.4	1,942.0	1,700.9	8.056		
11,900.0	9,300.0	9,277.0	9,275.5	59.0	204.7	92.10	-5,088.7	-1,166.4	1,851.3	1,609.6	7.659		
12,000.0	9,300.0	9,275.2	9,273.7	60.2	204.7	91.98	-5,088.8	-1,166.4	1,761.6	1,519.1	7.264		
12,100.0	9,300.0	9,273.5	9,272.0	61.4	204.6	91.85	-5,088.8	-1,166.4	1,673.1	1,429.6	6.872		
12,200.0	9,300.0	9,271.7	9,270.2	62.7	204.6	91.72	-5,088.8	-1,166.4	1,585.9	1,341.3	6.484		
12,300.0	9,300.0	9,270.0	9,268.5	63.9	204.6	91.60	-5,088.8	-1,166.4	1,500.4	1,254.4	6.101		
12,400.0	9,300.0	9,268.3	9,266.7	65.1	204.5	91.47	-5,088.9	-1,166.4	1,416.7	1,169.2	5.724		
12,500.0	9,300.0	9,266.5	9,265.0	66.4	204.5	91.35	-5,088.9	-1,166.4	1,335.3	1,085.9	5.355		
12,600.0	9,300.0	9,264.8	9,263.2	67.6	204.5	91.22	-5,088.9	-1,166.4	1,256.5	1,005.0	4.996		
12,700.0	9,300.0	9,263.0	9,261.5	68.9	204.4	91.10	-5,089.0	-1,166.4	1,181.0	926.9	4.649		
12,800.0	9,300.0	9,261.3	9,259.8	70.2	204.4	90.97	-5,089.0	-1,166.4	1,109.3	852.4	4.317		
12,900.0	9,300.0	9,259.5	9,258.0	71.5	204.3	90.85	-5,089.0	-1,166.4	1,042.3	782.1	4.005		
13,000.0	9,300.0	9,257.8	9,256.3	72.8	204.3	90.72	-5,089.1	-1,166.4	981.0	717.1	3.718		
13,100.0	9,300.0	9,256.0	9,254.5	74.0	204.3	90.60	-5,089.1	-1,166.4	926.4	658.6	3.459		
13,200.0	9,300.0	9,254.3	9,252.8	75.3	204.2	90.47	-5,089.1	-1,166.4	879.8	607.9	3.236		
13,300.0	9,300.0	9,252.6	9,251.0	76.6	204.2	90.35	-5,089.1	-1,166.4	842.6	566.7	3.054		
13,400.0	9,300.0	9,250.8	9,249.3	78.0	204.2	90.22	-5,089.2	-1,166.4	815.9	536.4	2.919		
13,500.0	9,300.0	9,249.1	9,247.5	79.3	204.1	90.10	-5,089.2	-1,166.4	801.0	518.5	2.835		
13,570.8	9,300.0	9,247.8	9,246.3	80.2	204.1	90.01	-5,089.2	-1,166.4	797.9	513.7	2.808 CC, ES		
13,600.0	9,300.0	9,247.3	9,245.8	80.6	204.1	89.97	-5,089.2	-1,166.4	798.4	513.8	2.805 SF		
13,700.0	9,300.0	9,245.6	9,244.1	81.9	204.1	89.85	-5,089.3	-1,166.4	808.2	522.5	2.829		
13,800.0	9,300.0	9,243.8	9,242.3	83.2	204.0	89.72	-5,089.3	-1,166.4	830.1	544.3	2.905		
13,900.0	9,300.0	9,242.1	9,240.6	84.6	204.0	89.60	-5,089.3	-1,166.4	863.1	578.1	3.029		
14,000.0	9,300.0	9,240.3	9,238.8	85.9	204.0	89.47	-5,089.4	-1,166.4	905.9	622.4	3.195		
14,100.0	9,300.0	9,238.6	9,237.1	87.2	203.9	89.34	-5,089.4	-1,166.4	957.4	675.7	3.399		
14,200.0	9,300.0	9,236.8	9,235.3	88.6	203.9	89.22	-5,089.4	-1,166.4	1,016.0	736.5	3.635		
14,300.0	9,300.0	9,235.1	9,233.6	89.9	203.8	89.09	-5,089.5	-1,166.4	1,080.8	803.5	3.897		
14,400.0	9,300.0	9,233.4	9,231.8	91.3	203.8	88.97	-5,089.5	-1,166.4	1,150.6	875.5	4.182		
14,500.0	9,300.0	9,231.6	9,230.1	92.6	203.8	88.84	-5,089.5	-1,166.4	1,224.6	951.6	4.485		
14,600.0	9,300.0	9,229.9	9,228.3	94.0	203.7	88.72	-5,089.5	-1,166.4	1,302.1	1,031.0	4.803		
14,700.0	9,300.0	9,228.1	9,226.6	95.3	203.7	88.59	-5,089.6	-1,166.4	1,382.5	1,113.2	5.134		
14,800.0	9,300.0	9,226.4	9,224.9	96.7	203.7	88.47	-5,089.6	-1,166.4	1,465.3	1,197.7	5.476		
14,900.0	9,300.0	9,224.6	9,223.1	98.1	203.6	88.34	-5,089.6	-1,166.4	1,550.1	1,284.0	5.826		
15,000.0	9,300.0	9,222.9	9,221.4	99.4	203.6	88.22	-5,089.7	-1,166.4	1,636.6	1,372.0	6.184		
15,100.0	9,300.0	9,221.1	9,219.6	100.8	203.6	88.09	-5,089.7	-1,166.4	1,724.6	1,461.2	6.548		
15,200.0	9,300.0	9,219.4	9,217.9	102.1	203.5	87.97	-5,089.7	-1,166.4	1,813.8	1,551.6	6.918		
15,300.0	9,300.0	9,217.6	9,216.1	103.5	203.5	87.84	-5,089.8	-1,166.4	1,904.1	1,643.0	7.292		
15,400.0	9,300.0	9,215.9	9,214.4	104.9	203.5	87.72	-5,089.8	-1,166.4	1,995.4	1,735.2	7.670		
15,500.0	9,300.0	9,214.2	9,212.6	106.3	203.4	87.59	-5,089.8	-1,166.4	2,087.4	1,828.1	8.051		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Edith Federal 004 - OH - P&A												Offset Site Error:	0.0 usft
Survey Program: 200-INC-ONLY												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,500.0	9,300.0	9,313.3	9,311.2	43.7	211.6	93.84	-3,752.2	-1,510.8	2,069.8	1,823.5	246.25	8.405	
10,600.0	9,300.0	9,308.9	9,306.8	44.7	211.5	93.62	-3,752.4	-1,510.8	1,986.9	1,740.2	246.65	8.055	
10,700.0	9,300.0	9,304.6	9,302.5	45.7	211.3	93.40	-3,752.6	-1,510.8	1,905.6	1,658.5	247.16	7.710	
10,800.0	9,300.0	9,300.2	9,298.1	46.7	211.2	93.18	-3,752.8	-1,510.8	1,826.2	1,578.4	247.79	7.370	
10,900.0	9,300.0	9,295.9	9,293.7	47.7	211.1	92.96	-3,753.0	-1,510.8	1,748.9	1,500.4	248.56	7.036	
11,000.0	9,300.0	9,291.5	9,289.4	48.8	210.9	92.74	-3,753.2	-1,510.8	1,674.0	1,424.5	249.49	6.710	
11,100.0	9,300.0	9,288.0	9,285.9	49.9	210.8	92.56	-3,753.3	-1,510.8	1,601.8	1,351.2	250.61	6.392	
11,200.0	9,300.0	9,283.1	9,281.0	50.9	210.7	92.32	-3,753.5	-1,510.8	1,532.8	1,280.9	251.88	6.085	
11,300.0	9,300.0	9,279.0	9,276.9	52.1	210.5	92.11	-3,753.7	-1,510.8	1,467.3	1,213.9	253.36	5.791	
11,400.0	9,300.0	9,274.8	9,272.7	53.2	210.4	91.90	-3,753.9	-1,510.8	1,405.8	1,150.8	255.04	5.512	
11,500.0	9,300.0	9,270.6	9,268.5	54.3	210.3	91.68	-3,754.1	-1,510.8	1,349.0	1,092.1	256.91	5.251	
11,600.0	9,300.0	9,266.3	9,264.2	55.5	210.1	91.47	-3,754.3	-1,510.8	1,297.4	1,038.4	258.94	5.010	
11,700.0	9,300.0	9,261.9	9,259.8	56.6	210.0	91.25	-3,754.5	-1,510.8	1,251.6	990.5	261.10	4.794	
11,800.0	9,300.0	9,257.5	9,255.4	57.8	209.8	91.02	-3,754.7	-1,510.8	1,212.3	949.0	263.34	4.604	
11,900.0	9,300.0	9,253.1	9,251.0	59.0	209.7	90.80	-3,754.9	-1,510.8	1,180.3	914.7	265.59	4.444	
12,000.0	9,300.0	9,248.5	9,246.5	60.2	209.6	90.57	-3,755.1	-1,510.8	1,156.0	888.2	267.76	4.317	
12,100.0	9,300.0	9,243.9	9,241.9	61.4	209.4	90.34	-3,755.3	-1,510.8	1,139.9	870.1	269.77	4.226	
12,200.0	9,300.0	9,239.3	9,237.2	62.7	209.3	90.10	-3,755.5	-1,510.8	1,132.5	861.0	271.53	4.171	
12,234.5	9,300.0	9,237.7	9,235.6	63.1	209.2	90.02	-3,755.6	-1,510.8	1,132.0	859.9	272.06	4.161	CC, ES
12,300.0	9,300.0	9,234.6	9,232.5	63.9	209.1	89.86	-3,755.7	-1,510.8	1,133.9	860.9	272.97	4.154	SF
12,400.0	9,300.0	9,229.8	9,227.8	65.1	209.0	89.62	-3,756.0	-1,510.8	1,144.0	869.9	274.04	4.174	
12,500.0	9,300.0	9,225.0	9,222.9	66.4	208.8	89.38	-3,756.2	-1,510.8	1,162.6	887.9	274.74	4.232	
12,600.0	9,300.0	9,220.2	9,218.1	67.6	208.6	89.13	-3,756.4	-1,510.8	1,189.4	914.3	275.07	4.324	
12,700.0	9,300.0	9,215.4	9,213.3	68.9	208.5	88.89	-3,756.7	-1,510.8	1,223.7	948.7	275.06	4.449	
12,800.0	9,300.0	9,210.6	9,208.5	70.2	208.3	88.65	-3,756.9	-1,510.8	1,265.0	990.3	274.78	4.604	
12,900.0	9,300.0	9,205.8	9,203.7	71.5	208.2	88.41	-3,757.1	-1,510.8	1,312.7	1,038.4	274.26	4.786	
13,000.0	9,300.0	9,201.0	9,198.9	72.8	208.0	88.17	-3,757.3	-1,510.8	1,366.0	1,092.4	273.57	4.993	
13,100.0	9,300.0	9,196.2	9,194.1	74.0	207.8	87.92	-3,757.6	-1,510.8	1,424.3	1,151.5	272.76	5.222	
13,200.0	9,300.0	9,191.4	9,189.4	75.3	207.7	87.68	-3,757.8	-1,510.8	1,487.0	1,215.2	271.87	5.470	
13,300.0	9,300.0	9,186.6	9,184.6	76.6	207.5	87.44	-3,758.0	-1,510.8	1,553.7	1,282.8	270.92	5.735	
13,400.0	9,300.0	9,181.8	9,179.8	78.0	207.4	87.20	-3,758.3	-1,510.8	1,623.7	1,353.8	269.96	6.015	
13,500.0	9,300.0	9,177.0	9,175.0	79.3	207.2	86.95	-3,758.5	-1,510.8	1,696.8	1,427.8	268.99	6.308	
13,600.0	9,300.0	9,172.2	9,170.2	80.6	207.1	86.71	-3,758.7	-1,510.8	1,772.4	1,504.4	268.03	6.613	
13,700.0	9,300.0	9,167.4	9,165.4	81.9	206.9	86.47	-3,759.0	-1,510.8	1,850.4	1,583.3	267.10	6.928	
13,800.0	9,300.0	9,162.6	9,160.6	83.2	206.7	86.23	-3,759.2	-1,510.8	1,930.4	1,664.2	266.19	7.252	
13,900.0	9,300.0	9,157.8	9,155.8	84.6	206.6	85.99	-3,759.4	-1,510.8	2,012.1	1,746.8	265.32	7.584	
14,000.0	9,300.0	9,153.0	9,151.0	85.9	206.4	85.75	-3,759.6	-1,510.8	2,095.5	1,831.0	264.48	7.923	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #302H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
2,900.0	2,894.4	3,241.6	3,227.4	10.0	11.5	36.43	-896.9	-1,966.2	2,117.2	2,096.1	21.05	100.589	
3,000.0	2,993.5	3,337.4	3,321.7	10.4	11.9	36.59	-892.2	-1,949.9	2,089.3	2,067.6	21.73	96.129	
3,100.0	3,092.7	3,433.3	3,416.1	10.8	12.3	36.75	-887.5	-1,933.7	2,061.4	2,039.0	22.42	91.929	
3,200.0	3,191.8	3,529.2	3,510.5	11.1	12.7	36.92	-882.8	-1,917.4	2,033.6	2,010.4	23.12	87.970	
3,300.0	3,291.0	3,625.0	3,604.8	11.5	13.1	37.09	-878.1	-1,901.1	2,005.7	1,981.9	23.81	84.232	
3,400.0	3,390.1	3,720.9	3,699.2	11.9	13.5	37.26	-873.4	-1,884.9	1,977.9	1,953.4	24.51	80.698	
3,500.0	3,489.2	3,816.8	3,793.5	12.2	13.8	37.44	-868.7	-1,868.6	1,950.1	1,924.9	25.21	77.353	
3,600.0	3,588.4	3,912.6	3,887.9	12.6	14.2	37.63	-864.0	-1,852.3	1,922.3	1,896.4	25.91	74.184	
3,700.0	3,687.5	4,008.5	3,982.3	13.0	14.6	37.82	-859.3	-1,836.1	1,894.5	1,867.9	26.62	71.177	
3,800.0	3,786.7	4,104.4	4,076.6	13.4	15.0	38.02	-854.6	-1,819.8	1,866.8	1,839.4	27.32	68.321	
3,900.0	3,885.8	4,200.3	4,171.0	13.8	15.4	38.22	-849.8	-1,803.5	1,839.0	1,811.0	28.03	65.606	
4,000.0	3,984.9	4,296.1	4,265.4	14.1	15.8	38.43	-845.1	-1,787.3	1,811.3	1,782.6	28.74	63.022	
4,100.0	4,084.1	4,392.0	4,359.7	14.5	16.2	38.65	-840.4	-1,771.0	1,783.7	1,754.2	29.45	60.560	
4,200.0	4,183.2	4,487.9	4,454.1	14.9	16.6	38.87	-835.7	-1,754.7	1,756.0	1,725.8	30.17	58.211	
4,300.0	4,282.3	4,583.7	4,548.5	15.3	17.0	39.10	-831.0	-1,738.5	1,728.4	1,697.5	30.88	55.970	
4,400.0	4,381.5	4,679.6	4,642.8	15.7	17.4	39.34	-826.3	-1,722.2	1,700.8	1,669.2	31.60	53.828	
4,500.0	4,480.6	4,775.5	4,737.2	16.1	17.8	39.58	-821.6	-1,705.9	1,673.2	1,640.9	32.31	51.780	
4,600.0	4,579.8	4,871.4	4,831.5	16.4	18.2	39.83	-816.9	-1,689.7	1,645.6	1,612.6	33.03	49.820	
4,700.0	4,678.9	4,967.2	4,925.9	16.8	18.6	40.10	-812.2	-1,673.4	1,618.1	1,584.4	33.75	47.942	
4,800.0	4,778.0	5,063.1	5,020.3	17.2	19.0	40.37	-807.5	-1,657.1	1,590.6	1,556.1	34.47	46.142	
4,900.0	4,877.2	5,159.0	5,114.6	17.6	19.4	40.65	-802.8	-1,640.9	1,563.2	1,528.0	35.19	44.415	
5,000.0	4,976.3	5,254.8	5,209.0	18.0	19.8	40.94	-798.1	-1,624.6	1,535.8	1,499.8	35.92	42.758	
5,100.0	5,075.5	5,350.7	5,303.4	18.4	20.2	41.24	-793.4	-1,608.3	1,508.4	1,471.7	36.64	41.165	
5,200.0	5,174.6	5,446.6	5,397.7	18.8	20.6	41.55	-788.7	-1,592.1	1,481.0	1,443.7	37.37	39.634	
5,300.0	5,273.7	5,542.4	5,492.1	19.2	21.0	41.87	-784.0	-1,575.8	1,453.7	1,415.6	38.09	38.161	
5,400.0	5,372.9	5,638.3	5,586.4	19.6	21.4	42.21	-779.3	-1,559.5	1,426.5	1,387.7	38.82	36.743	
5,500.0	5,472.0	5,734.2	5,680.8	20.0	21.8	42.56	-774.6	-1,543.3	1,399.3	1,359.7	39.55	35.378	
5,600.0	5,571.1	5,830.1	5,775.2	20.4	22.2	42.92	-769.9	-1,527.0	1,372.1	1,331.8	40.28	34.062	
5,700.0	5,670.3	5,925.9	5,869.5	20.8	22.6	43.29	-765.2	-1,510.7	1,345.0	1,304.0	41.01	32.794	
5,800.0	5,769.4	6,021.8	5,963.9	21.1	23.0	43.69	-760.5	-1,494.5	1,318.0	1,276.2	41.75	31.570	
5,900.0	5,868.6	6,117.7	6,058.3	21.5	23.4	44.09	-755.8	-1,478.2	1,291.0	1,248.5	42.48	30.389	
6,000.0	5,967.7	6,213.5	6,152.6	21.9	23.9	44.52	-751.1	-1,461.9	1,264.1	1,220.9	43.22	29.248	
6,100.0	6,066.8	6,309.4	6,247.0	22.3	24.3	44.96	-746.4	-1,445.7	1,237.2	1,193.3	43.96	28.147	
6,200.0	6,166.0	6,405.3	6,341.4	22.7	24.7	45.43	-741.7	-1,429.4	1,210.5	1,165.8	44.70	27.082	
6,300.0	6,265.1	6,501.1	6,435.7	23.1	25.1	45.91	-737.0	-1,413.1	1,183.8	1,138.3	45.44	26.053	
6,400.0	6,364.2	6,597.0	6,530.1	23.5	25.5	46.42	-732.3	-1,396.9	1,157.1	1,111.0	46.18	25.057	
6,500.0	6,463.4	6,692.9	6,624.4	23.9	25.9	46.95	-727.6	-1,380.6	1,130.6	1,083.7	46.92	24.094	
6,600.0	6,562.5	6,788.8	6,718.8	24.3	26.3	47.50	-722.9	-1,364.3	1,104.2	1,056.5	47.67	23.162	
6,700.0	6,661.7	6,884.6	6,813.2	24.7	26.7	48.08	-718.1	-1,348.1	1,077.8	1,029.4	48.42	22.260	
6,800.0	6,760.8	6,980.5	6,907.5	25.1	27.1	48.69	-713.4	-1,331.8	1,051.6	1,002.4	49.17	21.386	
6,900.0	6,859.9	7,076.4	7,001.9	25.5	27.5	49.33	-708.7	-1,315.5	1,025.5	975.6	49.93	20.541	
7,000.0	6,959.1	7,172.2	7,096.3	25.9	27.9	50.01	-704.0	-1,299.3	999.5	948.8	50.68	19.721	
7,100.0	7,058.2	7,268.1	7,190.6	26.3	28.3	50.72	-699.3	-1,283.0	973.7	922.2	51.44	18.927	
7,200.0	7,157.4	7,364.0	7,285.0	26.7	28.7	51.46	-694.6	-1,266.8	948.0	895.8	52.21	18.158	
7,300.0	7,256.5	7,459.8	7,379.3	27.1	29.2	52.25	-689.9	-1,250.5	922.5	869.5	52.97	17.413	
7,400.0	7,355.6	7,555.7	7,473.7	27.5	29.6	53.08	-685.2	-1,234.2	897.1	843.4	53.75	16.692	
7,500.0	7,454.8	7,640.6	7,557.3	27.9	29.9	53.85	-681.1	-1,220.0	872.3	817.7	54.55	15.989	
7,600.0	7,553.9	7,715.1	7,630.9	28.3	30.2	54.54	-678.0	-1,209.2	849.7	794.4	55.37	15.345	
7,700.0	7,653.0	7,800.0	7,715.2	28.7	30.6	55.33	-675.1	-1,199.2	830.0	773.8	56.17	14.777	
7,800.0	7,752.2	7,866.9	7,781.7	29.1	30.8	55.94	-673.3	-1,192.9	812.8	755.9	56.94	14.274	
7,900.0	7,851.3	7,944.0	7,858.6	29.5	31.1	56.60	-671.7	-1,187.6	798.5	740.8	57.68	13.843	
8,000.0	7,950.7	8,022.0	7,936.5	29.9	31.4	57.00	-670.7	-1,184.2	788.2	729.8	58.38	13.501	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #302H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,100.0	8,050.5	8,100.0	8,014.6	30.2	31.6	57.28	-670.4	-1,182.8	782.5	723.4	59.01	13.259	
8,200.0	8,150.4	8,197.5	8,112.1	30.6	31.9	57.47	-670.4	-1,182.8	780.4	720.7	59.70	13.071	
8,279.7	8,230.0	8,275.6	8,190.0	30.9	32.2	57.18	-675.1	-1,182.8	779.9	719.7	60.19	12.957	CC, ES
8,300.0	8,250.4	8,295.1	8,209.1	30.9	32.2	-91.56	-678.3	-1,182.7	780.2	719.9	60.30	12.937	
8,400.0	8,350.4	8,385.7	8,296.2	31.2	32.4	-93.38	-703.0	-1,182.6	781.2	720.5	60.76	12.857	
8,500.0	8,450.4	8,464.7	8,367.1	31.6	32.6	-95.91	-737.7	-1,182.3	784.9	723.9	61.07	12.854	
8,600.0	8,550.4	8,530.8	8,421.3	31.9	32.7	-98.64	-775.4	-1,182.1	793.4	732.2	61.14	12.976	
8,700.0	8,650.4	8,584.9	8,461.5	32.2	32.8	-101.22	-811.6	-1,181.9	808.3	747.4	60.91	13.271	
8,800.0	8,750.4	8,625.0	8,488.5	32.5	32.8	-103.30	-841.2	-1,181.7	830.9	770.6	60.25	13.791	
8,900.0	8,850.4	8,665.4	8,513.1	32.8	32.9	73.82	-873.2	-1,181.4	861.3	802.0	59.34	14.515	
9,000.0	8,948.9	8,700.0	8,532.0	33.2	32.9	68.05	-902.2	-1,181.2	895.2	837.0	58.20	15.383	
9,100.0	9,041.8	8,740.2	8,551.2	33.7	32.9	62.62	-937.5	-1,181.0	928.6	871.5	57.07	16.272	
9,200.0	9,125.2	8,775.0	8,565.4	34.2	33.0	58.20	-969.3	-1,180.8	959.2	903.3	55.91	17.157	
9,300.0	9,195.4	8,825.0	8,581.6	34.7	33.0	54.42	-1,016.6	-1,180.5	985.1	930.0	55.12	17.873	
9,400.0	9,249.2	8,861.8	8,590.3	35.3	33.0	51.93	-1,052.3	-1,180.2	1,005.0	950.6	54.44	18.462	
9,500.0	9,284.5	8,900.0	8,596.5	35.9	33.0	50.37	-1,090.0	-1,180.0	1,017.9	963.7	54.17	18.792	
9,600.0	9,299.5	8,950.0	8,599.9	36.6	33.1	49.72	-1,139.8	-1,179.6	1,023.2	968.8	54.39	18.812	
9,700.0	9,300.0	9,027.7	8,600.0	37.2	33.1	49.71	-1,217.6	-1,179.1	1,023.3	968.3	54.98	18.614	
9,800.0	9,300.0	9,127.7	8,600.0	37.9	33.3	49.72	-1,317.6	-1,178.5	1,023.4	967.7	55.69	18.375	
9,900.0	9,300.0	9,227.7	8,600.0	38.6	33.5	49.72	-1,417.6	-1,177.8	1,023.5	966.9	56.51	18.111	
10,000.0	9,300.0	9,327.7	8,600.0	39.4	33.9	49.72	-1,517.6	-1,177.1	1,023.5	966.1	57.42	17.827	
10,100.0	9,300.0	9,427.7	8,600.0	40.2	34.3	49.73	-1,617.6	-1,176.4	1,023.6	965.2	58.41	17.524	
10,200.0	9,300.0	9,527.7	8,600.0	41.0	34.7	49.73	-1,717.6	-1,175.8	1,023.7	964.2	59.49	17.207	
10,300.0	9,300.0	9,627.7	8,600.0	41.9	35.2	49.73	-1,817.6	-1,175.1	1,023.8	963.1	60.65	16.879	
10,400.0	9,300.0	9,727.7	8,600.0	42.8	35.8	49.74	-1,917.6	-1,174.4	1,023.9	962.0	61.89	16.544	
10,500.0	9,300.0	9,827.7	8,600.0	43.7	36.4	49.74	-2,017.6	-1,173.7	1,023.9	960.7	63.20	16.202	
10,600.0	9,300.0	9,927.7	8,600.0	44.7	37.1	49.75	-2,117.6	-1,173.1	1,024.0	959.4	64.57	15.858	
10,700.0	9,300.0	10,027.7	8,600.0	45.7	37.8	49.75	-2,217.6	-1,172.4	1,024.1	958.1	66.01	15.514	
10,800.0	9,300.0	10,127.7	8,600.0	46.7	38.6	49.75	-2,317.6	-1,171.7	1,024.2	956.7	67.51	15.171	
10,900.0	9,300.0	10,227.7	8,600.0	47.7	39.4	49.76	-2,417.5	-1,171.1	1,024.2	955.2	69.06	14.831	
11,000.0	9,300.0	10,327.7	8,600.0	48.8	40.2	49.76	-2,517.5	-1,170.4	1,024.3	953.7	70.67	14.495	
11,100.0	9,300.0	10,427.7	8,600.0	49.9	41.1	49.76	-2,617.5	-1,169.7	1,024.4	952.1	72.32	14.165	
11,200.0	9,300.0	10,527.7	8,600.0	50.9	42.0	49.77	-2,717.5	-1,169.0	1,024.5	950.5	74.02	13.841	
11,300.0	9,300.0	10,627.7	8,600.0	52.1	43.0	49.77	-2,817.5	-1,168.4	1,024.6	948.8	75.76	13.524	
11,400.0	9,300.0	10,727.7	8,600.0	53.2	43.9	49.78	-2,917.5	-1,167.7	1,024.6	947.1	77.54	13.215	
11,500.0	9,300.0	10,827.7	8,600.0	54.3	44.9	49.78	-3,017.5	-1,167.0	1,024.7	945.4	79.35	12.914	
11,600.0	9,300.0	10,927.7	8,600.0	55.5	45.9	49.78	-3,117.5	-1,166.4	1,024.8	943.6	81.20	12.621	
11,700.0	9,300.0	11,027.7	8,600.0	56.6	47.0	49.79	-3,217.5	-1,165.7	1,024.9	941.8	83.08	12.336	
11,800.0	9,300.0	11,127.7	8,600.0	57.8	48.0	49.79	-3,317.5	-1,165.0	1,025.0	940.0	84.99	12.060	
11,900.0	9,300.0	11,227.7	8,600.0	59.0	49.1	49.79	-3,417.5	-1,164.3	1,025.0	938.1	86.92	11.793	
12,000.0	9,300.0	11,327.7	8,600.0	60.2	50.2	49.80	-3,517.5	-1,163.7	1,025.1	936.2	88.88	11.533	
12,100.0	9,300.0	11,427.7	8,600.0	61.4	51.3	49.80	-3,617.5	-1,163.0	1,025.2	934.3	90.87	11.282	
12,200.0	9,300.0	11,527.7	8,600.0	62.7	52.4	49.81	-3,717.5	-1,162.3	1,025.3	932.4	92.88	11.039	
12,300.0	9,300.0	11,627.7	8,600.0	63.9	53.6	49.81	-3,817.5	-1,161.6	1,025.4	930.5	94.90	10.804	
12,400.0	9,300.0	11,727.7	8,600.0	65.1	54.7	49.81	-3,917.5	-1,161.0	1,025.4	928.5	96.95	10.577	
12,500.0	9,300.0	11,827.7	8,600.0	66.4	55.9	49.82	-4,017.5	-1,160.3	1,025.5	926.5	99.02	10.357	
12,600.0	9,300.0	11,927.7	8,600.0	67.6	57.1	49.82	-4,117.5	-1,159.6	1,025.6	924.5	101.10	10.145	
12,700.0	9,300.0	12,027.7	8,600.0	68.9	58.3	49.82	-4,217.5	-1,159.0	1,025.7	922.5	103.20	9.939	
12,800.0	9,300.0	12,127.7	8,600.0	70.2	59.5	49.83	-4,317.5	-1,158.3	1,025.8	920.5	105.31	9.741	
12,900.0	9,300.0	12,227.7	8,600.0	71.5	60.7	49.83	-4,417.5	-1,157.6	1,025.8	918.4	107.44	9.548	
13,000.0	9,300.0	12,327.7	8,600.0	72.8	62.0	49.84	-4,517.5	-1,156.9	1,025.9	916.3	109.58	9.363	
13,100.0	9,300.0	12,427.7	8,600.0	74.0	63.2	49.84	-4,617.5	-1,156.3	1,026.0	914.3	111.73	9.183	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #302H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,200.0	9,300.0	12,527.7	8,600.0	75.3	64.4	49.84	-4,717.5	-1,155.6	1,026.1	912.2	113.89	9.009	
13,300.0	9,300.0	12,627.7	8,600.0	76.6	65.7	49.85	-4,817.5	-1,154.9	1,026.2	910.1	116.07	8.841	
13,400.0	9,300.0	12,727.7	8,600.0	78.0	67.0	49.85	-4,917.5	-1,154.3	1,026.2	908.0	118.25	8.678	
13,500.0	9,300.0	12,827.7	8,600.0	79.3	68.2	49.85	-5,017.5	-1,153.6	1,026.3	905.9	120.45	8.521	
13,600.0	9,300.0	12,927.7	8,600.0	80.6	69.5	49.86	-5,117.5	-1,152.9	1,026.4	903.7	122.65	8.368	
13,700.0	9,300.0	13,027.7	8,600.0	81.9	70.8	49.86	-5,217.5	-1,152.2	1,026.5	901.6	124.87	8.220	
13,800.0	9,300.0	13,127.7	8,600.0	83.2	72.1	49.87	-5,317.5	-1,151.6	1,026.6	899.5	127.09	8.077	
13,900.0	9,300.0	13,227.7	8,600.0	84.6	73.4	49.87	-5,417.5	-1,150.9	1,026.6	897.3	129.32	7.939	
14,000.0	9,300.0	13,327.7	8,600.0	85.9	74.7	49.87	-5,517.5	-1,150.2	1,026.7	895.2	131.56	7.804	
14,100.0	9,300.0	13,427.7	8,600.0	87.2	76.0	49.88	-5,617.5	-1,149.6	1,026.8	893.0	133.80	7.674	
14,200.0	9,300.0	13,527.7	8,600.0	88.6	77.3	49.88	-5,717.5	-1,148.9	1,026.9	890.8	136.06	7.547	
14,300.0	9,300.0	13,627.7	8,600.0	89.9	78.6	49.88	-5,817.5	-1,148.2	1,027.0	888.6	138.31	7.425	
14,400.0	9,300.0	13,727.7	8,600.0	91.3	79.9	49.89	-5,917.5	-1,147.5	1,027.0	886.5	140.58	7.306	
14,500.0	9,300.0	13,827.7	8,600.0	92.6	81.3	49.89	-6,017.5	-1,146.9	1,027.1	884.3	142.85	7.190	
14,600.0	9,300.0	13,927.7	8,600.0	94.0	82.6	49.90	-6,117.5	-1,146.2	1,027.2	882.1	145.13	7.078	
14,700.0	9,300.0	14,027.7	8,600.0	95.3	83.9	49.90	-6,217.5	-1,145.5	1,027.3	879.9	147.41	6.969	
14,800.0	9,300.0	14,127.7	8,600.0	96.7	85.3	49.90	-6,317.5	-1,144.8	1,027.4	877.7	149.69	6.863	
14,900.0	9,300.0	14,227.7	8,600.0	98.1	86.6	49.91	-6,417.5	-1,144.2	1,027.4	875.4	151.98	6.760	
15,000.0	9,300.0	14,327.7	8,600.0	99.4	87.9	49.91	-6,517.5	-1,143.5	1,027.5	873.2	154.28	6.660	
15,100.0	9,300.0	14,427.7	8,600.0	100.8	89.3	49.91	-6,617.5	-1,142.8	1,027.6	871.0	156.58	6.563	
15,200.0	9,300.0	14,527.7	8,600.0	102.1	90.6	49.92	-6,717.4	-1,142.2	1,027.7	868.8	158.89	6.468	
15,300.0	9,300.0	14,627.7	8,600.0	103.5	92.0	49.92	-6,817.4	-1,141.5	1,027.7	866.6	161.20	6.376	
15,400.0	9,300.0	14,727.7	8,600.0	104.9	93.4	49.93	-6,917.4	-1,140.8	1,027.8	864.3	163.51	6.286	
15,500.0	9,300.0	14,827.7	8,600.0	106.3	94.7	49.93	-7,017.4	-1,140.1	1,027.9	862.1	165.83	6.199	
15,600.0	9,300.0	14,927.7	8,600.0	107.6	96.1	49.93	-7,117.4	-1,139.5	1,028.0	859.8	168.15	6.114	
15,700.0	9,300.0	15,027.7	8,600.0	109.0	97.4	49.94	-7,217.4	-1,138.8	1,028.1	857.6	170.47	6.031	
15,800.0	9,300.0	15,127.7	8,600.0	110.4	98.8	49.94	-7,317.4	-1,138.1	1,028.1	855.4	172.80	5.950	
15,900.0	9,300.0	15,227.7	8,600.0	111.8	100.2	49.94	-7,417.4	-1,137.5	1,028.2	853.1	175.13	5.871	
16,000.0	9,300.0	15,327.7	8,600.0	113.2	101.5	49.95	-7,517.4	-1,136.8	1,028.3	850.8	177.46	5.795	
16,100.0	9,300.0	15,427.7	8,600.0	114.6	102.9	49.95	-7,617.4	-1,136.1	1,028.4	848.6	179.80	5.720	
16,200.0	9,300.0	15,527.7	8,600.0	115.9	104.3	49.96	-7,717.4	-1,135.4	1,028.5	846.3	182.14	5.647	
16,300.0	9,300.0	15,627.7	8,600.0	117.3	105.7	49.96	-7,817.4	-1,134.8	1,028.5	844.1	184.48	5.575	
16,400.0	9,300.0	15,727.7	8,600.0	118.7	107.0	49.96	-7,917.4	-1,134.1	1,028.6	841.8	186.82	5.506	
16,500.0	9,300.0	15,827.7	8,600.0	120.1	108.4	49.97	-8,017.4	-1,133.4	1,028.7	839.5	189.17	5.438	
16,600.0	9,300.0	15,927.7	8,600.0	121.5	109.8	49.97	-8,117.4	-1,132.8	1,028.8	837.3	191.52	5.372	
16,700.0	9,300.0	16,027.7	8,600.0	122.9	111.2	49.97	-8,217.4	-1,132.1	1,028.9	835.0	193.87	5.307	
16,800.0	9,300.0	16,127.7	8,600.0	124.3	112.6	49.98	-8,317.4	-1,131.4	1,028.9	832.7	196.23	5.244	
16,900.0	9,300.0	16,227.7	8,600.0	125.7	114.0	49.98	-8,417.4	-1,130.7	1,029.0	830.4	198.58	5.182	
17,000.0	9,300.0	16,327.7	8,600.0	127.1	115.3	49.99	-8,517.4	-1,130.1	1,029.1	828.2	200.94	5.121	
17,100.0	9,300.0	16,427.7	8,600.0	128.5	116.7	49.99	-8,617.4	-1,129.4	1,029.2	825.9	203.30	5.062	
17,200.0	9,300.0	16,527.7	8,600.0	129.9	118.1	49.99	-8,717.4	-1,128.7	1,029.3	823.6	205.67	5.005	
17,300.0	9,300.0	16,627.7	8,600.0	131.3	119.5	50.00	-8,817.4	-1,128.0	1,029.3	821.3	208.03	4.948	
17,400.0	9,300.0	16,727.7	8,600.0	132.7	120.9	50.00	-8,917.4	-1,127.4	1,029.4	819.0	210.40	4.893	
17,500.0	9,300.0	16,827.7	8,600.0	134.1	122.3	50.00	-9,017.4	-1,126.7	1,029.5	816.7	212.77	4.839	
17,600.0	9,300.0	16,927.7	8,600.0	135.5	123.7	50.01	-9,117.4	-1,126.0	1,029.6	814.4	215.14	4.786	
17,700.0	9,300.0	17,027.7	8,600.0	136.9	125.1	50.01	-9,217.4	-1,125.4	1,029.7	812.1	217.51	4.734	
17,800.0	9,300.0	17,127.7	8,600.0	138.3	126.5	50.01	-9,317.4	-1,124.7	1,029.7	809.9	219.88	4.683	
17,900.0	9,300.0	17,227.7	8,600.0	139.7	127.9	50.02	-9,417.4	-1,124.0	1,029.8	807.6	222.26	4.633	
18,000.0	9,300.0	17,327.7	8,600.0	141.1	129.3	50.02	-9,517.4	-1,123.3	1,029.9	805.3	224.64	4.585	
18,100.0	9,300.0	17,427.7	8,600.0	142.5	130.7	50.03	-9,617.4	-1,122.7	1,030.0	803.0	227.02	4.537	
18,200.0	9,300.0	17,527.7	8,600.0	143.9	132.1	50.03	-9,717.4	-1,122.0	1,030.1	800.7	229.40	4.490	
18,300.0	9,300.0	17,627.7	8,600.0	145.3	133.5	50.03	-9,817.4	-1,121.3	1,030.1	798.4	231.78	4.445	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #302H - OH - Plan 0.1													Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
18,400.0	9,300.0	17,727.7	8,600.0	146.7	134.9	50.04	-9,917.4	-1,120.7	1,030.2	796.1	234.16	4.400		
18,500.0	9,300.0	17,827.7	8,600.0	148.2	136.3	50.04	-10,017.4	-1,120.0	1,030.3	793.8	236.55	4.356		
18,600.0	9,300.0	17,927.7	8,600.0	149.6	137.7	50.04	-10,117.4	-1,119.3	1,030.4	791.4	238.93	4.312		
18,700.0	9,300.0	18,027.7	8,600.0	151.0	139.1	50.05	-10,217.4	-1,118.6	1,030.5	789.1	241.32	4.270		
18,800.0	9,300.0	18,127.7	8,600.0	152.4	140.5	50.05	-10,317.4	-1,118.0	1,030.5	786.8	243.71	4.229		
18,900.0	9,300.0	18,227.7	8,600.0	153.8	141.9	50.06	-10,417.4	-1,117.3	1,030.6	784.5	246.10	4.188		
19,000.0	9,300.0	18,327.7	8,600.0	155.2	143.4	50.06	-10,517.4	-1,116.6	1,030.7	782.2	248.49	4.148		
19,100.0	9,300.0	18,427.7	8,600.0	156.6	144.8	50.06	-10,617.4	-1,116.0	1,030.8	779.9	250.88	4.109		
19,200.0	9,300.0	18,527.7	8,600.0	158.1	146.2	50.07	-10,717.4	-1,115.3	1,030.9	777.6	253.27	4.070		
19,300.0	9,300.0	18,627.7	8,600.0	159.5	147.6	50.07	-10,817.4	-1,114.6	1,030.9	775.3	255.67	4.032		
19,400.0	9,300.0	18,727.7	8,600.0	160.9	149.0	50.07	-10,917.4	-1,113.9	1,031.0	773.0	258.06	3.995		
19,500.0	9,300.0	18,827.7	8,600.0	162.3	150.4	50.08	-11,017.4	-1,113.3	1,031.1	770.6	260.46	3.959		
19,553.8	9,300.0	18,881.5	8,600.0	163.1	151.2	50.08	-11,071.1	-1,112.9	1,031.1	769.4	261.75	3.939 SF		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
3,300.0	3,291.0	3,568.6	3,559.2	11.5	12.6	37.62	-901.7	-2,022.2	2,117.7	2,094.1	23.65	89.563	
3,400.0	3,390.1	3,665.2	3,654.9	11.9	13.0	37.81	-897.3	-2,008.9	2,093.1	2,068.7	24.34	85.990	
3,500.0	3,489.2	3,761.9	3,750.5	12.2	13.3	38.02	-892.8	-1,995.7	2,068.4	2,043.4	25.04	82.608	
3,600.0	3,588.4	3,858.5	3,846.1	12.6	13.7	38.22	-888.4	-1,982.4	2,043.8	2,018.0	25.74	79.404	
3,700.0	3,687.5	3,955.2	3,941.8	13.0	14.1	38.43	-884.0	-1,969.2	2,019.1	1,992.7	26.44	76.364	
3,800.0	3,786.7	4,051.8	4,037.4	13.4	14.5	38.65	-879.6	-1,955.9	1,994.6	1,967.4	27.15	73.476	
3,900.0	3,885.8	4,148.5	4,133.0	13.8	14.8	38.88	-875.2	-1,942.7	1,970.0	1,942.2	27.85	70.731	
4,000.0	3,984.9	4,245.1	4,228.7	14.1	15.2	39.10	-870.7	-1,929.4	1,945.5	1,916.9	28.56	68.119	
4,100.0	4,084.1	4,341.8	4,324.3	14.5	15.6	39.34	-866.3	-1,916.2	1,921.0	1,891.7	29.27	65.630	
4,200.0	4,183.2	4,438.4	4,419.9	14.9	16.0	39.58	-861.9	-1,902.9	1,896.5	1,866.5	29.98	63.256	
4,300.0	4,282.3	4,535.1	4,515.6	15.3	16.3	39.82	-857.5	-1,889.6	1,872.1	1,841.4	30.69	60.991	
4,400.0	4,381.5	4,631.7	4,611.2	15.7	16.7	40.08	-853.1	-1,876.4	1,847.7	1,816.3	31.41	58.827	
4,500.0	4,480.6	4,728.4	4,706.8	16.1	17.1	40.34	-848.6	-1,863.1	1,823.3	1,791.2	32.13	56.757	
4,600.0	4,579.8	4,825.0	4,802.5	16.4	17.5	40.60	-844.2	-1,849.9	1,799.0	1,766.2	32.84	54.777	
4,700.0	4,678.9	4,921.7	4,898.1	16.8	17.8	40.88	-839.8	-1,836.6	1,774.7	1,741.2	33.56	52.880	
4,800.0	4,778.0	5,018.3	4,993.7	17.2	18.2	41.16	-835.4	-1,823.4	1,750.5	1,716.2	34.28	51.062	
4,900.0	4,877.2	5,115.0	5,089.4	17.6	18.6	41.45	-831.0	-1,810.1	1,726.3	1,691.3	35.00	49.318	
5,000.0	4,976.3	5,211.6	5,185.0	18.0	19.0	41.75	-826.5	-1,796.9	1,702.1	1,666.4	35.73	47.644	
5,100.0	5,075.5	5,308.3	5,280.6	18.4	19.4	42.05	-822.1	-1,783.6	1,678.0	1,641.5	36.45	46.036	
5,200.0	5,174.6	5,404.9	5,376.3	18.8	19.7	42.37	-817.7	-1,770.4	1,653.9	1,616.7	37.17	44.490	
5,300.0	5,273.7	5,501.6	5,471.9	19.2	20.1	42.69	-813.3	-1,757.1	1,629.9	1,592.0	37.90	43.004	
5,400.0	5,372.9	5,598.2	5,567.5	19.6	20.5	43.02	-808.9	-1,743.9	1,605.9	1,567.3	38.63	41.573	
5,500.0	5,472.0	5,694.8	5,663.2	20.0	20.9	43.37	-804.4	-1,730.6	1,582.0	1,542.6	39.36	40.196	
5,600.0	5,571.1	5,791.5	5,758.8	20.4	21.3	43.72	-800.0	-1,717.4	1,558.1	1,518.0	40.09	38.868	
5,700.0	5,670.3	5,888.1	5,854.4	20.8	21.7	44.09	-795.6	-1,704.1	1,534.3	1,493.5	40.82	37.588	
5,800.0	5,769.4	5,984.8	5,950.1	21.1	22.1	44.46	-791.2	-1,690.9	1,510.6	1,469.0	41.55	36.354	
5,900.0	5,868.6	6,081.4	6,045.7	21.5	22.4	44.85	-786.8	-1,677.6	1,486.9	1,444.6	42.28	35.163	
6,000.0	5,967.7	6,178.1	6,141.3	21.9	22.8	45.25	-782.4	-1,664.4	1,463.3	1,420.2	43.02	34.013	
6,100.0	6,066.8	6,274.7	6,237.0	22.3	23.2	45.67	-777.9	-1,651.1	1,439.7	1,396.0	43.76	32.902	
6,200.0	6,166.0	6,371.4	6,332.6	22.7	23.6	46.09	-773.5	-1,637.9	1,416.2	1,371.7	44.50	31.829	
6,300.0	6,265.1	6,468.0	6,428.2	23.1	24.0	46.53	-769.1	-1,624.6	1,392.9	1,347.6	45.23	30.792	
6,400.0	6,364.2	6,564.7	6,523.9	23.5	24.4	46.99	-764.7	-1,611.4	1,369.5	1,323.6	45.98	29.788	
6,500.0	6,463.4	6,661.3	6,619.5	23.9	24.8	47.46	-760.3	-1,598.1	1,346.3	1,299.6	46.72	28.818	
6,600.0	6,562.5	6,758.0	6,715.1	24.3	25.1	47.95	-755.8	-1,584.9	1,323.2	1,275.7	47.46	27.878	
6,700.0	6,661.7	6,854.6	6,810.8	24.7	25.5	48.46	-751.4	-1,571.6	1,300.1	1,251.9	48.21	26.969	
6,800.0	6,760.8	6,951.3	6,906.4	25.1	25.9	48.98	-747.0	-1,558.4	1,277.2	1,228.2	48.96	26.088	
6,900.0	6,859.9	7,047.9	7,002.0	25.5	26.3	49.52	-742.6	-1,545.1	1,254.4	1,204.7	49.71	25.236	
7,000.0	6,959.1	7,144.6	7,097.7	25.9	26.7	50.08	-738.2	-1,531.9	1,231.7	1,181.2	50.46	24.409	
7,100.0	7,058.2	7,241.2	7,193.3	26.3	27.1	50.66	-733.7	-1,518.6	1,209.1	1,157.8	51.21	23.609	
7,200.0	7,157.4	7,337.9	7,288.9	26.7	27.5	51.27	-729.3	-1,505.4	1,186.6	1,134.6	51.97	22.833	
7,300.0	7,256.5	7,434.5	7,384.6	27.1	27.9	51.90	-724.9	-1,492.1	1,164.2	1,111.5	52.73	22.081	
7,400.0	7,355.6	7,531.2	7,480.2	27.5	28.2	52.55	-720.5	-1,478.9	1,142.0	1,088.5	53.49	21.352	
7,500.0	7,454.8	7,627.8	7,575.8	27.9	28.6	53.22	-716.1	-1,465.6	1,120.0	1,065.7	54.25	20.645	
7,600.0	7,553.9	7,724.5	7,671.5	28.3	29.0	53.93	-711.6	-1,452.4	1,098.1	1,043.1	55.02	19.959	
7,700.0	7,653.0	7,821.1	7,767.1	28.7	29.4	54.66	-707.2	-1,439.1	1,076.3	1,020.6	55.78	19.294	
7,800.0	7,752.2	7,917.8	7,862.7	29.1	29.8	55.42	-702.8	-1,425.9	1,054.8	998.2	56.56	18.650	
7,900.0	7,851.3	8,014.4	7,958.4	29.5	30.2	56.15	-698.4	-1,412.6	1,033.4	976.1	57.33	18.026	
8,000.0	7,950.7	8,111.6	8,054.5	29.9	30.6	56.52	-693.9	-1,399.3	1,013.5	955.4	58.10	17.445	
8,100.0	8,050.5	8,209.5	8,151.4	30.2	31.0	56.79	-689.5	-1,385.9	995.6	936.8	58.85	16.917	
8,200.0	8,150.4	8,307.9	8,248.8	30.6	31.4	56.95	-685.0	-1,372.4	979.7	920.1	59.59	16.441	
8,300.0	8,250.4	8,406.8	8,346.6	30.9	31.8	-91.40	-680.4	-1,358.8	965.5	905.2	60.29	16.014	
8,400.0	8,350.4	8,500.0	8,438.9	31.2	32.1	-91.16	-676.2	-1,346.0	951.7	890.7	61.00	15.602	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,500.0	8,450.4	8,579.0	8,517.2	31.6	32.5	-90.98	-672.9	-1,336.3	939.4	877.6	61.72	15.220	
8,600.0	8,550.4	8,654.9	8,592.7	31.9	32.7	-90.83	-670.5	-1,328.9	929.5	867.1	62.41	14.894	
8,700.0	8,650.4	8,731.1	8,668.7	32.2	33.0	-90.72	-668.6	-1,323.4	922.2	859.2	63.07	14.622	
8,800.0	8,750.4	8,800.0	8,737.5	32.5	33.3	-90.65	-667.5	-1,320.0	917.5	853.8	63.67	14.410	
8,900.0	8,850.4	8,884.2	8,821.7	32.8	33.6	-89.91	-666.8	-1,318.0	915.3	851.0	64.30	14.235	
8,935.2	8,885.4	8,911.1	8,848.5	33.0	33.7	90.10	-666.8	-1,317.9	915.1	850.5	64.53	14.181	CC
9,000.0	8,948.9	8,974.1	8,911.6	33.2	33.9	90.87	-666.8	-1,317.9	915.2	850.2	65.03	14.073	
9,100.0	9,041.8	9,067.1	9,004.5	33.7	34.2	92.82	-666.8	-1,317.9	916.5	850.6	65.90	13.907	
9,200.0	9,125.2	9,150.5	9,087.9	34.2	34.4	95.10	-666.8	-1,317.9	921.1	854.3	66.85	13.780	
9,300.0	9,195.4	9,220.6	9,158.1	34.7	34.7	96.87	-666.8	-1,317.9	932.0	864.1	67.84	13.738	
9,400.0	9,249.2	9,274.5	9,211.9	35.3	34.9	97.28	-666.8	-1,317.9	951.5	882.6	68.82	13.824	
9,500.0	9,284.5	9,322.9	9,260.3	35.9	35.0	96.37	-667.1	-1,317.9	981.1	911.3	69.80	14.057	
9,600.0	9,299.5	9,618.8	9,534.1	36.6	35.7	107.47	-766.2	-1,317.2	1,018.0	948.4	69.58	14.631	
9,700.0	9,300.0	10,129.6	9,720.0	37.2	36.2	116.54	-1,218.8	-1,314.0	1,023.3	956.3	67.02	15.268	
9,800.0	9,300.0	10,229.6	9,720.0	37.9	36.4	116.54	-1,318.8	-1,313.3	1,023.4	955.5	67.91	15.071	
9,900.0	9,300.0	10,329.6	9,720.0	38.6	36.6	116.54	-1,418.7	-1,312.6	1,023.5	954.6	68.88	14.859	
10,000.0	9,300.0	10,429.6	9,720.0	39.4	36.9	116.54	-1,518.7	-1,311.9	1,023.5	953.6	69.94	14.634	
10,100.0	9,300.0	10,529.6	9,720.0	40.2	37.3	116.54	-1,618.7	-1,311.2	1,023.6	952.5	71.09	14.399	
10,200.0	9,300.0	10,629.6	9,720.0	41.0	37.7	116.53	-1,718.7	-1,310.5	1,023.7	951.4	72.32	14.156	
10,300.0	9,300.0	10,729.6	9,720.0	41.9	38.2	116.53	-1,818.7	-1,309.8	1,023.7	950.1	73.62	13.906	
10,400.0	9,300.0	10,829.6	9,720.0	42.8	38.8	116.53	-1,918.7	-1,309.1	1,023.8	948.8	75.00	13.652	
10,500.0	9,300.0	10,929.6	9,720.0	43.7	39.4	116.53	-2,018.7	-1,308.4	1,023.9	947.4	76.44	13.395	
10,600.0	9,300.0	11,029.6	9,720.0	44.7	40.0	116.53	-2,118.7	-1,307.7	1,023.9	946.0	77.95	13.136	
10,700.0	9,300.0	11,129.6	9,720.0	45.7	40.7	116.52	-2,218.7	-1,307.0	1,024.0	944.5	79.52	12.877	
10,800.0	9,300.0	11,229.6	9,720.0	46.7	41.4	116.52	-2,318.7	-1,306.3	1,024.1	942.9	81.15	12.619	
10,900.0	9,300.0	11,329.6	9,720.0	47.7	42.1	116.52	-2,418.7	-1,305.6	1,024.1	941.3	82.84	12.363	
11,000.0	9,300.0	11,429.6	9,720.0	48.8	42.9	116.52	-2,518.7	-1,304.9	1,024.2	939.6	84.58	12.110	
11,100.0	9,300.0	11,529.6	9,720.0	49.9	43.7	116.52	-2,618.7	-1,304.2	1,024.3	937.9	86.36	11.860	
11,200.0	9,300.0	11,629.6	9,720.0	50.9	44.6	116.51	-2,718.7	-1,303.5	1,024.3	936.2	88.19	11.615	
11,300.0	9,300.0	11,729.6	9,720.0	52.1	45.5	116.51	-2,818.7	-1,302.8	1,024.4	934.3	90.07	11.374	
11,400.0	9,300.0	11,829.6	9,720.0	53.2	46.4	116.51	-2,918.7	-1,302.1	1,024.5	932.5	91.98	11.138	
11,500.0	9,300.0	11,929.6	9,720.0	54.3	47.3	116.51	-3,018.7	-1,301.4	1,024.5	930.6	93.93	10.907	
11,600.0	9,300.0	12,029.6	9,720.0	55.5	48.3	116.51	-3,118.7	-1,300.7	1,024.6	928.7	95.92	10.682	
11,700.0	9,300.0	12,129.6	9,720.0	56.6	49.3	116.51	-3,218.7	-1,300.0	1,024.7	926.7	97.94	10.462	
11,800.0	9,300.0	12,229.6	9,720.0	57.8	50.3	116.50	-3,318.7	-1,299.3	1,024.7	924.8	99.99	10.248	
11,900.0	9,300.0	12,329.6	9,720.0	59.0	51.3	116.50	-3,418.7	-1,298.6	1,024.8	922.7	102.08	10.040	
12,000.0	9,300.0	12,429.6	9,720.0	60.2	52.4	116.50	-3,518.7	-1,297.9	1,024.9	920.7	104.19	9.837	
12,100.0	9,300.0	12,529.6	9,720.0	61.4	53.4	116.50	-3,618.7	-1,297.2	1,024.9	918.6	106.32	9.640	
12,200.0	9,300.0	12,629.6	9,720.0	62.7	54.5	116.50	-3,718.7	-1,296.5	1,025.0	916.5	108.48	9.448	
12,300.0	9,300.0	12,729.6	9,720.0	63.9	55.6	116.49	-3,818.7	-1,295.8	1,025.1	914.4	110.67	9.263	
12,400.0	9,300.0	12,829.6	9,720.0	65.1	56.7	116.49	-3,918.7	-1,295.1	1,025.1	912.3	112.87	9.082	
12,500.0	9,300.0	12,929.6	9,720.0	66.4	57.9	116.49	-4,018.7	-1,294.4	1,025.2	910.1	115.10	8.907	
12,600.0	9,300.0	13,029.6	9,720.0	67.6	59.0	116.49	-4,118.7	-1,293.7	1,025.3	907.9	117.35	8.737	
12,700.0	9,300.0	13,129.6	9,720.0	68.9	60.2	116.49	-4,218.7	-1,293.0	1,025.3	905.7	119.61	8.572	
12,800.0	9,300.0	13,229.6	9,720.0	70.2	61.4	116.49	-4,318.7	-1,292.3	1,025.4	903.5	121.89	8.412	
12,900.0	9,300.0	13,329.6	9,720.0	71.5	62.5	116.48	-4,418.7	-1,291.6	1,025.5	901.3	124.19	8.257	
13,000.0	9,300.0	13,429.6	9,720.0	72.8	63.7	116.48	-4,518.7	-1,290.9	1,025.5	899.0	126.51	8.107	
13,100.0	9,300.0	13,529.6	9,720.0	74.0	64.9	116.48	-4,618.7	-1,290.2	1,025.6	896.8	128.83	7.961	
13,200.0	9,300.0	13,629.6	9,720.0	75.3	66.1	116.48	-4,718.7	-1,289.5	1,025.7	894.5	131.18	7.819	
13,300.0	9,300.0	13,729.6	9,720.0	76.6	67.4	116.48	-4,818.7	-1,288.8	1,025.7	892.2	133.53	7.682	
13,400.0	9,300.0	13,829.6	9,720.0	78.0	68.6	116.47	-4,918.7	-1,288.1	1,025.8	889.9	135.90	7.548	
13,500.0	9,300.0	13,929.6	9,720.0	79.3	69.8	116.47	-5,018.7	-1,287.4	1,025.9	887.6	138.28	7.419	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
13,600.0	9,300.0	14,029.6	9,720.0	80.6	71.1	116.47	-5,118.7	-1,286.7	1,025.9	885.3	140.67	7.293
13,700.0	9,300.0	14,129.6	9,720.0	81.9	72.3	116.47	-5,218.7	-1,286.0	1,026.0	882.9	143.07	7.171
13,800.0	9,300.0	14,229.6	9,720.0	83.2	73.6	116.47	-5,318.7	-1,285.3	1,026.1	880.6	145.48	7.053
13,900.0	9,300.0	14,329.6	9,720.0	84.6	74.9	116.46	-5,418.6	-1,284.6	1,026.1	878.2	147.90	6.938
14,000.0	9,300.0	14,429.6	9,720.0	85.9	76.1	116.46	-5,518.6	-1,283.9	1,026.2	875.9	150.33	6.826
14,100.0	9,300.0	14,529.6	9,720.0	87.2	77.4	116.46	-5,618.6	-1,283.2	1,026.3	873.5	152.77	6.718
14,200.0	9,300.0	14,629.6	9,720.0	88.6	78.7	116.46	-5,718.6	-1,282.5	1,026.3	871.1	155.22	6.612
14,300.0	9,300.0	14,729.6	9,720.0	89.9	80.0	116.46	-5,818.6	-1,281.8	1,026.4	868.7	157.67	6.510
14,400.0	9,300.0	14,829.6	9,720.0	91.3	81.3	116.46	-5,918.6	-1,281.1	1,026.5	866.3	160.14	6.410
14,500.0	9,300.0	14,929.6	9,720.0	92.6	82.6	116.45	-6,018.6	-1,280.4	1,026.5	863.9	162.61	6.313
14,600.0	9,300.0	15,029.6	9,720.0	94.0	83.9	116.45	-6,118.6	-1,279.7	1,026.6	861.5	165.08	6.219
14,700.0	9,300.0	15,129.6	9,720.0	95.3	85.2	116.45	-6,218.6	-1,279.0	1,026.7	859.1	167.57	6.127
14,800.0	9,300.0	15,229.6	9,720.0	96.7	86.5	116.45	-6,318.6	-1,278.3	1,026.8	856.7	170.06	6.038
14,900.0	9,300.0	15,329.6	9,720.0	98.1	87.9	116.45	-6,418.6	-1,277.6	1,026.8	854.3	172.55	5.951
15,000.0	9,300.0	15,429.6	9,720.0	99.4	89.2	116.44	-6,518.6	-1,276.9	1,026.9	851.8	175.05	5.866
15,100.0	9,300.0	15,529.6	9,720.0	100.8	90.5	116.44	-6,618.6	-1,276.2	1,027.0	849.4	177.56	5.784
15,200.0	9,300.0	15,629.6	9,720.0	102.1	91.9	116.44	-6,718.6	-1,275.5	1,027.0	846.9	180.07	5.703
15,300.0	9,300.0	15,729.6	9,720.0	103.5	93.2	116.44	-6,818.6	-1,274.7	1,027.1	844.5	182.59	5.625
15,400.0	9,300.0	15,829.6	9,720.0	104.9	94.5	116.44	-6,918.6	-1,274.0	1,027.2	842.0	185.11	5.549
15,500.0	9,300.0	15,929.6	9,720.0	106.3	95.9	116.44	-7,018.6	-1,273.3	1,027.2	839.6	187.64	5.474
15,600.0	9,300.0	16,029.6	9,720.0	107.6	97.2	116.43	-7,118.6	-1,272.6	1,027.3	837.1	190.17	5.402
15,700.0	9,300.0	16,129.6	9,720.0	109.0	98.6	116.43	-7,218.6	-1,271.9	1,027.4	834.6	192.71	5.331
15,800.0	9,300.0	16,229.6	9,720.0	110.4	99.9	116.43	-7,318.6	-1,271.2	1,027.4	832.2	195.25	5.262
15,900.0	9,300.0	16,329.6	9,720.0	111.8	101.3	116.43	-7,418.6	-1,270.5	1,027.5	829.7	197.79	5.195
16,000.0	9,300.0	16,429.6	9,720.0	113.2	102.6	116.43	-7,518.6	-1,269.8	1,027.6	827.2	200.34	5.129
16,100.0	9,300.0	16,529.6	9,720.0	114.6	104.0	116.42	-7,618.6	-1,269.1	1,027.6	824.7	202.89	5.065
16,200.0	9,300.0	16,629.6	9,720.0	115.9	105.3	116.42	-7,718.6	-1,268.4	1,027.7	822.2	205.45	5.002
16,300.0	9,300.0	16,729.6	9,720.0	117.3	106.7	116.42	-7,818.6	-1,267.7	1,027.8	819.7	208.01	4.941
16,400.0	9,300.0	16,829.6	9,720.0	118.7	108.1	116.42	-7,918.6	-1,267.0	1,027.8	817.2	210.57	4.881
16,500.0	9,300.0	16,929.6	9,720.0	120.1	109.4	116.42	-8,018.6	-1,266.3	1,027.9	814.8	213.13	4.823
16,600.0	9,300.0	17,029.6	9,720.0	121.5	110.8	116.41	-8,118.6	-1,265.6	1,028.0	812.2	215.70	4.766
16,700.0	9,300.0	17,129.6	9,720.0	122.9	112.2	116.41	-8,218.6	-1,264.9	1,028.0	809.7	218.27	4.710
16,800.0	9,300.0	17,229.6	9,720.0	124.3	113.5	116.41	-8,318.6	-1,264.2	1,028.1	807.2	220.85	4.655
16,900.0	9,300.0	17,329.6	9,720.0	125.7	114.9	116.41	-8,418.6	-1,263.5	1,028.2	804.7	223.42	4.602
17,000.0	9,300.0	17,429.6	9,720.0	127.1	116.3	116.41	-8,518.6	-1,262.8	1,028.2	802.2	226.00	4.550
17,100.0	9,300.0	17,529.6	9,720.0	128.5	117.7	116.41	-8,618.6	-1,262.1	1,028.3	799.7	228.59	4.498
17,200.0	9,300.0	17,629.6	9,720.0	129.9	119.1	116.40	-8,718.6	-1,261.4	1,028.4	797.2	231.17	4.448
17,300.0	9,300.0	17,729.6	9,720.0	131.3	120.4	116.40	-8,818.6	-1,260.7	1,028.4	794.7	233.76	4.400
17,400.0	9,300.0	17,829.6	9,720.0	132.7	121.8	116.40	-8,918.6	-1,260.0	1,028.5	792.1	236.35	4.352
17,500.0	9,300.0	17,929.6	9,720.0	134.1	123.2	116.40	-9,018.6	-1,259.3	1,028.6	789.6	238.94	4.305
17,600.0	9,300.0	18,029.6	9,720.0	135.5	124.6	116.40	-9,118.6	-1,258.6	1,028.6	787.1	241.53	4.259
17,700.0	9,300.0	18,129.6	9,720.0	136.9	126.0	116.39	-9,218.6	-1,257.9	1,028.7	784.6	244.13	4.214
17,800.0	9,300.0	18,229.6	9,720.0	138.3	127.4	116.39	-9,318.6	-1,257.2	1,028.8	782.0	246.73	4.170
17,900.0	9,300.0	18,329.6	9,720.0	139.7	128.8	116.39	-9,418.6	-1,256.5	1,028.8	779.5	249.33	4.126
18,000.0	9,300.0	18,429.6	9,720.0	141.1	130.2	116.39	-9,518.6	-1,255.8	1,028.9	777.0	251.93	4.084
18,100.0	9,300.0	18,529.6	9,720.0	142.5	131.5	116.39	-9,618.6	-1,255.1	1,029.0	774.4	254.53	4.043
18,200.0	9,300.0	18,629.6	9,720.0	143.9	132.9	116.39	-9,718.6	-1,254.4	1,029.0	771.9	257.14	4.002
18,300.0	9,300.0	18,729.6	9,720.0	145.3	134.3	116.38	-9,818.6	-1,253.7	1,029.1	769.3	259.75	3.962
18,400.0	9,300.0	18,829.6	9,720.0	146.7	135.7	116.38	-9,918.6	-1,253.0	1,029.2	766.8	262.35	3.923
18,500.0	9,300.0	18,929.6	9,720.0	148.2	137.1	116.38	-10,018.6	-1,252.3	1,029.2	764.3	264.97	3.884
18,600.0	9,300.0	19,029.6	9,720.0	149.6	138.5	116.38	-10,118.6	-1,251.6	1,029.3	761.7	267.58	3.847
18,700.0	9,300.0	19,129.6	9,720.0	151.0	139.9	116.38	-10,218.6	-1,250.9	1,029.4	759.2	270.19	3.810

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:			Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)			
18,800.0	9,300.0	19,229.6	9,720.0	152.4	141.3	116.37	-10,318.5	-1,250.2	1,029.4	756.6	272.81	3.773		
18,900.0	9,300.0	19,329.6	9,720.0	153.8	142.7	116.37	-10,418.5	-1,249.5	1,029.5	754.1	275.43	3.738		
19,000.0	9,300.0	19,429.6	9,720.0	155.2	144.1	116.37	-10,518.5	-1,248.8	1,029.6	751.5	278.04	3.703		
19,100.0	9,300.0	19,529.6	9,720.0	156.6	145.5	116.37	-10,618.5	-1,248.1	1,029.6	749.0	280.66	3.669		
19,200.0	9,300.0	19,629.6	9,720.0	158.1	146.9	116.37	-10,718.5	-1,247.4	1,029.7	746.4	283.29	3.635		
19,300.0	9,300.0	19,729.6	9,720.0	159.5	148.3	116.36	-10,818.5	-1,246.7	1,029.8	743.8	285.91	3.602		
19,400.0	9,300.0	19,829.6	9,720.0	160.9	149.7	116.36	-10,918.5	-1,246.0	1,029.8	741.3	288.53	3.569		
19,500.0	9,300.0	19,929.6	9,720.0	162.3	151.1	116.36	-11,018.5	-1,245.3	1,029.9	738.7	291.16	3.537		
19,553.8	9,300.0	19,983.4	9,720.0	163.1	151.9	116.36	-11,072.3	-1,244.9	1,029.9	737.4	292.57	3.520 ES, SF		

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 #511H - OH - Plan 0.1													Offset Site Error: 0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
4,600.0	4,579.8	4,542.5	4,542.5	16.4	16.1	40.12	-945.8	-2,174.0	2,119.6	2,087.4	32.20	65.829	
4,700.0	4,678.9	4,641.6	4,641.6	16.8	16.4	40.34	-945.8	-2,174.0	2,109.6	2,076.7	32.93	64.067	
4,800.0	4,778.0	4,740.7	4,740.7	17.2	16.8	40.58	-945.8	-2,174.0	2,099.6	2,066.0	33.66	62.381	
4,900.0	4,877.2	4,839.9	4,839.9	17.6	17.1	40.81	-945.8	-2,174.0	2,089.6	2,055.3	34.39	60.766	
5,000.0	4,976.3	4,939.0	4,939.0	18.0	17.5	41.04	-945.8	-2,174.0	2,079.7	2,044.6	35.12	59.218	
5,100.0	5,075.5	5,039.8	5,039.8	18.4	17.8	41.29	-945.6	-2,174.0	2,069.8	2,033.9	35.86	57.725	
5,200.0	5,174.6	5,142.7	5,142.6	18.8	18.2	41.63	-942.4	-2,174.8	2,059.8	2,023.2	36.60	56.277	
5,300.0	5,273.7	5,244.5	5,244.2	19.2	18.6	42.07	-935.7	-2,176.5	2,049.6	2,012.3	37.34	54.888	
5,400.0	5,372.9	5,342.7	5,342.0	19.6	18.9	42.56	-927.3	-2,178.6	2,039.6	2,001.5	38.07	53.568	
5,500.0	5,472.0	5,440.6	5,439.6	20.0	19.3	43.05	-918.9	-2,180.7	2,029.6	1,990.8	38.81	52.301	
5,600.0	5,571.1	5,538.6	5,537.1	20.4	19.6	43.54	-910.5	-2,182.9	2,019.9	1,980.3	39.54	51.082	
5,700.0	5,670.3	5,636.5	5,634.7	20.8	20.0	44.04	-902.1	-2,185.0	2,010.3	1,970.0	40.28	49.910	
5,800.0	5,769.4	5,734.5	5,732.2	21.1	20.3	44.54	-893.7	-2,187.1	2,000.8	1,959.8	41.02	48.782	
5,900.0	5,868.6	5,832.4	5,829.8	21.5	20.7	45.05	-885.3	-2,189.2	1,991.5	1,949.7	41.75	47.696	
6,000.0	5,967.7	5,930.3	5,927.4	21.9	21.0	45.57	-876.9	-2,191.3	1,982.3	1,939.9	42.49	46.649	
6,100.0	6,066.8	6,028.3	6,024.9	22.3	21.4	46.08	-868.5	-2,193.4	1,973.4	1,930.1	43.24	45.641	
6,200.0	6,166.0	6,126.2	6,122.5	22.7	21.7	46.60	-860.2	-2,195.6	1,964.6	1,920.6	43.98	44.669	
6,300.0	6,265.1	6,224.2	6,220.0	23.1	22.1	47.13	-851.8	-2,197.7	1,955.9	1,911.2	44.73	43.732	
6,400.0	6,364.2	6,322.1	6,317.6	23.5	22.4	47.66	-843.4	-2,199.8	1,947.5	1,902.0	45.47	42.828	
6,500.0	6,463.4	6,420.0	6,415.1	23.9	22.8	48.20	-835.0	-2,201.9	1,939.2	1,892.9	46.22	41.956	
6,600.0	6,562.5	6,518.0	6,512.7	24.3	23.1	48.74	-826.6	-2,204.0	1,931.0	1,884.1	46.97	41.114	
6,700.0	6,661.7	6,615.9	6,610.3	24.7	23.5	49.28	-818.2	-2,206.1	1,923.1	1,875.4	47.72	40.301	
6,800.0	6,760.8	6,713.9	6,707.8	25.1	23.9	49.83	-809.8	-2,208.3	1,915.3	1,866.9	48.47	39.517	
6,900.0	6,859.9	6,811.8	6,805.4	25.5	24.2	50.38	-801.4	-2,210.4	1,907.8	1,858.5	49.22	38.759	
7,000.0	6,959.1	6,909.8	6,902.9	25.9	24.6	50.94	-793.0	-2,212.5	1,900.4	1,850.4	49.97	38.026	
7,100.0	7,058.2	7,007.7	7,000.5	26.3	24.9	51.50	-784.6	-2,214.6	1,893.1	1,842.4	50.73	37.318	
7,200.0	7,157.4	7,105.6	7,098.0	26.7	25.3	52.06	-776.2	-2,216.7	1,886.1	1,834.6	51.49	36.634	
7,300.0	7,256.5	7,203.6	7,195.6	27.1	25.6	52.63	-767.8	-2,218.8	1,879.3	1,827.1	52.24	35.973	
7,400.0	7,355.6	7,301.5	7,293.2	27.5	26.0	53.21	-759.4	-2,221.0	1,872.7	1,819.7	53.00	35.333	
7,500.0	7,454.8	7,399.5	7,390.7	27.9	26.4	53.78	-751.0	-2,223.1	1,866.2	1,812.5	53.76	34.715	
7,600.0	7,553.9	7,497.4	7,488.3	28.3	26.7	54.36	-742.6	-2,225.2	1,860.0	1,805.4	54.52	34.117	
7,700.0	7,653.0	7,595.3	7,585.8	28.7	27.1	54.95	-734.2	-2,227.3	1,853.9	1,798.6	55.28	33.538	
7,800.0	7,752.2	7,693.3	7,683.4	29.1	27.4	55.53	-725.8	-2,229.4	1,848.1	1,792.0	56.04	32.978	
7,900.0	7,851.3	7,791.2	7,781.0	29.5	27.8	56.11	-717.4	-2,231.5	1,842.5	1,785.7	56.80	32.436	
8,000.0	7,950.7	7,889.6	7,878.9	29.9	28.2	56.68	-709.0	-2,233.7	1,838.3	1,780.7	57.56	31.939	
8,100.0	8,050.5	7,988.5	7,977.4	30.2	28.5	57.00	-700.5	-2,235.8	1,836.2	1,777.9	58.30	31.497	
8,154.9	8,105.3	8,043.0	8,031.7	30.4	28.7	57.20	-695.8	-2,237.0	1,835.9	1,777.2	58.70	31.278 CC	
8,200.0	8,150.4	8,087.8	8,076.3	30.6	28.9	57.36	-692.0	-2,237.9	1,836.1	1,777.1	59.02	31.108	
8,300.0	8,250.4	8,195.1	8,183.3	30.9	29.3	-90.82	-683.2	-2,240.1	1,837.7	1,777.9	59.75	30.757	
8,400.0	8,350.4	8,312.5	8,300.5	31.2	29.7	-90.64	-677.6	-2,241.6	1,838.8	1,778.4	60.49	30.400	
8,500.0	8,450.4	8,425.1	8,413.1	31.6	30.1	-90.60	-676.4	-2,241.9	1,839.1	1,777.9	61.20	30.050	
8,600.0	8,550.4	8,525.1	8,513.1	31.9	30.5	-90.60	-676.4	-2,241.9	1,839.1	1,777.2	61.88	29.722	
8,700.0	8,650.4	8,625.1	8,613.1	32.2	30.8	-90.60	-676.4	-2,241.9	1,839.1	1,776.5	62.55	29.401	
8,712.8	8,663.2	8,637.8	8,625.9	32.2	30.9	-90.60	-676.4	-2,241.9	1,839.1	1,776.5	62.64	29.360	
8,800.0	8,750.4	8,724.9	8,712.9	32.5	31.2	-90.61	-676.5	-2,241.9	1,839.1	1,775.9	63.23	29.087	
8,900.0	8,850.4	8,821.9	8,809.0	32.8	31.5	89.49	-688.4	-2,241.8	1,839.2	1,775.3	63.84	28.807	
9,000.0	8,948.9	8,915.5	8,897.6	33.2	31.7	88.99	-718.1	-2,241.6	1,839.4	1,774.9	64.49	28.525	
9,100.0	9,041.8	9,006.5	8,976.7	33.7	31.9	88.54	-763.0	-2,241.3	1,839.8	1,774.6	65.16	28.236	
9,200.0	9,125.2	9,095.6	9,044.4	34.2	32.1	88.15	-820.6	-2,240.9	1,840.2	1,774.3	65.85	27.943	
9,300.0	9,195.4	9,183.0	9,099.4	34.7	32.3	87.84	-888.4	-2,240.4	1,840.6	1,774.0	66.58	27.644	
9,400.0	9,249.2	9,269.3	9,140.7	35.3	32.4	87.60	-964.1	-2,239.9	1,840.9	1,773.6	67.34	27.339	
9,500.0	9,284.5	9,354.9	9,167.5	35.9	32.6	87.46	-1,045.2	-2,239.3	1,841.2	1,773.0	68.12	27.028	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 #511H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
9,600.0	9,299.5	9,440.1	9,179.4	36.6	32.7	87.42	-1,129.5	-2,238.7	1,841.3	1,772.4	68.92	26.717	
9,700.0	9,300.0	9,535.9	9,180.0	37.2	32.9	87.43	-1,225.2	-2,238.0	1,841.4	1,771.6	69.76	26.396	
9,800.0	9,300.0	9,635.9	9,180.0	37.9	33.1	87.43	-1,325.2	-2,237.3	1,841.4	1,770.7	70.70	26.046	
9,900.0	9,300.0	9,735.9	9,180.0	38.6	33.4	87.43	-1,425.2	-2,236.6	1,841.5	1,769.8	71.74	25.668	
10,000.0	9,300.0	9,835.9	9,180.0	39.4	33.8	87.43	-1,525.2	-2,235.9	1,841.6	1,768.7	72.89	25.267	
10,100.0	9,300.0	9,935.9	9,180.0	40.2	34.2	87.43	-1,625.2	-2,235.2	1,841.7	1,767.5	74.12	24.846	
10,200.0	9,300.0	10,035.9	9,180.0	41.0	34.7	87.43	-1,725.2	-2,234.5	1,841.7	1,766.3	75.45	24.409	
10,300.0	9,300.0	10,135.9	9,180.0	41.9	35.3	87.43	-1,825.2	-2,233.8	1,841.8	1,764.9	76.87	23.961	
10,400.0	9,300.0	10,235.9	9,180.0	42.8	35.9	87.43	-1,925.2	-2,233.1	1,841.9	1,763.5	78.36	23.505	
10,500.0	9,300.0	10,335.9	9,180.0	43.7	36.5	87.43	-2,025.2	-2,232.4	1,841.9	1,762.0	79.93	23.044	
10,600.0	9,300.0	10,435.9	9,180.0	44.7	37.2	87.43	-2,125.2	-2,231.7	1,842.0	1,760.4	81.58	22.580	
10,700.0	9,300.0	10,535.9	9,180.0	45.7	37.9	87.43	-2,225.2	-2,231.0	1,842.1	1,758.8	83.29	22.116	
10,800.0	9,300.0	10,635.9	9,180.0	46.7	38.7	87.43	-2,325.2	-2,230.3	1,842.2	1,757.1	85.07	21.654	
10,900.0	9,300.0	10,735.9	9,180.0	47.7	39.5	87.43	-2,425.2	-2,229.6	1,842.2	1,755.3	86.91	21.197	
11,000.0	9,300.0	10,835.9	9,180.0	48.8	40.3	87.43	-2,525.2	-2,228.9	1,842.3	1,753.5	88.81	20.745	
11,100.0	9,300.0	10,935.9	9,180.0	49.9	41.2	87.43	-2,625.2	-2,228.2	1,842.4	1,751.6	90.76	20.300	
11,200.0	9,300.0	11,035.9	9,180.0	50.9	42.1	87.43	-2,725.2	-2,227.5	1,842.5	1,749.7	92.76	19.864	
11,300.0	9,300.0	11,135.9	9,180.0	52.1	43.0	87.43	-2,825.2	-2,226.8	1,842.5	1,747.7	94.80	19.435	
11,400.0	9,300.0	11,235.9	9,180.0	53.2	44.0	87.43	-2,925.2	-2,226.1	1,842.6	1,745.7	96.89	19.017	
11,500.0	9,300.0	11,335.9	9,180.0	54.3	45.0	87.43	-3,025.2	-2,225.4	1,842.7	1,743.7	99.03	18.608	
11,600.0	9,300.0	11,435.9	9,180.0	55.5	46.0	87.43	-3,125.2	-2,224.7	1,842.8	1,741.6	101.20	18.210	
11,700.0	9,300.0	11,535.9	9,180.0	56.6	47.0	87.43	-3,225.2	-2,224.0	1,842.8	1,739.4	103.40	17.822	
11,800.0	9,300.0	11,635.9	9,180.0	57.8	48.1	87.43	-3,325.2	-2,223.3	1,842.9	1,737.3	105.64	17.445	
11,900.0	9,300.0	11,735.9	9,180.0	59.0	49.1	87.43	-3,425.2	-2,222.6	1,843.0	1,735.1	107.91	17.078	
12,000.0	9,300.0	11,835.9	9,180.0	60.2	50.2	87.43	-3,525.2	-2,221.9	1,843.1	1,732.9	110.22	16.722	
12,100.0	9,300.0	11,935.9	9,180.0	61.4	51.3	87.43	-3,625.2	-2,221.2	1,843.1	1,730.6	112.55	16.377	
12,200.0	9,300.0	12,035.9	9,180.0	62.7	52.5	87.43	-3,725.2	-2,220.5	1,843.2	1,728.3	114.90	16.042	
12,300.0	9,300.0	12,135.9	9,180.0	63.9	53.6	87.43	-3,825.2	-2,219.8	1,843.3	1,726.0	117.28	15.717	
12,400.0	9,300.0	12,235.9	9,180.0	65.1	54.8	87.43	-3,925.2	-2,219.1	1,843.4	1,723.7	119.68	15.402	
12,500.0	9,300.0	12,335.9	9,180.0	66.4	55.9	87.43	-4,025.2	-2,218.4	1,843.4	1,721.3	122.11	15.097	
12,600.0	9,300.0	12,435.9	9,180.0	67.6	57.1	87.43	-4,125.2	-2,217.7	1,843.5	1,719.0	124.55	14.801	
12,700.0	9,300.0	12,535.9	9,180.0	68.9	58.3	87.43	-4,225.2	-2,217.0	1,843.6	1,716.6	127.02	14.514	
12,800.0	9,300.0	12,635.9	9,180.0	70.2	59.5	87.43	-4,325.2	-2,216.3	1,843.7	1,714.2	129.50	14.237	
12,900.0	9,300.0	12,735.9	9,180.0	71.5	60.7	87.43	-4,425.2	-2,215.6	1,843.7	1,711.7	132.00	13.968	
13,000.0	9,300.0	12,835.9	9,180.0	72.8	62.0	87.43	-4,525.2	-2,214.9	1,843.8	1,709.3	134.52	13.707	
13,100.0	9,300.0	12,935.9	9,180.0	74.0	63.2	87.43	-4,625.1	-2,214.2	1,843.9	1,706.8	137.05	13.454	
13,200.0	9,300.0	13,035.9	9,180.0	75.3	64.5	87.43	-4,725.1	-2,213.5	1,844.0	1,704.4	139.59	13.210	
13,300.0	9,300.0	13,135.9	9,180.0	76.6	65.7	87.43	-4,825.1	-2,212.8	1,844.0	1,701.9	142.15	12.972	
13,400.0	9,300.0	13,235.9	9,180.0	78.0	67.0	87.43	-4,925.1	-2,212.1	1,844.1	1,699.4	144.72	12.742	
13,500.0	9,300.0	13,335.9	9,180.0	79.3	68.2	87.43	-5,025.1	-2,211.4	1,844.2	1,696.9	147.31	12.519	
13,600.0	9,300.0	13,435.9	9,180.0	80.6	69.5	87.43	-5,125.1	-2,210.7	1,844.3	1,694.4	149.90	12.303	
13,700.0	9,300.0	13,535.9	9,180.0	81.9	70.8	87.43	-5,225.1	-2,210.0	1,844.3	1,691.8	152.51	12.093	
13,800.0	9,300.0	13,635.9	9,180.0	83.2	72.1	87.43	-5,325.1	-2,209.3	1,844.4	1,689.3	155.12	11.890	
13,900.0	9,300.0	13,735.9	9,180.0	84.6	73.4	87.43	-5,425.1	-2,208.6	1,844.5	1,686.7	157.75	11.693	
14,000.0	9,300.0	13,835.9	9,180.0	85.9	74.7	87.43	-5,525.1	-2,207.9	1,844.6	1,684.2	160.38	11.501	
14,100.0	9,300.0	13,935.9	9,180.0	87.2	76.0	87.43	-5,625.1	-2,207.2	1,844.6	1,681.6	163.03	11.315	
14,200.0	9,300.0	14,035.9	9,180.0	88.6	77.3	87.43	-5,725.1	-2,206.5	1,844.7	1,679.0	165.68	11.134	
14,300.0	9,300.0	14,135.9	9,180.0	89.9	78.6	87.43	-5,825.1	-2,205.8	1,844.8	1,676.4	168.34	10.959	
14,400.0	9,300.0	14,235.9	9,180.0	91.3	79.9	87.43	-5,925.1	-2,205.1	1,844.9	1,673.8	171.01	10.788	
14,500.0	9,300.0	14,335.9	9,180.0	92.6	81.3	87.43	-6,025.1	-2,204.4	1,844.9	1,671.2	173.69	10.622	
14,600.0	9,300.0	14,435.9	9,180.0	94.0	82.6	87.43	-6,125.1	-2,203.6	1,845.0	1,668.6	176.37	10.461	
14,700.0	9,300.0	14,535.9	9,180.0	95.3	83.9	87.43	-6,225.1	-2,202.9	1,845.1	1,666.0	179.06	10.304	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 #511H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,800.0	9,300.0	14,635.9	9,180.0	96.7	85.3	87.43	-6,325.1	-2,202.2	1,845.2	1,663.4	181.75	10.152	
14,900.0	9,300.0	14,735.9	9,180.0	98.1	86.6	87.43	-6,425.1	-2,201.5	1,845.2	1,660.8	184.45	10.004	
15,000.0	9,300.0	14,835.9	9,180.0	99.4	87.9	87.43	-6,525.1	-2,200.8	1,845.3	1,658.1	187.16	9.859	
15,100.0	9,300.0	14,935.9	9,180.0	100.8	89.3	87.43	-6,625.1	-2,200.1	1,845.4	1,655.5	189.88	9.719	
15,200.0	9,300.0	15,035.9	9,180.0	102.1	90.6	87.43	-6,725.1	-2,199.4	1,845.5	1,652.9	192.59	9.582	
15,300.0	9,300.0	15,135.9	9,180.0	103.5	92.0	87.43	-6,825.1	-2,198.7	1,845.5	1,650.2	195.32	9.449	
15,400.0	9,300.0	15,235.9	9,180.0	104.9	93.4	87.43	-6,925.1	-2,198.0	1,845.6	1,647.6	198.05	9.319	
15,500.0	9,300.0	15,335.9	9,180.0	106.3	94.7	87.43	-7,025.1	-2,197.3	1,845.7	1,644.9	200.78	9.193	
15,600.0	9,300.0	15,435.9	9,180.0	107.6	96.1	87.43	-7,125.1	-2,196.6	1,845.8	1,642.2	203.52	9.069	
15,700.0	9,300.0	15,535.9	9,180.0	109.0	97.4	87.43	-7,225.1	-2,195.9	1,845.8	1,639.6	206.26	8.949	
15,800.0	9,300.0	15,635.9	9,180.0	110.4	98.8	87.43	-7,325.1	-2,195.2	1,845.9	1,636.9	209.00	8.832	
15,900.0	9,300.0	15,735.9	9,180.0	111.8	100.2	87.43	-7,425.1	-2,194.5	1,846.0	1,634.2	211.75	8.718	
16,000.0	9,300.0	15,835.9	9,180.0	113.2	101.5	87.43	-7,525.1	-2,193.8	1,846.0	1,631.5	214.51	8.606	
16,100.0	9,300.0	15,935.9	9,180.0	114.6	102.9	87.43	-7,625.1	-2,193.1	1,846.1	1,628.9	217.26	8.497	
16,200.0	9,300.0	16,035.9	9,180.0	115.9	104.3	87.43	-7,725.1	-2,192.4	1,846.2	1,626.2	220.02	8.391	
16,300.0	9,300.0	16,135.9	9,180.0	117.3	105.7	87.43	-7,825.1	-2,191.7	1,846.3	1,623.5	222.79	8.287	
16,400.0	9,300.0	16,235.9	9,180.0	118.7	107.0	87.43	-7,925.1	-2,191.0	1,846.3	1,620.8	225.56	8.186	
16,500.0	9,300.0	16,335.9	9,180.0	120.1	108.4	87.43	-8,025.1	-2,190.3	1,846.4	1,618.1	228.33	8.087	
16,600.0	9,300.0	16,435.9	9,180.0	121.5	109.8	87.43	-8,125.1	-2,189.6	1,846.5	1,615.4	231.10	7.990	
16,700.0	9,300.0	16,535.9	9,180.0	122.9	111.2	87.43	-8,225.1	-2,188.9	1,846.6	1,612.7	233.88	7.895	
16,800.0	9,300.0	16,635.9	9,180.0	124.3	112.6	87.43	-8,325.1	-2,188.2	1,846.6	1,610.0	236.66	7.803	
16,900.0	9,300.0	16,735.9	9,180.0	125.7	114.0	87.43	-8,425.1	-2,187.5	1,846.7	1,607.3	239.44	7.713	
17,000.0	9,300.0	16,835.9	9,180.0	127.1	115.3	87.43	-8,525.1	-2,186.8	1,846.8	1,604.6	242.22	7.624	
17,100.0	9,300.0	16,935.9	9,180.0	128.5	116.7	87.43	-8,625.1	-2,186.1	1,846.9	1,601.9	245.01	7.538	
17,200.0	9,300.0	17,035.9	9,180.0	129.9	118.1	87.43	-8,725.0	-2,185.4	1,846.9	1,599.1	247.80	7.453	
17,300.0	9,300.0	17,135.9	9,180.0	131.3	119.5	87.43	-8,825.0	-2,184.7	1,847.0	1,596.4	250.59	7.371	
17,400.0	9,300.0	17,235.9	9,180.0	132.7	120.9	87.43	-8,925.0	-2,184.0	1,847.1	1,593.7	253.39	7.290	
17,500.0	9,300.0	17,335.9	9,180.0	134.1	122.3	87.43	-9,025.0	-2,183.3	1,847.2	1,591.0	256.18	7.210	
17,600.0	9,300.0	17,435.9	9,180.0	135.5	123.7	87.43	-9,125.0	-2,182.6	1,847.2	1,588.3	258.98	7.133	
17,700.0	9,300.0	17,535.9	9,180.0	136.9	125.1	87.43	-9,225.0	-2,181.9	1,847.3	1,585.5	261.78	7.057	
17,800.0	9,300.0	17,635.9	9,180.0	138.3	126.5	87.43	-9,325.0	-2,181.2	1,847.4	1,582.8	264.59	6.982	
17,900.0	9,300.0	17,735.9	9,180.0	139.7	127.9	87.43	-9,425.0	-2,180.5	1,847.5	1,580.1	267.39	6.909	
18,000.0	9,300.0	17,835.9	9,180.0	141.1	129.3	87.43	-9,525.0	-2,179.8	1,847.5	1,577.3	270.20	6.838	
18,100.0	9,300.0	17,935.9	9,180.0	142.5	130.7	87.43	-9,625.0	-2,179.1	1,847.6	1,574.6	273.01	6.768	
18,200.0	9,300.0	18,035.9	9,180.0	143.9	132.1	87.43	-9,725.0	-2,178.4	1,847.7	1,571.9	275.82	6.699	
18,300.0	9,300.0	18,135.9	9,180.0	145.3	133.5	87.43	-9,825.0	-2,177.7	1,847.8	1,569.1	278.63	6.632	
18,400.0	9,300.0	18,235.9	9,180.0	146.7	134.9	87.43	-9,925.0	-2,177.0	1,847.8	1,566.4	281.44	6.566	
18,500.0	9,300.0	18,335.9	9,180.0	148.2	136.3	87.43	-10,025.0	-2,176.3	1,847.9	1,563.7	284.26	6.501	
18,600.0	9,300.0	18,435.9	9,180.0	149.6	137.7	87.44	-10,125.0	-2,175.6	1,848.0	1,560.9	287.07	6.437	
18,700.0	9,300.0	18,535.9	9,180.0	151.0	139.1	87.44	-10,225.0	-2,174.9	1,848.1	1,558.2	289.89	6.375	
18,800.0	9,300.0	18,635.9	9,180.0	152.4	140.5	87.44	-10,325.0	-2,174.2	1,848.1	1,555.4	292.71	6.314	
18,900.0	9,300.0	18,735.9	9,180.0	153.8	141.9	87.44	-10,425.0	-2,173.5	1,848.2	1,552.7	295.53	6.254	
19,000.0	9,300.0	18,835.9	9,180.0	155.2	143.4	87.44	-10,525.0	-2,172.8	1,848.3	1,549.9	298.36	6.195	
19,100.0	9,300.0	18,935.9	9,180.0	156.6	144.8	87.44	-10,625.0	-2,172.1	1,848.4	1,547.2	301.18	6.137	
19,200.0	9,300.0	19,035.9	9,180.0	158.1	146.2	87.44	-10,725.0	-2,171.4	1,848.4	1,544.4	304.01	6.080	
19,300.0	9,300.0	19,135.9	9,180.0	159.5	147.6	87.44	-10,825.0	-2,170.7	1,848.5	1,541.7	306.83	6.025	
19,400.0	9,300.0	19,235.9	9,180.0	160.9	149.0	87.44	-10,925.0	-2,170.0	1,848.6	1,538.9	309.66	5.970	
19,500.0	9,300.0	19,335.9	9,180.0	162.3	150.4	87.44	-11,025.0	-2,169.3	1,848.7	1,536.2	312.49	5.916	
19,553.8	9,300.0	19,389.7	9,180.0	163.1	151.2	87.44	-11,078.8	-2,168.9	1,848.7	1,534.7	314.01	5.887 ES, SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
3,100.0	3,092.7	3,357.6	3,348.6	10.8	11.8	40.76	-769.9	-2,040.1	2,108.1	2,085.9	22.21	94.920	
3,200.0	3,191.8	3,454.6	3,444.6	11.1	12.2	40.91	-768.3	-2,026.4	2,084.3	2,061.4	22.90	91.003	
3,300.0	3,291.0	3,551.6	3,540.6	11.5	12.6	41.07	-766.6	-2,012.7	2,060.5	2,036.9	23.60	87.306	
3,400.0	3,390.1	3,648.5	3,636.5	11.9	12.9	41.24	-765.0	-1,999.0	2,036.8	2,012.5	24.30	83.813	
3,500.0	3,489.2	3,745.5	3,732.5	12.2	13.3	41.41	-763.4	-1,985.2	2,013.0	1,988.0	25.00	80.508	
3,600.0	3,588.4	3,842.5	3,828.5	12.6	13.7	41.58	-761.8	-1,971.5	1,989.3	1,963.6	25.71	77.378	
3,700.0	3,687.5	3,939.4	3,924.5	13.0	14.1	41.75	-760.2	-1,957.8	1,965.6	1,939.2	26.42	74.409	
3,800.0	3,786.7	4,036.4	4,020.4	13.4	14.4	41.93	-758.5	-1,944.0	1,941.9	1,914.8	27.13	71.591	
3,900.0	3,885.8	4,133.4	4,116.4	13.8	14.8	42.12	-756.9	-1,930.3	1,918.2	1,890.4	27.84	68.912	
4,000.0	3,984.9	4,230.4	4,212.4	14.1	15.2	42.31	-755.3	-1,916.6	1,894.6	1,866.0	28.55	66.364	
4,100.0	4,084.1	4,327.3	4,308.4	14.5	15.6	42.50	-753.7	-1,902.8	1,870.9	1,841.7	29.26	63.936	
4,200.0	4,183.2	4,424.3	4,404.4	14.9	16.0	42.70	-752.1	-1,889.1	1,847.3	1,817.3	29.98	61.622	
4,300.0	4,282.3	4,521.3	4,500.3	15.3	16.3	42.90	-750.4	-1,875.4	1,823.7	1,793.0	30.70	59.414	
4,400.0	4,381.5	4,618.2	4,596.3	15.7	16.7	43.11	-748.8	-1,861.6	1,800.2	1,768.7	31.41	57.305	
4,500.0	4,480.6	4,715.2	4,692.3	16.1	17.1	43.32	-747.2	-1,847.9	1,776.6	1,744.5	32.13	55.289	
4,600.0	4,579.8	4,812.2	4,788.3	16.4	17.5	43.54	-745.6	-1,834.2	1,753.1	1,720.2	32.85	53.359	
4,700.0	4,678.9	4,909.1	4,884.3	16.8	17.9	43.77	-744.0	-1,820.4	1,729.6	1,696.0	33.58	51.512	
4,800.0	4,778.0	5,006.1	4,980.2	17.2	18.2	44.00	-742.3	-1,806.7	1,706.1	1,671.8	34.30	49.741	
4,900.0	4,877.2	5,103.1	5,076.2	17.6	18.6	44.24	-740.7	-1,793.0	1,682.7	1,647.7	35.02	48.043	
5,000.0	4,976.3	5,200.0	5,172.2	18.0	19.0	44.49	-739.1	-1,779.3	1,659.3	1,623.5	35.75	46.413	
5,100.0	5,075.5	5,297.0	5,268.2	18.4	19.4	44.74	-737.5	-1,765.5	1,635.9	1,599.4	36.48	44.848	
5,200.0	5,174.6	5,394.0	5,364.1	18.8	19.8	45.00	-735.9	-1,751.8	1,612.5	1,575.3	37.20	43.343	
5,300.0	5,273.7	5,491.0	5,460.1	19.2	20.2	45.27	-734.3	-1,738.1	1,589.2	1,551.3	37.93	41.896	
5,400.0	5,372.9	5,587.9	5,556.1	19.6	20.6	45.54	-732.6	-1,724.3	1,565.9	1,527.3	38.66	40.503	
5,500.0	5,472.0	5,684.9	5,652.1	20.0	20.9	45.83	-731.0	-1,710.6	1,542.7	1,503.3	39.39	39.162	
5,600.0	5,571.1	5,781.9	5,748.1	20.4	21.3	46.12	-729.4	-1,696.9	1,519.4	1,479.3	40.12	37.869	
5,700.0	5,670.3	5,878.8	5,844.0	20.8	21.7	46.42	-727.8	-1,683.1	1,496.3	1,455.4	40.86	36.623	
5,800.0	5,769.4	5,975.8	5,940.0	21.1	22.1	46.73	-726.2	-1,669.4	1,473.1	1,431.5	41.59	35.421	
5,900.0	5,868.6	6,072.8	6,036.0	21.5	22.5	47.05	-724.5	-1,655.7	1,450.0	1,407.7	42.32	34.261	
6,000.0	5,967.7	6,169.7	6,132.0	21.9	22.9	47.38	-722.9	-1,641.9	1,427.0	1,383.9	43.06	33.140	
6,100.0	6,066.8	6,266.7	6,228.0	22.3	23.3	47.72	-721.3	-1,628.2	1,404.0	1,360.2	43.80	32.058	
6,200.0	6,166.0	6,363.7	6,323.9	22.7	23.7	48.07	-719.7	-1,614.5	1,381.0	1,336.5	44.53	31.012	
6,300.0	6,265.1	6,460.7	6,419.9	23.1	24.0	48.44	-718.1	-1,600.7	1,358.1	1,312.9	45.27	30.000	
6,400.0	6,364.2	6,557.6	6,515.9	23.5	24.4	48.82	-716.4	-1,587.0	1,335.3	1,289.3	46.01	29.021	
6,500.0	6,463.4	6,654.6	6,611.9	23.9	24.8	49.21	-714.8	-1,573.3	1,312.5	1,265.8	46.75	28.074	
6,600.0	6,562.5	6,751.6	6,707.8	24.3	25.2	49.61	-713.2	-1,559.6	1,289.8	1,242.3	47.49	27.157	
6,700.0	6,661.7	6,848.5	6,803.8	24.7	25.6	50.03	-711.6	-1,545.8	1,267.1	1,218.9	48.24	26.269	
6,800.0	6,760.8	6,945.5	6,899.8	25.1	26.0	50.46	-710.0	-1,532.1	1,244.5	1,195.5	48.98	25.409	
6,900.0	6,859.9	7,042.5	6,995.8	25.5	26.4	50.91	-708.3	-1,518.4	1,222.0	1,172.3	49.72	24.575	
7,000.0	6,959.1	7,139.4	7,091.8	25.9	26.8	51.37	-706.7	-1,504.6	1,199.5	1,149.1	50.47	23.767	
7,100.0	7,058.2	7,236.4	7,187.7	26.3	27.2	51.86	-705.1	-1,490.9	1,177.1	1,125.9	51.22	22.983	
7,200.0	7,157.4	7,333.4	7,283.7	26.7	27.5	52.36	-703.5	-1,477.2	1,154.9	1,102.9	51.97	22.223	
7,300.0	7,256.5	7,430.3	7,379.7	27.1	27.9	52.88	-701.9	-1,463.4	1,132.7	1,079.9	52.72	21.485	
7,400.0	7,355.6	7,527.3	7,475.7	27.5	28.3	53.42	-700.2	-1,449.7	1,110.5	1,057.1	53.47	20.769	
7,500.0	7,454.8	7,624.3	7,571.7	27.9	28.7	53.98	-698.6	-1,436.0	1,088.5	1,034.3	54.22	20.074	
7,600.0	7,553.9	7,721.3	7,667.6	28.3	29.1	54.57	-697.0	-1,422.2	1,066.6	1,011.6	54.98	19.400	
7,700.0	7,653.0	7,818.2	7,763.6	28.7	29.5	55.18	-695.4	-1,408.5	1,044.8	989.1	55.74	18.745	
7,800.0	7,752.2	7,915.2	7,859.6	29.1	29.9	55.82	-693.8	-1,394.8	1,023.2	966.7	56.50	18.110	
7,900.0	7,851.3	8,012.2	7,955.6	29.5	30.3	56.42	-692.1	-1,381.0	1,001.6	944.4	57.26	17.493	
8,000.0	7,950.7	8,109.6	8,052.0	29.9	30.7	56.65	-690.5	-1,367.2	981.5	923.5	58.01	16.918	
8,100.0	8,050.5	8,207.7	8,149.1	30.2	31.1	56.77	-688.9	-1,353.4	963.3	904.5	58.75	16.395	
8,200.0	8,150.4	8,306.2	8,246.6	30.6	31.5	56.75	-687.2	-1,339.4	947.0	887.5	59.48	15.921	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,300.0	8,250.4	8,405.2	8,344.6	30.9	31.9	-91.77	-685.6	-1,325.4	932.4	872.2	60.17	15.496	
8,400.0	8,350.4	8,504.1	8,442.5	31.2	32.3	-91.70	-683.9	-1,311.4	918.2	857.4	60.86	15.088	
8,500.0	8,450.4	8,603.1	8,540.5	31.6	32.7	-91.62	-682.3	-1,297.4	904.0	842.5	61.54	14.689	
8,600.0	8,550.4	8,702.1	8,638.5	31.9	33.1	-91.54	-680.6	-1,283.4	889.8	827.6	62.23	14.299	
8,700.0	8,650.4	8,801.1	8,736.4	32.2	33.5	-91.45	-679.0	-1,269.3	875.6	812.7	62.92	13.916	
8,800.0	8,750.4	8,900.1	8,834.4	32.5	33.9	-91.36	-677.3	-1,255.3	861.4	797.8	63.61	13.542	
8,900.0	8,850.4	8,999.0	8,932.3	32.8	34.3	89.71	-675.7	-1,241.3	847.2	782.9	64.31	13.174	
9,000.0	8,948.9	9,096.2	9,028.6	33.2	34.7	92.60	-674.0	-1,227.5	833.2	768.1	65.10	12.799	
9,100.0	9,041.8	9,187.1	9,118.5	33.7	35.0	96.47	-672.5	-1,214.7	821.2	755.2	65.99	12.444	
9,200.0	9,125.2	9,251.5	9,182.4	34.2	35.3	99.73	-671.5	-1,206.3	815.3	748.3	66.99	12.170	
9,212.3	9,134.6	9,258.8	9,189.6	34.2	35.3	100.08	-671.4	-1,205.4	815.2	748.1	67.12	12.145 CC, ES	
9,300.0	9,195.4	9,300.0	9,230.5	34.7	35.5	101.65	-670.9	-1,200.9	819.6	751.6	68.02	12.049	
9,400.0	9,249.2	9,347.1	9,277.5	35.3	35.7	102.39	-670.4	-1,196.4	836.5	767.5	69.03	12.118	
9,500.0	9,284.5	9,374.2	9,304.5	35.9	35.8	100.38	-670.1	-1,194.2	867.2	797.2	69.95	12.396	
9,600.0	9,299.5	9,385.5	9,315.7	36.6	35.8	95.44	-670.0	-1,193.4	910.5	839.8	70.72	12.875	
9,700.0	9,300.0	9,385.2	9,315.4	37.2	35.8	93.89	-670.0	-1,193.4	963.7	892.4	71.32	13.513	
9,800.0	9,300.0	9,384.6	9,314.8	37.9	35.8	93.84	-670.0	-1,193.4	1,023.9	952.1	71.81	14.258	
9,900.0	9,300.0	9,384.0	9,314.2	38.6	35.8	93.80	-670.0	-1,193.5	1,090.0	1,017.8	72.22	15.092	
10,000.0	9,300.0	9,383.3	9,313.5	39.4	35.8	93.75	-670.0	-1,193.5	1,160.9	1,088.4	72.55	16.001	
10,100.0	9,300.0	11,009.8	10,196.0	40.2	40.1	140.02	-1,617.8	-1,179.0	1,219.4	1,159.1	60.30	20.221	
10,200.0	9,300.0	11,109.8	10,196.0	41.0	40.6	140.01	-1,717.8	-1,178.3	1,219.4	1,158.1	61.33	19.882	
10,300.0	9,300.0	11,209.8	10,196.0	41.9	41.1	140.01	-1,817.8	-1,177.6	1,219.5	1,157.0	62.43	19.535	
10,400.0	9,300.0	11,309.8	10,196.0	42.8	41.6	140.01	-1,917.8	-1,176.9	1,219.5	1,155.9	63.58	19.182	
10,500.0	9,300.0	11,409.8	10,196.0	43.7	42.2	140.01	-2,017.8	-1,176.2	1,219.6	1,154.8	64.78	18.826	
10,600.0	9,300.0	11,509.8	10,196.0	44.7	42.9	140.00	-2,117.8	-1,175.5	1,219.6	1,153.6	66.04	18.468	
10,700.0	9,300.0	11,609.8	10,196.0	45.7	43.5	140.00	-2,217.8	-1,174.8	1,219.7	1,152.3	67.35	18.110	
10,800.0	9,300.0	11,709.8	10,196.0	46.7	44.3	140.00	-2,317.8	-1,174.1	1,219.7	1,151.0	68.70	17.754	
10,900.0	9,300.0	11,809.8	10,196.0	47.7	45.0	139.99	-2,417.8	-1,173.4	1,219.8	1,149.7	70.10	17.400	
11,000.0	9,300.0	11,909.8	10,196.0	48.8	45.8	139.99	-2,517.8	-1,172.7	1,219.8	1,148.3	71.54	17.051	
11,100.0	9,300.0	12,009.8	10,196.0	49.9	46.6	139.99	-2,617.8	-1,172.0	1,219.9	1,146.8	73.02	16.707	
11,200.0	9,300.0	12,109.8	10,196.0	50.9	47.5	139.99	-2,717.8	-1,171.3	1,219.9	1,145.4	74.53	16.368	
11,300.0	9,300.0	12,209.8	10,196.0	52.1	48.4	139.98	-2,817.8	-1,170.6	1,219.9	1,143.9	76.08	16.035	
11,400.0	9,300.0	12,309.8	10,196.0	53.2	49.3	139.98	-2,917.8	-1,169.9	1,220.0	1,142.3	77.66	15.709	
11,500.0	9,300.0	12,409.8	10,196.0	54.3	50.2	139.98	-3,017.8	-1,169.2	1,220.0	1,140.8	79.27	15.390	
11,600.0	9,300.0	12,509.8	10,196.0	55.5	51.1	139.97	-3,117.8	-1,168.5	1,220.1	1,139.2	80.91	15.079	
11,700.0	9,300.0	12,609.8	10,196.0	56.6	52.1	139.97	-3,217.8	-1,167.8	1,220.1	1,137.6	82.58	14.775	
11,800.0	9,300.0	12,709.8	10,196.0	57.8	53.1	139.97	-3,317.8	-1,167.1	1,220.2	1,135.9	84.28	14.479	
11,900.0	9,300.0	12,809.8	10,196.0	59.0	54.1	139.97	-3,417.8	-1,166.4	1,220.2	1,134.3	85.99	14.190	
12,000.0	9,300.0	12,909.8	10,196.0	60.2	55.2	139.96	-3,517.7	-1,165.7	1,220.3	1,132.6	87.73	13.909	
12,100.0	9,300.0	13,009.8	10,196.0	61.4	56.2	139.96	-3,617.7	-1,165.0	1,220.3	1,130.9	89.49	13.636	
12,200.0	9,300.0	13,109.8	10,196.0	62.7	57.3	139.96	-3,717.7	-1,164.3	1,220.4	1,129.1	91.28	13.371	
12,300.0	9,300.0	13,209.8	10,196.0	63.9	58.4	139.96	-3,817.7	-1,163.6	1,220.4	1,127.4	93.08	13.112	
12,400.0	9,300.0	13,309.8	10,196.0	65.1	59.5	139.95	-3,917.7	-1,162.9	1,220.5	1,125.6	94.89	12.862	
12,500.0	9,300.0	13,409.8	10,196.0	66.4	60.6	139.95	-4,017.7	-1,162.2	1,220.5	1,123.8	96.73	12.618	
12,600.0	9,300.0	13,509.8	10,196.0	67.6	61.8	139.95	-4,117.7	-1,161.5	1,220.6	1,122.0	98.58	12.382	
12,700.0	9,300.0	13,609.8	10,196.0	68.9	62.9	139.94	-4,217.7	-1,160.8	1,220.6	1,120.2	100.44	12.152	
12,800.0	9,300.0	13,709.8	10,196.0	70.2	64.1	139.94	-4,317.7	-1,160.1	1,220.7	1,118.4	102.32	11.930	
12,900.0	9,300.0	13,809.8	10,196.0	71.5	65.2	139.94	-4,417.7	-1,159.4	1,220.7	1,116.5	104.22	11.713	
13,000.0	9,300.0	13,909.8	10,196.0	72.8	66.4	139.94	-4,517.7	-1,158.7	1,220.8	1,114.7	106.12	11.504	
13,100.0	9,300.0	14,009.8	10,196.0	74.0	67.6	139.93	-4,617.7	-1,158.0	1,220.8	1,112.8	108.04	11.300	
13,200.0	9,300.0	14,109.8	10,196.0	75.3	68.8	139.93	-4,717.7	-1,157.3	1,220.9	1,110.9	109.97	11.102	
13,300.0	9,300.0	14,209.8	10,196.0	76.6	70.0	139.93	-4,817.7	-1,156.6	1,220.9	1,109.0	111.91	10.910	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
13,400.0	9,300.0	14,309.8	10,196.0	78.0	71.2	139.92	-4,917.7	-1,155.9	1,221.0	1,107.1	113.86	10.723	
13,500.0	9,300.0	14,409.8	10,196.0	79.3	72.5	139.92	-5,017.7	-1,155.2	1,221.0	1,105.2	115.82	10.542	
13,600.0	9,300.0	14,509.8	10,196.0	80.6	73.7	139.92	-5,117.7	-1,154.5	1,221.1	1,103.3	117.79	10.366	
13,700.0	9,300.0	14,609.8	10,196.0	81.9	74.9	139.92	-5,217.7	-1,153.8	1,221.1	1,101.4	119.77	10.195	
13,800.0	9,300.0	14,709.8	10,196.0	83.2	76.2	139.91	-5,317.7	-1,153.1	1,221.2	1,099.4	121.76	10.029	
13,900.0	9,300.0	14,809.8	10,196.0	84.6	77.5	139.91	-5,417.7	-1,152.4	1,221.2	1,097.5	123.76	9.868	
14,000.0	9,300.0	14,909.8	10,196.0	85.9	78.7	139.91	-5,517.7	-1,151.7	1,221.3	1,095.5	125.76	9.711	
14,100.0	9,300.0	15,009.8	10,196.0	87.2	80.0	139.91	-5,617.7	-1,151.0	1,221.3	1,093.6	127.77	9.559	
14,200.0	9,300.0	15,109.8	10,196.0	88.6	81.3	139.90	-5,717.7	-1,150.3	1,221.4	1,091.6	129.79	9.411	
14,300.0	9,300.0	15,209.8	10,196.0	89.9	82.5	139.90	-5,817.7	-1,149.6	1,221.4	1,089.6	131.81	9.266	
14,400.0	9,300.0	15,309.8	10,196.0	91.3	83.8	139.90	-5,917.7	-1,148.9	1,221.5	1,087.6	133.85	9.126	
14,500.0	9,300.0	15,409.8	10,196.0	92.6	85.1	139.89	-6,017.7	-1,148.2	1,221.5	1,085.7	135.88	8.990	
14,600.0	9,300.0	15,509.8	10,196.0	94.0	86.4	139.89	-6,117.7	-1,147.5	1,221.6	1,083.7	137.93	8.857	
14,700.0	9,300.0	15,609.8	10,196.0	95.3	87.7	139.89	-6,217.7	-1,146.8	1,221.6	1,081.7	139.97	8.728	
14,800.0	9,300.0	15,709.8	10,196.0	96.7	89.0	139.89	-6,317.7	-1,146.1	1,221.7	1,079.7	142.03	8.602	
14,900.0	9,300.0	15,809.8	10,196.0	98.1	90.3	139.88	-6,417.7	-1,145.4	1,221.7	1,077.7	144.09	8.479	
15,000.0	9,300.0	15,909.8	10,196.0	99.4	91.7	139.88	-6,517.7	-1,144.7	1,221.8	1,075.6	146.15	8.360	
15,100.0	9,300.0	16,009.8	10,196.0	100.8	93.0	139.88	-6,617.7	-1,144.0	1,221.8	1,073.6	148.22	8.243	
15,200.0	9,300.0	16,109.8	10,196.0	102.1	94.3	139.87	-6,717.7	-1,143.3	1,221.9	1,071.6	150.29	8.130	
15,300.0	9,300.0	16,209.8	10,196.0	103.5	95.6	139.87	-6,817.7	-1,142.6	1,221.9	1,069.6	152.37	8.019	
15,400.0	9,300.0	16,309.8	10,196.0	104.9	97.0	139.87	-6,917.7	-1,141.9	1,222.0	1,067.5	154.45	7.912	
15,500.0	9,300.0	16,409.8	10,196.0	106.3	98.3	139.87	-7,017.7	-1,141.2	1,222.0	1,065.5	156.54	7.807	
15,600.0	9,300.0	16,509.8	10,196.0	107.6	99.6	139.86	-7,117.7	-1,140.5	1,222.1	1,063.5	158.63	7.704	
15,700.0	9,300.0	16,609.8	10,196.0	109.0	101.0	139.86	-7,217.7	-1,139.8	1,222.1	1,061.4	160.72	7.604	
15,800.0	9,300.0	16,709.8	10,196.0	110.4	102.3	139.86	-7,317.7	-1,139.1	1,222.2	1,059.4	162.82	7.506	
15,900.0	9,300.0	16,809.8	10,196.0	111.8	103.6	139.86	-7,417.7	-1,138.4	1,222.2	1,057.3	164.92	7.411	
16,000.0	9,300.0	16,909.8	10,196.0	113.2	105.0	139.85	-7,517.7	-1,137.7	1,222.3	1,055.3	167.03	7.318	
16,100.0	9,300.0	17,009.8	10,196.0	114.6	106.3	139.85	-7,617.7	-1,137.0	1,222.3	1,053.2	169.13	7.227	
16,200.0	9,300.0	17,109.8	10,196.0	115.9	107.7	139.85	-7,717.7	-1,136.3	1,222.4	1,051.1	171.24	7.138	
16,300.0	9,300.0	17,209.8	10,196.0	117.3	109.1	139.84	-7,817.7	-1,135.6	1,222.4	1,049.1	173.36	7.052	
16,400.0	9,300.0	17,309.8	10,196.0	118.7	110.4	139.84	-7,917.7	-1,134.9	1,222.5	1,047.0	175.47	6.967	
16,500.0	9,300.0	17,409.8	10,196.0	120.1	111.8	139.84	-8,017.7	-1,134.2	1,222.5	1,044.9	177.59	6.884	
16,600.0	9,300.0	17,509.8	10,196.0	121.5	113.1	139.84	-8,117.7	-1,133.5	1,222.6	1,042.9	179.71	6.803	
16,700.0	9,300.0	17,609.8	10,196.0	122.9	114.5	139.83	-8,217.7	-1,132.8	1,222.6	1,040.8	181.84	6.724	
16,800.0	9,300.0	17,709.8	10,196.0	124.3	115.9	139.83	-8,317.7	-1,132.1	1,222.7	1,038.7	183.96	6.646	
16,900.0	9,300.0	17,809.8	10,196.0	125.7	117.2	139.83	-8,417.7	-1,131.4	1,222.7	1,036.6	186.09	6.571	
17,000.0	9,300.0	17,909.8	10,196.0	127.1	118.6	139.82	-8,517.7	-1,130.7	1,222.8	1,034.6	188.23	6.496	
17,100.0	9,300.0	18,009.8	10,196.0	128.5	120.0	139.82	-8,617.7	-1,130.1	1,222.8	1,032.5	190.36	6.424	
17,200.0	9,300.0	18,109.8	10,196.0	129.9	121.3	139.82	-8,717.7	-1,129.4	1,222.9	1,030.4	192.50	6.353	
17,300.0	9,300.0	18,209.8	10,196.0	131.3	122.7	139.82	-8,817.7	-1,128.7	1,222.9	1,028.3	194.63	6.283	
17,400.0	9,300.0	18,309.8	10,196.0	132.7	124.1	139.81	-8,917.7	-1,128.0	1,223.0	1,026.2	196.78	6.215	
17,500.0	9,300.0	18,409.8	10,196.0	134.1	125.5	139.81	-9,017.7	-1,127.3	1,223.0	1,024.1	198.92	6.148	
17,600.0	9,300.0	18,509.8	10,196.0	135.5	126.9	139.81	-9,117.7	-1,126.6	1,223.1	1,022.0	201.06	6.083	
17,700.0	9,300.0	18,609.8	10,196.0	136.9	128.2	139.81	-9,217.7	-1,125.9	1,223.1	1,019.9	203.21	6.019	
17,800.0	9,300.0	18,709.8	10,196.0	138.3	129.6	139.80	-9,317.7	-1,125.2	1,223.2	1,017.8	205.36	5.956	
17,900.0	9,300.0	18,809.8	10,196.0	139.7	131.0	139.80	-9,417.7	-1,124.5	1,223.2	1,015.7	207.51	5.895	
18,000.0	9,300.0	18,909.8	10,196.0	141.1	132.4	139.80	-9,517.7	-1,123.8	1,223.3	1,013.6	209.66	5.835	
18,100.0	9,300.0	19,009.8	10,196.0	142.5	133.8	139.79	-9,617.7	-1,123.1	1,223.3	1,011.5	211.81	5.776	
18,200.0	9,300.0	19,109.8	10,196.0	143.9	135.2	139.79	-9,717.7	-1,122.4	1,223.4	1,009.4	213.97	5.718	
18,300.0	9,300.0	19,209.8	10,196.0	145.3	136.6	139.79	-9,817.7	-1,121.7	1,223.4	1,007.3	216.12	5.661	
18,400.0	9,300.0	19,309.8	10,196.0	146.7	138.0	139.79	-9,917.7	-1,121.0	1,223.5	1,005.2	218.28	5.605	
18,500.0	9,300.0	19,409.8	10,196.0	148.2	139.3	139.78	-10,017.7	-1,120.3	1,223.5	1,003.1	220.44	5.550	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 0.1	Offset TVD Reference:	Offset Datum

Offset Design: Royal Oak 25 Fed Com Pad 2 - Royal Oak 25 Fed Com #602H - OH - Plan 0.1												Offset Site Error:	0.0 usft
Survey Program: 0-B001Mb_MWD+HRGM												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
18,600.0	9,300.0	19,509.8	10,196.0	149.6	140.7	139.78	-10,117.6	-1,119.6	1,223.6	1,001.0	222.60	5.497	
18,700.0	9,300.0	19,609.8	10,196.0	151.0	142.1	139.78	-10,217.6	-1,118.9	1,223.6	998.9	224.77	5.444	
18,800.0	9,300.0	19,709.8	10,196.0	152.4	143.5	139.78	-10,317.6	-1,118.2	1,223.7	996.8	226.93	5.392	
18,900.0	9,300.0	19,809.8	10,196.0	153.8	144.9	139.77	-10,417.6	-1,117.5	1,223.7	994.6	229.10	5.342	
19,000.0	9,300.0	19,909.8	10,196.0	155.2	146.3	139.77	-10,517.6	-1,116.8	1,223.8	992.5	231.26	5.292	
19,100.0	9,300.0	20,009.8	10,196.0	156.6	147.7	139.77	-10,617.6	-1,116.1	1,223.8	990.4	233.43	5.243	
19,200.0	9,300.0	20,109.8	10,196.0	158.1	149.1	139.76	-10,717.6	-1,115.4	1,223.9	988.3	235.60	5.195	
19,300.0	9,300.0	20,209.8	10,196.0	159.5	150.5	139.76	-10,817.6	-1,114.7	1,223.9	986.2	237.77	5.148	
19,400.0	9,300.0	20,309.8	10,196.0	160.9	151.9	139.76	-10,917.6	-1,114.0	1,224.0	984.0	239.94	5.101	
19,500.0	9,300.0	20,409.8	10,196.0	162.3	153.3	139.76	-11,017.6	-1,113.3	1,224.0	981.9	242.12	5.056	
19,553.8	9,300.0	20,463.6	10,196.0	163.1	154.1	139.75	-11,071.3	-1,112.9	1,224.1	980.8	243.29	5.031 SF	

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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 - State LG 2484 001 - OH - OH												Offset Site Error:	0.0 usft
Survey Program: 305-INC-ONLY												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,200.0	9,300.0	9,248.5	9,247.5	75.3	190.3	91.53	-6,447.0	-1,488.4	2,063.5	1,826.5	237.03	8.706	
13,300.0	9,300.0	9,246.8	9,245.7	76.6	190.3	91.45	-6,447.1	-1,488.4	1,980.6	1,741.9	238.74	8.296	
13,400.0	9,300.0	9,245.0	9,244.0	78.0	190.2	91.36	-6,447.1	-1,488.4	1,899.4	1,658.8	240.63	7.893	
13,500.0	9,300.0	9,243.3	9,242.2	79.3	190.2	91.27	-6,447.1	-1,488.4	1,820.0	1,577.3	242.74	7.498	
13,600.0	9,300.0	9,241.5	9,240.5	80.6	190.1	91.18	-6,447.1	-1,488.4	1,742.8	1,497.7	245.07	7.111	
13,700.0	9,300.0	9,239.8	9,238.8	81.9	190.1	91.09	-6,447.2	-1,488.4	1,667.9	1,420.3	247.63	6.736	
13,800.0	9,300.0	9,238.0	9,237.0	83.2	190.1	91.00	-6,447.2	-1,488.4	1,595.9	1,345.4	250.43	6.372	
13,900.0	9,300.0	9,236.3	9,235.3	84.6	190.0	90.92	-6,447.2	-1,488.4	1,526.9	1,273.4	253.48	6.024	
14,000.0	9,300.0	9,234.5	9,233.5	85.9	190.0	90.83	-6,447.3	-1,488.4	1,461.6	1,204.8	256.76	5.692	
14,100.0	9,300.0	9,232.8	9,231.8	87.2	190.0	90.74	-6,447.3	-1,488.4	1,400.3	1,140.1	260.26	5.381	
14,200.0	9,300.0	9,231.0	9,230.0	88.6	189.9	90.65	-6,447.3	-1,488.4	1,343.8	1,079.8	263.94	5.091	
14,300.0	9,300.0	9,229.3	9,228.3	89.9	189.9	90.56	-6,447.4	-1,488.4	1,292.4	1,024.7	267.75	4.827	
14,400.0	9,300.0	9,227.6	9,226.5	91.3	189.8	90.47	-6,447.4	-1,488.4	1,247.0	975.4	271.60	4.592	
14,500.0	9,300.0	9,225.8	9,224.8	92.6	189.8	90.39	-6,447.4	-1,488.4	1,208.2	932.8	275.39	4.387	
14,600.0	9,300.0	9,224.1	9,223.1	94.0	189.8	90.30	-6,447.4	-1,488.4	1,176.7	897.7	279.00	4.217	
14,700.0	9,300.0	9,222.3	9,221.3	95.3	189.7	90.21	-6,447.5	-1,488.4	1,152.9	870.6	282.30	4.084	
14,800.0	9,300.0	9,220.6	9,219.6	96.7	189.7	90.12	-6,447.5	-1,488.4	1,137.5	852.4	285.14	3.989	
14,900.0	9,300.0	9,218.8	9,217.8	98.1	189.7	90.03	-6,447.5	-1,488.4	1,130.8	843.3	287.42	3.934	
14,926.6	9,300.0	9,218.4	9,217.4	98.4	189.7	90.01	-6,447.5	-1,488.4	1,130.4	842.5	287.92	3.926 CC, ES	
15,000.0	9,300.0	9,217.1	9,216.1	99.4	189.6	89.94	-6,447.6	-1,488.4	1,132.8	843.8	289.04	3.919 SF	
15,100.0	9,300.0	9,215.3	9,214.3	100.8	189.6	89.85	-6,447.6	-1,488.4	1,143.7	853.7	289.98	3.944	
15,200.0	9,300.0	9,213.6	9,212.6	102.1	189.6	89.77	-6,447.6	-1,488.4	1,163.0	872.8	290.25	4.007	
15,300.0	9,300.0	9,211.9	9,210.8	103.5	189.5	89.68	-6,447.7	-1,488.4	1,190.5	900.6	289.91	4.106	
15,400.0	9,300.0	9,210.1	9,209.1	104.9	189.5	89.59	-6,447.7	-1,488.4	1,225.5	936.5	289.04	4.240	
15,500.0	9,300.0	9,208.4	9,207.3	106.3	189.4	89.50	-6,447.7	-1,488.4	1,267.5	979.8	287.75	4.405	
15,600.0	9,300.0	9,206.6	9,205.6	107.6	189.4	89.41	-6,447.8	-1,488.4	1,315.8	1,029.6	286.14	4.598	
15,700.0	9,300.0	9,204.9	9,203.9	109.0	189.4	89.32	-6,447.8	-1,488.4	1,369.6	1,085.3	284.31	4.817	
15,800.0	9,300.0	9,203.1	9,202.1	110.4	189.3	89.24	-6,447.8	-1,488.4	1,428.5	1,146.1	282.35	5.059	
15,900.0	9,300.0	9,201.4	9,200.4	111.8	189.3	89.15	-6,447.8	-1,488.4	1,491.7	1,211.4	280.32	5.321	
16,000.0	9,300.0	9,199.6	9,198.6	113.2	189.3	89.06	-6,447.9	-1,488.4	1,558.8	1,280.5	278.28	5.601	
16,100.0	9,300.0	9,197.9	9,196.9	114.6	189.2	88.97	-6,447.9	-1,488.4	1,629.2	1,352.9	276.27	5.897	
16,200.0	9,300.0	9,196.1	9,195.1	115.9	189.2	88.88	-6,447.9	-1,488.4	1,702.6	1,428.3	274.31	6.207	
16,300.0	9,300.0	9,194.4	9,193.4	117.3	189.2	88.79	-6,448.0	-1,488.4	1,778.6	1,506.2	272.42	6.529	
16,400.0	9,300.0	9,192.7	9,191.6	118.7	189.1	88.70	-6,448.0	-1,488.4	1,856.9	1,586.3	270.62	6.862	
16,500.0	9,300.0	9,190.9	9,189.9	120.1	189.1	88.62	-6,448.0	-1,488.4	1,937.2	1,668.3	268.90	7.204	
16,600.0	9,300.0	9,189.2	9,188.2	121.5	189.0	88.53	-6,448.1	-1,488.4	2,019.2	1,752.0	267.28	7.555	
16,700.0	9,300.0	9,187.4	9,186.4	122.9	189.0	88.44	-6,448.1	-1,488.4	2,102.8	1,837.1	265.75	7.913	

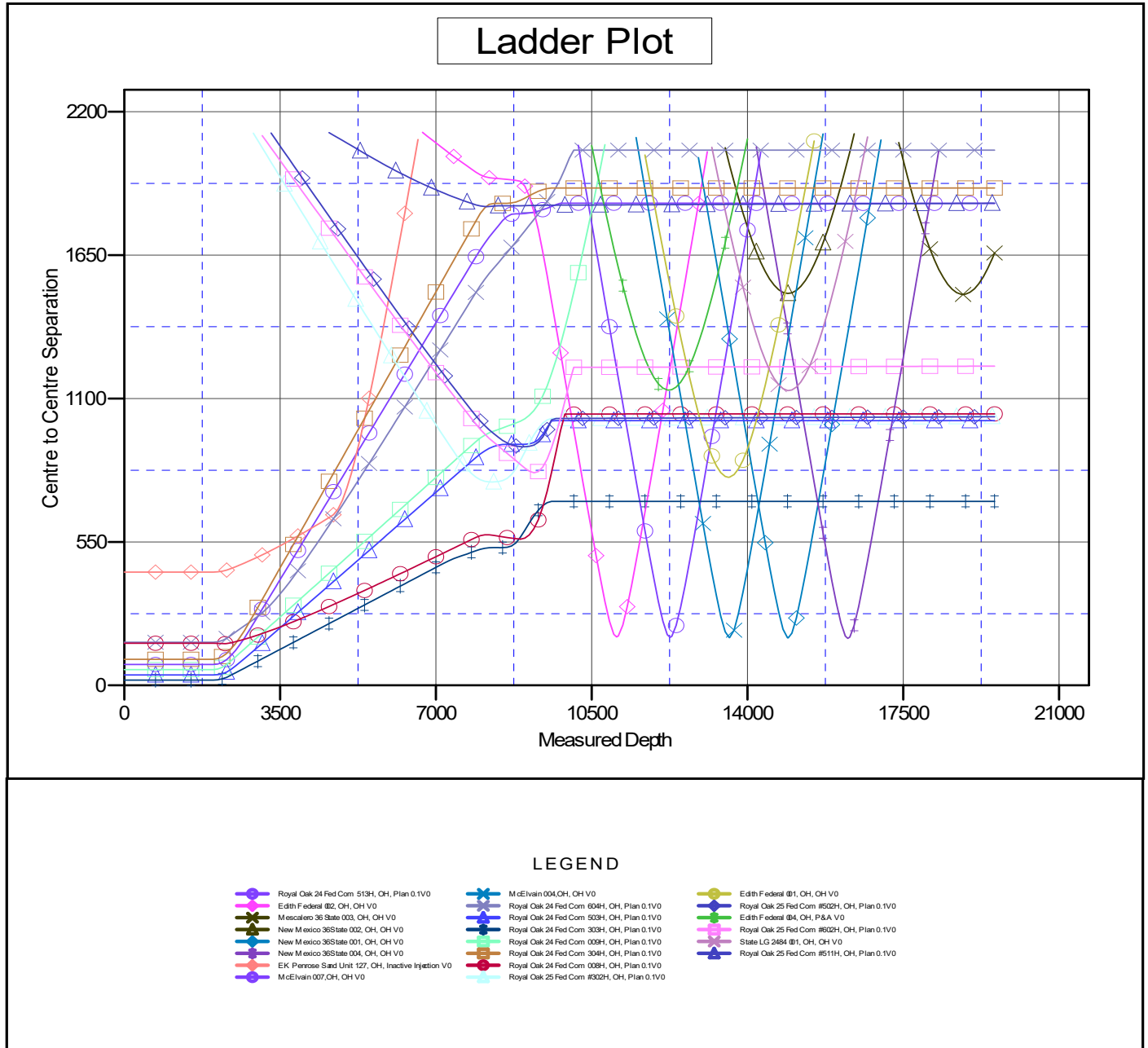
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 @ 3933.8usft (3933.8)
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Royal Oak 24 Fed Com 512H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.39°



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

Anticollision Report

Company:	Avant Operating, LLC	Local Co-ordinate Reference:	Well Royal Oak 24 Fed Com 512H
Project:	Lea Co., NM (NAD 83)	TVD Reference:	WELL @ 3933.8usft (3933.8)
Reference Site:	Royal Oak 24 Fed Com Pad 1	MD Reference:	WELL @ 3933.8usft (3933.8)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Royal Oak 24 Fed Com 512H	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 @ 3933.8usft (3933.8)

Offset Depths are relative to Offset Datum

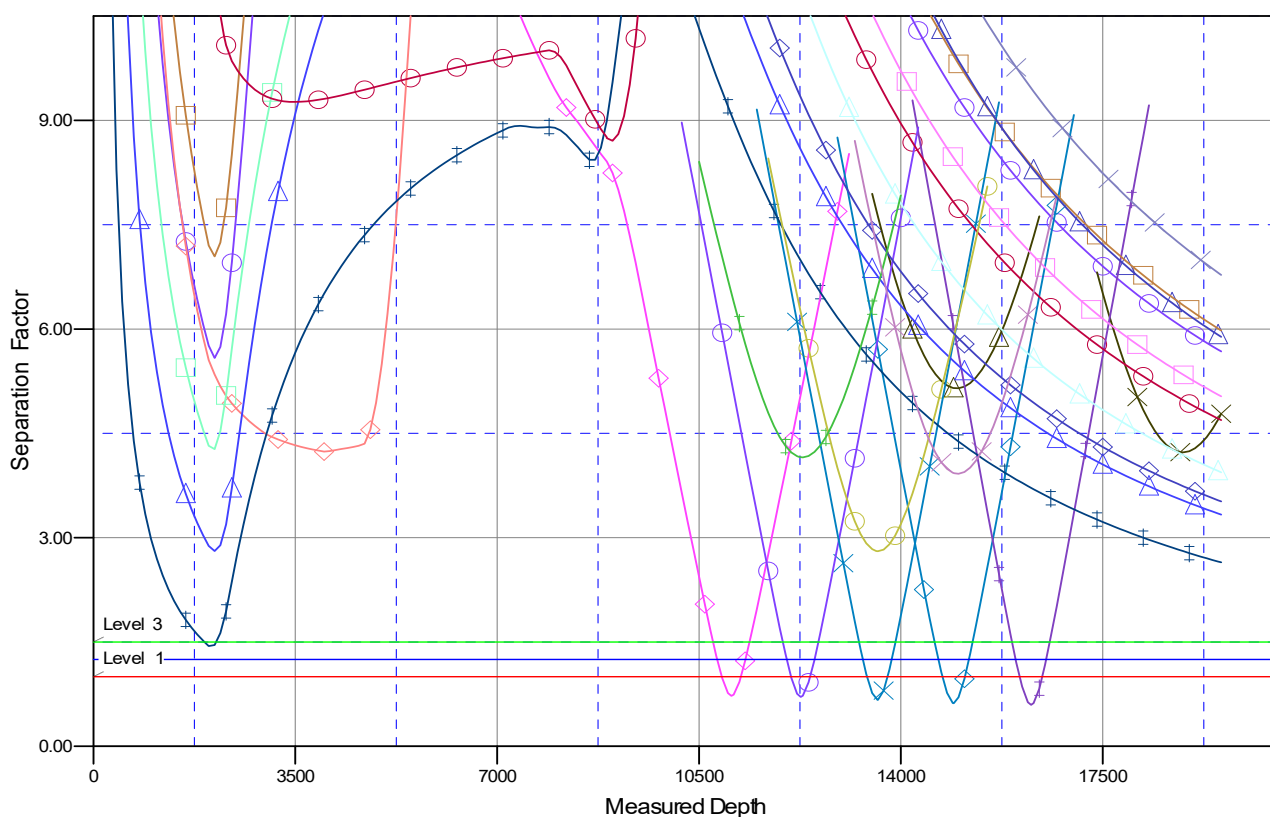
Central Meridian is -104.333334

Coordinates are relative to: Royal Oak 24 Fed Com 512H

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

Grid Convergence at Surface is: 0.39°

Separation Factor Plot



LEGEND

Royal Oak 24 Fed Com 513H, OH, Plan 0.1V0	McElvain 004, OH, OH V0	Edith Federal #1, OH, OH V0
Edith Federal #2, OH, OH V0	Royal Oak 24 Fed Com 604H, OH, Plan 0.1V0	Royal Oak 25 Fed Com #602H, OH, Plan 0.1V0
Mescalero 36 State 003, OH, OH V0	Royal Oak 24 Fed Com 603H, OH, Plan 0.1V0	Edith Federal #4, OH, P&A V0
New Mexico 36 State 002, OH, OH V0	Royal Oak 24 Fed Com 303H, OH, Plan 0.1V0	Royal Oak 25 Fed Com #602H, OH, Plan 0.1V0
New Mexico 36 State 001, OH, OH V0	Royal Oak 24 Fed Com 009H, OH, Plan 0.1V0	State LG 2484 #1, OH, OH V0
New Mexico 36 State 004, OH, OH V0	Royal Oak 24 Fed Com 304H, OH, Plan 0.1V0	Royal Oak 25 Fed Com #511H, OH, Plan 0.1V0
EK Pennrose Sand Unit 127, OH, Inactive Injection V0	Royal Oak 24 Fed Com 008H, OH, Plan 0.1V0	
McElvain 007, OH, OH V0	Royal Oak 25 Fed Com #302H, OH, Plan 0.1V0	

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

Sante Fe Main Office
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General Information
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Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

CONDITIONS

Action 431508

CONDITIONS

Operator: Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202	OGRID: 330396
	Action Number: 431508
	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