

AXIS EXPLORATION

ARAPAHOE COUNTY

Sec 4-T4S-R65W

JAMASO 4-65 5-6-6

ORIGINAL WELLBORE

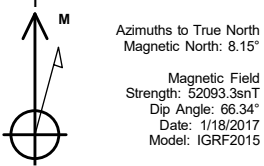
Plan: PROPOSAL 1

Standard Planning Report

18 October, 2018

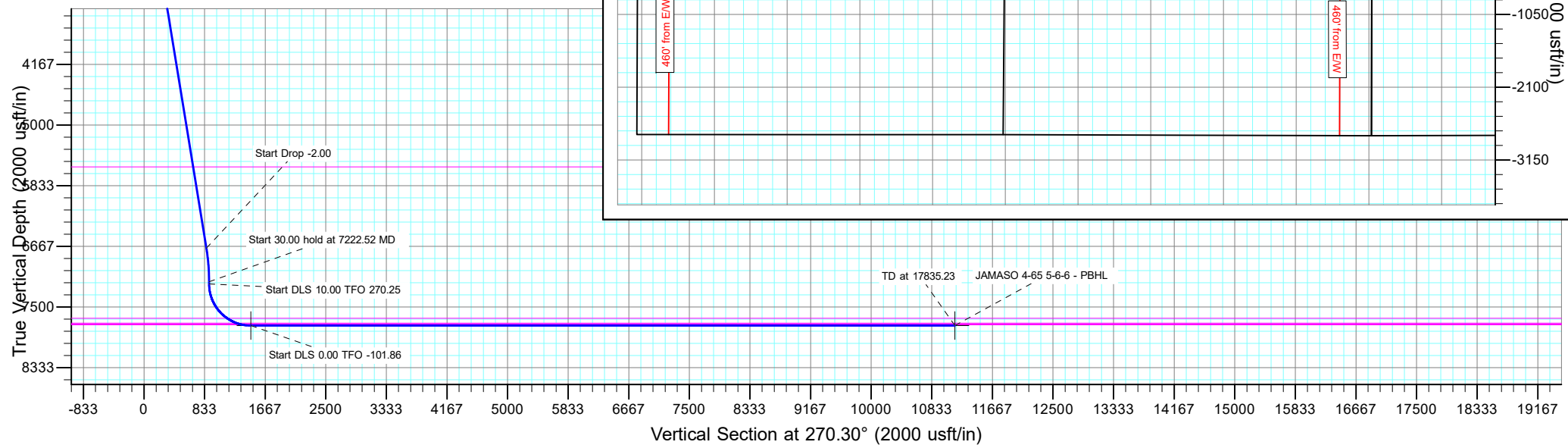


Project: ARAPAHOE COUNTY
Site: Sec 4-T4S-R65W
Well: JAMASO 4-65 5-6-6
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1



WELL DETAILS: JAMASO 4-65 5-6-6										ANNOTATIONS										
										MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation		
										1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	Start Build 2.00		
										1663.26	9.27	270.89	1661.24	0.58	-37.37	37.37	37.37	Start 5096.00 hold at 1663.26 MD		
										6759.26	9.27	270.89	6690.76	13.32	-857.75	857.81	857.85	Start Drop -2.00		
										7222.52	0.00	0.00	7152.00	13.90	-895.12	895.18	895.23	Start 30.00 hold at 7222.52 MD		
										7252.52	0.00	0.00	7182.00	13.90	-895.12	895.18	895.23	Start DLS 10.00 TFO 270.25		
										8152.59	90.00	270.25	7755.00	16.44	-1468.12	1468.19	1468.23	Start DLS 0.00 TFO -101.86		
										17835.23	90.00	270.25	7755.00	58.96	-11150.66	11150.82	11150.87	TD at 17835.23		
SECTION DETAILS										DESIGN TARGET DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		JAMASO 4-65 5-6-6 - LP	7755.00	16.44	-1468.12	1146771.47	3230637.55	39.733325°N	104.679941°W	Point	
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00		- plan hits target center									
3	1663.26	9.27	270.89	1661.24	0.58	-37.37	2.00	270.89	37.37		JAMASO 4-65 5-6-6 - PBHL	7755.00	58.96	-11150.66	1146723.88	3220955.03	39.733435°N	104.714368°W	Point	
4	6759.26	9.27	270.89	6690.76	13.32	-857.75	0.00	0.00	857.81		- plan hits target center									
5	7222.52	0.00	0.00	7152.00	13.90	-895.12	2.00	180.00	895.18											
6	7252.52	0.00	0.00	7182.00	13.90	-895.12	0.00	0.00	895.18											
7	8152.59	90.00	270.25	7755.00	16.44	-1468.12	10.00	270.25	1468.19	JAMASO 4-65 5-6-6 - L										
8	17835.23	90.00	270.25	7755.00	58.96	-11150.66	0.00	-101.86	11150.82	JAMASO 4-65 5-6-6 - P										

FORMATION TOP DETAILS			PROJECT DETAILS: ARAPAHOE COUNTY	
TVDPath	MDPath	Formation	Geodetic System: US State Plane 1983	
293.00	293.00	Denver	Datum: North American Datum 1983	
877.00	877.00	Upper Arapahoe	Ellipsoid: GRS 1980	
1165.00	1165.00	Lower Arapahoe	Zone: Colorado Northern Zone	
1718.00	1720.77	Laramie - Fox Hills	System Datum: Mean Sea Level	
1970.00	1970.00	Shale (Base of Fox Hills)		
5575.00	5628.55	Shannon Sandstone Member		
7655.00	7808.93	Sharon Springs Shale		
7720.00	7951.27	Niobrara Formation		
7735.00	8000.75	Niobrara A Chalk		
7745.00	8045.38	Niobrara A Landing Point		
			<div><p>SHL: 2450' FNL, 1008' FWL Sec 4-T4S-R65W</p><p>LP: 2440' FNL, 460' FEL Sec 5-T4S-R65W</p><p>BHL: 2440' FNL, 460' FWL Sec 6-T4S-R65W</p></div>	



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well JAMASO 4-65 5-6-6
Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project	ARAPAHOE COUNTY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 4-T4S-R65W			
Site Position:		Northing:	1,149,213.35 usft	Latitude:	39.740017°N
From:	Lat/Long	Easting:	3,231,079.56 usft	Longitude:	104.678289°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.53

Well	JAMASO 4-65 5-6-6					
Well Position	+N/-S	-2,454.06 usft	Northing:	1,146,768.69 usft	Latitude:	39.733280°N
	+E/-W	1,003.50 usft	Easting:	3,232,105.76 usft	Longitude:	104.674721°W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,585.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/18/2017	8.15	66.34	52,093.33914951

Design	PROPOSAL 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	270.30

Plan Survey Tool Program	Date	10/18/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,835.23	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,663.26	9.27	270.89	1,661.24	0.58	-37.37	2.00	2.00	0.00	270.89	
6,759.26	9.27	270.89	6,690.76	13.32	-857.75	0.00	0.00	0.00	0.00	
7,222.52	0.00	0.00	7,152.00	13.90	-895.12	2.00	-2.00	0.00	180.00	
7,252.52	0.00	0.00	7,182.00	13.90	-895.12	0.00	0.00	0.00	0.00	
8,152.59	90.00	270.25	7,755.00	16.44	-1,468.12	10.00	10.00	-9.97	270.25	JAMASO 4-65 5-6-6 -
17,835.23	90.00	270.25	7,755.00	58.96	-11,150.66	0.00	0.00	0.00	-101.86	JAMASO 4-65 5-6-6 -

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well JAMASO 4-65 5-6-6
Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
293.00	0.00	0.00	293.00	0.00	0.00	0.00	0.00	0.00	0.00
Denver									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
877.00	0.00	0.00	877.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Arapahoe									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,165.00	0.00	0.00	1,165.00	0.00	0.00	0.00	0.00	0.00	0.00
Lower Arapahoe									
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,300.00	2.00	270.89	1,299.98	0.03	-1.74	1.75	2.00	2.00	0.00
1,400.00	4.00	270.89	1,399.84	0.11	-6.98	6.98	2.00	2.00	0.00
1,500.00	6.00	270.89	1,499.45	0.24	-15.69	15.69	2.00	2.00	0.00
1,600.00	8.00	270.89	1,598.70	0.43	-27.88	27.88	2.00	2.00	0.00
1,663.26	9.27	270.89	1,661.24	0.58	-37.37	37.37	2.00	2.00	0.00
Start 5096.00 hold at 1663.26 MD									
1,700.00	9.27	270.89	1,697.50	0.67	-43.29	43.29	0.00	0.00	0.00
1,720.77	9.27	270.89	1,718.00	0.72	-46.63	46.63	0.00	0.00	0.00
Laramie - Fox Hills									
1,800.00	9.27	270.89	1,796.20	0.92	-59.38	59.39	0.00	0.00	0.00
1,900.00	9.27	270.89	1,894.90	1.17	-75.48	75.49	0.00	0.00	0.00
1,976.10	9.27	270.89	1,970.00	1.36	-87.73	87.74	0.00	0.00	0.00
Pierre Shale (Base of Fox Hills)									
2,000.00	9.27	270.89	1,993.59	1.42	-91.58	91.59	0.00	0.00	0.00
2,100.00	9.27	270.89	2,092.29	1.67	-107.68	107.69	0.00	0.00	0.00
2,200.00	9.27	270.89	2,190.98	1.92	-123.78	123.79	0.00	0.00	0.00
2,300.00	9.27	270.89	2,289.68	2.17	-139.88	139.89	0.00	0.00	0.00
2,400.00	9.27	270.89	2,388.37	2.42	-155.97	155.99	0.00	0.00	0.00
2,500.00	9.27	270.89	2,487.07	2.67	-172.07	172.08	0.00	0.00	0.00
2,600.00	9.27	270.89	2,585.76	2.92	-188.17	188.18	0.00	0.00	0.00
2,700.00	9.27	270.89	2,684.46	3.17	-204.27	204.28	0.00	0.00	0.00
2,800.00	9.27	270.89	2,783.15	3.42	-220.37	220.38	0.00	0.00	0.00
2,900.00	9.27	270.89	2,881.85	3.67	-236.47	236.48	0.00	0.00	0.00
3,000.00	9.27	270.89	2,980.54	3.92	-252.57	252.58	0.00	0.00	0.00
3,100.00	9.27	270.89	3,079.24	4.17	-268.66	268.68	0.00	0.00	0.00
3,200.00	9.27	270.89	3,177.93	4.42	-284.76	284.78	0.00	0.00	0.00
3,300.00	9.27	270.89	3,276.63	4.67	-300.86	300.88	0.00	0.00	0.00
3,400.00	9.27	270.89	3,375.33	4.92	-316.96	316.98	0.00	0.00	0.00
3,500.00	9.27	270.89	3,474.02	5.17	-333.06	333.08	0.00	0.00	0.00
3,600.00	9.27	270.89	3,572.72	5.42	-349.16	349.18	0.00	0.00	0.00
3,700.00	9.27	270.89	3,671.41	5.67	-365.26	365.28	0.00	0.00	0.00
3,800.00	9.27	270.89	3,770.11	5.92	-381.35	381.38	0.00	0.00	0.00
3,900.00	9.27	270.89	3,868.80	6.17	-397.45	397.48	0.00	0.00	0.00

Planning Report

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Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,000.00	9.27	270.89	3,967.50	6.42	-413.55	413.58	0.00	0.00	0.00
4,100.00	9.27	270.89	4,066.19	6.67	-429.65	429.68	0.00	0.00	0.00
4,200.00	9.27	270.89	4,164.89	6.92	-445.75	445.78	0.00	0.00	0.00
4,300.00	9.27	270.89	4,263.58	7.17	-461.85	461.88	0.00	0.00	0.00
4,400.00	9.27	270.89	4,362.28	7.42	-477.94	477.98	0.00	0.00	0.00
4,500.00	9.27	270.89	4,460.97	7.67	-494.04	494.08	0.00	0.00	0.00
4,600.00	9.27	270.89	4,559.67	7.92	-510.14	510.18	0.00	0.00	0.00
4,700.00	9.27	270.89	4,658.37	8.17	-526.24	526.28	0.00	0.00	0.00
4,800.00	9.27	270.89	4,757.06	8.42	-542.34	542.38	0.00	0.00	0.00
4,900.00	9.27	270.89	4,855.76	8.67	-558.44	558.48	0.00	0.00	0.00
5,000.00	9.27	270.89	4,954.45	8.92	-574.54	574.57	0.00	0.00	0.00
5,100.00	9.27	270.89	5,053.15	9.17	-590.63	590.67	0.00	0.00	0.00
5,200.00	9.27	270.89	5,151.84	9.42	-606.73	606.77	0.00	0.00	0.00
5,300.00	9.27	270.89	5,250.54	9.67	-622.83	622.87	0.00	0.00	0.00
5,400.00	9.27	270.89	5,349.23	9.92	-638.93	638.97	0.00	0.00	0.00
5,500.00	9.27	270.89	5,447.93	10.17	-655.03	655.07	0.00	0.00	0.00
5,600.00	9.27	270.89	5,546.62	10.42	-671.13	671.17	0.00	0.00	0.00
5,628.75	9.27	270.89	5,575.00	10.49	-675.76	675.80	0.00	0.00	0.00
Shannon Sandstone Member									
5,700.00	9.27	270.89	5,645.32	10.67	-687.23	687.27	0.00	0.00	0.00
5,800.00	9.27	270.89	5,744.01	10.92	-703.32	703.37	0.00	0.00	0.00
5,900.00	9.27	270.89	5,842.71	11.17	-719.42	719.47	0.00	0.00	0.00
6,000.00	9.27	270.89	5,941.41	11.42	-735.52	735.57	0.00	0.00	0.00
6,100.00	9.27	270.89	6,040.10	11.67	-751.62	751.67	0.00	0.00	0.00
6,200.00	9.27	270.89	6,138.80	11.92	-767.72	767.77	0.00	0.00	0.00
6,300.00	9.27	270.89	6,237.49	12.17	-783.82	783.87	0.00	0.00	0.00
6,400.00	9.27	270.89	6,336.19	12.42	-799.91	799.97	0.00	0.00	0.00
6,500.00	9.27	270.89	6,434.88	12.67	-816.01	816.07	0.00	0.00	0.00
6,600.00	9.27	270.89	6,533.58	12.92	-832.11	832.17	0.00	0.00	0.00
6,700.00	9.27	270.89	6,632.27	13.17	-848.21	848.27	0.00	0.00	0.00
6,759.26	9.27	270.89	6,690.76	13.32	-857.75	857.81	0.00	0.00	0.00
Start Drop -2.00									
6,800.00	8.45	270.89	6,731.01	13.42	-864.02	864.08	2.00	-2.00	0.00
6,900.00	6.45	270.89	6,830.16	13.62	-876.99	877.05	2.00	-2.00	0.00
7,000.00	4.45	270.89	6,929.71	13.77	-886.48	886.54	2.00	-2.00	0.00
7,100.00	2.45	270.89	7,029.52	13.86	-892.50	892.56	2.00	-2.00	0.00
7,200.00	0.45	270.89	7,129.48	13.90	-895.03	895.09	2.00	-2.00	0.00
7,222.52	0.00	0.00	7,152.00	13.90	-895.12	895.18	2.00	-2.00	0.00
Start 30.00 hold at 7222.52 MD									
7,252.52	0.00	0.00	7,182.00	13.90	-895.12	895.18	0.00	0.00	0.00
Start DLS 10.00 TFO 270.25									
7,300.00	4.75	270.25	7,229.43	13.91	-897.09	897.15	10.00	10.00	0.00
7,350.00	9.75	270.25	7,279.01	13.94	-903.39	903.45	10.00	10.00	0.00
7,400.00	14.75	270.25	7,327.86	13.98	-914.00	914.06	10.00	10.00	0.00
7,450.00	19.75	270.25	7,375.60	14.05	-928.82	928.88	10.00	10.00	0.00
7,500.00	24.75	270.25	7,421.86	14.13	-947.74	947.80	10.00	10.00	0.00
7,550.00	29.75	270.25	7,466.30	14.24	-970.62	970.68	10.00	10.00	0.00
7,600.00	34.75	270.25	7,508.57	14.35	-997.29	997.35	10.00	10.00	0.00
7,650.00	39.75	270.25	7,548.36	14.49	-1,027.54	1,027.61	10.00	10.00	0.00
7,700.00	44.75	270.25	7,585.37	14.64	-1,061.15	1,061.21	10.00	10.00	0.00
7,750.00	49.74	270.25	7,619.30	14.80	-1,097.85	1,097.91	10.00	10.00	0.00
7,800.00	54.74	270.25	7,649.90	14.98	-1,137.37	1,137.43	10.00	10.00	0.00
7,808.93	55.64	270.25	7,655.00	15.01	-1,144.70	1,144.76	10.00	10.00	0.00
Sharon Springs Shale									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well JAMASO 4-65 5-6-6
Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,850.00	59.74	270.25	7,676.95	15.16	-1,179.40	1,179.47	10.00	10.00	0.00
7,900.00	64.74	270.25	7,700.23	15.36	-1,223.63	1,223.70	10.00	10.00	0.00
7,950.00	69.74	270.25	7,719.56	15.56	-1,269.73	1,269.79	10.00	10.00	0.00
7,951.27	69.87	270.25	7,720.00	15.57	-1,270.92	1,270.99	10.00	10.00	0.00
Niobrara Formation									
8,000.00	74.74	270.25	7,734.80	15.77	-1,317.33	1,317.39	10.00	10.00	0.00
8,000.75	74.82	270.25	7,735.00	15.78	-1,318.05	1,318.11	10.00	10.00	0.00
Niobrara A Chalk									
8,045.38	79.28	270.25	7,745.00	15.97	-1,361.53	1,361.60	10.00	10.00	0.00
Niobrara A Landing Point									
8,050.00	79.74	270.25	7,745.84	15.99	-1,366.08	1,366.14	10.00	10.00	0.00
8,100.00	84.74	270.25	7,752.59	16.21	-1,415.61	1,415.67	10.00	10.00	0.00
8,152.59	90.00	270.25	7,755.00	16.44	-1,468.12	1,468.19	10.00	10.00	0.00
Start DLS 0.00 TFO -101.86									
8,200.00	90.00	270.25	7,755.00	16.65	-1,515.53	1,515.60	0.00	0.00	0.00
8,300.00	90.00	270.25	7,755.00	17.10	-1,615.53	1,615.60	0.00	0.00	0.00
8,400.00	90.00	270.25	7,755.00	17.54	-1,715.53	1,715.60	0.00	0.00	0.00
8,500.00	90.00	270.25	7,755.00	17.99	-1,815.53	1,815.60	0.00	0.00	0.00
8,600.00	90.00	270.25	7,755.00	18.43	-1,915.53	1,915.60	0.00	0.00	0.00
8,700.00	90.00	270.25	7,754.99	18.87	-2,015.53	2,015.60	0.00	0.00	0.00
8,800.00	90.00	270.25	7,754.99	19.32	-2,115.53	2,115.60	0.00	0.00	0.00
8,900.00	90.00	270.25	7,754.99	19.76	-2,215.52	2,215.60	0.00	0.00	0.00
9,000.00	90.00	270.25	7,754.99	20.20	-2,315.52	2,315.60	0.00	0.00	0.00
9,100.00	90.00	270.25	7,754.99	20.65	-2,415.52	2,415.60	0.00	0.00	0.00
9,200.00	90.00	270.25	7,754.99	21.09	-2,515.52	2,515.60	0.00	0.00	0.00
9,300.00	90.00	270.25	7,754.99	21.53	-2,615.52	2,615.60	0.00	0.00	0.00
9,400.00	90.00	270.25	7,754.99	21.97	-2,715.52	2,715.60	0.00	0.00	0.00
9,500.00	90.00	270.25	7,754.99	22.42	-2,815.52	2,815.60	0.00	0.00	0.00
9,600.00	90.00	270.25	7,754.99	22.86	-2,915.52	2,915.60	0.00	0.00	0.00
9,700.00	90.00	270.25	7,754.99	23.30	-3,015.52	3,015.60	0.00	0.00	0.00
9,800.00	90.00	270.25	7,754.99	23.74	-3,115.52	3,115.60	0.00	0.00	0.00
9,900.00	90.00	270.25	7,754.99	24.19	-3,215.51	3,215.60	0.00	0.00	0.00
10,000.00	90.00	270.25	7,754.99	24.63	-3,315.51	3,315.60	0.00	0.00	0.00
10,100.00	90.00	270.25	7,754.98	25.07	-3,415.51	3,415.60	0.00	0.00	0.00
10,200.00	90.00	270.25	7,754.98	25.51	-3,515.51	3,515.60	0.00	0.00	0.00
10,300.00	90.00	270.25	7,754.98	25.95	-3,615.51	3,615.60	0.00	0.00	0.00
10,400.00	90.00	270.25	7,754.98	26.40	-3,715.51	3,715.60	0.00	0.00	0.00
10,500.00	90.00	270.25	7,754.98	26.84	-3,815.51	3,815.60	0.00	0.00	0.00
10,600.00	90.00	270.25	7,754.98	27.28	-3,915.51	3,915.60	0.00	0.00	0.00
10,700.00	90.00	270.25	7,754.98	27.72	-4,015.51	4,015.60	0.00	0.00	0.00
10,800.00	90.00	270.25	7,754.98	28.16	-4,115.51	4,115.60	0.00	0.00	0.00
10,900.00	90.00	270.25	7,754.98	28.60	-4,215.50	4,215.60	0.00	0.00	0.00
11,000.00	90.00	270.25	7,754.98	29.04	-4,315.50	4,315.60	0.00	0.00	0.00
11,100.00	90.00	270.25	7,754.98	29.49	-4,415.50	4,415.60	0.00	0.00	0.00
11,200.00	90.00	270.25	7,754.98	29.93	-4,515.50	4,515.60	0.00	0.00	0.00
11,300.00	90.00	270.25	7,754.98	30.37	-4,615.50	4,615.60	0.00	0.00	0.00
11,400.00	90.00	270.25	7,754.98	30.81	-4,715.50	4,715.60	0.00	0.00	0.00
11,500.00	90.00	270.25	7,754.98	31.25	-4,815.50	4,815.60	0.00	0.00	0.00
11,600.00	90.00	270.25	7,754.98	31.69	-4,915.50	4,915.60	0.00	0.00	0.00
11,700.00	90.00	270.25	7,754.98	32.13	-5,015.50	5,015.60	0.00	0.00	0.00
11,800.00	90.00	270.25	7,754.98	32.57	-5,115.50	5,115.60	0.00	0.00	0.00
11,900.00	90.00	270.25	7,754.98	33.01	-5,215.49	5,215.60	0.00	0.00	0.00
12,000.00	90.00	270.25	7,754.98	33.45	-5,315.49	5,315.60	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well JAMASO 4-65 5-6-6
Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,100.00	90.00	270.25	7,754.98	33.89	-5,415.49	5,415.60	0.00	0.00	0.00
12,200.00	90.00	270.25	7,754.98	34.33	-5,515.49	5,515.60	0.00	0.00	0.00
12,300.00	90.00	270.25	7,754.98	34.77	-5,615.49	5,615.60	0.00	0.00	0.00
12,400.00	90.00	270.25	7,754.98	35.21	-5,715.49	5,715.60	0.00	0.00	0.00
12,500.00	90.00	270.25	7,754.98	35.65	-5,815.49	5,815.60	0.00	0.00	0.00
12,600.00	90.00	270.25	7,754.98	36.09	-5,915.49	5,915.60	0.00	0.00	0.00
12,700.00	90.00	270.25	7,754.98	36.53	-6,015.49	6,015.60	0.00	0.00	0.00
12,800.00	90.00	270.25	7,754.98	36.97	-6,115.49	6,115.60	0.00	0.00	0.00
12,900.00	90.00	270.25	7,754.98	37.41	-6,215.49	6,215.60	0.00	0.00	0.00
13,000.00	90.00	270.25	7,754.98	37.85	-6,315.48	6,315.60	0.00	0.00	0.00
13,100.00	90.00	270.25	7,754.98	38.29	-6,415.48	6,415.60	0.00	0.00	0.00
13,200.00	90.00	270.25	7,754.98	38.73	-6,515.48	6,515.60	0.00	0.00	0.00
13,300.00	90.00	270.25	7,754.98	39.16	-6,615.48	6,615.60	0.00	0.00	0.00
13,400.00	90.00	270.25	7,754.98	39.60	-6,715.48	6,715.60	0.00	0.00	0.00
13,500.00	90.00	270.25	7,754.98	40.04	-6,815.48	6,815.60	0.00	0.00	0.00
13,600.00	90.00	270.25	7,754.98	40.48	-6,915.48	6,915.60	0.00	0.00	0.00
13,700.00	90.00	270.25	7,754.98	40.92	-7,015.48	7,015.60	0.00	0.00	0.00
13,800.00	90.00	270.25	7,754.98	41.36	-7,115.48	7,115.60	0.00	0.00	0.00
13,900.00	90.00	270.25	7,754.98	41.80	-7,215.48	7,215.60	0.00	0.00	0.00
14,000.00	90.00	270.25	7,754.98	42.23	-7,315.47	7,315.60	0.00	0.00	0.00
14,100.00	90.00	270.25	7,754.98	42.67	-7,415.47	7,415.60	0.00	0.00	0.00
14,200.00	90.00	270.25	7,754.98	43.11	-7,515.47	7,515.60	0.00	0.00	0.00
14,300.00	90.00	270.25	7,754.98	43.55	-7,615.47	7,615.60	0.00	0.00	0.00
14,400.00	90.00	270.25	7,754.98	43.99	-7,715.47	7,715.60	0.00	0.00	0.00
14,500.00	90.00	270.25	7,754.98	44.42	-7,815.47	7,815.60	0.00	0.00	0.00
14,600.00	90.00	270.25	7,754.98	44.86	-7,915.47	7,915.60	0.00	0.00	0.00
14,700.00	90.00	270.25	7,754.98	45.30	-8,015.47	8,015.60	0.00	0.00	0.00
14,800.00	90.00	270.25	7,754.98	45.74	-8,115.47	8,115.60	0.00	0.00	0.00
14,900.00	90.00	270.25	7,754.98	46.17	-8,215.47	8,215.60	0.00	0.00	0.00
15,000.00	90.00	270.25	7,754.98	46.61	-8,315.47	8,315.60	0.00	0.00	0.00
15,100.00	90.00	270.25	7,754.98	47.05	-8,415.46	8,415.60	0.00	0.00	0.00
15,200.00	90.00	270.25	7,754.98	47.48	-8,515.46	8,515.60	0.00	0.00	0.00
15,300.00	90.00	270.25	7,754.98	47.92	-8,615.46	8,615.60	0.00	0.00	0.00
15,400.00	90.00	270.25	7,754.98	48.36	-8,715.46	8,715.60	0.00	0.00	0.00
15,500.00	90.00	270.25	7,754.98	48.79	-8,815.46	8,815.60	0.00	0.00	0.00
15,600.00	90.00	270.25	7,754.98	49.23	-8,915.46	8,915.60	0.00	0.00	0.00
15,700.00	90.00	270.25	7,754.98	49.67	-9,015.46	9,015.60	0.00	0.00	0.00
15,800.00	90.00	270.25	7,754.98	50.10	-9,115.46	9,115.59	0.00	0.00	0.00
15,900.00	90.00	270.25	7,754.98	50.54	-9,215.46	9,215.59	0.00	0.00	0.00
16,000.00	90.00	270.25	7,754.99	50.98	-9,315.46	9,315.59	0.00	0.00	0.00
16,100.00	90.00	270.25	7,754.99	51.41	-9,415.45	9,415.59	0.00	0.00	0.00
16,200.00	90.00	270.25	7,754.99	51.85	-9,515.45	9,515.59	0.00	0.00	0.00
16,300.00	90.00	270.25	7,754.99	52.28	-9,615.45	9,615.59	0.00	0.00	0.00
16,400.00	90.00	270.25	7,754.99	52.72	-9,715.45	9,715.59	0.00	0.00	0.00
16,500.00	90.00	270.25	7,754.99	53.16	-9,815.45	9,815.59	0.00	0.00	0.00
16,600.00	90.00	270.25	7,754.99	53.59	-9,915.45	9,915.59	0.00	0.00	0.00
16,700.00	90.00	270.25	7,754.99	54.03	-10,015.45	10,015.59	0.00	0.00	0.00
16,800.00	90.00	270.25	7,754.99	54.46	-10,115.45	10,115.59	0.00	0.00	0.00
16,900.00	90.00	270.25	7,754.99	54.90	-10,215.45	10,215.59	0.00	0.00	0.00
17,000.00	90.00	270.25	7,754.99	55.33	-10,315.45	10,315.59	0.00	0.00	0.00
17,100.00	90.00	270.25	7,754.99	55.77	-10,415.45	10,415.59	0.00	0.00	0.00
17,200.00	90.00	270.25	7,754.99	56.20	-10,515.44	10,515.59	0.00	0.00	0.00
17,300.00	90.00	270.25	7,755.00	56.64	-10,615.44	10,615.59	0.00	0.00	0.00
17,400.00	90.00	270.25	7,755.00	57.07	-10,715.44	10,715.59	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well JAMASO 4-65 5-6-6
Company:	AXIS EXPLORATION	TVD Reference:	KB 25' @ 5610.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5610.00usft
Site:	Sec 4-T4S-R65W	North Reference:	True
Well:	JAMASO 4-65 5-6-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
17,500.00	90.00	270.25	7,755.00	57.51	-10,815.44	10,815.59	0.00	0.00	0.00	
17,600.00	90.00	270.25	7,755.00	57.94	-10,915.44	10,915.59	0.00	0.00	0.00	
17,700.00	90.00	270.25	7,755.00	58.38	-11,015.44	11,015.59	0.00	0.00	0.00	
17,800.00	90.00	270.25	7,755.00	58.81	-11,115.44	11,115.59	0.00	0.00	0.00	
17,835.23	90.00	270.25	7,755.00	58.96	-11,150.66	11,150.82	0.00	0.00	0.00	
TD at 17835.23										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
JAMASO 4-65 5-6-6 - LF - hit/miss target - Shape - Point	0.00	0.00	7,755.00	16.44	-1,468.12	1,146,771.47	3,230,637.55	39.733325°N	104.679941°W	
JAMASO 4-65 5-6-6 - PI - plan hits target center - Point	0.00	0.00	7,755.00	58.96	-11,150.66	1,146,723.87	3,220,955.03	39.733435°N	104.714368°W	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
293.00	293.00	Denver				
877.00	877.00	Upper Arapahoe				
1,165.00	1,165.00	Lower Arapahoe				
1,720.77	1,718.00	Laramie - Fox Hills				
1,976.10	1,970.00	Pierre Shale (Base of Fox Hills)				
5,628.75	5,575.00	Shannon Sandstone Member				
7,808.93	7,655.00	Sharon Springs Shale				
7,951.27	7,720.00	Niobrara Formation				
8,000.75	7,735.00	Niobrara A Chalk				
8,045.38	7,745.00	Niobrara A Landing Point				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
1,200.00	1,200.00	0.00	0.00	Start Build 2.00	
1,663.26	1,661.24	0.58	-37.37	Start 5096.00 hold at 1663.26 MD	
6,759.26	6,690.76	13.32	-857.75	Start Drop -2.00	
7,222.52	7,152.00	13.90	-895.12	Start 30.00 hold at 7222.52 MD	
7,252.52	7,182.00	13.90	-895.12	Start DLS 10.00 TFO 270.25	
8,152.59	7,755.00	16.44	-1,468.12	Start DLS 0.00 TFO -101.86	
17,835.23	7,755.00	58.96	-11,150.66	TD at 17835.23	