

Axis Exploration

Weld County, CO (NAD83)

Sec 04-T04S-R65W Jamaso Pad

Jamaso 4-65 5-6-10

Wellbore #1

Design: Wellbore #1

Standard Survey Report

15 August, 2019

Survey Report

Company:	Axis Exploration	Local Co-ordinate Reference:	Well Jamaso 4-65 5-6-10
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5616.00usft (Patterson 340)
Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
Well:	Jamaso 4-65 5-6-10	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Project	Weld County, CO (NAD83),		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 04-T04S-R65W Jamaso Pad							
Site Position:		Northing:	1,149,214.44	usft	Latitude:	39.740020			
From:	Map	Easting:	3,231,079.27	usft	Longitude:	-104.678290			
Position Uncertainty:		0.00	usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.53	°

Well		Jamaso 4-65 5-6-10				
Well Position	+N/-S	0.00 usft	Northing:	1,146,770.91 usft	Latitude:	39.733281
	+E/-W	0.00 usft	Easting:	3,232,307.97 usft	Longitude:	-104.674002
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,591.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/5/2019	7.89	66.28	51,774.60134837

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	262.43	

Survey Program	Date	8/8/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
135.00	2,649.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
2,700.00	18,214.00	Atlas MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
135.00	0.88	47.35	134.99	0.70	0.76	-0.85	0.65	0.65	0.00	
223.00	0.62	49.46	222.99	1.47	1.62	-1.80	0.30	-0.30	2.40	
310.00	0.13	327.11	309.99	1.86	1.93	-2.15	0.71	-0.56	-94.66	
397.00	0.22	352.42	396.98	2.11	1.85	-2.11	0.13	0.10	29.09	
484.00	0.53	351.28	483.98	2.67	1.77	-2.10	0.36	0.36	-1.31	
572.00	1.19	238.16	571.98	2.59	0.93	-1.26	1.68	0.75	-128.55	
659.00	2.15	223.93	658.94	0.94	-0.97	0.84	1.19	1.10	-16.36	
746.00	3.52	210.21	745.83	-2.54	-3.45	3.75	1.75	1.57	-15.77	
833.00	7.43	204.41	832.42	-9.98	-7.12	8.37	4.53	4.49	-6.67	

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Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
Well:	Jamaso 4-65 5-6-10	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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)
921.00	8.44	205.38	919.57	-20.99	-12.24	14.90	1.16	1.15	1.10
1,008.00	9.84	210.48	1,005.47	-33.17	-18.74	22.95	1.86	1.61	5.86
1,095.00	12.26	213.47	1,090.85	-47.28	-27.61	33.60	2.86	2.78	3.44
1,182.00	13.62	215.49	1,175.64	-63.33	-38.65	46.66	1.65	1.56	2.32
1,270.00	14.50	214.87	1,261.00	-80.81	-50.97	61.17	1.01	1.00	-0.70
1,357.00	15.91	215.05	1,344.95	-99.51	-64.04	76.59	1.62	1.62	0.21
1,444.00	16.66	214.96	1,428.46	-119.49	-78.04	93.10	0.86	0.86	-0.10
1,531.00	17.09	215.66	1,511.72	-140.10	-92.64	110.29	0.55	0.49	0.80
1,619.00	18.06	215.93	1,595.61	-161.65	-108.18	128.53	1.11	1.10	0.31
1,706.00	18.28	214.87	1,678.27	-183.76	-123.89	147.02	0.46	0.25	-1.22
1,793.00	19.91	214.35	1,760.48	-207.19	-140.05	166.13	1.88	1.87	-0.60
1,880.00	20.26	214.87	1,842.19	-231.78	-157.02	186.19	0.45	0.40	0.60
1,968.00	19.78	215.40	1,924.87	-256.42	-174.36	206.62	0.58	-0.55	0.60
2,055.00	19.20	217.16	2,006.89	-279.82	-191.53	226.72	0.95	-0.67	2.02
2,142.00	17.18	217.33	2,089.54	-301.44	-207.96	245.86	2.32	-2.32	0.20
2,229.00	16.96	216.37	2,172.70	-321.87	-223.28	263.74	0.41	-0.25	-1.10
2,317.00	16.39	216.02	2,257.00	-342.25	-238.19	281.21	0.66	-0.65	-0.40
2,404.00	16.92	214.96	2,340.35	-362.55	-252.66	298.23	0.70	0.61	-1.22
2,491.00	17.62	214.87	2,423.43	-383.73	-267.45	315.67	0.81	0.80	-0.10
2,578.00	17.71	213.99	2,506.33	-405.50	-282.37	333.34	0.32	0.10	-1.01
2,649.00	17.53	215.49	2,574.00	-423.17	-294.62	347.80	0.69	-0.25	2.11
Tie into Surface Surveys									
2,700.00	18.12	217.83	2,622.55	-435.68	-303.94	358.69	1.82	1.16	4.59
First MWD Survey @ 2700' MD									
2,796.00	17.50	215.45	2,713.95	-459.23	-321.47	379.17	1.00	-0.65	-2.48
2,891.00	18.87	214.26	2,804.20	-483.57	-338.40	399.16	1.49	1.44	-1.25
2,985.00	18.34	212.36	2,893.29	-508.62	-354.88	418.79	0.86	-0.56	-2.02
3,081.00	17.32	209.81	2,984.68	-533.78	-370.06	437.16	1.34	-1.06	-2.66
3,176.00	18.65	211.83	3,075.04	-558.96	-385.11	455.39	1.55	1.40	2.13
3,366.00	17.10	212.01	3,255.86	-608.46	-415.94	492.48	0.82	-0.82	0.09
3,461.00	17.06	221.70	3,346.69	-630.71	-432.61	511.94	2.99	-0.04	10.20
3,556.00	18.38	221.44	3,437.18	-652.34	-451.80	533.81	1.39	1.39	-0.27
3,651.00	17.32	220.21	3,527.60	-674.37	-470.84	555.58	1.18	-1.12	-1.29
3,746.00	18.96	228.89	3,617.90	-695.32	-491.60	578.93	3.32	1.73	9.14
3,841.00	17.68	215.18	3,708.12	-717.27	-511.55	601.59	4.72	-1.35	-14.43
3,936.00	17.85	217.21	3,798.59	-740.66	-528.67	621.64	0.68	0.18	2.14
4,032.00	19.09	216.59	3,889.65	-764.98	-546.93	642.94	1.31	1.29	-0.65
4,127.00	17.01	214.13	3,979.97	-788.96	-563.98	663.01	2.33	-2.19	-2.59
4,222.00	18.91	212.54	4,070.33	-813.45	-580.06	682.18	2.07	2.00	-1.67
4,317.00	17.19	210.12	4,160.66	-838.57	-595.39	700.68	1.97	-1.81	-2.55
4,412.00	18.21	213.60	4,251.16	-863.08	-610.65	719.04	1.55	1.07	3.66
4,507.00	19.22	214.17	4,341.14	-888.38	-627.65	739.22	1.08	1.06	0.60
4,602.00	17.41	211.08	4,431.32	-913.49	-643.77	758.51	2.16	-1.91	-3.25

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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Survey									
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4,697.00	18.25	213.55	4,521.76	-938.06	-659.33	777.17	1.19	0.88	2.60
4,792.00	18.29	212.80	4,611.97	-962.99	-675.62	796.61	0.25	0.04	-0.79
4,886.00	18.07	212.58	4,701.28	-987.67	-691.46	815.56	0.25	-0.23	-0.23
4,980.00	17.99	214.52	4,790.66	-1,011.91	-707.54	834.69	0.64	-0.09	2.06
5,076.00	19.09	215.45	4,881.68	-1,036.92	-725.04	855.34	1.19	1.15	0.97
5,171.00	17.50	213.95	4,971.88	-1,061.42	-742.03	875.41	1.75	-1.67	-1.58
5,267.00	18.96	212.67	5,063.06	-1,086.53	-758.51	895.05	1.58	1.52	-1.33
5,362.00	17.54	211.00	5,153.28	-1,111.79	-774.22	913.95	1.59	-1.49	-1.76
5,457.00	18.16	214.17	5,243.70	-1,136.31	-789.91	932.73	1.21	0.65	3.34
5,552.00	19.09	213.86	5,333.73	-1,161.46	-806.88	952.87	0.98	0.98	-0.33
5,647.00	18.56	212.23	5,423.65	-1,187.15	-823.60	972.82	0.79	-0.56	-1.72
5,742.00	17.90	210.07	5,513.88	-1,212.57	-838.97	991.42	0.99	-0.69	-2.27
5,837.00	19.97	212.76	5,603.74	-1,238.85	-855.07	1,010.84	2.36	2.18	2.83
5,954.00	18.69	213.07	5,714.14	-1,271.37	-876.11	1,035.98	1.10	-1.09	0.26
6,049.00	19.66	215.49	5,803.87	-1,297.14	-893.70	1,056.80	1.32	1.02	2.55
6,144.00	17.32	213.77	5,893.96	-1,321.91	-910.84	1,077.06	2.53	-2.46	-1.81
6,239.00	17.19	213.42	5,984.68	-1,345.38	-926.43	1,095.61	0.18	-0.14	-0.37
6,334.00	18.25	214.43	6,075.17	-1,369.37	-942.57	1,114.77	1.16	1.12	1.06
6,429.00	18.56	214.83	6,165.31	-1,394.05	-959.62	1,134.92	0.35	0.33	0.42
6,524.00	18.91	214.04	6,255.28	-1,419.21	-976.87	1,155.34	0.46	0.37	-0.83
6,619.00	18.16	216.02	6,345.35	-1,443.94	-994.19	1,175.77	1.03	-0.79	2.08
6,714.00	15.82	214.35	6,436.20	-1,466.61	-1,010.21	1,194.63	2.52	-2.46	-1.76
6,809.00	13.96	210.29	6,528.01	-1,487.20	-1,023.30	1,210.31	2.24	-1.96	-4.27
6,904.00	12.46	205.49	6,620.50	-1,506.35	-1,033.49	1,222.94	1.95	-1.58	-5.05
6,999.00	10.03	209.19	6,713.67	-1,522.82	-1,041.93	1,233.48	2.67	-2.56	3.89
7,094.00	7.91	214.74	6,807.50	-1,535.42	-1,049.69	1,242.84	2.41	-2.23	5.84
7,190.00	6.32	221.13	6,902.76	-1,544.83	-1,056.94	1,251.25	1.85	-1.66	6.66
7,285.00	3.76	220.96	6,997.39	-1,551.12	-1,062.42	1,257.52	2.69	-2.69	-0.18
7,379.00	2.34	230.83	7,091.25	-1,554.66	-1,065.93	1,261.46	1.61	-1.51	10.50
7,474.00	0.13	4.70	7,186.23	-1,555.78	-1,067.42	1,263.09	2.56	-2.33	140.92
7,570.00	0.40	10.05	7,282.22	-1,555.34	-1,067.35	1,262.96	0.28	0.28	5.57
7,665.00	1.06	239.90	7,377.22	-1,555.45	-1,068.06	1,263.68	1.42	0.69	-137.00
7,760.00	12.51	277.80	7,471.41	-1,554.49	-1,079.05	1,274.45	12.31	12.05	39.89
7,854.00	16.44	276.79	7,562.41	-1,551.54	-1,102.35	1,297.16	4.19	4.18	-1.07
7,950.00	29.52	277.63	7,650.60	-1,546.77	-1,139.44	1,333.30	13.63	13.63	0.88
7,953.65	30.00	277.68	7,653.77	-1,546.53	-1,141.24	1,335.05	13.17	13.15	1.31
30° Inclination @ 7953.65' MD									
8,045.00	42.02	278.55	7,727.53	-1,538.90	-1,194.30	1,386.64	13.17	13.16	0.95
8,075.04	46.12	276.60	7,749.11	-1,536.16	-1,215.01	1,406.81	14.36	13.63	-6.48
Cross @ 8075.04' MD									
8,140.00	55.06	273.18	7,790.32	-1,531.98	-1,264.96	1,455.77	14.36	13.77	-5.27
8,235.00	61.47	272.51	7,840.26	-1,527.99	-1,345.61	1,535.19	6.77	6.75	-0.71
8,330.00	66.77	270.88	7,881.71	-1,525.49	-1,431.01	1,619.52	5.79	5.58	-1.72
8,357.23	70.00	270.64	7,891.74	-1,525.16	-1,456.32	1,644.57	11.89	11.86	-0.87

Survey Report

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Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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70° Inclination @ 8357.23' MD									
8,425.00	78.04	270.09	7,910.38	-1,524.75	-1,521.42	1,709.04	11.89	11.86	-0.82
8,521.00	82.28	268.06	7,926.79	-1,526.28	-1,615.97	1,802.97	4.88	4.42	-2.11
8,616.00	88.42	267.71	7,934.49	-1,529.78	-1,710.54	1,897.18	6.47	6.46	-0.37
8,711.00	91.38	267.23	7,934.65	-1,533.97	-1,805.44	1,991.80	3.16	3.12	-0.51
8,806.00	90.81	270.09	7,932.84	-1,536.19	-1,900.39	2,086.22	3.07	-0.60	3.01
8,901.00	88.29	270.27	7,933.58	-1,535.89	-1,995.38	2,180.34	2.66	-2.65	0.19
8,996.00	88.03	269.74	7,936.63	-1,535.89	-2,090.33	2,274.46	0.62	-0.27	-0.56
9,091.00	88.56	270.00	7,939.46	-1,536.10	-2,185.28	2,368.62	0.62	0.56	0.27
9,186.00	88.73	269.56	7,941.71	-1,536.47	-2,280.26	2,462.81	0.50	0.18	-0.46
9,281.00	88.91	269.56	7,943.66	-1,537.19	-2,375.23	2,557.05	0.19	0.19	0.00
9,376.00	89.22	269.30	7,945.21	-1,538.14	-2,470.22	2,651.33	0.43	0.33	-0.27
9,471.00	90.41	269.43	7,945.52	-1,539.19	-2,565.21	2,745.64	1.26	1.25	0.14
9,566.00	88.47	269.74	7,946.45	-1,539.88	-2,660.20	2,839.89	2.07	-2.04	0.33
9,661.00	88.95	269.30	7,948.59	-1,540.68	-2,755.17	2,934.14	0.69	0.51	-0.46
9,756.00	90.19	268.81	7,949.30	-1,542.24	-2,850.15	3,028.50	1.40	1.31	-0.52
9,851.00	89.26	269.61	7,949.76	-1,543.55	-2,945.14	3,122.83	1.29	-0.98	0.84
9,946.00	89.97	269.47	7,950.39	-1,544.32	-3,040.13	3,217.10	0.76	0.75	-0.15
10,041.00	88.25	269.69	7,951.87	-1,545.01	-3,135.12	3,311.34	1.83	-1.81	0.23
10,136.00	88.95	269.78	7,954.19	-1,545.45	-3,230.09	3,405.54	0.74	0.74	0.09
10,231.00	88.86	268.55	7,956.01	-1,546.84	-3,325.06	3,499.87	1.30	-0.09	-1.29
10,326.00	88.78	268.42	7,957.96	-1,549.35	-3,420.00	3,594.32	0.16	-0.08	-0.14
10,421.00	88.07	270.75	7,960.57	-1,550.03	-3,514.96	3,688.53	2.56	-0.75	2.45
10,516.00	87.89	270.97	7,963.92	-1,548.61	-3,609.89	3,782.45	0.30	-0.19	0.23
10,611.00	88.51	270.71	7,966.91	-1,547.22	-3,704.83	3,876.38	0.71	0.65	-0.27
10,651.00	88.51	271.02	7,967.95	-1,546.61	-3,744.81	3,915.93	0.77	0.00	0.78
10,746.00	90.59	271.50	7,968.69	-1,544.52	-3,839.78	4,009.80	2.25	2.19	0.51
10,841.00	91.07	271.59	7,967.32	-1,541.96	-3,934.74	4,103.59	0.51	0.51	0.09
10,936.00	88.82	270.88	7,967.41	-1,539.92	-4,029.71	4,197.46	2.48	-2.37	-0.75
11,031.00	89.93	272.38	7,968.44	-1,537.21	-4,124.66	4,291.23	1.96	1.17	1.58
11,127.00	88.16	270.88	7,970.04	-1,534.48	-4,220.60	4,385.98	2.42	-1.84	-1.56
11,222.00	88.51	271.02	7,972.80	-1,532.91	-4,315.55	4,479.89	0.40	0.37	0.15
11,317.00	89.13	270.58	7,974.76	-1,531.58	-4,410.52	4,573.86	0.80	0.65	-0.46
11,411.00	89.48	269.96	7,975.90	-1,531.14	-4,504.51	4,666.97	0.76	0.37	-0.66
11,506.00	87.19	270.31	7,978.66	-1,530.92	-4,599.46	4,761.07	2.44	-2.41	0.37
11,601.00	86.83	268.99	7,983.62	-1,531.50	-4,694.33	4,855.18	1.44	-0.38	-1.39
11,696.00	88.56	269.25	7,987.44	-1,532.95	-4,789.24	4,949.45	1.84	1.82	0.27
11,792.00	89.09	269.39	7,989.41	-1,534.09	-4,885.21	5,044.74	0.57	0.55	0.15
11,887.00	89.70	269.74	7,990.41	-1,534.81	-4,980.20	5,139.00	0.74	0.64	0.37
11,982.00	90.19	269.34	7,990.50	-1,535.58	-5,075.20	5,233.27	0.67	0.52	-0.42
12,077.00	90.01	269.56	7,990.33	-1,536.49	-5,170.19	5,327.56	0.30	-0.19	0.23
12,172.00	89.00	268.81	7,991.16	-1,537.84	-5,265.18	5,421.89	1.32	-1.06	-0.79
12,267.00	89.40	268.68	7,992.48	-1,539.92	-5,360.14	5,516.30	0.44	0.42	-0.14

Survey Report

Company:	Axis Exploration	Local Co-ordinate Reference:	Well Jamaso 4-65 5-6-10
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5616.00usft (Patterson 340)
Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
Well:	Jamaso 4-65 5-6-10	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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)
12,362.00	89.75	268.20	7,993.19	-1,542.51	-5,455.11	5,610.78	0.63	0.37	-0.51
12,458.00	90.46	268.28	7,993.01	-1,545.45	-5,551.06	5,706.28	0.74	0.74	0.08
12,553.00	89.62	269.96	7,992.94	-1,546.91	-5,646.04	5,800.63	1.98	-0.88	1.77
12,648.00	90.63	269.91	7,992.74	-1,547.02	-5,741.04	5,894.82	1.06	1.06	-0.05
12,743.00	91.16	269.25	7,991.25	-1,547.72	-5,836.03	5,989.07	0.89	0.56	-0.69
12,839.00	90.63	271.02	7,989.75	-1,547.49	-5,932.01	6,084.18	1.92	-0.55	1.84
12,934.00	90.10	273.35	7,989.15	-1,543.87	-6,026.93	6,177.80	2.52	-0.56	2.45
13,029.00	88.86	273.09	7,990.01	-1,538.53	-6,121.78	6,271.12	1.33	-1.31	-0.27
13,124.00	89.44	273.09	7,991.42	-1,533.41	-6,216.63	6,364.47	0.61	0.61	0.00
13,219.00	90.59	272.25	7,991.39	-1,528.99	-6,311.52	6,457.95	1.50	1.21	-0.88
13,314.00	89.09	272.96	7,991.66	-1,524.67	-6,406.42	6,551.45	1.75	-1.58	0.75
13,410.00	89.57	270.84	7,992.78	-1,521.49	-6,502.36	6,646.13	2.26	0.50	-2.21
13,431.65	89.45	270.68	7,992.97	-1,521.20	-6,524.00	6,667.55	0.92	-0.56	-0.74
Cross @ 13431.65' MD									
13,505.00	89.04	270.14	7,993.93	-1,520.68	-6,597.35	6,740.19	0.92	-0.56	-0.74
13,600.00	90.19	268.50	7,994.57	-1,521.80	-6,692.33	6,834.49	2.11	1.21	-1.73
13,696.00	88.91	271.15	7,995.33	-1,522.10	-6,788.32	6,929.68	3.07	-1.33	2.76
13,791.00	90.01	269.65	7,996.22	-1,521.43	-6,883.31	7,023.75	1.96	1.16	-1.58
13,886.00	87.63	270.22	7,998.18	-1,521.54	-6,978.28	7,117.91	2.58	-2.51	0.60
13,980.00	87.98	269.08	8,001.78	-1,522.12	-7,072.21	7,211.10	1.27	0.37	-1.21
14,075.00	88.29	267.89	8,004.87	-1,524.63	-7,167.12	7,305.52	1.29	0.33	-1.25
14,170.00	89.57	269.43	8,006.65	-1,526.85	-7,262.07	7,399.93	2.11	1.35	1.62
14,265.00	91.65	269.34	8,005.63	-1,527.87	-7,357.06	7,494.22	2.19	2.19	-0.09
14,360.00	88.82	269.83	8,005.24	-1,528.55	-7,452.05	7,588.47	3.02	-2.98	0.52
14,455.00	89.66	269.17	8,006.50	-1,529.38	-7,547.03	7,682.74	1.12	0.88	-0.69
14,550.00	89.53	270.00	8,007.18	-1,530.07	-7,642.03	7,777.00	0.88	-0.14	0.87
14,645.00	89.13	271.02	8,008.29	-1,529.23	-7,737.01	7,871.05	1.15	-0.42	1.07
14,741.00	88.51	271.02	8,010.26	-1,527.52	-7,832.98	7,965.95	0.65	-0.65	0.00
14,835.00	89.66	270.44	8,011.76	-1,526.32	-7,926.96	8,058.95	1.37	1.22	-0.62
14,930.00	88.42	270.53	8,013.36	-1,525.52	-8,021.94	8,153.00	1.31	-1.31	0.09
15,025.00	89.48	271.24	8,015.10	-1,524.05	-8,116.91	8,246.95	1.34	1.12	0.75
15,119.00	90.28	269.61	8,015.29	-1,523.35	-8,210.90	8,340.03	1.93	0.85	-1.73
15,215.00	88.47	271.85	8,016.34	-1,522.13	-8,306.88	8,435.01	3.00	-1.89	2.33
15,309.00	88.60	271.10	8,018.74	-1,519.71	-8,400.82	8,527.81	0.81	0.14	-0.80
15,404.00	88.78	270.62	8,020.92	-1,518.28	-8,495.78	8,621.76	0.54	0.19	-0.51
15,500.00	89.09	270.00	8,022.70	-1,517.77	-8,591.76	8,716.83	0.72	0.32	-0.65
15,594.00	89.40	268.28	8,023.94	-1,519.18	-8,685.74	8,810.18	1.86	0.33	-1.83
15,690.00	88.78	270.71	8,025.46	-1,520.02	-8,781.72	8,905.43	2.61	-0.65	2.53
15,785.00	89.26	269.65	8,027.09	-1,519.72	-8,876.70	8,999.54	1.22	0.51	-1.12
15,880.00	90.01	269.52	8,027.69	-1,520.41	-8,971.69	9,093.80	0.80	0.79	-0.14
15,975.00	90.59	268.64	8,027.20	-1,521.94	-9,066.68	9,188.16	1.11	0.61	-0.93
16,070.00	89.26	270.62	8,027.32	-1,522.55	-9,161.67	9,282.40	2.51	-1.40	2.08
16,165.00	89.84	270.27	8,028.07	-1,521.81	-9,256.66	9,376.47	0.71	0.61	-0.37
16,260.00	90.68	269.65	8,027.64	-1,521.88	-9,351.66	9,470.65	1.10	0.88	-0.65

Survey Report

Company:	Axis Exploration	Local Co-ordinate Reference:	Well Jamaso 4-65 5-6-10
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5616.00usft (Patterson 340)
Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
Well:	Jamaso 4-65 5-6-10	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
16,355.00	88.82	270.36	8,028.05	-1,521.87	-9,446.66	9,564.82	2.10	-1.96	0.75	
16,450.00	90.23	270.36	8,028.84	-1,521.27	-9,541.65	9,658.90	1.48	1.48	0.00	
16,545.00	89.93	272.82	8,028.71	-1,518.64	-9,636.60	9,752.68	2.61	-0.32	2.59	
16,640.00	90.41	271.59	8,028.42	-1,514.98	-9,731.53	9,846.30	1.39	0.51	-1.29	
16,735.00	87.76	271.02	8,029.94	-1,512.82	-9,826.49	9,940.14	2.85	-2.79	-0.60	
16,831.00	88.60	271.28	8,032.99	-1,510.89	-9,922.42	10,034.98	0.92	0.88	0.27	
16,926.00	89.53	269.96	8,034.54	-1,509.87	-10,017.40	10,129.00	1.70	0.98	-1.39	
17,021.00	90.63	269.61	8,034.41	-1,510.22	-10,112.39	10,223.22	1.22	1.16	-0.37	
17,116.00	91.21	268.37	8,032.88	-1,511.90	-10,207.36	10,317.58	1.44	0.61	-1.31	
17,211.00	89.13	268.64	8,032.60	-1,514.38	-10,302.33	10,412.04	2.21	-2.19	0.28	
17,306.00	88.69	269.96	8,034.41	-1,515.54	-10,397.30	10,506.34	1.46	-0.46	1.39	
17,402.00	89.62	269.56	8,035.82	-1,515.94	-10,493.29	10,601.54	1.05	0.97	-0.42	
17,496.00	90.50	268.95	8,035.72	-1,517.16	-10,587.28	10,694.87	1.14	0.94	-0.65	
17,591.00	89.79	270.49	8,035.48	-1,517.62	-10,682.27	10,789.10	1.79	-0.75	1.62	
17,687.00	90.85	271.46	8,034.95	-1,515.99	-10,778.26	10,884.03	1.50	1.10	1.01	
17,782.00	89.79	272.03	8,034.42	-1,513.10	-10,873.21	10,977.78	1.27	-1.12	0.60	
17,877.00	90.19	271.99	8,034.43	-1,509.77	-10,968.15	11,071.45	0.42	0.42	-0.04	
17,972.00	88.38	271.55	8,035.62	-1,506.83	-11,063.09	11,165.18	1.96	-1.91	-0.46	
18,067.00	88.86	271.59	8,037.91	-1,504.23	-11,158.03	11,258.95	0.51	0.51	0.04	
18,148.00	89.40	270.31	8,039.14	-1,502.89	-11,239.01	11,339.04	1.71	0.67	-1.58	
Last MWD Survey @ 18148' MD										
18,214.00	89.40	270.31	8,039.83	-1,502.53	-11,305.00	11,404.41	0.00	0.00	0.00	
Projection to TD @ 18214' MD 1282' FSL/ 513.5' FWL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
30° Inclination @ 7953.6	0.00	0.00	7,653.77	-1,546.53	-1,141.24	1,145,213.82	3,231,181.18	39.729035	-104.678060	
- hit/miss target										
- actual wellpath hits target center										
- Point										
Cross @ 8075.04' MD	0.00	0.00	7,749.11	-1,536.16	-1,215.00	1,145,223.50	3,231,107.33	39.729064	-104.678322	
- actual wellpath misses target center by 0.01usft at 8075.04usft MD (7749.10 TVD, -1536.16 N, -1215.00 E)										
- Point										
70° Inclination @ 8357.2	0.00	0.00	7,891.74	-1,525.15	-1,456.32	1,145,232.26	3,230,865.92	39.729094	-104.679180	
- actual wellpath hits target center										
- Point										
Cross @ 13431.65' MD	0.00	0.00	7,992.97	-1,521.20	-6,524.00	1,145,189.01	3,225,798.42	39.729103	-104.697197	
- actual wellpath hits target center										
- Point										

Survey Report

Company:	Axis Exploration	Local Co-ordinate Reference:	Well Jamaso 4-65 5-6-10
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5616.00usft (Patterson 340)
Site:	Sec 04-T04S-R65W Jamaso Pad	MD Reference:	KB @ 5616.00usft (Patterson 340)
Well:	Jamaso 4-65 5-6-10	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,649.00	2,574.00	-423.17	-294.62	Tie into Surface Surveys
2,700.00	2,622.55	-435.68	-303.94	First MWD Survey @ 2700' MD
7,953.65	7,653.77	-1,546.53	-1,141.24	30° Inclination @ 7953.65' MD
8,075.04	7,749.11	-1,536.16	-1,215.01	Cross @ 8075.04' MD
8,357.23	7,891.74	-1,525.16	-1,456.32	70° Inclination @ 8357.23' MD
13,431.65	7,992.97	-1,521.20	-6,524.00	Cross @ 13431.65' MD
18,148.00	8,039.14	-1,502.89	-11,239.01	Last MWD Survey @ 18148' MD
18,214.00	8,039.83	-1,502.53	-11,305.00	Projection to TD @ 18214' MD 1282' FSL/ 513.5' FWL

Checked By: _____ Approved By: _____ Date: _____