

SECTION DETAILS

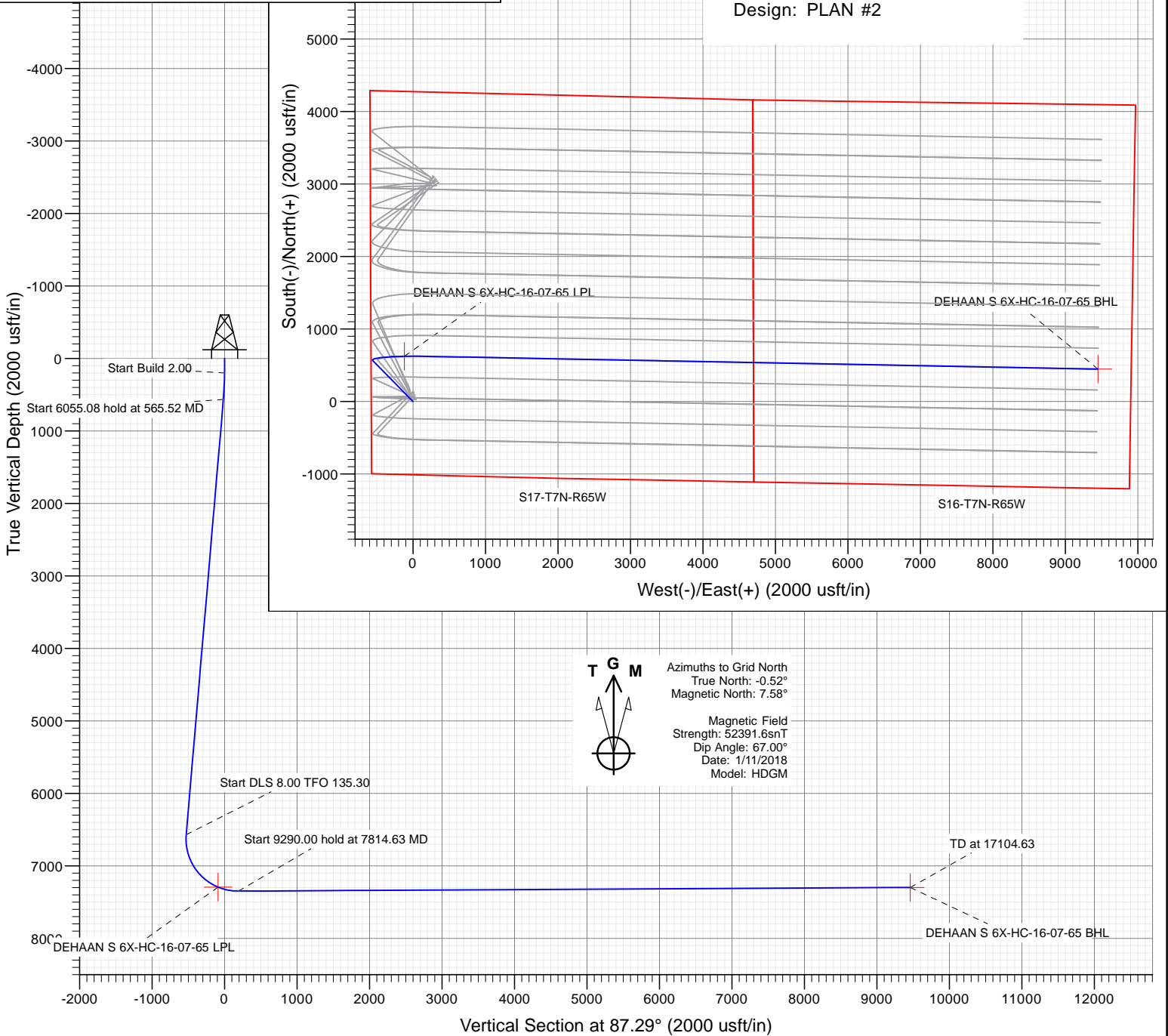
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	565.52	7.31	315.52	564.53	16.62	-16.31	2.00	315.52	-15.51	
4	6620.60	7.31	315.52	6570.39	566.39	-556.12	0.00	0.00	-528.70	
5	7814.63	90.31	91.08	7348.48	623.10	162.20	8.00	135.30	191.49	
6	17104.63	90.31	91.08	7298.00	447.54	9450.40	0.00	0.00	9460.99	DEHAAN S 6X-HC-16-07-65 BHL

PLAN #2
DEHAAN 6X-HC-16-07-65
KB @ 5300.00usft
Ground Level @ 5280.00
North American Datum 1983
Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL Grid North

Type	Target	Origin	N/S	E/W	From
TD	No Target (Freehand)	Slot	0.00	0.00	TVD

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
DEHAAN S 6X-HC-16-07-65 LPL	7292.70	623.18	-118.06	40.572225	-104.694821
DEHAAN S 6X-HC-16-07-65 BHL	7298.00	447.54	9450.40	40.571469	-104.660385

Project: WELD COUNTY, CO
Site: S17-T7N-R65W (DEHAAN)
Well: DEHAAN 6X-HC-16-07-65
Wellbore: OH
Design: PLAN #2



WELL DETAILS: DEHAAN 6X-HC-16-07-65

5280.00
+N/-S 0.00 +E/-W 0.00 Northing 1451694.99 Easting 3223795.92 Latitude 40.570511 Longitude -104.694417



Nickel Road Operating LLC

WELD COUNTY, CO

S17-T7N-R65W (DEHAAN)

DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65

SHL

OH

Plan: PLAN #2

Standard Planning Report

16 January, 2018

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL
Company:	Nickel Road Operating LLC	TVD Reference:	KB @ 5300.00usft
Project:	WELD COUNTY, CO	MD Reference:	KB @ 5300.00usft
Site:	S17-T7N-R65W (DEHAAN)	North Reference:	Grid
Well:	DEHAAN 6X-HC-16-07-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

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

Site		S17-T7N-R65W (DEHAAN)			
Site Position:		Northing:	1,454,732.81 usft	Latitude:	40.578843
From:	Map	Easting:	3,224,073.79 usft	Longitude:	-104.693317
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.52 °

Well	DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL					
Well Position	+N/-S	-3,037.82 usft	Northing:	1,451,694.99 usft	Latitude:	40.570512
	+E/-W	-277.87 usft	Easting:	3,223,795.92 usft	Longitude:	-104.694417
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,280.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/11/2018	8.10	67.00	52,391.60000000

Design	PLAN #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	87.29	

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
0.00	0.00	0.00	0.00	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	
565.52	7.31	315.52	564.53	16.62	-16.31	2.00	2.00	0.00	315.52	
6,620.60	7.31	315.52	6,570.39	566.39	-556.12	0.00	0.00	0.00	0.00	
7,814.63	90.31	91.08	7,348.48	623.10	162.20	8.00	6.95	11.35	135.30	
17,104.63	90.31	91.08	7,298.00	447.54	9,450.40	0.00	0.00	0.00	0.00	DEHAAN S 6X-HC-16

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL
Company:	Nickel Road Operating LLC	TVD Reference:	KB @ 5300.00usft
Project:	WELD COUNTY, CO	MD Reference:	KB @ 5300.00usft
Site:	S17-T7N-R65W (DEHAAN)	North Reference:	Grid
Well:	DEHAAN 6X-HC-16-07-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

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)	
0.00	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	
300.00	2.00	315.52	299.98	1.25	-1.22	-1.16	2.00	2.00	0.00	
400.00	4.00	315.52	399.84	4.98	-4.89	-4.65	2.00	2.00	0.00	
500.00	6.00	315.52	499.45	11.20	-11.00	-10.45	2.00	2.00	0.00	
565.52	7.31	315.52	564.53	16.62	-16.31	-15.51	2.00	2.00	0.00	
600.00	7.31	315.52	598.73	19.75	-19.39	-18.43	0.00	0.00	0.00	
700.00	7.31	315.52	697.92	28.83	-28.30	-26.91	0.00	0.00	0.00	
800.00	7.31	315.52	797.10	37.91	-37.22	-35.38	0.00	0.00	0.00	
900.00	7.31	315.52	896.29	46.99	-46.13	-43.86	0.00	0.00	0.00	
1,000.00	7.31	315.52	995.48	56.07	-55.05	-52.33	0.00	0.00	0.00	
1,100.00	7.31	315.52	1,094.66	65.14	-63.96	-60.81	0.00	0.00	0.00	
1,200.00	7.31	315.52	1,193.85	74.22	-72.88	-69.28	0.00	0.00	0.00	
1,300.00	7.31	315.52	1,293.04	83.30	-81.79	-77.76	0.00	0.00	0.00	
1,400.00	7.31	315.52	1,392.23	92.38	-90.71	-86.24	0.00	0.00	0.00	
1,500.00	7.31	315.52	1,491.41	101.46	-99.62	-94.71	0.00	0.00	0.00	
1,600.00	7.31	315.52	1,590.60	110.54	-108.54	-103.19	0.00	0.00	0.00	
1,700.00	7.31	315.52	1,689.79	119.62	-117.45	-111.66	0.00	0.00	0.00	
1,800.00	7.31	315.52	1,788.97	128.70	-126.37	-120.14	0.00	0.00	0.00	
1,900.00	7.31	315.52	1,888.16	137.78	-135.28	-128.61	0.00	0.00	0.00	
2,000.00	7.31	315.52	1,987.35	146.86	-144.20	-137.09	0.00	0.00	0.00	
2,100.00	7.31	315.52	2,086.54	155.94	-153.11	-145.56	0.00	0.00	0.00	
2,200.00	7.31	315.52	2,185.72	165.02	-162.03	-154.04	0.00	0.00	0.00	
2,300.00	7.31	315.52	2,284.91	174.10	-170.94	-162.51	0.00	0.00	0.00	
2,400.00	7.31	315.52	2,384.10	183.18	-179.86	-170.99	0.00	0.00	0.00	
2,500.00	7.31	315.52	2,483.28	192.26	-188.77	-179.46	0.00	0.00	0.00	
2,600.00	7.31	315.52	2,582.47	201.34	-197.69	-187.94	0.00	0.00	0.00	
2,700.00	7.31	315.52	2,681.66	210.42	-206.60	-196.42	0.00	0.00	0.00	
2,800.00	7.31	315.52	2,780.85	219.50	-215.51	-204.89	0.00	0.00	0.00	
2,900.00	7.31	315.52	2,880.03	228.58	-224.43	-213.37	0.00	0.00	0.00	
3,000.00	7.31	315.52	2,979.22	237.66	-233.34	-221.84	0.00	0.00	0.00	
3,100.00	7.31	315.52	3,078.41	246.74	-242.26	-230.32	0.00	0.00	0.00	
3,200.00	7.31	315.52	3,177.59	255.82	-251.17	-238.79	0.00	0.00	0.00	
3,300.00	7.31	315.52	3,276.78	264.90	-260.09	-247.27	0.00	0.00	0.00	
3,400.00	7.31	315.52	3,375.97	273.97	-269.00	-255.74	0.00	0.00	0.00	
3,500.00	7.31	315.52	3,475.16	283.05	-277.92	-264.22	0.00	0.00	0.00	
3,600.00	7.31	315.52	3,574.34	292.13	-286.83	-272.69	0.00	0.00	0.00	
3,700.00	7.31	315.52	3,673.53	301.21	-295.75	-281.17	0.00	0.00	0.00	
3,800.00	7.31	315.52	3,772.72	310.29	-304.66	-289.64	0.00	0.00	0.00	
3,900.00	7.31	315.52	3,871.90	319.37	-313.58	-298.12	0.00	0.00	0.00	
4,000.00	7.31	315.52	3,971.09	328.45	-322.49	-306.59	0.00	0.00	0.00	
4,100.00	7.31	315.52	4,070.28	337.53	-331.41	-315.07	0.00	0.00	0.00	
4,200.00	7.31	315.52	4,169.47	346.61	-340.32	-323.55	0.00	0.00	0.00	
4,300.00	7.31	315.52	4,268.65	355.69	-349.24	-332.02	0.00	0.00	0.00	
4,400.00	7.31	315.52	4,367.84	364.77	-358.15	-340.50	0.00	0.00	0.00	
4,500.00	7.31	315.52	4,467.03	373.85	-367.07	-348.97	0.00	0.00	0.00	
4,600.00	7.31	315.52	4,566.21	382.93	-375.98	-357.45	0.00	0.00	0.00	
4,700.00	7.31	315.52	4,665.40	392.01	-384.90	-365.92	0.00	0.00	0.00	
4,800.00	7.31	315.52	4,764.59	401.09	-393.81	-374.40	0.00	0.00	0.00	
4,900.00	7.31	315.52	4,863.78	410.17	-402.73	-382.87	0.00	0.00	0.00	
5,000.00	7.31	315.52	4,962.96	419.25	-411.64	-391.35	0.00	0.00	0.00	
5,100.00	7.31	315.52	5,062.15	428.33	-420.56	-399.82	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL
Company:	Nickel Road Operating LLC	TVD Reference:	KB @ 5300.00usft
Project:	WELD COUNTY, CO	MD Reference:	KB @ 5300.00usft
Site:	S17-T7N-R65W (DEHAAN)	North Reference:	Grid
Well:	DEHAAN 6X-HC-16-07-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

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)	
5,200.00	7.31	315.52	5,161.34	437.41	-429.47	-408.30	0.00	0.00	0.00	
5,300.00	7.31	315.52	5,260.52	446.49	-438.39	-416.77	0.00	0.00	0.00	
5,400.00	7.31	315.52	5,359.71	455.57	-447.30	-425.25	0.00	0.00	0.00	
5,500.00	7.31	315.52	5,458.90	464.65	-456.22	-433.73	0.00	0.00	0.00	
5,600.00	7.31	315.52	5,558.09	473.72	-465.13	-442.20	0.00	0.00	0.00	
5,700.00	7.31	315.52	5,657.27	482.80	-474.05	-450.68	0.00	0.00	0.00	
5,800.00	7.31	315.52	5,756.46	491.88	-482.96	-459.15	0.00	0.00	0.00	
5,900.00	7.31	315.52	5,855.65	500.96	-491.87	-467.63	0.00	0.00	0.00	
6,000.00	7.31	315.52	5,954.83	510.04	-500.79	-476.10	0.00	0.00	0.00	
6,100.00	7.31	315.52	6,054.02	519.12	-509.70	-484.58	0.00	0.00	0.00	
6,200.00	7.31	315.52	6,153.21	528.20	-518.62	-493.05	0.00	0.00	0.00	
6,300.00	7.31	315.52	6,252.40	537.28	-527.53	-501.53	0.00	0.00	0.00	
6,400.00	7.31	315.52	6,351.58	546.36	-536.45	-510.00	0.00	0.00	0.00	
6,500.00	7.31	315.52	6,450.77	555.44	-545.36	-518.48	0.00	0.00	0.00	
6,600.00	7.31	315.52	6,549.96	564.52	-554.28	-526.95	0.00	0.00	0.00	
6,620.60	7.31	315.52	6,570.39	566.39	-556.12	-528.70	0.00	0.00	0.00	
6,700.00	5.26	13.61	6,649.38	573.54	-558.80	-531.04	8.00	-2.58	73.16	
6,800.00	10.47	61.97	6,748.50	582.28	-549.68	-521.52	8.00	5.21	48.36	
6,900.00	17.87	74.87	6,845.41	590.57	-526.81	-498.28	8.00	7.40	12.90	
7,000.00	25.63	80.26	6,938.23	598.25	-490.62	-461.77	8.00	7.76	5.38	
7,100.00	33.49	83.25	7,025.15	605.16	-441.83	-412.71	8.00	7.86	2.99	
7,200.00	41.40	85.21	7,104.48	611.18	-381.38	-352.04	8.00	7.91	1.96	
7,300.00	49.34	86.63	7,174.67	616.18	-310.45	-280.95	8.00	7.94	1.42	
7,400.00	57.29	87.75	7,234.37	620.08	-230.41	-200.82	8.00	7.95	1.12	
7,500.00	65.25	88.68	7,282.40	622.78	-142.84	-113.22	8.00	7.96	0.93	
7,526.85	67.39	88.91	7,293.18	623.30	-118.26	-88.64	8.00	7.96	0.85	
DEHAAN S 6X-HC-16-07-65 LPL										
7,600.00	73.21	89.50	7,317.83	624.24	-49.43	-19.84	8.00	7.96	0.81	
7,700.00	81.18	90.26	7,339.98	624.44	48.01	77.49	8.00	7.97	0.75	
7,800.00	89.15	90.98	7,348.41	623.37	147.57	176.89	8.00	7.97	0.72	
7,814.63	90.31	91.08	7,348.48	623.10	162.20	191.49	8.00	7.97	0.72	
7,900.00	90.31	91.08	7,348.01	621.49	247.55	276.67	0.00	0.00	0.00	
8,000.00	90.31	91.08	7,347.47	619.60	347.53	376.45	0.00	0.00	0.00	
8,100.00	90.31	91.08	7,346.93	617.71	447.51	476.23	0.00	0.00	0.00	
8,200.00	90.31	91.08	7,346.38	615.82	547.49	576.01	0.00	0.00	0.00	
8,300.00	90.31	91.08	7,345.84	613.93	647.47	675.79	0.00	0.00	0.00	
8,400.00	90.31	91.08	7,345.30	612.04	747.45	775.56	0.00	0.00	0.00	
8,500.00	90.31	91.08	7,344.75	610.15	847.43	875.34	0.00	0.00	0.00	
8,600.00	90.31	91.08	7,344.21	608.26	947.41	975.12	0.00	0.00	0.00	
8,700.00	90.31	91.08	7,343.67	606.37	1,047.39	1,074.90	0.00	0.00	0.00	
8,800.00	90.31	91.08	7,343.12	604.48	1,147.37	1,174.68	0.00	0.00	0.00	
8,900.00	90.31	91.08	7,342.58	602.59	1,247.35	1,274.46	0.00	0.00	0.00	
9,000.00	90.31	91.08	7,342.04	600.70	1,347.33	1,374.24	0.00	0.00	0.00	
9,100.00	90.31	91.08	7,341.49	598.81	1,447.31	1,474.02	0.00	0.00	0.00	
9,200.00	90.31	91.08	7,340.95	596.92	1,547.29	1,573.80	0.00	0.00	0.00	
9,300.00	90.31	91.08	7,340.41	595.03	1,647.28	1,673.58	0.00	0.00	0.00	
9,400.00	90.31	91.08	7,339.86	593.14	1,747.26	1,773.36	0.00	0.00	0.00	
9,500.00	90.31	91.08	7,339.32	591.25	1,847.24	1,873.14	0.00	0.00	0.00	
9,600.00	90.31	91.08	7,338.78	589.36	1,947.22	1,972.92	0.00	0.00	0.00	
9,700.00	90.31	91.08	7,338.23	587.47	2,047.20	2,072.70	0.00	0.00	0.00	
9,800.00	90.31	91.08	7,337.69	585.58	2,147.18	2,172.48	0.00	0.00	0.00	
9,900.00	90.31	91.08	7,337.15	583.69	2,247.16	2,272.25	0.00	0.00	0.00	
10,000.00	90.31	91.08	7,336.60	581.80	2,347.14	2,372.03	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL
Company:	Nickel Road Operating LLC	TVD Reference:	KB @ 5300.00usft
Project:	WELD COUNTY, CO	MD Reference:	KB @ 5300.00usft
Site:	S17-T7N-R65W (DEHAAN)	North Reference:	Grid
Well:	DEHAAN 6X-HC-16-07-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,100.00	90.31	91.08	7,336.06	579.91	2,447.12	2,471.81	0.00	0.00	0.00
10,200.00	90.31	91.08	7,335.52	578.02	2,547.10	2,571.59	0.00	0.00	0.00
10,300.00	90.31	91.08	7,334.97	576.13	2,647.08	2,671.37	0.00	0.00	0.00
10,400.00	90.31	91.08	7,334.43	574.24	2,747.06	2,771.15	0.00	0.00	0.00
10,500.00	90.31	91.08	7,333.89	572.35	2,847.04	2,870.93	0.00	0.00	0.00
10,600.00	90.31	91.08	7,333.34	570.46	2,947.02	2,970.71	0.00	0.00	0.00
10,700.00	90.31	91.08	7,332.80	568.57	3,047.00	3,070.49	0.00	0.00	0.00
10,800.00	90.31	91.08	7,332.26	566.69	3,146.99	3,170.27	0.00	0.00	0.00
10,900.00	90.31	91.08	7,331.71	564.80	3,246.97	3,270.05	0.00	0.00	0.00
11,000.00	90.31	91.08	7,331.17	562.91	3,346.95	3,369.83	0.00	0.00	0.00
11,100.00	90.31	91.08	7,330.63	561.02	3,446.93	3,469.61	0.00	0.00	0.00
11,200.00	90.31	91.08	7,330.08	559.13	3,546.91	3,569.39	0.00	0.00	0.00
11,300.00	90.31	91.08	7,329.54	557.24	3,646.89	3,669.17	0.00	0.00	0.00
11,400.00	90.31	91.08	7,329.00	555.35	3,746.87	3,768.94	0.00	0.00	0.00
11,500.00	90.31	91.08	7,328.45	553.46	3,846.85	3,868.72	0.00	0.00	0.00
11,600.00	90.31	91.08	7,327.91	551.57	3,946.83	3,968.50	0.00	0.00	0.00
11,700.00	90.31	91.08	7,327.37	549.68	4,046.81	4,068.28	0.00	0.00	0.00
11,800.00	90.31	91.08	7,326.82	547.79	4,146.79	4,168.06	0.00	0.00	0.00
11,900.00	90.31	91.08	7,326.28	545.90	4,246.77	4,267.84	0.00	0.00	0.00
12,000.00	90.31	91.08	7,325.74	544.01	4,346.75	4,367.62	0.00	0.00	0.00
12,100.00	90.31	91.08	7,325.19	542.12	4,446.73	4,467.40	0.00	0.00	0.00
12,200.00	90.31	91.08	7,324.65	540.23	4,546.71	4,567.18	0.00	0.00	0.00
12,300.00	90.31	91.08	7,324.11	538.34	4,646.70	4,666.96	0.00	0.00	0.00
12,400.00	90.31	91.08	7,323.56	536.45	4,746.68	4,766.74	0.00	0.00	0.00
12,500.00	90.31	91.08	7,323.02	534.56	4,846.66	4,866.52	0.00	0.00	0.00
12,600.00	90.31	91.08	7,322.48	532.67	4,946.64	4,966.30	0.00	0.00	0.00
12,700.00	90.31	91.08	7,321.93	530.78	5,046.62	5,066.08	0.00	0.00	0.00
12,800.00	90.31	91.08	7,321.39	528.89	5,146.60	5,165.86	0.00	0.00	0.00
12,900.00	90.31	91.08	7,320.85	527.00	5,246.58	5,265.64	0.00	0.00	0.00
13,000.00	90.31	91.08	7,320.30	525.11	5,346.56	5,365.41	0.00	0.00	0.00
13,100.00	90.31	91.08	7,319.76	523.22	5,446.54	5,465.19	0.00	0.00	0.00
13,200.00	90.31	91.08	7,319.22	521.33	5,546.52	5,564.97	0.00	0.00	0.00
13,300.00	90.31	91.08	7,318.67	519.44	5,646.50	5,664.75	0.00	0.00	0.00
13,400.00	90.31	91.08	7,318.13	517.55	5,746.48	5,764.53	0.00	0.00	0.00
13,500.00	90.31	91.08	7,317.59	515.66	5,846.46	5,864.31	0.00	0.00	0.00
13,600.00	90.31	91.08	7,317.04	513.77	5,946.44	5,964.09	0.00	0.00	0.00
13,700.00	90.31	91.08	7,316.50	511.88	6,046.42	6,063.87	0.00	0.00	0.00
13,800.00	90.31	91.08	7,315.96	509.99	6,146.41	6,163.65	0.00	0.00	0.00
13,900.00	90.31	91.08	7,315.41	508.10	6,246.39	6,263.43	0.00	0.00	0.00
14,000.00	90.31	91.08	7,314.87	506.21	6,346.37	6,363.21	0.00	0.00	0.00
14,100.00	90.31	91.08	7,314.33	504.32	6,446.35	6,462.99	0.00	0.00	0.00
14,200.00	90.31	91.08	7,313.78	502.43	6,546.33	6,562.77	0.00	0.00	0.00
14,300.00	90.31	91.08	7,313.24	500.54	6,646.31	6,662.55	0.00	0.00	0.00
14,400.00	90.31	91.08	7,312.70	498.65	6,746.29	6,762.33	0.00	0.00	0.00
14,500.00	90.31	91.08	7,312.15	496.76	6,846.27	6,862.10	0.00	0.00	0.00
14,600.00	90.31	91.08	7,311.61	494.87	6,946.25	6,961.88	0.00	0.00	0.00
14,700.00	90.31	91.08	7,311.07	492.98	7,046.23	7,061.66	0.00	0.00	0.00
14,800.00	90.31	91.08	7,310.52	491.09	7,146.21	7,161.44	0.00	0.00	0.00
14,900.00	90.31	91.08	7,309.98	489.20	7,246.19	7,261.22	0.00	0.00	0.00
15,000.00	90.31	91.08	7,309.44	487.31	7,346.17	7,361.00	0.00	0.00	0.00
15,100.00	90.31	91.08	7,308.89	485.42	7,446.15	7,460.78	0.00	0.00	0.00
15,200.00	90.31	91.08	7,308.35	483.53	7,546.13	7,560.56	0.00	0.00	0.00
15,300.00	90.31	91.08	7,307.81	481.64	7,646.12	7,660.34	0.00	0.00	0.00

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well DEHAAN 6X-HC-16-07-65 - Slot DEHAAN S 6X-HC-16-07-65 SHL
Company:	Nickel Road Operating LLC	TVD Reference:	KB @ 5300.00usft
Project:	WELD COUNTY, CO	MD Reference:	KB @ 5300.00usft
Site:	S17-T7N-R65W (DEHAAN)	North Reference:	Grid
Well:	DEHAAN 6X-HC-16-07-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #2		

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)	
15,400.00	90.31	91.08	7,307.26	479.75	7,746.10	7,760.12	0.00	0.00	0.00	
15,500.00	90.31	91.08	7,306.72	477.86	7,846.08	7,859.90	0.00	0.00	0.00	
15,600.00	90.31	91.08	7,306.18	475.97	7,946.06	7,959.68	0.00	0.00	0.00	
15,700.00	90.31	91.08	7,305.63	474.08	8,046.04	8,059.46	0.00	0.00	0.00	
15,800.00	90.31	91.08	7,305.09	472.20	8,146.02	8,159.24	0.00	0.00	0.00	
15,900.00	90.31	91.08	7,304.55	470.31	8,246.00	8,259.02	0.00	0.00	0.00	
16,000.00	90.31	91.08	7,304.00	468.42	8,345.98	8,358.79	0.00	0.00	0.00	
16,100.00	90.31	91.08	7,303.46	466.53	8,445.96	8,458.57	0.00	0.00	0.00	
16,200.00	90.31	91.08	7,302.92	464.64	8,545.94	8,558.35	0.00	0.00	0.00	
16,300.00	90.31	91.08	7,302.37	462.75	8,645.92	8,658.13	0.00	0.00	0.00	
16,400.00	90.31	91.08	7,301.83	460.86	8,745.90	8,757.91	0.00	0.00	0.00	
16,500.00	90.31	91.08	7,301.29	458.97	8,845.88	8,857.69	0.00	0.00	0.00	
16,600.00	90.31	91.08	7,300.74	457.08	8,945.86	8,957.47	0.00	0.00	0.00	
16,700.00	90.31	91.08	7,300.20	455.19	9,045.84	9,057.25	0.00	0.00	0.00	
16,800.00	90.31	91.08	7,299.66	453.30	9,145.83	9,157.03	0.00	0.00	0.00	
16,900.00	90.31	91.08	7,299.11	451.41	9,245.81	9,256.81	0.00	0.00	0.00	
17,000.00	90.31	91.08	7,298.57	449.52	9,345.79	9,356.59	0.00	0.00	0.00	
17,100.00	90.31	91.08	7,298.03	447.63	9,445.77	9,456.37	0.00	0.00	0.00	
17,104.63	90.31	91.08	7,298.00	447.54	9,450.40	9,460.99	0.00	0.00	0.00	
DEHAAN S 6X-HC-16-07-65 BHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
DEHAAN S 6X-HC-16-0	0.00	0.00	7,292.70	623.18	-118.06	1,452,318.17	3,223,677.86	40.572225	-104.694821
- hit/miss target									
- plan misses target center by 0.54usft at 7526.87usft MD (7293.19 TVD, 623.30 N, -118.24 E)									
- Point									
DEHAAN S 6X-HC-16-0	0.00	0.00	7,298.00	447.54	9,450.40	1,452,142.53	3,233,246.32	40.571499	-104.660386
- plan hits target center									
- Point									