

Nickel Road Operating

Weld Co., CO (NAD-83)

Sec.5-T6N-R65W

REEMAN 4X-HNC-04-06-65

OH

Plan: Plan #2

Standard Planning Report

21 July, 2022

Project: Weld Co., CO (NAD-83)
 Site: Sec.5-T6N-R65W
 Well: REEMAN 4X-HNC-04-06-65
 Wellbore: OH
 Design: Plan #2
 Lat: 40.518580
 Long: -104.691653
 GL: 4816.00
 KB: KB=17 @ 4833.00usft



Azimuths to Grid North
 True North: -0.52°
 Magnetic North: 7.19°
 Magnetic Field
 Strength: 51933.1nT
 Dip Angle: 66.77°
 Date: 4/25/2022
 Model: HDGM2022

WELL DETAILS: REEMAN 4X-HNC-04-06-65

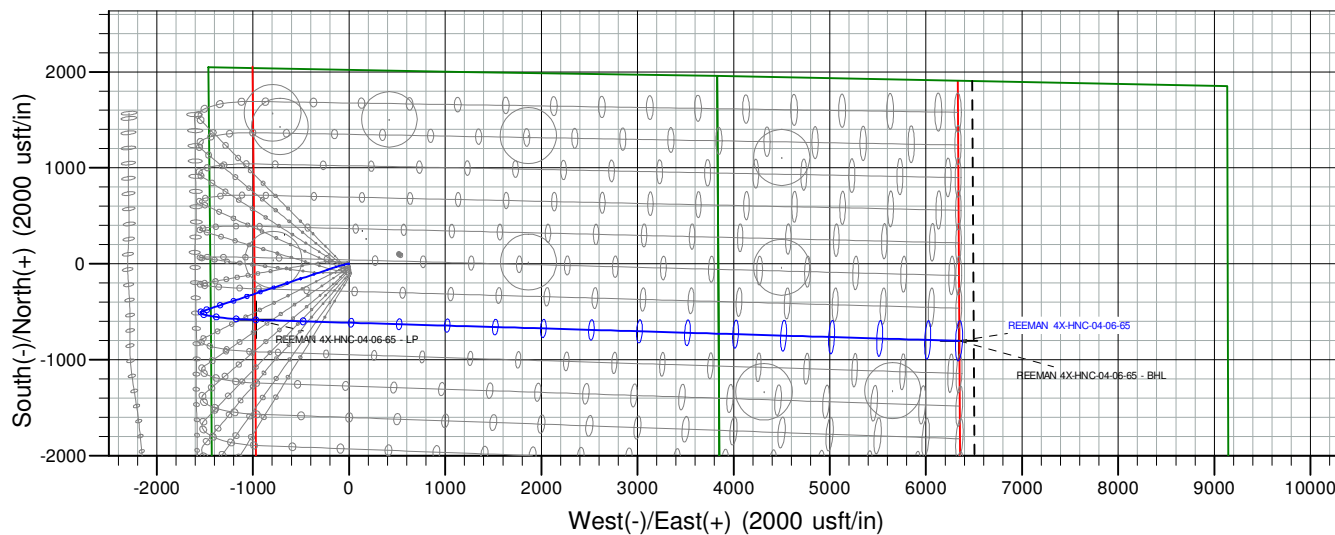
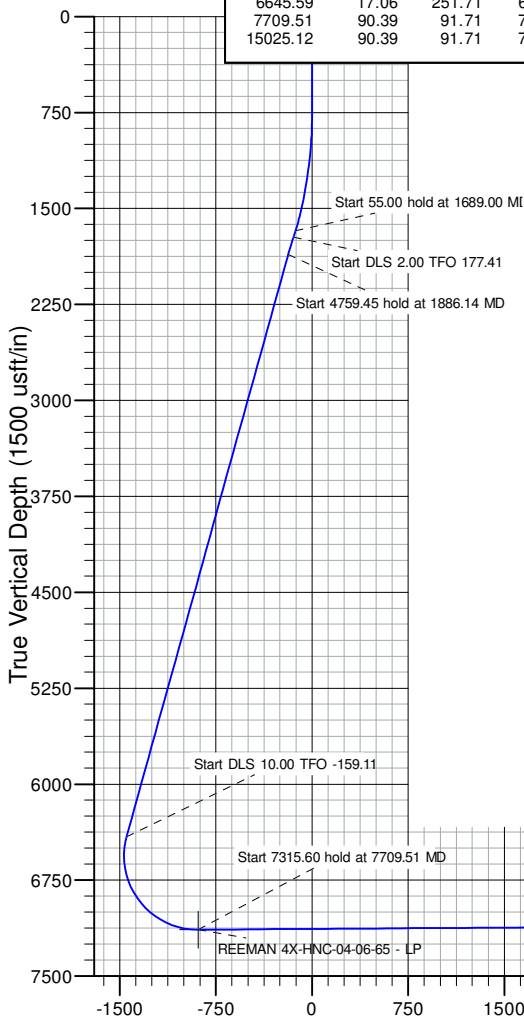
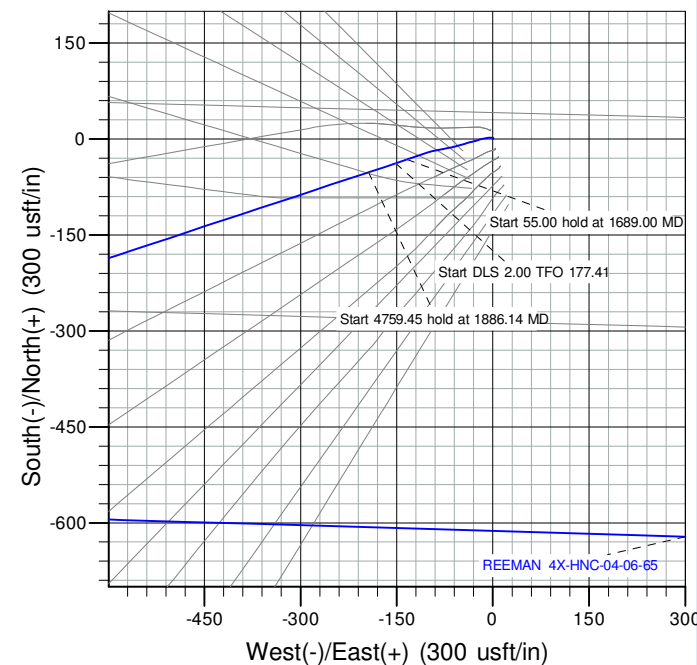
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1432783.63	3224736.10	40.518580	-104.691653

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
REEMAN 4X-HNC-04-06-65 - BHL7088.00		-801.87	6344.26	1431981.76	3231080.36	Point
REEMAN 4X-HNC-04-06-65 - LP 7138.00		-583.69	-967.92	1432199.94	3223768.18	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1689.00	19.90	251.27	1674.62	-31.76	-133.81	0.00	0.00	-128.77	Start 55.00 hold at 1689.00 MD
1744.00	19.90	251.27	1726.34	-37.77	-151.54	0.00	0.00	-145.61	Start DLS 2.00 TFO 177.41
1886.14	17.06	251.71	1861.14	-52.08	-194.26	2.00	177.41	-186.19	Start 4759.45 hold at 1886.14 MD
6645.59	17.06	251.71	6411.15	-490.34	-1520.03	0.00	0.00	-1446.55	Start DLS 10.00 TFO -159.11
7709.51	90.39	91.71	7138.00	-583.69	-967.92	10.00	-159.11	-887.10	Start 7315.60 hold at 7709.51 MD
15025.12	90.39	91.71	7088.00	-801.87	6344.26	0.00	0.00	6394.73	TD at 15025.12



Vertical Section at 97.20° (1500 usft/in)

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 4X-HNC-04-06-65
Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Project	Weld Co., CO (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec.5-T6N-R65W				
Site Position:		Northing:	1,432,798.19 usft	Latitude:	40.518620
From:	Lat/Long	Easting:	3,224,732.64 usft	Longitude:	-104.691665
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	REEMAN 4X-HNC-04-06-65					
Well Position	+N/-S	0.00 usft	Northing:	1,432,783.63 usft	Latitude:	40.518580
	+E/-W	0.00 usft	Easting:	3,224,736.11 usft	Longitude:	-104.691653
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,816.00 usft
Grid Convergence:	0.52 °					

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2022	4/25/2022	7.72	66.77	51,933.10000000

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	1,689.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	97.20

Plan Survey Tool Program		Date 7/21/2022		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	82.00	1,689.00	Surface Survey (OH)	MWD OWSG MWD - Standard
2	1,689.00	15,025.12	Plan #2 (OH)	MWD OWSG MWD - Standard

Planning Report

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Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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
1,689.00	19.90	251.27	1,674.62	-31.76	-133.81	0.00	0.00	0.00	0.00	
1,744.00	19.90	251.27	1,726.34	-37.77	-151.54	0.00	0.00	0.00	0.00	
1,886.14	17.06	251.71	1,861.14	-52.08	-194.26	2.00	-2.00	0.31	177.41	
6,645.59	17.06	251.71	6,411.15	-490.34	-1,520.03	0.00	0.00	0.00	0.00	
7,709.51	90.39	91.71	7,138.00	-583.69	-967.92	10.00	6.89	-15.04	-159.11	REEMAN 4X-HNC-04
15,025.12	90.39	91.71	7,088.00	-801.87	6,344.26	0.00	0.00	0.00	0.00	REEMAN 4X-HNC-04

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 4X-HNC-04-06-65
Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	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
82.00	0.13	277.20	82.00	0.01	-0.09	-0.09	0.16	0.16	0.00
173.00	0.04	97.20	173.00	0.02	-0.16	-0.16	0.19	-0.10	197.80
265.00	0.13	84.36	265.00	0.03	-0.03	-0.03	0.10	0.10	-13.96
357.00	0.04	97.20	357.00	0.03	0.11	0.10	0.10	-0.10	13.96
447.00	0.35	7.90	447.00	0.30	0.18	0.14	0.39	0.34	-99.22
537.00	0.22	356.74	537.00	0.75	0.21	0.11	0.16	-0.14	-12.40
627.00	0.26	15.81	627.00	1.12	0.25	0.11	0.10	0.04	21.19
717.00	0.13	26.62	717.00	1.40	0.35	0.17	0.15	-0.14	12.01
807.00	0.62	298.29	806.99	1.73	-0.03	-0.25	0.70	0.54	-98.14
897.00	1.97	271.22	896.97	1.99	-2.01	-2.24	1.61	1.50	-30.08
987.00	4.17	267.53	986.84	1.88	-6.82	-7.00	2.45	2.44	-4.10
1,077.00	6.24	256.63	1,076.46	0.61	-14.85	-14.81	2.54	2.30	-12.11
1,167.00	7.69	253.47	1,165.80	-2.24	-25.38	-24.90	1.67	1.61	-3.51
1,257.00	9.01	255.14	1,254.84	-5.76	-37.97	-36.95	1.49	1.47	1.86
1,347.00	10.41	253.47	1,343.55	-9.88	-52.58	-50.92	1.59	1.56	-1.86
1,437.00	12.22	259.36	1,431.80	-13.95	-69.73	-67.43	2.38	2.01	6.54
1,527.00	13.67	257.86	1,519.51	-17.95	-89.49	-86.54	1.65	1.61	-1.67
1,617.00	16.92	251.10	1,606.32	-24.43	-112.29	-108.34	4.11	3.61	-7.51
1,689.00	19.90	251.27	1,674.62	-31.76	-133.81	-128.77	4.14	4.14	0.24
Start 55.00 hold at 1689.00 MD									
1,700.00	19.90	251.27	1,684.97	-32.96	-137.36	-132.14	0.00	0.00	0.00
1,744.00	19.90	251.27	1,726.34	-37.77	-151.54	-145.61	0.00	0.00	0.00
Start DLS 2.00 TFO 177.41									
1,800.00	18.78	251.43	1,779.18	-43.70	-169.11	-162.30	2.00	-2.00	0.28
1,886.14	17.06	251.71	1,861.14	-52.08	-194.26	-186.19	2.00	-2.00	0.33
Start 4759.45 hold at 1886.14 MD									
1,900.00	17.06	251.71	1,874.39	-53.36	-198.12	-189.86	0.00	0.00	0.00
2,000.00	17.06	251.71	1,969.99	-62.57	-225.97	-216.34	0.00	0.00	0.00
2,100.00	17.06	251.71	2,065.59	-71.78	-253.83	-242.82	0.00	0.00	0.00
2,200.00	17.06	251.71	2,161.19	-80.98	-281.68	-269.31	0.00	0.00	0.00
2,300.00	17.06	251.71	2,256.78	-90.19	-309.54	-295.79	0.00	0.00	0.00
2,400.00	17.06	251.71	2,352.38	-99.40	-337.39	-322.27	0.00	0.00	0.00
2,500.00	17.06	251.71	2,447.98	-108.61	-365.25	-348.75	0.00	0.00	0.00
2,600.00	17.06	251.71	2,543.58	-117.82	-393.11	-375.23	0.00	0.00	0.00
2,700.00	17.06	251.71	2,639.18	-127.02	-420.96	-401.71	0.00	0.00	0.00
2,800.00	17.06	251.71	2,734.78	-136.23	-448.82	-428.19	0.00	0.00	0.00
2,900.00	17.06	251.71	2,830.38	-145.44	-476.67	-454.67	0.00	0.00	0.00
3,000.00	17.06	251.71	2,925.98	-154.65	-504.53	-481.16	0.00	0.00	0.00
3,100.00	17.06	251.71	3,021.58	-163.86	-532.38	-507.64	0.00	0.00	0.00
3,200.00	17.06	251.71	3,117.18	-173.06	-560.24	-534.12	0.00	0.00	0.00
3,300.00	17.06	251.71	3,212.78	-182.27	-588.10	-560.60	0.00	0.00	0.00
3,400.00	17.06	251.71	3,308.38	-191.48	-615.95	-587.08	0.00	0.00	0.00
3,500.00	17.06	251.71	3,403.98	-200.69	-643.81	-613.56	0.00	0.00	0.00
3,600.00	17.06	251.71	3,499.58	-209.90	-671.66	-640.04	0.00	0.00	0.00
3,700.00	17.06	251.71	3,595.18	-219.10	-699.52	-666.53	0.00	0.00	0.00
3,800.00	17.06	251.71	3,690.78	-228.31	-727.37	-693.01	0.00	0.00	0.00
3,874.50	17.06	251.71	3,762.00	-235.17	-748.13	-712.73	0.00	0.00	0.00
Parkman									
3,900.00	17.06	251.71	3,786.38	-237.52	-755.23	-719.49	0.00	0.00	0.00
4,000.00	17.06	251.71	3,881.98	-246.73	-783.08	-745.97	0.00	0.00	0.00
4,100.00	17.06	251.71	3,977.58	-255.94	-810.94	-772.45	0.00	0.00	0.00
4,200.00	17.06	251.71	4,073.18	-265.14	-838.80	-798.93	0.00	0.00	0.00
4,300.00	17.06	251.71	4,168.78	-274.35	-866.65	-825.41	0.00	0.00	0.00

Planning Report

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Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	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)
4,400.00	17.06	251.71	4,264.38	-283.56	-894.51	-851.89	0.00	0.00	0.00
4,500.00	17.06	251.71	4,359.97	-292.77	-922.36	-878.38	0.00	0.00	0.00
4,600.00	17.06	251.71	4,455.57	-301.98	-950.22	-904.86	0.00	0.00	0.00
4,643.33	17.06	251.71	4,497.00	-305.97	-962.29	-916.33	0.00	0.00	0.00
Sussex									
4,700.00	17.06	251.71	4,551.17	-311.19	-978.07	-931.34	0.00	0.00	0.00
4,800.00	17.06	251.71	4,646.77	-320.39	-1,005.93	-957.82	0.00	0.00	0.00
4,900.00	17.06	251.71	4,742.37	-329.60	-1,033.79	-984.30	0.00	0.00	0.00
5,000.00	17.06	251.71	4,837.97	-338.81	-1,061.64	-1,010.78	0.00	0.00	0.00
5,100.00	17.06	251.71	4,933.57	-348.02	-1,089.50	-1,037.26	0.00	0.00	0.00
5,200.00	17.06	251.71	5,029.17	-357.23	-1,117.35	-1,063.74	0.00	0.00	0.00
5,280.36	17.06	251.71	5,106.00	-364.63	-1,139.74	-1,085.03	0.00	0.00	0.00
Shannon									
5,300.00	17.06	251.71	5,124.77	-366.43	-1,145.21	-1,090.23	0.00	0.00	0.00
5,400.00	17.06	251.71	5,220.37	-375.64	-1,173.06	-1,116.71	0.00	0.00	0.00
5,450.87	17.06	251.71	5,269.00	-380.33	-1,187.23	-1,130.18	0.00	0.00	0.00
Pierre Shale									
5,500.00	17.06	251.71	5,315.97	-384.85	-1,200.92	-1,143.19	0.00	0.00	0.00
5,600.00	17.06	251.71	5,411.57	-394.06	-1,228.78	-1,169.67	0.00	0.00	0.00
5,700.00	17.06	251.71	5,507.17	-403.27	-1,256.63	-1,196.15	0.00	0.00	0.00
5,800.00	17.06	251.71	5,602.77	-412.47	-1,284.49	-1,222.63	0.00	0.00	0.00
5,900.00	17.06	251.71	5,698.37	-421.68	-1,312.34	-1,249.11	0.00	0.00	0.00
6,000.00	17.06	251.71	5,793.97	-430.89	-1,340.20	-1,275.59	0.00	0.00	0.00
6,100.00	17.06	251.71	5,889.57	-440.10	-1,368.05	-1,302.08	0.00	0.00	0.00
6,200.00	17.06	251.71	5,985.17	-449.31	-1,395.91	-1,328.56	0.00	0.00	0.00
6,300.00	17.06	251.71	6,080.77	-458.51	-1,423.76	-1,355.04	0.00	0.00	0.00
6,400.00	17.06	251.71	6,176.37	-467.72	-1,451.62	-1,381.52	0.00	0.00	0.00
6,500.00	17.06	251.71	6,271.97	-476.93	-1,479.48	-1,408.00	0.00	0.00	0.00
6,600.00	17.06	251.71	6,367.57	-486.14	-1,507.33	-1,434.48	0.00	0.00	0.00
6,645.59	17.06	251.71	6,411.15	-490.34	-1,520.03	-1,446.55	0.00	0.00	0.00
Start DLS 10.00 TFO -159.11									
6,650.00	16.65	251.16	6,415.37	-490.74	-1,521.24	-1,447.71	10.00	-9.33	-12.44
6,700.00	12.13	242.45	6,463.79	-495.49	-1,532.69	-1,458.46	10.00	-9.04	-17.42
6,750.00	8.17	224.68	6,513.01	-500.45	-1,539.85	-1,464.95	10.00	-7.91	-35.53
6,800.00	6.03	187.07	6,562.65	-505.59	-1,542.67	-1,467.10	10.00	-4.29	-75.23
6,850.00	7.46	145.15	6,612.33	-510.86	-1,541.14	-1,464.92	10.00	2.87	-83.84
6,900.00	11.17	123.92	6,661.68	-516.23	-1,535.26	-1,458.41	10.00	7.42	-42.46
6,950.00	15.62	113.85	6,710.31	-521.66	-1,525.08	-1,447.63	10.00	8.88	-20.13
7,000.00	20.31	108.26	6,757.87	-527.10	-1,510.67	-1,432.66	10.00	9.40	-11.20
7,050.00	25.12	104.71	6,803.98	-532.52	-1,492.15	-1,413.60	10.00	9.62	-7.09
7,100.00	29.99	102.25	6,848.29	-537.87	-1,469.65	-1,390.61	10.00	9.74	-4.92
7,150.00	34.90	100.42	6,890.47	-543.12	-1,443.36	-1,363.87	10.00	9.81	-3.65
7,179.21	37.77	99.55	6,914.00	-546.11	-1,426.31	-1,346.58	10.00	9.84	-2.98
Sharon Springs									
7,200.00	39.82	99.00	6,930.20	-548.21	-1,413.46	-1,333.57	10.00	9.86	-2.67
7,218.21	41.62	98.55	6,944.00	-550.02	-1,401.72	-1,321.69	10.00	9.87	-2.46
Niobrara									
7,250.00	44.76	97.84	6,967.18	-553.12	-1,380.18	-1,299.94	10.00	9.88	-2.24
7,300.00	49.71	96.87	7,001.12	-557.80	-1,343.79	-1,263.24	10.00	9.90	-1.94
7,350.00	54.67	96.03	7,031.76	-562.22	-1,304.55	-1,223.76	10.00	9.91	-1.68
7,400.00	59.63	95.28	7,058.88	-566.35	-1,262.76	-1,181.78	10.00	9.92	-1.48
7,450.00	64.59	94.61	7,082.26	-570.16	-1,218.75	-1,137.64	10.00	9.93	-1.34
7,500.00	69.56	94.00	7,101.73	-573.61	-1,172.84	-1,091.66	10.00	9.94	-1.23

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 4X-HNC-04-06-65
Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	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)	
7,550.00	74.53	93.42	7,117.14	-576.68	-1,125.39	-1,044.20	10.00	9.94	-1.16	
7,600.00	79.50	92.87	7,128.37	-579.35	-1,076.76	-995.62	10.00	9.94	-1.10	
7,650.00	84.47	92.33	7,135.34	-581.59	-1,027.31	-946.28	10.00	9.94	-1.07	
7,700.00	89.45	91.81	7,137.99	-583.40	-977.43	-896.57	10.00	9.94	-1.05	
7,709.51	90.39	91.71	7,138.00	-583.69	-967.92	-887.10	10.00	9.95	-1.05	
Start 7315.60 hold at 7709.51 MD										
7,800.00	90.39	91.71	7,137.38	-586.39	-877.48	-797.03	0.00	0.00	0.00	
7,900.00	90.39	91.71	7,136.70	-589.37	-777.52	-697.49	0.00	0.00	0.00	
8,000.00	90.39	91.71	7,136.01	-592.35	-677.57	-597.95	0.00	0.00	0.00	
8,100.00	90.39	91.71	7,135.33	-595.33	-577.62	-498.41	0.00	0.00	0.00	
8,200.00	90.39	91.71	7,134.65	-598.32	-477.66	-398.87	0.00	0.00	0.00	
8,300.00	90.39	91.71	7,133.96	-601.30	-377.71	-299.34	0.00	0.00	0.00	
8,400.00	90.39	91.71	7,133.28	-604.28	-277.76	-199.80	0.00	0.00	0.00	
8,500.00	90.39	91.71	7,132.60	-607.26	-177.81	-100.26	0.00	0.00	0.00	
8,600.00	90.39	91.71	7,131.91	-610.25	-77.85	-0.72	0.00	0.00	0.00	
8,700.00	90.39	91.71	7,131.23	-613.23	22.10	98.82	0.00	0.00	0.00	
8,800.00	90.39	91.71	7,130.55	-616.21	122.05	198.36	0.00	0.00	0.00	
8,900.00	90.39	91.71	7,129.86	-619.19	222.01	297.89	0.00	0.00	0.00	
9,000.00	90.39	91.71	7,129.18	-622.18	321.96	397.43	0.00	0.00	0.00	
9,100.00	90.39	91.71	7,128.50	-625.16	421.91	496.97	0.00	0.00	0.00	
9,200.00	90.39	91.71	7,127.81	-628.14	521.87	596.51	0.00	0.00	0.00	
9,300.00	90.39	91.71	7,127.13	-631.12	621.82	696.05	0.00	0.00	0.00	
9,400.00	90.39	91.71	7,126.45	-634.11	721.77	795.59	0.00	0.00	0.00	
9,500.00	90.39	91.71	7,125.76	-637.09	821.73	895.12	0.00	0.00	0.00	
9,600.00	90.39	91.71	7,125.08	-640.07	921.68	994.66	0.00	0.00	0.00	
9,700.00	90.39	91.71	7,124.40	-643.05	1,021.63	1,094.20	0.00	0.00	0.00	
9,800.00	90.39	91.71	7,123.71	-646.04	1,121.59	1,193.74	0.00	0.00	0.00	
9,900.00	90.39	91.71	7,123.03	-649.02	1,221.54	1,293.28	0.00	0.00	0.00	
10,000.00	90.39	91.71	7,122.35	-652.00	1,321.49	1,392.81	0.00	0.00	0.00	
10,100.00	90.39	91.71	7,121.66	-654.98	1,421.45	1,492.35	0.00	0.00	0.00	
10,200.00	90.39	91.71	7,120.98	-657.97	1,521.40	1,591.89	0.00	0.00	0.00	
10,300.00	90.39	91.71	7,120.29	-660.95	1,621.35	1,691.43	0.00	0.00	0.00	
10,400.00	90.39	91.71	7,119.61	-663.93	1,721.31	1,790.97	0.00	0.00	0.00	
10,500.00	90.39	91.71	7,118.93	-666.91	1,821.26	1,890.51	0.00	0.00	0.00	
10,600.00	90.39	91.71	7,118.24	-669.89	1,921.21	1,990.04	0.00	0.00	0.00	
10,700.00	90.39	91.71	7,117.56	-672.88	2,021.16	2,089.58	0.00	0.00	0.00	
10,800.00	90.39	91.71	7,116.88	-675.86	2,121.12	2,189.12	0.00	0.00	0.00	
10,900.00	90.39	91.71	7,116.19	-678.84	2,221.07	2,288.66	0.00	0.00	0.00	
11,000.00	90.39	91.71	7,115.51	-681.82	2,321.02	2,388.20	0.00	0.00	0.00	
11,100.00	90.39	91.71	7,114.83	-684.81	2,420.98	2,487.74	0.00	0.00	0.00	
11,200.00	90.39	91.71	7,114.14	-687.79	2,520.93	2,587.27	0.00	0.00	0.00	
11,300.00	90.39	91.71	7,113.46	-690.77	2,620.88	2,686.81	0.00	0.00	0.00	
11,400.00	90.39	91.71	7,112.78	-693.75	2,720.84	2,786.35	0.00	0.00	0.00	
11,500.00	90.39	91.71	7,112.09	-696.74	2,820.79	2,885.89	0.00	0.00	0.00	
11,600.00	90.39	91.71	7,111.41	-699.72	2,920.74	2,985.43	0.00	0.00	0.00	
11,700.00	90.39	91.71	7,110.73	-702.70	3,020.70	3,084.97	0.00	0.00	0.00	
11,800.00	90.39	91.71	7,110.04	-705.68	3,120.65	3,184.50	0.00	0.00	0.00	
11,900.00	90.39	91.71	7,109.36	-708.67	3,220.60	3,284.04	0.00	0.00	0.00	
12,000.00	90.39	91.71	7,108.68	-711.65	3,320.56	3,383.58	0.00	0.00	0.00	
12,100.00	90.39	91.71	7,107.99	-714.63	3,420.51	3,483.12	0.00	0.00	0.00	
12,200.00	90.39	91.71	7,107.31	-717.61	3,520.46	3,582.66	0.00	0.00	0.00	
12,300.00	90.39	91.71	7,106.63	-720.60	3,620.42	3,682.20	0.00	0.00	0.00	
12,400.00	90.39	91.71	7,105.94	-723.58	3,720.37	3,781.73	0.00	0.00	0.00	
12,500.00	90.39	91.71	7,105.26	-726.56	3,820.32	3,881.27	0.00	0.00	0.00	

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 4X-HNC-04-06-65
Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	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)	
12,600.00	90.39	91.71	7,104.58	-729.54	3,920.28	3,980.81	0.00	0.00	0.00	
12,700.00	90.39	91.71	7,103.89	-732.53	4,020.23	4,080.35	0.00	0.00	0.00	
12,800.00	90.39	91.71	7,103.21	-735.51	4,120.18	4,179.89	0.00	0.00	0.00	
12,900.00	90.39	91.71	7,102.52	-738.49	4,220.13	4,279.43	0.00	0.00	0.00	
13,000.00	90.39	91.71	7,101.84	-741.47	4,320.09	4,378.96	0.00	0.00	0.00	
13,100.00	90.39	91.71	7,101.16	-744.45	4,420.04	4,478.50	0.00	0.00	0.00	
13,200.00	90.39	91.71	7,100.47	-747.44	4,519.99	4,578.04	0.00	0.00	0.00	
13,300.00	90.39	91.71	7,099.79	-750.42	4,619.95	4,677.58	0.00	0.00	0.00	
13,400.00	90.39	91.71	7,099.11	-753.40	4,719.90	4,777.12	0.00	0.00	0.00	
13,500.00	90.39	91.71	7,098.42	-756.38	4,819.85	4,876.66	0.00	0.00	0.00	
13,600.00	90.39	91.71	7,097.74	-759.37	4,919.81	4,976.19	0.00	0.00	0.00	
13,700.00	90.39	91.71	7,097.06	-762.35	5,019.76	5,075.73	0.00	0.00	0.00	
13,800.00	90.39	91.71	7,096.37	-765.33	5,119.71	5,175.27	0.00	0.00	0.00	
13,900.00	90.39	91.71	7,095.69	-768.31	5,219.67	5,274.81	0.00	0.00	0.00	
14,000.00	90.39	91.71	7,095.01	-771.30	5,319.62	5,374.35	0.00	0.00	0.00	
14,100.00	90.39	91.71	7,094.32	-774.28	5,419.57	5,473.89	0.00	0.00	0.00	
14,200.00	90.39	91.71	7,093.64	-777.26	5,519.53	5,573.42	0.00	0.00	0.00	
14,300.00	90.39	91.71	7,092.96	-780.24	5,619.48	5,672.96	0.00	0.00	0.00	
14,400.00	90.39	91.71	7,092.27	-783.23	5,719.43	5,772.50	0.00	0.00	0.00	
14,500.00	90.39	91.71	7,091.59	-786.21	5,819.39	5,872.04	0.00	0.00	0.00	
14,600.00	90.39	91.71	7,090.91	-789.19	5,919.34	5,971.58	0.00	0.00	0.00	
14,700.00	90.39	91.71	7,090.22	-792.17	6,019.29	6,071.12	0.00	0.00	0.00	
14,800.00	90.39	91.71	7,089.54	-795.16	6,119.25	6,170.65	0.00	0.00	0.00	
14,900.00	90.39	91.71	7,088.86	-798.14	6,219.20	6,270.19	0.00	0.00	0.00	
15,000.00	90.39	91.71	7,088.17	-801.12	6,319.15	6,369.73	0.00	0.00	0.00	
15,025.12	90.39	91.71	7,088.00	-801.87	6,344.26	6,394.73	0.00	0.00	0.00	
TD at 15025.12										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
REEMAN 4X-HNC-04-01 - hit/miss target - Shape - Point	0.00	0.00	7,088.00	-801.87	6,344.26	1,431,981.76	3,231,080.36	40.516218	-104.668862	
REEMAN 4X-HNC-04-01 - plan hits target center - Point	0.00	0.00	7,138.00	-583.69	-967.92	1,432,199.94	3,223,768.18	40.517002	-104.695154	

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 4X-HNC-04-06-65
Company:	Nickel Road Operating	TVD Reference:	KB=17 @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	KB=17 @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Quaternary Alluvium				
25.00	25.00	Laramie/Fox Hills				
440.00	440.00	Upper Pierre				
1,605.19	1,595.00	Pierre Shale				
3,874.50	3,762.00	Parkman				
4,643.33	4,497.00	Sussex				
5,280.36	5,106.00	Shannon				
5,450.87	5,269.00	Pierre Shale				
7,179.21	6,914.00	Sharon Springs				
7,218.21	6,944.00	Niobrara				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,689.00	1,674.62	-31.76	-133.81	Start 55.00 hold at 1689.00 MD	
1,744.00	1,726.34	-37.77	-151.54	Start DLS 2.00 TFO 177.41	
1,886.14	1,861.14	-52.08	-194.26	Start 4759.45 hold at 1886.14 MD	
6,645.59	6,411.15	-490.34	-1,520.03	Start DLS 10.00 TFO -159.11	
7,709.51	7,138.00	-583.69	-967.92	Start 7315.60 hold at 7709.51 MD	
15,025.12	7,088.00	-801.87	6,344.26	TD at 15025.12	