

Nickel Road Operating

Weld Co., CO (NAD-83)

Sec.5-T6N-R65W

REEMAN 2X-HNB-04-06-65

OH

Plan: Plan #1

Standard Planning Report

21 July, 2022

Plan #1

Project: Weld Co., CO (NAD-83)
Site: Sec.5-T6N-R65W
Well: REEMAN 2X-HNB-04-06-65
Wellbore: OH
Design: Plan #1
Lat: 40.518449
Long: -104.691798
GL: 4816.00
KB: RKB @ 4833.00usft



Azimuths to Grid North
True North: -0.52°
Magnetic North: 7.21°

Magnetic Field
Strength: 51965.5nT
Dip Angle: 66.78°
Date: 12/31/2021
Model: HDGM2021_FILE

WELL DETAILS: REEMAN 2X-HNB-04-06-65

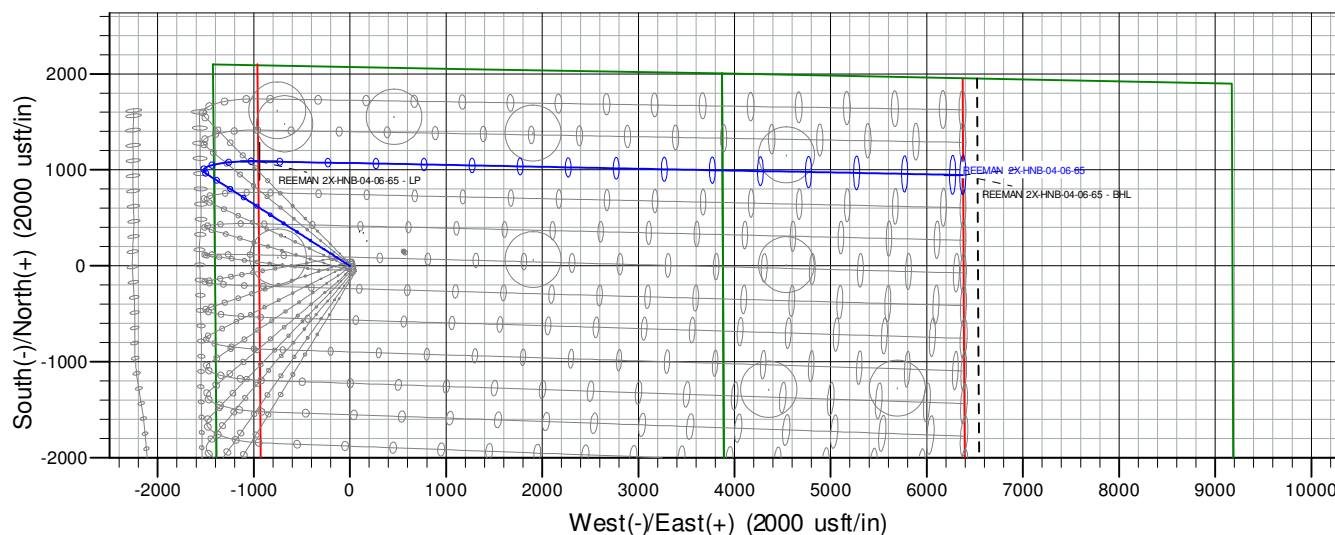
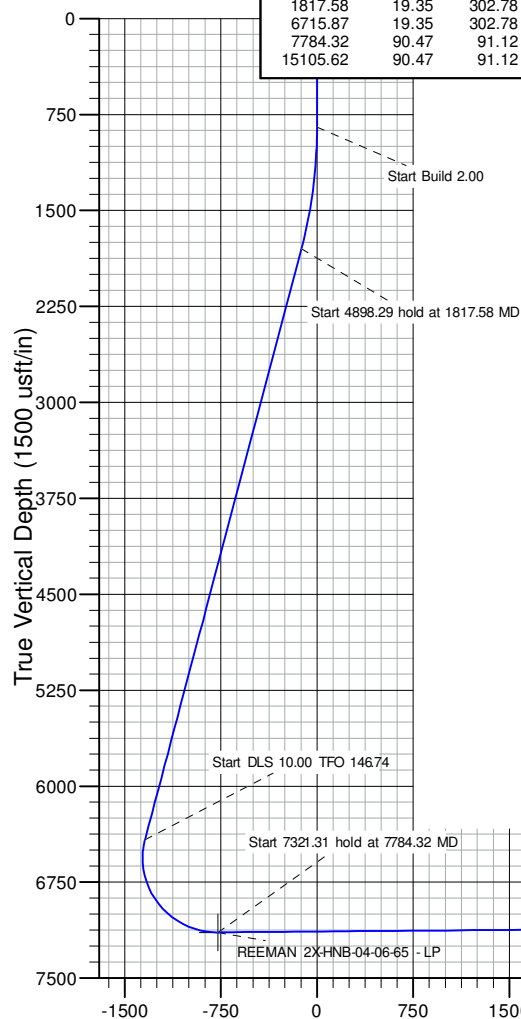
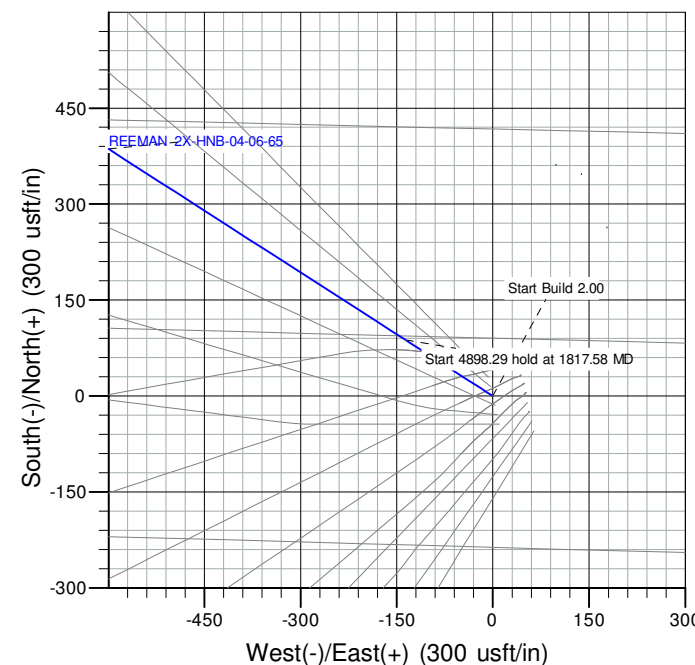
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1432735.54	3224696.23	40.518449	-104.691798

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
REEMAN 2X-HNB-04-06-65 - BHL7083.00		946.73	6375.81	1433682.27	3231072.04	Point
REEMAN 2X-HNB-04-06-65 - LP 7143.00		1089.92	-943.85	1433825.46	3223752.38	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1817.58	19.35	302.78	1799.29	87.64	-136.07	2.00	302.78	-121.73	Start 4898.29 hold at 1817.58 MD
6715.87	19.35	302.78	6420.84	966.49	-1500.68	0.00	0.00	-1342.45	Start DLS 10.00 TFO 146.74
7784.32	90.47	91.12	7143.00	1089.92	-943.85	10.00	146.74	-773.53	Start 7321.31 hold at 7784.32 MD
15105.62	90.47	91.12	7083.00	946.73	6375.81	0.00	0.00	6445.72	TD at 15105.62



Vertical Section at 81.55° (1500 usft/in)

Plan: Plan #1 (REEMAN 2X-HNB-04-06-65/OH)

Created By: Dusty Moyer

Date: 7/22, July 21 2022

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 2X-HNB-04-06-65
Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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 2X-HNB-04-06-65				
Well Position	+N/-S	0.00 usft	Northing:	1,432,735.54 usft	Latitude:	40.518449
	+E/-W	0.00 usft	Easting:	3,224,696.23 usft	Longitude:	-104.691798
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)
	HDGM2021_FILE	12/31/2021	7.73	66.78	51,965.50000000

Design	Plan #1				
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	81.55	

Plan Survey Tool Program	Date	7/21/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	15,105.62 Plan #1 (OH)	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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,817.58	19.35	302.78	1,799.29	87.64	-136.07	2.00	2.00	0.00	302.78	
6,715.88	19.35	302.78	6,420.84	966.49	-1,500.68	0.00	0.00	0.00	0.00	
7,784.32	90.47	91.12	7,143.00	1,089.92	-943.85	10.00	6.66	13.88	146.74	REEMAN 2X-HNB-04
15,105.62	90.47	91.12	7,083.00	946.73	6,375.81	0.00	0.00	0.00	0.00	REEMAN 2X-HNB-04

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 2X-HNB-04-06-65
Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quaternary Alluvium									
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00
Laramie/Fox Hills									
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	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
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre									
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
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
900.00	1.00	302.78	900.00	0.24	-0.37	-0.33	2.00	2.00	0.00
1,000.00	3.00	302.78	999.93	2.13	-3.30	-2.95	2.00	2.00	0.00
1,100.00	5.00	302.78	1,099.68	5.90	-9.17	-8.20	2.00	2.00	0.00
1,200.00	7.00	302.78	1,199.13	11.56	-17.95	-16.06	2.00	2.00	0.00
1,300.00	9.00	302.78	1,298.15	19.10	-29.65	-26.53	2.00	2.00	0.00
1,400.00	11.00	302.78	1,396.63	28.50	-44.25	-39.59	2.00	2.00	0.00
1,500.00	13.00	302.78	1,494.44	39.76	-61.73	-55.22	2.00	2.00	0.00
1,600.00	15.00	302.78	1,591.46	52.85	-82.07	-73.41	2.00	2.00	0.00
1,603.66	15.07	302.78	1,595.00	53.37	-82.87	-74.13	2.00	2.00	0.00
Pierre Shale									
1,700.00	17.00	302.78	1,687.58	67.78	-105.24	-94.14	2.00	2.00	0.00
1,800.00	19.00	302.78	1,782.68	84.51	-131.22	-117.38	2.00	2.00	0.00
1,817.58	19.35	302.78	1,799.29	87.64	-136.07	-121.73	2.00	2.00	0.00
Start 4898.29 hold at 1817.58 MD									
1,900.00	19.35	302.78	1,877.05	102.42	-159.03	-142.27	0.00	0.00	0.00
2,000.00	19.35	302.78	1,971.40	120.37	-186.89	-167.19	0.00	0.00	0.00
2,100.00	19.35	302.78	2,065.75	138.31	-214.75	-192.11	0.00	0.00	0.00
2,200.00	19.35	302.78	2,160.10	156.25	-242.61	-217.03	0.00	0.00	0.00
2,300.00	19.35	302.78	2,254.45	174.19	-270.47	-241.95	0.00	0.00	0.00
2,400.00	19.35	302.78	2,348.80	192.13	-298.33	-266.87	0.00	0.00	0.00
2,500.00	19.35	302.78	2,443.15	210.08	-326.19	-291.79	0.00	0.00	0.00
2,600.00	19.35	302.78	2,537.50	228.02	-354.05	-316.72	0.00	0.00	0.00
2,700.00	19.35	302.78	2,631.85	245.96	-381.91	-341.64	0.00	0.00	0.00
2,800.00	19.35	302.78	2,726.20	263.90	-409.76	-366.56	0.00	0.00	0.00
2,900.00	19.35	302.78	2,820.55	281.84	-437.62	-391.48	0.00	0.00	0.00
3,000.00	19.35	302.78	2,914.90	299.79	-465.48	-416.40	0.00	0.00	0.00
3,100.00	19.35	302.78	3,009.26	317.73	-493.34	-441.32	0.00	0.00	0.00
3,200.00	19.35	302.78	3,103.61	335.67	-521.20	-466.24	0.00	0.00	0.00
3,300.00	19.35	302.78	3,197.96	353.61	-549.06	-491.17	0.00	0.00	0.00
3,400.00	19.35	302.78	3,292.31	371.55	-576.92	-516.09	0.00	0.00	0.00
3,500.00	19.35	302.78	3,386.66	389.50	-604.78	-541.01	0.00	0.00	0.00
3,600.00	19.35	302.78	3,481.01	407.44	-632.63	-565.93	0.00	0.00	0.00
3,700.00	19.35	302.78	3,575.36	425.38	-660.49	-590.85	0.00	0.00	0.00
3,800.00	19.35	302.78	3,669.71	443.32	-688.35	-615.77	0.00	0.00	0.00
3,897.82	19.35	302.78	3,762.00	460.87	-715.60	-640.15	0.00	0.00	0.00
Parkman									
3,900.00	19.35	302.78	3,764.06	461.26	-716.21	-640.69	0.00	0.00	0.00

Planning Report

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Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
4,000.00	19.35	302.78	3,858.41	479.21	-744.07	-665.62	0.00	0.00	0.00
4,100.00	19.35	302.78	3,952.76	497.15	-771.93	-690.54	0.00	0.00	0.00
4,200.00	19.35	302.78	4,047.11	515.09	-799.79	-715.46	0.00	0.00	0.00
4,300.00	19.35	302.78	4,141.46	533.03	-827.65	-740.38	0.00	0.00	0.00
4,400.00	19.35	302.78	4,235.81	550.97	-855.51	-765.30	0.00	0.00	0.00
4,500.00	19.35	302.78	4,330.16	568.92	-883.36	-790.22	0.00	0.00	0.00
4,600.00	19.35	302.78	4,424.51	586.86	-911.22	-815.14	0.00	0.00	0.00
4,676.83	19.35	302.78	4,497.00	600.64	-932.63	-834.29	0.00	0.00	0.00
Sussex									
4,700.00	19.35	302.78	4,518.86	604.80	-939.08	-840.07	0.00	0.00	0.00
4,800.00	19.35	302.78	4,613.21	622.74	-966.94	-864.99	0.00	0.00	0.00
4,900.00	19.35	302.78	4,707.56	640.68	-994.80	-889.91	0.00	0.00	0.00
5,000.00	19.35	302.78	4,801.91	658.63	-1,022.66	-914.83	0.00	0.00	0.00
5,100.00	19.35	302.78	4,896.26	676.57	-1,050.52	-939.75	0.00	0.00	0.00
5,200.00	19.35	302.78	4,990.61	694.51	-1,078.38	-964.67	0.00	0.00	0.00
5,300.00	19.35	302.78	5,084.96	712.45	-1,106.23	-989.59	0.00	0.00	0.00
5,322.30	19.35	302.78	5,106.00	716.45	-1,112.45	-995.15	0.00	0.00	0.00
Shannon									
5,400.00	19.35	302.78	5,179.31	730.39	-1,134.09	-1,014.52	0.00	0.00	0.00
5,495.06	19.35	302.78	5,269.00	747.45	-1,160.58	-1,038.21	0.00	0.00	0.00
Pierre Shale									
5,500.00	19.35	302.78	5,273.66	748.34	-1,161.95	-1,039.44	0.00	0.00	0.00
5,600.00	19.35	302.78	5,368.01	766.28	-1,189.81	-1,064.36	0.00	0.00	0.00
5,700.00	19.35	302.78	5,462.36	784.22	-1,217.67	-1,089.28	0.00	0.00	0.00
5,800.00	19.35	302.78	5,556.71	802.16	-1,245.53	-1,114.20	0.00	0.00	0.00
5,900.00	19.35	302.78	5,651.06	820.10	-1,273.39	-1,139.12	0.00	0.00	0.00
6,000.00	19.35	302.78	5,745.41	838.05	-1,301.25	-1,164.04	0.00	0.00	0.00
6,100.00	19.35	302.78	5,839.76	855.99	-1,329.11	-1,188.97	0.00	0.00	0.00
6,200.00	19.35	302.78	5,934.11	873.93	-1,356.96	-1,213.89	0.00	0.00	0.00
6,300.00	19.35	302.78	6,028.46	891.87	-1,384.82	-1,238.81	0.00	0.00	0.00
6,400.00	19.35	302.78	6,122.81	909.81	-1,412.68	-1,263.73	0.00	0.00	0.00
6,500.00	19.35	302.78	6,217.16	927.76	-1,440.54	-1,288.65	0.00	0.00	0.00
6,600.00	19.35	302.78	6,311.51	945.70	-1,468.40	-1,313.57	0.00	0.00	0.00
6,700.00	19.35	302.78	6,405.86	963.64	-1,496.26	-1,338.49	0.00	0.00	0.00
6,715.88	19.35	302.78	6,420.84	966.49	-1,500.68	-1,342.45	0.00	0.00	0.00
Start DLS 10.00 TFO 146.74									
6,750.00	16.60	309.34	6,453.30	972.64	-1,509.21	-1,349.98	10.00	-8.06	19.23
6,800.00	13.12	323.48	6,501.64	981.74	-1,518.11	-1,357.45	10.00	-6.96	28.27
6,850.00	10.87	345.18	6,550.57	990.86	-1,522.70	-1,360.65	10.00	-4.49	43.41
6,900.00	10.67	12.16	6,599.72	999.95	-1,522.93	-1,359.55	10.00	-0.42	53.95
6,950.00	12.60	35.25	6,648.71	1,008.94	-1,518.81	-1,354.15	10.00	3.86	46.20
7,000.00	15.91	50.62	6,697.19	1,017.74	-1,510.36	-1,344.49	10.00	6.62	30.72
7,050.00	19.92	60.38	6,744.76	1,026.31	-1,497.65	-1,330.66	10.00	8.03	19.52
7,100.00	24.29	66.87	6,791.08	1,034.56	-1,480.77	-1,312.76	10.00	8.74	12.97
7,150.00	28.86	71.44	6,835.79	1,042.45	-1,459.86	-1,290.92	10.00	9.13	9.15
7,200.00	33.54	74.85	6,878.55	1,049.91	-1,435.08	-1,265.30	10.00	9.36	6.81
7,243.61	37.68	77.19	6,914.00	1,056.01	-1,410.44	-1,240.04	10.00	9.50	5.38
Sharon Springs									
7,250.00	38.29	77.50	6,919.04	1,056.88	-1,406.60	-1,236.12	10.00	9.55	4.80
7,282.52	41.41	78.94	6,944.00	1,061.12	-1,386.20	-1,215.31	10.00	9.59	4.43
Niobrara									
7,300.00	43.09	79.64	6,956.94	1,063.30	-1,374.66	-1,203.57	10.00	9.63	4.02
7,350.00	47.93	81.43	6,991.97	1,069.14	-1,339.48	-1,167.92	10.00	9.67	3.58

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 2X-HNB-04-06-65
Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
7,400.00	52.79	82.97	7,023.86	1,074.35	-1,301.35	-1,129.44	10.00	9.72	3.07
7,450.00	57.66	84.31	7,052.37	1,078.88	-1,260.54	-1,088.41	10.00	9.75	2.70
7,500.00	62.55	85.53	7,077.28	1,082.71	-1,217.38	-1,045.15	10.00	9.78	2.42
7,550.00	67.45	86.63	7,098.41	1,085.80	-1,172.18	-999.99	10.00	9.80	2.21
7,600.00	72.35	87.66	7,115.58	1,088.13	-1,125.30	-953.27	10.00	9.81	2.06
7,650.00	77.27	88.64	7,128.68	1,089.68	-1,077.09	-905.36	10.00	9.82	1.95
7,700.00	82.18	89.58	7,137.60	1,090.44	-1,027.91	-856.60	10.00	9.83	1.88
7,750.00	87.10	90.50	7,142.27	1,090.40	-978.15	-807.38	10.00	9.83	1.83
7,784.32	90.47	91.12	7,143.00	1,089.92	-943.85	-773.53	10.00	9.83	1.82
Start 7321.31 hold at 7784.32 MD									
7,800.00	90.47	91.12	7,142.87	1,089.61	-928.17	-758.06	0.00	0.00	0.00
7,900.00	90.47	91.12	7,142.05	1,087.66	-828.19	-659.45	0.00	0.00	0.00
8,000.00	90.47	91.12	7,141.23	1,085.70	-728.21	-560.85	0.00	0.00	0.00
8,100.00	90.47	91.12	7,140.41	1,083.75	-628.23	-462.24	0.00	0.00	0.00
8,200.00	90.47	91.12	7,139.59	1,081.79	-528.26	-363.64	0.00	0.00	0.00
8,300.00	90.47	91.12	7,138.77	1,079.83	-428.28	-265.03	0.00	0.00	0.00
8,400.00	90.47	91.12	7,137.95	1,077.88	-328.30	-166.42	0.00	0.00	0.00
8,500.00	90.47	91.12	7,137.13	1,075.92	-228.32	-67.82	0.00	0.00	0.00
8,600.00	90.47	91.12	7,136.32	1,073.97	-128.35	30.79	0.00	0.00	0.00
8,700.00	90.47	91.12	7,135.50	1,072.01	-28.37	129.39	0.00	0.00	0.00
8,800.00	90.47	91.12	7,134.68	1,070.06	71.61	228.00	0.00	0.00	0.00
8,900.00	90.47	91.12	7,133.86	1,068.10	171.59	326.61	0.00	0.00	0.00
9,000.00	90.47	91.12	7,133.04	1,066.14	271.56	425.21	0.00	0.00	0.00
9,100.00	90.47	91.12	7,132.22	1,064.19	371.54	523.82	0.00	0.00	0.00
9,200.00	90.47	91.12	7,131.40	1,062.23	471.52	622.42	0.00	0.00	0.00
9,300.00	90.47	91.12	7,130.58	1,060.28	571.50	721.03	0.00	0.00	0.00
9,400.00	90.47	91.12	7,129.76	1,058.32	671.47	819.64	0.00	0.00	0.00
9,500.00	90.47	91.12	7,128.94	1,056.36	771.45	918.24	0.00	0.00	0.00
9,600.00	90.47	91.12	7,128.12	1,054.41	871.43	1,016.85	0.00	0.00	0.00
9,700.00	90.47	91.12	7,127.30	1,052.45	971.41	1,115.45	0.00	0.00	0.00
9,800.00	90.47	91.12	7,126.48	1,050.50	1,071.38	1,214.06	0.00	0.00	0.00
9,900.00	90.47	91.12	7,125.66	1,048.54	1,171.36	1,312.67	0.00	0.00	0.00
10,000.00	90.47	91.12	7,124.84	1,046.59	1,271.34	1,411.27	0.00	0.00	0.00
10,100.00	90.47	91.12	7,124.02	1,044.63	1,371.32	1,509.88	0.00	0.00	0.00
10,200.00	90.47	91.12	7,123.20	1,042.67	1,471.29	1,608.48	0.00	0.00	0.00
10,300.00	90.47	91.12	7,122.38	1,040.72	1,571.27	1,707.09	0.00	0.00	0.00
10,400.00	90.47	91.12	7,121.56	1,038.76	1,671.25	1,805.70	0.00	0.00	0.00
10,500.00	90.47	91.12	7,120.74	1,036.81	1,771.23	1,904.30	0.00	0.00	0.00
10,600.00	90.47	91.12	7,119.92	1,034.85	1,871.20	2,002.91	0.00	0.00	0.00
10,700.00	90.47	91.12	7,119.11	1,032.90	1,971.18	2,101.51	0.00	0.00	0.00
10,800.00	90.47	91.12	7,118.29	1,030.94	2,071.16	2,200.12	0.00	0.00	0.00
10,900.00	90.47	91.12	7,117.47	1,028.98	2,171.14	2,298.73	0.00	0.00	0.00
11,000.00	90.47	91.12	7,116.65	1,027.03	2,271.11	2,397.33	0.00	0.00	0.00
11,100.00	90.47	91.12	7,115.83	1,025.07	2,371.09	2,495.94	0.00	0.00	0.00
11,200.00	90.47	91.12	7,115.01	1,023.12	2,471.07	2,594.54	0.00	0.00	0.00
11,300.00	90.47	91.12	7,114.19	1,021.16	2,571.05	2,693.15	0.00	0.00	0.00
11,400.00	90.47	91.12	7,113.37	1,019.20	2,671.02	2,791.76	0.00	0.00	0.00
11,500.00	90.47	91.12	7,112.55	1,017.25	2,771.00	2,890.36	0.00	0.00	0.00
11,600.00	90.47	91.12	7,111.73	1,015.29	2,870.98	2,988.97	0.00	0.00	0.00
11,700.00	90.47	91.12	7,110.91	1,013.34	2,970.96	3,087.57	0.00	0.00	0.00
11,800.00	90.47	91.12	7,110.09	1,011.38	3,070.94	3,186.18	0.00	0.00	0.00
11,900.00	90.47	91.12	7,109.27	1,009.43	3,170.91	3,284.78	0.00	0.00	0.00
12,000.00	90.47	91.12	7,108.45	1,007.47	3,270.89	3,383.39	0.00	0.00	0.00

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 2X-HNB-04-06-65
Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)	
12,100.00	90.47	91.12	7,107.63	1,005.51	3,370.87	3,482.00	0.00	0.00	0.00	
12,200.00	90.47	91.12	7,106.81	1,003.56	3,470.85	3,580.60	0.00	0.00	0.00	
12,300.00	90.47	91.12	7,105.99	1,001.60	3,570.82	3,679.21	0.00	0.00	0.00	
12,400.00	90.47	91.12	7,105.17	999.65	3,670.80	3,777.81	0.00	0.00	0.00	
12,500.00	90.47	91.12	7,104.35	997.69	3,770.78	3,876.42	0.00	0.00	0.00	
12,600.00	90.47	91.12	7,103.53	995.74	3,870.76	3,975.03	0.00	0.00	0.00	
12,700.00	90.47	91.12	7,102.71	993.78	3,970.73	4,073.63	0.00	0.00	0.00	
12,800.00	90.47	91.12	7,101.90	991.82	4,070.71	4,172.24	0.00	0.00	0.00	
12,900.00	90.47	91.12	7,101.08	989.87	4,170.69	4,270.84	0.00	0.00	0.00	
13,000.00	90.47	91.12	7,100.26	987.91	4,270.67	4,369.45	0.00	0.00	0.00	
13,100.00	90.47	91.12	7,099.44	985.96	4,370.64	4,468.06	0.00	0.00	0.00	
13,200.00	90.47	91.12	7,098.62	984.00	4,470.62	4,566.66	0.00	0.00	0.00	
13,300.00	90.47	91.12	7,097.80	982.04	4,570.60	4,665.27	0.00	0.00	0.00	
13,400.00	90.47	91.12	7,096.98	980.09	4,670.58	4,763.87	0.00	0.00	0.00	
13,500.00	90.47	91.12	7,096.16	978.13	4,770.55	4,862.48	0.00	0.00	0.00	
13,600.00	90.47	91.12	7,095.34	976.18	4,870.53	4,961.09	0.00	0.00	0.00	
13,700.00	90.47	91.12	7,094.52	974.22	4,970.51	5,059.69	0.00	0.00	0.00	
13,800.00	90.47	91.12	7,093.70	972.27	5,070.49	5,158.30	0.00	0.00	0.00	
13,900.00	90.47	91.12	7,092.88	970.31	5,170.46	5,256.90	0.00	0.00	0.00	
14,000.00	90.47	91.12	7,092.06	968.35	5,270.44	5,355.51	0.00	0.00	0.00	
14,100.00	90.47	91.12	7,091.24	966.40	5,370.42	5,454.12	0.00	0.00	0.00	
14,200.00	90.47	91.12	7,090.42	964.44	5,470.40	5,552.72	0.00	0.00	0.00	
14,300.00	90.47	91.12	7,089.60	962.49	5,570.37	5,651.33	0.00	0.00	0.00	
14,400.00	90.47	91.12	7,088.78	960.53	5,670.35	5,749.93	0.00	0.00	0.00	
14,500.00	90.47	91.12	7,087.96	958.57	5,770.33	5,848.54	0.00	0.00	0.00	
14,600.00	90.47	91.12	7,087.14	956.62	5,870.31	5,947.15	0.00	0.00	0.00	
14,700.00	90.47	91.12	7,086.32	954.66	5,970.28	6,045.75	0.00	0.00	0.00	
14,800.00	90.47	91.12	7,085.50	952.71	6,070.26	6,144.36	0.00	0.00	0.00	
14,900.00	90.47	91.12	7,084.69	950.75	6,170.24	6,242.96	0.00	0.00	0.00	
15,000.00	90.47	91.12	7,083.87	948.80	6,270.22	6,341.57	0.00	0.00	0.00	
15,105.62	90.47	91.12	7,083.00	946.73	6,375.81	6,445.72	0.00	0.00	0.00	
TD at 15105.62										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
REEMAN 2X-HNB-04-06-65 - hit/miss target - Shape - Point	0.00	0.01	7,083.00	946.73	6,375.81	1,433,682.27	3,231,072.04	40.520886	-104.668835	
REEMAN 2X-HNB-04-06-65 - plan hits target center - Point	0.00	0.00	7,143.00	1,089.92	-943.85	1,433,825.46	3,223,752.38	40.521464	-104.695157	

Planning Report

Database:	FHartmann	Local Co-ordinate Reference:	Well REEMAN 2X-HNB-04-06-65
Company:	Nickel Road Operating	TVD Reference:	RKB @ 4833.00usft
Project:	Weld Co., CO (NAD-83)	MD Reference:	RKB @ 4833.00usft
Site:	Sec.5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 2X-HNB-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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				
1,603.66	1,595.00	Pierre Shale				
3,897.82	3,762.00	Parkman				
4,676.83	4,497.00	Sussex				
5,322.30	5,106.00	Shannon				
5,495.06	5,269.00	Pierre Shale				
7,243.61	6,914.00	Sharon Springs				
7,282.52	6,944.00	Niobrara				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
850.00	850.00	0.00	0.00	Start Build 2.00	
1,817.58	1,799.29	87.64	-136.07	Start 4898.29 hold at 1817.58 MD	
6,715.88	6,420.84	966.49	-1,500.68	Start DLS 10.00 TFO 146.74	
7,784.32	7,143.00	1,089.92	-943.85	Start 7321.31 hold at 7784.32 MD	
15,105.62	7,083.00	946.73	6,375.81	TD at 15105.62	