

# **NICKEL ROAD OPERATING**

**WELD COUNTY**

**SEC 5-T6N-R65W**

**REEMAN 8X-HNB-04-06-65**

**OWB**

**Plan: PROPOSAL 2**

## **Standard Planning Report**

**07 February, 2022**



WELL DETAILS: REEMAN 8X-HNB-04-06-65

+N/-S	+E/-W	Northing	Easting	4816.00 Latitude	Longitude	Slot
0.00	0.00	1432721.01	3224699.70	40.518409°N	104.691786°W	

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	450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	
3	1798.28	26.97	213.48	1749.05	-259.79	-171.81	2.00	213.48	-51.76	
4	7004.41	26.97	213.48	6389.17	-2228.85	-1474.10	0.00	0.00	-444.07	
5	8042.45	90.27	92.36	7037.00	-2535.36	-926.76	10.00	-118.17	180.53	REEMAN 8X-HNB-LP (P2)
6	15374.70	90.27	92.36	7002.00	-2837.57	6399.18	0.00	0.00	7000.10	REEMAN 8X-HNB-PBHL (P2)

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	Start Build 2.00
1798.28	26.97	213.48	1749.05	-259.79	-171.81	-51.76	311.46	Start 5206.14 hold at 1798.28 MD
7004.41	26.97	213.48	6389.17	-2228.85	-1474.10	-444.07	2672.21	Start DLS 10.00 TFO -118.17
8042.45	90.27	92.36	7037.00	-2535.36	-926.76	180.53	3391.30	Start 7332.26 hold at 8042.45 MD
15374.70	90.27	92.36	7002.00	-2837.57	6399.18	7000.10	10723.48	TD at 15374.70

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
REEMAN 8X-HNB-PBHL (P2)	7002.00	-2837.57	6399.18	1429883.44	3231098.88	40.510458°N	104.668866°W	Point
- plan hits target center								
REEMAN 8X-HNB-LP (P2)	7037.00	-2535.36	-926.76	1430185.65	3223772.94	40.511473°N	104.695202°W	Point
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Laramie-Fox Hills
288.00	288.00	Upper Pierre Aquifer
1302.00	1315.09	Pierre Shale
4483.00	4865.72	Sussex
5019.00	5467.10	Shannon
5048.00	5499.64	Pierre Shale
6911.00	7634.17	Nio A

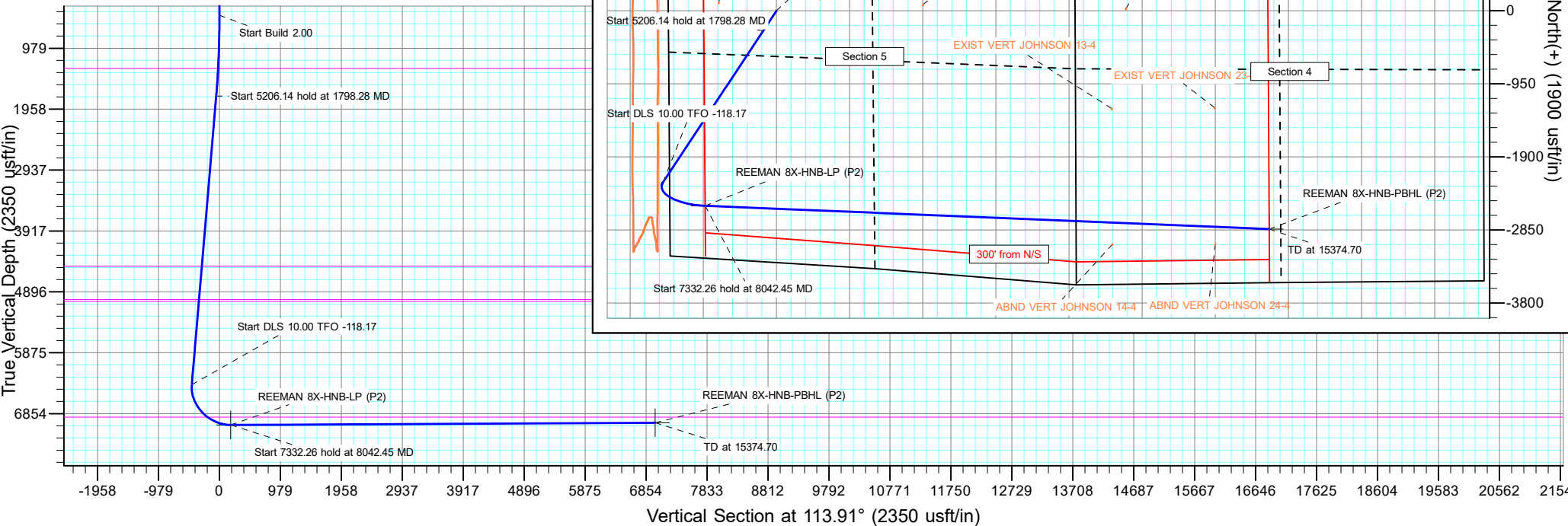
PROJECT DETAILS: WELD COUNTY

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

SHL:  
2086' FNL, 1406' FWL  
Sec 5-T6N-R65W

LP:  
680' FSL, 460' FWL  
Sec 5-T6N-R65W

BHL:  
698' FSL, 2508' FWL  
Sec 4-T6N-R65W



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well REEMAN 8X-HNB-04-06-65
<b>Company:</b>	NICKEL ROAD OPERATING	<b>TVD Reference:</b>	KB 17' @ 4833.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 17' @ 4833.00usft
<b>Site:</b>	SEC 5-T6N-R65W	<b>North Reference:</b>	Grid
<b>Well:</b>	REEMAN 8X-HNB-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 2		

<b>Project</b>	WELD COUNTY		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		SEC 5-T6N-R65W				
Site Position:		Northing:	1,434,834.96	usft	Latitude:	40.524247°N
From:	Lat/Long	Easting:	3,223,272.58	usft	Longitude:	104.696850°W
Position Uncertainty:		0.00	usft	Slot Radius:	13.200	in

Well		REEMAN 8X-HNB-04-06-65				
Well Position	+N/-S	0.00 usft	Northing:	1,432,721.01 usft	Latitude:	40.518409°N
	+E/-W	0.00 usft	Easting:	3,224,699.70 usft	Longitude:	104.691786°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,816.00 usft
Grid Convergence:		0.52 °				

<b>Wellbore</b>	OWB				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	1/7/2022	7.76	66.73	51,963.60250472

<b>Design</b>	PROPOSAL 2				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	113.91	

<b>Plan Survey Tool Program</b>	<b>Date</b>	2/7/2022			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	15,374.71 PROPOSAL 2 (OWB)	MWD		
			OWSG MWD - Standard		

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,798.28	26.97	213.48	1,749.05	-259.79	-171.81	2.00	2.00	0.00	213.48	
7,004.42	26.97	213.48	6,389.17	-2,228.85	-1,474.10	0.00	0.00	0.00	0.00	
8,042.45	90.27	92.36	7,037.00	-2,535.36	-926.76	10.00	6.10	-11.67	-118.17	REEMAN 8X-HNB-LF
15,374.71	90.27	92.36	7,002.00	-2,837.57	6,399.18	0.00	0.00	0.00	0.00	REEMAN 8X-HNB-PF

# Planning Report

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<b>Company:</b>	NICKEL ROAD OPERATING	<b>TVD Reference:</b>	KB 17' @ 4833.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 17' @ 4833.00usft
<b>Site:</b>	SEC 5-T6N-R65W	<b>North Reference:</b>	Grid
<b>Well:</b>	REEMAN 8X-HNB-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 2		

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
<b>Laramie-Fox Hills</b>									
288.00	0.00	0.00	288.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer</b>									
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
500.00	1.00	213.48	500.00	-0.36	-0.24	-0.07	2.00	2.00	0.00
600.00	3.00	213.48	599.93	-3.27	-2.17	-0.65	2.00	2.00	0.00
700.00	5.00	213.48	699.68	-9.09	-6.01	-1.81	2.00	2.00	0.00
800.00	7.00	213.48	799.13	-17.81	-11.78	-3.55	2.00	2.00	0.00
900.00	9.00	213.48	898.15	-29.42	-19.46	-5.86	2.00	2.00	0.00
1,000.00	11.00	213.48	996.63	-43.90	-29.04	-8.75	2.00	2.00	0.00
1,100.00	13.00	213.48	1,094.44	-61.24	-40.50	-12.20	2.00	2.00	0.00
1,200.00	15.00	213.48	1,191.46	-81.42	-53.85	-16.22	2.00	2.00	0.00
1,300.00	17.00	213.48	1,287.58	-104.41	-69.05	-20.80	2.00	2.00	0.00
1,315.09	17.30	213.48	1,302.00	-108.12	-71.51	-21.54	2.00	2.00	0.00
<b>Pierre Shale</b>									
1,400.00	19.00	213.48	1,382.68	-130.18	-86.10	-25.94	2.00	2.00	0.00
1,500.00	21.00	213.48	1,476.65	-158.71	-104.97	-31.62	2.00	2.00	0.00
1,600.00	23.00	213.48	1,569.36	-189.95	-125.63	-37.85	2.00	2.00	0.00
1,700.00	25.00	213.48	1,660.71	-223.88	-148.06	-44.60	2.00	2.00	0.00
1,798.28	26.97	213.48	1,749.05	-259.79	-171.81	-51.76	2.00	2.00	0.00
<b>Start 5206.14 hold at 1798.28 MD</b>									
1,800.00	26.97	213.48	1,750.59	-260.44	-172.25	-51.89	0.00	0.00	0.00
1,900.00	26.97	213.48	1,839.71	-298.26	-197.26	-59.42	0.00	0.00	0.00
2,000.00	26.97	213.48	1,928.84	-336.08	-222.27	-66.96	0.00	0.00	0.00
2,100.00	26.97	213.48	2,017.97	-373.90	-247.29	-74.50	0.00	0.00	0.00
2,200.00	26.97	213.48	2,107.10	-411.72	-272.30	-82.03	0.00	0.00	0.00
2,300.00	26.97	213.48	2,196.23	-449.55	-297.32	-89.57	0.00	0.00	0.00
2,400.00	26.97	213.48	2,285.35	-487.37	-322.33	-97.10	0.00	0.00	0.00
2,500.00	26.97	213.48	2,374.48	-525.19	-347.35	-104.64	0.00	0.00	0.00
2,600.00	26.97	213.48	2,463.61	-563.01	-372.36	-112.17	0.00	0.00	0.00
2,700.00	26.97	213.48	2,552.74	-600.83	-397.38	-119.71	0.00	0.00	0.00
2,800.00	26.97	213.48	2,641.87	-638.66	-422.39	-127.24	0.00	0.00	0.00
2,900.00	26.97	213.48	2,730.99	-676.48	-447.40	-134.78	0.00	0.00	0.00
3,000.00	26.97	213.48	2,820.12	-714.30	-472.42	-142.31	0.00	0.00	0.00
3,100.00	26.97	213.48	2,909.25	-752.12	-497.43	-149.85	0.00	0.00	0.00
3,200.00	26.97	213.48	2,998.38	-789.94	-522.45	-157.39	0.00	0.00	0.00
3,300.00	26.97	213.48	3,087.51	-827.77	-547.46	-164.92	0.00	0.00	0.00
3,400.00	26.97	213.48	3,176.63	-865.59	-572.48	-172.46	0.00	0.00	0.00
3,500.00	26.97	213.48	3,265.76	-903.41	-597.49	-179.99	0.00	0.00	0.00
3,600.00	26.97	213.48	3,354.89	-941.23	-622.50	-187.53	0.00	0.00	0.00
3,700.00	26.97	213.48	3,444.02	-979.05	-647.52	-195.06	0.00	0.00	0.00
3,800.00	26.97	213.48	3,533.14	-1,016.88	-672.53	-202.60	0.00	0.00	0.00
3,900.00	26.97	213.48	3,622.27	-1,054.70	-697.55	-210.13	0.00	0.00	0.00
4,000.00	26.97	213.48	3,711.40	-1,092.52	-722.56	-217.67	0.00	0.00	0.00
4,100.00	26.97	213.48	3,800.53	-1,130.34	-747.58	-225.21	0.00	0.00	0.00
4,200.00	26.97	213.48	3,889.66	-1,168.16	-772.59	-232.74	0.00	0.00	0.00
4,300.00	26.97	213.48	3,978.78	-1,205.99	-797.61	-240.28	0.00	0.00	0.00
4,400.00	26.97	213.48	4,067.91	-1,243.81	-822.62	-247.81	0.00	0.00	0.00
4,500.00	26.97	213.48	4,157.04	-1,281.63	-847.63	-255.35	0.00	0.00	0.00
4,600.00	26.97	213.48	4,246.17	-1,319.45	-872.65	-262.88	0.00	0.00	0.00
4,700.00	26.97	213.48	4,335.30	-1,357.27	-897.66	-270.42	0.00	0.00	0.00

# Planning Report

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<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 17' @ 4833.00usft
<b>Site:</b>	SEC 5-T6N-R65W	<b>North Reference:</b>	Grid
<b>Well:</b>	REEMAN 8X-HNB-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 2		

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)	
4,800.00	26.97	213.48	4,424.42	-1,395.10	-922.68	-277.95	0.00	0.00	0.00	
4,865.72	26.97	213.48	4,483.00	-1,419.95	-939.12	-282.91	0.00	0.00	0.00	
<b>Sussex</b>										
4,900.00	26.97	213.48	4,513.55	-1,432.92	-947.69	-285.49	0.00	0.00	0.00	
5,000.00	26.97	213.48	4,602.68	-1,470.74	-972.71	-293.03	0.00	0.00	0.00	
5,100.00	26.97	213.48	4,691.81	-1,508.56	-997.72	-300.56	0.00	0.00	0.00	
5,200.00	26.97	213.48	4,780.94	-1,546.38	-1,022.73	-308.10	0.00	0.00	0.00	
5,300.00	26.97	213.48	4,870.06	-1,584.21	-1,047.75	-315.63	0.00	0.00	0.00	
5,400.00	26.97	213.48	4,959.19	-1,622.03	-1,072.76	-323.17	0.00	0.00	0.00	
5,467.10	26.97	213.48	5,019.00	-1,647.41	-1,089.55	-328.22	0.00	0.00	0.00	
<b>Shannon</b>										
5,499.64	26.97	213.48	5,048.00	-1,659.71	-1,097.69	-330.68	0.00	0.00	0.00	
<b>Pierre Shale</b>										
5,500.00	26.97	213.48	5,048.32	-1,659.85	-1,097.78	-330.70	0.00	0.00	0.00	
5,600.00	26.97	213.48	5,137.45	-1,697.67	-1,122.79	-338.24	0.00	0.00	0.00	
5,700.00	26.97	213.48	5,226.57	-1,735.49	-1,147.81	-345.77	0.00	0.00	0.00	
5,800.00	26.97	213.48	5,315.70	-1,773.32	-1,172.82	-353.31	0.00	0.00	0.00	
5,900.00	26.97	213.48	5,404.83	-1,811.14	-1,197.84	-360.84	0.00	0.00	0.00	
6,000.00	26.97	213.48	5,493.96	-1,848.96	-1,222.85	-368.38	0.00	0.00	0.00	
6,100.00	26.97	213.48	5,583.09	-1,886.78	-1,247.86	-375.92	0.00	0.00	0.00	
6,200.00	26.97	213.48	5,672.21	-1,924.60	-1,272.88	-383.45	0.00	0.00	0.00	
6,300.00	26.97	213.48	5,761.34	-1,962.42	-1,297.89	-390.99	0.00	0.00	0.00	
6,400.00	26.97	213.48	5,850.47	-2,000.25	-1,322.91	-398.52	0.00	0.00	0.00	
6,500.00	26.97	213.48	5,939.60	-2,038.07	-1,347.92	-406.06	0.00	0.00	0.00	
6,600.00	26.97	213.48	6,028.73	-2,075.89	-1,372.94	-413.59	0.00	0.00	0.00	
6,700.00	26.97	213.48	6,117.85	-2,113.71	-1,397.95	-421.13	0.00	0.00	0.00	
6,800.00	26.97	213.48	6,206.98	-2,151.53	-1,422.96	-428.66	0.00	0.00	0.00	
6,900.00	26.97	213.48	6,296.11	-2,189.36	-1,447.98	-436.20	0.00	0.00	0.00	
7,000.00	26.97	213.48	6,385.24	-2,227.18	-1,472.99	-443.74	0.00	0.00	0.00	
7,004.42	26.97	213.48	6,389.17	-2,228.85	-1,474.10	-444.07	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO -118.17</b>										
7,100.00	23.87	192.27	6,475.67	-2,265.91	-1,490.20	-443.77	10.00	-3.24	-22.19	
7,200.00	24.28	167.62	6,567.20	-2,305.87	-1,490.10	-427.47	10.00	0.41	-24.65	
7,300.00	28.25	146.73	6,657.05	-2,345.85	-1,472.66	-395.33	10.00	3.97	-20.89	
7,400.00	34.57	131.75	6,742.49	-2,384.62	-1,438.43	-348.32	10.00	6.31	-14.98	
7,500.00	42.18	121.25	6,820.91	-2,421.02	-1,388.44	-287.86	10.00	7.61	-10.50	
7,600.00	50.50	113.55	6,889.95	-2,453.94	-1,324.21	-215.81	10.00	8.32	-7.70	
7,634.17	53.44	111.35	6,911.00	-2,464.21	-1,299.34	-188.91	10.00	8.62	-6.45	
<b>Nio A</b>										
7,700.00	59.21	107.54	6,947.49	-2,482.38	-1,247.70	-134.33	10.00	8.77	-5.78	
7,800.00	68.16	102.55	6,991.80	-2,505.47	-1,161.22	-45.92	10.00	8.95	-4.99	
7,900.00	77.24	98.15	7,021.53	-2,522.51	-1,067.41	46.75	10.00	9.08	-4.40	
8,000.00	86.38	94.06	7,035.76	-2,532.98	-969.11	140.85	10.00	9.15	-4.09	
8,042.45	90.27	92.36	7,037.00	-2,535.36	-926.76	180.53	10.00	9.17	-4.00	
<b>Start 7332.26 hold at 8042.45 MD</b>										
8,100.00	90.27	92.36	7,036.73	-2,537.73	-869.26	234.06	0.00	0.00	0.00	
8,200.00	90.27	92.36	7,036.25	-2,541.85	-769.34	327.07	0.00	0.00	0.00	
8,300.00	90.27	92.36	7,035.77	-2,545.97	-669.43	420.08	0.00	0.00	0.00	
8,400.00	90.27	92.36	7,035.29	-2,550.09	-569.51	513.08	0.00	0.00	0.00	
8,500.00	90.27	92.36	7,034.82	-2,554.22	-469.60	606.09	0.00	0.00	0.00	
8,600.00	90.27	92.36	7,034.34	-2,558.34	-369.69	699.10	0.00	0.00	0.00	
8,700.00	90.27	92.36	7,033.86	-2,562.46	-269.77	792.11	0.00	0.00	0.00	
8,800.00	90.27	92.36	7,033.38	-2,566.58	-169.86	885.11	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well REEMAN 8X-HNB-04-06-65
<b>Company:</b>	NICKEL ROAD OPERATING	<b>TVD Reference:</b>	KB 17' @ 4833.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 17' @ 4833.00usft
<b>Site:</b>	SEC 5-T6N-R65W	<b>North Reference:</b>	Grid
<b>Well:</b>	REEMAN 8X-HNB-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 2		

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)	
8,900.00	90.27	92.36	7,032.91	-2,570.70	-69.94	978.12	0.00	0.00	0.00	
9,000.00	90.27	92.36	7,032.43	-2,574.82	29.97	1,071.13	0.00	0.00	0.00	
9,100.00	90.27	92.36	7,031.95	-2,578.95	129.88	1,164.14	0.00	0.00	0.00	
9,200.00	90.27	92.36	7,031.47	-2,583.07	229.80	1,257.15	0.00	0.00	0.00	
9,300.00	90.27	92.36	7,031.00	-2,587.19	329.71	1,350.15	0.00	0.00	0.00	
9,400.00	90.27	92.36	7,030.52	-2,591.31	429.62	1,443.16	0.00	0.00	0.00	
9,500.00	90.27	92.36	7,030.04	-2,595.43	529.54	1,536.17	0.00	0.00	0.00	
9,600.00	90.27	92.36	7,029.57	-2,599.55	629.45	1,629.18	0.00	0.00	0.00	
9,700.00	90.27	92.36	7,029.09	-2,603.68	729.37	1,722.18	0.00	0.00	0.00	
9,800.00	90.27	92.36	7,028.61	-2,607.80	829.28	1,815.19	0.00	0.00	0.00	
9,900.00	90.27	92.36	7,028.13	-2,611.92	929.19	1,908.20	0.00	0.00	0.00	
10,000.00	90.27	92.36	7,027.66	-2,616.04	1,029.11	2,001.21	0.00	0.00	0.00	
10,100.00	90.27	92.36	7,027.18	-2,620.16	1,129.02	2,094.21	0.00	0.00	0.00	
10,200.00	90.27	92.36	7,026.70	-2,624.28	1,228.94	2,187.22	0.00	0.00	0.00	
10,300.00	90.27	92.36	7,026.22	-2,628.41	1,328.85	2,280.23	0.00	0.00	0.00	
10,400.00	90.27	92.36	7,025.75	-2,632.53	1,428.76	2,373.24	0.00	0.00	0.00	
10,500.00	90.27	92.36	7,025.27	-2,636.65	1,528.68	2,466.25	0.00	0.00	0.00	
10,600.00	90.27	92.36	7,024.79	-2,640.77	1,628.59	2,559.25	0.00	0.00	0.00	
10,700.00	90.27	92.36	7,024.31	-2,644.89	1,728.51	2,652.26	0.00	0.00	0.00	
10,800.00	90.27	92.36	7,023.84	-2,649.01	1,828.42	2,745.27	0.00	0.00	0.00	
10,900.00	90.27	92.36	7,023.36	-2,653.14	1,928.33	2,838.28	0.00	0.00	0.00	
11,000.00	90.27	92.36	7,022.88	-2,657.26	2,028.25	2,931.28	0.00	0.00	0.00	
11,100.00	90.27	92.36	7,022.41	-2,661.38	2,128.16	3,024.29	0.00	0.00	0.00	
11,200.00	90.27	92.36	7,021.93	-2,665.50	2,228.07	3,117.30	0.00	0.00	0.00	
11,300.00	90.27	92.36	7,021.45	-2,669.62	2,327.99	3,210.31	0.00	0.00	0.00	
11,400.00	90.27	92.36	7,020.97	-2,673.74	2,427.90	3,303.31	0.00	0.00	0.00	
11,500.00	90.27	92.36	7,020.50	-2,677.86	2,527.82	3,396.32	0.00	0.00	0.00	
11,600.00	90.27	92.36	7,020.02	-2,681.99	2,627.73	3,489.33	0.00	0.00	0.00	
11,700.00	90.27	92.36	7,019.54	-2,686.11	2,727.64	3,582.34	0.00	0.00	0.00	
11,800.00	90.27	92.36	7,019.06	-2,690.23	2,827.56	3,675.35	0.00	0.00	0.00	
11,900.00	90.27	92.36	7,018.59	-2,694.35	2,927.47	3,768.35	0.00	0.00	0.00	
12,000.00	90.27	92.36	7,018.11	-2,698.47	3,027.39	3,861.36	0.00	0.00	0.00	
12,100.00	90.27	92.36	7,017.63	-2,702.59	3,127.30	3,954.37	0.00	0.00	0.00	
12,200.00	90.27	92.36	7,017.15	-2,706.72	3,227.21	4,047.38	0.00	0.00	0.00	
12,300.00	90.27	92.36	7,016.68	-2,710.84	3,327.13	4,140.38	0.00	0.00	0.00	
12,400.00	90.27	92.36	7,016.20	-2,714.96	3,427.04	4,233.39	0.00	0.00	0.00	
12,500.00	90.27	92.36	7,015.72	-2,719.08	3,526.96	4,326.40	0.00	0.00	0.00	
12,600.00	90.27	92.36	7,015.25	-2,723.20	3,626.87	4,419.41	0.00	0.00	0.00	
12,700.00	90.27	92.36	7,014.77	-2,727.32	3,726.78	4,512.41	0.00	0.00	0.00	
12,800.00	90.27	92.36	7,014.29	-2,731.45	3,826.70	4,605.42	0.00	0.00	0.00	
12,900.00	90.27	92.36	7,013.81	-2,735.57	3,926.61	4,698.43	0.00	0.00	0.00	
13,000.00	90.27	92.36	7,013.34	-2,739.69	4,026.52	4,791.44	0.00	0.00	0.00	
13,100.00	90.27	92.36	7,012.86	-2,743.81	4,126.44	4,884.45	0.00	0.00	0.00	
13,200.00	90.27	92.36	7,012.38	-2,747.93	4,226.35	4,977.45	0.00	0.00	0.00	
13,300.00	90.27	92.36	7,011.90	-2,752.05	4,326.27	5,070.46	0.00	0.00	0.00	
13,400.00	90.27	92.36	7,011.43	-2,756.18	4,426.18	5,163.47	0.00	0.00	0.00	
13,500.00	90.27	92.36	7,010.95	-2,760.30	4,526.09	5,256.48	0.00	0.00	0.00	
13,600.00	90.27	92.36	7,010.47	-2,764.42	4,626.01	5,349.48	0.00	0.00	0.00	
13,700.00	90.27	92.36	7,009.99	-2,768.54	4,725.92	5,442.49	0.00	0.00	0.00	
13,800.00	90.27	92.36	7,009.52	-2,772.66	4,825.84	5,535.50	0.00	0.00	0.00	
13,900.00	90.27	92.36	7,009.04	-2,776.78	4,925.75	5,628.51	0.00	0.00	0.00	
14,000.00	90.27	92.36	7,008.56	-2,780.91	5,025.66	5,721.51	0.00	0.00	0.00	
14,100.00	90.27	92.36	7,008.08	-2,785.03	5,125.58	5,814.52	0.00	0.00	0.00	
14,200.00	90.27	92.36	7,007.61	-2,789.15	5,225.49	5,907.53	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well REEMAN 8X-HNB-04-06-65
<b>Company:</b>	NICKEL ROAD OPERATING	<b>TVD Reference:</b>	KB 17' @ 4833.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 17' @ 4833.00usft
<b>Site:</b>	SEC 5-T6N-R65W	<b>North Reference:</b>	Grid
<b>Well:</b>	REEMAN 8X-HNB-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 2		

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)	
14,300.00	90.27	92.36	7,007.13	-2,793.27	5,325.41	6,000.54	0.00	0.00	0.00	
14,400.00	90.27	92.36	7,006.65	-2,797.39	5,425.32	6,093.55	0.00	0.00	0.00	
14,500.00	90.27	92.36	7,006.18	-2,801.51	5,525.23	6,186.55	0.00	0.00	0.00	
14,600.00	90.27	92.36	7,005.70	-2,805.64	5,625.15	6,279.56	0.00	0.00	0.00	
14,700.00	90.27	92.36	7,005.22	-2,809.76	5,725.06	6,372.57	0.00	0.00	0.00	
14,800.00	90.27	92.36	7,004.74	-2,813.88	5,824.97	6,465.58	0.00	0.00	0.00	
14,900.00	90.27	92.36	7,004.27	-2,818.00	5,924.89	6,558.58	0.00	0.00	0.00	
15,000.00	90.27	92.36	7,003.79	-2,822.12	6,024.80	6,651.59	0.00	0.00	0.00	
15,100.00	90.27	92.36	7,003.31	-2,826.24	6,124.72	6,744.60	0.00	0.00	0.00	
15,200.00	90.27	92.36	7,002.83	-2,830.36	6,224.63	6,837.61	0.00	0.00	0.00	
15,300.00	90.27	92.36	7,002.36	-2,834.49	6,324.54	6,930.61	0.00	0.00	0.00	
15,374.71	90.27	92.36	7,002.00	-2,837.57	6,399.18	7,000.10	0.00	0.00	0.00	
TD at 15374.70										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
REEMAN 8X-HNB-PBHI	0.00	0.00	7,002.00	-2,837.57	6,399.18	1,429,883.44	3,231,098.88	40.510458°N	104.668866°W
- plan hits target center									
- Point									
REEMAN 8X-HNB-LP (F	0.00	0.00	7,037.00	-2,535.36	-926.76	1,430,185.65	3,223,772.94	40.511473°N	104.695202°W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Laramie-Fox Hills				
288.00	288.00	Upper Pierre Aquifer				
1,315.09	1,302.00	Pierre Shale				
4,865.72	4,483.00	Sussex		0.00		
5,467.10	5,019.00	Shannon		0.00		
5,499.64	5,048.00	Pierre Shale		0.00		
7,634.17	6,911.00	Nio A		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
450.00	450.00	0.00	0.00	Start Build 2.00	
1,798.28	1,749.05	-259.79	-171.81	Start 5206.14 hold at 1798.28 MD	
7,004.42	6,389.17	-2,228.85	-1,474.10	Start DLS 10.00 TFO -118.17	
8,042.45	7,037.00	-2,535.36	-926.76	Start 7332.26 hold at 8042.45 MD	
15,374.71	7,002.00	-2,837.57	6,399.18	TD at 15374.70	