

NICKEL ROAD OPERATING

WELD COUNTY

SEC 5-T6N-R65W

REEMAN 5X-HNC-04-06-65

OWB

Plan: PROPOSAL 1

Standard Planning Report

08 January, 2022



WELL DETAILS: REEMAN 5X-HNC-04-06-65

+N/-S	+E/-W	Northing	Easting	4816.00 Latitude	104.691858°W Longitude	Slot
0.00	0.00	1432808.62	3224678.88	40.518650°N	104.691858°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	850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	
3	1700.32	17.01	249.71	1687.89	-43.44	-117.50	2.00	249.71	-110.57	
4	6655.79	17.01	249.71	6426.66	-546.02	-1476.95	0.00	0.00	-1389.79	
5	7720.84	90.78	91.76	7150.00	-647.39	-920.53	10.00	-156.95	-824.78	REEMAN 5X-HNC-LP
6	15052.66	90.78	91.76	7050.00	-872.34	6407.15	0.00	0.00	6466.27	REEMAN 5X-HNC-PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	Start Build 2.00
1700.32	17.01	249.71	1687.89	-43.44	-117.50	-110.57	125.27	Start 4955.46 hold at 1700.32 MD
6655.79	17.01	249.71	6426.66	-546.02	-1476.95	-1389.79	1574.65	Start DLS 10.00 TFO -156.95
7720.84	90.78	91.76	7150.00	-647.39	-920.53	-824.78	2196.84	Start 7331.82 hold at 7720.84 MD
15052.66	90.78	91.76	7050.00	-872.34	6407.15	6466.27	9527.98	TD at 15052.66

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
REEMAN 5X-HNC-PBHL7050.00		-872.34	6407.15	1431936.28	3231086.03	40.516093°N	104.668843°W	Point
- plan hits target center								
REEMAN 5X-HNC-LP 7150.00		-647.39	-920.53	1432161.23	3223758.34	40.516896°N	104.695190°W	Point
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Laramie-Fox Hills
333.00	333.00	Upper Pierre Aquifer
1347.00	1349.53	Pierre Shale
4528.00	4670.30	Sussex
5064.00	5230.81	Shannon
5093.00	5261.14	Pierre Shale
6956.00	7225.26	Nio A

PROJECT DETAILS: WELD COUNTY

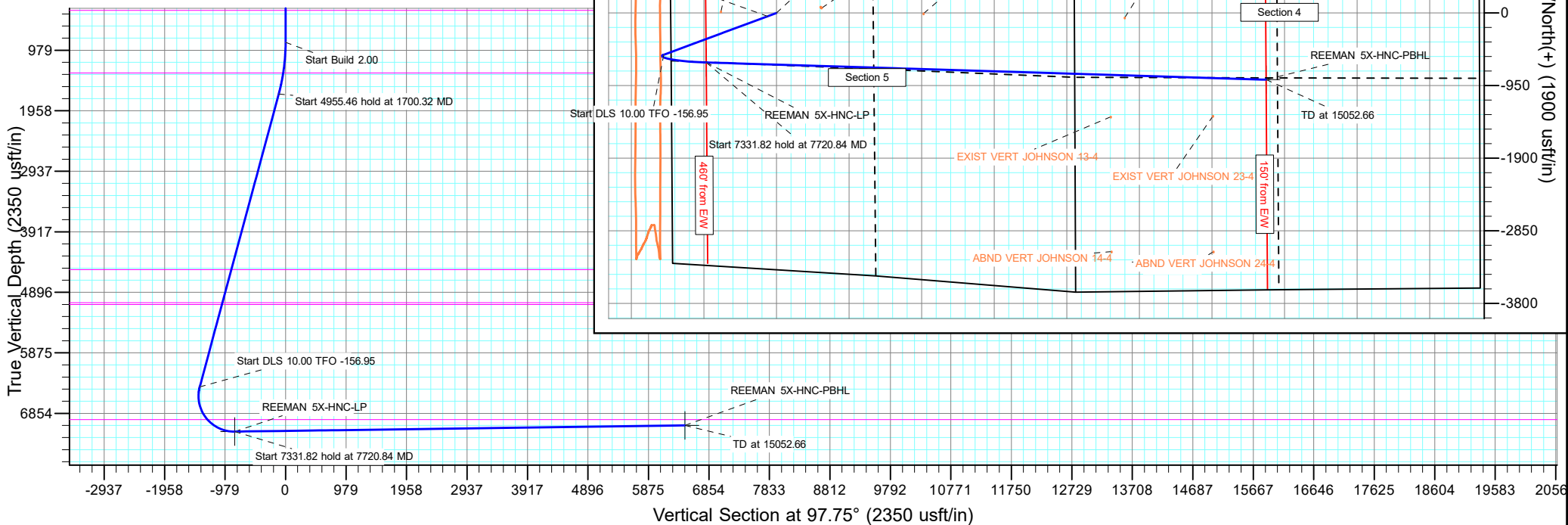
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

SHL:
1999' FNL, 1387' FWL
Sec 5-T6N-R65W

LP:
2651' FSL, 460' FWL
Sec 5-T6N-R65W

BHL:
2751' FSL, 2505' FWL
Sec 4-T6N-R65W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 5X-HNC-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4833.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 5X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Project	WELD COUNTY		
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:	1,434,834.96	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 5X-HNC-04-06-65				
Well Position	+N/-S	0.00 usft	Northing:	1,432,808.62 usft	Latitude:	40.518650°N
	+E/-W	0.00 usft	Easting:	3,224,678.88 usft	Longitude:	104.691858°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,816.00 usft
Grid Convergence:		0.52 °				

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	1/7/2022	7.76	66.73	51,963.72044800

Design	PROPOSAL 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	97.75	

Plan Survey Tool Program	Date	1/8/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	15,052.66 PROPOSAL 1 (OWB)	MWD		
			OWSG MWD - Standard		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
1,700.32	17.01	249.71	1,687.89	-43.44	-117.50	2.00	2.00	0.00	249.71	
6,655.79	17.01	249.71	6,426.66	-546.02	-1,476.95	0.00	0.00	0.00	0.00	
7,720.84	90.78	91.76	7,150.00	-647.39	-920.53	10.00	6.93	-14.83	-156.95	REEMAN 5X-HNC-LF
15,052.66	90.78	91.76	7,050.00	-872.34	6,407.16	0.00	0.00	0.00	0.00	REEMAN 5X-HNC-PF

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Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 5X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

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
Laramie-Fox Hills									
333.00	0.00	0.00	333.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer									
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	249.71	900.00	-0.15	-0.41	-0.39	2.00	2.00	0.00
1,000.00	3.00	249.71	999.93	-1.36	-3.68	-3.47	2.00	2.00	0.00
1,100.00	5.00	249.71	1,099.68	-3.78	-10.23	-9.62	2.00	2.00	0.00
1,200.00	7.00	249.71	1,199.13	-7.40	-20.03	-18.85	2.00	2.00	0.00
1,300.00	9.00	249.71	1,298.15	-12.23	-33.08	-31.13	2.00	2.00	0.00
1,349.53	9.99	249.71	1,347.00	-15.06	-40.75	-38.34	2.00	2.00	0.00
Pierre Shale									
1,400.00	11.00	249.71	1,396.63	-18.25	-49.37	-46.46	2.00	2.00	0.00
1,500.00	13.00	249.71	1,494.44	-25.46	-68.87	-64.80	2.00	2.00	0.00
1,600.00	15.00	249.71	1,591.46	-33.85	-91.56	-86.16	2.00	2.00	0.00
1,700.32	17.01	249.71	1,687.89	-43.44	-117.50	-110.57	2.00	2.00	0.00
Start 4955.46 hold at 1700.32 MD									
1,800.00	17.01	249.71	1,783.21	-53.55	-144.84	-136.30	0.00	0.00	0.00
1,900.00	17.01	249.71	1,878.84	-63.69	-172.28	-162.11	0.00	0.00	0.00
2,000.00	17.01	249.71	1,974.46	-73.83	-199.71	-187.93	0.00	0.00	0.00
2,100.00	17.01	249.71	2,070.09	-83.97	-227.14	-213.74	0.00	0.00	0.00
2,200.00	17.01	249.71	2,165.72	-94.12	-254.58	-239.55	0.00	0.00	0.00
2,300.00	17.01	249.71	2,261.35	-104.26	-282.01	-265.37	0.00	0.00	0.00
2,400.00	17.01	249.71	2,356.97	-114.40	-309.44	-291.18	0.00	0.00	0.00
2,500.00	17.01	249.71	2,452.60	-124.54	-336.88	-317.00	0.00	0.00	0.00
2,600.00	17.01	249.71	2,548.23	-134.68	-364.31	-342.81	0.00	0.00	0.00
2,700.00	17.01	249.71	2,643.85	-144.82	-391.74	-368.63	0.00	0.00	0.00
2,800.00	17.01	249.71	2,739.48	-154.97	-419.18	-394.44	0.00	0.00	0.00
2,900.00	17.01	249.71	2,835.11	-165.11	-446.61	-420.25	0.00	0.00	0.00
3,000.00	17.01	249.71	2,930.74	-175.25	-474.05	-446.07	0.00	0.00	0.00
3,100.00	17.01	249.71	3,026.36	-185.39	-501.48	-471.88	0.00	0.00	0.00
3,200.00	17.01	249.71	3,121.99	-195.53	-528.91	-497.70	0.00	0.00	0.00
3,300.00	17.01	249.71	3,217.62	-205.68	-556.35	-523.51	0.00	0.00	0.00
3,400.00	17.01	249.71	3,313.24	-215.82	-583.78	-549.33	0.00	0.00	0.00
3,500.00	17.01	249.71	3,408.87	-225.96	-611.21	-575.14	0.00	0.00	0.00
3,600.00	17.01	249.71	3,504.50	-236.10	-638.65	-600.96	0.00	0.00	0.00
3,700.00	17.01	249.71	3,600.13	-246.24	-666.08	-626.77	0.00	0.00	0.00
3,800.00	17.01	249.71	3,695.75	-256.39	-693.51	-652.58	0.00	0.00	0.00
3,900.00	17.01	249.71	3,791.38	-266.53	-720.95	-678.40	0.00	0.00	0.00
4,000.00	17.01	249.71	3,887.01	-276.67	-748.38	-704.21	0.00	0.00	0.00
4,100.00	17.01	249.71	3,982.64	-286.81	-775.81	-730.03	0.00	0.00	0.00
4,200.00	17.01	249.71	4,078.26	-296.95	-803.25	-755.84	0.00	0.00	0.00
4,300.00	17.01	249.71	4,173.89	-307.10	-830.68	-781.66	0.00	0.00	0.00
4,400.00	17.01	249.71	4,269.52	-317.24	-858.11	-807.47	0.00	0.00	0.00
4,500.00	17.01	249.71	4,365.14	-327.38	-885.55	-833.28	0.00	0.00	0.00
4,600.00	17.01	249.71	4,460.77	-337.52	-912.98	-859.10	0.00	0.00	0.00
4,670.30	17.01	249.71	4,528.00	-344.65	-932.27	-877.25	0.00	0.00	0.00
Sussex									
4,700.00	17.01	249.71	4,556.40	-347.66	-940.41	-884.91	0.00	0.00	0.00
4,800.00	17.01	249.71	4,652.03	-357.80	-967.85	-910.73	0.00	0.00	0.00
4,900.00	17.01	249.71	4,747.65	-367.95	-995.28	-936.54	0.00	0.00	0.00
5,000.00	17.01	249.71	4,843.28	-378.09	-1,022.71	-962.36	0.00	0.00	0.00

Planning Report

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Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4833.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 5X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

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)
5,100.00	17.01	249.71	4,938.91	-388.23	-1,050.15	-988.17	0.00	0.00	0.00
5,200.00	17.01	249.71	5,034.53	-398.37	-1,077.58	-1,013.99	0.00	0.00	0.00
5,230.81	17.01	249.71	5,064.00	-401.50	-1,086.03	-1,021.94	0.00	0.00	0.00
Shannon									
5,261.14	17.01	249.71	5,093.00	-404.57	-1,094.35	-1,029.77	0.00	0.00	0.00
Pierre Shale									
5,300.00	17.01	249.71	5,130.16	-408.51	-1,105.01	-1,039.80	0.00	0.00	0.00
5,400.00	17.01	249.71	5,225.79	-418.66	-1,132.45	-1,065.61	0.00	0.00	0.00
5,500.00	17.01	249.71	5,321.42	-428.80	-1,159.88	-1,091.43	0.00	0.00	0.00
5,600.00	17.01	249.71	5,417.04	-438.94	-1,187.31	-1,117.24	0.00	0.00	0.00
5,700.00	17.01	249.71	5,512.67	-449.08	-1,214.75	-1,143.06	0.00	0.00	0.00
5,800.00	17.01	249.71	5,608.30	-459.22	-1,242.18	-1,168.87	0.00	0.00	0.00
5,900.00	17.01	249.71	5,703.92	-469.37	-1,269.61	-1,194.69	0.00	0.00	0.00
6,000.00	17.01	249.71	5,799.55	-479.51	-1,297.05	-1,220.50	0.00	0.00	0.00
6,100.00	17.01	249.71	5,895.18	-489.65	-1,324.48	-1,246.31	0.00	0.00	0.00
6,200.00	17.01	249.71	5,990.81	-499.79	-1,351.91	-1,272.13	0.00	0.00	0.00
6,300.00	17.01	249.71	6,086.43	-509.93	-1,379.35	-1,297.94	0.00	0.00	0.00
6,400.00	17.01	249.71	6,182.06	-520.07	-1,406.78	-1,323.76	0.00	0.00	0.00
6,500.00	17.01	249.71	6,277.69	-530.22	-1,434.21	-1,349.57	0.00	0.00	0.00
6,600.00	17.01	249.71	6,373.31	-540.36	-1,461.65	-1,375.39	0.00	0.00	0.00
6,655.79	17.01	249.71	6,426.66	-546.02	-1,476.95	-1,389.79	0.00	0.00	0.00
Start DLS 10.00 TFO -156.95									
6,700.00	13.05	242.03	6,469.36	-550.60	-1,487.43	-1,399.55	10.00	-8.95	-17.37
6,750.00	9.09	225.79	6,518.43	-556.01	-1,495.25	-1,406.57	10.00	-7.91	-32.47
6,800.00	6.70	193.04	6,567.98	-561.61	-1,498.74	-1,409.28	10.00	-4.79	-65.51
6,850.00	7.54	152.37	6,617.62	-567.36	-1,497.88	-1,407.65	10.00	1.68	-81.33
6,900.00	10.89	128.65	6,666.98	-573.22	-1,492.67	-1,401.69	10.00	6.70	-47.46
6,950.00	15.17	117.00	6,715.69	-579.15	-1,483.14	-1,391.45	10.00	8.56	-23.29
7,000.00	19.79	110.53	6,763.38	-585.09	-1,469.38	-1,377.02	10.00	9.23	-12.94
7,050.00	24.55	106.47	6,809.67	-591.00	-1,451.48	-1,358.48	10.00	9.52	-8.14
7,100.00	29.38	103.66	6,854.22	-596.85	-1,429.59	-1,336.00	10.00	9.67	-5.61
7,150.00	34.26	101.59	6,896.70	-602.58	-1,403.87	-1,309.74	10.00	9.76	-4.14
7,200.00	39.17	99.98	6,936.77	-608.14	-1,374.51	-1,279.90	10.00	9.81	-3.22
7,225.26	41.66	99.29	6,956.00	-610.88	-1,358.36	-1,263.53	10.00	9.84	-2.73
Nio A									
7,250.00	44.10	98.68	6,974.13	-613.51	-1,341.74	-1,246.71	10.00	9.86	-2.47
7,300.00	49.03	97.59	7,008.49	-618.63	-1,305.81	-1,210.41	10.00	9.87	-2.18
7,350.00	53.98	96.66	7,039.61	-623.47	-1,266.99	-1,171.29	10.00	9.89	-1.87
7,400.00	58.93	95.83	7,067.23	-628.00	-1,225.57	-1,129.65	10.00	9.91	-1.65
7,450.00	63.89	95.09	7,091.15	-632.16	-1,181.88	-1,085.80	10.00	9.91	-1.49
7,500.00	68.85	94.40	7,111.18	-635.95	-1,136.25	-1,040.07	10.00	9.92	-1.37
7,550.00	73.81	93.77	7,127.18	-639.32	-1,089.01	-992.81	10.00	9.93	-1.28
7,600.00	78.78	93.16	7,139.02	-642.25	-1,040.54	-944.39	10.00	9.93	-1.21
7,650.00	83.74	92.57	7,146.62	-644.71	-991.20	-895.16	10.00	9.93	-1.17
7,700.00	88.71	92.00	7,149.91	-646.70	-941.36	-845.51	10.00	9.93	-1.15
7,720.84	90.78	91.76	7,150.00	-647.39	-920.53	-824.78	10.00	9.93	-1.15
Start 7331.82 hold at 7720.84 MD									
7,800.00	90.78	91.76	7,148.92	-649.81	-841.42	-746.06	0.00	0.00	0.00
7,900.00	90.78	91.76	7,147.56	-652.88	-741.48	-646.62	0.00	0.00	0.00
8,000.00	90.78	91.76	7,146.19	-655.95	-641.53	-547.18	0.00	0.00	0.00
8,100.00	90.78	91.76	7,144.83	-659.02	-541.59	-447.73	0.00	0.00	0.00
8,200.00	90.78	91.76	7,143.46	-662.09	-441.65	-348.29	0.00	0.00	0.00
8,300.00	90.78	91.76	7,142.10	-665.15	-341.70	-248.84	0.00	0.00	0.00

Planning Report

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Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
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Wellbore:	OWB		
Design:	PROPOSAL 1		

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)	
8,400.00	90.78	91.76	7,140.74	-668.22	-241.76	-149.40	0.00	0.00	0.00	
8,500.00	90.78	91.76	7,139.37	-671.29	-141.81	-49.96	0.00	0.00	0.00	
8,600.00	90.78	91.76	7,138.01	-674.36	-41.87	49.49	0.00	0.00	0.00	
8,700.00	90.78	91.76	7,136.65	-677.43	58.07	148.93	0.00	0.00	0.00	
8,800.00	90.78	91.76	7,135.28	-680.50	158.02	248.37	0.00	0.00	0.00	
8,900.00	90.78	91.76	7,133.92	-683.56	257.96	347.82	0.00	0.00	0.00	
9,000.00	90.78	91.76	7,132.55	-686.63	357.90	447.26	0.00	0.00	0.00	
9,100.00	90.78	91.76	7,131.19	-689.70	457.85	546.71	0.00	0.00	0.00	
9,200.00	90.78	91.76	7,129.83	-692.77	557.79	646.15	0.00	0.00	0.00	
9,300.00	90.78	91.76	7,128.46	-695.84	657.73	745.59	0.00	0.00	0.00	
9,400.00	90.78	91.76	7,127.10	-698.91	757.68	845.04	0.00	0.00	0.00	
9,500.00	90.78	91.76	7,125.73	-701.97	857.62	944.48	0.00	0.00	0.00	
9,600.00	90.78	91.76	7,124.37	-705.04	957.56	1,043.93	0.00	0.00	0.00	
9,700.00	90.78	91.76	7,123.01	-708.11	1,057.51	1,143.37	0.00	0.00	0.00	
9,800.00	90.78	91.76	7,121.64	-711.18	1,157.45	1,242.81	0.00	0.00	0.00	
9,900.00	90.78	91.76	7,120.28	-714.25	1,257.40	1,342.26	0.00	0.00	0.00	
10,000.00	90.78	91.76	7,118.91	-717.31	1,357.34	1,441.70	0.00	0.00	0.00	
10,100.00	90.78	91.76	7,117.55	-720.38	1,457.28	1,541.15	0.00	0.00	0.00	
10,200.00	90.78	91.76	7,116.19	-723.45	1,557.23	1,640.59	0.00	0.00	0.00	
10,300.00	90.78	91.76	7,114.82	-726.52	1,657.17	1,740.03	0.00	0.00	0.00	
10,400.00	90.78	91.76	7,113.46	-729.59	1,757.11	1,839.48	0.00	0.00	0.00	
10,500.00	90.78	91.76	7,112.09	-732.66	1,857.06	1,938.92	0.00	0.00	0.00	
10,600.00	90.78	91.76	7,110.73	-735.72	1,957.00	2,038.36	0.00	0.00	0.00	
10,700.00	90.78	91.76	7,109.37	-738.79	2,056.94	2,137.81	0.00	0.00	0.00	
10,800.00	90.78	91.76	7,108.00	-741.86	2,156.89	2,237.25	0.00	0.00	0.00	
10,900.00	90.78	91.76	7,106.64	-744.93	2,256.83	2,336.70	0.00	0.00	0.00	
11,000.00	90.78	91.76	7,105.28	-748.00	2,356.78	2,436.14	0.00	0.00	0.00	
11,100.00	90.78	91.76	7,103.91	-751.06	2,456.72	2,535.58	0.00	0.00	0.00	
11,200.00	90.78	91.76	7,102.55	-754.13	2,556.66	2,635.03	0.00	0.00	0.00	
11,300.00	90.78	91.76	7,101.18	-757.20	2,656.61	2,734.47	0.00	0.00	0.00	
11,400.00	90.78	91.76	7,099.82	-760.27	2,756.55	2,833.92	0.00	0.00	0.00	
11,500.00	90.78	91.76	7,098.46	-763.34	2,856.49	2,933.36	0.00	0.00	0.00	
11,600.00	90.78	91.76	7,097.09	-766.41	2,956.44	3,032.80	0.00	0.00	0.00	
11,700.00	90.78	91.76	7,095.73	-769.47	3,056.38	3,132.25	0.00	0.00	0.00	
11,800.00	90.78	91.76	7,094.36	-772.54	3,156.32	3,231.69	0.00	0.00	0.00	
11,900.00	90.78	91.76	7,093.00	-775.61	3,256.27	3,331.14	0.00	0.00	0.00	
12,000.00	90.78	91.76	7,091.64	-778.68	3,356.21	3,430.58	0.00	0.00	0.00	
12,100.00	90.78	91.76	7,090.27	-781.75	3,456.16	3,530.02	0.00	0.00	0.00	
12,200.00	90.78	91.76	7,088.91	-784.81	3,556.10	3,629.47	0.00	0.00	0.00	
12,300.00	90.78	91.76	7,087.54	-787.88	3,656.04	3,728.91	0.00	0.00	0.00	
12,400.00	90.78	91.76	7,086.18	-790.95	3,755.99	3,828.35	0.00	0.00	0.00	
12,500.00	90.78	91.76	7,084.82	-794.02	3,855.93	3,927.80	0.00	0.00	0.00	
12,600.00	90.78	91.76	7,083.45	-797.09	3,955.87	4,027.24	0.00	0.00	0.00	
12,700.00	90.78	91.76	7,082.09	-800.16	4,055.82	4,126.69	0.00	0.00	0.00	
12,800.00	90.78	91.76	7,080.72	-803.22	4,155.76	4,226.13	0.00	0.00	0.00	
12,900.00	90.78	91.76	7,079.36	-806.29	4,255.70	4,325.57	0.00	0.00	0.00	
13,000.00	90.78	91.76	7,078.00	-809.36	4,355.65	4,425.02	0.00	0.00	0.00	
13,100.00	90.78	91.76	7,076.63	-812.43	4,455.59	4,524.46	0.00	0.00	0.00	
13,200.00	90.78	91.76	7,075.27	-815.50	4,555.54	4,623.91	0.00	0.00	0.00	
13,300.00	90.78	91.76	7,073.91	-818.56	4,655.48	4,723.35	0.00	0.00	0.00	
13,400.00	90.78	91.76	7,072.54	-821.63	4,755.42	4,822.79	0.00	0.00	0.00	
13,500.00	90.78	91.76	7,071.18	-824.70	4,855.37	4,922.24	0.00	0.00	0.00	
13,600.00	90.78	91.76	7,069.81	-827.77	4,955.31	5,021.68	0.00	0.00	0.00	
13,700.00	90.78	91.76	7,068.45	-830.84	5,055.25	5,121.13	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 5X-HNC-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4833.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 5X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

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)	
13,800.00	90.78	91.76	7,067.09	-833.91	5,155.20	5,220.57	0.00	0.00	0.00	
13,900.00	90.78	91.76	7,065.72	-836.97	5,255.14	5,320.01	0.00	0.00	0.00	
14,000.00	90.78	91.76	7,064.36	-840.04	5,355.08	5,419.46	0.00	0.00	0.00	
14,100.00	90.78	91.76	7,062.99	-843.11	5,455.03	5,518.90	0.00	0.00	0.00	
14,200.00	90.78	91.76	7,061.63	-846.18	5,554.97	5,618.34	0.00	0.00	0.00	
14,300.00	90.78	91.76	7,060.27	-849.25	5,654.91	5,717.79	0.00	0.00	0.00	
14,400.00	90.78	91.76	7,058.90	-852.31	5,754.86	5,817.23	0.00	0.00	0.00	
14,500.00	90.78	91.76	7,057.54	-855.38	5,854.80	5,916.68	0.00	0.00	0.00	
14,600.00	90.78	91.76	7,056.17	-858.45	5,954.75	6,016.12	0.00	0.00	0.00	
14,700.00	90.78	91.76	7,054.81	-861.52	6,054.69	6,115.56	0.00	0.00	0.00	
14,800.00	90.78	91.76	7,053.45	-864.59	6,154.63	6,215.01	0.00	0.00	0.00	
14,900.00	90.78	91.76	7,052.08	-867.66	6,254.58	6,314.45	0.00	0.00	0.00	
15,000.00	90.78	91.76	7,050.72	-870.72	6,354.52	6,413.90	0.00	0.00	0.00	
15,052.66	90.78	91.76	7,050.00	-872.34	6,407.16	6,466.27	0.00	0.00	0.00	
TD at 15052.66										

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 5X-HNC-PBHI	0.00	0.00	7,050.00	-872.34	6,407.16	1,431,936.28	3,231,086.04	40.516093°N	104.668843°W
- plan hits target center									
- Point									
REEMAN 5X-HNC-LP	0.00	0.00	7,150.00	-647.39	-920.53	1,432,161.24	3,223,758.35	40.516896°N	104.695190°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				
333.00	333.00	Upper Pierre Aquifer				
1,349.53	1,347.00	Pierre Shale				
4,670.30	4,528.00	Sussex				
5,230.81	5,064.00	Shannon				
5,261.14	5,093.00	Pierre Shale				
7,225.26	6,956.00	Nio A				

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 5X-HNC-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4833.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4833.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 5X-HNC-04-06-65	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
850.00	850.00	0.00	0.00	Start Build 2.00
1,700.32	1,687.89	-43.44	-117.50	Start 4955.46 hold at 1700.32 MD
6,655.79	6,426.66	-546.02	-1,476.95	Start DLS 10.00 TFO -156.95
7,720.84	7,150.00	-647.39	-920.53	Start 7331.82 hold at 7720.84 MD
15,052.66	7,050.00	-872.34	6,407.16	TD at 15052.66