

NICKEL ROAD OPERATING

WELD COUNTY

SEC 5-T6N-R65W

REEMAN 4X-HNB-04-06-65

OWB

Plan: PROPOSAL 1

Standard Planning Report

07 January, 2022



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

+N/-S	+E/-W	Northing	Easting	4817.00 Latitude	Longitude	Slot
0.00	0.00	1432823.16	3224675.41	40.518690°N	104.691870°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
3	1493.11	15.86	264.19	1483.02	-11.04	-108.53	2.00	264.19	-107.60	
4	6526.05	15.86	264.19	6324.31	-150.24	-1477.10	0.00	0.00	-1464.52	
5	7588.59	90.53	91.68	7052.00	-193.81	-921.31	10.00	-172.19	-907.09	REEMAN 4X-HNB-LP
6	14920.93	90.53	91.68	6984.00	-409.28	6407.54	0.00	0.00	6420.60	REEMAN 4X-HNB-PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	Start Build 2.00
1493.11	15.86	264.19	1483.02	-11.04	-108.53	-107.60	109.09	Start 5032.94 hold at 1493.11 MD
6526.05	15.86	264.19	6324.31	-150.24	-1477.10	-1464.52	1484.72	Start DLS 10.00 TFO -172.19
7588.59	90.53	91.68	7052.00	-193.81	-921.31	-907.09	2088.09	Start 7332.33 hold at 7588.59 MD
14920.93	90.53	91.68	6984.00	-409.28	6407.54	6420.60	9420.11	TD at 14920.93

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
REEMAN 4X-HNB-PBHL6984.00		-409.28	6407.54	1432413.88	3231082.95	40.517404°N	104.668838°W	Point
- plan hits target center								
REEMAN 4X-HNB-LP 7052.00		-193.81	-921.31	1432629.35	3223754.10	40.518181°N	104.695190°W	Point
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Laramie-Fox Hills
303.00	303.00	Upper Pierre Aquifer
1317.00	1321.87	Pierre Shale
4498.00	4627.44	Sussex
5034.00	5184.66	Shannon
5063.00	5214.81	Pierre Shale
6926.00	7195.78	Nio A

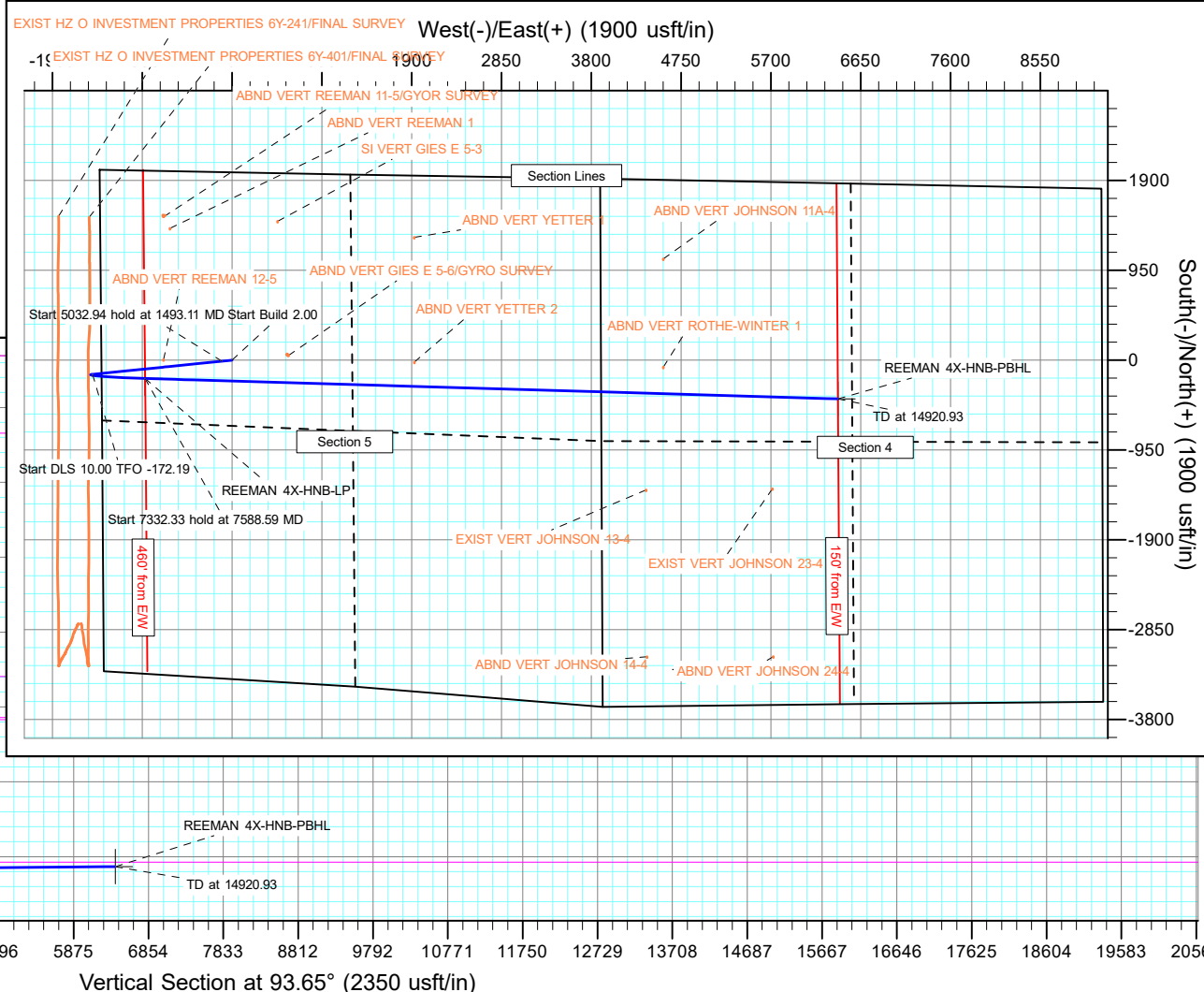
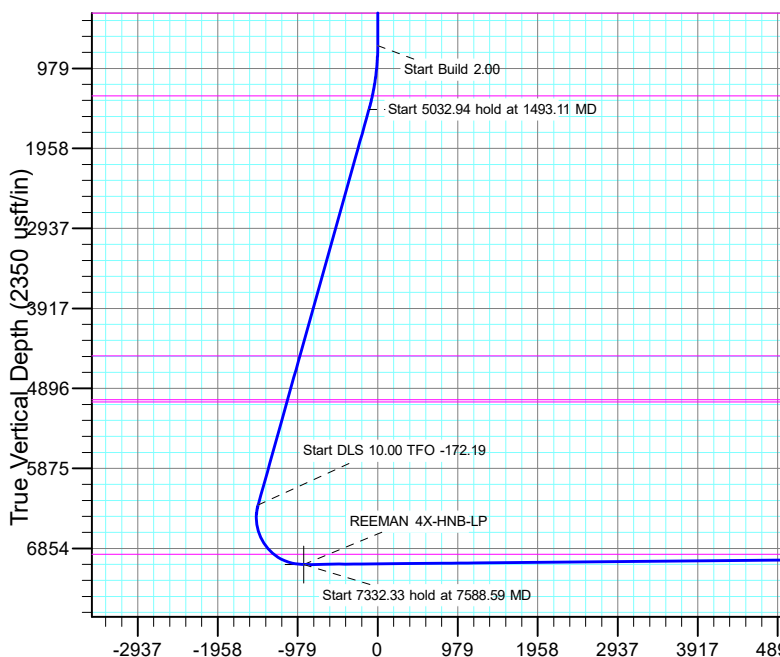
PROJECT DETAILS: WELD COUNTY

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

SHL:
1984' FNL, 1383' FWL
Sec 5-T6N-R65W

LP:
2196' FNL, 460' FWL
Sec 5-T6N-R65W

BHL:
2278' FNL, 2505' FWL
Sec 4-T6N-R65W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 4X-HNB-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4834.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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 4X-HNB-04-06-65				
Well Position	+N/-S	0.00 usft	Northing:	1,432,823.16 usft	Latitude:	40.518690°N
	+E/-W	0.00 usft	Easting:	3,224,675.41 usft	Longitude:	104.691870°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,817.00 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	51,963.73202592

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	93.65	

Plan Survey Tool Program	Date	1/7/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	14,920.93	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	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,493.11	15.86	264.19	1,483.02	-11.04	-108.53	2.00	2.00	0.00	264.19	
6,526.05	15.86	264.19	6,324.31	-150.24	-1,477.10	0.00	0.00	0.00	0.00	
7,588.59	90.53	91.68	7,052.00	-193.81	-921.31	10.00	7.03	-16.24	-172.19	REEMAN 4X-HNB-LF
14,920.93	90.53	91.68	6,984.00	-409.28	6,407.54	0.00	0.00	0.00	0.00	REEMAN 4X-HNB-PE

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Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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									
303.00	0.00	0.00	303.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
800.00	2.00	264.19	799.98	-0.18	-1.74	-1.72	2.00	2.00	0.00
900.00	4.00	264.19	899.84	-0.71	-6.94	-6.88	2.00	2.00	0.00
1,000.00	6.00	264.19	999.45	-1.59	-15.61	-15.48	2.00	2.00	0.00
1,100.00	8.00	264.19	1,098.70	-2.82	-27.74	-27.50	2.00	2.00	0.00
1,200.00	10.00	264.19	1,197.47	-4.40	-43.30	-42.93	2.00	2.00	0.00
1,300.00	12.00	264.19	1,295.62	-6.33	-62.28	-61.75	2.00	2.00	0.00
1,321.87	12.44	264.19	1,317.00	-6.80	-66.89	-66.32	2.00	2.00	0.00
Pierre Shale									
1,400.00	14.00	264.19	1,393.06	-8.61	-84.66	-83.94	2.00	2.00	0.00
1,493.11	15.86	264.19	1,483.02	-11.04	-108.53	-107.60	2.00	2.00	0.00
Start 5032.94 hold at 1493.11 MD									
1,500.00	15.86	264.19	1,489.65	-11.23	-110.40	-109.46	0.00	0.00	0.00
1,600.00	15.86	264.19	1,585.84	-13.99	-137.59	-136.42	0.00	0.00	0.00
1,700.00	15.86	264.19	1,682.03	-16.76	-164.78	-163.38	0.00	0.00	0.00
1,800.00	15.86	264.19	1,778.22	-19.53	-191.98	-190.34	0.00	0.00	0.00
1,900.00	15.86	264.19	1,874.41	-22.29	-219.17	-217.30	0.00	0.00	0.00
2,000.00	15.86	264.19	1,970.61	-25.06	-246.36	-244.26	0.00	0.00	0.00
2,100.00	15.86	264.19	2,066.80	-27.82	-273.55	-271.22	0.00	0.00	0.00
2,200.00	15.86	264.19	2,162.99	-30.59	-300.75	-298.18	0.00	0.00	0.00
2,300.00	15.86	264.19	2,259.18	-33.35	-327.94	-325.15	0.00	0.00	0.00
2,400.00	15.86	264.19	2,355.37	-36.12	-355.13	-352.11	0.00	0.00	0.00
2,500.00	15.86	264.19	2,451.57	-38.89	-382.32	-379.07	0.00	0.00	0.00
2,600.00	15.86	264.19	2,547.76	-41.65	-409.52	-406.03	0.00	0.00	0.00
2,700.00	15.86	264.19	2,643.95	-44.42	-436.71	-432.99	0.00	0.00	0.00
2,800.00	15.86	264.19	2,740.14	-47.18	-463.90	-459.95	0.00	0.00	0.00
2,900.00	15.86	264.19	2,836.33	-49.95	-491.09	-486.91	0.00	0.00	0.00
3,000.00	15.86	264.19	2,932.53	-52.72	-518.29	-513.87	0.00	0.00	0.00
3,100.00	15.86	264.19	3,028.72	-55.48	-545.48	-540.83	0.00	0.00	0.00
3,200.00	15.86	264.19	3,124.91	-58.25	-572.67	-567.79	0.00	0.00	0.00
3,300.00	15.86	264.19	3,221.10	-61.01	-599.86	-594.75	0.00	0.00	0.00
3,400.00	15.86	264.19	3,317.30	-63.78	-627.05	-621.71	0.00	0.00	0.00
3,500.00	15.86	264.19	3,413.49	-66.54	-654.25	-648.67	0.00	0.00	0.00
3,600.00	15.86	264.19	3,509.68	-69.31	-681.44	-675.64	0.00	0.00	0.00
3,700.00	15.86	264.19	3,605.87	-72.08	-708.63	-702.60	0.00	0.00	0.00
3,800.00	15.86	264.19	3,702.06	-74.84	-735.82	-729.56	0.00	0.00	0.00
3,900.00	15.86	264.19	3,798.26	-77.61	-763.02	-756.52	0.00	0.00	0.00
4,000.00	15.86	264.19	3,894.45	-80.37	-790.21	-783.48	0.00	0.00	0.00
4,100.00	15.86	264.19	3,990.64	-83.14	-817.40	-810.44	0.00	0.00	0.00
4,200.00	15.86	264.19	4,086.83	-85.90	-844.59	-837.40	0.00	0.00	0.00
4,300.00	15.86	264.19	4,183.02	-88.67	-871.79	-864.36	0.00	0.00	0.00
4,400.00	15.86	264.19	4,279.22	-91.44	-898.98	-891.32	0.00	0.00	0.00
4,500.00	15.86	264.19	4,375.41	-94.20	-926.17	-918.28	0.00	0.00	0.00
4,600.00	15.86	264.19	4,471.60	-96.97	-953.36	-945.24	0.00	0.00	0.00
4,627.44	15.86	264.19	4,498.00	-97.73	-960.83	-952.64	0.00	0.00	0.00
Sussex									
4,700.00	15.86	264.19	4,567.79	-99.73	-980.56	-972.20	0.00	0.00	0.00
4,800.00	15.86	264.19	4,663.99	-102.50	-1,007.75	-999.16	0.00	0.00	0.00

Planning Report

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Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4834.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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)
4,900.00	15.86	264.19	4,760.18	-105.26	-1,034.94	-1,026.12	0.00	0.00	0.00
5,000.00	15.86	264.19	4,856.37	-108.03	-1,062.13	-1,053.09	0.00	0.00	0.00
5,100.00	15.86	264.19	4,952.56	-110.80	-1,089.32	-1,080.05	0.00	0.00	0.00
5,184.66	15.86	264.19	5,034.00	-113.14	-1,112.35	-1,102.87	0.00	0.00	0.00
Shannon									
5,200.00	15.86	264.19	5,048.75	-113.56	-1,116.52	-1,107.01	0.00	0.00	0.00
5,214.81	15.86	264.19	5,063.00	-113.97	-1,120.54	-1,111.00	0.00	0.00	0.00
Pierre Shale									
5,300.00	15.86	264.19	5,144.95	-116.33	-1,143.71	-1,133.97	0.00	0.00	0.00
5,400.00	15.86	264.19	5,241.14	-119.09	-1,170.90	-1,160.93	0.00	0.00	0.00
5,500.00	15.86	264.19	5,337.33	-121.86	-1,198.09	-1,187.89	0.00	0.00	0.00
5,600.00	15.86	264.19	5,433.52	-124.63	-1,225.29	-1,214.85	0.00	0.00	0.00
5,700.00	15.86	264.19	5,529.71	-127.39	-1,252.48	-1,241.81	0.00	0.00	0.00
5,800.00	15.86	264.19	5,625.91	-130.16	-1,279.67	-1,268.77	0.00	0.00	0.00
5,900.00	15.86	264.19	5,722.10	-132.92	-1,306.86	-1,295.73	0.00	0.00	0.00
6,000.00	15.86	264.19	5,818.29	-135.69	-1,334.06	-1,322.69	0.00	0.00	0.00
6,100.00	15.86	264.19	5,914.48	-138.45	-1,361.25	-1,349.65	0.00	0.00	0.00
6,200.00	15.86	264.19	6,010.68	-141.22	-1,388.44	-1,376.61	0.00	0.00	0.00
6,300.00	15.86	264.19	6,106.87	-143.99	-1,415.63	-1,403.58	0.00	0.00	0.00
6,400.00	15.86	264.19	6,203.06	-146.75	-1,442.83	-1,430.54	0.00	0.00	0.00
6,500.00	15.86	264.19	6,299.25	-149.52	-1,470.02	-1,457.50	0.00	0.00	0.00
6,526.05	15.86	264.19	6,324.31	-150.24	-1,477.10	-1,464.52	0.00	0.00	0.00
Start DLS 10.00 TFO -172.19									
6,550.00	13.49	262.80	6,347.48	-150.92	-1,483.13	-1,470.49	10.00	-9.89	-5.82
6,600.00	8.59	257.47	6,396.54	-152.46	-1,492.57	-1,479.82	10.00	-9.80	-10.65
6,650.00	3.95	239.15	6,446.23	-154.16	-1,497.70	-1,484.83	10.00	-9.29	-36.65
6,700.00	2.71	143.52	6,496.17	-155.99	-1,498.47	-1,485.48	10.00	-2.49	-191.27
6,750.00	7.00	109.31	6,545.99	-157.95	-1,494.89	-1,481.79	10.00	8.59	-68.42
6,800.00	11.86	101.89	6,595.30	-160.01	-1,486.99	-1,473.76	10.00	9.72	-14.84
6,850.00	16.80	98.77	6,643.73	-162.18	-1,474.81	-1,461.47	10.00	9.88	-6.24
6,900.00	21.77	97.04	6,690.91	-164.42	-1,458.45	-1,445.00	10.00	9.94	-3.46
6,950.00	26.75	95.93	6,736.48	-166.72	-1,438.04	-1,424.49	10.00	9.96	-2.22
7,000.00	31.74	95.15	6,780.09	-169.06	-1,413.74	-1,400.08	10.00	9.97	-1.57
7,050.00	36.73	94.56	6,821.42	-171.43	-1,385.72	-1,371.97	10.00	9.98	-1.18
7,100.00	41.72	94.09	6,860.14	-173.81	-1,354.20	-1,340.37	10.00	9.98	-0.93
7,150.00	46.71	93.71	6,895.97	-176.17	-1,319.43	-1,305.51	10.00	9.99	-0.77
7,195.78	51.28	93.41	6,926.00	-178.31	-1,284.95	-1,270.97	10.00	9.99	-0.65
Nio A									
7,200.00	51.70	93.38	6,928.63	-178.51	-1,281.66	-1,267.67	10.00	9.99	-0.61
7,250.00	56.70	93.10	6,957.86	-180.80	-1,241.18	-1,227.13	10.00	9.99	-0.57
7,300.00	61.69	92.85	6,983.46	-183.02	-1,198.31	-1,184.20	10.00	9.99	-0.50
7,350.00	66.69	92.62	7,005.22	-185.17	-1,153.36	-1,139.21	10.00	9.99	-0.46
7,400.00	71.69	92.41	7,022.98	-187.22	-1,106.68	-1,092.50	10.00	9.99	-0.43
7,450.00	76.68	92.21	7,036.60	-189.15	-1,058.63	-1,044.42	10.00	9.99	-0.40
7,500.00	81.68	92.02	7,045.99	-190.96	-1,009.57	-995.34	10.00	9.99	-0.39
7,550.00	86.67	91.83	7,051.06	-192.63	-959.87	-945.64	10.00	9.99	-0.38
7,588.59	90.53	91.68	7,052.00	-193.81	-921.31	-907.09	10.00	9.99	-0.37
Start 7332.33 hold at 7588.59 MD									
7,600.00	90.53	91.68	7,051.89	-194.15	-909.91	-895.68	0.00	0.00	0.00
7,700.00	90.53	91.68	7,050.97	-197.09	-809.96	-795.75	0.00	0.00	0.00
7,800.00	90.53	91.68	7,050.04	-200.02	-710.01	-695.81	0.00	0.00	0.00
7,900.00	90.53	91.68	7,049.11	-202.96	-610.05	-595.88	0.00	0.00	0.00
8,000.00	90.53	91.68	7,048.18	-205.90	-510.10	-495.94	0.00	0.00	0.00

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Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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)	
8,100.00	90.53	91.68	7,047.26	-208.84	-410.15	-396.00	0.00	0.00	0.00	
8,200.00	90.53	91.68	7,046.33	-211.78	-310.20	-296.07	0.00	0.00	0.00	
8,300.00	90.53	91.68	7,045.40	-214.72	-210.24	-196.13	0.00	0.00	0.00	
8,400.00	90.53	91.68	7,044.48	-217.66	-110.29	-96.19	0.00	0.00	0.00	
8,500.00	90.53	91.68	7,043.55	-220.59	-10.34	3.74	0.00	0.00	0.00	
8,600.00	90.53	91.68	7,042.62	-223.53	89.61	103.68	0.00	0.00	0.00	
8,700.00	90.53	91.68	7,041.69	-226.47	189.57	203.62	0.00	0.00	0.00	
8,800.00	90.53	91.68	7,040.77	-229.41	289.52	303.55	0.00	0.00	0.00	
8,900.00	90.53	91.68	7,039.84	-232.35	389.47	403.49	0.00	0.00	0.00	
9,000.00	90.53	91.68	7,038.91	-235.29	489.42	503.43	0.00	0.00	0.00	
9,100.00	90.53	91.68	7,037.98	-238.23	589.38	603.36	0.00	0.00	0.00	
9,200.00	90.53	91.68	7,037.06	-241.16	689.33	703.30	0.00	0.00	0.00	
9,300.00	90.53	91.68	7,036.13	-244.10	789.28	803.24	0.00	0.00	0.00	
9,400.00	90.53	91.68	7,035.20	-247.04	889.23	903.17	0.00	0.00	0.00	
9,500.00	90.53	91.68	7,034.27	-249.98	989.19	1,003.11	0.00	0.00	0.00	
9,600.00	90.53	91.68	7,033.35	-252.92	1,089.14	1,103.05	0.00	0.00	0.00	
9,700.00	90.53	91.68	7,032.42	-255.86	1,189.09	1,202.98	0.00	0.00	0.00	
9,800.00	90.53	91.68	7,031.49	-258.80	1,289.04	1,302.92	0.00	0.00	0.00	
9,900.00	90.53	91.68	7,030.56	-261.74	1,389.00	1,402.86	0.00	0.00	0.00	
10,000.00	90.53	91.68	7,029.64	-264.67	1,488.95	1,502.79	0.00	0.00	0.00	
10,100.00	90.53	91.68	7,028.71	-267.61	1,588.90	1,602.73	0.00	0.00	0.00	
10,200.00	90.53	91.68	7,027.78	-270.55	1,688.85	1,702.67	0.00	0.00	0.00	
10,300.00	90.53	91.68	7,026.85	-273.49	1,788.81	1,802.60	0.00	0.00	0.00	
10,400.00	90.53	91.68	7,025.93	-276.43	1,888.76	1,902.54	0.00	0.00	0.00	
10,500.00	90.53	91.68	7,025.00	-279.37	1,988.71	2,002.48	0.00	0.00	0.00	
10,600.00	90.53	91.68	7,024.07	-282.31	2,088.66	2,102.41	0.00	0.00	0.00	
10,700.00	90.53	91.68	7,023.14	-285.24	2,188.62	2,202.35	0.00	0.00	0.00	
10,800.00	90.53	91.68	7,022.22	-288.18	2,288.57	2,302.28	0.00	0.00	0.00	
10,900.00	90.53	91.68	7,021.29	-291.12	2,388.52	2,402.22	0.00	0.00	0.00	
11,000.00	90.53	91.68	7,020.36	-294.06	2,488.47	2,502.16	0.00	0.00	0.00	
11,100.00	90.53	91.68	7,019.44	-297.00	2,588.43	2,602.09	0.00	0.00	0.00	
11,200.00	90.53	91.68	7,018.51	-299.94	2,688.38	2,702.03	0.00	0.00	0.00	
11,300.00	90.53	91.68	7,017.58	-302.88	2,788.33	2,801.97	0.00	0.00	0.00	
11,400.00	90.53	91.68	7,016.65	-305.81	2,888.28	2,901.90	0.00	0.00	0.00	
11,500.00	90.53	91.68	7,015.73	-308.75	2,988.24	3,001.84	0.00	0.00	0.00	
11,600.00	90.53	91.68	7,014.80	-311.69	3,088.19	3,101.78	0.00	0.00	0.00	
11,700.00	90.53	91.68	7,013.87	-314.63	3,188.14	3,201.71	0.00	0.00	0.00	
11,800.00	90.53	91.68	7,012.94	-317.57	3,288.09	3,301.65	0.00	0.00	0.00	
11,900.00	90.53	91.68	7,012.02	-320.51	3,388.05	3,401.59	0.00	0.00	0.00	
12,000.00	90.53	91.68	7,011.09	-323.45	3,488.00	3,501.52	0.00	0.00	0.00	
12,100.00	90.53	91.68	7,010.16	-326.39	3,587.95	3,601.46	0.00	0.00	0.00	
12,200.00	90.53	91.68	7,009.23	-329.32	3,687.90	3,701.40	0.00	0.00	0.00	
12,300.00	90.53	91.68	7,008.31	-332.26	3,787.86	3,801.33	0.00	0.00	0.00	
12,400.00	90.53	91.68	7,007.38	-335.20	3,887.81	3,901.27	0.00	0.00	0.00	
12,500.00	90.53	91.68	7,006.45	-338.14	3,987.76	4,001.21	0.00	0.00	0.00	
12,600.00	90.53	91.68	7,005.52	-341.08	4,087.71	4,101.14	0.00	0.00	0.00	
12,700.00	90.53	91.68	7,004.60	-344.02	4,187.67	4,201.08	0.00	0.00	0.00	
12,800.00	90.53	91.68	7,003.67	-346.96	4,287.62	4,301.02	0.00	0.00	0.00	
12,900.00	90.53	91.68	7,002.74	-349.89	4,387.57	4,400.95	0.00	0.00	0.00	
13,000.00	90.53	91.68	7,001.81	-352.83	4,487.52	4,500.89	0.00	0.00	0.00	
13,100.00	90.53	91.68	7,000.89	-355.77	4,587.48	4,600.83	0.00	0.00	0.00	
13,200.00	90.53	91.68	6,999.96	-358.71	4,687.43	4,700.76	0.00	0.00	0.00	
13,300.00	90.53	91.68	6,999.03	-361.65	4,787.38	4,800.70	0.00	0.00	0.00	
13,400.00	90.53	91.68	6,998.11	-364.59	4,887.33	4,900.64	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 4X-HNB-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4834.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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)	
13,500.00	90.53	91.68	6,997.18	-367.53	4,987.29	5,000.57	0.00	0.00	0.00	
13,600.00	90.53	91.68	6,996.25	-370.47	5,087.24	5,100.51	0.00	0.00	0.00	
13,700.00	90.53	91.68	6,995.32	-373.40	5,187.19	5,200.44	0.00	0.00	0.00	
13,800.00	90.53	91.68	6,994.40	-376.34	5,287.14	5,300.38	0.00	0.00	0.00	
13,900.00	90.53	91.68	6,993.47	-379.28	5,387.10	5,400.32	0.00	0.00	0.00	
14,000.00	90.53	91.68	6,992.54	-382.22	5,487.05	5,500.25	0.00	0.00	0.00	
14,100.00	90.53	91.68	6,991.61	-385.16	5,587.00	5,600.19	0.00	0.00	0.00	
14,200.00	90.53	91.68	6,990.69	-388.10	5,686.95	5,700.13	0.00	0.00	0.00	
14,300.00	90.53	91.68	6,989.76	-391.04	5,786.91	5,800.06	0.00	0.00	0.00	
14,400.00	90.53	91.68	6,988.83	-393.97	5,886.86	5,900.00	0.00	0.00	0.00	
14,500.00	90.53	91.68	6,987.90	-396.91	5,986.81	5,999.94	0.00	0.00	0.00	
14,600.00	90.53	91.68	6,986.98	-399.85	6,086.76	6,099.87	0.00	0.00	0.00	
14,700.00	90.53	91.68	6,986.05	-402.79	6,186.72	6,199.81	0.00	0.00	0.00	
14,800.00	90.53	91.68	6,985.12	-405.73	6,286.67	6,299.75	0.00	0.00	0.00	
14,900.00	90.53	91.68	6,984.19	-408.67	6,386.62	6,399.68	0.00	0.00	0.00	
14,920.93	90.53	91.68	6,984.00	-409.28	6,407.54	6,420.60	0.00	0.00	0.00	
TD at 14920.93										

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 4X-HNB-PBHI	0.00	0.00	6,984.00	-409.28	6,407.54	1,432,413.88	3,231,082.95	40.517404°N	104.668838°W	
- plan hits target center										
- Point										
REEMAN 4X-HNB-LP	0.00	0.00	7,052.00	-193.81	-921.31	1,432,629.35	3,223,754.10	40.518181°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				
303.00	303.00	Upper Pierre Aquifer				
1,321.87	1,317.00	Pierre Shale				
4,627.44	4,498.00	Sussex				
5,184.66	5,034.00	Shannon				
5,214.81	5,063.00	Pierre Shale				
7,195.78	6,926.00	Nio A				

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well REEMAN 4X-HNB-04-06-65
Company:	NICKEL ROAD OPERATING	TVD Reference:	KB 17' @ 4834.00usft
Project:	WELD COUNTY	MD Reference:	KB 17' @ 4834.00usft
Site:	SEC 5-T6N-R65W	North Reference:	Grid
Well:	REEMAN 4X-HNB-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)	
700.00	700.00	0.00	0.00	Start Build 2.00
1,493.11	1,483.02	-11.04	-108.53	Start 5032.94 hold at 1493.11 MD
6,526.05	6,324.31	-150.24	-1,477.10	Start DLS 10.00 TFO -172.19
7,588.59	7,052.00	-193.81	-921.31	Start 7332.33 hold at 7588.59 MD
14,920.93	6,984.00	-409.28	6,407.54	TD at 14920.93