

# **NICKEL ROAD OPERATING**

**WELD COUNTY**

**SEC 5-T6N-R65W**

**REEMAN 5X-HC-04-06-65**

**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**08 January, 2022**



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

+N/-S	+E/-W	Northing	Easting	4816.00 Latitude	104.691834°W Longitude	Slot
0.00	0.00	1432779.54	3224685.82	40.518570°N	104.691834°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	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
3	1947.32	18.95	238.18	1930.15	-81.84	-131.87	2.00	238.18	-112.69	
4	6828.19	18.95	238.18	6546.59	-917.52	-1478.37	0.00	0.00	-1263.37	
5	7892.55	90.78	91.89	7261.00	-1074.04	-923.89	10.00	-144.64	-688.74	REEMAN 5X-HC-LP
6	15224.38	90.78	91.89	7161.00	-1316.12	6403.26	0.00	0.00	6537.12	REEMAN 5X-HC-PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	Start Build 2.00
1947.32	18.95	238.18	1930.15	-81.84	-131.87	-112.69	155.21	Start 4880.87 hold at 1947.32 MD
6828.19	18.95	238.18	6546.59	-917.52	-1478.37	-1263.37	1739.94	Start DLS 10.00 TFO -144.64
7892.55	90.78	91.89	7261.00	-1074.04	-923.89	-688.74	2385.00	Start 7331.83 hold at 7892.55 MD
15224.38	90.78	91.89	7161.00	-1316.12	6403.26	6537.12	9716.15	TD at 15224.38

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
REEMAN 5X-HC-PBHL	7161.00	-1316.12	6403.26	1431463.42	3231089.08	40.514795°N	104.668848°W	Point
- plan hits target center								
REEMAN 5X-HC-LP	7261.00	-1074.04	-923.89	1431705.50	3223761.92	40.515645°N	104.695192°W	Point
- plan hits target center								

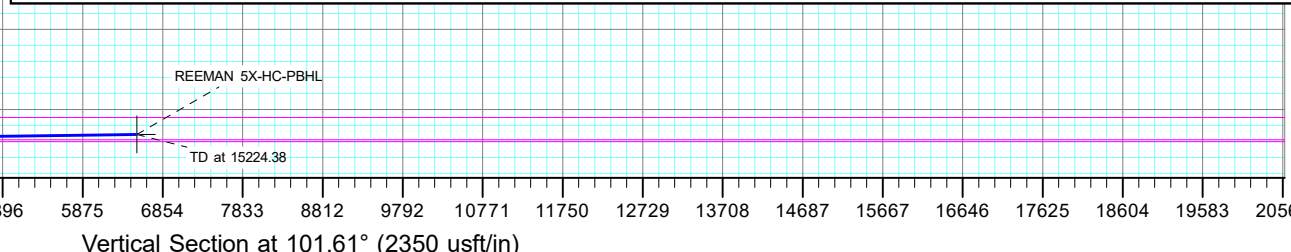
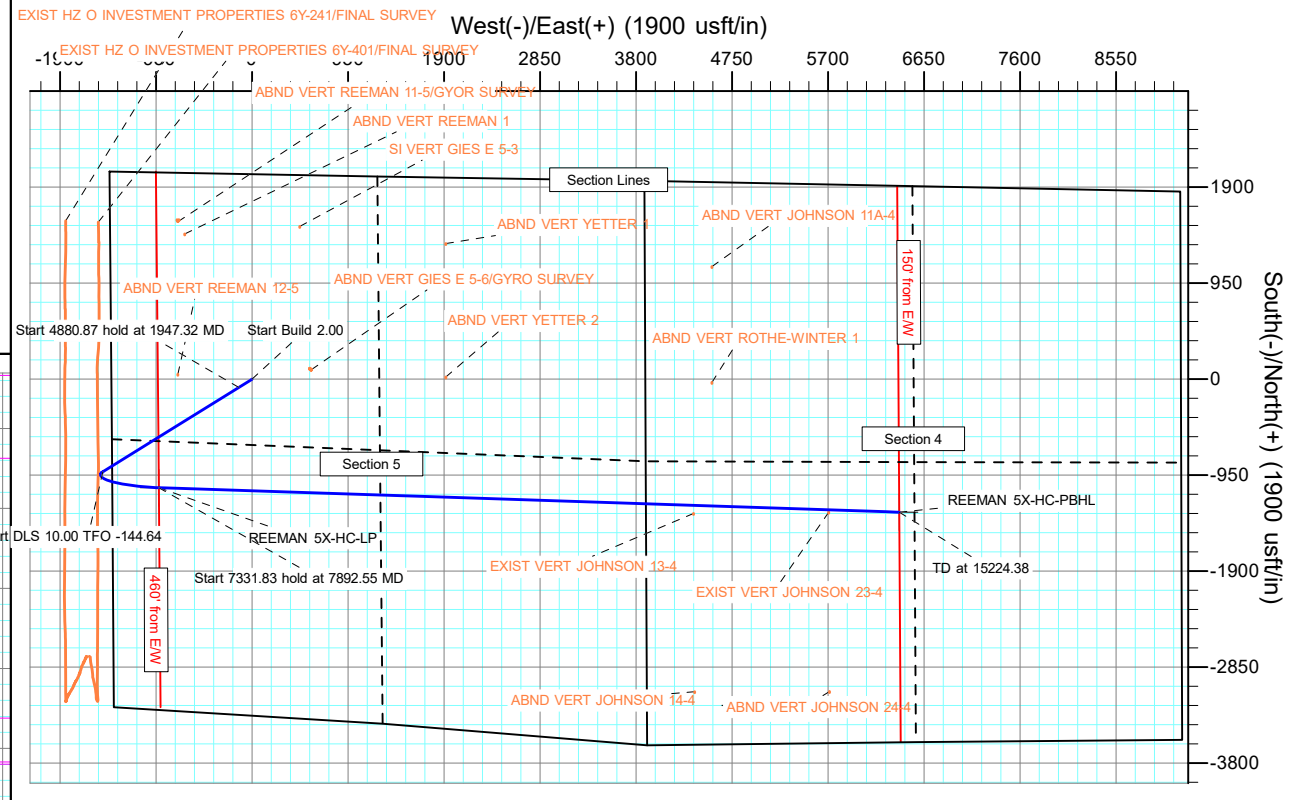
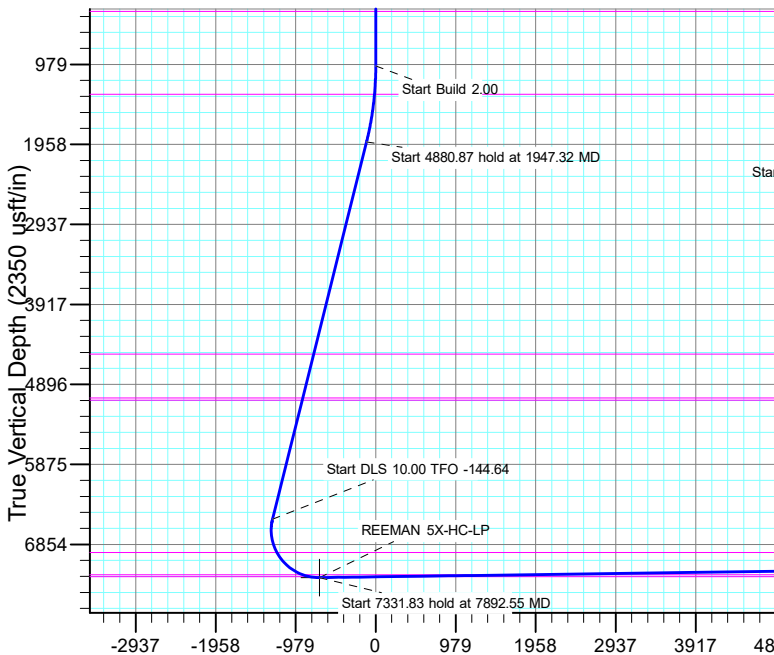
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
0.00	0.00	Laramie-Fox Hills
331.00	331.00	Upper Pierre Aquifer
1345.00	1345.84	Pierre Shale
4526.00	4691.86	Sussex
5062.00	5258.56	Shannon
5091.00	5289.23	Pierre Shale
6954.00	7254.83	Nio A
7227.00	7684.24	Fort Hays
7251.00	7776.12	Codell

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:  
2028' FNL, 1393' FWL  
Sec 5-T6N-R65W  
  
LP:  
2196' FSL, 460' FWL  
Sec 5-T6N-R65W  
  
BHL:  
2278' FSL, 2506' FWL  
Sec 4-T6N-R65W



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well REEMAN 5X-HC-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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

<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 5X-HC-04-06-65				
Well Position	+N/-S	0.00 usft	Northing:	1,432,779.54 usft	Latitude:	40.518570°N
	+E/-W	0.00 usft	Easting:	3,224,685.82 usft	Longitude:	104.691834°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	51,963.68130704

<b>Design</b>	PROPOSAL 1				
<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	101.61	

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/8/2022			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	15,224.38 PROPOSAL 1 (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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,947.32	18.95	238.18	1,930.15	-81.84	-131.87	2.00	2.00	0.00	238.18	
6,828.19	18.95	238.18	6,546.59	-917.52	-1,478.37	0.00	0.00	0.00	0.00	
7,892.55	90.78	91.89	7,261.00	-1,074.04	-923.89	10.00	6.75	-13.74	-144.64	REEMAN 5X-HC-LP
15,224.38	90.78	91.89	7,161.00	-1,316.12	6,403.26	0.00	0.00	0.00	0.00	REEMAN 5X-HC-PB+

# 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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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
<b>Laramie-Fox Hills</b>									
331.00	0.00	0.00	331.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,100.00	2.00	238.18	1,099.98	-0.92	-1.48	-1.27	2.00	2.00	0.00
1,200.00	4.00	238.18	1,199.84	-3.68	-5.93	-5.07	2.00	2.00	0.00
1,300.00	6.00	238.18	1,299.45	-8.28	-13.33	-11.40	2.00	2.00	0.00
1,345.84	6.92	238.18	1,345.00	-10.99	-17.72	-15.14	2.00	2.00	0.00
<b>Pierre Shale</b>									
1,400.00	8.00	238.18	1,398.70	-14.70	-23.69	-20.24	2.00	2.00	0.00
1,500.00	10.00	238.18	1,497.47	-22.95	-36.98	-31.60	2.00	2.00	0.00
1,600.00	12.00	238.18	1,595.62	-33.01	-53.19	-45.46	2.00	2.00	0.00
1,700.00	14.00	238.18	1,693.06	-44.87	-72.30	-61.79	2.00	2.00	0.00
1,800.00	16.00	238.18	1,789.64	-58.52	-94.29	-80.58	2.00	2.00	0.00
1,900.00	18.00	238.18	1,885.27	-73.94	-119.13	-101.81	2.00	2.00	0.00
1,947.32	18.95	238.18	1,930.15	-81.84	-131.87	-112.69	2.00	2.00	0.00
<b>Start 4880.87 hold at 1947.32 MD</b>									
2,000.00	18.95	238.18	1,979.98	-90.86	-146.41	-125.11	0.00	0.00	0.00
2,100.00	18.95	238.18	2,074.56	-107.99	-173.99	-148.69	0.00	0.00	0.00
2,200.00	18.95	238.18	2,169.14	-125.11	-201.58	-172.27	0.00	0.00	0.00
2,300.00	18.95	238.18	2,263.72	-142.23	-229.17	-195.84	0.00	0.00	0.00
2,400.00	18.95	238.18	2,358.30	-159.35	-256.76	-219.42	0.00	0.00	0.00
2,500.00	18.95	238.18	2,452.89	-176.47	-284.34	-242.99	0.00	0.00	0.00
2,600.00	18.95	238.18	2,547.47	-193.59	-311.93	-266.57	0.00	0.00	0.00
2,700.00	18.95	238.18	2,642.05	-210.71	-339.52	-290.14	0.00	0.00	0.00
2,800.00	18.95	238.18	2,736.63	-227.83	-367.10	-313.72	0.00	0.00	0.00
2,900.00	18.95	238.18	2,831.22	-244.96	-394.69	-337.29	0.00	0.00	0.00
3,000.00	18.95	238.18	2,925.80	-262.08	-422.28	-360.87	0.00	0.00	0.00
3,100.00	18.95	238.18	3,020.38	-279.20	-449.87	-384.44	0.00	0.00	0.00
3,200.00	18.95	238.18	3,114.96	-296.32	-477.45	-408.02	0.00	0.00	0.00
3,300.00	18.95	238.18	3,209.55	-313.44	-505.04	-431.59	0.00	0.00	0.00
3,400.00	18.95	238.18	3,304.13	-330.56	-532.63	-455.17	0.00	0.00	0.00
3,500.00	18.95	238.18	3,398.71	-347.68	-560.21	-478.74	0.00	0.00	0.00
3,600.00	18.95	238.18	3,493.29	-364.81	-587.80	-502.32	0.00	0.00	0.00
3,700.00	18.95	238.18	3,587.87	-381.93	-615.39	-525.89	0.00	0.00	0.00
3,800.00	18.95	238.18	3,682.46	-399.05	-642.98	-549.47	0.00	0.00	0.00
3,900.00	18.95	238.18	3,777.04	-416.17	-670.56	-573.04	0.00	0.00	0.00
4,000.00	18.95	238.18	3,871.62	-433.29	-698.15	-596.62	0.00	0.00	0.00
4,100.00	18.95	238.18	3,966.20	-450.41	-725.74	-620.19	0.00	0.00	0.00
4,200.00	18.95	238.18	4,060.79	-467.53	-753.32	-643.77	0.00	0.00	0.00
4,300.00	18.95	238.18	4,155.37	-484.66	-780.91	-667.34	0.00	0.00	0.00
4,400.00	18.95	238.18	4,249.95	-501.78	-808.50	-690.92	0.00	0.00	0.00
4,500.00	18.95	238.18	4,344.53	-518.90	-836.09	-714.50	0.00	0.00	0.00
4,600.00	18.95	238.18	4,439.11	-536.02	-863.67	-738.07	0.00	0.00	0.00
4,691.86	18.95	238.18	4,526.00	-551.75	-889.01	-759.73	0.00	0.00	0.00
<b>Sussex</b>									
4,700.00	18.95	238.18	4,533.70	-553.14	-891.26	-761.65	0.00	0.00	0.00
4,800.00	18.95	238.18	4,628.28	-570.26	-918.85	-785.22	0.00	0.00	0.00
4,900.00	18.95	238.18	4,722.86	-587.38	-946.43	-808.80	0.00	0.00	0.00
5,000.00	18.95	238.18	4,817.44	-604.51	-974.02	-832.37	0.00	0.00	0.00
5,100.00	18.95	238.18	4,912.03	-621.63	-1,001.61	-855.95	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 5X-HC-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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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)	
5,200.00	18.95	238.18	5,006.61	-638.75	-1,029.20	-879.52	0.00	0.00	0.00	
5,258.56	18.95	238.18	5,062.00	-648.77	-1,045.35	-893.33	0.00	0.00	0.00	
<b>Shannon</b>										
5,289.23	18.95	238.18	5,091.00	-654.02	-1,053.81	-900.56	0.00	0.00	0.00	
<b>Pierre Shale</b>										
5,300.00	18.95	238.18	5,101.19	-655.87	-1,056.78	-903.10	0.00	0.00	0.00	
5,400.00	18.95	238.18	5,195.77	-672.99	-1,084.37	-926.67	0.00	0.00	0.00	
5,500.00	18.95	238.18	5,290.36	-690.11	-1,111.96	-950.25	0.00	0.00	0.00	
5,600.00	18.95	238.18	5,384.94	-707.23	-1,139.54	-973.82	0.00	0.00	0.00	
5,700.00	18.95	238.18	5,479.52	-724.35	-1,167.13	-997.40	0.00	0.00	0.00	
5,800.00	18.95	238.18	5,574.10	-741.48	-1,194.72	-1,020.97	0.00	0.00	0.00	
5,900.00	18.95	238.18	5,668.68	-758.60	-1,222.31	-1,044.55	0.00	0.00	0.00	
6,000.00	18.95	238.18	5,763.27	-775.72	-1,249.89	-1,068.12	0.00	0.00	0.00	
6,100.00	18.95	238.18	5,857.85	-792.84	-1,277.48	-1,091.70	0.00	0.00	0.00	
6,200.00	18.95	238.18	5,952.43	-809.96	-1,305.07	-1,115.27	0.00	0.00	0.00	
6,300.00	18.95	238.18	6,047.01	-827.08	-1,332.65	-1,138.85	0.00	0.00	0.00	
6,400.00	18.95	238.18	6,141.60	-844.20	-1,360.24	-1,162.42	0.00	0.00	0.00	
6,500.00	18.95	238.18	6,236.18	-861.33	-1,387.83	-1,186.00	0.00	0.00	0.00	
6,600.00	18.95	238.18	6,330.76	-878.45	-1,415.42	-1,209.57	0.00	0.00	0.00	
6,700.00	18.95	238.18	6,425.34	-895.57	-1,443.00	-1,233.15	0.00	0.00	0.00	
6,800.00	18.95	238.18	6,519.93	-912.69	-1,470.59	-1,256.72	0.00	0.00	0.00	
6,828.19	18.95	238.18	6,546.59	-917.52	-1,478.37	-1,263.37	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO -144.64</b>										
6,850.00	17.21	233.91	6,567.32	-921.28	-1,483.98	-1,268.11	10.00	-7.95	-19.57	
6,900.00	13.71	220.40	6,615.52	-930.16	-1,493.81	-1,275.95	10.00	-7.00	-27.00	
6,950.00	11.36	199.88	6,664.35	-939.31	-1,499.33	-1,279.51	10.00	-4.70	-41.06	
7,000.00	10.94	173.89	6,713.44	-948.67	-1,500.50	-1,278.78	10.00	-0.85	-51.96	
7,050.00	12.63	150.65	6,762.41	-958.15	-1,497.31	-1,273.75	10.00	3.39	-46.49	
7,100.00	15.78	134.66	6,810.89	-967.70	-1,489.79	-1,264.46	10.00	6.29	-31.98	
7,150.00	19.69	124.36	6,858.52	-977.24	-1,478.00	-1,250.99	10.00	7.82	-20.60	
7,200.00	23.99	117.50	6,904.93	-986.69	-1,462.02	-1,233.43	10.00	8.61	-13.73	
7,250.00	28.52	112.66	6,949.76	-995.99	-1,441.97	-1,211.92	10.00	9.04	-9.68	
7,254.83	28.96	112.26	6,954.00	-996.88	-1,439.82	-1,209.64	10.00	9.20	-8.13	
<b>Nio A</b>										
7,300.00	33.17	109.06	6,992.68	-1,005.06	-1,418.02	-1,186.63	10.00	9.31	-7.09	
7,350.00	37.90	106.27	7,033.36	-1,013.83	-1,390.33	-1,157.75	10.00	9.46	-5.59	
7,400.00	42.68	104.01	7,071.49	-1,022.25	-1,359.13	-1,125.49	10.00	9.57	-4.51	
7,450.00	47.50	102.14	7,106.79	-1,030.23	-1,324.64	-1,090.10	10.00	9.64	-3.76	
7,500.00	52.35	100.53	7,138.97	-1,037.73	-1,287.14	-1,051.86	10.00	9.69	-3.22	
7,550.00	57.21	99.12	7,167.80	-1,044.68	-1,246.90	-1,011.04	10.00	9.73	-2.82	
7,600.00	62.09	97.86	7,193.05	-1,051.04	-1,204.24	-967.97	10.00	9.76	-2.53	
7,650.00	66.98	96.70	7,214.54	-1,056.74	-1,159.47	-922.97	10.00	9.78	-2.31	
7,684.24	70.34	95.96	7,227.00	-1,060.26	-1,127.77	-891.22	10.00	9.79	-2.17	
<b>Fort Hays</b>										
7,700.00	71.88	95.63	7,232.10	-1,061.77	-1,112.94	-876.39	10.00	9.80	-2.10	
7,750.00	76.79	94.62	7,245.60	-1,066.06	-1,065.01	-828.57	10.00	9.81	-2.03	
7,776.12	79.35	94.10	7,251.00	-1,068.00	-1,039.53	-803.22	10.00	9.81	-1.96	
<b>Codell</b>										
7,800.00	81.69	93.64	7,254.93	-1,069.59	-1,016.03	-779.88	10.00	9.82	-1.93	
7,850.00	86.60	92.69	7,260.03	-1,072.34	-966.38	-730.70	10.00	9.82	-1.90	
7,892.55	90.78	91.89	7,261.00	-1,074.04	-923.89	-688.74	10.00	9.82	-1.88	
<b>Start 7331.83 hold at 7892.55 MD</b>										
7,900.00	90.78	91.89	7,260.90	-1,074.28	-916.44	-681.39	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 5X-HC-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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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)	
8,000.00	90.78	91.89	7,259.53	-1,077.58	-816.51	-582.84	0.00	0.00	0.00	
8,100.00	90.78	91.89	7,258.17	-1,080.89	-716.57	-484.28	0.00	0.00	0.00	
8,200.00	90.78	91.89	7,256.81	-1,084.19	-616.63	-385.73	0.00	0.00	0.00	
8,300.00	90.78	91.89	7,255.44	-1,087.49	-516.70	-287.17	0.00	0.00	0.00	
8,400.00	90.78	91.89	7,254.08	-1,090.79	-416.76	-188.62	0.00	0.00	0.00	
8,500.00	90.78	91.89	7,252.71	-1,094.09	-316.83	-90.06	0.00	0.00	0.00	
8,600.00	90.78	91.89	7,251.35	-1,097.40	-216.89	8.49	0.00	0.00	0.00	
8,700.00	90.78	91.89	7,249.99	-1,100.70	-116.95	107.05	0.00	0.00	0.00	
8,800.00	90.78	91.89	7,248.62	-1,104.00	-17.02	205.60	0.00	0.00	0.00	
8,900.00	90.78	91.89	7,247.26	-1,107.30	82.92	304.15	0.00	0.00	0.00	
9,000.00	90.78	91.89	7,245.90	-1,110.60	182.86	402.71	0.00	0.00	0.00	
9,100.00	90.78	91.89	7,244.53	-1,113.90	282.79	501.26	0.00	0.00	0.00	
9,200.00	90.78	91.89	7,243.17	-1,117.21	382.73	599.82	0.00	0.00	0.00	
9,300.00	90.78	91.89	7,241.80	-1,120.51	482.66	698.37	0.00	0.00	0.00	
9,400.00	90.78	91.89	7,240.44	-1,123.81	582.60	796.93	0.00	0.00	0.00	
9,500.00	90.78	91.89	7,239.08	-1,127.11	682.54	895.48	0.00	0.00	0.00	
9,600.00	90.78	91.89	7,237.71	-1,130.41	782.47	994.04	0.00	0.00	0.00	
9,700.00	90.78	91.89	7,236.35	-1,133.72	882.41	1,092.59	0.00	0.00	0.00	
9,800.00	90.78	91.89	7,234.98	-1,137.02	982.34	1,191.15	0.00	0.00	0.00	
9,900.00	90.78	91.89	7,233.62	-1,140.32	1,082.28	1,289.70	0.00	0.00	0.00	
10,000.00	90.78	91.89	7,232.26	-1,143.62	1,182.22	1,388.25	0.00	0.00	0.00	
10,100.00	90.78	91.89	7,230.89	-1,146.92	1,282.15	1,486.81	0.00	0.00	0.00	
10,200.00	90.78	91.89	7,229.53	-1,150.22	1,382.09	1,585.36	0.00	0.00	0.00	
10,300.00	90.78	91.89	7,228.16	-1,153.53	1,482.03	1,683.92	0.00	0.00	0.00	
10,400.00	90.78	91.89	7,226.80	-1,156.83	1,581.96	1,782.47	0.00	0.00	0.00	
10,500.00	90.78	91.89	7,225.44	-1,160.13	1,681.90	1,881.03	0.00	0.00	0.00	
10,600.00	90.78	91.89	7,224.07	-1,163.43	1,781.83	1,979.58	0.00	0.00	0.00	
10,700.00	90.78	91.89	7,222.71	-1,166.73	1,881.77	2,078.14	0.00	0.00	0.00	
10,800.00	90.78	91.89	7,221.34	-1,170.04	1,981.71	2,176.69	0.00	0.00	0.00	
10,900.00	90.78	91.89	7,219.98	-1,173.34	2,081.64	2,275.25	0.00	0.00	0.00	
11,000.00	90.78	91.89	7,218.62	-1,176.64	2,181.58	2,373.80	0.00	0.00	0.00	
11,100.00	90.78	91.89	7,217.25	-1,179.94	2,281.52	2,472.36	0.00	0.00	0.00	
11,200.00	90.78	91.89	7,215.89	-1,183.24	2,381.45	2,570.91	0.00	0.00	0.00	
11,300.00	90.78	91.89	7,214.53	-1,186.54	2,481.39	2,669.46	0.00	0.00	0.00	
11,400.00	90.78	91.89	7,213.16	-1,189.85	2,581.32	2,768.02	0.00	0.00	0.00	
11,500.00	90.78	91.89	7,211.80	-1,193.15	2,681.26	2,866.57	0.00	0.00	0.00	
11,600.00	90.78	91.89	7,210.43	-1,196.45	2,781.20	2,965.13	0.00	0.00	0.00	
11,700.00	90.78	91.89	7,209.07	-1,199.75	2,881.13	3,063.68	0.00	0.00	0.00	
11,800.00	90.78	91.89	7,207.71	-1,203.05	2,981.07	3,162.24	0.00	0.00	0.00	
11,900.00	90.78	91.89	7,206.34	-1,206.36	3,081.00	3,260.79	0.00	0.00	0.00	
12,000.00	90.78	91.89	7,204.98	-1,209.66	3,180.94	3,359.35	0.00	0.00	0.00	
12,100.00	90.78	91.89	7,203.61	-1,212.96	3,280.88	3,457.90	0.00	0.00	0.00	
12,200.00	90.78	91.89	7,202.25	-1,216.26	3,380.81	3,556.46	0.00	0.00	0.00	
12,300.00	90.78	91.89	7,200.89	-1,219.56	3,480.75	3,655.01	0.00	0.00	0.00	
12,400.00	90.78	91.89	7,199.52	-1,222.86	3,580.69	3,753.56	0.00	0.00	0.00	
12,500.00	90.78	91.89	7,198.16	-1,226.17	3,680.62	3,852.12	0.00	0.00	0.00	
12,600.00	90.78	91.89	7,196.79	-1,229.47	3,780.56	3,950.67	0.00	0.00	0.00	
12,700.00	90.78	91.89	7,195.43	-1,232.77	3,880.49	4,049.23	0.00	0.00	0.00	
12,800.00	90.78	91.89	7,194.07	-1,236.07	3,980.43	4,147.78	0.00	0.00	0.00	
12,900.00	90.78	91.89	7,192.70	-1,239.37	4,080.37	4,246.34	0.00	0.00	0.00	
13,000.00	90.78	91.89	7,191.34	-1,242.68	4,180.30	4,344.89	0.00	0.00	0.00	
13,100.00	90.78	91.89	7,189.97	-1,245.98	4,280.24	4,443.45	0.00	0.00	0.00	
13,200.00	90.78	91.89	7,188.61	-1,249.28	4,380.17	4,542.00	0.00	0.00	0.00	
13,300.00	90.78	91.89	7,187.25	-1,252.58	4,480.11	4,640.56	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 5X-HC-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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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)	
13,400.00	90.78	91.89	7,185.88	-1,255.88	4,580.05	4,739.11	0.00	0.00	0.00	
13,500.00	90.78	91.89	7,184.52	-1,259.18	4,679.98	4,837.66	0.00	0.00	0.00	
13,600.00	90.78	91.89	7,183.16	-1,262.49	4,779.92	4,936.22	0.00	0.00	0.00	
13,700.00	90.78	91.89	7,181.79	-1,265.79	4,879.86	5,034.77	0.00	0.00	0.00	
13,800.00	90.78	91.89	7,180.43	-1,269.09	4,979.79	5,133.33	0.00	0.00	0.00	
13,900.00	90.78	91.89	7,179.06	-1,272.39	5,079.73	5,231.88	0.00	0.00	0.00	
14,000.00	90.78	91.89	7,177.70	-1,275.69	5,179.66	5,330.44	0.00	0.00	0.00	
14,100.00	90.78	91.89	7,176.34	-1,278.99	5,279.60	5,428.99	0.00	0.00	0.00	
14,200.00	90.78	91.89	7,174.97	-1,282.30	5,379.54	5,527.55	0.00	0.00	0.00	
14,300.00	90.78	91.89	7,173.61	-1,285.60	5,479.47	5,626.10	0.00	0.00	0.00	
14,400.00	90.78	91.89	7,172.24	-1,288.90	5,579.41	5,724.66	0.00	0.00	0.00	
14,500.00	90.78	91.89	7,170.88	-1,292.20	5,679.34	5,823.21	0.00	0.00	0.00	
14,600.00	90.78	91.89	7,169.52	-1,295.50	5,779.28	5,921.77	0.00	0.00	0.00	
14,700.00	90.78	91.89	7,168.15	-1,298.81	5,879.22	6,020.32	0.00	0.00	0.00	
14,800.00	90.78	91.89	7,166.79	-1,302.11	5,979.15	6,118.87	0.00	0.00	0.00	
14,900.00	90.78	91.89	7,165.42	-1,305.41	6,079.09	6,217.43	0.00	0.00	0.00	
15,000.00	90.78	91.89	7,164.06	-1,308.71	6,179.03	6,315.98	0.00	0.00	0.00	
15,100.00	90.78	91.89	7,162.70	-1,312.01	6,278.96	6,414.54	0.00	0.00	0.00	
15,200.00	90.78	91.89	7,161.33	-1,315.31	6,378.90	6,513.09	0.00	0.00	0.00	
15,224.38	90.78	91.89	7,161.00	-1,316.12	6,403.26	6,537.12	0.00	0.00	0.00	
TD at 15224.38										

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-HC-PBHL	0.00	0.00	7,161.00	-1,316.12	6,403.26	1,431,463.42	3,231,089.08	40.514795°N	104.668848°W
- plan hits target center									
- Point									
REEMAN 5X-HC-LP	0.00	0.00	7,261.00	-1,074.04	-923.89	1,431,705.50	3,223,761.93	40.515645°N	104.695192°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				
331.00	331.00	Upper Pierre Aquifer				
1,345.84	1,345.00	Pierre Shale				
4,691.86	4,526.00	Sussex				
5,258.56	5,062.00	Shannon				
5,289.23	5,091.00	Pierre Shale				
7,254.83	6,954.00	Nio A				
7,684.24	7,227.00	Fort Hays				
7,776.12	7,251.00	Codell				

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well REEMAN 5X-HC-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 5X-HC-04-06-65	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00
1,947.32	1,930.15	-81.84	-131.87	Start 4880.87 hold at 1947.32 MD
6,828.19	6,546.59	-917.52	-1,478.37	Start DLS 10.00 TFO -144.64
7,892.55	7,261.00	-1,074.04	-923.89	Start 7331.83 hold at 7892.55 MD
15,224.38	7,161.00	-1,316.12	6,403.26	TD at 15224.38