

Well Name:
BLEHM-5X-HNB-10-07-67

Project Name:
Sec. 9-T7N-R67W

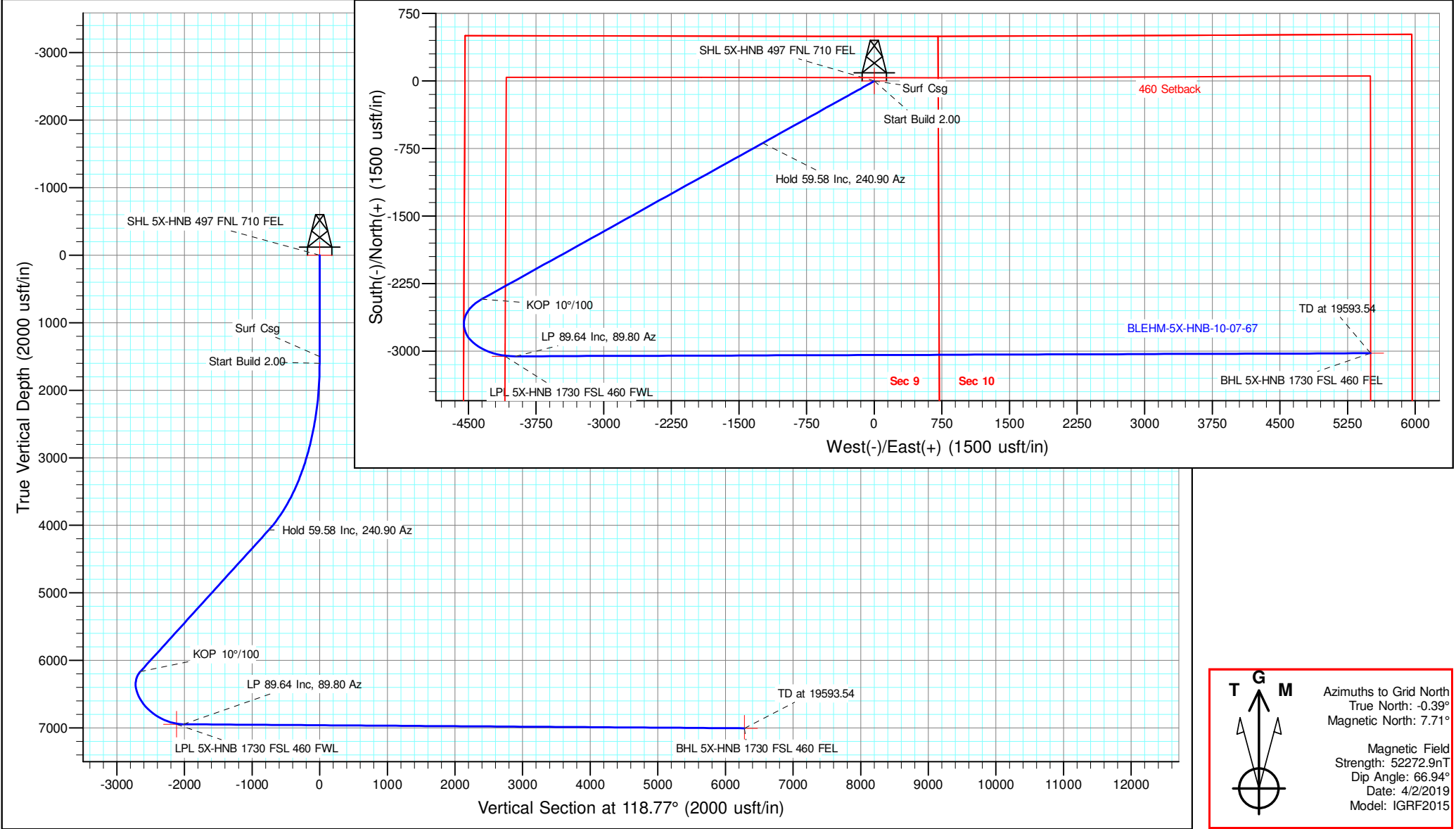
Pad Name:
BLEHM Pad

ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	Surf Csg	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	0.00	Start Build 2.00	
4578.89	59.58	240.90	4070.36	-687.69	-1235.69	-752.24	1414.15	Hold 59.58 Inc, 240.90 Az	
8718.93	59.58	240.90	6166.74	-2423.75	-4355.17	-2651.26	4984.18	KOP 10°/100	
10106.38	89.64	89.80	6947.00	-3056.67	-3980.00	-2017.80	6078.96	LP 89.64 Inc, 89.80 Az	
19593.54	89.64	89.80	7006.28	-3023.31	5505.91	6281.36	15564.94	TD at 19593.54	

Geodetic Datum:
North American Datum 1983
US State Plane 1983, Colorado Northern Zone

Elevation:
Ground Elevation: 5088.00
KB Elevation: KB @ 5115.00usft

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
SHL 5X-HNB 497 FNL 710 FEL	0.00	0.00	0.00	1460032.027	3169073.237	40.594593	-104.891185	Point	
LPL 5X-HNB 1730 FSL 460 FWL	6946.00	-3057.07	-4093.90	1456974.960	3164979.336	40.586278	-104.906000	Point	
BHL 5X-HNB 1730 FSL 460 FEL	7006.00	-3023.31	5506.91	1457008.720	3174580.151	40.586189	-104.871433	Point	



T G M

North arrow pointing up.

Azimuths to Grid North
True North: -0.39°
Magnetic North: 7.71°

Magnetic Field
Strength: 52272.9nT
Dip Angle: 66.94°
Date: 4/2/2019
Model: IGRF2015



Nickel Road Operating

Sec. 9-T7N-R67W

BLEHM Pad

BLEHM-5X-HNB-10-07-67

Wellbore #1

Plan: Plan #3

Standard Planning Report - Geographic

11 March, 2021

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Project	Sec. 9-T7N-R67W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		BLEHM Pad			
Site Position:		Northing:	1,458,460.008 usft	Latitude:	40.590318
From:	Lat/Long	Easting:	3,166,936.305 usft	Longitude:	-104.898918
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.39 °

Well	BLEHM-5X-HNB-10-07-67					
Well Position	+N/-S	0.00 usft	Northing:	1,460,032.026 usft	Latitude:	40.594593
	+E/-W	0.00 usft	Easting:	3,169,073.237 usft	Longitude:	-104.891185
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,088.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/2/2019	8.10	66.94	52,272.87459959

Design	Plan #3			
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	118.77

Plan Survey Tool Program	Date	3/10/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,592.97 Plan #3 (Wellbore #1)	MWD	
			OWSG MWD - Standard	

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	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,578.89	59.58	240.90	4,070.36	-687.69	-1,235.69	2.00	2.00	0.00	240.90	
8,718.93	59.58	240.90	6,166.74	-2,423.75	-4,355.17	0.00	0.00	0.00	0.00	
10,106.38	89.64	89.80	6,947.00	-3,056.67	-3,980.00	10.00	2.17	-10.89	-132.88	
19,593.54	89.64	89.80	7,006.00	-3,023.31	5,506.91	0.00	0.00	0.00	0.00	BHL 5X-HNB 1730 F5

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
Laramie-Fox Hills - SHL 5X-HNB 497 FNL 710 FEL									
100.00	0.00	0.00	100.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
200.00	0.00	0.00	200.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
300.00	0.00	0.00	300.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
Upper Pierre									
400.00	0.00	0.00	400.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
500.00	0.00	0.00	500.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
600.00	0.00	0.00	600.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
700.00	0.00	0.00	700.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
800.00	0.00	0.00	800.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
900.00	0.00	0.00	900.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,100.00	0.00	0.00	1,100.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,300.00	0.00	0.00	1,300.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,314.00	0.00	0.00	1,314.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
Pierre Shale									
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
Surf Csg									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
Start Build 2.00									
1,700.00	2.00	240.90	1,699.98	-0.85	-1.52	1,460,031.178	3,169,071.712	40.594591	-104.891191
1,800.00	4.00	240.90	1,799.84	-3.39	-6.10	1,460,028.633	3,169,067.139	40.594584	-104.891207
1,900.00	6.00	240.90	1,899.45	-7.63	-13.71	1,460,024.395	3,169,059.524	40.594572	-104.891235
2,000.00	8.00	240.90	1,998.70	-13.56	-24.36	1,460,018.469	3,169,048.876	40.594556	-104.891273
2,100.00	10.00	240.90	2,097.47	-21.16	-38.03	1,460,010.862	3,169,035.207	40.594536	-104.891323
2,200.00	12.00	240.90	2,195.62	-30.44	-54.70	1,460,001.584	3,169,018.535	40.594510	-104.891383
2,300.00	14.00	240.90	2,293.06	-41.38	-74.36	1,459,990.645	3,168,998.880	40.594481	-104.891454
2,400.00	16.00	240.90	2,389.64	-53.97	-96.97	1,459,978.060	3,168,976.265	40.594447	-104.891536
2,500.00	18.00	240.90	2,485.27	-68.18	-122.52	1,459,963.843	3,168,950.719	40.594408	-104.891628
2,600.00	20.00	240.90	2,579.82	-84.01	-150.96	1,459,948.012	3,168,922.273	40.594365	-104.891731
2,700.00	22.00	240.90	2,673.17	-101.44	-182.28	1,459,930.585	3,168,890.960	40.594318	-104.891844
2,800.00	24.00	240.90	2,765.21	-120.44	-216.42	1,459,911.586	3,168,856.820	40.594266	-104.891968
2,900.00	26.00	240.90	2,855.84	-140.99	-253.34	1,459,891.035	3,168,819.893	40.594211	-104.892101
3,000.00	28.00	240.90	2,944.94	-163.07	-293.01	1,459,868.959	3,168,780.226	40.594151	-104.892244
3,100.00	30.00	240.90	3,032.39	-186.64	-335.37	1,459,845.385	3,168,737.865	40.594087	-104.892397
3,200.00	32.00	240.90	3,118.11	-211.69	-380.37	1,459,820.341	3,168,692.864	40.594019	-104.892560
3,300.00	34.00	240.90	3,201.97	-238.17	-427.96	1,459,793.857	3,168,645.276	40.593947	-104.892732
3,400.00	36.00	240.90	3,283.88	-266.06	-478.08	1,459,765.966	3,168,595.159	40.593872	-104.892913
3,500.00	38.00	240.90	3,363.74	-295.32	-530.66	1,459,736.702	3,168,542.574	40.593792	-104.893103
3,600.00	40.00	240.90	3,441.45	-325.93	-585.65	1,459,706.100	3,168,487.587	40.593709	-104.893302
3,700.00	42.00	240.90	3,516.92	-357.83	-642.97	1,459,674.199	3,168,430.264	40.593623	-104.893509
3,800.00	44.00	240.90	3,590.05	-390.99	-702.56	1,459,641.035	3,168,370.674	40.593533	-104.893725
3,900.00	46.00	240.90	3,660.76	-425.38	-764.35	1,459,606.652	3,168,308.890	40.593440	-104.893948
4,000.00	48.00	240.90	3,728.95	-460.94	-828.25	1,459,571.088	3,168,244.988	40.593343	-104.894179
4,100.00	50.00	240.90	3,794.56	-497.64	-894.19	1,459,534.390	3,168,179.045	40.593244	-104.894417
4,200.00	52.00	240.90	3,857.48	-535.43	-962.10	1,459,496.600	3,168,111.141	40.593141	-104.894663
4,300.00	54.00	240.90	3,917.66	-574.26	-1,031.88	1,459,457.765	3,168,041.360	40.593036	-104.894915
4,400.00	56.00	240.90	3,975.02	-614.09	-1,103.45	1,459,417.933	3,167,969.786	40.592928	-104.895174
4,500.00	58.00	240.90	4,029.48	-654.87	-1,176.73	1,459,377.152	3,167,896.507	40.592818	-104.895438
4,578.89	59.58	240.90	4,070.36	-687.69	-1,235.69	1,459,344.341	3,167,837.551	40.592729	-104.895652
Hold 59.58 Inc, 240.90 Az									

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,600.00	59.58	240.90	4,081.05	-696.54	-1,251.59	1,459,335.490	3,167,821.646	40.592705	-104.895709
4,700.00	59.58	240.90	4,131.68	-738.47	-1,326.94	1,459,293.556	3,167,746.297	40.592591	-104.895981
4,800.00	59.58	240.90	4,182.32	-780.40	-1,402.29	1,459,251.623	3,167,670.947	40.592477	-104.896254
4,838.86	59.58	240.90	4,202.00	-796.70	-1,431.57	1,459,235.326	3,167,641.664	40.592433	-104.896360
Sussex									
4,900.00	59.58	240.90	4,232.96	-822.34	-1,477.64	1,459,209.689	3,167,595.598	40.592364	-104.896526
5,000.00	59.58	240.90	4,283.59	-864.27	-1,552.99	1,459,167.756	3,167,520.249	40.592250	-104.896798
5,100.00	59.58	240.90	4,334.23	-906.20	-1,628.34	1,459,125.822	3,167,444.900	40.592136	-104.897071
5,200.00	59.58	240.90	4,384.87	-948.14	-1,703.69	1,459,083.889	3,167,369.551	40.592022	-104.897343
5,300.00	59.58	240.90	4,435.50	-990.07	-1,779.03	1,459,041.955	3,167,294.201	40.591909	-104.897615
5,400.00	59.58	240.90	4,486.14	-1,032.00	-1,854.38	1,459,000.022	3,167,218.852	40.591795	-104.897888
5,500.00	59.58	240.90	4,536.78	-1,073.94	-1,929.73	1,458,958.089	3,167,143.503	40.591681	-104.898160
5,528.09	59.58	240.90	4,551.00	-1,085.72	-1,950.90	1,458,946.311	3,167,122.340	40.591649	-104.898237
Shannon									
5,585.36	59.58	240.90	4,580.00	-1,109.73	-1,994.05	1,458,922.295	3,167,079.187	40.591584	-104.898393
Pierre Shale									
5,600.00	59.58	240.90	4,587.41	-1,115.87	-2,005.08	1,458,916.155	3,167,068.154	40.591568	-104.898432
5,700.00	59.58	240.90	4,638.05	-1,157.80	-2,080.43	1,458,874.222	3,166,992.804	40.591454	-104.898705
5,800.00	59.58	240.90	4,688.69	-1,199.74	-2,155.78	1,458,832.288	3,166,917.455	40.591340	-104.898977
5,900.00	59.58	240.90	4,739.32	-1,241.67	-2,231.13	1,458,790.355	3,166,842.106	40.591227	-104.899249
6,000.00	59.58	240.90	4,789.96	-1,283.61	-2,306.48	1,458,748.421	3,166,766.757	40.591113	-104.899522
6,100.00	59.58	240.90	4,840.60	-1,325.54	-2,381.83	1,458,706.488	3,166,691.408	40.590999	-104.899794
6,200.00	59.58	240.90	4,891.23	-1,367.47	-2,457.18	1,458,664.554	3,166,616.058	40.590885	-104.900066
6,300.00	59.58	240.90	4,941.87	-1,409.41	-2,532.53	1,458,622.621	3,166,540.709	40.590772	-104.900339
6,400.00	59.58	240.90	4,992.51	-1,451.34	-2,607.88	1,458,580.687	3,166,465.360	40.590658	-104.900611
6,500.00	59.58	240.90	5,043.15	-1,493.27	-2,683.23	1,458,538.754	3,166,390.011	40.590544	-104.900883
6,600.00	59.58	240.90	5,093.78	-1,535.21	-2,758.57	1,458,496.821	3,166,314.661	40.590431	-104.901156
6,700.00	59.58	240.90	5,144.42	-1,577.14	-2,833.92	1,458,454.887	3,166,239.312	40.590317	-104.901428
6,800.00	59.58	240.90	5,195.06	-1,619.07	-2,909.27	1,458,412.954	3,166,163.963	40.590203	-104.901700
6,900.00	59.58	240.90	5,245.69	-1,661.01	-2,984.62	1,458,371.020	3,166,088.614	40.590090	-104.901973
7,000.00	59.58	240.90	5,296.33	-1,702.94	-3,059.97	1,458,329.087	3,166,013.265	40.589976	-104.902245
7,100.00	59.58	240.90	5,346.97	-1,744.87	-3,135.32	1,458,287.153	3,165,937.915	40.589862	-104.902517
7,200.00	59.58	240.90	5,397.60	-1,786.81	-3,210.67	1,458,245.220	3,165,862.566	40.589748	-104.902790
7,300.00	59.58	240.90	5,448.24	-1,828.74	-3,286.02	1,458,203.286	3,165,787.217	40.589635	-104.903062
7,400.00	59.58	240.90	5,498.88	-1,870.67	-3,361.37	1,458,161.353	3,165,711.868	40.589521	-104.903334
7,500.00	59.58	240.90	5,549.51	-1,912.61	-3,436.72	1,458,119.419	3,165,636.518	40.589407	-104.903606
7,600.00	59.58	240.90	5,600.15	-1,954.54	-3,512.07	1,458,077.486	3,165,561.169	40.589294	-104.903879
7,700.00	59.58	240.90	5,650.79	-1,996.47	-3,587.42	1,458,035.552	3,165,485.820	40.589180	-104.904151
7,800.00	59.58	240.90	5,701.42	-2,038.41	-3,662.77	1,457,993.619	3,165,410.471	40.589066	-104.904423
7,900.00	59.58	240.90	5,752.06	-2,080.34	-3,738.11	1,457,951.686	3,165,335.121	40.588952	-104.904696
8,000.00	59.58	240.90	5,802.70	-2,122.27	-3,813.46	1,457,909.752	3,165,259.772	40.588839	-104.904968
8,100.00	59.58	240.90	5,853.33	-2,164.21	-3,888.81	1,457,867.819	3,165,184.423	40.588725	-104.905240
8,200.00	59.58	240.90	5,903.97	-2,206.14	-3,964.16	1,457,825.885	3,165,109.074	40.588611	-104.905513
8,300.00	59.58	240.90	5,954.61	-2,248.07	-4,039.51	1,457,783.952	3,165,033.725	40.588498	-104.905785
8,400.00	59.58	240.90	6,005.24	-2,290.01	-4,114.86	1,457,742.018	3,164,958.375	40.588384	-104.906057
8,500.00	59.58	240.90	6,055.88	-2,331.94	-4,190.21	1,457,700.085	3,164,883.026	40.588270	-104.906330
8,600.00	59.58	240.90	6,106.52	-2,373.88	-4,265.56	1,457,658.151	3,164,807.677	40.588156	-104.906602
8,700.00	59.58	240.90	6,157.15	-2,415.81	-4,340.91	1,457,616.218	3,164,732.328	40.588043	-104.906874
8,718.93	59.58	240.90	6,166.74	-2,423.75	-4,355.17	1,457,608.279	3,164,718.063	40.588021	-104.906926
KOP 10°/100									
8,800.00	54.26	233.59	6,211.01	-2,460.34	-4,412.29	1,457,571.691	3,164,660.946	40.587922	-104.907132
8,900.00	48.42	223.18	6,273.56	-2,511.83	-4,470.69	1,457,520.195	3,164,602.542	40.587782	-104.907344
9,000.00	43.69	210.92	6,343.07	-2,568.88	-4,514.14	1,457,463.145	3,164,559.094	40.587626	-104.907502
9,100.00	40.49	196.76	6,417.44	-2,629.75	-4,541.32	1,457,402.276	3,164,531.920	40.587459	-104.907601

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,200.00	39.20	181.25	6,494.41	-2,692.59	-4,551.39	1,457,339.435	3,164,521.848	40.587287	-104.907639
9,300.00	40.03	165.59	6,571.64	-2,755.49	-4,544.05	1,457,276.533	3,164,529.182	40.587114	-104.907614
9,400.00	42.84	151.06	6,646.78	-2,816.55	-4,519.54	1,457,215.482	3,164,553.701	40.586946	-104.907527
9,500.00	47.27	138.37	6,717.55	-2,873.89	-4,478.58	1,457,158.135	3,164,594.659	40.586788	-104.907381
9,600.00	52.90	127.57	6,781.80	-2,925.79	-4,422.43	1,457,106.235	3,164,650.811	40.586644	-104.907180
9,661.10	56.77	121.79	6,817.00	-2,954.14	-4,381.35	1,457,077.891	3,164,691.884	40.586566	-104.907033
Niobrara									
9,700.00	59.37	118.37	6,837.58	-2,970.67	-4,352.78	1,457,061.360	3,164,720.452	40.586520	-104.906930
9,800.00	66.40	110.37	6,883.19	-3,007.15	-4,271.77	1,457,024.873	3,164,801.465	40.586418	-104.906639
9,900.00	73.80	103.21	6,917.24	-3,034.14	-4,181.85	1,456,997.882	3,164,891.390	40.586343	-104.906316
9,994.75	81.02	96.91	6,937.91	-3,050.21	-4,090.89	1,456,981.816	3,164,982.345	40.586297	-104.905989
LPL 5X-HNB 1730 FSL 460 FWL									
10,000.00	81.42	96.57	6,938.71	-3,050.82	-4,085.74	1,456,981.208	3,164,987.493	40.586295	-104.905971
10,100.00	89.15	90.20	6,946.93	-3,056.67	-3,986.38	1,456,975.357	3,165,086.855	40.586277	-104.905613
10,106.38	89.64	89.80	6,947.00	-3,056.67	-3,980.00	1,456,975.357	3,165,093.236	40.586277	-104.905590
LP 89.64 Inc, 89.80 Az									
10,200.00	89.64	89.80	6,947.59	-3,056.34	-3,886.38	1,456,975.686	3,165,186.852	40.586276	-104.905253
10,300.00	89.64	89.80	6,948.21	-3,055.99	-3,786.39	1,456,976.037	3,165,286.849	40.586275	-104.904893
10,400.00	89.64	89.80	6,948.84	-3,055.64	-3,686.39	1,456,976.389	3,165,386.847	40.586275	-104.904533
10,500.00	89.64	89.80	6,949.46	-3,055.29	-3,586.39	1,456,976.741	3,165,486.844	40.586274	-104.904173
10,600.00	89.64	89.80	6,950.08	-3,054.93	-3,486.39	1,456,977.092	3,165,586.841	40.586273	-104.903813
10,700.00	89.64	89.80	6,950.71	-3,054.58	-3,386.40	1,456,977.444	3,165,686.839	40.586272	-104.903453
10,800.00	89.64	89.80	6,951.33	-3,054.23	-3,286.40	1,456,977.796	3,165,786.836	40.586271	-104.903093
10,900.00	89.64	89.80	6,951.96	-3,053.88	-3,186.40	1,456,978.147	3,165,886.834	40.586270	-104.902733
11,000.00	89.64	89.80	6,952.58	-3,053.53	-3,086.41	1,456,978.499	3,165,986.831	40.586269	-104.902373
11,100.00	89.64	89.80	6,953.21	-3,053.18	-2,986.41	1,456,978.850	3,166,086.829	40.586268	-104.902013
11,200.00	89.64	89.80	6,953.83	-3,052.82	-2,886.41	1,456,979.202	3,166,186.826	40.586267	-104.901653
11,300.00	89.64	89.80	6,954.46	-3,052.47	-2,786.41	1,456,979.554	3,166,286.823	40.586267	-104.901293
11,400.00	89.64	89.80	6,955.08	-3,052.12	-2,686.42	1,456,979.905	3,166,386.821	40.586266	-104.900933
11,500.00	89.64	89.80	6,955.71	-3,051.77	-2,586.42	1,456,980.257	3,166,486.818	40.586265	-104.900573
11,600.00	89.64	89.80	6,956.33	-3,051.42	-2,486.42	1,456,980.609	3,166,586.816	40.586264	-104.900213
11,700.00	89.64	89.80	6,956.96	-3,051.07	-2,386.42	1,456,980.960	3,166,686.813	40.586263	-104.899853
11,800.00	89.64	89.80	6,957.58	-3,050.71	-2,286.43	1,456,981.312	3,166,786.811	40.586262	-104.899493
11,900.00	89.64	89.80	6,958.21	-3,050.36	-2,186.43	1,456,981.663	3,166,886.808	40.586261	-104.899133
12,000.00	89.64	89.80	6,958.83	-3,050.01	-2,086.43	1,456,982.015	3,166,986.805	40.586260	-104.898773
12,100.00	89.64	89.80	6,959.46	-3,049.66	-1,986.43	1,456,982.367	3,167,086.803	40.586259	-104.898412
12,200.00	89.64	89.80	6,960.08	-3,049.31	-1,886.44	1,456,982.718	3,167,186.800	40.586259	-104.898052
12,300.00	89.64	89.80	6,960.71	-3,048.96	-1,786.44	1,456,983.070	3,167,286.798	40.586258	-104.897692
12,400.00	89.64	89.80	6,961.33	-3,048.61	-1,686.44	1,456,983.422	3,167,386.795	40.586257	-104.897332
12,500.00	89.64	89.80	6,961.96	-3,048.25	-1,586.44	1,456,983.773	3,167,486.793	40.586256	-104.896972
12,600.00	89.64	89.80	6,962.58	-3,047.90	-1,486.45	1,456,984.125	3,167,586.790	40.586255	-104.896612
12,700.00	89.64	89.80	6,963.21	-3,047.55	-1,386.45	1,456,984.477	3,167,686.787	40.586254	-104.896252
12,800.00	89.64	89.80	6,963.83	-3,047.20	-1,286.45	1,456,984.828	3,167,786.785	40.586253	-104.895892
12,900.00	89.64	89.80	6,964.46	-3,046.85	-1,186.45	1,456,985.180	3,167,886.782	40.586252	-104.895532
13,000.00	89.64	89.80	6,965.08	-3,046.50	-1,086.46	1,456,985.531	3,167,986.780	40.586251	-104.895172
13,100.00	89.64	89.80	6,965.71	-3,046.14	-986.46	1,456,985.883	3,168,086.777	40.586250	-104.894812
13,200.00	89.64	89.80	6,966.33	-3,045.79	-886.46	1,456,986.235	3,168,186.775	40.586249	-104.894452
13,300.00	89.64	89.80	6,966.96	-3,045.44	-786.46	1,456,986.586	3,168,286.772	40.586249	-104.894092
13,400.00	89.64	89.80	6,967.58	-3,045.09	-686.47	1,456,986.938	3,168,386.769	40.586248	-104.893732
13,500.00	89.64	89.80	6,968.21	-3,044.74	-586.47	1,456,987.290	3,168,486.767	40.586247	-104.893372
13,600.00	89.64	89.80	6,968.83	-3,044.39	-486.47	1,456,987.641	3,168,586.764	40.586246	-104.893012
13,700.00	89.64	89.80	6,969.46	-3,044.03	-386.47	1,456,987.993	3,168,686.763	40.586245	-104.892652
13,800.00	89.64	89.80	6,970.08	-3,043.68	-286.48	1,456,988.344	3,168,786.760	40.586244	-104.892292
13,900.00	89.64	89.80	6,970.71	-3,043.33	-186.48	1,456,988.696	3,168,886.757	40.586243	-104.891932

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,000.00	89.64	89.80	6,971.33	-3,042.98	-86.48	1,456,989.048	3,168,986.755	40.586242	-104.891572
14,100.00	89.64	89.80	6,971.96	-3,042.63	13.52	1,456,989.399	3,169,086.752	40.586241	-104.891212
14,200.00	89.64	89.80	6,972.58	-3,042.28	113.51	1,456,989.751	3,169,186.750	40.586240	-104.890852
14,300.00	89.64	89.80	6,973.21	-3,041.92	213.51	1,456,990.103	3,169,286.747	40.586239	-104.890492
14,400.00	89.64	89.80	6,973.83	-3,041.57	313.51	1,456,990.454	3,169,386.745	40.586239	-104.890132
14,500.00	89.64	89.80	6,974.46	-3,041.22	413.50	1,456,990.806	3,169,486.742	40.586238	-104.889772
14,600.00	89.64	89.80	6,975.08	-3,040.87	513.50	1,456,991.157	3,169,586.739	40.586237	-104.889412
14,700.00	89.64	89.80	6,975.71	-3,040.52	613.50	1,456,991.509	3,169,686.737	40.586236	-104.889052
14,800.00	89.64	89.80	6,976.33	-3,040.17	713.50	1,456,991.861	3,169,786.734	40.586235	-104.888692
14,900.00	89.64	89.80	6,976.96	-3,039.81	813.49	1,456,992.212	3,169,886.732	40.586234	-104.888332
15,000.00	89.64	89.80	6,977.58	-3,039.46	913.49	1,456,992.564	3,169,986.729	40.586233	-104.887972
15,100.00	89.64	89.80	6,978.21	-3,039.11	1,013.49	1,456,992.916	3,170,086.727	40.586232	-104.887611
15,200.00	89.64	89.80	6,978.83	-3,038.76	1,113.49	1,456,993.267	3,170,186.724	40.586231	-104.887251
15,300.00	89.64	89.80	6,979.46	-3,038.41	1,213.48	1,456,993.619	3,170,286.721	40.586230	-104.886891
15,400.00	89.64	89.80	6,980.08	-3,038.06	1,313.48	1,456,993.970	3,170,386.719	40.586229	-104.886531
15,500.00	89.64	89.80	6,980.71	-3,037.70	1,413.48	1,456,994.322	3,170,486.716	40.586228	-104.886171
15,600.00	89.64	89.80	6,981.33	-3,037.35	1,513.48	1,456,994.674	3,170,586.714	40.586227	-104.885811
15,700.00	89.64	89.80	6,981.96	-3,037.00	1,613.47	1,456,995.025	3,170,686.711	40.586226	-104.885451
15,800.00	89.64	89.80	6,982.58	-3,036.65	1,713.47	1,456,995.377	3,170,786.709	40.586225	-104.885091
15,900.00	89.64	89.80	6,983.21	-3,036.30	1,813.47	1,456,995.729	3,170,886.706	40.586225	-104.884731
16,000.00	89.64	89.80	6,983.83	-3,035.95	1,913.47	1,456,996.080	3,170,986.703	40.586224	-104.884371
16,100.00	89.64	89.80	6,984.46	-3,035.59	2,013.46	1,456,996.432	3,171,086.701	40.586223	-104.884011
16,200.00	89.64	89.80	6,985.08	-3,035.24	2,113.46	1,456,996.783	3,171,186.698	40.586222	-104.883651
16,300.00	89.64	89.80	6,985.71	-3,034.89	2,213.46	1,456,997.135	3,171,286.696	40.586221	-104.883291
16,400.00	89.64	89.80	6,986.33	-3,034.54	2,313.46	1,456,997.487	3,171,386.693	40.586220	-104.882931
16,500.00	89.64	89.80	6,986.96	-3,034.19	2,413.45	1,456,997.838	3,171,486.691	40.586219	-104.882571
16,600.00	89.64	89.80	6,987.58	-3,033.84	2,513.45	1,456,998.190	3,171,586.688	40.586218	-104.882211
16,700.00	89.64	89.80	6,988.21	-3,033.49	2,613.45	1,456,998.542	3,171,686.685	40.586217	-104.881851
16,800.00	89.64	89.80	6,988.83	-3,033.13	2,713.45	1,456,998.893	3,171,786.683	40.586216	-104.881491
16,900.00	89.64	89.80	6,989.46	-3,032.78	2,813.44	1,456,999.245	3,171,886.680	40.586215	-104.881131
17,000.00	89.64	89.80	6,990.08	-3,032.43	2,913.44	1,456,999.596	3,171,986.678	40.586214	-104.880771
17,100.00	89.64	89.80	6,990.71	-3,032.08	3,013.44	1,456,999.948	3,172,086.675	40.586213	-104.880411
17,200.00	89.64	89.80	6,991.33	-3,031.73	3,113.44	1,457,000.300	3,172,186.672	40.586212	-104.880051
17,300.00	89.64	89.80	6,991.96	-3,031.38	3,213.43	1,457,000.651	3,172,286.670	40.586211	-104.879691
17,400.00	89.64	89.80	6,992.58	-3,031.02	3,313.43	1,457,001.003	3,172,386.667	40.586210	-104.879331
17,500.00	89.64	89.80	6,993.21	-3,030.67	3,413.43	1,457,001.355	3,172,486.665	40.586209	-104.878971
17,600.00	89.64	89.80	6,993.83	-3,030.32	3,513.43	1,457,001.706	3,172,586.662	40.586208	-104.878611
17,700.00	89.64	89.80	6,994.46	-3,029.97	3,613.42	1,457,002.058	3,172,686.660	40.586207	-104.878251
17,800.00	89.64	89.80	6,995.08	-3,029.62	3,713.42	1,457,002.410	3,172,786.657	40.586206	-104.877891
17,900.00	89.64	89.80	6,995.70	-3,029.27	3,813.42	1,457,002.761	3,172,886.654	40.586206	-104.877531
18,000.00	89.64	89.80	6,996.33	-3,028.91	3,913.42	1,457,003.113	3,172,986.652	40.586205	-104.877171
18,100.00	89.64	89.80	6,996.95	-3,028.56	4,013.41	1,457,003.464	3,173,086.649	40.586204	-104.876810
18,200.00	89.64	89.80	6,997.58	-3,028.21	4,113.41	1,457,003.816	3,173,186.647	40.586203	-104.876450
18,300.00	89.64	89.80	6,998.20	-3,027.86	4,213.41	1,457,004.168	3,173,286.644	40.586202	-104.876090
18,400.00	89.64	89.80	6,998.83	-3,027.51	4,313.40	1,457,004.519	3,173,386.642	40.586201	-104.875730
18,500.00	89.64	89.80	6,999.45	-3,027.16	4,413.40	1,457,004.871	3,173,486.639	40.586200	-104.875370
18,600.00	89.64	89.80	7,000.08	-3,026.80	4,513.40	1,457,005.223	3,173,586.636	40.586199	-104.875010
18,700.00	89.64	89.80	7,000.70	-3,026.45	4,613.40	1,457,005.574	3,173,686.634	40.586198	-104.874650
18,800.00	89.64	89.80	7,001.33	-3,026.10	4,713.39	1,457,005.926	3,173,786.631	40.586197	-104.874290
18,900.00	89.64	89.80	7,001.95	-3,025.75	4,813.39	1,457,006.277	3,173,886.629	40.586196	-104.873930
19,000.00	89.64	89.80	7,002.58	-3,025.40	4,913.39	1,457,006.629	3,173,986.626	40.586195	-104.873570
19,100.00	89.64	89.80	7,003.20	-3,025.05	5,013.39	1,457,006.981	3,174,086.624	40.586194	-104.873210
19,200.00	89.64	89.80	7,003.83	-3,024.69	5,113.38	1,457,007.332	3,174,186.621	40.586193	-104.872850
19,300.00	89.64	89.80	7,004.45	-3,024.34	5,213.38	1,457,007.684	3,174,286.618	40.586192	-104.872490
19,400.00	89.64	89.80	7,005.08	-3,023.99	5,313.38	1,457,008.036	3,174,386.616	40.586191	-104.872130

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well BLEHM-5X-HNB-10-07-67
Company:	Nickel Road Operating	TVD Reference:	KB @ 5115.00usft
Project:	Sec. 9-T7N-R67W	MD Reference:	KB @ 5115.00usft
Site:	BLEHM Pad	North Reference:	Grid
Well:	BLEHM-5X-HNB-10-07-67	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,500.00	89.64	89.80	7,005.70	-3,023.64	5,413.38	1,457,008.387	3,174,486.613	40.586190	-104.871770
19,593.54	89.64	89.80	7,006.00	-3,023.31	5,506.91	1,457,008.720	3,174,580.151	40.586189	-104.871433
TD at 19593.54 - TD - BHL 5X-HNB 1730 FSL 460 FEL									

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									
SHL 5X-HNB 497 FNL 7	0.00	0.00	0.00	0.00	0.00	1,460,032.026	3,169,073.237	40.594593	-104.891185
- plan hits target center									
- Point									
LPL 5X-HNB 1730 FSL 4	0.00	0.00	6,946.00	-3,057.07	-4,093.90	1,456,974.960	3,164,979.335	40.586278	-104.906000
- plan misses target center by 11.03usft at 9994.75usft MD (6937.91 TVD, -3050.21 N, -4090.89 E)									
- Point									
BHL 5X-HNB 1730 FSL	0.00	0.00	7,006.00	-3,023.31	5,506.91	1,457,008.720	3,174,580.151	40.586189	-104.871433
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Laramie-Fox Hills				
300.00	300.00	Upper Pierre				
1,314.00	1,314.00	Pierre Shale				
4,838.86	4,202.00	Sussex				
5,528.09	4,551.00	Shannon				
5,585.36	4,580.00	Pierre Shale				
9,661.10	6,817.00	Niobrara				
19,593.54	7,006.00	TD				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	Surf Csg
1,600.00	1,600.00	0.00	0.00	Start Build 2.00
4,578.89	4,070.36	-687.69	-1,235.69	Hold 59.58 Inc, 240.90 Az
8,718.93	6,166.74	-2,423.75	-4,355.17	KOP 10°/100
10,106.38	6,947.00	-3,056.67	-3,980.00	LP 89.64 Inc, 89.80 Az
19,593.54	7,006.00	-3,023.31	5,506.91	TD at 19593.54