

NICKEL ROAD OPERATING

WELD COUNTY

SEC 9-T7N-R67W

BLEHM 5X-HC-10-07-67

OWB

Design: FINAL SURVEY

Standard Survey Report

21 May, 2021



WELL DETAILS: BLEHM 5X-HC-10-07-67

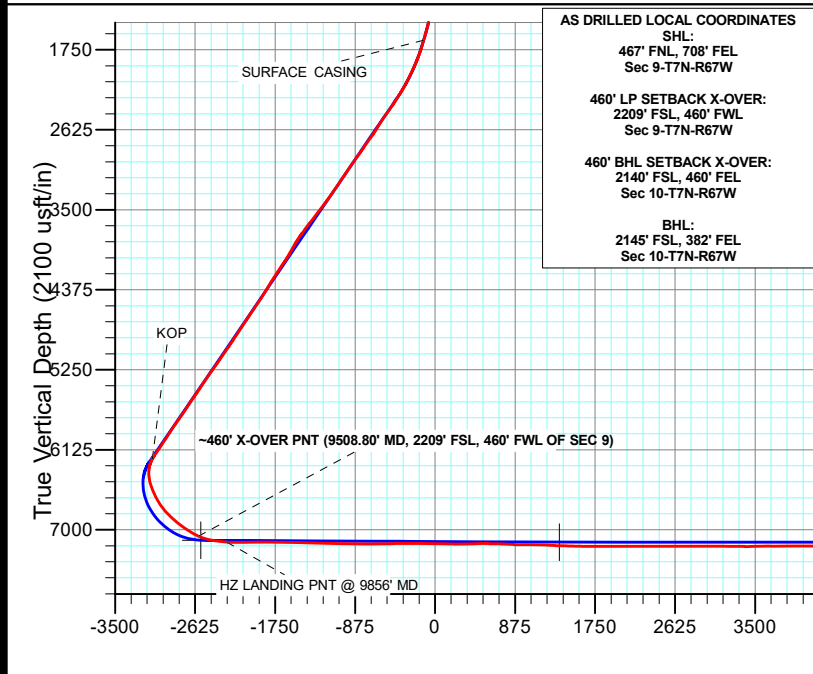
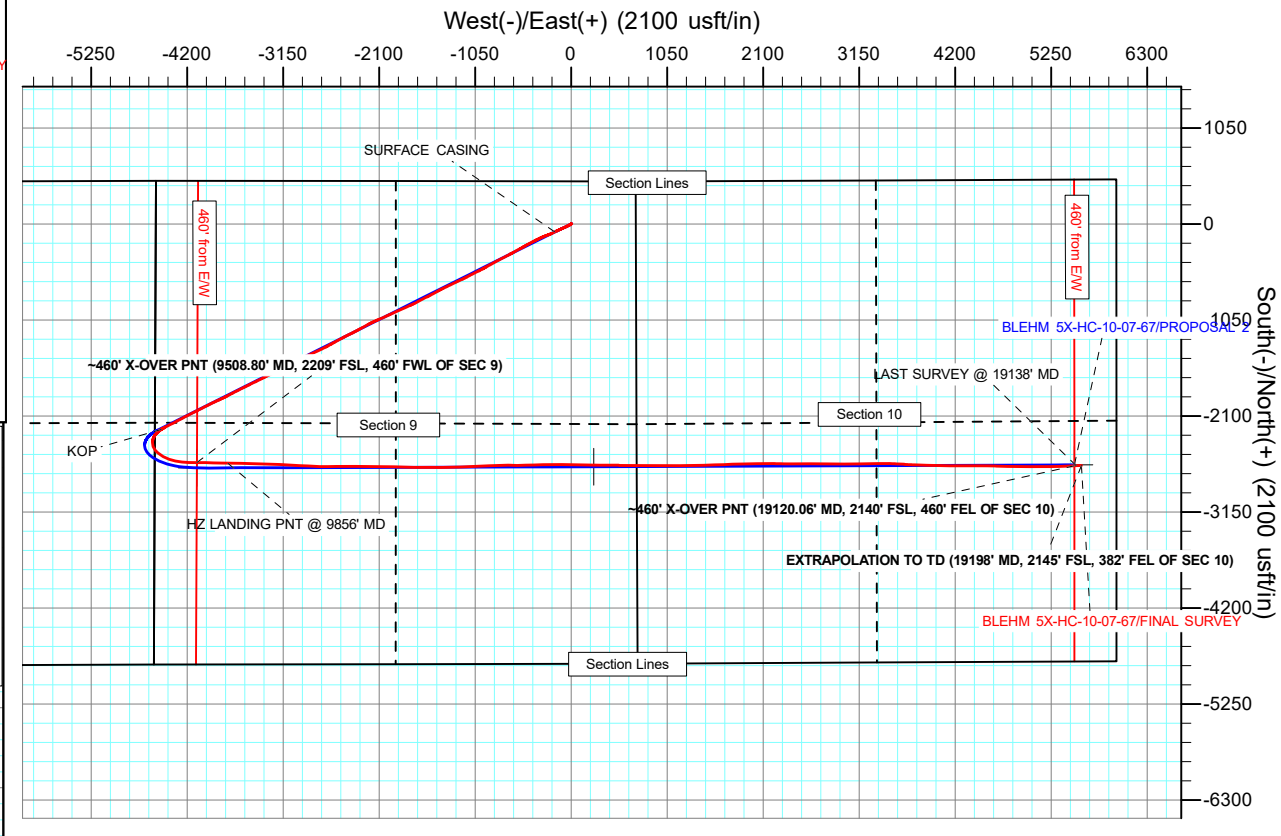
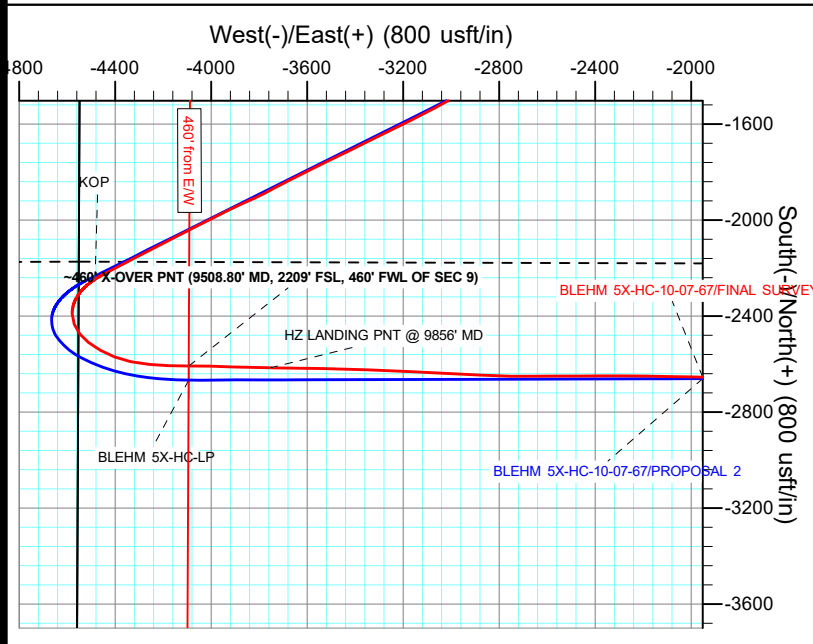
		5088.00				Slot
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	1460061.94	3169074.70	40.594675°N	104.891179°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V/Sect	Departure	Annotation
1678.00	25.05	243.86	1646.00	-86.28	-179.82	-125.72	218.26	SURFACE CASING
8349.00	44.96	236.87	6226.83	-2246.76	-4483.60	-3093.92	5035.55	KOP
9508.80	68.98	89.51	7069.53	-2607.55	-4093.45	-2587.03	5798.28	~460' X-OVER PNT (9508.80' MD, 2209' FSL, 460' FWL OF SEC 9)
9856.00	86.48	90.77	7135.46	-2615.41	-3754.23	-2276.97	6137.65	HZ LANDING PNT @ 9856' MD
19120.06	91.05	86.87	7183.87	-2642.66	5505.53	6106.81	15400.30	~460' X-OVER PNT (19120.06' MD, 2140' FSL, 460' FEL OF SEC 10)
19138.00	91.07	86.76	7183.54	-2641.67	5523.44	6122.58	15418.24	LAST SURVEY @ 19138' MD
19198.00	91.07	86.76	7182.42	-2638.28	5583.33	6175.28	15478.23	EXTRAPOLATION TO TD (19198' MD, 2145' FSL, 382' FEL OF SEC 10)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BLEHM 5X-HC-LP	7115.00	-2666.91	-4093.45	1457395.04	3164981.24	40.587431°N	104.905983°W	Point
BLEHM 5X-HC-PBHL	7135.00	-2633.16	5505.53	1457428.78	3174580.23	40.587342°N	104.871422°W	Point
BLEHM 5X-HC-WP	7135.00	-2654.17	247.73	1457407.78	3169322.42	40.587385°N	104.890353°W	Point



AS DRILLED LOCAL COORDINATES

SHL:
467' FNL, 708' FEL
Sec 9-T7N-R67W

460' LP SETBACK X-OVER:
2209' FSL, 460' FWL
Sec 9-T7N-R67W

460' BHL SETBACK X-OVER:
2140' FSL, 460' FEL
Sec 10-T7N-R67W

BHL:
2145' FSL, 382' FEL
Sec 10-T7N-R67W

Survey Report

Company: NICKEL ROAD OPERATING	Local Co-ordinate Reference: Well BLEHM 5X-HC-10-07-67
Project: WELD COUNTY	TVD Reference: KB 27' @ 5115.00usft
Site: SEC 9-T7N-R67W	MD Reference: KB 27' @ 5115.00usft
Well: BLEHM 5X-HC-10-07-67	North Reference: Grid
Wellbore: OWB	Survey Calculation Method: Minimum Curvature
Design: FINAL SURVEY	Database: EDM 5000.16 Single User Db

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 9-T7N-R67W				
Site Position:		Northing: 1,460,528.41 usft	Latitude: 40.595942°N	
From: Lat/Long		Easting: 3,169,780.77 usft	Longitude: 104.888625°W	
Position Uncertainty: 0.00 usft		Slot Radius: 13.200 in		

Well BLEHM 5X-HC-10-07-67				
Well Position	+N/-S 0.00 usft	Northing: 1,460,061.95 usft	Latitude: 40.594675°N	
	+E/-W 0.00 usft	Easting: 3,169,074.70 usft	Longitude: 104.891179°W	
Position Uncertainty	0.00 usft	Wellhead Elevation: usft	Ground Level: 5,088.00 usft	
Grid Convergence:	0.39 °			

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	3/15/2021	7.96	66.80	52,066.44517863

Design FINAL SURVEY				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	115.29

Survey Program		Date 5/21/2021
From (usft)	To (usft)	Survey (Wellbore)
127.00	1,627.00	SURFACE SURVEY (OWB)
1,760.00	19,198.00	FINAL SURVEY (OWB)
		Tool Name
		MWD
		MWD
		Description
		OWSG MWD - Standard
		OWSG MWD - Standard

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	0.00
127.00	0.49	29.96	127.00	0.47	0.27	0.04	0.39	0.39	0.00	
221.00	0.84	40.80	220.99	1.34	0.92	0.26	0.39	0.37	11.53	
315.00	1.10	38.37	314.98	2.57	1.93	0.65	0.28	0.28	-2.59	
409.00	1.50	41.19	408.95	4.20	3.30	1.19	0.43	0.43	3.00	
503.00	0.62	62.13	502.94	5.37	4.56	1.83	1.01	-0.94	22.28	
598.00	0.49	65.92	597.93	5.77	5.39	2.41	0.14	-0.14	3.99	
692.00	0.66	49.39	691.93	6.29	6.17	2.89	0.25	0.18	-17.59	
786.00	0.75	202.22	785.93	6.07	6.34	3.14	1.46	0.10	162.58	

Survey Report

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Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

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)	
881.00	3.54	229.14	880.85	3.58	3.89	1.99	3.04	2.94	28.34	
975.00	7.03	239.28	974.44	-1.26	-3.25	-2.40	3.83	3.71	10.79	
1,069.00	8.97	241.57	1,067.52	-7.69	-14.64	-9.95	2.09	2.06	2.44	
1,164.00	11.84	242.23	1,160.95	-15.76	-29.78	-20.19	3.02	3.02	0.69	
1,258.00	14.32	243.99	1,252.50	-25.35	-48.77	-33.26	2.67	2.64	1.87	
1,352.00	16.66	245.75	1,343.08	-35.98	-71.50	-49.27	2.54	2.49	1.87	
1,447.00	19.31	245.58	1,433.43	-48.07	-98.22	-68.27	2.79	2.79	-0.18	
1,541.00	22.58	245.93	1,521.21	-61.86	-128.86	-90.08	3.48	3.48	0.37	
1,627.00	25.23	243.73	1,599.83	-76.71	-160.38	-112.23	3.25	3.08	-2.56	
1,678.00	25.05	243.86	1,646.00	-86.28	-179.82	-125.72	0.38	-0.36	0.26	
SURFACE CASING										
1,760.00	24.75	244.08	1,720.37	-101.43	-210.84	-147.29	0.38	-0.36	0.26	
1,854.00	27.22	251.79	1,804.89	-116.75	-248.97	-175.23	4.45	2.63	8.20	
1,949.00	32.35	248.00	1,887.32	-133.08	-293.21	-208.25	5.75	5.40	-3.99	
2,043.00	36.10	244.61	1,965.04	-154.38	-341.57	-242.87	4.47	3.99	-3.61	
2,137.00	38.75	242.93	2,039.68	-179.65	-392.79	-278.39	3.02	2.82	-1.79	
2,232.00	41.98	242.54	2,112.06	-207.84	-447.47	-315.79	3.41	3.40	-0.41	
2,326.00	44.68	240.73	2,180.43	-238.50	-504.21	-353.98	3.16	2.87	-1.93	
2,420.00	47.95	241.26	2,245.35	-271.45	-563.66	-393.65	3.50	3.48	0.56	
2,514.00	46.97	240.73	2,308.90	-305.03	-624.23	-434.07	1.12	-1.04	-0.56	
2,608.00	50.11	242.27	2,371.13	-338.61	-686.14	-475.70	3.56	3.34	1.64	
2,702.00	49.49	242.49	2,431.80	-371.90	-749.75	-518.99	0.68	-0.66	0.23	
2,796.00	48.70	242.05	2,493.35	-404.96	-812.64	-561.73	0.91	-0.84	-0.47	
2,891.00	47.59	241.22	2,556.74	-438.57	-874.90	-603.66	1.34	-1.17	-0.87	
2,985.00	46.49	240.47	2,620.80	-472.08	-934.98	-643.67	1.31	-1.17	-0.80	
3,104.00	50.20	243.86	2,699.89	-513.51	-1,013.60	-697.05	3.77	3.12	2.85	
3,198.00	48.96	243.11	2,760.84	-545.45	-1,077.64	-741.30	1.45	-1.32	-0.80	
3,292.00	47.46	242.01	2,823.48	-577.74	-1,139.84	-783.75	1.82	-1.60	-1.17	
3,387.00	49.32	245.18	2,886.57	-609.29	-1,203.45	-827.78	3.17	1.96	3.34	
3,481.00	47.64	244.52	2,948.88	-639.20	-1,267.16	-872.61	1.86	-1.79	-0.70	
3,575.00	48.17	244.26	3,011.90	-669.35	-1,330.06	-916.60	0.60	0.56	-0.28	
3,669.00	46.93	243.82	3,075.34	-699.70	-1,392.42	-960.01	1.36	-1.32	-0.47	
3,763.00	49.40	241.83	3,138.04	-731.71	-1,454.70	-1,002.65	3.06	2.63	-2.12	
3,857.00	47.90	241.39	3,200.14	-765.25	-1,516.78	-1,044.44	1.63	-1.60	-0.47	
3,951.00	49.36	243.15	3,262.26	-798.06	-1,579.22	-1,086.88	2.09	1.55	1.87	
4,046.00	49.14	242.89	3,324.28	-830.71	-1,643.36	-1,130.92	0.31	-0.23	-0.27	
4,141.00	49.18	242.41	3,386.40	-863.73	-1,707.19	-1,174.53	0.38	0.04	-0.51	
4,235.00	49.62	246.19	3,447.59	-894.67	-1,771.49	-1,219.45	3.09	0.47	4.02	
4,330.00	49.80	245.97	3,509.02	-924.05	-1,837.73	-1,266.78	0.26	0.19	-0.23	
4,424.00	50.07	245.67	3,569.52	-953.52	-1,903.35	-1,313.53	0.38	0.29	-0.32	
4,518.00	50.16	245.27	3,629.80	-983.46	-1,968.97	-1,360.07	0.34	0.10	-0.43	
4,613.00	48.25	246.59	3,691.87	-1,012.80	-2,034.63	-1,406.89	2.27	-2.01	1.39	
4,707.00	48.65	246.33	3,754.22	-1,040.90	-2,099.12	-1,453.20	0.47	0.43	-0.28	

Survey Report

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Project:	WELD COUNTY	TVD Reference:	KB 27' @ 5115.00usft
Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,800.00	45.56	245.67	3,817.51	-1,068.60	-2,161.36	-1,497.64	3.36	-3.32	-0.71	
4,894.00	43.26	242.36	3,884.66	-1,097.37	-2,220.49	-1,538.80	3.47	-2.45	-3.52	
4,988.00	43.97	240.55	3,952.72	-1,128.36	-2,277.44	-1,577.06	1.53	0.76	-1.93	
5,083.00	46.93	240.73	4,019.36	-1,161.55	-2,336.44	-1,616.22	3.12	3.12	0.19	
5,177.00	47.86	244.61	4,083.00	-1,193.29	-2,397.89	-1,658.22	3.19	0.99	4.13	
5,271.00	45.96	242.71	4,147.22	-1,223.72	-2,459.41	-1,700.84	2.50	-2.02	-2.02	
5,365.00	48.61	241.61	4,210.98	-1,255.99	-2,520.46	-1,742.26	2.95	2.82	-1.17	
5,460.00	47.55	241.52	4,274.45	-1,289.64	-2,582.62	-1,784.08	1.12	-1.12	-0.09	
5,554.00	45.25	240.60	4,339.27	-1,322.57	-2,642.19	-1,823.87	2.55	-2.45	-0.98	
5,648.00	45.38	243.68	4,405.38	-1,353.79	-2,701.27	-1,863.94	2.33	0.14	3.28	
5,742.00	45.56	244.78	4,471.30	-1,382.93	-2,761.61	-1,906.06	0.86	0.19	1.17	
5,836.00	46.40	245.14	4,536.62	-1,411.53	-2,822.85	-1,949.21	0.94	0.89	0.38	
5,931.00	47.46	244.74	4,601.49	-1,440.93	-2,885.72	-1,993.49	1.16	1.12	-0.42	
6,025.00	46.44	244.04	4,665.66	-1,470.62	-2,947.66	-2,036.81	1.21	-1.09	-0.74	
6,119.00	48.70	242.85	4,729.08	-1,501.64	-3,009.71	-2,079.66	2.58	2.40	-1.27	
6,213.00	46.97	242.14	4,792.18	-1,533.82	-3,071.51	-2,121.79	1.92	-1.84	-0.76	
6,308.00	46.97	242.45	4,857.00	-1,566.10	-3,132.99	-2,163.58	0.24	0.00	0.33	
6,401.00	47.02	243.02	4,920.44	-1,597.26	-3,193.45	-2,204.93	0.45	0.05	0.61	
6,495.00	47.81	244.61	4,984.04	-1,627.79	-3,255.55	-2,248.04	1.50	0.84	1.69	
6,589.00	49.09	243.95	5,046.39	-1,658.32	-3,318.93	-2,292.29	1.46	1.36	-0.70	
6,684.00	46.89	243.29	5,109.97	-1,689.68	-3,382.16	-2,336.07	2.37	-2.32	-0.69	
6,778.00	48.12	243.90	5,173.47	-1,720.50	-3,444.24	-2,379.03	1.39	1.31	0.65	
6,872.00	49.54	244.17	5,235.34	-1,751.47	-3,507.86	-2,423.32	1.53	1.51	0.29	
6,966.00	47.59	243.64	5,297.55	-1,782.46	-3,571.14	-2,467.30	2.12	-2.07	-0.56	
7,060.00	48.56	243.15	5,360.35	-1,813.79	-3,633.67	-2,510.45	1.10	1.03	-0.52	
7,154.00	47.06	242.76	5,423.48	-1,845.45	-3,695.70	-2,553.01	1.63	-1.60	-0.41	
7,249.00	48.83	241.83	5,487.12	-1,878.25	-3,758.15	-2,595.45	2.00	1.86	-0.98	
7,343.00	47.95	245.71	5,549.55	-1,909.32	-3,821.16	-2,639.15	3.22	-0.94	4.13	
7,437.00	45.16	245.05	5,614.18	-1,937.74	-3,883.20	-2,683.10	3.01	-2.97	-0.70	
7,531.00	46.97	243.42	5,679.40	-1,967.17	-3,944.15	-2,725.64	2.29	1.93	-1.73	
7,625.00	48.92	243.20	5,742.37	-1,998.52	-4,006.51	-2,768.62	2.08	2.07	-0.23	
7,720.00	49.54	243.42	5,804.40	-2,030.84	-4,070.79	-2,812.93	0.68	0.65	0.23	
7,814.00	46.97	242.98	5,866.99	-2,062.45	-4,133.39	-2,856.02	2.76	-2.73	-0.47	
7,909.00	46.97	242.98	5,931.81	-2,094.00	-4,195.25	-2,898.48	0.00	0.00	0.00	
8,003.00	47.55	241.96	5,995.61	-2,125.91	-4,256.47	-2,940.19	1.01	0.62	-1.09	
8,096.00	48.08	242.67	6,058.06	-2,157.93	-4,317.49	-2,981.69	0.80	0.57	0.76	
8,190.00	48.25	242.93	6,120.76	-2,189.94	-4,379.78	-3,024.33	0.27	0.18	0.28	
8,284.00	49.40	242.05	6,182.64	-2,222.62	-4,442.53	-3,067.10	1.41	1.22	-0.94	
8,349.00	44.96	236.87	6,226.83	-2,246.76	-4,483.60	-3,093.92	8.98	-6.83	-7.97	
KOP										
8,379.00	43.00	234.21	6,248.42	-2,258.54	-4,500.77	-3,104.42	8.98	-6.54	-8.87	
8,473.00	37.47	218.61	6,320.33	-2,299.76	-4,544.76	-3,126.58	12.19	-5.88	-16.60	
8,567.00	30.89	199.84	6,398.27	-2,344.98	-4,570.90	-3,130.89	13.15	-7.00	-19.97	
8,661.00	28.41	178.68	6,480.18	-2,390.16	-4,578.59	-3,118.54	11.39	-2.64	-22.51	

Survey Report

Company:	NICKEL ROAD OPERATING	Local Co-ordinate Reference:	Well BLEHM 5X-HC-10-07-67
Project:	WELD COUNTY	TVD Reference:	KB 27' @ 5115.00usft
Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

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)	
8,755.00	29.56	159.87	6,562.58	-2,434.38	-4,570.08	-3,091.96	9.74	1.22	-20.01	
8,850.00	29.65	141.01	6,645.36	-2,474.74	-4,547.18	-3,054.01	9.77	0.09	-19.85	
8,944.00	34.25	128.53	6,725.18	-2,509.34	-4,511.80	-3,007.24	8.54	4.89	-13.28	
9,039.00	44.23	118.75	6,798.74	-2,542.05	-4,461.66	-2,947.93	12.33	10.51	-10.29	
9,133.00	43.61	112.71	6,866.48	-2,570.35	-4,402.99	-2,882.80	4.50	-0.66	-6.43	
9,227.00	54.44	100.16	6,928.16	-2,589.71	-4,335.09	-2,813.14	15.27	11.52	-13.35	
9,322.00	55.90	96.98	6,982.43	-2,601.31	-4,258.00	-2,738.48	3.15	1.54	-3.35	
9,416.00	61.91	91.30	7,030.99	-2,606.98	-4,177.79	-2,663.53	8.22	6.39	-6.04	
9,508.80	68.98	89.51	7,069.53	-2,607.55	-4,093.45	-2,587.03	7.82	7.62	-1.93	
-460' X-OVER PNT (9508.80' MD, 2209' FSL, 460' FWL OF SEC 9)										
9,510.00	69.07	89.49	7,069.96	-2,607.54	-4,092.33	-2,586.02	7.82	7.63	-1.82	
9,605.00	74.06	91.69	7,099.99	-2,608.49	-4,002.24	-2,504.17	5.69	5.25	2.32	
9,698.00	83.16	92.14	7,118.34	-2,611.54	-3,911.22	-2,420.57	9.80	9.78	0.48	
9,791.00	83.03	91.25	7,129.52	-2,614.27	-3,818.94	-2,335.96	0.96	-0.14	-0.96	
9,856.00	86.48	90.77	7,135.46	-2,615.41	-3,754.23	-2,276.97	5.36	5.31	-0.74	
HZ LANDING PNT @ 9856' MD										
9,886.00	88.07	90.55	7,136.89	-2,615.75	-3,724.27	-2,249.73	5.36	5.31	-0.73	
9,980.00	90.54	90.77	7,138.03	-2,616.84	-3,630.29	-2,164.30	2.64	2.63	0.23	
10,075.00	90.28	91.56	7,137.35	-2,618.77	-3,535.31	-2,077.60	0.88	-0.27	0.83	
10,169.00	90.99	90.95	7,136.31	-2,620.83	-3,441.34	-1,991.76	1.00	0.76	-0.65	
10,263.00	89.93	92.58	7,135.55	-2,623.72	-3,347.39	-1,905.58	2.07	-1.13	1.73	
10,357.00	90.50	91.91	7,135.20	-2,627.40	-3,253.46	-1,819.08	0.94	0.61	-0.71	
10,451.00	88.20	92.93	7,136.27	-2,631.37	-3,159.56	-1,732.49	2.68	-2.45	1.09	
10,545.00	89.00	92.97	7,138.57	-2,636.21	-3,065.72	-1,645.57	0.85	0.85	0.04	
10,639.00	89.62	92.84	7,139.70	-2,640.97	-2,971.84	-1,558.66	0.67	0.66	-0.14	
10,734.00	90.01	93.63	7,140.00	-2,646.33	-2,877.00	-1,470.62	0.93	0.41	0.83	
10,858.00	88.33	90.68	7,141.80	-2,650.99	-2,753.12	-1,356.62	2.74	-1.35	-2.38	
10,952.00	88.11	89.40	7,144.72	-2,651.06	-2,659.16	-1,271.64	1.38	-0.23	-1.36	
11,046.00	88.11	89.71	7,147.82	-2,650.33	-2,565.22	-1,187.01	0.33	0.00	0.33	
11,140.00	88.91	89.58	7,150.26	-2,649.75	-2,471.25	-1,102.31	0.86	0.85	-0.14	
11,234.00	89.04	89.71	7,151.95	-2,649.17	-2,377.27	-1,017.58	0.20	0.14	0.14	
11,329.00	89.66	89.93	7,153.02	-2,648.87	-2,282.28	-931.82	0.69	0.65	0.23	
11,423.00	89.70	91.12	7,153.55	-2,649.73	-2,188.28	-846.47	1.27	0.04	1.27	
11,517.00	89.88	90.86	7,153.89	-2,651.35	-2,094.30	-760.80	0.34	0.19	-0.28	
11,610.00	90.10	91.30	7,153.91	-2,653.11	-2,001.31	-675.98	0.53	0.24	0.47	
11,703.00	90.94	92.00	7,153.07	-2,655.78	-1,908.36	-590.79	1.18	0.90	0.75	
11,797.00	90.41	91.17	7,151.96	-2,658.38	-1,814.40	-504.73	1.05	-0.56	-0.88	
11,891.00	90.90	90.99	7,150.88	-2,660.16	-1,720.42	-419.01	0.56	0.52	-0.19	
11,985.00	90.15	89.93	7,150.02	-2,660.91	-1,626.43	-333.70	1.38	-0.80	-1.13	
12,080.00	90.41	89.84	7,149.56	-2,660.72	-1,531.43	-247.89	0.29	0.27	-0.09	
12,173.00	89.09	89.71	7,149.96	-2,660.35	-1,438.44	-163.97	1.43	-1.42	-0.14	
12,268.00	89.48	89.71	7,151.15	-2,659.87	-1,343.45	-78.28	0.41	0.41	0.00	
12,362.00	89.57	88.52	7,151.93	-2,658.42	-1,249.46	6.07	1.27	0.10	-1.27	

Survey Report

Company:	NICKEL ROAD OPERATING	Local Co-ordinate Reference:	Well BLEHM 5X-HC-10-07-67
Project:	WELD COUNTY	TVD Reference:	KB 27' @ 5115.00usft
Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

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)	
12,456.00	89.40	88.39	7,152.77	-2,655.89	-1,155.50	89.94	0.23	-0.18	-0.14	
12,550.00	88.25	85.44	7,154.70	-2,650.83	-1,061.67	172.62	3.37	-1.22	-3.14	
12,645.00	89.88	86.85	7,156.25	-2,644.44	-966.90	255.57	2.27	1.72	1.48	
12,739.00	91.07	88.70	7,155.47	-2,640.80	-872.98	338.93	2.34	1.27	1.97	
12,833.00	91.65	88.48	7,153.24	-2,638.48	-779.04	422.88	0.66	0.62	-0.23	
12,927.00	90.68	90.77	7,151.33	-2,637.87	-685.07	507.58	2.65	-1.03	2.44	
13,021.00	89.09	89.67	7,151.52	-2,638.23	-591.07	592.72	2.06	-1.69	-1.17	
13,115.00	89.09	89.27	7,153.01	-2,637.36	-497.09	677.33	0.43	0.00	-0.43	
13,210.00	87.14	87.77	7,156.14	-2,634.91	-402.18	762.09	2.59	-2.05	-1.58	
13,304.00	87.05	87.68	7,160.90	-2,631.18	-308.37	845.31	0.14	-0.10	-0.10	
13,398.00	89.88	89.31	7,163.42	-2,628.72	-214.45	929.18	3.47	3.01	1.73	
13,491.00	90.63	91.12	7,163.00	-2,629.06	-121.46	1,013.40	2.11	0.81	1.95	
13,585.00	89.04	90.59	7,163.28	-2,630.47	-27.47	1,098.98	1.78	-1.69	-0.56	
13,679.00	87.54	91.78	7,166.08	-2,632.41	66.46	1,184.74	2.04	-1.60	1.27	
13,773.00	87.10	90.95	7,170.48	-2,634.65	160.33	1,270.57	1.00	-0.47	-0.88	
13,868.00	88.51	90.90	7,174.11	-2,636.18	255.25	1,357.04	1.49	1.48	-0.05	
13,962.00	88.42	90.46	7,176.63	-2,637.29	349.21	1,442.47	0.48	-0.10	-0.47	
14,056.00	88.29	89.98	7,179.33	-2,637.65	443.17	1,527.58	0.53	-0.14	-0.51	
14,150.00	89.66	90.81	7,181.01	-2,638.30	537.15	1,612.82	1.70	1.46	0.88	
14,244.00	89.53	89.89	7,181.68	-2,638.88	631.14	1,698.05	0.99	-0.14	-0.98	
14,338.00	90.10	91.12	7,181.98	-2,639.71	725.13	1,783.39	1.44	0.61	1.31	
14,433.00	89.88	90.06	7,182.00	-2,640.68	820.13	1,869.70	1.14	-0.23	-1.12	
14,527.00	90.46	90.50	7,181.72	-2,641.14	914.13	1,954.88	0.77	0.62	0.47	
14,621.00	90.23	90.50	7,181.15	-2,641.96	1,008.12	2,040.21	0.24	-0.24	0.00	
14,715.00	90.19	89.49	7,180.81	-2,641.96	1,102.12	2,125.20	1.08	-0.04	-1.07	
14,810.00	89.75	89.54	7,180.86	-2,641.15	1,197.11	2,210.75	0.47	-0.46	0.05	
14,904.00	89.53	89.18	7,181.45	-2,640.10	1,291.11	2,295.28	0.45	-0.23	-0.38	
14,998.00	89.62	89.01	7,182.14	-2,638.62	1,385.09	2,379.62	0.20	0.10	-0.18	
15,092.00	90.06	88.13	7,182.41	-2,636.27	1,479.06	2,463.58	1.05	0.47	-0.94	
15,186.00	90.06	88.35	7,182.31	-2,633.38	1,573.02	2,547.30	0.23	0.00	0.23	
15,281.00	90.46	87.55	7,181.88	-2,629.99	1,667.95	2,631.68	0.94	0.42	-0.84	
15,375.00	92.05	88.61	7,179.82	-2,626.84	1,761.87	2,715.25	2.03	1.69	1.13	
15,469.00	89.70	89.05	7,178.38	-2,624.92	1,855.84	2,799.39	2.54	-2.50	0.47	
15,563.00	89.48	88.39	7,179.06	-2,622.82	1,949.81	2,883.46	0.74	-0.23	-0.70	
15,657.00	90.32	89.01	7,179.22	-2,620.69	2,043.79	2,967.51	1.11	0.89	0.66	
15,751.00	89.70	88.83	7,179.20	-2,618.91	2,137.77	3,051.73	0.69	-0.66	-0.19	
15,846.00	89.00	91.65	7,180.28	-2,619.31	2,232.75	3,137.78	3.06	-0.74	2.97	
15,940.00	89.04	90.90	7,181.89	-2,621.40	2,326.71	3,223.63	0.80	0.04	-0.80	
16,034.00	90.15	90.77	7,182.55	-2,622.77	2,420.70	3,309.19	1.19	1.18	-0.14	
16,128.00	89.13	89.49	7,183.14	-2,622.99	2,514.69	3,394.26	1.74	-1.09	-1.36	
16,223.00	91.52	89.58	7,182.61	-2,622.21	2,609.68	3,479.82	2.52	2.52	0.09	
16,317.00	91.74	89.49	7,179.93	-2,621.45	2,703.64	3,564.44	0.25	0.23	-0.10	
16,411.00	89.70	91.12	7,178.75	-2,621.95	2,797.62	3,649.63	2.78	-2.17	1.73	
16,505.00	90.06	90.81	7,178.95	-2,623.54	2,891.61	3,735.29	0.51	0.38	-0.33	

Survey Report

Company:	NICKEL ROAD OPERATING	Local Co-ordinate Reference:	Well BLEHM 5X-HC-10-07-67
Project:	WELD COUNTY	TVD Reference:	KB 27' @ 5115.00usft
Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

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)	
16,599.00	90.72	90.33	7,178.31	-2,624.47	2,985.60	3,820.67	0.87	0.70	-0.51	
16,692.00	90.06	89.45	7,177.67	-2,624.29	3,078.60	3,904.67	1.18	-0.71	-0.95	
16,787.00	90.19	88.39	7,177.47	-2,622.50	3,173.58	3,989.78	1.12	0.14	-1.12	
16,880.00	89.40	89.62	7,177.80	-2,620.89	3,266.56	4,073.16	1.57	-0.85	1.32	
16,975.00	88.73	88.04	7,179.35	-2,618.95	3,361.53	4,158.20	1.81	-0.71	-1.66	
17,069.00	89.31	90.73	7,180.96	-2,617.94	3,455.50	4,242.73	2.93	0.62	2.86	
17,163.00	91.07	93.59	7,180.65	-2,621.48	3,549.42	4,329.16	3.57	1.87	3.04	
17,258.00	91.07	93.55	7,178.87	-2,627.40	3,644.22	4,417.40	0.04	0.00	-0.04	
17,352.00	90.59	92.31	7,177.51	-2,632.20	3,738.08	4,504.32	1.41	-0.51	-1.32	
17,446.00	90.15	92.14	7,176.90	-2,635.85	3,832.01	4,590.80	0.50	-0.47	-0.18	
17,540.00	90.46	91.34	7,176.40	-2,638.70	3,925.96	4,676.97	0.91	0.33	-0.85	
17,634.00	90.77	91.43	7,175.39	-2,640.98	4,019.93	4,762.90	0.34	0.33	0.10	
17,728.00	90.72	90.33	7,174.17	-2,642.42	4,113.91	4,848.49	1.17	-0.05	-1.17	
17,822.00	88.86	90.46	7,174.52	-2,643.07	4,207.90	4,933.75	1.98	-1.98	0.14	
17,915.00	88.69	90.33	7,176.51	-2,643.71	4,300.88	5,018.08	0.23	-0.18	-0.14	
18,009.00	88.64	88.65	7,178.70	-2,642.87	4,394.85	5,102.69	1.79	-0.05	-1.79	
18,104.00	88.29	90.95	7,181.24	-2,642.54	4,489.81	5,188.40	2.45	-0.37	2.42	
18,197.00	89.93	91.87	7,182.68	-2,644.83	4,582.76	5,273.42	2.02	1.76	0.99	
18,292.00	89.97	91.21	7,182.77	-2,647.38	4,677.73	5,360.38	0.70	0.04	-0.69	
18,386.00	89.84	90.99	7,182.92	-2,649.19	4,771.71	5,446.12	0.27	-0.14	-0.23	
18,480.00	89.62	91.17	7,183.37	-2,650.96	4,865.69	5,531.85	0.30	-0.23	0.19	
18,574.00	89.48	90.06	7,184.10	-2,651.97	4,959.68	5,617.26	1.19	-0.15	-1.18	
18,668.00	89.00	90.02	7,185.35	-2,652.03	5,053.67	5,702.27	0.51	-0.51	-0.04	
18,762.00	89.17	89.80	7,186.85	-2,651.88	5,147.66	5,787.19	0.30	0.18	-0.23	
18,856.00	90.37	89.23	7,187.23	-2,651.09	5,241.66	5,871.83	1.41	1.28	-0.61	
18,951.00	90.59	88.92	7,186.43	-2,649.56	5,336.64	5,957.06	0.40	0.23	-0.33	
19,044.00	90.94	87.33	7,185.19	-2,646.51	5,429.58	6,039.79	1.75	0.38	-1.71	
19,120.06	91.05	86.87	7,183.87	-2,642.66	5,505.53	6,106.81	0.62	0.14	-0.61	
~460' X-OVER PNT (19120.06' MD, 2140' FSL, 460' FEL OF SEC 10)										
19,138.00	91.07	86.76	7,183.54	-2,641.67	5,523.44	6,122.58	0.62	0.14	-0.61	
LAST SURVEY @ 19138' MD										
19,198.00	91.07	86.76	7,182.42	-2,638.28	5,583.33	6,175.28	0.00	0.00	0.00	
EXTRAPOLATION TO TD (19198' MD, 2145' FSL, 382' FEL OF SEC 10)										

Survey Report

Company:	NICKEL ROAD OPERATING	Local Co-ordinate Reference:	Well BLEHM 5X-HC-10-07-67
Project:	WELD COUNTY	TVD Reference:	KB 27' @ 5115.00usft
Site:	SEC 9-T7N-R67W	MD Reference:	KB 27' @ 5115.00usft
Well:	BLEHM 5X-HC-10-07-67	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDM 5000.16 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,678.00	1,646.00	-86.28	-179.82	SURFACE CASING
8,349.00	6,226.83	-2,246.76	-4,483.60	KOP
9,508.80	7,069.53	-2,607.55	-4,093.45	~460' X-OVER PNT (9508.80' MD, 2209' FSL, 460' FWL OF SEC 9)
9,856.00	7,135.46	-2,615.41	-3,754.23	HZ LANDING PNT @ 9856' MD
19,120.06	7,183.87	-2,642.66	5,505.53	~460' X-OVER PNT (19120.06' MD, 2140' FSL, 460' FEL OF SEC 10)
19,138.00	7,183.54	-2,641.67	5,523.44	LAST SURVEY @ 19138' MD
19,198.00	7,182.42	-2,638.28	5,583.33	EXTRAPOLATION TO TD (19198' MD, 2145' FSL, 382' FEL OF SEC 10)

Checked By: _____	Approved By: _____	Date: _____
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