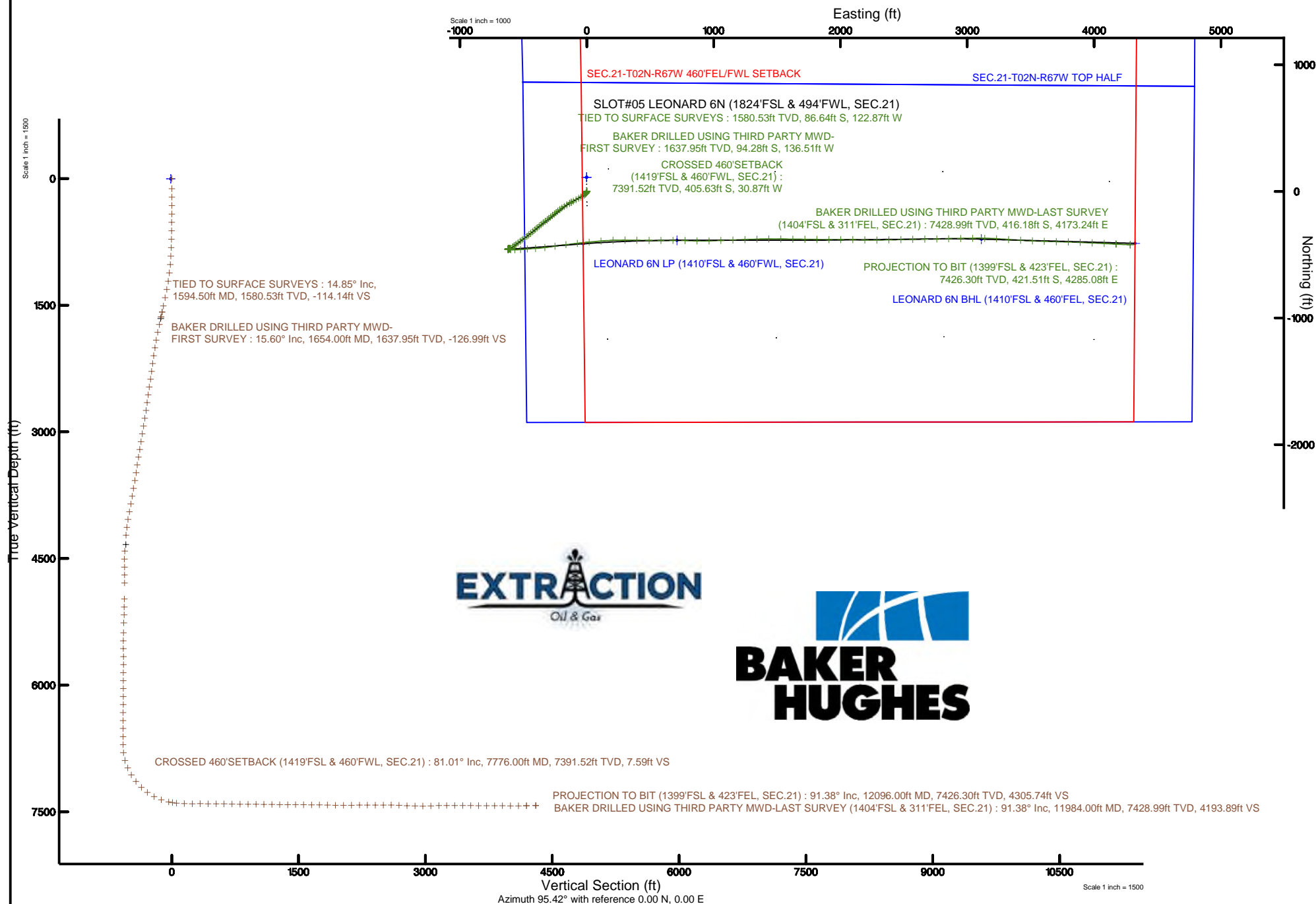


Location:	COLORADO	Slot:	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Field:	WELD COUNTY (NAD83/TRUE NORTH)	Well:	LEONARD 6N
Facility:	SEC.21-T02N-R67W	Wellbore:	LEONARD 6N PWB

Plot reference wellpath is LEONARD 6N PWP (REV-A.0)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
True vertical depths are referenced to CYCLONE 37 (28KB) (RKB)	North Reference: True north
Measured depths are referenced to CYCLONE 37 (28KB) (RKB)	Scale: True distance
CYCLONE 37 (28KB) (RKB) to Mean Sea Level: 5032 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: SLOT#05 LEONARD 6N (1824FSL & 494FWL, SEC.211): 0 feet	Created by: ingjiamr on 2017-10-05
Coordinates are in feet referenced to Slot	Database: WA DEN Denver Delth





Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWP
Facility	SEC.21-T02N-R67W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.1
North Reference	True	User	Ingmjmr
Scale	0.999959	Report Generated	10/5/2017 at 10:19:21 AM
Convergence at slot	0.39° East	Database/Source file	WA_DEN_Denver_Defn/LEONARD_6N_AWP.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-111.84	1.68	3166874.73	1287664.97	40°07'17.371"N	104°54'11.801"W
Facility Reference Pt			3166872.30	1287776.78	40°07'18.476"N	104°54'11.822"W
Field Reference Pt			3185481.27	1419166.81	40°28'55.560"N	104°49'59.556"W

WELLPATH DATUM

Calculation method	Minimum curvature	CYCLONE 37 (28'KB) (RKB) to Facility Vertical Datum	5032.00ft
Horizontal Reference Pt	Slot	CYCLONE 37 (28'KB) (RKB) to Mean Sea Level	5032.00ft
Vertical Reference Pt	CYCLONE 37 (28'KB) (RKB)	CYCLONE 37 (28'KB) (RKB) to Mud Line at Slot (SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21))	5032.00ft
MD Reference Pt	CYCLONE 37 (28'KB) (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	95.62°



Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWB
Facility	SEC.21-T02N-R67W		

WELLPATH DATA (110 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
1594.50	14.850	240.440	1580.53	-113.80	-86.64	-122.87	0.17
1654.00	15.600	241.020	1637.95	-126.62	-94.28	-136.51	1.29
1749.00	14.580	239.430	1729.67	-146.79	-106.55	-157.98	1.16
1843.00	13.920	236.830	1820.78	-165.15	-118.75	-177.63	0.98
1938.00	13.080	234.850	1913.15	-182.20	-131.19	-195.98	1.01
2032.00	12.420	233.130	2004.83	-197.71	-143.38	-212.77	0.81
2127.00	11.710	231.940	2097.74	-212.21	-155.46	-228.53	0.79
2222.00	11.090	230.310	2190.86	-225.61	-167.24	-243.15	0.74
2316.00	10.210	229.190	2283.24	-237.71	-178.45	-256.41	0.96
2410.00	12.110	231.230	2375.46	-250.50	-190.07	-270.41	2.06
2505.00	11.800	231.850	2468.40	-264.64	-202.31	-285.82	0.35
2600.00	10.780	229.910	2561.56	-277.86	-214.04	-300.25	1.15
2694.00	9.810	228.720	2654.05	-289.47	-224.98	-313.00	1.06
2788.00	11.400	234.140	2746.44	-301.90	-235.71	-326.54	2.00
2883.00	13.920	232.510	2839.12	-317.28	-248.16	-343.22	2.68
2978.00	12.990	231.230	2931.51	-333.25	-261.81	-360.61	1.03
3072.00	12.110	230.220	3023.27	-347.73	-274.73	-376.43	0.96
3167.00	12.810	227.220	3116.03	-361.72	-288.26	-391.82	1.00
3262.00	14.100	230.440	3208.42	-376.87	-302.78	-408.47	1.57
3356.00	12.810	230.040	3299.84	-392.23	-316.77	-425.29	1.38
3451.00	12.990	230.040	3392.44	-407.08	-330.39	-441.54	0.19
3545.00	11.180	227.930	3484.36	-420.61	-343.28	-456.41	1.98
3640.00	12.280	233.610	3577.37	-434.32	-355.45	-471.38	1.68
3735.00	14.010	236.040	3669.88	-450.69	-367.87	-489.05	1.91
3829.00	12.110	235.330	3761.45	-466.98	-379.83	-506.60	2.03
3924.00	13.390	233.830	3854.10	-482.78	-391.99	-523.67	1.39
4019.00	14.100	233.750	3946.38	-499.60	-405.33	-541.88	0.75
4113.00	12.020	233.130	4037.94	-515.35	-417.97	-558.95	2.22
4208.00	10.520	232.820	4131.11	-529.01	-429.15	-573.78	1.58
4302.00	8.090	227.440	4223.87	-539.72	-438.81	-585.49	2.74



Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWB
Facility	SEC.21-T02N-R67W		

WELLPATH DATA (110 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
4491.00	4.820	234.850	4411.65	-554.60	-452.38	-601.78	1.78
4586.00	0.090	63.250	4506.54	-557.56	-454.65	-604.98	5.17
4681.00	0.400	49.630	4601.54	-557.27	-454.40	-604.66	0.33
4775.00	0.310	51.920	4695.53	-556.86	-454.03	-604.21	0.10
4870.00	0.090	304.430	4790.53	-556.74	-453.83	-604.07	0.37
5059.00	0.880	292.930	4979.53	-558.25	-453.18	-605.53	0.42
5154.00	1.410	290.810	5074.51	-560.08	-452.48	-607.29	0.56
5248.00	1.680	297.120	5168.47	-562.48	-451.44	-609.60	0.34
5343.00	1.590	296.010	5263.43	-565.01	-450.23	-612.02	0.10
5459.00	3.090	242.120	5379.34	-569.12	-450.98	-616.23	2.16
5554.00	0.400	124.020	5474.30	-570.97	-452.37	-618.22	3.47
5648.00	0.800	121.330	5568.30	-570.09	-452.89	-617.39	0.43
5743.00	0.220	145.220	5663.29	-569.37	-453.39	-616.72	0.64
5838.00	0.310	247.720	5758.29	-569.48	-453.63	-616.85	0.44
5932.00	0.800	268.340	5852.29	-570.36	-453.75	-617.74	0.55
6027.00	0.490	284.640	5947.28	-571.42	-453.67	-618.80	0.38
6121.00	0.400	308.930	6041.28	-572.09	-453.36	-619.44	0.22
6216.00	0.400	192.940	6136.28	-572.41	-453.47	-619.78	0.71
6310.00	0.490	189.940	6230.27	-572.48	-454.19	-619.92	0.10
6405.00	0.800	224.230	6325.27	-572.92	-455.06	-620.45	0.51
6500.00	0.710	232.420	6420.26	-573.77	-455.90	-621.38	0.15
6594.00	0.800	196.950	6514.25	-574.32	-456.88	-622.03	0.50
6690.00	0.800	179.240	6610.24	-574.38	-458.19	-622.22	0.26
6785.00	0.220	165.530	6705.24	-574.24	-459.03	-622.17	0.62
6880.00	5.390	95.820	6800.10	-569.71	-459.66	-617.68	5.60
6974.00	16.700	91.940	6892.21	-551.76	-460.57	-599.73	12.05
7069.00	24.390	89.650	6981.10	-518.58	-460.91	-566.42	8.14
7163.00	31.290	85.330	7064.18	-475.20	-458.80	-522.63	7.64
7257.00	38.890	85.720	7141.04	-422.04	-454.61	-468.79	8.09
7353.00	46.710	86.030	7211.42	-357.80	-449.93	-403.79	8.15



Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWB
Facility	SEC.21-T02N-R67W		

WELLPATH DATA (110 stations)							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
7447.00	54.620	83.430	7270.96	-286.49	-443.17	-331.47	8.68
7542.00	62.620	82.020	7320.39	-207.51	-432.86	-251.09	8.52
7637.00	71.010	82.820	7357.76	-122.56	-421.37	-164.60	8.87
7731.00	77.600	83.340	7383.17	-34.27	-410.48	-74.81	7.03
7826.00	84.800	84.840	7397.70	57.66	-400.83	18.51	7.74
7920.00	87.580	85.150	7403.94	149.83	-392.65	111.93	2.98
8015.00	90.500	87.620	7405.54	243.57	-386.67	206.71	4.03
8110.00	90.500	90.440	7404.71	337.93	-385.06	301.69	2.97
8204.00	88.500	90.920	7405.53	431.57	-386.17	395.67	2.19
8299.00	89.790	91.230	7406.94	526.26	-387.96	490.64	1.40
8393.00	90.010	88.810	7407.11	619.81	-387.99	584.63	2.59
8488.00	88.600	90.220	7408.26	714.26	-387.18	679.62	2.10
8582.00	89.090	91.140	7410.16	807.89	-388.30	773.59	1.11
8677.00	90.370	91.540	7410.60	902.62	-390.52	868.56	1.41
8772.00	88.690	88.320	7411.38	997.13	-390.41	963.54	3.82
8866.00	89.790	88.020	7412.63	1090.33	-387.40	1057.49	1.21
8961.00	88.290	87.930	7414.22	1184.47	-384.05	1152.41	1.58
9056.00	89.000	88.020	7416.47	1278.60	-380.69	1247.32	0.75
9150.00	90.190	87.750	7417.13	1371.74	-377.22	1341.26	1.30
9244.00	90.720	90.220	7416.39	1465.10	-375.56	1435.23	2.69
9339.00	88.290	90.350	7417.21	1559.68	-376.03	1530.22	2.56
9433.00	89.310	91.230	7419.17	1653.32	-377.33	1624.19	1.43
9528.00	91.120	90.130	7418.82	1747.97	-378.45	1719.17	2.23
9623.00	87.410	91.540	7420.04	1842.61	-379.84	1814.14	4.18
9718.00	88.600	90.220	7423.34	1937.22	-381.29	1909.06	1.87
9812.00	90.280	89.910	7424.26	2030.77	-381.40	2003.06	1.82
9907.00	91.910	90.040	7422.45	2125.29	-381.36	2098.04	1.72
10002.00	90.100	92.510	7420.78	2219.99	-383.47	2192.99	3.22
10096.00	89.000	88.630	7421.52	2313.61	-384.41	2286.96	4.29
10191.00	90.010	89.340	7422.34	2407.97	-382.73	2381.94	1.30



Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWB
Facility	SEC.21-T02N-R67W		

WELLPATH DATA (110 stations)							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
10286.00	91.600	88.630	7421.01	2502.32	-381.04	2476.91	1.83
10380.00	89.480	88.320	7420.12	2595.58	-378.54	2570.87	2.28
10474.00	86.480	89.430	7423.43	2688.86	-376.70	2664.78	3.40
10569.00	87.190	88.940	7428.68	2783.11	-375.35	2759.62	0.91
10663.00	88.820	88.940	7431.95	2876.42	-373.61	2853.55	1.73
10757.00	90.410	89.120	7432.58	2969.79	-372.02	2947.53	1.70
10852.00	92.310	88.810	7430.33	3064.12	-370.30	3042.48	2.03
10947.00	91.380	91.230	7427.27	3158.61	-370.34	3137.43	2.73
11041.00	89.790	93.740	7426.31	3252.45	-374.41	3231.32	3.16
11135.00	91.300	93.830	7425.41	3346.40	-380.62	3325.11	1.61
11230.00	88.910	92.820	7425.24	3441.31	-386.13	3419.94	2.73
11324.00	90.010	92.250	7426.13	3535.17	-390.28	3513.84	1.32
11418.00	88.110	92.250	7427.67	3628.99	-393.97	3607.75	2.02
11512.00	89.620	91.320	7429.53	3722.76	-396.90	3701.69	1.89
11607.00	91.120	91.720	7428.92	3817.51	-399.42	3796.65	1.63
11701.00	88.820	92.510	7428.97	3911.33	-402.89	3890.58	2.59
11796.00	89.880	92.110	7430.04	4006.16	-406.72	3985.49	1.19
11890.00	90.010	93.350	7430.13	4100.04	-411.20	4079.38	1.33
11984.00	91.380	92.730	7428.99	4193.94	-416.18	4173.24	1.60
12096.00	91.380	92.730	7426.30	4305.76	-421.51	4285.08	0.00



Actual Wellpath Report

LEONARD 6N AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 LEONARD 6N (1824'FSL & 494'FWL, SEC.21)
Area	COLORADO	Well	LEONARD 6N
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	LEONARD 6N AWB
Facility	SEC.21-T02N-R67W		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.21-T02N-R67W BOTTOM HALF	3.00	111.84	-1.68	3166872.30	1287776.78	40°07'18.476"N	104°54'11.822"W	polygon
SEC.21-T02N-R67W TOP HALF	3.00	111.84	-1.68	3166872.30	1287776.78	40°07'18.476"N	104°54'11.822"W	polygon
LEONARD 6N BHL (1410'FSL & 460'FEL, SEC.21)	6405.00	-410.18	4322.61	3171199.82	1287283.90	40°07'13.314"N	104°53'16.159"W	point
LEONARD 6N LP (1410'FSL & 460'FWL, SEC.21)	6405.00	-414.20	-29.38	3166848.14	1287250.59	40°07'13.278"N	104°54'12.179"W	point
LEONARD 6N TARGET 1	6405.00	-386.52	711.27	3167588.56	1287283.26	40°07'13.551"N	104°54'02.645"W	point
LEONARD 6N TARGET 2	6405.00	-377.30	3111.27	3169988.34	1287308.62	40°07'13.641"N	104°53'31.752"W	point
SEC.21-T02N-R67W 460'FEL/FWL SETBACK	7463.00	111.84	-1.68	3166872.30	1287776.78	40°07'18.476"N	104°54'11.822"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: LEONARD 6N AWB Ref Wellpath: LEONARD 6N AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	1594.50	ISCWSA MWD, Rev. 4 (Standard)	TOTAL SURFACE SURVEYS <119.50-1594.5>	LEONARD 6N AWB
1594.50	11984.00	ISCWSA MWD, Rev. 4 (Standard)	Baker Drilled Using Third Party MWD <1654-11984>	LEONARD 6N AWB
11984.00	12096.00	Blind Drilling (std)	Projection to bit	LEONARD 6N AWB