

EXTRACTION OIL & GAS

Location: COLORADO Slot: SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19)
Field: WELD COUNTY (NAD83/TRUE NORTH) Well: WAAG 21
Facility: SEC.19-T07N-R65W Wellbore: WAAG 21 PWB

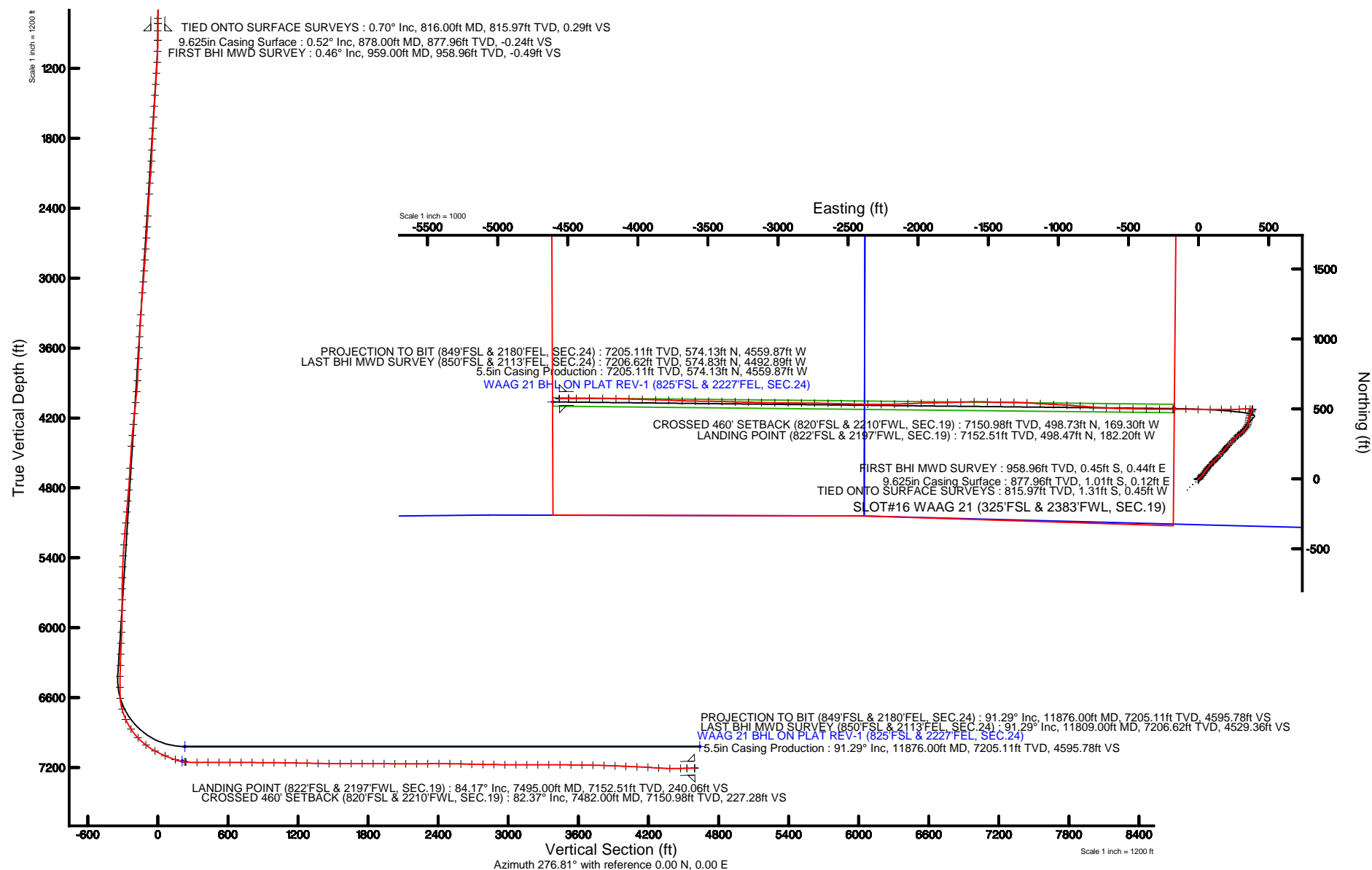
Plot reference wellpath is WAAG 21 PWP (REV-A.0)

True vertical depths are referenced to SAVANNA 802 (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to SAVANNA 802 (RKB)	North Reference: True north
SAVANNA 802 (RKB) to Mean Sea Level: 4888 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: ingramjr on 9/30/2015



BGGM (1945.0 to 2017.0) Dip: 67.09° Field: 52677.7 nT
Magnetic North is 8.52 degrees East of True North (at 9/21/2015)

To correct azimuth from Magnetic to True add 8.52 degrees





Actual Wellpath Report

WAAG 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19)
Area	COLORADO	Well	WAAG 21
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	WAAG 21 AWB
Facility	SEC.19-T07N-R65W		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.1.1
North Reference	True	User	Ingmjmr
Scale	0.999971	Report Generated	9/30/2015 at 11:42:17 AM
Convergence at slot	0.51° East	Database/Source file	WA_DEN_Denver_Defn/WAAG_21_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-2663.19	-91.70	3220272.27	1445782.49	40°33'15.732"N	104°42'26.244"W
Facility Reference Pt			3220340.15	1448446.32	40°33'42.048"N	104°42'25.056"W
Field Reference Pt			3185481.27	1419166.81	40°28'55.560"N	104°49'59.556"W

WELLPATH DATUM

Calculation method	Minimum curvature	SAVANNA 802 (RKB) to Facility Vertical Datum	4888.00ft
Horizontal Reference Pt	Slot	SAVANNA 802 (RKB) to Mean Sea Level	4888.00ft
Vertical Reference Pt	SAVANNA 802 (RKB)	SAVANNA 802 (RKB) to Mud Line at Slot (SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19))	4888.00ft
MD Reference Pt	SAVANNA 802 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	277.18°



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Facility	SEC.19-T07N-R65W		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
816.00	0.700	70.500	815.97	0.28	-1.31	-0.45	0.65	TIED ONTO SURFACE SURVEYS
959.00	0.460	6.520	958.96	-0.49	-0.45	0.44	0.45	FIRST BHI MWD SURVEY
1053.00	2.580	47.240	1052.92	-1.85	1.36	2.04	2.40	
1148.00	5.530	47.530	1147.67	-6.19	5.90	6.98	3.11	
1243.00	5.420	50.160	1242.24	-12.21	11.87	13.81	0.29	
1338.00	5.190	46.670	1336.83	-18.01	17.69	20.38	0.42	
1433.00	7.410	36.510	1431.26	-23.74	25.57	27.15	2.61	
1528.00	7.060	36.770	1525.50	-29.63	35.17	34.29	0.37	
1622.00	6.660	37.200	1618.83	-35.21	44.14	41.04	0.43	
1717.00	6.360	37.020	1713.21	-40.58	52.72	47.54	0.32	
1811.00	5.970	35.600	1806.67	-45.50	60.86	53.52	0.45	
1906.00	5.690	33.930	1901.18	-49.97	68.78	59.02	0.34	
2001.00	5.290	34.290	1995.74	-54.09	76.31	64.12	0.42	
2095.00	7.640	43.040	2089.14	-59.72	84.46	70.83	2.70	
2191.00	7.000	44.190	2184.36	-66.98	93.31	79.26	0.68	
2285.00	6.600	41.570	2277.70	-73.48	101.46	86.84	0.54	
2475.00	5.620	42.620	2466.62	-85.05	116.48	100.38	0.52	
2570.00	5.010	45.520	2561.21	-90.32	122.81	106.49	0.70	
2665.00	6.860	45.520	2655.69	-96.41	129.69	113.50	1.95	
2760.00	6.510	46.690	2750.05	-103.36	137.36	121.47	0.40	
2855.00	6.020	46.020	2844.48	-109.91	144.51	128.97	0.52	
2950.00	5.830	47.460	2938.97	-116.15	151.23	136.11	0.25	
3044.00	8.790	39.130	3032.20	-123.04	160.04	144.16	3.34	
3139.00	8.170	40.090	3126.16	-130.55	170.83	153.09	0.67	
3329.00	6.830	41.430	3314.53	-144.25	189.63	169.26	0.71	
3423.00	5.910	40.410	3407.95	-150.04	197.51	176.10	0.99	
3518.00	4.590	41.120	3502.55	-154.85	204.09	181.77	1.39	
3612.00	3.260	38.910	3596.33	-158.35	209.01	185.92	1.42	
3707.00	6.610	40.520	3690.96	-162.78	215.27	191.17	3.53	
3802.00	5.240	39.670	3785.45	-168.12	222.76	197.49	1.45	
3898.00	4.850	37.960	3881.08	-172.55	229.34	202.79	0.44	
3993.00	9.140	45.120	3975.35	-179.25	237.83	210.61	4.60	
4087.00	9.870	43.530	4068.06	-188.61	248.94	221.45	0.83	
4183.00	10.160	42.140	4162.60	-198.34	261.18	232.80	0.39	
4277.00	9.690	42.860	4255.19	-207.71	273.13	243.74	0.52	
4372.00	7.850	43.900	4349.08	-216.25	283.67	253.68	1.94	
4467.00	7.070	43.230	4443.27	-223.57	292.60	262.18	0.83	
4656.00	5.300	46.510	4631.17	-235.95	307.09	276.48	0.95	
4751.00	4.910	45.600	4725.79	-241.26	312.95	282.57	0.42	
4845.00	6.860	57.650	4819.29	-248.09	318.77	290.19	2.44	
4940.00	5.250	63.000	4913.76	-256.06	323.78	298.85	1.79	
5035.00	6.900	50.370	5008.23	-263.57	329.39	307.12	2.23	
5129.00	10.160	38.870	5101.18	-271.79	339.45	316.68	3.90	
5225.00	9.820	37.520	5195.73	-280.37	352.54	326.98	0.43	
5320.00	7.350	38.970	5289.65	-287.67	363.69	335.73	2.61	



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19)
Area	COLORADO	Well	WAAG 21
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	WAAG 21 AWB
Facility	SEC.19-T07N-R65W		

WELLPATH DATA (116 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5415.00	5.300	40.260	5384.07	-293.27	371.76	342.39	2.16	
5509.00	7.790	24.840	5477.46	-297.57	380.86	347.87	3.22	
5604.00	5.410	23.490	5571.82	-300.78	390.81	352.36	2.51	
5698.00	8.220	12.600	5665.15	-302.66	401.43	355.60	3.28	
5793.00	9.270	3.620	5759.05	-302.83	415.70	357.56	1.81	
5887.00	6.660	9.630	5852.14	-302.59	428.63	358.95	2.91	
5982.00	8.690	17.380	5946.28	-304.10	440.91	362.02	2.39	
6077.00	6.930	17.600	6040.40	-306.41	453.23	365.89	1.85	
6172.00	9.220	25.600	6134.45	-309.85	465.56	370.92	2.68	
6267.00	7.550	25.690	6228.44	-314.24	478.04	376.91	1.76	
6362.00	5.310	23.010	6322.83	-317.42	487.72	381.34	2.38	
6457.00	4.180	26.660	6417.50	-319.78	494.86	384.61	1.23	
6551.00	0.530	57.380	6511.41	-321.25	498.15	386.51	3.97	
6645.00	3.540	268.980	6605.36	-318.71	498.34	383.97	4.26	
6740.00	15.540	275.890	6698.87	-303.03	499.59	368.33	12.67	
6834.00	23.890	269.370	6787.30	-271.52	500.68	336.71	9.17	
6929.00	33.900	265.610	6870.37	-226.39	498.43	290.94	10.70	
7024.00	43.840	270.490	6944.26	-167.60	496.68	231.46	10.94	
7117.00	51.480	269.920	7006.85	-99.42	496.91	162.77	8.23	
7212.00	63.030	269.370	7058.15	-20.34	496.39	83.00	12.17	
7307.00	66.590	271.250	7098.58	64.99	496.87	-2.94	4.15	
7401.00	71.150	271.110	7132.46	152.17	498.68	-90.58	4.85	
7482.00†	82.368	269.012	7150.98	230.27	498.73	-169.30	14.08	CROSSED 460' SETBACK (820'FSL & 2210'FWL, SEC.19)
7495.00	84.170	268.690	7152.51	243.05	498.47	-182.20	14.08	LANDING POINT (822'FSL & 2197'FWL, SEC.19)
7591.00	91.510	270.760	7156.12	338.10	498.01	-278.06	7.94	
7686.00	89.540	270.730	7155.25	432.49	499.25	-373.05	2.07	
7780.00	90.000	271.640	7155.63	525.98	501.19	-467.02	1.08	
7875.00	89.600	271.300	7155.96	620.50	503.63	-561.99	0.55	
7970.00	89.630	273.180	7156.60	715.15	507.34	-656.91	1.98	
8064.00	89.780	274.790	7157.08	809.00	513.87	-750.68	1.72	
8158.00	89.450	273.740	7157.72	902.87	520.87	-844.42	1.17	
8253.00	89.450	273.580	7158.63	997.69	526.93	-939.22	0.17	
8348.00	89.170	272.800	7159.77	1092.45	532.22	-1034.06	0.87	
8442.00	89.140	273.740	7161.16	1186.22	537.58	-1127.90	1.00	
8537.00	89.110	273.790	7162.61	1281.04	543.81	-1222.68	0.06	
8631.00	88.770	270.460	7164.35	1374.65	547.30	-1316.59	3.56	
8726.00	89.230	270.790	7166.01	1469.01	548.33	-1411.57	0.60	
8821.00	90.030	271.980	7166.62	1563.52	550.63	-1506.54	1.51	
8916.00	90.250	269.280	7166.39	1657.89	551.68	-1601.52	2.85	
9011.00	89.660	267.640	7166.46	1751.79	549.12	-1696.48	1.83	
9105.00	89.880	268.640	7166.84	1844.62	546.07	-1790.43	1.09	
9200.00	89.940	269.170	7166.99	1938.64	544.26	-1885.42	0.56	
9294.00	89.350	267.520	7167.57	2031.52	541.54	-1979.37	1.86	
9389.00	89.690	267.930	7168.37	2125.22	537.77	-2074.29	0.56	
9484.00	90.000	268.170	7168.62	2219.02	534.54	-2169.24	0.41	



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WAAG 21 AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#16 WAAG 21 (325'FSL & 2383'FWL, SEC.19)
Area	COLORADO	Well	WAAG 21
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	WAAG 21 AWB
Facility	SEC.19-T07N-R65W		

WELLPATH DATA (116 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
9579.00	91.540	269.930	7167.35	2313.05	532.96	-2264.21	2.46	
9674.00	89.600	271.060	7166.40	2407.39	533.78	-2359.19	2.36	
9769.00	89.260	271.140	7167.35	2501.86	535.61	-2454.17	0.37	
9863.00	88.550	271.390	7169.14	2595.34	537.68	-2548.13	0.80	
9958.00	88.590	271.440	7171.51	2689.83	540.03	-2643.07	0.07	
10054.00	89.290	270.520	7173.29	2785.25	541.67	-2739.04	1.20	
10148.00	89.110	270.540	7174.60	2878.61	542.54	-2833.03	0.19	
10242.00	89.290	270.470	7175.91	2971.96	543.37	-2927.01	0.21	
10337.00	89.750	270.930	7176.71	3066.35	544.53	-3022.00	0.68	
10432.00	90.770	271.230	7176.28	3160.81	546.32	-3116.98	1.12	
10526.00	89.540	271.250	7176.03	3254.31	548.35	-3210.96	1.31	
10621.00	90.190	271.770	7176.25	3348.84	550.86	-3305.93	0.88	
10716.00	89.600	271.180	7176.42	3443.37	553.30	-3400.89	0.88	
10810.00	89.450	271.000	7177.20	3536.84	555.09	-3494.87	0.25	
10905.00	89.450	270.410	7178.11	3631.23	556.26	-3589.86	0.62	
10999.00	88.860	272.850	7179.50	3724.77	558.93	-3683.81	2.67	
11095.00	87.820	271.910	7182.28	3820.39	562.92	-3779.68	1.46	
11189.00	87.780	271.630	7185.89	3913.91	565.82	-3873.57	0.30	
11283.00	87.630	271.740	7189.65	4007.40	568.58	-3967.45	0.20	
11378.00	87.280	271.470	7193.87	4101.86	571.24	-4062.32	0.47	
11472.00	86.800	271.450	7198.73	4195.26	573.63	-4156.16	0.51	
11566.00	86.370	270.890	7204.33	4288.58	575.54	-4249.98	0.75	
11661.00	89.750	269.730	7207.54	4382.83	576.06	-4344.90	3.76	
11755.00	90.400	269.440	7207.42	4476.01	575.38	-4438.90	0.76	
11809.00	91.290	269.400	7206.62	4529.51	574.83	-4492.89	1.65	LAST BHI MWD SURVEY (850'FSL & 2113'FEL, SEC.24)
11876.00	91.290	269.400	7205.11	4595.87	574.13	-4559.87	0.00	PROJECTION TO BIT (849'FSL & 2180'FEL, SEC.24)

HOLE & CASING SECTIONS - Ref Wellbore: WAAG 21 AWB Ref Wellpath: WAAG 21 AWP

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing Surface	20.00	878.00	858.00	20.00	877.96	-0.01	-0.01	-1.01	0.12
7.875in Open Hole	878.00	11876.00	10998.00	877.96	7205.11	-1.01	0.12	574.13	-4559.87
5.5in Casing Production	20.00	11876.00	11856.00	20.00	7205.11	-0.01	-0.01	574.13	-4559.87



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Facility	SEC.19-T07N-R65W		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.19-T7N-R65W	-23.00	2521.11	91.69	3220341.42	1448304.24	40°33'40.644"N	104°42'25.056"W	polygon
SEC.24-T7N-R66W	-23.00	2521.11	91.69	3220341.42	1448304.24	40°33'40.644"N	104°42'25.056"W	polygon
WAAG 21 BHL ON PLAT REV-1 (825'FSL & 2227'FEL, SEC.24)	7020.00	550.56	-4607.23	3215660.45	1446291.82	40°33'21.168"N	104°43'25.932"W	point
WAAG 21 DRILLING CORRIDOR (60')	7020.00	0.00	0.00	3220272.27	1445782.49	40°33'15.732"N	104°42'26.244"W	polygon
WAAG 21 LANDING POINT	7020.00	502.76	-172.29	3220095.51	1446283.68	40°33'20.700"N	104°42'28.476"W	point
WAAG PAD (460' SETBACK)	7145.00	2521.11	91.69	3220341.42	1448304.24	40°33'40.644"N	104°42'25.056"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: WAAG 21 AWB					Ref Wellpath: WAAG 21 AWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore
0.00	816.00	ISCWSA MWD, Rev. 3 (Standard)		NEWSO SURVEYS <141-816>		WAAG 21 AWB
816.00	11809.00	NaviTrak (Standard)		BHI MWD/NAVITRAK (STD) 7.875" HOLE <959-11809>		WAAG 21 AWB
11809.00	11876.00	Blind Drilling (std)		Projection to bit		WAAG 21 AWB



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WELLPATH COMMENTS

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7482.00	82.368	269.012	7150.98	CROSSED 460' SETBACK (820'FSL & 2210'FWL, SEC.19)
7495.00	84.170	268.690	7152.51	LANDING POINT (822'FSL & 2197'FWL, SEC.19)
11809.00	91.290	269.400	7206.62	LAST BHI MWD SURVEY (850'FSL & 2113'FEL, SEC.24)
11876.00	91.290	269.400	7205.11	PROJECTION TO BIT (849'FSL & 2180'FEL, SEC.24)