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Actual Wellpath Report

No. 1H AWP

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BAKER
HUGHES

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 1H_SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Andromeda) Sec 14, T15S, R31E	Wellbore	No. 1H_AWB
Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999941	Report Generated	1/18/2010 at 3:59:36 PM
Convergence at slot	0.30° East	Database/Source file	WA_Midland/No. 1H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	709469.50	735769.10	33°01'17.120"N	103°47'05.231"W
Facility Reference Pt			709469.50	735769.10	33°01'17.120"N	103°47'05.231"W
Field Reference Pt			709469.50	735769.10	33°01'17.120"N	103°47'05.231"W

WELLPATH DATUM

Calculation method	Minimum curvature	Permian 6 Rig on #1H_SHL (RT) to GL	25.00ft
Horizontal Reference Pt	Surface Location	Permian 6 Rig on #1H_SHL (RT) to GE	4400.00ft
Vertical Reference Pt	Permian 6 Rig on #1H_SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Permian 6 Rig on #1H_SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	GE	Section Azimuth	269.38°

SUR: A-14-15s-31e, 660/N & 330/E
 BHL: D-14-15s-31e, 708/N & 4956/E
 API # 30-005-27975



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Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

WELLPATH DATA (166 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
0.00	0.000	60.510	0.00	0.00	0.00	0.00	709469.50	735769.10	33°01'17.120"N	103°47'05.231"W	0.00
100.00	0.100	60.510	100.00	-0.08	0.04	0.08	709469.58	735769.14	33°01'17.121"N	103°47'05.230"W	0.10
200.00	0.190	84.880	200.00	-0.32	0.10	0.32	709469.82	735769.20	33°01'17.121"N	103°47'05.228"W	0.11
300.00	0.230	53.310	300.00	-0.65	0.24	0.64	709470.14	735769.34	33°01'17.123"N	103°47'05.224"W	0.12
400.00	0.120	94.650	400.00	-0.91	0.35	0.91	709470.41	735769.45	33°01'17.124"N	103°47'05.221"W	0.16
500.00	0.250	109.380	500.00	-1.22	0.27	1.22	709470.72	735769.37	33°01'17.123"N	103°47'05.217"W	0.14
600.00	0.310	111.910	600.00	-1.68	0.09	1.68	709471.18	735769.19	33°01'17.121"N	103°47'05.212"W	0.06
700.00	0.210	75.310	700.00	-2.10	0.04	2.10	709471.60	735769.14	33°01'17.121"N	103°47'05.207"W	0.19
800.00	0.270	105.620	799.99	-2.51	0.02	2.51	709472.01	735769.12	33°01'17.121"N	103°47'05.202"W	0.14
900.00	0.260	75.650	899.99	-2.95	0.01	2.95	709472.45	735769.11	33°01'17.120"N	103°47'05.197"W	0.14
1000.00	0.120	177.580	999.99	-3.18	-0.03	3.18	709472.68	735769.07	33°01'17.120"N	103°47'05.194"W	0.31
1100.00	0.210	111.330	1099.99	-3.35	-0.21	3.35	709472.85	735768.89	33°01'17.118"N	103°47'05.192"W	0.20
1200.00	0.030	205.360	1199.99	-3.51	-0.30	3.51	709473.01	735768.80	33°01'17.117"N	103°47'05.190"W	0.21
1300.00	0.140	133.080	1299.99	-3.59	-0.40	3.59	709473.09	735768.70	33°01'17.116"N	103°47'05.189"W	0.13
1400.00	0.270	348.070	1399.99	-3.63	-0.26	3.63	709473.13	735768.84	33°01'17.118"N	103°47'05.189"W	0.39
1500.00	0.190	314.460	1499.99	-3.47	0.09	3.46	709472.96	735769.19	33°01'17.121"N	103°47'05.191"W	0.15
1600.00	0.380	342.160	1599.99	-3.25	0.52	3.25	709472.74	735769.62	33°01'17.125"N	103°47'05.193"W	0.23
1700.00	0.170	329.660	1699.99	-3.08	0.97	3.07	709472.57	735770.07	33°01'17.130"N	103°47'05.195"W	0.22
1800.00	0.360	332.480	1799.99	-2.86	1.37	2.85	709472.35	735770.47	33°01'17.134"N	103°47'05.198"W	0.19
1900.00	0.140	329.300	1899.99	-2.66	1.76	2.64	709472.14	735770.86	33°01'17.138"N	103°47'05.200"W	0.22
2000.00	0.260	349.960	1999.99	-2.56	2.08	2.54	709472.04	735771.18	33°01'17.141"N	103°47'05.201"W	0.14
2100.00	0.680	61.920	2099.98	-3.05	2.59	3.02	709472.52	735771.69	33°01'17.146"N	103°47'05.196"W	0.65
2200.00	0.960	58.480	2199.97	-4.30	3.30	4.26	709473.76	735772.40	33°01'17.153"N	103°47'05.181"W	0.28
2300.00	0.650	46.070	2299.96	-5.43	4.14	5.38	709474.88	735773.24	33°01'17.161"N	103°47'05.168"W	0.35
2400.00	0.640	48.530	2399.96	-6.26	4.90	6.21	709475.71	735774.00	33°01'17.169"N	103°47'05.158"W	0.03
2500.00	0.720	73.850	2499.95	-7.29	5.44	7.23	709476.73	735774.54	33°01'17.174"N	103°47'05.146"W	0.31
2600.00	0.640	61.400	2599.94	-8.39	5.89	8.33	709477.83	735774.99	33°01'17.178"N	103°47'05.133"W	0.17
2700.00	0.610	72.200	2699.94	-9.39	6.32	9.32	709478.82	735775.42	33°01'17.183"N	103°47'05.121"W	0.12
2800.00	0.730	77.870	2799.93	-10.52	6.61	10.45	709479.95	735775.71	33°01'17.185"N	103°47'05.108"W	0.14
2900.00	0.830	69.410	2899.92	-11.83	7.00	11.75	709481.25	735776.10	33°01'17.189"N	103°47'05.093"W	0.15



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Field	(Andromeda) Sec 14, T15S, R31E	Wellbore	No. 1H AWB
Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

WELLPATH DATA (166 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
3000.00	0.680	63.360	2999.91	-13.04	7.52	12.96	709482.46	735776.62	33°01'17.194"N	103°47'05.079"W	0.17
3100.00	0.520	72.540	3099.91	-14.01	7.92	13.93	709483.42	735777.02	33°01'17.198"N	103°47'05.067"W	0.19
3200.00	0.340	89.900	3199.90	-14.74	8.06	14.66	709484.15	735777.16	33°01'17.199"N	103°47'05.059"W	0.22
3300.00	0.300	78.640	3299.90	-15.29	8.11	15.21	709484.71	735777.21	33°01'17.200"N	103°47'05.052"W	0.07
3400.00	0.310	58.730	3399.90	-15.78	8.31	15.70	709485.20	735777.40	33°01'17.202"N	103°47'05.046"W	0.11
3500.00	0.580	51.040	3499.90	-16.41	8.76	16.32	709485.82	735777.86	33°01'17.206"N	103°47'05.039"W	0.28
3600.00	0.750	65.650	3599.89	-17.41	9.35	17.31	709486.81	735778.45	33°01'17.212"N	103°47'05.027"W	0.24
3700.00	0.850	74.860	3699.88	-18.73	9.82	18.62	709488.12	735778.92	33°01'17.217"N	103°47'05.012"W	0.16
3800.00	0.770	83.460	3799.87	-20.11	10.09	20.01	709489.51	735779.19	33°01'17.219"N	103°47'04.996"W	0.15
3900.00	0.880	91.900	3899.86	-21.55	10.14	21.44	709490.94	735779.24	33°01'17.220"N	103°47'04.979"W	0.16
4000.00	0.710	97.470	3999.85	-22.93	10.03	22.82	709492.32	735779.13	33°01'17.219"N	103°47'04.963"W	0.19
4100.00	0.560	92.370	4099.85	-24.03	9.93	23.93	709493.42	735779.03	33°01'17.218"N	103°47'04.950"W	0.16
4200.00	0.450	106.930	4199.84	-24.89	9.80	24.79	709494.29	735778.90	33°01'17.216"N	103°47'04.940"W	0.17
4300.00	0.480	107.060	4299.84	-25.67	9.56	25.57	709495.06	735778.66	33°01'17.214"N	103°47'04.930"W	0.03
4400.00	0.360	105.800	4399.84	-26.37	9.35	26.27	709495.77	735778.45	33°01'17.212"N	103°47'04.922"W	0.12
4500.00	0.270	104.270	4499.83	-26.90	9.21	26.80	709496.30	735778.31	33°01'17.210"N	103°47'04.916"W	0.09
4600.00	0.140	74.560	4599.83	-27.24	9.18	27.15	709496.64	735778.28	33°01'17.210"N	103°47'04.912"W	0.16
4700.00	0.160	68.570	4699.83	-27.49	9.26	27.39	709496.89	735778.36	33°01'17.211"N	103°47'04.909"W	0.03
4800.00	0.150	65.730	4799.83	-27.74	9.37	27.64	709497.14	735778.47	33°01'17.212"N	103°47'04.906"W	0.01
4900.00	0.260	52.470	4899.83	-28.04	9.56	27.94	709497.44	735778.66	33°01'17.214"N	103°47'04.903"W	0.12
5000.00	0.200	82.270	4999.83	-28.40	9.72	28.29	709497.79	735778.82	33°01'17.215"N	103°47'04.898"W	0.13
5100.00	0.290	177.000	5099.83	-28.58	9.49	28.48	709497.98	735778.59	33°01'17.213"N	103°47'04.896"W	0.37
5200.00	0.270	154.220	5199.83	-28.69	9.03	28.60	709498.10	735778.13	33°01'17.208"N	103°47'04.895"W	0.11
5300.00	0.370	155.470	5299.83	-28.92	8.52	28.83	709498.33	735777.62	33°01'17.203"N	103°47'04.892"W	0.10
5400.00	0.400	191.750	5399.83	-28.98	7.89	28.90	709498.39	735776.99	33°01'17.197"N	103°47'04.891"W	0.24
5500.00	0.260	206.880	5499.82	-28.80	7.34	28.72	709498.22	735776.44	33°01'17.192"N	103°47'04.894"W	0.16
5600.00	0.330	212.160	5599.82	-28.54	6.90	28.47	709497.97	735776.00	33°01'17.187"N	103°47'04.897"W	0.08
5700.00	0.390	235.820	5699.82	-28.10	6.46	28.03	709497.53	735775.56	33°01'17.183"N	103°47'04.902"W	0.16
5800.00	0.310	254.010	5799.82	-27.56	6.20	27.49	709496.99	735775.30	33°01'17.180"N	103°47'04.908"W	0.14
5900.00	0.280	255.090	5899.82	-27.06	6.06	26.99	709496.49	735775.16	33°01'17.179"N	103°47'04.914"W	0.03



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Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

WELLPATH DATA (166 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
6000.00	0.270	258.380	5999.82	-26.59	5.95	26.53	709496.03	735775.05	33°01'17.178"N	103°47'04.919"W	0.02
6100.00	0.400	255.070	6099.82	-26.02	5.81	25.96	709495.46	735774.91	33°01'17.177"N	103°47'04.926"W	0.13
6200.00	0.530	265.700	6199.81	-25.22	5.69	25.16	709494.66	735774.79	33°01'17.175"N	103°47'04.935"W	0.16
6300.00	0.570	255.280	6299.81	-24.28	5.53	24.22	709493.72	735774.63	33°01'17.174"N	103°47'04.947"W	0.11
6400.00	0.630	270.210	6399.80	-23.24	5.40	23.19	709492.69	735774.50	33°01'17.173"N	103°47'04.959"W	0.17
6500.00	0.520	277.330	6499.80	-22.25	5.46	22.19	709491.69	735774.56	33°01'17.173"N	103°47'04.970"W	0.13
6600.00	0.540	282.230	6599.79	-21.34	5.62	21.28	709490.78	735774.72	33°01'17.175"N	103°47'04.981"W	0.05
6700.00	0.540	277.110	6699.79	-20.41	5.78	20.35	709489.85	735774.88	33°01'17.177"N	103°47'04.992"W	0.05
6800.00	0.650	280.600	6799.78	-19.39	5.94	19.32	709488.82	735775.04	33°01'17.178"N	103°47'05.004"W	0.12
6900.00	0.620	281.760	6899.78	-18.30	6.15	18.24	709487.74	735775.25	33°01'17.180"N	103°47'05.017"W	0.03
7000.00	0.630	293.510	6999.77	-17.27	6.48	17.20	709486.70	735775.58	33°01'17.184"N	103°47'05.029"W	0.13
7100.00	0.660	287.780	7099.76	-16.22	6.88	16.15	709485.65	735775.98	33°01'17.188"N	103°47'05.041"W	0.07
7200.00	0.750	299.560	7199.76	-15.11	7.38	15.03	709484.53	735776.48	33°01'17.193"N	103°47'05.054"W	0.17
7300.00	0.500	317.710	7299.75	-14.26	8.02	14.17	709483.67	735777.12	33°01'17.199"N	103°47'05.064"W	0.32
7400.00	0.580	315.820	7399.75	-13.62	8.71	13.52	709483.02	735777.81	33°01'17.206"N	103°47'05.072"W	0.08
7500.00	0.310	350.320	7499.74	-13.22	9.34	13.12	709482.62	735778.44	33°01'17.212"N	103°47'05.077"W	0.37
7600.00	0.300	8.550	7599.74	-13.22	9.86	13.12	709482.62	735778.96	33°01'17.217"N	103°47'05.077"W	0.10
7700.00	0.390	13.970	7699.74	-13.35	10.45	13.24	709482.74	735779.55	33°01'17.223"N	103°47'05.075"W	0.10
7800.00	0.570	35.670	7799.74	-13.73	11.19	13.61	709483.11	735780.29	33°01'17.230"N	103°47'05.071"W	0.25
7900.00	0.790	34.170	7899.73	-14.42	12.16	14.29	709483.79	735781.26	33°01'17.240"N	103°47'05.063"W	0.22
8000.00	0.720	34.710	7999.72	-15.18	13.25	15.03	709484.53	735782.35	33°01'17.251"N	103°47'05.054"W	0.07
8100.00	0.830	42.340	8099.71	-16.03	14.30	15.88	709485.38	735783.40	33°01'17.261"N	103°47'05.044"W	0.15
8200.00	1.430	48.940	8199.69	-17.48	15.66	17.31	709486.81	735784.76	33°01'17.275"N	103°47'05.027"W	0.61
8300.00	2.350	62.180	8299.64	-20.25	17.43	20.06	709489.56	735786.53	33°01'17.292"N	103°47'04.995"W	1.01
8357.00	2.500	61.500	8356.59	-22.39	18.57	22.19	709491.69	735787.67	33°01'17.303"N	103°47'04.970"W	0.27
8389.00	1.100	308.200	8388.58	-22.76	19.09	22.56	709492.06	735788.19	33°01'17.308"N	103°47'04.965"W	9.70
8421.00	6.100	275.700	8420.50	-20.83	19.45	20.63	709490.12	735788.55	33°01'17.312"N	103°47'04.988"W	16.27
8453.00	11.000	268.800	8452.14	-16.09	19.56	15.88	709485.38	735788.66	33°01'17.313"N	103°47'05.044"W	15.62
8485.00	15.000	267.500	8483.31	-8.89	19.31	8.69	709478.19	735788.41	33°01'17.311"N	103°47'05.128"W	12.53
8517.00	19.600	269.600	8513.86	0.62	19.10	-0.82	709468.68	735788.19	33°01'17.309"N	103°47'05.240"W	14.50



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Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

WELLPATH DATA (166 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
8549.00	23.800	271.600	8543.58	12.44	19.24	-12.65	709456.85	735788.34	33°01'17.311"N	103°47'05.379"W	13.33
8581.00	27.200	272.100	8572.46	26.20	19.69	-26.42	709443.08	735788.79	33°01'17.317"N	103°47'05.540"W	10.65
8613.00	31.000	271.400	8600.42	41.75	20.16	-41.97	709427.53	735789.26	33°01'17.322"N	103°47'05.723"W	11.92
8645.00	35.400	270.400	8627.19	59.26	20.42	-59.48	709410.02	735789.52	33°01'17.326"N	103°47'05.929"W	13.86
8677.00	39.400	271.200	8652.60	78.69	20.70	-78.91	709390.59	735789.80	33°01'17.329"N	103°47'06.157"W	12.59
8709.00	43.000	271.700	8676.68	99.75	21.24	-99.98	709369.52	735790.34	33°01'17.336"N	103°47'06.404"W	11.30
8740.00	46.700	270.200	8698.65	121.60	21.59	-121.84	709347.67	735790.69	33°01'17.340"N	103°47'06.661"W	12.41
8772.00	50.000	269.600	8719.92	145.50	21.54	-145.74	709323.76	735790.64	33°01'17.341"N	103°47'06.942"W	10.41
8804.00	52.900	268.700	8739.86	170.53	21.17	-170.76	709298.75	735790.27	33°01'17.339"N	103°47'07.236"W	9.33
8835.00	56.000	268.200	8757.88	195.74	20.49	-195.97	709273.54	735789.58	33°01'17.333"N	103°47'07.532"W	10.09
8867.00	59.600	268.200	8774.93	222.81	19.63	-223.03	709246.48	735788.73	33°01'17.326"N	103°47'07.849"W	11.25
8899.00	63.600	268.400	8790.14	250.95	18.80	-251.16	709218.35	735787.90	33°01'17.319"N	103°47'08.180"W	12.51
8931.00	65.900	268.100	8803.79	279.88	17.92	-280.09	709189.43	735787.02	33°01'17.312"N	103°47'08.520"W	7.24
8963.00	68.400	266.700	8816.22	309.35	16.58	-309.55	709159.97	735785.67	33°01'17.300"N	103°47'08.866"W	8.79
8994.00	71.800	265.600	8826.77	338.45	14.62	-338.62	709130.90	735783.71	33°01'17.283"N	103°47'09.207"W	11.46
9026.00	74.600	265.800	8836.02	369.02	12.32	-369.17	709100.35	735781.42	33°01'17.261"N	103°47'09.566"W	8.77
9058.00	77.200	267.500	8843.81	400.01	10.51	-400.15	709069.38	735779.61	33°01'17.245"N	103°47'09.930"W	9.62
9089.00	79.300	269.900	8850.13	430.36	9.82	-430.49	709039.04	735778.92	33°01'17.240"N	103°47'10.286"W	10.17
9121.00	81.600	270.700	8855.44	461.91	9.99	-462.04	709007.49	735779.09	33°01'17.243"N	103°47'10.657"W	7.60
9153.00	84.600	270.900	8859.28	493.66	10.43	-493.80	708975.73	735779.53	33°01'17.249"N	103°47'11.030"W	9.40
9185.00	88.400	270.600	8861.23	525.59	10.85	-525.73	708943.80	735779.95	33°01'17.255"N	103°47'11.405"W	11.91
9217.00	89.300	270.700	8861.87	557.57	11.21	-557.73	708911.81	735780.31	33°01'17.260"N	103°47'11.781"W	2.83
9253.00	89.300	266.700	8862.31	593.56	10.40	-593.71	708875.83	735779.50	33°01'17.254"N	103°47'12.203"W	11.11
9349.00	88.900	267.100	8863.82	689.46	5.21	-689.55	708779.99	735774.31	33°01'17.208"N	103°47'13.329"W	0.59
9444.00	88.600	268.000	8865.89	784.39	15.15	-784.44	708685.10	735770.25	33°01'17.172"N	103°47'14.444"W	1.00
9540.00	89.900	268.500	8867.15	880.36	-1.79	-880.39	708589.17	735767.31	33°01'17.148"N	103°47'15.571"W	1.45
9636.00	89.800	269.700	8867.40	976.35	-3.29	-976.37	708493.19	735765.81	33°01'17.138"N	103°47'16.698"W	1.25
9732.00	90.200	269.500	8867.40	1072.35	-3.96	-1072.37	708397.19	735765.14	33°01'17.136"N	103°47'17.826"W	0.47
9827.00	91.900	269.700	8865.66	1167.33	-4.63	-1167.35	708302.22	735764.47	33°01'17.135"N	103°47'18.941"W	1.80
9923.00	91.800	271.100	8862.56	1263.26	-3.96	-1263.29	708206.28	735765.14	33°01'17.146"N	103°47'20.068"W	1.46



Actual Wellpath Report

No. 1H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 1H_SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Andromeda) Sec 14, T15S, R31E	Wellbore	No. 1H AWB
Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

WELLPATH DATA (166 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
10019.00	91.100	271.400	8860.13	1359.18	-1.86	-1359.24	708110.34	735767.24	33°01'17.172"N	103°47'21.195"W	0.79
10115.00	90.400	271.200	8858.88	1455.12	0.31	-1455.21	708014.38	735769.41	33°01'17.198"N	103°47'22.322"W	0.76
10211.00	91.300	269.600	8857.45	1551.09	0.98	-1551.19	707918.40	735770.08	33°01'17.210"N	103°47'23.449"W	1.91
10306.00	91.200	269.300	8855.38	1646.07	0.07	-1646.16	707823.44	735769.17	33°01'17.206"N	103°47'24.564"W	0.33
10402.00	90.100	269.100	8854.29	1742.06	-1.27	-1742.15	707727.46	735767.83	33°01'17.197"N	103°47'25.691"W	1.16
10498.00	90.000	269.100	8854.21	1838.06	-2.78	-1838.13	707631.48	735766.32	33°01'17.187"N	103°47'26.819"W	0.10
10594.00	90.100	269.000	8854.12	1934.06	-4.37	-1934.12	707535.50	735764.73	33°01'17.177"N	103°47'27.946"W	0.15
10689.00	90.100	269.300	8853.96	2029.05	-5.78	-2029.11	707440.51	735763.32	33°01'17.167"N	103°47'29.062"W	0.32
10784.00	91.200	269.500	8852.88	2124.05	-6.77	-2124.10	707345.53	735762.33	33°01'17.162"N	103°47'30.178"W	1.18
10879.00	90.000	269.800	8851.89	2219.04	-7.35	-2219.09	707250.55	735761.75	33°01'17.162"N	103°47'31.293"W	1.30
10975.00	89.100	268.800	8852.64	2315.03	-8.52	-2315.08	707154.56	735760.58	33°01'17.155"N	103°47'32.421"W	1.40
11071.00	89.100	268.200	8854.15	2411.01	-11.04	-2411.03	707058.62	735758.06	33°01'17.135"N	103°47'33.548"W	0.62
11167.00	90.300	267.500	8854.65	2506.97	-14.64	-2506.96	706962.69	735754.46	33°01'17.104"N	103°47'34.674"W	1.45
11262.00	93.200	267.900	8851.75	2601.88	-18.45	-2601.83	706867.83	735750.65	33°01'17.071"N	103°47'35.789"W	3.08
11326.00	93.100	269.100	8848.23	2665.77	-20.12	-2665.71	706803.95	735748.98	33°01'17.058"N	103°47'36.539"W	1.88
11390.00	93.200	269.200	8844.72	2729.67	-21.07	-2729.60	706740.06	735748.03	33°01'17.052"N	103°47'37.290"W	0.22
11454.00	93.100	269.500	8841.20	2793.58	-21.79	-2793.50	706676.17	735747.31	33°01'17.048"N	103°47'38.040"W	0.49
11518.00	92.100	269.400	8838.30	2857.51	-22.41	-2857.43	706612.24	735746.69	33°01'17.045"N	103°47'38.791"W	1.57
11582.00	92.200	269.900	8835.89	2921.46	-22.80	-2921.39	706548.29	735746.30	33°01'17.044"N	103°47'39.542"W	0.80
11645.00	92.200	270.100	8833.48	2984.41	-22.80	-2984.34	706485.34	735746.30	33°01'17.048"N	103°47'40.281"W	0.32
11709.00	91.800	270.500	8831.24	3048.37	-22.46	-3048.30	706421.38	735746.64	33°01'17.054"N	103°47'41.032"W	0.88
11773.00	90.700	269.900	8829.85	3112.34	-22.24	-3112.28	706357.40	735746.86	33°01'17.060"N	103°47'41.784"W	1.96
11837.00	90.600	270.000	8829.12	3176.34	-22.30	-3176.28	706293.41	735746.80	33°01'17.062"N	103°47'42.535"W	0.22
11900.00	91.100	268.700	8828.19	3239.33	-23.01	-3239.27	706230.43	735746.09	33°01'17.058"N	103°47'43.275"W	2.21
11964.00	91.100	268.000	8826.96	3303.30	-24.85	-3303.23	706166.47	735744.25	33°01'17.043"N	103°47'44.027"W	1.09
12028.00	91.100	268.700	8825.73	3367.28	-26.70	-3367.19	706102.51	735742.41	33°01'17.028"N	103°47'44.778"W	1.09
12092.00	91.100	269.100	8824.50	3431.27	-27.92	-3431.17	706038.54	735741.18	33°01'17.020"N	103°47'45.529"W	0.62
12156.00	91.200	268.500	8823.21	3495.25	-29.26	-3495.14	705974.57	735739.84	33°01'17.010"N	103°47'46.281"W	0.95
12220.00	91.500	269.000	8821.71	3559.23	-30.66	-3559.11	705910.61	735738.44	33°01'16.999"N	103°47'47.032"W	0.91
12284.00	91.700	267.700	8819.92	3623.19	-32.50	-3623.05	705846.67	735736.60	33°01'16.984"N	103°47'47.783"W	2.05



Actual Wellpath Report

No. 1H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	COG Operating LLC	Slot	No. 1H_SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Andromeda) Sec 14, T15S, R31E	Wellbore	No. 1H_AWB
Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1_AWB at 8300.00 MD

WELLPATH DATA (166 stations)											
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]
12347.00	91.500	267.200	8818.16	3686.13	-35.30	-3685.97	705783.76	735733.80	33°01'16.959"N	103°47'48.522"W	0.85
12411.00	92.200	267.300	8816.09	3750.05	-38.37	-3749.86	705719.87	735730.73	33°01'16.932"N	103°47'49.273"W	1.10
12475.00	91.400	267.700	8814.08	3813.99	-41.16	-3813.77	705655.97	735727.94	33°01'16.908"N	103°47'50.023"W	1.40
12539.00	90.300	268.800	8813.14	3877.97	-43.12	-3877.73	705592.01	735725.99	33°01'16.892"N	103°47'50.775"W	2.43
12603.00	90.100	269.300	8812.91	3941.96	-44.18	-3941.72	705528.02	735724.92	33°01'16.884"N	103°47'51.526"W	0.84
12666.00	89.500	270.000	8813.13	4004.96	-44.56	-4004.71	705465.03	735724.54	33°01'16.884"N	103°47'52.266"W	1.46
12730.00	89.600	270.000	8813.63	4068.96	-44.56	-4068.71	705401.03	735724.54	33°01'16.887"N	103°47'53.018"W	0.16
12794.00	89.600	269.100	8814.08	4132.95	-45.07	-4132.71	705337.04	735724.04	33°01'16.885"N	103°47'53.769"W	1.41
12858.00	89.600	269.200	8814.53	4196.95	-46.02	-4196.70	705273.05	735723.09	33°01'16.879"N	103°47'54.521"W	0.16
12922.00	89.500	269.500	8815.03	4260.95	-46.74	-4260.69	705209.06	735722.36	33°01'16.875"N	103°47'55.273"W	0.49
12986.00	89.500	269.600	8815.59	4324.95	-47.24	-4324.69	705145.07	735721.86	33°01'16.873"N	103°47'56.024"W	0.16
13050.00	89.600	269.700	8816.09	4388.94	-47.63	-4388.69	705081.08	735721.47	33°01'16.873"N	103°47'56.776"W	0.22
13114.00	89.100	269.800	8816.82	4452.94	-47.91	-4452.68	705017.09	735721.19	33°01'16.873"N	103°47'57.527"W	0.80
13178.00	88.900	269.900	8817.93	4516.93	-48.08	-4516.67	704953.10	735721.02	33°01'16.875"N	103°47'58.279"W	0.35
13227.00	89.100	270.100	8818.79	4565.92	-48.08	-4565.66	704904.11	735721.02	33°01'16.877"N	103°47'58.854"W	0.58
13287.00	89.100	270.100	8819.73	4625.90	-47.98	-4625.66	704844.12	735721.13	33°01'16.881"N	103°47'59.559"W	0.00



Actual Wellpath Report

No. 1H AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 1H_SHL
Area	Chaves County, NM	Well	No. 1H
Field	(Andromeda) Sec 14, T15S, R31E	Wellbore	No. 1H AWB
Facility	Andromeda Federal No. 1H	Sidetrack from	No. 1 AWB at 8300.00 MD

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 1H PBHL Rev1		8784.00	-49.78	-4625.97	704843.81	735719.32	33°01'16.863"N	103°47'59.563"W	point

WELLPATH COMPOSITION

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8300.00	Generic gyro - continuous (Standard)	GYRO - <100 - 8981>	No. 1 AWB
8300.00	13227.00	NaviTrak (Standard)	MWD - <8357 - 13227>	No. 1H AWB
13227.00	13287.00	Blind-Drilling (std)	Projection to bit	No. 1H AWB