



30-015-34058

Actual Wellpath ReportNo. 2H AWP
Page 1 of 9**INTEQ****REFERENCE WELLPATH IDENTIFICATION**

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 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	0.999913	Report Generated	3/5/2010 at 9:47:21 AM
Convergence at slot	0.11° East	Database/Source file	WA_Midland/No. 2H_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	600825.37	684613.27	32°52'54.737"N	104°08'22.388"W
Facility Reference Pt			600825.37	684613.27	32°52'54.737"N	104°08'22.388"W
Field Reference Pt			600825.37	684613.27	32°52'54.737"N	104°08'22.388"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2H SHL (RT) to GL	25.00ft
Horizontal Reference Pt	Surface Location	Rig on No. 2H SHL (RT) to Mean Sea Level	3610.00ft
Vertical Reference Pt	Rig on No. 2H SHL (RT)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	270.12°

MR



Actual Wellpath Report

No. 2H AWP

Page 2 of 9



INTEQ

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Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 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	143.830	0.00	0.00	0.00	0.00	600825.37	684613.27	32°52'54.737"N	104°08'22.388"W	0.00
100.00	0.310	143.830	100.00	-0.16	-0.22	0.16	600825.53	684613.05	32°52'54.735"N	104°08'22.386"W	0.31
200.00	0.770	235.410	200.00	0.23	-0.82	-0.23	600825.14	684612.45	32°52'54.729"N	104°08'22.390"W	0.84
300.00	0.810	237.160	299.99	1.38	-1.58	-1.38	600823.99	684611.69	32°52'54.722"N	104°08'22.404"W	0.05
400.00	0.840	228.780	399.98	2.52	-2.45	-2.53	600822.84	684610.82	32°52'54.713"N	104°08'22.417"W	0.12
500.00	0.830	217.950	499.97	3.52	-3.50	-3.52	600821.85	684609.77	32°52'54.703"N	104°08'22.429"W	0.16
600.00	0.930	226.300	599.95	4.55	-4.64	-4.56	600820.82	684608.64	32°52'54.692"N	104°08'22.441"W	0.16
700.00	0.830	213.070	699.94	5.52	-5.80	-5.54	600819.83	684607.47	32°52'54.680"N	104°08'22.453"W	0.23
800.00	0.750	223.820	799.93	6.37	-6.88	-6.39	600818.99	684606.39	32°52'54.669"N	104°08'22.463"W	0.17
900.00	0.650	234.560	899.93	7.28	-7.68	-7.30	600818.07	684605.59	32°52'54.661"N	104°08'22.473"W	0.16
1000.00	0.640	237.590	999.92	8.22	-8.31	-8.23	600817.14	684604.96	32°52'54.655"N	104°08'22.484"W	0.04
1100.00	0.620	237.010	1099.91	9.14	-8.91	-9.16	600816.21	684604.37	32°52'54.649"N	104°08'22.495"W	0.02
1200.00	0.530	239.740	1199.91	9.99	-9.43	-10.01	600815.36	684603.84	32°52'54.644"N	104°08'22.505"W	0.09
1300.00	0.520	239.650	1299.90	10.78	-9.90	-10.80	600814.57	684603.38	32°52'54.640"N	104°08'22.514"W	0.01
1400.00	0.410	255.310	1399.90	11.52	-10.22	-11.54	600813.83	684603.06	32°52'54.637"N	104°08'22.523"W	0.17
1500.00	0.430	271.360	1499.90	12.24	-10.30	-12.26	600813.11	684602.97	32°52'54.636"N	104°08'22.532"W	0.12
1600.00	0.530	276.730	1599.89	13.08	-10.23	-13.10	600812.27	684603.04	32°52'54.636"N	104°08'22.541"W	0.11
1700.00	0.580	280.570	1699.89	14.03	-10.09	-14.05	600811.32	684603.18	32°52'54.638"N	104°08'22.553"W	0.06
1800.00	0.670	281.270	1799.88	15.10	-9.88	-15.13	600810.25	684603.39	32°52'54.640"N	104°08'22.565"W	0.09
1900.00	0.710	278.500	1899.88	16.29	-9.67	-16.31	600809.06	684603.60	32°52'54.642"N	104°08'22.579"W	0.05
2000.00	0.750	276.310	1999.87	17.55	-9.51	-17.57	600807.80	684603.76	32°52'54.644"N	104°08'22.594"W	0.05
2100.00	0.780	273.820	2099.86	18.88	-9.39	-18.90	600806.47	684603.88	32°52'54.645"N	104°08'22.609"W	0.04
2200.00	0.850	291.140	2199.85	20.26	-9.08	-20.28	600805.10	684604.19	32°52'54.648"N	104°08'22.625"W	0.25
2300.00	0.920	311.940	2299.84	21.55	-8.28	-21.56	600803.81	684604.99	32°52'54.656"N	104°08'22.641"W	0.33
2400.00	0.850	313.340	2399.83	22.69	-7.23	-22.70	600802.67	684606.04	32°52'54.666"N	104°08'22.654"W	0.07
2500.00	0.770	323.740	2499.82	23.62	-6.18	-23.64	600801.73	684607.09	32°52'54.677"N	104°08'22.665"W	0.17
2600.00	0.730	322.930	2599.81	24.41	-5.13	-24.42	600800.95	684608.14	32°52'54.687"N	104°08'22.674"W	0.04
2700.00	0.770	307.460	2699.80	25.33	-4.21	-25.34	600800.04	684609.06	32°52'54.696"N	104°08'22.685"W	0.21
2800.00	0.780	293.420	2799.79	26.49	-3.53	-26.49	600798.88	684609.74	32°52'54.703"N	104°08'22.698"W	0.19
2900.00	0.690	293.390	2899.78	27.67	-3.02	-27.67	600797.70	684610.25	32°52'54.708"N	104°08'22.712"W	0.09



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No. 2H AWP

Page 3 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [serv ft]	Grid North [serv ft]	Latitude	Longitude	DLS [1/100ft]
3000.00	0.550	290.110	2999.78	28.67	-2.62	-28.67	600796.70	684610.65	32°52'54.712"N	104°08'22.724"W	0.14
3100.00	0.570	293.910	3099.77	29.58	-2.25	-29.58	600795.79	684611.02	32°52'54.716"N	104°08'22.734"W	0.04
3200.00	0.630	291.210	3199.77	30.54	-1.85	-30.55	600794.83	684611.42	32°52'54.720"N	104°08'22.746"W	0.07
3300.00	0.720	290.910	3299.76	31.64	-1.43	-31.65	600793.73	684611.84	32°52'54.724"N	104°08'22.759"W	0.09
3400.00	0.740	288.110	3399.75	32.85	-1.00	-32.85	600792.53	684612.27	32°52'54.728"N	104°08'22.773"W	0.04
3500.00	0.820	281.630	3499.74	34.16	-0.66	-34.16	600791.21	684612.61	32°52'54.731"N	104°08'22.788"W	0.12
3600.00	0.850	283.190	3599.73	35.58	-0.35	-35.59	600789.79	684612.92	32°52'54.735"N	104°08'22.805"W	0.04
3700.00	0.930	280.330	3699.72	37.11	-0.03	-37.11	600788.27	684613.24	32°52'54.738"N	104°08'22.823"W	0.09
3800.00	0.980	281.500	3799.70	38.74	0.28	-38.74	600786.63	684613.55	32°52'54.741"N	104°08'22.842"W	0.05
3900.00	0.940	280.210	3899.69	40.39	0.60	-40.39	600784.99	684613.87	32°52'54.744"N	104°08'22.861"W	0.05
4000.00	0.980	285.010	3999.68	42.02	0.97	-42.02	600783.35	684614.24	32°52'54.748"N	104°08'22.880"W	0.09
4100.00	1.060	288.620	4099.66	43.73	1.48	-43.72	600781.65	684614.75	32°52'54.753"N	104°08'22.900"W	0.10
4200.00	1.160	291.520	4199.64	45.55	2.15	-45.54	600779.83	684615.42	32°52'54.759"N	104°08'22.922"W	0.11
4300.00	1.190	290.420	4299.62	47.46	2.88	-47.46	600777.92	684616.15	32°52'54.767"N	104°08'22.944"W	0.04
4400.00	1.180	294.380	4399.60	49.38	3.67	-49.37	600776.01	684616.94	32°52'54.775"N	104°08'22.966"W	0.08
4500.00	1.200	293.720	4499.58	51.27	4.52	-51.26	600774.11	684617.79	32°52'54.783"N	104°08'22.989"W	0.02
4600.00	1.290	291.260	4599.55	53.28	5.35	-53.27	600772.10	684618.62	32°52'54.791"N	104°08'23.012"W	0.10
4700.00	1.400	293.700	4699.53	55.45	6.25	-55.44	600769.94	684619.52	32°52'54.800"N	104°08'23.037"W	0.12
4800.00	1.450	296.730	4799.50	57.70	7.31	-57.69	600767.69	684620.58	32°52'54.811"N	104°08'23.064"W	0.09
4900.00	1.540	297.910	4899.46	60.02	8.50	-60.01	600765.37	684621.77	32°52'54.823"N	104°08'23.091"W	0.10
5000.00	1.570	298.560	4999.42	62.42	9.79	-62.40	600762.98	684623.06	32°52'54.835"N	104°08'23.119"W	0.03
5100.00	1.540	300.900	5099.39	64.78	11.13	-64.75	600760.62	684624.40	32°52'54.849"N	104°08'23.147"W	0.07
5200.00	1.530	299.390	5199.35	67.09	12.48	-67.07	600758.31	684625.75	32°52'54.862"N	104°08'23.174"W	0.04
5300.00	1.510	298.790	5299.32	69.42	13.77	-69.39	600755.99	684627.04	32°52'54.875"N	104°08'23.201"W	0.03
5400.00	1.490	295.740	5399.28	71.74	14.97	-71.71	600753.66	684628.24	32°52'54.887"N	104°08'23.228"W	0.08
5500.00	1.290	298.640	5499.25	73.90	16.07	-73.87	600751.51	684629.34	32°52'54.898"N	104°08'23.253"W	0.21
5600.00	1.190	296.600	5599.23	75.82	17.08	-75.79	600749.59	684630.34	32°52'54.908"N	104°08'23.276"W	0.11
5700.00	1.010	291.490	5699.21	77.57	17.86	-77.54	600747.84	684631.13	32°52'54.916"N	104°08'23.296"W	0.20
5800.00	1.040	286.780	5799.20	79.26	18.45	-79.23	600746.15	684631.72	32°52'54.921"N	104°08'23.316"W	0.09
5900.00	1.010	284.470	5899.18	80.99	18.93	-80.95	600744.43	684632.20	32°52'54.926"N	104°08'23.336"W	0.05



Actual Wellpath Report

No. 2H AWP

Page 4 of 9



BAKER
HUGHES

INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 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	1.050	289.490	5999.16	82.71	19.46	-82.66	600742.71	684632.73	32°52'54.931"N	104°08'23.356"W	0.10
6100.00	0.810	294.460	6099.15	84.21	20.06	-84.17	600741.21	684633.32	32°52'54.937"N	104°08'23.374"W	0.25
6200.00	0.780	302.270	6199.14	85.43	20.71	-85.39	600739.99	684633.98	32°52'54.944"N	104°08'23.388"W	0.11
6300.00	0.800	319.490	6299.13	86.46	21.61	-86.42	600738.96	684634.87	32°52'54.953"N	104°08'23.400"W	0.24
6329.00	0.800	309.500	6328.13	86.75	21.89	-86.71	600738.67	684635.16	32°52'54.956"N	104°08'23.404"W	0.48
6361.00	3.200	276.400	6360.11	87.81	22.13	-87.77	600737.61	684635.40	32°52'54.958"N	104°08'23.416"W	8.02
6393.00	7.700	272.200	6391.95	90.85	22.31	-90.80	600734.58	684635.58	32°52'54.960"N	104°08'23.452"W	14.11
6425.00	12.400	270.800	6423.45	96.43	22.44	-96.38	600729.00	684635.71	32°52'54.961"N	104°08'23.517"W	14.71
6457.00	17.200	275.300	6454.38	104.58	22.93	-104.53	600720.85	684636.20	32°52'54.966"N	104°08'23.613"W	15.41
6488.00	21.700	274.500	6483.61	114.86	23.80	-114.81	600710.57	684637.07	32°52'54.975"N	104°08'23.733"W	14.54
6520.00	24.600	273.600	6513.03	127.41	24.68	-127.36	600698.02	684637.95	32°52'54.984"N	104°08'23.880"W	9.13
6552.00	26.300	273.700	6541.92	141.14	25.56	-141.08	600684.30	684638.83	32°52'54.993"N	104°08'24.041"W	5.31
6583.00	28.900	271.700	6569.39	155.48	26.23	-155.43	600669.96	684639.49	32°52'55.000"N	104°08'24.210"W	8.90
6615.00	32.300	269.300	6596.93	171.77	26.35	-171.71	600653.67	684639.62	32°52'55.001"N	104°08'24.400"W	11.29
6646.00	36.300	269.400	6622.54	189.23	26.15	-189.18	600636.21	684639.42	32°52'55.000"N	104°08'24.605"W	12.90
6678.00	39.500	269.900	6647.78	208.88	26.04	-208.83	600616.56	684639.30	32°52'54.999"N	104°08'24.836"W	10.05
6710.00	42.700	269.700	6671.90	229.92	25.96	-229.86	600595.53	684639.23	32°52'54.998"N	104°08'25.082"W	10.01
6742.00	45.800	269.800	6694.81	252.24	25.86	-252.19	600573.20	684639.13	32°52'54.998"N	104°08'25.344"W	9.69
6774.00	49.100	268.200	6716.45	275.81	25.44	-275.76	600549.64	684638.71	32°52'54.994"N	104°08'25.620"W	10.95
6805.00	52.800	267.200	6735.98	299.86	24.47	-299.81	600525.59	684637.74	32°52'54.985"N	104°08'25.903"W	12.20
6837.00	56.900	266.100	6754.40	325.97	22.94	-325.92	600499.48	684636.21	32°52'54.970"N	104°08'26.209"W	13.12
6869.00	61.000	266.000	6770.90	353.31	21.05	-353.26	600472.14	684634.32	32°52'54.952"N	104°08'26.529"W	12.82
6901.00	65.700	266.600	6785.25	381.83	19.21	-381.80	600443.61	684632.48	32°52'54.934"N	104°08'26.864"W	14.78
6933.00	70.500	266.200	6797.18	411.45	17.34	-411.42	600413.99	684630.61	32°52'54.916"N	104°08'27.211"W	15.04
6965.00	76.100	265.600	6806.37	442.01	15.15	-441.98	600383.43	684628.42	32°52'54.895"N	104°08'27.570"W	17.59
6997.00	79.400	266.200	6813.16	473.19	12.91	-473.17	600352.25	684626.18	32°52'54.874"N	104°08'27.936"W	10.47
7028.00	80.900	266.800	6818.47	503.67	11.05	-503.65	600321.76	684624.32	32°52'54.856"N	104°08'28.293"W	5.20
7060.00	80.800	267.100	6823.55	535.22	9.37	-535.20	600290.22	684622.64	32°52'54.840"N	104°08'28.663"W	0.98
7092.00	82.600	267.700	6828.17	566.84	7.93	-566.83	600258.59	684621.20	32°52'54.826"N	104°08'29.034"W	5.92
7124.00	85.500	268.900	6831.49	598.65	6.99	-598.64	600226.78	684620.26	32°52'54.817"N	104°08'29.407"W	9.80



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Page 5 of 9



INTEQ

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Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWP
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWP at 6300.00 MD

WELLPATH DATA (213 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]
7156.00	87.300	270.800	6833.50	630.59	6.91	-630.57	600194.85	684620.18	32°52'54.817"N	104°08'29.781"W	8.17
7189.00	87.400	269.800	6835.03	663.55	7.08	-663.54	600161.89	684620.35	32°52'54.819"N	104°08'30.168"W	3.04
7221.00	87.000	269.900	6836.59	695.51	7.00	-695.50	600129.93	684620.27	32°52'54.819"N	104°08'30.543"W	1.29
7253.00	88.500	270.400	6837.84	727.49	7.08	-727.47	600097.96	684620.35	32°52'54.821"N	104°08'30.918"W	4.94
7285.00	89.200	270.400	6838.49	759.48	7.30	-759.46	600065.97	684620.57	32°52'54.823"N	104°08'31.293"W	2.19
7317.00	89.200	270.100	6838.93	791.48	7.44	-791.46	600033.98	684620.71	32°52'54.825"N	104°08'31.668"W	0.94
7348.00	89.300	270.500	6839.34	822.47	7.60	-822.46	600002.98	684620.87	32°52'54.827"N	104°08'32.031"W	1.33
7380.00	89.600	270.200	6839.65	854.47	7.80	-854.46	599970.99	684621.07	32°52'54.830"N	104°08'32.407"W	1.33
7411.00	90.000	270.600	6839.75	885.47	8.02	-885.46	599939.99	684621.29	32°52'54.833"N	104°08'32.770"W	1.82
7443.00	89.800	271.000	6839.81	917.47	8.46	-917.45	599908.00	684621.73	32°52'54.838"N	104°08'33.145"W	1.40
7475.00	89.900	271.200	6839.89	949.46	9.08	-949.45	599876.01	684622.35	32°52'54.844"N	104°08'33.520"W	0.70
7507.00	89.900	270.900	6839.95	981.46	9.66	-981.44	599844.02	684622.93	32°52'54.851"N	104°08'33.896"W	0.94
7539.00	89.900	271.100	6840.01	1013.45	10.22	-1013.44	599812.02	684623.49	32°52'54.857"N	104°08'34.271"W	0.62
7570.00	90.100	271.200	6840.01	1044.45	10.84	-1044.43	599781.03	684624.11	32°52'54.863"N	104°08'34.634"W	0.72
7602.00	91.400	271.100	6839.59	1076.44	11.49	-1076.42	599749.05	684624.76	32°52'54.870"N	104°08'35.009"W	4.07
7634.00	91.900	271.300	6838.67	1108.42	12.16	-1108.40	599717.07	684625.43	32°52'54.878"N	104°08'35.384"W	1.68
7666.00	92.700	270.800	6837.38	1140.39	12.74	-1140.37	599685.10	684626.01	32°52'54.884"N	104°08'35.759"W	2.95
7698.00	92.700	270.700	6835.87	1172.35	13.16	-1172.33	599653.15	684626.43	32°52'54.889"N	104°08'36.134"W	0.31
7729.00	93.200	270.400	6834.28	1203.31	13.46	-1203.29	599622.19	684626.73	32°52'54.892"N	104°08'36.497"W	1.88
7761.00	93.000	271.000	6832.55	1235.26	13.85	-1235.24	599590.24	684627.12	32°52'54.897"N	104°08'36.871"W	1.97
7793.00	93.100	271.000	6830.85	1267.21	14.41	-1267.19	599558.30	684627.68	32°52'54.903"N	104°08'37.246"W	0.31
7825.00	94.000	270.600	6828.86	1299.15	14.85	-1299.12	599526.36	684628.12	32°52'54.908"N	104°08'37.621"W	3.08
7856.00	93.900	270.800	6826.73	1330.07	15.23	-1330.05	599495.44	684628.50	32°52'54.912"N	104°08'37.983"W	0.72
7888.00	94.000	271.200	6824.52	1362.00	15.79	-1361.97	599463.53	684629.06	32°52'54.918"N	104°08'38.357"W	1.29
7920.00	94.200	270.700	6822.24	1393.91	16.32	-1393.88	599431.62	684629.59	32°52'54.924"N	104°08'38.732"W	1.68
7952.00	94.100	270.800	6819.92	1425.82	16.73	-1425.79	599399.70	684630.00	32°52'54.929"N	104°08'39.106"W	0.44
7984.00	94.000	270.800	6817.66	1457.74	17.18	-1457.71	599367.79	684630.45	32°52'54.934"N	104°08'39.480"W	0.31
8015.00	94.000	271.400	6815.50	1488.66	17.77	-1488.63	599336.87	684631.04	32°52'54.940"N	104°08'39.843"W	1.93
8047.00	94.000	271.200	6813.27	1520.58	18.50	-1520.54	599304.96	684631.77	32°52'54.948"N	104°08'40.217"W	0.62
8078.00	94.000	270.900	6811.10	1551.50	19.06	-1551.46	599274.05	684632.33	32°52'54.954"N	104°08'40.579"W	0.97



Actual Wellpath Report

No. 2H AWP

Page 6 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [serv ft]	Grid North [serv ft]	Latitude	Longitude	DLS [°/100ft]
8110.00	94.000	270.500	6808.87	1583.42	19.45	-1583.38	599242.13	684632.72	32°52'54.958"N	104°08'40.954"W	1.25
8141.00	94.000	269.600	6806.71	1614.34	19.48	-1614.30	599211.21	684632.75	32°52'54.959"N	104°08'41.316"W	2.90
8173.00	94.000	269.600	6804.48	1646.26	19.26	-1646.23	599179.29	684632.53	32°52'54.957"N	104°08'41.691"W	0.00
8205.00	94.000	270.000	6802.24	1678.18	19.15	-1678.15	599147.37	684632.42	32°52'54.957"N	104°08'42.065"W	1.25
8237.00	94.000	270.200	6800.01	1710.11	19.20	-1710.07	599115.45	684632.47	32°52'54.958"N	104°08'42.439"W	0.62
8269.00	94.000	270.400	6797.78	1742.03	19.37	-1741.99	599083.53	684632.64	32°52'54.960"N	104°08'42.814"W	0.62
8301.00	94.000	270.700	6795.55	1773.95	19.68	-1773.91	599051.62	684632.94	32°52'54.964"N	104°08'43.188"W	0.94
8332.00	93.900	270.600	6793.41	1804.87	20.03	-1804.84	599020.69	684633.30	32°52'54.968"N	104°08'43.550"W	0.46
8364.00	94.000	270.700	6791.21	1836.80	20.39	-1836.76	598988.78	684633.66	32°52'54.972"N	104°08'43.925"W	0.44
8396.00	93.900	271.300	6789.00	1868.72	20.95	-1868.68	598956.86	684634.22	32°52'54.978"N	104°08'44.299"W	1.90
8427.00	93.900	270.600	6786.90	1899.64	21.46	-1899.60	598925.94	684634.73	32°52'54.984"N	104°08'44.662"W	2.25
8459.00	93.900	270.400	6784.72	1931.57	21.74	-1931.53	598894.02	684635.01	32°52'54.987"N	104°08'45.036"W	0.62
8491.00	93.900	270.400	6782.54	1963.49	21.96	-1963.45	598862.09	684635.23	32°52'54.990"N	104°08'45.410"W	0.00
8522.00	94.000	269.900	6780.41	1994.42	22.04	-1994.38	598831.17	684635.31	32°52'54.991"N	104°08'45.773"W	1.64
8554.00	94.400	270.100	6778.06	2026.33	22.04	-2026.29	598799.26	684635.31	32°52'54.992"N	104°08'46.147"W	1.40
8586.00	95.600	270.300	6775.27	2058.21	22.15	-2058.17	598767.38	684635.42	32°52'54.993"N	104°08'46.521"W	3.80
8618.00	95.800	270.100	6772.10	2090.05	22.26	-2090.01	598735.55	684635.53	32°52'54.995"N	104°08'46.894"W	0.88
8649.00	94.500	270.000	6769.31	2120.93	22.29	-2120.88	598704.67	684635.56	32°52'54.996"N	104°08'47.256"W	4.21
8681.00	93.600	270.200	6767.05	2152.85	22.35	-2152.80	598672.76	684635.62	32°52'54.997"N	104°08'47.631"W	2.88
8712.00	92.500	269.800	6765.40	2183.80	22.35	-2183.76	598641.80	684635.62	32°52'54.997"N	104°08'47.994"W	3.78
8744.00	92.600	269.700	6763.98	2215.77	22.21	-2215.73	598609.84	684635.48	32°52'54.997"N	104°08'48.368"W	0.44
8776.00	92.700	270.200	6762.50	2247.73	22.18	-2247.69	598577.88	684635.45	32°52'54.997"N	104°08'48.743"W	1.59
8808.00	93.200	269.700	6760.85	2279.69	22.15	-2279.65	598545.92	684635.42	32°52'54.997"N	104°08'49.118"W	2.21
8840.00	93.200	269.400	6759.07	2311.64	21.90	-2311.60	598513.98	684635.17	32°52'54.995"N	104°08'49.493"W	0.94
8872.00	93.100	269.400	6757.31	2343.59	21.57	-2343.55	598482.03	684634.83	32°52'54.992"N	104°08'49.867"W	0.31
8903.00	93.300	268.500	6755.58	2374.53	21.00	-2374.50	598451.09	684634.27	32°52'54.987"N	104°08'50.230"W	2.97
8935.00	93.200	268.700	6753.76	2406.47	20.22	-2406.43	598419.15	684633.49	32°52'54.980"N	104°08'50.605"W	0.70
8967.00	92.900	268.500	6752.06	2438.41	19.44	-2438.38	598387.21	684632.71	32°52'54.973"N	104°08'50.979"W	1.13
8999.00	93.300	267.800	6750.33	2470.35	18.41	-2470.32	598355.27	684631.67	32°52'54.963"N	104°08'51.354"W	2.52
9030.00	93.600	267.200	6748.47	2501.26	17.06	-2501.23	598324.36	684630.33	32°52'54.951"N	104°08'51.716"W	2.16



Actual Wellpath Report

No. 2H AWP

Page 7 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 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]
9062.00	93.500	266.400	6746.48	2533.14	15.27	-2533.12	598292.48	684628.54	32°52'54.934"N	104°08'52.090"W	2.51
9094.00	93.400	266.500	6744.56	2565.02	13.30	-2565.00	598260.60	684626.56	32°52'54.915"N	104°08'52.464"W	0.44
9126.00	93.600	266.200	6742.60	2596.89	11.26	-2596.87	598228.73	684624.53	32°52'54.895"N	104°08'52.838"W	1.13
9158.00	93.500	266.800	6740.62	2628.77	9.31	-2628.75	598196.85	684622.58	32°52'54.876"N	104°08'53.212"W	1.90
9190.00	93.000	266.100	6738.81	2660.65	7.33	-2660.64	598164.97	684620.60	32°52'54.857"N	104°08'53.586"W	2.69
9222.00	92.300	265.900	6737.33	2692.53	5.10	-2692.53	598133.08	684618.37	32°52'54.836"N	104°08'53.960"W	2.27
9254.00	91.100	265.700	6736.38	2724.43	2.76	-2724.43	598101.18	684616.03	32°52'54.813"N	104°08'54.334"W	3.80
9285.00	91.100	265.900	6735.79	2755.33	0.49	-2755.34	598070.28	684613.76	32°52'54.791"N	104°08'54.696"W	0.65
9317.00	91.000	266.500	6735.20	2787.25	-1.63	-2787.26	598038.36	684611.64	32°52'54.771"N	104°08'55.071"W	1.90
9349.00	91.300	267.000	6734.56	2819.19	-3.44	-2819.20	598006.42	684609.83	32°52'54.753"N	104°08'55.445"W	1.82
9380.00	91.100	267.500	6733.91	2850.15	-4.93	-2850.16	597975.46	684608.34	32°52'54.739"N	104°08'55.808"W	1.74
9412.00	90.700	266.500	6733.40	2882.09	-6.60	-2882.11	597943.51	684606.67	32°52'54.723"N	104°08'56.183"W	3.37
9444.00	91.000	266.500	6732.93	2914.03	-8.56	-2914.05	597911.58	684604.71	32°52'54.704"N	104°08'56.558"W	0.94
9475.00	90.900	266.900	6732.42	2944.97	-10.34	-2944.99	597880.64	684602.93	32°52'54.687"N	104°08'56.920"W	1.33
9507.00	91.000	267.300	6731.89	2976.92	-11.96	-2976.95	597848.69	684601.31	32°52'54.672"N	104°08'57.295"W	1.29
9539.00	91.100	268.000	6731.30	3008.88	-13.27	-3008.92	597816.72	684600.00	32°52'54.659"N	104°08'57.670"W	2.21
9571.00	90.800	268.500	6730.77	3040.86	-14.25	-3040.90	597784.74	684599.02	32°52'54.650"N	104°08'58.045"W	1.82
9603.00	91.000	268.800	6730.27	3072.85	-15.00	-3072.88	597752.76	684598.27	32°52'54.643"N	104°08'58.420"W	1.13
9634.00	93.200	268.700	6729.13	3103.81	-15.68	-3103.85	597721.79	684597.59	32°52'54.637"N	104°08'58.783"W	7.10
9666.00	93.700	269.300	6727.20	3135.75	-16.24	-3135.79	597689.86	684597.04	32°52'54.632"N	104°08'59.158"W	2.44
9698.00	93.800	270.500	6725.11	3167.68	-16.29	-3167.72	597657.93	684596.98	32°52'54.632"N	104°08'59.532"W	3.75
9730.00	93.800	271.500	6722.99	3199.61	-15.73	-3199.65	597626.01	684597.54	32°52'54.638"N	104°08'59.907"W	3.12
9762.00	93.900	272.300	6720.84	3231.52	-14.68	-3231.56	597594.10	684598.60	32°52'54.649"N	104°09'00.281"W	2.51
9794.00	93.700	272.500	6718.72	3263.42	-13.34	-3263.46	597562.20	684599.93	32°52'54.663"N	104°09'00.655"W	0.88
9826.00	93.800	273.500	6716.63	3295.31	-11.67	-3295.35	597530.32	684601.60	32°52'54.680"N	104°09'01.029"W	3.13
9858.00	93.700	273.300	6714.54	3327.19	-9.77	-3327.22	597498.45	684603.50	32°52'54.699"N	104°09'01.402"W	0.70
9889.00	93.600	273.600	6712.56	3358.08	-7.91	-3358.10	597467.57	684605.36	32°52'54.718"N	104°09'01.764"W	1.02
9921.00	93.400	273.700	6710.61	3389.96	-5.88	-3389.98	597435.69	684607.39	32°52'54.739"N	104°09'02.138"W	0.70
9953.00	92.500	273.800	6708.96	3421.85	-3.79	-3421.87	597403.81	684609.48	32°52'54.760"N	104°09'02.512"W	2.83
9985.00	92.300	273.800	6707.62	3453.76	-1.67	-3453.77	597371.91	684611.60	32°52'54.782"N	104°09'02.886"W	0.62



Actual Wellpath Report

No. 2H AWP

Page 8 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 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]
10016.00	92.300	273.400	6706.38	3484.67	0.28	-3484.68	597341.00	684613.55	32°52'54.802"N	104°09'03.248"W	1.29
10048.00	92.300	274.400	6705.09	3516.58	2.45	-3516.58	597309.10	684615.72	32°52'54.824"N	104°09'03.622"W	3.12
10080.00	92.100	274.700	6703.86	3548.46	4.99	-3548.46	597277.23	684618.26	32°52'54.849"N	104°09'03.996"W	1.13
10112.00	91.800	274.900	6702.78	3580.33	7.66	-3580.33	597245.36	684620.93	32°52'54.876"N	104°09'04.370"W	1.13
10143.00	91.600	273.600	6701.86	3611.24	9.96	-3611.23	597214.46	684623.23	32°52'54.900"N	104°09'04.732"W	4.24
10175.00	91.600	272.000	6700.96	3643.19	11.52	-3643.17	597182.52	684624.79	32°52'54.916"N	104°09'05.107"W	5.00
10206.00	91.800	270.500	6700.04	3674.17	12.20	-3674.15	597151.54	684625.47	32°52'54.923"N	104°09'05.470"W	4.88
10238.00	91.800	270.300	6699.04	3706.15	12.42	-3706.14	597119.56	684625.69	32°52'54.925"N	104°09'05.845"W	0.62
10270.00	92.100	270.900	6697.95	3738.13	12.76	-3738.12	597087.59	684626.02	32°52'54.929"N	104°09'06.220"W	2.10
10302.00	92.100	271.000	6696.78	3770.11	13.29	-3770.09	597055.62	684626.55	32°52'54.935"N	104°09'06.595"W	0.31
10333.00	92.100	271.200	6695.64	3801.08	13.88	-3801.06	597024.64	684627.15	32°52'54.942"N	104°09'06.958"W	0.64
10365.00	92.100	271.300	6694.47	3833.06	14.58	-3833.03	596992.68	684627.85	32°52'54.949"N	104°09'07.333"W	0.31
10397.00	92.200	270.300	6693.27	3865.03	15.02	-3865.01	596960.71	684628.29	32°52'54.954"N	104°09'07.708"W	3.14
10429.00	92.100	269.700	6692.07	3897.01	15.02	-3896.99	596928.73	684628.29	32°52'54.954"N	104°09'08.083"W	1.90
10461.00	92.100	269.800	6690.89	3928.99	14.89	-3928.96	596896.76	684628.15	32°52'54.954"N	104°09'08.458"W	0.31
10492.00	92.100	269.900	6689.76	3959.96	14.80	-3959.94	596865.78	684628.07	32°52'54.953"N	104°09'08.821"W	0.32
10524.00	92.100	269.800	6688.59	3991.94	14.72	-3991.92	596833.80	684627.99	32°52'54.953"N	104°09'09.196"W	0.31
10556.00	92.100	269.800	6687.41	4023.92	14.61	-4023.90	596801.83	684627.88	32°52'54.953"N	104°09'09.571"W	0.00
10588.00	92.200	269.800	6686.21	4055.90	14.50	-4055.88	596769.85	684627.77	32°52'54.952"N	104°09'09.946"W	0.31
10620.00	92.100	269.900	6685.01	4087.88	14.41	-4087.85	596737.88	684627.68	32°52'54.952"N	104°09'10.321"W	0.44
10651.00	92.200	270.300	6683.85	4118.85	14.47	-4118.83	596706.90	684627.74	32°52'54.953"N	104°09'10.684"W	1.33
10683.00	92.100	270.400	6682.65	4150.83	14.66	-4150.81	596674.93	684627.93	32°52'54.955"N	104°09'11.059"W	0.44
10714.00	92.200	269.900	6681.49	4181.81	14.74	-4181.79	596643.95	684628.01	32°52'54.957"N	104°09'11.422"W	1.64
10746.00	92.300	270.300	6680.23	4213.78	14.80	-4213.76	596611.98	684628.07	32°52'54.958"N	104°09'11.797"W	1.29
10778.00	92.200	270.600	6678.97	4245.76	15.05	-4245.74	596580.01	684628.32	32°52'54.961"N	104°09'12.172"W	0.99
10810.00	92.100	270.500	6677.77	4277.74	15.36	-4277.71	596548.04	684628.63	32°52'54.964"N	104°09'12.547"W	0.44
10842.00	92.000	270.000	6676.63	4309.71	15.50	-4309.69	596516.06	684628.77	32°52'54.966"N	104°09'12.922"W	1.59
10873.00	92.000	269.600	6675.55	4340.70	15.39	-4340.67	596485.08	684628.66	32°52'54.966"N	104°09'13.285"W	1.29
10905.00	92.000	269.500	6674.43	4372.67	15.14	-4372.65	596453.11	684628.41	32°52'54.964"N	104°09'13.660"W	0.31
10937.00	92.000	269.700	6673.31	4404.65	14.91	-4404.63	596421.13	684628.18	32°52'54.962"N	104°09'14.035"W	0.62



Actual Wellpath Report

No. 2H AWP
Page 9 of 9



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	COG Operating LLC	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Blitzen) Sec 35, T16S, R28E	Wellbore	No. 2H AWB
Facility	Blitzen 35 Fed Com No. 2H	Sidetrack from	No. 2 AWB at 6300.00 MD

WELLPATH DATA (213 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]
10969.00	92.200	270.000	6672.14	4436.63	14.83	-4436.61	596389.15	684628.10	32°52'54.962"N	104°09'14.410"W	1.13
10991.00	92.000	270.200	6671.33	4458.62	14.87	-4458.60	596367.17	684628.14	32°52'54.962"N	104°09'14.668"W	1.29
11054.00	92.000	270.200	6669.13	4521.58	15.09	-4521.56	596304.22	684628.36	32°52'54.966"N	104°09'15.406"W	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 2H PBHL		6777.00	9.45	-4531.66	596294.11	684622.72	32°52'54.910"N	104°09'15.525"W	point

WELLPATH COMPOSITION

Ref Wellbore: No. 2H AWB

Ref Wellpath: No. 2H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	6300.00	Generic gyro - northseeking (Standard)	Gyro <100 - 7020>	No. 2 AWB
6300.00	10991.00	NaviTrak (Standard)	MWD <6329 - 10991>	No. 2H AWB
10991.00	11054.00	Blind Drilling (std)	Projection to bit	No. 2H AWB