



**Anglian Oil Company Ltd.
Northern Lights
AA Pad
AA16, Slot #09
MWD Run #4**

**Job No. AB-CD-12345678
Survey Date: 11 January 2013**

**True North Directional Services Inc.
Survey Report**





Database:	Example Projects Database	Local Coordinate Reference:	Well AA16
Company:	Anglian Oil Company Ltd.	TVD Reference:	RKB
Project:	Northern Lights	MD Reference:	RKB
Site:	AA Pad	North reference:	Grid North
Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Project	Northern Lights		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:			
Map Zone:	Zone 12 North		

Site	AA Pad				
Site Position:		Northing:	6,789,358.01 N	Latitude:	61° 14' 01.1642" N
From:	Map	Easting:	572,458.01 E	Longitude:	109° 39' 01.3541" W
Position Uncertainty:	0.00m	Slot Radius:	0mm	Grid Convergence:	1.183°

Well	AA16					
Well Position:	+N/-S	-27.80m	Northing:	6,789,330.21 N	Latitude:	61° 14' 00.2426" N
	+E/-W	35.03m	Easting:	572,493.04 E	Longitude:	109° 38' 59.0443" W
Position Uncertainty:		1.50m	Wellhead Elevation:	629.61m	Ground Level:	628.01m

Wellbore	
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (µT)
	IGRF 2010	11/01/2013	14.306	81.047	59.0729

Design	MWD Run #4				
Audit Notes:					
Version:	AB-CD-12345678	Phase:		Tie On Depth:	1,201.65m

Vertical Section:	Depth from TVD (m)	+N/-S (m)	+E/-W (m)	Direction (°)
	0.00	0.00	0.00	84.183

Survey Program		29/06/2015			
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description	
0.00	240.00	MWD Run #1	GYRO-NS	North Seeking Gyro MS	
240.00	1,638.78	MWD Run #1	MWD	MWD	

Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Comments/ Formations
MWD Run #1											
0.00	0.000	0.000	0.00	-629.61	0.00	0.00	0.00	0.00	0.000	0.000	North Seeking Gyro MS (GYRO-NS)
2.14	0.160	85.065	2.14	-627.47	0.00	0.00	0.00	0.00	85.065	2.246	
11.00	0.220	120.070	11.00	-618.61	-0.01	0.03	0.03	0.03	103.478	0.433	
20.32	0.172	210.700	20.32	-609.29	-0.03	0.04	0.04	0.05	126.340	0.905	
29.29	0.222	129.573	29.29	-600.32	-0.05	0.04	0.04	0.07	138.607	0.866	
38.49	0.497	99.702	38.49	-591.12	-0.07	0.10	0.09	0.12	125.163	1.056	
47.35	0.160	271.070	47.35	-582.26	-0.08	0.12	0.12	0.14	121.366	2.220	
56.52	0.005	285.698	56.52	-573.09	-0.07	0.11	0.10	0.13	124.190	0.509	
66.14	0.087	77.618	66.14	-563.47	-0.07	0.12	0.11	0.14	122.039	0.285	
74.53	0.195	96.449	74.53	-555.08	-0.07	0.14	0.13	0.16	118.124	0.416	



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Site:	AA Pad	North reference:	Grid North
Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Survey											
Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Comments/Formations
84.42	0.321	254.180	84.42	-545.19	-0.08	0.13	0.12	0.15	123.030	1.537	
93.63	0.077	200.314	93.63	-535.98	-0.10	0.10	0.09	0.14	133.593	0.921	
102.67	0.043	237.933	102.67	-526.94	-0.10	0.10	0.08	0.14	137.217	0.167	
111.16	0.315	263.011	111.16	-518.45	-0.11	0.07	0.06	0.13	147.107	0.976	
120.68	0.041	187.971	120.68	-508.93	-0.11	0.04	0.03	0.12	159.261	0.967	
130.28	0.072	34.511	130.28	-499.33	-0.11	0.05	0.03	0.12	157.690	0.346	
139.35	0.009	172.630	139.35	-490.26	-0.11	0.05	0.04	0.12	155.473	0.263	
148.09	0.272	203.054	148.09	-481.52	-0.13	0.04	0.03	0.14	162.074	0.908	
157.83	0.119	55.445	157.83	-471.78	-0.14	0.04	0.03	0.15	164.166	1.165	
166.89	0.010	1.284	166.88	-462.73	-0.14	0.05	0.03	0.15	160.573	0.376	
175.22	0.181	196.726	175.22	-454.39	-0.15	0.04	0.03	0.16	163.323	0.686	
185.26	0.387	141.524	185.26	-444.35	-0.19	0.06	0.04	0.20	162.223	0.956	
193.83	0.129	279.761	193.83	-435.78	-0.21	0.07	0.05	0.22	161.805	1.719	
203.14	0.198	145.158	203.14	-426.47	-0.22	0.07	0.05	0.23	162.955	0.976	
212.53	0.207	266.645	212.53	-417.08	-0.24	0.06	0.04	0.25	165.648	1.128	
220.97	0.350	227.151	220.97	-408.64	-0.26	0.03	0.00	0.26	174.031	0.822	
230.66	0.030	72.732	230.66	-398.95	-0.28	0.01	-0.02	0.28	178.433	1.167	
239.68	0.277	112.688	239.68	-389.93	-0.28	0.03	0.00	0.29	173.980	0.846	
240.00	0.303	110.214	240.00	-389.61	-0.28	0.03	0.00	0.29	173.694	2.772	MWD
248.66	1.085	92.716	248.66	-380.95	-0.30	0.13	0.10	0.33	155.511	2.772	
250.00	1.296	99.595	250.00	-379.61	-0.30	0.16	0.13	0.34	151.502	5.709	13 3/8in Casing
258.14	2.743	116.334	258.13	-371.48	-0.40	0.43	0.38	0.59	133.145	5.709	
267.31	4.696	105.565	267.28	-362.33	-0.60	0.99	0.92	1.15	121.271	6.753	
276.08	6.738	105.408	276.01	-353.60	-0.83	1.83	1.73	2.01	114.473	6.989	
285.24	8.891	105.634	285.09	-344.52	-1.17	3.03	2.89	3.24	111.053	7.047	
294.94	11.824	105.995	294.63	-334.98	-1.64	4.71	4.52	4.98	109.231	9.074	
MWD Run #2											
304.09	14.327	105.692	303.53	-326.08	-2.21	6.70	6.44	7.05	108.233	8.215	
312.67	17.060	120.513	311.80	-317.81	-3.13	8.81	8.44	9.35	109.588	16.880	
321.75	19.466	125.532	320.42	-309.19	-4.69	11.18	10.65	12.13	112.745	9.493	
330.22	22.145	126.416	328.33	-301.28	-6.46	13.62	12.89	15.07	115.367	9.560	
339.83	25.116	128.421	337.15	-292.46	-8.80	16.67	15.70	18.85	117.825	9.599	
349.27	27.949	130.610	345.59	-284.02	-11.48	19.92	18.66	23.00	119.963	9.529	
357.68	30.685	131.530	352.92	-276.69	-14.19	23.03	21.47	27.05	121.647	9.884	
367.12	33.310	132.999	360.93	-268.68	-17.56	26.73	24.81	31.98	123.302	8.702	
375.84	35.822	132.932	368.11	-261.50	-20.93	30.35	28.07	36.87	124.593	8.642	
385.89	38.360	132.821	376.12	-253.49	-25.05	34.79	32.07	42.87	125.759	7.582	
394.71	40.884	132.904	382.92	-246.69	-28.88	38.91	35.78	48.46	126.582	8.580	
403.20	42.980	133.141	389.23	-240.38	-32.75	43.06	39.52	54.10	127.257	7.428	
412.91	45.416	133.349	396.19	-233.42	-37.39	47.99	43.95	60.83	127.922	7.540	
421.59	47.914	133.346	402.15	-227.46	-41.72	52.58	48.08	67.12	128.431	8.640	
430.74	50.228	132.867	408.14	-221.47	-46.44	57.63	52.62	74.01	128.867	7.678	
440.59	53.335	132.146	414.23	-215.38	-51.67	63.33	57.77	81.73	129.210	9.622	
449.22	55.593	132.154	419.25	-210.36	-56.38	68.54	62.47	88.75	129.443	7.845	
458.13	58.061	132.468	424.13	-205.48	-61.40	74.05	67.45	96.20	129.666	8.356	
467.53	60.157	132.886	428.95	-200.66	-66.87	79.98	72.79	104.26	129.899	6.786	
476.77	62.848	132.427	433.36	-196.25	-72.37	85.95	78.17	112.36	130.098	8.839	



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Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Survey											
Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Comments/Formations
485.84	65.567	132.795	437.30	-192.31	-77.90	91.96	83.59	120.52	130.268	9.059	
495.64	68.013	132.590	441.17	-188.44	-84.01	98.58	89.56	129.52	130.436	7.512	
500.00	69.004	132.731	442.76	-186.85	-86.76	101.56	92.25	133.57	130.504	6.877	9 5/8in Casing
504.82	70.099	132.885	444.45	-185.16	-89.82	104.88	95.23	138.08	130.579	6.877	
513.39	73.043	132.839	447.16	-182.45	-95.36	110.84	100.60	146.21	130.706	10.306	
522.42	75.326	132.834	449.62	-179.99	-101.26	117.20	106.34	154.89	130.826	7.587	
531.45	77.109	132.152	451.77	-177.84	-107.19	123.67	112.17	163.66	130.915	6.316	
540.60	80.095	132.664	453.58	-176.03	-113.24	130.30	118.15	172.62	130.993	9.925	
550.24	82.613	132.605	455.03	-174.58	-119.69	137.30	124.46	182.14	131.078	7.845	
555.55	82.404	132.676	455.72	-173.89	-123.26	141.18	127.96	187.41	131.122	1.245	AA16 LP (1)
559.15	82.263	132.724	456.20	-173.41	-125.67	143.80	130.32	190.98	131.152	1.245	
568.30	82.678	132.418	457.40	-172.21	-131.81	150.48	136.35	200.05	131.216	1.686	
577.75	82.649	132.558	458.60	-171.01	-138.14	157.39	142.58	209.42	131.273	0.450	
586.51	82.522	132.350	459.74	-169.87	-144.01	163.81	148.37	218.11	131.320	0.830	
595.97	83.232	132.718	460.91	-168.70	-150.35	170.72	154.60	227.49	131.370	2.533	
604.70	83.050	131.256	461.95	-167.66	-156.15	177.16	160.42	236.15	131.393	5.031	
613.82	82.943	131.088	463.06	-166.55	-162.11	183.98	166.60	245.21	131.385	0.650	
623.37	82.665	132.128	464.26	-165.35	-168.40	191.06	173.01	254.68	131.393	3.359	
632.02	82.981	130.773	465.34	-164.27	-174.08	197.49	178.83	263.26	131.395	4.793	
641.55	82.524	131.417	466.54	-163.07	-180.29	204.61	185.29	272.71	131.384	2.474	
651.14	82.604	132.124	467.78	-161.83	-186.63	211.71	191.71	282.23	131.397	2.205	
659.65	82.680	130.960	468.87	-160.74	-192.23	218.03	197.42	290.67	131.402	4.082	
669.32	83.192	130.958	470.06	-159.55	-198.52	225.28	203.99	300.27	131.388	1.586	
678.07	82.425	130.295	471.16	-158.45	-204.17	231.86	209.97	308.94	131.366	3.468	
687.13	83.094	128.057	472.30	-157.31	-209.85	238.83	216.33	317.92	131.304	7.677	
696.91	82.952	125.924	473.49	-156.12	-215.69	246.58	223.45	327.60	131.177	6.508	
705.77	82.879	122.976	474.58	-155.03	-220.66	253.83	230.16	336.34	131.001	9.905	
714.92	83.141	120.496	475.69	-153.92	-225.44	261.55	237.36	345.30	130.759	8.121	
723.87	83.227	119.073	476.76	-152.85	-229.85	269.26	244.58	354.03	130.485	4.745	
732.69	83.787	115.630	477.75	-151.86	-233.88	277.05	251.92	362.56	130.170	11.790	
742.30	84.530	113.319	478.73	-150.88	-237.84	285.75	260.17	371.78	129.771	7.541	
751.58	84.339	110.927	479.63	-149.98	-241.32	294.31	268.33	380.59	129.350	7.717	
760.95	84.529	109.368	480.54	-149.07	-244.53	303.06	276.72	389.41	128.899	5.006	
MWD Run #3											
770.02	85.254	106.066	481.35	-148.26	-247.28	311.67	285.00	397.85	128.428	11.138	
780.58	83.756	104.260	482.36	-147.25	-250.03	321.81	294.81	407.53	127.845	6.649	
790.25	84.182	101.694	483.38	-146.23	-252.19	331.18	303.92	416.27	127.288	8.026	
799.78	84.473	99.757	484.32	-145.29	-253.95	340.50	313.01	424.77	126.716	6.136	
808.44	84.640	98.415	485.14	-144.47	-255.31	349.01	321.34	432.43	126.186	4.664	
817.84	85.151	95.377	485.98	-143.63	-256.44	358.31	330.47	440.62	125.591	9.794	
826.81	85.082	92.691	486.74	-142.87	-257.06	367.22	339.28	448.26	124.993	8.954	
835.97	85.763	89.679	487.47	-142.14	-257.25	376.35	348.34	455.87	124.355	10.083	
845.07	86.519	87.974	488.08	-141.53	-257.07	385.43	357.39	463.29	123.702	6.137	
854.11	86.425	85.883	488.64	-140.97	-256.58	394.44	366.40	470.55	123.044	6.933	
863.31	87.095	82.878	489.16	-140.45	-255.68	403.58	375.58	477.75	122.356	10.024	
872.33	87.165	81.353	489.61	-140.00	-254.45	412.50	384.58	484.66	121.668	5.071	
881.27	87.274	77.691	490.05	-139.56	-252.83	421.28	393.48	491.32	120.970	12.280	
890.60	87.855	75.041	490.44	-139.17	-250.63	430.34	402.72	498.00	120.217	8.716	
900.49	87.958	73.069	490.80	-138.81	-247.91	439.84	412.45	504.89	119.408	5.986	



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Project:	Northern Lights	MD Reference:	RKB
Site:	AA Pad	North reference:	Grid North
Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Comments/Formations
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908.72	88.982	69.434	491.02	-138.59	-245.27	447.63	420.46	510.42	118.720	13.761	
918.20	89.261	67.190	491.17	-138.44	-241.77	456.43	429.58	516.51	117.909	7.155	
926.71	89.383	64.275	491.27	-138.34	-238.27	464.19	437.65	521.77	117.172	10.288	AA16 LP (2)
927.32	89.392	64.065	491.28	-138.33	-238.00	464.74	438.22	522.14	117.118	10.288	
936.60	89.555	64.589	491.36	-138.25	-233.98	473.10	446.95	527.80	116.316	1.774	
945.42	89.624	65.968	491.42	-138.19	-230.30	481.12	455.30	533.39	115.579	4.696	
954.88	89.726	65.523	491.48	-138.13	-226.41	489.74	464.27	539.54	114.811	1.448	
963.82	90.184	65.162	491.49	-138.12	-222.68	497.86	472.73	545.39	114.097	1.957	
973.34	89.450	65.211	491.52	-138.09	-218.68	506.51	481.73	551.70	113.352	2.318	
982.40	89.918	64.536	491.57	-138.04	-214.84	514.71	490.28	557.75	112.655	2.720	
986.71	90.035	64.772	491.57	-138.04	-212.99	518.60	494.34	560.64	112.328	1.834	AA16 LP
991.17	90.157	65.016	491.56	-138.05	-211.10	522.64	498.55	563.66	111.994	1.834	
1,000.00	90.196	65.524	491.53	-138.08	-207.41	530.66	506.90	569.75	111.348	1.730	7in Casing
1,001.10	90.201	65.587	491.53	-138.08	-206.95	531.66	507.95	570.52	111.269	1.730	
1,009.96	89.725	65.715	491.53	-138.08	-203.30	539.74	516.35	576.75	110.639	1.669	
1,018.97	90.373	64.186	491.53	-138.08	-199.48	547.90	524.86	583.08	110.006	5.529	
1,028.00	90.204	65.084	491.48	-138.13	-195.61	556.06	533.37	589.46	109.381	3.036	
1,036.87	90.075	64.831	491.46	-138.15	-191.86	564.09	541.74	595.83	108.784	0.961	
1,046.69	90.305	64.147	491.43	-138.18	-187.63	572.96	550.99	602.90	108.133	2.205	
1,055.52	90.276	64.903	491.38	-138.23	-183.83	580.93	559.30	609.32	107.560	2.570	
1,064.96	89.817	65.398	491.38	-138.23	-179.87	589.49	568.23	616.32	106.968	2.145	
1,073.96	89.523	64.999	491.43	-138.18	-176.09	597.66	576.74	623.06	106.417	1.652	
1,083.34	90.354	64.814	491.44	-138.17	-172.11	606.16	585.59	630.12	105.851	2.723	
1,091.68	90.197	65.890	491.40	-138.21	-168.63	613.74	593.48	636.48	105.364	3.911	
1,101.02	90.096	65.969	491.37	-138.24	-164.83	622.27	602.35	643.72	104.836	0.412	
1,110.03	89.802	65.183	491.38	-138.23	-161.10	630.47	610.89	650.73	104.334	2.794	
1,119.22	89.416	65.064	491.44	-138.17	-157.23	638.81	619.58	657.87	103.828	1.319	
1,128.59	89.568	65.230	491.53	-138.08	-153.30	647.31	628.44	665.21	103.323	0.721	
1,137.54	89.564	64.178	491.59	-138.02	-149.47	655.40	636.87	672.23	102.847	3.526	
1,146.56	89.910	64.369	491.64	-137.97	-145.56	663.52	645.35	679.30	102.373	1.314	
1,156.25	89.806	64.567	491.66	-137.95	-141.38	672.27	654.48	686.97	101.876	0.692	
1,165.52	89.506	64.038	491.72	-137.89	-137.36	680.62	663.19	694.34	101.410	1.968	
1,174.55	89.676	64.305	491.78	-137.83	-133.43	688.75	671.68	701.55	100.964	1.052	
1,183.99	90.043	64.840	491.80	-137.81	-129.37	697.27	680.57	709.18	100.511	2.062	
1,192.39	90.249	65.097	491.78	-137.83	-125.82	704.89	688.50	716.03	100.120	1.176	

MWD Run #4

1,201.65	89.898	65.117	491.77	-137.84	-121.92	713.29	697.25	723.63	99.700	1.139	
1,209.07	90.297	64.086	491.76	-137.85	-118.74	719.99	704.25	729.71	99.365	4.470	
1,218.13	89.773	64.811	491.75	-137.86	-114.83	728.16	712.77	737.16	98.962	2.962	
1,227.07	89.724	64.118	491.79	-137.82	-110.98	736.23	721.19	744.55	98.572	2.331	
1,236.77	90.171	64.624	491.80	-137.81	-106.78	744.97	730.31	752.59	98.157	2.088	
1,246.15	89.618	65.206	491.82	-137.79	-102.81	753.47	739.17	760.45	97.770	2.568	
1,254.90	89.847	65.035	491.86	-137.75	-99.12	761.41	747.44	767.83	97.417	0.980	
1,263.61	89.636	65.193	491.90	-137.71	-95.46	769.31	755.67	775.21	97.073	0.908	
1,273.43	90.278	64.659	491.90	-137.71	-91.30	778.20	764.94	783.54	96.691	2.551	
1,282.22	90.010	65.819	491.88	-137.73	-87.62	786.18	773.26	791.05	96.359	4.063	



Database:	Example Projects Database	Local Coordinate Reference:	Well AA16
Company:	Anglian Oil Company Ltd.	TVD Reference:	RKB
Project:	Northern Lights	MD Reference:	RKB
Site:	AA Pad	North reference:	Grid North
Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Survey											
Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Comments/ Formations
1,291.43	89.774	65.540	491.90	-137.71	-83.82	794.58	781.99	798.99	96.022	1.190	
1,300.61	89.790	65.152	491.94	-137.67	-79.99	802.92	790.68	806.90	95.689	1.269	
1,309.48	90.261	64.863	491.93	-137.68	-76.25	810.96	799.06	814.54	95.371	1.869	
1,318.75	89.986	65.465	491.91	-137.70	-72.35	819.37	807.82	822.56	95.046	2.142	
1,327.67	90.332	64.326	491.89	-137.72	-68.57	827.45	816.24	830.29	94.737	4.004	
1,337.31	89.917	64.119	491.87	-137.74	-64.38	836.13	825.30	838.60	94.403	1.443	
1,346.04	89.730	64.487	491.89	-137.72	-60.59	844.00	833.51	846.17	94.106	1.419	
1,355.95	90.268	65.517	491.89	-137.72	-56.40	852.98	842.87	854.84	93.783	3.518	
1,364.27	89.659	65.902	491.90	-137.71	-52.98	860.56	850.76	862.19	93.523	2.598	
1,373.76	89.660	64.691	491.95	-137.66	-49.01	869.18	859.74	870.56	93.228	3.828	
1,382.74	89.579	65.369	492.01	-137.60	-45.22	877.32	868.22	878.49	92.951	2.281	
1,392.49	89.747	65.583	492.07	-137.54	-41.18	886.19	877.46	887.15	92.660	0.837	
1,401.52	89.403	64.071	492.14	-137.47	-37.34	894.37	885.98	895.14	92.390	5.151	
1,410.19	90.142	65.588	492.17	-137.44	-33.65	902.21	894.16	902.84	92.136	5.839	
1,419.74	90.241	64.967	492.14	-137.47	-29.65	910.89	903.19	911.37	91.865	1.975	
1,428.48	89.679	64.413	492.15	-137.46	-25.92	918.79	911.43	919.15	91.616	2.709	
1,437.46	90.103	65.204	492.16	-137.45	-22.10	926.91	919.90	927.18	91.366	2.998	
1,446.55	89.805	65.818	492.17	-137.44	-18.33	935.19	928.51	935.37	91.123	2.252	
1,455.99	90.212	65.891	492.17	-137.44	-14.47	943.80	937.47	943.91	90.878	1.314	
1,465.61	90.142	65.307	492.14	-137.47	-10.49	952.56	946.59	952.62	90.631	1.834	
1,474.27	89.838	64.029	492.14	-137.47	-6.79	960.39	954.75	960.41	90.405	4.551	
1,483.36	89.478	64.824	492.20	-137.41	-2.86	968.59	963.31	968.59	90.169	2.880	
1,492.75	89.811	65.429	492.25	-137.36	1.09	977.11	972.18	977.11	89.936	2.206	
1,501.67	89.739	63.519	492.29	-137.32	4.93	985.15	980.58	985.17	89.713	6.428	
1,510.91	90.111	65.407	492.30	-137.31	8.91	993.49	989.28	993.53	89.486	6.248	
1,519.76	89.712	63.647	492.31	-137.30	12.72	1,001.48	997.61	1,001.56	89.272	6.117	
1,529.35	90.199	64.087	492.32	-137.29	16.94	1,010.09	1,006.61	1,010.23	89.039	2.053	
1,538.23	89.552	64.665	492.34	-137.27	20.78	1,018.10	1,014.96	1,018.31	88.831	2.931	
1,548.03	89.993	65.116	492.38	-137.23	24.94	1,026.97	1,024.21	1,027.27	88.609	1.931	
1,556.91	90.356	63.581	492.35	-137.26	28.79	1,034.97	1,032.56	1,035.38	88.407	5.329	
1,566.22	89.643	63.609	492.35	-137.26	32.93	1,043.31	1,041.28	1,043.83	88.192	2.299	
1,575.55	90.340	64.629	492.35	-137.26	37.00	1,051.71	1,050.04	1,052.36	87.985	3.972	
1,584.10	89.514	64.130	492.37	-137.24	40.70	1,059.42	1,058.09	1,060.20	87.800	3.386	
1,593.46	90.384	64.325	492.37	-137.24	44.77	1,067.85	1,066.88	1,068.78	87.599	2.858	
1,602.15	90.033	64.520	492.34	-137.27	48.52	1,075.68	1,075.06	1,076.78	87.418	1.386	
1,611.85	89.999	64.967	492.34	-137.27	52.66	1,084.46	1,084.21	1,085.73	87.220	1.386	
1,620.78	90.303	64.402	492.32	-137.29	56.47	1,092.53	1,092.63	1,093.99	87.041	2.155	
1,630.48	89.975	64.145	492.29	-137.32	60.68	1,101.27	1,101.75	1,102.94	86.846	1.289	
1,638.78	89.645	63.648	492.32	-137.29	64.34	1,108.72	1,109.53	1,110.59	86.679	2.156	

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (m)	+N/-S (m)	+E/-W (m)	Northing (m)	Easting (m)	Latitude	Longitude	
AA16 LP	90.000	65.000	486.60	-214.62	519.36	6,789,115.59 N	573,012.40 E	61° 13' 52.9605" N	109° 38' 24.5299" W	- survey misses the target center by 5.28m at 986.71m MD (491.57TVD, 212.99 S, 518.60 E)
										- Polygon
AA16 LP (1)	82.747	131.739	453.14	-124.98	140.08	6,789,205.23 N	572,633.12 E	61° 13' 56.1109" N	109° 38' 49.8278" W	- survey misses the target center by 3.29m at 555.55m MD (455.72TVD, 123.26 S, 141.18 E)
										- Circle



Database:	Example Projects Database	Local Coordinate Reference:	Well AA16
Company:	Anglian Oil Company Ltd.	TVD Reference:	RKB
Project:	Northern Lights	MD Reference:	RKB
Site:	AA Pad	North reference:	Grid North
Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:			
Design:	MWD Run #4		

Targets									
Target Name -hit/miss target -Shape	Dip Angle (°)	Dip Dir. (°)	TVD (m)	+N/-S (m)	+E/-W (m)	Northing (m)	Easting (m)	Latitude	Longitude
AA16 LP (2) - survey misses the target center by 5.03m at 926.71m MD (491.27TVD, 238.27 S, 464.19 E) - Circle	90.000	65.000	486.60	-239.97	464.98	6,789,090.24 N	572,958.02 E	61° 13' 52.1778" N 109° 38' 28.2101" W	
AA16 TD - survey does not penetrate the target plane - Polygon	90.000	65.000	486.60	123.48	1,244.41	6,789,453.69 N	573,737.45 E	61° 14' 03.3942" N 109° 37' 35.4558" W	

Casing Points					
Measured Depth (m)	Vertical Depth (m)	Name	Casing Diameter (mm)	Hole Diameter (mm)	
250.00	250.00	13 3/8in Casing	340	445	
500.00	442.76	9 5/8in Casing	244	311	
1,000.00	491.53	7in Casing	178	241	

Checked By:	Approved By:	Date:
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