



**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 Uncertainty 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:		Output errors are at	2.00 sigma
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		18/08/2015			
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	

Position Uncertainty										
Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Vertical 1/2 Axis (m)	Minor 1/2 Axis (m)	Major 1/2 Axis (m)	Major Axis Azim. (°)
MWD Run #1										
0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.00	1.50	1.50	0.000
2.14	0.160	85.065	2.14	0.00	0.00	0.00	5.48	1.50	1.51	175.065
11.00	0.220	120.070	11.00	-0.01	0.03	0.03	5.48	1.53	1.54	18.818
20.32	0.172	210.700	20.32	-0.03	0.04	0.04	5.48	1.56	1.56	43.992
29.29	0.222	129.573	29.29	-0.05	0.04	0.04	5.48	1.57	1.57	67.953
38.49	0.497	99.702	38.49	-0.07	0.10	0.09	5.48	1.60	1.61	7.532
47.35	0.160	271.070	47.35	-0.08	0.12	0.12	5.48	1.60	1.60	1.882
56.52	0.005	285.698	56.52	-0.07	0.11	0.10	5.48	1.63	1.63	1.958
66.14	0.087	77.618	66.14	-0.07	0.12	0.11	5.48	1.63	1.64	1.948
74.53	0.195	96.449	74.53	-0.07	0.14	0.13	5.48	1.66	1.67	2.646



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Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:		Output errors are at	2.00 sigma
Design:	MWD Run #4		

Position Uncertainty

Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Vertical 1/2 Axis (m)	Minor 1/2 Axis (m)	Major 1/2 Axis (m)	Major Axis Azim. (°)
84.42	0.321	254.180	84.42	-0.08	0.13	0.12	5.48	1.66	1.67	178.816
93.63	0.077	200.314	93.63	-0.10	0.10	0.09	5.48	1.69	1.69	176.141
102.67	0.043	237.933	102.67	-0.10	0.10	0.08	5.48	1.72	1.72	177.042
111.16	0.315	263.011	111.16	-0.11	0.07	0.06	5.48	1.74	1.75	176.575
120.68	0.041	187.971	120.68	-0.11	0.04	0.03	5.48	1.76	1.77	175.874
130.28	0.072	34.511	130.28	-0.11	0.05	0.03	5.48	1.77	1.77	176.280
139.35	0.009	172.630	139.35	-0.11	0.05	0.04	5.48	1.77	1.77	176.082
148.09	0.272	203.054	148.09	-0.13	0.04	0.03	5.48	1.80	1.80	170.929
157.83	0.119	55.445	157.83	-0.14	0.04	0.03	5.48	1.80	1.80	173.488
166.89	0.010	1.284	166.88	-0.14	0.05	0.03	5.48	1.83	1.83	171.866
175.22	0.181	196.726	175.22	-0.15	0.04	0.03	5.48	1.83	1.83	168.837
185.26	0.387	141.524	185.26	-0.19	0.06	0.04	5.48	1.86	1.86	179.087
193.83	0.129	279.761	193.83	-0.21	0.07	0.05	5.48	1.86	1.86	174.554
203.14	0.198	145.158	203.14	-0.22	0.07	0.05	5.48	1.86	1.87	174.511
212.53	0.207	266.645	212.53	-0.24	0.06	0.04	5.48	1.87	1.87	171.402
220.97	0.350	227.151	220.97	-0.26	0.03	0.00	5.48	1.90	1.90	166.615
230.66	0.030	72.732	230.66	-0.28	0.01	-0.02	5.48	1.90	1.90	170.103
239.68	0.277	112.688	239.68	-0.28	0.03	0.00	5.48	1.93	1.93	173.921
240.00	0.303	110.214	240.00	-0.28	0.03	0.00	5.48	1.93	1.93	167.856
248.66	1.085	92.716	248.66	-0.30	0.13	0.10	5.48	1.94	1.95	2.335
250.00	1.296	99.595	250.00	-0.30	0.16	0.13	5.48	1.94	1.96	4.726
258.14	2.743	116.334	258.13	-0.40	0.43	0.38	5.48	1.95	1.99	19.269
267.31	4.696	105.565	267.28	-0.60	0.99	0.92	5.48	1.95	2.09	19.374
276.08	6.738	105.408	276.01	-0.83	1.83	1.73	5.46	1.96	2.24	15.129
285.24	8.891	105.634	285.09	-1.17	3.03	2.89	5.44	1.98	2.40	15.303
294.94	11.824	105.995	294.63	-1.64	4.71	4.52	5.41	2.01	2.61	15.679

MWD Run #2

304.09	14.327	105.692	303.53	-2.21	6.70	6.44	5.37	2.05	2.84	15.690
312.67	17.060	120.513	311.80	-3.13	8.81	8.44	5.31	2.12	3.05	23.991
321.75	19.466	125.532	320.42	-4.69	11.18	10.65	5.25	2.22	3.27	34.180
330.22	22.145	126.416	328.33	-6.46	13.62	12.89	5.18	2.29	3.49	37.130
339.83	25.116	128.421	337.15	-8.80	16.67	15.70	5.10	2.40	3.72	38.650
349.27	27.949	130.610	345.59	-11.48	19.92	18.66	5.00	2.53	3.95	40.906
357.68	30.685	131.530	352.92	-14.19	23.03	21.47	4.90	2.66	4.17	42.570
367.12	33.310	132.999	360.93	-17.56	26.73	24.81	4.79	2.82	4.38	43.959
375.84	35.822	132.932	368.11	-20.93	30.35	28.07	4.68	3.00	4.57	44.800
385.89	38.360	132.821	376.12	-25.05	34.79	32.07	4.57	3.23	4.76	44.816
394.71	40.884	132.904	382.92	-28.88	38.91	35.78	4.45	3.45	4.93	44.907
403.20	42.980	133.141	389.23	-32.75	43.06	39.52	4.34	3.67	5.09	45.282
412.91	45.416	133.349	396.19	-37.39	47.99	43.95	4.22	3.95	5.24	45.922
421.59	47.914	133.346	402.15	-41.72	52.58	48.08	4.09	4.21	5.40	46.408
430.74	50.228	132.867	408.14	-46.44	57.63	52.62	3.97	4.51	5.54	46.484
440.59	53.335	132.146	414.23	-51.67	63.33	57.77	3.82	4.85	5.70	45.929
449.22	55.593	132.154	419.25	-56.38	68.54	62.47	3.68	5.17	5.84	45.773
458.13	58.061	132.468	424.13	-61.40	74.05	67.45	3.55	5.51	5.96	48.246
467.53	60.157	132.886	428.95	-66.87	79.98	72.79	3.43	5.87	6.09	58.748
476.77	62.848	132.427	433.36	-72.37	85.95	78.17	3.31	6.15	6.29	105.627



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Well:	AA16	Survey Calculation Method:	Minimum Curvature
Wellbore:		Output errors are at	2.00 sigma
Design:	MWD Run #4		

Position Uncertainty										
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485.84	65.567	132.795	437.30	-77.90	91.96	83.59	3.18	6.28	6.66	123.718
495.64	68.013	132.590	441.17	-84.01	98.58	89.56	3.06	6.38	7.08	127.552
500.00	69.004	132.731	442.76	-86.76	101.56	92.25	3.01	6.42	7.28	128.286
504.82	70.099	132.885	444.45	-89.82	104.88	95.23	2.96	6.46	7.49	129.097
513.39	73.043	132.839	447.16	-95.36	110.84	100.60	2.87	6.53	7.88	129.741
522.42	75.326	132.834	449.62	-101.26	117.20	106.34	2.78	6.60	8.30	130.374
531.45	77.109	132.152	451.77	-107.19	123.67	112.17	2.73	6.65	8.73	131.043
540.60	80.095	132.664	453.58	-113.24	130.30	118.15	2.67	6.70	9.16	131.343
550.24	82.613	132.605	455.03	-119.69	137.30	124.46	2.64	6.74	9.63	131.359
555.55	82.404	132.676	455.72	-123.26	141.18	127.96	2.64	6.75	9.89	131.441
559.15	82.263	132.724	456.20	-125.67	143.80	130.32	2.64	6.76	10.06	131.496
568.30	82.678	132.418	457.40	-131.81	150.48	136.35	2.67	6.76	10.51	131.647
577.75	82.649	132.558	458.60	-138.14	157.39	142.58	2.71	6.77	10.97	131.771
586.51	82.522	132.350	459.74	-144.01	163.81	148.37	2.74	6.77	11.40	131.836
595.97	83.232	132.718	460.91	-150.35	170.72	154.60	2.78	6.77	11.86	131.877
604.70	83.050	131.256	461.95	-156.15	177.16	160.42	2.81	6.78	12.29	132.014
613.82	82.943	131.088	463.06	-162.11	183.98	166.60	2.85	6.78	12.74	132.181
623.37	82.665	132.128	464.26	-168.40	191.06	173.01	2.90	6.78	13.22	132.069
632.02	82.981	130.773	465.34	-174.08	197.49	178.83	2.94	6.78	13.65	132.045
641.55	82.524	131.417	466.54	-180.29	204.61	185.29	2.98	6.78	14.12	132.084
651.14	82.604	132.124	467.78	-186.63	211.71	191.71	3.03	6.78	14.60	131.960
659.65	82.680	130.960	468.87	-192.23	218.03	197.42	3.07	6.78	15.02	131.962
669.32	83.192	130.958	470.06	-198.52	225.28	203.99	3.12	6.79	15.51	132.010
678.07	82.425	130.295	471.16	-204.17	231.86	209.97	3.16	6.79	15.95	131.993
687.13	83.094	128.057	472.30	-209.85	238.83	216.33	3.21	6.79	16.41	132.041
696.91	82.952	125.924	473.49	-215.69	246.58	223.45	3.26	6.78	16.91	132.070
705.77	82.879	122.976	474.58	-220.66	253.83	230.16	3.31	6.76	17.37	132.041
714.92	83.141	120.496	475.69	-225.44	261.55	237.36	3.36	6.73	17.85	131.919
723.87	83.227	119.073	476.76	-229.85	269.26	244.58	3.41	6.71	18.32	131.678
732.69	83.787	115.630	477.75	-233.88	277.05	251.92	3.45	6.68	18.79	131.383
742.30	84.530	113.319	478.73	-237.84	285.75	260.17	3.50	6.63	19.30	131.011
751.58	84.339	110.927	479.63	-241.32	294.31	268.33	3.55	6.59	19.78	130.556
760.95	84.529	109.368	480.54	-244.53	303.06	276.72	3.60	6.56	20.27	130.042

MWD Run #3

770.02	85.254	106.066	481.35	-247.28	311.67	285.00	3.65	6.51	20.73	129.509
780.58	83.756	104.260	482.36	-250.03	321.81	294.81	3.72	6.45	21.27	128.845
790.25	84.182	101.694	483.38	-252.19	331.18	303.92	3.79	6.40	21.75	128.189
799.78	84.473	99.757	484.32	-253.95	340.50	313.01	3.84	6.36	22.22	127.533
808.44	84.640	98.415	485.14	-255.31	349.01	321.34	3.89	6.33	22.64	126.917
817.84	85.151	95.377	485.98	-256.44	358.31	330.47	3.95	6.28	23.08	126.224
826.81	85.082	92.691	486.74	-257.06	367.22	339.28	4.00	6.20	23.51	125.557
835.97	85.763	89.679	487.47	-257.25	376.35	348.34	4.06	6.12	23.92	124.840
845.07	86.519	87.974	488.08	-257.07	385.43	357.39	4.11	6.06	24.32	124.117
854.11	86.425	85.883	488.64	-256.58	394.44	366.40	4.17	6.02	24.71	123.381
863.31	87.095	82.878	489.16	-255.68	403.58	375.58	4.23	5.94	25.09	122.621
872.33	87.165	81.353	489.61	-254.45	412.50	384.58	4.29	5.89	25.45	121.878
881.27	87.274	77.691	490.05	-252.83	421.28	393.48	4.35	5.81	25.79	121.121
890.60	87.855	75.041	490.44	-250.63	430.34	402.72	4.41	5.72	26.14	120.328
900.49	87.958	73.069	490.80	-247.91	439.84	412.45	4.47	5.67	26.48	119.492



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Design:	MWD Run #4		

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908.72	88.982	69.434	491.02	-245.27	447.63	420.46	4.52	5.58	26.75	118.784
918.20	89.261	67.190	491.17	-241.77	456.43	429.58	4.59	5.51	27.04	117.979
926.71	89.383	64.275	491.27	-238.27	464.19	437.65	4.65	5.45	27.29	117.256
927.32	89.392	64.065	491.28	-238.00	464.74	438.22	4.65	5.44	27.30	117.204
936.60	89.555	64.589	491.36	-233.98	473.10	446.95	4.71	5.46	27.56	116.457
945.42	89.624	65.968	491.42	-230.30	481.12	455.30	4.77	5.59	27.80	115.782
954.88	89.726	65.523	491.48	-226.41	489.74	464.27	4.84	5.70	28.06	115.055
963.82	90.184	65.162	491.49	-222.68	497.86	472.73	4.90	5.76	28.32	114.374
973.34	89.450	65.211	491.52	-218.68	506.51	481.73	4.97	5.84	28.59	113.664
982.40	89.918	64.536	491.57	-214.84	514.71	490.28	5.03	5.91	28.86	112.995
986.71	90.035	64.772	491.57	-212.99	518.60	494.34	5.06	5.95	28.98	112.685
991.17	90.157	65.016	491.56	-211.10	522.64	498.55	5.09	5.98	29.12	112.364
1,000.00	90.196	65.524	491.53	-207.41	530.66	506.90	5.15	6.09	29.38	111.742
1,001.10	90.201	65.587	491.53	-206.95	531.66	507.95	5.16	6.10	29.41	111.665
1,009.96	89.725	65.715	491.53	-203.30	539.74	516.35	5.22	6.19	29.68	111.050
1,018.97	90.373	64.186	491.53	-199.48	547.90	524.86	5.29	6.24	29.96	110.424
1,028.00	90.204	65.084	491.48	-195.61	556.06	533.37	5.35	6.30	30.25	109.819
1,036.87	90.075	64.831	491.46	-191.86	564.09	541.74	5.41	6.39	30.52	109.231
1,046.69	90.305	64.147	491.43	-187.63	572.96	550.99	5.48	6.46	30.83	108.587
1,055.52	90.276	64.903	491.38	-183.83	580.93	559.30	5.55	6.53	31.12	108.025
1,064.96	89.817	65.398	491.38	-179.87	589.49	568.23	5.61	6.64	31.42	107.435
1,073.96	89.523	64.999	491.43	-176.09	597.66	576.74	5.68	6.71	31.72	106.879
1,083.34	90.354	64.814	491.44	-172.11	606.16	585.59	5.74	6.77	32.03	106.312
1,091.68	90.197	65.890	491.40	-168.63	613.74	593.48	5.80	6.85	32.32	105.821
1,101.02	90.096	65.969	491.37	-164.83	622.27	602.35	5.87	6.94	32.64	105.279
1,110.03	89.802	65.183	491.38	-161.10	630.47	610.89	5.94	7.00	32.95	104.764
1,119.22	89.416	65.064	491.44	-157.23	638.81	619.58	6.00	7.04	33.27	104.251
1,128.59	89.568	65.230	491.53	-153.30	647.31	628.44	6.07	7.11	33.60	103.736
1,137.54	89.564	64.178	491.59	-149.47	655.40	636.87	6.14	7.16	33.92	103.248
1,146.56	89.910	64.369	491.64	-145.56	663.52	645.35	6.20	7.20	34.23	102.770
1,156.25	89.806	64.567	491.66	-141.38	672.27	654.48	6.27	7.28	34.57	102.263
1,165.52	89.506	64.038	491.72	-137.36	680.62	663.19	6.34	7.33	34.90	101.785
1,174.55	89.676	64.305	491.78	-133.43	688.75	671.68	6.41	7.39	35.23	101.332
1,183.99	90.043	64.840	491.80	-129.37	697.27	680.57	6.48	7.46	35.57	100.866
1,192.39	90.249	65.097	491.78	-125.82	704.89	688.50	6.54	7.53	35.87	100.460

MWD Run #4

1,201.65	89.898	65.117	491.77	-121.92	713.29	697.25	6.61	7.59	36.22	100.022
1,209.07	90.297	64.086	491.76	-118.74	719.99	704.25	6.66	7.62	36.49	99.676
1,218.13	89.773	64.811	491.75	-114.83	728.16	712.77	6.73	7.66	36.83	99.264
1,227.07	89.724	64.118	491.79	-110.98	736.23	721.19	6.79	7.72	37.16	98.857
1,236.77	90.171	64.624	491.80	-106.78	744.97	730.31	6.86	7.77	37.52	98.431
1,246.15	89.618	65.206	491.82	-102.81	753.47	739.17	6.93	7.84	37.88	98.026
1,254.90	89.847	65.035	491.86	-99.12	761.41	747.44	7.00	7.89	38.21	97.654
1,263.61	89.636	65.193	491.90	-95.46	769.31	755.67	7.06	7.93	38.55	97.295
1,273.43	90.278	64.659	491.90	-91.30	778.20	764.94	7.14	7.98	38.93	96.894
1,282.22	90.010	65.819	491.88	-87.62	786.18	773.26	7.20	8.03	39.27	96.548



True North Directional Services Inc.
Survey Uncertainty 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:		Output errors are at	2.00 sigma
Design:	MWD Run #4		

Position Uncertainty										
Measured Depth (m)	Incl. (°)	Az. (°)	Vertical Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Vertical 1/2 Axis (m)	Minor 1/2 Axis (m)	Major 1/2 Axis (m)	Major Axis Azim. (°)
1,291.43	89.774	65.540	491.90	-83.82	794.58	781.99	7.27	8.09	39.64	96.187
1,300.61	89.790	65.152	491.94	-79.99	802.92	790.68	7.34	8.12	40.00	95.838
1,309.48	90.261	64.863	491.93	-76.25	810.96	799.06	7.40	8.15	40.35	95.506
1,318.75	89.986	65.465	491.91	-72.35	819.37	807.82	7.47	8.20	40.72	95.166
1,327.67	90.332	64.326	491.89	-68.57	827.45	816.24	7.54	8.23	41.07	94.840
1,337.31	89.917	64.119	491.87	-64.38	836.13	825.30	7.61	8.26	41.45	94.496
1,346.04	89.730	64.487	491.89	-60.59	844.00	833.51	7.68	8.30	41.80	94.188
1,355.95	90.268	65.517	491.89	-56.40	852.98	842.87	7.75	8.36	42.19	93.848
1,364.27	89.659	65.902	491.90	-52.98	860.56	850.76	7.81	8.41	42.53	93.568
1,373.76	89.660	64.691	491.95	-49.01	869.18	859.74	7.89	8.44	42.92	93.255
1,382.74	89.579	65.369	492.01	-45.22	877.32	868.22	7.95	8.46	43.29	92.970
1,392.49	89.747	65.583	492.07	-41.18	886.19	877.46	8.03	8.51	43.68	92.660
1,401.52	89.403	64.071	492.14	-37.34	894.37	885.98	8.09	8.53	44.05	92.377
1,410.19	90.142	65.588	492.17	-33.65	902.21	894.16	8.16	8.56	44.41	92.116
1,419.74	90.241	64.967	492.14	-29.65	910.89	903.19	8.23	8.61	44.80	91.824
1,428.48	89.679	64.413	492.15	-25.92	918.79	911.43	8.30	8.62	45.16	91.566
1,437.46	90.103	65.204	492.16	-22.10	926.91	919.90	8.36	8.66	45.53	91.307
1,446.55	89.805	65.818	492.17	-18.33	935.19	928.51	8.43	8.71	45.91	91.048
1,455.99	90.212	65.891	492.17	-14.47	943.80	937.47	8.50	8.74	46.31	90.786
1,465.61	90.142	65.307	492.14	-10.49	952.56	946.59	8.58	8.77	46.71	90.525
1,474.27	89.838	64.029	492.14	-6.79	960.39	954.75	8.64	8.78	47.07	90.292
1,483.36	89.478	64.824	492.20	-2.86	968.59	963.31	8.71	8.80	47.45	90.052
1,492.75	89.811	65.429	492.25	1.09	977.11	972.18	8.78	8.84	47.85	89.804
1,501.67	89.739	63.519	492.29	4.93	985.15	980.58	8.85	8.86	48.22	89.570
1,510.91	90.111	65.407	492.30	8.91	993.49	989.28	8.92	8.89	48.61	89.341
1,519.76	89.712	63.647	492.31	12.72	1,001.48	997.61	8.99	8.91	48.97	89.111
1,529.35	90.199	64.087	492.32	16.94	1,010.09	1,006.61	9.06	8.93	49.37	88.877
1,538.23	89.552	64.665	492.34	20.78	1,018.10	1,014.96	9.13	8.97	49.75	88.659
1,548.03	89.993	65.116	492.38	24.94	1,026.97	1,024.21	9.20	9.01	50.16	88.425
1,556.91	90.356	63.581	492.35	28.79	1,034.97	1,032.56	9.27	9.02	50.53	88.214
1,566.22	89.643	63.609	492.35	32.93	1,043.31	1,041.28	9.34	9.03	50.93	87.998
1,575.55	90.340	64.629	492.35	37.00	1,051.71	1,050.04	9.41	9.07	51.32	87.784
1,584.10	89.514	64.130	492.37	40.70	1,059.42	1,058.09	9.48	9.10	51.68	87.589
1,593.46	90.384	64.325	492.37	44.77	1,067.85	1,066.88	9.55	9.12	52.08	87.383
1,602.15	90.033	64.520	492.34	48.52	1,075.68	1,075.06	9.61	9.15	52.45	87.193
1,611.85	89.999	64.967	492.34	52.66	1,084.46	1,084.21	9.69	9.18	52.86	86.988
1,620.78	90.303	64.402	492.32	56.47	1,092.53	1,092.63	9.76	9.20	53.24	86.800
1,630.48	89.975	64.145	492.29	60.68	1,101.27	1,101.75	9.83	9.21	53.66	86.600
1,638.78	89.645	63.648	492.32	64.34	1,108.72	1,109.53	9.89	9.23	54.01	86.429

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	- hit/miss target
										- survey uncertainty 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	- hit/miss target
										- survey uncertainty 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:		Output errors are at	2.00 sigma
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 uncertainty 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 uncertainty 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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