

Wellbores

Wellbore Name: Original Hole Actual Deviation Survey: Gyro/MWD, Proposed? No VS Dir (°): 0.00 KO MD (ftKB): KO Method: Steerable Motor Lat/Long Datum: Latitude (°): Longitude (°):

Deviation Surveys

Date: 2014/08/23

Des: Gyro/MWD

Decl (°):

MD Tie In (ftKB): 0.00

Inclination Tie In (°): 0.00

Azimuth Tie In (°): 0.00

TVDTie In (ftKB): 0.00

NSTie In (ft): 0.00

EWTie In (ft): 0.00

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	Date	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)
114	0.31	198.07	8/23/2014	114.4	-0.29	-0.29	-0.1	0.27
209	0.23	211.68	8/23/2014	208.9	-0.7	-0.7	-0.27	0.11
303	0.34	181.97	8/23/2014	303.4	-1.14	-1.14	-0.38	0.19
398	0.47	161.65	8/23/2014	397.8	-1.79	-1.79	-0.27	0.2
492	0.32	189.03	8/23/2014	492.3	-2.42	-2.42	-0.19	0.25
681	0.34	133.19	8/23/2014	681.2	-3.32	-3.32	0.13	0.16
776	0.26	92.69	8/23/2014	775.7	-3.52	-3.52	0.55	0.23
870	0.13	127.93	8/23/2014	870.2	-3.6	-3.6	0.85	0.18
965	0.32	153.44	8/23/2014	964.6	-3.9	-3.9	1.05	0.22
1,059	0.36	131.14	8/23/2014	1,059.10	-4.33	-4.33	1.4	0.15
1,154	0.19	111.76	8/23/2014	1,153.60	-4.59	-4.59	1.76	0.2
1,248	0.29	121.56	8/23/2014	1,248.10	-4.77	-4.77	2.11	0.11
1,343	0.25	74.97	8/23/2014	1,342.50	-4.84	-4.84	2.52	0.23
1,437	0.37	32.71	8/23/2014	1,437.00	-4.53	-4.53	2.88	0.26
1,531	0.48	352.32	8/23/2014	1,531.50	-3.88	-3.88	2.99	0.33
1,626	0.3	26.47	8/23/2014	1,625.90	-3.27	-3.27	3.05	0.3
1,720	0.29	94.21	8/23/2014	1,720.40	-3.06	-3.06	3.4	0.35
1,815	0.22	120.21	8/23/2014	1,814.90	-3.17	-3.17	3.79	0.14
1,909	0.22	94.4	8/23/2014	1,909.30	-3.28	-3.28	4.13	0.1
2,004	0.27	45.57	8/23/2014	2,003.80	-3.14	-3.14	4.47	0.22
2,098	0.27	27.46	8/23/2014	2,098.30	-2.78	-2.78	4.73	0.09
2,193	0.28	13.37	8/23/2014	2,192.70	-2.36	-2.36	4.89	0.07
2,287	0.25	3.55	8/23/2014	2,287.20	-1.93	-1.93	4.95	0.06
2,382	0.24	347.34	8/23/2014	2,381.70	-1.53	-1.53	4.92	0.07
2,476	0.37	331.88	8/23/2014	2,476.10	-1.07	-1.07	4.74	0.16
2,571	0.12	292.69	8/23/2014	2,570.60	-0.76	-0.76	4.5	0.3
2,665	0.13	272.34	8/23/2014	2,665.10	-0.72	-0.72	4.3	0.05
2,760	0.28	294.31	8/23/2014	2,759.60	-0.62	-0.62	3.99	0.18
2,854	0.27	319.24	8/23/2014	2,854.00	-0.36	-0.36	3.63	0.13
2,949	0.14	343.79	8/23/2014	2,948.50	-0.08	-0.08	3.45	0.16
3,014	0.38	352.67	8/23/2014	3,014.30	0.22	0.22	3.4	0.37
3,063	0.7	349	8/23/2014	3,063.00	0.67	0.67	3.33	0.66
3,094	3	0.1	8/23/2014	3,093.90	1.67	1.67	3.29	7.47
3,126	5.7	7.6	8/23/2014	3,125.80	4.08	4.08	3.5	8.6
3,158	8.8	8.1	8/23/2014	3,157.60	8.08	8.08	4.06	9.69
3,190	12.1	6.2	8/23/2014	3,189.10	13.84	13.84	4.76	10.37

3,221	14.9	2.2	8/23/2014	3,219.20	21.05	21.05	5.27	9.52
3,253	17.7	0.2	8/23/2014	3,249.90	30.03	30.03	5.44	8.92
3,285	20.7	359.1	8/23/2014	3,280.10	40.55	40.55	5.37	9.44
3,317	23	358.9	8/23/2014	3,309.80	52.46	52.46	5.16	7.19
3,349	25	359.4	8/23/2014	3,339.10	65.47	65.47	4.97	6.28
3,381	27	0.8	8/23/2014	3,367.80	79.5	79.5	5	6.54
3,412	29.1	1.4	8/23/2014	3,395.20	94.07	94.07	5.29	6.83
3,444	30.6	1.6	8/23/2014	3,422.90	109.99	109.99	5.7	4.7
3,476	32.8	1.4	8/23/2014	3,450.10	126.8	126.8	6.14	6.88
3,508	35.6	1	8/23/2014	3,476.60	144.78	144.78	6.52	8.78
3,540	38.1	0.6	8/23/2014	3,502.20	163.97	163.97	6.78	7.85
3,571	40.7	360	8/23/2014	3,526.20	183.64	183.64	6.88	8.48
3,603	42.9	359.6	8/24/2014	3,550.00	204.97	204.97	6.81	6.93
3,635	45	359.3	8/23/2014	3,573.10	227.18	227.18	6.59	6.59
3,667	48	359.9	8/24/2014	3,595.10	250.39	250.39	6.43	9.47
3,698	50.3	0.6	8/24/2014	3,615.40	273.83	273.83	6.54	7.61
3,730	52.6	0.8	8/24/2014	3,635.30	298.86	298.86	6.84	7.2
3,766	54.9	0	8/24/2014	3,656.60	327.89	327.89	7.04	6.64
3,793	55.5	1.4	8/24/2014	3,672.00	350.05	350.05	7.32	4.8
3,824	55.9	1.3	8/24/2014	3,689.50	375.66	375.66	7.92	1.32
3,856	56	1.2	8/24/2014	3,707.40	402.16	402.16	8.5	0.41
3,888	56.3	1.6	8/24/2014	3,725.20	428.73	428.73	9.15	1.4
3,919	56.6	1.5	8/24/2014	3,742.30	454.56	454.56	9.85	1
3,966	57.7	1.7	8/24/2014	3,767.80	494.03	494.03	10.95	2.37
3,982	59.4	1.5	8/24/2014	3,776.20	507.67	507.67	11.33	10.68
4,014	63	0.6	8/24/2014	3,791.60	535.7	535.7	11.84	11.52
4,045	66.7	359.6	8/24/2014	3,804.80	563.76	563.76	11.89	12.29
4,077	69.7	359.9	8/24/2014	3,816.70	593.46	593.46	11.76	9.42
4,108	72.3	0.5	8/24/2014	3,826.70	622.77	622.77	11.86	8.58
4,140	75	0.9	8/24/2014	3,835.80	653.47	653.47	12.24	8.52
4,172	77.4	1.4	8/24/2014	3,843.40	684.54	684.54	12.86	7.65
4,204	80.8	1.5	8/24/2014	3,849.40	715.95	715.95	13.66	10.63
4,292	85.8	0.6	8/26/2014	3,859.70	803.3	803.3	15.25	5.77
4,356	86.5	0.6	8/26/2014	3,864.00	867.16	867.16	15.92	1.09
4,417	87.1	1.5	8/26/2014	3,867.40	928.05	928.05	17.04	1.77
4,480	88.5	1.3	8/26/2014	3,869.80	990.98	990.98	18.58	2.24
4,542	89.8	2.2	8/27/2014	3,870.70	1,052.95	1,052.95	20.47	2.55
4,603	90.8	2.4	8/27/2014	3,870.40	1,113.89	1,113.89	22.92	1.67
4,665	90.7	3	8/27/2014	3,869.60	1,175.82	1,175.82	25.84	0.98
4,727	90.6	2.6	8/27/2014	3,868.90	1,237.74	1,237.74	28.87	0.66
4,788	90.9	2.2	8/27/2014	3,868.10	1,298.68	1,298.68	31.42	0.82
4,850	90.9	2.2	8/27/2014	3,867.10	1,360.63	1,360.63	33.8	0
4,913	91.3	2.5	8/27/2014	3,865.90	1,423.57	1,423.57	36.38	0.79

4,975	90.6	2.2	8/27/2014	3,864.90	1,485.50	1,485.50	38.92	1.23
5,037	90.4	1.4	8/27/2014	3,864.40	1,547.47	1,547.47	40.87	1.33
5,099	91.2	0.6	8/27/2014	3,863.50	1,609.45	1,609.45	41.95	1.82
5,159	91.6	0.3	8/27/2014	3,862.00	1,669.43	1,669.43	42.42	0.83
5,221	90.6	0.5	8/27/2014	3,860.80	1,731.42	1,731.42	42.86	1.64
5,282	90.6	0.6	8/27/2014	3,860.20	1,792.41	1,792.41	43.44	0.16
5,344	90.2	1.2	8/27/2014	3,859.80	1,854.40	1,854.40	44.42	1.16
5,406	90.5	1.8	8/27/2014	3,859.40	1,916.38	1,916.38	46.04	1.08
5,466	89.9	2	8/28/2014	3,859.20	1,976.35	1,976.35	48.03	1.05
5,527	89.3	1.8	8/28/2014	3,859.60	2,037.31	2,037.31	50.05	1.04
5,589	88.7	1.7	8/28/2014	3,860.70	2,099.27	2,099.27	51.94	0.98
5,650	88.8	1.4	8/28/2014	3,862.00	2,160.24	2,160.24	53.59	0.52
5,712	89.7	1.1	8/28/2014	3,862.80	2,222.22	2,222.22	54.95	1.53
5,773	90.7	0.9	8/28/2014	3,862.60	2,283.21	2,283.21	56.01	1.67
5,835	90.8	1.4	8/28/2014	3,861.80	2,345.19	2,345.19	57.26	0.82
5,896	89.8	0.6	8/28/2014	3,861.50	2,406.18	2,406.18	58.32	2.1
5,958	91.8	0.6	8/28/2014	3,860.60	2,468.16	2,468.16	58.97	3.23
6,020	91.7	0.6	8/28/2014	3,858.70	2,530.13	2,530.13	59.62	0.16
6,082	91.9	0.7	8/28/2014	3,856.80	2,592.10	2,592.10	60.32	0.36
6,143	92.4	360	8/28/2014	3,854.50	2,653.05	2,653.05	60.69	1.41
6,205	91.2	358.8	8/28/2014	3,852.50	2,715.02	2,715.02	60.04	2.74
6,267	90.2	358.6	8/29/2014	3,851.80	2,776.99	2,776.99	58.64	1.64
6,328	89.7	358.3	8/29/2014	3,851.80	2,837.97	2,837.97	56.99	0.96
6,390	90	358.3	8/29/2014	3,852.00	2,899.94	2,899.94	55.15	0.48
6,451	90.6	357.6	8/29/2014	3,851.70	2,960.90	2,960.90	52.97	1.51
6,514	90.9	357.6	8/29/2014	3,850.90	3,023.84	3,023.84	50.33	0.48
6,577	91.3	357.4	8/29/2014	3,849.60	3,086.77	3,086.77	47.58	0.71
6,640	90.1	358.1	8/29/2014	3,848.90	3,149.72	3,149.72	45.11	2.21
6,702	90.6	357.8	8/29/2014	3,848.50	3,211.68	3,211.68	42.89	0.94
6,766	90.9	357.1	8/29/2014	3,847.70	3,275.61	3,275.61	40.04	1.19
6,829	91.2	357	8/29/2014	3,846.50	3,338.51	3,338.51	36.8	0.5
6,893	90	358	8/29/2014	3,845.80	3,402.45	3,402.45	34.01	2.44
6,957	89.8	357.1	8/29/2014	3,845.90	3,466.39	3,466.39	31.27	1.44
7,022	90.6	357	8/29/2014	3,845.70	3,531.30	3,531.30	27.93	1.24
7,084	88.8	357.2	8/29/2014	3,846.00	3,593.22	3,593.22	24.79	2.92
7,147	86.9	357.2	8/29/2014	3,848.40	3,656.09	3,656.09	21.72	3.02
7,211	86.7	357.6	8/30/2014	3,852.00	3,719.93	3,719.93	18.82	0.7
7,274	87.6	357.2	8/31/2014	3,855.10	3,782.79	3,782.79	15.96	1.56
7,337	88.3	358.4	8/31/2014	3,857.40	3,845.70	3,845.70	13.55	2.2
7,400	88.9	358.6	8/31/2014	3,858.90	3,908.66	3,908.66	11.9	1
7,462	88.9	358.8	8/31/2014	3,860.10	3,970.63	3,970.63	10.49	0.32
7,524	88.9	358.6	8/31/2014	3,861.30	4,032.60	4,032.60	9.09	0.32
7,586	90.5	359.1	8/31/2014	3,861.60	4,094.59	4,094.59	7.84	2.7

7,648	90.9	359.7	8/31/2014	3,860.80	4,156.58	4,156.58	7.19	1.16
7,712	91.2	359.5	8/31/2014	3,859.70	4,220.57	4,220.57	6.75	0.56
7,775	91.4	359	8/31/2014	3,858.20	4,283.54	4,283.54	5.92	0.85
7,838	91.5	359	8/31/2014	3,856.70	4,346.51	4,346.51	4.82	0.16
7,900	91.3	358.8	8/31/2014	3,855.10	4,408.48	4,408.48	3.63	0.46
7,963	91.3	358.8	8/31/2014	3,853.70	4,471.45	4,471.45	2.31	0
8,026	91.3	358.9	8/31/2014	3,852.30	4,534.42	4,534.42	1.05	0.16
8,088	91.3	358.6	9/1/2014	3,850.90	4,596.39	4,596.39	-0.3	0.48
8,152	91.1	358.5	9/1/2014	3,849.50	4,660.36	4,660.36	-1.92	0.35
8,214	90.9	358.8	9/1/2014	3,848.50	4,722.33	4,722.33	-3.38	0.58
8,295	90.3	359	9/1/2014	3,847.60	4,803.31	4,803.31	-4.94	0.78
8,340	90.3	359	9/1/2014	3,847.40	4,848.31	4,848.31	-5.72	0