

Farm Name: Consolidation Coal Company Operator Well No: SHL-8M-HS

LOCATION: Sandhill 8 Elevation: 1,130.99 Quadrangle: Majorsville

District: Sandhill County: MARSHALL
Latitude: _____ Feet South of _____ Deg. _____ Min. _____ Sec. 39.955444
Longitude: _____ Feet South of _____ Deg. _____ Min. _____ Sec. -80.535667

Company: CNX Gas Company LLC	Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. Ft.
Address: 200 Evergreene Drive Waynesburg, PA 15370	30	40.0	40.0	Cemented in
Agent: Steven Haught	20	468	468	775 sxs / 166 bbls cemented to surface
Inspector: Bill Hendershot	13 3/8	1,054	1,054	869 sxs / 186 bbls cemented to surface
Date Permit Issued: 5/21/2012	9 5/8	3,012	3,012	1067 sxs / 226 bbls cemented to surface
Date Well Work Commenced: 10/14/2012	5 1/2	16,150	16,150	2514 sxs / 617bbls cemented
Date Well Work Completed: 7/3/2013				
Verbal Plugging:				
Date Permission granted on: 10/14/2012				
Rotary Cable Rig X				
Total Vertical Depth (ft): Original Hole - 6,605.42				
Total Measured Depth (ft): 16,165.00				
Fresh Water Depth (ft): 396				
Salt Water Depth (ft): None				
Is coal being mined in the area (N/Y)? Y				
Coal Depths (ft.): 584 - 588 Pittsburgh Seam				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) NA
Gas: Initial open flow 352 MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow 894 MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 2503 psig (surface pressure) after 24 Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Chad [Signature] 1-27-14
Signature Date

James J. Watkins, Noble Energy One 1/27/14

03/07/2014

RECEIVED
Office of Oil and Gas
JAN 20 2014
Environmental Protection

Were core samples taken? Yes__ No_X__

Were cuttings caught during drilling? Yes_X_ No__

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list: Gamma Ray Logs, Bond Log

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing or Stimulating: Please See Attached

Plug Back Details including Plug Type and Depth(s): Please See Attached

Surface:

Formations Encountered: Please See Attached

03/07/2014

SHL 8M
47-051-01557

Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Shale	0	584	0	584	
Pittsburgh Coal	584	588	584	588	
Shale and Sandstone	588	1058	588	1058	
Dunkard Sand	1058	1076	1058	1076	
Shale	1076	1230	1076	1230	
Gas Sand	1230	1273	1230	2449	
Shale	1273	1345	1273	2452	
1st Salt Sand	1345	1407	1345	2508	
Shale	1407	1464	1407	2511	
2nd Salt Sand	1464	1496	1464	2558	
Shale	1496	1578	1496	2566	
Maxton Sand	1578	1627	1578	2600	
Shale	1627	1654	1627	2610	
Big Lime	1654	1719	1654	2713	
Big Injun	1719	1892	1719	2754	
Price	1892	2242	1892	3145	
Murrysville	2242	2255	2242	3184	
Shale	2255	2449	2255	4217	
50' Sand	2449	2452	2449	4228	
Shale	2452	2508	2452	2508	
30' Sand	2508	2511	2508	2511	
Shale	2511	2558	2511	2558	
Gordon Stray	2558	2566	2558	2566	
Shale	2566	2600	2566	2600	
Gordon	2600	2610	2600	2610	
Shale	2610	2713	2610	2713	
Fifth Sand	2713	2754	2713	2754	
Shale	2754	3145	2754	3145	
Speechley Sand	3145	3184	3145	3184	
Shale	3184	4217	3184	4217	
Warren Sand	4217	4227	4217	4228	
Shale	4227	4907	4228	5008	
Java Shale	4907	5011	5008	5146	
Pipe Creek Shale	5011	5109	5146	5274	
Angola Shale	5109	5743	5274	6087	
Rhinestreet	5743	6180	6087	6659	
Cashaqua	6180	6281	6659	6801	
Middlesex	6281	6312	6801	6847	
West River	6312	6369	6847	6937	
Burkett	6369	6394	6937	6981	
Tully Limestone	6394	6421	6981	7032	
Hamilton	6421	6535	7032	7337	
Marcellus	6535	6584	7337	not encountered	Gas
Cherry Valley	6543	6545	not encountered	not encountered	
Onondaga	6584		not encountered	not encountered	

03/07/2014

SHL 8M
47-051-01557

Stage #	Plug Type	Plug Depth
1	Toe Sleeve	16,016
2	Composite Frac Plug	15,750
3	Composite Frac Plug	15,550
4	Composite Frac Plug	15,300
5	Composite Frac Plug	15,000
6	Composite Frac Plug	14,700
7	Composite Frac Plug	14,400
8	Composite Frac Plug	14,100
9	Composite Frac Plug	13,800
10	Composite Frac Plug	13,550
11	Composite Frac Plug	13,250
12	Composite Frac Plug	12,945
13	Composite Frac Plug	12,645
14	Composite Frac Plug	12,350
15	Composite Frac Plug	12,050
16	Composite Frac Plug	11,800
17	Composite Frac Plug	11,500
18	Composite Frac Plug	11,200
19	Composite Frac Plug	10,900
20	Composite Frac Plug	10,600
21	Composite Frac Plug	10,300
22	Composite Frac Plug	10,000
23	Composite Frac Plug	9,700
24	Composite Frac Plug	9,425
25	Composite Frac Plug	9,150
26	Composite Frac Plug	8,850
27	Composite Frac Plug	8,600
28	Composite Frac Plug	8,400
29	Composite Frac Plug	8,100
30	Composite Frac Plug	7,800
	Bridge Plug	6,000

03/07/2014

SHL 8M
47-051-01557
Stimulation Summary

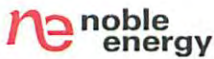
Stage #	Date	Formation	Frac Type	Top Perf	Bottom Perf	# of Perfs	BD Press (psi)	ATP (psi)	Avg Rate (bpm)	ISIP (psi)	Frac Gradient	Sand (lbs)	Acid (gals)	Water (gals)
1	6/3/2013	Marcellus	Slickwater	15777	16014	48	6286	8709	88.8	3870	1.02	438823	3,000	413,551
2	6/3/2013	Marcellus	Slickwater	15573	15727	40	6683	8513	77.8	5789	1.31	192711	3,000	266,260
3	6/5/2013	Marcellus	Slickwater	15325	15527	40	6743	8566	89.7	4563	1.12	357843	3,000	333,824
4	6/5/2013	Marcellus	Slickwater	15025	15277	40	6075	8011	90.3	4834	1.16	435074	3,000	360,824
5	6/6/2013	Marcellus	Slickwater	14725	14977	40	6142	8230	88.2	4723	1.15	437745	3,000	358,079
6	6/6/2013	Marcellus	Slickwater	14425	14675	40	5958	8158	82.4	4245	1.08	435740	3,000	462,430
7	6/7/2013	Marcellus	Slickwater	14125	14375	40	5816	8482	87.1	4463	1.11	359039	3,000	344,262
8	6/8/2013	Marcellus	Slickwater	13825	14077	40	5929	8227	89.0	4389	1.10	441590	3,000	348,624
9	6/8/2013	Marcellus	Slickwater	13575	13775	40	6374	8084	90.7	4378	1.10	362511	3,000	312,839
10	6/9/2013	Marcellus	Slickwater	13275	13527	40	6204	8332	85.9	4546	1.12	434998	3,000	456,120
11	6/10/2013	Marcellus	Slickwater	12975	13225	40	6,096	8,068	90.6	4,566	1.12	433736	3,000	349,000
12	6/10/2013	Marcellus	Slickwater	12675	12927	40	5833	8059	88.8	4464	1.11	437463	3,000	358,998
13	6/11/2013	Marcellus	Slickwater	12375	12625	40	6273	8152	87.7	4543	1.12	435212	3,000	348,033
14	6/11/2013	Marcellus	Slickwater	12075	12325	40	5900	7949	90.1	5055	1.20	435524	3,000	339,200
15	6/12/2013	Marcellus	Slickwater	11825	12025	40	6013	7813	89.2	4513	1.12	342995	3,000	295,373
16	6/12/2013	Marcellus	Slickwater	11525	11777	40	5861	8108	89.6	4426	1.10	436802	3,000	334,309
17	6/13/2013	Marcellus	Slickwater	11225	11477	40	6736	8017	88.6	4390	1.13	435773	3,000	340,776
18	6/13/2013	Marcellus	Slickwater	10925	11177	40	6138	7685	90.25	4783	1.16	434516	3,000	337,610
19	6/14/2013	Marcellus	Slickwater	10625	10877	40	6416	7890	90.2	4495	1.12	435002	3,000	334,339
20	6/14/2013	Marcellus	Slickwater	10325	10577	40	5879	7556	89.89	4529	1.12	434925	3,000	334,784
21	6/14/2013	Marcellus	Slickwater	10025	10277	40	6322	7325	90.72	5248	1.23	435894	3,000	343,071
22	6/15/2013	Marcellus	Slickwater	9725	9977	40	6003	7518	87.6	5099	1.21	398440	3,000	373,517
23	6/15/2013	Marcellus	Slickwater	9475	9677	40	6694	7380	90.4	4230	1.08	366883	3,000	297,172
24	6/16/2013	Marcellus	Slickwater	9175	9427	40	6436	7442	87.3	4180	1.07	436506	3,000	332,361
25	6/16/2013	Marcellus	Slickwater	8875	9127	40	5984	7023	90.5	4428	1.11	435585	3,000	327,393
26	6/16/2013	Marcellus	Slickwater	8625	8827	40	6236	7143	90.1	4872	1.17	362879	3,000	292,910
27	6/16/2013	Marcellus	Slickwater	8423	8577	40	6296	7014	90.7	4227	1.08	291224	3,000	261,453
28	6/17/2013	Marcellus	Slickwater	8125	8377	40	5235	6817	90.5	4653	1.14	432029	3,000	329,081
29	6/17/2013	Marcellus	Slickwater	7825	8077	40	5720	6916	89.4	4293	1.09	434413	3,000	327,809
30	6/18/2013	Marcellus	Slickwater	7525	7777	40	5961	6960	90.5	4572	1.13	438770	3,000	328,359

SHL 8M

47-051-01557

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator				100.00%	86.66400%	Density = 8.330
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%	0.07889%	
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.07184%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	11.32338%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.01863%	
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%	0.00393%	
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%	0.00235%	
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.00981%	
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.00981%	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%	0.00041%	
			Propargyl alcohol	107-19-7	10.00%	0.00007%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00246%	
			Acetic anhydride	108-24-7	100.00%	0.00410%	
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00001%	
			Ethanol	64-17-5	60.00%	0.00069%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00034%	
			Naphthalene	91-20-3	5.00%	0.00006%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%	0.00006%	
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential Business Information	100.00%	0.00296%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00041%	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.00130%	

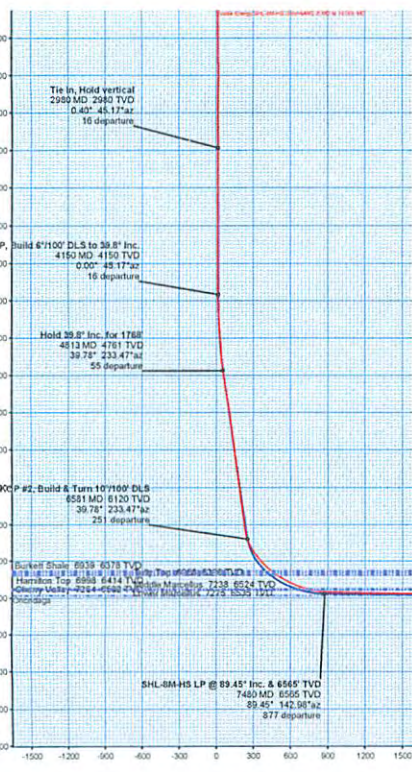
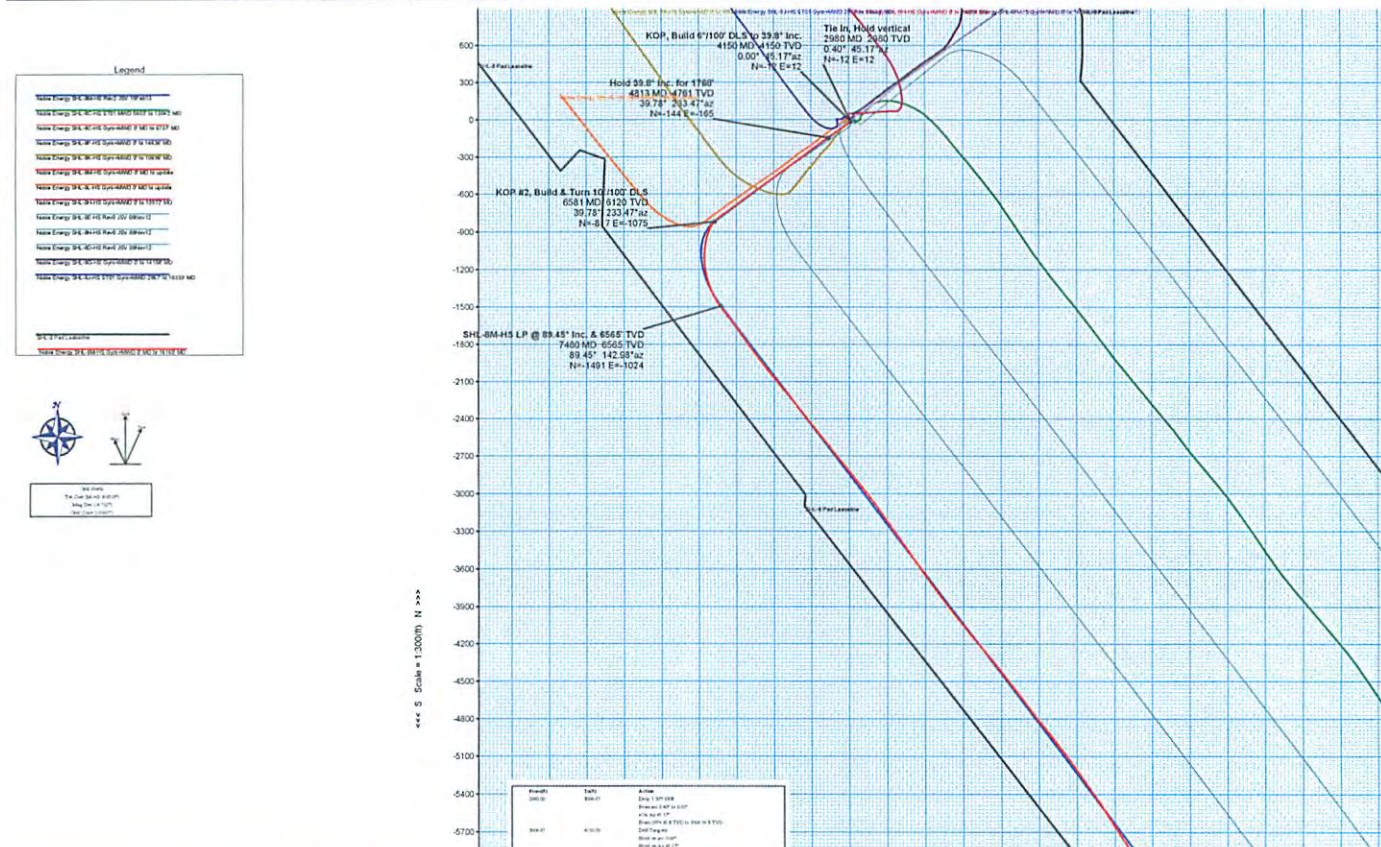
03/07/2014



Noble Energy



WELL	SHL-8M-HS	FIELD	WV Marshall County (NAD 27)	STRUCTURE	Precision 543
Magnetics Parameters	Model: 500M 2012 Dip: 47.423° Mag Dec: -8.712°	Date	February 15, 2013	Surface Location	NAD27 West Virginia State Plane, Northern Zone, U.S. Feet N: 39 57 18.596 Easting: 170647.23 81.9 Grid Corner: -0.641° Scale Fact: 0.9999724
				Minimums	Max: 55.8M-615 Plan: Rev 2 REV 1W-6113 TVD Ref: KRI(149.498 above MSL) TVD Ref Date: February 15, 2013



Depth	True	Actual
2980.00	2980.00	2980.00
3000.00	3000.00	3000.00
3100.00	3100.00	3100.00
3200.00	3200.00	3200.00
3300.00	3300.00	3300.00
3400.00	3400.00	3400.00
3500.00	3500.00	3500.00
3600.00	3600.00	3600.00
3700.00	3700.00	3700.00
3800.00	3800.00	3800.00
3900.00	3900.00	3900.00
4000.00	4000.00	4000.00
4100.00	4100.00	4100.00
4200.00	4200.00	4200.00
4300.00	4300.00	4300.00
4400.00	4400.00	4400.00
4500.00	4500.00	4500.00
4600.00	4600.00	4600.00
4700.00	4700.00	4700.00
4800.00	4800.00	4800.00
4900.00	4900.00	4900.00
5000.00	5000.00	5000.00
5100.00	5100.00	5100.00
5200.00	5200.00	5200.00
5300.00	5300.00	5300.00
5400.00	5400.00	5400.00
5500.00	5500.00	5500.00
5600.00	5600.00	5600.00
5700.00	5700.00	5700.00
5800.00	5800.00	5800.00
5900.00	5900.00	5900.00
6000.00	6000.00	6000.00
6100.00	6100.00	6100.00
6200.00	6200.00	6200.00
6300.00	6300.00	6300.00
6400.00	6400.00	6400.00
6500.00	6500.00	6500.00
6600.00	6600.00	6600.00
6700.00	6700.00	6700.00
6800.00	6800.00	6800.00
6900.00	6900.00	6900.00
7000.00	7000.00	7000.00
7100.00	7100.00	7100.00
7200.00	7200.00	7200.00
7300.00	7300.00	7300.00
7400.00	7400.00	7400.00
7500.00	7500.00	7500.00
7600.00	7600.00	7600.00
7700.00	7700.00	7700.00
7800.00	7800.00	7800.00

Section	Start	End	Start	End	Start	End	Start	End
Section 1	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00
Section 2	100.00	200.00	100.00	200.00	100.00	200.00	100.00	200.00
Section 3	200.00	300.00	200.00	300.00	200.00	300.00	200.00	300.00
Section 4	300.00	400.00	300.00	400.00	300.00	400.00	300.00	400.00
Section 5	400.00	500.00	400.00	500.00	400.00	500.00	400.00	500.00
Section 6	500.00	600.00	500.00	600.00	500.00	600.00	500.00	600.00
Section 7	600.00	700.00	600.00	700.00	600.00	700.00	600.00	700.00
Section 8	700.00	800.00	700.00	800.00	700.00	800.00	700.00	800.00
Section 9	800.00	900.00	800.00	900.00	800.00	900.00	800.00	900.00
Section 10	900.00	1000.00	900.00	1000.00	900.00	1000.00	900.00	1000.00

Section	Start	End	Start	End	Start	End	Start	End
Section 1	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00
Section 2	100.00	200.00	100.00	200.00	100.00	200.00	100.00	200.00
Section 3	200.00	300.00	200.00	300.00	200.00	300.00	200.00	300.00
Section 4	300.00	400.00	300.00	400.00	300.00	400.00	300.00	400.00
Section 5	400.00	500.00	400.00	500.00	400.00	500.00	400.00	500.00
Section 6	500.00	600.00	500.00	600.00	500.00	600.00	500.00	600.00
Section 7	600.00	700.00	600.00	700.00	600.00	700.00	600.00	700.00
Section 8	700.00	800.00	700.00	800.00	700.00	800.00	700.00	800.00
Section 9	800.00	900.00	800.00	900.00	800.00	900.00	800.00	900.00
Section 10	900.00	1000.00	900.00	1000.00	900.00	1000.00	900.00	1000.00

4705101557



Noble Energy SHL-8M-HS Gyro+MWD 0' MD to 16165' MD Survey Report

(Def Survey)

Report Date: March 04, 2013 - 07:17 AM
Client: Noble Energy
Field: WV Marshall County (NAD 27)
Structure / Slot: CNX/Noble Energy SHL-8 Pad / SHL-8M-HS
Well: SHL-8M-HS
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Noble Energy SHL-8M-HS Gyro+MWD 0' MD to 16165' MD
Survey Date: February 18, 2013
Tort / AHD / DDI / ERD Ratio: 232.902° / 10830.698 ft / 6.790 / 1.639
Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 39° 57' 19.59831", W 80° 32' 8.40011"
Location Grid N/E Y/X: N 531786.194 ftUS, E 1709667.227 ftUS
CRS Grid Convergence Angle: -0.6605°
Grid Scale Factor: 0.99995724

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 153.462° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 1149.490 ft above MSL
Seabed / Ground Elevation: 1131.470 ft above MSL
Magnetic Declination: -8.712°
Total Gravity Field Strength: 999.3811mgn (9.80665 Based)
Total Magnetic Field Strength: 52740.478 nT
Magnetic Dip Angle: 67.422°
Declination Date: February 18, 2013
Magnetic Declination Model: BGGM 2012
North Reference: Grid North
Grid Convergence Used: -0.6605°
Total Corr Mag North->Grid North: -8.0519°

Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S °'")	Longitude (E/W °'")	Directional Difficulty Index
SHL	0.00	0.00	0.00	0.00	-1149.49	0.00	0.00	0.00	N/A	N/A	N/A	531786.19	1709667.23	N 39 57 19.60 W 80 32 8.40	80 32 8.40	0.00
	100.00	0.25	174.41	100.00	-1049.49	0.25	-0.22	0.02	0.25	0.25	0.00	531785.98	1709667.25	N 39 57 19.60 W 80 32 8.40	80 32 8.40	0.00
	200.00	0.32	140.79	200.00	-949.49	0.68	-0.65	0.22	0.18	0.07	-33.62	531785.54	1709667.45	N 39 57 19.59 W 80 32 8.40	80 32 8.40	0.00
	300.00	0.38	172.31	300.00	-849.49	1.27	-1.20	0.44	0.20	0.06	31.52	531785.00	1709667.67	N 39 57 19.59 W 80 32 8.39	80 32 8.39	0.00
	400.00	0.38	147.17	399.99	-749.50	1.91	-1.80	0.66	0.17	0.00	-25.14	531784.39	1709667.89	N 39 57 19.58 W 80 32 8.39	80 32 8.39	0.19
	500.00	0.46	100.80	499.99	-649.50	2.48	-2.16	1.24	0.34	0.08	-46.37	531784.04	1709668.47	N 39 57 19.58 W 80 32 8.38	80 32 8.38	0.48
	600.00	0.24	129.55	599.99	-549.50	2.92	-2.37	1.79	0.27	-0.22	28.75	531783.83	1709669.02	N 39 57 19.58 W 80 32 8.38	80 32 8.38	0.66
	700.00	0.37	147.19	699.99	-449.50	3.43	-2.77	2.13	0.16	0.13	17.64	531783.42	1709670.68	N 39 57 19.57 W 80 32 8.37	80 32 8.37	0.77
	800.00	0.37	148.26	799.99	-349.50	4.07	-3.32	2.48	0.01	0.00	1.07	531782.88	1709669.36	N 39 57 19.57 W 80 32 8.37	80 32 8.37	0.84
	900.00	0.18	150.54	899.99	-249.50	4.55	-3.73	2.72	0.19	-0.19	2.28	531782.47	1709669.95	N 39 57 19.56 W 80 32 8.36	80 32 8.36	0.94
	1000.00	0.44	141.34	999.98	-149.51	5.08	-4.16	3.04	0.26	0.26	-9.20	531782.03	1709670.27	N 39 57 19.56 W 80 32 8.36	80 32 8.36	1.04
	1100.00	0.44	153.16	1099.98	-49.51	5.84	-4.81	3.45	0.09	0.00	-4.64	531781.39	1709670.68	N 39 57 19.55 W 80 32 8.36	80 32 8.36	1.12
	1200.00	0.43	149.19	1199.98	50.49	6.60	-5.47	3.82	0.03	-0.01	-3.97	531780.72	1709671.05	N 39 57 19.54 W 80 32 8.35	80 32 8.35	1.17
	1300.00	0.61	141.33	1299.97	150.48	7.50	-6.21	4.34	0.19	0.18	-7.86	531779.99	1709671.57	N 39 57 19.54 W 80 32 8.34	80 32 8.34	1.27
	1400.00	0.57	146.25	1399.97	250.48	8.51	-7.04	4.95	0.06	-0.04	4.52	531779.16	1709672.18	N 39 57 19.53 W 80 32 8.34	80 32 8.34	1.33
	1500.00	0.58	158.01	1499.96	350.47	9.51	-7.92	5.42	0.12	0.01	11.76	531778.27	1709672.64	N 39 57 19.52 W 80 32 8.33	80 32 8.33	1.40
	1600.00	0.65	153.37	1599.96	450.47	10.56	-8.90	5.86	0.09	0.07	-4.64	531777.30	1709673.09	N 39 57 19.51 W 80 32 8.32	80 32 8.32	1.46
	1700.00	0.49	166.60	1699.95	550.46	11.58	-9.82	6.22	0.21	-0.16	13.23	531776.37	1709673.44	N 39 57 19.50 W 80 32 8.32	80 32 8.32	1.53
	1800.00	0.55	158.83	1799.95	650.46	12.46	-10.68	6.50	0.11	0.06	-9.77	531775.52	1709673.73	N 39 57 19.49 W 80 32 8.32	80 32 8.32	1.58
	1900.00	0.44	149.70	1899.95	750.46	13.32	-11.45	6.89	0.13	-0.11	-7.13	531774.74	1709674.11	N 39 57 19.49 W 80 32 8.31	80 32 8.31	1.62
	2000.00	0.55	131.55	1999.94	850.45	14.15	-12.10	7.44	0.19	0.11	-18.15	531774.09	1709674.67	N 39 57 19.48 W 80 32 8.30	80 32 8.30	1.67
	2100.00	0.55	130.07	2099.94	950.45	15.03	-12.73	8.16	0.01	0.00	-1.48	531773.47	1709675.39	N 39 57 19.47 W 80 32 8.29	80 32 8.29	1.70
	2200.00	0.47	118.43	2199.93	1050.44	15.81	-13.23	8.89	0.13	-0.08	-11.64	531772.96	1709676.12	N 39 57 19.47 W 80 32 8.28	80 32 8.28	1.75
	2300.00	0.33	101.69	2299.93	1150.44	16.33	-13.49	9.54	0.18	-0.14	-16.74	531772.71	1709676.76	N 39 57 19.47 W 80 32 8.28	80 32 8.28	1.79

03/07/2014

4705101557

Comments	MD (ft)	Incl (°)	Azim Grd (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Directional Difficulty Index
	2400.00	0.33	99.86	2399.93	1250.44	16.67	-13.59	10.10	0.01	0.00	-1.83	531772.60	1709677.33	N 39 57 19.47	W 80 32 8.27	1.80
	2500.00	0.27	74.79	2499.93	1350.44	16.89	-13.58	10.61	0.14	-0.06	-25.07	531772.61	1709677.84	N 39 57 19.47	W 80 32 8.26	1.83
	2600.00	0.23	46.95	2599.93	1450.44	16.88	-13.38	10.99	0.13	-0.04	-27.84	531772.81	1709678.21	N 39 57 19.47	W 80 32 8.26	1.86
	2700.00	0.27	40.67	2699.93	1550.44	16.73	-13.07	11.29	0.05	0.04	-6.28	531773.13	1709678.51	N 39 57 19.47	W 80 32 8.25	1.87
	2800.00	0.15	37.39	2799.93	1650.44	16.58	-12.78	11.52	0.12	-0.12	-3.28	531773.41	1709678.75	N 39 57 19.47	W 80 32 8.25	1.89
	2900.00	0.38	41.19	2899.92	1750.43	16.40	-12.43	11.82	0.23	0.23	3.80	531773.76	1709679.04	N 39 57 19.48	W 80 32 8.25	1.93
	2980.00	0.40	45.17	2979.92	1830.43	16.21	-12.03	12.19	0.04	0.03	4.98	531774.16	1709679.42	N 39 57 19.48	W 80 32 8.24	1.94
	3075.00	0.40	106.74	3074.92	1925.43	16.34	-11.90	12.74	0.43	0.00	64.81	531774.30	1709679.97	N 39 57 19.48	W 80 32 8.23	1.99
	3125.00	0.47	101.48	3124.92	1975.43	16.58	-11.99	13.11	0.16	0.14	-10.52	531774.21	1709680.34	N 39 57 19.48	W 80 32 8.23	2.01
	3220.00	0.86	295.66	3219.92	2070.43	16.26	-11.76	12.85	1.39	0.41	-174.55	531774.44	1709680.08	N 39 57 19.48	W 80 32 8.23	2.13
	3314.00	1.08	291.84	3313.90	2164.41	15.04	-11.12	11.39	0.24	0.23	-4.06	531775.07	1709678.62	N 39 57 19.49	W 80 32 8.25	2.17
	3409.00	0.78	298.41	3408.89	2259.40	13.84	-10.48	9.99	0.33	-0.32	6.92	531775.72	1709677.22	N 39 57 19.50	W 80 32 8.27	2.22
	3504.00	1.18	294.51	3503.88	2354.39	12.55	-9.77	8.53	0.43	0.42	-4.11	531776.43	1709675.76	N 39 57 19.50	W 80 32 8.29	2.28
	3598.00	0.32	112.46	3597.87	2448.38	12.00	-9.46	7.90	1.60	-0.91	189.31	531776.73	1709675.12	N 39 57 19.51	W 80 32 8.30	2.37
	3693.00	0.61	109.59	3692.87	2543.38	12.56	-9.74	8.62	0.31	0.31	-3.02	531776.46	1709675.84	N 39 57 19.50	W 80 32 8.29	2.40
	3788.00	0.41	67.18	3787.86	2638.37	12.95	-9.77	9.41	0.44	-0.21	-44.64	531776.42	1709676.63	N 39 57 19.50	W 80 32 8.28	2.43
	3882.00	0.28	101.98	3881.86	2732.37	13.11	-9.69	9.94	0.26	-0.14	37.02	531776.50	1709677.17	N 39 57 19.50	W 80 32 8.27	2.45
	3977.00	0.23	37.19	3976.86	2827.37	13.17	-9.59	10.28	0.29	-0.05	-88.20	531776.61	1709677.51	N 39 57 19.50	W 80 32 8.27	2.47
	4072.00	0.08	4071.86	4072.00	2922.37	13.10	-9.42	10.46	0.19	-0.16	42.17	531776.77	1709677.69	N 39 57 19.51	W 80 32 8.26	2.48
	4122.00	1.65	230.64	4121.85	2972.36	13.27	-9.87	9.94	3.44	3.14	306.78	531776.33	1709677.17	N 39 57 19.50	W 80 32 8.27	2.56
	4166.00	3.73	225.86	4165.80	3016.31	13.84	-11.27	8.42	4.75	4.73	-10.86	531774.93	1709675.65	N 39 57 19.49	W 80 32 8.29	2.66
	4215.00	6.58	226.21	4214.60	3065.11	15.16	-14.32	5.25	5.82	5.82	0.71	531771.87	1709672.48	N 39 57 19.46	W 80 32 8.33	2.79
	4261.00	9.18	227.25	4260.16	3110.67	16.97	-18.64	0.66	5.66	5.65	2.26	531767.56	1709667.88	N 39 57 19.41	W 80 32 8.39	2.93
	4306.00	11.42	226.09	4304.43	3154.94	19.30	-24.16	-5.19	5.00	4.98	-2.58	531762.03	1709662.04	N 39 57 19.36	W 80 32 8.46	3.06
	4351.00	13.35	224.62	4348.38	3198.89	22.31	-30.95	-12.05	4.35	4.29	-3.27	531755.24	1709655.18	N 39 57 19.29	W 80 32 8.55	3.16
	4395.00	15.20	228.35	4391.03	3241.54	25.45	-38.40	-19.93	4.69	4.20	8.48	531747.79	1709647.30	N 39 57 19.22	W 80 32 8.65	3.27
	4440.00	17.18	231.73	4434.24	3284.75	28.34	-46.44	-29.56	4.87	4.40	7.51	531739.76	1709637.67	N 39 57 19.14	W 80 32 8.77	3.37
	4485.00	19.40	235.08	4476.96	3327.47	30.78	-54.84	-40.90	5.46	4.93	7.44	531731.36	1709626.33	N 39 57 19.05	W 80 32 8.92	3.48
	4530.00	21.96	237.85	4519.06	3369.57	32.69	-63.59	-54.16	6.09	5.69	6.16	531722.60	1709613.07	N 39 57 18.96	W 80 32 9.09	3.58
	4574.00	25.12	239.25	4559.40	3409.91	34.19	-72.75	-69.15	7.29	7.18	3.18	531713.45	1709598.08	N 39 57 18.87	W 80 32 9.28	3.68
	4619.00	28.20	236.77	4599.61	3450.12	36.13	-83.46	-86.26	7.28	6.84	-5.51	531702.74	1709580.97	N 39 57 18.76	W 80 32 9.50	3.78
	4664.00	31.00	235.30	4638.73	3489.24	39.01	-95.89	-104.69	6.43	6.22	-3.27	531690.31	1709562.55	N 39 57 18.64	W 80 32 9.73	3.87
	4709.00	34.03	233.75	4676.68	3527.19	42.78	-109.93	-124.37	6.98	6.73	-3.44	531676.27	1709542.86	N 39 57 18.50	W 80 32 9.98	3.96
	4798.00	39.79	233.63	4747.81	3598.32	51.85	-141.57	-167.42	6.47	6.47	-0.13	531644.63	1709499.81	N 39 57 18.18	W 80 32 10.53	4.12
	4888.00	40.73	233.40	4816.49	3667.00	61.90	-176.16	-214.19	1.06	1.04	-0.26	531610.04	1709453.05	N 39 57 17.83	W 80 32 11.12	4.22
	4977.00	40.98	233.64	4883.80	3734.31	71.95	-210.77	-261.00	0.33	0.28	0.27	531575.43	1709406.24	N 39 57 17.49	W 80 32 11.72	4.29
	5067.00	41.36	233.19	4951.55	3802.06	82.29	-246.08	-308.57	0.54	0.42	-0.50	531540.12	1709358.67	N 39 57 17.13	W 80 32 12.33	4.36
	5156.00	40.28	232.68	5018.90	3869.41	92.92	-281.15	-354.99	1.27	-1.21	-0.57	531505.06	1709312.25	N 39 57 16.78	W 80 32 12.92	4.43
	5246.00	39.80	231.61	5087.81	3938.32	104.27	-316.67	-400.71	0.93	-0.53	-1.19	531469.53	1709266.54	N 39 57 16.42	W 80 32 13.50	4.49
	5335.00	40.16	232.87	5156.01	4006.52	115.40	-351.69	-445.92	1.00	0.60	1.42	531434.52	1709221.33	N 39 57 16.07	W 80 32 14.07	4.54
	5425.00	39.59	233.89	5225.08	4075.59	125.50	-386.11	-492.23	0.96	-0.63	1.13	531400.10	1709175.02	N 39 57 15.73	W 80 32 14.66	4.59
	5514.00	39.06	234.70	5293.93	4144.44	134.49	-419.02	-538.02	0.83	-0.60	0.91	531367.19	1709129.23	N 39 57 15.40	W 80 32 15.25	4.63
	5604.00	38.76	234.77	5363.96	4214.47	143.07	-451.66	-584.18	0.34	-0.33	0.08	531334.55	1709083.08	N 39 57 15.07	W 80 32 15.83	4.67
	5693.00	38.40	234.94	5433.53	4284.04	151.37	-483.61	-629.56	0.42	-0.40	0.19	531302.60	1709037.69	N 39 57 14.75	W 80 32 16.41	4.70
	5782.00	37.97	233.08	5504.28	4354.79	160.51	-516.30	-674.58	1.36	-0.48	-2.07	531269.92	1708992.68	N 39 57 14.42	W 80 32 16.99	4.74
	5872.00	37.52	233.98	5574.65	4425.16	169.91	-548.68	-718.39	0.80	-0.51	1.01	531237.53	1708948.87	N 39 57 14.09	W 80 32 17.54	4.77
	5967.00	38.43	233.70	5644.81	4495.32	179.06	-581.00	-762.60	1.04	1.02	-0.31	531205.22	1708904.66	N 39 57 13.77	W 80 32 18.11	4.80
	6057.00	39.36	233.46	5714.85	4565.36	188.76	-614.55	-808.07	1.05	1.03	-0.27	531171.67	1708859.19	N 39 57 13.43	W 80 32 18.68	4.84

4705101557

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	BR (ft/100ft)	TR (ft/100ft)	Northing (ftUS)	Eastng (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')	Directional Difficulty Index
	6141.00	38.75	233.91	5784.74	4635.25	198.39	-648.13	-853.76	0.75	-0.68	0.50	531138.09	1708813.50	N 39 57 13.10 W	80 32 19.27	4.87
	6230.00	38.49	233.64	5854.28	4704.79	207.74	-680.96	-898.57	0.35	-0.29	-0.30	531105.27	1708768.69	N 39 57 12.77 W	80 32 19.84	4.89
	6320.00	40.21	234.28	5923.87	4744.38	217.15	-714.53	-944.72	1.96	1.91	0.71	531071.70	1708722.55	N 39 57 12.43 W	80 32 20.42	4.92
	6409.00	40.70	234.76	5991.59	4842.10	226.13	-748.04	-991.74	0.65	0.55	0.54	531038.18	1708675.53	N 39 57 12.09 W	80 32 21.02	4.95
	6499.00	40.50	233.87	6059.93	4910.44	235.44	-782.21	-1039.32	0.68	-0.22	-0.99	531004.02	1708627.96	N 39 57 11.75 W	80 32 21.63	4.97
	6544.00	40.88	226.64	6094.07	4944.58	242.14	-800.94	-1061.84	10.50	0.84	-16.07	530985.29	1708605.44	N 39 57 11.56 W	80 32 21.92	5.01
	6588.00	41.54	219.47	6127.19	4977.70	252.24	-822.10	-1081.59	10.84	1.50	-16.30	530964.13	1708585.68	N 39 57 11.35 W	80 32 22.17	5.05
	6633.00	42.47	211.74	6160.65	5011.16	266.31	-846.56	-1099.08	11.67	2.07	-17.18	530939.67	1708568.20	N 39 57 11.11 W	80 32 22.39	5.09
	6678.00	43.61	205.49	6193.55	5044.06	283.85	-873.50	-1113.76	9.81	2.53	-13.89	530912.73	1708553.52	N 39 57 10.84 W	80 32 22.57	5.12
	6723.00	44.35	199.91	6225.95	5076.46	304.24	-902.31	-1125.80	8.76	1.64	-12.40	530883.92	1708541.48	N 39 57 10.55 W	80 32 22.72	5.15
	6768.00	44.93	195.78	6257.97	5108.48	326.84	-932.40	-1135.48	6.58	1.29	-9.18	530853.84	1708531.80	N 39 57 10.25 W	80 32 22.84	5.18
	6812.00	46.52	192.12	6288.69	5139.20	350.80	-962.96	-1143.06	6.97	3.61	-8.32	530823.27	1708524.22	N 39 57 9.95 W	80 32 22.93	5.20
	6857.00	48.67	188.84	6319.04	5169.55	377.33	-995.63	-1149.08	7.20	4.78	-7.29	530790.61	1708518.20	N 39 57 9.63 W	80 32 23.01	5.23
	6902.00	51.31	186.05	6347.98	5198.49	405.91	-1029.80	-1153.53	7.55	5.87	-6.20	530756.44	1708513.75	N 39 57 9.29 W	80 32 23.06	5.25
	6947.00	54.83	183.09	6375.01	5225.52	436.71	-1065.65	-1156.37	9.42	7.82	-6.58	530720.60	1708509.99	N 39 57 8.94 W	80 32 23.09	5.28
	6991.00	57.47	179.82	6399.52	5250.03	468.97	-1102.16	-1157.29	8.61	6.00	-7.43	530684.08	1708509.99	N 39 57 8.57 W	80 32 23.10	5.31
	7036.00	59.61	175.82	6423.02	5273.53	503.93	-1140.51	-1155.81	8.95	4.76	-8.89	530645.74	1708511.47	N 39 57 8.20 W	80 32 23.07	5.33
	7081.00	61.73	172.79	6445.06	5295.57	540.59	-1179.53	-1151.91	7.53	4.71	-6.73	530606.71	1708515.37	N 39 57 7.81 W	80 32 23.02	5.36
	7126.00	63.21	169.18	6465.87	5316.38	578.64	-1218.93	-1145.65	7.84	3.29	-8.02	530567.31	1708521.63	N 39 57 7.42 W	80 32 22.93	5.38
	7171.00	66.15	165.99	6485.11	5335.62	618.08	-1258.65	-1136.89	9.15	6.53	-7.09	530527.60	1708530.39	N 39 57 7.03 W	80 32 22.81	5.41
	7215.00	69.40	163.47	6501.76	5352.27	658.02	-1297.93	-1126.90	9.09	7.39	-5.73	530488.32	1708541.12	N 39 57 6.64 W	80 32 22.67	5.43
	7260.00	72.92	160.27	6516.29	5366.80	700.14	-1338.39	-1112.90	10.32	7.82	-7.11	530447.87	1708554.38	N 39 57 6.25 W	80 32 22.49	5.46
	7305.00	76.09	156.67	6528.31	5378.82	743.32	-1378.71	-1096.98	10.44	7.04	-8.00	530407.55	1708570.30	N 39 57 5.85 W	80 32 22.28	5.48
	7350.00	79.57	151.75	6537.80	5388.31	787.29	-1418.29	-1077.84	13.19	7.73	-10.93	530367.97	1708589.44	N 39 57 5.46 W	80 32 22.03	5.51
	7394.00	83.70	146.96	6544.21	5394.72	830.68	-1455.72	-1055.65	14.28	9.39	-10.89	530330.54	1708611.62	N 39 57 5.09 W	80 32 21.74	5.54
	7439.00	86.56	143.88	6548.03	5398.54	875.07	-1492.62	-1030.21	9.32	6.36	-6.84	530293.64	1708637.06	N 39 57 4.73 W	80 32 21.41	5.57
	7484.00	87.97	142.84	6550.17	5400.68	919.32	-1528.69	-1003.38	3.89	3.13	-2.31	530257.57	1708663.89	N 39 57 4.38 W	80 32 21.06	5.58
	7564.00	88.70	142.56	6552.50	5403.01	997.88	-1592.30	-954.93	0.99	0.91	-0.35	530193.97	1708712.34	N 39 57 3.75 W	80 32 20.42	5.61
	7654.00	89.11	144.00	6554.22	5404.73	1086.44	-1664.43	-901.13	1.66	0.46	1.60	530121.84	1708766.14	N 39 57 3.05 W	80 32 19.72	5.63
	7744.00	88.66	144.37	6555.97	5406.48	1175.25	-1737.39	-848.47	0.65	-0.50	0.41	530048.88	1708818.79	N 39 57 2.33 W	80 32 19.04	5.66
	7833.00	88.59	144.54	6558.11	5408.62	1263.13	-1809.79	-796.75	0.21	-0.08	0.19	529976.49	1708870.52	N 39 57 1.62 W	80 32 18.36	5.68
	7923.00	88.97	143.61	6560.02	5410.53	1351.90	-1882.65	-743.95	1.12	0.42	-1.03	529903.63	1708923.31	N 39 57 0.91 W	80 32 17.67	5.70
	8012.00	88.83	142.80	6561.73	5412.24	1439.46	-1953.91	-690.66	0.92	-0.16	-0.91	529832.37	1708976.60	N 39 57 0.21 W	80 32 16.98	5.72
	8102.00	88.90	141.80	6563.51	5414.02	1527.74	-2025.10	-635.63	1.11	0.08	-1.11	529761.18	1709031.62	N 39 56 59.51 W	80 32 16.26	5.74
	8191.00	89.35	141.17	6564.87	5415.38	1614.79	-2094.73	-580.22	0.87	0.51	-0.71	529691.56	1709087.04	N 39 56 58.83 W	80 32 15.54	5.76
	8281.00	89.14	140.19	6566.06	5416.57	1702.55	-2164.35	-523.19	1.11	-0.23	-1.09	529621.94	1709144.06	N 39 56 58.15 W	80 32 14.80	5.78
	8370.00	88.94	141.73	6567.55	5418.06	1789.43	-2233.47	-467.15	1.74	-0.22	1.73	529552.83	1709200.10	N 39 56 57.47 W	80 32 14.07	5.81
	8460.00	89.18	141.06	6569.03	5419.54	1877.43	-2303.79	-411.00	0.79	0.27	-0.74	529482.51	1709256.25	N 39 56 56.79 W	80 32 13.34	5.83
	8549.00	89.11	141.35	6570.35	5420.86	1964.39	-2373.15	-355.24	0.34	-0.08	0.33	529413.15	1709312.00	N 39 56 56.11 W	80 32 12.61	5.84
	8639.00	89.04	142.16	6571.81	5422.32	2052.50	-2443.82	-299.54	0.90	-0.08	0.90	529342.48	1709367.70	N 39 56 55.41 W	80 32 11.88	5.86
	8729.00	89.38	142.06	6573.05	5423.56	2140.73	-2514.84	-244.27	0.39	0.38	-0.11	529271.47	1709422.97	N 39 56 54.72 W	80 32 11.16	5.88
	8818.00	89.38	141.60	6574.01	5424.52	2227.90	-2584.81	-189.27	0.52	0.00	-0.52	529201.50	1709477.96	N 39 56 54.03 W	80 32 10.45	5.89
	8908.00	89.11	142.15	6575.20	5425.71	2316.06	-2655.60	-133.71	0.68	-0.30	0.61	529130.71	1709533.52	N 39 56 53.34 W	80 32 9.72	5.91
	8997.00	89.35	141.10	6576.39	5426.90	2403.16	-2725.36	-78.47	1.21	0.27	-1.18	529060.95	1709588.76	N 39 56 52.66 W	80 32 9.00	5.93
	9087.00	89.31	142.28	6577.45	5427.96	2491.26	-2795.98	-22.68	1.31	-0.04	1.31	528990.34	1709644.55	N 39 56 51.97 W	80 32 8.28	5.95
	9178.00	89.04	141.68	6578.73	5429.24	2578.47	-2866.08	32.13	0.74	-0.30	-0.67	528920.24	1709699.36	N 39 56 51.28 W	80 32 7.56	5.96
	9268.00	89.28	141.12	6580.05	5430.56	2666.47	-2936.41	88.28	0.68	0.27	-0.62	528849.91	1709755.50	N 39 56 50.59 W	80 32 6.83	5.98
	9358.00	89.55	141.90	6580.96	5431.47	2753.53	-3006.07	143.66	0.93	0.30	0.88	528780.26	1709810.89	N 39 56 49.91 W	80 32 6.11	5.99

8/20/2014

...SHL-8M-HS/Original Borehole/Noble Energy SHL-8M-HS Gyro+MWD 0' MD to 16165' MD

4705101557

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	BR (ft/100ft)	TR (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S °.′.″)	Longitude (E/W °.′.″)	Directional Difficulty Index
	9445.00	89.79	143.37	6581.47	5431.98	2841.93	-3077.60	198.28	1.65	0.27	1.63	528708.73	1709865.50	N 39 56 49.21 W	80 32 5.40	6.01
	9535.00	89.45	144.77	6582.07	5432.58	2930.72	-3150.47	251.09	1.60	0.38	1.56	528635.86	1709918.31	N 39 56 48.49 W	80 32 4.71	6.03
	9624.00	89.83	145.95	6582.63	5433.14	3018.83	-3223.69	301.68	1.39	0.43	1.33	528562.65	1709968.89	N 39 56 47.78 W	80 32 4.05	6.05
	9713.00	90.24	145.16	6582.58	5433.09	3106.98	-3297.09	352.02	1.00	0.46	-0.89	528489.25	1710019.23	N 39 56 47.06 W	80 32 3.39	6.06
	9803.00	90.03	144.69	6582.36	5432.87	3195.98	-3370.74	403.74	0.57	-0.23	-0.52	528415.60	1710070.94	N 39 56 46.33 W	80 32 2.72	6.07
	9893.00	90.07	145.50	6582.29	5432.80	3285.02	-3444.55	455.24	0.90	0.04	0.90	528341.80	1710122.44	N 39 56 45.61 W	80 32 2.05	6.09
	9982.00	90.14	145.43	6582.12	5432.63	3373.16	-3517.87	505.69	0.11	0.08	-0.08	528268.48	1710172.89	N 39 56 44.89 W	80 32 1.39	6.10
	10072.00	90.17	145.53	6581.98	5432.39	3462.28	-3592.02	556.69	0.12	0.03	0.11	528194.33	1710223.89	N 39 56 44.17 W	80 32 0.72	6.11
	10161.00	90.41	144.94	6581.43	5431.94	3550.37	-3665.13	607.44	0.72	0.27	-0.66	528121.23	1710274.64	N 39 56 43.45 W	80 32 0.06	6.13
	10251.00	89.59	144.38	6581.43	5431.94	3639.31	-3738.55	659.50	1.10	-0.91	-0.62	528047.81	1710326.70	N 39 56 42.73 W	80 31 59.38	6.14
	10341.00	89.59	143.11	6582.07	5432.58	3728.01	-3811.12	712.72	1.41	0.00	-1.41	527975.24	1710379.91	N 39 56 42.02 W	80 31 58.69	6.16
	10430.00	89.76	142.45	6582.58	5433.09	3815.47	-3881.99	766.55	0.77	0.19	-0.74	527904.38	1710433.75	N 39 56 41.32 W	80 31 57.98	6.17
	10520.00	89.38	142.67	6583.25	5433.76	3903.84	-3953.45	821.26	0.49	-0.42	0.24	527832.92	1710488.45	N 39 56 40.62 W	80 31 57.27	6.18
	10610.00	89.69	142.52	6583.98	5434.49	3992.22	-4024.94	875.93	0.38	0.34	-0.17	527761.44	1710543.12	N 39 56 39.92 W	80 31 56.56	6.19
	10699.00	89.49	141.34	6584.62	5435.13	4079.42	-4095.00	930.81	1.34	-0.22	-1.33	527691.38	1710598.00	N 39 56 39.24 W	80 31 55.84	6.21
	10789.00	89.97	140.81	6585.04	5435.55	4167.33	-4165.02	987.36	0.79	0.53	-0.59	527621.36	1710654.54	N 39 56 38.55 W	80 31 55.11	6.22
	10878.00	89.79	140.49	6585.23	5435.74	4254.11	-4233.84	1043.79	0.41	-0.20	-0.36	527552.54	1710710.97	N 39 56 37.88 W	80 31 54.37	6.23
	10968.00	89.76	140.76	6585.58	5436.09	4341.86	-4303.41	1100.88	0.30	-0.03	0.30	527482.98	1710768.06	N 39 56 37.20 W	80 31 53.63	6.24
	11057.00	89.24	140.51	6586.36	5436.87	4428.63	-4372.21	1157.33	0.65	-0.58	-0.28	527414.18	1710824.50	N 39 56 36.52 W	80 31 52.90	6.25
	11147.00	89.14	142.54	6587.63	5438.14	4516.62	-4442.66	1213.32	2.26	-0.11	2.26	527343.73	1710880.49	N 39 56 35.83 W	80 31 52.17	6.27
	11236.00	89.28	142.67	6588.86	5439.37	4604.07	-4513.36	1267.36	0.21	0.16	0.15	527273.03	1710934.53	N 39 56 35.14 W	80 31 51.46	6.28
	11325.00	89.14	143.05	6590.09	5440.60	4691.55	-4584.30	1321.09	0.45	-0.16	0.43	527202.09	1710988.26	N 39 56 34.45 W	80 31 50.76	6.29
	11415.00	89.18	143.19	6591.41	5441.92	4780.07	-4656.29	1375.10	0.16	0.04	0.16	527130.12	1711042.26	N 39 56 33.74 W	80 31 50.06	6.30
	11505.00	89.04	142.27	6592.80	5443.31	4868.49	-4727.90	1429.59	1.03	-0.16	-1.02	527058.51	1711096.75	N 39 56 33.04 W	80 31 49.35	6.31
	11594.00	89.18	141.23	6594.19	5444.70	4955.62	-4797.78	1484.68	1.18	0.16	-1.17	526988.63	1711151.84	N 39 56 32.36 W	80 31 48.63	6.32
	11684.00	89.28	141.21	6595.40	5445.91	5043.57	-4867.94	1541.05	0.11	0.11	-0.02	526918.48	1711208.21	N 39 56 31.67 W	80 31 47.90	6.33
	11773.00	89.38	141.87	6596.44	5446.95	5130.64	-4937.62	1596.40	0.75	0.11	0.74	526848.79	1711263.55	N 39 56 30.99 W	80 31 47.18	6.34
	11862.00	89.28	142.52	6597.48	5447.99	5217.92	-5007.94	1650.95	0.74	-0.11	0.73	526778.48	1711318.10	N 39 56 30.30 W	80 31 46.46	6.36
	11952.00	89.35	143.73	6598.55	5449.06	5306.45	-5079.92	1704.95	1.35	0.08	1.34	526706.50	1711372.10	N 39 56 29.59 W	80 31 45.76	6.37
	12042.00	89.31	144.07	6599.61	5450.12	5395.20	-5152.64	1757.98	0.38	-0.04	0.38	526633.79	1711425.12	N 39 56 28.88 W	80 31 45.07	6.38
	12131.00	89.31	144.72	6600.68	5451.19	5483.08	-5224.99	1809.79	0.73	0.00	0.73	526561.43	1711476.93	N 39 56 28.17 W	80 31 44.39	6.39
	12221.00	89.28	143.80	6601.79	5452.30	5571.91	-5298.04	1862.35	1.02	-0.03	-1.02	526488.39	1711529.50	N 39 56 27.45 W	80 31 43.71	6.40
	12310.00	90.00	144.99	6602.34	5452.85	5659.79	-5370.40	1914.17	1.56	0.81	1.56	526416.04	1711581.31	N 39 56 26.75 W	80 31 43.03	6.41
	12400.00	89.66	145.96	6602.61	5453.12	5748.92	-5444.54	1965.17	1.14	-0.38	1.08	526341.89	1711632.31	N 39 56 26.02 W	80 31 42.37	6.42
	12489.00	89.66	146.95	6603.14	5453.65	5837.25	-5518.72	2014.35	1.11	0.00	1.11	526267.72	1711681.49	N 39 56 25.29 W	80 31 41.72	6.43
	12579.00	90.00	147.66	6603.41	5453.92	5926.73	-5594.46	2062.97	0.87	0.38	0.79	526191.99	1711730.10	N 39 56 24.55 W	80 31 41.09	6.44
	12668.00	89.97	147.98	6603.43	5453.94	6015.30	-5669.79	2110.37	0.36	-0.03	0.36	526116.66	1711777.50	N 39 56 23.81 W	80 31 40.47	6.45
	12757.00	90.03	147.32	6603.44	5453.94	6103.84	-5744.97	2157.99	0.74	0.07	-0.74	526041.48	1711825.12	N 39 56 23.07 W	80 31 39.85	6.46
	12847.00	90.76	144.70	6602.81	5453.32	6193.07	-5819.59	2208.30	3.02	0.81	-2.91	525966.87	1711875.43	N 39 56 22.34 W	80 31 39.19	6.47
	12936.00	90.45	140.78	6601.87	5452.38	6280.50	-5890.40	2262.17	4.42	-0.35	-4.40	525896.05	1711929.29	N 39 56 21.65 W	80 31 38.49	6.49
	13026.00	90.62	140.42	6601.03	5451.54	6368.23	-5959.95	2319.29	0.44	0.19	-0.40	525826.51	1711986.41	N 39 56 20.97 W	80 31 37.75	6.50
	13115.00	90.72	140.08	6599.99	5450.50	6454.87	-6028.37	2376.20	0.40	0.11	-0.38	525758.10	1712043.32	N 39 56 20.30 W	80 31 37.00	6.51
	13204.00	90.58	140.36	6598.98	5449.49	6541.50	-6096.76	2433.14	0.35	-0.16	0.31	525689.71	1712100.26	N 39 56 19.63 W	80 31 36.26	6.52
	13294.00	90.27	140.49	6598.31	5448.82	6629.18	-6166.13	2490.47	0.37	-0.34	0.14	525620.34	1712157.59	N 39 56 18.95 W	80 31 35.52	6.53
	13383.00	90.00	141.21	6598.10	5448.61	6716.03	-6235.15	2546.66	0.86	-0.30	0.81	525551.32	1712213.78	N 39 56 18.27 W	80 31 34.79	6.54
	13472.00	90.07	141.52	6598.05	5448.56	6803.05	-6304.67	2602.23	0.36	0.08	0.35	525481.81	1712269.34	N 39 56 17.59 W	80 31 34.06	6.54
	13562.00	90.03	141.36	6597.97	5448.48	6891.08	-6375.05	2658.33	0.18	-0.04	-0.18	525411.43	1712325.44	N 39 56 16.90 W	80 31 33.33	6.55
	13652.00	90.27	141.19	6597.74	5448.25	6978.07	-6444.48	2714.01	0.33	0.27	-0.19	525342.00	1712381.11	N 39 56 16.22 W	80 31 32.61	6.56
	13741.00	90.24	141.44	6597.34	5447.85	7066.06	-6514.73	2770.26	0.28	-0.03	0.28	525271.75	1712437.36	N 39 56 15.53 W	80 31 31.87	6.57

4705101557

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Eastings (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Directional Difficulty Index
	13830.00	89.59	142.02	6597.47	7153.20	-6594.61	2825.39	0.98	-0.73	0.65	525201.88	1712492.49	N 39 56 14.85 W	80 31 31.16	6.58
	13919.00	89.66	141.64	6598.05	7240.37	-6654.57	2880.39	0.43	0.08	-0.43	525131.92	1712547.48	N 39 56 14.16 W	80 31 30.44	6.59
	14009.00	89.38	142.19	6598.80	7328.54	-6725.41	2935.90	0.69	-0.31	0.61	525061.09	1712602.99	N 39 56 13.47 W	80 31 29.72	6.59
	14098.00	89.79	142.47	6599.45	7415.87	-6795.86	2990.29	0.56	0.46	0.31	524990.64	1712657.38	N 39 56 12.78 W	80 31 29.01	6.60
	14188.00	89.76	142.41	6599.80	7504.20	-6867.20	3045.15	0.07	-0.03	-0.07	524919.30	1712712.24	N 39 56 12.08 W	80 31 28.29	6.61
	14277.00	89.55	142.22	6600.34	7591.52	-6937.63	3099.55	0.32	-0.24	-0.21	524848.87	1712766.64	N 39 56 11.39 W	80 31 27.59	6.62
	14366.00	89.00	142.71	6601.46	7678.88	-7008.20	3153.77	0.83	-0.62	0.55	524778.31	1712820.86	N 39 56 10.70 W	80 31 26.88	6.63
	14456.00	89.00	143.12	6603.03	7767.35	-7079.99	3208.03	0.46	0.00	0.46	524706.53	1712875.12	N 39 56 10.00 W	80 31 26.17	6.63
	14545.00	89.28	143.31	6604.37	7854.92	-7151.26	3261.32	0.38	0.31	0.21	524635.26	1712928.40	N 39 56 9.30 W	80 31 25.48	6.64
	14634.00	89.24	143.65	6605.52	7942.56	-7222.78	3314.28	0.38	-0.04	0.38	524563.74	1712981.36	N 39 56 8.60 W	80 31 24.79	6.65
	14724.00	89.00	144.35	6606.90	8031.33	-7295.58	3367.18	0.82	-0.27	0.78	524490.94	1713034.25	N 39 56 7.89 W	80 31 24.10	6.66
	14813.00	89.21	144.49	6608.29	8119.21	-7367.95	3418.95	0.28	0.24	0.16	524418.57	1713086.03	N 39 56 7.18 W	80 31 23.42	6.66
	14903.00	89.11	145.29	6609.61	8208.20	-7441.57	3470.71	0.90	-0.11	0.89	524344.96	1713137.78	N 39 56 6.45 W	80 31 22.75	6.67
	14992.00	90.38	146.02	6610.01	8296.37	-7515.05	3520.92	1.65	1.43	0.82	524271.48	1713187.99	N 39 56 5.73 W	80 31 22.09	6.68
	15081.00	90.65	148.46	6609.21	8384.83	-7589.88	3569.08	2.76	0.30	2.74	524196.65	1713236.14	N 39 56 5.00 W	80 31 21.46	6.69
	15171.00	90.93	147.64	6607.97	8474.42	-7666.24	3616.70	0.96	0.31	-0.91	524120.29	1713283.76	N 39 56 4.25 W	80 31 20.84	6.70
	15260.00	89.93	144.58	6607.30	8562.68	-7740.11	3666.31	3.62	-1.12	-3.44	524046.43	1713333.38	N 39 56 3.53 W	80 31 20.19	6.71
	15350.00	91.00	143.55	6606.57	8651.46	-7812.98	3719.13	1.65	1.19	-1.14	523973.57	1713386.19	N 39 56 2.81 W	80 31 19.50	6.72
	15439.00	91.17	142.06	6604.88	8738.91	-7883.86	3772.92	1.68	0.19	-1.67	523902.69	1713439.98	N 39 56 2.12 W	80 31 18.80	6.73
	15528.00	90.96	141.09	6603.23	8825.99	-7953.57	3828.22	1.11	-0.24	-1.09	523832.98	1713495.28	N 39 56 1.43 W	80 31 18.08	6.74
	15618.00	90.10	140.47	6602.40	8913.78	-8023.29	3885.13	1.18	-0.96	-0.69	523763.26	1713552.18	N 39 56 0.75 W	80 31 17.34	6.75
	15708.00	90.07	140.31	6602.26	9001.45	-8092.63	3942.51	0.18	-0.03	-0.18	523693.93	1713609.56	N 39 56 0.07 W	80 31 16.60	6.76
	15797.00	89.48	139.96	6602.61	9088.05	-8160.94	3999.55	0.77	-0.66	-0.39	523625.62	1713666.60	N 39 55 59.40 W	80 31 15.85	6.76
	15887.00	89.69	139.97	6603.26	9175.57	-8229.85	4057.77	0.23	0.23	0.01	523556.72	1713724.49	N 39 55 58.73 W	80 31 15.10	6.77
	15976.00	89.35	140.70	6604.01	9262.24	-8298.35	4114.25	0.90	-0.38	0.82	523488.21	1713781.29	N 39 55 58.06 W	80 31 14.36	6.78
Final Survey 02Mar13	16082.00	89.66	140.71	6604.93	9365.62	-8380.38	4181.38	0.29	0.29	0.01	523406.19	1713848.42	N 39 55 57.26 W	80 31 13.49	6.78
Protection to Bit	16165.00	89.66	140.71	6605.42	9446.57	-8444.62	4233.94	0.00	0.00	0.00	523341.95	1713900.98	N 39 55 56.63 W	80 31 12.80	6.79

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	18.020		30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Noble Energy SHL-8M-HS Gyro+MWD 0' MD to 16165' MD
	18.020	2980.000		30.000	SLB_NSG+MSHOT	Original Borehole / Noble Energy SHL-8M-HS Gyro+MWD 0' MD to
	2980.000	3220.000		30.000	SLB_INC_ONLY<10	Original Borehole / Noble Energy SHL-8M-HS Gyro+MWD 0' MD to
	3220.000	16082.000		30.000	SLB_MWD-STD	Original Borehole / Noble Energy SHL-8M-HS Gyro+MWD 0' MD to
	16082.000	16165.000		30.000	SLB_BLIND+TREND	Original Borehole / Noble Energy SHL-8M-HS Gyro+MWD 0' MD to

03/07/2014