WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

Date: 8/6/2013
API: 47-051-01525

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

LOCATION: Sandhill 8 Elevation: 1,131.47 Quadrangle: Majorsville

District: Sandhill County: MARSHALL
Latitude: _____ Feet South of Deg. Min. Sec. 39.955539
Longitude: Feet South of Deg. Min. Sec. -80.535303

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	491.0	491.0	1004 sxs / 215 bbls cemented to surface
Inspector: Bill Hendershot		13 3/8	1,052.0	1,052.0	835 sxs/ 183 bbls cemented to surface
Date Permit Issued: 5/24/2012		9 5/8	3,044.0	3,044.0	1044 sxs/ 221 bbls cemented to surface
Date Well Work Commenced:	9/3/2012	5 1/2	13,012.0	13,012.0	1988 sxs / 495 bbls cement
Date Well Work Completed:	7/3/2013				
Verbal Plugging:					
Date Permission granted on:	9/3/2012				
Rotary Cable Rig X					
Total Vertical Depth (ft): 6626.57					
Total Measured Depth (ft): 13,042.00					
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) N/A
Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
Final open flow N/A MCF/d Final open flow N/A Bbl/d
Time of open flow between initial and final tests N/A Hours
Static rock Pressure N/A psig (surface pressure) after 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

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WV Department of Environmental Protection

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.

Signature 1-27-14 Date

Laura Adkins, Noble Energy, Inc. 1/21/14

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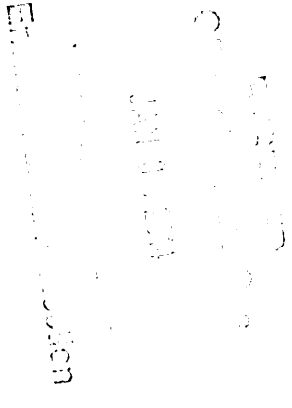
Stage #	Plug Type	Plug Depth
1	No Plug	No Plug
2A,2B	Composite Frac Plug	12,625
3A,3B	Composite Frac Plug	12,325
4	Composite Frac Plug	12,025
5	Composite Frac Plug	11,725
6	Composite Frac Plug	11,425
7	Composite Frac Plug	11,125
8	Composite Frac Plug	10,825
9	Composite Frac Plug	10,525
10A,10B	Composite Frac Plug	10,225
11	Composite Frac Plug	9,925
12A,12B	Composite Frac Plug	9,625
13A,13B	Composite Frac Plug	9,325
14A,14B	Composite Frac Plug	9,025
15	Composite Frac Plug	8,725
16	Composite Frac Plug	8,475
17	Composite Frac Plug	8,175
18	Composite Frac Plug	7,875
19	Composite Frac Plug	7,675
20	Composite Frac Plug	7,475
21	Composite Frac Plug	7,225
	Bridge Plug	6,000

PBTD Details: Set Plug @ 6737'. Pump 5bbl Ahead, test lines, to 2000 psi,. 42bbls spacer. 270 sxs Class H cement/ 45bbls. Shut down Install nerf ball. Pump 9bbl fresh water and 81 bbl 8.4 mud. Shut down Drill pipe on vacuum. Circulate & condition hole. No cement returns to surface. Set 2nd plug @ 6193' pump 5bbl ahead, test lines to 2000 psi. 17bbl spacer. 470 sxs Class H cement 78 bbls. Shut down drill pipe on vacuum. Pull 10 Stands to 5249'. CBU 2 times, 4bbls cement back to surface.



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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	4218	
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	4218	
Warren Sand	4217	4227	4218	4228	
Shale	4227	4907	4228	4908	
Java Shale	4907	5011	4908	5012	
Pipe Creek Shale	5011	5109	5012	5110	
Angola Shale	5109	5743	5110	5745	
Rhinestreet	5743	6180	5745	6243	
Cashaqua	6180	6281	6243	6372	
Middlesex	6281	6312	6372	6414	
West River	6312	6369	6414	6497	
Burkett	6369	6394	6497	6537	
Tully Limestone	6394	6421	6537	6582	
Hamilton	6421	6535	6582	6843	
Marcellus	6535	6584	6843	not encountered	Gas
Cherry Valley	6543	6545	not encountered	not encountered	
Onondaga	6584		not encountered	not encountered	

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Stimulation Summary

Date	Stage #	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)
6/19/2013	1	Marcellus	Slickwater	12,652	12,924	48	7,616	8,424	66.3	4,296	1.08	435,814	6,000	402,989
6/20/2013	2	Marcellus	Slickwater	12,350	12,602	40	6,371	7,760	48.4	6,566	1.42	55,223	6,000	275,116
6/20/2013	2B	Marcellus	Slickwater	12,375	12,537	40	5,635	7,636	78.7	4,697	1.14	432,713	3,000	369,612
6/20/2013	3	Marcellus	Slickwater	12,050	12,302	40	5,972	7,762	75.1	6,770	1.46	235,019	3,000	281,163
6/21/2013	3B	Marcellus	Slickwater	12,039	12,187	40	5,889	7,855	76.8	4,787	1.16	291,037	3,000	263,082
6/22/2013	4	Marcellus	Slickwater	11,750	12,002	40	5,623	8,478	72.5	4,954	1.18	277,830	3,000	324,010
6/23/2013	5	Marcellus	Slickwater	11,450	11,702	40	5,800	7,903	80.7	4,579	1.12	434,466	3,000	361,731
6/24/2013	6	Marcellus	Slickwater	11,150	11,402	40	5,592	8,188	80.6	4,519	1.12	434,900	3,000	362,917
6/24/2013	7	Marcellus	Slickwater	10,850	11,102	40	6,722	8,107	82.0	4,553	1.12	436,433	3,000	341,951
6/24/2013	8	Marcellus	Slickwater	10,550	10,802	40	6,867	7,704	78.7	4,949	1.18	282,153	3,000	299,124
6/25/2013	9	Marcellus	Slickwater	10,250	10,502	40	5,891	7,879	81.0	4,446	1.11	437,991	3,000	353,873
6/25/2013	10	Marcellus	Slickwater	9,950	10,202	40	6,571	7,524	40.4	5,019	1.19	1,106	6,000	138,332
6/26/2013	10B	Marcellus	Slickwater	9,974	10,116	40	6,450	9,006	56.8	6,706	1.45	4,457	3,000	90,528
6/26/2013	11	Marcellus	Slickwater	9,650	9,902	40	N/A	8,010	82.5	4,468	1.11	435,100	3,000	355,600
6/27/2013	12	Marcellus	Slickwater	9,350	9,602	40	6,689	7,890	79.1	4,508	1.12	180,250	3,000	239,155
6/27/2013	12B	Marcellus	Slickwater	9,338	9,416	32	5,551	7,548	82.0	5,018	1.19	432,882	3,000	342,098
6/27/2013	13	Marcellus	Slickwater	9,050	9,302	40	6,449	8,257	80.5	4,514	1.12	288,105	3,000	295,574
6/28/2013	13B	Marcellus	Slickwater	9,040	9,094	24	5,531	8,078	81.2	4,891	1.18	436,078	3,000	317,812
6/29/2013	14	Marcellus	Slickwater	8,750	9,002	40	5,842	7,762	75.2	4,662	1.14	266,544	3,000	285,337
6/29/2013	14B	Marcellus	Slickwater	8,780	8,833	30	6,008	7,374	83.3	4,924	1.18	435,582	3,000	331,120
6/30/2013	15	Marcellus	Slickwater	8,500	8,702	40	6,453	7,450	78.6	5,397	1.25	267,701	3,000	262,874
6/30/2013	16	Marcellus	Slickwater	8,200	8,452	40	6,147	7,721	76.2	4,632	1.14	75,066	3,000	332,510
7/1/2013	17	Marcellus	Slickwater	7,900	8,152	40	6,745	7,299	82.9	4,718	1.15	435,376	3,000	316,416
7/1/2013	18	Marcellus	Slickwater	7,698	7,852	40	6,615	7,256	80.9	4,510	1.12	256,378	3,000	248,413
7/2/2013	19	Marcellus	Slickwater	7,498	7,652	40	5,779	7,096	81.5	4,298	1.09	290,716	3,000	259,482
7/2/2013	20	Marcellus	Slickwater	7,250	7,452	40	6,877	7,239	81.6	5,627	1.29	250,423	6,000	286,987
7/3/2013	21	Marcellus	Slickwater	6,950	7,202	40	6,866	7,222	82.9	4,395	1.10	438,564	3,000	311,272

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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%	87.54794%	Density = 8.330
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%	0.10448%	
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.14505%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	10.11321%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.01971%	
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%	0.00414%	
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%	0.00252%	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%	0.00054%	
			Propargyl alcohol	107-19-7	10.00%	0.00009%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00325%	
			Acetic anhydride	108-24-7	100.00%	0.00542%	
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00002%	
			Ethanol	64-17-5	60.00%	0.00109%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00055%	
			Naphthalene	91-20-3	5.00%	0.00009%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%	0.00009%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00044%	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.00809%	

02/28/2014

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noble energy

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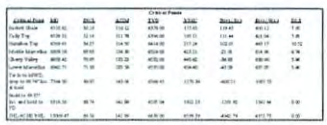
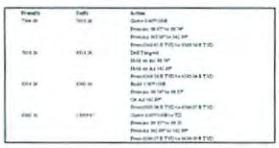
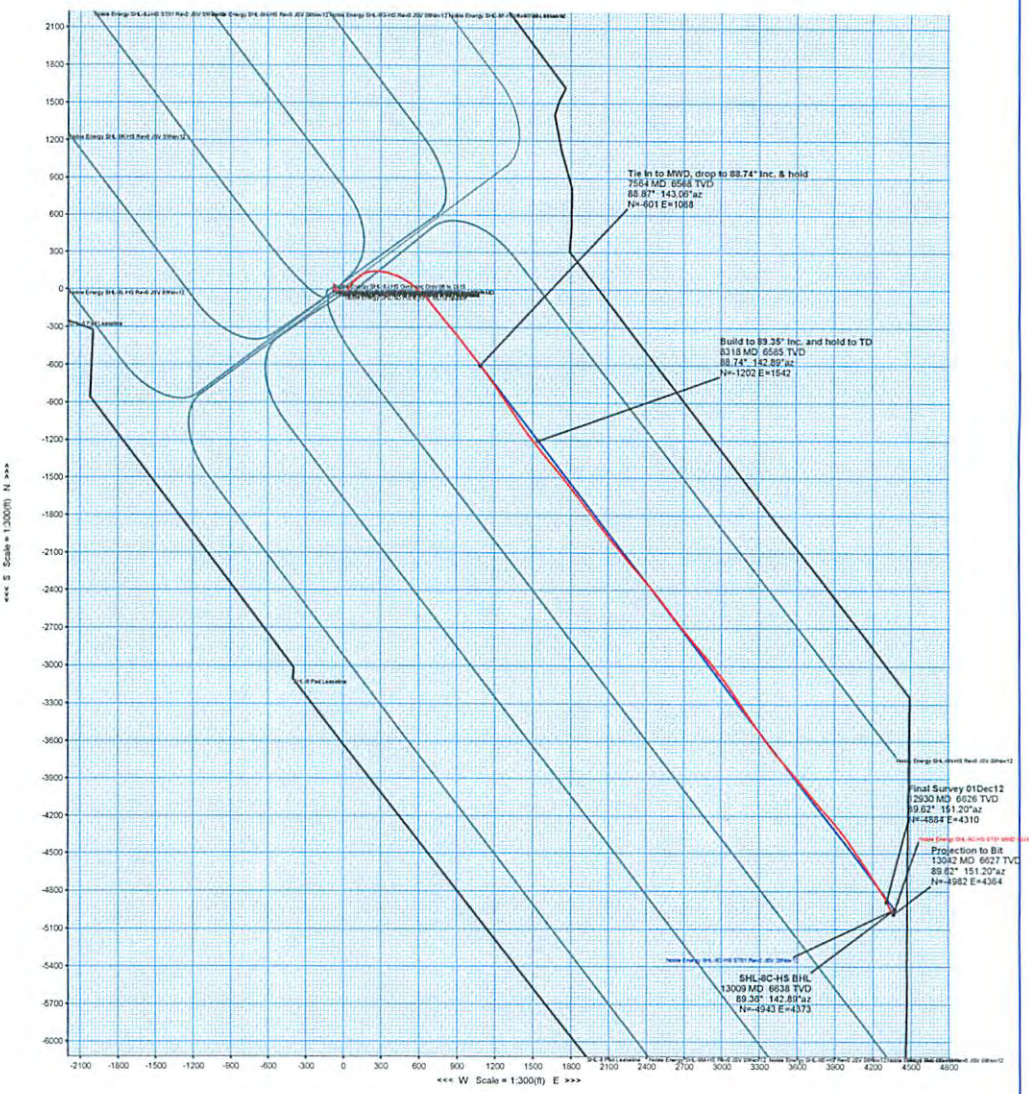
WELL	FIELD	STRUCTURE
SHL-8C-HS ST01	WV Marshall County (NAD 27)	Precision 543

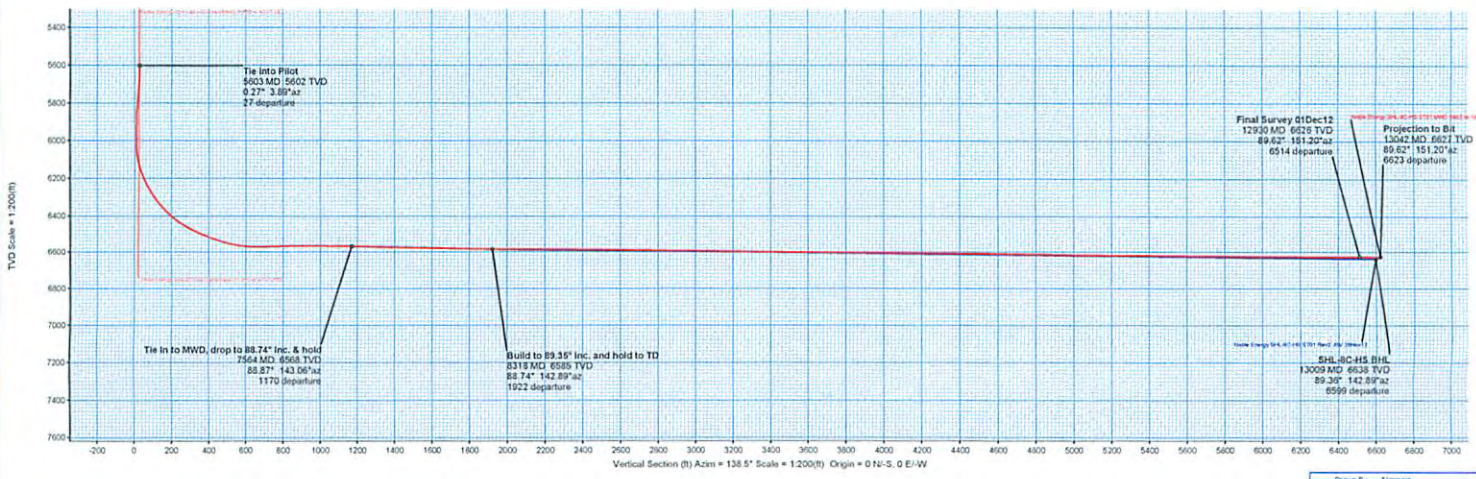
Magnetic Parameters					Surface Location						Miscellaneous			
Model:	BGGM 2012	Dip:	67.451°	Date:	November 08, 2012	NAD27 West Virginia State Plane, Northern Zone, US Feet					Slot:	SHL-8C-HS	TVD Ref:	KB(1149.97ft above MSL)
		Mag Dec:	-8.711°	FS:	52779.3nT	Lat:	N 39 57 19.668	Northing:	531792.75 ftUS	Grid Conv:	-0.660°	Plan:	Rev2.0SV 28Nov12	Srvy Date:	November 22, 2012
						Lon:	W 80 32 7.833	Easting:	1709711.45 ftUS	Scale Fact:	0.99995724				

Legend









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Date Created	November 28, 2012 04:37:03 PM
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Approved By	
Approved Date	

02/28/2014

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Noble Energy SHL-8C-HS ST01 MWD 5603' to 13042' MD Survey Report

noble energy

(Def Survey)

4705101525

Report Date:	December 03, 2012 - 10:26 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Noble Energy	**Vertical Section Azimuth:**	138.502 ° (Grid North)
Field:	WV Marshall County (NAD 27)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	CNX/Noble Energy SHL-8 Pad / SHL-8C-HS	**TVD Reference Datum:**	KB
Well:	SHL-8C-HS	**TVD Reference Elevation:**	1149.970 ft above MSL
Borehole:	ST01	**Seabed / Ground Elevation:**	1131.470 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	-8.712 °
Survey Name:	Noble Energy SHL-8C-HS ST01 MWD 5603' to 13042' MD	**Total Gravity Field Strength:**	1000.0592 mgn (9.8 based)
Survey Date:	November 22, 2012	**Total Magnetic Field Strength:**	52774.066 nT
Tort / AHD / DDI / ERD Ratio:	217.848 ° / 6981.411 ft / 6.476 / 1.054	**Magnetic Dip Angle:**	67.447 °
Coordinate Reference System:	NAD27 West Virginia State Plane, Northern Zone, US Feet	**Declination Date:**	November 22, 2012
Location Lat / Long:	N 39° 57' 19.66810", W 80° 32' 7.83324"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 531792.747 ftUS, E 1709711.449 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	-0.6604 °	**Grid Convergence Used:**	-0.6604 °
Grid Scale Factor:	0.99995724	**Total Corr Mag North->Grid North:**	-8.0512 °
		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	-1149.97	0.00	0.00	0.00	N/A	N/A	N/A	531792.75	1709711.45	N 39 57 19.67	W 80 32 7.83	0.00
	106.50	0.48	218.84	106.50	-1043.47	0.07	-0.35	-0.28	0.45	0.45	0.00	531792.40	1709711.17	N 39 57 19.66	W 80 32 7.84	0.00
	206.50	0.48	205.61	206.50	-943.47	0.31	-1.05	-0.72	0.11	0.00	-13.23	531791.70	1709710.73	N 39 57 19.66	W 80 32 7.84	0.00
	306.50	0.62	210.30	306.49	-843.48	0.64	-1.90	-1.18	0.15	0.14	4.69	531790.85	1709710.27	N 39 57 19.65	W 80 32 7.85	0.22
	406.50	0.33	204.74	406.49	-743.48	0.93	-2.62	-1.57	0.29	-0.29	-5.56	531790.12	1709709.88	N 39 57 19.64	W 80 32 7.85	0.50
	506.50	0.40	211.94	506.49	-643.48	1.14	-3.18	-1.88	0.08	0.07	7.20	531789.56	1709709.57	N 39 57 19.64	W 80 32 7.86	0.62
	606.50	0.18	238.48	606.48	-543.49	1.21	-3.56	-2.19	0.25	-0.22	26.54	531789.19	1709709.25	N 39 57 19.63	W 80 32 7.86	0.76
	706.50	0.14	207.59	706.48	-443.49	1.23	-3.75	-2.39	0.09	-0.04	-30.89	531789.00	1709709.06	N 39 57 19.63	W 80 32 7.86	0.82
	806.50	0.07	353.72	806.48	-343.49	1.22	-3.80	-2.45	0.20	-0.07	146.13	531788.95	1709709.00	N 39 57 19.63	W 80 32 7.86	0.88
	906.50	0.09	120.35	906.48	-243.49	1.25	-3.78	-2.39	0.14	0.02	126.63	531788.97	1709709.06	N 39 57 19.63	W 80 32 7.86	0.93
	1006.50	0.30	133.61	1006.48	-143.49	1.58	-4.00	-2.13	0.21	0.21	13.26	531788.75	1709709.32	N 39 57 19.63	W 80 32 7.86	1.01
	1106.50	0.29	140.56	1106.48	-43.49	2.10	-4.37	-1.78	0.04	-0.01	6.95	531788.37	1709709.67	N 39 57 19.62	W 80 32 7.86	1.06
	1206.50	0.23	119.14	1206.48	56.51	2.54	-4.67	-1.44	0.11	-0.06	-21.42	531788.08	1709710.01	N 39 57 19.62	W 80 32 7.85	1.11
	1306.50	0.30	156.94	1306.48	156.51	2.98	-5.01	-1.17	0.18	0.07	37.80	531787.74	1709710.28	N 39 57 19.62	W 80 32 7.85	1.18
	1406.50	0.41	142.13	1406.48	256.51	3.58	-5.53	-0.84	0.14	0.11	-14.81	531787.22	1709710.61	N 39 57 19.61	W 80 32 7.84	1.25
	1506.50	0.55	154.83	1506.47	356.50	4.40	-6.25	-0.42	0.18	0.14	12.70	531786.50	1709711.03	N 39 57 19.61	W 80 32 7.84	1.32
	1606.50	0.63	154.29	1606.47	456.50	5.39	-7.18	0.02	0.08	0.08	-0.54	531785.57	1709711.47	N 39 57 19.60	W 80 32 7.83	1.39
	1706.50	0.71	150.59	1706.46	556.49	6.52	-8.21	0.57	0.09	0.08	-3.70	531784.54	1709712.01	N 39 57 19.59	W 80 32 7.82	1.46
	1806.50	0.66	152.84	1806.45	656.48	7.69	-9.26	1.13	0.06	-0.05	2.25	531783.48	1709712.58	N 39 57 19.58	W 80 32 7.82	1.51
	1906.50	0.58	148.07	1906.45	756.48	8.75	-10.21	1.66	0.10	-0.08	-4.77	531782.54	1709713.11	N 39 57 19.57	W 80 32 7.81	1.57
	2006.50	0.53	151.39	2006.44	856.47	9.70	-11.04	2.15	0.06	-0.05	3.32	531781.71	1709713.60	N 39 57 19.56	W 80 32 7.80	1.61
	2106.50	0.49	150.08	2106.44	956.47	10.57	-11.82	2.59	0.04	-0.04	-1.31	531780.93	1709714.04	N 39 57 19.55	W 80 32 7.80	1.64
	2206.50	0.51	158.06	2206.44	1056.47	11.40	-12.60	2.97	0.07	0.02	7.98	531780.15	1709714.42	N 39 57 19.54	W 80 32 7.79	1.68
	2306.50	0.60	157.65	2306.43	1156.46	12.32	-13.50	3.33	0.09	0.09	-0.41	531779.25	1709714.78	N 39 57 19.54	W 80 32 7.79	1.72

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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
	2406.50	0.48	131.41	2406.43	1256.46	13.23	-14.26	3.85	0.27	-0.12	-26.24	531778.49	1709715.29	N 39 57 19.53	W 80 32 7.78	1.78
	2506.50	0.49	129.20	2506.42	1356.45	14.07	-14.81	4.49	0.02	0.01	-2.21	531777.94	1709715.94	N 39 57 19.52	W 80 32 7.77	1.80
	2606.50	0.50	133.92	2606.42	1456.45	14.92	-15.38	5.14	0.04	0.01	4.72	531777.37	1709716.59	N 39 57 19.52	W 80 32 7.77	1.83
	2706.50	0.18	147.12	2706.42	1556.45	15.51	-15.81	5.54	0.33	-0.32	13.20	531776.93	1709716.98	N 39 57 19.51	W 80 32 7.76	1.88
	2806.50	0.57	134.31	2806.42	1656.45	16.16	-16.29	5.98	0.40	0.39	-12.81	531776.45	1709717.43	N 39 57 19.51	W 80 32 7.75	1.93
	2891.50	0.83	141.35	2891.41	1741.44	17.20	-17.07	6.66	0.32	0.31	8.28	531775.68	1709718.11	N 39 57 19.50	W 80 32 7.75	1.98
	3097.00	0.81	125.02	3096.89	1946.92	20.10	-19.07	8.78	0.11	-0.01	-7.95	531773.68	1709720.23	N 39 57 19.48	W 80 32 7.72	2.06
	3186.00	1.46	147.79	3185.87	2035.90	21.83	-20.39	9.90	0.88	0.73	25.58	531772.36	1709721.35	N 39 57 19.47	W 80 32 7.70	2.16
	3276.00	1.78	111.51	3275.84	2125.87	24.21	-21.87	11.81	1.17	0.36	-40.31	531770.88	1709723.26	N 39 57 19.45	W 80 32 7.68	2.27
	3366.00	2.62	79.91	3365.77	2215.80	26.53	-22.02	15.14	1.61	0.93	-35.11	531770.73	1709726.59	N 39 57 19.45	W 80 32 7.64	2.41
	3455.00	3.75	61.56	3454.64	2304.67	28.24	-20.28	19.70	1.69	1.27	-20.62	531772.47	1709731.15	N 39 57 19.47	W 80 32 7.58	2.54
	3544.00	4.70	55.41	3543.39	2393.42	29.34	-16.82	25.26	1.18	1.07	-6.91	531775.93	1709736.71	N 39 57 19.50	W 80 32 7.51	2.66
	3634.00	3.60	56.23	3633.16	2483.19	30.16	-13.16	30.65	1.22	-1.22	0.91	531779.59	1709742.10	N 39 57 19.54	W 80 32 7.44	2.76
	3724.00	2.30	64.24	3723.04	2573.07	31.03	-10.80	34.62	1.51	-1.44	8.90	531781.95	1709746.07	N 39 57 19.57	W 80 32 7.39	2.85
	3813.00	1.82	67.35	3811.98	2662.01	31.97	-9.48	37.54	0.55	-0.54	3.49	531783.27	1709748.98	N 39 57 19.58	W 80 32 7.35	2.89
	3903.00	1.59	67.30	3901.94	2751.97	32.84	-8.45	40.01	0.26	-0.26	-0.06	531784.30	1709751.45	N 39 57 19.59	W 80 32 7.32	2.92
	3992.00	1.42	65.57	3990.91	2840.94	33.56	-7.52	42.15	0.20	-0.19	-1.94	531785.23	1709753.60	N 39 57 19.60	W 80 32 7.29	2.94
	4082.00	1.03	71.19	4080.89	2930.92	34.20	-6.80	43.93	0.45	-0.43	6.24	531785.95	1709755.38	N 39 57 19.61	W 80 32 7.27	2.97
	4171.00	0.80	74.75	4169.88	3019.91	34.78	-6.37	45.29	0.27	-0.26	4.00	531786.37	1709756.74	N 39 57 19.61	W 80 32 7.25	2.98
	4261.00	0.70	57.69	4259.87	3109.90	35.15	-5.91	46.36	0.27	-0.11	-18.96	531786.83	1709757.81	N 39 57 19.61	W 80 32 7.24	3.00
	4350.00	0.73	39.16	4348.86	3198.89	35.14	-5.18	47.18	0.26	0.03	-20.82	531787.56	1709758.62	N 39 57 19.62	W 80 32 7.23	3.01
	4440.00	0.70	26.59	4438.85	3288.88	34.84	-4.25	47.78	0.18	-0.03	-13.97	531788.50	1709759.23	N 39 57 19.63	W 80 32 7.22	3.02
	4529.00	0.70	9.29	4527.85	3377.88	34.30	-3.23	48.12	0.24	0.00	-19.44	531789.52	1709759.56	N 39 57 19.64	W 80 32 7.21	3.04
	4619.00	0.66	1.02	4617.84	3467.87	33.57	-2.16	48.21	0.12	-0.04	-9.19	531790.58	1709759.66	N 39 57 19.65	W 80 32 7.21	3.05
	4709.00	0.31	323.71	4707.84	3557.87	32.94	-1.45	48.08	0.50	-0.39	-41.46	531791.30	1709759.53	N 39 57 19.66	W 80 32 7.22	3.06
	4798.00	0.22	279.70	4796.84	3646.87	32.57	-1.23	47.77	0.24	-0.10	-49.45	531791.52	1709759.21	N 39 57 19.66	W 80 32 7.22	3.07
	4888.00	0.21	306.62	4886.84	3736.87	32.27	-1.10	47.47	0.11	-0.01	29.91	531791.65	1709758.91	N 39 57 19.66	W 80 32 7.22	3.08
	4977.00	0.37	300.25	4975.84	3825.87	31.84	-0.86	47.09	0.18	0.18	-7.16	531791.89	1709758.53	N 39 57 19.66	W 80 32 7.23	3.08
	5067.00	0.53	298.99	5065.83	3915.86	31.17	-0.51	46.47	0.18	0.18	-1.40	531792.24	1709757.92	N 39 57 19.67	W 80 32 7.24	3.09
	5156.00	0.63	301.49	5154.83	4004.86	30.32	-0.05	45.69	0.12	0.11	2.81	531792.69	1709757.14	N 39 57 19.67	W 80 32 7.25	3.10
	5246.00	0.68	299.18	5244.82	4094.85	29.34	0.46	44.81	0.06	0.06	-2.57	531793.21	1709756.25	N 39 57 19.68	W 80 32 7.26	3.11
	5335.00	0.57	308.23	5333.82	4183.85	28.41	1.00	44.00	0.17	-0.12	10.17	531793.74	1709755.44	N 39 57 19.68	W 80 32 7.27	3.12
	5425.00	0.56	311.14	5423.81	4273.84	27.53	1.56	43.31	0.03	-0.01	3.23	531794.31	1709754.76	N 39 57 19.69	W 80 32 7.28	3.12
	5514.00	0.27	2.48	5512.81	4362.84	26.95	2.06	43.00	0.50	-0.33	57.69	531794.80	1709754.44	N 39 57 19.69	W 80 32 7.28	3.14
Tie into Pilot	5603.00	0.27	3.89	5601.81	4451.84	26.65	2.48	43.02	0.01	0.00	1.58	531795.22	1709754.47	N 39 57 19.70	W 80 32 7.28	3.14
	5650.00	1.19	8.35	5648.81	4498.84	26.26	3.07	43.10	1.96	1.96	9.49	531795.82	1709754.54	N 39 57 19.70	W 80 32 7.28	3.16
	5693.00	4.84	17.55	5691.74	4541.77	25.04	5.24	43.71	8.54	8.49	21.40	531797.99	1709755.16	N 39 57 19.72	W 80 32 7.27	3.26
	5738.00	10.05	22.57	5736.34	4586.37	22.34	10.68	45.79	11.66	11.58	11.16	531803.43	1709757.24	N 39 57 19.78	W 80 32 7.25	3.38
	5783.00	14.86	26.72	5780.27	4630.30	18.48	19.47	49.89	10.87	10.69	9.22	531812.21	1709761.34	N 39 57 19.87	W 80 32 7.20	3.49
	5827.00	18.07	31.19	5822.46	4672.49	14.35	30.35	55.97	7.84	7.30	10.16	531823.09	1709767.41	N 39 57 19.97	W 80 32 7.12	3.59
	5872.00	20.69	42.36	5864.93	4714.96	11.43	42.20	64.94	10.06	5.82	24.82	531834.94	1709776.39	N 39 57 20.09	W 80 32 7.01	3.70
	5917.00	23.76	47.29	5906.58	4756.61	10.38	54.22	76.96	7.98	6.82	10.96	531846.97	1709788.41	N 39 57 20.21	W 80 32 6.85	3.79
	5961.00	27.08	48.64	5946.32	4796.35	10.22	66.86	91.00	7.66	7.55	3.07	531859.60	1709802.44	N 39 57 20.34	W 80 32 6.67	3.88
	6006.00	31.30	47.47	5985.59	4835.62	10.03	81.53	107.31	9.46	9.38	-2.60	531874.28	1709818.75	N 39 57 20.49	W 80 32 6.47	3.97
	6051.00	35.21	47.58	6023.22	4873.25	9.61	98.19	125.50	8.69	8.69	0.24	531890.94	1709836.95	N 39 57 20.65	W 80 32 6.24	4.06
	6096.00	34.83	54.11	6060.08	4910.11	10.66	114.48	145.50	8.37	-0.84	14.51	531907.23	1709856.94	N 39 57 20.82	W 80 32 5.98	4.14
	6141.00	34.49	64.88	6097.13	4947.16	15.51	127.44	167.47	13.62	-0.76	23.93	531920.18	1709878.91	N 39 57 20.95	W 80 32 5.70	4.23
	6186.00	35.20	73.96	6134.09	4984.12	24.69	136.44	191.49	11.63	1.58	20.18	531929.18	1709902.93	N 39 57 21.04	W 80 32 5.39	4.30

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
	6230.00	36.05	80.48	6169.87	5019.90	37.00	142.09	216.45	8.84	1.93	14.82	531934.83	1709927.89	N 39 57 21.10	W 80 32 5.07	4.37
	6275.00	36.74	84.54	6206.09	5056.12	51.93	145.56	242.91	5.57	1.53	9.02	531938.30	1709954.35	N 39 57 21.13	W 80 32 4.74	4.42
	6320.00	38.98	90.89	6241.63	5091.66	69.40	146.62	270.48	9.98	4.98	14.11	531939.36	1709981.91	N 39 57 21.15	W 80 32 4.38	4.48
	6364.00	41.60	96.65	6275.21	5125.24	89.62	144.71	298.84	10.34	5.95	13.09	531937.45	1710010.27	N 39 57 21.13	W 80 32 4.02	4.53
	6409.00	43.67	101.54	6308.32	5158.35	113.17	139.87	328.91	8.68	4.60	10.87	531932.61	1710040.34	N 39 57 21.09	W 80 32 3.63	4.59
	6454.00	46.18	105.28	6340.18	5190.21	139.18	132.48	359.80	8.10	5.58	8.31	531925.22	1710071.23	N 39 57 21.02	W 80 32 3.23	4.64
	6499.00	49.51	109.41	6370.39	5220.42	167.73	122.51	391.62	10.05	7.40	9.18	531915.25	1710103.05	N 39 57 20.92	W 80 32 2.82	4.69
	6544.00	52.45	112.03	6398.72	5248.75	198.66	110.13	424.30	7.95	6.53	5.82	531902.87	1710135.73	N 39 57 20.80	W 80 32 2.40	4.73
	6588.00	55.61	116.21	6424.57	5274.60	231.09	95.56	456.78	10.52	7.18	9.50	531888.30	1710168.21	N 39 57 20.66	W 80 32 1.98	4.78
	6633.00	59.28	120.38	6448.78	5298.81	266.67	77.57	490.14	11.29	8.16	9.27	531870.31	1710201.57	N 39 57 20.49	W 80 32 1.55	4.83
	6678.00	61.78	124.83	6470.93	5320.96	304.34	56.45	523.12	10.24	5.56	9.89	531849.19	1710234.55	N 39 57 20.29	W 80 32 1.12	4.88
	6723.00	65.20	128.69	6491.02	5341.05	343.75	32.34	555.36	10.80	7.60	8.58	531825.09	1710266.78	N 39 57 20.05	W 80 32 0.71	4.93
	6768.00	67.79	132.24	6508.97	5359.00	384.60	5.56	586.74	9.24	5.76	7.89	531798.31	1710298.16	N 39 57 19.79	W 80 32 0.30	4.97
	6812.00	69.95	134.42	6524.83	5374.86	425.47	-22.60	616.58	6.74	4.91	4.95	531770.15	1710328.00	N 39 57 19.51	W 80 31 59.91	5.01
	6857.00	72.05	136.11	6539.48	5389.51	467.95	-52.83	646.52	5.86	4.67	3.76	531739.92	1710357.94	N 39 57 19.22	W 80 31 59.52	5.04
	6902.00	74.92	139.49	6552.28	5402.31	511.08	-84.79	675.49	9.62	6.38	7.51	531707.97	1710386.91	N 39 57 18.91	W 80 31 59.15	5.08
	6946.00	79.12	141.22	6562.16	5412.19	553.92	-117.79	702.83	10.29	9.55	3.93	531674.96	1710414.25	N 39 57 18.58	W 80 31 58.79	5.12
	6991.00	84.43	141.17	6568.59	5418.62	598.39	-152.49	730.73	11.80	11.80	-0.11	531640.26	1710442.15	N 39 57 18.24	W 80 31 58.43	5.16
	7036.00	89.28	141.59	6571.06	5421.09	643.25	-187.58	758.77	10.82	10.78	0.93	531605.17	1710470.18	N 39 57 17.90	W 80 31 58.06	5.19
	7126.00	91.68	140.76	6570.31	5420.34	733.15	-257.69	815.19	2.82	2.67	-0.92	531535.07	1710526.60	N 39 57 17.21	W 80 31 57.33	5.24
	7206.00	92.54	139.52	6567.36	5417.39	813.06	-319.06	866.42	1.89	1.08	-1.55	531473.70	1710577.83	N 39 57 16.61	W 80 31 56.66	5.29
	7296.00	89.93	141.80	6565.42	5415.45	902.96	-388.64	923.45	3.85	-2.90	2.53	531404.13	1710634.86	N 39 57 15.93	W 80 31 55.92	5.33
	7385.00	89.45	142.37	6565.90	5415.93	991.78	-458.85	978.14	0.84	-0.54	0.64	531333.92	1710689.55	N 39 57 15.25	W 80 31 55.21	5.37
	7475.00	89.21	141.94	6566.96	5416.99	1081.59	-529.92	1033.36	0.55	-0.27	-0.48	531262.86	1710744.76	N 39 57 14.55	W 80 31 54.49	5.41
	7564.00	88.87	143.06	6568.45	5418.48	1170.36	-600.51	1087.53	1.31	-0.38	1.26	531192.26	1710798.93	N 39 57 13.86	W 80 31 53.78	5.44
	7654.00	88.97	144.97	6570.14	5420.17	1259.93	-673.32	1140.40	2.12	0.11	2.12	531119.46	1710851.80	N 39 57 13.14	W 80 31 53.09	5.48
	7743.00	88.04	146.34	6572.47	5422.50	1348.20	-746.78	1190.59	1.86	-1.04	1.54	531046.00	1710901.99	N 39 57 12.42	W 80 31 52.44	5.51
	7833.00	88.14	146.08	6575.47	5425.50	1437.34	-821.53	1240.62	0.31	0.11	-0.29	530971.25	1710952.01	N 39 57 11.69	W 80 31 51.78	5.54
	7922.00	89.11	146.36	6577.60	5427.63	1525.50	-895.49	1290.09	1.13	1.09	0.31	530897.30	1711001.48	N 39 57 10.97	W 80 31 51.14	5.57
	8012.00	89.28	146.47	6578.87	5428.90	1614.64	-970.45	1339.87	0.22	0.19	0.12	530822.34	1711051.26	N 39 57 10.23	W 80 31 50.49	5.59
	8101.00	89.00	147.13	6580.20	5430.23	1702.70	-1044.92	1388.59	0.81	-0.31	0.74	530747.88	1711099.98	N 39 57 9.50	W 80 31 49.85	5.62
	8191.00	89.00	144.47	6581.77	5431.80	1791.95	-1119.34	1439.17	2.96	0.00	-2.96	530673.46	1711150.55	N 39 57 8.77	W 80 31 49.19	5.65
	8280.00	88.82	142.79	6583.47	5433.50	1880.57	-1190.98	1491.93	1.90	-0.20	-1.89	530601.82	1711203.32	N 39 57 8.07	W 80 31 48.50	5.68
	8370.00	89.90	142.05	6584.47	5434.50	1970.35	-1262.30	1546.82	1.45	1.20	-0.82	530530.50	1711258.20	N 39 57 7.37	W 80 31 47.79	5.70
	8459.00	89.83	141.51	6584.68	5434.71	2059.21	-1332.23	1601.88	0.61	-0.08	-0.61	530460.58	1711313.26	N 39 57 6.69	W 80 31 47.07	5.72
	8549.00	90.10	140.13	6584.74	5434.77	2149.13	-1401.99	1658.74	1.56	0.30	-1.53	530390.82	1711370.11	N 39 57 6.00	W 80 31 46.33	5.75
	8639.00	89.86	140.58	6584.77	5434.80	2239.08	-1471.29	1716.16	0.57	-0.27	0.50	530321.52	1711427.53	N 39 57 5.32	W 80 31 45.58	5.77
	8728.00	89.62	142.35	6585.17	5435.20	2327.96	-1540.90	1771.60	2.01	-0.27	1.99	530251.91	1711482.97	N 39 57 4.64	W 80 31 44.86	5.79
	8818.00	89.69	143.09	6585.71	5435.74	2417.71	-1612.51	1826.12	0.83	0.08	0.82	530180.31	1711537.48	N 39 57 3.94	W 80 31 44.15	5.81
	8908.00	89.14	143.16	6586.63	5436.66	2507.42	-1684.51	1880.12	0.62	-0.61	0.08	530108.32	1711591.48	N 39 57 3.24	W 80 31 43.44	5.83
	8997.00	89.28	142.75	6587.86	5437.89	2596.14	-1755.53	1933.73	0.49	0.16	-0.46	530037.29	1711645.09	N 39 57 2.54	W 80 31 42.75	5.85
	9086.00	89.18	142.83	6589.05	5439.08	2684.88	-1826.41	1987.55	0.14	-0.11	0.09	529966.42	1711698.91	N 39 57 1.85	W 80 31 42.04	5.87
	9176.00	88.90	142.56	6590.56	5440.59	2774.63	-1897.99	2042.09	0.43	-0.31	-0.30	529894.84	1711753.44	N 39 57 1.14	W 80 31 41.33	5.89
	9265.00	89.24	141.72	6592.01	5442.04	2863.43	-1968.24	2096.70	1.02	0.38	-0.94	529824.59	1711808.06	N 39 57 0.46	W 80 31 40.62	5.90
	9355.00	89.18	140.95	6593.25	5443.28	2953.32	-2038.51	2152.92	0.86	-0.07	-0.86	529754.33	1711864.28	N 39 56 59.77	W 80 31 39.89	5.92
	9444.00	89.31	140.93	6594.42	5444.45	3042.23	-2107.61	2209.00	0.15	0.15	-0.02	529685.23	1711920.35	N 39 56 59.09	W 80 31 39.16	5.94
	9534.00	89.17	141.19	6595.61	5445.64	3132.13	-2177.61	2265.56	0.33	-0.16	0.29	529615.24	1711976.91	N 39 56 58.41	W 80 31 38.42	5.95
	9623.00	89.07	139.98	6596.98	5447.01	3221.06	-2246.36	2322.06	1.36	-0.11	-1.36	529546.49	1712033.41	N 39 56 57.73	W 80 31 37.69	5.97

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
	9713.00	89.04	139.92	6598.47	5448.50	3311.02	-2315.24	2379.97	0.07	-0.03	-0.07	529477.61	1712091.31	N 39 56 57.06	W 80 31 36.93	5.99
	9803.00	89.28	140.48	6599.79	5449.82	3400.97	-2384.38	2437.57	0.68	0.27	0.62	529408.48	1712148.91	N 39 56 56.38	W 80 31 36.18	6.00
	9892.00	89.28	141.65	6600.90	5450.93	3489.87	-2453.60	2493.49	1.31	0.00	1.31	529339.26	1712204.83	N 39 56 55.70	W 80 31 35.46	6.02
	9982.00	89.00	143.52	6602.25	5452.28	3579.63	-2525.07	2548.17	2.10	-0.31	2.08	529267.79	1712259.50	N 39 56 55.00	W 80 31 34.74	6.04
	10072.00	89.62	142.77	6603.34	5453.37	3669.32	-2597.08	2602.14	1.08	0.69	-0.83	529195.78	1712313.48	N 39 56 54.30	W 80 31 34.04	6.05
	10161.00	89.45	142.13	6604.06	5454.09	3758.11	-2667.64	2656.38	0.74	-0.19	-0.72	529125.23	1712367.71	N 39 56 53.61	W 80 31 33.33	6.07
	10251.00	89.59	141.05	6604.82	5454.85	3847.98	-2738.16	2712.30	1.21	0.16	-1.20	529054.71	1712423.62	N 39 56 52.92	W 80 31 32.61	6.09
	10340.00	89.62	140.21	6605.43	5455.46	3936.91	-2806.96	2768.75	0.94	0.03	-0.94	528985.91	1712480.08	N 39 56 52.24	W 80 31 31.87	6.10
	10430.00	89.55	140.43	6606.08	5456.11	4026.86	-2876.22	2826.21	0.26	-0.08	0.24	528916.65	1712537.54	N 39 56 51.57	W 80 31 31.12	6.11
	10520.00	89.76	139.99	6606.62	5456.65	4116.82	-2945.38	2883.81	0.54	0.23	-0.49	528847.50	1712595.13	N 39 56 50.89	W 80 31 30.37	6.13
	10609.00	89.83	141.26	6606.94	5456.97	4205.76	-3014.17	2940.27	1.43	0.08	1.43	528778.71	1712651.59	N 39 56 50.22	W 80 31 29.64	6.14
	10699.00	89.86	142.53	6607.18	5457.21	4295.60	-3084.99	2995.81	1.41	0.03	1.41	528707.89	1712707.12	N 39 56 49.52	W 80 31 28.91	6.16
	10788.00	89.73	145.07	6607.50	5457.53	4384.21	-3156.80	3048.37	2.86	-0.15	2.85	528636.08	1712759.68	N 39 56 48.82	W 80 31 28.23	6.17
	10878.00	89.66	145.97	6607.98	5458.01	4473.53	-3230.99	3099.32	1.00	-0.08	1.00	528561.90	1712810.63	N 39 56 48.09	W 80 31 27.56	6.19
	10967.00	89.00	146.04	6609.02	5459.05	4561.76	-3304.77	3149.07	0.75	-0.74	0.08	528488.12	1712860.38	N 39 56 47.37	W 80 31 26.91	6.20
	11056.00	89.04	146.48	6610.54	5460.57	4649.94	-3378.77	3198.50	0.50	0.04	0.49	528414.13	1712909.81	N 39 56 46.64	W 80 31 26.27	6.21
	11146.00	89.00	146.16	6612.08	5462.11	4739.09	-3453.66	3248.40	0.36	-0.04	-0.36	528339.25	1712959.71	N 39 56 45.91	W 80 31 25.62	6.23
	11236.00	89.11	144.49	6613.57	5463.60	4828.43	-3527.66	3299.60	1.86	0.12	-1.86	528265.25	1713010.90	N 39 56 45.18	W 80 31 24.95	6.24
	11325.00	88.83	144.55	6615.17	5465.20	4916.93	-3600.12	3351.25	0.32	-0.31	0.07	528192.79	1713062.54	N 39 56 44.47	W 80 31 24.28	6.25
	11415.00	89.31	142.45	6616.63	5466.66	5006.57	-3672.45	3404.77	2.39	0.53	-2.33	528120.46	1713116.07	N 39 56 43.76	W 80 31 23.58	6.27
	11504.00	89.31	140.47	6617.70	5467.73	5095.44	-3742.06	3460.21	2.22	0.00	-2.22	528050.86	1713171.51	N 39 56 43.08	W 80 31 22.86	6.28
	11594.00	89.59	139.47	6618.57	5468.60	5185.41	-3810.97	3518.10	1.15	0.31	-1.11	527981.95	1713229.39	N 39 56 42.41	W 80 31 22.10	6.29
	11683.00	89.72	139.65	6619.10	5469.13	5274.39	-3878.70	3575.83	0.25	0.15	0.20	527914.22	1713287.12	N 39 56 41.74	W 80 31 21.35	6.31
	11773.00	89.76	140.56	6619.51	5469.54	5364.35	-3947.75	3633.55	1.01	0.04	1.01	527845.17	1713344.84	N 39 56 41.07	W 80 31 20.60	6.32
	11862.00	89.66	140.78	6619.96	5469.99	5453.29	-4016.59	3689.96	0.27	-0.11	0.25	527776.33	1713401.24	N 39 56 40.39	W 80 31 19.87	6.33
	11952.00	89.45	140.32	6620.66	5470.69	5543.23	-4086.09	3747.14	0.56	-0.23	-0.51	527706.84	1713458.42	N 39 56 39.71	W 80 31 19.12	6.34
	12042.00	89.55	139.69	6621.44	5471.47	5633.19	-4155.03	3804.98	0.71	0.11	-0.70	527637.90	1713516.26	N 39 56 39.04	W 80 31 18.37	6.35
	12131.00	89.79	140.55	6621.96	5471.99	5722.15	-4223.33	3862.05	1.00	0.27	0.97	527569.61	1713573.32	N 39 56 38.37	W 80 31 17.63	6.36
	12221.00	89.83	142.16	6622.26	5472.29	5812.04	-4293.62	3918.25	1.79	0.04	1.79	527499.32	1713629.52	N 39 56 37.68	W 80 31 16.90	6.37
	12310.00	89.59	144.04	6622.71	5472.74	5900.75	-4364.79	3971.68	2.13	-0.27	2.11	527428.16	1713682.96	N 39 56 36.98	W 80 31 16.20	6.39
	12400.00	89.31	144.94	6623.57	5473.60	5990.25	-4438.04	4023.96	1.05	-0.31	1.00	527354.90	1713735.23	N 39 56 36.27	W 80 31 15.52	6.40
	12489.00	89.69	145.01	6624.35	5474.38	6078.68	-4510.92	4075.03	0.43	0.43	0.08	527282.03	1713786.30	N 39 56 35.55	W 80 31 14.85	6.41
	12578.00	89.62	146.55	6624.88	5474.91	6166.96	-4584.51	4125.08	1.73	-0.08	1.73	527208.44	1713836.35	N 39 56 34.83	W 80 31 14.20	6.42
	12668.00	89.93	146.86	6625.24	5475.27	6256.04	-4659.74	4174.49	0.49	0.34	0.34	527133.22	1713885.75	N 39 56 34.09	W 80 31 13.55	6.43
	12757.00	89.90	148.28	6625.37	5475.40	6343.92	-4734.86	4222.22	1.60	-0.03	1.60	527058.10	1713933.48	N 39 56 33.36	W 80 31 12.93	6.44
	12846.00	89.93	149.57	6625.50	5475.53	6431.45	-4811.08	4268.15	1.45	0.03	1.45	526981.88	1713979.41	N 39 56 32.61	W 80 31 12.33	6.45
Final Survey 01Dec12	12930.00	89.62	151.20	6625.83	5475.86	6513.65	-4884.11	4309.66	1.98	-0.37	1.94	526908.86	1714020.92	N 39 56 31.89	W 80 31 11.78	6.47
Projection to Bit	13042.00	89.62	151.20	6626.57	5476.60	6622.91	-4982.25	4363.62	0.00	0.00	0.00	526810.72	1714074.87	N 39 56 30.93	W 80 31 11.08	6.48

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 (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey

02/28/2014

47051015 25

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (fUS)	Easting (fUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Directional Difficulty Index
		0.000	18.500		Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only		Original Borehole / Noble Energy SHL-8C-HS Gyro+MWD 0' MD to 6737' MD						
		18.500	2891.500		Act Stns	30.000	30.000	SLB_NSG+MSHOT		Original Borehole / Noble Energy SHL-8C-HS Gyro+MWD 0' MD to						
		2891.500	5603.000		Act Stns	30.000	30.000	SLB_MWD-STD		Original Borehole / Noble Energy SHL-8C-HS Gyro+MWD 0' MD to						
		5603.000	12930.000		Act Stns	30.000	30.000	SLB_MWD-STD		ST01 / Noble Energy SHL-8C-HS ST01 MWD 5603' to 13042' MD						
		12930.000	13042.000		Act Stns	30.000	30.000	SLB_BLIND+TREND		ST01 / Noble Energy SHL-8C-HS ST01 MWD 5603' to 13042' MD						

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