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: 47-051-01530

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

LOCATION: Sandhill 8 Elevation: 1,131.35 Quadrangle: Majorsville

District: Sandhill County: MARSHALL
Latitude: _____ Feet South of Deg. Min. Sec. 39.955553
Longitude: Feet South of Deg. Min. Sec. -80.535597

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	505	505	860 sxs / 188 bbls cemented to surface
Inspector: Bill Hendershot		13 3/8	1,034	1,034	790 sxs / 179 bbls cemented to surface
Date Permit Issued: 5/30/12		9 5/8	3,012	3,012	1069 sxs / 219 bbls cemented to surface
Date Well Work Commenced:	9/10/2012	5 ½	10,682	10,682	1477 sxs / 366 bbls cemented
Date Well Work Completed:	8/3/2013				
Verbal Plugging:					
Date Permission granted on:	9/10/2012				
Rotary Cable Rig X					
Total Vertical Depth (ft): Original Hole - 6,528.82					
Total Measured Depth (ft): 10,696.00					
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 1067 MCF/d Oil: Initial open flow 2.3 Bbl/d
Final open flow 1047 MCF/d Final open flow 1.1 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 1182 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.

1-27-14
Signature Date

03/07/2014

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

Were core samples taken? Yes No X **Were cuttings caught during drilling? Yes** x **No**___

Were Electrical, Mechanical or Geophyisical logs recorded on this well? If yes, please list Gamma Ray Log, 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

Formations Encountered: Please See Attached

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	4221	
50' Sand	2449	2452	2449	4231	
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	4221	
Warren Sand	4217	4227	4221	4231	
Shale	4227	4907	4231	4953	
Java Shale	4907	5011	4953	5064	
Pipe Creek Shale	5011	5109	5064	5168	
Angola Shale	5109	5743	5168	5847	
Rhinestreet	5743	6180	5847	6316	
Cashaqua	6180	6281	6316	6430	
Middlesex	6281	6312	6430	6468	
West River	6312	6369	6468	6542	
Burkett	6369	6394	6542	6578	
Tully Limestone	6394	6421	6578	6620	
Hamilton	6421	6535	6620	6891	
Marcellus	6535	6584	6891	not encountered	Gas
Cherry Valley	6543	6545	not encountered	not encountered	
Onondaga	6584		not encountered	not encountered	

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Stage #	Plug Type	Plug Depth
1A,1B,1C	Toe Sleeve	10,549
2A,2B	Composite Frac Plug	10,100
3	Composite Frac Plug	9,865
4	Composite Frac Plug	9,600
5A,5B,5C	Composite Frac Plug	9,300
6	Composite Frac Plug	8,700
7	Composite Frac Plug	8,400
8A,8B	Composite Frac Plug	8,100
9	Composite Frac Plug	7,790
10	Composite Frac Plug	7,500
11	Composite Frac Plug	7,300
	Bridge Plug	6,500

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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)
7/18/2013	1	Marcellus	Slickwater	10377	10547	48	7278	8268	24.4	4856	1.17	3389	6000	81,511
7/18/2013	1RP	Marcellus	Slickwater	10363	10519	40	6651	8498	41.8	6770	1.47	2360	3000	127,021
7/19/2013	1C	Marcellus	Slickwater	10127	10327	40	6416	7838	88.3	4132	1.06	435054	3000	357,401
7/20/2013	2	Marcellus	Slickwater	9925	10077	40	6515	7514	61.9	5540	1.28	153050	9000	246,153
7/20/2013	2RP	Marcellus	Slickwater	9890	9933	40	5861	7322	80.5	4782	1.16	362502	3000	299,694
7/21/2013	3	Marcellus	Slickwater	9626	9842	40	6275	7408	87.9	4905	1.18	352886	3000	331,529
7/21/2013	4	Marcellus	Slickwater	9326	9577	40	6084	7549	89	4331	1.09	392513	3000	330,133
7/21/2013	5	Marcellus	Slickwater	9026	9277	40	6962	8920	13.74	7728	1.61	3260	9000	93,894
7/22/2013	5inj	Marcellus	Slickwater	9,026	9,277	N/A	N/A	7988	12	7479	1.57	N/A	2000	24,848
7/22/2013	5RP	Marcellus	Slickwater	9014	9040	20	7011	8274	45.04	5538	1.28	6244	6000	166,681
7/23/2013	5C	Marcellus	Slickwater	8726	8977	40	NA	7582	82.2	4433	1.11	439535	3000	338,032
7/23/2013	6	Marcellus	Slickwater	8426	8677	40	6511	7846	79	4566	1.13	437436	3000	359,875
7/23/2013	7	Marcellus	Slickwater	8126	8377	40	6397	7825	82.23	4425	1.11	434087	3000	325,086
7/23/2013	8	Marcellus	Slickwater	7826	8077	40	6436	8129	44.96	5303	1.24	7216	9000	161,128
7/24/2013	8RP	Marcellus	Slickwater	7804	7890	40	6030	6898	82.01	4209	1.08	435268	3000	329,049
7/24/2013	9	Marcellus	Slickwater	7526	7777	40	5680	6817	82.2	4513	1.12	437478	3000	333,344
7/24/2013	10	Marcellus	Slickwater	7325	7477	40	6430	6976	78.89	4271	1.08	293865	3000	275,981
7/24/2013	11	Marcellus	Slickwater	7026	7277	40	6688	6767	82.21	7492	1.57	364582	3000	305,540

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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
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%	0.15372%	
HYDROCHLORIC ACID 10-30%	Halliburton		Hydrochloric acid	7647-01-0	30.00%	0.01274%	
Fresh Water	Operator				100.00%	87.39497%	Density = 8.340
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.06160%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	9.81032%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.00229%	
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%	0.00416%	
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%	0.00252%	
FDP S1078-12	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.01557%	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%	0.00083%	
			Propargyl alcohol	107-19-7	10.00%	0.00014%	
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00003%	
			Ethanol	64-17-5	60.00%	0.00165%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00082%	
			Naphthalene	91-20-3	5.00%	0.00014%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%	0.00014%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00491%	
			Acetic anhydride	108-24-7	100.00%	0.00819%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00057%	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.01419%	

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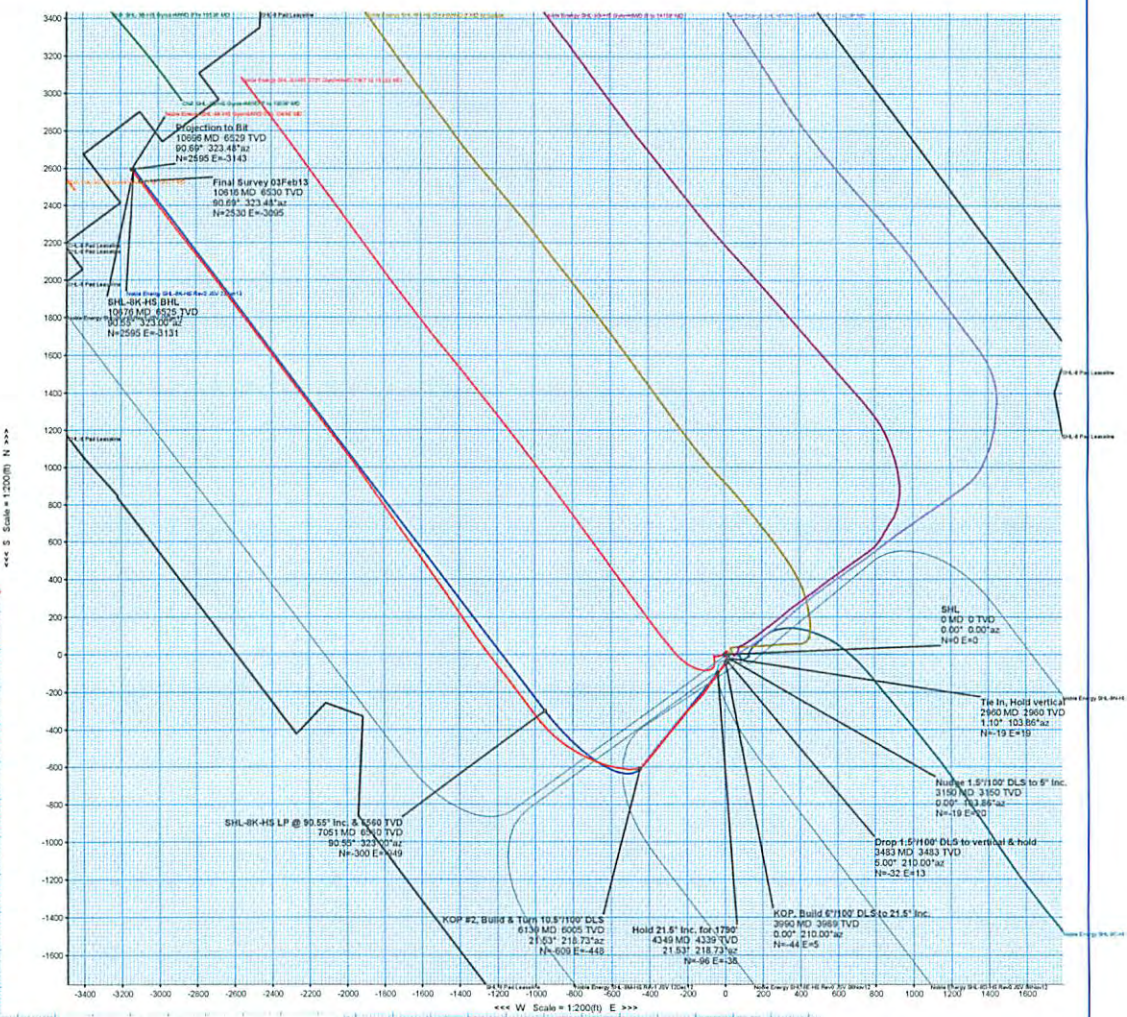
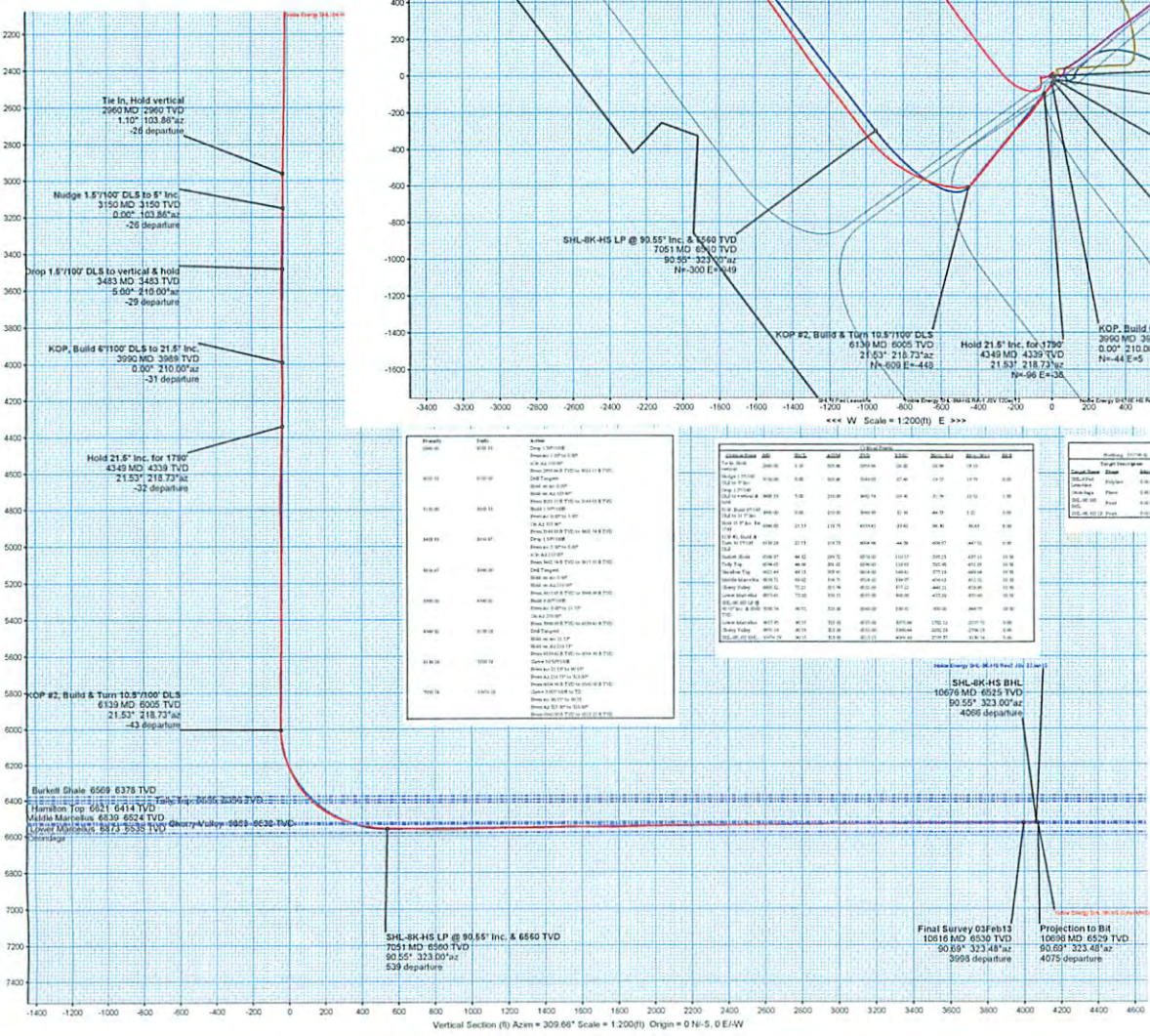
WELL	FIELD	STRUCTURE
SHL-8K-HS	WV Marshall County (NAD 27)	Precision 543

Magnetic Parameters				Surface Location				NAD27 West Virginia State Plane, Northern Zone, US Feet				Miscellaneous			
Model	BGGM 2012	Dip	67.430°	Lat	N 39 57 19.717	Northing	531798.62 ftUS	Grid Conv	-0.843°	Slot	SHL-8K-HS	TVD Ref	KB(1149.818 above MSL)
		Mag Dec	-8.712°	Lon	W 80 32 8.890	Easting	1709629.23 ftUS	Scale Fact	0.99995724	Plan	Rev2.0SV 22Jan13	Srvy Date	January 22, 2013

Legend





Drawn By	JVennara
Date Created	January 23, 2013 10:35:21 AM
Checked By	
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Approved By	
Approved Date	

03/07/2014

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Noble Energy SHL-8K-HS Gyro+MWD 0' to 10696' MD Survey Report

(Def Survey)

Report Date:	February 04, 2013 - 08:32 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Noble Energy	**Vertical Section Azimuth:**	309.660 ° (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-8K-HS	**TVD Reference Datum:**	KB
Well:	SHL-8K-HS	**TVD Reference Elevation:**	1149.850 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	1131.470 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	-8.712 °
Survey Name:	Noble Energy SHL-8K-HS Gyro+MWD 0' to 10696' MD	**Total Gravity Field Strength:**	999.3811mgn (9.80665 Based)
Survey Date:	January 22, 2013	**Total Magnetic Field Strength:**	52750.918 nT
Tort / AHD / DDI / ERD Ratio:	227.455 ° / 5053.800 ft / 6.273 / 0.770	**Magnetic Dip Angle:**	67.430 °
Coordinate Reference System:	NAD27 West Virginia State Plane, Northern Zone, US Feet	**Declination Date:**	January 22, 2013
Location Lat / Long:	N 39° 57' 19.71678", W 80° 32' 8.88987"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 531798.621 ftUS, E 1709629.229 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	-0.6606 °	**Grid Convergence Used:**	-0.6606 °
Grid Scale Factor:	0.99995724	**Total Corr Mag North->Grid North:**	-8.0516 °
		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	-1149.85	0.00	0.00	0.00	N/A	N/A	N/A	531798.62	1709629.23	N 39 57 19.72	W 80 32 8.89	0.00
	100.00	0.37	180.59	100.00	-1049.85	-0.20	-0.32	0.00	0.37	0.37	0.00	531798.30	1709629.23	N 39 57 19.71	W 80 32 8.89	0.00
	200.00	0.31	166.00	200.00	-949.85	-0.62	-0.91	0.06	0.10	-0.06	-14.59	531797.71	1709629.29	N 39 57 19.71	W 80 32 8.89	0.00
	300.00	0.33	136.13	300.00	-849.85	-1.13	-1.38	0.32	0.17	0.02	-29.87	531797.24	1709629.55	N 39 57 19.70	W 80 32 8.89	0.00
	400.00	0.32	140.04	399.99	-749.86	-1.69	-1.80	0.70	0.02	-0.01	3.91	531796.82	1709629.93	N 39 57 19.70	W 80 32 8.88	0.13
	500.00	0.14	140.11	499.99	-649.86	-2.08	-2.11	0.96	0.18	-0.18	0.07	531796.51	1709630.19	N 39 57 19.70	W 80 32 8.88	0.31
	600.00	0.31	139.46	599.99	-549.86	-2.47	-2.41	1.21	0.17	0.17	-0.65	531796.21	1709630.44	N 39 57 19.69	W 80 32 8.87	0.46
	700.00	0.22	149.21	699.99	-449.86	-2.92	-2.78	1.49	0.10	-0.09	9.75	531795.84	1709630.72	N 39 57 19.69	W 80 32 8.87	0.56
	800.00	0.41	138.26	799.99	-349.86	-3.45	-3.21	1.83	0.20	0.19	-10.95	531795.41	1709631.05	N 39 57 19.69	W 80 32 8.87	0.70
	900.00	0.34	146.99	899.99	-249.86	-4.09	-3.73	2.23	0.09	-0.07	8.73	531794.90	1709631.45	N 39 57 19.68	W 80 32 8.86	0.80
	1000.00	0.29	150.10	999.99	-149.86	-4.61	-4.19	2.51	0.05	-0.05	3.11	531794.43	1709631.74	N 39 57 19.68	W 80 32 8.86	0.87
	1100.00	0.22	153.09	1099.99	-49.86	-5.02	-4.58	2.73	0.07	-0.07	2.99	531794.04	1709631.95	N 39 57 19.67	W 80 32 8.85	0.92
	1200.00	0.41	145.80	1199.98	50.13	-5.54	-5.05	3.01	0.19	0.19	-7.29	531793.57	1709632.24	N 39 57 19.67	W 80 32 8.85	1.02
	1300.00	0.55	144.73	1299.98	150.13	-6.35	-5.74	3.49	0.14	0.14	-1.07	531792.88	1709632.72	N 39 57 19.66	W 80 32 8.84	1.11
	1400.00	0.52	145.25	1399.98	250.13	-7.25	-6.50	4.03	0.03	-0.03	0.52	531792.12	1709633.26	N 39 57 19.65	W 80 32 8.84	1.17
	1500.00	0.62	153.25	1499.97	350.12	-8.18	-7.36	4.53	0.13	0.10	8.00	531791.26	1709633.76	N 39 57 19.64	W 80 32 8.83	1.25
	1600.00	0.53	155.17	1599.97	450.12	-9.10	-8.26	4.97	0.09	-0.09	1.92	531790.36	1709634.20	N 39 57 19.64	W 80 32 8.82	1.32
	1700.00	0.68	150.85	1699.96	550.11	-10.07	-9.20	5.45	0.16	0.15	-4.32	531789.42	1709634.68	N 39 57 19.63	W 80 32 8.82	1.39
	1800.00	0.58	141.78	1799.95	650.10	-11.12	-10.12	6.05	0.14	-0.10	-9.07	531788.51	1709635.28	N 39 57 19.62	W 80 32 8.81	1.46
	1900.00	0.49	137.19	1899.95	750.10	-12.04	-10.83	6.66	0.10	-0.09	-4.59	531787.79	1709635.89	N 39 57 19.61	W 80 32 8.80	1.51
	2000.00	0.78	135.12	1999.94	850.09	-13.14	-11.62	7.43	0.29	0.29	-2.07	531787.00	1709636.66	N 39 57 19.60	W 80 32 8.79	1.59
	2100.00	0.84	141.00	2099.93	950.08	-14.53	-12.68	8.37	0.10	0.06	5.88	531785.95	1709637.60	N 39 57 19.59	W 80 32 8.78	1.65
	2200.00	0.88	138.48	2199.92	1050.07	-16.01	-13.82	9.34	0.06	0.04	-2.52	531784.80	1709638.57	N 39 57 19.58	W 80 32 8.77	1.70
	2300.00	0.63	132.98	2299.91	1150.06	-17.32	-14.77	10.25	0.26	-0.25	-5.50	531783.85	1709639.48	N 39 57 19.57	W 80 32 8.76	1.77
	2400.00	0.73	125.10	2399.91	1250.06	-18.50	-15.51	11.17	0.14	0.10	-7.88	531783.11	1709640.40	N 39 57 19.56	W 80 32 8.74	1.81

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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
	2500.00	0.71	121.74	2499.90	1350.05	-19.75	-16.20	12.22	0.05	-0.02	-3.36	531782.42	1709641.45	N 39 57 19.56	W 80 32 8.73	1.85
	2600.00	0.73	117.32	2599.89	1450.04	-20.99	-16.82	13.32	0.06	0.02	-4.42	531781.80	1709642.54	N 39 57 19.55	W 80 32 8.72	1.88
	2700.00	0.92	112.26	2699.88	1550.03	-22.38	-17.42	14.62	0.20	0.19	-5.06	531781.20	1709643.85	N 39 57 19.55	W 80 32 8.70	1.93
	2800.00	1.02	110.88	2799.87	1650.02	-23.98	-18.04	16.20	0.10	0.10	-1.38	531780.58	1709645.43	N 39 57 19.54	W 80 32 8.68	1.97
	2900.00	1.14	107.98	2899.85	1750.00	-25.75	-18.66	17.98	0.13	0.12	-2.90	531779.96	1709647.21	N 39 57 19.53	W 80 32 8.66	2.02
	2960.00	1.10	103.86	2959.84	1809.99	-26.82	-18.99	19.10	0.15	-0.07	-6.87	531779.64	1709648.33	N 39 57 19.53	W 80 32 8.64	2.05
	3081.00	0.61	71.84	3080.82	1930.97	-28.21	-19.06	20.84	0.55	-0.40	-26.46	531779.56	1709650.07	N 39 57 19.53	W 80 32 8.62	2.14
	3176.00	1.52	192.31	3175.81	2025.96	-29.06	-20.14	21.06	2.00	0.96	126.81	531778.48	1709650.28	N 39 57 19.52	W 80 32 8.62	2.31
	3271.00	3.11	195.96	3270.73	2120.88	-30.68	-23.85	20.08	1.68	1.67	3.84	531774.78	1709649.31	N 39 57 19.48	W 80 32 8.63	2.46
	3365.00	4.56	197.81	3364.52	2214.67	-33.09	-29.86	18.23	1.55	1.54	1.97	531768.77	1709647.46	N 39 57 19.42	W 80 32 8.65	2.60
	3455.00	4.20	193.78	3454.26	2304.41	-35.86	-36.46	16.35	0.53	-0.40	-4.48	531762.16	1709645.58	N 39 57 19.36	W 80 32 8.67	2.69
	3544.00	3.03	200.59	3543.08	2393.23	-38.05	-41.83	14.75	1.40	-1.31	7.65	531756.79	1709643.98	N 39 57 19.31	W 80 32 8.69	2.78
	3634.00	2.02	237.95	3633.00	2483.15	-38.33	-44.90	12.57	2.09	-1.12	41.51	531753.72	1709641.80	N 39 57 19.27	W 80 32 8.72	2.88
	3723.00	2.01	246.31	3721.94	2572.09	-37.14	-46.36	9.81	0.33	-0.01	9.39	531752.26	1709639.04	N 39 57 19.26	W 80 32 8.76	2.91
	3813.00	1.55	242.21	3811.90	2662.05	-35.97	-47.56	7.29	0.53	-0.51	-4.56	531751.06	1709636.52	N 39 57 19.25	W 80 32 8.79	2.95
	3903.00	1.31	234.84	3901.87	2752.02	-35.23	-48.72	5.37	0.34	-0.27	-8.19	531749.90	1709634.60	N 39 57 19.24	W 80 32 8.81	2.97
	3950.00	1.09	230.68	3948.86	2799.01	-35.00	-49.31	4.59	0.50	-0.47	-8.85	531749.31	1709633.81	N 39 57 19.23	W 80 32 8.82	2.99
	3992.00	1.19	225.67	3990.85	2841.00	-34.88	-49.87	3.96	0.34	0.24	-11.93	531748.75	1709633.19	N 39 57 19.22	W 80 32 8.83	3.00
	4037.00	3.38	225.52	4035.81	2885.96	-34.70	-51.13	2.68	4.87	4.87	-0.33	531747.50	1709631.91	N 39 57 19.21	W 80 32 8.85	3.07
	4082.00	6.26	223.67	4080.65	2930.80	-34.39	-53.83	0.04	6.41	6.40	-4.11	531744.79	1709629.27	N 39 57 19.18	W 80 32 8.88	3.16
	4126.00	9.48	220.12	4124.23	2974.38	-34.19	-58.34	-3.95	7.40	7.32	-8.07	531740.29	1709625.28	N 39 57 19.14	W 80 32 8.93	3.26
	4171.00	12.08	218.26	4168.43	3018.58	-34.28	-64.87	-9.25	5.83	5.78	-4.13	531733.75	1709619.98	N 39 57 19.07	W 80 32 9.00	3.35
	4216.00	14.07	216.57	4212.26	3062.41	-34.69	-72.96	-15.43	4.50	4.42	-3.76	531725.66	1709613.80	N 39 57 18.99	W 80 32 9.08	3.43
	4261.00	16.73	215.56	4255.64	3105.79	-35.45	-82.63	-22.46	5.94	5.91	-2.24	531716.00	1709606.77	N 39 57 18.90	W 80 32 9.17	3.52
	4306.00	20.01	214.78	4298.34	3148.49	-36.56	-94.22	-30.62	7.31	7.29	-1.73	531704.40	1709598.61	N 39 57 18.78	W 80 32 9.27	3.62
	4350.00	22.13	216.16	4339.40	3189.55	-37.71	-107.10	-39.80	4.95	4.82	3.14	531691.53	1709589.43	N 39 57 18.65	W 80 32 9.39	3.70
	4440.00	21.08	218.75	4423.08	3273.23	-39.00	-133.41	-59.94	1.58	-1.17	2.88	531665.22	1709569.29	N 39 57 18.39	W 80 32 9.64	3.81
	4529.00	17.17	214.39	4507.15	3357.30	-40.46	-156.74	-77.38	4.67	-4.39	-4.90	531641.89	1709551.85	N 39 57 18.16	W 80 32 9.86	3.92
	4619.00	17.08	212.44	4593.16	3443.31	-43.35	-178.86	-91.98	0.65	-0.10	-2.17	531619.77	1709537.26	N 39 57 17.94	W 80 32 10.04	3.98
	4664.00	18.72	214.39	4635.98	3486.13	-44.84	-190.40	-99.60	3.88	3.64	4.33	531608.23	1709529.63	N 39 57 17.82	W 80 32 10.14	4.03
	4708.00	18.48	214.26	4677.69	3527.84	-46.14	-201.99	-107.51	0.55	-0.55	-0.30	531596.64	1709521.72	N 39 57 17.71	W 80 32 10.24	4.05
	4753.00	18.99	219.41	4720.30	3570.45	-46.85	-213.54	-116.18	3.85	1.13	11.44	531585.09	1709513.06	N 39 57 17.59	W 80 32 10.35	4.10
	4798.00	19.73	224.00	4762.76	3612.91	-46.30	-224.66	-126.10	3.76	1.64	10.20	531573.97	1709503.13	N 39 57 17.48	W 80 32 10.48	4.13
	4843.00	21.16	223.63	4804.93	3655.08	-45.17	-236.00	-136.98	3.19	3.18	-0.82	531562.63	1709492.25	N 39 57 17.37	W 80 32 10.61	4.17
	4888.00	21.00	223.27	4846.92	3697.07	-44.10	-247.75	-148.11	0.46	-0.36	-0.80	531550.88	1709481.12	N 39 57 17.25	W 80 32 10.75	4.20
	4977.00	22.10	224.50	4929.69	3779.84	-41.68	-271.31	-170.78	1.34	1.24	1.38	531527.33	1709458.46	N 39 57 17.02	W 80 32 11.04	4.25
	5022.00	20.28	223.42	4971.65	3821.80	-40.45	-283.01	-182.08	4.14	-4.04	-2.40	531515.62	1709447.16	N 39 57 16.90	W 80 32 11.19	4.28
	5067.00	19.83	220.53	5013.92	3864.07	-39.83	-294.48	-192.40	2.42	-1.00	-6.42	531504.16	1709436.84	N 39 57 16.78	W 80 32 11.32	4.31
	5156.00	19.35	217.10	5097.77	3947.92	-40.26	-317.71	-211.10	1.40	-0.54	-3.85	531480.93	1709418.14	N 39 57 16.55	W 80 32 11.55	4.36
	5201.00	19.64	215.19	5140.19	3990.34	-41.18	-329.84	-219.96	1.56	0.64	-4.24	531468.80	1709409.28	N 39 57 16.43	W 80 32 11.67	4.38
	5245.00	21.45	215.93	5181.39	4031.54	-42.28	-342.40	-228.94	4.16	4.11	1.68	531456.24	1709400.30	N 39 57 16.31	W 80 32 11.78	4.41
	5290.00	22.09	217.97	5223.18	4073.33	-43.06	-355.73	-238.97	2.20	1.42	4.53	531442.91	1709390.27	N 39 57 16.17	W 80 32 11.91	4.43
	5335.00	22.47	221.45	5264.83	4114.98	-43.04	-368.85	-249.87	3.05	0.84	7.73	531429.79	1709379.37	N 39 57 16.04	W 80 32 12.04	4.46
	5425.00	19.77	220.21	5348.77	4198.92	-42.36	-393.36	-271.09	3.04	-3.00	-1.38	531405.27	1709358.15	N 39 57 15.80	W 80 32 12.31	4.50
	5514.00	20.69	221.19	5432.28	4282.43	-41.80	-416.69	-291.16	1.10	1.03	1.10	531381.95	1709338.08	N 39 57 15.57	W 80 32 12.57	4.54
	5560.00	18.52	217.56	5475.61	4325.76	-41.85	-428.60	-300.97	5.41	-4.72	-7.89	531370.04	1709328.28	N 39 57 15.45	W 80 32 12.69	4.57
	5593.00	19.48	216.50	5506.82	4356.97	-42.34	-437.18	-307.43	3.09	2.91	-3.21	531361.46	1709321.81	N 39 57 15.36	W 80 32 12.77	4.58
	5688.00	22.87	218.70	5595.39	4445.54	-43.53	-464.33	-328.41	3.66	3.57	2.32	531334.31	1709300.84	N 39 57 15.09	W 80 32 13.04	4.63

03/06/2014

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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
	5782.00	21.14	216.40	5682.54	4532.69	-44.80	-492.23	-349.89	2.06	-1.84	-2.45	531306.41	1709279.36	N 39 57 14.81	W 80 32 13.31	4.67
	5872.00	22.79	219.19	5766.01	4616.16	-45.86	-518.80	-370.53	2.17	1.83	3.10	531279.84	1709258.71	N 39 57 14.55	W 80 32 13.57	4.70
	5961.00	21.53	220.81	5848.43	4698.58	-45.68	-544.53	-392.10	1.57	-1.42	1.82	531254.12	1709237.15	N 39 57 14.29	W 80 32 13.84	4.73
	6051.00	21.19	219.35	5932.25	4782.40	-45.43	-569.60	-413.21	0.70	-0.38	-1.62	531229.04	1709216.04	N 39 57 14.04	W 80 32 14.11	4.76
	6096.00	20.47	218.26	5974.31	4824.46	-45.67	-582.07	-423.24	1.82	-1.60	-2.42	531216.58	1709206.01	N 39 57 13.92	W 80 32 14.24	4.77
	6140.00	19.92	228.75	6015.62	4865.77	-44.67	-593.06	-433.64	8.31	-1.25	23.84	531205.59	1709195.61	N 39 57 13.81	W 80 32 14.37	4.80
	6185.00	20.35	243.97	6057.90	4908.05	-40.24	-601.55	-446.44	11.65	0.96	33.82	531197.10	1709182.81	N 39 57 13.72	W 80 32 14.53	4.83
	6230.00	20.18	250.80	6100.12	4950.27	-33.00	-607.54	-460.81	5.27	-0.38	15.18	531191.11	1709168.44	N 39 57 13.66	W 80 32 14.72	4.85
	6274.00	21.01	258.41	6141.31	4991.46	-24.14	-611.62	-475.70	6.36	1.89	17.30	531187.03	1709153.55	N 39 57 13.62	W 80 32 14.91	4.88
	6319.00	23.24	268.46	6183.01	5033.16	-12.40	-613.48	-492.49	9.75	4.96	22.33	531185.17	1709136.76	N 39 57 13.60	W 80 32 15.12	4.91
	6364.00	26.88	274.72	6223.78	5073.93	2.62	-612.88	-511.51	10.00	8.09	13.91	531185.77	1709117.74	N 39 57 13.60	W 80 32 15.37	4.94
	6409.00	30.08	277.20	6263.33	5113.48	20.48	-610.63	-532.84	7.58	7.11	5.51	531188.02	1709096.41	N 39 57 13.62	W 80 32 15.64	4.96
	6454.00	35.29	279.94	6301.19	5151.34	41.30	-606.97	-556.85	12.03	11.58	6.09	531191.68	1709072.40	N 39 57 13.66	W 80 32 15.95	5.00
	6498.00	40.11	282.10	6335.99	5186.14	64.92	-601.80	-583.25	11.36	10.95	4.91	531196.84	1709046.01	N 39 57 13.70	W 80 32 16.29	5.03
	6543.00	43.91	285.15	6369.43	5219.58	91.98	-594.68	-612.50	9.58	8.44	6.78	531203.96	1709016.76	N 39 57 13.77	W 80 32 16.67	5.06
	6588.00	48.02	289.13	6400.71	5250.86	121.87	-585.12	-643.38	11.13	9.13	8.84	531213.53	1708985.88	N 39 57 13.86	W 80 32 17.06	5.09
	6633.00	52.29	292.19	6429.54	5279.69	154.53	-572.91	-675.69	10.83	9.49	6.80	531225.74	1708953.57	N 39 57 13.98	W 80 32 17.48	5.13
	6678.00	57.48	294.18	6455.41	5305.56	189.82	-558.40	-709.50	12.09	11.53	4.42	531240.24	1708919.76	N 39 57 14.12	W 80 32 17.92	5.16
	6722.00	62.05	297.02	6477.57	5327.72	226.68	-541.96	-743.76	11.79	10.39	6.45	531256.68	1708885.50	N 39 57 14.28	W 80 32 18.36	5.20
	6767.00	65.60	300.34	6497.42	5347.57	266.32	-522.57	-779.17	10.30	7.89	7.38	531276.07	1708850.09	N 39 57 14.46	W 80 32 18.82	5.23
	6812.00	70.60	303.16	6514.20	5364.35	307.66	-500.60	-814.65	12.54	11.11	6.27	531298.05	1708814.62	N 39 57 14.68	W 80 32 19.28	5.26
	6857.00	75.26	305.73	6527.41	5377.56	350.48	-476.26	-850.10	11.71	10.36	5.71	531322.38	1708779.16	N 39 57 14.91	W 80 32 19.73	5.29
	6902.00	78.80	309.86	6537.51	5387.66	394.29	-449.39	-884.74	11.91	7.87	9.18	531349.25	1708744.53	N 39 57 15.17	W 80 32 20.18	5.33
	6946.00	79.99	314.48	6545.61	5395.76	437.49	-420.36	-916.78	10.67	2.70	10.50	531378.28	1708712.49	N 39 57 15.46	W 80 32 20.60	5.36
	6991.00	82.90	318.27	6552.31	5402.46	481.67	-388.16	-947.47	10.54	6.47	8.42	531410.48	1708681.81	N 39 57 15.77	W 80 32 21.00	5.39
	7036.00	87.49	320.92	6556.08	5406.23	525.82	-354.02	-976.52	11.77	10.20	5.89	531444.62	1708652.75	N 39 57 16.11	W 80 32 21.38	5.42
	7081.00	89.49	322.74	6557.26	5407.41	569.79	-318.66	-1004.32	6.01	4.44	4.04	531479.98	1708624.96	N 39 57 16.45	W 80 32 21.74	5.44
	7126.00	88.35	323.28	6558.11	5408.26	613.57	-282.72	-1031.39	2.80	-2.53	1.20	531515.91	1708597.89	N 39 57 16.81	W 80 32 22.09	5.46
	7215.00	89.04	323.42	6560.14	5410.29	700.01	-211.34	-1084.50	0.79	0.78	0.16	531587.29	1708544.78	N 39 57 17.50	W 80 32 22.78	5.49
	7305.00	89.73	323.34	6561.11	5411.26	787.44	-139.11	-1138.18	0.77	0.77	-0.09	531659.52	1708491.10	N 39 57 18.21	W 80 32 23.48	5.52
	7394.00	90.07	322.97	6561.26	5411.41	873.98	-67.88	-1191.55	0.56	0.38	-0.42	531730.74	1708437.73	N 39 57 18.91	W 80 32 24.18	5.55
	7484.00	91.55	322.79	6559.99	5410.14	961.59	3.87	-1245.86	1.66	1.64	-0.20	531802.49	1708383.43	N 39 57 19.61	W 80 32 24.89	5.58
	7573.00	90.52	324.76	6558.38	5408.53	1047.88	75.65	-1298.44	2.50	-1.16	2.21	531874.27	1708330.85	N 39 57 20.32	W 80 32 25.57	5.61
	7663.00	91.34	325.39	6556.92	5407.07	1134.63	149.43	-1349.96	1.15	0.91	0.70	531948.05	1708279.33	N 39 57 21.04	W 80 32 26.25	5.64
	7752.00	91.13	326.03	6555.00	5405.15	1220.14	222.95	-1400.09	0.76	-0.24	0.72	532021.56	1708229.21	N 39 57 21.76	W 80 32 26.90	5.66
	7842.00	88.97	325.62	6554.92	5405.07	1306.58	297.40	-1450.64	2.44	-2.40	-0.46	532096.01	1708178.66	N 39 57 22.49	W 80 32 27.56	5.69
	7931.00	92.20	325.39	6554.01	5404.16	1392.18	370.74	-1501.03	3.64	3.63	-0.26	532169.34	1708128.26	N 39 57 23.21	W 80 32 28.22	5.72
	8021.00	93.09	324.64	6549.86	5400.01	1478.87	444.40	-1552.58	1.29	0.99	-0.83	532243.00	1708076.72	N 39 57 23.93	W 80 32 28.89	5.75
	8110.00	88.80	325.17	6548.39	5398.54	1564.71	517.19	-1603.73	4.86	-4.82	0.60	532315.79	1708025.57	N 39 57 24.64	W 80 32 29.56	5.78
	8199.00	88.83	324.77	6550.23	5400.38	1650.53	590.05	-1654.80	0.45	0.03	-0.45	532388.65	1707974.50	N 39 57 25.36	W 80 32 30.23	5.80
	8289.00	89.07	324.52	6551.88	5402.03	1737.46	663.44	-1706.87	0.39	0.27	-0.28	532462.03	1707922.43	N 39 57 26.08	W 80 32 30.91	5.82
	8379.00	91.72	325.48	6551.26	5401.41	1824.24	737.15	-1758.49	3.13	2.94	1.07	532535.74	1707870.82	N 39 57 26.80	W 80 32 31.58	5.84
	8468.00	91.62	324.86	6548.67	5398.82	1909.96	810.18	-1809.30	0.71	-0.11	-0.70	532608.76	1707820.01	N 39 57 27.52	W 80 32 32.24	5.86
	8557.00	92.51	325.11	6545.46	5395.61	1995.74	883.02	-1860.33	1.04	1.00	0.28	532681.60	1707768.98	N 39 57 28.23	W 80 32 32.91	5.88
	8647.00	91.44	324.96	6542.36	5392.51	2082.47	956.73	-1911.88	1.20	-1.19	-0.17	532755.31	1707717.44	N 39 57 28.95	W 80 32 33.58	5.90
	8737.00	89.66	324.06	6541.50	5391.65	2169.45	1030.00	-1964.12	2.22	-1.98	-1.00	532828.58	1707665.19	N 39 57 29.67	W 80 32 34.26	5.93
	8826.00	89.52	323.00	6542.13	5392.28	2255.85	1101.57	-2017.02	1.20	-0.16	-1.19	532900.14	1707612.30	N 39 57 30.37	W 80 32 34.95	5.94
	8916.00	90.76	322.79	6541.91	5392.06	2343.46	1173.35	-2071.32	1.40	1.38	-0.23	532971.92	1707558.01	N 39 57 31.07	W 80 32 35.66	5.96

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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
	9005.00	89.90	322.96	6541.40	5391.55	2430.10	1244.31	-2125.03	0.98	-0.97	0.19	533042.87	1707504.29	N 39 57 31.77	W 80 32 36.36	5.98
	9095.00	90.89	322.99	6540.78	5390.93	2517.68	1316.16	-2179.22	1.10	1.10	0.03	533114.72	1707450.10	N 39 57 32.47	W 80 32 37.07	6.00
	9184.00	92.13	321.98	6538.44	5388.59	2604.43	1386.73	-2233.40	1.80	1.39	-1.13	533185.29	1707395.93	N 39 57 33.16	W 80 32 37.77	6.02
	9274.00	91.44	323.55	6535.63	5385.78	2692.04	1458.34	-2287.83	1.90	-0.77	1.74	533256.90	1707341.50	N 39 57 33.87	W 80 32 38.48	6.04
	9363.00	89.21	323.73	6535.13	5385.28	2778.39	1530.01	-2340.59	2.51	-2.51	0.20	533328.56	1707288.74	N 39 57 34.57	W 80 32 39.17	6.06
	9453.00	89.59	323.50	6536.07	5386.22	2865.73	1602.46	-2393.98	0.49	0.42	-0.26	533401.01	1707235.36	N 39 57 35.28	W 80 32 39.87	6.07
	9542.00	89.90	322.84	6536.47	5386.62	2952.27	1673.70	-2447.33	0.82	0.35	-0.74	533472.24	1707182.01	N 39 57 35.98	W 80 32 40.56	6.09
	9632.00	90.31	323.21	6536.30	5386.45	3039.83	1745.60	-2501.46	0.61	0.46	0.41	533544.14	1707127.88	N 39 57 36.68	W 80 32 41.27	6.10
	9721.00	91.65	322.19	6534.78	5384.93	3126.52	1816.38	-2555.38	1.89	1.51	-1.15	533614.92	1707073.96	N 39 57 37.37	W 80 32 41.97	6.12
	9811.00	89.83	323.33	6533.62	5383.77	3214.16	1888.02	-2609.84	2.39	-2.02	1.27	533686.56	1707019.51	N 39 57 38.08	W 80 32 42.68	6.14
	9901.00	90.07	322.68	6533.70	5383.85	3301.73	1959.90	-2663.99	0.77	0.27	-0.72	533758.44	1706965.36	N 39 57 38.78	W 80 32 43.39	6.15
	9990.00	90.31	322.92	6533.40	5383.55	3388.40	2030.79	-2717.80	0.38	0.27	0.27	533829.32	1706911.55	N 39 57 39.47	W 80 32 44.09	6.16
	10080.00	90.86	322.14	6532.48	5382.63	3476.14	2102.22	-2772.55	1.06	0.61	-0.87	533900.75	1706856.80	N 39 57 40.17	W 80 32 44.80	6.18
	10169.00	90.14	321.97	6531.70	5381.85	3563.06	2172.40	-2827.27	0.83	-0.81	-0.19	533970.93	1706802.08	N 39 57 40.86	W 80 32 45.52	6.19
	10259.00	89.97	322.34	6531.62	5381.77	3650.92	2243.47	-2882.49	0.45	-0.19	0.41	534041.99	1706746.87	N 39 57 41.56	W 80 32 46.24	6.21
	10348.00	89.62	323.47	6531.94	5382.09	3737.56	2314.46	-2936.17	1.33	-0.39	1.27	534112.98	1706693.19	N 39 57 42.25	W 80 32 46.94	6.22
	10438.00	90.96	323.17	6531.48	5381.63	3825.01	2386.64	-2989.93	1.53	1.49	-0.33	534185.15	1706639.43	N 39 57 42.96	W 80 32 47.64	6.24
	10527.00	90.27	324.23	6530.53	5380.68	3911.34	2458.36	-3042.61	1.42	-0.78	1.19	534256.87	1706586.75	N 39 57 43.66	W 80 32 48.33	6.25
Final Survey 03Feb13	10616.00	90.69	323.48	6529.78	5379.93	3997.62	2530.23	-3095.11	0.97	0.47	-0.84	534328.73	1706534.26	N 39 57 44.37	W 80 32 49.01	6.26
Projection to Bit	10696.00	90.69	323.48	6528.82	5378.97	4075.30	2594.51	-3142.71	0.00	0.00	0.00	534393.02	1706486.66	N 39 57 45.00	W 80 32 49.63	6.27

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
	0.000	18.380		Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Noble Energy SHL-8K-HS Gyro+MWD 0' to 10696' MD
	18.380	2960.000		Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Noble Energy SHL-8K-HS Gyro+MWD 0' to
	2960.000	10616.000		Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Noble Energy SHL-8K-HS Gyro+MWD 0' to
	10616.000	10696.000		Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Noble Energy SHL-8K-HS Gyro+MWD 0' to

03/07/2014