

JA

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

LOCATION: Sandhill 8 Elevation: 1141.21 Quadrangle: Majorsville

District: Sandhill County: MARSHALL
Latitude: _____ Feet South of Deg. Min. Sec. 39.955428
Longitude: _____ Feet South of Deg. Min. Sec. -80.535600



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	40	Cemented in
Agent: Steven Haught	20	512	512	886 sxs / 190 bbls cemented to surface
Inspector: Bill Hendershot	13 3/8	1,060	1,060	876 sxs / 189 bbls cemented to surface
Date Permit Issued: 3/30/2012	9 5/8	3,032	3,032	1073 sxs / 227 bbls cemented to surface
Date Well Work Commenced: 10/18/2012	5 1/2	15,026	15,026	2317 sxs / 580 bbls cemented
Date Well Work Completed: 6/22/2013				
Verbal Plugging:				
Date Permission granted on: 10/18/2012				
Rotary Cable Rig X				
Total Vertical Depth (ft): Original Hole - 6,610.88				
Total Measured Depth (ft): 15,057.0				
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 819 MCF/d Oil: Initial open flow 0.4 Bbl/d
Final open flow 1352 MCF/d Final open flow 2.8 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 2170 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

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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.

Chadley
Signature Date

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

03/07/2014

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

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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	4219	
50' Sand	2449	2452	2449	4229	
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	4219	
Warren Sand	4217	4227	4219	4229	
Shale	4227	4907	4229	4909	
Java Shale	4907	5011	4909	5013	
Pipe Creek Shale	5011	5109	5013	5112	
Angola Shale	5109	5743	5112	5831	
Rhinestreet	5743	6180	5831	6378	
Cashaqua	6180	6281	6378	6514	
Middlesex	6281	6312	6514	6557	
West River	6312	6369	6557	6642	
Burkett	6369	6394	6642	6682	
Tully Limestone	6394	6421	6682	6730	
Hamilton	6421	6535	6730	7033	
Marcellus	6535	6584	7033	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
1	Toe Sleeve	14,964
2	Composite Frac Plug	14,750
3	Composite Frac Plug	14,550
4	Composite Frac Plug	14,250
5	Composite Frac Plug	13,950
6A,6B	Composite Frac Plug	13,650
7	Composite Frac Plug	13,350
8	Composite Frac Plug	13,150
9	Composite Frac Plug	12,759
10	Composite Frac Plug	12,669
11A,11B	Composite Frac Plug	12,400
12	Composite Frac Plug	12,090
13	Composite Frac Plug	11,800
14	Composite Frac Plug	11,500
15	Composite Frac Plug	11,200
16	Composite Frac Plug	10,950
17A,17B	Composite Frac Plug	10,650
18	Composite Frac Plug	10,350
19	Composite Frac Plug	10,050
20	Composite Frac Plug	9,750
21	Composite Frac Plug	9,500
22	Composite Frac Plug	9,300
23	Composite Frac Plug	9,100
24	Composite Frac Plug	8,800
25	Composite Frac Plug	8,550
26	Composite Frac Plug	8,300
27	Composite Frac Plug	8,000
28	Composite Frac Plug	7,700
29	Composite Frac Plug	7,500
	Bridge Plug	6,000

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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)
6/3/2013	1	Marcellus	Slickwater	14776	14962	48	6259	8160	90.9	4470	1.11	366412	3000	299,049
6/4/2013	2	Marcellus	Slickwater	14573	14727	40	7311	8168	86.6	4534	1.12	177450	3000	262,259
6/4/2013	3	Marcellus	Slickwater	14275	14525	40	5826	8120	91.0	4515	1.12	436875	3000	359,905
6/6/2013	4	Marcellus	Slickwater	13975	14225	40	6059	7904	90.9	4469	1.11	434390	3000	359,987
6/6/2013	5	Marcellus	Slickwater	13675	13925	40	6461	8037	84.9	4211	1.07	436548	3000	472,062
6/7/2013	6	Marcellus	Slickwater	13375	13627	40	6410	8087	88.1	4373	1.10	264290	3000	362,005
6/8/2013	6B	Marcellus	Slickwater	13400	13627	40	6109	7790	90.7	4130	1.06	291805	3000	276,495
6/8/2013	7	Marcellus	Slickwater	13173	13327	40	6170	7977	90.0	4612	1.13	292267	3000	270,061
6/8/2013	8	Marcellus	Slickwater	12925	13125	40	6095	8211	87.2	4494	1.11	362639	3000	319,896
6/9/2013	9	Marcellus	Slickwater	12723	12875	40	6539	8097	88.6	4724	1.15	289717	3000	269,032
6/9/2013	10	Marcellus	Slickwater	12425	12677	40	6027	8082	90.3	4204	1.07	437731	3000	343,621
6/10/2013	11	Marcellus	Slickwater	12125	12375	40	6743	8711	40.1	5083	1.20	3350	3000	134,804
6/10/2013	11B	Marcellus	Slickwater	12103	12377	40	5871	7881	90.1	4554	1.12	414192	3000	330,033
6/10/2013	12	Marcellus	Slickwater	11825	12075	40	6089	7692	90.8	4360	1.09	434731	3000	341,050
6/11/2013	13	Marcellus	Slickwater	11525	11775	40	6245	7804	90.9	4719	1.15	436517	3000	339,068
6/11/2013	14	Marcellus	Slickwater	11225	11475	40	6564	7523	89.0	4578	1.13	438939	3000	334,830
6/12/2013	15	Marcellus	Slickwater	10975	11175	40	5956	7674	90.3	4912	1.18	364860	3000	954,919
6/12/2013	16	Marcellus	Slickwater	10675	10927	40	5843	7677	85.3	8689	1.75	432204	3000	370,401
6/19/2013	17	Marcellus	Slickwater	10375	10627	40	7326	9050	26.4	5041	1.20	348	6000	94,990
6/19/2013	17B	Marcellus	Slickwater	10375	10627	40	5797	7391	81.67	4730	1.15	435701	3000	342,649
6/19/2013	18	Marcellus	Slickwater	10075	10327	40	6127	7850	79.25	4976	1.19	346067	3000	330,359
6/19/2013	19	Marcellus	Slickwater	9775	10027	40	6386	8425	79	4354	1.09	436002	3000	341,061
6/20/2013	20	Marcellus	Slickwater	9525	9727	40	6325	8817	80.5	4611	1.13	361304	3000	330,876
6/20/2013	21	Marcellus	Slickwater	9323	9477	40	6086	7257	79.6	4616	1.13	293406	3000	254,621
6/20/2013	22	Marcellus	Slickwater	9123	9277	40	6601	7194	78.2	4651	1.14	291143	3000	254,532
6/21/2013	23	Marcellus	Slickwater	8825	9077	40	6236	7050	83.7	4885	1.18	437671	3000	337,830
6/21/2013	24	Marcellus	Slickwater	8575	8777	40	5654	6943	82.7	4669	1.14	365353	3000	302,815
6/21/2013	25	Marcellus	Slickwater	8325	8527	40	6084	7021	80.4	4466	1.11	324245	3000	279,610
6/22/2013	26	Marcellus	Slickwater	8025	8277	40	5631	6976	82.5	4432	1.11	345449	3000	308,100
6/22/2013	27	Marcellus	Slickwater	7725	7977	40	6452	6906	81.5	4513	1.12	436129	3000	330,838
6/22/2013	28	Marcellus	Slickwater	7523	7677	40	6544	7178	82	4645	1.14	291454	3000	248,700
6/22/2013	29	Marcellus	Slickwater	7225	7477	40	5114	7592	80	4379	1.10	434821	3000	320,420

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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%	87.77271%	Density = 8.330
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%	0.08853%	
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	1.07000%	
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%	10.13218%	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%	0.01761%	
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%	0.00382%	
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%	0.00227%	
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%	0.00595%	
			Naphtha, hydrotreated heavy	64742-48-9	60.00%	0.00595%	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%	0.00046%	
			Propargyl alcohol	107-19-7	10.00%	0.00008%	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%	0.00276%	
			Acetic anhydride	108-24-7	100.00%	0.00460%	
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00002%	
			Ethanol	64-17-5	60.00%	0.00093%	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00046%	
			Naphthalene	91-20-3	5.00%	0.00008%	
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%	0.00008%	
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential Business Information	100.00%	0.00030%	
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%	0.00037%	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%	0.00274%	

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Noble Energy SHL-8E-HS Gyro+MWD 0' MD to 15057' MD Survey Report

(Def Survey)

Report Date: April 04, 2013 - 08:20 AM
 Client: Noble Energy
 Field: WV Marshall County (NAD 27)
 Structure / Slot: CNX/Noble Energy SHL-8 Pad / SHL-8E-HS
 Well: SHL-8E-HS
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Noble Energy SHL-8E-HS Gyro+MWD 0' MD to 15057' MD
 Tort / AHD / DDI / ERD Ratio: 263.698° / 9290.058 ft / 6.747 / 1.405
 Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
 Location Lat / Long: N 39° 57' 19.53895" W 80° 32' 8.15521"
 Location Grid N/E Y/X: N 531779.969 fUS, E 1709686.227 fUS
 CRS Grid Convergence Angle: -0.6605°
 Grid Scale Factor: 0.99995724

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 149.435° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: KB
 TVD Reference Elevation: 1149.710 ft above MSL
 Seabed / Ground Elevation: 1131.470 ft above MSL
 Magnetic Declination: -8.713°
 Total Gravity Field Strength: 999.3811mgn (9.80665 Based)
 Total Magnetic Field Strength: 52729.279 nT
 Magnetic Dip Angle: 67.414°
 Declination Date: March 19, 2013
 Magnetic Declination Model: BGGM 2012
 North Reference: Grid North
 Grid Convergence Used: -0.6605°
 Total Corr Mag North->Grid North: -8.0522°
 Local Coord Referenced To: Well Head

4705101555

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVSS (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
SHL	0.00	0.00	0.00	0.00	-1149.71	0.00	0.00	0.00	N/A	N/A	N/A	531779.97	1709686.23	N 39 57 19.54	W 80 32 8.16	0.00
	100.00	0.06	22.30	100.00	-1049.71	-0.03	0.05	0.02	0.06	0.06	0.00	531780.02	1709686.25	N 39 57 19.54	W 80 32 8.15	0.00
	200.00	0.14	21.23	200.00	-949.71	-0.14	0.21	0.08	0.08	0.08	-1.07	531780.18	1709686.31	N 39 57 19.54	W 80 32 8.15	0.00
	300.00	0.17	24.15	300.00	-849.71	-0.22	0.26	0.00	0.29	0.03	-139.08	531780.22	1709686.22	N 39 57 19.54	W 80 32 8.16	0.00
	400.00	0.14	115.93	400.00	-749.71	-0.13	0.13	-0.02	0.28	-0.03	-126.22	531780.10	1709686.20	N 39 57 19.54	W 80 32 8.16	0.00
	500.00	0.16	108.36	500.00	-649.71	0.08	0.04	0.22	0.03	0.02	-7.57	531780.00	1709686.45	N 39 57 19.54	W 80 32 8.15	0.00
	600.00	0.15	131.72	600.00	-549.71	0.31	-0.10	0.45	0.06	-0.01	23.36	531779.87	1709686.68	N 39 57 19.54	W 80 32 8.15	0.00
	700.00	0.12	19.81	700.00	-449.71	0.37	-0.08	0.58	0.22	-0.03	-111.91	531779.88	1709686.81	N 39 57 19.54	W 80 32 8.15	0.11
	800.00	0.04	273.94	800.00	-349.71	0.28	0.02	0.58	0.14	-0.08	-105.87	531779.99	1709686.81	N 39 57 19.54	W 80 32 8.15	0.21
	900.00	0.12	139.24	900.00	-249.71	0.37	-0.06	0.62	0.15	0.08	-134.70	531779.91	1709686.84	N 39 57 19.54	W 80 32 8.15	0.29
	1000.00	0.40	137.98	1000.00	-149.71	0.81	-0.40	0.92	0.28	0.28	-1.26	531779.57	1709687.14	N 39 57 19.54	W 80 32 8.14	0.49
	1100.00	0.43	126.30	1099.99	-49.72	1.50	-0.88	1.45	0.09	0.03	-11.68	531779.09	1709687.68	N 39 57 19.53	W 80 32 8.14	0.65
	1200.00	0.46	137.52	1199.99	50.28	2.24	-1.40	2.03	0.09	0.03	11.22	531778.57	1709688.25	N 39 57 19.53	W 80 32 8.13	0.78
	1300.00	0.33	137.29	1299.99	150.28	2.91	-1.91	2.49	0.13	-0.13	-0.23	531778.06	1709688.72	N 39 57 19.52	W 80 32 8.12	0.89
	1400.00	0.25	155.34	1399.99	250.28	3.41	-2.32	2.78	0.12	-0.08	18.05	531777.65	1709689.01	N 39 57 19.52	W 80 32 8.12	0.97
	1500.00	0.36	170.06	1499.99	350.28	3.92	-2.82	2.93	0.13	0.11	14.72	531777.15	1709689.15	N 39 57 19.51	W 80 32 8.12	1.05
	1600.00	0.42	175.05	1599.98	450.27	4.54	-3.50	3.01	0.07	0.06	4.99	531776.47	1709689.24	N 39 57 19.50	W 80 32 8.12	1.11
	1700.00	0.45	170.10	1699.98	550.27	5.24	-4.25	3.11	0.05	0.03	-4.95	531775.72	1709689.34	N 39 57 19.50	W 80 32 8.11	1.18
	1800.00	0.50	164.63	1799.98	650.27	6.03	-5.06	3.29	0.07	0.05	-5.47	531774.91	1709689.52	N 39 57 19.49	W 80 32 8.11	1.24
	1900.00	0.47	155.23	1899.97	750.26	6.86	-5.85	3.58	0.08	-0.03	-9.40	531774.12	1709689.81	N 39 57 19.48	W 80 32 8.11	1.30
	2000.00	0.44	135.11	1999.97	850.26	7.64	-6.50	4.02	0.16	-0.03	-20.12	531773.47	1709690.25	N 39 57 19.48	W 80 32 8.10	1.37
	2100.00	0.32	130.17	2099.97	950.26	8.28	-6.95	4.51	0.12	-0.12	-4.94	531773.02	1709690.74	N 39 57 19.47	W 80 32 8.10	1.42
	2200.00	0.29	121.64	2199.97	1050.26	8.76	-7.26	4.94	0.05	-0.03	-8.53	531772.71	1709691.16	N 39 57 19.47	W 80 32 8.09	1.45
	2300.00	0.34	118.72	2299.97	1150.26	9.24	-7.54	5.41	0.05	0.05	-2.92	531772.43	1709691.64	N 39 57 19.47	W 80 32 8.08	1.48
	2400.00	0.34	122.57	2399.96	1250.25	9.76	-7.84	5.92	0.02	0.00	3.85	531772.13	1709692.15	N 39 57 19.46	W 80 32 8.08	1.51

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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 (RUS)	Eastings (RUS)	Latitude (N/S °'")	Longitude (E/W °'")	Directional Difficulty Index
	2500.00	0.15	42.54	2499.96	1350.25	9.99	-7.90	6.26	0.35	-0.19	-80.03	531772.07	1709692.49	N 39 57 19.46 W	80 32 8.07	1.57
	2600.00	0.08	388.69	2599.96	1450.25	9.88	-7.74	6.32	0.14	-0.07	-63.85	531772.23	1709692.55	N 39 57 19.46 W	80 32 8.07	1.60
	2700.00	0.03	3.43	2699.96	1550.25	9.79	-7.65	6.30	0.05	-0.05	24.74	531772.32	1709692.53	N 39 57 19.46 W	80 32 8.07	1.61
	2800.00	0.18	8.51	2799.96	1650.25	9.65	-7.47	6.33	0.15	0.15	5.08	531772.50	1709692.55	N 39 57 19.47 W	80 32 8.07	1.63
	2900.00	0.13	9.68	2899.96	1750.25	9.44	-7.20	6.37	0.05	-0.05	1.17	531772.77	1709692.59	N 39 57 19.47 W	80 32 8.07	1.65
	2965.00	0.24	1.64	2964.96	1815.25	9.27	-6.99	6.38	0.17	0.17	-12.37	531772.98	1709692.61	N 39 57 19.47 W	80 32 8.07	1.67
	3039.00	0.38	19.19	3038.96	1899.25	8.98	-6.60	6.47	0.23	0.19	23.72	531773.36	1709692.70	N 39 57 19.47 W	80 32 8.07	1.70
	3086.00	0.44	46.19	3085.96	1936.25	8.83	-6.33	6.65	0.43	0.13	57.45	531773.64	1709692.88	N 39 57 19.48 W	80 32 8.07	1.74
	3140.00	0.18	197.35	3139.96	1990.25	8.84	-6.27	6.78	1.12	-0.48	279.93	531773.70	1709693.00	N 39 57 19.48 W	80 32 8.07	1.80
	3184.00	1.32	212.89	3183.96	2034.25	9.12	-6.76	6.48	2.61	2.59	35.32	531773.21	1709692.71	N 39 57 19.47 W	80 32 8.07	1.92
	3229.00	2.46	213.15	3228.93	2079.22	9.78	-8.01	5.67	2.53	2.53	0.58	531771.96	1709691.90	N 39 57 19.46 W	80 32 8.08	2.04
	3275.00	3.17	214.64	3274.87	2125.16	10.75	-9.88	4.41	1.55	1.54	3.24	531770.09	1709690.63	N 39 57 19.44 W	80 32 8.10	2.14
	3319.00	3.96	211.39	3318.79	2169.08	11.97	-12.18	2.92	1.85	1.80	-7.39	531767.79	1709689.15	N 39 57 19.42 W	80 32 8.12	2.24
	3363.00	4.66	211.15	3362.66	2212.95	13.53	-15.00	1.21	1.59	1.59	-0.55	531764.97	1709687.44	N 39 57 19.39 W	80 32 8.14	2.34
	3451.00	5.63	207.56	3450.31	2300.60	17.51	-21.89	-2.64	1.16	1.10	-4.08	531758.08	1709683.59	N 39 57 19.32 W	80 32 8.19	2.51
	3541.00	5.01	204.59	3539.92	2390.21	22.08	-29.38	-6.32	0.75	-0.69	-3.30	531750.59	1709679.91	N 39 57 19.25 W	80 32 8.23	2.64
	3630.00	4.22	205.30	3628.63	2478.92	26.14	-35.87	-9.33	0.89	-0.89	0.80	531744.10	1709676.89	N 39 57 19.18 W	80 32 8.27	2.74
	3720.00	3.43	208.92	3718.43	2568.72	29.37	-41.22	-12.05	0.92	-0.88	4.02	531738.75	1709674.18	N 39 57 19.13 W	80 32 8.30	2.82
	3809.00	2.73	206.86	3807.30	2657.59	31.86	-45.44	-14.30	0.80	-0.79	-2.31	531734.53	1709671.93	N 39 57 19.09 W	80 32 8.33	2.89
	3899.00	2.20	204.77	3897.22	2747.51	34.00	-48.92	-15.99	0.60	-0.59	-2.32	531731.05	1709670.24	N 39 57 19.05 W	80 32 8.35	2.93
	3988.00	1.41	177.52	3986.17	2836.46	35.93	-51.57	-16.66	1.29	-0.89	-30.62	531728.40	1709669.57	N 39 57 19.03 W	80 32 8.36	2.98
	4078.00	1.06	158.88	4076.15	2926.44	37.73	-53.45	-16.31	0.59	-0.39	-20.71	531726.52	1709669.92	N 39 57 19.01 W	80 32 8.36	3.01
	4168.00	0.44	118.02	4166.15	3016.44	38.85	-54.39	-15.70	0.87	-0.69	-45.40	531725.58	1709670.53	N 39 57 19.00 W	80 32 8.35	3.04
	4258.00	0.35	34.56	4256.14	3106.43	39.03	-54.33	-15.24	0.59	-0.10	-92.73	531725.65	1709670.99	N 39 57 19.00 W	80 32 8.34	3.06
	4347.00	0.35	12.57	4345.14	3195.43	38.71	-53.84	-15.03	0.15	0.00	-24.71	531726.13	1709671.20	N 39 57 19.01 W	80 32 8.34	3.07
	4435.00	0.53	4433.14	4433.14	3283.43	38.19	-53.17	-14.93	0.21	0.20	-7.81	531726.80	1709671.30	N 39 57 19.01 W	80 32 8.34	3.07
	4525.00	0.44	341.04	4523.14	3373.43	37.52	-52.43	-15.00	0.25	-0.10	-27.40	531727.54	1709671.23	N 39 57 19.02 W	80 32 8.34	3.08
	4615.00	0.70	6.17	4613.13	3463.42	36.74	-51.56	-15.05	0.39	0.29	27.92	531728.42	1709671.17	N 39 57 19.03 W	80 32 8.34	3.10
	4734.00	0.93	9.26	4732.12	3582.41	35.41	-49.88	-14.82	0.20	0.19	2.60	531730.09	1709671.41	N 39 57 19.04 W	80 32 8.34	3.11
	4823.00	0.75	14.28	4821.11	3671.40	34.44	-48.60	-14.56	0.22	-0.20	5.64	531731.37	1709671.67	N 39 57 19.06 W	80 32 8.33	3.13
	4913.00	0.77	6.61	4911.10	3761.39	33.55	-47.43	-14.35	0.12	0.02	-8.52	531732.54	1709671.88	N 39 57 19.07 W	80 32 8.33	3.14
	4957.00	0.48	349.40	4955.10	3805.39	33.14	-46.96	-14.35	0.78	-0.66	-39.11	531733.02	1709671.88	N 39 57 19.07 W	80 32 8.33	3.15
	5002.00	2.01	223.54	5000.09	3850.38	33.18	-47.34	-14.92	5.16	3.40	-279.69	531732.63	1709671.30	N 39 57 19.07 W	80 32 8.34	3.20
	5047.00	5.22	219.31	5045.00	3895.29	34.10	-49.50	-16.76	7.15	7.13	-9.40	531730.47	1709669.46	N 39 57 19.05 W	80 32 8.36	3.28
	5082.00	8.15	219.72	5089.69	3939.98	35.88	-53.54	-20.10	6.51	6.51	0.91	531726.43	1709666.13	N 39 57 19.01 W	80 32 8.41	3.36
	5137.00	10.69	223.20	5134.08	3984.37	38.12	-59.03	-25.00	5.78	5.64	7.73	531720.94	1709661.23	N 39 57 18.95 W	80 32 8.47	3.44
	5181.00	12.96	228.62	5177.14	4027.43	40.19	-65.27	-31.49	5.74	5.16	12.32	531714.70	1709654.74	N 39 57 18.89 W	80 32 8.55	3.51
	5226.00	14.97	233.90	5220.81	4071.10	41.69	-72.03	-39.98	5.28	4.47	11.73	531707.94	1709646.25	N 39 57 18.82 W	80 32 8.66	3.59
	5271.00	16.86	237.59	5264.08	4114.37	42.47	-78.96	-50.18	4.76	4.20	8.20	531705.02	1709636.05	N 39 57 18.75 W	80 32 8.79	3.66
	5316.00	19.33	237.78	5306.86	4157.15	42.89	-86.43	-62.00	5.49	5.49	0.42	531693.55	1709624.23	N 39 57 18.68 W	80 32 8.94	3.73
	5360.00	21.79	238.05	5348.05	4198.34	43.30	-94.63	-75.09	5.60	5.59	0.61	531685.34	1709611.14	N 39 57 18.60 W	80 32 9.11	3.81
	5405.00	24.26	236.89	5389.46	4239.75	43.91	-104.10	-89.92	5.58	5.49	-2.58	531675.87	1709596.31	N 39 57 18.50 W	80 32 9.29	3.88
	5450.00	26.29	234.59	5430.15	4280.44	45.16	-114.93	-105.79	5.01	4.51	-5.11	531665.05	1709580.44	N 39 57 18.39 W	80 32 9.50	3.95
	5495.00	28.51	235.26	5470.10	4320.39	46.79	-126.82	-122.74	4.98	4.93	1.49	531653.15	1709563.49	N 39 57 18.27 W	80 32 9.71	4.01
	5540.00	31.16	235.95	5509.13	4359.42	48.28	-139.46	-141.21	5.94	5.89	1.53	531640.51	1709545.02	N 39 57 18.14 W	80 32 9.95	4.08
	5629.00	37.39	237.62	5582.64	4432.93	50.54	-166.86	-183.15	7.08	7.00	1.88	531613.12	1709503.08	N 39 57 17.87 W	80 32 10.48	4.22
	5719.00	37.70	235.66	5654.01	4504.30	53.21	-197.01	-228.95	1.37	0.34	-2.18	531582.96	1709457.28	N 39 57 17.57 W	80 32 11.07	4.30
	5808.00	37.70	235.17	5724.43	4574.72	57.03	-227.91	-273.76	0.34	0.00	-0.55	531552.07	1709412.48	N 39 57 17.26 W	80 32 11.64	4.37
	5898.00	36.42	234.03	5796.24	4646.53	61.59	-259.32	-317.98	1.61	-1.42	-1.27	531520.66	1709368.27	N 39 57 16.94 W	80 32 12.20	4.44

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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 (ft)	Easting (ft)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Directional Difficulty Index
	5987.00	36.36	234.55	5867.89	4718.18	66.33	-290.14	-360.85	0.35	-0.07	0.58	531489.84	1709325.39	N 39 57 16.63 W	80 32 12.75	4.49
	6077.00	36.71	235.66	5940.20	4790.49	70.37	-320.79	-404.79	0.83	0.39	1.23	531459.20	1709281.45	N 39 57 16.32 W	80 32 13.31	4.54
	6164.00	36.67	234.38	6009.97	4860.26	74.37	-350.58	-447.38	0.88	-0.05	-1.47	531429.40	1709238.86	N 39 57 16.02 W	80 32 13.85	4.59
	6210.00	36.04	233.41	6047.02	4897.31	77.00	-366.65	-469.41	1.85	-1.37	-2.11	531413.34	1709216.83	N 39 57 15.86 W	80 32 14.13	4.61
	6255.00	36.56	226.67	6083.30	4933.59	81.35	-383.75	-489.80	8.94	1.16	-14.98	531396.24	1709196.45	N 39 57 15.69 W	80 32 14.39	4.66
	6300.00	37.51	218.78	6119.24	4969.53	89.15	-403.63	-508.14	10.76	2.11	-17.53	531376.35	1709178.11	N 39 57 15.49 W	80 32 14.62	4.71
	6345.00	38.99	209.11	6154.61	5004.90	101.14	-426.70	-523.62	13.69	3.29	-21.49	531353.28	1709162.63	N 39 57 15.26 W	80 32 14.82	4.76
	6389.00	40.61	201.17	6188.44	5038.73	117.01	-452.17	-535.54	12.12	3.68	-18.05	531327.82	1709150.71	N 39 57 15.01 W	80 32 14.96	4.81
	6434.00	41.88	195.33	6222.28	5072.57	136.54	-480.32	-544.80	9.01	2.82	-12.98	531299.67	1709141.45	N 39 57 14.73 W	80 32 15.08	4.84
	6479.00	42.51	191.53	6255.63	5105.92	158.28	-509.71	-551.81	5.84	1.40	-8.44	531270.28	1709134.44	N 39 57 14.44 W	80 32 15.16	4.88
	6524.00	43.38	187.19	6288.57	5138.86	181.79	-539.95	-556.79	6.85	1.93	-9.64	531240.04	1709129.46	N 39 57 14.14 W	80 32 15.22	4.91
	6568.00	45.74	183.69	6319.93	5170.22	206.77	-570.67	-559.69	7.74	5.36	-7.95	531209.32	1709126.56	N 39 57 13.84 W	80 32 15.26	4.94
	6613.00	48.45	180.55	6350.56	5200.85	234.51	-603.60	-560.89	7.90	6.02	-6.98	531176.39	1709125.36	N 39 57 13.51 W	80 32 15.27	4.97
	6658.00	51.52	178.62	6379.50	5229.79	264.31	-638.06	-560.63	7.57	6.82	-4.29	531141.94	1709125.62	N 39 57 13.17 W	80 32 15.26	5.00
	6702.00	54.88	176.06	6405.85	5256.14	295.45	-673.24	-558.98	8.94	7.64	-5.82	531106.76	1709127.27	N 39 57 12.82 W	80 32 15.23	5.04
	6747.00	58.33	172.88	6430.62	5280.91	329.48	-710.62	-555.34	9.67	7.67	-7.07	531069.38	1709130.91	N 39 57 12.45 W	80 32 15.18	5.07
	6792.00	62.79	170.37	6452.74	5303.03	365.77	-749.38	-549.61	11.04	9.91	-5.58	531030.63	1709136.64	N 39 57 12.07 W	80 32 15.10	5.11
	6837.00	66.00	168.12	6472.18	5322.47	403.94	-789.23	-542.03	8.44	7.13	-5.00	530990.77	1709144.22	N 39 57 11.68 W	80 32 15.00	5.14
	6882.00	69.14	164.65	6489.36	5339.65	443.72	-829.64	-532.23	9.97	6.98	-7.71	530950.36	1709154.02	N 39 57 11.28 W	80 32 14.87	5.17
	6926.00	70.83	162.20	6504.42	5354.71	483.83	-869.26	-520.43	6.49	3.84	-5.57	530910.75	1709165.82	N 39 57 10.89 W	80 32 14.71	5.20
	6971.00	73.07	159.63	6518.36	5368.65	525.76	-909.69	-506.44	7.37	4.84	-5.71	530870.32	1709179.81	N 39 57 10.49 W	80 32 14.52	5.23
	7016.00	74.82	157.30	6530.81	5381.10	568.46	-949.91	-490.56	6.32	3.89	-5.18	530830.10	1709195.68	N 39 57 10.10 W	80 32 14.31	5.26
	7060.00	77.23	154.46	6541.44	5391.73	610.88	-988.87	-473.11	8.32	5.48	-6.45	530791.15	1709213.13	N 39 57 9.71 W	80 32 14.08	5.29
	7105.00	80.79	150.24	6550.02	5400.31	654.98	-1027.98	-452.61	12.14	7.91	-9.38	530752.04	1709233.63	N 39 57 9.33 W	80 32 13.81	5.32
	7150.00	83.91	146.80	6556.01	5406.30	699.56	-1066.00	-429.33	10.27	6.93	-7.64	530714.02	1709256.92	N 39 57 8.96 W	80 32 13.51	5.35
	7195.00	86.87	143.47	6559.63	5409.92	744.28	-1102.79	-403.69	9.88	6.58	-7.40	530677.23	1709282.56	N 39 57 8.60 W	80 32 13.18	5.38
	7239.00	89.48	140.50	6561.03	5411.32	787.88	-1137.43	-376.61	8.98	5.93	-6.75	530642.59	1709309.63	N 39 57 8.26 W	80 32 12.82	5.41
	7329.00	88.80	141.42	6562.38	5412.67	876.88	-1207.33	-319.93	1.27	-0.76	1.02	530572.70	1709366.31	N 39 57 7.57 W	80 32 12.08	5.44
	7418.00	88.11	142.68	6564.78	5415.07	965.11	-1277.48	-265.22	1.61	-0.78	1.42	530502.55	1709421.02	N 39 57 6.88 W	80 32 11.37	5.47
	7508.00	87.15	142.35	6568.50	5418.79	1054.38	-1348.83	-210.50	1.13	-1.07	-0.37	530431.20	1709475.74	N 39 57 6.19 W	80 32 10.66	5.50
	7597.00	88.76	141.86	6571.67	5421.96	1142.59	-1419.02	-155.87	1.89	1.81	-0.55	530361.01	1709530.37	N 39 57 5.50 W	80 32 9.95	5.53
	7687.00	88.25	141.74	6574.02	5424.31	1231.76	-1489.72	-100.23	0.58	-0.57	-0.13	530290.31	1709586.00	N 39 57 4.81 W	80 32 9.22	5.56
	7776.00	89.42	142.30	6575.83	5426.12	1320.00	-1559.86	-45.47	1.46	1.31	0.63	530220.18	1709640.76	N 39 57 4.12 W	80 32 8.51	5.59
	7866.00	89.73	142.42	6576.50	5426.79	1409.31	-1631.12	9.49	0.37	0.34	0.13	530148.92	1709695.71	N 39 57 3.42 W	80 32 7.79	5.61
	7956.00	89.14	142.41	6577.39	5427.68	1498.63	-1702.44	64.38	0.66	-0.66	-0.01	530077.60	1709750.60	N 39 57 2.72 W	80 32 7.08	5.64
	8045.00	90.07	143.12	6578.00	5428.29	1587.02	-1773.30	118.23	1.31	1.04	0.80	530006.75	1709804.45	N 39 57 2.03 W	80 32 6.37	5.66
	8134.00	89.42	143.73	6578.40	5428.69	1675.53	-1844.77	171.26	1.00	-0.73	0.69	529935.28	1709857.48	N 39 57 1.33 W	80 32 5.68	5.69
	8224.00	89.28	144.16	6579.42	5429.71	1765.11	-1917.52	224.23	0.50	-0.16	0.48	529862.53	1709910.45	N 39 57 0.62 W	80 32 4.99	5.71
	8314.00	89.83	143.35	6580.12	5430.41	1854.67	-1990.11	277.44	1.09	0.61	-0.90	529789.95	1709963.65	N 39 56 59.90 W	80 32 4.30	5.73
	8403.00	89.48	144.16	6580.65	5430.94	1943.23	-2061.88	330.06	0.99	-0.39	0.91	529718.18	1710016.27	N 39 56 59.20 W	80 32 3.61	5.75
	8493.00	89.38	142.71	6581.55	5431.84	2032.73	-2134.16	383.67	1.61	-0.11	-1.61	529645.90	1710069.88	N 39 56 58.49 W	80 32 2.91	5.78
	8582.00	88.73	143.54	6583.02	5433.31	2121.18	-2205.35	437.07	1.18	-0.73	0.93	529574.72	1710123.27	N 39 56 57.80 W	80 32 2.22	5.80
	8672.00	89.55	141.05	6584.37	5434.66	2210.46	-2276.54	492.10	2.91	0.91	-2.77	529503.53	1710178.31	N 39 56 57.10 W	80 32 1.50	5.82
	8761.00	90.38	138.85	6584.42	5434.71	2298.24	-2344.66	549.36	2.64	0.93	-2.47	529435.41	1710235.57	N 39 56 56.43 W	80 32 0.75	5.85
	8851.00	91.34	139.61	6583.07	5433.36	2386.80	-2412.81	608.13	1.36	1.07	0.84	529367.26	1710294.33	N 39 56 55.76 W	80 31 59.99	5.87
	8940.00	90.58	139.70	6581.58	5431.87	2474.50	-2480.63	665.74	0.86	-0.85	0.10	529299.45	1710351.93	N 39 56 55.10 W	80 31 59.24	5.89
	9030.00	89.97	138.72	6581.15	5431.44	2563.06	-2548.77	724.53	1.28	-0.68	-1.09	529231.31	1710410.73	N 39 56 54.43 W	80 31 58.48	5.90
	9120.00	90.24	140.39	6580.98	5431.27	2651.73	-2617.26	782.91	1.88	0.30	1.86	529162.82	1710469.11	N 39 56 53.76 W	80 31 57.72	5.92
	9209.00	89.31	142.46	6581.33	5431.62	2739.85	-2686.84	838.40	2.55	-1.04	2.33	529093.25	1710524.59	N 39 56 53.08 W	80 31 56.99	5.95

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVSS (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
	9298.00	88.80	142.73	6582.80	5433.09	2828.20	-2757.53	892.46	0.65	-0.57	0.30	529022.57	1710578.65	N 39 56 52.39 W	80 31 56.29	5.96
	9388.00	87.87	142.66	6585.42	5435.71	2917.54	-2829.08	946.98	1.04	-1.03	-0.08	528951.01	1710633.17	N 39 56 51.69 W	80 31 55.58	5.98
	9477.00	89.14	143.81	6587.74	5438.03	3005.99	-2900.35	1000.23	1.92	1.43	1.29	528879.75	1710686.41	N 39 56 50.99 W	80 31 54.88	6.00
	9567.00	90.41	143.63	6588.09	5438.38	3095.54	-2972.90	1053.48	1.43	-0.20	-0.20	528807.20	1710739.66	N 39 56 50.28 W	80 31 54.19	6.02
	9657.00	89.66	143.91	6588.04	5438.33	3185.10	-3045.50	1106.68	0.69	-0.83	-0.20	528734.60	1710792.85	N 39 56 49.57 W	80 31 53.50	6.03
	9746.00	88.90	144.97	6589.15	5439.44	3273.75	-3117.90	1158.43	1.47	-0.85	1.19	528662.21	1710844.61	N 39 56 48.86 W	80 31 52.82	6.05
	9836.00	89.73	142.93	6590.23	5440.52	3363.33	-3190.65	1211.39	2.45	0.92	-2.27	528589.46	1710897.56	N 39 56 48.15 W	80 31 52.13	6.07
	9925.00	89.28	142.33	6591.00	5441.29	3451.70	-3261.38	1265.40	0.84	-0.51	-0.67	528518.74	1710951.57	N 39 56 47.45 W	80 31 51.43	6.08
	10015.00	87.94	142.47	6593.18	5443.47	3540.99	-3332.66	1320.30	1.50	-1.49	0.16	528447.46	1711006.47	N 39 56 46.76 W	80 31 50.71	6.10
	10105.00	89.69	140.66	6595.04	5445.33	3630.12	-3403.14	1376.23	2.80	1.94	-2.01	528376.98	1711062.40	N 39 56 46.07 W	80 31 49.98	6.12
	10194.00	89.93	140.22	6595.34	5445.63	3718.02	-3471.75	1432.91	0.56	0.27	-0.49	528308.37	1711119.08	N 39 56 45.39 W	80 31 49.25	6.13
	10284.00	89.93	142.61	6595.45	5445.74	3807.14	-3542.10	1489.04	2.66	0.00	2.66	528238.03	1711175.20	N 39 56 44.71 W	80 31 48.51	6.15
	10374.00	89.62	142.91	6595.80	5446.09	3896.53	-3613.75	1543.50	0.48	-0.34	0.33	528166.38	1711229.66	N 39 56 44.00 W	80 31 47.80	6.16
	10463.00	89.07	143.26	6596.82	5447.11	3984.97	-3684.90	1596.96	0.73	-0.62	0.39	528095.23	1711283.11	N 39 56 43.31 W	80 31 47.11	6.17
	10553.00	90.69	143.12	6597.01	5447.30	4074.44	-3756.96	1650.88	1.81	1.80	-0.16	528023.18	1711337.03	N 39 56 42.60 W	80 31 46.40	6.19
	10642.00	90.55	143.64	6596.05	5446.34	4162.93	-3828.38	1703.96	0.61	-0.16	0.58	527951.76	1711390.11	N 39 56 41.90 W	80 31 45.71	6.20
	10732.00	89.55	142.88	6595.97	5446.26	4252.41	-3900.51	1757.80	1.40	-1.11	-0.84	527879.64	1711443.95	N 39 56 41.19 W	80 31 45.01	6.22
	10821.00	88.87	141.67	6597.19	5447.48	4340.70	-3970.89	1812.25	1.56	-0.76	-1.36	527809.25	1711498.40	N 39 56 40.50 W	80 31 44.30	6.23
	10911.00	89.66	143.28	6598.35	5448.64	4430.03	-4042.26	1867.06	1.99	0.88	1.79	527737.89	1711553.21	N 39 56 39.81 W	80 31 43.59	6.25
	11001.00	88.76	143.99	6599.59	5449.88	4519.56	-4114.73	1920.42	1.27	-1.00	0.79	527665.43	1711606.56	N 39 56 39.10 W	80 31 42.89	6.26
	11090.00	87.87	144.88	6602.21	5452.50	4608.18	-4187.09	1972.16	1.41	-1.00	1.00	527593.07	1711658.30	N 39 56 38.39 W	80 31 42.22	6.27
	11179.00	89.35	144.34	6604.36	5454.65	4696.84	-4259.62	2023.69	1.77	1.66	-0.61	527520.54	1711709.82	N 39 56 37.68 W	80 31 41.54	6.29
	11269.00	90.76	147.03	6604.28	5454.57	4786.63	-4333.95	2074.42	3.37	1.57	2.99	527446.21	1711760.55	N 39 56 36.95 W	80 31 40.88	6.30
	11358.00	90.24	147.22	6603.50	5453.79	4875.56	-4408.69	2122.73	0.62	-0.58	0.21	527371.47	1711808.86	N 39 56 36.21 W	80 31 40.25	6.32
	11448.00	89.28	144.81	6603.88	5454.17	4965.39	-4483.31	2173.03	2.88	-1.07	-2.68	527296.86	1711859.16	N 39 56 35.48 W	80 31 39.59	6.33
	11537.00	89.07	145.13	6605.16	5455.45	5054.11	-4556.18	2224.11	1.41	-0.24	0.36	527223.99	1711910.24	N 39 56 34.77 W	80 31 38.93	6.34
	11627.00	89.90	143.17	6605.97	5456.26	5143.72	-4629.13	2276.82	2.36	0.92	-2.18	527151.05	1711962.94	N 39 56 34.05 W	80 31 38.24	6.36
	11716.00	91.00	141.93	6605.27	5455.56	5232.07	-4699.78	2330.93	1.86	1.24	-1.39	527080.40	1712017.05	N 39 56 33.36 W	80 31 37.54	6.37
	11806.00	90.03	142.53	6604.46	5454.75	5321.35	-4770.92	2386.05	1.27	-1.08	0.67	527009.27	1712072.17	N 39 56 32.66 W	80 31 36.82	6.38
	11895.00	89.18	141.83	6605.08	5455.37	5409.64	-4841.22	2440.62	1.24	-0.96	-0.79	526938.97	1712126.74	N 39 56 31.98 W	80 31 36.11	6.39
	11985.00	90.86	142.82	6605.04	5455.33	5498.94	-4912.45	2495.63	2.17	1.87	1.10	526867.74	1712181.74	N 39 56 31.28 W	80 31 35.39	6.41
	12075.00	90.24	143.79	6604.18	5454.47	5588.42	-4984.61	2549.40	1.28	-0.69	1.08	526795.58	1712235.52	N 39 56 30.57 W	80 31 34.69	6.42
	12164.00	89.79	144.20	6604.16	5454.45	5677.02	-5056.61	2601.72	0.68	-0.51	0.46	526723.59	1712287.83	N 39 56 29.86 W	80 31 34.01	6.43
	12254.00	90.79	142.28	6603.70	5453.99	5766.49	-5128.70	2655.58	2.41	1.11	-2.13	526651.49	1712341.69	N 39 56 29.16 W	80 31 33.31	6.44
	12343.00	90.17	141.69	6602.96	5453.25	5854.73	-5198.82	2710.39	0.96	-0.70	-0.66	526581.38	1712396.49	N 39 56 28.47 W	80 31 32.59	6.45
	12433.00	89.14	141.20	6603.50	5453.79	5943.86	-5269.20	2766.48	1.27	-1.14	-0.54	526511.01	1712452.58	N 39 56 27.78 W	80 31 31.86	6.46
	12522.00	89.97	141.13	6604.19	5454.48	6031.93	-5338.52	2822.29	0.94	0.93	-0.08	526441.69	1712508.39	N 39 56 27.10 W	80 31 31.13	6.47
	12611.00	89.11	140.34	6604.90	5455.19	6119.90	-5407.43	2878.61	1.31	-0.97	-0.89	526372.79	1712564.71	N 39 56 26.43 W	80 31 30.40	6.49
	12701.00	89.66	142.11	6605.87	5456.16	6208.97	-5477.58	2934.97	2.06	0.61	1.97	526302.63	1712621.07	N 39 56 25.74 W	80 31 29.67	6.50
	12790.00	91.20	143.30	6605.20	5455.49	6297.35	-5548.38	2988.90	2.19	1.73	1.34	526231.84	1712674.99	N 39 56 25.05 W	80 31 28.96	6.51
	12880.00	90.41	143.16	6603.94	5454.23	6386.81	-5620.47	3042.76	0.89	-0.88	-0.16	526159.75	1712728.86	N 39 56 24.34 W	80 31 28.26	6.52
	12969.00	89.48	143.87	6604.02	5454.31	6475.33	-5692.02	3095.68	1.31	-1.04	0.80	526088.20	1712781.77	N 39 56 23.64 W	80 31 27.57	6.53
	13058.00	91.44	143.46	6603.31	5453.60	6563.88	-5763.71	3148.41	2.25	2.20	-0.46	526016.52	1712834.50	N 39 56 22.94 W	80 31 26.89	6.54
	13148.00	90.79	143.04	6601.56	5451.85	6653.34	-5835.81	3202.25	0.86	-0.72	-0.47	525944.42	1712886.33	N 39 56 22.23 W	80 31 26.18	6.55
	13237.00	90.07	143.66	6600.89	5451.18	6741.83	-5907.21	3255.38	1.07	-0.81	0.70	525873.02	1712941.46	N 39 56 21.53 W	80 31 25.49	6.56
	13327.00	89.00	143.40	6601.62	5451.91	6831.35	-5979.58	3308.87	1.22	-1.19	-0.29	525800.65	1712994.95	N 39 56 20.82 W	80 31 24.79	6.57
	13416.00	89.31	142.63	6602.93	5453.22	6919.78	-6050.67	3362.41	0.93	0.35	-0.87	525729.57	1713048.48	N 39 56 20.13 W	80 31 24.10	6.58
	13505.00	90.55	141.38	6603.04	5453.33	7008.03	-6120.80	3417.19	1.98	1.39	-1.40	525659.44	1713103.27	N 39 56 19.44 W	80 31 23.38	6.59
	13595.00	89.48	141.66	6603.02	5453.31	7097.17	-6191.26	3473.19	1.23	-1.19	0.31	525588.99	1713159.26	N 39 56 18.75 W	80 31 22.65	6.60

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S °'")	Longitude (E/W °'")	Directional Difficulty Index
	13684.00	90.48	141.59	6603.05	5453.34	7185.34	-6261.03	3528.44	1.13	1.12	-0.08	525519.22	1713214.51	N 39 56 18.07	W 80 31 21.93	6.61
	13773.00	89.69	141.72	6602.92	5453.21	7273.52	-6330.83	3583.66	0.90	-0.89	0.15	525449.42	1713269.72	N 39 56 17.38	W 80 31 21.22	6.62
	13863.00	90.10	143.30	6603.08	5453.37	7362.86	-6402.24	3638.43	1.81	0.46	1.76	525378.02	1713324.50	N 39 56 16.68	W 80 31 20.50	6.63
	13952.00	89.35	143.29	6603.51	5453.80	7451.35	-6473.59	3691.63	0.84	-0.84	-0.01	525306.67	1713377.69	N 39 56 15.99	W 80 31 19.81	6.64
	14042.00	88.70	143.43	6605.04	5455.33	7540.83	-6545.79	3745.33	0.74	-0.72	0.16	525234.47	1713431.39	N 39 56 15.28	W 80 31 19.11	6.65
	14131.00	90.10	143.27	6605.97	5456.26	7629.32	-6617.19	3798.45	1.58	1.57	-0.18	525163.07	1713484.51	N 39 56 14.58	W 80 31 18.42	6.66
	14220.00	89.14	143.23	6606.56	5456.85	7717.80	-6688.50	3851.70	1.08	-1.08	-0.04	525091.77	1713537.75	N 39 56 13.88	W 80 31 17.72	6.67
	14310.00	91.34	143.32	6606.18	5456.47	7807.28	-6760.63	3905.51	2.45	2.44	0.10	525019.64	1713591.57	N 39 56 13.17	W 80 31 17.02	6.68
	14399.00	91.61	144.34	6603.89	5454.18	7895.82	-6832.46	3958.02	1.19	0.30	1.15	524947.82	1713644.07	N 39 56 12.47	W 80 31 16.34	6.69
	14489.00	90.89	143.71	6601.93	5452.22	7985.40	-6905.27	4010.88	1.06	-0.80	-0.70	524875.01	1713696.92	N 39 56 11.76	W 80 31 15.65	6.70
	14578.00	90.38	143.43	6600.94	5451.23	8073.93	-6976.88	4063.73	0.65	-0.57	-0.31	524803.41	1713749.77	N 39 56 11.05	W 80 31 14.96	6.70
	14667.00	90.07	143.18	6600.59	5450.88	8162.42	-7048.24	4116.91	0.45	-0.35	-0.28	524732.05	1713802.95	N 39 56 10.35	W 80 31 14.27	6.71
	14757.00	89.28	143.21	6601.10	5451.39	8251.88	-7120.30	4170.82	0.88	-0.88	0.03	524659.99	1713856.86	N 39 56 9.65	W 80 31 13.56	6.72
	14846.00	88.63	143.16	6602.73	5453.02	8340.34	-7191.54	4224.15	0.73	-0.73	-0.06	524588.75	1713910.19	N 39 56 8.95	W 80 31 12.87	6.73
	14935.00	87.97	142.55	6605.37	5455.66	8428.71	-7262.45	4277.86	1.01	-0.74	-0.69	524517.85	1713963.90	N 39 56 8.26	W 80 31 12.17	6.74
	14996.00	87.22	142.20	6608.01	5458.30	8491.18	-7312.30	4316.29	1.31	-1.19	-0.56	524468.00	1714002.32	N 39 56 7.77	W 80 31 11.67	6.74
	15057.00	87.22	142.20	6610.87	5461.16	8549.64	-7358.86	4352.41	0.00	0.00	0.00	524421.43	1714038.44	N 39 56 7.31	W 80 31 11.20	6.75

Survey Type: Def Survey

Survey Error Model: ISWISA 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	18.240		30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Noble Energy
	18.240	3086.000		30.000	30.000	SLB_NSG+MSHOT	SHL-8E-HS Gyro+MWD 0' MD to 15057' MD
	3086.000	14998.000		30.000	30.000	SLB_MWD-STD	Original Borehole / Noble Energy
	14998.000	15057.000		30.000	30.000	SLB_BLIND+TREND	SHL-8E-HS Gyro+MWD 0' MD to 15057' MD

03/07/2014
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