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: 9/16/2013
API: 47-021-05747

Farm Name: Kenneth Meadows, ET AL Operator Well No: NORM-1C-HS

LOCATION: Normantown 1 Elevation: 810.00 Quadrangle: Normantown

District: Center County: Gilmer
Latitude: _____ Feet South of _____Deg._____Min._____Sec. 38.84881700
Longitude: _____ Feet South of _____Deg._____Min._____Sec. -80.94578600

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		20	64	64	Cemented In
Agent: Bill Hendershot		13 3/8	480.1	480.1	500sxs – 106.8bbls 42 bbls cement to surface
Inspector: Steven Haught		9 5/8	5,861	5,861	825 sxs (216 bbls) lead – 292 sxs (62bbls) tail – no cement to surface
Date Permit Issued: 7/25/2012		5 ½	11,660.3	11,660.3	529 sxs of lead cement – 1317 sxs of tail cement
Date Well Work Commenced:	11/6/2012				
Date Well Work Completed:	8/8/13				
Verbal Plugging:					
Date Permission granted on:	11/6/2012				
Rotary Cable Rig X					
Total Vertical Depth (ft): Original Hole - 5,905.0					
Total Measured Depth (ft): 11,680.0					
Fresh Water Depth (ft): 192'					
Salt Water Depth (ft): 1482'					
Is coal being mined in the area (N/Y)? N					
Coal Depths (ft.): 332'					
Void(s) encountered (N/Y) Depth(s) N/A					

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 _ N/A _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.

_____ 10/28/13
Signature Date

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: Bond Log, Gamma Ray 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	Source
Sandstone and Shale, Undif.	0	472	0	472		MWD
Shale	472	533	472	533		MWD
Sandstone	533	656	533	656		MWD
Shale	656	723	656	724		MWD
Sandstone	723	769	724	770		MWD
Shale	769	788	770	789		MWD
Sandstone	788	906	789	907		MWD
Shale	906	955	907	956		MWD
Sandstone	955	989	956	991		MWD
Shale	989	1105	991	1107		MWD
Sandstone	1105	1150	1107	1152		MWD
Shale	1150	1270	1152	1273		MWD
Sandstone	1270	1305	1273	1308		MWD
Shale	1305	1463	1308	1466		MWD
Big Lime	1463	1720	1466	1724		MWD
Shale	1720	1910	1724	1915		MWD
Weir	1910	1962	1915	1967		MWD
Upper Devonian Undif.	1962	3197	1967	3239		MWD
Lower Huron	3197	4346	3239	4441		elog
Benson	4346	4366	4441	4742		elog
Angola	4632	4703	4742	4816		elog
Alexander	4703	4797	4816	5020		elog
Rheinstreet	4899	5496	5020	5641		elog
Sycamore	5496	5528	5641	5676		elog
Cashaqua	5528	5762	5676	5971		elog
Middlesex	5762	5804	5971	6037		elog
West River	5804	5869	6037	6154		elog
Burkett	5869	5895	6154	6218		elog
Tully Limestone	5895	5897	6218	6224		elog
Hamilton	5897	5899	6224	6230		elog
Marcellus	5899	5947	6230	not encountered	Gas	elog
Onondaga	5947	5952	not encountered	not encountered		elog
Huntersville	5952	not encountered	not encountered	not encountered		elog

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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)
7/24/2013	1	Marcellus	Slickwater	11,376	11,561	48	5587	7,920	76.9	4,286	1.16	307,487	3,000	365,093
7/24/2013	2	Marcellus	Slickwater	11,124	11,327	40	5572	7,732	76.3	4,293	1.16	363,873	3,000	438,933
7/24/2013	3	Marcellus	Slickwater	10,874	11,077	40	6085	8,223	78.5	5,836	1.42	297,473	3,000	338,348
7/25/2013	4	Marcellus	Slickwater	10,624	10,827	40	5372	7,941	88.9	5,739	1.41	337,238	3,000	438,255
7/25/2013	5	Marcellus	Slickwater	10,326	10,577	40	5503	7,552	76.7	4,584	1.21	411,037	3,000	490,718
7/26/2013	6	Marcellus	Slickwater	10,026	10,277	40	5933	7,352	77.3	4,278	1.16	434,825	3,000	419,654
7/26/2013	7	Marcellus	Slickwater	9,774	9,977	40	6423	7,287	72.6	5,752	1.41	253,220	3,000	459,564
7/27/2013	**7RP**	Marcellus	Slickwater	9,764	9,838	40	6315	7,879	71.4	4,379	1.18	363,278	3,000	412,760
7/27/2013	8	Marcellus	Slickwater	9,524	9,727	40	5823	8,116	79.3	5,307	1.34	360,072	3,000	601,119
7/27/2013	9	Marcellus	Slickwater	9,276	9,477	40	6550	7,790	80.2	5,641	1.39	357,169	3,000	369,659
7/27/2013	10	Marcellus	Slickwater	8,976	9,227	40	5925	7,139	76.6	3,051	0.95	435,399	3,000	424,784
7/28/2013	11	Marcellus	Slickwater	8,676	8,927	40	6132	7,112	81.8	3,607	1.05	434,406	3,000	421,585
7/28/2013	12	Marcellus	Slickwater	8,424	8,627	40	6294	7,709	76.4	9,789	2.10	157,596	9,000	289,667
7/28/2013	**12inj**	Marcellus	Slickwater	8,424	8,627	40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15,666
8/3/2013	13	Marcellus	Slickwater	8,126	8,377	40	6237	7,784	74.6	3,435	1.02	436,863	3,000	442,825
8/4/2013	14	Marcellus	Slickwater	7,874	8,077	40	7341	7,509	78.9	5,353	1.34	338,791	3,000	353,959
8/4/2013	15	Marcellus	Slickwater	7,624	7,827	40	5981	7,035	80.4	3,437	1.02	362,127	3,000	357,651
8/4/2013	16	Marcellus	Slickwater	7,326	7,577	40	5473	6,822	82.9	5,180	1.31	439,401	3,000	422,392
8/5/2013	17	Marcellus	Slickwater	7,026	7,277	40	6933	7,829	79.6	5,844	1.42	284,173	3,000	390,879
8/5/2013	**17RP**	Marcellus	Slickwater	7,068	7,235	40	6651	7,935	59.9	6,229	1.49	272,971	6,000	489,861
8/5/2013	18	Marcellus	Slickwater	6,726	6,977	40	6062	7,336	80	3,195	0.97	413,817	3,000	408,218
8/6/2013	19	Marcellus	Slickwater	6,426	6,677	40	6534	7,326	82	5,330	1.33	436,945	3,000	420,563

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Stage #	Plug Type	Plug Depth	PBTD: 11,565'
1	No Plug	No Plug	
2	Composite Flow Throug Plug	11,350	
3	Composite Flow Throug Plug	11,100	
4	Composite Flow Throug Plug	10,850	
5	Composite Flow Throug Plug	10,600	
6	Composite Flow Throug Plug	10,300	
7, 7RP	Composite Flow Throug Plug	10,000	
8	Composite Flow Throug Plug	9,750	
9	Composite Flow Throug Plug	9,500	
10	Composite Flow Throug Plug	9,250	
11	Composite Flow Throug Plug	8,950	
12	Composite Flow Throug Plug	8,650	
13	Composite Flow Throug Plug	8,410	
14	Composite Flow Throug Plug	8,100	
15	Composite Flow Throug Plug	7,850	
16	Composite Flow Throug Plug	7,600	
17, 17RP	Composite Flow Throug Plug	7,300	
18	Composite Flow Throug Plug	6,978	
19	Composite Flow Throug Plug	6,700	

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Hydraulic Fracturing Fluid Composition:

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	Base Fluid					
			Fresh Water	7732-18-5	100.00000	89.69537Density	= 8.340
SAND - PREMIUM WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	5.27706	
SAND - COMMON WHITE	Halliburton	Proppant					
			Crystalline silica, quartz	14808-60-7	100.00000	4.09895	
HYDROCHLORIC ACID 5-10%	Halliburton	Acid					
			Hydrochloric acid	7647-01-0	10.00000	0.07779	
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
			Guar gum	9000-30-0	100.00000	0.03058	
FR-66	Halliburton	Friction Reducer					
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01426	
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive					
			Acetic anhydride	108-24-7	100.00000	0.00403	
			Acetic acid	64-19-7	60.00000	0.00242	
BE-9	Halliburton	Biocide					
			Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00398	
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor					
			Ammonium chloride	12125-02-9	10.00000	0.00255	
LoSurf-300D	Halliburton	Non-ionic Surfactant					
			Ethanol	64-17-5	60.00000	0.00081	
			Heavy aromatic petroleum naphtha	64742-94-5	30.00000	0.00041	
			Naphthalene	91-20-3	5.00000	0.00007	
			Poly(oxy-1,2-ethanediyl), alpha- (4-nonylphenyl)-omegahydroxy-, branched	127087-87-0	5.00000	0.00007	
			1,2,4 Trimethylbenzene	95-63-6	1.00000	0.00001	
SP BREAKER	Halliburton	Breaker					
			Sodium persulfate	7775-27-1	100.00000	0.00126	
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
			Methanol	67-56-1	60.00000	0.00040	
			Propargyl alcohol	107-19-7	10.00000	0.00007	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
		Other Ingredient(s)					
			Water	7732-18-5		0.86153	
		Other Ingredient(s)					
			Organic phosphonate	Confidential		0.01528	
		Other Ingredient(s)					
			Polyacrylamide copolymer	Confidential		0.01426	
		Other Ingredient(s)					
			Alcohols, C12-16, ethoxylated	68551-12-2		0.00238	
		Other Ingredient(s)					

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			Fatty acid tall oil amide	Confidential		0.00238	
		Other Ingredient(s)					
			Sodium chloride	7647-14-5		0.00238	
		Other Ingredient(s)					
			Ammonium chloride	12125-02-9		0.00238	
		Other Ingredient(s)					
			Bentonite, benzyl(hydrogenated tallow alkyl) dimethylammonium stearate complex	121888-68-4		0.00153	
		Other Ingredient(s)					
			Sorbitan, mono-9- octadecenoate, (Z)	1338-43-8		0.00048	
		Other Ingredient(s)					
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6		0.00048	
		Other Ingredient(s)					
			Oxyalkylated phenolic resin	Confidential		0.00041	
		Other Ingredient(s)					
			Surfactant mixture	Confidential		0.00031	
		Other Ingredient(s)					
			Surfactant mixture	Confidential		0.00031	
		Other Ingredient(s)					
			Silica gel	112926-00-8		0.00031	
		Other Ingredient(s)					
			Formaldehyde	50-00-0		0.00025	
		Other Ingredient(s)					
			Alcohols, C14-C15, ethoxylated	68951-67-7		0.00020	
		Other Ingredient(s)					
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1		0.00020	
		Other Ingredient(s)					
			Fatty acids, tall oil	Confidential		0.00020	
		Other Ingredient(s)					
			Oxyalkylated phenolic resin	Confidential		0.00014	
		Other Ingredient(s)					
			Olefins	Confidential		0.00003	
		Other Ingredient(s)					
			Olefins	Confidential		0.00003	
		Other Ingredient(s)					
			Crystalline Silica, Quartz	14808-60-7		0.00003	
		Other Ingredient(s)					
			Olefins	Confidential		0.00001	
		Other Ingredient(s)					
			Olefins	Confidential		0.00001	
		Other Ingredient(s)					
			Sodium sulfate	7757-82-6		0.00000	

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NOBLE ENERGY

Location: Gilmer County, WV
Field: Gilmer
Facility: Norm Pad

Slot: Slot #1C
Well: Norm 1C
Wellbore: Norm 1C (PWB)

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Norm Pad			2015441.000	673234.000	38°50'55.740"N	80°56'44.830"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #1C	0.04	-0.03	2015440.970	673234.040	38°50'55.740"N	80°56'44.830"W

Precision 545 (RKB) to Mud line (At Slot: Slot #1C)	18ft
Mean Sea Level to Mud line (At Slot: Slot #1C)	-810ft
Precision 545 (RKB) to Mean Sea Level	828ft

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	435.00	1.720	330.280	434.94	4.87	-3.75	0.00	5.85
End of Tangent	495.00	1.720	330.280	494.91	6.43	-4.64	0.00	7.63
End of 3D Arc (J)	758.32	5.000	241.000	757.85	4.30	-16.65	2.00	9.73
End of Tangent (J)	2200.00	5.000	241.000	2194.05	-56.62	-126.54	0.00	-9.92
End of 3D Arc (J)	2420.82	15.985	248.147	2410.85	-72.65	-163.29	5.00	-12.42
End of Tangent (J)	5385.28	15.985	248.147	5260.68	-376.53	-921.00	0.00	-38.82
End of 3D Arc	5886.98	44.699	322.499	5700.64	-256.68	-1100.92	8.50	135.34
End of Tangent	5948.39	44.699	322.499	5744.29	-222.41	-1127.21	0.00	176.53
LP	6386.63	91.301	339.721	5905.00	126.94	-1308.15	11.19	566.70
PBHL	11673.49	91.301	339.721	5785.00	5084.84	-3140.02	0.00	5852.14

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Norm 1C Target	5886.98	5700.64	-256.68	-1100.92	2014340.21	672978.72	38°50'53.203"N	80°56'58.745"W
Norm 1C PBHL: Rev-2	11673.49	5785.00	5084.84	-3140.02	2012298.00	678317.00	38°51'45.999"N	80°57'24.526"W
Norm 1C LP:Rev-2	6386.63	5905.00	126.94	-1308.15	2014132.76	673380.21	38°50'56.994"N	80°57'01.365"W
Norm 1C PBHL:EX-02		6016.00	5084.84	-3140.02	2012298.00	678317.00	38°51'45.999"N	80°57'24.526"W
Norm 1C LP:EX-02		6062.13	126.94	-1308.15	2014132.76	673380.21	38°50'56.994"N	80°57'01.365"W

Hole and Casing Sections

Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	Start Local E (ft)	End Local N (ft)	End Local E (ft)	Wellbore
13.375in Casing Surface	18.00	450.00	432.00	18.00	449.93	0.00	0.00	5.26	-3.97	Norm 1C (PWB)
9.625in Casing Intermediate	18.00	5886.08	5868.08	18.00	5700.00	0.00	0.00	-257.18	-1100.53	Norm 1C (PWB)
8.75in Open Hole	5886.08	11673.49	5787.41	5700.00	5785.00	-257.18	-1100.53	5084.84	-3140.02	Norm 1C (PWB)

Tie On Position

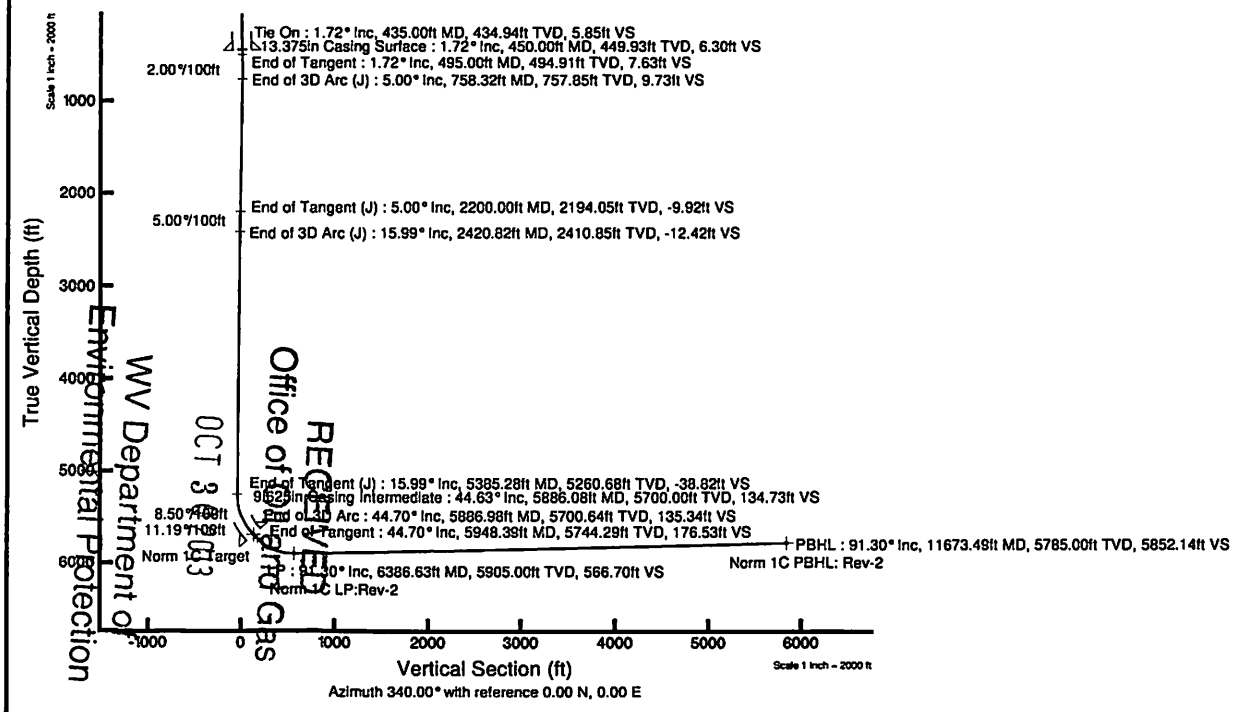
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
435.00	1.720	330.280	434.94	4.87	-3.75	2015437.22	673238.90	38°50'55.788"N	80°56'44.877"W

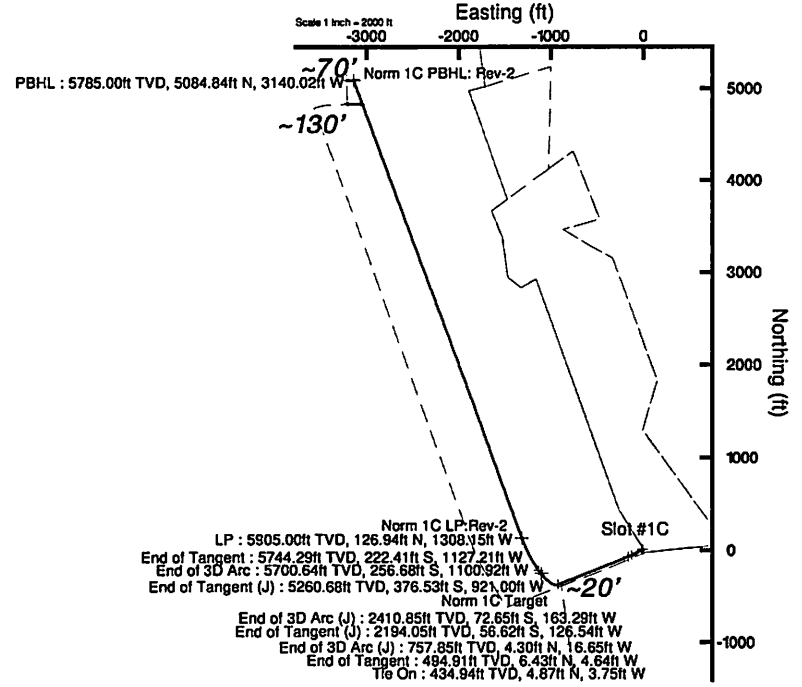
Plot reference wellpath is Norm 1C (PWP)Rev-B.0

True vertical depths are referenced to Precision 545 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Southern Zone (4702), US feet
Measured depths are referenced to Precision 545 (RKB)	North Reference: True north
Precision 545 (RKB) to Mean Sea Level: 828 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #1C): -810 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: fritsjest on 03/Dec/2012

Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
11673.49	91.301	339.721	5785.00	5084.84	-3140.02	2012298.00	678317.00	38°51'45.999"N	80°57'24.526"W





BGGM (1945.0 to 2013.0) Dip: 66.65° Field: 52263.4 nT
Magnetic North is 8.29 degrees West of True North (at 26/Nov/2012)

To correct azimuth from Magnetic to True add/subtract 8.29 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the True North Azimuth = 90 - 8.29 = 81.71

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Actual Wellpath Report

Norm 1C (AWP)[Curve]Proj:

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REFERENCE WELLPATH IDENTIFICATION			
Operator	**NOBLE ENERGY**	Slot	**Slot #1C**
Area	**Gilmer County, WV**	Well	**Norm 1C**
Field	**Gilmer**	Wellbore	**Norm 1C (AWB)**
Facility	**Norm Pad**		

REPORT SETUP INFORMATION			
Projection System	**NAD27 / Lambert West Virginia SP, Southern Zone (4702), US feet**	Software System	**WellArchitect® 3.0.0**
North Reference	**True**	User	**Bennaarw**
Scale	**0.999993**	Report Generated	**4/13/2013 at 5:01:28 AM**
Convergence at slot	**0.03° East**	Database/Source file	**WellArchitect/Norm_1C__AWB_.xml**

WELLPATH LOCATION						
	Local coordinates		**Grid coordinates**		**Geographic coordinates**	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	0.04	-0.03	**2015440.97**	**673234.04**	38°50'55.740"N	80°56'44.830"W
Facility Reference Pt			**2015441.00**	**673234.00**	38°50'55.740"N	80°56'44.830"W
Field Reference Pt			**0.00**	**0.00**	36°47'50.602"N	87°50'06.103"W

WELLPATH DATUM			
Calculation method	**Minimum curvature**	Precision 542 (RKB) to Facility Vertical Datum	**18.00ft**
Horizontal Reference Pt	**Slot**	Precision 542 (RKB) to Mean Sea Level	**828.00ft**
Vertical Reference Pt	**Precision 542 (RKB)**	Precision 542 (RKB) to Mud Line at Slot (Slot #1C)	**18.00ft**
MD Reference Pt	**Precision 542 (RKB)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**340.00°**

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Norm 1C (AWP)[Curve]Proj:

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1C
Area	Gilmer County, WV	Well	Norm 1C
Field	Gilmer	Wellbore	Norm 1C (AWB)
Facility	Norm Pad		

WELLPATH DATA (157 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
0.00†	0.000	309.390	0.00	0.00	0.00	0.00	0.00
18.00	0.000	309.390	18.00	0.00	0.00	0.00	0.00
201.00	0.660	309.390	201.00	0.91	0.67	-0.81	0.36
388.00	1.660	328.870	387.96	4.49	3.67	-3.05	0.57
435.00	1.720	330.280	434.94	5.85	4.87	-3.75	0.16
514.00	2.010	317.270	513.89	8.30	6.91	-5.28	0.65
530.00	1.930	310.120	529.88	8.79	7.29	-5.67	1.61
562.00	2.190	279.660	561.86	9.56	7.74	-6.69	3.47
593.00	2.830	256.830	592.84	9.95	7.67	-8.02	3.79
625.00	3.500	238.040	624.79	9.84	6.97	-9.62	3.83
656.00	4.920	225.020	655.70	9.08	5.53	-11.36	5.49
688.00	4.880	225.060	687.59	7.93	3.60	-13.29	0.13
720.00	5.230	225.730	719.46	6.75	1.62	-15.30	1.11
814.00	4.970	241.290	813.09	4.38	-3.33	-21.94	1.49
909.00	5.040	245.260	907.73	3.41	-7.05	-29.34	0.37
1004.00	4.970	242.720	1002.37	2.54	-10.68	-36.79	0.24
1099.00	5.160	242.410	1097.00	1.46	-14.55	-44.23	0.20
1194.00	4.620	236.000	1191.65	-0.03	-18.67	-51.19	0.81
1288.00	4.120	234.450	1285.38	-1.85	-22.75	-57.07	0.55
1383.00	5.210	244.950	1380.07	-3.15	-26.56	-63.76	1.45
1473.00	5.080	249.070	1469.70	-3.57	-29.71	-71.18	0.44
1562.00	5.050	248.670	1558.36	-3.73	-32.54	-78.51	0.05
1652.00	4.530	247.500	1648.04	-3.97	-35.34	-85.48	0.59
1742.00	4.380	246.410	1737.77	-4.34	-38.08	-91.92	0.19
1831.00	4.580	249.250	1826.50	-4.60	-40.70	-98.36	0.34
1921.00	4.960	241.780	1916.19	-5.21	-43.81	-105.14	0.81
2010.00	4.310	246.050	2004.90	-5.99	-46.99	-111.59	0.83
2100.00	4.090	236.690	2094.65	-6.96	-50.12	-117.36	0.80
2145.00	4.360	243.360	2139.53	-7.53	-51.77	-120.23	1.24
2189.00	5.800	247.500	2183.36	-7.82	-53.37	-123.78	3.38
2234.00	7.630	248.790	2228.05	-7.98	-55.32	-128.67	4.08
2276.00	8.730	251.480	2269.62	-7.96	-57.34	-134.29	2.77
2320.00	11.220	252.780	2312.95	-7.66	-59.67	-141.55	5.68
2365.00	14.220	250.400	2356.84	-7.41	-62.82	-150.94	6.77
2410.00	16.600	248.540	2400.22	-7.54	-67.03	-162.23	5.40
2455.00	17.250	247.960	2443.27	-7.94	-71.89	-174.30	1.49
2545.00	16.740	248.450	2529.34	-8.76	-81.93	-198.72	0.59
2634.00	16.270	248.080	2614.68	-9.53	-91.02	-222.21	0.54
2724.00	15.960	249.200	2701.14	-10.12	-100.12	-245.47	0.49
2814.00	16.250	247.730	2787.61	-10.79	-109.28	-268.69	0.58
2903.00	15.540	246.620	2873.20	-11.99	-118.73	-291.16	0.87
2993.00	15.370	247.820	2959.95	-13.16	-128.02	-313.27	0.40
3083.00	15.640	245.860	3046.67	-14.48	-137.48	-335.38	0.65

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3172.00	16.310	246.200	3132.24	-16.18	-147.43	-357.77	0.76
3262.00	15.970	245.990	3218.69	-17.88	-157.57	-380.64	0.38

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Norm 1C (AWP)[Curve]Proj:

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1C
Area	Gilmer County, WV	Well	Norm 1C
Field	Gilmer	Wellbore	Norm 1C (AWB)
Facility	Norm Pad		

WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
3307.00	15.490	243.490	3262.00	-19.00	-162.77	-391.67	1.85
3352.00	15.810	243.760	3305.34	-20.34	-168.17	-402.55	0.73
3396.00	16.420	244.060	3347.61	-21.64	-173.54	-413.52	1.40
3441.00	16.510	244.400	3390.76	-22.92	-179.08	-425.00	0.29
3486.00	15.830	244.950	3433.98	-24.09	-184.44	-436.33	1.55
3532.00	15.210	243.750	3478.30	-25.30	-189.77	-447.42	1.52
3622.00	13.270	248.390	3565.54	-26.87	-198.79	-467.62	2.50
3711.00	13.170	250.020	3652.18	-27.15	-206.02	-486.64	0.43
3801.00	13.240	247.030	3739.80	-27.68	-213.55	-505.77	0.76
3845.00	14.800	249.620	3782.49	-27.98	-217.47	-515.68	3.82
3890.00	16.580	252.120	3825.81	-27.78	-221.44	-527.18	4.23
3980.00	17.940	253.340	3911.76	-26.50	-229.36	-552.68	1.56
4070.00	18.220	253.720	3997.31	-24.78	-237.28	-579.46	0.34
4159.00	19.490	254.360	4081.54	-22.75	-245.18	-607.12	1.45
4249.00	20.500	254.170	4166.11	-20.46	-253.53	-636.74	1.12
4339.00	21.300	251.800	4250.19	-18.80	-262.93	-667.43	1.29
4383.00	20.860	249.270	4291.24	-18.65	-268.20	-682.35	2.30
4428.00	20.830	247.810	4333.30	-19.06	-274.06	-697.25	1.16
4518.00	18.540	244.760	4418.04	-20.98	-286.21	-725.01	2.79
4607.00	18.670	245.760	4502.39	-23.32	-298.09	-750.80	0.39
4697.00	15.490	246.240	4588.41	-25.18	-308.85	-774.94	3.54
4779.00	15.660	248.070	4667.39	-26.27	-317.39	-795.23	0.63
4868.00	16.180	247.830	4752.98	-27.14	-326.56	-817.86	0.59
4958.00	16.720	249.770	4839.30	-27.67	-335.77	-841.62	0.86
5048.00	16.420	244.450	4925.56	-28.95	-345.73	-865.24	1.72
5138.00	16.450	242.320	5011.89	-31.88	-357.14	-888.00	0.67
5228.00	13.970	239.570	5098.73	-35.55	-368.56	-908.66	2.87
5318.00	13.900	244.590	5186.08	-38.54	-378.70	-927.79	1.35
5362.00	13.700	251.090	5228.82	-38.94	-382.66	-937.49	3.55
5407.00	13.420	264.090	5272.57	-37.57	-384.92	-947.73	6.79
5452.00	13.850	280.030	5316.32	-33.60	-384.52	-958.28	8.38
5497.00	14.720	295.250	5359.94	-26.84	-381.14	-968.71	8.54
5542.00	17.160	304.580	5403.22	-17.37	-374.94	-979.85	7.85
5587.00	19.640	311.240	5445.92	-5.32	-366.18	-990.51	7.22
5632.00	22.730	314.770	5487.87	9.17	-355.07	-1002.37	7.43
5676.00	26.010	317.440	5527.95	25.78	-341.97	-1014.98	7.86
5721.00	29.490	320.430	5567.77	45.33	-326.18	-1028.67	8.33
5766.00	32.740	322.470	5606.29	67.38	-307.97	-1043.14	7.59
5822.00	37.350	323.670	5652.13	98.14	-282.26	-1062.44	8.32
5873.00	40.960	325.300	5691.67	129.16	-256.04	-1081.13	7.36
5918.00	43.110	325.690	5725.09	158.33	-231.21	-1098.19	4.81
5963.00	47.570	326.050	5756.71	189.37	-204.72	-1116.15	9.93
6008.00	50.970	326.380	5786.07	222.48	-176.38	-1135.10	7.58

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6053.00	52.600	326.150	5813.91	256.82	-146.98	-1154.74	3.64
6098.00	55.330	328.670	5840.38	292.33	-116.32	-1174.32	7.57

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Norm 1C (AWP)[Curve]Proj:

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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1C
Area	Gilmer County, WV	Well	Norm 1C
Field	Gilmer	Wellbore	Norm 1C (AWB)
Facility	Norm Pad		

WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
6143.00	60.840	328.910	5864.16	329.79	-83.66	-1194.11	12.25
6188.00	66.430	329.110	5884.14	369.35	-49.11	-1214.86	12.43
6232.00	71.800	329.880	5899.82	409.76	-13.71	-1235.71	12.31
6277.00	77.610	331.070	5911.68	452.55	24.05	-1257.09	13.16
6322.00	83.410	332.050	5919.10	496.43	63.06	-1278.21	13.07
6367.00	89.450	334.290	5921.90	541.00	103.12	-1298.47	14.31
6407.00	90.680	336.760	5921.85	580.88	139.52	-1315.04	6.90
6502.00	90.520	335.310	5920.86	675.64	226.33	-1353.62	1.54
6592.00	89.750	336.550	5920.65	765.41	308.50	-1390.33	1.62
6682.00	91.050	339.040	5920.02	855.34	391.81	-1424.34	3.12
6771.00	90.710	339.220	5918.65	944.31	474.96	-1456.04	0.43
6861.00	89.140	337.090	5918.77	1034.26	558.49	-1489.53	2.94
6951.00	90.000	338.770	5919.45	1124.19	641.89	-1523.34	2.10
7041.00	90.770	342.920	5918.84	1214.16	726.89	-1552.86	4.69
7130.00	90.830	343.210	5917.60	1303.03	812.02	-1578.79	0.33
7220.00	91.170	342.640	5916.03	1392.89	898.04	-1605.21	0.74
7309.00	91.200	343.490	5914.19	1481.75	983.16	-1631.13	0.96
7398.00	90.590	341.180	5912.80	1570.66	1067.95	-1658.13	2.68
7488.00	89.970	340.820	5912.36	1660.64	1153.04	-1687.43	0.80
7578.00	91.380	341.240	5911.30	1750.62	1238.15	-1716.68	1.63
7667.00	91.290	340.730	5909.22	1839.58	1322.27	-1745.67	0.58
7757.00	90.000	338.810	5908.21	1929.57	1406.70	-1776.79	2.57
7846.00	90.830	338.350	5907.56	2018.54	1489.55	-1809.29	1.07
7936.00	90.150	339.700	5906.80	2108.52	1573.58	-1841.51	1.68
8026.00	90.370	340.110	5906.39	2198.52	1658.10	-1872.43	0.52
8115.00	90.150	338.840	5905.98	2287.51	1741.45	-1903.63	1.45
8205.00	91.730	339.600	5904.51	2377.49	1825.58	-1935.56	1.95
8295.00	93.890	342.280	5900.09	2467.35	1910.53	-1964.91	3.82
8384.00	92.800	341.200	5894.90	2556.16	1994.91	-1992.75	1.72
8474.00	92.780	340.640	5890.52	2646.04	2079.86	-2022.13	0.62
8564.00	90.430	339.820	5888.00	2736.00	2164.51	-2052.56	2.77
8653.00	89.570	339.500	5888.00	2824.99	2247.96	-2083.50	1.03
8743.00	89.260	338.610	5888.92	2914.98	2332.11	-2115.37	1.05
8832.00	89.660	339.930	5889.76	3003.96	2415.24	-2147.17	1.55
8922.00	91.820	340.730	5888.59	3093.95	2499.98	-2177.46	2.56
9012.00	91.360	340.300	5886.10	3183.91	2584.79	-2207.47	0.70
9101.00	91.170	340.440	5884.13	3272.88	2668.60	-2237.36	0.27
9191.00	88.740	336.810	5884.20	3362.84	2753.19	-2270.15	4.85
9281.00	89.080	338.400	5885.92	3452.74	2835.58	-2306.45	1.81
9370.00	89.410	339.400	5887.09	3541.71	2918.61	-2336.47	1.18
9460.00	89.260	339.950	5888.13	3631.71	3003.00	-2367.73	0.63
9550.00	88.740	339.310	5889.70	3721.69	3087.36	-2399.05	0.92
9640.00	89.780	340.560	5890.87	3811.68	3171.88	-2429.92	1.81

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9729.00	89.290	340.530	5891.59	3900.67	3255.80	-2459.57	0.55
9819.00	88.930	340.050	5892.99	3990.66	3340.52	-2489.92	0.67

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1C
Area	Gilmer County, WV	Well	Norm 1C
Field	Gilmer	Wellbore	Norm 1C (AWB)
Facility	Norm Pad		

WELLPATH DATA (157 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
9908.00	88.300	338.850	5895.14	4079.63	3423.83	-2521.15	1.52
9998.00	89.480	339.960	5896.88	4169.60	3508.06	-2552.80	1.80
10087.00	90.150	339.400	5897.17	4258.60	3591.52	-2583.70	0.98
10177.00	89.040	339.030	5897.80	4348.59	3675.65	-2615.64	1.30
10267.00	89.910	338.990	5898.63	4438.57	3759.68	-2647.88	0.97
10356.00	89.780	339.760	5898.87	4527.56	3842.97	-2679.23	0.88
10446.00	91.350	339.440	5897.98	4617.55	3927.32	-2710.60	1.78
10535.00	91.700	339.540	5895.61	4706.52	4010.65	-2741.77	0.41
10625.00	91.200	336.960	5893.34	4796.44	4094.21	-2775.10	2.92
10715.00	90.890	338.030	5891.69	4886.34	4177.34	-2809.55	1.24
10804.00	87.410	338.620	5893.01	4975.28	4260.02	-2842.41	3.97
10894.00	87.480	338.090	5897.03	5065.15	4343.59	-2875.57	0.59
10984.00	88.030	340.270	5900.55	5155.06	4427.65	-2907.54	2.50
11073.00	88.330	340.800	5903.38	5244.01	4511.52	-2937.18	0.68
11163.00	90.620	341.900	5904.20	5333.98	4596.78	-2965.96	2.82
11252.00	90.860	340.750	5903.05	5422.95	4681.09	-2994.45	1.32
11342.00	90.190	340.490	5902.23	5512.94	4765.98	-3024.31	0.80
11432.00	89.600	339.130	5902.39	5602.93	4850.45	-3055.38	1.65
11521.00	89.690	338.360	5902.95	5691.91	4933.40	-3087.64	0.87
11611.00	89.630	337.600	5903.48	5781.85	5016.83	-3121.38	0.85
11631.00	89.480	337.410	5903.64	5801.83	5035.31	-3129.03	1.21
11680.00	89.480	337.410	5904.08	5850.78	5080.54	-3149.85	0.00

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1C
Area	Gilmer County, WV	Well	Norm 1C
Field	Gilmer	Wellbore	Norm 1C (AWB)
Facility	Norm Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Norm 1C PBHL: Rev-4		5910.00	5084.84	-3140.02	2012298.00	678317.00	38°51'45.999"N	80°57'24.526"W	point
Norm 1C LP:Rev-3		5920.00	112.89	-1301.61	2014139.31	673346.17	38°50'56.856"N	80°57'01.282"W	point
Norm 1C PBHL:EX-02		6016.00	5084.84	-3140.02	2012298.00	678317.00	38°51'45.999"N	80°57'24.526"W	point
Norm 1C LP:EX-02		6062.13	126.94	-1308.15	2014132.76	673360.21	38°50'56.994"N	80°57'01.365"W	point

WELLPATH COMPOSITION - Ref Wellbore: Norm 1C (AWB) Ref Wellpath: Norm 1C (AWP)[Curve]Proj:

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	435.00	Generic gyro - northseeking (Standard)	Gyro Surveys <201'-435'>	Norm 1C (AWB)
435.00	5822.00	NaviTrak (MagCorr)	BHI MWD Surveys (435')(514'-5822')	Norm 1C (AWB)
5822.00	11631.00	NaviTrak (MagCorr)	BHI MWD Surveys [Curve&Lat.] (5822')(5873'-xx')	Norm 1C (AWB)
11631.00	11680.00	Blind Drilling (std)	Projection to bit	Norm 1C (AWB)

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