WR-35
Rev. 8/23/13

March 28, 2014

pm

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

API 47 - 001 - 03222W County Barbour District Pleasant
Quad Philippi Pad Name PHL13HS Field/Pool Name Philippi
Farm name MCCAULEY, RANDALL Well Number PHL13CHS Rework
Operator (as registered with the OOG) CNX Gas Company, LLC
Address P.O. Box 1248 City Jane Lew State WV Zip 26378

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,341,379.660m Easting 585,259.561m
Landing Point of Curve Northing 4,341,326.858m Easting 585,401.014m
Bottom Hole Northing 4,339,016.488m Easting 586,946.850m

Elevation (ft) 1520' GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert ■ Deepen ■ Drill □ Plug Back □ Redrilling ■ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas ■ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion □ Single ■ Multiple Fluids Produced ■ Brine ■Gas □ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud ■ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Waterbased Mud, Bactericide, Polymers and Weighting Agents.

Date permit issued 02/12/2013 Date drilling commenced 9/23/2011 Date drilling ceased 7/15/2013
Date completion activities began 9/23/2013 Date completion activities ceased 11/2/2013
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 30' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths 6803' - Fault
Coal depth(s) ft 190', 230', 310' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

04/25/2014

API 47- 001 - 03222W Farm name MCCAULEY, RANDALL Well number PHL13CHS Rework

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	26"	20"	100'	N	L.S. 81.3 / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	658'	N	J-55 54.5 / 658'	82.55'	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 3/8"	9 5/8"	2080'	N	J-55 36 / 2080'	82.5'/163.3'	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	16741'	N	P-110 20 / 16741'	N/A	Y
Tubing	8 3/4"	2 3/8"	7595'	N	J-55 4.7 / 7595'	N/A	N
Packer type and depth set	None						

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	Grouted to Surface	15.6	1.18	150.5	Surface	8
Surface	Class A	486	14.6	1.39	539	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	640	15.2	1.26	804.2	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	1008.96 / 2153.45	14.2 / 14.8	1.26	4004.82	2000'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7643.57' Loggers TD (ft) 7843'

Deepest formation penetrated Lower Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6814'

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ☐ gamma ray ☐ temperature ☐ sonic

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Conductor - No centralizers used. Fresh water & Coal - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface. Intermediate - Bow spring centralizers one on the first two joints and every fourth joint until inside surface casing. Production - Rigid bow spring centralizer on first joint then every 2 casing joints (free floating) through the lateral and the curve.
(Note: cementing the 5 1/2" casing completely in open hole lateral and curve.)

WAS WELL COMPLETED AS SHOT HOLE ■ Yes ☐ No DETAILS Plug and Perforation Shot Hole

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

API 47- 001 - 03222W Farm name MCCAULEY, RANDALL Well number PHL13CHS Rework

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
								See Attached

Please insert additional pages as applicable.

API 47-001-03222W Farm name MCCAULEY, RANDALL Well number PHL13CHS Rework

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	9/23/2013	16581	16460	4	Marcellus
2	9/24/2013	16427	16305	5	Marcellus
3	9/24/2013	16277	16155	5	Marcellus
4	9/24/2013	16127	16005	5	Marcellus
5	9/25/2013	15977	15855	5	Marcellus
6	9/25/2013	15827	15705	5	Marcellus
7	9/26/2013	15677	15555	5	Marcellus
8	9/26/2013	15527	15405	5	Marcellus
9	9/28/2013	15377	15255	5	Marcellus
10	9/29/2013	15227	15105	5	Marcellus
11	9/29/2013	15077	14955	5	Marcellus
12	9/29/2013	14927	14805	5	Marcellus
13	9/30/2013	14778	14665	5	Marcellus
14	9/30/2013	14427	14301	5	Marcellus
15	10/3/2013	14273	14151	5	Marcellus
16	10/4/2013	14123	14001	5	Marcellus
17	10/4/2013	13973	13851	5	Marcellus
18	10/4/2013	13823	13701	5	Marcellus
19	10/10/2013	13673	13551	5	Marcellus
20	10/11/2013	13523	13401	5	Marcellus
21	10/12/2013	13373	13251	5	Marcellus
22	10/13/2013	13221	13101	5	Marcellus
23	10/14/2013	13073	12951	5	Marcellus
24	10/15/2013	12923	12801	5	Marcellus
25	10/17/2013	12773	12651	5	Marcellus
26	10/18/2013	12623	12501	5	Marcellus
27	10/18/2013	12473	12351	5	Marcellus
28	10/19/2013	12323	12201	5	Marcellus
29	10/19/2013	12173	12051	5	Marcellus
30	10/20/2013	12023	11901	5	Marcellus
31	10/21/2013	11873	11751	5	Marcellus
32	10/21/2013	11723	11601	5	Marcellus
33	10/22/2013	11573	11451	5	Marcellus
34	10/22/2013	11423	11301	5	Marcellus

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
35	10/25/2013	11273	11151	5	Marcellus
36	10/26/2013	11123	11001	5	Marcellus
37	10/27/2013	10973	10851	5	Marcellus
38	10/27/2013	10823	10701	5	Marcellus
39	10/27/2013	10673	10551	5	Marcellus
40	10/28/2013	10523	10401	5	Marcellus
41	10/28/2013	10373	10251	5	Marcellus
42	10/29/2013	10223	10101	5	Marcellus
43	10/29/2013	10073	9951	5	Marcellus
44	10/29/2013	9923	9801	5	Marcellus
45	10/30/2013	9773	9651	5	Marcellus
46	10/30/2013	9623	9501	5	Marcellus
47	10/31/2013	9473	9351	5	Marcellus
48	10/31/2013	9323	9201	5	Marcellus
49	10/31/2013	9173	9051	5	Marcellus
50	10/31/2013	9023	8901	5	Marcellus
51	11/1/2013	8873	8751	5	Marcellus
52	11/1/2013	8723	8601	5	Marcellus
53	11/2/2013	8573	8451	5	Marcellus
54	11/2/2013	8423	8301	5	Marcellus
55	11/2/2013	8273	8151	5	Marcellus
56	11/2/2013	8123	8001	5	Marcellus

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STIMULATION INFORMATION PER STAGE

Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg Treatment Pressure (PSI)	Max Breakdown Perforations	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen / other (gals)
1	9/23/2013	80.5	8580	7617	5113	179300	6721	4483
2	9/24/2013	83	8548	7197	5092	199100	6952	3852
3	9/24/2013	82	8564	6878	5862	187700	6619	3656
4	9/24/2013	80.6	8440	6909	5215	199700	5938	3696
5	9/25/2013	78.5	8045	6602	5124	200950	7182	3770
6	9/25/2013	81	8151	6520	5325	199250	5813	3551
7	9/26/2013	74.9	8126	6602	4956	200550	6925	3762
8	9/26/2013	83.4	8096	6233	5713	200000	6953	3640
9	9/28/2013	85.6	7951	5856	5649	203100	5222	3486
10	9/29/2013	87.1	8429	6258	5552	193400	5458	3511
11	9/29/2013	80.8	8729	7540	5355	148600	5998	3659
12	9/29/2013	67.5	8217	7981	5512	199300	7002	3927
13	9/30/2013	73.5	8739	7598	5976	144700	7925	8701
14	9/30/2013	69.5	8261	8873	5359	239450	6656	3827
15	10/3/2013	74.3	8637	8708	5698	200050	5460	3600
16	10/4/2013	73.8	8543	8287	5741	120850	4695	3463
17	10/4/2013	76.9	8115	6803	5715	199750	6481	3587
18	10/4/2013	63.8	7988	7665	5792	138400	4936	3357
19	10/10/2013	76.1	7998	6756	5588	122850	5329	3550
20	10/11/2013	85.5	8193	6545	5894	202750	5706	3603
21	10/12/2013	82.1	8152	6526	5895	199000	6714	3685
22	10/13/2013	74.7	7992	6797	6123	199150	5595	3594
23	10/14/2013	75	8139	7714	0	200350	5394	3598
24	10/15/2013	86.1	8123	6161	5954	199950	5501	3583
25	10/17/2013	96	8502	0	6280	200150	5570	3485
26	10/18/2013	84.7	8010	6526	6293	207450	5315	3477
27	10/18/2013	90.5	8501	6540	6059	198850	5485	3529
28	10/19/2013	82.9	8249	6545	6934	199800	6298	3556
29	10/19/2013	90.6	8402	6755	6114	199650	5467	3476
30	10/20/2013	89.5	8448	7324	6392	197700	6971	3633
31	10/21/2013	83.6	8070	7354	6798	199900	4744	3427
32	10/21/2013	92.6	8592	6696	6331	189950	4920	3419
33	10/22/2013	86.1	8162	6908	6635	200350	5166	3439
34	10/22/2013	91.8	9445	6619	6294	194650	5137	3451
35	10/25/2013	90.6	8568	6445	6323	200250	4931	3442
36	10/26/2013	88.1	8637	6369	6210	200150	4979	3433
37	10/27/2013	95	8517	7025	5994	168500	4713	3405

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STIMULATION INFORMATION PER STAGE

Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg Treatment Pressure (PSI)	Max Breakdown Perforations	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen / other (gals)
38	10/27/2013	99	8557	6333	6177	200750	5167	3446
39	10/27/2013	98.2	8476	6696	5912	200050	4999	3454
40	10/28/2013	98	8517	6478	5866	200500	4819	3345
41	10/28/2013	97.8	8596	6541	5832	183900	5031	3415
42	10/29/2013	87	8070	6757	6025	201200	4938	3389
43	10/29/2013	99	8527	6529	6280	200060	4560	3317
44	10/29/2013	87.6	8004	7029	5692	195550	4795	3435
45	10/30/2013	90	8537	7585	5955	201550	6196	3569
46	10/30/2013	86.9	8126	7401	5832	196800	5747	3496
47	10/31/2013	83.1	7999	7242	5900	197000	5791	3422
48	10/31/2013	97	8414	7393	6270	199800	4838	3390
49	10/31/2013	93.2	8512	7969	5823	199100	6445	3537
50	10/31/2013	81.8	8109	7672	5731	201300	5923	3434
51	11/1/2013	79.9	8106	7660	6008	200650	5021	3418
52	11/1/2013	85.8	8173	7495	5957	181950	4558	3321
53	11/2/2013	81.6	8027	7611	5606	124800	5322	3356
54	11/2/2013	86.5	7972	6942	5935	200100	5823	3477
55	11/2/2013	87.9	7544	5905	6040	199600	5174	3394
56	11/2/2013	89.4	7239	5689	5598	200800	4425	3220

API 47- 001 - 03222W Farm name MCCAULEY, RANDALL Well number PHL13CHS Rework

PRODUCING FORMATION(S)	DEPTHS			
Upper Marcellus	7586'	TVD	7964'	MD
Middle Marcellus	7600'		8009'	

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ☐ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1000 psi Bottom Hole 4935 psi DURATION OF TEST 340 hrs

OPEN FLOW Gas 11642 mcfpd Oil N/A bpd NGL N/A bpd Water 1010 bpd GAS MEASURED BY ☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITYAND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		
					See Attached

Please insert additional pages as applicable.

Drilling Contractor Patterson UTI
Address 450 Gears Road Suite 500 City Houston State TX Zip 77067

Logging Company Diversified Mud Logging
Address 440 Route 519 City Eighty Four State PA Zip 15330

Cementing Company CalFrac
Address 2001 Summit View Rd City Smithfield State PA Zip 15478

Stimulating Company CalFrac
Address 2001 Summit View Rd City Smithfield State PA Zip 15478

Please insert additional pages as applicable.

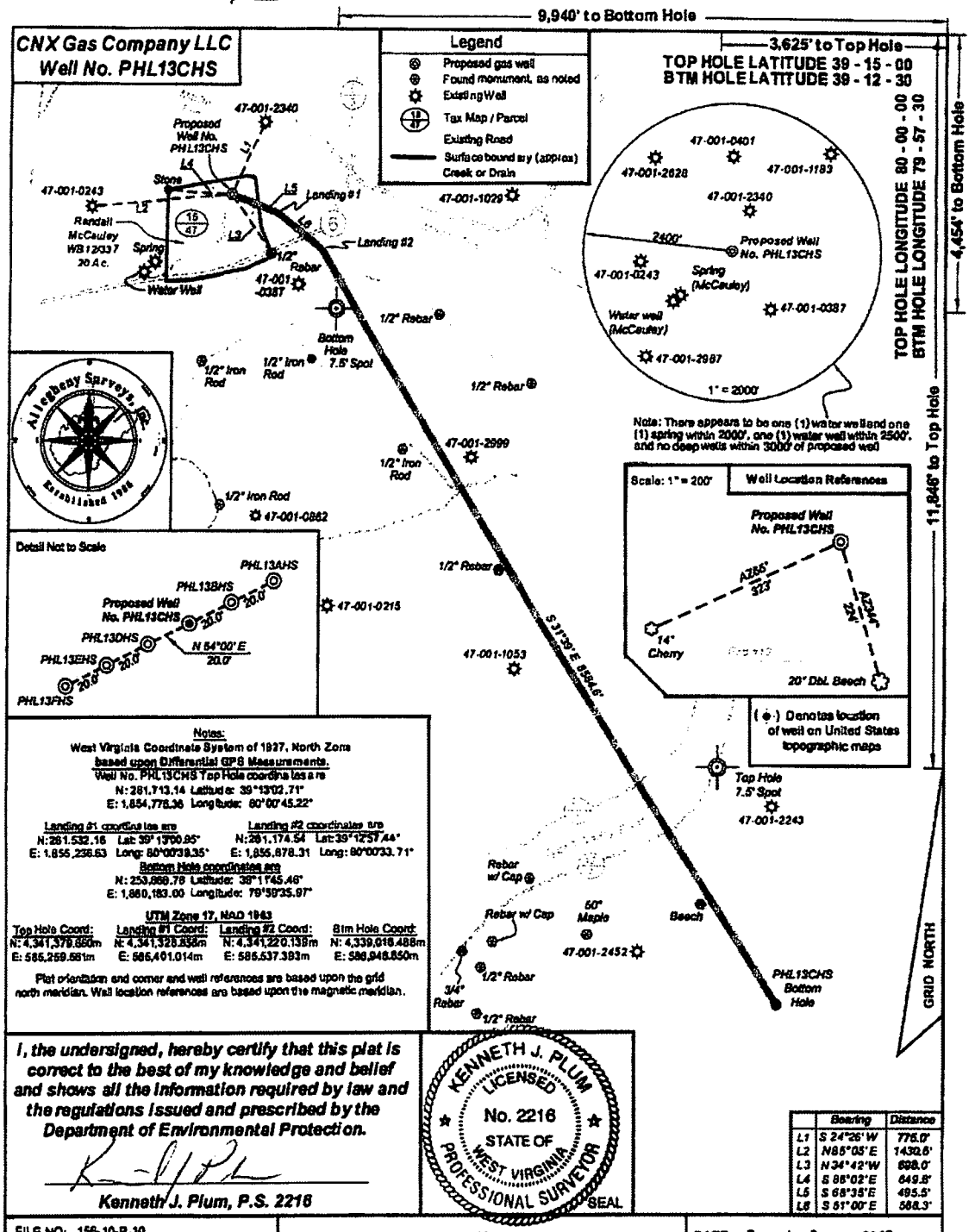
Completed by CNX Gas WV Operations Company, LLC - Drilling and Completions Telephone 304-884-2000
Signature Steve Spitler Title Steve Spitler - Completions Manager-Gas WV Date 3/26/14

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

API 47-001-03222W Farm name MCCAULEY, RANDALL Well number PHL13CHS Rework

LITHOLOGY / FORMATION	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER,BRINE,GAS,H2S, ETC)
FILL	0	30			Brown
SAND/SHALE	30	190			Gray
COAL	190	195			Black
SAND/CLAY	195	230			Red
SAND/SHALE/COAL	230	310			Gray/Black
COAL	310	315			Black
SAND/SHALE	315	1045			Gray/Red/Brown/Black
SHALE/REDROCK	1045				Gray/Red
LITTLE LIME	1162	1170			
BIG LIME	1188	1240			
BIG INJUN	1240	1365			
GANTZ	1550	1574			
FOURTH SAND	2089	2118			
WARREN	2520	2550			
SPEECHLEY	2834	2873			
BALLTOWN	2996	3024			
RILEY	3720	3940			
BENSON SAND	4020	4085			
FIRST ELK	4250	4302			
SECOND ELK	4400	4480			
THIRD ELK	4660	4680			
FOURTH ELK	4934	4975			
SYCAMORE GRIT	6298	6405			
UN-NAMED SILTSTONE	6672	6760			
FAULT	6803				
UN-NAMED SILTSTONE REPEAT	6850	6927			
BURKET SHALE	7337	7366	7450	7495	
TULLY LIMESTONE	7366	7424	7495	7593	
HAMILTON SHALE	7424	7586	7593	7964	
UPPER MARCELLUS	7586	7598	7964	8001	
PURCELL	7598	7600	8001	8009	
MIDDLE MARCELLUS	7600	7678	8009		
ONONDAGA LIMESTONE	7678	7692			
HUNTERSVILLE CHERT	7692				
LTD	7843				

47-001-03222 AS-DRILLED PLAT PHL13CHS



Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. PHL13CHS Top Hole coordinates are
N: 281,713.14 Latitude: 39°13'02.71"
E: 1,654,776.36 Longitude: 80°00'45.22"

Landing #1 coordinates are
N: 281,532.16 Lat: 39°13'00.95" Long: 80°00'39.35"
E: 1,655,236.63

Landing #2 coordinates are
N: 281,174.54 Lat: 39°12'57.44" Long: 80°00'33.71"
E: 1,655,878.31

Bottom Hole coordinates are
N: 253,868.78 Latitude: 38°1'745.46"
E: 1,660,183.00 Longitude: 79°59'35.97"

UTM Zone 17, NAD 1983

Top Hole Coord:	Landing #1 Coord:	Landing #2 Coord:	Btm Hole Coord:
N: 4,341,378.660m	N: 4,341,328.356m	N: 4,341,220.138m	N: 4,339,018.488m
E: 585,259.561m	E: 585,401.014m	E: 585,537.393m	E: 586,946.850m

Plat orientation and corner and well references are based upon the grid north meridian. Well location references are based upon the magnetic meridian.

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.

Kenneth J. Plum, P.S. 2216

KENNETH J. PLUM LICENSED No. 2216 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR SEAL

	Bearing	Distance
L1	S 24°26' W	776.0'
L2	N85°05'E	1432.6'
L3	N 34°42'W	698.0'
L4	S 88°02'E	649.8'
L5	S 68°35'E	495.5'
L6	S 51°00'E	568.3'

FILE NO: 156-10-P-10
DRAWING NO: 156-10 PHL13CHS Well Plat
SCALE: 1" = 1200'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: December 3 2012
OPERATOR'S WELL NO. PHL13CHS
API WELL NO
47 . 001 . 3222 H6A
STATE COUNTY PERMIT

WELL TYPE: ☐ OIL ☒ GAS ☐ LIQUID INJECTION ☐ WASTE DISPOSAL
(IF GAS) PRODUCTION: ☐ STORAGE ☐ DEEP ☒ SHALLOW
LOCATION: ELEVATION: 1520' WATERSHED Tygart Valley River
QUADRANGLE: Philippi DISTRICT: Pleasant COUNTY: Barbour
SURFACE OWNER: Randall McCauley Claris McDaniel, et al; The Daywood Foundation Poggy Chesser Sjoberg, et al; Ralph Plum, et ux DV014571; DV-22 ACREAGE: 20 ;70: 148 071053;070676 200;63;35
OIL AND GAS ROYALTY OWNER: Gary McCauley, et al; Roger Scott Mitchell; Pristine Resources LEASE NO: 70687; 70641; 70644 ACREAGE: 92; 8681
PROPOSED WORK: ☒ DRILL ☐ CONVERT ☒ DRILL DEEPER ☒ FRACTURE OR STIMULATE ☐ PLUG OFF OLD FORMATION
☒ PERFORATE NEW FORMATION ☐ OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
☐ PLUG AND ABANDON ☐ CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,820' TVD 18,500 TMD

WELL OPERATOR: CNX Gas Company LLC DESIGNATED AGENT: Kent Wright
ADDRESS: P.O. Box 1248 Jane Lew, WV 26378 ADDRESS: P.O. Box 1248 Jane Lew, WV 26378

04/25/2014

47-001-03222

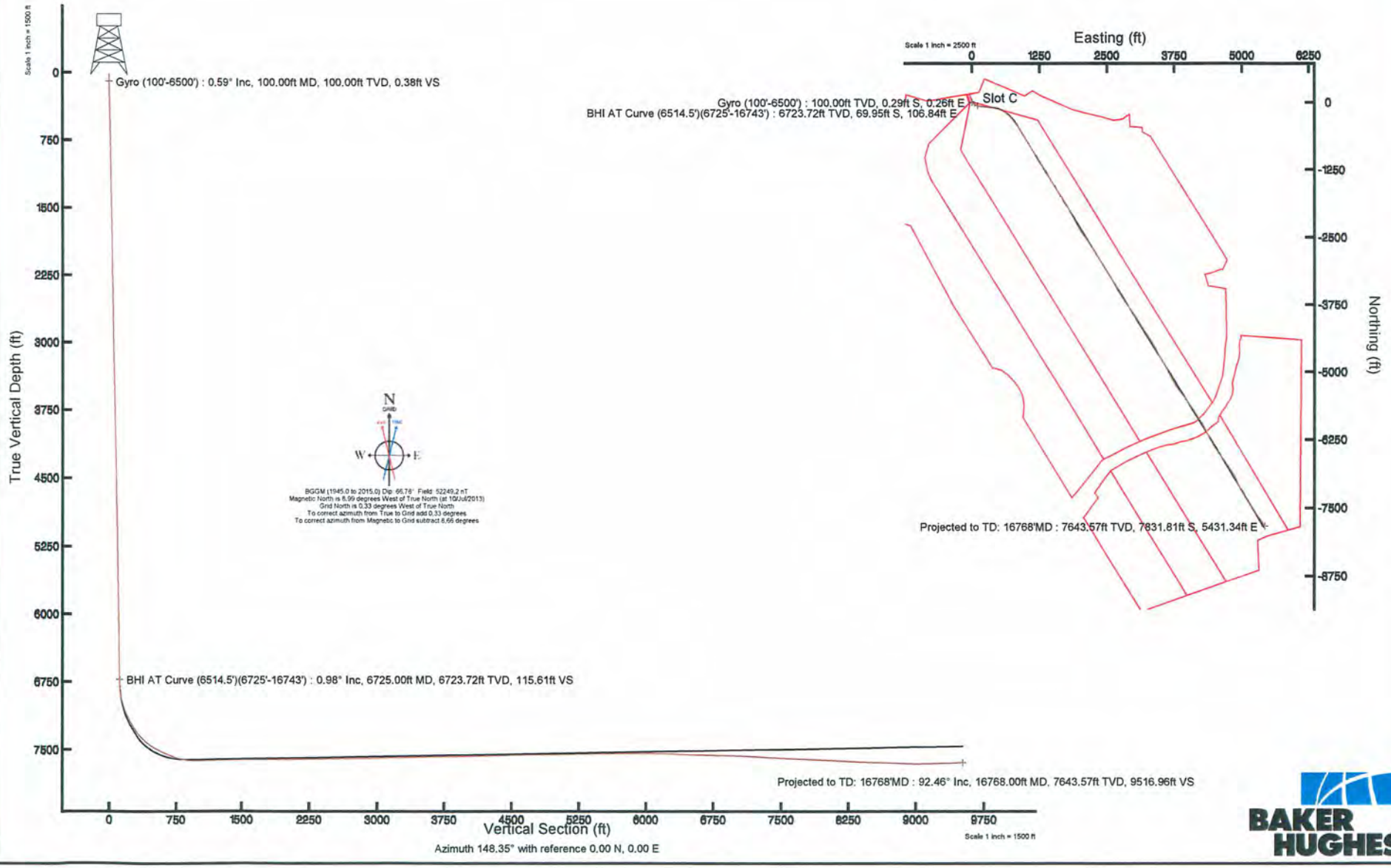
PHL13CHS

CNX GAS COMPANY, LLC

Location: Barbour County, WV
Field: Barbour
Facility: PHL13 Pad
Slot: Slot C
Well: PHL13CHS
Wellbore: PHL13CHS PWB

CONSOL ENERGY

Plot reference wellpath is PHL13CHS PWP Rev-C.0	
True vertical depths are referenced to Patterson 331 (RT)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Patterson 331 (RT)	North Reference: Grid north
Patterson 331 (RT) to Mean Sea Level: 1551.79 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot C): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzo on 15/Jul/2013



BAKER HUGHES

04/25/2014

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

REPORT SETUP INFORMATION			
Projection System	**NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet**	Software System	**WellArchitect® 4.0.0**
North Reference	**Grid**	User	**Thomsuzc**
Scale	**0.999966**	Report Generated	**15/Jul/2013** at **15:13**
Convergence at slot	**0.33° West**	Database/Source file	**WA_Eastern_US/PHL13CHS_AWB.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	**East[ft]**	**Easting[US ft]**	**Northing[US ft]**	**Latitude**	**Longitude**
Slot Location	-17.93	-35.05	**1854775.98**	**261713.14**	39°13'02.711"N	80°00'45.214"W
Facility Reference Pt			1854811.03	261731.07	**39°13'02.890"N**	**80°00'44.770"W**
Field Reference Pt			**1853088.00**	**260038.65**	39°12'46.064"N	80°01'06.538"W

WELLPATH DATUM			
Calculation method	**Minimum curvature**	Patterson 331 (RT) to Facility Vertical Datum	**1551.79ft**
Horizontal Reference Pt	**Slot**	Patterson 331 (RT) to Mean Sea Level	**1551.79ft**
Vertical Reference Pt	**Patterson 331 (RT)**	Patterson 331 (RT) to Mud Line at Slot (Slot C)	**1551.79ft**
MD Reference Pt	**Patterson 331 (RT)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**148.35°**

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	CNX GAS COMPANY, LLC	Slot	Slot C
Area	Barbour County, WV	Well	PHL13CHS
Field	Barbour	Wellbore	PHL13CHS AWB
Facility	PHL13 Pad		

WELLPATH DATA (180 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	138.400	0.00	0.00	0.00	0.00	1854775.98	261713.14	39°13'02.711"N	80°00'45.214"W	0.00	0.000	0.00	0.00	0.00
24.50	0.000	138.400	24.50	0.00	0.00	0.00	1854775.98	261713.14	39°13'02.711"N	80°00'45.214"W	0.00	0.000	0.00	0.00	0.00
114.50	0.700	138.400	114.50	0.54	-0.41	0.37	1854776.34	261712.73	39°13'02.707"N	80°00'45.209"W	0.55	138.400	0.78	0.78	0.00
214.50	1.100	136.970	214.49	2.08	-1.57	1.43	1854777.40	261711.57	39°13'02.695"N	80°00'45.196"W	2.12	137.753	0.40	0.40	-1.43
314.50	1.160	137.370	314.47	4.02	-3.02	2.77	1854778.74	261710.12	39°13'02.681"N	80°00'45.179"W	4.09	137.474	0.06	0.06	0.40
414.50	1.210	136.460	414.44	6.05	-4.53	4.18	1854780.16	261708.61	39°13'02.666"N	80°00'45.161"W	6.16	137.283	0.05	0.05	-0.91
514.50	1.210	137.270	514.42	8.12	-6.07	5.62	1854781.60	261707.07	39°13'02.651"N	80°00'45.142"W	8.27	137.177	0.02	0.00	0.81
614.50	0.960	132.200	614.40	9.96	-7.41	6.96	1854782.94	261705.73	39°13'02.638"N	80°00'45.125"W	10.16	136.777	0.27	-0.25	-5.07
714.50	0.910	127.160	714.39	11.50	-8.45	8.21	1854784.19	261704.69	39°13'02.628"N	80°00'45.109"W	11.78	135.806	0.10	-0.05	-5.04
814.50	0.940	138.380	814.38	13.05	-9.54	9.39	1854785.37	261703.60	39°13'02.617"N	80°00'45.094"W	13.39	135.453	0.18	0.03	11.22
914.50	0.780	135.990	914.37	14.52	-10.64	10.41	1854786.39	261702.50	39°13'02.606"N	80°00'45.081"W	14.89	135.639	0.16	-0.16	-2.39
1014.50	0.930	128.960	1014.36	15.95	-11.64	11.51	1854787.49	261701.50	39°13'02.596"N	80°00'45.067"W	16.37	135.323	0.18	0.15	-7.03
1114.50	0.890	125.100	1114.34	17.43	-12.60	12.78	1854788.76	261700.54	39°13'02.587"N	80°00'45.051"W	17.95	134.596	0.07	-0.04	-3.86
1214.50	0.850	133.110	1214.33	18.86	-13.55	13.96	1854789.93	261699.59	39°13'02.578"N	80°00'45.036"W	19.45	134.162	0.13	-0.04	8.01
1314.50	0.960	128.070	1314.32	20.36	-14.58	15.16	1854791.13	261698.56	39°13'02.568"N	80°00'45.020"W	21.03	133.883	0.14	0.11	-5.04
1414.50	0.950	137.190	1414.31	21.96	-15.70	16.38	1854792.36	261697.44	39°13'02.557"N	80°00'45.005"W	22.69	133.789	0.15	-0.01	9.12
1514.50	0.990	120.620	1514.29	23.54	-16.75	17.69	1854793.66	261696.39	39°13'02.546"N	80°00'44.988"W	24.36	133.442	0.28	0.04	-16.57
1614.50	1.010	132.800	1614.28	25.15	-17.79	19.08	1854795.05	261695.35	39°13'02.536"N	80°00'44.970"W	26.08	132.999	0.21	0.02	12.18
1714.50	1.050	128.060	1714.26	26.86	-18.95	20.44	1854796.42	261694.19	39°13'02.525"N	80°00'44.953"W	27.88	132.831	0.09	0.04	-4.74
1814.50	1.020	124.860	1814.24	28.54	-20.03	21.90	1854797.87	261693.11	39°13'02.514"N	80°00'44.934"W	29.67	132.445	0.07	-0.03	-3.20
1914.50	1.020	120.450	1914.23	30.14	-20.99	23.39	1854799.37	261692.15	39°13'02.505"N	80°00'44.915"W	31.43	131.894	0.08	0.00	-4.41
2014.50	1.020	116.520	2014.21	31.68	-21.83	24.96	1854800.93	261691.31	39°13'02.496"N	80°00'44.895"W	33.16	131.181	0.07	0.00	-3.93
2114.50	1.010	121.620	2114.20	33.23	-22.69	26.50	1854802.48	261690.45	39°13'02.488"N	80°00'44.876"W	34.89	130.571	0.09	-0.01	5.10
2214.50	1.090	131.270	2214.18	34.92	-23.78	27.97	1854803.95	261689.36	39°13'02.477"N	80°00'44.857"W	36.71	130.375	0.19	0.08	9.65
2314.50	1.080	129.820	2314.16	36.73	-25.01	29.41	1854805.38	261688.13	39°13'02.465"N	80°00'44.839"W	38.61	130.383	0.03	-0.01	-1.45
2414.50	1.010	121.340	2414.14	38.40	-26.08	30.89	1854806.86	261687.06	39°13'02.455"N	80°00'44.820"W	40.42	130.174	0.17	-0.07	-8.48
2514.50	0.980	109.280	2514.13	39.85	-26.82	32.45	1854808.42	261686.32	39°13'02.448"N	80°00'44.800"W	42.09	129.574	0.21	-0.03	-12.06
2614.50	0.990	107.060	2614.12	41.17	-27.35	34.08	1854810.05	261685.79	39°13'02.442"N	80°00'44.779"W	43.70	128.752	0.04	0.01	-2.22
2714.50	0.960	104.480	2714.10	42.42	-27.82	35.72	1854811.69	261685.32	39°13'02.438"N	80°00'44.758"W	45.27	127.912	0.05	-0.03	-2.58
2814.50	0.880	104.410	2814.09	43.58	-28.22	37.27	1854813.25	261684.92	39°13'02.434"N	80°00'44.738"W	46.75	127.128	0.08	-0.08	-0.07

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2914.50	0.890	114.050	2914.08	44.77	-28.72	38.72	1854814.70	261684.42	39°13'02.429"N	80°00'44.720"W	48.21	126.567	0.15	0.01	9.64
3014.50	1.160	123.290	3014.06	46.33	-29.60	40.28	1854816.25	261683.54	39°13'02.421"N	80°00'44.700"W	49.98	126.307	0.32	0.27	9.24
3114.50	1.160	124.490	3114.04	48.17	-30.72	41.96	1854817.93	261682.42	39°13'02.409"N	80°00'44.679"W	52.01	126.213	0.02	0.00	1.20
3214.50	1.230	128.130	3214.02	50.10	-31.96	43.64	1854819.61	261681.18	39°13'02.397"N	80°00'44.657"W	54.09	126.219	0.10	0.07	3.64
3314.50	1.330	125.500	3313.99	52.18	-33.30	45.43	1854821.40	261679.84	39°13'02.384"N	80°00'44.634"W	56.32	126.241	0.12	0.10	-2.63
3414.50	1.310	125.730	3413.97	54.31	-34.64	47.30	1854823.27	261678.50	39°13'02.371"N	80°00'44.611"W	58.63	126.216	0.02	-0.02	0.23
3514.50	1.280	126.630	3513.94	56.40	-35.97	49.12	1854825.10	261677.17	39°13'02.358"N	80°00'44.587"W	60.89	126.215	0.04	-0.03	0.90
3614.50	1.320	127.160	3613.91	58.51	-37.33	50.94	1854826.91	261675.81	39°13'02.345"N	80°00'44.564"W	63.16	126.239	0.04	0.04	0.53
3714.50	1.350	128.000	3713.89	60.69	-38.76	52.78	1854828.76	261674.38	39°13'02.331"N	80°00'44.541"W	65.48	126.287	0.04	0.03	0.84
3814.50	1.360	120.010	3813.86	62.84	-40.07	54.74	1854830.72	261673.07	39°13'02.318"N	80°00'44.516"W	67.84	126.207	0.19	0.01	-7.99
3914.50	1.330	126.690	3913.83	64.96	-41.36	56.70	1854832.67	261671.78	39°13'02.305"N	80°00'44.491"W	70.18	126.111	0.16	-0.03	6.68
4014.50	1.490	122.560	4013.80	67.21	-42.75	58.72	1854834.70	261670.39	39°13'02.292"N	80°00'44.465"W	72.64	126.056	0.19	0.16	-4.13
4114.50	1.350	121.460	4113.77	69.43	-44.07	60.83	1854836.80	261669.07	39°13'02.279"N	80°00'44.438"W	75.11	125.924	0.14	-0.14	-1.10
4214.50	1.430	127.020	4213.74	71.64	-45.44	62.83	1854838.80	261667.71	39°13'02.265"N	80°00'44.412"W	77.53	125.874	0.16	0.08	5.56
4314.50	1.420	128.100	4313.71	73.97	-46.95	64.80	1854840.77	261666.19	39°13'02.250"N	80°00'44.387"W	80.02	125.926	0.03	-0.01	1.08
4414.50	1.370	116.680	4413.68	76.15	-48.25	66.84	1854842.82	261664.89	39°13'02.238"N	80°00'44.361"W	82.44	125.825	0.28	-0.05	-11.42
4514.50	1.270	116.490	4513.65	78.11	-49.28	68.90	1854844.88	261663.86	39°13'02.228"N	80°00'44.335"W	84.71	125.575	0.10	-0.10	-0.19
4614.50	1.250	115.340	4613.63	79.96	-50.24	70.88	1854846.85	261662.90	39°13'02.218"N	80°00'44.310"W	86.88	125.332	0.03	-0.02	-1.15
4714.50	1.210	115.460	4713.61	81.76	-51.17	72.82	1854848.79	261661.98	39°13'02.209"N	80°00'44.285"W	89.00	125.094	0.04	-0.04	0.12
4814.50	1.370	115.820	4813.58	83.66	-52.14	74.85	1854850.82	261661.00	39°13'02.200"N	80°00'44.259"W	91.22	124.862	0.16	0.16	0.36
4914.50	1.410	112.570	4913.55	85.67	-53.13	77.06	1854853.03	261660.01	39°13'02.190"N	80°00'44.231"W	93.60	124.586	0.09	0.04	-3.25
5014.50	1.340	115.190	5013.52	87.64	-54.10	79.25	1854855.23	261659.04	39°13'02.181"N	80°00'44.203"W	95.96	124.319	0.09	-0.07	2.62
5114.50	1.350	116.590	5113.50	89.62	-55.13	81.37	1854857.34	261658.01	39°13'02.171"N	80°00'44.176"W	98.28	124.119	0.03	0.01	1.40
5214.50	1.200	116.140	5213.47	91.51	-56.12	83.36	1854859.33	261657.03	39°13'02.161"N	80°00'44.151"W	100.49	123.948	0.15	-0.15	-0.45
5314.50	0.940	120.160	5313.45	93.12	-56.99	85.01	1854860.98	261656.15	39°13'02.152"N	80°00'44.130"W	102.34	123.838	0.27	-0.26	4.02
5414.50	0.920	123.700	5413.44	94.57	-57.85	86.38	1854862.36	261655.29	39°13'02.144"N	80°00'44.112"W	103.96	123.808	0.06	-0.02	3.54
5514.50	1.000	125.670	5513.43	96.11	-58.80	87.76	1854863.74	261654.34	39°13'02.135"N	80°00'44.095"W	105.64	123.822	0.09	0.08	1.97
5614.50	0.970	124.510	5613.41	97.69	-59.79	89.17	1854865.14	261653.35	39°13'02.125"N	80°00'44.077"W	107.36	123.843	0.04	-0.03	-1.16
5714.50	0.900	130.240	5713.40	99.21	-60.78	90.47	1854866.44	261652.36	39°13'02.115"N	80°00'44.060"W	108.98	123.894	0.12	-0.07	5.73
5814.50	0.970	120.720	5813.39	100.70	-61.72	91.79	1854867.77	261651.43	39°13'02.106"N	80°00'44.043"W	110.61	123.915	0.17	0.07	-9.52

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
5914.50	1.210	122.790	5913.37	102.41	-62.72	93.41	1854869.38	261650.42	39°13'02.096"N	80°00'44.023"W	112.51	123.880	0.24	0.24	2.07
6014.50	1.130	118.440	6013.35	104.21	-63.76	95.16	1854871.14	261649.38	39°13'02.086"N	80°00'44.000"W	114.55	123.823	0.12	-0.08	-4.35
6114.50	1.150	123.040	6113.33	105.97	-64.78	96.87	1854872.84	261648.36	39°13'02.076"N	80°00'43.979"W	116.53	123.771	0.09	0.02	4.60
6214.50	1.000	118.660	6213.31	107.64	-65.74	98.48	1854874.45	261647.40	39°13'02.067"N	80°00'43.958"W	118.41	123.727	0.17	-0.15	-4.38
6314.50	0.970	119.400	6313.29	109.14	-66.58	99.98	1854875.95	261646.56	39°13'02.058"N	80°00'43.939"W	120.12	123.660	0.03	-0.03	0.74
6414.50	0.870	122.590	6413.28	110.56	-67.40	101.36	1854877.33	261645.74	39°13'02.050"N	80°00'43.921"W	121.72	123.624	0.11	-0.10	3.19
6514.50	1.290	114.380	6513.26	112.18	-68.28	103.02	1854879.00	261644.87	39°13'02.042"N	80°00'43.900"W	123.59	123.534	0.45	0.42	-8.21
6725.00	0.980	112.620	6723.72	115.61	-69.95	106.84	1854882.82	261643.19	39°13'02.025"N	80°00'43.851"W	127.70	123.212	0.15	-0.15	-0.84
6779.00	4.460	77.690	6777.66	116.68	-69.68	109.32	1854885.29	261643.46	39°13'02.028"N	80°00'43.820"W	129.64	122.512	6.85	6.44	-64.69
6820.00	8.840	80.390	6818.37	118.39	-68.81	113.99	1854889.96	261644.33	39°13'02.037"N	80°00'43.761"W	133.15	121.118	10.71	10.68	6.59
6866.00	12.710	94.950	6863.56	122.73	-68.66	122.52	1854898.49	261644.48	39°13'02.039"N	80°00'43.652"W	140.44	119.265	10.22	8.41	31.65
6913.00	17.420	105.380	6908.94	130.97	-70.97	134.46	1854910.43	261642.17	39°13'02.017"N	80°00'43.501"W	152.04	117.826	11.52	10.02	22.19
6958.00	20.050	98.970	6951.55	140.92	-73.96	148.58	1854924.55	261639.18	39°13'01.988"N	80°00'43.321"W	165.97	116.463	7.41	5.84	-14.24
7007.00	23.390	101.450	6997.07	153.04	-77.20	166.41	1854942.39	261635.94	39°13'01.957"N	80°00'43.094"W	183.45	114.887	7.07	6.82	5.06
7053.00	27.490	99.830	7038.60	166.32	-80.83	185.83	1854961.80	261632.31	39°13'01.922"N	80°00'42.847"W	202.65	113.507	9.04	8.91	-3.52
7101.00	31.810	102.140	7080.31	182.42	-85.38	209.13	1854985.10	261627.76	39°13'01.879"N	80°00'42.551"W	225.89	112.209	9.31	9.00	4.81
7195.00	38.240	96.950	7157.26	217.76	-94.12	262.29	1855038.26	261619.02	39°13'01.795"N	80°00'41.875"W	278.67	109.741	7.53	6.84	-5.52
7290.00	45.300	95.010	7228.07	256.31	-100.64	325.19	1855101.16	261612.50	39°13'01.734"N	80°00'41.075"W	340.41	107.196	7.55	7.43	-2.04
7384.00	46.900	97.560	7293.26	297.96	-108.07	392.50	1855168.47	261605.07	39°13'01.665"N	80°00'40.219"W	407.11	105.394	2.59	1.70	2.71
7478.00	50.670	104.870	7355.23	346.08	-121.93	461.74	1855237.70	261591.21	39°13'01.532"N	80°00'39.339"W	477.57	104.793	7.09	4.01	7.78
7572.00	55.840	112.680	7411.50	404.16	-146.30	532.88	1855308.84	261566.85	39°13'01.295"N	80°00'38.433"W	552.60	105.352	8.63	5.50	8.31
7667.00	58.880	123.760	7462.85	473.23	-184.14	603.12	1855379.08	261529.00	39°13'00.925"N	80°00'37.538"W	630.61	106.978	10.32	3.20	11.66
7761.00	64.040	132.000	7507.80	550.52	-234.88	668.11	1855444.06	261478.27	39°13'00.427"N	80°00'36.709"W	708.19	109.370	9.45	5.49	8.77
7855.00	66.910	139.580	7546.86	633.92	-296.16	727.63	1855503.58	261416.99	39°12'59.825"N	80°00'35.948"W	785.59	112.147	7.94	3.05	8.06
7948.00	70.050	143.550	7580.99	719.80	-363.92	781.36	1855557.31	261349.23	39°12'59.158"N	80°00'35.260"W	861.96	114.974	5.21	3.38	4.27
8042.00	76.800	143.020	7607.79	809.49	-436.10	835.20	1855611.15	261277.06	39°12'58.448"N	80°00'34.571"W	942.20	117.571	7.20	7.18	-0.56
8136.00	86.980	146.280	7621.03	902.22	-511.91	888.93	1855664.88	261201.25	39°12'57.701"N	80°00'33.883"W	1025.80	119.936	11.36	10.83	3.47
8204.00	90.860	148.220	7622.32	970.18	-569.08	925.71	1855701.65	261144.08	39°12'57.138"N	80°00'33.412"W	1086.64	121.581	6.38	5.71	2.85
8230.00	90.950	148.100	7621.90	996.18	-591.16	939.42	1855715.36	261122.00	39°12'56.921"N	80°00'33.236"W	1109.95	122.182	0.58	0.35	-0.46
8323.00	90.980	150.400	7620.34	1089.15	-671.07	986.96	1855762.90	261042.09	39°12'56.134"N	80°00'32.626"W	1193.49	124.213	2.47	0.03	2.47

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
8417.00	90.990	149.540	7618.72	1183.10	-752.44	1034.00	1855809.94	260960.73	39°12'55.332"N	80°00'32.023"W	1278.79	126.043	0.91	0.01	-0.91
8511.00	90.370	148.400	7617.61	1277.08	-832.98	1082.45	1855858.38	260880.19	39°12'54.539"N	80°00'31.401"W	1365.85	127.580	1.38	-0.66	-1.21
8604.00	90.370	143.560	7617.01	1369.97	-910.04	1134.46	1855910.40	260803.13	39°12'53.780"N	80°00'30.735"W	1454.36	128.736	5.20	0.00	-5.20
8698.00	90.430	145.640	7616.35	1463.76	-986.65	1188.91	1855964.84	260726.52	39°12'53.026"N	80°00'30.038"W	1544.99	129.689	2.21	0.06	2.21
8791.00	90.430	151.570	7615.65	1556.72	-1066.00	1237.33	1856013.27	260647.18	39°12'52.244"N	80°00'29.417"W	1633.20	130.746	6.38	0.00	6.38
8884.00	90.580	147.870	7614.83	1649.67	-1146.30	1284.22	1856060.15	260566.88	39°12'51.453"N	80°00'28.815"W	1721.40	131.752	3.98	0.16	-3.98
8979.00	90.400	145.200	7614.02	1744.61	-1225.54	1336.60	1856112.52	260487.65	39°12'50.673"N	80°00'28.144"W	1813.40	132.518	2.82	-0.19	-2.81
9072.00	90.520	150.960	7613.27	1837.57	-1304.44	1385.75	1856161.67	260408.75	39°12'49.896"N	80°00'27.514"W	1903.12	133.269	6.19	0.13	6.19
9166.00	90.430	153.990	7612.49	1931.31	-1387.79	1429.18	1856205.11	260325.40	39°12'49.075"N	80°00'26.956"W	1992.11	134.158	3.22	-0.10	3.22
9260.00	90.860	149.160	7611.43	2025.13	-1470.42	1473.91	1856249.83	260242.77	39°12'48.260"N	80°00'26.382"W	2081.96	134.932	5.16	0.46	-5.14
9354.00	91.020	147.780	7609.89	2119.11	-1550.53	1523.06	1856298.98	260162.66	39°12'47.471"N	80°00'25.752"W	2173.44	135.512	1.48	0.17	-1.47
9447.00	90.920	145.970	7608.32	2212.07	-1628.40	1573.87	1856349.79	260084.79	39°12'46.704"N	80°00'25.101"W	2264.68	135.976	1.95	-0.11	-1.95
9542.00	90.710	146.410	7606.96	2306.99	-1707.33	1626.73	1856402.64	260005.87	39°12'45.927"N	80°00'24.424"W	2358.22	136.385	0.51	-0.22	0.46
9635.00	90.650	147.400	7605.86	2399.95	-1785.24	1677.50	1856453.42	259927.97	39°12'45.160"N	80°00'23.773"W	2449.71	136.782	1.07	-0.06	1.06
9729.00	90.740	149.130	7604.72	2493.94	-1865.17	1726.94	1856502.86	259848.03	39°12'44.373"N	80°00'23.139"W	2541.89	137.204	1.84	0.10	1.84
9822.00	90.890	150.680	7603.40	2586.89	-1945.63	1773.57	1856549.48	259767.58	39°12'43.580"N	80°00'22.541"W	2632.68	137.649	1.67	0.16	1.67
9916.00	90.430	154.390	7602.31	2680.62	-2029.01	1816.91	1856592.82	259684.20	39°12'42.759"N	80°00'21.984"W	2723.61	138.157	3.98	-0.49	3.95
10010.00	90.920	151.770	7601.21	2774.29	-2112.81	1859.46	1856635.37	259600.40	39°12'41.933"N	80°00'21.438"W	2814.53	138.649	2.84	0.52	-2.79
10105.00	91.050	151.450	7599.57	2869.12	-2196.37	1904.62	1856680.53	259516.84	39°12'41.109"N	80°00'20.858"W	2907.17	139.069	0.36	0.14	-0.34
10200.00	91.350	149.650	7597.58	2964.02	-2279.08	1951.32	1856727.23	259434.14	39°12'40.294"N	80°00'20.259"W	3000.31	139.430	1.92	0.32	-1.89
10294.00	91.350	148.230	7595.37	3057.99	-2359.58	1999.80	1856775.71	259353.65	39°12'39.501"N	80°00'19.637"W	3093.03	139.718	1.51	0.00	-1.51
10388.00	91.320	146.340	7593.18	3151.94	-2438.64	2050.59	1856826.49	259274.59	39°12'38.723"N	80°00'18.986"W	3186.20	139.940	2.01	-0.03	-2.01
10483.00	91.290	142.520	7591.01	3246.68	-2515.88	2105.83	1856881.73	259197.35	39°12'37.963"N	80°00'18.279"W	3280.88	140.070	4.02	-0.03	-4.02
10577.00	91.510	147.380	7588.72	3340.46	-2592.79	2159.78	1856935.68	259120.45	39°12'37.205"N	80°00'17.588"W	3374.49	140.206	5.17	0.23	5.17
10671.00	91.230	146.720	7586.47	3434.41	-2671.64	2210.89	1856986.79	259041.59	39°12'36.429"N	80°00'16.933"W	3467.81	140.391	0.76	-0.30	-0.70
10766.00	91.260	144.960	7584.41	3529.29	-2750.23	2264.22	1857040.11	258963.01	39°12'35.655"N	80°00'16.250"W	3562.37	140.536	1.85	0.03	-1.85
10861.00	90.890	147.410	7582.62	3624.20	-2829.14	2317.07	1857092.97	258884.10	39°12'34.878"N	80°00'15.573"W	3656.89	140.682	2.61	-0.39	2.58
10955.00	90.920	149.260	7581.14	3718.18	-2909.13	2366.41	1857142.30	258804.11	39°12'34.090"N	80°00'14.941"W	3750.06	140.874	1.97	0.03	1.97
11050.00	90.490	146.070	7579.97	3813.15	-2989.39	2417.21	1857193.10	258723.86	39°12'33.300"N	80°00'14.290"W	3844.39	141.041	3.39	-0.45	-3.36
11144.00	90.980	148.270	7578.76	3907.12	-3068.36	2468.17	1857244.06	258644.89	39°12'32.522"N	80°00'13.637"W	3937.85	141.187	2.40	0.52	2.34

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
11238.00	91.110	149.170	7577.05	4001.10	-3148.68	2516.97	1857292.85	258564.57	39°12'31.731"N	80°00'13.011"W	4031.04	141.362	0.97	0.14	0.96
11333.00	91.450	149.790	7574.93	4096.06	-3230.50	2565.20	1857341.08	258482.76	39°12'30.925"N	80°00'12.392"W	4125.09	141.548	0.74	0.36	0.65
11428.00	91.510	151.090	7572.47	4190.96	-3313.10	2612.05	1857387.93	258400.15	39°12'30.111"N	80°00'11.791"W	4218.94	141.748	1.37	0.06	1.37
11521.00	91.390	152.380	7570.12	4283.77	-3394.99	2656.07	1857431.96	258318.27	39°12'29.304"N	80°00'11.226"W	4310.53	141.962	1.39	-0.13	1.39
11615.00	91.420	152.270	7567.81	4377.51	-3478.21	2699.72	1857475.60	258235.06	39°12'28.484"N	80°00'10.666"W	4403.00	142.182	0.12	0.03	-0.12
11712.00	91.660	146.600	7565.21	4474.42	-3561.67	2749.01	1857524.89	258151.60	39°12'27.662"N	80°00'10.034"W	4499.17	142.338	5.85	0.25	-5.85
11806.00	91.450	147.370	7562.65	4568.36	-3640.46	2800.20	1857576.08	258072.81	39°12'26.886"N	80°00'09.378"W	4592.83	142.433	0.85	-0.22	0.82
11900.00	90.950	143.880	7560.68	4662.22	-3718.01	2853.26	1857629.13	257995.26	39°12'26.122"N	80°00'08.698"W	4686.65	142.497	3.75	-0.53	-3.71
11994.00	90.860	143.600	7559.20	4755.90	-3793.80	2908.85	1857684.72	257919.48	39°12'25.376"N	80°00'07.987"W	4780.62	142.521	0.31	-0.10	-0.30
12089.00	90.920	146.770	7557.72	4850.73	-3871.78	2963.07	1857738.94	257841.50	39°12'24.609"N	80°00'07.293"W	4875.49	142.573	3.34	0.06	3.34
12185.00	90.680	145.710	7556.38	4946.66	-3951.58	3016.41	1857792.28	257761.70	39°12'23.823"N	80°00'06.609"W	4971.29	142.644	1.13	-0.25	-1.10
12279.00	90.770	144.440	7555.19	5040.49	-4028.64	3070.22	1857846.09	257684.64	39°12'23.064"N	80°00'05.920"W	5065.20	142.689	1.35	0.10	-1.35
12374.00	90.580	149.990	7554.07	5135.43	-4108.47	3121.64	1857897.51	257604.82	39°12'22.278"N	80°00'05.261"W	5159.86	142.772	5.85	-0.20	5.84
12467.00	90.650	147.040	7553.08	5228.42	-4187.77	3170.21	1857946.07	257525.52	39°12'21.497"N	80°00'04.639"W	5252.39	142.874	3.17	0.08	-3.17
12563.00	90.830	147.380	7551.84	5324.39	-4268.46	3222.19	1857998.05	257444.83	39°12'20.702"N	80°00'03.973"W	5348.11	142.951	0.40	0.19	0.35
12658.00	90.650	146.890	7550.61	5419.36	-4348.25	3273.74	1858049.60	257365.04	39°12'19.917"N	80°00'03.312"W	5442.85	143.024	0.55	-0.19	-0.52
12752.00	90.710	147.790	7549.49	5513.34	-4427.38	3324.46	1858100.32	257285.92	39°12'19.137"N	80°00'02.662"W	5536.58	143.098	0.96	0.06	0.96
12847.00	90.710	150.130	7548.32	5608.32	-4508.77	3373.44	1858149.30	257204.53	39°12'18.336"N	80°00'02.034"W	5631.08	143.196	2.46	0.00	2.46
12941.00	90.680	153.670	7547.18	5702.12	-4591.67	3417.71	1858193.56	257121.64	39°12'17.519"N	80°00'01.466"W	5724.00	143.339	3.77	-0.03	3.77
13036.00	90.590	153.140	7546.12	5796.74	-4676.61	3460.23	1858236.09	257036.70	39°12'16.681"N	80°00'00.920"W	5817.55	143.502	0.57	-0.09	-0.56
13130.00	89.970	146.550	7545.66	5890.65	-4757.84	3507.43	1858283.28	256955.47	39°12'15.881"N	80°00'00.315"W	5910.93	143.603	7.04	-0.66	-7.01
13224.00	90.030	149.800	7545.66	5984.64	-4837.70	3556.99	1858332.84	256875.61	39°12'15.095"N	79°59'59.680"W	6004.62	143.674	3.46	0.06	3.46
13319.00	89.940	154.090	7545.69	6079.43	-4921.52	3601.66	1858377.51	256791.80	39°12'14.269"N	79°59'59.106"W	6098.63	143.803	4.52	-0.09	4.52
13413.00	88.920	154.070	7546.62	6172.96	-5006.06	3642.74	1858418.59	256707.26	39°12'13.435"N	79°59'58.578"W	6191.14	143.958	1.09	-1.09	-0.02
13508.00	87.940	151.980	7549.23	6267.60	-5090.68	3685.82	1858461.66	256622.64	39°12'12.601"N	79°59'58.025"W	6284.93	144.094	2.43	-1.03	-2.20
13603.00	86.860	151.620	7553.54	6362.33	-5174.32	3730.66	1858506.51	256539.00	39°12'11.777"N	79°59'57.450"W	6378.98	144.209	1.20	-1.14	-0.38
13696.00	87.970	147.570	7557.73	6455.19	-5254.43	3777.67	1858553.51	256458.90	39°12'10.988"N	79°59'56.847"W	6471.46	144.286	4.51	1.19	-4.35
13790.00	88.580	143.200	7560.56	6549.00	-5331.74	3831.03	1858606.87	256381.59	39°12'10.227"N	79°59'56.164"W	6565.38	144.301	4.69	0.65	-4.65
13885.00	88.740	141.780	7562.78	6643.47	-5407.07	3888.86	1858664.70	256306.26	39°12'09.485"N	79°59'55.424"W	6660.31	144.276	1.50	0.17	-1.49
13979.00	88.650	145.970	7564.93	6737.14	-5482.96	3944.25	1858720.09	256230.37	39°12'08.738"N	79°59'54.715"W	6754.26	144.270	4.46	-0.10	4.46

47-001-03222

PHL13CHS

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Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

WELLPATH DATA (180 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
14073.00	88.710	144.260	7567.09	6830.96	-5560.05	3998.00	1858773.83	256153.29	39°12'07.979"N	79°59'54.027"W	6848.22	144.282	1.82	0.06	-1.82
14168.00	88.610	143.190	7569.31	6925.63	-5636.61	4054.19	1858830.02	256076.73	39°12'07.226"N	79°59'53.307"W	6943.19	144.274	1.13	-0.11	-1.13
14263.00	88.340	146.140	7571.84	7020.39	-5714.08	4109.11	1858884.94	255999.27	39°12'06.463"N	79°59'52.604"W	7038.14	144.279	3.12	-0.28	3.11
14357.00	87.630	149.770	7575.15	7114.31	-5793.69	4158.94	1858934.77	255919.66	39°12'05.679"N	79°59'51.966"W	7131.88	144.328	3.93	-0.76	3.86
14451.00	86.700	145.990	7579.80	7208.17	-5873.19	4208.85	1858984.68	255840.16	39°12'04.896"N	79°59'51.326"W	7225.57	144.374	4.14	-0.99	-4.02
14545.00	86.920	148.480	7585.03	7302.00	-5952.11	4259.64	1859035.46	255761.25	39°12'04.119"N	79°59'50.675"W	7319.30	144.410	2.66	0.23	2.65
14640.00	86.390	155.020	7590.58	7396.62	-6035.60	4304.51	1859080.33	255677.75	39°12'03.296"N	79°59'50.100"W	7413.32	144.504	6.90	-0.56	6.88
14735.00	87.480	153.470	7595.66	7490.98	-6121.04	4345.73	1859121.55	255592.32	39°12'02.454"N	79°59'49.570"W	7506.83	144.627	1.99	1.15	-1.63
14830.00	87.470	153.750	7599.84	7585.49	-6206.05	4387.91	1859163.73	255507.31	39°12'01.616"N	79°59'49.028"W	7600.58	144.738	0.29	-0.01	0.29
14924.00	87.440	149.430	7604.02	7679.22	-6288.63	4432.58	1859208.40	255424.73	39°12'00.802"N	79°59'48.455"W	7693.81	144.822	4.59	-0.03	-4.60
15018.00	87.470	147.790	7608.20	7773.13	-6368.79	4481.49	1859257.31	255344.57	39°12'00.012"N	79°59'47.828"W	7787.51	144.867	1.74	0.03	-1.74
15113.00	87.510	146.020	7612.36	7868.00	-6448.30	4533.31	1859309.12	255265.07	39°11'59.229"N	79°59'47.164"W	7882.35	144.892	1.86	0.04	-1.86
15207.00	87.480	144.060	7616.46	7961.75	-6525.26	4587.12	1859362.93	255188.11	39°11'58.472"N	79°59'46.476"W	7976.26	144.894	2.08	-0.03	-2.09
15302.00	87.440	140.000	7620.68	8056.06	-6600.06	4645.50	1859421.31	255113.31	39°11'57.736"N	79°59'45.729"W	8071.03	144.860	4.27	-0.04	-4.27
15396.00	87.380	146.130	7624.93	8149.52	-6675.09	4701.90	1859477.71	255038.29	39°11'56.997"N	79°59'45.007"W	8164.84	144.839	6.51	-0.06	6.52
15491.00	87.410	145.230	7629.25	8244.32	-6753.47	4755.41	1859531.21	254959.92	39°11'56.225"N	79°59'44.322"W	8259.73	144.849	0.95	0.03	-0.95
15585.00	87.510	144.750	7633.41	8338.06	-6830.38	4809.28	1859585.09	254883.00	39°11'55.468"N	79°59'43.632"W	8353.64	144.851	0.52	0.11	-0.51
15679.00	87.380	149.480	7637.60	8431.92	-6909.22	4860.25	1859636.06	254804.17	39°11'54.692"N	79°59'42.979"W	8447.45	144.876	5.03	-0.14	5.03
15772.00	88.550	155.850	7640.91	8524.55	-6991.74	4902.91	1859678.71	254721.65	39°11'53.878"N	79°59'42.432"W	8539.49	144.960	6.96	1.26	6.85
15866.00	88.370	156.660	7643.44	8617.62	-7077.75	4940.74	1859716.54	254635.65	39°11'53.030"N	79°59'41.945"W	8631.66	145.082	0.88	-0.19	0.86
15963.00	86.980	153.490	7647.37	8713.86	-7165.63	4981.58	1859757.38	254547.77	39°11'52.164"N	79°59'41.420"W	8727.11	145.193	3.57	-1.43	-3.27
16058.00	86.830	147.020	7652.51	8808.62	-7247.95	5028.62	1859804.42	254465.45	39°11'51.353"N	79°59'40.817"W	8821.55	145.247	6.80	-0.16	-6.81
16152.00	87.940	147.700	7656.80	8902.51	-7327.02	5079.27	1859855.06	254386.38	39°11'50.574"N	79°59'40.168"W	8915.39	145.269	1.38	1.18	0.72
16247.00	89.880	145.540	7658.60	8997.43	-7406.32	5131.52	1859907.31	254307.08	39°11'49.793"N	79°59'39.499"W	9010.34	145.284	3.06	2.04	-2.27
16341.00	90.950	141.750	7657.92	9091.10	-7482.01	5187.23	1859963.02	254231.40	39°11'49.048"N	79°59'38.786"W	9104.28	145.267	4.19	1.14	-4.03
16436.00	91.940	148.250	7655.52	9185.85	-7559.76	5241.67	1860017.46	254153.65	39°11'48.283"N	79°59'38.089"W	9199.19	145.264	6.92	1.04	6.84
16529.00	91.940	145.310	7652.38	9278.75	-7637.51	5292.59	1860068.38	254075.90	39°11'47.517"N	79°59'37.437"W	9292.10	145.279	3.16	0.00	-3.16
16623.00	91.910	142.080	7649.22	9372.38	-7713.21	5348.21	1860123.99	254000.21	39°11'46.772"N	79°59'36.725"W	9386.00	145.263	3.43	-0.03	-3.44
16743.00	92.460	147.010	7644.64	9491.99	-7810.86	5417.74	1860193.52	253902.56	39°11'45.810"N	79°59'35.835"W	9505.86	145.254	4.13	0.46	4.11
16768.00	92.460	147.010	7643.57	9516.96	-7831.81	5431.34	1860207.12	253881.61	39°11'45.604"N	79°59'35.661"W	9530.83	145.259	0.00	0.00	0.00

47-001-03222

PHL13CHS

CONSOL ENERGY

Actual Wellpath Report

PHL13CHS AWP Proj: 16768'MD

BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	**CNX GAS COMPANY, LLC**	Slot	**Slot C**
Area	**Barbour County, WV**	Well	**PHL13CHS**
Field	**Barbour**	Wellbore	**PHL13CHS AWB**
Facility	**PHL13 Pad**		

HOLE & CASING SECTIONS - Ref Wellbore: PHL13CHS AWB Ref Wellpath: PHL13CHS AWP Proj: 16768'MD

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing	24.50	2049.50	2025.00	24.50	2049.21	0.00	0.00	-22.12	25.51

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
PHL13CHS PBHL Rev-3		7463.17	-7846.66	5407.22	1860183.00	253866.76	39°11'45.456"N	79°59'35.966"W	point
PHL13CHS LP Rev-3		7613.00	-539.68	903.14	1855679.08	261173.48	39°12'57.428"N	80°00'33.701"W	point

WELLPATH COMPOSITION - Ref Wellbore: PHL13CHS AWB Ref Wellpath: PHL13CHS AWP Proj: 16768'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	6514.50	Generic gyro - northseeking (Standard)	VES Gyro (100'-6500')	PHL13CHS AWB
6514.50	16743.00	NaviTrak (MagCorr)	BHI AT Curve (6514.5')(6725'-16743')	PHL13CHS AWB
16743.00	16768.00	Blind Drilling (std)	Projection to bit	PHL13CHS AWB

47-001-03222

PHL13CHS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/23/2013
Job End Date:	11/2/2013
State:	West Virginia
County:	Barbour
API Number:	47-001-03222-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	PHL13CHS
Longitude:	-80.01345800
Latitude:	39.21560300
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,659
Total Base Water Volume (gal):	11,733,705
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Oil & Gas

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
Water	Customer	Base Fluid					
			Water	7732-18-5	100.00000	91.04660	
Sand (Proppant)	CWS	Propping Agent					
			Silicon Dioxide	14808-60-7	100.00000	8.86370	
DWP-NE1	CWS	Non-Emulsifier					
			Dimethylcocoamine, bis (chlorethyl)ether, diquaternary ammonium salt	68607-28-03	40.00000	0.01600	
			Isopropyl alcohol	67-63-0	40.00000	0.01600	
			Methyl Alcohol	67-56-1	15.00000	0.00600	
			Dimethyldiallyammonium Chloride	7398-69-8	5.00000	0.00200	
DAP-903	CWS	Scale Inhibitor					
			No Hazardous Materials	NA	100.00000	0.01550	
DWP-111	CWS	Gel Slurry					
			No Hazardous Materials	NA	100.00000	0.01510	
BioClear 2000	CWS	Biocide					
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	40.00000	0.01030	
DWP-614	CWS	Viscosifier					
			Polyethylene glycol nonylphenyl ether	9016-45-9	5.00000	0.00590	

47-001-03222

PHL13CHS

DWP-901	CWS	Breaker					
			Ammonium Persulfate	7727-54-0	95.00000	0.00280	

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.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

04/25/2014