

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

API 47-001-03252H County Barbour District Pleasant
Quad Philippi Pad Name PHL10HS Field/Pool Name Philippi
Farm Name WATSON, MARY LOU & RONALD EARL CATE Well Number PHL10BHS
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 4,340,921.51 m Easting 583,177.92 m
Landing Point of Curve Northing 4,340,850.62 m Easting 583,559.95 m
Bottom Hole Northing 4,339,871.34 m Easting 584,136.85 m

Elevation (ft) 1618.50' 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

Drilled 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)
Mineral Oil Based Mud, Bactericide, Polymers and Weighting Agents.

Date Permit Issued 10/13/2011 Date drilling commenced 08/24/2013 Date drilling ceased 05/03/2014
Date completion activities began 06/11/2014 Date completion activities ceased 06/23/2014
Verbal plugging (Y/N) N 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 plu

Freshwater depth(s) ft 315', 580' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1825' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 570' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

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CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement Circulate (Y/N) * Provide details to the right *
Conductor	26"	20"	100'	N	J-55 96# / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	645'	N	J-55 54.5# / 645'	42'/122'	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2003'	N	J-55 36# / 2003'	46'/125'	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	12235'	N	P-110 20# / 12235'	N/A	N
Tubing	5 1/2"	2 3/8"	8130'	N	P-110 4.7# / 8130'	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	146	16.2	1.20	177	Surface	8
Surface	Class A	481	15.2	1.28	616	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	642	14.6	1.37	880	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	745 / 995	14.2 / 15.2	1.3 / 1.82	968.5 / 1810.9	1800' / 5400'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7686'

Loggers TD (ft) 7840'

Deepest formation penetrated: Lower Marcellus

Plug back to (ft) N/A

Plug back procedure: N/A

Kick Off Depth (ft) 5350'

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 - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface.. 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 _____

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WERE TRACERS USE Yes No TYPES OF TRACER(S) USED _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	6/11/2014	12207	12137	48	Marcellus
2	6/12/2014	12099	11861	40	Marcellus
3	6/13/2014	11804	11566	40	Marcellus
4	6/18/2014	11509	11271	40	Marcellus
5	6/18/2014	11141	10900	40	Marcellus
6	6/19/2014	10842	10601	40	Marcellus
7	6/19/2014	10543	10302	40	Marcellus
8	6/20/2014	10244	10002	40	Marcellus
9	6/20/2014	9944	9702	40	Marcellus
10	6/21/2014	9644	9402	40	Marcellus
11	6/21/2014	9344	9102	40	Marcellus
12	6/22/2014	9044	8802	40	Marcellus
13	6/22/2014	8744	8502	40	Marcellus
14	6/23/2014	8444	8202	40	Marcellus

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STIMULATION INFORMATION PER STAGE

Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen / other (gals)
1	6/11/2014	88.8	8359	6543	4964	223000	6697	3369
2	6/12/2014	80	7809	6993	5318	655880	12727	3787
3	6/13/2014	86.4	8304	8158	5202	639900	14320	3878
4	6/18/2014	79.3	8246	8773	5591	658910	12250	3710
5	6/18/2014	78.9	8416	7994	5748	652060	12203	3726
6	6/19/2014	75	8282	7961	6303	650600	14798	4084
7	6/19/2014	85	7982	6857	5751	655130	11658	3680
8	6/20/2014	82	8376	7485	5671	652090	16271	4281
9	6/20/2014	78	7910	6782	5480	650880	13130	3852
10	6/21/2014	92.6	8100	8194	5642	649880	11491	3753
11	6/21/2014	79.5	8113	7362	5559	649230	10839	3781
12	6/22/2014	82.7	8281	8123	5710	613980	10164	3648
13	6/22/2014	76.6	8151	7716	6191	648540	15789	4119
14	6/23/2014	94.1	8215	7054	5084	671500	13443	3810

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PRODUCING FORMATION(S)	DEPTHS	TVD	MD
MIDDLE MARCELLUS	7786'- 7821'		

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1300 psi Bottom Hole 4843 psi DURATION OF TEST 137 hrs
 OPEN FLOW Gas 5305 mcfpd Oil 0 bpd NGL 0 bpd Water 1110 bpd GAS MEASURED BY Estimated Orifice Pilot

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)
					SEE ATTACHED

Please insert additional pages as applicable.

Drilling Contractor Nabors Drilling USA
 Address 515 West Greens Road, Ste 1000 City Houston State TX Zip 77067
 Logging Company Horizon
 Address 7136 South Yale, Suite 414 City Tulsa State OK Zip 74136-6378
 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 Spittler Title Steve Spittler - Completions Manager-Gas WV Office of Oil and Gas 7/23/15

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

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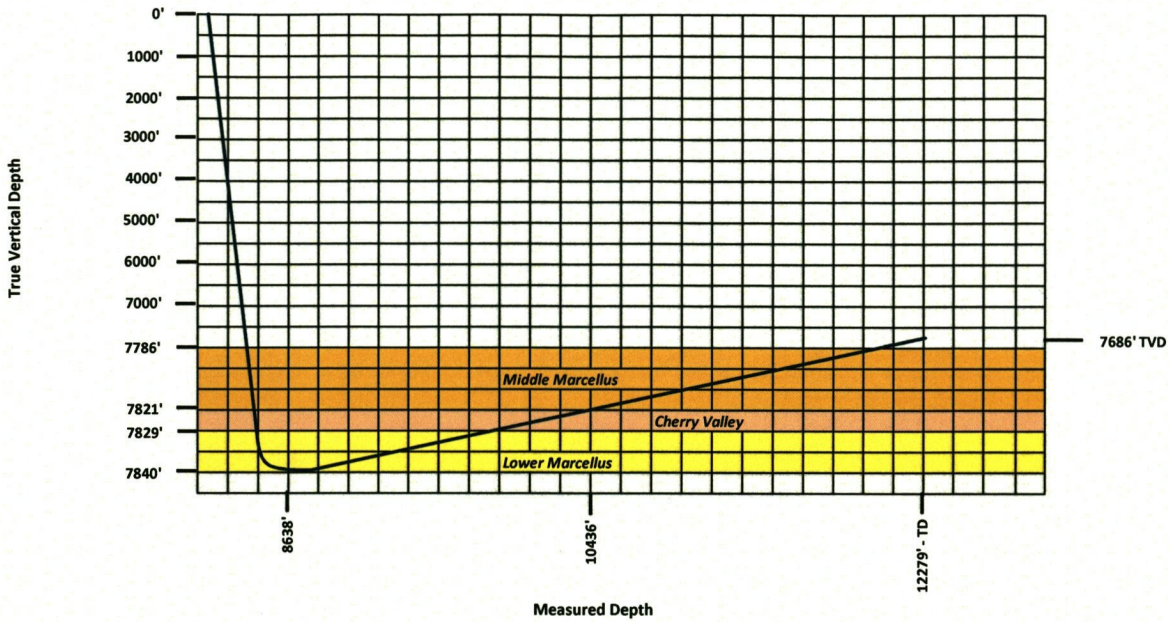
LITHOLOGY / FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER, BRINE, GAS, H2S, ETC)
	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	
	TVD	TVD	MD	MD	
FILL	0	110			
SHALE	110	450			Black
SAND	450	570			Gray
COAL	570	585			Black
SHALE/SAND	585	650			Black/Gray
SAND	650	820			Gray
SHALE/SAND	820	1150			Black/Gray
RED ROCK	1150	1182			Red
SHALE	1182	1850			Black
SAND	1850	1960			Gray
SAND/SHALE	1960	2100			Gray/Black
RED ROCK	2100	2140			Red
SANDY SHALE	2140				Gray/Black
FOURTH SAND	2286	2319			
SPEECHLEY	3139	3150			
BALLTOWN	3324	3360			
BRADFORD	3626	3868			
RILEY	4056	4237			
BENSON	4450	4516			
FIRST ELK	4682	4740			
SECOND ELK	4834	4914			
THIRD ELK	5093	5131			
FOURTH ELK	5364	5402			
SYCAMORE GRIT	6690	7094			
FRIB	7094	7538			
BURKETT	7538	7558			
TULLY LIMESTONE	7558	7614			
HAMILTON SHALE	7614	7772			
UPPER MARCELLUS	7772	7786			
MIDDLE MARCELLUS	7786	7821			
CHERRY VALLEY	7821	7829			
LOWER MARCELLUS	7829	7840			

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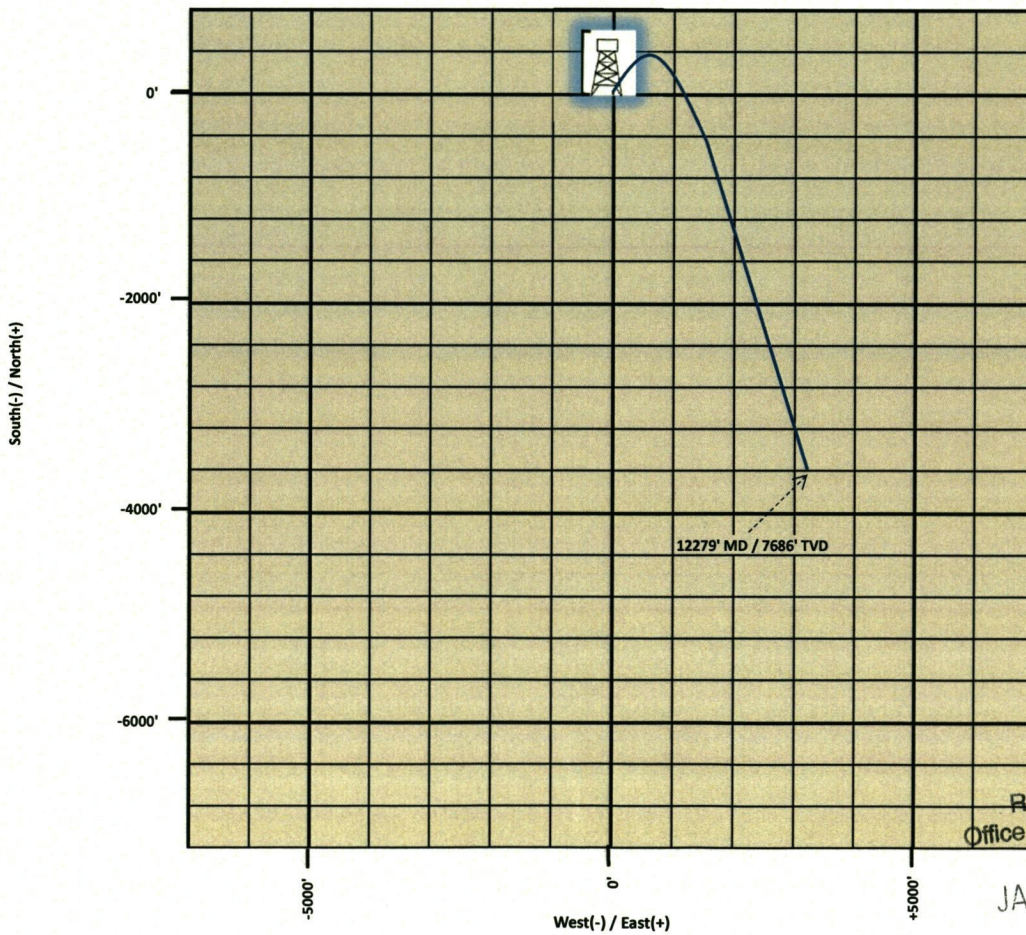
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CNX PHL10BHS - Views Profile View



As Drilled View



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CNX PHL10BHS Gyro+MWD 7087.5ft to update Survey Report

(Non-Def Survey)

Report Date: April 30, 2014 - 08:29 AM
 Client: CNX
 Field: WV Barbour County (NAD27)
 Structure / Slot: CNX PHL10 Pad / PHL10BHS
 Well: PHL10BHS
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: CNX PHL10BHS Gyro+MWD 7087.5ft to update
 Survey Date: April 22, 2014
 Tort / AHD / DDI / ERD Ratio: 183.889 ° / 5401.412 ft / 6.192 / 0.689
 Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
 Location Lat / Long: N 39° 12' 48.57424", W 80° 2' 12.22047"
 Location Grid N/E Y/X: N 260322.937 rUS, E 1847919.836 rUS
 CRS Grid Convergence Angle: -0.3423 °
 Grid Scale Factor: 0.9999665
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 138.546 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: KB
 TVD Reference Elevation: 1628.250 ft above MSL
 Seabed / Ground Elevation: 1605.750 ft above MSL
 Magnetic Declination: -9.523 °
 Total Gravity Field Strength: 999.2717mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 52185.638 nT
 Magnetic Dip Angle: 66.390 °
 Declination Date: April 22, 2014
 Magnetic Declination Model: HDGM 2013
 North Reference: Grid North
 Grid Convergence Used: -0.3423 °
 Total Corr Mag North->Grid North: -9.1802 °
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
SHL	0.00	0.00	0.00	0.00	0.00	N 0.00	E 0.00	0.00	0.00	N/A	272.73M
	110.50	0.43	272.73	110.50	-0.29	N 0.02	W 0.41	0.41	272.73	0.39	261.76M
	210.50	0.31	261.76	210.50	-0.70	S 0.01	W 1.06	1.06	269.94	0.14	243.99M
	310.50	0.14	243.99	310.50	-0.88	S 0.09	W 1.43	1.44	266.27	0.18	246.48M
	410.50	0.15	246.48	410.50	-0.95	S 0.20	W 1.66	1.68	263.17	0.01	234.64M
	510.50	0.09	234.64	510.50	-1.00	S 0.30	W 1.85	1.87	260.87	0.06	199.21M
	610.50	0.09	199.21	610.50	-0.97	S 0.42	W 1.94	1.98	257.87	0.05	121.71M
	710.50	0.18	121.71	710.50	-0.78	S 0.57	W 1.83	1.92	252.61	0.18	123.88M
	810.50	0.20	123.88	810.49	-0.46	S 0.75	W 1.55	1.72	244.11	0.02	137.1M
	910.50	0.16	137.10	910.49	-0.15	S 0.95	W 1.31	1.62	234.01	0.06	124.09M
	1010.50	0.10	124.09	1010.49	0.07	S 1.10	W 1.14	1.59	226.03	0.07	118.62M
	1110.50	0.11	118.62	1110.49	0.24	S 1.20	W 0.99	1.55	219.49	0.01	103.15M
	1210.50	0.35	103.15	1210.49	0.58	S 1.31	W 0.61	1.45	204.76	0.25	83.73M
	1310.50	0.18	83.73	1310.49	0.92	S 1.37	W 0.15	1.38	188.37	0.19	69.2M
	1410.50	0.45	69.20	1410.49	1.15	S 1.21	E 0.37	1.27	162.97	0.28	78.13M
	1510.50	0.23	78.13	1510.49	1.39	S 1.03	E 0.93	1.39	137.78	0.23	80.47M
	1610.50	0.43	80.47	1610.49	1.69	S 0.93	E 1.50	1.76	121.68	0.20	102.15M
	1710.50	0.47	102.15	1710.48	2.22	S 0.95	E 2.27	2.46	112.70	0.17	109.84M
	1810.50	0.30	109.84	1810.48	2.78	S 1.13	E 2.92	3.13	111.08	0.18	106.99M
	1910.50	0.56	106.99	1910.48	3.42	S 1.36	E 3.63	3.88	110.48	0.26	112.29M
	2010.50	0.40	112.29	2010.47	4.15	S 1.63	E 4.42	4.71	110.26	0.17	113.88M
	2110.50	0.46	113.88	2110.47	4.83	S 1.93	E 5.11	5.46	110.65	0.06	116.88M
	2210.50	0.44	116.88	2210.47	5.55	S 2.26	E 5.82	6.25	111.24	0.03	119.69M
	2310.50	0.49	119.69	2310.47	6.31	S 2.65	E 6.54	7.05	112.05	0.05	128.41M
	2410.50	0.41	128.41	2410.46	7.07	S 3.08	E 7.19	7.82	113.20	0.11	130.9M
	2510.50	0.50	130.90	2510.46	7.85	S 3.59	E 7.80	8.59	114.71	0.09	135.39M
	2610.50	0.42	135.39	2610.46	8.65	S 4.14	E 8.39	9.35	116.25	0.09	129.63M
	2710.50	0.54	129.63	2710.45	9.48	S 4.70	E 9.01	10.16	117.55	0.13	124.09M
	2810.50	0.40	124.09	2810.45	10.29	S 5.19	E 9.66	10.97	118.27	0.15	124.37M
	2910.50	0.27	124.37	2910.45	10.85	S 5.52	E 10.14	11.55	118.57	0.13	129.78M
	3010.50	0.29	129.78	3010.45	11.33	S 5.82	E 10.53	12.03	118.92	0.03	134.34M
	3110.50	0.46	134.34	3110.44	11.98	S 6.26	E 11.01	12.67	119.61	0.17	140.43M
	3210.50	0.51	140.43	3210.44	12.83	S 6.88	E 11.58	13.47	120.72	0.07	127.47M
	3310.50	0.93	127.47	3310.43	14.07	S 7.72	E 12.51	14.70	121.68	0.45	127.91M
	3410.50	1.16	127.91	3410.42	15.86	S 8.84	E 13.95	16.52	122.34	0.23	135.16M
	3510.50	0.97	135.16	3510.40	17.70	S 10.06	E 15.35	18.35	123.24	0.23	141.26M
	3610.50	0.68	141.26	3610.39	19.14	S 11.12	E 16.32	19.75	124.28	0.30	170.26M
	3710.50	0.45	170.26	3710.38	20.06	S 11.97	E 16.75	20.59	125.54	0.36	227.53M
	3810.50	0.43	227.53	3810.38	20.40	S 12.61	E 16.54	20.80	127.32	0.42	223.01M
	3910.50	0.23	223.01	3910.38	20.43	S 13.01	E 16.13	20.72	128.89	0.20	234.77M
	4010.50	0.43	234.77	4010.38	20.41	S 13.37	E 15.69	20.62	130.45	0.21	258.21M
	4110.50	0.48	258.21	4110.37	20.16	S 13.68	E 14.97	20.28	132.41	0.19	270.77M
	4210.50	1.19	270.77	4210.36	19.28	S 13.75	E 13.52	19.28	135.47	0.73	284.15M
	4310.50	0.97	284.15	4310.35	17.86	S 13.53	E 11.66	17.86	139.23	0.33	261.46M
	4410.50	0.59	261.46	4410.34	16.88	S 13.40	E 10.33	16.92	142.36	0.48	238.33M
	4510.50	0.54	238.33	4510.33	16.52	S 13.72	E 9.42	16.65	145.52	0.23	225.64M
	4610.50	0.41	225.64	4610.33	16.46	S 14.22	E 8.77	16.70	148.34	0.17	165.97M
	4710.50	0.37	165.97	4710.33	16.76	S 14.78	E 8.59	17.10	149.84	0.39	165.48M
	4810.50	0.52	165.48	4810.32	17.46	S 15.53	E 8.78	17.84	150.52	0.15	175.46M
	4910.50	0.58	175.46	4910.32	18.27	S 16.48	E 8.93	18.74	151.53	0.11	144.13M
	5010.50	0.60	144.13	5010.31	19.19	S 17.41	E 9.28	19.73	151.93	0.32	145.7M
	5110.50	0.73	145.70	5110.31	20.34	S 18.36	E 9.95	20.88	151.55	0.13	133.7M
	5210.50	0.65	133.70	5210.30	21.54	S 19.28	E 10.72	22.05	150.93	0.16	131.4M
	5310.50	0.84	131.40	5310.29	22.83	S 20.15	E 11.68	23.29	149.91	0.19	130.69M
	5350.50	0.88	130.69	5350.29	23.43	S 20.55	E 12.13	23.86	149.45	0.10	82.1M
	5423.50	2.90	82.10	5423.25	25.01	S 20.66	E 14.38	25.17	145.15	3.30	76.9M
	5468.50	4.90	76.90	5468.14	26.55	S 20.07	E 17.38	26.55	139.10	4.51	71.1M
	5512.50	6.70	71.10	5511.91	28.42	S 18.81	E 21.64	28.67	130.99	4.30	67.4M
	5559.50	9.10	67.40	5557.47	30.63	S 16.54	E 27.54	32.13	129.99	5.33	18.18L
	5603.50	10.90	64.30	5601.79	32.94	S 13.33	E 34.66	37.13	111.03	4.17	15.84L
	5647.50	12.60	62.10	5644.87	35.19	S 9.28	E 42.65	43.65	94.77	3.79	4.99L
	5692.50	14.30	61.50	5688.63	37.59	S 4.33	E 51.87	52.05	94.77	3.79	7.54L
	5738.50	16.20	60.80	5733.01	40.20	N 1.53	E 62.46	62.48	88.59	4.16	8.24L
	5783.50	17.90	59.80	5776.03	42.86	N 8.09	E 73.90	74.35	88.59	4.16	3.12L
	5828.50	19.10	59.60	5818.70	45.62	N 15.30	E 86.23	87.58	73.34	3.61	16.07L
	5873.50	20.70	58.30	5861.01	48.38	N 23.20	E 99.35	102.02	76.85	3.69	14.57L
	5918.50	22.00	59.20	5902.92	51.29	N 31.70	E 113.36	117.70	74.38	2.98	1.74R
	5962.50	23.30	59.30	5943.53	54.43	N 40.36	E 127.92	134.13	74.38	2.98	3.86L

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	6007.50	23.90	59.20	5984.77	57.78	N 49.57	E 143.40	151.73	70.93	1.34	58.79L
	8052.50	24.10	58.40	6025.88	61.04	N 59.05	E 159.06	169.67	69.63	0.85	71.07R
	8097.50	24.20	59.10	6066.94	64.30	N 68.60	E 174.80	187.78	68.57	0.67	67.21R
	6142.50	24.90	62.80	6107.87	68.32	N 77.67	E 191.14	206.32	67.88	3.75	6.1R
	6187.50	25.30	62.90	6148.62	73.04	N 86.38	E 208.12	225.34	67.46	0.89	156.94L
	6232.50	25.20	62.80	6189.32	77.78	N 95.14	E 225.20	244.48	67.10	0.24	157.36L
	6277.50	24.70	62.30	6230.12	82.37	N 103.89	E 242.05	263.40	66.77	1.21	153.86L
	6322.50	24.20	61.70	6271.09	86.71	N 112.63	E 258.49	281.97	66.46	1.24	164.89L
	6367.50	23.90	61.50	6312.18	90.85	N 121.36	E 274.63	300.24	66.16	0.69	11.63L
	6412.50	24.30	61.30	6353.26	94.94	N 130.15	E 290.76	318.56	65.89	0.91	11.81L
	6457.50	24.70	61.10	6394.21	99.03	N 139.14	E 307.11	337.16	65.63	0.91	90L
	6502.50	24.70	59.70	6435.09	102.89	N 148.43	E 323.46	355.89	65.35	1.30	121.35L
	6547.50	24.50	58.90	6476.01	106.39	N 157.99	E 339.57	374.52	65.05	0.86	131.97L
	6592.50	24.10	57.80	6517.02	109.54	N 167.71	E 355.33	392.92	64.73	1.34	90R
	6637.50	24.10	59.20	6558.10	112.72	N 177.31	E 371.00	411.19	64.46	1.27	17.81R
	6682.50	25.30	60.10	6598.98	116.34	N 186.81	E 387.23	429.93	64.25	2.79	108.83R
	6727.50	25.20	60.80	6639.68	120.30	N 196.27	E 403.92	449.09	64.08	0.70	113.39L
	6772.50	24.90	59.10	6680.45	124.07	N 205.81	E 420.41	468.09	63.92	1.73	178.08L
	6817.50	24.30	59.00	6721.36	127.48	N 215.45	E 436.48	486.76	63.73	1.34	16.82R
	6862.50	25.00	59.50	6762.26	130.97	N 225.04	E 452.61	505.47	63.56	1.62	72.02R
	6907.50	25.20	60.90	6803.01	134.83	N 234.53	E 469.17	524.53	63.44	1.39	170.51L
	6952.50	24.70	60.70	6843.81	138.86	N 243.79	E 485.74	543.49	63.35	1.13	90L
	6997.50	24.70	60.30	6884.70	142.75	N 253.05	E 502.11	562.27	63.25	0.37	157.57L
	7042.50	24.40	60.00	6925.63	146.51	N 262.35	E 518.33	580.94	63.15	0.72	59.51L
	7087.50	24.70	58.80	6966.56	150.03	N 271.87	E 534.42	599.60	63.04	1.29	119.16L
	7119.00	24.45	57.70	6995.21	152.24	N 278.76	E 545.56	612.65	62.93	1.65	168.16L
	7214.00	22.30	56.51	7082.41	157.87	N 299.22	E 577.21	650.16	62.60	2.32	169.87L
	7261.00	21.54	56.14	7126.01	160.24	N 308.95	E 591.81	667.60	62.43	1.64	36.03R
	7308.00	22.27	57.53	7169.61	162.77	N 318.53	E 606.49	685.05	62.29	1.91	157.04R
	7355.00	21.37	58.58	7213.25	165.66	N 327.78	E 621.31	702.47	62.19	2.09	76.67R
	7403.00	23.13	71.71	7257.70	170.89	N 335.30	E 637.74	720.51	62.27	10.96	47.68R
	7450.00	26.38	79.26	7300.38	179.86	N 340.15	E 656.77	739.63	62.62	9.63	43.41R
	7498.00	30.07	85.91	7342.68	192.61	N 342.99	E 679.26	760.95	63.21	10.09	49.11R
	7545.00	33.15	92.09	7382.71	208.62	N 343.37	E 703.86	783.15	64.00	9.50	63.27R
	7592.00	35.35	98.97	7421.58	227.96	N 340.78	E 730.14	805.75	64.98	9.47	64.84R
	7639.00	37.02	104.43	7459.52	250.16	N 335.13	E 757.29	828.13	66.13	7.72	64.2R
	7687.00	39.39	111.46	7497.25	275.70	N 325.95	E 785.47	850.42	67.46	10.31	43.02R
	7734.00	42.82	116.04	7532.67	303.75	N 313.47	E 813.72	872.01	68.93	9.71	24.68R
	7781.00	47.13	118.72	7565.91	334.73	N 298.18	E 843.19	894.36	70.52	10.02	58.08R
	7828.00	49.95	124.34	7597.04	368.39	N 279.74	E 873.17	916.88	72.24	10.78	71.11R
	7876.00	51.97	131.10	7627.30	404.97	N 256.93	E 902.61	938.46	74.11	11.72	67.84R
	7923.00	54.08	137.04	7655.58	442.38	N 230.82	E 929.54	957.77	76.05	11.05	26.73R
	7970.00	58.12	139.42	7681.79	481.38	N 201.72	E 955.51	976.57	78.08	9.57	4.63R
	8017.00	61.82	139.78	7705.31	522.05	N 170.74	E 981.88	996.61	80.14	7.90	56.12R
	8064.00	63.05	141.79	7727.06	563.68	N 138.47	E 1008.22	1017.68	82.18	4.64	45.61R
	8111.00	64.90	143.86	7747.68	605.79	N 104.81	E 1033.73	1039.03	84.21	5.58	7.29R
	8159.00	68.24	144.32	7766.77	649.62	N 69.15	E 1059.56	1061.81	86.27	7.01	12.1L
	8206.00	70.35	143.84	7783.38	693.38	N 33.55	E 1085.35	1085.87	88.23	4.59	1.23R
	8254.00	71.23	143.86	7799.18	738.51	S 3.06	E 1112.09	1112.09	90.16	1.83	23.94R
	8301.00	75.45	145.79	7812.65	783.26	S 39.85	E 1138.01	1138.01	92.01	9.80	28.95R
	8348.00	79.28	147.94	7822.93	828.62	S 78.25	E 1163.07	1165.70	93.85	9.29	19.16R
	8395.00	81.07	148.57	7830.95	874.27	S 117.63	E 1187.43	1193.25	95.66	4.03	11.42R
	8443.00	84.77	149.32	7836.86	921.11	S 158.43	E 1212.00	1222.31	97.45	7.86	1.99L
	8490.00	89.08	149.17	7839.38	967.22	S 198.76	E 1236.00	1251.87	99.14	9.18	57.84R
	8544.00	89.69	150.14	7839.96	1020.20	S 245.35	E 1263.27	1286.88	100.99	2.12	37.73R
	8638.00	90.22	150.55	7840.04	1112.21	S 327.04	E 1309.78	1350.00	104.02	0.71	59.32L
	8732.00	90.57	151.14	7839.39	1204.05	S 409.13	E 1355.58	1415.97	106.79	0.73	26.56R
	8828.00	91.45	150.70	7837.70	1297.81	S 493.01	E 1402.23	1486.37	109.37	1.02	7.35R
	8922.00	92.07	150.78	7834.81	1389.64	S 574.98	E 1448.15	1558.12	111.66	0.67	15.93L
	9017.00	92.42	150.68	7831.09	1482.43	S 657.79	E 1494.56	1632.91	113.76	0.38	80.32L
	9112.00	92.59	149.68	7826.94	1575.39	S 740.13	E 1541.76	1710.21	115.64	1.07	102.53R
	9206.00	92.51	150.04	7822.75	1667.47	S 821.34	E 1588.91	1788.64	117.34	0.39	173.52L
	9301.00	90.66	149.83	7820.13	1760.56	S 903.52	E 1636.48	1869.34	118.90	1.96	90R
	9395.00	90.66	150.53	7819.04	1852.62	S 985.07	E 1683.22	1950.28	120.34	0.74	97.43R
	9490.00	90.57	151.22	7818.02	1945.43	S 1068.06	E 1729.46	2032.68	121.70	0.73	63.85L
	9585.00	90.84	150.67	7816.85	2038.20	S 1151.09	E 1775.59	2116.07	122.95	0.64	135.94L
	9679.00	90.22	150.07	7815.99	2130.20	S 1232.80	E 1822.06	2199.93	124.08	0.92	59.6R
	9774.00	90.66	150.82	7815.26	2223.16	S 1315.43	E 1868.92	2285.44	125.14	0.92	90L
	9869.00	90.66	149.92	7814.16	2316.14	S 1398.00	E 1915.88	2371.71	126.12	0.95	25.02R
	9963.00	92.95	150.99	7811.20	2408.06	S 1479.73	E 1962.21	2457.62	127.02	2.69	108.75L
	10058.00	92.59	149.93	7806.61	2500.90	S 1562.29	E 2008.99	2544.95	127.87	1.18	90L
	10152.00	92.59	148.35	7802.36	2593.20	S 1642.89	E 2057.16	2632.68	128.61	1.68	105R
	10247.00	92.33	149.32	7798.28	2686.59	S 1724.11	E 2108.28	2721.94	129.30	1.06	41.53R
	10342.00	92.95	149.87	7793.91	2779.73	S 1805.95	E 2154.30	2811.14	129.97	0.87	171.58R
	10436.00	92.68	149.91	7789.29	2871.78	S 1887.17	E 2201.40	2899.59	130.61	0.29	107.18L
	10531.00	92.51	149.36	7784.99	2964.91	S 1969.06	E 2249.38	2989.46	131.20	0.61	61.01R
	10625.00	92.77	149.83	7780.66	3057.07	S 2050.04	E 2296.90	3078.70	131.75	0.57	119.64L
	10720.00	92.07	148.60	7776.65	3150.34	S 2131.58	E 2345.48	3169.37	132.26	1.49	132.72R
	10815.00	91.71	148.99	7773.52	3243.78	S 2212.79	E 2394.67	3260.51	132.74	0.56	18.7R
	10909.00	92.33	149.20	7770.20	3336.13	S 2293.39	E 2442.92	3350.75	133.19	0.70	120.15L
	11004.00	92.15	148.89	7766.49	3429.47	S 2374.80	E 2491.75	3442.16	133.62	0.38	103.63L
	11098.00	92.07	148.56	7763.03	3521.93	S 2455.09	E 2540.52	3532.94	134.02	0.36	59.62R
	11193.00	93.21	150.51	7758.65	3615.08	S 2536.88	E 2588.63	3624.47	134.42	2.38	4.31L
	11288.00	93.74	150.47	7752.89	3707.85	S 2619.40	E 2635.34	3715.68	134.83	0.56	141.15R
	11382.00	93.12	150.97	7747.27	3799.57	S 2701.25	E 2681.23	3806.01	135.21	0.85	72.73R
	11477.00	93.21	151.26	7742.03	3892.15	S 2784.30	E 2727.05	3897.32	135.60	0.32	47.01R
	11571.00	94.26	152.39	7735.90	3983.44	S 2866.98	E 2771.34	3987.47	135.97	1.64	118.34L
	11666.00	93.91	151.74	7729.13	4075.58	S 2950.70	E 2815.73	4078.60	136.34	0.78	85.92R
	11761.00	94.00	153.02	7722.58	4167.60	S 3034.67	E 2859.66	4169.76	136.70	1.35	146.88L
	11855.00	93.74	152.85	7716.24	4258.44	S 3118.19	E 2902.34	4259.89	137.05	0.33	47.05L
	11950.00	94.00	152.57	7709.83	4350.34	S 3202.42	E 2945.79	4351.23	137.39	0.40	78.13R
	12045.00	94.09	153.00	7703.12	4442.19	S 3286.69	E 2989.13	4442.66	137.71	0.46	90L
	12140.00	94.09	152.40								

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
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Survey Type: Non-Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	22.500	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / CNX PHL10BHS Gyro+MWD 7087.5ft to update
	1	22.500	5350.500	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / CNX PHL10BHS Gyro+MWD 7087.5ft
	1	5350.500	12279.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / CNX PHL10BHS Gyro+MWD 7087.5ft

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/11/2014
Job End Date:	6/23/2014
State:	West Virginia
County:	Barbour
API Number:	47-001-03252-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	PHL-10B
Longitude:	-80.03663200
Latitude:	39.21338280
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,840
Total Base Water Volume (gal):	7,340,760
Total Base Non Water Volume:	0



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 & CWS	Base Fluid & Mix Water	Water	7732-18-5	100.00000	87.34195	
Sand (Proppant), DAP-903, DWP-111, DWP-614, DWP-901, BioClear 2000, DWP-NE1	CWS	Propping Agent, Scale Inhibitor, Gel Slurry, Viscosifier, Breaker, Biocide, Non-Emulsifier	Crystalline silica (Quartz)	14808-60-7	100.00000	12.31380	
			Hydrochloric acid	7647-01-0	35.00000	0.17733	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.03784	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02854	
			Calcite	471-34-1	1.00000	0.02067	
			Polyethylene glycol mixture	25322-68-3	70.00000	0.01339	
			2,2-Dibromo-3-Nitriopropionamide	10222-01-2	20.00000	0.01339	
			2-Propenoic acid, polymer with sodium phosphonate	71050-62-9	60.00000	0.00719	
			Illite	12173-60-3	1.00000	0.00681	
			Goethite	1310-14-1	0.10000	0.00547	
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00473	

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		Sorbitan monooleate	1338-43-8	5.00000	0.00473
		Isopropanol	67-63-0	40.00000	0.00381
		Dimethylcocoamine, bis (chloroethyl) ether, diquatary ammonium salt	68607-28-3	40.00000	0.00381
		Biotite	1302-27-8	0.10000	0.00351
		Apatite	64476-38-6	0.10000	0.00351
		Methanol	67-56-1	15.00000	0.00295
		Ilmenite	98072-94-7	0.10000	0.00252
		Alkenes, C>10 a-	64743-02-8	0.10000	0.00076
		Fatty acids, tall-oil	61790-12-3	0.10000	0.00076
		Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00076
		Modified thiourea polymer	68527-49-1	0.10000	0.00076
		Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00048
		Propargyl Alcohol	107-19-7	0.10000	0.00025
		Guar gum	9000-30-0	60.00000	0.00017
		Formaldehyde	50-00-0	0.10000	0.00005
		Sodium chloride	7647-14-5	0.10000	0.00003
		Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00001
		Ammonium Persulfate	7727-54-0	100.00000	0.00001
		Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	87251-67-5	1.50000	

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)

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