January 29th, 2015

WR-35
Rev. 8/23/13

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

API 47-001-03253H County Barbour District Pleasant
Quad Philippi Pad Name PHL10HS Field/Pool Name Philippi
Farm Name WATSON, MARY LOU & RONALD EARL CATE Well Number PHL10CHS
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 4,340,911.91 m Easting 583,185.42 m
Landing Point of Curve Northing 4,340,782.89 m Easting 583,343.44 m
Bottom Hole Northing 4,339,804.77 m Easting 583,924.92 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 07/26/2013 Date drilling ceased 04/08/2014
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 300', 308', 460', 580' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1815' Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Reported Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

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API 47-001-03253H **Farm name** WATSON, MARY LOU & RONALD EARL CATE **Well number** PHL10CHS

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"	657'	N	J-55 54.5# / 657'	46'/126'	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2020'	N	J-55 36# / 2020'	66'/148'	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	11905'	N	P-110 20# / 11905'	N/A	N
Tubing	5 1/2"	2 3/8"	8013'	N	P-110 4.7# / 8013'	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	490	15.2	1.40	686	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	642	15.2	1.20	770	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A	2130	14.8	1.25	2663	1820'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7712' Loggers TD (ft) 7808'

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

Plug back procedure: N/A

Kick Off Depth (ft) 5771'

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

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

API 47-001-03253H Farm name WATSON, MARY LOU & RONALD EARL CATE Well number PHL10CHS

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	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)
								See Attached

Please insert additional pages as applicable.

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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	11877	11807	48	Marcellus
2	6/11/2014	11783	11658	40	Marcellus
3	6/12/2014	11630	11505	40	Marcellus
4	6/12/2014	11477	11352	40	Marcellus
5	6/13/2014	11324	11199	40	Marcellus
6	6/14/2014	11171	11046	40	Marcellus
7	6/14/2014	11018	10893	40	Marcellus
8	6/15/2014	10865	10740	40	Marcellus
9	6/15/2014	10712	10587	40	Marcellus
10	6/16/2014	10559	10434	40	Marcellus
11	6/16/2014	10406	10281	40	Marcellus
12	6/17/2014	10253	10128	40	Marcellus
13	6/17/2014	10100	9975	40	Marcellus
14	6/18/2014	9947	9821	40	Marcellus
15	6/18/2014	9793	9667	40	Marcellus
16	6/18/2014	9639	9513	40	Marcellus
17	6/19/2014	9485	9359	40	Marcellus
18	6/20/2014	9331	9205	40	Marcellus
19	6/20/2014	9177	9051	40	Marcellus
20	6/20/2014	9023	8897	40	Marcellus
21	6/21/2014	8869	8743	40	Marcellus
22	6/21/2014	8715	8589	40	Marcellus
23	6/22/2014	8561	8435	40	Marcellus
24	6/22/2014	8407	8281	40	Marcellus
25	6/23/2014	8253	8127	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	79	7959	7117	4725	224290	5653	3432
2	6/11/2014	63	8366	8400	4941	327090	8286	3938
3	6/12/2014	89.9	8636	8475	6069	320530	5990	3352
4	6/12/2014	76.3	8729	7688	6257	276160	5808	3363
5	6/13/2014	81.2	8341	7203	7608	345060	7588	3446
6	6/14/2014	86.7	8469	7539	5656	306400	6891	3371
7	6/14/2014	88.6	8282	6429	6034	325520	6252	3292
8	6/15/2014	82.7	8319	7338	6166	331120	6189	3288
9	6/15/2014	83.9	8373	6703	6128	325000	6494	3336
10	6/16/2014			7859	5150	326370	6549	3353
11	6/16/2014	69	7928	8347	5497	259000	6673	3386
12	6/17/2014	73.8	8230	8011	5118	396110	7060	3361
13	6/17/2014	81.5	8354	7700	5187	319820	6300	3353
14	6/18/2014	86.5	8153	7068	4963	326040	6304	3374
15	6/18/2014	83	8166	6435	5323	319890	6694	3319
16	6/18/2014	91	8386	7217	5600	326040	7327	3415
17	6/19/2014	83	8226	7746	5906	341780	6547	3412
18	6/20/2014	69	7712	7097	6499	326310	7624	3430
19	6/20/2014	79	8194	7075	5442	329200	6098	3300
20	6/20/2014	67.9	7581	7384	5846	308430	7570	3452
21	6/21/2014	84	8032	7394	5821	366030	6695	3356
22	6/21/2014	78.6	8238	8106	5849	325060	5996	3357
23	6/22/2014	82.5	8218	7345	5460	328190	5906	3337
24	6/22/2014	91	8284	7586	5492	325940	6110	3361
25	6/23/2014	88	8027	7330	5907	327120	10544	9762

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PRODUCING FORMATION(S)	DEPTHS			
MIDDLE MARCELLUS	7798'- 7801'	TVD		MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 1700 psi Bottom Hole 4879 psi DURATION OF TEST 126 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	4153 mcfpd	0 bpd	0 bpd	1122 bpd	☐ 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 Spitler Title Steve Spitler - Completions Manager-Gas WV Date 2/23/15

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Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

WV Department of
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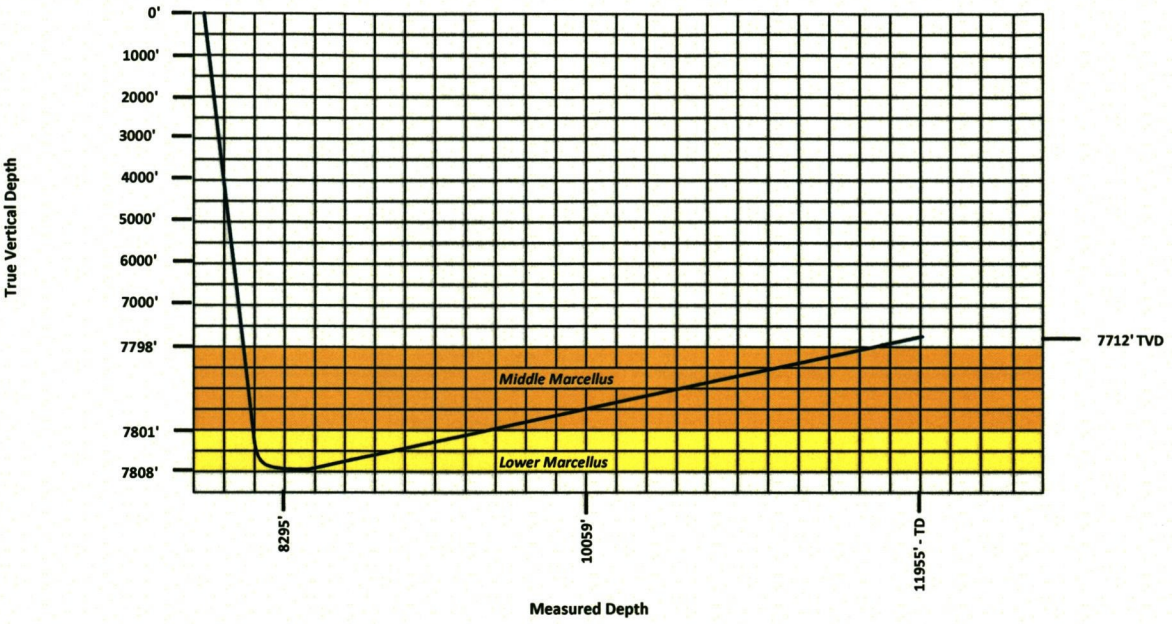
LITHOLOGY / FORMATION	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER,BRINE,GAS,H2S, ETC)
FILL	0	100			
SAND	100	240			Light Gray
SHALE	240	300			Dark Gray
SAND	300	470			Light Gray
SHALE	470	500			Light Gray
SAND	500	720			Gray
SHALE	720	950			Light Gray
SAND	950	1100			Light Gray
SHALE/SAND	1100	1160			Dark Gray
SAND	1160	1400			Light Gray
SHALE	1400	1560			Dark Gray
REDROCK	1560	1700			Red
LIME	1700	1950			Tan
SHALE	1950	1980			Dark Gray
SAND	1980	2200			Gray
SHALE	2200				Light Gray
FOURTH SAND	2301	2334			
SPEECHLEY	3154	3165			
BALLTOWN	3339	3375			
BRADFORD	3641	3883			
RILEY	4071	4252			
BENSON	4465	4531			
FIRST ELK	4697	4755			
SECOND ELK	4849	4929			
THIRD ELK	5108	5146			
FOURTH ELK	5379	5417			
SYCAMORE GRIT	6705	7109			
FRIB	7109	7556			
BURKETT	7556	7575			
TULLY LIMESTONE	7575	7630			
HAMILTON SHALE	7630	7781			
UPPER MARCELLUS	7781	7798			
MIDDLE MARCELLUS	7798	7801			
LOWER MARCELLUS	7801	7808			

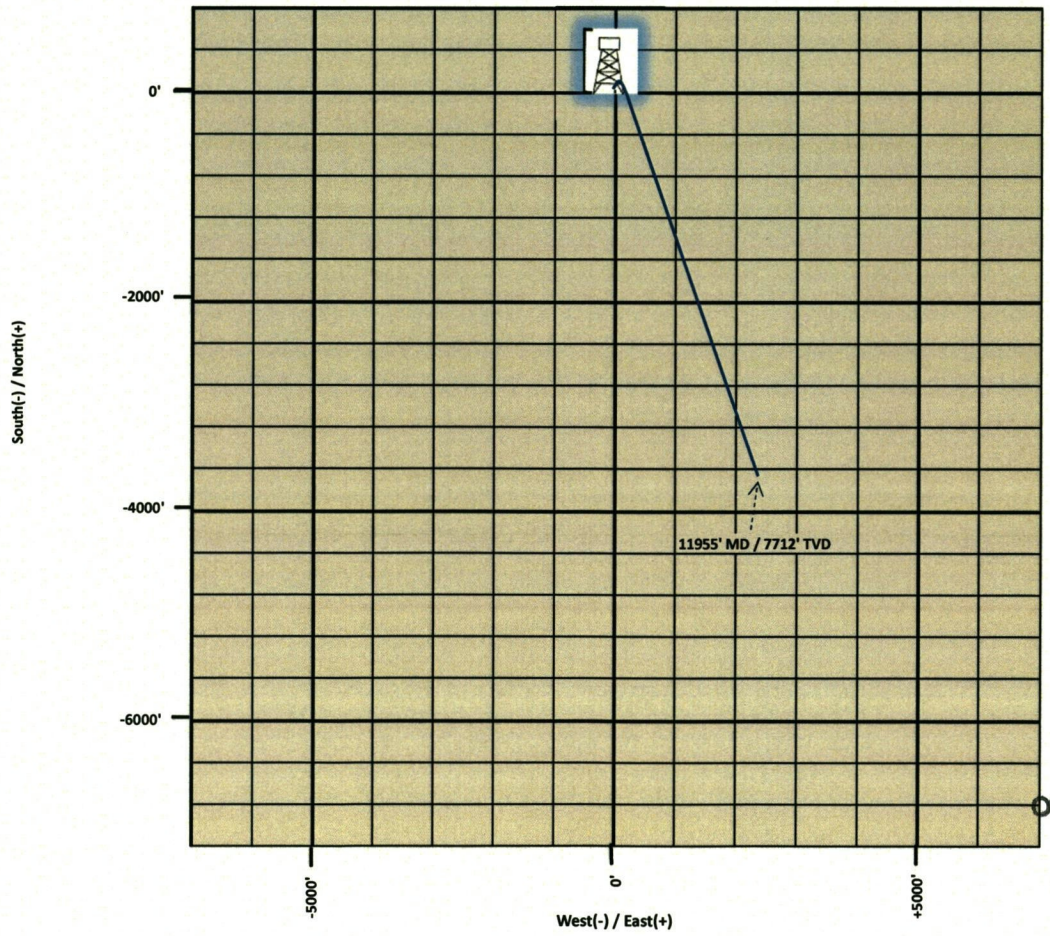
47-001-03253

CNX PHL10CHS - Views

Profile View



As Drilled View



Schlumberger

CNX PHL10CHS Gyro+MWD 7075.5ft to update Survey Report

(Non-Def Survey)

Report Date:	April 06, 2014 - 10:10 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	CNX	**Vertical Section Azimuth:**	147.404 ° (Grid North)
Field:	WV Barbour County (NAD27)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	CNX PHL10 Pad / PHL10CHS	**TVD Reference Datum:**	KB
Well:	PHL10CHS	**TVD Reference Elevation:**	1627.940 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	1605.440 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	-9.521 °
Survey Name:	CNX PHL10CHS Gyro+MWD 7075.5ft to update	**Total Gravity Field Strength:**	999.2717mgn (9.80665 Based)
Survey Date:	March 31, 2014	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	170.285 ° / 4732.863 ft / 6.091 / 0.606	**Total Magnetic Field Strength:**	52193.393 nT
Coordinate Reference System:	NAD27 West Virginia State Plane, Northern Zone, US Feet	**Magnetic Dip Angle:**	66.395 °
Location Lat / Long:	N 39° 12' 48.26423", W 80° 2' 11.91048"	**Declination Date:**	March 31, 2014
Location Grid N/E Y/X:	N 260291.427 ftUS, E 1847944.047 ftUS	**Magnetic Declination Model:**	HDGM 2013
CRS Grid Convergence Angle:	-0.3423 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996651	**Grid Convergence Used:**	-0.3423 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	-9.1786 °
		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	121.28M
	110.50	0.47	121.28	110.50	0.41	S 0.24	E 0.39	0.45	121.28	0.43	155.22M
	210.50	0.36	155.22	210.50	1.09	S 0.73	E 0.87	1.14	130.15	0.26	179.39M
	310.50	0.12	179.39	310.50	1.49	S 1.12	E 1.00	1.51	138.26	0.26	150.9M
	410.50	0.12	150.90	410.50	1.68	S 1.32	E 1.05	1.69	141.38	0.06	122.15M
	510.50	0.57	122.15	510.49	2.23	S 1.68	E 1.53	2.27	137.67	0.47	115.34M
	610.50	0.15	115.34	610.49	2.80	S 2.00	E 2.07	2.87	134.02	0.42	128.11M
	710.50	0.19	128.11	710.49	3.06	S 2.15	E 2.31	3.16	132.95	0.05	134.13M
	810.50	0.37	134.13	810.49	3.53	S 2.48	E 2.68	3.65	132.84	0.18	113.3M
	910.50	0.49	113.30	910.49	4.20	S 2.88	E 3.30	4.38	131.06	0.20	107.03M
	1010.50	0.70	107.03	1010.48	5.02	S 3.22	E 4.28	5.36	127.00	0.22	112.29M
	1110.50	0.84	112.29	1110.47	6.09	S 3.68	E 5.54	6.65	123.60	0.16	107.29M
	1210.50	0.77	107.29	1210.46	7.20	S 4.16	E 6.86	8.02	121.22	0.10	106.36M
	1310.50	0.59	106.36	1310.46	8.10	S 4.50	E 8.00	9.18	119.39	0.18	101.78M
	1410.50	0.82	101.78	1410.45	8.99	S 4.79	E 9.19	10.37	117.55	0.24	100.4M
	1510.50	0.64	100.40	1510.44	9.87	S 5.04	E 10.44	11.59	115.78	0.18	95.71M
	1610.50	0.72	95.71	1610.43	10.64	S 5.20	E 11.61	12.73	114.14	0.10	96.83M
	1710.50	0.53	96.83	1710.43	11.33	S 5.32	E 12.70	13.77	112.74	0.19	98.27M
	1810.50	0.59	98.27	1810.42	11.96	S 5.45	E 13.67	14.71	111.74	0.06	95.41M
	1910.50	0.59	95.41	1910.42	12.61	S 5.57	E 14.69	15.71	110.78	0.03	115.91M
	2010.50	0.63	115.91	2010.41	13.40	S 5.86	E 15.70	16.76	110.48	0.22	123.85M
	2110.50	0.68	123.85	2110.40	14.41	S 6.43	E 16.68	17.88	111.09	0.10	124.41M
	2210.50	0.28	124.41	2210.40	15.18	S 6.90	E 17.38	18.70	111.66	0.40	132.43M
	2310.50	0.57	132.43	2310.40	15.88	S 7.38	E 17.95	19.40	112.34	0.30	145.32M
	2410.50	0.44	145.32	2410.39	16.75	S 8.03	E 18.53	20.20	113.42	0.17	149.6M
	2510.50	0.30	149.60	2510.39	17.39	S 8.57	E 18.88	20.74	114.41	0.14	127.54M
	2610.50	0.32	127.54	2610.39	17.92	S 8.96	E 19.24	21.22	114.99	0.12	152.32M
	2710.50	0.41	152.32	2710.39	18.54	S 9.45	E 19.63	21.78	115.72	0.18	173.72M
	2810.50	0.15	173.72	2810.39	19.01	S 9.90	E 19.81	22.14	116.55	0.28	140.93M
	2910.50	0.24	140.93	2910.39	19.33	S 10.19	E 19.95	22.40	117.06	0.14	144.83M
	3010.50	0.50	144.83	3010.38	19.98	S 10.71	E 20.34	22.98	117.78	0.26	180.18M
	3110.50	0.43	180.18	3110.38	20.73	S 11.44	E 20.59	23.55	119.07	0.29	176.95M
	3210.50	0.52	176.95	3210.38	21.44	S 12.27	E 20.61	23.99	120.77	0.09	176.27M
	3310.50	0.41	176.27	3310.37	22.15	S 13.08	E 20.66	24.45	122.35	0.11	190.69M
	3410.50	0.41	190.69	3410.37	22.72	S 13.79	E 20.61	24.80	123.78	0.10	219.3M
	3510.50	0.20	219.30	3510.37	23.04	S 14.28	E 20.44	24.93	124.94	0.25	252.71M
	3610.50	0.49	252.71	3610.37	22.98	S 14.54	E 19.92	24.66	126.13	0.34	253.67M
	3710.50	0.45	253.67	3710.37	22.76	S 14.78	E 19.13	24.17	127.68	0.04	282.19M
	3810.50	0.56	282.19	3810.36	22.30	S 14.78	E 18.28	23.51	128.97	0.27	264.37M
	3910.50	0.56	264.37	3910.36	21.74	S 14.73	E 17.31	22.73	130.39	0.17	268.37M
	4010.50	0.50	268.37	4010.35	21.29	S 14.79	E 16.39	22.08	132.06	0.07	272.87M
	4110.50	0.70	272.87	4110.35	20.71	S 14.77	E 15.35	21.30	133.91	0.21	262.63M
	4210.50	0.81	262.63	4210.34	20.05	S 14.83	E 14.03	20.42	136.58	0.17	258.5M
	4310.50	0.87	258.50	4310.33	19.48	S 15.07	E 12.59	19.64	140.13	0.09	221.66M
	4410.50	0.86	221.66	4410.32	19.41	S 15.78	E 11.35	19.44	144.29	0.55	218.05M
	4510.50	0.47	218.05	4510.31	19.75	S 16.67	E 10.59	19.75	147.56	0.39	198.7M
	4610.50	0.65	198.70	4610.31	20.24	S 17.53	E 10.16	20.26	149.90	0.26	189.98M
	4710.50	0.46	189.98	4710.30	20.89	S 18.46	E 9.91	20.95	151.78	0.21	181.88M
	4810.50	0.56	181.88	4810.30	21.59	S 19.34	E 9.82	21.70	153.08	0.12	180.46M
	4910.50	0.58	180.46	4910.29	22.42	S 20.34	E 9.80	22.58	154.27	0.02	153.25M
	5010.50	0.57	153.25	5010.29	23.34	S 21.29	E 10.02	23.53	154.79	0.27	129.29M
	5110.50	0.43	129.29	5110.28	24.19	S 21.97	E 10.54	24.37	154.38	0.25	138.71M
	5210.50	0.81	138.71	5210.28	25.24	S 22.74	E 11.29	25.39	153.59	0.39	137.13M
	5310.50	0.62	137.13	5310.27	26.47	S 23.67	E 12.13	26.59	152.87	0.19	131.58M
	5410.50	0.71	131.58	5410.26	27.60	S 24.48	E 12.96	27.69	152.10	0.11	135.93M
	5510.50	0.76	135.93	5510.25	28.85	S 25.36	E 13.88	28.91	151.30	0.07	134.1M
	5610.50	0.62	134.10	5610.25	30.02	S 26.22	E 14.73	30.07	150.66	0.14	134.87M
	5710.50	0.60	134.87	5710.24	31.06	S 26.96	E 15.49	31.10	150.12	0.02	137.44M
	5755.50	0.46	137.44	5755.24	31.47	S 27.26	E 15.78	31.50	149.93	0.32	101.6M
	5771.50	0.60	101.60	5771.24	31.59	S 27.33	E 15.91	31.62	149.79	2.20	71.9M
	5816.50	1.00	71.90	5816.23	31.85	S 27.25	E 16.51	31.86	148.79	1.25	49.4M
	5861.50	2.00	49.40	5861.22	31.84	S 26.62	E 17.48	31.85	146.70	2.54	39.8M
	5906.50	3.60	39.80	5906.16	31.31	S 25.02	E 18.98	31.41	142.81	3.69	34.5M
	5951.50	5.30	34.50	5951.03	30.07	S 22.22	E 21.06	30.62	136.53	3.88	29.7M
	5996.50	6.30	29.70	5995.80	28.11	S 18.37	E 23.47	29.80	128.05	2.47	29.7M
	6041.50	6.60	29.70	6040.51	25.76	S 13.97	E 25.97	29.49	118.28	0.67	25.5M
	6086.50	7.10	25.50	6085.19	23.09	S 9.22	E 28.45	29.90	107.95	1.57	23.5M
	6131.50	7.30	23.50	6129.84	20.03	S 4.09	E 30.79	31.06	97.56	0.71	20.7M

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 (°)
	6176.50	8.50	20.70	6174.41	16.44	N 1.65	E 33.10	33.14	87.15	2.80	27.12L
	6221.50	8.80	19.70	6218.90	12.35	N 8.00	E 35.44	36.33	77.28	0.75	61.68L
	6266.50	9.30	14.40	6263.34	7.77	N 14.76	E 37.50	40.30	68.51	2.16	33.19L
	6311.50	10.00	11.80	6307.70	2.49	N 22.11	E 39.21	45.01	60.58	1.83	41.74R
	6356.50	10.20	12.80	6352.00	-3.10	N 29.82	E 40.89	50.60	53.90	0.59	104.99R
	6401.50	10.10	15.10	6396.30	-8.55	N 37.51	E 42.80	56.91	48.76	0.93	65.28R
	6446.50	10.20	16.30	6440.59	-13.82	N 45.15	E 44.94	63.70	44.87	0.52	6.36L
	6491.50	10.70	16.00	6484.85	-19.21	N 52.99	E 47.21	70.97	41.70	1.12	HS
	6535.50	11.10	16.00	6528.05	-24.71	N 60.98	E 49.51	78.55	39.07	0.91	106.07R
	6580.50	10.90	20.20	6572.23	-30.15	N 69.14	E 52.17	86.62	37.04	1.84	74R
	6625.50	11.10	23.50	6616.40	-35.14	N 77.11	E 55.37	94.93	35.68	1.47	119.81L
	6670.50	10.90	21.60	6660.57	-40.04	N 85.04	E 58.66	103.31	34.60	0.92	98.04L
	6715.50	10.80	15.70	6704.77	-45.34	N 93.05	E 61.37	111.46	33.40	2.48	90L
	6760.50	10.80	14.70	6748.97	-51.00	N 101.19	E 63.58	119.50	32.14	0.42	155.18L
	6805.50	10.30	13.40	6793.21	-56.65	N 109.18	E 65.58	127.36	30.99	1.23	123.56R
	6850.50	10.00	16.10	6837.51	-62.03	N 116.85	E 67.60	134.99	30.05	1.25	172.25L
	6895.50	9.40	15.60	6881.87	-67.06	N 124.14	E 69.67	142.35	29.30	1.35	25.18R
	6940.50	9.80	16.70	6926.24	-72.00	N 131.35	E 71.76	149.67	28.65	0.98	102.48R
	6985.50	9.60	24.50	6970.59	-76.54	N 138.43	E 74.41	157.16	28.26	2.95	91.91R
	7030.50	9.80	38.30	7014.96	-79.83	N 144.85	E 78.34	164.68	28.41	5.17	90R
	7075.50	9.80	52.50	7059.31	-81.41	N 150.19	E 83.76	171.96	29.15	5.36	108.2R
	7114.00	9.34	65.96	7097.28	-81.23	N 153.46	E 89.21	177.50	30.17	5.92	103.1R
	7161.00	9.12	83.54	7143.68	-79.02	N 155.43	E 96.39	182.89	31.81	5.99	42.39R
	7209.00	12.85	97.46	7190.80	-73.91	N 155.16	E 105.47	187.62	34.21	9.48	45.49R
	7256.00	17.43	111.45	7236.17	-64.84	N 151.91	E 117.22	191.88	37.65	12.40	22.3R
	7303.00	23.07	117.24	7280.25	-51.16	N 145.11	E 131.97	196.15	42.28	12.72	19.99R
	7350.00	28.02	121.03	7322.64	-33.30	N 135.20	E 149.63	201.66	47.90	11.09	8.74R
	7398.00	31.57	122.07	7364.29	-11.83	N 122.71	E 169.94	209.62	54.17	7.47	47.96R
	7445.00	35.03	128.43	7403.58	12.06	N 107.79	E 190.95	219.27	60.56	10.45	55.05R
	7493.00	37.67	134.27	7442.25	39.38	N 88.98	E 212.25	230.15	67.26	9.06	48.64R
	7540.00	40.40	138.89	7478.76	68.44	N 67.47	E 232.56	242.15	73.82	8.49	56.04R
	7587.00	42.92	144.12	7513.88	99.49	N 43.02	E 251.96	255.61	80.31	9.13	52.58R
	7634.00	46.42	150.14	7547.32	132.50	N 15.26	E 269.83	270.26	86.76	11.68	50.63R
	7682.00	47.81	152.39	7579.99	167.59	S 15.57	E 286.73	287.15	93.11	4.49	125L
	7730.00	47.35	151.49	7612.37	202.91	S 46.84	E 303.40	306.99	98.78	1.68	50.79L
	7775.00	49.31	148.39	7642.29	236.48	S 75.92	E 320.24	329.12	103.34	6.74	14.15L
	7822.00	52.33	147.43	7671.98	272.91	S 106.78	E 339.60	355.99	107.45	6.62	8.35L
	7870.00	58.13	146.43	7699.34	312.32	S 139.80	E 361.12	387.23	111.16	12.20	3.91R
	7917.00	64.34	146.90	7721.94	353.49	S 174.21	E 383.74	421.43	114.42	13.24	19.24R
	7940.00	67.09	147.94	7731.40	374.46	S 191.87	E 395.03	439.16	115.91	12.65	30.25R
	7979.00	69.82	149.63	7745.72	410.72	S 222.89	E 413.82	470.03	118.31	8.08	13.78R
	8059.00	73.26	150.51	7771.05	486.50	S 288.65	E 451.67	536.03	122.58	4.42	29.02R
	8105.00	76.37	152.28	7783.10	530.78	S 327.62	E 472.92	575.31	124.71	7.71	13.42R
	8153.00	80.55	153.29	7792.70	577.59	S 369.44	E 494.42	617.20	126.77	8.95	2.64L
	8201.00	82.27	153.21	7799.87	624.81	S 411.82	E 515.78	660.02	128.61	3.59	3.27L
	8247.00	83.66	153.13	7805.50	670.23	S 452.55	E 536.38	701.79	130.15	3.03	0.09R
	8295.00	89.97	153.14	7808.17	717.89	S 495.29	E 558.03	746.13	131.59	13.15	9.31R
	8343.00	91.86	153.45	7807.40	765.63	S 538.16	E 579.60	790.92	132.88	3.99	81.24R
	8355.00	92.15	155.34	7806.98	777.53	S 548.97	E 584.78	802.08	133.19	15.92	87.43L
	8450.00	92.24	153.30	7803.34	871.77	S 634.52	E 625.91	891.28	135.39	2.15	162.94L
	8545.00	90.48	152.76	7801.09	966.28	S 719.16	E 668.99	982.21	137.07	1.94	154.98R
	8640.00	89.43	153.25	7801.16	1060.82	S 803.81	E 712.11	1073.88	138.46	1.22	84.1L
	8734.00	89.52	152.38	7802.03	1154.40	S 887.42	E 755.05	1165.17	139.61	0.93	48.12R
	8829.00	89.78	152.67	7802.61	1249.02	S 971.71	E 798.88	1257.94	140.58	0.41	29.55L
	8924.00	90.75	152.12	7802.17	1343.66	S 1055.89	E 842.90	1351.07	141.40	1.17	90L
	9019.00	90.75	151.30	7800.92	1438.38	S 1139.54	E 887.92	1444.62	142.07	0.86	62.89L
	9113.00	91.19	150.44	7799.33	1532.19	S 1221.63	E 933.67	1537.57	142.61	1.03	40.19L
	9207.00	92.42	149.40	7796.37	1626.05	S 1302.93	E 980.76	1630.80	143.03	1.71	152.61L
	9302.00	92.15	149.26	7792.58	1720.92	S 1384.58	E 1029.18	1725.18	143.38	0.32	104.56L
	9397.00	91.89	148.26	7789.23	1815.84	S 1465.75	E 1078.41	1819.73	143.66	1.09	68.18R
	9492.00	92.07	148.71	7785.95	1910.76	S 1546.69	E 1128.04	1914.35	143.90	0.51	24.75L
	9586.00	92.59	148.47	7782.13	2004.66	S 1626.85	E 1176.99	2007.97	144.12	0.61	14.52R
	9681.00	92.86	148.54	7777.61	2099.54	S 1707.76	E 1226.57	2102.60	144.31	0.29	60.1L
	9775.00	93.21	147.93	7772.64	2193.40	S 1787.57	E 1275.98	2196.25	144.48	0.75	162.57R
	9870.00	92.86	148.04	7767.61	2288.26	S 1868.01	E 1326.27	2290.95	144.63	0.39	29.71L
	9964.00	93.21	147.84	7762.63	2382.12	S 1947.56	E 1376.10	2384.67	144.76	0.43	171.29R
	10059.00	91.71	148.07	7758.55	2477.03	S 2028.01	E 1426.46	2479.44	144.88	1.60	22.15R
	10154.00	91.98	148.18	7755.49	2571.97	S 2108.64	E 1476.60	2574.24	145.00	0.31	162.22R
	10248.00	90.92	148.52	7753.12	2665.93	S 2188.63	E 1525.91	2668.05	145.12	1.18	118.74R
	10343.00	90.75	148.83	7751.73	2760.89	S 2269.78	E 1575.29	2762.87	145.24	0.37	141.5R
	10438.00	90.31	149.18	7750.85	2855.85	S 2351.21	E 1624.21	2857.66	145.36	0.59	96.34R
	10532.00	90.22	149.99	7750.42	2949.78	S 2432.27	E 1671.80	2951.41	145.50	0.87	14.42L
	10627.00	90.57	149.90	7749.76	3044.68	S 2514.50	E 1719.37	3046.13	145.64	0.38	7.63R
	10721.00	91.54	150.03	7748.03	3138.57	S 2595.86	E 1766.42	3139.86	145.77	1.04	90R
	10816.00	91.54	150.34	7745.48	3233.43	S 2678.25	E 1813.63	3234.55	145.90	0.33	HS
	10911.00	91.71	150.34	7742.79	3328.26	S 2760.77	E 1860.62	3329.23	146.02	0.18	71.54R
	11005.00	91.98	151.15	7739.76	3422.06	S 2842.74	E 1906.54	3422.87	146.15	0.91	90L
	11100.00	91.98	150.67	7736.48	3516.82	S 2925.71	E 1952.70	3517.50	146.28	0.50	111.8R
	11194.00	91.80	151.12	7733.38	3610.60	S 3007.79	E 1998.40	3611.15	146.40	0.52	164.06L
	11289.00	91.45	151.02	7730.68	3705.36	S 3090.90	E 2044.33	3705.80	146.52	0.38	37.56R
	11383.00	91.71	151.22	7728.09	3799.13	S 3173.18	E 2089.71	3799.47	146.63	0.35	158.01R
	11478.00	91.19	151.43	7725.69	3893.88	S 3256.50	E 2135.28	3894.13	146.75	0.59	41.63R
	11573.00	91.28	151.51	7723.64	3988.61	S 3339.95	E 2180.65	3988.79	146.86	0.13	64.97L
	11668.00	91.63	150.76	7721.23	4083.38	S 3423.12	E 2226.49	4083.51	146.96	0.87	90L
	11763.00	91.63	149.54	7718.52	4178.23	S 3505.48	E 2273.76	4178.32	147.03	1.28	81.93R
	11856.00	91.89	151.38	7715.67	4271.05	S 3586.35	E 2319.59	4271.11	147.11	2.00	70.89R
	11878.00	92.07	151.90	7714.91	4292.98	S 3605.70	E 2330.03	4293.03	147.13	2.50	HS
Bit Projection	11955.00	92.07	151.90	7712.13	4369.69	S 3673.58	E 2366.27	4369.72	147.21	0.00	

Survey Type: Non-Def Survey

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

Survey Program:

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 (°)

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 PHL10CHS Gyro+MWD 7075.5ft to update
	1	22.500	5755.500	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / CNX PHL10CHS Gyro+MWD 7075.5ft
	1	5755.500	11955.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / CNX PHL10CHS Gyro+MWD 7075.5ft

47-001-03253

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:	47-001-03253-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	PHL-10C
Longitude:	-80.03709400
Latitude:	39.21360400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,808
Total Base Water Volume (gal):	7,023,258
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

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	87.52942	
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	11.94867	
			Hydrochloric acid	7647-01-0	35.00000	0.35825	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.03467	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02856	
			Calcite	471-34-1	1.00000	0.02013	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.01337	
			Polyethylene glycol mixture	25322-68-3	70.00000	0.01337	
			2-Propenoic acid, polymer with sodium phosphonate	71050-62-9	60.00000	0.00693	
			Illite	12173-60-3	1.00000	0.00650	
			Goethite	1310-14-1	0.10000	0.00528	
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00433	

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			Sorbitan monooleate	1338-43-8	5.00000	0.00433	
			Methanol	67-56-1	15.00000	0.00371	
			Biotite	1302-27-8	0.10000	0.00337	
			Apatite	64476-38-6	0.10000	0.00337	
			Guar gum	9000-30-0	60.00000	0.00256	
			Ilmenite	98072-94-7	0.10000	0.00241	
			Isopropanol	67-63-0	40.00000	0.00172	
			Dimethylcocoamine, bis (chloroethyl) ether, diquaternary ammonium salt	68607-28-3	40.00000	0.00172	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00154	
			Modified thiourea polymer	68527-49-1	0.10000	0.00154	
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00154	
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00154	
			Propargyl Alcohol	107-19-7	0.10000	0.00051	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00021	
			Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00021	
			Formaldehyde	50-00-0	0.10000	0.00010	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00006	
			Sodium chloride	7647-14-5	0.10000	0.00005	
			Ammonium Persulfate	7727-54-0	100.00000	0.00003	

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)