

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

API 47-001-03305H6A County Barbour District Pleasant
Quad Philippi Pad Name PHL3HS Field/Pool Name Philippi
Farm Name PHILIPPI DEVELOPMENT, INC. Well Number PHL3AHS
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 4,338,916.80 m Easting 581,579.40 m
Landing Point of Curve Northing 4,338,731.59 m Easting 581,795.38 m
Bottom Hole Northing 4,336,901.92 m Easting 583,776.39 m

Elevation (ft) 1444.50' 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 11/19/2013 Date drilling commenced 06/13/2014 Date drilling ceased 10/26/2014
Date completion activities began 12/20/2014 Date completion activities ceased 12/28/2014
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

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Freshwater depth(s) ft 328', 544', 665' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
Coal depth(s) ft 451', 544', 665' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

Reviewed by:

Batton, Daniel

7/2/15 - DJ
WS 7/14/15

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DEVELOPMENT, INC.

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"	80'	N	J-55 94# / 80'	N/A	Y
Surface	17 1/2"	13 3/8"	778.7'	N	J-55 54.5# / 778.7'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2340.2'	N	J-55 36# / 2340.2'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	14768.6'	N	P-110 20# / 14768.6'	N/A	N
Tubing	5 1/2"	2 3/8"	7841'	N	J-55 4.7# / 7841'	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	77	15.6	1.18	91	Surface	24
Surface	Class A	568	15.6	1.20	681	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	746	15.6	1.19	887	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	859 / 2574	14.9 / 15.4	1.26 / 1.25	3896	2100'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7713.49' Loggers TD (ft) 7710'

Deepest formation penetrated: Marcellus Plug back to (ft) 7713.49'-6893'

Plug back procedure: Solid Plug From 7713.49' to 6893'

Kick Off Depth (ft) 7114.87'

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 _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	12/20/2014	14739	14737	12	Marcellus
2	12/20/2014	14682	14497	40	Marcellus
3	12/21/2014	14453	14268	40	Marcellus
4	12/21/2014	14224	14039	40	Marcellus
5	12/21/2014	13995	13810	40	Marcellus
6	12/21/2014	13766	13581	40	Marcellus
7	12/22/2014	13537	13352	40	Marcellus
8	12/22/2014	13308	13123	40	Marcellus
9	12/22/2014	13079	12894	40	Marcellus
10	12/22/2014	12850	12665	40	Marcellus
11	12/23/2014	12621	12436	40	Marcellus
12	12/23/2014	12392	12207	40	Marcellus
13	12/23/2014	12163	11978	40	Marcellus
14	12/23/2014	11934	11749	40	Marcellus
15	12/24/2014	11705	11520	40	Marcellus
16	12/24/2014	11476	11291	40	Marcellus
17	12/24/2014	11247	11062	40	Marcellus
18	12/25/2014	11018	10833	40	Marcellus
19	12/25/2014	10789	10604	40	Marcellus
20	12/25/2014	10560	10376	40	Marcellus
21	12/25/2014	10332	10148	40	Marcellus
22	12/26/2014	10104	9920	40	Marcellus
23	12/26/2014	9876	9692	40	Marcellus
24	12/26/2014	9648	9464	40	Marcellus
25	12/27/2014	9420	9236	40	Marcellus
26	12/27/2014	9192	9008	40	Marcellus
27	12/27/2014	8964	8780	40	Marcellus
28	12/27/2014	8736	8552	40	Marcellus
29	12/27/2014	8508	8324	40	Marcellus
30	12/28/2014	8280	8096	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	12/20/2014	66	8246	6800	5036	100100	3868	3155
2	12/20/2014	72	8341	6337	5731	300100	8716	3358
3	12/21/2014	76.7	8393	6107	6176	301000	7139	3336
4	12/21/2014	74	8422	6913	6700	300200	7199	3425
5	12/21/2014	73	8306	6396	5834	302063	7122	3390
6	12/21/2014	71.6	8461	7104	5719	299950	7071	3392
7	12/22/2014	71.8	8387	6828	5332	300000	6995	3350
8	12/22/2014	64	8367	7988	5379	300450	7460	3470
9	12/22/2014	66	8389	7775	5101	300600	7589	3432
10	12/22/2014	66.7	8441	7810	5156	300350	7121	3375
11	12/23/2014	70.7	8493	7726	5017	300300	6981	3333
12	12/23/2014	0	8358	7388	5225	300000	6855	3398
13	12/23/2014	76	8243	7520	4994	300050	9147	3544
14	12/23/2014	77.2	8442	6521	4987	300050	6946	3367
15	12/24/2014	75.1	8478	6122	5132	300300	6977	3359
16	12/24/2014	74	8032	6213	5114	300200	6896	3389
17	12/24/2014	77	8117	6813	4991	400100	8775	3462
18	12/25/2014	80.3	8442	7115	4863	400050	8618	3451
19	12/25/2014	83	8215	7055	4656	400350	8529	3466
20	12/25/2014	81	8205	6505	4658	400900	8592	3447
21	12/25/2014	82	8434	6484	4571	400500	8445	3427
22	12/26/2014	80	8441	7667	4620	399750	8497	3451
23	12/26/2014	7899	78	4720	5598	400350	9489	3443
24	12/26/2014	74.3	8472	6561	4992	400350	10704	3603
25	12/27/2014	88	8406	7083	4671	401100	8461	3461
26	12/27/2014	82	7655	6821	4905	400200	8456	3395
27	12/27/2014	81	7509	7629	4763	400280	8212	3454
28	12/27/2014	85	8322	7544	4792	399950	8346	3413
29	12/27/2014	83	8326	7836	4892	400200	8295	3346
30	12/28/2014	72	8189	7820	4904	400400	9302	3476

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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	80			
SHALE	80	171			Red
SAND/SHALE	171	451			Red/Light Brown/Light Gray/Dark Gray
SAND/SHALE/COAL	451	515			Dark Gray / Black Gray
SAND/SHALE	515	642			Gray Brown
SHALE	642	706			Brown / Gray Brown
SAND/SHALE	706	1556			Gray Brown / Gray
SAND	1556	1588			Brown
SAND/SHALE	1588	1747			Gray Brown
SAND	1747	1809			Brown
SAND/SHALE	1809	3566			Gray Brown / Light Gray
SHALE	3566	4293			Darker Gray
SAND/SHALE	4293	5398			Light Gray
SHALE	5398	6327			Dark Gray
SAND/SHALE	6327	6831			Light Gray
SHALE	6831	7019			Dark Gray
BURKETT	7486	7508	7538	7568	Medium Gray
TULLY	7508	7559	7568	7644	Light Gray
HAMILTON SHALE	7559	7710	7644	8069	Medium Gray
MARCELLUS	7710		8069		Black

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/20/2014
Job End Date:	12/28/2014
State:	West Virginia
County:	Barbour
API Number:	47-001-03305-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	PHL 3A
Longitude:	-80.05546200
Latitude:	39.19556580
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,709
Total Base Water Volume (gal):	9,855,779
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	88.62587	
Sand (Proppant), DAP-903, DWP-111, DWP-614, DWP-901, DWP-NE1	CWS	Propping Agent, Scale Inhibitor, Gel Slurry, Viscosifier, Breaker, Non-Emulsifier					
			Crystalline silica (Quartz)	14808-60-7	100.00000	10.94354	
			Hydrochloric acid	7647-01-0	35.00000	0.28723	
			2-Propenoic acid, polymer with propenamides, sodium salt	225987-30-8	40.00000	0.03535	
			Distillates (petroleum), hydrotreated middle	64742-46-7	80.00000	0.02694	
			Calcite	471-34-1	1.00000	0.01468	
			Illite	12173-60-3	1.00000	0.01082	
			2-Propenoic acid, polymer with sodium phosphonate	71050-62-9	60.00000	0.00658	
			Goethite	1310-14-1	0.10000	0.00611	
			Isopropanol	67-63-0	40.00000	0.00488	
			Dimethylcocoamine, bis (chloroethyl) ether, diquatary ammonium salt	68607-28-3	40.00000	0.00488	
			Biotite	1302-27-8	0.10000	0.00471	

			Apatite	64476-38-6	0.10000	0.00471
			Sorbitan monooleate	1338-43-8	5.00000	0.00442
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00442
			Methanol	67-56-1	15.00000	0.00429
			Jimenite	98072-94-7	0.10000	0.00401
			Modified thiourea polymer	68527-49-1	0.10000	0.00123
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00123
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00123
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00123
			Dialyldimethylammonium chloride	7398-69-8	5.00000	0.00061
			Guar gum	9000-30-0	60.00000	0.00043
			Propargyl Alcohol	107-19-7	0.10000	0.00041
			Formaldehyde	50-00-0	0.10000	0.00008
			Sodium chloride	7647-14-5	0.10000	0.00004
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	58953-58-2	5.00000	0.00004
			Ammonium Persulfate	7727-54-0	100.00000	0.00003
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00001
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)