

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

API 47-001-03311H6A County Barbour District Pleasant  
Quad Philippi Pad Name PHL29HS Field/Pool Name Philippi  
Farm Name PHILIPPI DEVELOPMENT, INC. Well Number PHL29CHS  
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 4,339,567.04 m Easting 581,619.88 m  
Landing Point of Curve Northing 4,339,546.25 m Easting 582,036.10 m  
Bottom Hole Northing 4,337,861.30 m Easting 583,860.43 m

Elevation (ft) 1406' 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 10/08/2013 Date drilling commenced 02/11/2014 Date drilling ceased 06/08/2014  
Date completion activities began 08/26/2014 Date completion activities ceased 10/13/2014  
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 plug.

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Freshwater depth(s) ft 474' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft None Reported Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 474', 595' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) Y

Reviewed by:

Batton, Daniel

JK 6/24/15

WS 6/25/15

API 47-001-03311H6A Farm name PHILIPPI DEVELOPMENT, INC. Well number PHL29CHS

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"	92'	N	J-55 94# / 92'	N/A	Y
Surface	17 1/2"	13 3/8"	696.8'	N	J-55 54.5# / 696.8'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2036.4'	N	J-55 36# / 2036.4'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	16355.5'	N	P-110 20# / 16355.5'	N/A	N
Tubing	5 1/2"	2 3/8"	7963'	N	L-80 4.7# / 7963'	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	90.5	Surface	24
Surface	Class A	595	15.6	1.18	702	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	682	15.6	1.18	805	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	901 / 2095	14.2 / 14.8	1.26	3775	1750'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7696.92' Loggers TD (ft) 7729'

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

Plug back procedure: N/A

Kick Off Depth (ft) 4985.8'

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 until 100 feet from surface.. Coal - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface.. Intermediate - Bow spring centralizers 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.)

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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 47-001-03311H6A Farm name PHILIPPI Well number PHL29CHS  
DEVELOPMENT, INC.

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

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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)
1.1	8/26/2014	16315	16251	36	Marcellus
1.2	8/26/2014	16220	16160	36	Marcellus
2.0	8/27/2014	16144	16040	40	Marcellus
3.0	9/13/2014	16005	15925	40	Marcellus
4.0	9/14/2014	15798	15713	50	Marcellus
5.0	9/15/2014	15669	15589	40	Marcellus
6.0	9/16/2014	15566	15460	40	Marcellus
7.0	9/17/2014	15423	15321	40	Marcellus
8.1	9/18/2014	15270	15129	42	Marcellus
8.2	9/18/2014	15270	15125	42	Marcellus
9.0	9/19/2014	15086	14996	40	Marcellus
10.0	9/20/2014	14945	14820	40	Marcellus
11.1	9/21/2014	14780	14637	42	Marcellus
11.2	9/21/2014	14780	14637	42	Marcellus
12.1	9/22/2014	14602	14451	42	Marcellus
12.2	9/22/2014	14602	14451	42	Marcellus
13.0	9/24/2014	14423	14321	40	Marcellus
14.0	9/25/2014	14290	14210	40	Marcellus
15.1	9/25/2014	14187	14122	30	Marcellus
15.2	9/25/2014	14098	14043	30	Marcellus
16.0	9/26/2014	14024	13924	40	Marcellus
17.0	9/26/2014	13890	13810	40	Marcellus
18.0	9/26/2014	13786	13680	40	Marcellus
19.0	9/27/2014	13656	13576	32	Marcellus
20.0	9/27/2014	13546	13440	40	Marcellus
21.0	9/28/2014	13424	13320	40	Marcellus
22.1	9/28/2014	13296	13243	21	Marcellus
22.2	9/28/2014	13218	13163	21	Marcellus
23.1	9/29/2014	13138	13073	21	Marcellus
23.2	9/29/2014	13048	12995	21	Marcellus
24.0	9/29/2014	12970	12890	32	Marcellus
25.1	9/30/2014	12845	12787	21	Marcellus
25.2	9/30/2014	12750	12695	21	Marcellus
26.1	9/30/2014	12644	12498	42	Marcellus
26.2	9/30/2014	12558	12485	63	Marcellus
27.1	10/1/2014	12379	12237	42	Marcellus
27.2	10/1/2014	12379	12237	42	Marcellus
28.0	10/1/2014	12188	12047	42	Marcellus

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Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
29.1	10/2/2014	12013	11887	42	Marcellus
29.2	10/2/2014	12013	11887	42	Marcellus
30.0	10/2/2014	11862	11756	40	Marcellus
31.1	10/3/2014	11723	11597	42	Marcellus
31.2	10/3/2014	11723	11597	42	Marcellus
32.1	10/3/2014	11568	11442	42	Marcellus
32.2	10/3/2014	11568	11438	42	Marcellus
33.0	10/3/2014	11416	11336	40	Marcellus
34.1	10/4/2014	11308	11182	42	Marcellus
34.2	10/4/2014	11308	11182	42	Marcellus
35.0	10/4/2014	11136	11056	52	Marcellus
36.1	10/5/2014	11033	10897	42	Marcellus
36.2	10/5/2014	11033	10903	42	Marcellus
37.1	10/5/2014	10850	10717	42	Marcellus
37.2	10/5/2014	10850	10717	42	Marcellus
38.1	10/5/2014	10692	10639	21	Marcellus
38.2	10/5/2014	10614	10561	21	Marcellus
39.0	10/6/2014	10536	10456	40	Marcellus
40.0	10/6/2014	10418	10316	40	Marcellus
41.1	10/7/2014	10256	10117	42	Marcellus
41.2	10/7/2014	10256	10117	42	Marcellus
42.1	10/7/2014	10080	10027	21	Marcellus
42.2	10/7/2014	9998	9937	21	Marcellus
43.1	10/8/2014	9888	9837	21	Marcellus
43.2	10/8/2014	9813	9762	21	Marcellus
44.0	10/8/2014	9713	9611	35	Marcellus
45.0	10/8/2014	9584	9504	40	Marcellus
46.0	10/9/2014	9480	9400	40	Marcellus
47.0	10/9/2014	9368	9266	50	Marcellus
48.0	10/9/2014	9230	9150	40	Marcellus
49.0	10/10/2014	9114	9034	40	Marcellus
50.0	10/10/2014	9002	8930	40	Marcellus
51.0	10/10/2014	8906	8826	40	Marcellus
52.1	10/11/2014	8793	8742	21	Marcellus
52.2	10/11/2014	8718	8667	21	Marcellus
53.0	10/11/2014	8636	8556	40	Marcellus
54.0	10/12/2014	8523	8421	40	Marcellus
55.1	10/12/2014	8386	8217	42	Marcellus

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Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
55.2	10/12/2014	8386	8217	42	Marcellus
56.0	10/13/2014	8182	8102	32	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)
1.1	8/26/2014	68.58	8480	8775	0	222775	6969	3746
1.2	8/26/2014	66.01	8408	8650	4646	227713	7208	3751
2.0	8/27/2014	54.05	8549	8975	5278	299077	10642	4116
3.0	9/13/2014	62.5	8427	8862	5585	226732	7936	3825
4.0	9/14/2014	69.4	8037	8878	5189	226186	6685	3703
5.0	9/15/2014	64.8	8265	8908	5164	224320	9361	4067
6.0	9/16/2014	66.9	8110	8705	5227	300278	7760	3804
7.0	9/17/2014	65.1	8288	8536	5441	301281	7364	3411
8.1	9/18/2014	60.86	8343	8812	NA	201689	7853	3611
8.2	9/18/2014	63.3	8360	8785	5311	200003	8189	3625
9.0	9/19/2014	81.13	8302	8821	5283	226666	6726	3631
10.0	9/20/2014	82.86	8714	8207	5215	351974	8472	3982
11.1	9/21/2014	82	8322	9099	NA	225364	6053	3572
11.2	9/21/2014	73.6	8423	8600	5505	224550	6584	3644
12.1	9/22/2014	73.45	8440	8847	NA	229878	6775	3062
12.2	9/22/2014	73.77	8554	8996	5781	229898	7623	1925
13.0	9/24/2014	60	8375	8846	6597	276013	13989	6481
14.0	9/25/2014	70.6	8399	8790	5938	256267	7235	3656
15.1	9/25/2014	75	8367	8673	NA	202099	6136	3535
15.2	9/25/2014	61.8	8287	8671	5914	199147	6136	3558
16.0	9/26/2014	76	8280	8727	5580	301189	7130	3686
17.0	9/26/2014	81.6	8532	8855	5375	227859	5993	3519
18.0	9/26/2014	77.9	8322	8866	5378	301334	7631	3727
19.0	9/27/2014	77.8	8128	8537	5243	226113	5965	3493
20.0	9/27/2014	75.4	8317	9008	5609	302880	7394	3651
21.0	9/28/2014	88.5	8573	8969	5599	302730	6700	3581
22.1	9/28/2014	91.1	8626	8972	NA	197669	5828	3550
22.2	9/28/2014	92	8403	8972	5496	201716	5660	3514
23.1	9/29/2014	89.9	8480	8860	NA	205905	5292	3511
23.2	9/29/2014	88.7	8579	8931	5913	195306	5292	3514
24.0	9/29/2014	87.6	8580	8876	5478	224513	5300	3495
25.1	9/30/2014	85.3	8454	8923	NA	199267	7074	3673
25.2	9/30/2014	78	8586	8863	5447	201322	5940	3562
26.1	9/30/2014	89.58	8613	9032	NA	191661	6462	3667
26.2	9/30/2014	40.9	8531	9839	5689	33483	8285	12814
27.1	10/1/2014	97.5	8003	8320	NA	198010	5765	3550
27.2	10/1/2014	84.13	7885	8093	5020	202186	5759	495
28.0	10/1/2014	76.8	8127	9098	4758	407216	12194	7231

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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)
29.1	10/2/2014	94.5	8063	8346	NA	200476	5599	3522
29.2	10/2/2014	89.7	7882	8379	5706	219038	5916	553
30.0	10/2/2014	93.4	8254	8909	5422	298156	6905	3713
31.1	10/3/2014	84.5	8501	8897	NA	199732	5658	3523
31.2	10/3/2014	85.9	8280	8922	5358	223664	6253	3537
32.1	10/3/2014	81.09	8191	8749	NA	201929	5767	3657
32.2	10/3/2014	72.8	8040	8423	5195	306671	6907	747
33.0	10/3/2014	79.8	8344	9101	6617	215135	4740	3367
34.1	10/4/2014	84.01	8144	8880	NA	200682	5802	3543
34.2	10/4/2014	76.19	8192	8558	5582	207886	5874	559
35.0	10/4/2014	83.13	8277	8727	5632	225370	5526	3545
36.1	10/5/2014	79.54	8074	8782	NA	201694	5363	3433
36.2	10/5/2014	79.83	8055	8479	5189	200644	5612	647
37.1	10/5/2014	87.5	7960	8199	NA	200305	5451	3493
37.2	10/5/2014	87.5	7960	8199	4905	199114	5460	475
38.1	10/5/2014	78.27	8009	8747	NA	202897	5359	3504
38.2	10/5/2014	82.19	8018	8968	5226	200494	7484	744
39.0	10/6/2014	81.93	7954	8552	5207	228196	6086	3579
40.0	10/6/2014	82.97	7982	8892	5127	298701	6220	3597
41.1	10/7/2014	80.28	7909	8995	NA	202102	5331	3508
41.2	10/7/2014	67.47	8289	8488	5029	198713	5248	504
42.1	10/7/2014	77.42	7926	8323	NA	209719	5568	3533
42.2	10/7/2014	74.39	8090	8554	5128	190487	5536	479
43.1	10/8/2014	85.23	7924	8932	NA	201537	4452	3400
43.2	10/8/2014	71.19	8131	8471	5031	200181	3994	371
44.0	10/8/2014	83.1	7811	8166	5222	302997	6393	3585
45.0	10/8/2014	84.62	8140	8963	5710	229821	4824	3425
46.0	10/9/2014	73.99	8241	8845	4973	224478	5364	3512
47.0	10/9/2014	84.1	8104	8457	5307	292775	6213	3570
48.0	10/9/2014	81.76	8108	8889	5467	232355	5183	3469
49.0	10/10/2014	74.7	8072	8859	5642	225203	5326	3465
50.0	10/10/2014	72.6	7864	8620	5164	224964	5353	3510
51.0	10/10/2014	82.13	8098	8470	5382	228151	5454	3375
52.1	10/11/2014	83.9	8030	8504	NA	199397	4934	3465
52.2	10/11/2014	69.3	8088	8344	4911	188957	3991	335
53.0	10/11/2014	86.89	8105	8955	5138	226195	4584	3404
54.0	10/12/2014	87.3	8117	8533	4915	312509	5885	3544
55.1	10/12/2014	78.96	8119	8810	NA	247422	4914	3351

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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)
55.2	10/12/2014	77.44	8137	8590	5498	256112	5151	477
56.0	10/13/2014	87.16	7911	8829	4751	227692	4599	3473

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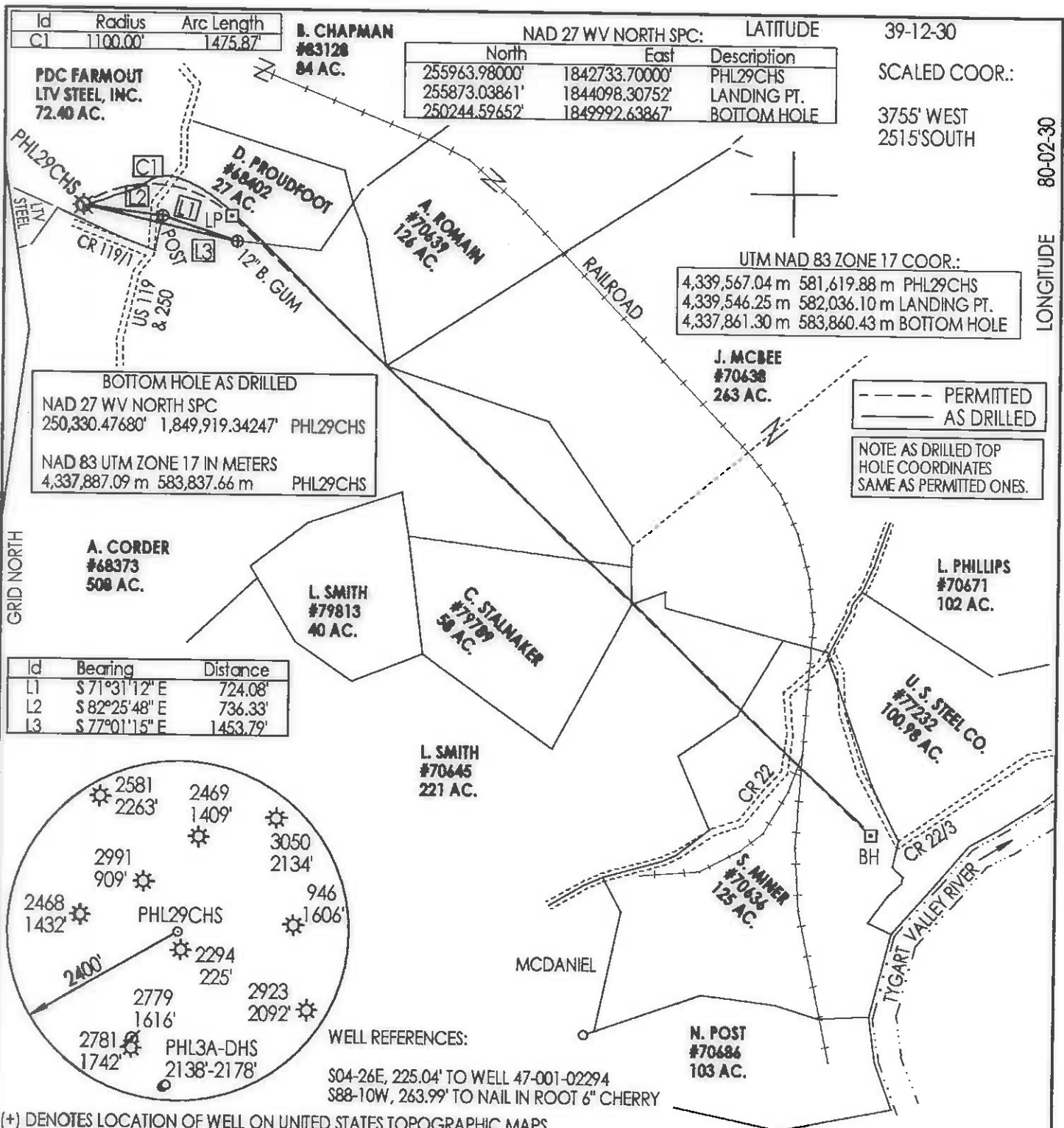
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LITHOLOGY / FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER,BRINE,GAS,H2S, ETC)
	DEPTH IN FT TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
FILL	0	100			
SAND	100	180			
SHALE/REDROCK	180	210			
SAND/SHALE	210	250			
REDROCK	250	259			
SANDY SHALE	259	415			
SHALE	415	650			
SANDSTONE	650	729			
SHALE	729	963			
SHALE	963	1058			
SHALE	1058	1430			
REDROCK	1430	1480			
SHALE	1480	1520			
BASE BIG INJUN	1520	2182			
FOURTH SAND	2182	2275			
FIFTH SAND	2275	2714			
WARREN MARKER	2714	2737			
WARREN	2737	2982			
SPEECHLEY	2982	3198			
BALLTOWN	3198	3896			
RILEY	3896	4012			
FAULT	4012	4257			
BENSON	4257	4491			
FIRST ELK	4491	4632			
SECOND ELK	4632	4880			
THIRD ELK	4880	5018			
FAULT	5018	5044			
THIRD ELK	5044	5264			
FOURTH ELK	5264	5606			
RHINESTREET	5606	5741			
HAVERTY	5741	6161			
FOX	6161	6620			
SYCAMORE GRIT	6620	6821			
CASHAQUA	6821	7025			
"FRIB"	7025	7152			
MIDDLESEX	7152	7279			
WEST RIVER	7279	7482			
BURKETT	7482	7515			

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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 TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
TULLY	7515	7568			
HAMILTON	7568	7729			
MARCELLUS	7729				

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Id	Radius	Arc Length
C1	1100.00'	1475.87'

NAD 27 WV NORTH SPC:		LATITUDE
North	East	Description
255963.98000'	1842733.70000'	PHL29CHS
255873.03861'	1844098.30752'	LANDING PT.
250244.59652'	1849992.63867'	BOTTOM HOLE

39-12-30  
 SCALED COOR.:  
 3755' WEST  
 2515'SOUTH  
 80-02-30  
 LONGITUDE

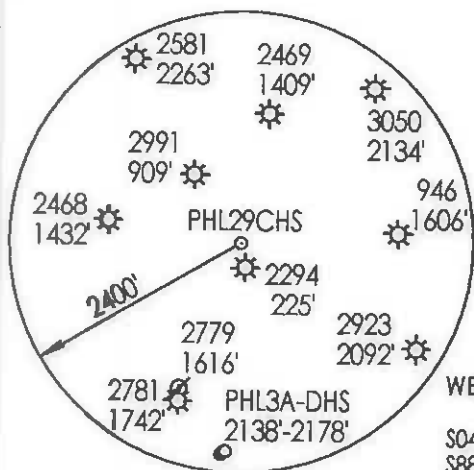
UTM NAD 83 ZONE 17 COOR.:

4,339,567.04 m	581,619.88 m	PHL29CHS
4,339,546.25 m	582,036.10 m	LANDING PT.
4,337,861.30 m	583,860.43 m	BOTTOM HOLE

**BOTTOM HOLE AS DRILLED**  
 NAD 27 WV NORTH SPC  
 250,330.47680' 1,849,919.34247' PHL29CHS  
 NAD 83 UTM ZONE 17 IN METERS  
 4,337,887.09 m 583,837.66 m PHL29CHS

--- PERMITTED  
 --- AS DRILLED  
 NOTE: AS DRILLED TOP HOLE COORDINATES SAME AS PERMITTED ONES.

Id	Bearing	Distance
L1	S 71°31'12" E	724.08'
L2	S 82°25'48" E	736.33'
L3	S 77°01'15" E	1453.79'

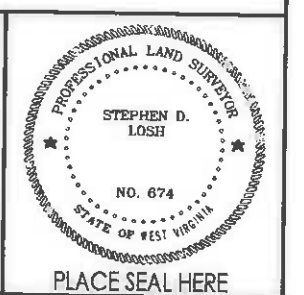


WELL REFERENCES:  
 S04-26E, 225.04' TO WELL 47-001-02294  
 S88-10W, 263.99' TO NAIL IN ROOT 6" CHERRY

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NUMBER: \_\_\_\_\_  
 DRAWING NUMBER: CNXPHL29CHSR1AD.PCS  
 SCALE: 1" = 1300'  
 MINIMUM DEGREE OF ACCURACY: SUBMETER  
 PROVEN SOURCE OF ELEVATION: DGPS SURVEY  
 RTK SYSTEM

I THE UNDERSIGNED, HEREBY STATE 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 ENERGY.  
 (SIGNED) \_\_\_\_\_  
 STEPHEN D. LOSH, P.S. #674



STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS  
 #10 McJUNKIN ROAD  
 NITRO, WV 25143-2506

LAND SURVEYING SERVICES  
 21 CEDAR LANE, BRIDGEPORT, WV 26330  
 PHONE: 304-842-2018 OR 842-5762

DATE: MARCH 05, 2015

FORM WW-6  
 WELL TYPE: OIL \_\_\_ GAS \_\_\_ LIQUID INJECTION  WASTE DISPOSAL \_\_\_ CBM \_\_\_  
 (IF "GAS") PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW   
 OPERATORS WELL NO.: PHL29CHS  
 API WELL NO. 47-001-03311  
 STATE COUNTY PERMIT

LOCATION: ELEVATION 1406.00' WATERSHED FOXGRAPE RUN  
 DISTRICT PLEASANT COUNTY BARBOUR  
 QUADRANGLE PHILIPPI

SURFACE OWNER PHILIPPI DEVELOPMENT, INC.  
 OIL & GAS ROYALTY OWNER A. CORDER, ET. AL.  
 ACREAGE 2385.55 (20-23)  
 LEASE ACREAGE 1728.38

PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_ PLUG OFF OLD FORMATION \_\_\_  
 PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE (SPECIFY) HORIZONTAL

TARGET FORMATION MARCELLUS  
 PLUG & ABANDON \_\_\_ CLEAN OUT & REPLUG \_\_\_  
 ESTIMATED DEPTH TVD = 7696.92' TMD = 16390'

WELL OPERATOR CNX GAS COMPANY LLC  
 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378  
 DESIGNATED AGENT MATTHEW IMRICH  
 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378

Office of Oil and Gas  
 JUN 01 2015

COUNTY NAME  
 PERMIT

47-001-03311

### Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	8/26/2014
Job End Date	10/13/2014
State	West Virginia
County	Barbour
API Number	47-001-03311-00-00
Operator Name	CONSOL Energy Inc.
Well Name and Number	PHL 29C
Longitude	-80.05493600
Latitude	39.20143900
Datum	NAD27
Federal/Tribal Well	NO
True Vertical Depth	7,696
Total Base Water Volume (gal)	21,229,100
Total Base Non Water Volume	0



Received  
Office of Oil & Gas  
JUN 01 2015

#### Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100.00000	89.68244	Density = 8.330
Biovert NWB, FR-50D, FR-66, HYDROCHLORIC ACID 5-10%, HYDROCHLORIC ACID 10-30%, LGC-36 UC, LP-65 MC, MC MX 8-2544, MC 437-5, PermVis VFR-10, Premium White 100 Mesh Sand, Premium White 40/70 Mesh Sand, SP Breaker, OptiKleen-WF	Halliburton, MultiChem	Additive, Breaker, Conc, Friction Reducer, Liquid Gel Conc, Live Culture - Nitrate Reduc Bacteria, Proppant, Scale Inhibitor, Solvent	Crystalline silica, quartz	14808-60-7	100.00000	9.19133	
			Water	7732-18-5	100.00000	1.41567	
			Calcium nitrate	10124-37-5	60.00000	0.45326	
			Hydrochloric acid	7647-01-0	30.00000	0.09816	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.03230	
			Polyacrylate	Confidential	30.00000	0.03167	
			Inorganic salt	Confidential	30.00000	0.03167	

		Organic phosphonate	Confidential	50.00000	0.01100	
		Alcohols, C12-16, ethoxylated	88551-12-2	10.00000	0.01066	
		Ammonium chloride	12125-02-9	10.00000	0.01066	
		Fatty acid ester	Confidential	5.00000	0.00528	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
		9-Octadecenamamide, n,n-bis-2 (hydroxy-ethyl)-,(Z)	93-83-4	5.00000	0.00528	
		Naphtha, hydrotreated heavy	84742-48-9	60.00000	0.00283	
		Guar gum	9000-30-0	60.00000	0.00283	
		Poly lactide resin	Confidential	100.00000	0.00099	
		Polyacrylamide copolymer	Confidential	30.00000	0.00064	
		Nutrient Mixture	NA	5.00000	0.00047	
		Sodium chloride	7647-14-5	100.00000	0.00042	
		Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	68953-58-2	5.00000	0.00024	
		Acrylamide acrylate copolymer	9003-06-9	60.00000	0.00019	
		Formaldehyde	50-00-0	1.00000	0.00018	
		Sodium perborate tetrahydrate	10486-00-7	100.00000	0.00014	
		Fatty acid tall oil amide	Confidential	5.00000	0.00011	
		Sodium persulfate	7775-27-1	100.00000	0.00006	
		Fatty alcohol polyglycol ether surfactant	9043-30-5	1.00000	0.00005	
		Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00002	
		Sorbitan, mono-9- octadecenoate, (Z)	1338-43-8	1.00000	0.00002	
		Sodium sulfate	7757-82-6	0.10000	0.00000	
		Acrylonitrile	107-13-1	0.10000	0.00000	

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)