

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

API 47-001-03309H6A County Barbour District Pleasant
Quad Philippi Pad Name PHL29HS Field/Pool Name Philippi
Farm Name PHILIPPI DEVELOPMENT, INC. Well Number PHL29AHS
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 4,339,576.53 m Easting 581,612.23 m
Landing Point of Curve Northing 4,339,805.59 m Easting 582,428.98 m
Bottom Hole Northing 4,338,048.27 m Easting 584,331.65 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.

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Date Permit Issued 10/08/2013 Date drilling commenced 03/12/2014 Date drilling ceased 05/06/2014
Date completion activities began 08/23/2014 Date completion activities ceased 10/14/2014
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 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 6/23
WS 06/25/15

API 47-001-03309H6A Farm name PHILIPPI DEVELOPMENT, INC. Well number PHL29AHS

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"	722.5'	N	J-55 54.5# / 722.5'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2019.3'	N	J-55 36# / 2019.3'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	17059.6'	N	P-110 20# / 17059.6'	N/A	N
Tubing	5 1/2"	2 3/8"	8386'	N	L-80 4.7# / 8386'	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	600	15.6	1.18	708	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	679	15.6	1.18	801	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	823 / 2338	14.2 / 14.8	1.26	3983	1775'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 7674' Loggers TD (ft) 7729'

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

Plug back procedure: N/A

Kick Off Depth (ft) 5586'

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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)
1.1	8/23/2014	17026	16972	36	Marcellus
1.2	8/23/2014	17026	16886	72	Marcellus
2	8/29/2014	16840	16760	32	Marcellus
2B	8/31/2014	16840	16756	80	Marcellus
3.1	8/31/2014	16724	16667	21	Marcellus
3.2	8/31/2014	16638	16574	21	Marcellus
4	9/3/2014	16540	16460	28	Marcellus
5.1	9/3/2014	16414	16357	21	Marcellus
5.2	9/3/2014	16328	16257	21	Marcellus
6	9/4/2014	16226	16120	40	Marcellus
7	9/5/2014	16090	16010	40	Marcellus
8.1	9/6/2014	15973	15922	21	Marcellus
8.2	9/6/2014	15898	15847	21	Marcellus
9	9/6/2014	15805	15716	40	Marcellus
10.0	9/7/2014	15690	15610	40	Marcellus
11.0	9/7/2014	15593	15489	40	Marcellus
12.0	9/7/2014	15464	15380	32	Marcellus
13.1	9/7/2014	15362	15312	21	Marcellus
13.2	9/7/2014	15238	15218	21	Marcellus
14.0	9/8/2014	15180	15100	28	Marcellus
15.0	9/8/2014	15070	14990	40	Marcellus
16.1	9/8/2014	14972	14922	21	Marcellus
16.2	9/8/2014	14898	14847	21	Marcellus
17.1	9/9/2014	14815	14764	21	Marcellus
17.2	9/9/2014	14740	14689	21	Marcellus
18.0	9/9/2014	14659	14579	40	Marcellus
19.0	9/9/2014	14650	14470	40	Marcellus
20.0	9/10/2014	14433	14331	40	Marcellus
21.0	9/10/2014	14300	14220	40	Marcellus
22.1	9/10/2014	14193	14134	30	Marcellus
22.2	9/10/2014	14106	14047	30	Marcellus
23.0	9/10/2014	13976	13904	28	Marcellus
24.0	9/11/2014	13858	13736	50	Marcellus
25.0	9/11/2014	13626	13520	40	Marcellus
26.1	9/11/2014	13483	13432	21	Marcellus
26.2	9/11/2014	13408	13357	21	Marcellus
27.1	9/12/2014	13188	13122	21	Marcellus
27.2	9/12/2014	13098	13045	21	Marcellus

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Office of Oil & Gas
JUN 01 2015

API 47-001-03309H6AFarm name PHILIPPIWell number PHL29AHSDEVELOPMENT, INC.

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
28.0	9/12/2014	12913	12811	40	Marcellus
29.0	9/12/2014	12780	12700	40	Marcellus
30.1	9/13/2014	12666	12607	21	Marcellus
30.2	9/13/2014	12577	12495	21	Marcellus
31.1	9/14/2014	12452	12399	21	Marcellus
31.2	9/14/2014	12374	12317	21	Marcellus
32.0	9/14/2014	12280	12200	40	Marcellus
33.1	9/14/2014	12179	12132	21	Marcellus
33.2	9/14/2014	12108	12057	21	Marcellus
34.0	9/15/2014	12010	11930	40	Marcellus
35.1	9/15/2014	11886	11831	21	Marcellus
35.2	9/15/2014	11805	11747	21	Marcellus
36.0	9/16/2014	11689	11615	40	Marcellus
37.0	9/17/2014	11580	11500	40	Marcellus
38.0	9/17/2014	11468	11366	40	Marcellus
39.0	9/18/2014	11330	11250	40	Marcellus
40.0	9/18/2014	11220	11130	40	Marcellus
41.0	9/19/2014	11122	11019	40	Marcellus
42.0	9/19/2014	10988	10908	40	Marcellus
43.0	9/20/2014	10879	10807	40	Marcellus
44.0	9/20/2014	10770	10690	40	Marcellus
45.1	9/20/2014	10664	10617	21	Marcellus
45.2	9/20/2014	10593	10548	21	Marcellus
46.0	9/21/2014	10514	10408	40	Marcellus
47.0	9/21/2014	10368	10266	40	Marcellus
48.0	9/22/2014	10209	10129	40	Marcellus
49.0	9/22/2014	10100	10020	40	Marcellus
50.1	9/23/2014	9976	9837	42	Marcellus
50.2	9/23/2014	9976	9837	42	Marcellus
51.0	9/24/2014	9780	9700	40	Marcellus
52.0	9/24/2014	9670	9590	40	Marcellus
53.1	9/25/2014	9546	9473	24	Marcellus
53.2	9/25/2014	9428	9377	18	Marcellus
54.0	10/11/2014	9336	9254	30	Marcellus
55.0	10/11/2014	9228	9134	30	Marcellus
56.0	10/12/2014	9108	9024	40	Marcellus
57.0	10/12/2014	9009	8909	42	Marcellus
58.1	10/12/2014	8883	8737	42	Marcellus

API 47-001-03309H6A

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Well number PHL29AHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
58.2	10/12/2014	8883	8737	42	Marcellus
59.0	10/14/2014	8713	8636	40	Marcellus
60.0	10/14/2014	8580	8496	60	Marcellus

Received
Office of Oil & Gas
JUN 01 2015

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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	8/23/2014	60.2	8679	9085	0	198374	10677	7233
1.2	8/23/2014	57.1	8600	9065	4797	129232	7572	3635
2.0	8/29/2014	2.8	6896	9090	6065	250000	1188	4123
2B.0	8/31/2014	1.8	7508	9101	5660	225000	1102	50
3.1	8/31/2014	72.8	8476	8963	NA	224520	9128	3995
3.2	8/31/2014	70.4	8117	8464	4918	387917	7287	3726
4.0	9/3/2014	76.5	8453	8853	5394	265666	7824	3771
5.1	9/3/2014	79.3	8454	8919	NA	225238	8777	3852
5.2	9/3/2014	75.6	8227	8723	5303	180980	5652	3611
6.0	9/4/2014	79.2	8202	8331	5390	296419	7540	3783
7.0	9/5/2014	75.5	8153	8437	5636	343426	7342	3769
8.1	9/6/2014	80	8103	8449	NA	225870	5987	3602
8.2	9/6/2014	79.8	8193	8627	5884	203724	6960	3621
9.0	9/6/2014	79	8021	8270	5553	265174	6790	3604
10.0	9/7/2014	83.1	8241	8575	5537	257288	6317	3565
11.0	9/7/2014	87.9	8225	8524	5210	305279	7238	3643
12.0	9/7/2014	84.2	8392	8565	5146	251776	6835	3589
13.1	9/7/2014	70.3	8496	9010	NA	200674	9319	3973
13.2	9/7/2014	78.5	8337	8578	5513	199512	6977	6605
14.0	9/8/2014	79.1	8200	8818	5037	251902	5852	3512
15.0	9/8/2014	80.3	8540	8823	5086	253005	6510	3601
16.1	9/8/2014	81.7	8488	8599	NA	196017	6001	3552
16.2	9/8/2014	79.9	8430	8704	5450	205214	6130	3555
17.1	9/9/2014	75.7	8448	8878	NA	200075	8796	3919
17.2	9/9/2014	63.7	8508	8919	5464	167406	5873	3519
18.0	9/9/2014	70.2	8337	8520	5966	281203	6918	3661
19.0	9/9/2014	68.9	8384	8535	5359	242645	6302	3580
20.0	9/10/2014	73.8	8338	8703	5053	309992	6992	3691
21.0	9/10/2014	72.57	8305	8863	5681	251191	6845	3727
22.1	9/10/2014	85.8	8361	8703	NA	228690	6538	3641
22.2	9/10/2014	79.3	8651	9012	6116	195713	7237	3680
23.0	9/10/2014	81.2	8140	8558	5179	278782	6599	3613
24.0	9/11/2014	72.87	8338	8844	5041	350661	12555	4219
25.0	9/11/2014	87.1	7965	8395	5113	303159	7094	3003
26.1	9/11/2014	82.8	8160	8515	NA	205870	6336	3559
26.2	9/11/2014	79.5	8059	8447	5280	198439	5619	463
27.1	9/12/2014	67.61	8238	8642	NA	226182	6384	3605
27.2	9/12/2014	73.32	8186	8441	5311	226868	6007	3516

Received
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JUN 01 2015

API 47-001-03309H6A

Farm name PHILIPPI

Well number PHL29AHS

DEVELOPMENT, INC.

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)
28.0	9/12/2014	64.4	8404	9125	5615	299619	13330	4697
29.0	9/12/2014	68.9	8399	8606	5554	252652	6816	3636
30.1	9/13/2014	76.93	8257	8699	NA	252742	6654	3652
30.2	9/13/2014	71.14	8378	8823	5751	249193	6412	3622
31.1	9/14/2014	79.6	8389	8739	NA	197031	6612	3657
31.2	9/14/2014	69.49	8216	8491	5312	205305	5472	3493
32.0	9/14/2014	75.38	8218	8476	5552	249521	6204	3588
33.1	9/14/2014	75.5	8088	8530	NA	201705	5583	3527
33.2	9/14/2014	69.3	8002	8956	5949	200727	12064	7270
34.0	9/15/2014	78.93	8303	8727	5527	244398	5758	3530
35.1	9/15/2014	79.7	8068	8886	NA	196286	7267	3836
35.2	9/15/2014	85.61	8320	9149	6320	198373	6814	3823
36.0	9/16/2014	89.14	8173	8388	5399	249439	6048	3568
37.0	9/17/2014	81.5	8402	8760	5028	249822	7365	3701
38.0	9/17/2014	76.7	8214	8829	5220	290308	6702	3555
39.0	9/18/2014	73.6	8191	8732	4766	256792	7006	3505
40.0	9/18/2014	83	8128	8704	5737	249092	5866	3442
41.0	9/19/2014	88.1	8362	8655	5589	306211	7113	3496
42.0	9/19/2014	93.59	8291	8467	5904	254033	5329	3494
43.0	9/20/2014	94.06	8270	8699	5598	242318	8834	3840
44.0	9/20/2014	93.94	8270	8656	5104	246950	6428	3777
45.1	9/20/2014	84.45	8182	8735	NA	200702	5952	3695
45.2	9/20/2014	83.1	8268	8421	5486	202034	5645	3590
46.0	9/21/2014	98.33	8211	8877	4940	274367	6429	3600
47.0	9/21/2014	93.71	8099	8564	5019	304340	9129	4018
48.0	9/22/2014	91.05	8290	7342	5614	237040	6234	3479
49.0	9/22/2014	91.6	7910	8732	4998	288974	8022	3663
50.1	9/23/2014	91.06	7925	8427	NA	201315	5123	3464
50.2	9/23/2014	78.8	7708.5	8131	4711	201930	6269	3589
51.0	9/24/2014	88.8	7731	8068	5622	254803	5762	3502
52.0	9/24/2014	91.8	8005	8859	5152	252387	5762	3624
53.1	9/25/2014	95.7	8393	8984	NA	244117	5914	3670
53.2	9/25/2014	78.4	7964	8293	5069	259341	5984	3559
54.0	10/11/2014	92.4	8040	8138	5013	250896	4974	3430
55.0	10/11/2014	68.5	7820	8639	5041	250891	5721	3580
56.0	10/12/2014	82.6	8252	8932	5175	251064	6319	3678
57.0	10/12/2014	65.8	8042	8869	5511	299410	8297	3993
58.1	10/12/2014	94.99	8423	8808	NA	200116	6823	3536

Received
 8269
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 5762
 JUN 1 2015

API 47-001-03309H6A

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Well number PHL29AHS

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 (bbbls)	Amount of Nitrogen / other (gals)
58.2	10/12/2014	89.1	8334	9131	6087	202713	4846	3536
59.0	10/14/2014	90.17	7874	8726	5476	250912	5802	3526
60.0	10/14/2014	88.9	8379	8931	5713	252865	6577	3739

Received
Office of Oil & Gas
JUN 01 2015

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PRODUCING FORMATION(S)	DEPTHS	TVD	MD
MARCELLUS	7729'		

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 4721 psi DURATION OF TEST 292 hrs
 OPEN FLOW Gas 9348 mcfpd Oil 0 bpd NGL 0 bpd Water 1265 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 Patterson UTI
 Address 207 Carlton Dr City Eighty Four State PA Zip 15330
 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 Halliburton
 Address 121 Champion Way, Suite 110 City Canonsburg State PA Zip 15317-5817

Please insert additional pages as applicable.

Completed by CNX Gas WV Operations Company, LLC - Drilling and Completions Telephone 304-884-2000
 Signature [Signature] Title Steve Spidler - Completions Manager-Gas WV Date 5/28/15

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

API 47-001-03309H6A Farm name PHILIPPI DEVELOPMENT, INC. Well number PHL29AHS

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	92			
SAND	92	180			
SHALE	180	190			
SANDY SHALE	190	260			
SAND	260	397			
SHALE	397	509			
SHALE/SAND	509	638			
SHALE	638	1080			
SANDSTONE	1080	1230			
SHALE	1230	1270			
LIME	1270	1450			
SHALE	1450	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			
TULLY	7515	7568			

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JUN 01 2015

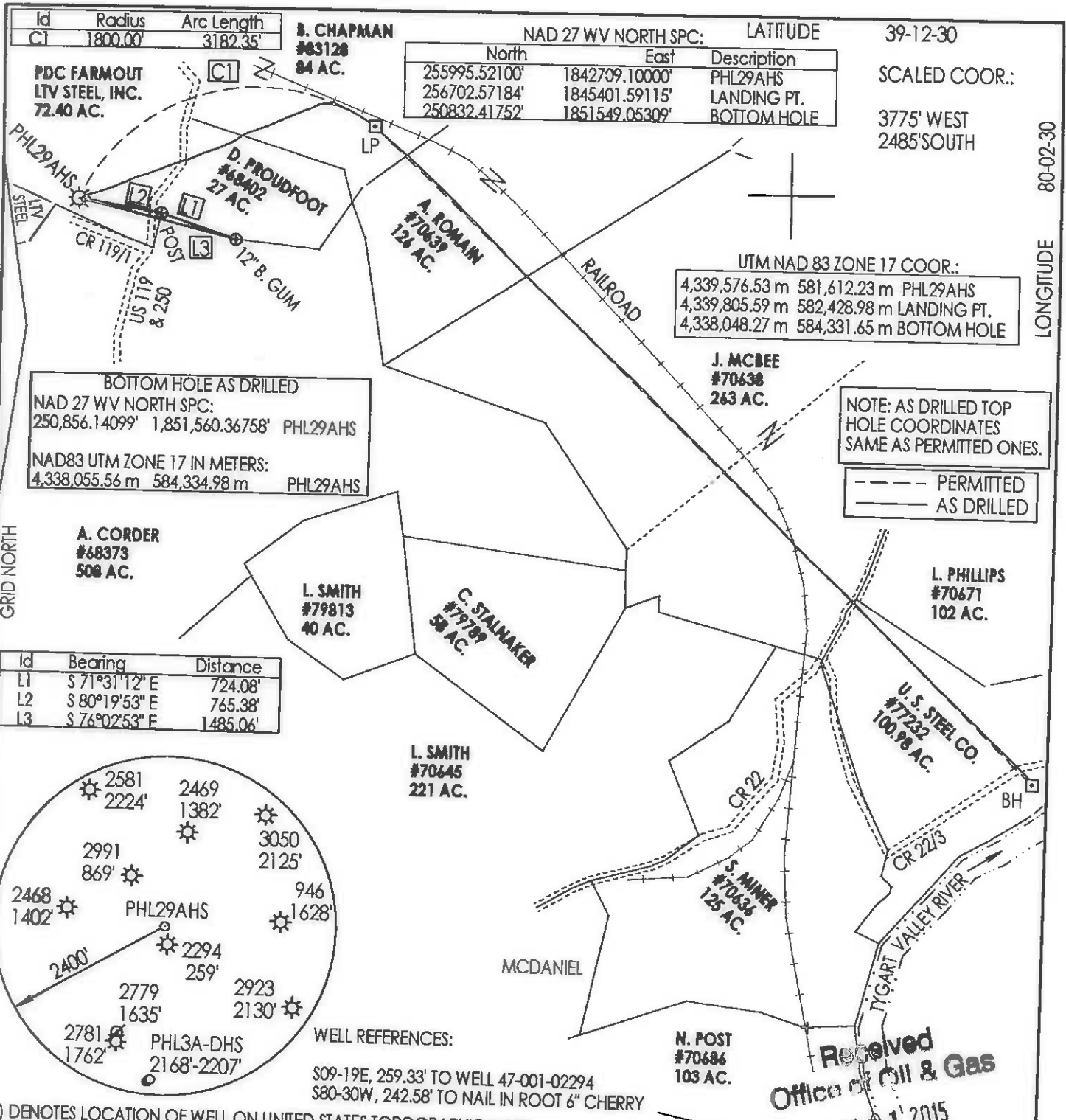
API 47-001-03309H6A

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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	
HAMILTON	7568	7729			
MARCELLUS	7729				

Received
Office of Oil & Gas
JUN 01 2015



NAD 27 WV NORTH SPC:		LATITUDE	
North	East	Description	
255995.52100'	1842709.10000'	PHL29AHS	
256702.57184'	1845401.59115'	LANDING PT.	
250832.41752'	1851549.05309'	BOTTOM HOLE	

39-12-30
 SCALED COOR.:
 3775' WEST
 2485'SOUTH

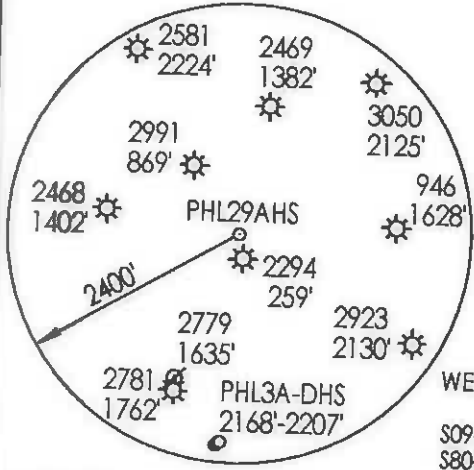
UTM NAD 83 ZONE 17 COOR.:		Description	
4,339,576.53 m	581,612.23 m	PHL29AHS	
4,339,805.59 m	582,428.98 m	LANDING PT.	
4,338,048.27 m	584,331.65 m	BOTTOM HOLE	

BOTTOM HOLE AS DRILLED
 NAD 27 WV NORTH SPC:
 250,856.14099' 1,851,560.36758' PHL29AHS
 NAD83 UTM ZONE 17 IN METERS:
 4,338,055.56 m 584,334.98 m PHL29AHS

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

--- PERMITTED
 — AS DRILLED

Id	Bearing	Distance
L1	S 71°31'12" E	724.08'
L2	S 80°19'53" E	765.38'
L3	S 76°02'53" E	1485.06'



WELL REFERENCES:
 S09-19E, 259.33' TO WELL 47-001-02294
 S80-30W, 242.58' TO NAIL IN ROOT 6" CHERRY

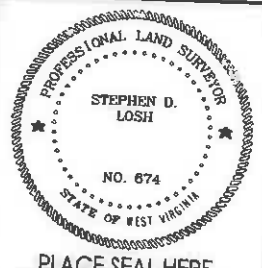
Received
 Office of Oil & Gas
 JUN 01 2015

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

FILE NUMBER: _____
 DRAWING NUMBER: CNXPHL29AHSRTAD.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
 OPERATORS WELL NO.: PHL29AHS
 API WELL NO. (AS DRILLED) 47-001-03309
 STATE COUNTY PERMIT

WELL TYPE OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___ CBM ___
 (IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW
 LOCATION: ELEVATION 1406.00' WATERSHED FOXGRAPE RUN
 DISTRICT PLEASANT COUNTY BARBOUR
 QUADRANGLE PHILIPPI

SURFACE OWNER PHILIPPI DEVELOPMENT, INC. LEASE NUMBER SEE ABOVE
 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 ___
 WELL OPERATOR CNX GAS COMPANY LLC ESTIMATED DEPTH TVD = 7673.41' TMD = 17066'
 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378 DESIGNATED AGENT MATTHEW IMRICH
 ADDRESS P. O. BOX 1248 JANE LEW, WV 26378

LONGITUDE 80-02-30
 COUNTY NAME
 PERMIT

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/22/2014
Job End Date:	10/14/2014
State:	West Virginia
County:	Barbour
API Number:	47-001-03309-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	PHL 29A
Longitude:	-80.05502300
Latitude:	39.20152500
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,673
Total Base Water Volume (gal):	23,299,058
Total Base Non Water Volume:	0



Oil & Gas
SEP 28 10 10 AM '14

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					
Biovert NWB, Common White 10 Mesh Sand, FR-50D, HYDROCHLORIC ACID 5-10%, HYDROCHLORIC ACID 10-30%, LCA-1, LGC-36 UC, LP-65 MC, MC MX 8-2544, MC 437-5, OptiKleen-WF, PermVis VFR-10, Premium White 40/70 Mesh Sand, SP Breaker	Halliburton, MultiChem	Additive, Breaker, Conc, Friction Reducer, Liquid Gel Conc, Live Culture - Nitrate Reduc Bacteria, Proppant, Scale Inhibitor, Solvent, Viscosifier	Fresh Water	7732-18-5	100.00000	90.21126	Density = 8.330
			Crystalline silica, quartz	14808-60-7	100.00000	8.59317	
			Water	7732-18-5	100.00000	1.06877	
			Hydrochloric acid	7647-01-0	10.00000	0.09784	
			Calcium nitrate	10124-37-5	60.00000	0.05573	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.03297	
			Inorganic salt	Confidential	30.00000	0.03297	
			Polyacrylate	Confidential	30.00000	0.03297	

		Ammonium chloride	12125-02-9	10.00000	0.01254	
		Alcohols, C12-16, ethoxylated	88551-12-2	10.00000	0.01099	
		Organic phosphonate	Confidential	50.00000	0.00930	
		Fatty acid ester	Confidential	5.00000	0.00550	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226
		9-Octadecanamide, n,n-bis-2 (hydroxy-ethyl)-, (Z)	93-83-4	5.00000	0.00550	
		Guar gum	9000-30-0	60.00000	0.00239	
		Naphtha, hydrotreated heavy	64742-48-9	60.00000	0.00239	
		Acrylamide acrylate copolymer	9003-06-9	60.00000	0.00166	
		Paraffinic solvent	Confidential	100.00000	0.00124	
		Poly lactide resin	Proprietary	100.00000	0.00079	
		Nutrient Mixture	NA	5.00000	0.00047	
		Sodium chloride	7647-14-5	100.00000	0.00028	
		Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl, salts with bentonite	68953-58-2	5.00000	0.00020	
		Sodium perborate tetrahydrate	10486-00-7	100.00000	0.00018	
		Formaldehyde	50-00-0	1.00000	0.00016	
		Sodium persulfate	7775-27-1	100.00000	0.00005	
		Fatty alcohol polyglycol ether surfactant	9043-30-5	1.00000	0.00004	
		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)