

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

API 47-041-05685H6A County Lewis District Freemans Creek
Quad Camden 7.5' Pad Name CAM17HS Field/Pool Name Camden
Farm Name KIRBY, LINDA Well Number CAM17AHS
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 4,325,666.20 m Easting 535,738.10 m
Landing Point of Curve Northing 4,325,259.10 m Easting 535,430.44 m
Bottom Hole Northing 4,323,627.75 m Easting 536,190.29 m

Elevation (ft) 1248' 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 01/16/2014 Date drilling commenced 04/11/2014 Date drilling ceased 09/02/2014
Date completion activities began 10/20/2014 Date completion activities ceased 11/3/2014
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

Freshwater depth(s) ft 290', 350', 420' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1800', 2350' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 200' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

RECEIVED
Office of Oil and Gas

JUL 31 2015

WV Department of
Environmental Protection

Reviewed by:

Gorr, Kevin

K. Gorr
08/21/2015

API 47-041-05685H6A Farm name KIRBY, LINDA Well number CAM17AHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	10/20/2014	13797	13795	12	Marcellus
2	10/21/2014	13777	13655	60	Marcellus
3	10/22/2014	13627	13505	60	Marcellus
4	10/22/2014	13477	13354	60	Marcellus
5	10/23/2014	13326	13203	60	Marcellus
6	10/23/2014	13175	13052	60	Marcellus
7	10/23/2014	13024	12901	60	Marcellus
8	10/24/2014	12873	12750	60	Marcellus
9	10/24/2014	12722	12599	60	Marcellus
10	10/25/2014	12571	12448	60	Marcellus
11	10/25/2014	12420	12297	60	Marcellus
12	10/26/2014	12269	12146	60	Marcellus
13	10/26/2014	12118	11995	60	Marcellus
14	10/26/2014	11967	11844	60	Marcellus
15	10/27/2014	11816	11693	60	Marcellus
16	10/27/2014	11665	11542	60	Marcellus
17	10/27/2014	11514	11391	60	Marcellus
18	10/28/2014	11363	11240	60	Marcellus
19	10/28/2014	11212	11089	60	Marcellus
20	10/29/2014	11061	10938	60	Marcellus
21	10/29/2014	10910	10787	60	Marcellus
22	10/29/2014	10759	10636	60	Marcellus
23	10/30/2014	10608	10485	60	Marcellus
24	10/31/2014	10457	10334	60	Marcellus
25	10/31/2014	10306	10183	60	Marcellus
26	10/31/2014	10155	10032	60	Marcellus
27	10/31/2014	10004	9881	60	Marcellus
28	11/1/2014	9853	9730	60	Marcellus
29	11/1/2014	9702	9579	60	Marcellus
30	11/1/2014	9551	9428	60	Marcellus
31	11/1/2014	9400	9277	60	Marcellus
32	11/1/2014	9249	9126	60	Marcellus
33	11/1/2014	9098	8975	60	Marcellus
34	11/2/2014	8947	8824	60	Marcellus
35	11/2/2014	8796	8673	60	Marcellus
36	11/2/2014	8645	8522	60	Marcellus
37	11/2/2014	8494	8371	60	Marcellus
38	11/2/2014	8343	8220	60	Marcellus
39	11/2/2014	8192	8069	60	Marcellus

RECEIVED
Office of Oil and Gas
JUL 31 2015
WV Department of Environmental Protection

08/21/2015

API 47-041-05685H6A

Farm name KIRBY, LINDA

Well number CAM17AHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
40	11/3/2014	8041	7918	60	Marcellus
41	11/3/2014	7890	7767	60	Marcellus
42	11/3/2014	7739	7616	60	Marcellus

RECEIVED
Office of Oil and Gas

JUL 31 2015

WV Department of
Environmental Protection

08/21/2015

API 47-041-05685H6A Farm name KIRBY, LINDA Well number CAM17AHS

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	10/20/2014	78.4	7967	7308	4051	91350	3883	3214
2	10/21/2014	78.9	7995	6026	5388	208200	6010	3321
3	10/22/2014	88.8	8111	5959	4714	202550	5125	3283
4	10/22/2014	62.8	7136	5959	4864	200550	4850	3243
5	10/23/2014	86.8	8161	5731	5286	204400	5254	3316
6	10/23/2014	88.3	8185	6231	4953	202100	4940	3267
7	10/23/2014	83.8	7933	6086	4037	200800	5192	3272
8	10/24/2014	89.9	8183	6017	4426	201000	5016	3314
9	10/24/2014	85.9	8270	5911	4658	201900	4738	3304
10	10/25/2014	79.9	8051	5971	4964	200600	4674	3256
11	10/25/2014	71.8	7982	6016	4349	200350	4859	3252
12	10/26/2014	77	8194	6178	4151	200550	6239	3461
13	10/26/2014	88	8254	6217	4652	203400	4576	3317
14	10/26/2014	76.6	7824	5383	4593	201400	6028	3352
15	10/27/2014	75.5	8059	6181	4146	200410	6773	3438
16	10/27/2014	88	8185	6095	4167	203900	4988	3327
17	10/27/2014	0	8034	5952	5486	200650	6395	3389
18	10/28/2014	88	8097	6078	4621	203900	5042	3299
19	10/28/2014	93	8231	6182	5034	202550	4948	3298
20	10/29/2014	89.5	8069	5731	5214	201950	4438	6275
21	10/29/2014	91	8203	5774	5545	205200	4624	6246
22	10/29/2014	83	8045	5596	6776	201950	4518	6267
23	10/30/2014	94	7971	6095	4905	202850	4697	8657
24	10/31/2014	92	8125	5956	4790	203200	4811	6438
25	10/31/2014	93	8077	5800	4857	211300	4768	6414
26	10/31/2014	97	8055	6129	4868	205050	4629	6438
27	10/31/2014	99.7	7909	5956	4911	200300	4620	6425
28	11/1/2014	99	8099	6077	4888	203150	4668	6456
29	11/1/2014	97	7933	6043	4189	204600	4826	6448
30	11/1/2014	97	8010	5939	4227	202500	4611	6418
31	11/1/2014	95	7954	6347	4347	203800	4548	6420
32	11/1/2014	94	7809	6580	4956	200300	4547	6467
33	11/1/2014	97	7987	6164	4852	206900	4498	6424
34	11/2/2014	98	8006	6285	4820	202600	4394	6416
35	11/2/2014	98	7906	6057	4933	203100	4492	6417
36	11/2/2014	98	7736	5922	4720	206700	4625	6441
37	11/2/2014	98	7669	5714	5086	202950	4532	6436
38	11/2/2014	100	7680	5662	5018	203450	4213	6187
39	11/2/2014	94	8232	6753	4990	197550	4465	6288

RECEIVED
Office of Oil and Gas
JUL 31 2015
WV Department of Environmental Protection

08/21/2015

API 47-041-05685H6A

Farm name KIRBY, LINDA

Well number CAM17AHS

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)
40	11/3/2014	100	7778	6025	5004	199150	4226	6350
41	11/3/2014	98	7815	6216	5194	193400	4345	6404
42	11/3/2014	99	7830	6192	4694	188860	4255	6403

RECEIVED
 Office of Oil and Gas
 JUL 31 2015
 WV Department of
 Environmental Protection

08/21/2015

API 47-041-05685H6A Farm name KIRBY, LINDA Well number CAM17AHS

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	120			
SANDSTONE	120	140			Gray
LIMESTONE/SANDSTONE	140	200			Brown/White
LIMESTONE/SANDSTONE/COAL	200	230			Light Brown/White
SANDSTONE/LIMESTONE	230	290			White/Light Brown
SILTSTONE/SANDSTONE/LIMEST	290	320			Red/Yellow
REDROCK	320	470			Red
REDROCK/LIME/SANDSTONE	470	629			Red/Gray
SANDSTONE/SHALE	629	1050			Med Gray
Salt Sands	1050	1582			Light Gray
Redrock	1582	1668			Red
Little Lime	1668	1713			Light Gray
Big Lime	1713	1816			Light Gray/Brown
Big Injun	1816	1878			Light Gray
Siltstone/Sandstone/Shale	1878	2226			Gray
50/30 Foot Sands	2226	2375			Varicolored
Gordon Sand	2375	2450			Med Gray
Shale	2450	2601			Dark Gray
Fifth Sand	2601	2624			Med Gray
Shale	2624	2668			Dark Gray
Bayard Sand	2668	2679			Med Gray
Siltstone/Shale	2679	3168			Med/Dark Gray
Speechley Sand	3168	3460			Med Gray
Balltown Sand	3460	3636			Med Gray
Siltstone/Sandstone/Shale	3636	4639			Med/Dark Gray
Benson Sand	4639	4941			Med/Dark Gray
Alexander Sand	4941	5070			Med/Dark Gray
Siltstone/Shale	5070	5626			Med/Dark Gray
Rhinestreet Shale	5626	6338			Dark Gray
Cashaqua Shale	6338	6542			Med Gray
Middlesex Shale	6542	6616			Dark Gray
West River Shale	6616	6720			Med Gray
Burket Shale	6720	6747			Black
Tully Limestone	6747	6784			Light Gray
Hamilton Shale	6784	6885			Light/Med Gray
Marcellus Shale	6885	6936			Black
Onondaga Limestone	6936	6972			Light Brown
Huntersville Chert	6972	7207			Light/Med Gray

RECEIVED
Office of Oil and Gas
JUL 31 2015
WV Department of
Environmental Protection

API 47-041-05685H6A

Farm name KIRBY, LINDA

Well number CAM17AHS

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	
Oriskany Sandstone	7207	7238			Light Gray

RECEIVED
Office of Oil and Gas

JUL 31 2015

WV Department of
Environmental Protection

08/21/2015

API 47-041-05685H6A Farm name KIRBY, LINDA Well number CAM17AHS

PRODUCING FORMATION(S) MARCELLUS DEPTHS 6885'- 6936' TVD _____ MD _____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1900 psi Bottom Hole 2750 psi DURATION OF TEST 25 hrs
 OPEN FLOW Gas 5707 mcfpd Oil 0 bpd NGL 0 bpd Water 96 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, H ₂ S, ETC)
					SEE ATTACHED
					RECEIVED
					Office of Oil and Gas
					JUL 31 2015
					WV Department of Environmental Protection

Please insert additional pages as applicable.

Drilling Contractor Patterson UTI
 Address 450 Gears Road Suite 500 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 7/29/15

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

08/21/2015

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/20/2014
Job End Date:	11/3/2014
State:	West Virginia
County:	Lewis
API Number:	47-041-05685-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	CAM-17A
Longitude:	-80.44189500
Latitude:	39.06184900
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,901
Total Base Water Volume (gal):	8,325,622
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract 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	88.41580	
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	10.62569	
			Hydrochloric acid	7647-01-0	35.00000	0.74395	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.05042	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	225987-30-8	40.00000	0.03614	
			Guar gum	9000-30-0	60.00000	0.02332	
			Calcite	471-34-1	1.00000	0.01792	
			2,2-Dibromo-3-Nitropropionamide	10222-01-2	20.00000	0.01277	
			Polyethylene glycol mixture	25322-68-3	70.00000	0.01277	
			Methanol	67-56-1	15.00000	0.00687	
			2-Propenoic acid, polymer with sodium phosphonate	71050-62-9	60.00000	0.00649	
			Illite	12173-60-3	1.00000	0.00576	

RECEIVED
Office of Oil and Gas
JUL 31 2015
WV Department of Environmental Protection

Goethite	1310-14-1		0.10000	0.00469
Sorbitan monooleate	1338-43-8		5.00000	0.00452
Poly(oxyethylene)nonylphenol ether	9016-45-9		5.00000	0.00452
Alkenes, C>10 a-	64743-02-8		0.10000	0.00319
Alcohols, C14-15, ethoxylated	38951-67-7		0.10000	0.00319
Modified thiourea polymer	38527-49-1		0.10000	0.00319
Fatty acids, tall-oil	61790-12-3		0.10000	0.00319
Apatite	64476-38-6		0.10000	0.00298
Biotite	1302-27-8		0.10000	0.00298
Ilmenite	38072-94-7		0.10000	0.00213
Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	38953-58-2		5.00000	0.00194
Dimethylcocoamine, bis(chloroethyl) ether, diquaternary ammonium salt	38607-28-3		40.00000	0.00131
Isopropanol	67-63-0		40.00000	0.00131
Propargyl Alcohol	107-19-7		0.10000	0.00106
Ammonium Persulfate	7727-54-0		100.00000	0.00083
Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5		1.50000	0.00058
Formaldehyde	50-00-0		0.10000	0.00021
Diallyldimethylammonium chloride	7398-69-8		5.00000	0.00016
Sodium chloride	7647-14-5		0.10000	0.00011

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)

RECEIVED
Office of Oil and Gas

JUL 31 2015

WV Department of
Environmental Protection

08/21/2015

AS DRILLED PLAT

Well is located on topo map 1,475 feet south of Latitude: 39° 05' 00"

PERMITTED
APPROX. HEEL POINT
UTM 17-NAD83
N:4325323.30
E:535400.90
NAD27, WV SOUTH
N:756306.20
E:2116147.20

AS DRILLED
APPROX. LANDING POINT
UTM 17-NAD83
N:4325259.10
E:535430.44
NAD27, WV SOUTH
N:756095.51
E:2116244.16

PERMITTED
SURFACE HOLE LOCATION (BHL)
UTM 17-NAD83
N:4325666.20
E:535738.10
NAD27, WV SOUTH
N:757431.50
E:2117254.20

AS DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4325666.20
E:535738.10
NAD27, WV SOUTH
N:757431.50
E:2117254.20

LEGEND

- TOPO MAP POINT
- WELL
- LESSORS
- MINERAL TRACT BOUNDARY
- LEASE BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- AS DRILLED
- ROAD
- STREAM CENTER LINE

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS

PARCEL	LESSOR
1	JOHN D. ROHRBAUGH ET AL.
2	JOHN D. ROHRBAUGH ET AL.
3	JOHN D. ROHRBAUGH ET AL.
4	JOHN D. ROHRBAUGH ET AL.
5	JOHN D. ROHRBAUGH ET AL.

- NOTES:
- There are no water wells or developed springs within 250' of proposed well.
 - There are no existing buildings within 625' of proposed well.
 - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 - There are no native trout streams within 300' of proposed well.
 - Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 - It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.
 - Proposed well, AHS, is greater than 400' from lease boundary.

Blue Mountain Inc.
10125 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

AS DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4323627.75
E:536190.29
NAD27, WV SOUTH
N:750740.73
E:2118737.59

PERMITTED
BOTTOM HOLE LOCATION (SHL)
UTM 17-NAD83
N:4323628.00
E:536191.70
NAD27, WV SOUTH
N:750741.50
E:2118742.10

Well is located on topo map 1,041 feet west of Longitude: 80° 35' 00"

FILE #: CAM 17 AHS-AS DRILLED
DRAWING #: CAM 17 AHS-AS DRILLED
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/2500
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY 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 ENVIRONMENTAL PROTECTION.

Signed: *George D. Six*
R.P.E.: _____ L.L.S.: P.S. No. 2000

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304



DATE: MAY 21, 2015
OPERATOR'S WELL #: CAM 17 AHS-AS DRILLED
API WELL #: 47 041 05685
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: LEFT FORK OF FREEMANS CREEK ELEVATION: 1248'
COUNTY/DISTRICT: LEWIS/FREEMANS CREEK QUADRANGLE: CAMDEN 7.5'
SURFACE OWNER: LINDA KIRBY ACREAGE: 590.592±
OIL & GAS ROYALTY OWNER: JOHN D. ROHRBAUGH ET AL. ACREAGE: 476±

08/21/2015

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,901'± TMD: 13,887'±
WELL OPERATOR CNX GAS COMPANY, LLC. DESIGNATED AGENT JOE BERRY, JR.
Address P.O. BOX 1248 Address P.O. BOX 1248
City JANE LEW State WV Zip Code 26378 City JANE LEW State WV Zip Code 26378