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

API 47-017-06411H6A County Doddridge District Southwest
Quad Oxford 7.5' Pad Name OXFD11HS Field/Pool Name Oxford
Farm Name MORRIS, I. L. Well Number OXFD11CHS
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	4,335,751.00 m	Easting	520,424.00 m
Landing Point of Curve	Northing	4,335,975.88 m	Easting	520,391.55 m
Bottom Hole	Northing	4,337,736.24 m	Easting	519,722.93 m

Elevation (ft) 1340' 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 02/12/2014 Date drilling commenced 06/26/2014 Date drilling ceased 10/02/2014
Date completion activities began 03/31/2015 Date completion activities ceased 04/17/2015
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 50', 620' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,810' 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) N

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Reviewed by:
Gorr, Kevin

API 47-017-06411H6A **Farm name MORRIS, I. L.** **Well number OXFD11CHS**

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	24"	20"	100'	N	J-55 94# / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	729'	N	J-55 54.5# / 729'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2630'	N	J-55 36# / 2630'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	13387'	N	P-110 20# / 13387'	N/A	N
Tubing	5 1/2"	2 3/8"	6971'	N	P-110 4.7# / 6971'	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	127	15.2	1.18	150	Surface	24
Surface	Class A	577	15.6	1.18	679	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	1009	15.6	1.18	1190	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	809 / 1682	14.2 / 14.8	1.24 / 1.25	1003 / 2103	2100'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 6818' Loggers TD (ft) 6905'

Deepest formation penetrated: Onondaga Plug back to (ft) 4595'

Plug back procedure: Solid Plug from 6818'-4595'

Kick Off Depth (ft) 4595'

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. 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)
					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.

API 47-017-06411H6A Farm name MORRIS, I. L. Well number OXFD11CHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	3/31/2015	13329	13327	12	Marcellus
2	3/31/2015	13262	13119	40	Marcellus
3	4/1/2015	13085	12942	40	Marcellus
4	4/1/2015	12908	12765	40	Marcellus
5	4/1/2015	12731	12588	40	Marcellus
6	4/2/2015	12554	12411	40	Marcellus
7	4/3/2015	12377	12234	40	Marcellus
8	4/3/2015	12200	12057	40	Marcellus
9	4/3/2015	12023	11880	40	Marcellus
10	4/4/2015	11846	11703	40	Marcellus
11	4/7/2015	11669	11526	40	Marcellus
12	4/8/2015	11492	11349	40	Marcellus
13	4/8/2015	11315	11172	40	Marcellus
14	4/8/2015	11138	10995	40	Marcellus
15	4/9/2015	10961	10818	40	Marcellus
16	4/10/2015	10784	10641	40	Marcellus
17	4/11/2015	10607	10464	40	Marcellus
18	4/11/2015	10430	10287	40	Marcellus
19	4/11/2015	10253	10110	40	Marcellus
20	4/12/2015	10076	9933	40	Marcellus
21	4/12/2015	9899	9756	40	Marcellus
22	4/12/2015	9722	9579	40	Marcellus
23	4/12/2015	9545	9402	40	Marcellus
24	4/13/2015	9368	9225	40	Marcellus
25	4/13/2015	9191	9048	40	Marcellus
26	4/13/2015	9014	8871	40	Marcellus
27	4/14/2015	8837	8694	40	Marcellus
28	4/14/2015	8660	8517	40	Marcellus
29	4/14/2015	8483	8340	40	Marcellus
30	4/15/2015	8306	8163	40	Marcellus
31	4/15/2015	8129	7986	40	Marcellus
32	4/16/2015	7952	7809	40	Marcellus
33	4/16/2015	7775	7632	40	Marcellus
34	4/16/2015	7598	7456	40	Marcellus
35	4/17/2015	7422	7280	40	Marcellus
36	4/17/2015	7246	7104	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	3/31/2015	74.5	8533	7158	3698	100850	3648	3156
2	3/31/2015	81	8232	6561	3357	234950	8123	3329
3	4/1/2015	81.5	7979	6865	3385	233650	6628	3223
4	4/1/2015	84.3	7909	7902	3492	235250	6497	3225
5	4/1/2015	84.9	8102	7597	3618	234200	6582	3255
6	4/2/2015	78.4	8249	6952	3918	234450	6792	3424
7	4/3/2015	80.1	7935	6575	4715	234200	6457	3270
8	4/3/2015	85.1	8134	7130	4005	234800	6476	3265
9	4/3/2015	84.5	8043	6641	4581	234200	6440	3269
10	4/4/2015	94.5	8647	7173	3984	233750	6760	3235
11	4/7/2015	83	8227	7272	3765	233200	6166	3273
12	4/8/2015	91.5	8381	6842	4435	234150	6432	3339
13	4/8/2015	82.7	7598	8382	3841	233900	6677	3289
14	4/8/2015	93.6	8129	7673	3734	234500	6577	3269
15	4/9/2015	97.5	8280	8011	4050	234450	5925	3242
16	4/10/2015	93	8182	7974	4372	234550	5716	3233
17	4/11/2015	95	8414	8275	3828	234950	6388	3265
18	4/11/2015	93.5	8316	7687	3556	234800	6321	3234
19	4/11/2015	90.1	7716	7617	3675	234350	6469	3308
20	4/12/2015	86	7562	8398	4482	233400	5481	3209
21	4/12/2015	90.1	8112	7977	3391	234150	6423	3257
22	4/12/2015	79	7715	7778	3265	234950	6758	3270
23	4/12/2015	88.5	7756	7979	3517	233750	5698	3227
24	4/13/2015	92	8168	8429	3724	233700	5210	3216
25	4/13/2015	84.3	7677	7684	4113	234450	6469	3243
26	4/13/2015	94.3	8167	8092	3949	236550	5224	3211
27	4/14/2015	94.7	8132	7901	3855	236050	5888	3237
28	4/14/2015	93.5	8020	7950	3673	233950	6155	3210
29	4/14/2015	95.6	7923	8010	4105	233750	5806	3200
30	4/15/2015	87.7	7929	9043	4287	222200	5060	3177
31	4/15/2015	89	7996	8351	4272	233700	5336	3224
32	4/16/2015	77.8	8122	7925	5136	234000	10562	9791
33	4/16/2015	96.6	8073	7002	4270	234150	6125	3287
34	4/16/2015	83.4	7606	8320	4082	235000	5151	3187
35	4/17/2015	88.3	7290	8062	4031	234550	5170	3155
36	4/17/2015	94.3	7804	8041	4090	234000	6045	3251

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PRODUCING FORMATION(S)	DEPTHS			
MARCELLUS	6760'- 6820'	TVD	6760'- 6820'	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface N/A psi Bottom Hole N/A psi DURATION OF TEST N/A hrs

OPEN FLOW Gas N/A mcfpd Oil N/A bpd NGL N/A bpd Water N/A 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 Drive 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 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 8/10/15

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

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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	130	0	130	
SHALE	130	310	130	310'	
50/50: SHALE /SS	310	340'	310'	340'	
80/20: SHALE/ SS	340'	370'	340'	370'	
60/40: SHALE/SS	370'	400'	370'	400'	
SHALE	400'	430'	400'	430'	
80/20: SHALE/ SS	430'	460'	430'	460'	
60/40: SHALE/SS	460'	490	460'	490	
60/40: SS/SHALE	490	520	490	520	
SHALE	520	550	520	550	
80/20: SHALE/ SS	550	580	550	580	
60/40: SHALE/SS	580	610	580	610	
60/40: SS/SHALE	610	670	610	670	
70/30: SS/SHALE	670	700	670	700	
90/10: SS/SHALE	700	790	700	790	
CEMENT	790	820	790	820	
SHALE	820	1090	820	1090	
50/50: SHALE /SS	1090	1150	1090	1150	
SHALE	1150	1210	1150	1210	
SS	1210	1390	1210	1390	
SHALE	1390	1450	1390	1450	
SS	1450	1480	1450	1480	
70/30: SS/SILTSTONE	1480	1510	1480	1510	
SILTSTONE	1510	1540	1510	1540	
90/10: SS/SILTSTONE	1540	1570	1540	1570	
SS	1570	1630	1570	1630	
80/20: SS/SILTSTONE	1630	1660	1630	1660	
SILTSTONE	1660	1720	1660	1720	
70/30: SILTSTONE/SS	1720	1750	1720	1750	
SS	1750	1810	1750	1810	
90/10: SS/SILTSTONE	1810	1870	1810	1870	
70/30: SS/SILTSTONE	1870	1900	1870	1900	
80/20: SILTSTONE/SS	1900	1930	1900	1930	
50/50: SILTSTONE/SS	1930	1960	1930	1960	
SHALE	1960	2020	1960	2020	
80/20: SS/SILTSTONE	2020	2050	2020	2050	
BIG LIME FORMATION (LS)	2050	2080	2050	2080	
80/20: SS/SHALE	2080	2110	2080	2110	

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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)
LS	2110	2200	2110	2200	
70/30: LS/SS	2200	2230	2200	2230	
LS	2230	2260	2230	2260	
BIG INJUN (SS)	2260	2290	2260	2290	
SS	2290	2320	2290	2320	
80/20: SS/SILTSTONE	2320	2410	2320	2410	
90/10: SS/SILTSTONE	2410	2440	2410	2440	
50/50: SS/SILTSTONE	2440	2500	2440	2500	
COFFEE SHALE (60/40: SILTSTON	2500	2530	2500	2530	
50/50: SILTSTONE/SH	2530	2560	2530	2560	
60/40: SHALE/ SILTSTONE	2560	2740	2560	2740	
GORDON (SS)	2740	2770	2740	2770	
SS	2770	3340	2770	3340	
80/20: SS/SHALE	3340	3490	3340	3490	
WARREN (SS)	3490	4930	3490	4930	
BENSON SAND (SS)	4930	5200	4930	5200	
ALEXANDER SAND	5200	6610	5200	6610	
BURKETT	6610	6700	6610	6700	
TULLY	6700	6760	6700	6760	
MARCELLUS	6760	6820	6760	6820	
ONONDAGA	6820	6905	6820	6905	

CONSOL ENERGY

CNX GAS COMPANY, LLC

Location: Doddridge Co., WV
Field: Doddridge
Facility: OXFD-11 Pad

Slot: Slot C
Well: OXFD-11C-HS ST01
Wellbore: OXFD-11C-HS ST01 PWB

BAKER HUGHES

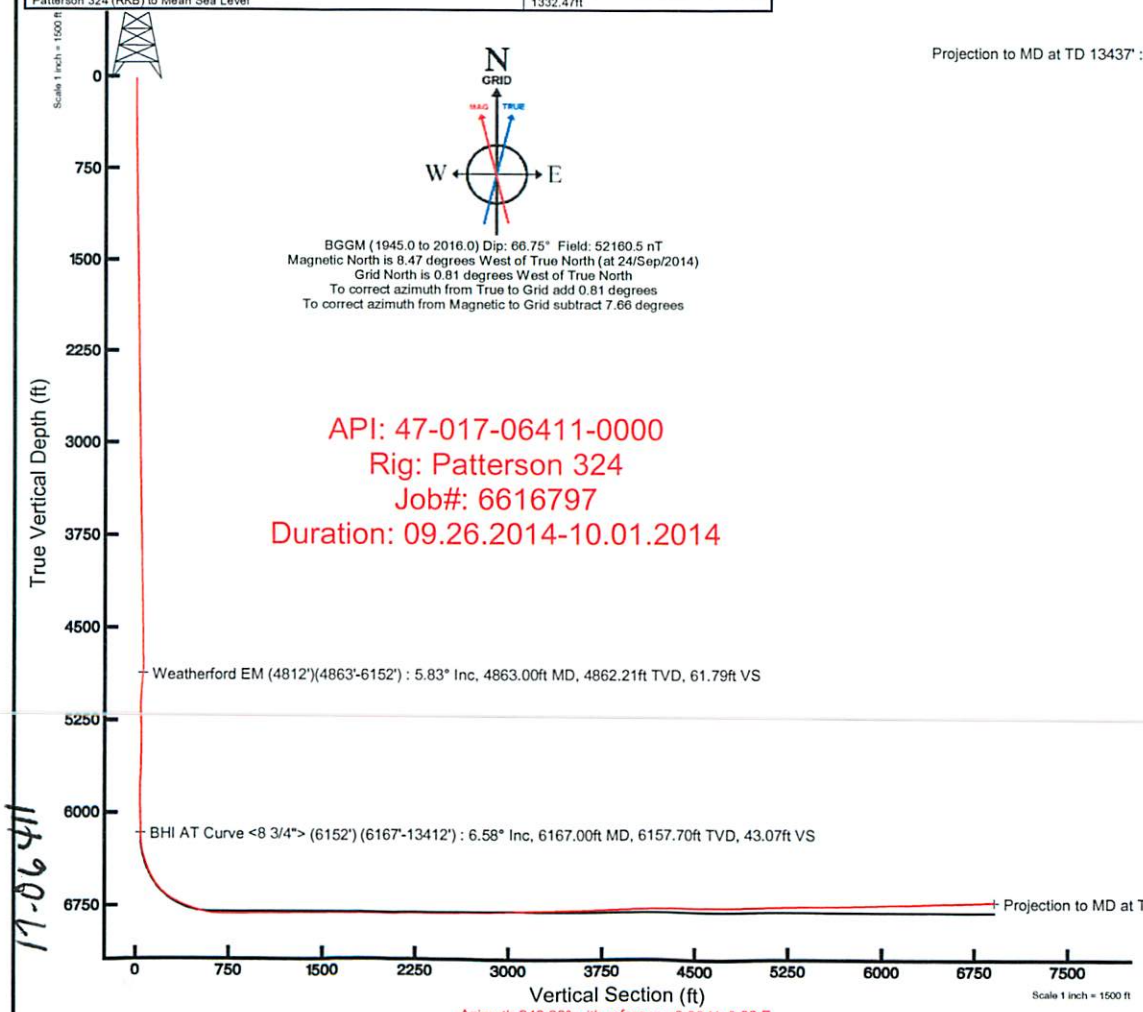
Plot reference wellpath is OXFD-11C-HS ST01 PWP Rev-B.0	
True vertical depths are referenced to Patterson 324 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Patterson 324 (RKB)	North Reference: Grid north
Patterson 324 (RKB) to Mean Sea Level: 1332.47 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot C): -1307.97 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: hareluk on 01/Oct/2014

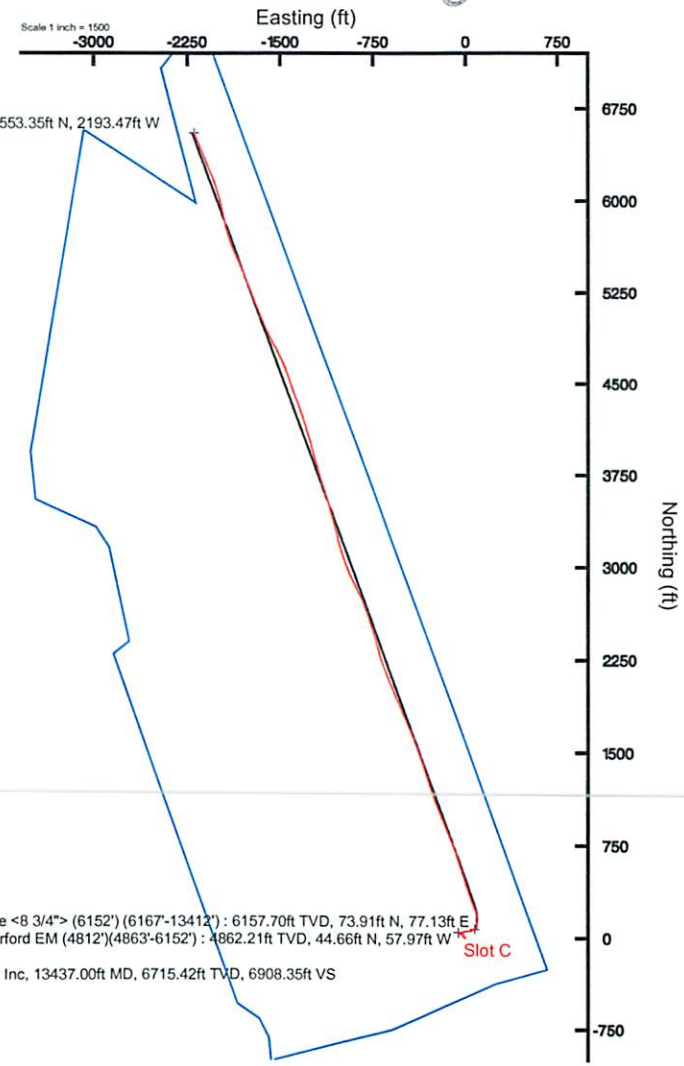
Well Data

Slot	Well	Wellbore	Wellpath
Slot C	OXFD-11C-HS ST01	OXFD-11C-HS ST01 AWB	OXFD-11C-HS ST01 AWP Proj:13437'
Slot C	OXFD-11C-HS ST01	OXFD-11C-HS ST01 PWB	OXFD-11C-HS ST01 PWP Rev-B.0

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11 Pad			1641688.000	246757.000	39°10'14.064"N	80°45'49.782"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot C	30.00	27.00	1641715.000	246787.000	39°10'14.364"N	80°45'49.445"W
Patterson 324 (RKB) to Mud line (At Slot: Slot C)					24.5ft	
Mean Sea Level to Mud line (At Slot: Slot C)					-1307.97ft	
Patterson 324 (RKB) to Mean Sea Level					1332.47ft	





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ACTUAL WELLPATH REPORT (CSV version)
Prepared by Baker Hughes
Software System: WellArchitect® 4.0.1

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Doddridge Co., WV
Field	Doddridge
Facility	OXFD-11 Pad
Slot	Slot C
Well	OXFD-11C-HS ST01
Wellbore	OXFD-11C-HS ST01 AWB
Wellpath	OXFD-11C-HS ST01 AWP Proj:
Sidetrack	OXFD-11C-HS ST01 AWB at 4812.00 MD

REPORT SETUP INFORMATION

Projection	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
North Refe	Grid
Scale	0.999972
Convergen	0.81° West
Software S	WellArchitect® 4.0.1
User	Gentdouw
Report Ger	10/1/2014 at 7:37:43 AM
DataBase/S	WellArchitectDB/ev910.xml

WELLPATH	Local North [ft]	Local East [ft]	Easting [US ft]	Northing [US ft]	Latitude	Longitude
Slot Locatic	30	27	1641715	246787	39°10'14.3	80°45'49.445"W
Facility Ref			1641688	246757	39°10'14.0	80°45'49.782"W
Field Refer			1640277	240427.6	39°09'11.3	80°46'06.561"W

WELLPATH DATUM

Calculation	Minimum curvature
Horizontal	Slot
Vertical Re	Patterson 324 (RKB)
MD Refere	Patterson 324 (RKB)
Field Vertic	Mean Sea Level
Patterson 3	1332.47ft
Patterson 3	1332.47ft
Patterson 3	24.50ft
Section Ori	N 0.00, E 0.00 ft
Section Azi	340.00°

WELLPATH DATA † = interpolated/extrapolated station

	MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
†	0	0	296.16	0	0	0	0	0
	24.5	0	296.16	24.5	0	0	0	0
	112	0.65	296.16	112	0.36	0.22	-0.45	0.74
	212	0.83	291.38	211.99	1.25	0.73	-1.63	0.19
	312	0.8	294.12	311.98	2.21	1.28	-2.94	0.05
	412	0.85	290.56	411.97	3.18	1.83	-4.27	0.07
	512	0.53	322.86	511.96	4.1	2.46	-5.25	0.49
	612	0.65	325.93	611.96	5.1	3.3	-5.84	0.12
	712	0.9	326.82	711.95	6.41	4.42	-6.59	0.25
	812	0.69	337.43	811.94	7.78	5.64	-7.25	0.26
	912	0.87	338.62	911.93	9.14	6.9	-7.76	0.18
	1012	0.81	337.44	1011.92	10.6	8.26	-8.31	0.06
	1112	0.92	343.59	1111.91	12.11	9.68	-8.81	0.14
	1212	1.05	343.29	1211.89	13.83	11.33	-9.3	0.13
	1312	0.82	340.72	1311.88	15.46	12.88	-9.8	0.23
	1412	1.03	326.19	1411.87	17.04	14.3	-10.53	0.31
	1512	0.83	327.43	1511.85	18.62	15.66	-11.42	0.2
	1612	0.47	328.49	1611.85	19.73	16.62	-12.03	0.36
	1712	0.82	325.66	1711.84	20.83	17.56	-12.64	0.35
	1812	0.66	325.42	1811.83	22.08	18.63	-13.37	0.16
	1912	0.7	326.73	1911.82	23.23	19.61	-14.04	0.04
	2012	0.67	328.57	2011.82	24.4	20.62	-14.68	0.04

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2112	0.3	320.36	2111.81	25.22	21.32	-15.15	0.38
2212	0.61	318.72	2211.81	25.96	21.92	-15.67	0.31
2312	0.46	319.37	2311.81	26.83	22.63	-16.28	0.15
2412	0.84	310.71	2411.8	27.85	23.41	-17.1	0.39
2512	0.77	305.55	2511.79	29.04	24.28	-18.2	0.1
2612	1	299.4	2611.78	30.26	25.1	-19.51	0.25
2712	1.07	294.74	2711.76	31.58	25.92	-21.11	0.11
2812	1.14	299.61	2811.74	32.99	26.8	-22.83	0.12
2912	0.98	294.29	2911.72	34.35	27.64	-24.47	0.19
3012	1.32	291.67	3011.7	35.71	28.42	-26.32	0.34
3112	1.19	292.27	3111.68	37.17	29.24	-28.35	0.13
3212	1.32	296.8	3211.66	38.71	30.15	-30.34	0.16
3312	1.37	295.08	3311.63	40.4	31.18	-32.45	0.06
3412	1.01	298.75	3411.61	41.91	32.11	-34.31	0.37
3512	1.26	295.68	3511.59	43.36	33.01	-36.07	0.26
3612	1.56	294.34	3611.56	45.09	34.05	-38.3	0.3
3712	1.33	298.5	3711.53	46.91	35.16	-40.56	0.25
3812	1.69	297.01	3811.49	48.86	36.39	-42.9	0.36
3912	1.15	298.68	3911.46	50.69	37.54	-45.09	0.54
4012	1.53	296.31	4011.43	52.41	38.61	-47.17	0.38
4112	1.41	301.4	4111.4	54.34	39.84	-49.41	0.18
4212	1.1	301.19	4211.37	56.05	40.98	-51.29	0.31
4312	1.31	299.03	4311.35	57.66	42.03	-53.11	0.21
4412	1.01	297.28	4411.33	59.17	42.99	-54.89	0.3
4512	0.79	296.57	4511.32	60.32	43.7	-56.29	0.22
4612	0.72	295.8	4611.31	61.27	44.29	-57.47	0.07
4712	0.85	294.23	4711.3	62.24	44.86	-58.71	0.13
4812	0.83	298.94	4811.29	63.3	45.52	-60.02	0.07
4863	5.83	113.67	4862.21	61.79	44.66	-57.97	13.05
4895	6.12	115	4894.04	59.46	43.28	-54.94	1
4927	6.29	114.68	4925.85	57.02	41.83	-51.8	0.54
4958	6.64	114.11	4956.66	54.58	40.39	-48.62	1.15
4990	6.68	115.54	4988.44	51.97	38.83	-45.25	0.53
5021	6.13	115.58	5019.25	49.5	37.34	-42.13	1.77
5053	5.38	113.96	5051.08	47.24	35.99	-39.22	2.4
5085	5.42	104.42	5082.94	45.34	35.01	-36.39	2.81
5116	5.46	93.8	5113.8	43.92	34.54	-33.5	3.25
5148	4.88	73.56	5145.68	43.22	34.83	-30.67	5.94
5179	4.79	53	5176.57	43.51	35.98	-28.37	5.37
5211	5.3	43.57	5208.44	44.56	37.86	-26.29	3.04
5243	6.02	45.24	5240.29	45.92	40.11	-24.08	2.31
5275	6.94	49.17	5272.08	47.31	42.55	-21.42	3.19
5306	7.48	58.32	5302.84	48.39	44.84	-18.29	4.08
5338	7.96	65.3	5334.55	48.99	46.86	-14.5	3.29
5401	8.12	73.42	5396.93	49.08	49.95	-6.27	1.82
5464	6.85	76.24	5459.4	48.41	52.11	1.64	2.1
5527	5.79	77.88	5522.01	47.57	53.67	8.4	1.71
5590	6.15	76.9	5584.67	46.72	55.11	14.79	0.59
5652	7.18	89.37	5646.25	45.04	55.9	21.9	2.86
5715	6.89	95.22	5708.78	42.12	55.6	29.6	1.23
5782	5.01	93.97	5775.42	39.22	55.03	36.52	2.81
5845	5.86	74.95	5838.14	37.83	55.68	42.37	3.14
5908	7.22	58.65	5900.73	38.33	58.57	48.86	3.63
5972	7.96	57.15	5964.17	40.11	63.07	56.02	1.2
6035	7.58	61.09	6026.59	41.72	67.44	63.32	1.04
6098	6.41	66.18	6089.12	42.6	70.87	70.17	2.1
6152	6.18	66.6	6142.8	42.97	73.24	75.6	0.43
6167	6.58	66.55	6157.7	43.07	73.91	77.13	2.67
6206	7.16	52.65	6196.43	43.93	76.27	81.11	4.5
6255	10.79	28.73	6244.83	47.87	82.15	85.75	10.48
6301	14.41	20.02	6289.72	55.1	91.31	89.78	8.87
6345	16.31	13.01	6332.15	64.47	102.47	93.04	6.03
6395	18.44	9.27	6379.87	77.26	117.12	95.9	4.81
6439	21.74	7.23	6421.19	90.58	132.08	98.04	7.67
6489	26.06	1.63	6466.9	109.03	152.25	99.52	9.75
6533	29.41	352.34	6505.85	128.59	172.64	98.36	12.41
6582	32.88	342.39	6547.81	153.65	197.26	92.72	12.65
6625	37.22	338.01	6583.01	178.33	220.46	84.32	11.66
6677	43.16	338.01	6622.72	211.85	251.56	71.76	11.42

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6719	48.1	338.63	6652.08	241.85	279.45	60.68	11.81
6771	53.99	340.04	6684.76	282.26	317.28	46.43	11.52
6814	58.87	340.66	6708.53	318.08	351.01	34.39	11.41
6865	63.7	341.34	6733.02	362.79	393.29	19.84	9.54
6908	67.42	341.77	6750.81	401.91	430.42	7.46	8.7
6960	69.86	341.78	6769.75	450.31	476.42	-7.68	4.69
7003	71.04	341.76	6784.14	490.82	514.9	-20.36	2.74
7055	76.37	341.95	6798.72	540.68	562.32	-35.9	10.26
7099	78.51	342.06	6808.29	583.6	603.16	-49.16	4.87
7150	84.33	341.79	6815.9	633.98	651.08	-64.8	11.42
7192	89.45	341.64	6818.17	675.89	690.89	-77.96	12.2
7244	89.88	338.53	6818.48	727.88	739.77	-95.67	6.04
7339	90.4	338.18	6818.25	822.84	828.07	-130.71	0.66
7434	90.46	339.18	6817.53	917.81	916.57	-165.25	1.05
7530	90.4	336.31	6816.81	1013.72	1005.4	-201.6	2.99
7625	90.34	340.19	6816.2	1108.66	1093.62	-236.8	4.08
7719	90.52	341.11	6815.49	1202.65	1182.31	-267.94	1
7815	90.49	342.55	6814.65	1298.59	1273.52	-297.88	1.5
7910	90.52	341.12	6813.81	1393.54	1363.78	-327.49	1.51
8005	90.43	341.29	6813.02	1488.51	1453.71	-358.1	0.2
8100	90.43	339.79	6812.31	1583.5	1543.27	-389.74	1.58
8194	90.25	338.26	6811.75	1677.49	1631.04	-423.39	1.64
8289	90.25	336.16	6811.34	1772.37	1718.62	-460.19	2.21
8384	90.25	337.34	6810.92	1867.21	1805.9	-497.69	1.24
8479	90.22	336.69	6810.53	1962.08	1893.36	-534.78	0.68
8574	90.15	337.22	6810.23	2056.95	1980.78	-571.97	0.56
8669	90.09	337.3	6810.03	2151.84	2068.39	-608.69	0.11
8764	90.15	338.61	6809.83	2246.77	2156.44	-644.35	1.38
8858	90.37	341.06	6809.4	2340.77	2244.67	-676.75	2.62
8953	89.72	345.06	6809.33	2435.61	2335.53	-704.42	4.27
9047	90.77	343.82	6808.93	2529.32	2426.08	-729.64	1.73
9142	91.2	343.08	6807.29	2624.14	2517.13	-756.69	0.9
9237	90.55	340.45	6805.84	2719.07	2607.34	-786.42	2.85
9332	89.85	338.81	6805.51	2814.07	2696.4	-819.48	1.88
9427	91.23	333.83	6804.61	2908.83	2783.37	-857.62	5.44
9522	91.94	334.7	6801.99	3003.32	2868.91	-898.85	1.18
9618	92.09	337.23	6798.61	3099.02	2956.53	-937.93	2.64
9713	91.82	339.91	6795.37	3193.92	3044.9	-972.61	2.83
9808	91.94	343.75	6792.25	3288.8	3135.1	-1002.22	4.04
9903	90.89	344.81	6789.91	3383.51	3226.51	-1027.95	1.57
9998	91.32	345.68	6788.07	3478.09	3318.36	-1052.14	1.02
10092	91.42	345.66	6785.83	3571.61	3409.41	-1075.4	0.11
10187	91.42	344.74	6783.47	3666.18	3501.23	-1099.66	0.97
10281	91.6	342.24	6780.99	3759.97	3591.32	-1126.36	2.67
10376	91.32	341.74	6778.57	3854.88	3681.63	-1155.72	0.6
10471	91.48	343.87	6776.25	3949.73	3772.35	-1183.8	2.25
10566	91.02	344.34	6774.18	4044.47	3863.7	-1209.81	0.69
10662	90.99	345.46	6772.5	4140.1	3956.37	-1234.81	1.17
10757	90.98	343.74	6770.86	4234.78	4047.94	-1260.03	1.81
10853	90.46	343.26	6769.66	4330.59	4139.98	-1287.3	0.74
10948	90.46	341.96	6768.89	4425.49	4230.63	-1315.69	1.37
11043	90.52	340.16	6768.08	4520.46	4320.48	-1346.52	1.9
11137	90.4	340.12	6767.33	4614.46	4408.89	-1378.45	0.13
11232	90.43	341.71	6766.64	4709.44	4498.66	-1409.51	1.67
11327	90.46	340.15	6765.9	4804.42	4588.44	-1440.55	1.64
11423	90.74	336.59	6764.89	4900.36	4677.66	-1475.93	3.72
11518	90.8	332.83	6763.62	4994.93	4763.53	-1516.5	3.96
11613	90.71	332.06	6762.37	5089.1	4847.75	-1560.45	0.82
11708	91.35	335.12	6760.66	5183.48	4932.81	-1602.69	3.29
11803	91.26	337.76	6758.49	5278.26	5019.86	-1640.65	2.78
11898	91.26	338.81	6756.4	5373.19	5108.1	-1675.79	1.1
11993	91.14	339.16	6754.41	5468.16	5196.76	-1709.85	0.39
12089	91.29	338.2	6752.38	5564.11	5286.17	-1744.74	1.01
12184	91.29	338.32	6750.24	5659.04	5374.39	-1779.92	0.13
12279	91.51	337.85	6747.92	5753.96	5462.5	-1815.37	0.55
12375	91.45	334.96	6745.44	5849.73	5550.43	-1853.78	3.01
12469	91.51	340.02	6743.01	5943.58	5637.21	-1889.74	5.38
12564	91.54	343.06	6740.48	6038.5	5727.28	-1919.81	3.2
12659	91.48	346.95	6737.98	6133.09	5819	-1944.38	4.09

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	12754	91.54	348.94	6735.47	6227.14	5911.87	-1964.21	2.09
	12849	91.72	346.39	6732.77	6321.24	6004.63	-1984.49	2.69
	12944	91.72	341.67	6729.92	6415.94	6095.89	-2010.61	4.97
	13039	91.72	339.67	6727.07	6510.88	6185.49	-2042.04	2.1
	13134	91.75	336.71	6724.19	6605.78	6273.64	-2077.32	3.11
	13229	91.72	338.21	6721.31	6700.64	6361.34	-2113.72	1.58
	13324	91.78	336.95	6718.41	6795.51	6449.12	-2149.93	1.33
	13412	91.35	337.57	6716.01	6883.38	6530.25	-2183.93	0.86
proj bit	13437	91.35	337.57	6715.42	6908.35	6553.35	-2193.47	0

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
OXFD-11C-HS LP Plat	6776		656.02	-63	1641652	247443	39°10'20.8	80°45'50.3	point	
OXFD-11C-HS BHL Rev	6800		6548.2	-2207.07	1639508	253335	39°11'18.7	80°46'18.6	point	
OXFD-11C-HS LP Rev-2	6800		622.49	-50.29	1641665	247409.5	39°10'20.5	80°45'50.1	point	

WELLPATH COMPOSITION Ref Wellbore: OXFD-11C-HS ST01 AWB Ref Wellpath: OXFD-11C-HS ST01 AWP Proj:

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc Model
01_VES Gy	24.5	4812	Generic gyro - northseeking (Standard)
02_Weath	4812	6152	ISCWSA MWD, Rev. 2 (Standard)
03_BHI AT	6152	13412	NaviTrak (AT Curve Short Spaced)
Projection	13412	13437	Blind Drilling (std)

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/31/2015
Job End Date:	4/17/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06411-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	OXFD 11 CHS
Longitude:	-80.76375000
Latitude:	39.17066670
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,818
Total Base Water Volume (gal):	9,278,724
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	89.89880	
Sand (Proppant), DWP-111, DWP-614, DWP-901, DWP-NE1	CWS	Propping Agent, Gel Slurry, Viscosifier, Breaker, Non-Emulsifier					
			Crystalline silica (Quartz)	14808-60-7	100.00000	9.57829	
			Hydrochloric acid	7647-01-0	35.00000	0.39206	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.02902	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02471	
			Calcite	471-34-1	1.00000	0.01269	
			Illite	12173-60-3	1.00000	0.00967	
			Isopropanol	67-63-0	40.00000	0.00638	
			Dimethylcocoamine, bis (chloroethyl) ether, diquaternary ammonium salt	68607-28-3	40.00000	0.00638	
			Methanol	67-56-1	15.00000	0.00575	
			Goethite	1310-14-1	0.10000	0.00540	
			Biotite	1302-27-8	0.10000	0.00419	
			Apatite	64476-38-6	0.10000	0.00419	

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			Sorbitan monooleate	1338-43-8	5.00000	0.00363	
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00363	
			Ilmenite	98072-94-7	0.10000	0.00358	
			Guar gum	9000-30-0	60.00000	0.00295	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00168	
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00168	
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00168	
			Modified thiourea polymer	68527-49-1	0.10000	0.00168	
			Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00080	
			Propargyl Alcohol	107-19-7	0.10000	0.00056	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00025	
			Ammonium Persulfate	7727-54-0	100.00000	0.00011	
			Formaldehyde	50-00-0	0.10000	0.00011	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00007	
			Sodium chloride	7647-14-5	0.10000	0.00006	

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)

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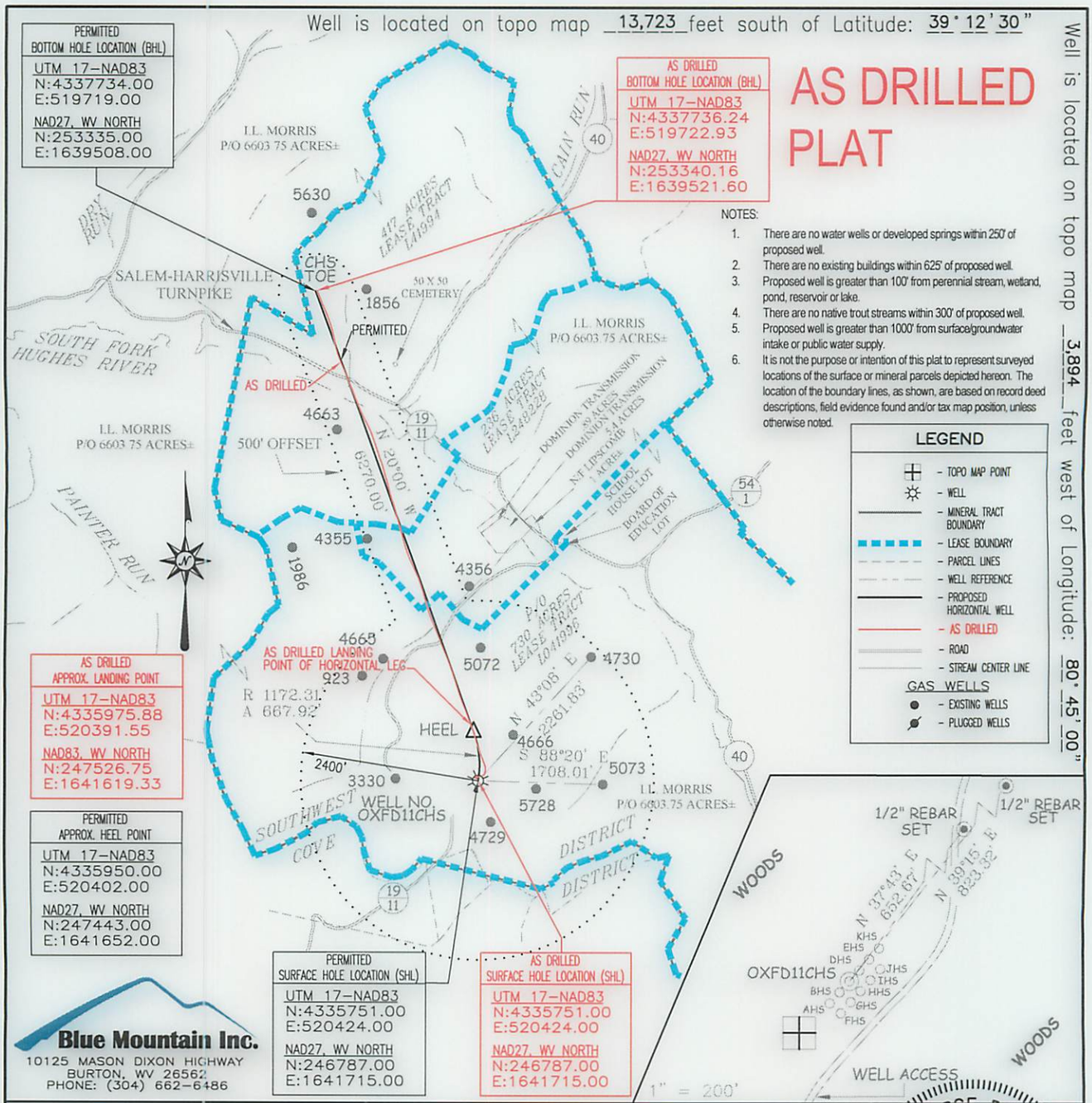
Well is located on topo map 13,723 feet south of Latitude: 39° 12' 30"

Well is located on topo map 3,894 feet west of Longitude: 80° 45' 00"

AS DRILLED PLAT



NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. 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.

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

FILE #: OXFD11CHS-AS DRILLED

DRAWING #: OXFD11CHS-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: [signature]

R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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 27, 2015

OPERATOR'S WELL #: OXFD11CHS-AS DRILLED

API WELL #: 47 (STATE) 17 (COUNTY) 06411 (PERMIT)

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

WATERSHED: SOUTH FORK HUGHES RIVER ELEVATION: 1,340'

COUNTY/DISTRICT: DODDRIDGE / SOUTHWEST QUADRANGLE: OXFORD, WV 7.5'

SURFACE OWNER: I.L. MORRIS ACREAGE: 6603.75±

OIL & GAS ROYALTY OWNER: LINDSAY A. EDMONDSON, ETAL & STATE OF WEST VIRGINIA (SALEM HARRISVILLE TURNPIKE) ACREAGE: 730, 236, & 417±

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: BURKETT ESTIMATED DEPTH: TVD: 6,818'± TMD: 13,437'±

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

PM

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

API 47-017-06412H6A County Doddridge District Southwest
Quad Oxford 7.5' Pad Name OXFD11HS Field/Pool Name Oxford
Farm Name MORRIS, I. L. Well Number OXFD11DHS
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	4,335,755.00 m	Easting	520,428.00 m
Landing Point of Curve	Northing	4,336,439.44 m	Easting	520,464.08 m
Bottom Hole	Northing	4,338,050.06 m	Easting	519,844.53 m

Elevation (ft) 1340' 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 02/12/2014 Date drilling commenced 07/27/2014 Date drilling ceased 10/10/2014
Date completion activities began 04/19/2015 Date completion activities ceased 05/03/2015
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	50', 620'	Open mine(s) (Y/N) depths	N
Salt water depth(s) ft	1,730'	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)	N		

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Reviewed by:
Gorr, Kevin
JK

API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

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	24"	20"	100'	N	J-55 94# / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	1223'	N	J-55 54.5# / 1223'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2818'	N	J-55 36# / 2818'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	14806'	N	P-110 20# / 14806'	N/A	N
Tubing	5 1/2"	2 3/8"	7213.5'	N	P-110 4.7# / 7213.5'	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	127	15.2	1.18	150	Surface	24
Surface	Class A	1030	15.6	1.18	1224	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	935	15.6	1.18	1101	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	767 / 1994	14.2 / 14.8	1.24 / 1.25	951 / 2493	1585.6'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 6939' Loggers TD (ft) 6933'

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

Plug back procedure: N/A

Kick Off Depth (ft) 2909'

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. 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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API 47-017-06412H6A Farm name MORRIS, I. L. Well number OXFD11DHS

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.

API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	4/19/2015	14747	14745	12	Marcellus
2	4/20/2015	14681	14540	40	Marcellus
3	4/20/2015	14508	14367	40	Marcellus
4	4/21/2015	14335	14194	40	Marcellus
5	4/21/2015	14162	14021	40	Marcellus
6	4/23/2015	13989	13852	40	Marcellus
7	4/23/2015	13816	13675	40	Marcellus
8	4/23/2015	13643	13502	40	Marcellus
9	4/24/2015	13470	13329	40	Marcellus
10	4/26/2015	13297	13156	40	Marcellus
11	4/26/2015	13124	12983	40	Marcellus
12	4/27/2015	12951	12810	40	Marcellus
13	4/27/2015	12778	12637	40	Marcellus
14	4/27/2015	12605	12464	40	Marcellus
15	4/28/2015	12432	12291	40	Marcellus
16	4/28/2015	12259	12118	40	Marcellus
17	4/28/2015	12086	11945	40	Marcellus
18	4/28/2015	11913	11773	40	Marcellus
19	4/29/2015	11741	11601	40	Marcellus
20	4/29/2015	11569	11429	40	Marcellus
21	4/29/2015	11397	11257	40	Marcellus
22	4/30/2015	11225	11085	40	Marcellus
23	4/30/2015	11053	10913	40	Marcellus
24	4/30/2015	10881	10741	40	Marcellus
25	4/30/2015	10709	10569	40	Marcellus
26	4/30/2015	10537	10397	40	Marcellus
27	5/1/2015	10365	10225	40	Marcellus
28	5/1/2015	10193	10053	40	Marcellus
29	5/1/2015	10021	9881	40	Marcellus
30	5/1/2015	9849	9709	40	Marcellus
31	5/1/2015	9677	9537	40	Marcellus
32	5/1/2015	9505	9365	40	Marcellus
33	5/2/2015	8955	8813	40	Marcellus
34	5/2/2015	8779	8637	40	Marcellus
35	5/2/2015	8603	8461	40	Marcellus
36	5/2/2015	8427	8285	40	Marcellus
37	5/2/2015	8251	8109	40	Marcellus
38	5/2/2015	8075	7933	40	Marcellus
39	5/2/2015	7899	7757	40	Marcellus

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API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
40	5/2/2015	7723	7581	40	Marcellus
41	5/3/2015	7547	7405	40	Marcellus
42	5/3/2015	7371	7229	40	Marcellus

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API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

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	4/19/2015	61.2	8187	8195	4416	100100	5103	3437
2	4/20/2015	80.2	8331	6597	5290	233850	6777	3577
3	4/20/2015	73.1	8068	7520	5687	234100	7712	3521
4	4/21/2015	74.4	8200	7052	5643	233550	6608	3486
5	4/21/2015	78.3	8201	7072	5625	234000	6004	3530
6	4/23/2015	68	8079	7226	5531	234000	5892	1905
7	4/23/2015	74	8250	6351	5699	234150	6047	1543
8	4/23/2015	76.1	8121	6366	5559	234250	6041	3493
9	4/24/2015	48.4	8840	6959	8449	213100	9480	3855
10	4/26/2015	75.4	8270	6644	5406	233050	6369	3593
11	4/26/2015	70	8013	6489	5516	233750	6121	3427
12	4/27/2015	75.9	8062	6780	5473	233550	6138	3408
13	4/27/2015	74.7	8294	6218	5785	233550	6598	3625
14	4/27/2015	78.4	8229	6583	5657	233750	6296	3430
15	4/28/2015	82.7	8498	6670	6472	234400	6219	3569
16	4/28/2015	83.2	8460	6748	6263	233100	6012	3562
17	4/28/2015	82.3	8251	6767	5590	233900	5854	3403
18	4/28/2015	88.9	8290	6779	5704	233650	6018	3405
19	4/29/2015	80.3	7956	6435	5727	233800	5938	3362
20	4/29/2015	85	8471	7234	5610	233750	6166	3470
21	4/29/2015	78.9	8135	6093	5777	233800	7732	3516
22	4/30/2015	79.8	8042	6202	5623	234700	5269	3312
23	4/30/2015	82.6	8232	6451	6555	233050	5249	3338
24	4/30/2015	75.5	7960	6716	6922	233850	5225	3324
25	4/30/2015	78.7	7984	6836	5603	233650	5107	3330
26	4/30/2015	78.9	7993	7076	5591	233850	5158	3326
27	5/1/2015	79.8	7933	6720	5863	233950	4972	3320
28	5/1/2015	78.5	7944	6498	6457	234550	5464	3349
29	5/1/2015	84.8	7886	6966	6300	233400	5143	3329
30	5/1/2015	86.2	7937	6498	6627	234400	5209	3338
31	5/1/2015	84	7940	6860	5518	234000	4981	3323
32	5/1/2015	76.9	7978	7161	5533	234100	4986	3354
33	5/2/2015	82.5	7795	7320	5335	233750	4948	3319
34	5/2/2015	82	7734	6799	5605	234450	4880	3314
35	5/2/2015	87.9	7905	6555	6491	233800	5046	3331
36	5/2/2015	85.2	7809	7033	6670	234150	5983	3393
37	5/2/2015	85.4	7796	6724	6390	233400	5897	3382
38	5/2/2015	84.1	7814	6724	5821	233250	5889	3397
39	5/2/2015	84.9	7635	6331	5515	235000	5738	3374

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API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

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	5/2/2015	85	7835	7340	5920	235250	5625	3380
41	5/3/2015	86	7669	6615	5537	232800	5605	3388
42	5/3/2015	84.5	7832	7678	6874	259990	5996	3396

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API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

PRODUCING FORMATION(S)	DEPTHS			
MARCELLUS	6899'- 6933'	TVD	7210'- 7920'	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface N/A psi Bottom Hole N/A psi DURATION OF TEST N/A hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	N/A mcfpd	N/A bpd	N/A bpd	N/A 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 Patterson UTI
Address 207 Carlton Drive 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 CalFrac
Address 2001 Summit View Rd City Smithfield State PA Zip 15478

Please insert additional pages as applicable.

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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 8/26/15

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

API 47-017-06412H6A **Farm name** MORRIS, I. L. **Well number** OXFD11DHS

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	0	100	
SS/GRAVEL/SHALE	100	200	100	200	
REDROCK/SS/SHALE	200	370	200	370	
SS/REDROCK/SHALE	370	500	370	500	
SHALE/REDROCK	500	850	500	850	
REDROCK/ SHALE	850	975	850	975	
SS/ REDROCK/SHALE	975	1030	975	1030	
SHALE/SILTSTONE/SS	1030	1105	1030	1105	
REDROCK/ SILTSTONE/SHALE	1105	1286	1105	1286	
REDSILT/SHALE	1286	1360	1286	1360	
SILTSTONE/ SHALE/ SS	1360	1395	1360	1395	
SS	1395	1425	1395	1425	
SHALE	1425	1520	1425	1520	
SS/SHALE	1520	1585	1520	1585	
SS	1585	1620	1585	1620	
SHALE/SS	1620	1830	1620	1830	
SS	1830	1950	1830	1950	
SHALE/SS	1950	2160	1950	2160	
LS	2160	2190	2160	2190	
SS/SHALE	2190	3000	2190	3000	
SHALE	3000	3330	3000	3350	
SHALE/ SILTSTONE	3330	3729	3350	3750	
SHALE	3729	3890	3750	3820	
SILTSTONE	3890	3935	3820	3950	
SHALE/ SILTSTONE	3935	4935	3950	5000	
SAND/ SHALE	4935	5925	5000	6026	
BURKETT	6828	6852	7042	7090	
TULLY	6852	6872	7090	7134	
HAMILTON	6872	6899	7134	7210	
UPPER MARCELLUS	6899	6905	7210	7231	
MIDDLE MARCELLUS	6905	6931	7231	7470	
CHERRY VALLEY	6931	6933	7470	7920	
LOWER MARCELLUS	6933		7920		

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CNX GAS COMPANY, LLC

Location: Doddridge Co., WV
Field: Doddridge
Facility: OXFD-11 Pad

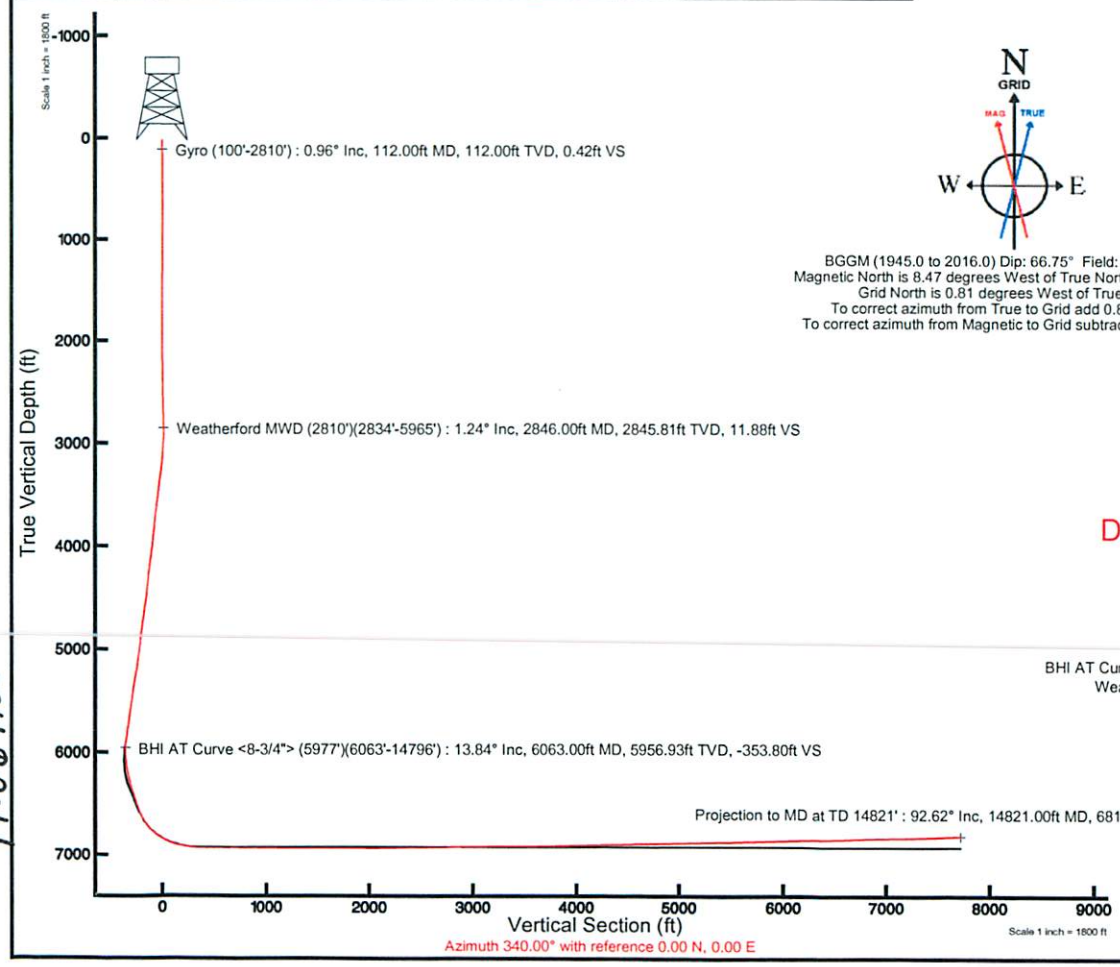
Slot: Slot D
Well: OXFD-11D-HS
Wellbore: OXFD-11D-HS PWB

Plot reference wellpath is OXFD-11D-HS PWP Rev-B.0	
True vertical depths are referenced to Patterson 324 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Patterson 324 (RKB)	North Reference: Grid north
Patterson 324 (RKB) to Mean Sea Level: 1332.49 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot D): -1307.99 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: fulmjes on 10/9/2014

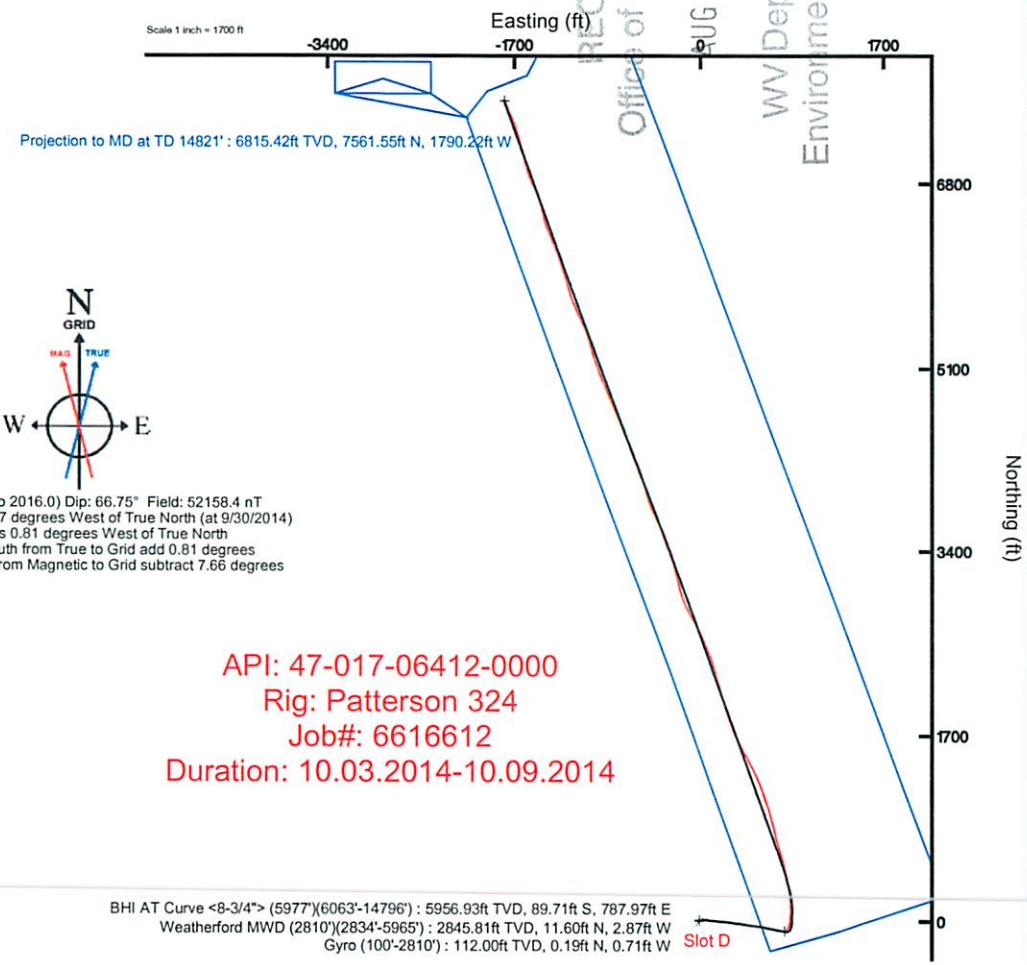
Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11 Pad			1641688.000	246757.000	39°10'14.064"N	80°45'49.782"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot D	45.00	40.00	1641728.000	246802.000	39°10'14.514"N	80°45'49.282"W

Patterson 324 (RKB) to Mud line (At Slot: Slot D)	24.5ft
Mean Sea Level to Mud line (At Slot: Slot D)	-1307.99ft
Patterson 324 (RKB) to Mean Sea Level	1332.49ft



BGGM (1945.0 to 2016.0) Dip: 66.75° Field: 52158.4 nT
Magnetic North is 8.47 degrees West of True North (at 9/30/2014)
Grid North is 0.81 degrees West of True North
To correct azimuth from True to Grid add 0.81 degrees
To correct azimuth from Magnetic to Grid subtract 7.66 degrees



API: 47-017-06412-0000
Rig: Patterson 324
Job#: 6616612
Duration: 10.03.2014-10.09.2014

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17-06412

17.06412

ACTUAL WELLPATH REPORT (CSV version)
Prepared by Baker Hughes
Software System: WellArchitect® 4.0.1

REFERENCE WELLPATH IDENTIFICATION
Operator CNX GAS COMPANY, LLC
Area Doddridge Co., WV
Field Doddridge
Facility OXFD-11 Pad
Slot Slot D
Well OXFD-11D-HS
Wellbore OXFD-11D-HS AWB
Wellpath OXFD-11D-HS AWP Proj: 14821'
Sidetrack (none)

REPORT SETUP INFORMATION
Projection NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
North Refe Grid
Scale 0.999972
Convergen 0.81° West
Software S WellArchitect® 4.0.1
User Hareluk
Report Ger 13/Oct/2014 at 10:57:22 AM
DataBase/S WellArchitectEasternDB/ev1415.xml

WELLPATH	Local Norti	Local East	Easting	Northing	Latitude	Longitude
	[ft]	[ft]	[US ft]	[US ft]		
Slot Locati	45	40	1641728	246802	39°10'14.5	80°45'49.282"W
Facility Ref			1641688	246757	39°10'14.0	80°45'49.782"W
Field Refer			1640277	240427.6	39°09'11.3	80°46'06.561"W

WELLPATH DATUM
Calculation Minimum curvature
Horizontal Slot
Vertical Re Patterson 324 (RKB)
MD Refere Patterson 324 (RKB)
Field Vertic Mean Sea Level
Patterson : 1332.49ft
Patterson : 1332.49ft
Patterson : 24.50ft
Section Ori N 0.00, E 0.00 ft
Section Azi 340.00°

WELLPATH DATA † = interpolated/extrapolated station

	MD	Course Len	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dis	Closure Dir	DLS
	[ft]	[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]
†	0	0	0	285.07	0	0	0	0	1641728	246802	39°10'14.5	80°45'49.2	0	0	0
	24.5	24.5	0	285.07	24.5	0	0	0	1641728	246802	39°10'14.5	80°45'49.2	0	0	0
	112	87.5	0.96	285.07	112	0.42	0.19	-0.71	1641727	246802.2	39°10'14.5	80°45'49.2	0.73	285.07	1.1
	212	100	0.64	273.79	211.99	1.13	0.45	-2.07	1641726	246802.5	39°10'14.5	80°45'49.3	2.12	282.118	0.36
	312	100	0.31	262.45	311.98	1.41	0.45	-2.9	1641725	246802.5	39°10'14.5	80°45'49.3	2.93	278.758	0.34
	412	100	0.23	264.11	411.98	1.52	0.39	-3.37	1641725	246802.4	39°10'14.5	80°45'49.3	3.39	276.616	0.08
	512	100	0.59	267.63	511.98	1.72	0.35	-4.08	1641724	246802.4	39°10'14.5	80°45'49.3	4.1	274.883	0.36
	612	100	0.54	266.04	611.97	2.01	0.29	-5.07	1641723	246802.3	39°10'14.5	80°45'49.3	5.07	273.331	0.05
	712	100	0.28	254.98	711.97	2.16	0.2	-5.77	1641722	246802.2	39°10'14.5	80°45'49.3	5.78	271.974	0.27
	812	100	0.28	251.62	811.97	2.19	0.06	-6.24	1641722	246802.1	39°10'14.5	80°45'49.3	6.24	270.538	0.02
	912	100	0.51	239.88	911.97	2.12	-0.24	-6.86	1641721	246801.8	39°10'14.5	80°45'49.3	6.86	267.98	0.24
	1012	100	0.48	224.59	1011.96	1.86	-0.76	-7.54	1641720	246801.2	39°10'14.5	80°45'49.3	7.57	264.215	0.14
	1112	100	0.19	206.24	1111.96	1.57	-1.21	-7.9	1641720	246800.8	39°10'14.5	80°45'49.3	8	261.292	0.31
	1212	100	0.4	120.84	1211.96	1.18	-1.54	-7.68	1641720	246800.5	39°10'14.4	80°45'49.3	7.83	258.67	0.43
	1312	100	0.43	118.32	1311.96	0.63	-1.9	-7.05	1641721	246800.1	39°10'14.4	80°45'49.3	7.3	254.947	0.04
	1412	100	0.27	110.36	1411.96	0.2	-2.16	-6.5	1641722	246799.8	39°10'14.4	80°45'49.3	6.84	251.645	0.17
	1512	100	0.11	108.81	1511.96	-0.02	-2.27	-6.18	1641722	246799.7	39°10'14.4	80°45'49.3	6.59	249.858	0.16
	1612	100	0.59	95.33	1611.95	-0.3	-2.35	-5.58	1641722	246799.7	39°10'14.4	80°45'49.3	6.05	247.191	0.48
	1712	100	0.48	61.7	1711.95	-0.46	-2.2	-4.7	1641723	246799.8	39°10'14.4	80°45'49.3	5.19	244.85	0.83
	1812	100	0.41	60.83	1811.95	-0.34	-1.82	-4.02	1641724	246800.2	39°10'14.4	80°45'49.3	4.41	245.593	0.07
	1912	100	0.46	59.69	1911.94	-0.21	-1.45	-3.36	1641725	246800.6	39°10'14.4	80°45'49.3	3.66	246.705	0.05
	2012	100	0.44	57.26	2011.94	-0.05	-1.04	-2.69	1641725	246801	39°10'14.5	80°45'49.3	2.88	248.933	0.05
	2112	100	0.69	56.56	2111.94	0.17	-0.5	-1.86	1641726	246801.5	39°10'14.5	80°45'49.3	1.93	255.086	0.25
	2212	100	1.05	41.49	2211.92	0.75	0.52	-0.75	1641727	246802.5	39°10'14.5	80°45'49.2	0.52	304.68	0.42
	2312	100	1.15	12.53	2311.91	2.03	2.19	0.07	1641728	246804.2	39°10'14.5	80°45'49.2	2.19	1.848	0.56
	2412	100	1.16	357.65	2411.89	3.84	4.18	0.25	1641728	246806.2	39°10'14.5	80°45'49.2	4.19	3.38	0.3
	2512	100	1.14	345.26	2511.87	5.8	6.15	-0.05	1641728	246808.2	39°10'14.5	80°45'49.2	6.15	359.555	0.25
	2612	100	1.1	333.04	2611.85	7.74	7.97	-0.74	1641727	246810	39°10'14.5	80°45'49.2	8	354.723	0.24
	2712	100	1.01	327.29	2711.83	9.55	9.57	-1.65	1641726	246811.6	39°10'14.6	80°45'49.3	9.71	350.229	0.14
	2812	100	1	327.66	2811.82	11.27	11.05	-2.59	1641725	246813.1	39°10'14.6	80°45'49.3	11.35	346.801	0.01
	2822	10	0.95	326.23	2821.81	11.43	11.19	-2.68	1641725	246813.2	39°10'14.6	80°45'49.3	11.51	346.513	0.56
	2846	24	1.24	343.54	2845.81	11.88	11.6	-2.87	1641725	246813.6	39°10'14.6	80°45'49.3	11.95	346.118	1.82
	2878	32	1.16	337.64	2877.8	12.55	12.23	-3.09	1641725	246814.2	39°10'14.6	80°45'49.3	12.62	345.83	0.46
	2909	31	0.84	53.63	2908.8	12.93	12.66	-3.03	1641725	246814.7	39°10'14.6	80°45'49.3	13.02	346.56	4.05
	2941	32	2.76	97.11	2940.78	12.65	12.7	-2.07	1641726	246814.7	39°10'14.6	80°45'49.3	12.87	350.737	6.96
	2972	31	5.44	104.06	2971.7	11.48	12.25	0.09	1641728	246814.3	39°10'14.6	80°45'49.2	12.25	0.443	8.78
	3004	32	7.95	104.97	3003.48	9.36	11.31	3.7	1641732	246813.3	39°10'14.6	80°45'49.2	11.9	18.131	7.85
	3036	32	9.59	97.94	3035.11	6.85	10.37	8.48	1641736	246812.4	39°10'14.6	80°45'49.1	13.4	39.274	6.11
	3067	31	10.61	89.83	3065.63	4.67	10.03	13.89	1641742	246812	39°10'14.6	80°45'49.1	17.13	54.189	5.64
	3102	35	12.14	83.72	3099.94	2.7	10.44	20.78	1641749	246812.4	39°10'14.6	80°45'49.0	23.25	63.326	5.56
	3133	31	14.65	82.1	3130.09	1.11	11.33	27.9	1641756	246813.3	39°10'14.6	80°45'48.9	30.11	67.893	8.19
	3165	32	16.84	82.91	3160.89	-0.78	12.46	36.51	1641765	246814.5	39°10'14.6	80°45'48.8	38.58	71.154	6.88
	3196	31	18.17	86.53	3190.46	-3.16	13.31	45.79	1641774	246815.3	39°10'14.6	80°45'48.7	47.68	73.794	5.54
	3228	32	18.02	92.75	3220.88	-6.49	13.37	55.72	1641784	246815.4	39°10'14.6	80°45'48.5	57.3	76.503	6.05
	3260	32	16.8	97.52	3251.41	-10.54	12.53	65.24	1641793	246814.5	39°10'14.6	80°45'48.4	66.44	79.129	5.86
	3291	31	15.26	101.18	3281.21	-14.72	11.15	73.69	1641802	246813.2	39°10'14.6	80°45'48.3	74.53	81.394	5.94
	3323	32	14.67	102.58	3312.12	-19.09	9.45	81.78	1641810	246811.5	39°10'14.6	80°45'48.2	82.32	83.406	2.16
	3354	31	13.25	100.64	3342.2	-23.01	7.94	89.1	1641817	246809.9	39°10'14.6	80°45'48.1	89.45	84.906	4.82
	3386	32	12.68	100.85	3373.39	-26.68	6.6	96.15	1641824	246808.6	39°10'14.5	80°45'48.0	96.38	86.071	1.79
	3417	31	12.95	96.43	3403.62	-29.97	5.57	102.95	1641831	246807.6	39°10'14.5	80°45'47.9	103.1	86.9	3.28
	3449	32	13.51	93.46	3434.77	-33.05	4.95	110.24	1641838	246807	39°10'14.5	80°45'47.8	110.35	87.43	2.75
	3480	31	14.79	92.52	3464.83	-36.01	4.56	117.81	1641846	246806.6	39°10'14.5	80°45'47.7	117.9	87.786	4.19
	3512	32	15.21	93.04	3495.74	-39.22	4.15	126.08	1641854	246806.2	39°10'14.5	80°45'47.6	126.15	88.113	1.38
	3543	31	15.54	96.3	3525.63	-42.65	3.48	134.27	1641862	246805.5	39°10'14.5	80°45'47.5	134.31	88.515	2.98

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3575	32	15.83	98.38	3556.44	-46.62	2.37	142.85	1641871	246804.4	39°10'14.5	80°45'47.4	142.87	89.047	1.98
3606	31	15.6	97.92	3586.28	-50.59	1.18	151.16	1641879	246803.2	39°10'14.5	80°45'47.3	151.16	89.551	0.84
3669	63	14.95	97.39	3647.05	-58.29	-1.03	167.61	1641896	246801	39°10'14.5	80°45'47.1	167.61	90.351	1.06
3732	63	14.49	95.15	3707.98	-65.38	-2.78	183.52	1641912	246799.2	39°10'14.5	80°45'46.9	183.54	90.868	1.16
3795	63	13.61	94.6	3769.1	-71.81	-4.08	198.75	1641927	246797.9	39°10'14.5	80°45'46.7	198.8	91.177	1.41
3858	63	14.52	93.32	3830.21	-78.03	-5.13	214.03	1641942	246796.9	39°10'14.4	80°45'46.5	214.09	91.374	1.53
3921	63	14.5	93.84	3891.2	-84.34	-6.12	229.78	1641958	246795.9	39°10'14.4	80°45'46.3	229.86	91.526	0.21
3985	64	14.19	94.8	3953.2	-90.87	-7.31	245.59	1641974	246794.7	39°10'14.4	80°45'46.1	245.7	91.706	0.61
4048	63	14.04	96.39	4014.3	-97.51	-8.81	260.88	1641989	246793.2	39°10'14.4	80°45'45.9	261.03	91.934	0.66
4114	66	15.43	99.21	4078.13	-105.35	-11.11	277.51	1642006	246790.9	39°10'14.4	80°45'45.7	277.73	92.292	2.37
4177	63	15.57	98.63	4138.84	-113.49	-13.72	294.14	1642022	246788.3	39°10'14.4	80°45'45.5	294.46	92.67	0.33
4240	63	14.69	99.83	4199.66	-121.52	-16.35	310.37	1642038	246785.7	39°10'14.3	80°45'45.3	310.8	93.015	1.48
4303	63	13.9	98.32	4260.7	-129.08	-18.81	325.73	1642054	246783.2	39°10'14.3	80°45'45.1	326.27	93.305	1.39
4366	63	13.82	95.91	4321.87	-135.96	-20.68	340.7	1642069	246781.3	39°10'14.3	80°45'44.9	341.33	93.473	0.93
4429	63	14.04	92.42	4383.02	-142.16	-21.77	355.82	1642084	246780.2	39°10'14.3	80°45'44.7	356.48	93.502	1.38
4492	63	14.01	95.58	4444.14	-148.37	-22.84	371.04	1642099	246779.2	39°10'14.3	80°45'44.5	371.75	93.522	1.22
4556	64	15.42	102.07	4506.05	-156.23	-25.37	387.08	1642115	246776.6	39°10'14.3	80°45'44.3	387.91	93.75	3.39
4619	63	14.86	101.53	4566.86	-164.9	-28.74	403.18	1642131	246773.3	39°10'14.2	80°45'44.1	404.21	94.077	0.92
4681	62	14.44	100.44	4626.84	-172.98	-31.73	418.58	1642147	246770.3	39°10'14.2	80°45'43.9	419.78	94.335	0.81
4776	95	15.74	98.33	4718.57	-185.09	-35.74	442.97	1642171	246766.3	39°10'14.2	80°45'43.6	444.41	94.613	1.49
4839	63	15.27	96.97	4779.27	-192.91	-37.99	459.66	1642188	246764	39°10'14.2	80°45'43.4	461.23	94.724	0.94
4902	63	14.62	96.9	4840.14	-200.27	-39.95	475.79	1642204	246762.1	39°10'14.1	80°45'43.2	477.47	94.799	1.03
4965	63	14.19	95.96	4901.16	-207.25	-41.7	491.37	1642219	246760.3	39°10'14.1	80°45'43.0	493.13	94.851	0.78
5028	63	14.87	96.85	4962.15	-214.28	-43.47	507.07	1642235	246758.5	39°10'14.1	80°45'42.8	508.93	94.9	1.14
5126	98	15.83	97.62	5056.65	-226.15	-46.74	532.81	1642261	246755.3	39°10'14.1	80°45'42.5	534.85	95.014	1
5220	94	17.86	96.73	5146.61	-238.58	-50.13	559.83	1642288	246751.9	39°10'14.0	80°45'42.1	562.07	95.117	2.18
5315	95	17.82	102.11	5237.05	-252.86	-54.89	588.51	1642317	246747.1	39°10'14.0	80°45'41.8	591.07	95.328	1.73
5409	94	17.42	101.5	5326.64	-267.86	-60.71	616.37	1642344	246741.3	39°10'14.0	80°45'41.4	619.35	95.626	0.47
5504	95	16.38	98.15	5417.54	-281.61	-65.45	643.56	1642372	246736.6	39°10'13.9	80°45'41.1	646.88	95.807	1.5
5599	95	16.02	101.43	5508.77	-294.77	-69.94	669.67	1642398	246732.1	39°10'13.9	80°45'40.7	673.31	95.963	1.03
5693	94	15.26	101.55	5599.29	-308	-74.99	694.51	1642422	246727	39°10'13.8	80°45'40.4	698.54	96.163	0.81
5788	95	14.05	100.28	5691.19	-320.36	-79.55	718.1	1642446	246722.5	39°10'13.8	80°45'40.1	722.49	96.322	1.32
5882	94	15.44	99.13	5782.1	-332.2	-83.57	741.68	1642470	246718.4	39°10'13.7	80°45'39.8	746.38	96.429	1.51
5977	95	15.35	101.03	5873.69	-344.84	-87.99	766.51	1642494	246714	39°10'13.7	80°45'39.5	771.54	96.548	0.54
6063	86	13.84	87.46	5956.93	-353.8	-89.71	787.97	1642516	246712.3	39°10'13.7	80°45'39.2	793.06	96.495	4.33
6112	49	13.2	59.8	6004.63	-354.57	-86.63	798.67	1642527	246715.4	39°10'13.7	80°45'39.1	803.35	96.191	13.14
6157	45	12.51	40.78	6048.52	-351.28	-80.35	806.3	1642534	246721.7	39°10'13.8	80°45'39.0	810.29	95.691	9.48
6206	49	12.93	41.16	6096.32	-346.04	-72.21	813.37	1642541	246729.8	39°10'13.9	80°45'38.9	816.57	95.073	0.87
6252	46	13.95	37.6	6141.06	-340.59	-63.94	820.14	1642548	246738.1	39°10'13.9	80°45'38.8	822.63	94.458	2.85
6301	49	14.83	23	6188.53	-332.84	-53.48	826.2	1642554	246748.5	39°10'14.1	80°45'38.7	827.93	93.704	7.6
6346	45	15.51	16	6231.97	-323.75	-42.4	830.11	1642558	246759.6	39°10'14.2	80°45'38.7	831.19	92.924	4.34
6395	49	16.48	16	6279.07	-312.83	-29.42	833.83	1642562	246772.6	39°10'14.3	80°45'38.6	834.35	92.021	1.98
6439	44	17.66	12.31	6321.13	-302.14	-16.9	836.97	1642565	246785.1	39°10'14.4	80°45'38.6	837.14	91.157	3.64
6489	50	20.4	5.37	6368.4	-287.85	-0.81	839.4	1642567	246801.2	39°10'14.6	80°45'38.6	839.4	90.055	7.1
6531	42	20.42	2.43	6407.77	-274.47	13.8	840.4	1642568	246815.8	39°10'14.7	80°45'38.6	840.51	89.059	2.44
6582	51	19.94	3.04	6455.64	-258.24	31.37	841.24	1642569	246833.4	39°10'14.9	80°45'38.6	841.82	87.864	1.03
6633	51	19.36	4.55	6503.67	-242.55	48.48	842.37	1642570	246850.5	39°10'15.1	80°45'38.5	843.76	86.706	1.51
6677	44	20.33	4.29	6545.05	-228.95	63.38	843.52	1642572	246865.4	39°10'15.2	80°45'38.5	845.9	85.703	2.21
6727	50	24.91	2.68	6591.19	-211.3	82.57	844.66	1642573	246884.6	39°10'15.4	80°45'38.5	848.69	84.417	9.24
6771	44	29.05	0.45	6630.4	-192.74	102.51	845.18	1642573	246904.5	39°10'15.6	80°45'38.5	851.38	83.084	9.68
6821	50	34.38	358.41	6672.92	-167.95	128.78	844.88	1642573	246930.8	39°10'15.9	80°45'38.5	854.64	81.333	10.87
6865	44	39.49	357.91	6708.08	-142.83	155.2	844.03	1642572	246957.2	39°10'16.1	80°45'38.5	858.18	79.581	11.63
6916	51	42.96	356.08	6746.43	-110.69	188.76	842.25	1642570	246990.8	39°10'16.4	80°45'38.6	863.14	77.368	7.2
6960	44	47.34	353.25	6777.46	-80.52	219.8	839.32	1642567	247021.8	39°10'16.8	80°45'38.6	867.62	75.325	10.95
7011	51	53.81	350.98	6809.83	-42.02	258.79	833.88	1642562	247060.8	39°10'17.1	80°45'38.7	873.12	72.759	13.14
7055	44	58.03	350.16	6834.48	-6.2	294.73	827.91	1642556	247096.7	39°10'17.5	80°45'38.8	878.81	70.404	9.71
7106	51	63.04	349.95	6859.56	37.5	338.45	820.24	1642548	247140.4	39°10'17.9	80°45'38.9	887.32	67.578	9.83
7150	44	66.15	349.01	6878.43	76.7	377.53	812.98	1642541	247179.5	39°10'18.3	80°45'39.0	896.36	65.091	7.33
7196	46	72.08	348.38	6894.83	119.17	419.65	804.55	1642533	247221.6	39°10'18.7	80°45'39.1	907.42	62.454	12.95
7244	48	76.71	346.69	6907.74	164.99	464.77	794.57	1642523	247266.8	39°10'19.2	80°45'39.2	920.52	59.675	10.22
7287	43	80.51	344.94	6916.23	206.91	505.63	784.24	1642512	247307.6	39°10'19.6	80°45'39.4	933.11	57.188	9.7
7339	52	82.81	344.22	6923.77	258.2	555.23	770.56	1642499	247357.2	39°10'20.1	80°45'39.5	949.76	54.225	4.63
7385	46	83.86	343.25	6929.11	303.79	599.09	757.76	1642486	247401.1	39°10'20.5	80°45'39.7	965.98	51.67	3.1
7434	49	89.01	342.78	6932.15	352.61	645.84	743.48	1642471	247447.8	39°10'21.0	80°45'39.9	984.82	49.02	10.55
7530	96	90.52	345.16	6932.55	448.37	738.1	716.97	1642445	247540.1	39°10'21.9	80°45'40.3	1029	44.168	2.94
7625	95	91.2	346.95	6931.12	542.82	830.28	694.08	1642422	247632.3	39°10'22.8	80°45'40.6	1082.18	39.694	1.61
7719	94	90.46	344.02	6929.76	636.37	921.26	670.53	1642399	247723.2	39°10'23.7	80°45'40.9	1139.45	36.048	3.21
7815	96	89.63	343.9	6929.68	732.14	1013.53	644	1642372	247815.5	39°10'24.6	80°45'41.2	1200.82	32.432	0.87
7910	95	88.86	340.09	6930.94	827.06	1103.85	614.65	1642343	247905.8	39°10'25.5	80°45'41.6	1263.44	29.11	4.09
8005	95	88.89	341.22	6932.8	922.03	1193.47	583.19	1642311	247995.4	39°10'26.3	80°45'42.0	1328.33	26.042	1.19
8100	95	88.98	336.61	6934.57	1016.97	1282.07	549.02	1642277	248084	39°10'27.2	80°45'42.5	1394.68	23.382	4.85
8194	94	89.6	332.44	6935.73	1110.51	1366.9	508.6	1642237	248168.9	39°10'28.0	80°45'43.0	1458.46	20.41	4.48
8289	95	89.48	332.11	6936.5	1204.65	1450.99	464.41	1642192	248253	39°10'28.9	80°45'43.6	1523.5	17.748	0.37
8384	95	89.54	330.51	6937.31	1298.55	1534.32	418.81	1642147	248336.3	39°10'29.7	80°45'44.2	1590.43	15.26	1.68
8479	95	90.25	331.13	6937.48	1392.33	1617.26	372.49	1642100	248419.2	39°10'30.5	80°45'44.8	1659.61	12.97	0.99
8574	95	90.34	336.24	6936.99	1486.72	1702.39	330.39	1642058	248504.3	39°10'31.3	80°45'45.3	1734.15	10.985	5.38
8669	95	90.43	339.92	6936.35	1581.65	1790.51	294.93	1642023	248592.5	39°10'32.2	80°45'45.8	1814.63	9.354	3.87
8764	95	89.97	341.34	6936.02	1676.64	1880.13	263.42	1641991	248682.1	39°10'33.1	80°45'46.2	1898.49	7.976	1.57
8858	94	89.48	344.27	6936.47	1770.52	1969.91	235.64	1641964	248771.9	39°10'34.0	80°45'46.6	1983.96	6.821	3.16
8953	95	89.6	342.46	6937.24	1865.35	2060.93	208.44	1641936	248862.9	39°10'34.9	80°45'47.0	2071.44	5.775	1.91
9047	94	88.86	342.5	6938.5	1959.25	2150.56	180.15	1641908	248952.5	39°10'35.7	80°45'47.3	2158.09	4.788	0.79
9142	95	90.52	346.45	6939.01	2053.94	2242.07	154.73	1641883	249044	39°10'36.6	80°45'47.7	2247.4	3.948	4.51
9237	95	90.09	341.45	6938.51	2148.68	2333.34	128.47	1641856	249135.3	39°10'37.5	80°45'48.0	2336.87	3.151	5.28
9332	95	92.15	337.48	6936.65	2243.63	2422.26	95.16	1641823	249224.2	39°10'38.4	80°45'48.5	2424.13	2.25	4.71
9427	95	91.75	336.54	6933.42	2338.45	2509.67	58.08	1641786	249311.6	39°10'39.3	80°45'48.9	2510.34	1.326	1.07
9522	95	90.92	336.79	6931.2	2433.26	2596.87	20.46	1641748	249398.8	39°10'40.1	80°45'49.4	2596.95	0.451	0.91
9618	96	90.55	332.58	6929.97	2528.82	2683.62	-20.57	1641707	249485.5	39°10'41.0	80°45'50.0	2683.7	359.561	4.4
9713	95	90.34	328.89	6929.23	2622.56	2766.48	-67.01	1641661	249568.4	39°10'41.8	80°45'50.6	2767.29	358.613	3.89
9808	95	91.23	332.07	6927.93	2716.23	2849.13	-113.8	1641614	249651.1	39°10'42.6	80°45'51.2	2851.4	357.713	3.48
9903	95	91.75	340.82	6925.46	2810.92	2936.1	-151.72	1641576	249738	39°10'43.5	80°45'51.7	2940.02	357.042	9.22
9998	95	90.89	343.8	6923.27	2905.81	3026.57	-180.58	1641547	249828.5	39°10'44.4	80°45'52.1	3031.96	356.586	3.26
10092	94	90.74	345.76	6921.93	2999.47	3117.26	-205.25	1641523	249919.2	39°10'45.2	80°45'52.4	3124.01	356.233	2.09
10187	95	90.43	348.16	6920.96	3093.76	3209.8	-226.68	1641501	250011.7	39°10'46.2	80°45'52.7	3217.8	355.96	2.55
10281	94	90.46	346.51	6920.23	3186.98	3301.51	-247.29	1641481	250103.4	39°10'47.1	80°45'53.0	3310.76	355.716	1.76
10376	95	90	342.67	6919.85	3281.66	3393.07	-272.53	1641455	250195	39°10'48.0	80°45'53.3	3404	355.408	4.07
10471	95	89.82	338.93	6920	3376.63	3482.77	-303.76	1641424	250284.7	39°10'48.8	80°45'53.7	3496	355.015	3.94
10566	95	90.62	337.49	6919.63	3471.58	3570.98	-339.03	1641389	250372.9	39°10'49.7	80°45'54.2	3587.04	354.577	1.73
10662	96	90.74	333.4	6918.49	3567.25	3658.28	-378.91	1641349	250460.2	39°10'50.6	80°45'54.7	3677.85	354.087	4.26
10757	95	90.95	334.74	6917.09	3661.73	3743.7	-420.45	1641308	250545.6	39°10'51.4	80°45'55.2	3767.24	353.592	1.43
10853	96	91.17	341.62	6915.32	3757.61	3832.75	-456.1	1641272	250634.6	39°10'52.3	80°45'55.7	3859.8	353.214	7.17
10948	95	91.11	344.42	6913.43	3852.45	3923.59	-483.84	1641244	250725.5	39°10'53.2	80°45'56.1	3953.31	352.97	2.95

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11043	95	91.14	345.25	6911.56	3947.09	4015.26	-508.68	1641219	250817.1	39°10'54.1	80°45'56.4	4047.35	352.78	0.87
11137	94	90.99	342.81	6909.81	4040.83	4105.61	-534.54	1641193	250907.5	39°10'55.0	80°45'56.8	4140.26	352.582	2.6
11232	95	91.11	339.92	6908.07	4135.78	4195.6	-564.89	1641163	250997.5	39°10'55.9	80°45'57.2	4233.46	352.332	3.04
11327	95	91.69	338.6	6905.75	4230.74	4284.42	-598.52	1641130	251086.3	39°10'56.7	80°45'57.6	4326.02	352.047	1.52
11423	96	91.57	337.71	6903.02	4326.65	4373.49	-634.23	1641094	251175.4	39°10'57.6	80°45'58.1	4419.24	351.749	0.94
11518	95	91.48	337.95	6900.49	4421.55	4461.43	-670.06	1641058	251263.3	39°10'58.5	80°45'58.5	4511.47	351.459	0.27
11613	95	91.63	337.57	6897.91	4516.44	4549.33	-706	1641022	251351.2	39°10'59.3	80°45'59.0	4603.79	351.179	0.43
11708	95	91.05	337.62	6895.69	4611.33	4637.14	-742.2	1640986	251439	39°11'00.2	80°45'59.5	4696.16	350.907	0.61
11803	95	90.99	337.83	6894	4706.24	4725.03	-778.21	1640950	251526.9	39°11'01.1	80°46'00.0	4788.69	350.647	0.23
11898	95	90.83	337.22	6892.49	4801.14	4812.81	-814.52	1640914	251614.7	39°11'01.9	80°46'00.4	4881.25	350.394	0.66
11993	95	90.68	337.67	6891.24	4896.04	4900.53	-850.96	1640877	251702.4	39°11'02.8	80°46'00.9	4973.87	350.149	0.5
12089	96	91.23	338.09	6889.64	4991.96	4989.45	-887.1	1640841	251791.3	39°11'03.7	80°46'01.4	5067.7	349.918	0.72
12184	95	91.29	340.06	6887.55	5086.92	5078.16	-921.02	1640807	251880	39°11'04.5	80°46'01.8	5161.01	349.72	2.07
12279	95	91.11	341.68	6885.56	5181.88	5167.89	-952.14	1640776	251969.7	39°11'05.4	80°46'02.2	5254.87	349.561	1.72
12375	96	91.35	344.54	6883.5	5277.71	5259.72	-980.02	1640748	252061.6	39°11'06.3	80°46'02.6	5350.25	349.445	2.99
12469	94	91.11	345.3	6881.48	5371.34	5350.46	-1004.47	1640724	252152.3	39°11'07.2	80°46'02.9	5443.94	349.367	0.85
12564	95	91.17	338.43	6879.59	5466.22	5440.67	-1034.02	1640694	252242.5	39°11'08.1	80°46'03.3	5538.06	349.239	7.23
12659	95	91.51	335.26	6877.37	5561.03	5527.99	-1071.36	1640657	252329.8	39°11'08.9	80°46'03.8	5630.85	349.032	3.36
12754	95	91.54	334.72	6874.84	5655.64	5614.05	-1111.51	1640617	252415.9	39°11'09.8	80°46'04.4	5723.02	348.801	0.57
12849	95	91.54	337.77	6872.29	5750.39	5700.96	-1149.76	1640578	252502.8	39°11'10.6	80°46'04.9	5815.74	348.598	3.21
12944	95	91.82	343.41	6869.5	5845.3	5790.48	-1181.31	1640547	252592.3	39°11'11.5	80°46'05.3	5909.75	348.469	5.94
13039	95	91.66	343.71	6866.61	5940.08	5881.56	-1208.18	1640520	252683.4	39°11'12.4	80°46'05.6	6004.36	348.392	0.36
13134	95	91.57	342.57	6863.94	6034.89	5972.43	-1235.72	1640492	252774.3	39°11'13.3	80°46'06.0	6098.93	348.31	1.2
13229	95	91.51	341.67	6861.38	6129.79	6062.81	-1264.88	1640463	252864.6	39°11'14.2	80°46'06.4	6193.35	348.215	0.95
13324	95	91.63	339.95	6858.78	6224.75	6152.5	-1296.09	1640432	252954.3	39°11'15.1	80°46'06.8	6287.53	348.104	1.81
13419	95	91.6	337.57	6856.1	6319.68	6241	-1330.49	1640398	253042.8	39°11'16.0	80°46'07.2	6381.25	347.966	2.5
13513	94	91.54	336.62	6853.53	6413.52	6327.56	-1367.06	1640361	253129.4	39°11'16.8	80°46'07.7	6473.55	347.809	1.01
13608	95	91.6	340.4	6850.92	6508.44	6415.9	-1401.85	1640326	253217.7	39°11'17.7	80°46'08.2	6567.27	347.675	3.98
13702	94	91.82	345.73	6848.12	6602.23	6505.75	-1429.2	1640299	253307.6	39°11'18.6	80°46'08.5	6660.89	347.61	5.67
13797	95	91.66	346.07	6845.23	6696.68	6597.85	-1452.34	1640276	253399.7	39°11'19.5	80°46'08.9	6755.81	347.586	0.4
13892	95	91.48	338.37	6842.62	6791.5	6688.21	-1481.31	1640247	253490	39°11'20.4	80°46'09.2	6850.29	347.512	8.1
13986	94	91.6	334.19	6840.1	6885.25	6774.22	-1519.11	1640209	253576	39°11'21.2	80°46'09.7	6942.46	347.361	4.45
14081	95	91.23	338.23	6837.75	6979.99	6861.1	-1557.41	1640171	253662.9	39°11'22.1	80°46'10.2	7035.64	347.211	4.27
14176	95	91.2	345.02	6835.73	7074.88	6951.19	-1587.33	1640141	253753	39°11'22.9	80°46'10.6	7130.12	347.137	7.15
14271	95	91.32	344.9	6833.64	7169.5	7042.91	-1611.98	1640116	253844.7	39°11'23.8	80°46'11.0	7225.03	347.108	0.18
14366	95	91.45	346.43	6831.35	7264	7134.92	-1635.49	1640093	253936.7	39°11'24.8	80°46'11.3	7319.97	347.09	1.62
14460	94	91.6	345.06	6828.85	7357.5	7225.99	-1658.63	1640069	254027.8	39°11'25.6	80°46'11.6	7413.91	347.072	1.47
14555	95	91.75	339.06	6826.07	7452.35	7316.29	-1687.86	1640040	254118.1	39°11'26.5	80°46'12.0	7508.46	347.009	6.32
14650	95	92.12	337.19	6822.86	7547.24	7404.4	-1723.24	1640005	254206.2	39°11'27.4	80°46'12.4	7602.28	346.899	2.01
14745	95	92.65	336.55	6818.91	7642.02	7491.69	-1760.52	1639968	254293.5	39°11'28.3	80°46'12.9	7695.77	346.776	0.87
14796	51	92.62	337.18	6816.56	7692.89	7538.54	-1780.54	1639948	254340.3	39°11'28.7	80°46'13.2	7745.96	346.711	1.24
14821	25	92.62	337.18	6815.42	7717.83	7561.55	-1790.22	1639938	254363.3	39°11'28.9	80°46'13.3	7770.59	346.68	0

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
OXFD-11D-HS LP Plat	6870	897.03	629.02	1642357	247699	39°10'23.4	80°45'41.4		point	
OXFD-11D-HS BHL Rev	6925	7560.23	-1796.05	1639932	254362	39°11'28.9	80°46'13.4		point	
OXFD-11D-HS LP Rev-2	6925	597.1	738.32	1642466	247399.1	39°10'20.5	80°45'40.0		point	
OXFD-11-HS POINT TO	7000.07	3192.55	978.81	1642707	249994.5	39°10'46.2	80°45'37.4		point	

WELLPATH COMPOSITION Ref Wellbore: OXFD-11D-HS AWB Ref Wellpath: OXFD-11D-HS AWP Proj: 14821'

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc Model
01_Gyro (1	24.5	2822	Generic gyro - northseeking (Standard)
02_Weath	2822	5977	ISCWSA MWD, Rev. 2 (Standard)
03_BHI AT	5977	14796	NaviTrak (AT Curve Short Spaced)
Projection	14796	14821	Blind Drilling (std)

COMMENTS

Wellpath general comments
API: 47-017-06412-0000
Rig: Patterson 324
Job#: 6616612
Duration: 10.03.2014-10.09.2014
Gyro (100'-2810')
Weatherford MWD (2810')(2834'-5965')
BHI AT Curve <8-3/4> (5977')(6063'-14796')"
Projection to MD AT TD 14821'

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/19/2015
Job End Date:	5/3/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06412-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	OXFD 11 DHS
Longitude:	-80.76369440
Latitude:	39.17069440
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,937
Total Base Water Volume (gal):	10,217,445
Total Base Non Water Volume:	0

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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	89.28025	
Sand (Proppant), DWP-111, DWP-614, DWP-901, DWP-NE1	CWS	Propping Agent, Gel Slurry, Viscosifier, Breaker, Non-Emulsifier					
			Crystalline silica (Quartz)	14808-60-7	100.00000	10.10673	
			Hydrochloric acid	7647-01-0	35.00000	0.38001	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.07597	
			Guar gum	9000-30-0	60.00000	0.06155	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.01922	
			Calcite	471-34-1	1.00000	0.01348	
			Illite	12173-60-3	1.00000	0.01009	
			Goethite	1310-14-1	0.10000	0.00566	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00513	
			Methanol	67-56-1	15.00000	0.00483	
			Biotite	1302-27-8	0.10000	0.00438	

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			Apatite	64476-38-6	0.10000	0.00438	
			Isopropanol	67-63-0	40.00000	0.00419	
			Dimethylcocoamine, bis (chloroethyl) ether, diquaternary ammonium salt	68607-28-3	40.00000	0.00419	
			Ilmenite	98072-94-7	0.10000	0.00374	
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00240	
			Sorbitan monooleate	1338-43-8	5.00000	0.00240	
			Ammonium Persulfate	7727-54-0	100.00000	0.00213	
			Modified thiourea polymer	68527-49-1	0.10000	0.00163	
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00163	
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00163	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00163	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00154	
			Propargyl Alcohol	107-19-7	0.10000	0.00054	
			Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00052	
			Formaldehyde	50-00-0	0.10000	0.00011	
			Sodium chloride	7647-14-5	0.10000	0.00005	

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)

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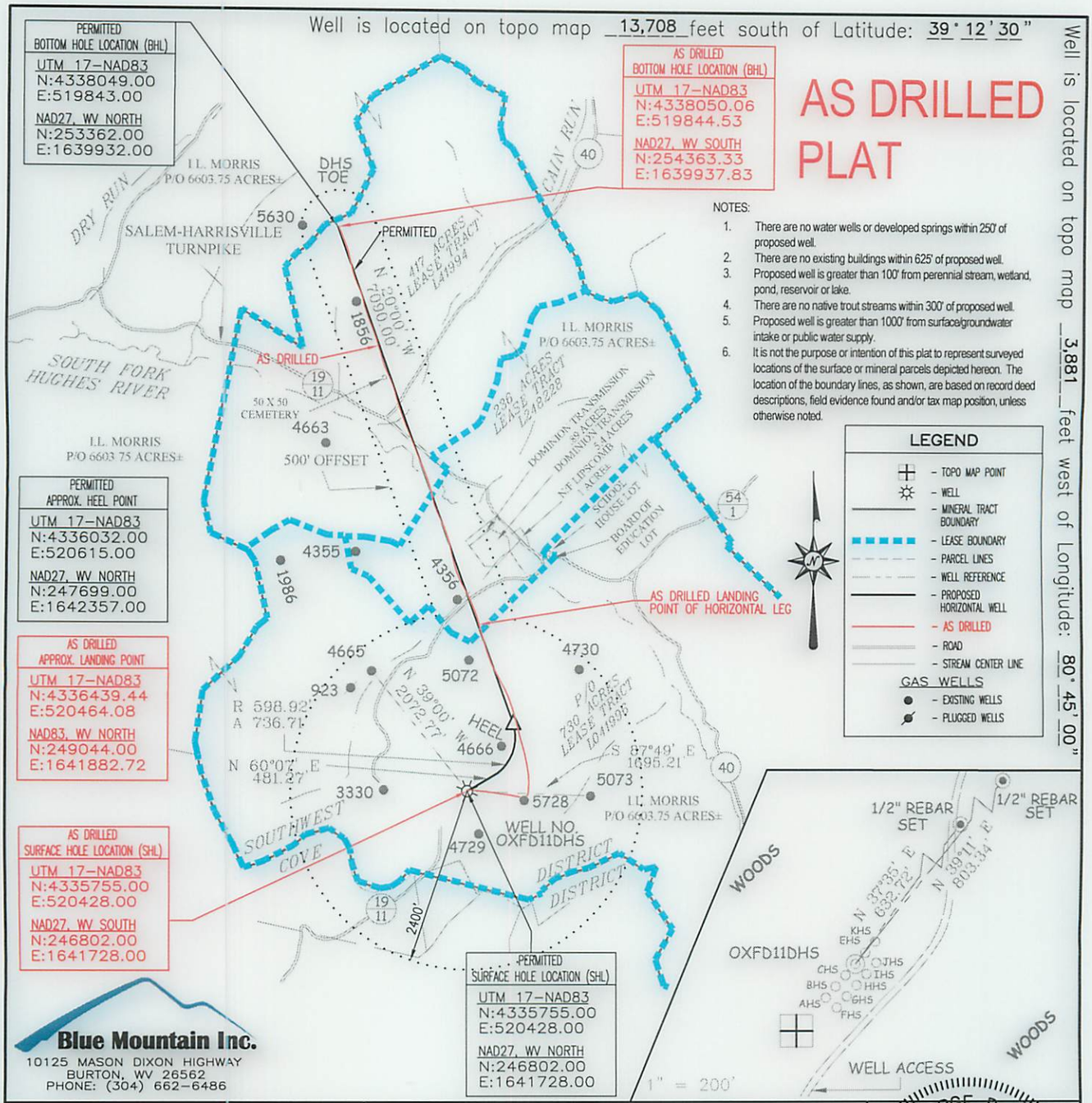
Well is located on topo map 13,708 feet south of Latitude: 39° 12' 30"

Well is located on topo map 3,881 feet west of Longitude: 80° 45' 00"

AS DRILLED PLAT



NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. 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.

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

FILE #: OXFD11DHS-AS DRILLED

DRAWING #: OXFD11DHS-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

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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 27, 2015

OPERATOR'S WELL #: OXFD11DHS-AS DRILLED

API WELL #: 47 (STATE) 17 (COUNTY) 06412 (PERMIT)

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

WATERSHED: SOUTH FORK HUGHES RIVER ELEVATION: 1,340'

COUNTY/DISTRICT: DODDRIDGE / SOUTHWEST QUADRANGLE: OXFORD 7.5'

SURFACE OWNER: I.L. MORRIS ACREAGE: 6603.75±

OIL & GAS ROYALTY OWNER: LINDSAY A. EDMONDSON, ETAL & STATE OF WEST VIRGINIA (SALEM HARRISVILLE TURNPIKE) ACREAGE: 730, 236, & 417±

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: 6,939'± TMD: 14,821'±

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

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

PM

API 47-017-06413H6A County Doddridge District Southwest
Quad Oxford 7.5' Pad Name OXFD11HS Field/Pool Name Oxford
Farm Name MORRIS, I. L. Well Number OXFD11EHS
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	4,335,760.00 m	Easting	520,432.00 m
Landing Point of Curve	Northing	4,336,068.66 m	Easting	520,853.80 m
Bottom Hole	Northing	4,338,248.07 m	Easting	520,010.07 m

Elevation (ft) 1340' 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 02/12/2014 Date drilling commenced 07/15/2014 Date drilling ceased 10/17/2014
Date completion activities began 02/27/2015 Date completion activities ceased 03/30/2015
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	50', 620'	Open mine(s) (Y/N) depths	N
Salt water depth(s) ft	1,645'	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)	N		

Reviewed by:
Gorr, Kevin

API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

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	24"	20"	100'	N	J-55 94# / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	1224'	N	J-55 54.5# / 1224'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2810'	N	J-55 36# / 2810'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	15569'	N	P-110 20# / 15569'	N/A	N
Tubing	5 1/2"	2 3/8"	7383.1'	N	P-110 4.7# / 7383.1'	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	127	15.2	1.18	150	Surface	24
Surface	Class A	985	15.6	1.18	1162	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	933	15.6	1.2	1120	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	765 / 2170	14.2 / 14.8	1.24 / 1.25	948 / 2712	940'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 6937' Loggers TD (ft) 6923'

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

Plug back procedure: N/A

Kick Off Depth (ft) 2900'

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. 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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API 47-017-06413H6A **Farm name** MORRIS, J. L. **Well number** OXFD11EHS

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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API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	2/27/2015	15510	15508	12	Marcellus
2	2/28/2015	15443	15300	40	Marcellus
3	2/28/2015	15266	15123	40	Marcellus
4	2/28/2015	15089	14946	40	Marcellus
5	3/1/2015	14912	14769	40	Marcellus
6	3/1/2015	14735	14592	40	Marcellus
7	3/1/2015	14558	14415	40	Marcellus
8	3/2/2015	14381	14238	40	Marcellus
9	3/2/2015	14204	14061	40	Marcellus
10	3/3/2015	14027	13884	40	Marcellus
11	3/3/2015	13850	13707	40	Marcellus
12	3/3/2015	13673	13530	40	Marcellus
13	3/4/2015	13496	13354	40	Marcellus
14	3/4/2015	13319	13176	40	Marcellus
15	3/6/2015	13142	12999	40	Marcellus
16	3/7/2015	12965	12822	40	Marcellus
17	3/11/2015	12788	12533	80	Marcellus
18	3/18/2015	12500	12359	40	Marcellus
19	3/18/2015	12327	12186	40	Marcellus
20	3/18/2015	12260	12013	40	Marcellus
21	3/20/2015	11981	11840	40	Marcellus
22	3/21/2015	11808	11667	64	Marcellus
23	3/22/2015	11635	11494	40	Marcellus
24	3/22/2015	11462	11321	40	Marcellus
25	3/23/2015	11289	11148	40	Marcellus
26	3/23/2015	11116	10975	40	Marcellus
27	3/24/2015	10943	10802	40	Marcellus
28	3/24/2015	10770	10636	40	Marcellus
29	3/24/2015	10597	10456	40	Marcellus
30	3/25/2015	10424	10283	40	Marcellus
31	3/25/2015	10251	10116	40	Marcellus
32	3/25/2015	10078	9937	40	Marcellus
33	3/26/2015	9905	9764	40	Marcellus
34	3/26/2015	9732	9591	40	Marcellus
35	3/27/2015	9562	9418	40	Marcellus
36	3/27/2015	9381	9245	40	Marcellus
37	3/28/2015	9213	9073	40	Marcellus
38	3/28/2015	9040	8901	40	Marcellus
39	3/28/2015	8867	8729	40	Marcellus

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API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
40	3/28/2015	8697	8557	40	Marcellus
41	3/29/2015	8525	8385	40	Marcellus
42	3/29/2015	8353	8213	40	Marcellus
43	3/29/2015	8181	8041	40	Marcellus
44	3/29/2015	8036	7894	40	Marcellus
45	3/29/2015	7837	7697	40	Marcellus
46	3/30/2015	7665	7525	40	Marcellus

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API 47-017-06413H6A Farm name MORRIS, I. L. Well number OXFD11EHS

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	2/27/2015	57.9	7924	6865	4198	101250	3422	3152
2	2/28/2015	68.4	8427	6955	4808	231700	8940	3499
3	2/28/2015	68.8	8182	6525	5777	234750	6828	3255
4	2/28/2015	78.9	8323	6656	5767	234850	6576	3250
5	3/1/2015	65.2	7852	6491	5810	233900	7513	3817
6	3/1/2015	73	8155	6470	5413	234700	6694	3296
7	3/1/2015	76.2	8493	6247	5827	235650	6227	3236
8	3/2/2015	74	8311	6215	5410	234700	6066	3223
9	3/2/2015	71.9	8348	6456	5801	232500	6593	3229
10	3/3/2015	73	8049	6347	5518	233800	6948	3234
11	3/3/2015	73.1	8095	6051	5577	234450	6680	3240
12	3/3/2015	72.1	8195	6939	5916	234650	6263	3188
13	3/4/2015	72.3	8112	6452	5987	234200	6345	3187
14	3/4/2015	74	8306	6525	5854	233700	6335	3254
15	3/6/2015	72	8381	6830	4887	231950	6662	3193
16	3/7/2015	73.2	8283	7439	5200	214300	8697	6254
17	3/11/2015	76	8586	0	5888	234150	9179	6413
18	3/18/2015	77.4	8571	5881	5636	232700	6612	3233
19	3/18/2015	71.8	8540	7005	5642	224000	7827	3347
20	3/18/2015	76.5	8473	6817	6353	227650	7188	3421
21	3/20/2015	83.5	8440	7347	5742	234100	8994	3417
22	3/21/2015	60.8	8557	6720	5441	102400	11226	9329
23	3/22/2015	88.7	8468	7158	5643	218950	7219	3545
24	3/22/2015	86	8290	6598	5565	235350	7162	3569
25	3/23/2015	85.2	8299	6624	5665	236600	7026	3567
26	3/23/2015	86	8445	6857	5186	234950	6762	3700
27	3/24/2015	92	8260	6653	5426	235150	7294	3537
28	3/24/2015	85.4	8521	6673	5472	223150	6813	3524
29	3/24/2015	90.6	8250	6576	5615	236700	7621	3524
30	3/25/2015	90.6	8257	6308	5728	234850	6600	3380
31	3/25/2015	92.6	8358	6483	5328	234350	6373	3481
32	3/25/2015	66.2	7994	6257	5107	177900	6684	3405
33	3/26/2015	91.6	8417	6808	5630	234700	6459	3457
34	3/26/2015	96.5	8286	6569	5286	234050	6561	3506
35	3/27/2015	91.9	8227	6722	5130	233250	6641	3459
36	3/27/2015	98.6	8531	7031	4750	233300	6224	3400
37	3/28/2015	89.3	8153	6532	4957	234600	6814	3457
38	3/28/2015	90.2	8267	7409	5265	235000	6249	3337
39	3/28/2015	93	8281	6822	5403	233700	6257	3369

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API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

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	3/28/2015	89.5	8104	6660	5422	233650	6330	3404
41	3/29/2015	90.2	8159	6704	5421	233950	6002	3288
42	3/29/2015	92	8497	7048	5165	234000	6157	3330
43	3/29/2015	97.7	8495	6649	5159	234500	6234	3338
44	3/29/2015	94.7	8285	6783	5273	233900	6416	3430
45	3/29/2015	0	0	6687	5205	234450	6565	3416
46	3/30/2015	95.6	8207	6418	4884	234550	6690	3395

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API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

PRODUCING FORMATION(S)	DEPTHS			
MARCELLUS	6918'- 6923'	TVD	7524'- 7552'	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface N/A psi Bottom Hole N/A psi DURATION OF TEST N/A hrs

OPEN FLOW Gas N/A mcfpd Oil N/A bpd NGL N/A bpd Water N/A 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 Drive 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 CalFrac
Address 2001 Summit View Rd City Smithfield State PA Zip 15478

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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 8/11/15

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

API 47-017-06413H6A **Farm name** MORRIS, I. L. **Well number** OXFD11EHS

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	0	100	
GRAVEL	100	200	100	200	
REDROCK/SHALE	200	550	200	550	
LIME/ SS	550	580	550	580	
GREY SHALE	580	730	580	730	
LIME/ SS	730	800	730	800	
GREY SHALE	800	1030	800	1030	
SS	1030	1270	1030	1270	
SS/ SHALE/ COAL	1270	1470	1270	1470	
SS	1470	1570	1470	1570	
SS/ SHALE/ SILTSTONE	1570	1770	1570	1770	
SS/ SHALE	1770	2100	1770	2100	
SS	2100	2200	2100	2200	
SILTSTONE	2200	2430	2200	2430	
SS	2430	2525	2430	2525	
SHALE	2525	3157	2525	3160	
SILTSTONE/ SHALE	3157	3740	3160	3800	
RED SHALE/ SILTSTONE/ GREY SH	3740	3930	3800	4000	
SHALE/ SS	3930	4145	4000	4250	
SS	4145	4200	4250	4300	
SILTSONE/ SHALE	4200	4335	4300	4450	
SS/ SHALE/ SILTSTONE	4335	4470	4450	4600	
SHALE/ SILTSTONE	4470	4565	4600	4700	
SHALE	4565	5010	4700	5200	
SS/ SHALE/ SILTSTONE	5010	5110	5200	5300	
SHALE	5110	5190	5300	5400	
SAND/ SILTSTONE	5190	5857	5400	6149	
BURKETT	6841	6866	7272	7334	
TULLY	6866	6891	7334	7406	
HAMILTON	6891	6918	7406	7524	
UPPER MARCELLUS	6918	6923	7524	7552	
MIDDLE MARCELLUS	6923		7552		

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CNX GAS COMPANY, LLC

Location: Doddridge Co., WV
Field: Doddridge
Facility: OXFD-11 Pad

Slot: Slot E
Well: OXFD-11E-HS
Wellbore: OXFD-11E-HS PWB

Plot reference wellpath is OXFD-11E-HS PWP Rev-8.0	
True vertical depths are referenced to Patterson 324 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Patterson 324 (RKB)	North Reference: Grid north
Patterson 324 (RKB) to Mean Sea Level: 1332.42 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot E): -1307.92 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: fulmjes on 10/8/2014

Location Information

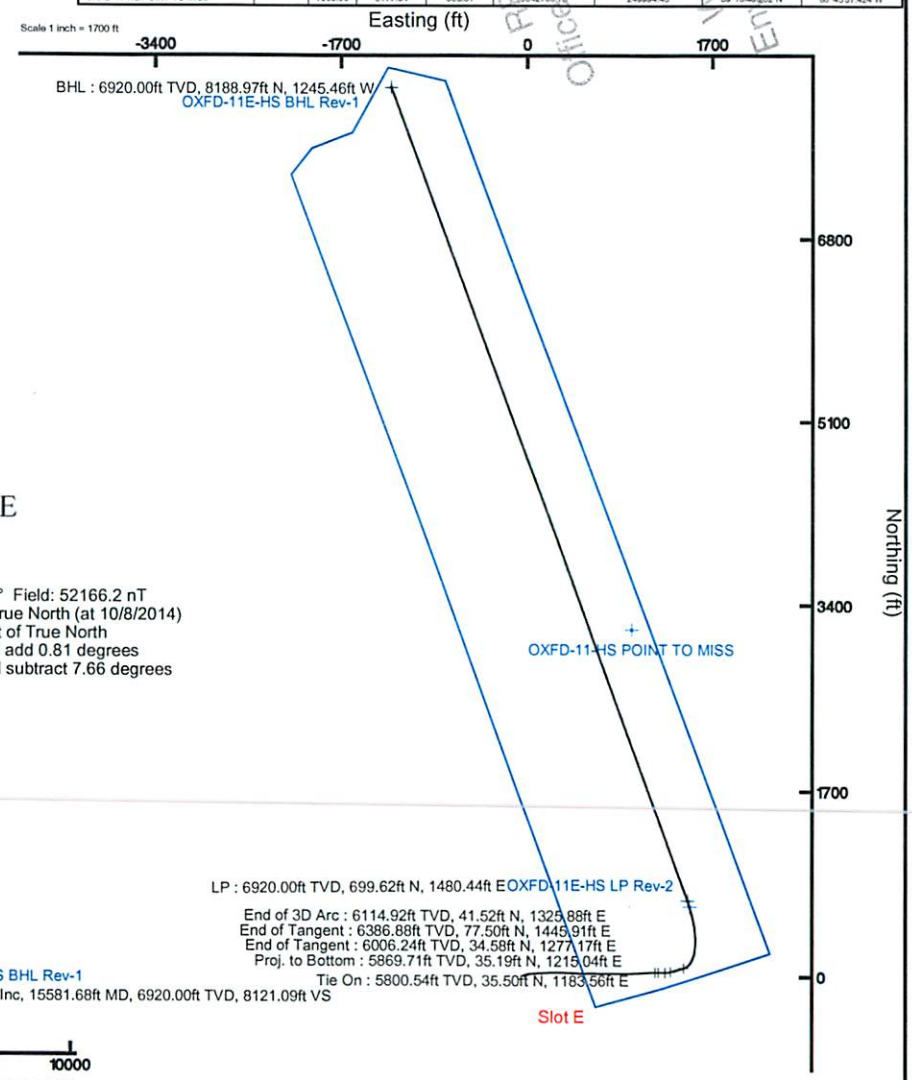
Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11 Pad			1641688.000	246757.000	39°10'14.064"N	80°45'49.782"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot E	60.00	53.00	1641741.000	246817.000	39°10'14.664"N	80°45'49.120"W
Patterson 324 (RKB) to Mud line (At Slot: Slot E)					24.5ft	
Mean Sea Level to Mud line (At Slot: Slot E)					-1307.92ft	
Patterson 324 (RKB) to Mean Sea Level					1332.42ft	

Well Profile Data

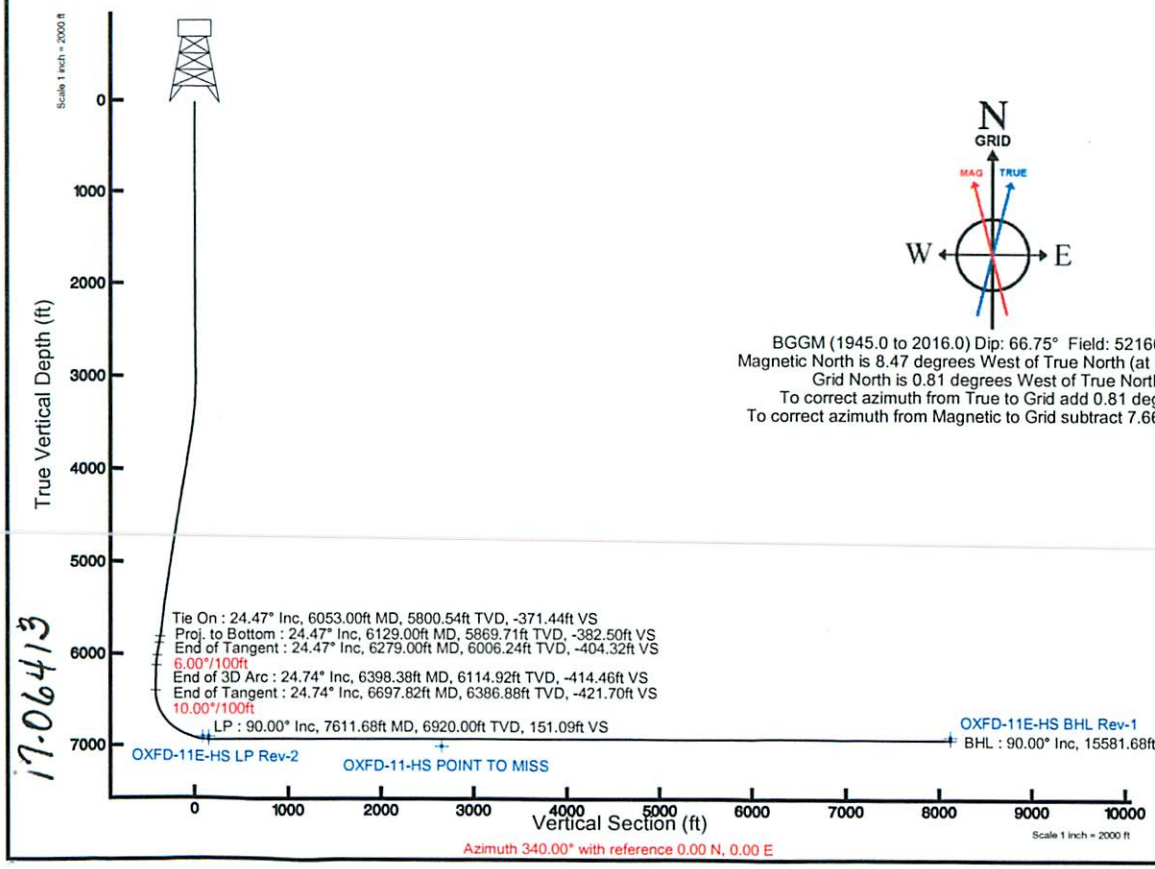
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	6053.00	24.470	90.560	5800.54	35.50	1183.56	0.00	-371.44
Proj. to Bottom	6129.00	24.470	90.560	5869.71	35.19	1215.04	0.00	-382.50
End of Tangent	6279.00	24.470	90.560	6006.24	34.58	1277.17	0.00	-404.32
End of 3D Arc	6398.38	24.738	73.314	6114.92	41.52	1325.88	6.00	-414.46
End of Tangent	6697.82	24.738	73.314	6386.88	77.50	1445.91	0.00	-421.70
LP	7611.68	90.000	340.000	6920.00	699.62	1480.44	10.00	151.09
BHL	15581.68	90.000	340.000	6920.00	8188.97	-1245.46	0.00	8121.09

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11E-HS BHL Plat		6890.00	8188.97	-1245.46	1640495.58	255005.73	39°11'35.422"N	80°46'06.400"W
OXFD-11E-HS LP Plat		6890.00	643.02	1501.94	1643242.00	247460.00	39°10'21.227"N	80°45'30.177"W
OXFD-11E-HS LP Rev-1		6890.00	699.62	1480.44	1643221.40	247516.60	39°10'21.784"N	80°45'30.449"W
OXFD-11E-HS BHL Rev-1	15581.68	6920.00	8188.97	-1245.46	1640495.58	255005.73	39°11'35.422"N	80°46'06.400"W
OXFD-11E-HS LP Rev-2	7611.68	6920.00	699.62	1480.44	1643221.40	247516.60	39°10'21.784"N	80°45'30.449"W
OXFD-11-HS POINT TO MISS		7000.00	3177.54	965.81	1642706.78	249994.45	39°10'46.202"N	80°45'37.424"W



BGGM (1945.0 to 2016.0) Dip: 66.75° Field: 52166.2 nT
Magnetic North is 8.47 degrees West of True North (at 10/8/2014)
Grid North is 0.81 degrees West of True North
To correct azimuth from True to Grid add 0.81 degrees
To correct azimuth from Magnetic to Grid subtract 7.66 degrees



17-06413

17.06413

ACTUAL WELLPATH REPORT (CSV version)
Prepared by Baker Hughes
Software System: WellArchitect® 4.0.1

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Doddridge Co., WV
Field	Doddridge
Facility	OXFD-11 Pad
Slot	Slot E
Well	OXFD-11E-HS
Wellbore	OXFD-11E-HS AWB
Wellpath	OXFD-11E-HS AWP
Sidetrack	(none)

REPORT SETUP INFORMATION

Projection	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
North Refe	Grid
Scale	0.999972
Convergen	0.81° West
Software S	WellArchitect® 4.0.1
User	Gentdouw
Report Ger	10/15/2014 at 4:09:49 PM
DataBase/S	WellArchitectDB/ev910.xml

WELLPATH	Local Nortl [ft]	Local East [ft]	Easting [US ft]	Northing [US ft]	Latitude	Longitude
Slot Locatic	60	53	1641741	246817	39°10'14.6	80°45'49.120"W
Facility Ref			1641688	246757	39°10'14.0	80°45'49.782"W
Field Refer			1640277	240427.6	39°09'11.3	80°46'06.561"W

WELLPATH DATUM

Calculation	Minimum curvature
Horizontal	Slot
Vertical Re	Patterson 324 (RKB)
MD Refere	Patterson 324 (RKB)
Field Vertic	Mean Sea Level
Patterson :	1332.42ft
Patterson :	1332.42ft
Patterson :	24.50ft
Section Ori	N 0.00, E 0.00 ft
Section Azi	340.00°

WELLPATH DATA † = interpolated/extrapolated station

	MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
†	0	0	155.46	0	0	0	0	0
	24.5	0	155.46	24.5	0	0	0	0
	112	0.15	155.46	112	-0.11	-0.1	0.05	0.17
	212	0.26	148.8	212	-0.47	-0.42	0.22	0.11
	312	0.08	149.55	312	-0.76	-0.67	0.37	0.18
	412	0.18	188.58	412	-0.97	-0.89	0.38	0.13
	512	0.1	203.11	512	-1.17	-1.12	0.33	0.09
	612	0.06	302.22	612	-1.19	-1.18	0.25	0.12
	712	0.28	317.87	712	-0.92	-0.97	0.04	0.22
	812	0.37	315.39	812	-0.4	-0.55	-0.35	0.09
	912	0.45	336.19	911.99	0.28	0.03	-0.74	0.17
	1012	0.5	316.33	1011.99	1.08	0.71	-1.2	0.17
	1112	0.43	336.07	1111.99	1.85	1.37	-1.65	0.17
	1212	0.38	312.34	1211.98	2.52	1.93	-2.05	0.17
	1312	0.3	258.52	1311.98	2.85	2.11	-2.55	0.32
	1412	0.3	275.28	1411.98	3	2.08	-3.07	0.09
	1512	0.34	266.4	1511.98	3.2	2.08	-3.62	0.06
	1612	0.22	261.26	1611.98	3.32	2.04	-4.11	0.12
	1712	0.09	273.31	1711.98	3.39	2.01	-4.38	0.13
	1812	0.08	283.17	1811.98	3.46	2.03	-4.52	0.02
	1912	0.54	346.87	1911.98	3.96	2.51	-4.7	0.51
	2012	0.33	330.37	2011.97	4.71	3.21	-4.95	0.24

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2112	0.37	311.23	2111.97	5.28	3.68	-5.33	0.12
2212	0.4	306.62	2211.97	5.85	4.1	-5.86	0.04
2312	0.59	284.83	2311.97	6.44	4.44	-6.63	0.26
2412	0.7	285.79	2411.96	7.09	4.74	-7.72	0.11
2512	0.67	281.53	2511.95	7.75	5.02	-8.88	0.06
2612	0.56	279.72	2611.95	8.3	5.22	-9.93	0.11
2712	0.55	289.34	2711.94	8.85	5.46	-10.87	0.09
2787	0.77	296.22	2786.94	9.44	5.8	-11.66	0.31
2900	1.02	298.23	2899.92	10.74	6.61	-13.23	0.22
2932	1.03	318.05	2931.92	11.22	6.96	-13.67	1.1
2963	1.22	34.8	2962.91	11.67	7.44	-13.67	4.53
2995	3.37	67.17	2994.89	11.91	8.09	-12.61	7.59
3027	5.88	73.57	3026.78	11.85	8.91	-10.17	8
3058	8.34	76.26	3057.54	11.51	9.9	-6.46	8.01
3089	10.38	74.74	3088.13	11.03	11.17	-1.58	6.63
3121	11.72	73.29	3119.53	10.61	12.86	4.31	4.28
3152	13.11	73.95	3149.81	10.19	14.74	10.71	4.51
3184	14.72	74.44	3180.87	9.62	16.83	18.11	5.04
3216	16.25	76.24	3211.7	8.82	18.99	26.38	5.01
3247	17.43	78.83	3241.37	7.64	20.92	35.15	4.51
3279	18.85	81.72	3271.78	5.85	22.59	44.96	5.25
3310	20.63	83.01	3300.96	3.6	23.98	55.34	5.91
3341	22.43	84.53	3329.8	0.89	25.21	66.65	6.08
3373	24.08	84.88	3359.2	-2.32	26.37	79.23	5.17
3405	24.73	85.96	3388.34	-5.84	27.42	92.41	2.46
3499	24.55	86.14	3473.78	-16.67	30.12	131.51	0.21
3594	25.25	85.9	3559.95	-27.71	32.9	171.41	0.74
3688	25.38	89.51	3644.92	-39.93	34.51	211.55	1.65
3783	25.24	90.21	3730.81	-53.73	34.61	252.17	0.35
3878	24.47	89.5	3817.01	-67.29	34.7	292.09	0.87
3972	24.22	90.11	3902.65	-80.42	34.84	330.84	0.38
4067	24.74	92.7	3989.11	-94.79	33.86	370.19	1.26
4162	25	92.89	4075.3	-110.27	31.92	410.09	0.29
4256	24	92.84	4160.83	-125.42	29.97	449.03	1.06
4351	24.78	90.91	4247.36	-140.02	28.69	488.23	1.17
4445	24.55	90.58	4332.78	-153.92	28.18	527.45	0.29
4540	25.6	90.57	4418.83	-168.07	27.78	567.71	1.11
4635	25.22	91.73	4504.64	-182.77	26.96	608.47	0.66
4729	24.24	91.17	4590.02	-197.15	25.96	647.78	1.07
4824	23.33	90.48	4676.95	-210.78	25.41	686.09	1
4919	23.65	89.63	4764.07	-223.76	25.37	723.95	0.49
5013	23.22	89.78	4850.32	-236.37	25.57	761.33	0.46
5108	24.49	91.72	4937.2	-249.99	25.05	799.75	1.57
5203	23.81	91.74	5023.89	-264.38	23.87	838.59	0.72
5297	23.66	90.26	5109.94	-277.94	23.21	876.42	0.65
5392	23.8	89.29	5196.91	-290.87	23.36	914.65	0.44
5486	23.8	87.72	5282.91	-302.91	24.35	952.57	0.67
5581	24.68	87.48	5369.54	-314.7	25.99	991.54	0.93
5675	25.21	86.72	5454.77	-326.36	28	1031.13	0.66
5770	24.07	85.57	5541.12	-337.38	30.65	1070.64	1.5
5865	22.97	85.72	5628.22	-347.6	33.53	1108.45	[illegible]
5959	23.42	88.79	5714.63	-358.59	35.29	1145.41	1.37
6053	24.47	90.56	5800.54	-371.44	35.5	1183.56	1.35
6138	23.29	90.21	5878.26	-383.43	35.26	1217.97	1.4
6207	23.71	87.04	5941.54	-392.21	35.93	1245.47	1.93
6253	24.7	84.57	5983.5	-397.34	37.32	1264.27	3.08
6301	24.65	86.2	6027.11	-402.65	38.93	1284.24	1.42
6395	24.77	76.47	6112.54	-410.34	44.84	1322.96	4.32
6489	24.64	67.79	6197.97	-411.81	56.86	1360.26	3.86
6583	23.35	64.29	6283.85	-409.2	72.35	1395.19	2.04
6678	22.22	61.31	6371.43	-404.61	89.14	1427.91	1.7
6772	21.8	49.27	6458.63	-395.74	109.07	1456.75	4.81
6818	23.57	42.51	6501.07	-388.47	121.43	1469.44	6.84
6866	27.2	34.63	6544.45	-377.69	137.54	1482.16	10.32
6908	29.55	28.05	6581.41	-365.2	154.58	1492.49	9.31
6961	32.39	23.57	6626.85	-346.17	179.14	1504.32	6.9
7006	35.22	21.94	6664.24	-327.78	202.23	1513.99	6.6
7056	38.64	19.44	6704.21	-305	230.33	1524.57	7.47
7101	43.65	16.62	6738.08	-281.66	258.48	1533.7	11.87

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7150	49.37	13.03	6771.8	-252.47	292.84	1542.74	12.82
7197	54.57	8.47	6800.75	-220.66	329.19	1549.59	13.44
7245	59.51	4.64	6826.87	-184.63	369.18	1554.14	12.27
7292	63.83	1.97	6849.17	-146.65	410.47	1556.51	10.46
7340	68.27	359.27	6868.65	-105.6	454.31	1556.97	10.58
7387	71.39	356.78	6884.86	-63.65	498.4	1555.44	8.29
7435	74.62	353.65	6898.89	-19.37	544.13	1551.6	9.17
7483	78.37	349.73	6910.1	26.32	590.29	1544.84	11.14
7530	79.89	346.53	6918.97	72.01	635.45	1535.35	7.43
7577	81.43	343.27	6926.6	118.21	680.22	1523.26	7.59
7626	85.63	340.95	6932.12	166.85	726.54	1508.31	9.78
7672	89.02	340.36	6934.26	212.79	769.89	1493.09	7.48
7720	89.08	339.13	6935.06	260.78	814.91	1476.47	2.57
7816	89.17	336.14	6936.53	356.68	903.67	1439.95	3.12
7910	89.69	334.06	6937.46	450.32	988.92	1400.38	2.28
8006	90.37	333.9	6937.41	545.79	1075.19	1358.27	0.73
8101	90.43	333.62	6936.75	640.23	1160.4	1316.27	0.3
8195	90.31	333.9	6936.14	733.67	1244.71	1274.71	0.32
8290	90.89	333.6	6935.15	828.1	1329.91	1232.69	0.69
8385	90.95	334.67	6933.62	922.59	1415.38	1191.25	1.13
8480	90.62	339.06	6932.32	1017.41	1502.71	1153.94	4.63
8575	90.58	341.39	6931.32	1112.4	1592.1	1121.8	2.45
8670	90.55	339.52	6930.39	1207.39	1681.61	1090.02	1.97
8764	90.49	342.86	6929.53	1301.35	1770.58	1059.72	3.55
8858	90.65	345.01	6928.6	1395.12	1860.9	1033.71	2.29
8954	90.8	345.27	6927.38	1490.73	1953.68	1009.09	0.31
9048	90.74	344.7	6926.12	1584.36	2044.46	984.74	0.61
9143	90.8	342.19	6924.84	1679.17	2135.51	957.68	2.64
9238	90.55	339.89	6923.72	1774.15	2225.34	926.82	2.44
9333	90.49	338.44	6922.86	1869.13	2314.12	893.03	1.53
9428	90.65	337.34	6921.92	1964.06	2402.13	857.28	1.17
9523	90.55	335.96	6920.92	2058.89	2489.34	819.63	1.46
9618	90.68	335.83	6919.9	2153.64	2576.05	780.83	0.19
9714	90.58	336.2	6918.85	2249.4	2663.76	741.81	0.4
9808	90.71	338.19	6917.79	2343.28	2750.4	705.38	2.12
9904	90.65	339.03	6916.65	2439.24	2839.78	670.37	0.88
9998	90.68	342.71	6915.56	2533.21	2928.57	639.57	3.91
10093	90.31	344.04	6914.74	2628.04	3019.59	612.39	1.45
10188	90.31	341.25	6914.22	2722.93	3110.26	584.06	2.94
10282	90.4	339.12	6913.64	2816.92	3198.68	552.19	2.27
10377	90.22	337.32	6913.13	2911.87	3286.9	516.95	1.9
10472	90.28	336.08	6912.71	3006.71	3374.15	479.37	1.31
10567	90.4	339.54	6912.15	3101.62	3462.1	443.5	3.64
10663	90.25	340.54	6911.6	3197.62	3552.33	410.73	1.05
10758	90.34	340.62	6911.11	3292.61	3641.92	379.14	0.13
10853	90.37	341.54	6910.53	3387.59	3731.79	348.34	0.97
10948	90.4	341.85	6909.89	3482.55	3821.98	318.5	0.33
11044	90.4	342.99	6909.22	3578.46	3913.49	289.51	1.19
11137	90.25	341.65	6908.69	3671.38	4002.09	261.27	1.45
11232	90.89	341.19	6907.74	3766.35	4092.14	231	0.83
11328	90.83	340.48	6906.3	3862.32	4182.81	199.49	0.74
11423	90.86	340.72	6904.9	3957.31	4272.4	167.93	0.25
11519	90.92	341.13	6903.41	4053.28	4363.12	136.56	0.43
11614	91.01	341.49	6901.81	4148.25	4453.1	106.13	0.39
11709	90.89	341.98	6900.24	4243.19	4543.3	76.36	0.53
11804	90.92	342.97	6898.74	4338.09	4633.88	47.75	1.04
11899	91.11	344.66	6897.05	4432.86	4725.09	21.28	1.79
11994	91.17	344.82	6895.16	4527.51	4816.73	-3.72	0.18
12090	91.08	344.19	6893.28	4623.2	4909.22	-29.36	0.66
12185	90.89	342.59	6891.64	4718.02	5000.24	-56.51	1.7
12280	90.92	340.5	6890.14	4812.96	5090.34	-86.58	2.2
12375	90.98	340.45	6888.57	4907.95	5179.86	-118.33	0.08
12470	90.58	337.16	6887.28	5002.9	5268.41	-152.67	3.49
12565	90.52	335.12	6886.36	5097.68	5355.29	-191.09	2.15
12660	90.4	334.76	6885.6	5192.31	5441.34	-231.33	0.4
12755	91.11	335.81	6884.35	5286.97	5527.63	-271.04	1.33
12850	91.51	337.58	6882.18	5381.79	5614.85	-308.62	1.91
12944	91.35	338.3	6879.83	5475.7	5701.94	-343.91	0.78
13038	91.23	341.66	6877.71	5569.66	5790.23	-376.08	3.58

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	13135	91.26	343.34	6875.61	5666.54	5882.71	-405.24	1.73
	13230	91.26	343.11	6873.52	5761.37	5973.65	-432.65	0.24
	13325	91.2	340.41	6871.48	5856.29	6063.85	-462.38	2.84
	13420	91.17	338.59	6869.51	5951.26	6152.81	-495.64	1.92
	13514	91.17	340.27	6867.59	6045.24	6240.79	-528.66	1.79
	13608	91.26	343.13	6865.6	6139.16	6330.01	-558.16	3.04
	13703	91.23	344.33	6863.54	6233.94	6421.18	-584.77	1.26
	13798	91.29	344.85	6861.45	6328.61	6512.74	-610.01	0.55
	13892	90.86	343.18	6859.68	6422.36	6603.09	-635.89	1.83
	13987	90.74	340.54	6858.36	6517.29	6693.35	-665.46	2.78
	14082	90.95	340.6	6856.96	6612.28	6782.93	-697.06	0.23
	14176	90.8	340.14	6855.52	6706.26	6871.46	-728.63	0.51
	14271	90.86	339.54	6854.14	6801.25	6960.63	-761.37	0.63
	14366	90.89	339.3	6852.69	6896.24	7049.55	-794.76	0.25
	14461	90.8	337.25	6851.29	6991.18	7137.79	-829.92	2.16
	14556	91.2	337.55	6849.63	7086.07	7225.48	-866.42	0.53
	14651	91.17	337.56	6847.67	7180.96	7313.27	-902.69	0.03
	14746	91.42	337.61	6845.52	7275.85	7401.07	-938.9	0.27
	14840	91.47	336.71	6843.15	7369.7	7487.67	-975.38	0.96
	14935	92.71	338.6	6839.69	7464.56	7575.47	-1011.47	2.38
	15030	91.72	339.28	6836.02	7559.47	7664.06	-1045.58	1.26
	15124	91.72	341.55	6833.19	7653.42	7752.57	-1077.07	2.41
	15219	91.69	341.15	6830.37	7748.35	7842.54	-1107.44	0.42
	15314	91.76	337.98	6827.51	7843.29	7931.51	-1140.59	3.34
	15409	91.73	337.54	6824.61	7938.17	8019.41	-1176.53	0.46
	15504	91.69	336.68	6821.78	8033.01	8106.89	-1213.46	0.91
	15567	91.63	335.75	6819.95	8095.84	8164.51	-1238.86	1.48
proj bit	15592	91.63	335.75	6819.24	8120.77	8187.29	-1249.12	0

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
OXFD-11E-HS BHL Plat		6890	8188.97	-1245.46	1640496	255005.7	39°11'35.4	80°46'06.4	point	
OXFD-11E-HS LP Plat		6890	643.02	1501.04	1643242	247460	39°10'21.2	80°45'30.1	point	
OXFD-11E-HS LP Rev-1		6890	699.62	1480.44	1643221	247516.6	39°10'21.7	80°45'30.4	point	
OXFD-11E-HS BHL Rev-		6920	8188.97	-1245.46	1640496	255005.7	39°11'35.4	80°46'06.4	point	
OXFD-11E-HS LP Rev-2		6920	699.62	1480.44	1643221	247516.6	39°10'21.7	80°45'30.4	point	
OXFD-11-HS POINT TO		7000	3177.54	965.81	1642707	249994.5	39°10'46.2	80°45'37.4	point	

WELLPATH COMPOSITION Ref Wellbore: OXFD-11E-HS AWB Ref Wellpath: OXFD-11E-HS AWP

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc Model
01_Gyro (1	24.5	2787	Generic gyro - northseeking (Standard)
02_Weath	2787	6053	ISCWSA MWD, Rev. 2 (Standard)
03_BHI AT	6053	15567	NaviTrak (AT Curve Short Spaced)
Projection	15567	15592	Blind Drilling (std)

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/27/2015
Job End Date:	3/30/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06413-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	OXFD 11 EHS
Longitude:	-80.76363890
Latitude:	39.17075000
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,937
Total Base Water Volume (gal):	13,148,256
Total Base Non Water Volume:	0

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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	90.88756	
Sand (Proppant), DWP-111, DWP-614, DWP-901, DWP-NE1	CWS	Propping Agent, Gel Slurry, Viscosifier, Breaker, Non-Emulsifier					
			Crystalline silica (Quartz)	14808-60-7	100.00000	8.56538	
			Hydrochloric acid	7647-01-0	35.00000	0.38400	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.04496	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.03375	
			Guar gum	9000-30-0	60.00000	0.01965	
			Calcite	471-34-1	1.00000	0.01117	
			Illite	12173-60-3	1.00000	0.00888	
			Goethite	1310-14-1	0.10000	0.00488	
			Methanol	67-56-1	15.00000	0.00436	
			Sorbitan monooleate	1338-43-8	5.00000	0.00422	
			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00422	
			Biotite	1302-27-8	0.10000	0.00382	

17.06413

			Apatite	64476-38-6	0.10000	0.00382	
			Ilmenite	98072-94-7	0.10000	0.00329	
			Isopropanol	67-63-0	40.00000	0.00286	
			Dimethylcocoamine, bis (chloroethyl) ether, diquaternary ammonium salt	68607-28-3	40.00000	0.00286	
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00165	
			Modified thiourea polymer	68527-49-1	0.10000	0.00165	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00165	
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00165	
			Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00164	
			Propargyl Alcohol	107-19-7	0.10000	0.00055	
			Ammonium Persulfate	7727-54-0	100.00000	0.00054	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00049	
			Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00036	
			Formaldehyde	50-00-0	0.10000	0.00011	
			Sodium chloride	7647-14-5	0.10000	0.00005	

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%

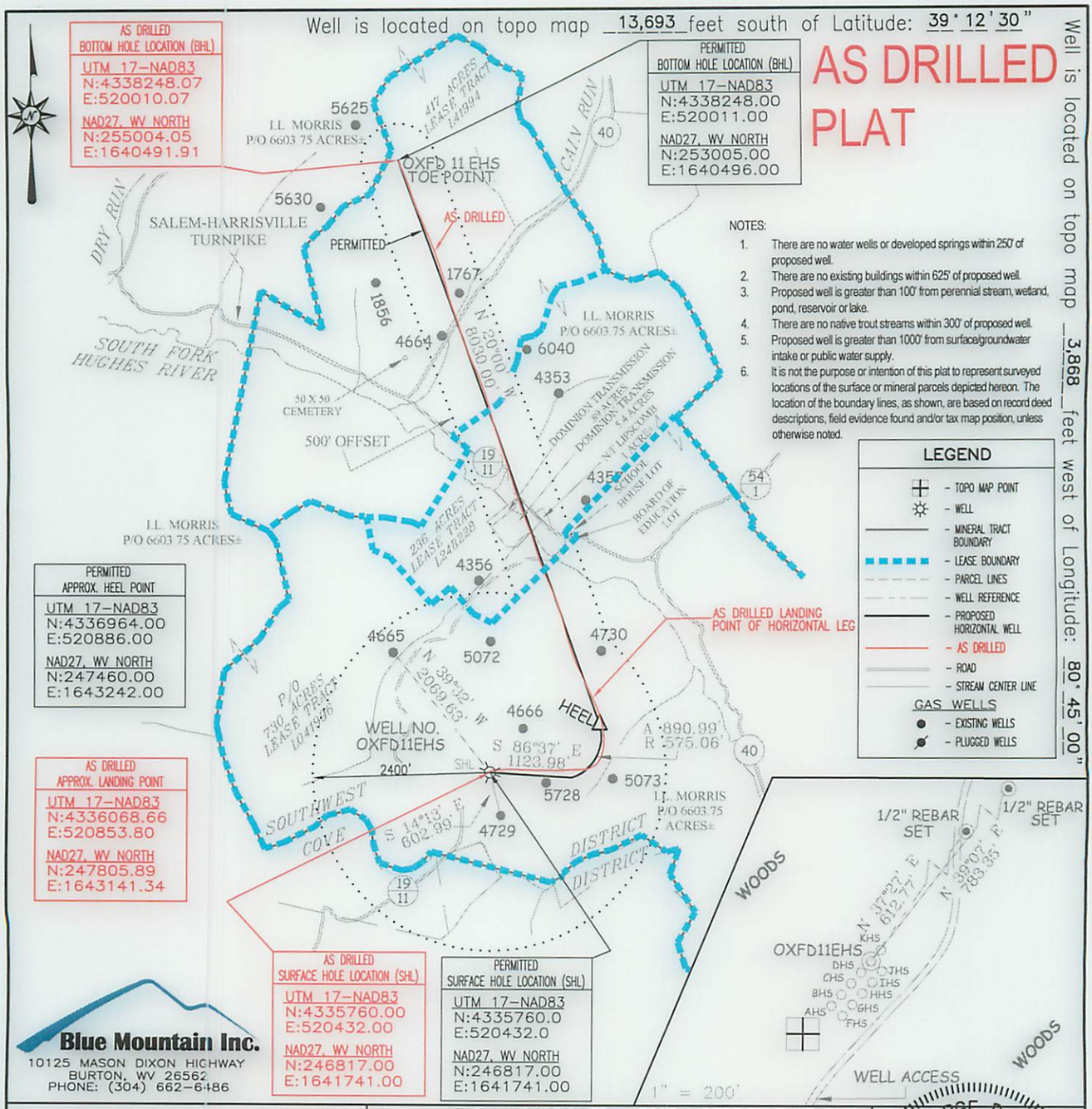
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

17-06443

Well is located on topo map 13,693 feet south of Latitude: 39° 12' 30"

Well is located on topo map 3,868 feet west of Longitude: 80° 45' 00"

AS DRILLED PLAT



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

FILE #: OXFD11EHS-AS DRILLED

DRAWING #: OXFD11EHS-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: _____

R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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 27, 2015

OPERATOR'S WELL #: OXFD11EHS-AS DRILLED

API WELL #: 47 (STATE) 17 (COUNTY) 06413 (PERMIT)

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

WATERSHED: SOUTH FORK HUGHES RIVER ELEVATION: 1,340'

COUNTY/DISTRICT: DODDRIGE/ SOUTHWEST QUADRANGLE: OXFORD 7.5'

SURFACE OWNER: I.L. MORRIS ACREAGE: 6603.75±

OIL & GAS ROYALTY OWNER: LINDSAY A EDMONDSON, ETAL & STATE OF WEST VIRGINIA (SALEM HARRISVILLE TURNPIKE) ACREAGE: 730, 236, & 417±

DRILL [X] CONVERT [ ] DRILL DEEPER [ ] REDRILL [ ] FRACTURE OR STIMULATE [X]

PLUG OFF OLD FORMATION [ ] PERFORATE NEW FORMATION [ ] PLUG & ABANDON [ ]

CLEAN OUT & REPLUG [ ] OTHER CHANGE [ ] (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,937'± TMD: 15,592'±

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

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pm

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

API 47-017-06414H6A County Doddridge District Southwest
Quad Oxford 7.5' Pad Name OXFD11HS Field/Pool Name Oxford
Farm Name MORRIS, I. L. Well Number OXFD11KHS
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	4,335,765.00 m	Easting	520,436.00 m
Landing Point of Curve	Northing	4,336,067.48 m	Easting	520,725.85 m
Bottom Hole	Northing	4,338,111.06 m	Easting	519,947.56 m

Elevation (ft) 1340' 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 02/12/2014 Date drilling commenced 06/29/2014 Date drilling ceased 10/25/2014
Date completion activities began 02/25/2015 Date completion activities ceased 03/28/2015
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	50', 620'	Open mine(s) (Y/N) depths	N
Salt water depth(s) ft	1,809'	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)	N		

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Reviewed by:
Gorr, Kevin
JK

API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

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	24"	20"	100'	N	J-55 94# / 100'	N/A	Y
Surface	17 1/2"	13 3/8"	702'	N	J-55 54.5# / 702'	N/A	Y
Coal	-	-	-	-	-	-	-
Intermediate 1	12 1/4"	9 5/8"	2828'	N	J-55 36# / 2828'	N/A	Y
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8 3/4"	5 1/2"	14994'	N	P-110 20# / 14994'	N/A	N
Tubing	5 1/2"	2 3/8"	7315.3'	N	P-110 4.7# / 7315.3'	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	127	15.2	1.18	150	Surface	24
Surface	Class A	547	15.6	1.00	646	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Class A	1003	15.6	1.2	1207	Surface	8
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	Class A (Lead) / Class A (Tail)	761 / 2037	14.2 / 14.8	1.24 / 1.25	944 / 2546	719'	8
Tubing	-	-	-	-	-	-	-

Drillers TD (ft) 6837' Loggers TD (ft) 6911'

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

Plug back procedure: N/A

Kick Off Depth (ft) 3900'

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. 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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API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

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.

API 47-017-06414H6A Farm name MORRIS, I. L. Well number OXFD11KHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	2/25/2015	14924	14923	6	Marcellus
2	2/26/2015	14857	14714	40	Marcellus
3	2/26/2015	14680	14537	40	Marcellus
4	2/27/2015	14503	14360	40	Marcellus
5	2/27/2015	14326	14183	40	Marcellus
6	2/28/2015	14149	14006	40	Marcellus
7	2/28/2015	13972	13829	40	Marcellus
8	3/1/2015	13790	13652	40	Marcellus
9	3/1/2015	13618	13475	40	Marcellus
10	3/1/2015	13441	13298	40	Marcellus
11	3/2/2015	13264	13121	40	Marcellus
12	3/2/2015	13087	12944	40	Marcellus
13	3/3/2015	12910	12767	40	Marcellus
14	3/3/2015	12733	12590	40	Marcellus
15	3/3/2015	12556	12413	40	Marcellus
16	3/3/2015	12379	12236	40	Marcellus
17	3/4/2015	12202	12059	40	Marcellus
18	3/6/2015	12025	11882	40	Marcellus
19	3/7/2015	11848	11705	40	Marcellus
20	3/8/2015	11671	11528	40	Marcellus
21	3/8/2015	11494	11351	40	Marcellus
22	3/9/2015	11317	11174	40	Marcellus
23	3/9/2015	11140	10997	40	Marcellus
24	3/11/2015	10963	10820	40	Marcellus
25	3/21/2015	10786	10643	40	Marcellus
26	3/21/2015	10609	10466	40	Marcellus
27	3/22/2015	10432	10289	40	Marcellus
28	3/22/2015	10255	10112	40	Marcellus
29	3/23/2015	10078	9940	40	Marcellus
30	3/23/2015	9901	9758	40	Marcellus
31	3/24/2015	9724	9581	40	Marcellus
32	3/24/2015	9547	9404	40	Marcellus
33	3/25/2015	9370	9227	40	Marcellus
34	3/25/2015	9192	9050	40	Marcellus
35	3/25/2015	9016	8873	40	Marcellus
36	3/26/2015	8839	8696	40	Marcellus
37	3/26/2015	8661	8519	40	Marcellus
38	3/26/2015	8485	8342	40	Marcellus
39	3/27/2015	8308	8166	40	Marcellus

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API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
40	3/27/2015	8022	7983	40	Marcellus
41	3/28/2015	7956	7814	40	Marcellus
42	3/28/2015	7780	7642	40	Marcellus
43	3/28/2015	7604	7462	40	Marcellus

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API 47-017-06414H6A Farm name MORRIS, I. L. Well number OXFD11KHS

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	2/25/2015	62.4	8421	7127	3295	100500	4494	3240
2	2/26/2015	92.3	8000	7764	3778	234500	6881	3262
3	2/26/2015	83.1	8469	7777	4000	236350	6866	3253
4	2/27/2015	75.8	8197	7044	4137	233400	7400	3215
5	2/27/2015	81.4	8323	8399	4237	234300	7099	3216
6	2/28/2015	81.2	8212	7679	4036	233700	7076	3255
7	2/28/2015	79.6	8266	7455	4486	235800	6586	3189
8	3/1/2015	83.3	8351	7418	4096	233900	6640	3195
9	3/1/2015	76.5	8193	7730	3922	233700	6530	3265
10	3/1/2015	78.4	8433	7651	3823	236000	6349	3187
11	3/2/2015	79.4	8336	7877	3706	234900	6273	3239
12	3/2/2015	78	8023	7081	3817	234700	6481	3211
13	3/3/2015	63.8	8264	7746	4160	235300	7689	3295
14	3/3/2015	72.1	7917	7076	3680	234050	7014	3218
15	3/3/2015	73.2	8059	6649	3928	234750	6940	3238
16	3/3/2015	80.2	8187	6877	4660	233700	5918	3176
17	3/4/2015	82	8067	7707	4298	236750	8234	3316
18	3/6/2015	73.5	8314	7857	4274	232400	6457	3200
19	3/7/2015	80.4	8373	6677	4546	231200	6260	3257
20	3/8/2015	71.7	8184	7958	3782	233800	6448	3223
21	3/8/2015	70	8196	8311	3789	233650	6556	3262
22	3/9/2015	77	8081	8097	4519	233550	7442	3286
23	3/9/2015	73.3	8066	7870	3922	228950	6212	3219
24	3/11/2015	75.9	7914	7733	4154	235100	6453	3219
25	3/21/2015	86.7	8159	8350	4317	233850	6500	3251
26	3/21/2015	70.2	8015	8187	3572	237450	6485	3228
27	3/22/2015	89	7757	8518	3902	234550	6334	3304
28	3/22/2015	85.7	7833	7923	3933	236100	6534	3315
29	3/23/2015	90	8329	7245	4075	233750	6205	3237
30	3/23/2015	94.5	7565	7641	3874	235750	6585	3271
31	3/24/2015	98.5	7948	7646	3842	237300	6272	3238
32	3/24/2015	97.4	7870	7812	3701	235200	6271	3216
33	3/25/2015	97.1	8085	7799	3840	237850	6197	3207
34	3/25/2015	97.5	8060	7190	3737	234500	6666	3273
35	3/25/2015	90.9	8246	7780	3755	234650	7619	3487
36	3/26/2015	97.4	7870	7852	3707	234900	6518	3251
37	3/26/2015	100	8029	7186	3433	235000	6343	3185
38	3/26/2015	93.7	7863	7123	3626	234400	6942	3280
39	3/27/2015	96.8	8188	7510	3668	235000	6353	3196

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API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

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	3/27/2015	64.2	8240	7612	3833	233350	13759	8952
41	3/28/2015	95.4	8058	7271	3698	234800	6332	3191
42	3/28/2015	97.4	8095	7842	3737	234000	6236	3178
43	3/28/2015	97.9	8084	7696	3759	234300	6182	3180

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API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

PRODUCING FORMATION(S)	DEPTHS			
MARCELLUS	6906 '-6911 '	TVD	7523'- 7528'	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface N/A psi Bottom Hole N/A psi DURATION OF TEST N/A hrs

OPEN FLOW Gas N/A mcfpd Oil N/A bpd NGL N/A bpd Water N/A 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 Drive 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 CalFrac
Address 2001 Summit View Rd City Smithfield State PA Zip 15478

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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 8/11/15

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

API 47-017-06414H6A **Farm name** MORRIS, I. L. **Well number** OXFD11KHS

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	0	100	
SS/ SHALE	100	135	100	135	
REDROCK	135	150	135	150	
SS/ SHALE	150	560	150	560	
REDROCK	560	570	560	570	
SS/ SHALE	570	595	570	595	
GREY SHALE	595	630	595	630	
REDROCK	630	640	630	640	
SS/ SHALE	640	675	640	675	
SHALE	675	690	675	690	
SS/ SHALE	690	820	690	820	
SHALE	820	1090	820	1090	
SS/ SHALE	1090	1150	1090	1150	
SHALE	1150	1220	1150	1220	
SS	1220	1390	1220	1390	
SHALE	1390	1450	1390	1450	
SS/ SILTSTONE	1450	1960	1450	1960	
SHALE	1960	3161	1960	3161	
SS/ SILTSTONE	3161	3220	3161	3220	
SHALE/ SILT	3220	3500	3220	3500	
REDROCK/ SILTSTONE/ GREY SH	3500	3815	3500	3815	
SS/ SHALE	3815	4232	3815	4236	
SS	4232	4293	4236	4300	
SHALE/ SILT	4293	4480	4300	4500	
SS/ SHALE/ SILT	4480	4570	4500	4600	
SHALE/ SILT	4570	4650	4600	4700	
SHALE	4650	5090	4700	5200	
SS/SHALE	5090	5177	5200	5297	
SHALE	5177	5580	5297	5782	
SS/ SHALE	5580	5837	5782	6075	
CASHAQUA	6555	6693	6886	7090	
MIDDLESEX	6693	6752	7090	7196	
WEST RIVER	6752	6829	7196	7446	
BURKETT	6829	6854	7446	7471	
TULLY	6854	6879	7471	7496	
HAMILTON	6879	6906	7496	7523	
UPPER MARCELLUS	6906	6911	7523	7528	
MIDDLE MARCELLUS	6911		7528		

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CNX GAS COMPANY, LLC

Location: Doddridge Co., WV
Field: Doddridge
Facility: OXFD-11 Pad

Slot: Slot K
Well: OXFD-11K-HS
Wellbore: OXFD-11K-HS PWB

CONSOL ENERGY

BAKER HUGHES

Plot reference wellpath is OXFD-11K-HS PWB Rev-B.0	
True vertical depths are referenced to Patterson 324 (RKB)	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Measured depths are referenced to Patterson 324 (RKB)	North Reference: Grid north
Patterson 324 (RKB) to Mean Sea Level: 1332.45 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot K): -1307.95 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: fulmjes on 10/16/2014

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11 Pad			1641688.000	246757.000	39°10'14.064"N	80°45'49.782"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot K	75.00	66.00	1641754.000	246832.000	39°10'14.814"N	80°45'48.957"W

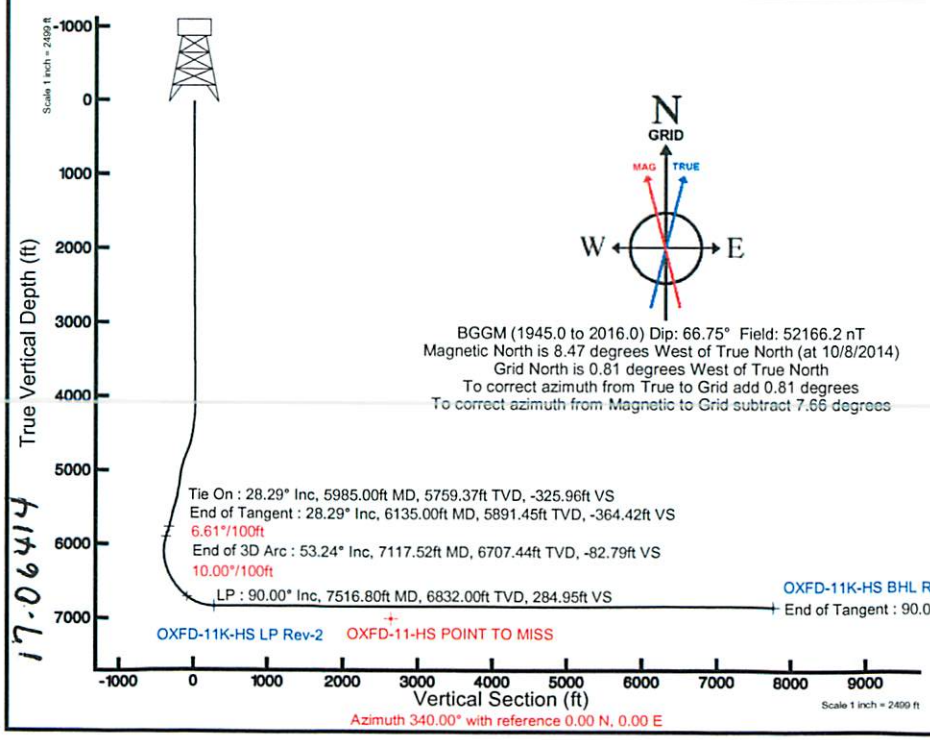
Patterson 324 (RKB) to Mud line (At Slot: Slot K)	24.5ft
Mean Sea Level to Mud line (At Slot: Slot K)	-1307.95ft
Patterson 324 (RKB) to Mean Sea Level	1332.45ft

Well Profile Data

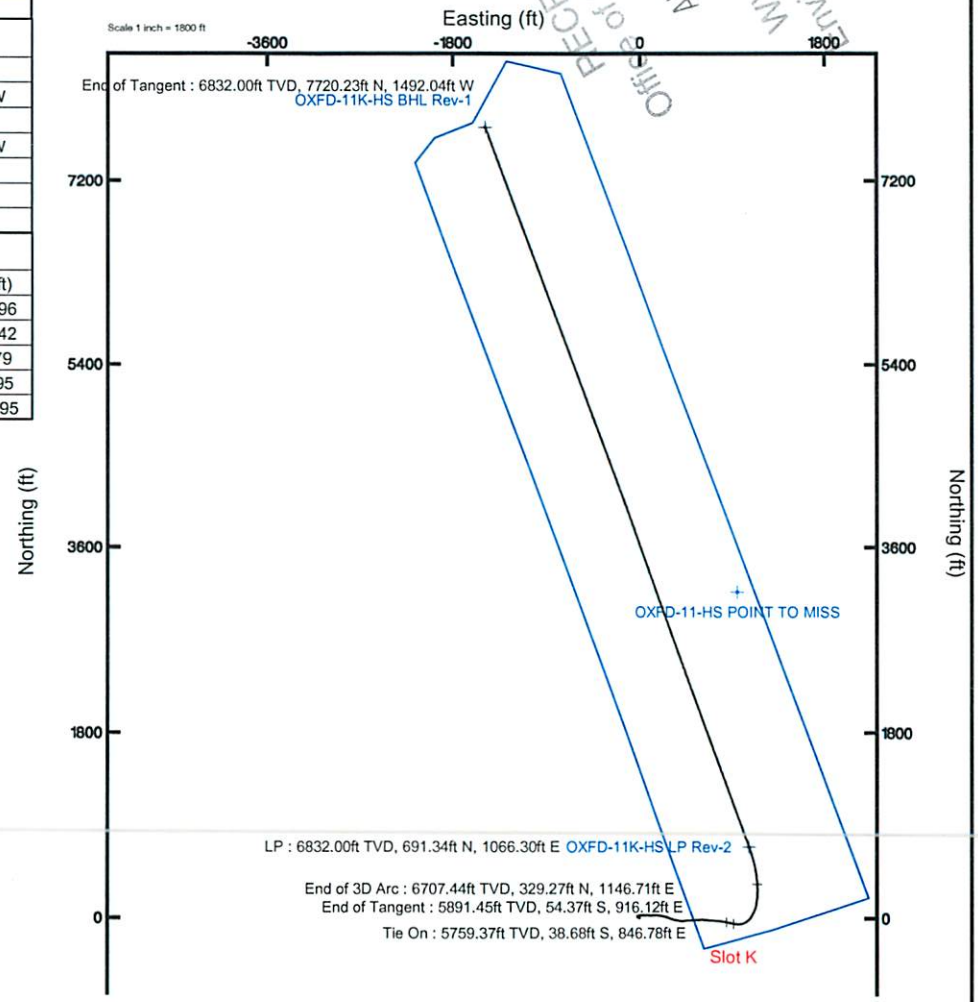
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5985.00	28.290	102.750	5759.37	-38.68	846.78	4.82	-325.96
End of Tangent	6135.00	28.290	102.750	5891.45	-54.37	916.12	0.00	-364.42
End of 3D Arc	7117.52	53.242	356.830	6707.44	329.27	1146.71	6.61	-82.79
LP	7516.80	90.000	340.000	6832.00	691.34	1066.30	10.00	284.95
End of Tangent	14996.80	90.000	340.000	6832.00	7720.23	-1492.04	0.00	7764.95

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
OXFD-11K-HS BHL Rev-1	14996.80	6832.00	7720.23	-1492.04	1640262.05	254552.00	39°11'30.905"N	80°46'09.285"W
OXFD-11K-HS LP Rev-2	7516.80	6832.00	691.34	1066.30	1642820.27	247523.32	39°10'21.795"N	80°45'35.543"W
OXFD-11-HS POINT TO MISS		7000.03	3162.54	952.81	1642706.78	249994.45	39°10'46.202"N	80°45'37.424"W



BGGM (1945.0 to 2016.0) Dip: 66.75° Field: 52166.2 nT
Magnetic North is 8.47 degrees West of True North (at 10/8/2014)
Grid North is 0.81 degrees West of True North
To correct azimuth from True to Grid add 0.81 degrees
To correct azimuth from Magnetic to Grid subtract 7.66 degrees



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ACTUAL WELLPATH REPORT (CSV version)
Prepared by Baker Hughes
Software System: WellArchitect® 4.0.1

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Doddridge Co., WV
Field	Doddridge
Facility	OXFD-11 Pad
Slot	Slot K
Well	OXFD-11K-HS
Wellbore	OXFD-11K-HS AWB
Wellpath	OXFD-11K-HS AWP
Sidetrack	(none)

REPORT SETUP INFORMATION

Projection	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
North Refe	Grid
Scale	0.999972
Convergen	0.81° West
Software S	WellArchitect® 4.0.1
User	Gentdouw
Report Ger	10/23/2014 at 9:54:23 PM
DataBase/S	WellArchitectDB/ev1011.xml

WELLPATH	Local Nortl	Local East	Easting	Northing	Latitude	Longitude
	[ft]	[ft]	[US ft]	[US ft]		
Slot Locatic	75	66	1641754	246832	39°10'14.8	80°45'48.957"W
Facility Ref			1641688	246757	39°10'14.0	80°45'49.782"W
Field Refer			1640277	240427.6	39°09'11.3	80°46'06.561"W

WELLPATH DATUM

Calculation	Minimum curvature
Horizontal	Slot
Vertical Re	Patterson 324 (RKB)
MD Refere	Patterson 324 (RKB)
Field Vertic	Mean Sea Level
Patterson :	1332.45ft
Patterson :	1332.45ft
Patterson :	24.50ft
Section Ori	N 0.00, E 0.00 ft
Section Azi	340.00°

WELLPATH DATA † = interpolated/extrapolated station

	MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]
†	0	0	314.99	0	0	0	0	0
	24.5	0	314.99	24.5	0	0	0	0
	112	0.2	314.99	112	0.14	0.11	-0.11	0.23
	212	0.27	306.94	212	0.49	0.37	-0.42	0.08
	312	0.32	315.88	312	0.95	0.72	-0.8	0.07
	412	0.34	308.87	412	1.46	1.1	-1.23	0.05
	512	0.36	280.39	511.99	1.87	1.34	-1.77	0.17
	612	0.36	288.3	611.99	2.22	1.5	-2.38	0.05
	712	0.1	288.49	711.99	2.47	1.63	-2.76	0.26
	812	0.29	277.2	811.99	2.64	1.69	-3.09	0.19
	912	0.34	281.42	911.99	2.91	1.78	-3.63	0.06
	1012	0.52	309.34	1011.99	3.46	2.12	-4.27	0.27
	1112	0.66	304.04	1111.98	4.31	2.73	-5.1	0.15
	1212	0.45	294.79	1211.98	5.06	3.22	-5.94	0.23
	1312	0.37	327.77	1311.97	5.65	3.66	-6.46	0.25
	1412	0.57	313.03	1411.97	6.41	4.27	-7	0.23
	1512	0.42	282.07	1511.97	7.04	4.69	-7.72	0.3
	1612	0.66	304.63	1611.96	7.71	5.09	-8.55	0.32
	1712	0.36	300.19	1711.96	8.42	5.58	-9.3	0.3
	1812	0.58	280.07	1811.96	8.91	5.82	-10.07	0.27
	1912	0.41	293.58	1911.95	9.41	6.05	-10.9	0.21
	2012	0.46	307.52	2011.95	10	6.44	-11.54	0.12

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2112	0.44	311.24	2111.95	10.68	6.94	-12.15	0.04
2212	0.51	293.35	2211.94	11.32	7.37	-12.85	0.16
2312	0.55	295.16	2311.94	11.96	7.75	-13.69	0.04
2412	0.47	290.58	2411.93	12.57	8.1	-14.51	0.09
2512	0.75	279.58	2511.93	13.16	8.35	-15.54	0.3
2612	0.45	278.24	2611.92	13.67	8.51	-16.57	0.3
2712	0.73	285.24	2711.92	14.22	8.74	-17.57	0.29
2899	0.99	296.61	2898.9	16.08	9.78	-20.17	0.17
2931	0.71	287.88	2930.89	16.41	9.96	-20.6	0.96
2962	0.33	255.66	2961.89	16.53	10	-20.87	1.5
3057	0.48	274.72	3056.89	16.73	9.96	-21.54	0.21
3152	0.54	261.82	3151.89	16.98	9.93	-22.38	0.14
3246	1.11	249.62	3245.88	17.07	9.55	-23.67	0.63
3339	0.56	13.23	3338.87	17.44	9.68	-24.41	1.61
3433	1.08	42.97	3432.86	18.23	10.78	-23.7	0.7
3528	1.23	41.89	3527.84	19.12	12.19	-22.41	0.16
3623	1	46.57	3622.82	19.93	13.52	-21.12	0.26
3717	0.77	20.66	3716.81	20.73	14.67	-20.31	0.48
3812	0.94	27.19	3811.8	21.75	15.96	-19.72	0.21
3906	2.25	60.69	3905.76	22.57	17.55	-17.76	1.65
4001	2.78	68.66	4000.67	22.93	19.3	-13.99	0.67
4033	4.29	68.16	4032.61	22.98	20.03	-12.16	4.72
4064	4.68	70.5	4063.52	23.01	20.89	-9.89	1.39
4096	5.66	66.2	4095.39	23.1	21.96	-7.21	3.29
4127	7.82	74.92	4126.17	23.02	23.12	-3.78	7.69
4159	9.84	77.94	4157.79	22.46	24.26	1	6.47
4190	12.08	77.26	4188.22	21.68	25.53	6.75	7.24
4222	13.39	84.01	4219.44	20.36	26.66	13.7	6.19
4253	14.86	88.73	4249.5	18.22	27.12	21.25	6.02
4285	16.05	95.3	4280.34	15.01	26.8	29.76	6.61
4318	17.06	95.02	4311.98	11.01	25.96	39.12	3.07
4350	18.71	90.39	4342.43	7.24	25.51	48.93	6.8
4379	20.56	84.46	4369.74	4.34	25.97	58.65	9.37
4411	21.28	88.4	4399.64	1.11	26.67	70.05	4.94
4443	22.09	93.58	4429.37	-3.13	26.46	81.86	6.49
4474	22.64	95.17	4458.04	-8	25.56	93.62	2.64
4505	24.5	93.68	4486.46	-13.12	24.61	105.98	6.3
4537	26.9	87.37	4515.29	-17.95	24.52	119.84	11.37
4568	28.32	87.34	4542.76	-22.24	25.18	134.19	4.58
4600	30.61	88.21	4570.62	-27.04	25.79	149.92	7.28
4631	32.2	92.33	4597.08	-32.65	25.7	166.06	8.62
4663	32.55	96.66	4624.11	-39.75	24.35	183.13	7.33
4695	33.88	100.08	4650.89	-48.09	21.79	200.47	7.18
4726	35.75	102.38	4676.34	-57.27	18.34	217.82	7.37
4758	36.17	103.71	4702.24	-67.52	14.09	236.13	2.77
4789	35.53	103.45	4727.37	-77.56	9.83	253.77	2.12
4821	35.16	106.62	4753.47	-88.18	5.03	271.65	5.85
4852	33.03	108.39	4779.14	-98.75	-0.19	288.22	7.58
4883	32.05	108.44	4805.27	-109.11	-5.45	304.04	3.16
4915	31.57	107.92	4832.47	-119.54	-10.72	320.07	1.73
4946	29.19	106.44	4859.21	-129.02	-15.35	335.04	8.05
4978	27.07	102.13	4887.43	-137.53	-19.09	349.65	9.17
5009	25.47	101.43	4915.23	-144.76	-21.9	363.08	5.26
5041	24.97	102.25	4944.18	-151.95	-24.69	376.42	1.91
5072	23.95	101.91	4972.4	-158.77	-27.38	388.97	3.32
5103	23.29	97.12	5000.8	-164.89	-29.44	401.21	6.54
5135	22.97	91.22	5030.23	-170.03	-30.36	413.73	7.31
5167	23.59	85.25	5059.63	-173.97	-29.96	426.36	7.62
5198	25.5	82.9	5087.83	-177.1	-28.62	439.16	6.92
5230	27.95	83.32	5116.41	-180.36	-26.9	453.45	7.68
5261	30.42	84.09	5143.47	-183.95	-25.24	468.47	8.06
5293	32.68	85.75	5170.74	-188.27	-23.77	485.15	7.57
5324	33.2	87.48	5196.76	-193.09	-22.77	501.98	3.47
5356	32.7	87.14	5223.61	-198.27	-21.96	519.36	1.67
5387	31.72	86.89	5249.84	-203.1	-21.1	535.86	3.19
5419	31.23	86.51	5277.13	-207.9	-20.14	552.54	1.65
5451	31.91	85.48	5304.39	-212.52	-18.97	569.25	2.71
5482	31.73	86.08	5330.73	-216.96	-17.76	585.55	1.17
5514	32.65	87.21	5357.82	-221.85	-16.77	602.57	3.44

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5545	33.61	91.45	5383.78	-227.46	-16.58	619.5	8.09
5577	34.37	95	5410.31	-234.52	-17.59	637.36	6.64
5608	34.33	95.77	5435.91	-242.02	-19.23	654.77	1.41
5640	33.69	95.59	5462.43	-249.77	-21	672.58	2.02
5671	33.18	94.51	5488.3	-257	-22.51	689.6	2.53
5703	32.48	95.14	5515.19	-264.29	-23.96	706.88	2.43
5733	32.74	93.96	5540.46	-271	-25.25	723	2.29
5765	32.56	94.01	5567.41	-278.02	-26.45	740.22	0.57
5796	30.77	94.17	5593.79	-284.66	-27.61	756.45	5.78
5828	29.84	93.95	5621.42	-291.25	-28.75	772.56	2.93
5859	28.98	95.17	5648.42	-297.57	-29.96	787.73	3.38
5891	28.49	96.72	5676.48	-304.3	-31.55	803.03	2.79
5923	27.95	98.48	5704.68	-311.31	-33.55	818.03	3.1
5954	28.11	99.61	5732.04	-318.38	-35.84	832.42	1.79
5985	28.29	102.75	5759.37	-325.96	-38.68	846.78	4.82
6075	28.47	103.55	5838.55	-349.36	-48.41	888.44	0.47
6113	27.91	100.71	5872.04	-358.9	-52.19	905.98	3.83
6162	26.1	91.71	5915.72	-368.75	-54.64	928.04	9.11
6207	25.37	84.78	5956.26	-374.88	-54.06	947.54	6.88
6256	25.22	80.29	6000.57	-379.42	-51.34	968.28	3.93
6301	24.85	76.93	6041.34	-382.27	-47.59	986.94	3.26
6349	24.21	73.52	6085.01	-384.09	-42.51	1006.21	3.24
6395	24.13	69.23	6126.98	-384.55	-36.5	1024.04	3.82
6443	23.39	58.44	6170.94	-382.5	-28.03	1041.35	9.18
6489	23.67	48.87	6213.13	-377.34	-17.18	1056.09	8.32
6537	24.57	43	6256.94	-369.34	-3.54	1070.15	5.34
6583	25.62	38.47	6298.6	-359.8	11.24	1082.86	4.76
6633	27.26	33.08	6343.38	-347.26	29.31	1095.84	5.81
6678	29.15	27.28	6383.04	-333.63	47.69	1106.49	7.39
6726	31.08	20.62	6424.57	-316.29	69.68	1116.22	8.03
6772	33.35	15.7	6463.49	-297	92.97	1123.82	7.54
6821	36.91	11.21	6503.57	-273.47	120.39	1130.33	8.97
6866	39.92	8.19	6538.83	-249.18	147.94	1135.02	7.88
6912	42.99	5.37	6573.3	-221.99	178.17	1138.59	7.81
6961	44.97	2.84	6608.56	-190.93	212.11	1141.01	5.4
7009	47.8	0.28	6641.67	-158.61	246.84	1141.94	7.05
7056	50.73	357.97	6672.34	-124.97	282.44	1141.38	7.26
7107	53.91	356.6	6703.51	-86.43	322.75	1139.45	6.59
7150	56.46	355.68	6728.06	-52.52	357.97	1137.07	6.18
7199	60.83	354.42	6753.55	-12.12	399.64	1133.45	9.18
7245	65.63	353	6774.27	27.77	440.45	1128.94	10.79
7293	70.81	350.8	6792.07	71.37	484.56	1122.65	11.6
7340	74.96	348.68	6805.9	115.63	528.75	1114.64	9.83
7388	77.47	347.27	6817.34	161.79	574.33	1104.93	5.96
7435	78.76	346.54	6827.02	207.45	619.13	1094.51	3.14
7483	84.11	345.1	6834.16	254.65	665.13	1082.88	11.53
7530	89.78	343.7	6836.67	301.42	710.31	1070.27	12.42
7626	90	338.39	6836.85	397.37	801.07	1039.09	5.54
7720	89.82	337.62	6837	491.32	888.23	1003.89	0.84
7816	89.91	337.73	6837.23	587.24	977.04	967.42	0.15
7910	90.43	335.17	6836.95	681.05	1063.2	929.87	2.78
8006	90.43	335.36	6836.23	776.72	1150.39	889.7	0.2
8101	90.37	335.26	6835.56	871.4	1236.7	850.02	0.12
8195	90.31	342.18	6835.01	965.31	1324.24	815.92	7.36
8290	90.98	344.67	6833.94	1060.13	1415.28	788.83	2.71
8385	90.95	341.05	6832.34	1154.98	1506.03	760.84	3.81
8480	90.89	339.63	6830.81	1249.97	1595.48	728.88	1.5
8575	90.86	339.04	6829.36	1344.95	1684.35	695.36	0.62
8670	90.92	339.34	6827.88	1439.93	1773.15	661.61	0.32
8764	90.86	340.7	6826.42	1533.91	1861.48	629.5	1.45
8858	90.86	341.23	6825.01	1627.89	1950.33	598.85	0.56
8954	90.89	342.2	6823.55	1723.83	2041.47	568.73	1.01
9048	90.92	340.19	6822.06	1817.8	2130.43	538.44	2.14
9143	90.92	340.21	6820.54	1912.78	2219.81	506.26	0.02
9238	90.95	340.17	6818.99	2007.77	2309.17	474.07	0.05
9333	90.92	339.94	6817.44	2102.76	2398.46	441.67	0.24
9428	90.46	340.18	6816.29	2197.75	2487.76	409.27	0.55
9523	90.52	341.32	6815.48	2292.74	2577.44	377.95	1.2
9618	90.37	340.38	6814.74	2387.72	2667.18	346.79	1

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9714	90.46	340.86	6814.05	2483.72	2757.74	314.93	0.51
9809	90.4	340.6	6813.33	2578.7	2847.42	283.58	0.28
9904	90.37	340.24	6812.7	2673.7	2936.92	251.75	0.38
9998	90.95	340.44	6811.61	2767.69	3025.43	220.12	0.65
10093	90.89	339.14	6810.09	2862.68	3114.57	187.31	1.37
10188	90.86	339.92	6808.64	2957.66	3203.56	154.09	0.82
10282	90.22	340.69	6807.75	3051.65	3292.06	122.41	1.07
10377	90.22	343.7	6807.39	3146.57	3382.5	93.37	3.17
10472	90.18	343	6807.05	3241.41	3473.51	66.15	0.74
10567	90.22	343.57	6806.72	3336.25	3564.5	38.83	0.6
10663	90.15	343.11	6806.41	3432.09	3656.47	11.3	0.48
10758	90.18	339.77	6806.14	3527.05	3746.51	-18.93	3.52
10853	90.15	337.55	6805.87	3622.01	3834.99	-53.5	2.34
10948	90.12	338.28	6805.64	3716.95	3923.02	-89.22	0.77
11044	90.15	337.95	6805.42	3812.9	4012.1	-125	0.35
11137	90.18	339.67	6805.15	3905.87	4098.81	-158.61	1.85
11232	90.74	339.62	6804.38	4000.87	4187.88	-191.66	0.59
11328	90.65	339.8	6803.22	4096.86	4277.91	-224.95	0.21
11423	90.74	340.62	6802.07	4191.85	4367.3	-257.11	0.87
11519	91.69	338.14	6800.03	4287.82	4457.12	-290.9	2.77
11614	92.37	335.9	6796.67	4382.62	4544.52	-327.97	2.46
11709	92.52	336.71	6792.61	4477.34	4631.43	-366.11	0.87
11804	91.63	337.86	6789.17	4572.16	4719	-402.77	1.53
11899	91.72	338.82	6786.4	4667.08	4807.25	-437.82	1.01
11994	91.72	338.75	6783.55	4762.02	4895.78	-472.18	0.07
12090	91.72	338.29	6780.66	4857.94	4985.07	-507.32	0.48
12185	92.1	338.87	6777.5	4952.86	5073.46	-541.99	0.73
12280	92.28	339.79	6773.87	5047.78	5162.27	-575.5	0.99
12375	92.16	340.71	6770.19	5142.71	5251.62	-607.58	0.98
12470	92.13	341.14	6766.63	5237.63	5341.34	-638.6	0.45
12565	92.34	341.23	6762.93	5332.54	5431.19	-669.22	0.24
12660	91.63	340.74	6759.64	5427.47	5520.96	-700.15	0.91
12755	91.69	341.65	6756.88	5522.41	5610.85	-730.76	0.96
12850	91.6	341.69	6754.16	5617.33	5700.99	-760.63	0.1
12944	91.75	343.86	6751.41	5711.17	5790.73	-788.45	2.31
13039	92.09	342.89	6748.23	5805.95	5881.7	-815.61	1.08
13135	92.15	341.8	6744.67	5901.8	5973.12	-844.71	1.14
13230	92.28	340.84	6741	5996.71	6063.05	-875.11	1.02
13325	92.18	341.01	6737.31	6091.62	6152.76	-906.13	0.21
13420	92.16	341.1	6733.71	6186.54	6242.55	-936.95	0.1
13514	91.63	338.74	6730.6	6280.48	6330.78	-969.21	2.57
13608	90.34	338.73	6728.98	6374.44	6418.37	-1003.29	1.37
13703	90.25	339.21	6728.5	6469.42	6507.04	-1037.38	0.51
13798	91.17	337.24	6727.32	6564.36	6595.25	-1072.62	2.29
13892	91.29	339.19	6725.3	6658.29	6682.51	-1107.5	2.08
13987	91.14	339.76	6723.29	6753.27	6771.46	-1140.8	0.62
14082	91.23	338.34	6721.32	6848.23	6860.16	-1174.76	1.5
14176	91.17	339.85	6719.35	6942.2	6947.95	-1208.29	1.61
14271	91.72	341.46	6716.96	7037.16	7037.55	-1239.75	1.79
14366	91.63	342.26	6714.18	7132.06	7127.79	-1269.31	0.85
14461	91.66	343.07	6711.45	7226.92	7218.44	-1297.61	0.85
14556	91.63	341.94	6708.72	7321.79	7309.01	-1326.15	1.19
14651	91.6	341.01	6706.05	7416.72	7399.05	-1356.33	0.98
14746	91.66	340.47	6703.35	7511.67	7488.69	-1387.65	0.57
14840	91.63	339.67	6700.65	7605.63	7577.03	-1419.68	0.85
14935	91.63	339.83	6697.94	7700.59	7666.12	-1452.54	0.17
14973	91.63	339.59	6696.86	7738.58	7701.75	-1465.72	0.63
14999	91.63	339.59	6696.12	7764.57	7726.1	-1474.78	0

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
OXFD-11K-HS BHL Rev		6832	7720.23	-1492.04	1640262	254552	39°11'30.9	80°46'09.2	point	
OXFD-11K-HS LP Rev-2		6832	691.34	1066.3	1642820	247523.3	39°10'21.7	80°45'35.5	point	
OXFD-11-HS POINT TO		7000.03	3162.54	952.81	1642707	249994.5	39°10'46.2	80°45'37.4	point	

WELLPATH COMPOSITION Ref Wellbore: OXFD-11K-HS AWB Ref Wellpath: OXFD-11K-HS AWP

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc Model

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01_Gyro (1	24.5	2712	Generic gyro - northseeking (Standard)
02_Weathe	2712	5985	ISCWSA MWD, Rev. 2 (Standard)
03_BHI AT	5985	14973	NaviTrak (AT Curve Short Spaced)
Projection	14973	14999	Blind Drilling (std)

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/25/2015
Job End Date:	3/28/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06414-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	OXF 11 KHS
Longitude:	-80.76361110
Latitude:	39.17077780
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,837
Total Base Water Volume (gal):	12,072,955
Total Base Non Water Volume:	0

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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	90.61404	
Sand (Proppant), DWP-111, DWP-614, DWP-901, DWP-NE1	CWS	Propping Agent, Gel Slurry, Viscosifier, Breaker, Non-Emulsifier					
			Crystalline silica (Quartz)	14808-60-7	100.00000	8.90632	
			Hydrochloric acid	7647-01-0	35.00000	0.35595	
			2-Propenoic acid, polymer with 2-propenamide, sodium salt	25987-30-8	40.00000	0.03035	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02791	
			Calcite	471-34-1	1.00000	0.01182	
			Illite	12173-60-3	1.00000	0.00897	
			Guar gum	9000-30-0	60.00000	0.00515	
			Goethite	1310-14-1	0.10000	0.00501	
			Apatite	64476-38-6	0.10000	0.00389	
			Biotite	1302-27-8	0.10000	0.00389	
			Methanol	67-56-1	15.00000	0.00386	
			Sorbitan monooleate	1338-43-8	5.00000	0.00379	

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			Poly(oxyethylene)nonylphenol ether	9016-45-9	5.00000	0.00379	
			Ilmenite	98072-94-7	0.10000	0.00332	
			Isopropanol	67-63-0	40.00000	0.00215	
			Dimethylcocoamine, bis (chloroethyl) ether, diquaternary ammonium salt	68607-28-3	40.00000	0.00215	
			Alkenes, C>10 a-	64743-02-8	0.10000	0.00153	
			Fatty acids, tall-oil	61790-12-3	0.10000	0.00153	
			Alcohols, C14-15, ethoxylated	68951-67-7	0.10000	0.00153	
			Modified thiourea polymer	68527-49-1	0.10000	0.00153	
			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	0.00043	
			Diallyldimethylammonium chloride	7398-69-8	5.00000	0.00027	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00013	
			Formaldehyde	50-00-0	0.10000	0.00010	
			Ammonium Persulfate	7727-54-0	100.00000	0.00006	
			Sodium chloride	7647-14-5	0.10000	0.00005	

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)

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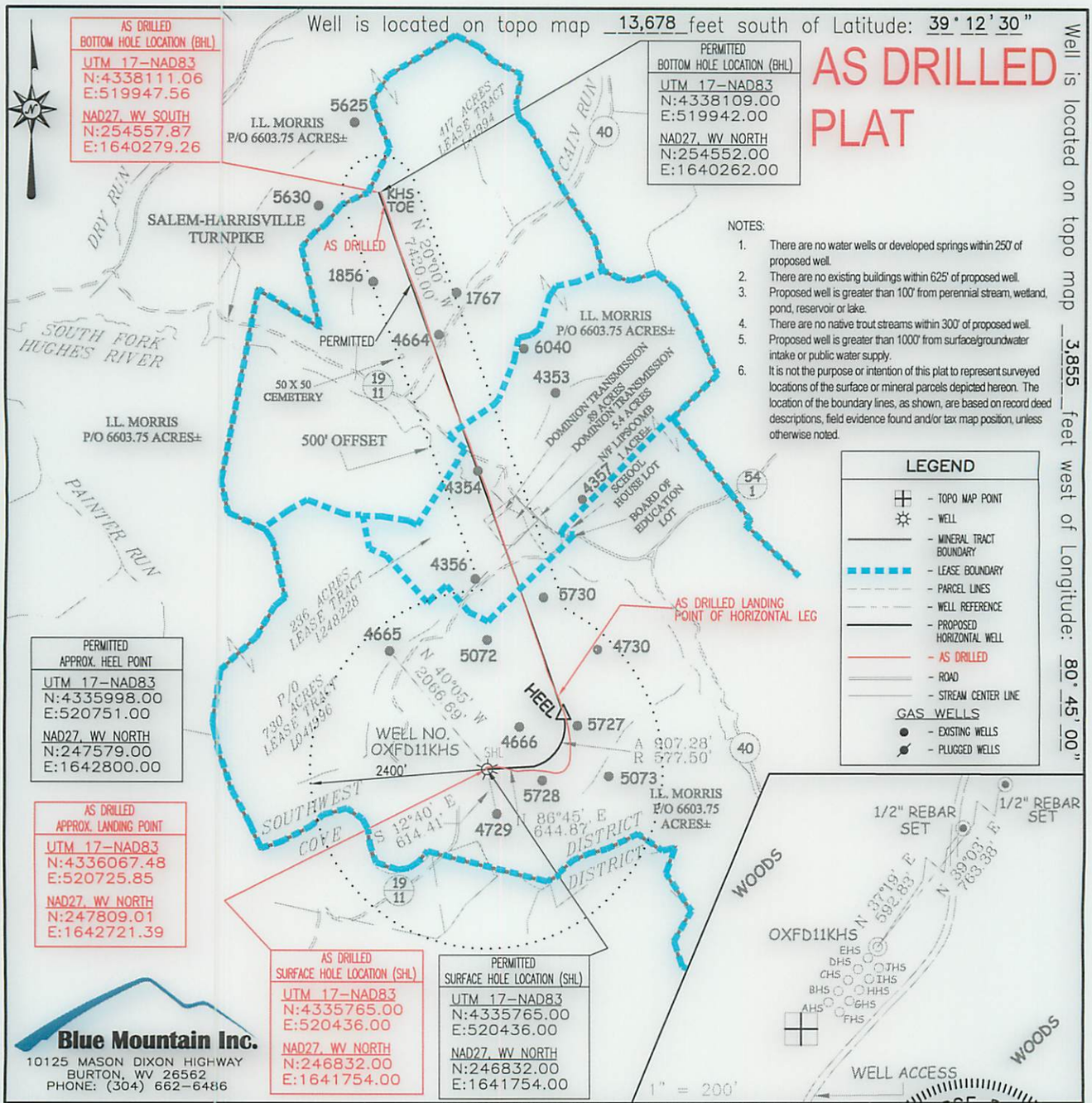
Well is located on topo map 13,678 feet south of Latitude: 39° 12' 30"

Well is located on topo map 3,855 feet west of Longitude: 80° 45' 00"

AS DRILLED PLAT



NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. 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.

LEGEND

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

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS

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

FILE #: OXFD11KHS-AS DRILLED

DRAWING #: OXFD11KHS-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: _____

R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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 27, 2015

OPERATOR'S WELL #: OXFD11KHS-AS DRILLED

API WELL #: 47 (STATE) 17 (COUNTY) 06414 (PERMIT)

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

WATERSHED: SOUTH FORK HUGHES RIVER ELEVATION: 1,340'

COUNTY/DISTRICT: DODDRIDGE/ SOUTHWEST QUADRANGLE: OXFORD 7.5'

SURFACE OWNER: I.L. MORRIS ACREAGE: 6603.75±

OIL & GAS ROYALTY OWNER: LINDSAY A EDMONDSON, ETAL & STATE OF WEST VIRGINIA (SALEM HARRISVILLE TURNPIKE) ACREAGE: 730, 236, & 417±

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: BURKETT ESTIMATED DEPTH: TVD: 6,837'± TMD: 14,999'±

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

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

API 47 - 017 - 6458 County DODDRIDGE District WEST UNION
Quad OXFORD 7.5' Pad Name OXFORD 157 Field/Pool Name
Farm name JUSTIN L. HENDERSON ET AL Well Number 513144
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,343,012	Easting	520,179
Landing Point of Curve	Northing	4,343,048	Easting	520,023
Bottom Hole	Northing	4,344,139	Easting	519,492

Elevation (ft) 968 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

Drilling 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)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 04/18/2014 Date drilling commenced 08/18/2014 Date drilling ceased 12/10/2014
Date completion activities began 4/13/2015 Date completion activities ceased 4/18/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 144 Open mine(s) (Y/N) depths N
Salt water depth(s) ft - Void(s) encountered (Y/N) depths N
Coal depth(s) ft 351 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 017 - 6458 Farm name JUSTIN L. HENDERSON ET AL Well number 513144

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	63'	NEW	A-500 40LB/FT	None	Y
Surface	17.5"	13.375"	943'	NEW	J-55 54.5LB/FT	None	Y
Coal							
Intermediate 1	12.375"	9.625"	5,064'	NEW	P-110 40LB/FT	1418', 2937', 3689'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	10,725'	NEW	P-110 20LB/FT	None.	N
Tubing							
Packer type and depth set							

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	62	15.6	1.18	73.16	0	8
Surface	CLASS A	790	15.6	1.19	940.1	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	375 / 340	14.2 / 15.6	1.28 /1.18	881.2	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	305 / 530	14.2 / 15.2	1.26 / 1.97	1392	4,486	72
Tubing							

Drillers TD (ft) 10,738' Loggers TD (ft) 6486'

Deepest formation penetrated Marcellus Plug back to (ft) 5019'

Plug back procedure Pumped isolation plug # 1 with 2 bbls H2O, 42 3 bbls of 14 2 ppg cmt, 2 bbls H2O, Trip out of hole to @ 5250', Pump isolation plug # 2 with 2 bbls H2O, 40 5 bbls (sks 210 and 1 28 yield) of 14 2 ppg cmt, 2 bbls H2O, Trip out of hole to @ 4850', pump kickoff plug with 2 bbls H2O, 32.2 bbls cmt (sks 165 and 1.12 yield) @ 16.0 ppg, Plugcem, 2 bbls H20, Trip out of hole @ 4500' pump 20 bbls H2O.

Kick off depth (ft) 5,147

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- NONE

SURFACE- 111', 484', 899'

INTERMEDIATE- 85', 584', 1,085', 1,585', 2,085', 2,585', 3,104', 3,606', 4,104', 4,603', 5,062'

PRODUCTION- Composite body centralizers every Jt from 4,545 to bottom'

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WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 017 - 6458 Farm name JUSTIN L. HENDERSON ET AL Well number 513144

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6361' TVD	6,681' MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 2,311 psi Bottom Hole N/A psi DURATION OF TEST 102.5 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	12,151 mcfpd	N/A bpd	66.2 bpd	427.2 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	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 AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 4)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company HOSSCO SERVICES, LLC
Address 614 TROTTERS LANE City CHARLESTON State WV Zip 25312

Cementing Company NABORS CEMENTING SERVICES
Address 2504 SMITH CREEK ROAD City WAYNESBURG State PA Zip 15370

Stimulating Company Keane
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone 412-395-5518
Signature Title VP Completions Date 8/14/2015

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

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API 47- 017 - 6458 Farm name JUSTIN L. HENDERSON ET AL Well number 513144

Drilling Contractor Patterson UTI
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company GYRODATA
Address 601 MAYER ST City BRIDGEVILLE State PA Zip 15017

Logging Company WEATHERFORD
Address P.O. BOX 200698 City DALLAS State TX Zip 75320

Cementing Company NABORS CEMENTING SERVICES
Address 2504 SMITH CREEK ROAD City WAYNESBURG State PA Zip 15370

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Formation	Top (ft TVD)	Bottom (ft TVD)
FRESH WATER ZONE	1	154
SAND/SHALE	1	347
PITTSBURGH COAL SEAM	347	351
SAND/SHALE	351	1,599.00
BIG LIME	1,599.00	1,884.00
WEIR	1,884.00	2,089.00
BEREA	2,089.00	2,093.00
GANTZ	2,093.00	2,204.00
50F	2,204.00	2,294.00
30F	2,294.00	2,349.00
GORDON	2,349.00	2,438.00
4TH	2,438.00	2,660.00
BAYARD	2,660.00	2,933.00
WARREN	2,933.00	3,010.00
SPEECHLEY	3,010.00	3,499.00
BALLTOWN A	3,499.00	4,146.00
RILEY	4,146.00	4,596.00
BENSON	4,596.00	4,849.00
ALEXANDER	4,849.00	6,006.10
SONYEA	6,006.10	6,140.10
MIDDLESEX	6,140.10	6,196.60
GENESEE	6,196.60	6,268.70
GENESEO	6,268.70	6,309.90
TULLY	6,309.90	6,337.30
HAMILTON	6,337.30	6,360.50
MARCELLUS	6,360.50	

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EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 513144
Well #513144

Main Wellbore

Design: 513144 As Drilled Surveys

Standard Survey Report

13 December, 2014

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Phoenix Technologies

Survey Report

17-06458

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513144
Company:	EQT Production - Marcellus	**TVD Reference:**	KB 23 ft @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB 23 ft @ 991.0usft
Site:	Doddridge County 513144	**North Reference:**	Grid
Well:	Well #513144	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

Project Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site Doddridge County 513144

Site Position:		**Northing:**	270,627.70 usft	**Latitude:**	39.24
From:	Map	**Easting:**	1,641,308.60 usft	**Longitude:**	-80.77
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.81 °

Well Well #513144

Well Position	**+N/-S**	0.0 usft	**Northing:**	270,627.70 usft	**Latitude:**	39° 14' 9.931 N
	+E/-W	0.0 usft	**Easting:**	1,641,308.60 usft	**Longitude:**	80° 45' 58.871 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	968.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	11/24/2014	-8.49	66.73	52,212

Design 513144 As Drilled Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	329.56

Survey Program Date 12/13/2014

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,110.0	513144 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	10,737.0	513144 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3:standard declination

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-991.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.18	2.84	110.0	-881.0	0.2	0.0	0.1	0.16	0.16	0.00
210.0	0.04	43.80	210.0	-781.0	0.4	0.0	0.3	0.15	-0.14	40.96
310.0	0.05	38.03	310.0	-681.0	0.4	0.1	0.3	0.01	0.01	-5.77
410.0	0.05	305.53	410.0	-581.0	0.5	0.1	0.4	0.07	0.00	[illegible]
510.0	0.08	253.41	510.0	-481.0	0.5	0.0	0.4	0.06	0.03	-52.12
610.0	0.08	251.79	610.0	-381.0	0.4	-0.2	0.5	0.00	0.00	-1.62
710.0	0.08	259.80	710.0	-281.0	0.4	-0.3	0.5	0.01	0.00	8.01

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Phoenix Technologies

Survey Report

17-06458

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513144
Company:	EQT Production - Marcellus	**TVD Reference:**	KB 23 ft @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB 23 ft @ 991.0usft
Site:	Doddridge County 513144	**North Reference:**	Grid
Well:	Well #513144	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
810.0	0.09	237.28	810.0	-181.0	0.3	-0.4	0.5	0.03	0.01	-22.52
910.0	0.08	242.41	910.0	-81.0	0.3	-0.6	0.5	0.01	-0.01	5.13
1,010.0	0.54	232.36	1,010.0	19.0	0.0	-1.0	0.5	0.46	0.46	-10.05
1,110.0	0.96	237.11	1,110.0	119.0	-0.8	-2.1	0.4	0.42	0.42	4.75
1,210.0	1.00	240.46	1,210.0	219.0	-1.7	-3.5	0.3	0.07	0.04	3.35
1,310.0	1.06	239.71	1,310.0	319.0	-2.6	-5.1	0.4	0.06	0.06	-0.75
1,410.0	1.02	248.23	1,409.9	418.9	-3.4	-6.7	0.5	0.16	-0.04	8.52
1,510.0	0.95	256.80	1,509.9	518.9	-3.9	-8.3	0.9	0.16	-0.07	8.57
1,610.0	0.90	257.50	1,609.9	618.9	-4.2	-9.9	1.4	0.05	-0.05	0.70
1,710.0	0.84	258.72	1,709.9	718.9	-4.6	-11.4	1.8	0.06	-0.06	1.22
1,810.0	0.66	256.90	1,809.9	818.9	-4.8	-12.7	2.3	0.18	-0.18	-1.82
1,910.0	0.62	254.91	1,909.9	918.9	-5.1	-13.8	2.6	0.05	-0.04	-1.99
2,010.0	0.57	251.71	2,009.9	1,018.9	-5.4	-14.8	2.8	0.06	-0.05	-3.20
2,110.0	0.51	250.50	2,109.9	1,118.9	-5.7	-15.7	3.0	0.06	-0.06	-1.21
2,210.0	0.48	251.73	2,209.9	1,218.9	-6.0	-16.5	3.2	0.03	-0.03	1.23
2,310.0	0.39	248.60	2,309.9	1,318.9	-6.2	-17.2	3.3	0.09	-0.09	-3.13
2,410.0	0.41	248.09	2,409.9	1,418.9	-6.5	-17.8	3.4	0.02	0.02	-0.51
2,510.0	0.37	247.61	2,509.9	1,518.9	-6.8	-18.5	3.5	0.04	-0.04	-0.48
2,610.0	0.25	232.82	2,609.9	1,618.9	-7.0	-18.9	3.5	0.14	-0.12	-14.79
2,710.0	0.26	235.66	2,709.9	1,718.9	-7.3	-19.3	3.5	0.02	0.01	2.84
2,810.0	0.22	223.08	2,809.9	1,818.9	-7.5	-19.6	3.4	0.07	-0.04	-12.58
2,910.0	0.26	213.19	2,909.9	1,918.9	-7.9	-19.9	3.3	0.06	0.04	-9.89
3,010.0	0.25	217.10	3,009.9	2,018.9	-8.2	-20.1	3.1	0.02	-0.01	3.91
3,110.0	0.21	224.47	3,109.9	2,118.9	-8.5	-20.4	3.0	0.05	-0.04	7.37
3,210.0	0.20	224.11	3,209.9	2,218.9	-8.8	-20.6	2.9	0.01	-0.01	-0.36
3,310.0	0.19	210.22	3,309.9	2,318.9	-9.1	-20.8	2.7	0.05	-0.01	-13.89
3,410.0	0.19	205.91	3,409.9	2,418.9	-9.4	-21.0	2.6	0.01	0.00	-4.31
3,510.0	0.20	201.18	3,509.9	2,518.9	-9.7	-21.1	2.4	0.02	0.01	-4.73
3,610.0	0.23	208.24	3,609.9	2,618.9	-10.0	-21.3	2.2	0.04	0.03	7.06
3,710.0	0.32	238.82	3,709.9	2,718.9	-10.3	-21.6	2.0	0.17	0.09	30.58
3,810.0	0.50	263.11	3,809.9	2,818.9	-10.5	-22.3	2.2	0.25	0.18	24.29
3,910.0	0.68	274.91	3,909.8	2,918.8	-10.5	-23.3	2.7	0.22	0.18	11.80
4,010.0	0.86	283.42	4,009.8	3,018.8	-10.3	-24.6	3.6	0.21	0.18	8.51
4,110.0	1.00	289.02	4,109.8	3,118.8	-9.8	-26.2	4.8	0.17	0.14	5.60
4,210.0	1.16	291.78	4,209.8	3,218.8	-9.2	-28.0	6.2	0.17	0.16	2.76
4,310.0	1.39	300.10	4,309.8	3,318.8	-8.2	-30.0	8.1	0.29	0.23	8.32
4,410.0	1.54	304.23	4,409.8	3,418.8	-6.8	-32.1	10.4	0.18	0.15	4.13
4,510.0	1.74	309.52	4,509.7	3,518.7	-5.1	-34.4	13.0	0.25	0.20	5.29
4,610.0	1.87	310.88	4,609.7	3,618.7	-3.1	-36.8	16.0	0.14	0.13	1.36
4,710.0	2.01	315.59	4,709.6	3,718.6	-0.8	-39.3	19.2	0.21	0.14	4.71
4,810.0	2.31	316.33	4,809.5	3,818.5	2.0	-41.9	22.9	0.30	0.30	0.74
4,910.0	2.81	322.92	4,909.4	3,918.4	5.4	-44.7	27.3	0.58	0.50	6.59

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Survey Report

17-06458

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Project:	Doddridge County, WV Grid	**MD Reference:**	KB 23 ft @ 991.0usft
Site:	Doddridge County 513144	**North Reference:**	Grid
Well:	Well #513144	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Top of Elks @4950' TVD										
4,950.6	2.87	323.15	4,950.0	3,959.0	7.0	-46.0	29.3	0.14	0.14	0.56
Int. csg pt @5000' TVD										
5,000.7	2.94	323.41	5,000.0	4,009.0	9.0	-47.5	31.8	0.14	0.14	0.53
5,010.0	2.95	323.46	5,009.3	4,018.3	9.4	-47.8	32.3	0.14	0.14	0.52
Gyro Tie In=5110' MD										
5,110.0	2.95	328.70	5,109.2	4,118.2	13.7	-50.6	37.4	0.27	0.00	5.24
5,157.0	1.90	0.10	5,156.1	4,165.1	15.5	-51.3	39.3	3.52	-2.23	66.81
5,188.0	2.60	92.10	5,187.1	4,196.1	16.0	-50.5	39.4	10.56	2.26	296.77
5,219.0	6.20	118.20	5,218.0	4,227.0	15.1	-48.4	37.6	13.00	11.61	84.19
5,251.0	9.40	130.00	5,249.7	4,258.7	12.6	-44.8	33.6	11.13	10.00	36.88
5,282.0	11.60	141.10	5,280.2	4,289.2	8.6	-40.9	28.1	9.61	7.10	35.81
5,314.0	13.80	151.20	5,311.4	4,320.4	2.7	-37.1	21.1	9.74	6.88	31.56
5,345.0	15.60	161.70	5,341.4	4,350.4	-4.5	-34.0	13.4	10.35	5.81	33.87
5,377.0	17.20	170.60	5,372.1	4,381.1	-13.2	-31.9	4.8	9.30	5.00	27.81
5,408.0	19.00	177.30	5,401.6	4,410.6	-22.8	-30.9	-4.0	8.87	5.81	21.61
5,439.0	21.00	184.20	5,430.7	4,439.7	-33.4	-31.1	-13.0	9.97	6.45	22.26
5,471.0	23.00	189.10	5,460.4	4,469.4	-45.3	-32.5	-22.6	8.48	6.25	15.31
5,502.0	25.80	192.30	5,488.6	4,497.6	-57.8	-34.9	-32.2	9.99	9.03	10.32
5,534.0	28.80	193.60	5,517.1	4,526.1	-72.1	-38.2	-42.9	9.56	9.38	4.06
5,566.0	31.40	194.50	5,544.7	4,553.7	-87.7	-42.1	-54.3	8.25	8.13	2.81
5,597.0	35.00	195.50	5,570.7	4,579.7	-104.1	-46.5	-66.2	11.75	11.61	3.23
5,628.0	34.00	197.50	5,596.2	4,605.2	-120.9	-51.4	-78.2	4.87	-3.23	6.45
5,660.0	31.50	198.80	5,623.1	4,632.1	-137.4	-56.8	-89.7	8.12	-7.81	4.06
5,691.0	27.80	201.70	5,650.1	4,659.1	-151.8	-62.1	-99.4	12.80	-11.94	9.35
5,722.0	25.00	205.50	5,677.8	4,686.8	-164.4	-67.6	-107.5	10.55	-9.03	12.26
5,753.0	22.90	207.30	5,706.2	4,715.2	-175.7	-73.2	-114.4	7.17	-6.77	5.81
5,785.0	21.90	210.60	5,735.7	4,744.7	-186.3	-79.1	-120.6	5.02	-3.13	10.31
5,816.0	22.10	214.00	5,764.5	4,773.5	-196.1	-85.3	-125.9	4.16	0.65	10.97
5,848.0	22.00	216.70	5,794.2	4,803.2	-205.9	-92.2	-130.8	3.18	-0.31	8.44
5,879.0	22.70	221.50	5,822.8	4,831.8	-215.1	-99.7	-134.9	6.30	2.26	15.48
5,911.0	23.50	228.70	5,852.3	4,861.3	-223.9	-108.6	-138.1	9.17	2.50	22.50
5,942.0	24.00	236.40	5,880.6	4,889.6	-231.5	-118.5	-139.6	10.13	1.61	24.84
5,974.0	24.00	247.90	5,909.9	4,918.9	-237.5	-129.9	-139.0	14.60	0.00	35.94
6,005.0	24.00	257.80	5,938.2	4,947.2	-241.2	-141.9	-136.1	12.98	0.00	31.94
6,037.0	24.70	265.50	5,967.4	4,976.4	-243.1	-154.9	-131.1	10.15	2.19	24.06
6,068.0	26.50	273.10	5,995.4	5,004.4	-243.3	-168.3	-124.5	12.07	5.81	24.52
6,100.0	28.40	278.70	6,023.8	5,032.8	-241.7	-183.0	-115.7	10.01	5.94	17.50
6,131.0	30.10	283.50	6,050.8	5,059.8	-238.8	-197.8	-105.7	9.34	5.48	15.48
513145 LP										
6,162.0	32.00	289.50	6,077.4	5,086.4	-234.3	-213.1	-94.0	11.71	6.13	19.35
6,194.0	33.90	294.60	6,104.2	5,113.2	-227.7	-229.2	-80.2	10.50	5.94	15.94
6,225.0	35.80	298.60	6,129.7	5,138.7	-219.8	-245.1	-65.3	9.59	6.13	12.90
6,257.0	38.50	302.60	6,155.2	5,164.2	-209.9	-261.7	-48.4	11.32	8.44	12.50

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Survey Report

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513144
Company:	EQT Production - Marcellus	**TVD Reference:**	KB 23 ft @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB 23 ft @ 991.0usft
Site:	Doddridge County 513144	**North Reference:**	Grid
Well:	Well #513144	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,289.0	41.60	305.60	6,179.7	5,188.7	-198.4	-278.7	-29.8	11.41	9.69	9.38
6,321.0	44.50	308.00	6,203.1	5,212.1	-185.3	-296.2	-9.7	10.41	9.06	7.50
6,352.0	48.30	310.70	6,224.4	5,233.4	-171.0	-313.5	11.4	13.78	12.26	8.71
6,384.0	51.80	313.40	6,245.0	5,254.0	-154.6	-331.7	34.8	12.71	10.94	8.44
6,415.0	54.60	316.30	6,263.5	5,272.5	-137.1	-349.3	58.8	11.73	9.03	9.35
6,447.0	57.90	320.10	6,281.3	5,290.3	-117.2	-367.0	84.8	14.27	10.31	11.88
6,478.0	61.20	323.50	6,297.0	5,306.0	-96.2	-383.5	111.3	14.24	10.65	10.97
6,510.0	64.50	325.40	6,311.6	5,320.6	-73.1	-400.1	139.7	11.59	10.31	5.94
6,541.0	67.00	326.70	6,324.4	5,333.4	-49.6	-415.9	167.9	8.92	8.06	4.19
6,573.0	69.30	328.10	6,336.3	5,345.3	-24.6	-431.9	197.6	8.26	7.19	4.38
6,605.0	70.60	329.70	6,347.3	5,356.3	1.1	-447.4	227.6	6.21	4.06	5.00
6,636.0	71.40	331.50	6,357.3	5,366.3	26.7	-461.8	256.9	6.07	2.58	5.81
6,668.0	72.80	333.20	6,367.2	5,376.2	53.6	-475.9	287.3	6.69	4.38	5.31
Top of Marcellus @6371' TVD										
6,681.2	73.61	333.54	6,371.0	5,380.0	64.9	-481.6	300.0	6.61	6.13	2.60
6,699.0	74.70	334.00	6,375.9	5,384.9	80.3	-489.1	317.0	6.61	6.13	2.57
513144 LP 341' VS										
6,727.2	76.64	334.35	6,382.8	5,391.8	104.9	-501.0	344.3	6.98	6.87	1.25
6,731.0	76.90	334.40	6,383.7	5,392.7	108.2	-502.6	347.9	6.98	6.88	1.24
513144 Plat LP										
6,755.0	78.84	334.56	6,388.7	5,397.7	129.4	-512.7	371.3	8.09	8.06	0.65
6,762.0	79.40	334.60	6,390.1	5,399.1	135.6	-515.7	378.2	8.09	8.06	0.64
6,794.0	84.00	335.50	6,394.7	5,403.7	164.3	-529.1	409.7	14.64	14.38	2.81
513144 LP 412' VS										
6,796.3	84.16	335.49	6,394.9	5,403.9	166.3	-530.0	411.9	6.90	6.87	-0.63
513144 LP 416' VS										
6,799.9	84.41	335.46	6,395.3	5,404.3	169.7	-531.5	415.5	6.90	6.87	-0.63
6,826.0	86.20	335.30	6,397.4	5,406.4	193.3	-542.3	441.4	6.90	6.88	-0.62
513144 LP 459' VS										
6,843.9	87.81	334.78	6,398.4	5,407.4	209.5	-549.8	459.1	9.49	9.03	-2.91
6,857.0	89.00	334.40	6,398.7	5,407.7	221.3	-555.5	472.2	9.49	9.03	-2.90
6,869.0	89.60	333.90	6,398.9	5,407.9	232.1	-560.7	484.2	6.51	5.00	-4.17
LP=6888' MD/6399' TVD										
6,888.0	89.80	333.40	6,399.0	5,408.0	249.1	-569.1	503.1	2.83	1.05	[illegible]
6,983.0	91.10	334.40	6,398.2	5,407.2	334.5	-610.9	597.9	1.73	1.37	1.05
7,077.0	88.70	335.00	6,398.4	5,407.4	419.4	-651.1	691.5	2.63	-2.55	0.64
7,172.0	86.60	335.70	6,402.3	5,411.3	505.7	-690.7	785.9	2.33	-2.21	0.74
7,267.0	86.20	335.10	6,408.2	5,417.2	591.9	-730.2	880.2	0.76	-0.42	-0.63
7,361.0	86.10	336.40	6,414.6	5,423.6	677.4	-768.7	973.5	1.38	-0.11	1.38
7,456.0	88.90	335.00	6,418.7	5,427.7	763.9	-807.7	1,067.8	3.29	2.95	-1.47
7,550.0	90.90	332.40	6,418.9	5,427.9	848.2	-849.4	1,161.6	3.49	2.13	-2.77
7,645.0	91.10	332.10	6,417.2	5,426.2	932.2	-893.6	1,256.4	0.38	0.21	-0.32
7,739.0	91.20	334.30	6,415.3	5,424.3	1,016.1	-936.0	1,350.2	2.34	0.11	2.34

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Site:	Doddridge County 513144	**North Reference:**	Grid
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Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

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7,833.0	89.20	334.60	6,415.0	5,424.0	1,100.9	-976.5	1,443.9	2.15	-2.13	0.32
7,928.0	88.80	335.50	6,416.6	5,425.6	1,187.0	-1,016.6	1,538.4	1.04	-0.42	0.95
8,023.0	89.00	335.50	6,418.5	5,427.5	1,273.5	-1,056.0	1,632.9	0.21	0.21	0.00
8,117.0	89.20	334.90	6,419.9	5,428.9	1,358.8	-1,095.4	1,726.4	0.67	0.21	-0.64
8,211.0	88.90	335.50	6,421.5	5,430.5	1,444.1	-1,134.8	1,820.0	0.71	-0.32	0.64
8,305.0	88.80	336.50	6,423.4	5,432.4	1,530.0	-1,173.0	1,913.4	1.07	-0.11	1.06
8,400.0	89.00	341.60	6,425.2	5,434.2	1,618.6	-1,207.0	2,007.0	5.37	0.21	5.37
8,495.0	88.20	336.90	6,427.5	5,436.5	1,707.4	-1,240.6	2,100.6	5.02	-0.84	-4.95
Top of Onondaga @6428' TVD										
8,509.7	88.22	336.81	6,428.0	5,437.0	1,720.9	-1,246.4	2,115.2	0.65	0.11	-0.64
8,589.0	88.30	336.30	6,430.4	5,439.4	1,793.6	-1,277.9	2,193.8	0.65	0.11	-0.64
8,683.0	88.30	338.30	6,433.2	5,442.2	1,880.3	-1,314.2	2,286.9	2.13	0.00	2.13
8,778.0	88.50	336.50	6,435.9	5,444.9	1,968.0	-1,350.7	2,381.0	1.91	0.21	-1.89
8,872.0	90.20	334.20	6,436.9	5,445.9	2,053.4	-1,389.9	2,474.5	3.04	1.81	-2.45
8,966.0	90.90	334.00	6,436.0	5,445.0	2,138.0	-1,431.0	2,568.2	0.77	0.74	-0.21
9,060.0	89.40	332.70	6,435.8	5,444.8	2,222.0	-1,473.1	2,662.0	2.11	-1.60	-1.38
9,155.0	89.70	331.70	6,436.5	5,445.5	2,306.0	-1,517.4	2,756.9	1.10	0.32	-1.05
9,249.0	89.10	333.00	6,437.5	5,446.5	2,389.3	-1,561.0	2,850.8	1.52	-0.64	1.38
9,344.0	88.10	335.10	6,439.8	5,448.8	2,474.6	-1,602.6	2,945.5	2.45	-1.05	2.21
9,438.0	88.40	334.00	6,442.7	5,451.7	2,559.5	-1,643.0	3,039.1	1.21	0.32	-1.17
9,531.0	87.00	333.20	6,446.4	5,455.4	2,642.7	-1,684.3	3,131.8	1.73	-1.51	-0.86
9,626.0	87.00	332.90	6,451.4	5,460.4	2,727.3	-1,727.3	3,226.4	0.32	0.00	-0.32
513144 Plat TD										
9,685.9	87.19	333.03	6,454.4	5,463.4	2,780.6	-1,754.5	3,286.2	0.38	0.32	0.21
9,720.0	87.30	333.10	6,456.1	5,465.1	2,810.9	-1,769.9	3,320.2	0.38	0.32	0.21
9,815.0	88.80	334.70	6,459.3	5,468.3	2,896.2	-1,811.7	3,414.8	2.31	1.58	1.68
9,909.0	89.30	335.20	6,460.9	5,469.9	2,981.3	-1,851.5	3,508.4	0.75	0.53	0.53
10,003.0	90.80	335.80	6,460.8	5,469.8	3,066.9	-1,890.4	3,601.9	1.72	1.60	0.64
10,099.0	90.70	336.40	6,459.5	5,468.5	3,154.6	-1,929.3	3,697.3	0.63	-0.10	0.63
10,193.0	90.50	335.50	6,458.5	5,467.5	3,240.5	-1,967.6	3,790.7	0.98	-0.21	-0.96
10,288.0	90.40	335.20	6,457.8	5,466.8	3,326.8	-2,007.3	3,885.2	0.33	-0.11	-0.32
10,383.0	88.40	336.10	6,458.8	5,467.8	3,413.3	-2,046.4	3,979.6	2.31	-2.11	0.95
10,477.0	88.40	334.70	6,461.4	5,470.4	3,498.8	-2,085.5	4,073.1	1.49	0.00	-1.49
10,572.0	88.50	335.20	6,464.0	5,473.0	3,584.8	-2,125.7	4,167.7	0.54	0.11	0.53
10,666.0	88.30	334.50	6,466.6	5,475.6	3,669.9	-2,165.7	4,261.2	0.77	-0.21	-0.74
Final Survey=10682' MD/6467' TVD										
10,682.0	88.20	334.80	6,467.1	5,476.1	3,684.3	-2,172.5	4,277.2	1.98	-0.63	1.88
513144 Plat TD 2										
10,735.2	88.20	334.80	6,468.8	5,477.8	3,732.4	-2,195.2	4,330.1	0.00	0.00	0.00
Projection to TD/ Deepest Point of Well=10737' MD/6469' TVD										
10,737.0	88.20	334.80	6,468.8	5,477.8	3,734.1	-2,195.9	4,331.9	0.00	0.00	0.00

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Phoenix Technologies

Survey Report

17-06458

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513144
Company:	EQT Production - Marcellus	**TVD Reference:**	KB 23 ft @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB 23 ft @ 991.0usft
Site:	Doddridge County 513144	**North Reference:**	Grid
Well:	Well #513144	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513144 As Drilled Surveys		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,950.6	4,950.0	Top of Elks @4950' TVD			
5,000.7	5,000.0	Int. csg pt @5000' TVD			
6,681.2	6,371.0	Top of Marcellus @6371' TVD			
8,509.7	6,428.0	Top of Onondaga @6428' TVD			

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,110.0	5,109.2	13.7	-50.6	Gyro Tie In=5110' MD
6,888.0	6,399.0	249.1	-569.1	LP=6888' MD/6399' TVD
10,682.0	6,467.1	3,684.3	-2,172.5	Final Survey=10682' MD/6467' TVD
10,737.0	6,468.8	3,734.1	-2,195.9	Projection to TD/ Deepest Point of Well=10737' MD/6469' TVD

Checked By: _____ Approved By: _____ Date: _____

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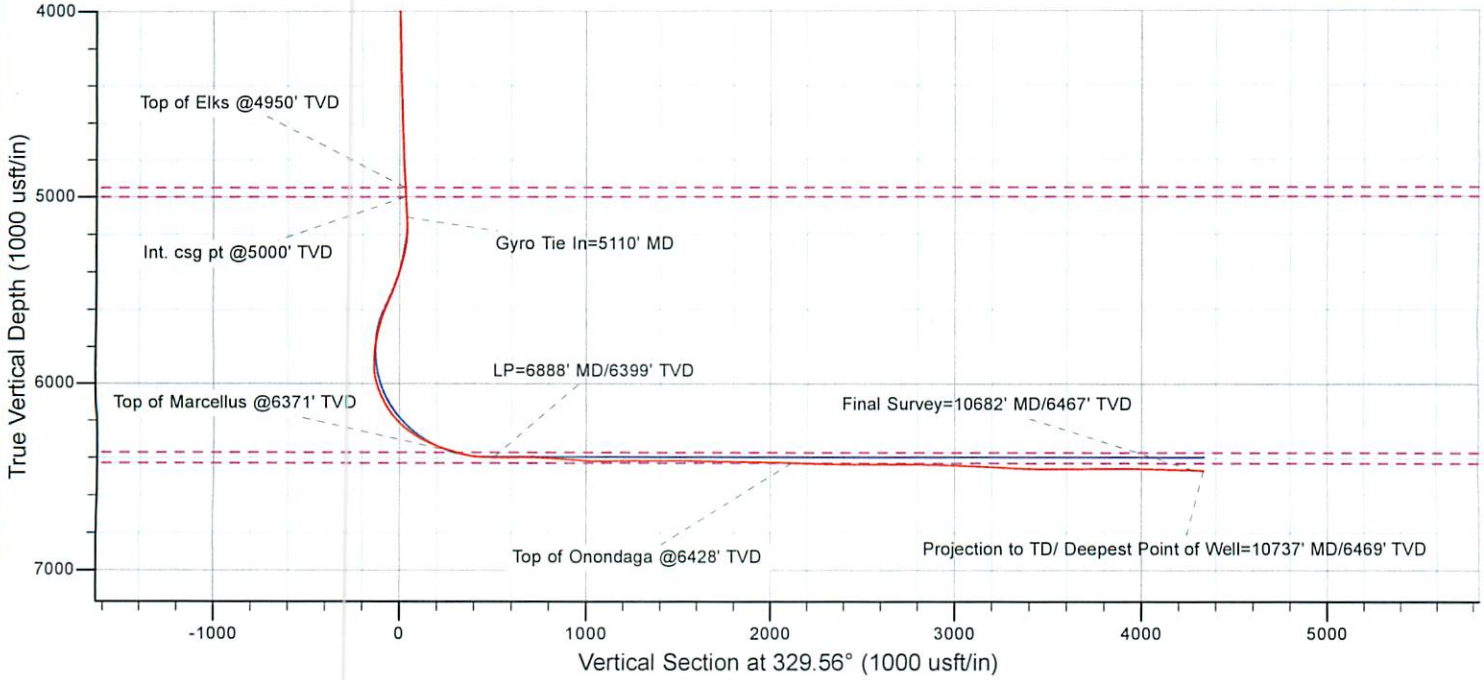
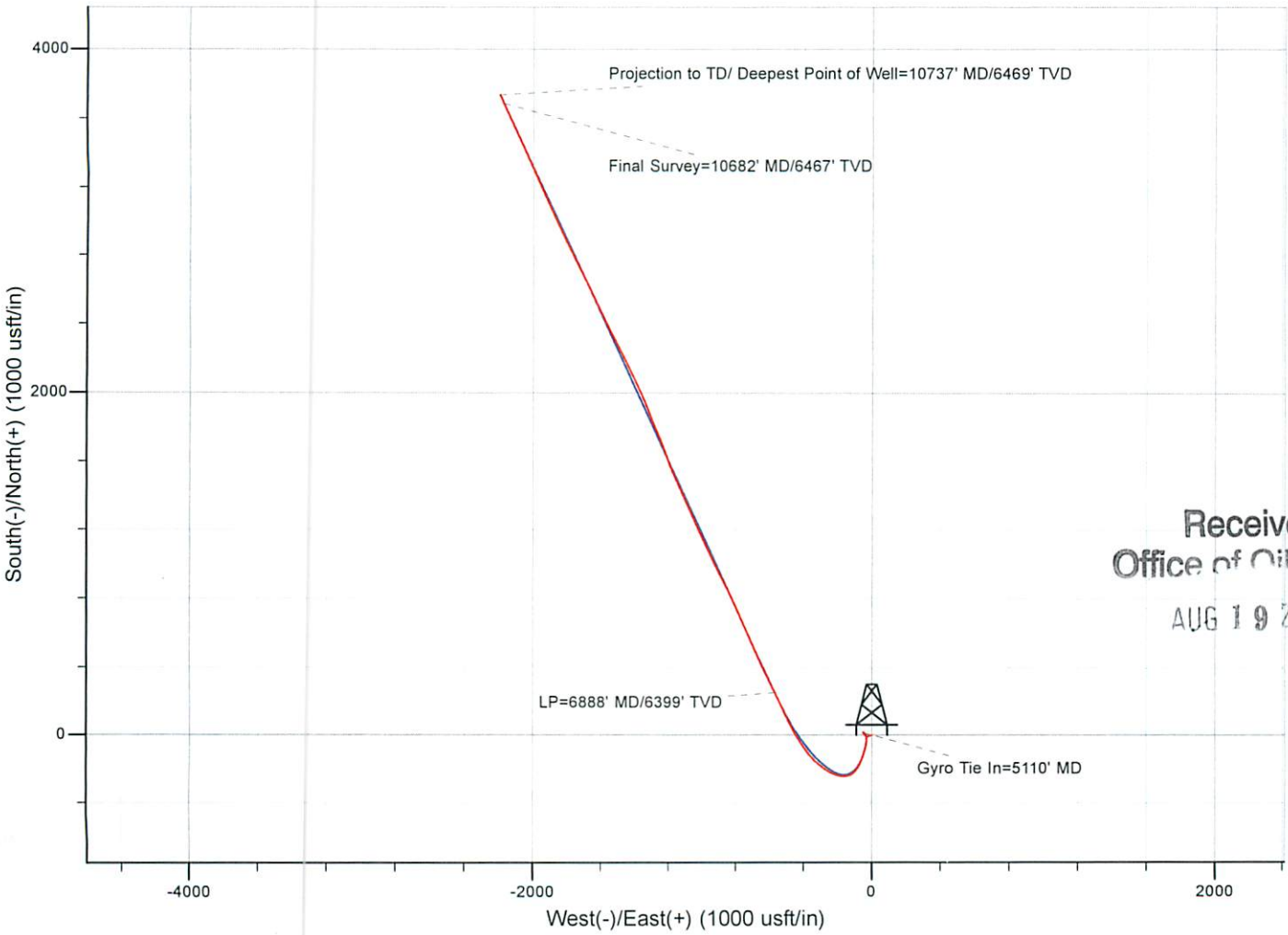
AUG 19 2015

17-06458

EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513144
Well: Well #513144
Wellbore: Main Wellbore
Design: 513144 As Drilled Surveys





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513144 - 47-017-06358-0000 - Perforations					
Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	3/27/2015	10,723.00	10,725.00	10	MARCELLUS
1	4/13/2015	10,458.00	10,640.00	32	MARCELLUS
2	4/14/2015	10,234.00	10,416.00	40	MARCELLUS
3	4/14/2015	10,009.00	10,191.00	40	MARCELLUS
4	4/15/2015	9,784.00	9,966.00	40	MARCELLUS
5	4/15/2015	9,561.00	9,741.00	40	MARCELLUS
6	4/16/2015	9,336.00	9,516.00	40	MARCELLUS
7	4/16/2015	9,109.00	9,291.00	40	MARCELLUS
8	4/16/2015	8,884.00	9,066.00	40	MARCELLUS
9	4/16/2015	8,661.00	8,841.00	40	MARCELLUS
10	4/16/2015	8,436.00	8,616.00	40	MARCELLUS
11	4/17/2015	8,209.00	8,387.00	40	MARCELLUS
12	4/17/2015	7,984.00	8,166.00	40	MARCELLUS
13	4/17/2015	7,759.00	7,941.00	40	MARCELLUS
14	4/17/2015	7,532.00	7,718.00	40	MARCELLUS
15	4/17/2015	7,309.00	7,491.00	40	MARCELLUS
16	4/18/2015	7,084.00	7,266.00	40	MARCELLUS
17	4/18/2015	6,859.00	7,041.00	40	MARCELLUS

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513144 - 47-017-06358-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	4/13/2015	14.7	7,813.00	9,310.00	5,135.00	0	1814	0
1	4/13/2015	92.9	8,307.00	8,570.00	5,060.00	483,360	14429	0
2	4/14/2015	101.3	7,449.00	7,710.00	5,201.00	361,980	9311	0
3	4/14/2015	94.1	8,311.00	9,224.00	4,908.00	361,760	13960	0
4	4/15/2015	98.6	7,172.00	7,489.00	5,174.00	375,740	13935	0
5	4/16/2015	99.6	7,414.00	9,403.00	5,349.00	369,240	9911	0
6	4/16/2015	101.2	7,482.00	7,809.00	5,071.00	363,400	8962	0
7	4/16/2015	100.6	7,439.00	7,649.00	4,854.00	361,360	8824	0
8	4/16/2015	100.1	7,407.00	7,592.00	5,066.00	362,840	8954	0
9	4/16/2015	100.2	7,313.00	7,605.00	5,092.00	364,220	8547	0
10	4/17/2015	98.1	7,189.00	7,823.00	4,981.00	372,020	11121	0
11	4/17/2015	100.2	7,319.00	7,606.00	4,801.00	370,240	8714	0
12	4/17/2015	100.8	7,374.00	7,839.00	5,007.00	367,940	8630	0
13	4/17/2015	99.7	7,384.00	7,659.00	4,934.00	365,880	8607	0
14	4/17/2015	98.5	7,501.00	8,537.00	5,197.00	370,240	8550	0
15	4/18/2015	99.4	7,193.00	8,013.00	5,146.00	371,200	8557	0
16	4/18/2015	99.4	7,242.00	8,545.00	4,394.00	366,860	9317	0
17	4/18/2015	100.90	6,726.00	7,336.00	4,442	360,280	8,434	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/13/2015
Job End Date:	4/18/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06458-00-00
Operator Name:	EQT Production
Well Name and Number:	513144
Longitude:	-80.76635300
Latitude:	39.23609200
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,361
Total Base Water Volume (gal):	7,164,234
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

17-06458

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	Keane Group	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	90.08098	None
Sand (Proppant)	Keane Group	Proppant					
			Silica Substrate	14808-60-7	100.00000	9.56560	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.06122	None
FFR 760	Keane Group	Friction reducer					
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01610	None
			Alkyl Alcohol	Proprietary	10.00000	0.00537	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00268	None
Hydrochloric Acid (15%)	Keane Group	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.02246	None
EC6330A	Keane Group	Scale Inhibitor					
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00121	None
FFR 730	Keane Group	Friction reducer					
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00117	None
AI 600	Keane Group	Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00015	None

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			N, N-Dimethyiformamide	68-12-2	20.00000	0.00007	None
			Cinnamiaidehyde	104-55-2	15.00000	0.00006	None
			Tar bases, quinoline derivs, benzyl chloride-quatemized	72480-70-7	15.00000	0.00006	None
			2-Butoxyenthanol	111-76-2	15.00000	0.00006	None
			Poly (oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-,branched	127087-87-0	5.00000	0.00002	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			Isopropyl alcohol	67-63-0	2.50000	0.00001	None
			1-Octanol	111-87-5	2.50000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
LEB-10X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00001	None

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)

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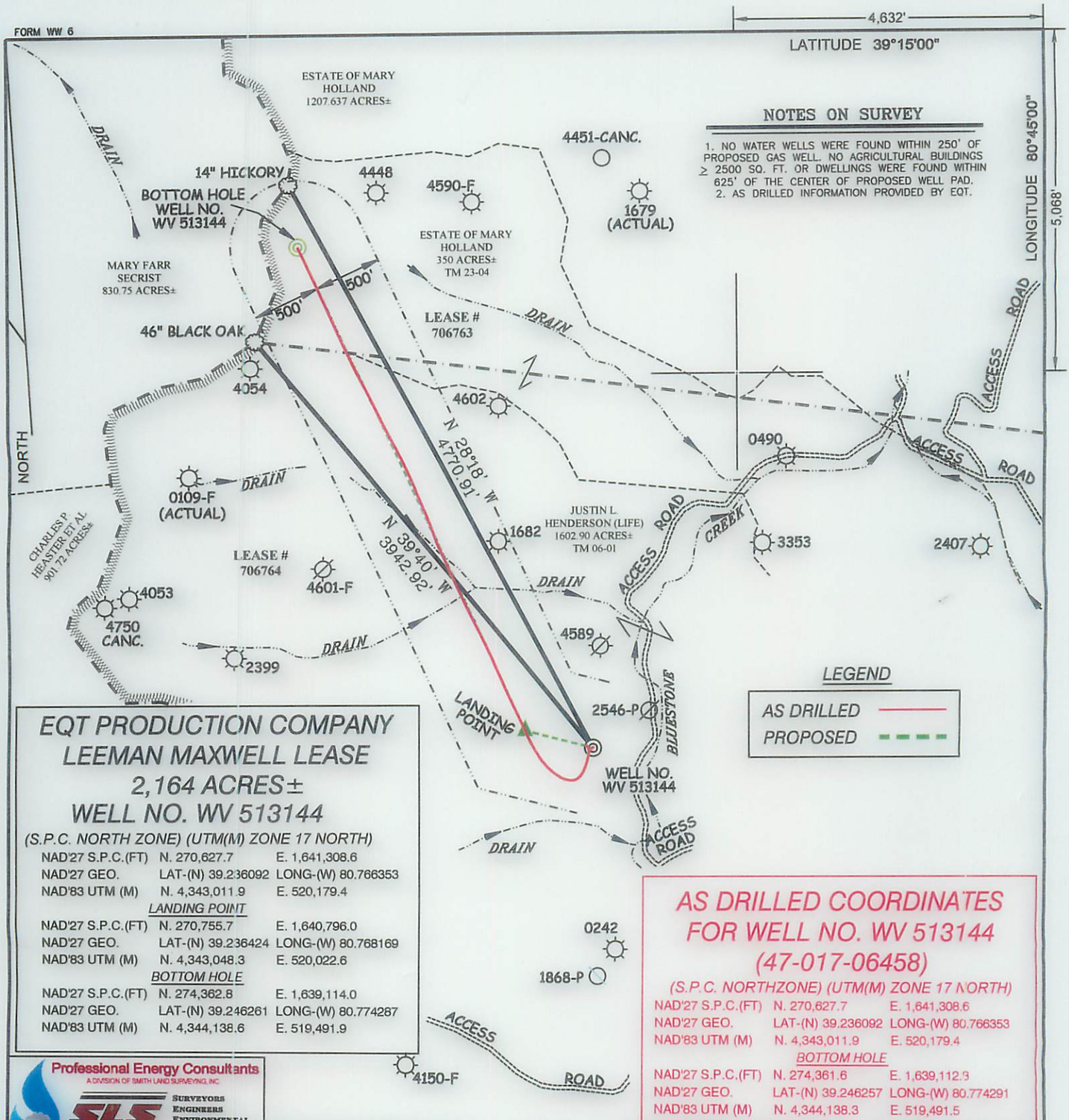
FORM WW 6



NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

EQT PRODUCTION COMPANY
LEEMAN MAXWELL LEASE
2,164 ACRES±
WELL NO. WV 513144

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 270,627.7	E. 1,641,308.6
NAD'27 GEO.	LAT-(N) 39.236092	LONG-(W) 80.766353
NAD'83 UTM (M)	N. 4,343,011.9	E. 520,179.4
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 270,755.7	E. 1,640,796.0
NAD'27 GEO.	LAT-(N) 39.236424	LONG-(W) 80.768169
NAD'83 UTM (M)	N. 4,343,048.3	E. 520,022.6
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 274,362.8	E. 1,639,114.0
NAD'27 GEO.	LAT-(N) 39.246261	LONG-(W) 80.774287
NAD'83 UTM (M)	N. 4,344,138.6	E. 519,491.9

AS DRILLED COORDINATES FOR WELL NO. WV 513144 (47-017-06458)

(S.P.C. NORTHZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 270,627.7	E. 1,641,308.6
NAD'27 GEO.	LAT-(N) 39.236092	LONG-(W) 80.766353
NAD'83 UTM (M)	N. 4,343,011.9	E. 520,179.4
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 274,361.6	E. 1,639,112.3
NAD'27 GEO.	LAT-(N) 39.246257	LONG-(W) 80.774291
NAD'83 UTM (M)	N. 4,344,138.3	E. 519,491.5

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 677 Gregory A. Smith

GREGORY A. SMITH LICENSED No. 677 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE APRIL 16, 20 13

REVISED 03/06/14 & 12/18/14

OPERATORS WELL NO. WV 513144

API WELL NO. 47 — 017 — 06458
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7889ASDRILLED513144

SCALE 1" = 1000'

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION:

ELEVATION 970'(GROUND) 968'(PROPOSED) WATERSHED BLUESTONE CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER JUSTIN L. HENDERSON (LIFE) ACREAGE 1,602.90±

ROYALTY OWNER LEEMAN MAXWELL HRS ACREAGE (2,164±) (1,000±)

PROPOSED WORK: LEASE NO. 706764 / 706763

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 6399'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT