



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Monday, July 30, 2018
WELL WORK PERMIT
Horizontal 6A / Fracture

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202


Re: Permit approval for OXF97 CHS
47-017-06483-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number:
Farm Name: HAESSLY LAND & TIMBER 
U.S. WELL NUMBER: 47-017-06483-00-00
Horizontal 6A Fracture
Date Issued: 7/30/2018

Promoting a healthy environment.

08/03/2018

PERMIT CONDITIONS 4701706483

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: _____

4701706483

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

08/03/2018

WW-6B
(04/15)

API NO. 47-017 - 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Corporation 494507062 017 - Doddri West Unj Oxford 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: OXF97 CHS Well Pad Name: Oxford 97 Pad

3) Farm Name/Surface Owner: Haessly Land & Timber, LLC Public Road Access: Waco Rd.

4) Elevation, current ground: 1333' Elevation, proposed post-construction: 1333'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 6890' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 6890' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16758' MD ✓

11) Proposed Horizontal Leg Length: 9394' ✓

12) Approximate Fresh Water Strata Depths: 266', 503', 810' ✓

13) Method to Determine Fresh Water Depths: OXF97 CHS (API #47-017-06483)

14) Approximate Saltwater Depths: None Identified

15) Approximate Coal Seam Depths: None Identified

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

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(a) If Yes, provide Mine Info: Name: JUN 06 2018

Depth: _____

Seam: _____

Owner: _____

WV Department of
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DAF
6/5/18

WW-6B
(04/15)

API NO. 47- 017 - 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	J-55	94#	59	59	CTS, 57 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	892	892	CTS, 1239 Cu. Ft.
Coal	9-5/8"	New	HCK-55	36#	3000 ^{yx} 2992	3000 2992	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	16743	16743	4197 Cu. Ft
Tubing							
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-H/POZ & Tail-H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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WW-6B
(10/14)

API NO. 47- 017 - 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

This well has been drilled to TD - 61,758'. Antero is requesting approval to perforate, fracture the existing horizontal shallow well and complete Marcellus Shale.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

Anticipated Max Pressure - 9300 lbs
Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 59.26 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 7.04 existing acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers
Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

24) Describe all cement additives associated with each cement type:

Conductor: no additives, Class A cement.
Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

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JUN 06 2018

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

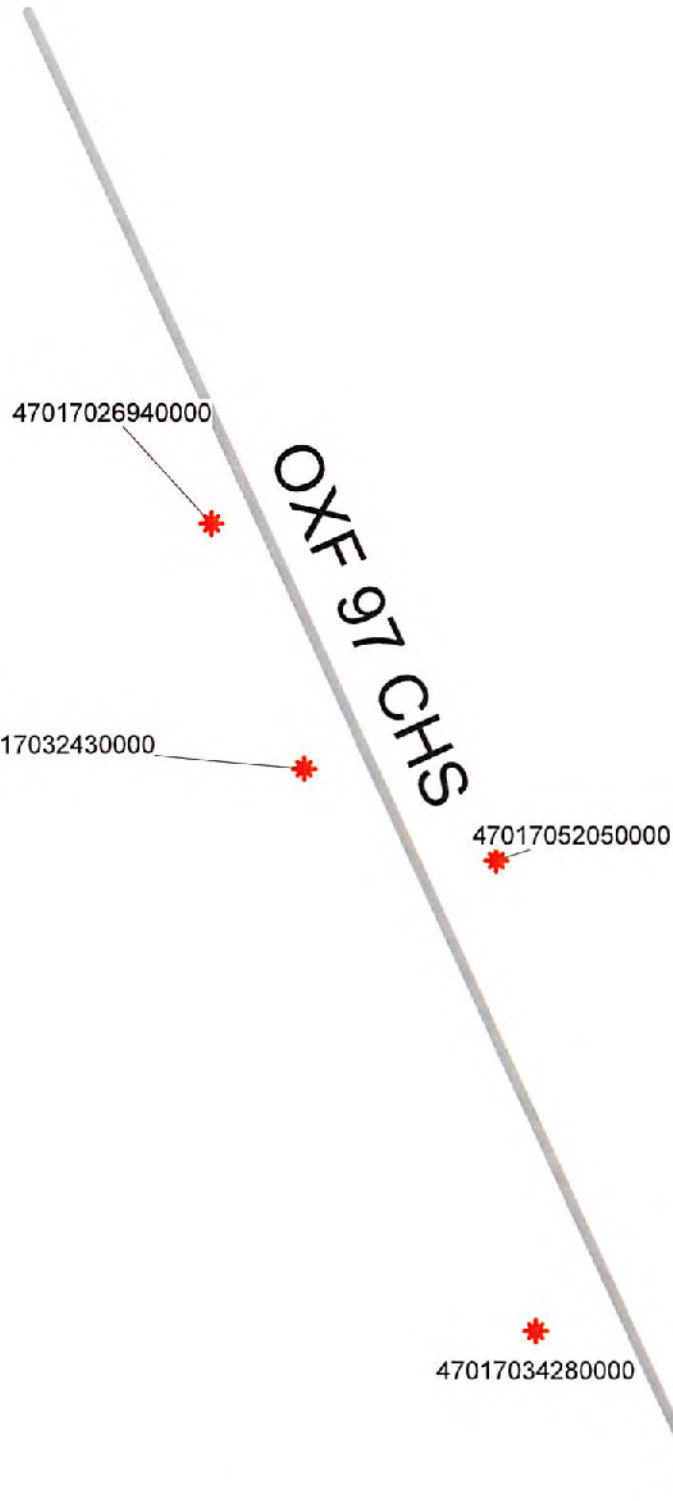
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*Note: Attach additional sheets as needed.

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6/5/18



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Antero Resources Corporation

OXF 97 CHS - AOR



WELL SYMBOLS
Gas Well

May 7, 2018

08/03/2018

4701706483

OXF97 CHS (OXFORD 97 PAD) – AREA OF REVIEW 35-8-8.11 PAGE 2

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47017026940000	FLEMING & HEFLIN	J-109	ENERGY CORP OF AMER	J & J ENTERPRISES	5,445	5209-5214	Alexander	Big Injun, Weir, Balltown, Bradford
47017032430000	STINESPRING CARTER	J-789	ENERGY CORP OF AMER	J & J ENTERPRISES	5,299	5109-5177	Alexander	Big Injun, Weir, Balltown, Bradford
47017052050000	HAESSLY LAND & TIMBER LLC	14252	CONSOL GAS COMPANY	DOMINION EXPL&PROD	5,285	1782-5072	Big Injun, Weir, Bradford, Benson, Alexander	Balltown
47017034280000	WUTTER E M ET AL	1611	CONSOL GAS COMPANY	CNG DEVELOPMENT CO	5,330	5081-5116	Alexander	Big Injun, Weir, Balltown, Bradford

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APPROVED

WR-35
Rev. 8/23/13

NAME: John C. ...
DATE: 1/23/17

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

API 47 - 017 - 06483 County Doddridge District West Union
Quad Oxford Pad Name Oxf 97 Field/Pool Name N/A
Farm name Haessly Land & Timber, LLC Well Number Oxf 97 CHS
Operator (as registered with the OOG) Noble Energy, Inc.
Address 1000 Noble Energy Drive City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing as drilled print to be submitted by CNX Easting _____
Landing Point of Curve Northing upon completion of the well. Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 1335 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)
Synthetic Oil Based

Date permit issued 07/24/2014 Date drilling commenced 12/12/2014 Date drilling ceased 05/01/2015
Date completion activities began Not completed Date completion activities ceased na
Verbal plugging (Y/N) _____ Date permission granted _____

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

Freshwater depth(s) ft 266', 503', 810' Open mine(s) (Y/N) depths N
Salt water depth(s) ft none noted for offsets Void(s) encountered (Y/N) depths N
Coal depth(s) ft NA Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) No

Reviewed by: _____

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API 47-017-06483 Farm name Haessly Land & Timber, LLC Well number Oxf 97 CHS

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	26"	20"	58.5'	New	J-55		
Surface	17.5"	13 3/8"	891.9'	New	J-55		Y
Coal							
Intermediate 1	12.38"	9 5/8"	2992.4'	New	HCK-55		N
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5 1/2"	16,742.5'	New	P-110		Y
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							
Surface	Type 1 / Class A	692	15.6	1.18	816.56	18.5	8
Coal							
Intermediate 1	Type 1 / Class A	stage (1) 1185	15.6	Stage (1) 1.18	1398.3	18.5	8
Intermediate 2							
Intermediate 3							
Production	Type 1 / Class A	Lead 1043 Tail 2578	14.5	lead 1.58 Tail 1.27	4922	18.5	8
Tubing							

Drillers TD (ft) 16758' Loggers TD (ft) 16735'

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 5831'

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 No centralizers used on conductor.

8 Centralizers on Surface Casing 36 Centralizers on Intermediate String (Bow string centralizers on first two joints then every third joint to 100' from surface).

257 Centralizers on Production String (rigid bow string every joint to KOP, rigid bow spring every third joint from KOP to top of cement).

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS JAN 17 2017

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS WV Department of Environmental Protection

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

4701706483

Oxf 97 Formations	Top	Base
Shale and Sandstone	0	2123
Big Lime & Big Injun	2123	2323
Price	2323	2623
Shale and Sandstone	2623	2890
Fourth	2890	2907
Shale and Sandstone	2907	2982
Fifth	2982	2990
Shale and Sandstone	2990	3570
Speechley	3570	3601
Shale	3601	4107
Balltown A	4107	4132
Shale and Sandstone	4132	4321
Balltown B	4321	4378
Shale and Sandstone	4378	4366
Bradford	4366	4377
Shale and Sandstone	4377	4625
Riley	4625	4647
Shale and Sandstone	4647	5157
Benson	5157	5189
Shale and Sandstone	5189	5437
Alexander	5437	5484
Shale	5484	6474
Cashaqua	6474	6602
Middlesex	6602	6651
West River	6651	6727
Burkett	6727	6756
Tully Limestone	6756	6759
Hamilton	6759	6790
Marcellus	6790	6840
Onondaga	6840	

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect@ 4.0.1
North Reference	Grid	User	Edsaryar
Scale	0.999964	Report Generated	06/May/2015 at 10:52
Convergence at slot	0.83° West	Database/Source file	WellArchitectEasternDB/OXF-97C-HS_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-39.99	-0.11	1630662.66	269624.29	39°13'58.508"N	80°48'13.974"W
Facility Reference Pt			1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

WELLPATH DATUM

Calculation method	Minimum curvature	Precision 543 (RKB) to Facility Vertical Datum	1351.47ft
Horizontal Reference Pt	Slot	Precision 543 (RKB) to Mean Sea Level	1351.47ft
Vertical Reference Pt	Precision 543 (RKB)	Precision 543 (RKB) to Mud Line at Slot (Slot C)	18.00ft
MD Reference Pt	Precision 543 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference Pt	Mean Sea Level	Section Azimuth	335.49°

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [%/100ft]	Turn Rate [%/100ft]
0.00	0.000	36.160	0.00	0.00	0.00	0.00	1630662.66	269624.29	39°13'58.508"N	80°48'13.974"W	0.00	0.000	0.00	0.00	0.00
18.00	0.000	36.160	18.00	0.00	0.00	0.00	1630662.66	269624.29	39°13'58.508"N	80°48'13.974"W	0.00	0.000	0.00	0.00	0.00
118.00	0.230	36.160	118.00	0.10	0.16	0.12	1630662.78	269624.45	39°13'58.510"N	80°48'13.973"W	0.20	36.160	0.23	0.23	0.00
218.00	0.190	30.430	218.00	0.29	0.47	0.32	1630662.98	269624.76	39°13'58.513"N	80°48'13.970"W	0.57	34.486	0.05	-0.04	-5.73
318.00	0.200	23.240	318.00	0.34	0.76	0.41	1630663.07	269625.07	39°13'58.513"N	80°48'13.969"W	0.39	37.445	0.05	0.03	27.49
418.00	0.290	58.810	418.00	0.73	1.09	0.64	1630663.30	269625.38	39°13'58.519"N	80°48'13.966"W	1.26	30.494	0.24	0.09	55.47
518.00	0.160	64.540	518.00	0.76	1.28	0.98	1630663.64	269625.57	39°13'58.521"N	80°48'13.962"W	1.62	37.543	0.13	-0.13	5.73
618.00	0.080	355.080	618.00	0.83	1.41	1.10	1630663.76	269625.70	39°13'58.523"N	80°48'13.961"W	1.79	38.063	0.15	-0.08	-69.46
718.00	0.120	347.000	718.00	0.99	1.58	1.07	1630663.73	269625.87	39°13'58.524"N	80°48'13.961"W	1.91	34.193	0.04	0.04	-8.08
818.00	0.140	288.520	818.00	1.11	1.75	0.93	1630663.89	269626.04	39°13'58.526"N	80°48'13.962"W	1.99	37.447	0.12	0.04	41.17
918.00	0.150	359.820	918.00	1.44	1.95	0.81	1630663.47	269626.24	39°13'58.528"N	80°48'13.965"W	2.11	22.467	0.16	-0.01	60.94
1018.00	0.120	22.740	1018.00	1.63	2.18	0.85	1630663.51	269626.47	39°13'58.530"N	80°48'13.964"W	2.34	21.243	0.06	-0.03	22.92
1118.00	0.240	13.430	1118.00	1.87	2.48	0.94	1630663.60	269626.77	39°13'58.533"N	80°48'13.963"W	2.65	20.686	0.12	0.12	-9.31
1218.00	0.180	6.910	1217.99	2.17	2.84	1.00	1630663.66	269627.13	39°13'58.537"N	80°48'13.962"W	3.01	19.470	0.06	-0.06	-6.52
1318.00	0.270	1.810	1317.99	2.44	3.21	1.08	1630663.74	269627.46	39°13'58.540"N	80°48'13.961"W	3.35	18.245	0.06	0.04	11.20
1418.00	0.300	24.190	1417.99	2.75	3.60	1.25	1630663.91	269627.89	39°13'58.544"N	80°48'13.959"W	3.81	19.214	0.08	0.08	5.38
1518.00	0.410	31.770	1517.99	3.12	4.14	1.55	1630664.21	269628.43	39°13'58.550"N	80°48'13.955"W	4.42	20.517	0.12	0.11	7.58
1618.00	0.510	61.180	1617.99	3.35	4.61	2.04	1630664.70	269628.90	39°13'58.554"N	80°48'13.949"W	5.04	23.836	0.20	-0.02	29.41
1718.00	0.540	86.360	1717.99	3.24	4.79	2.72	1630665.38	269629.08	39°13'58.556"N	80°48'13.941"W	5.51	29.534	0.19	0.05	25.18
1818.00	0.510	61.180	1817.99	3.25	4.65	3.01	1630665.25	269628.97	39°13'58.555"N	80°48'13.938"W	5.47	37.447	0.19	0.04	13.41
1918.00	0.700	103.140	1917.98	2.02	4.39	4.76	1630667.42	269628.68	39°13'58.553"N	80°48'13.915"W	6.47	47.272	0.07	0.07	-2.02
2018.00	0.660	80.280	2017.97	1.52	4.34	5.87	1630668.53	269628.63	39°13'58.552"N	80°48'13.901"W	7.30	53.500	0.27	-0.10	-22.74
2118.00	0.600	70.240	2117.96	1.35	4.56	6.75	1630669.41	269628.85	39°13'58.555"N	80°48'13.889"W	8.15	55.957	0.18	-0.15	-10.26
2218.00	0.530	85.800	2217.96	1.24	4.73	7.38	1630670.04	269629.02	39°13'58.556"N	80°48'13.881"W	8.77	57.372	0.17	-0.15	13.16
2318.00	0.500	134.670	2317.94	0.91	4.50	7.23	1630670.49	269628.85	39°13'58.555"N	80°48'13.875"W	9.02	59.632	0.14	0.03	44.17
2418.00	0.060	143.320	2417.96	0.39	4.17	8.21	1630670.87	269628.46	39°13'58.551"N	80°48'13.871"W	9.21	63.071	0.09	0.07	10.65
2518.00	0.520	143.700	2517.96	-0.36	3.55	8.66	1630671.32	269627.84	39°13'58.545"N	80°48'13.865"W	9.36	67.721	0.16	0.16	3.38
2618.00	0.520	148.190	2617.95	-1.26	2.79	9.15	1630671.81	269627.08	39°13'58.537"N	80°48'13.859"W	9.57	73.065	0.02	0.00	2.49
2718.00	0.530	145.140	2717.95	-2.17	2.02	9.66	1630672.32	269626.31	39°13'58.530"N	80°48'13.852"W	9.87	78.174	0.03	0.01	-3.05
2818.00	0.510	140.140	2817.94	-1.14	1.51	10.14	1630672.85	269625.54	39°13'58.522"N	80°48'13.844"W	10.32	83.651	0.03	0.01	-4.17

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2903.00	1.130	234.570	2902.94	-3.72	0.39	9.83	1630672.49	269624.68	39°13'58.514"N	80°48'13.850"W	9.84	87.722	1.53	0.62	108.62
3043.00	0.450	269.660	3042.92	-3.76	-0.41	8.16	1630670.82	269623.88	39°13'58.506"N	80°48'13.871"W	8.17	92.894	0.57	-0.49	25.06
3073.00	0.460	302.410	3072.92	-3.61	-0.35	7.94	1630670.60	269623.94	39°13'58.506"N	80°48'13.873"W	7.95	92.514	0.86	0.03	109.17
3104.00	0.380	262.740	3103.92	-3.48	-0.29	7.73	1630670.39	269624.00	39°13'58.507"N	80°48'13.876"W	7.74	92.184	0.95	-0.26	-127.97
3134.00	0.300	211.840	3133.92	-3.38	-0.21	7.58	1630670.20	269623.92	39°13'58.508"N	80°48'13.878"W	7.59	91.771	0.85	-0.27	-130.85
3164.00	0.240	226.510	3163.92	-3.53	-0.47	7.48	1630670.14	269623.82	39°13'58.505"N	80°48'13.879"W	7.50	93.590	0.22	-0.20	18.90
3194.00	0.450	194.800	3193.92	-3.64	-0.63	7.41	1630670.07	269623.66	39°13'58.503"N	80°48'13.880"W	7.44	94.835	0.92	0.70	-105.70
3225.00	0.620	189.830	3224.92	-3.88	-0.91	7.35	1630670.01	269623.38	39°13'58.501"N	80°48'13.881"W	7.41	97.056	0.57	0.55	-16.03
3255.00	1.170	192.940	3254.91	-4.25	-1.37	7.25	1630669.91	269622.92	39°13'58.496"N	80°48'13.882"W	7.38	100.682	1.84	1.83	10.37
3285.00	1.000	188.050	3284.91	-4.72	-1.95	7.17	1630669.85	269622.56	39°13'58.490"N	80°48'13.883"W	7.41	108.075	0.94	0.57	14.17
3315.00	0.850	204.800	3314.91	-5.08	-2.39	7.02	1630669.68	269621.90	39°13'58.486"N	80°48'13.885"W	7.41	108.786	1.02	-0.50	55.70
3346.00	0.440	213.260	3345.90	-5.30	-2.70	6.86	1630669.52	269621.59	39°13'58.483"N	80°48'13.887"W	7.37	111.462	1.35	-1.32	27.29
3376.00	0.540	205.960	3375.90	-5.45	-2.92	6.73	1630669.39	269621.37	39°13'58.481"N	80°48'13.888"W	7.34	113.443	0.39	0.33	-24.33
3406.00	0.360	220.080	3405.90	-5.58	-3.12	6.61	1630669.27	269621.17	39°13'58.479"N	80°48'13.890"W	7.31	115.259	0.70	-0.60	47.07
3436.00	0.470	192.530	3435.91	-5.70	-3.30	6.50	1630669.16	269620.95	39°13'58.477"N	80°48'13.891"W	7.28	115.441	0.85	0.13	51.83
3466.00	0.610	175.730	3465.90	-5.94	-3.58	6.47	1630669.13	269620.71	39°13'58.474"N	80°48'13.892"W	7.39	118.952	0.95	0.47	-89.00
3497.00	0.760	161.730	3496.90	-6.30	-3.94	6.54	1630669.20	269620.35	39°13'58.471"N	80°48'13.891"W	7.64	121.036	0.72	0.48	-45.16
3527.00	0.810	156.110	3526.89	-6.71	-4.32	6.69	1630669.35	269619.97	39°13'58.467"N	80°48'13.889"W	7.96	122.846	0.31	0.17	-18.73
3557.00	0.930	164.560	3556.89	-7.18	-4.77	6.85	1630669.51	269619.52	39°13'58.462"N	80°48'13.887"W	8.35	124.877	0.86	0.73	28.17
3587.00	0.950	164.360	3586.89	-7.67	-5.20	6.99	1630669.63	269619.11	39°13'58.458"N	80°48'13.885"W	8.74	126.845	0.76	0.57	-10.17
3618.00	0.880	178.250	3617.88	-8.11	-5.69	7.08	1630669.74	269618.60	39°13'58.453"N	80°48'13.883"W	9.08	128.790	0.87	0.16	57.77
3648.00	0.650	169.650	3647.88	-8.49	-6.08	7.11	1630669.77	269618.21	39°13'58.449"N	80°48'13.883"W	9.36	130.544	0.85	-0.77	-28.67
3678.00	0.700	185.250	3677.88	-8.83	-6.46	7.12	1630669.78	269617.83	39°13'58.446"N	80°48'13.883"W	9.61	132.195	0.82	0.47	53.67
3708.00	0.700	188.010	3707.88	-9.18	-6.86	7.07	1630669.73	269617.43	39°13'58.442"N	80°48'13.883"W	9.86	134.132	0.12	-0.07	7.60
3738.00	0.650	194.110	3737.88	-9.49	-7.24	6.91	1630669.57	269617.03	39°13'58.438"N	80°48'13.883"W	10.12	137.205	1.37	1.28	11.16
3769.00	0.570	197.970	3766.85	-10.43	-8.47	6.58	1630669.24	269615.82	39°13'58.426"N	80°48'13.889"W	10.72	142.160	3.20	3.20	-3.20
3799.00	0.500	204.470	3796.81	-11.54	-9.96	5.98	1630668.64	269614.33	39°13'58.411"N	80°48'13.897"W	11.61	149.006	3.97	3.80	21.67
3829.00	0.570	202.500	3826.82	-13.06	-12.05	5.05	1630667.71	269612.24	39°13'58.390"N	80°48'13.908"W	13.07	157.261	4.97	4.97	-3.23
3859.00	0.600	206.820	3856.56	-15.05	-14.84	3.73	1630666.39	269609.45	39°13'58.362"N	80°48'13.924"W	15.30	165.893	5.29	5.17	11.07
3889.00	0.600	208.150	3886.56	-15.05	-14.84	3.73	1630666.39	269609.45	39°13'58.362"N	80°48'13.924"W	15.30	165.893	5.29	5.17	11.07

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TYD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
3920.00	10.010	209.330	3918.91	-20.38	-22.60	-0.44	1630662.22	269601.69	39°13'58.285"N	80°48'13.976"W	22.60	181.106	5.77	5.73	3.93
3950.00	11.860	209.160	3948.36	-23.75	-27.57	-3.22	1630659.44	269596.72	39°13'58.236"N	80°48'14.010"W	27.75	186.654	6.17	6.17	-0.57
3980.00	13.830	207.840	3977.61	-27.77	-33.43	-6.39	1630656.27	269590.86	39°13'58.177"N	80°48'14.049"W	34.04	190.826	6.64	6.57	-4.40
4010.00	15.780	205.720	4006.61	-32.57	-40.28	-9.84	1630652.82	269584.02	39°13'58.109"N	80°48'14.092"W	41.46	193.726	6.75	6.50	-7.07
4040.00	17.800	204.370	4035.36	-38.40	-48.41	-13.67	1630649.03	269577.47	39°13'58.028"N	80°48'14.138"W	50.00	195.722	6.84	6.34	-9.97
4071.00	20.100	203.830	4064.65	-44.85	-57.33	-17.62	1630645.04	269566.96	39°13'57.939"N	80°48'14.188"W	59.98	197.083	7.36	7.33	-1.80
4101.00	22.260	203.860	4092.62	-52.06	-67.24	-22.00	1630640.66	269557.05	39°13'57.841"N	80°48'14.242"W	70.75	198.117	7.20	7.20	0.10
4131.00	24.310	204.000	4120.17	-59.92	-78.08	-26.81	1630635.85	269546.21	39°13'57.733"N	80°48'14.301"W	82.56	198.951	6.84	6.83	0.47
4161.00	26.210	204.480	4147.30	-68.36	-89.75	-32.07	1630630.59	269534.54	39°13'57.617"N	80°48'14.365"W	95.31	199.661	6.37	6.33	1.60
4192.00	28.110	204.970	4174.88	-77.35	-102.56	-36.19	1630624.36	269521.74	39°13'57.489"N	80°48'14.438"W	109.00	200.346	5.72	6.16	1.85
4222.00	28.190	206.390	4201.33	-86.48	-115.26	-44.34	1630618.32	269509.03	39°13'57.363"N	80°48'14.517"W	123.50	201.041	0.78	0.23	1.57
4253.00	27.770	207.490	4228.71	-95.55	-128.23	-50.93	1630611.73	269496.07	39°13'57.234"N	80°48'14.598"W	137.97	201.661	2.15	-1.35	3.55
4283.00	27.180	206.620	4255.33	-104.15	-140.55	-57.22	1630605.44	269483.74	39°13'57.111"N	80°48'14.676"W	151.76	202.153	2.38	-1.97	-2.90
4316.00	26.690	207.600	4284.75	-113.43	-153.86	-64.03	1630598.63	269470.44	39°13'56.979"N	80°48'14.760"W	166.65	202.596	2.00	-1.48	2.97
4347.00	26.730	210.310	4312.94	-121.67	-166.90	-70.65	1630591.81	269458.75	39°13'56.852"N	80°48'14.844"W	181.50	203.015	3.00	0.13	0.43
4377.00	26.920	214.100	4339.21	-129.05	-177.44	-78.09	1630584.57	269446.86	39°13'56.744"N	80°48'14.934"W	193.86	203.755	4.99	0.63	10.97
4407.00	27.240	218.120	4365.93	-135.74	-188.46	-86.14	1630576.52	269435.83	39°13'56.634"N	80°48'15.034"W	207.22	204.564	6.19	1.07	13.40
4437.00	27.980	216.330	4392.51	-142.33	-199.53	-94.55	1630568.12	269424.76	39°13'56.523"N	80°48'15.139"W	220.80	205.354	3.71	2.47	-5.97
4468.00	29.000	216.330	4419.76	-149.53	-211.45	-103.31	1630559.36	269412.85	39°13'56.404"N	80°48'15.248"W	235.33	206.039	3.29	3.29	0.00
4498.00	29.880	214.140	4445.91	-156.94	-223.55	-111.78	1630550.88	269401.45	39°13'56.287"N	80°48'15.364"W	249.85	206.577	3.70	3.21	7.30
4528.00	29.160	212.260	4472.05	-164.81	-235.77	-119.85	1630542.81	269388.53	39°13'56.161"N	80°48'15.454"W	264.49	206.946	3.50	-1.67	-6.27
4558.00	28.990	209.990	4498.27	-173.03	-248.25	-127.39	1630535.28	269376.05	39°13'56.037"N	80°48'15.547"W	279.03	207.164	3.72	-0.57	-7.57
4589.00	28.750	206.920	4525.42	-182.05	-261.41	-134.52	1630528.15	269362.89	39°13'55.906"N	80°48'15.635"W	293.99	207.230	4.84	-0.77	-9.90
4619.00	28.430	205.700	4551.76	-191.11	-274.27	-140.88	1630521.79	269350.03	39°13'55.778"N	80°48'15.714"W	308.34	207.187	2.22	-1.07	-4.07
4649.00	28.120	205.170	4578.18	-199.94	-287.11	-146.99	1630515.68	269337.19	39°13'55.654"N	80°48'15.794"W	323.34	207.110	1.35	1.03	-1.77
4679.00	27.770	205.610	4604.68	-209.31	-299.81	-153.01	1630509.65	269324.49	39°13'55.524"N	80°48'15.863"W	336.60	207.038	1.35	-1.17	1.47
4709.00	27.050	207.360	4631.31	-218.01	-312.17	-159.17	1630503.50	269312.13	39°13'55.401"N	80°48'15.939"W	350.40	207.016	3.60	-2.40	5.83
4739.00	26.690	207.130	4658.07	-226.40	-324.22	-165.37	1630497.29	269300.08	39°13'55.281"N	80°48'16.016"W	363.96	207.024	1.25	-1.20	-0.77
4770.00	26.720	207.130	4685.77	-235.05	-336.62	-171.73	1630490.94	269287.68	39°13'55.157"N	80°48'16.094"W	377.90	207.028	0.10	0.10	0.00
4800.00	26.720	207.130	4713.47	-243.70	-348.87	-178.19	1630484.73	269275.48	39°13'55.033"N	80°48'16.172"W	391.84	207.022	0.10	0.10	0.00

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REFERENCE WELL PATH IDENTIFICATION			
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Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
4830.00	27.690	206.250	4739.01	-252.37	-361.32	-184.15	1630478.51	269262.98	39°13'54.911"N	80°48'16.248"W	405.55	207.006	0.74	0.03	-1.60
4860.00	27.330	205.470	4765.62	-261.20	-373.79	-190.20	1630472.47	269250.51	39°13'54.787"N	80°48'16.322"W	419.40	206.969	1.70	-1.20	-2.60
4891.00	26.980	205.340	4793.21	-270.32	-386.57	-196.27	1630466.40	269237.73	39°13'54.660"N	80°48'16.397"W	433.54	206.918	1.15	-1.13	-0.42
4921.00	26.450	206.000	4820.00	-278.95	-398.73	-202.11	1630460.56	269225.58	39°13'54.539"N	80°48'16.469"W	447.03	206.880	2.02	-1.77	2.20
4951.00	25.840	206.680	4846.76	-287.12	-410.33	-207.95	1630454.71	269213.71	39°13'54.421"N	80°48'16.541"W	460.51	206.844	2.48	-2.79	1.37
4981.00	25.520	206.500	4874.02	-295.40	-422.12	-213.75	1630448.92	269202.19	39°13'54.306"N	80°48'16.613"W	473.15	206.857	0.48	-0.40	-0.60
5012.00	26.290	206.100	4901.90	-303.96	-434.26	-219.75	1630442.92	269190.05	39°13'54.185"N	80°48'16.687"W	486.69	206.841	2.55	2.48	-1.29
5042.00	26.530	206.130	4928.77	-312.43	-446.24	-225.62	1630437.04	269178.07	39°13'54.066"N	80°48'16.759"W	500.04	206.822	0.80	0.80	0.10
5072.00	27.760	206.470	4955.46	-321.07	-458.51	-231.69	1630430.98	269165.80	39°13'53.944"N	80°48'16.834"W	513.72	206.808	4.13	4.10	1.13
5102.00	29.020	207.510	4982.22	-330.83	-470.95	-238.04	1630424.85	269153.38	39°13'53.821"N	80°48'16.907"W	527.25	206.792	1.25	1.30	1.75
5166.00	28.650	207.550	5038.03	-348.92	-498.47	-252.22	1630410.45	269125.84	39°13'53.546"N	80°48'17.087"W	558.65	206.839	1.09	-1.09	0.12
5226.00	27.980	208.640	5090.85	-366.20	-523.57	-265.62	1630397.05	269100.74	39°13'53.296"N	80°48'17.253"W	587.10	206.900	1.41	-1.12	1.82
5286.00	26.980	209.800	5144.08	-382.58	-547.74	-279.13	1630383.54	269076.57	39°13'53.055"N	80°48'17.420"W	614.76	207.004	1.89	-1.67	1.93
5347.00	26.500	208.220	5198.56	-398.90	-571.74	-292.44	1630370.23	269052.58	39°13'52.816"N	80°48'17.585"W	642.19	207.090	1.41	-0.79	-2.59
5407.00	26.520	211.000	5252.25	-415.98	-595.07	-305.88	1630356.95	269028.31	39°13'52.591"N	80°48'17.749"W	669.52	207.192	2.11	0.93	1.78
5468.00	26.730	210.360	5306.79	-430.17	-618.51	-319.64	1630343.03	269005.80	39°13'52.350"N	80°48'17.922"W	696.22	207.330	0.62	0.34	-1.15
5528.00	25.990	210.620	5360.55	-445.45	-641.47	-333.16	1630329.51	268982.85	39°13'52.121"N	80°48'18.089"W	722.82	207.446	1.25	-1.23	0.43
5588.00	25.980	210.540	5414.48	-460.50	-664.10	-346.53	1630316.14	268960.22	39°13'51.896"N	80°48'18.255"W	749.08	207.556	0.06	-0.02	-0.13
5649.00	26.370	210.980	5469.23	-476.03	-687.22	-360.30	1630302.38	268937.09	39°13'51.665"N	80°48'18.426"W	775.94	207.667	0.71	0.64	0.72
5710.00	26.300	210.000	5523.85	-492.25	-710.38	-374.06	1630288.62	268913.70	39°13'51.431"N	80°48'18.597"W	802.81	207.781	0.06	0.05	0.08
5770.00	26.610	208.200	5577.59	-507.81	-733.93	-387.08	1630275.60	268890.39	39°13'51.200"N	80°48'18.757"W	829.75	207.808	1.45	0.42	-3.12
5831.00	26.290	207.390	5632.20	-523.82	-757.96	-399.75	1630262.93	268866.36	39°13'50.960"N	80°48'18.914"W	856.92	207.807	0.79	-0.52	-1.33
5938.00	25.070	206.010	5688.63	-552.80	-799.38	-420.59	1630242.08	268824.95	39°13'50.548"N	80°48'19.171"W	903.27	207.751	1.27	-1.14	-1.29
6027.00	25.140	205.490	5709.22	-577.58	-833.39	-437.00	1630225.68	268790.94	39°13'50.210"N	80°48'19.373"W	941.01	207.671	0.26	0.08	-0.58
6117.00	25.190	207.790	5730.35	-601.11	-868.26	-454.46	1630208.20	268756.23	39°13'49.867"N	80°48'19.580"W	979.44	207.571	1.58	1.14	2.56
6206.00	26.080	214.740	5770.28	-623.00	-901.64	-474.78	1630187.90	268722.69	39°13'49.530"N	80°48'19.841"W	1019.00	207.770	3.44	-0.09	7.81
6296.00	23.400	216.750	5822.02	-642.14	-932.22	-496.75	1630165.93	268692.11	39°13'49.224"N	80°48'20.114"W	1056.31	208.052	3.12	-2.98	2.23
6385.00	23.670	220.700	5875.62	-658.83	-959.93	-518.97	1630143.71	268664.40	39°13'48.947"N	80°48'20.392"W	1091.23	208.397	1.80	0.30	4.44
6475.00	23.580	239.160	5928.19	-667.78	-982.88	-546.25	1630116.43	268641.45	39°13'48.716"N	80°48'20.734"W	1124.47	209.064	8.19	-0.10	20.51
6564.00	23.870	252.120	5979.75	-677.88	-1007.77	-574.97	1630093.15	268618.20	39°13'48.481"N	80°48'21.081"W	1157.51	209.712	6.25	0.25	15.51

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWP
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
6654.00	23.540	273.230	6380.32	-656.55	-1001.56	-614.10	1630048.58	268622.77	39°13'48.522"N	80°48'21.593"W	1174.84	211.514	8.98	-0.29	22.46
6743.00	26.360	287.200	6461.08	-635.11	-994.71	-650.76	1630011.92	268629.62	39°13'48.585"N	80°48'22.060"W	1188.67	213.194	7.32	3.17	15.70
6833.00	32.240	297.520	6539.58	-602.84	-977.68	-691.20	1629971.49	268646.64	39°13'48.747"N	80°48'22.577"W	1197.34	215.259	8.59	6.53	11.47
6922.00	39.210	306.320	6611.84	-559.48	-950.00	-735.00	1629927.69	268674.33	39°13'49.014"N	80°48'23.138"W	1201.14	217.729	9.71	7.83	9.89
7012.00	46.220	314.810	6677.79	-505.30	-909.19	-789.43	1629882.78	268713.22	39°13'49.271"N	80°48'23.725"W	1205.31	220.042	11.41	11.13	7.50
7101.00	55.680	324.560	6733.61	-436.58	-855.51	-824.01	1629838.68	268768.81	39°13'49.935"N	80°48'24.287"W	1187.81	223.925	12.22	10.18	8.71
7191.00	62.870	326.190	6779.56	-360.46	-791.87	-867.90	1629794.79	268832.45	39°13'50.558"N	80°48'24.856"W	1174.86	227.623	8.14	7.99	1.81
7281.00	70.660	325.910	6815.04	-278.94	-723.32	-914.06	1629748.64	268901.00	39°13'51.229"N	80°48'25.456"W	1165.63	231.644	8.66	8.66	-0.31
7370.00	77.370	328.710	6839.54	-194.31	-651.34	-960.21	1629702.49	268972.97	39°13'51.933"N	80°48'26.055"W	1160.28	235.849	8.12	7.54	3.15
7460.00	85.340	330.620	6860.00	-109.08	-574.72	-1004.65	1629657.43	269044.66	39°13'52.647"N	80°48'26.637"W	1157.30	240.245	7.08	6.87	2.54
7549.00	89.660	333.280	6860.00	-17.44	-496.28	-1046.46	1629616.24	269128.02	39°13'53.453"N	80°48'27.180"W	1158.18	244.627	7.59	7.07	2.76
7639.00	89.630	335.300	6860.56	72.54	-415.20	-1085.50	1629577.20	269209.11	39°13'54.249"N	80°48'27.691"W	1162.20	249.068	2.24	-0.03	2.24
7728.00	89.660	336.890	6861.11	161.53	-333.84	-1121.56	1629541.14	269290.46	39°13'55.048"N	80°48'28.164"W	1170.19	253.424	1.79	0.03	1.79
7818.00	90.280	339.450	6861.16	251.42	-250.30	-1155.03	1629507.68	269374.00	39°13'55.869"N	80°48'28.605"W	1181.84	257.773	2.93	0.69	2.84
7908.00	90.290	337.640	6861.05	142.28	-163.01	-1168.31	1629474.94	269458.79	39°13'56.711"N	80°48'29.037"W	1199.79	262.196	2.64	0.11	1.90
7997.00	90.280	334.700	6860.95	430.27	-85.12	-1223.86	1629438.85	269539.17	39°13'57.491"N	80°48'29.510"W	1226.82	266.021	3.38	0.49	-3.34
8087.00	90.060	334.500	6860.69	520.26	-3.82	-1262.46	1629400.24	269620.47	39°13'58.289"N	80°48'30.016"W	1262.47	269.827	0.33	-0.24	-0.22
8176.00	91.020	332.390	6859.85	609.19	75.78	-1302.25	1629360.46	269700.07	39°13'59.070"N	80°48'30.536"W	1304.45	273.330	2.60	1.08	-2.37
8266.00	91.110	327.940	6858.17	698.77	153.82	-1347.00	1629315.71	269778.10	39°13'59.835"N	80°48'31.119"W	1355.76	276.515	4.94	0.10	-4.94
8353.00	91.110	329.340	6858.10	787.11	224.70	-1395.30	1629279.51	269854.65	39°14'00.625"N	80°48'31.727"W	1412.13	279.394	1.35	0.07	1.35
8444.00	91.140	334.210	6854.61	875.88	308.19	-1435.37	1629227.35	269932.46	39°14'01.348"N	80°48'32.271"W	1468.08	282.118	5.46	-0.03	5.46
8534.00	90.770	333.050	6853.11	965.82	388.81	-1475.33	1629187.38	270013.08	39°14'02.139"N	80°48'32.793"W	1525.71	284.764	1.35	-0.41	-1.29
8624.00	90.650	336.620	6851.99	1055.79	470.25	-1513.60	1629149.12	270094.52	39°14'02.938"N	80°48'33.295"W	1584.96	287.259	3.97	-0.13	3.97
8713.00	90.620	338.850	6851.01	1144.71	552.60	-1547.31	1629115.41	270176.87	39°14'03.747"N	80°48'33.738"W	1643.03	289.653	2.51	-0.03	2.51
8802.00	90.480	341.460	6850.04	1233.55	634.13	-1578.82	1629084.70	270260.30	39°14'04.546"N	80°48'34.149"W	1702.41	291.845	1.71	0.07	1.71
8892.00	90.740	341.460	6848.88	1323.01	721.28	-1607.14	1629055.58	270345.54	39°14'05.406"N	80°48'34.530"W	1761.57	294.170	0.76	0.07	0.76
8981.00	90.830	341.270	6847.66	1411.53	805.60	-1635.58	1629027.15	270429.86	39°14'06.235"N	80°48'34.907"W	1823.21	296.223	0.24	0.10	-0.21
9071.00	90.710	340.770	6846.45	1501.10	890.70	-1664.84	1628997.88	270514.96	39°14'07.072"N	80°48'35.294"W	1888.14	298.147	0.57	-0.13	-0.56
9160.00	90.680	338.720	6845.37	1589.85	974.19	-1695.65	1628967.07	270598.44	39°14'07.892"N	80°48'35.701"W	1955.58	299.878	2.30	-0.03	-2.30

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
9339.00	90.980	336.400	6842.48	1768.72	1139.33	-1764.62	1628898.10	270763.57	39°14'09.514"N	80°48'36.608"W	2100.47	302.848	0.79	-0.04	-0.79
9428.00	90.740	333.500	6841.14	1857.69	1219.94	-1802.30	1628860.43	270844.18	39°14'10.306"N	80°48'37.102"W	2176.36	304.093	3.27	-0.27	-3.26
9518.00	90.680	336.090	6840.03	1947.67	1301.36	-1840.62	1628822.11	270925.60	39°14'11.105"N	80°48'37.604"W	2254.20	305.261	2.88	-0.07	2.88
9608.00	90.950	336.240	6838.75	2037.66	1383.67	-1876.99	1628785.75	271007.91	39°14'11.913"N	80°48'38.082"W	2331.87	306.397	0.34	0.30	0.17
9697.00	91.000	334.150	6837.17	2127.65	1464.14	-1914.32	1628749.42	271089.22	39°14'12.721"N	80°48'38.571"W	2410.22	307.416	1.35	0.11	-2.19
9787.00	90.800	332.800	6835.70	2216.57	1544.96	-1954.50	1628708.23	271169.19	39°14'13.496"N	80°48'39.097"W	2491.38	308.325	1.53	-0.31	-1.50
9876.00	90.830	333.220	6834.43	2305.48	1624.25	-1994.89	1628667.85	271248.48	39°14'14.274"N	80°48'39.624"W	2572.51	309.153	0.47	0.03	0.47
9966.00	90.890	334.220	6833.08	2395.42	1704.94	-2034.73	1628628.00	271329.17	39°14'15.065"N	80°48'40.146"W	2654.61	309.960	1.11	0.07	1.11
10055.00	91.080	334.210	6831.55	2484.39	1785.07	-2073.44	1628589.30	271409.29	39°14'15.852"N	80°48'40.653"W	2735.99	310.726	0.21	0.21	-0.01
10145.00	90.700	332.100	6830.10	2574.30	1865.37	-2114.02	1628548.71	271489.60	39°14'16.640"N	80°48'41.163"W	2815.70	311.424	2.80	-0.34	-2.80
10235.00	90.890	327.890	6828.79	2663.86	1943.31	-2158.99	1628503.76	271567.53	39°14'17.403"N	80°48'41.769"W	2904.77	311.991	4.75	0.13	-4.74
10324.00	90.830	329.890	6827.46	2752.25	2019.50	-2204.96	1628457.78	271643.71	39°14'18.149"N	80°48'42.367"W	2990.02	312.486	2.25	-0.07	2.25
10414.00	90.920	334.740	6826.08	2842.08	2099.16	-2246.76	1628415.98	271723.37	39°14'18.931"N	80°48'42.913"W	3074.80	313.055	5.39	0.10	5.39
10503.00	90.800	335.290	6824.74	2931.06	2179.82	-2284.35	1628378.40	271804.03	39°14'19.722"N	80°48'43.406"W	3157.51	313.659	0.63	-0.13	0.62
10592.00	90.800	334.840	6823.30	3019.94	2262.27	-2317.50	1628345.24	271886.57	39°14'20.537"N	80°48'43.844"W	3238.40	314.210	4.28	0.20	4.28
10682.00	90.920	337.930	6821.87	3109.69	2346.61	-2349.11	1628313.64	271970.81	39°14'21.361"N	80°48'44.260"W	3320.38	314.969	3.34	-0.07	-3.34
10771.00	91.050	336.610	6820.34	3198.63	2428.68	-2383.49	1628279.26	272052.88	39°14'22.168"N	80°48'44.712"W	3402.87	315.538	1.49	0.15	-1.48
10861.00	90.340	339.830	6819.25	3288.51	2512.24	-2416.88	1628245.87	272136.44	39°14'22.989"N	80°48'45.152"W	3486.07	316.108	3.66	-0.79	3.58
10950.00	90.520	339.920	6818.58	3377.25	2595.81	-2447.50	1628215.25	272220.00	39°14'23.810"N	80°48'45.557"W	3567.70	316.684	0.23	0.20	0.10
11040.00	90.240	341.750	6818.00	3466.90	2680.35	-2477.30	1628184.45	272304.14	39°14'24.639"N	80°48'45.937"W	3649.22	317.251	1.92	-0.13	1.90
11130.00	90.310	340.250	6817.58	3556.58	2765.38	-2507.86	1628154.90	272389.57	39°14'25.477"N	80°48'46.355"W	3733.19	317.796	0.54	0.10	-0.53
11219.00	90.090	336.180	6817.27	3645.46	2848.01	-2540.88	1628121.87	272472.19	39°14'26.289"N	80°48'46.790"W	3816.70	318.262	4.58	-0.25	-4.57
11309.00	90.220	338.250	6817.03	3735.41	2930.98	-2575.74	1628087.02	272555.16	39°14'27.104"N	80°48'47.248"W	3901.93	318.691	2.30	0.14	2.30
11398.00	89.660	337.220	6817.12	3824.34	3013.34	-2609.46	1628053.30	272637.52	39°14'27.913"N	80°48'47.692"W	3986.16	319.108	1.32	-0.63	-1.16
11488.00	89.900	336.220	6817.70	3914.20	3093.30	-2640.20	1628018.44	272718.18	39°14'28.704"N	80°48'48.113"W	4070.20	319.520	1.78	-0.07	-1.78
11578.00	89.660	329.040	6818.28	4003.77	3171.63	-2694.78	1627967.98	272795.80	39°14'29.465"N	80°48'48.806"W	4161.86	319.647	1.31	0.07	-1.31
11667.00	89.780	328.650	6818.72	4092.17	3247.80	-2740.82	1627921.94	272871.96	39°14'30.211"N	80°48'49.405"W	4249.74	319.839	0.46	0.13	-0.44
11756.00	89.540	332.200	6819.25	4180.81	3325.19	-2784.74	1627878.02	272949.35	39°14'30.970"N	80°48'49.978"W	4337.24	320.055	4.00	-0.27	3.99
11846.00	89.450	334.210	6820.04	4270.73	3405.52	-2825.31	1627837.46	273029.68	39°14'31.758"N	80°48'50.508"W	4424.92	320.320	2.24	-0.10	2.23
11936.00	89.500	332.100	6820.80	4360.65	3485.80	-2865.30	1627798.77	273109.97	39°14'32.569"N	80°48'51.000"W	4511.25	320.520	0.42	-0.42	0.42

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12025.00	89.260	334.950	6822.49	4449.68	3566.96	-2902.59	1627760.18	273191.11	39°14'33.342"N	80°48'51.520"W	4598.72	320.863	0.79	0.20	0.77
12115.00	88.920	336.930	6823.91	4539.66	3649.12	-2939.27	1627723.50	273273.27	39°14'34.149"N	80°48'52.002"W	4685.66	321.149	2.23	-0.38	2.20
12204.00	89.850	336.180	6824.87	4628.64	3730.77	-2974.68	1627688.09	273354.92	39°14'34.950"N	80°48'52.467"W	4771.51	321.433	1.34	1.04	-0.84
12293.00	89.630	336.830	6825.27	4717.62	3812.39	-3010.16	1627652.61	273436.53	39°14'35.752"N	80°48'52.933"W	4857.51	321.706	0.77	-0.25	0.73
12382.00	89.410	337.480	6825.67	4806.60	3894.01	-3045.55	1627617.13	273518.14	39°14'36.554"N	80°48'53.400"W	4943.51	321.979	1.12	0.18	0.68
12473.00	89.820	338.830	6825.75	4897.46	3979.04	-3078.15	1627584.62	273603.18	39°14'37.389"N	80°48'53.828"W	5030.69	322.275	1.18	-0.17	1.17
12562.00	90.120	336.090	6825.80	4986.40	4061.23	-3112.27	1627550.51	273685.37	39°14'38.196"N	80°48'54.277"W	5116.62	322.536	3.10	0.34	-3.08
12652.00	90.150	335.540	6825.59	5076.40	4143.33	-3149.14	1627513.64	273767.47	39°14'39.002"N	80°48'54.761"W	5204.26	322.763	0.61	0.03	-0.61
12741.00	89.940	332.900	6825.52	5165.37	4223.47	-3187.84	1627474.94	273847.60	39°14'39.789"N	80°48'55.268"W	5291.51	322.955	2.98	-0.24	-2.97
12831.00	90.150	333.650	6825.43	5255.34	4304.54	-3227.90	1627435.86	273928.00	39°14'40.596"N	80°48'55.799"W	5379.71	323.142	3.06	0.23	-3.05
12920.00	90.220	336.470	6825.16	5344.34	4385.88	-3263.02	1627399.77	274010.01	39°14'41.383"N	80°48'56.253"W	5466.56	323.351	0.92	0.08	0.92
13010.00	90.120	339.130	6824.89	5434.25	4469.20	-3297.02	1627365.76	274093.32	39°14'42.201"N	80°48'56.701"W	5553.75	323.583	2.96	-0.11	2.96
13099.00	90.150	338.820	6824.68	5523.09	4552.28	-3328.95	1627333.84	274176.40	39°14'43.018"N	80°48'57.122"W	5639.61	323.823	0.35	0.03	-0.35
13189.00	90.180	340.080	6824.42	5612.87	4636.55	-3360.54	1627302.24	274260.66	39°14'43.846"N	80°48'57.540"W	5726.33	324.066	1.40	0.03	1.40
13279.00	89.470	339.110	6824.31	5701.64	4720.80	-3391.92	1627270.87	274344.91	39°14'44.674"N	80°48'57.959"W	5813.05	324.302	1.20	0.13	1.19
13368.00	90.060	334.130	6824.28	5791.60	4802.57	-3427.23	1627235.56	274426.68	39°14'45.477"N	80°48'58.418"W	5900.05	324.487	5.60	0.10	-5.60
13458.00	90.090	335.820	6824.16	5881.59	4884.12	-3465.30	1627197.49	274508.22	39°14'46.278"N	80°48'58.917"W	5988.56	324.644	1.88	0.03	1.88
13547.00	90.220	334.000	6823.92	5970.58	4964.71	-3503.04	1627159.76	274588.82	39°14'47.069"N	80°48'59.412"W	6076.15	324.794	2.05	0.15	-2.04
13637.00	89.420	332.790	6824.21	6060.52	5045.18	-3543.34	1627119.46	274669.28	39°14'47.858"N	80°48'59.939"W	6165.15	324.919	1.61	-0.89	-1.34
13727.00	89.980	331.340	6824.46	6150.39	5125.47	-3584.86	1627077.90	274749.55	39°14'48.647"N	80°48'60.471"W	6254.16	325.065	0.71	0.04	0.70
13816.00	88.490	330.960	6827.43	6239.17	5203.36	-3627.05	1627035.75	274827.45	39°14'49.409"N	80°49'01.032"W	6342.75	325.121	1.65	-0.55	-1.55
13906.00	88.490	330.540	6829.80	6328.83	5281.85	-3671.01	1626991.79	274905.94	39°14'50.179"N	80°49'01.606"W	6432.29	325.200	0.47	0.00	-0.47
13995.00	88.370	333.800	6832.24	6417.63	5360.52	-3712.54	1626950.26	274984.61	39°14'50.950"N	80°49'02.148"W	6520.59	325.295	3.66	-0.13	3.66
14085.00	88.280	334.630	6834.87	6507.57	5441.52	-3751.67	1626911.13	275065.61	39°14'51.745"N	80°49'02.661"W	6609.48	325.416	0.93	-0.10	0.92
14175.00	88.240	335.500	6837.35	6596.30	5521.47	-3790.68	1626872.14	275147.35	39°14'52.544"N	80°49'03.171"W	6697.96	325.518	1.41	0.01	1.40
14264.00	88.430	335.340	6840.22	6686.44	5602.56	-3829.63	1626833.17	275226.64	39°14'53.325"N	80°49'03.681"W	6786.36	325.645	2.22	0.23	2.21
14353.00	88.650	338.240	6842.49	6775.37	5684.32	-3864.69	1626798.12	275308.40	39°14'54.128"N	80°49'04.142"W	6873.67	325.789	3.27	0.25	3.26
14443.00	88.740	336.790	6844.54	6865.29	5767.45	-3899.10	1626763.71	275391.53	39°14'54.945"N	80°49'04.595"W	6961.79	325.939	1.61	0.10	-1.61
14532.00	88.710	338.390	6846.52	6954.21	5849.71	-3933.02	1626729.79	275473.78	39°14'55.753"N	80°49'05.041"W	7048.95	326.085	1.80	-0.03	1.80
14621.00	88.890	338.090	6848.44	7043.13	5932.54	-3966.55	1626695.32	275555.77	39°14'56.574"N	80°49'05.471"W	7135.16	326.257	1.52	0.00	1.52

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (235 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
14711.00	88.740	340.630	6850.57	7132.45	6018.43	-3992.62	1626670.19	275642.49	39°14'57.411"N	80°49'05.830"W	7222.36	326.440	1.05	0.07	-1.04
14801.00	88.740	339.170	6852.55	7222.16	6102.92	-4023.54	1626639.27	275726.98	39°14'58.242"N	80°49'06.239"W	7309.89	326.604	1.62	0.00	-1.62
14890.00	88.980	334.000	6854.32	7311.09	6184.55	-4058.89	1626603.92	275808.60	39°14'59.043"N	80°49'06.704"W	7397.52	326.723	5.81	0.27	-5.81
14980.00	89.170	329.310	6855.78	7400.85	6263.72	-4101.61	1626561.21	275887.78	39°14'59.820"N	80°49'07.261"W	7487.15	326.782	5.21	0.21	-5.21
15070.00	89.350	327.350	6856.72	7489.17	6337.34	-4148.77	1626514.42	275965.57	39°14'59.562"N	80°49'07.822"W	7576.19	326.841	1.94	0.20	-1.94
15159.00	89.380	323.500	6857.92	7578.78	6417.85	-4192.46	1626470.36	276041.90	39°15'01.330"N	80°49'08.445"W	7665.87	326.845	6.61	0.03	6.61
15248.00	89.260	336.170	6858.98	7667.76	6498.39	-4230.29	1626432.53	276122.44	39°15'02.120"N	80°49'08.941"W	7754.00	326.937	3.00	-0.13	3.00
15338.00	89.320	334.610	6860.09	7757.75	6580.21	-4267.77	1626395.05	276204.25	39°15'02.923"N	80°49'09.432"W	7843.02	327.034	1.73	0.07	-1.73
15427.00	88.890	337.180	6861.49	7846.73	6661.43	-4304.11	1626358.71	276285.47	39°15'03.721"N	80°49'09.910"W	7930.96	327.133	2.93	-0.48	2.89
15517.00	89.080	336.190	6863.08	7936.05	6744.01	-4341.27	1626321.35	276366.71	39°15'04.520"N	80°49'10.397"W	8019.46	327.230	1.71	0.15	1.71
15606.00	89.230	338.010	6864.39	8025.55	6827.25	-4371.47	1626291.35	276451.28	39°15'05.350"N	80°49'10.797"W	8106.85	327.369	0.26	0.17	-0.20
15695.00	89.110	336.780	6865.68	8114.49	6909.40	-4405.68	1626257.15	276533.43	39°15'06.157"N	80°49'11.247"W	8194.50	327.477	1.39	-0.13	-1.38
15785.00	89.020	335.930	6867.15	8204.47	6991.83	-4441.77	1626221.06	276615.86	39°15'06.966"N	80°49'11.721"W	8283.42	327.573	0.95	-0.10	-0.94
15874.00	89.080	333.060	6868.63	8293.43	7072.14	-4480.08	1626182.75	276696.16	39°15'07.754"N	80°49'12.223"W	8371.75	327.646	3.22	0.07	-3.22
15963.00	89.380	336.390	6870.46	8383.38	7153.56	-4518.77	1626144.46	276777.58	39°15'08.561"N	80°49'12.724"W	8461.07	327.722	1.76	-0.16	1.72
16053.00	88.460	338.470	6872.76	8472.30	7235.77	-4552.35	1626110.48	276859.79	39°15'09.361"N	80°49'13.172"W	8548.70	327.824	2.12	-0.13	2.11
16143.00	88.520	334.900	6875.14	8562.24	7318.38	-4587.96	1626074.88	276942.39	39°15'10.172"N	80°49'13.640"W	8637.59	327.916	3.97	0.07	-3.97
16232.00	88.490	332.560	6877.46	8651.16	7398.16	-4627.33	1626035.50	277022.17	39°15'10.955"N	80°49'14.155"W	8726.10	327.975	2.63	-0.03	-2.63
16322.00	88.620	333.910	6879.73	8741.06	7478.49	-4667.85	1625994.99	277102.49	39°15'11.743"N	80°49'14.685"W	8815.70	328.029	1.51	0.14	1.50
16411.00	88.590	334.280	6881.47	8830.07	7558.72	-4708.36	1625954.57	277181.73	39°15'12.530"N	80°49'15.215"W	8904.85	328.084	1.10	0.15	1.09
16501.00	88.460	335.960	6884.37	8919.98	7640.53	-4743.72	1625919.12	277264.53	39°15'13.333"N	80°49'15.680"W	8993.37	328.165	1.20	-0.03	1.20
16590.00	88.400	335.710	6886.81	9008.94	7721.70	-4780.14	1625882.70	277345.70	39°15'14.130"N	80°49'16.158"W	9081.54	328.240	0.29	-0.07	-0.28
16680.00	88.520	332.290	6889.23	9098.87	7802.55	-4819.57	1625843.27	277426.55	39°15'14.923"N	80°49'16.674"W	9171.05	328.297	3.80	0.13	-3.80
16735.00	88.550	331.250	6890.63	9153.73	7851.00	-4845.58	1625817.26	277474.99	39°15'15.398"N	80°49'17.014"W	9225.93	328.317	1.89	0.05	-1.89
16758.00	88.550	331.250	6890.63	9153.73	7851.00	-4845.58	1625817.26	277474.99	39°15'15.398"N	80°49'17.014"W	9225.93	328.317	1.89	0.05	-1.89

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
OXF-97C-HS LP Rev-2		6858.00	-517.95	-1027.99	1629634.71	269106.36	39°13'53.242"N	80°48'26.941"W	point
OXF-97C-HS BHL Rev-2		6887.00	7853.03	-4844.62	1625818.22	277477.02	39°15'15.418"N	80°49'17.002"W	point
OXF-97 LL		7198.47	39.99	0.11	1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: OXF-97C-HS AWB Ref Wellpath: OXF-97C-HS AWP Proj: 16758'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	2903.00	Generic gyro - northseeking (Standard)	01 MS Gyro <12-1/4"> (100'-2885')	OXF-97C-HS AWB
2903.00	5831.00	ISCWSA MWD, Rev. 2 (Standard)	02 Scientific EM <8-3/4"> (2895')(3035'-5823')	OXF-97C-HS AWB
5831.00	16735.00	NaviTrak (AT Curve Short Spaced)	03 BHI AT Curve <8-1/2"> (5831')(5938'-16735')	OXF-97C-HS AWB
16735.00	16758.00	Blind Drilling (std)	Projection to bit	OXF-97C-HS AWB

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Actual Wellpath Report

OXF-97C-HS AWP Proj: 16758'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot C
Area	Doddridge Co., WV	Well	OXF-97C-HS
Field	Doddridge	Wellbore	OXF-97C-HS AWB
Facility	OXF-97 Pad		

COMMENTS
Wellpath general comments API: 47-017-06483-0000 BHI Job #: 7196446 Rig: Precision 543 Duration: 4/24/2015-4/28/2015 MS Gyro <12-1/4"> (100'-2885') Scientific EM <8-3/4"> (2895')(3035'-5823') BHI AT Curve <8-1/2"> (5831')(5938'-16735') Projected MD at TD: 16758'

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WW-9
(4/16)

API Number 47 - 017 - 06483
Operator's Well No. OXF97 CHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 484507062

Watershed (HUC 10) Headwaters Middle Island Creek Quadrangle Oxford 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tanked and hauled off site.)

Will a synthetic liner be used in the pit? Yes No If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number *UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/WV0109410)

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.

Surface - Air/Freshwater, Intermediate -
Dist/Off Foam, Production - Water Based Mud

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings stored in tanks, removed offsite and taken to landfill.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Lisa Coody, Director, Environmental & Regulatory Compliance on behalf of:*

Company Official (Typed Name) Gretchen Kohler

Company Official Title Senior Environmental & Regulatory Manager

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Subscribed and sworn before me this 10th day of MAY, 2018

JUN 06 2018

[Signature]

My commission expires

MEGAN GRIFFITH
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184011666
MY COMMISSION EXPIRES MARCH 13, 2022

Notary Public
3/13/2022

WV Department of
Environmental Protection

08/03/2018

Form WW-9

Operator's Well No. OXF97 CHS

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 59.26 acres Prevegetation pH _____

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Access Road "A" (24.76 acres) + Access Road "B" (19.90 acres) + Well Pad (7.04 acres) + Water Containment Pad (1.00 acres) + Excess/Topsoil Material Stockpiles (3.79 acres) = 59.26 Total Affected Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue	30
<small>See attached Table IV-3 for additional seed type (Oxford 97 Pad Design)</small>		<small>See attached Table IV-4A for additional seed type (Oxford 97 Pad Design)</small>	
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

Attach:
 Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments: _____

Title: Oil & Gas Inspector

Date: 6/5/18

Field Reviewed? Yes No

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Form WW-9 Additives Attachment**SURFACE INTERVAL**

1. Fresh Water
2. Soap –Foamer AC
3. Air

INTERMEDIATE INTERVAL***STIFF FOAM RECIPE:***

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 (11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard (9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

PRODUCTION INTERVAL

1. Alpha 1655
Salt Inhibitor
2. Mil-Carb
Calcium Carbonate
3. Cottonseed Hulls
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime
Calcium Hydroxide – Lime
11. LD-9
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica
Hydro-Biotite Mica – LCM

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13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous
Inorganic Salt
18. D-D
Drilling Detergent – Surfactant
19. Terra-Rate
Organic Surfactant Blend
20. W.O. Defoam
Alcohol-Based Defoamer
21. Perma-Lose HT
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite
Natural Graphite – LCM
25. Mil Bar
Barite – Weighting Agent
26. X-Cide 102
Biocide
27. Soda Ash
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol
Amine Acid complex – Shale Stabilizer
29. Sulfatrol
Sulfonated Asphalt – Shale Control Additive
30. Xanvis
Viscosifier For Water-Based Muds
31. Milstarch
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube
Drilling Fluid Lubricant

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Environmental Protection

08/03/2018

4701706483



911 Address
965 Waco Rd.
West Union, WV 26456

Well Site Safety Plan

Antero Resources

Well Name: OXF97 Unit AHS, BHS, CHS, DHS, EHS, FHS, GHS and HHS

Pad Location: OXFORD 97 PAD
Doddridge County/Southwest & West Union District

GPS Coordinates:

Entrance - Lat 39°12'12.6282"/Long -80°47'33.2016" (NAD83)
Pad Center - Lat 39°13'59.6778"/Long -80°48'12.9234" (NAD83)

Driving Directions:

From the intersection of Hwy 50 and Arnolds Creek Rd: Head south on Arnolds Creek Rd/Central Station Rd/Right Fork Rd toward Rte 11/3 for 0.7 miles. Continue straight onto Co Rte 11/4/Left fork Run Rd for 4.4 miles. Lease road will be on your right.

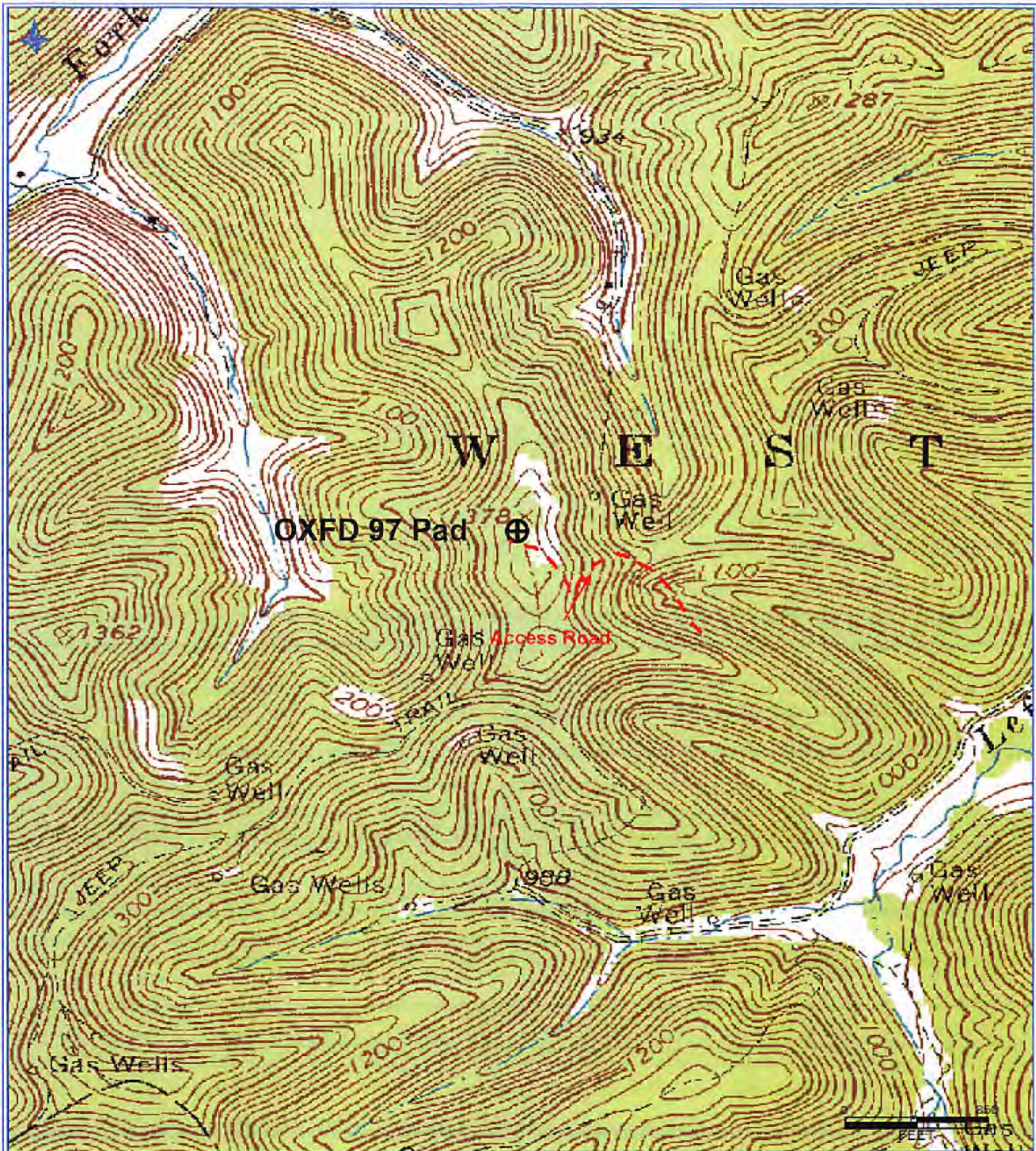
Alternate Route:

From the intersection of Sunnyside Rd and Oxford Rd: Head east on Old U.S 50 W/Sunnyside Rd toward Co Rte/6 for 1.9 miles. Turn right onto US-50 E for 0.5 miles. Turn right at the 1st cross street onto Arnolds Creek Rd/Central Station Rd/Right Fork Rd toward Rte 11/3 for 0.7 miles. Continue straight onto Co Rte 11/4/Left fork Run Rd for 4.4 miles. Lease road will be on your right.

EMERGENCY (24 HOUR) CONTACT 1-800-878-1373

Julian
6/5/18

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JUN 06 2018
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Antero Resources Corporation
 Appalachian Basin
 OXFD 97 Unit
 Doddridge County

Quadrangle: Oxford
 Watershed: Middle Island Creek
 District: West Union
 Date: 5-7-2018

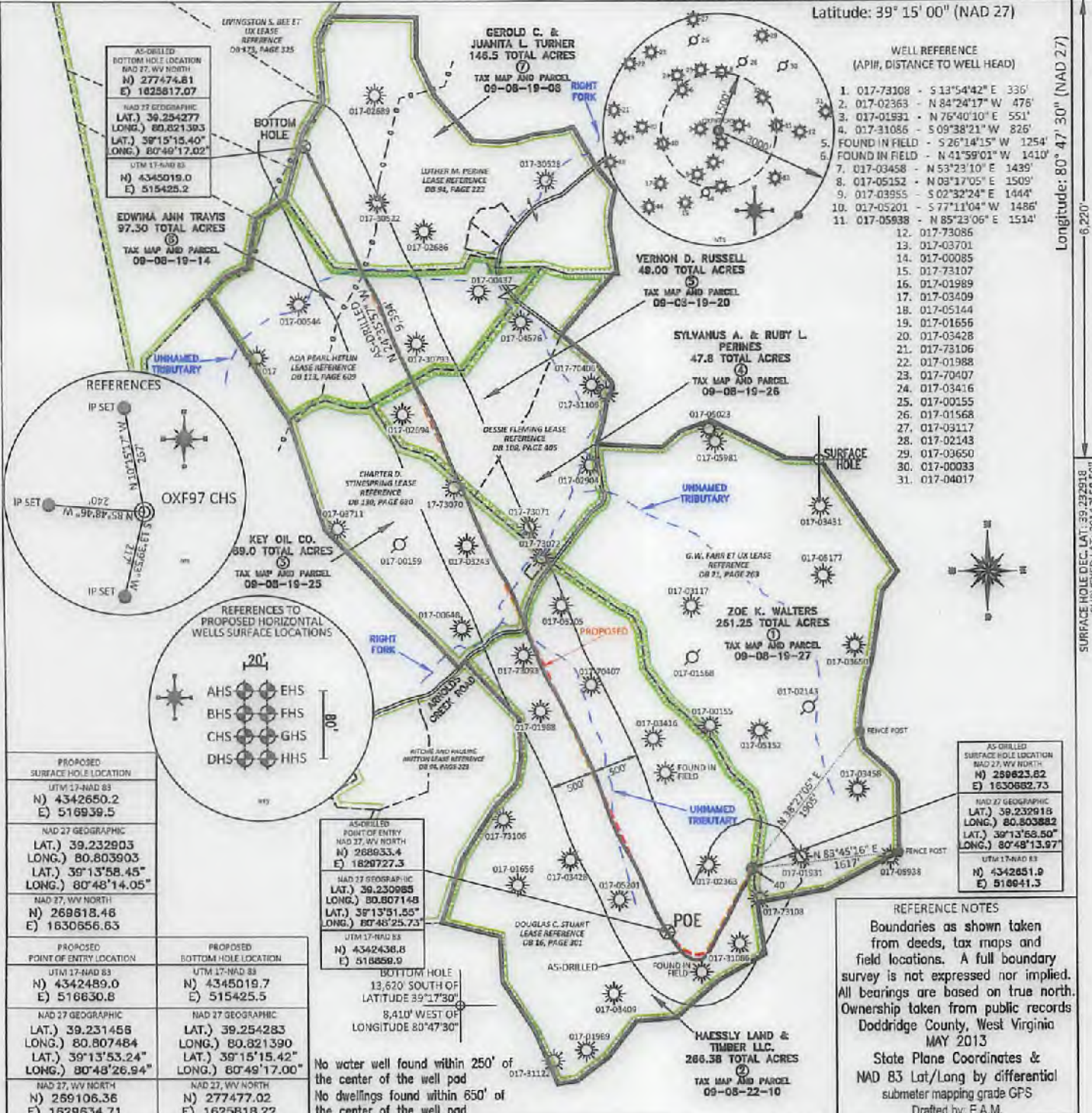
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SURFACE HOLE DEC. LONG: 80.803882
 SURVEYED LONG: 80° 48' 13.97" E
 3.460'

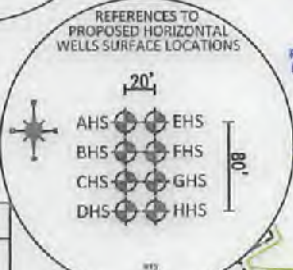
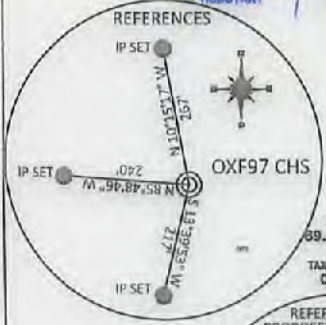
Latitude: 39° 15' 00" (NAD 27)

Longitude: 80° 47' 30" (NAD 27)



WELL REFERENCE (API#, DISTANCE TO WELL HEAD)

- 017-73108 - S 13°54'42" E 336'
- 017-02363 - N 84°24'17" W 476'
- 017-01891 - N 76°40'10" E 551'
- 017-31086 - S 09°38'21" W 826'
- FOUND IN FIELD - S 26°14'15" W 1254'
- FOUND IN FIELD - N 41°59'01" W 1410'
- 017-03458 - N 53°23'10" E 1439'
- 017-05152 - N 09°17'05" E 1509'
- 017-03955 - S 02°32'24" E 1444'
- 017-05201 - S 77°11'04" W 1486'
- 017-05938 - N 85°23'06" E 1514'
- 017-73086
- 017-03701
- 017-00085
- 017-73107
- 017-01989
- 017-03409
- 017-05144
- 017-01656
- 017-03428
- 017-73106
- 017-01988
- 017-70407
- 017-03416
- 017-00155
- 017-01568
- 017-03117
- 017-02143
- 017-03650
- 017-00033
- 017-04017



PROPOSED SURFACE HOLE LOCATION UTM 17-NAD 83 N) 4342650.2 E) 516939.5	PROPOSED BOTTOM HOLE LOCATION UTM 17-NAD 83 N) 4345019.7 E) 515425.5
NAD 27 GEOGRAPHIC LAT.) 39.232903 LONG.) 80.803903 LAT.) 39°13'58.45" LONG.) 80°48'14.05"	NAD 27 GEOGRAPHIC LAT.) 39.254283 LONG.) 80.821390 LAT.) 39°15'15.42" LONG.) 80°49'17.00"
NAD 27, WV NORTH N) 269618.46 E) 1630656.63	NAD 27, WV NORTH N) 277477.02 E) 1625818.22
PROPOSED POINT OF ENTRY LOCATION UTM 17-NAD 83 N) 4342489.0 E) 516630.8	BOTTOM HOLE 13,620' SOUTH OF LATITUDE 39°17'30" 8,410' WEST OF LONGITUDE 80°47'30"
NAD 27 GEOGRAPHIC LAT.) 39.231456 LONG.) 80.807484 LAT.) 39°13'53.24" LONG.) 80°48'26.94"	NAD 27 GEOGRAPHIC LAT.) 39.254283 LONG.) 80.821390 LAT.) 39°15'15.42" LONG.) 80°49'17.00"
NAD 27, WV NORTH N) 269106.36 E) 1629634.71	NAD 27, WV NORTH N) 277477.02 E) 1625818.22

AS-DRIILLED POINT OF ENTRY
NAD 27, WV NORTH
N) 268633.4
E) 1628727.3

NAD 27 GEOGRAPHIC
LAT.) 39.230985
LONG.) 80.807148
LAT.) 39°13'51.55"
LONG.) 80°48'25.73"

UTM 17-NAD 83
N) 4342436.8
E) 516669.9

No water well found within 250' of the center of the well pad
 No dwellings found within 650' of the center of the well pad

AS-DRIILLED SURFACE HOLE LOCATION
NAD 27, WV NORTH
N) 259623.82
E) 1630662.73

NAD 27 GEOGRAPHIC
LAT.) 39.232918
LONG.) 80.803882
LAT.) 39°13'58.50"
LONG.) 80°48'13.97"

UTM 17-NAD 83
N) 4342651.0
E) 516941.3

REFERENCE NOTES

Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Doddridge County, West Virginia MAY 2013

State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS

Drafted by: E.A.M.

FILE #: NOB 009

DRAWING #: 2345

SCALE: PLAT - 1" = 1600'
TICK MARK - 1" = 2000'

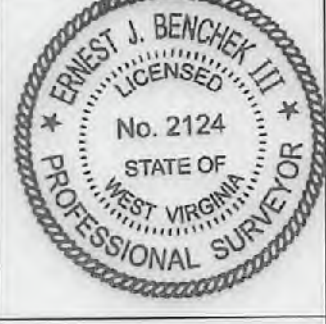
MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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:

L.L.S. #2124 : Ernest J. Benchek III



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

OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

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

AS-BUILT
ELEVATION: 1,333'

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK

COUNTY/DISTRICT: DODDRIDGE / WEST UNION

SURFACE OWNER: HAESSLY LAND & TIMBER LLC. ACREAGE: 266.38 +/-

OIL & GAS ROYALTY OWNER: G.W. FARR et ux, DOUGLAS C. STUART, CHARTER D. STINESPRING, DESSIE FLEMING, ADA PEARL HEFLIN, LUTHER M. PERINE ACREAGE: 262.00+/-, 266.00+/-, 62.00+/-

LEASE NUMBERS: _____

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,890' TMD: 16,758'

WELL OPERATOR: ANTERO RESOURCES CORPORATION DESIGNATED AGENT: DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS: 1615 WYNKOOP STREET ADDRESS: 5400 D BIG TYLER ROAD

CITY: DENVER STATE: CO ZIP CODE: 80202 CITY: CHARLESTON STATE: WV ZIP CODE: 25313

DATE: February 14, 2018

OPERATOR'S WELL #: OXF97 CHS

API WELL #: 47 17 06483
STATE COUNTY PERMIT

08/03/2018

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Douglas C. Stuart Lease</u>			
Douglas C. Stuart	The Carter Oil Co.	1/8	0016/0301
The Carter Oil Co.	Hope Natural Gas Company	Assignment	0042/0410
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger	0143/0345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583
Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Certificate of Authority	0051/0795
CNG Transmission Corporation	Dominion Transmission, Inc.	Certificate of Authority	0058/0362
Dominion Transmission, Inc.	Consol Energy Holdings LLC XVI	Assignment	0245/0001
Consol Energy Holdings LLC XVI	CNX Gas Company	Corp Book	1472/0295
CNX Gas Company	Antero Resources Corporation	Assignment	0387/0216
<u>Charter D. Stinespring Lease</u>			
Charter D. Stinespring	J & J Enterprises	1/8	0130/0630
J & J Enterprises	Eastern American Energy Corporation	Assignment	0159/0139
Eastern American Energy Corporation	Eastern Corporation of America	Assignment	0240/0498
Eastern Corporation of America	Antero Resources Appalachian Corporation	Assignment	0307/0321
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0046/0523
<u>Dessie Fleming Lease</u>			
Dessie Fleming	Key Oil Company	1/8	0108/0405
Key Oil Company	J&J Enterprises	Assignment	0414/090
J&J Enterprises	Eastern American Energy Corporation	Assignment	0159/0139
Eastern American Energy Corporation	Eastern Corporation of America	Assignment	0240/0498
Eastern Corporation of America	Antero Resources Appalachian Corporation	Assignment	0307/0321
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Ada Pearl Heflin Lease</u>			
Ada Pearl Heflin	Justin L. Henderson	1/8	0113/0609
Justin L. Henderson	Antero Resources Appalachian Corporation	Assignment	0289/0490
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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Environmental Protection

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

WW-6A1
(5/13)

Operator's Well No. OXF97 CHS

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Luther M. Perine Lease</u>	Luther M. Perine	Ole Colony Development Co.	1/8	094/0223
	Ole Colony Development Co.	Penn Resources Inc.	Assignment	0111/0553
	Penn Resources Inc.	Justin L. Henderson	Assignment	0105/0496
	Justin L. Henderson	Antero Resources Appalachian Corporation	Assignment	0289/0490
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation
 By: Kevin Kilstrom
 Its: Senior Vice President - Production

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Environmental Protection

FILED

JUN 10 2013

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penny Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvsos.com
E-mail: business@wvsos.com

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

Office Hours: Monday - Friday
8:30 a.m. - 5:00 p.m. ET

FILE ONE ORIGINAL
(Two if you want a filed
stamped copy returned to you)
FEE: \$25.00

**** In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby ****
applies for an Amended Certificate of Authority and submits the following statement:

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of Incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- Other amendments: _____
(attach additional pages if necessary)

6. Name and phone number of contact person. (This is optional; however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Alvyn A. Schopp (303) 367-7310
Contact Name Phone Number

7. Signature information (See below **Important Legal Notice Regarding Signature**):

Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person
Signature: [Signature] Date: June 10, 2013

**Important Legal Notice Regarding Signature:* Per West Virginia Code §31D-1-129. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

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MAY 11 2013
WV Department of
Environmental Protection



May 10, 2018

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

West Virginia Department of Environmental Protection
Chief, Office of Oil and Gas
Attn: Mr. James Martin
601 57th Street SE
Charleston, WV 25304

RE: OXF97 CHS
Quadrangle: Oxford 7.5'
Doddridge County/West Union District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the OXF97 CHS horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the OXF97 CHS horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tyler Adams", is written over a light blue horizontal line.

Tyler Adams
Landman

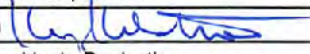
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Office of Oil and Gas
MAY 11 2018
WV Department
Environmental Protection

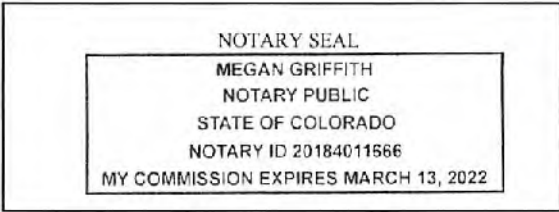
08/03/2018

WW-6AC
(1/12)

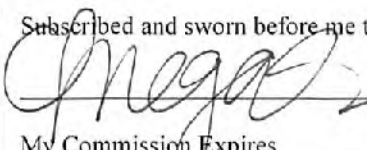
Certification of Notice is hereby given:

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Antero Resources Corporation</u>	Address:	<u>1615 Wynkoop Street</u>
By:	<u>Kevin Kilstrom</u> 		<u>Denver, CO 80202</u>
Its:	<u>Senior Vice President - Production</u>	Facsimile:	<u>303-357-7182</u>
Telephone:	<u>303-357-7310</u>	Email:	<u>mstanton@anteroresources.com</u>



Subscribed and sworn before me this 10th day of May 2018.

 Notary Public

My Commission Expires 3/13/2022

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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WV Department of
Environmental Protection

WW-6A
(9-13)

API NO. 47- 017 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 5/9/2018 **Date Permit Application Filed:** 5/9/2018

Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s) ✓
Name: Zoe Katryn Waters
Address: 9407 Scratch Court
Wilmington, NC 28412

Name: Haessly Land & Timber LLC ✓
Address: 25 Sheels Run Road
Marietta, OH 45750

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address: _____

COAL OPERATOR
Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address: _____

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL,
SPRING OR OTHER WATER SUPPLY SOURCE
Name: NONE IDENTIFIED WITHIN 1500'
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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WV Department of
Environmental Protection

WW-6A
(8-13)

API NO. 47- 017 - 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

08/03/2018

WW-6A
(8-13)

API NO. 47-017 - 06483

OPERATOR WELL NO. OXF97 CHS

Well Pad Name: Oxford 97 Pad

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

08/03/2018

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(8-13)

API NO. 47- 017 - 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

WW-6A
(8-13)

API NO. 47- 017 06483
OPERATOR WELL NO. OXF97 CHS
Well Pad Name: Oxford 97 Pad

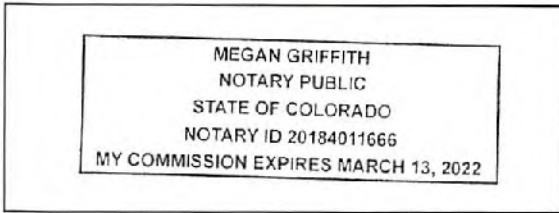
Notice is hereby given by:

Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310 [Signature]
Email: mstanton@anteroresources.com

Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7182

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 10th day of May 2018.
[Signature] Notary Public
My Commission Expires 3/13/2022

RECEIVED
Office of Oil and Gas
MAY 11 2018
WV Department
Environmental Protection

WW-6A Notice of Application Attachment (OXFORD 97 PAD):

List of Surface Owner(s) with Proposed Disturbance associated with Oxford 97 Well Pad:

WELL PAD – These owners were notified of all well work permit applications, and have executed signed Surface Use Agreements with Antero Resources Corporation.

09-08-22-10

Owner: Haessley Land & Timber, LLC
Address: 25 Sheets Run Rd.
Marietta, OH 45750

09-08-19-27

Owner: Zoe K. Walters
Address: 9407 Scratch Ct.
Wilmington, NC 28412

ROAD AND/OR OTHER DISTURBANCE – These owners were only notified if their tract is overlying the oil and gas leasehold being developed by the proposed well work as outlined in WV Code 22-6A-10(b)(2).

9-8-22-10 &14 and 7-5-4

(ON LEASE)

Owner: Haessley Land & Timber, LLC
Address: 25 Sheets Run Rd.
Marietta, OH 45750

09-08-19-27 (ON LEASE)

Owner: Zoe K. Walters
Address: 9407 Scratch Ct.
Wilmington, NC 28412

9-8-23-3 (OFF LEASE)

Owner: Lucy E. Harper
Address: 511 Boca Ciega Point
St. Petersburg, FL 33708

9-8-23-3.1 (OFF LEASE)

Owner: Gary Stephenson
Address: PO Box 71
West Union, WV 26456

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MAY 11 2018
WV Department of
Environmental Protection

08/03/2018

WW-6A4
(1/12)

Operator Well No. OXF97 CHS
Multiple Wells on Oxford 97 Pad

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 01/08/2017 **Date Permit Application Filed:** 05/10/2018

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Haessly Land & Timber, LLC
Address: 25 Shaets Run Rd.
Marietta, OH 45750

Name: Zoe Kathryn Waters
Address: 9407 Scratch Court
Wilmington, NC 28412

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>516941.3m</u>
County: <u>Doddridge</u>	Northing: <u>4342651.9m</u>
District: <u>West Union</u>	Public Road Access: <u>Waco Rd.</u>
Quadrangle: <u>Oxford 7.5'</u>	Generally used farm name: <u>Haessly Land & Timber, L:LC</u>
Watershed: <u>Headwaters Middle Island Creek</u>	

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Antero Resources Appalachian Corporation
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7310
Email: mstanton@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Mallory Stanton
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7182
Email: mstanton@anteroresources.com
Facsimile: 303-357-7315

RECEIVED
Office of Oil and Gas
MAY 11 2018
WV Department of Environmental Protection

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

08/03/2018



4701706483

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

May 10, 2018

Jill M. Newman
Deputy Commissioner

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the OXF97 Pad, Doddridge County
OXF97 CHS Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2014-0912 which has been transferred to Antero Resources Corporation for access to the State Road for a well site located off of Doddridge County Route 23/2 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: Megan Griffith
Antero Resources Corporation
CH, OM, D-4
File

List of Anticipated Additives Used for Fracturing or Stimulating Well

4701706483

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Sillica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

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Office of Oil

MAY 11 2018

WV Department of
Environmental Protection

08/03/2018

SHEET INDEX

- 1 - COVER SHEET
- 2 - CONSTRUCTION AND EAS CONTROL NOTES
- 3 - LEGEND
- 4 - MATERIAL QUANTITIES
- 5 - STORM DRAINAGE & EAS COORDINATES
- 6 - OVERALL SHEET INDEX AND VOLUMES
- 7-13 - ACCESS ROAD AS-BUILT PLAN
- 14 - ACCESS ROAD AS-BUILT & STORMWATER PLAN
- 15 - WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN
- 16 - WELL PAD & WATER CONTAINMENT PAD CHAINING PLAN
- 17-21 - ACCESS ROAD PROFILES
- 21-25 - ACCESS ROAD SECTIONS
- 26-27 - WELL PAD & WATER CONTAINMENT PAD SECTIONS
- 28 - WELL PAD WATER CONTAINMENT PAD & STOCKPILE SECTIONS
- 29-35 - CONSTRUCTION DETAILS
- 36 - WELL PAD & WATER CONTAINMENT PAD RECLAMATION PLAN

LOCATION COORDINATES

ACCESS ROAD ENTRANCE
 LATITUDE: 39.203809 LONGITUDE: -81.706599 (NAD 83)
 UTM ZONE 18 UTM EASTING: 651981.05 (UTM ZONE 17 METERS)
 CENTER OF TANK
 LATITUDE: 39.202544 LONGITUDE: -81.706599 (NAD 83)
 UTM ZONE 18 UTM EASTING: 651955.56 (UTM ZONE 17 METERS)
 CENTER OF PAD
 LATITUDE: 39.202544 LONGITUDE: -81.706599 (NAD 83)
 UTM ZONE 18 UTM EASTING: 651955.56 (UTM ZONE 17 METERS)



GENERAL DESCRIPTION

THE ACCESS ROAD(S) AND WELL PAD ARE BEING IMPROVED AND THE WATER CONTAINMENT PAD IS BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

FLOODPLAIN NOTES

THIS SITE IS LOCATED WITHIN FEMA FLOOD ZONE X PER FEMA FLOOD MAP 44049702000.

MISS UTILITY STATEMENT

ANTERO RESOURCES CORPORATION HAS ADVISED MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

ENTRANCE PERMIT

ANTERO RESOURCES CORPORATION HAS OBTAINED AN ENTRANCE PERMIT FROM MAR-10-11 FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PERMITS - COMMISSIONER OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES

STREAM AND WETLAND DELINEATIONS WERE PERFORMED IN NOVEMBER, 2017 BY MILLSTAR ECOLOGY TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE NOVEMBER 16, 2017 STREAM AND WETLAND DELINEATION INDEX MAP WAS PREPARED BY MILLSTAR ECOLOGY AND SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE MAP INDEX NOTE, STATE DEPARTMENT & JURISDICTIONAL DELINEATION OF THE REGULATORY LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP.

PROJECT CONTACTS:

OWNER:
 ANTERO RESOURCES CORPORATION
 635 WHITE OAK BLVD
 BELLEVILLE, MO 63703
 PHONE: (201) 882-8100
 FAX: (201) 882-8100

ENVIRONMENTAL ENGINEER:
 JIM MAGNETI
 OFFICE: (304) 842-6658 CELL: (304) 478-9773

OPERATIONS SUPERVISOR:
 LAYNE KUNZLER
 OFFICE: (204) 442-4100 CELL: (204) 929-7865

ENGINEER/SUPERVISOR:
 MILLSTAR ENGINEERING, INC.
 CHRIS S. KEMP, P.E. - PROJECT MANAGER/ENGINEER
 OFFICE: (480) 282-9105 CELL: (540) 500-6543

ENVIRONMENTAL SCIENTIST:
 MILLSTAR ECOLOGY, LLC
 BRIAN L. HARRIS
 OFFICE: (666) 512-2267 CELL: (804) 652-7477

RESTRICTIONS NOTES

1. THERE ARE NO LAKES, PONDS OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD AND LAD THERE ARE NO WETLANDS AND 1 FEDERAL RIVER ADJACENT TO THE EXISTING ACCESS ROAD THAT HAVE REMAINED UNDISTURBED.
2. THERE ARE NO NATURALLY PRODUCING FRESH STREAMS WITHIN 300 FEET OF THE WELL PAD AND 1000 FEET OF THE WELL PAD AND 1000 FEET OF THE WELL PAD AND 1000 FEET OF THE WELL PAD.
3. THERE ARE NO DISCHARGE INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND 1000 FEET OF THE WELL PAD AND 1000 FEET OF THE WELL PAD.
4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SYSTEMS WITHIN 250 FEET OF THE WELL PAD BEING DRILLED.
5. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 600 FEET OF THE CENTER OF THE WELL PAD.
6. THERE ARE NO INDIVIDUAL BUILDINGS LARGER THAN 2,000 SQUARE FEET WITHIN 600 FEET OF THE CENTER OF THE WELL PAD.

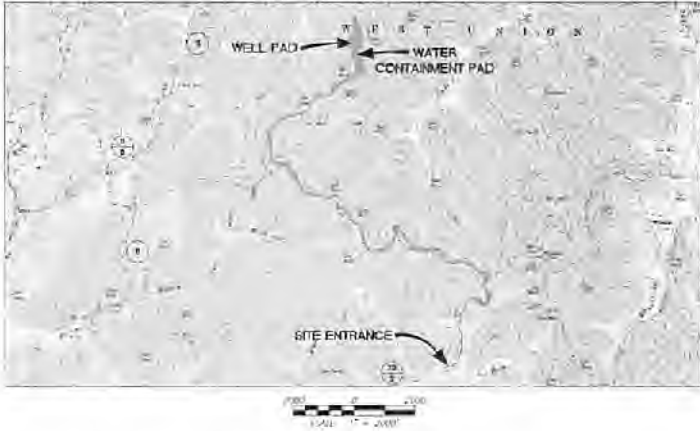
REPRODUCTION NOTE

THIS DRAWING IS TO BE PRINTED ON 24" X 36" (MIN) SIZE SHEET DRAWINGS ARE TO BE PRINTED AT 100% SCALE UNLESS OTHERWISE NOTED. REPRODUCTIONS OF THIS DRAWING IN ANY OTHER SIZE OR COLOR MAY BE SUBJECT TO A CHARGE OF REPRODUCTION FEE. CONTACT THE PROJECT MANAGER FOR MORE INFORMATION.

OXFORD 97 WELL PAD & WATER CONTAINMENT PAD AS-BUILT AND EROSION & SEDIMENT CONTROL IMPROVEMENT PLAN

SOUTHWEST & WEST UNION DISTRICTS, DODDRIDGE COUNTY, WEST VIRGINIA
 WHITE OAK CREEK-SOUTH FORK HUGHES RIVER & ARNOLD CREEK WATERSHED

OXFORD USGS 7.5 QUAD MAP(S)



WEST VIRGINIA STATE PLANT FORESTRY SYSTEM
 VEGETATION ZONE: 10B-10C
 SOILS: 10B-10C
 SOIL PROSPECTING



AS-BUILT CERTIFICATIONS
 THE DIMENSIONS, CONTROLS, NOTES, AND REFERENCE DIAGRAM ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF CIVIL AND STATE POLICE.

MISS UTILITY of West Virginia
 1-800-245-4688
 West Virginia State Law
 (Section XV, Chapter 24-C)
 Requires that you call two
 business days before you dig in
 the state of West Virginia.
IT'S THE LAW!

OXFORD 97 LIMITS OF DISTURBANCE AREA (AC)			
Total Site	Permitted	Modification	Total
OXF 97 Access Road "A" (10.507)	24.45	0.78	24.76
Water Containment Pad	1.00	0.00	1.00
Excav/Topsoil Material Stockpiles	2.77	1.78	4.56
Total Affected Area	28.22	2.56	30.78
Total Wooded Acres Disturbed	15.83	4.31	20.20
Impacts to LL Morris			
OXF 97 Access Road "A" (10.507)	8.16	0.74	8.40
Total Affected Area	8.16	0.74	8.40
Total Wooded Acres Disturbed	4.91	0.24	5.15
Impacts to Lucy Haynes 09-08-23-1			
OXF 97 Access Road "A" (10.507)	15.32	0.04	15.36
Total Affected Area	15.32	0.02	15.31
Total Wooded Acres Disturbed	0.51	0.04	0.55
Impacts to Hanesley Land & Timber LLC 09-07-05-04			
OXF 97 Access Road "B" (0.003)	2.06	0.01	2.06
Total Affected Area	2.06	0.00	2.06
Total Wooded Acres Disturbed	0.04	0.00	0.04
Impacts to Hanesley Land & Timber LLC 09-08-23-14			
OXF 97 Access Road "B" (0.003)	1.44	0.00	1.44
Total Affected Area	1.44	0.00	1.44
Total Wooded Acres Disturbed	0.00	0.00	0.00
Impacts to William Randle Hamblet 09-08-23-1			
OXF 97 Access Road "B" (0.003)	17.51	0.07	17.68
Excav/Topsoil Material Stockpiles	0.40	3.63	4.03
Total Affected Area	17.91	3.70	21.80
Total Wooded Acres Disturbed	4.00	3.75	7.75
Impacts to Hanesley Land & Timber LLC 09-08-23-18			
OXF 97 Access Road "B" (1.024)	2.09	0.22	2.21
Water Containment Pad	0.68	0.00	0.68
Excav/Topsoil Material Stockpiles	1.41	0.00	1.41
Total Affected Area	4.18	0.22	4.40
Total Wooded Acres Disturbed	0.00	0.00	0.00
Impacts to Zee R. Walters 09-08-18-27			
Water Containment Pad	3.00	0.00	3.00
Excav/Topsoil Material Stockpiles	1.00	0.00	1.00
Total Affected Area	4.00	0.00	4.00
Total Wooded Acres Disturbed	0.00	0.00	0.00

Well Name	WV Month NAD 21	WV Month NAD 83	UTS (FEET) Cont. FT	NAD 83 Lat. & Long
OXF97 Well AHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1348 343
OXF97 Well BHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well CHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 540
OXF97 Well EHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well FHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well GHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well IHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well JHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well KHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well LHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well MHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well NHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well OHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well PHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well QHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well RHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well SHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well THS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well UHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well VHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well WHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well XHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well YHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well ZHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
Well Pad Elevation				Lat: 39.1358 517

Well Name	WV Month NAD 27	WV Month NAD 83	UTS (FEET) Zone 17	NAD 83 Lat. & Long
OXF97 Well AHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1348 343
OXF97 Well BHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well CHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 540
OXF97 Well EHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well FHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well GHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well IHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well JHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well KHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
OXF97 Well LHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well MHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well NHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well OHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 782
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OXF97 Well XHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
OXF97 Well YHS (Drilled)	4/2008/02	4/2008/02	14.400000	Lat: 39.1358 530
OXF97 Well ZHS (Drilled)	4/2008/02	4/2008/02	15.510000	Long: 80.48 42.00
Well Pad Elevation				Lat: 39.1358 517

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DATE	REVISION	BY	CHKD
	REVISED PER DISTRICT EAS INDEX		
	REVISED FOR IMP		



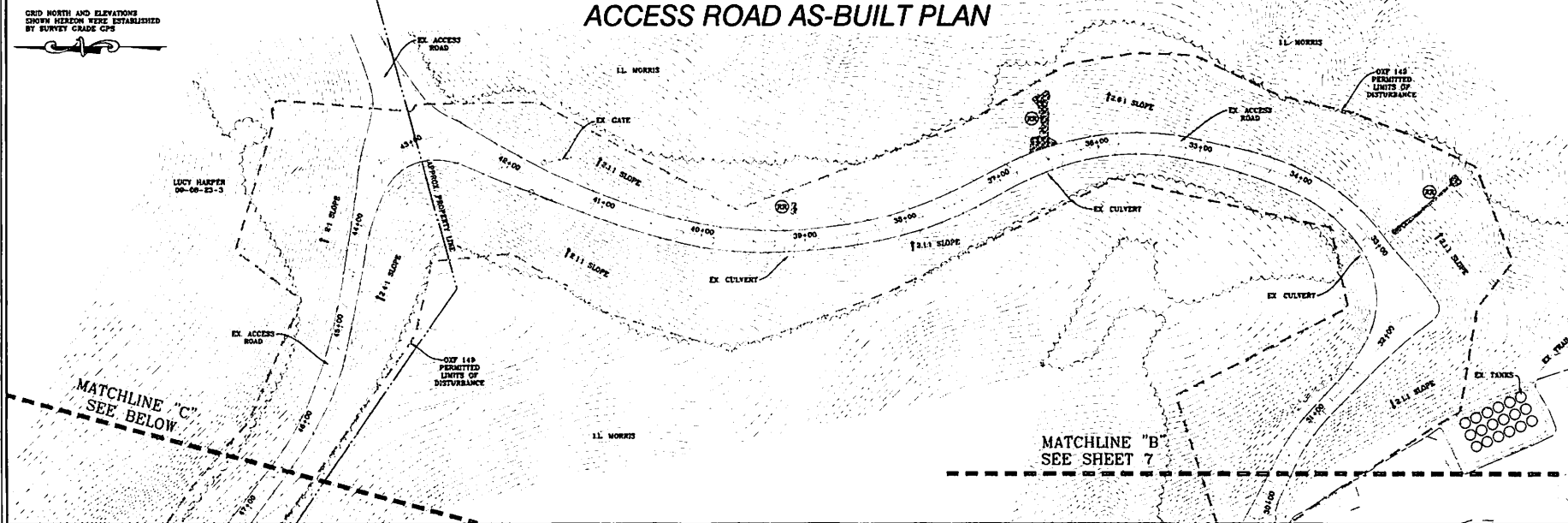
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COVER SHEET
OXFORD 97
 WELL PAD
 SOUTHWEST & WEST UNION DISTRICTS
 DODDRIDGE COUNTY, WEST VIRGINIA

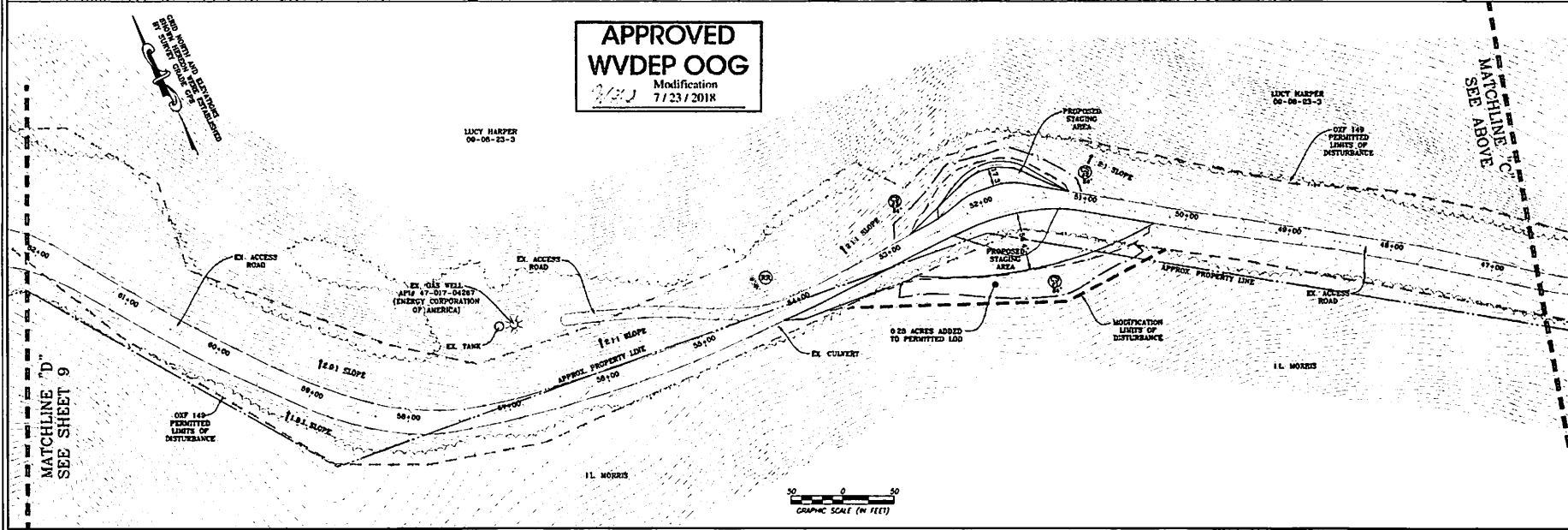


DATE: 02/14/2018
 SCALE: AS SHOWN
 SHEET 1 OF 36

ACCESS ROAD AS-BUILT PLAN



APPROVED WVDEP OOG
 Modification
 7/23/2018



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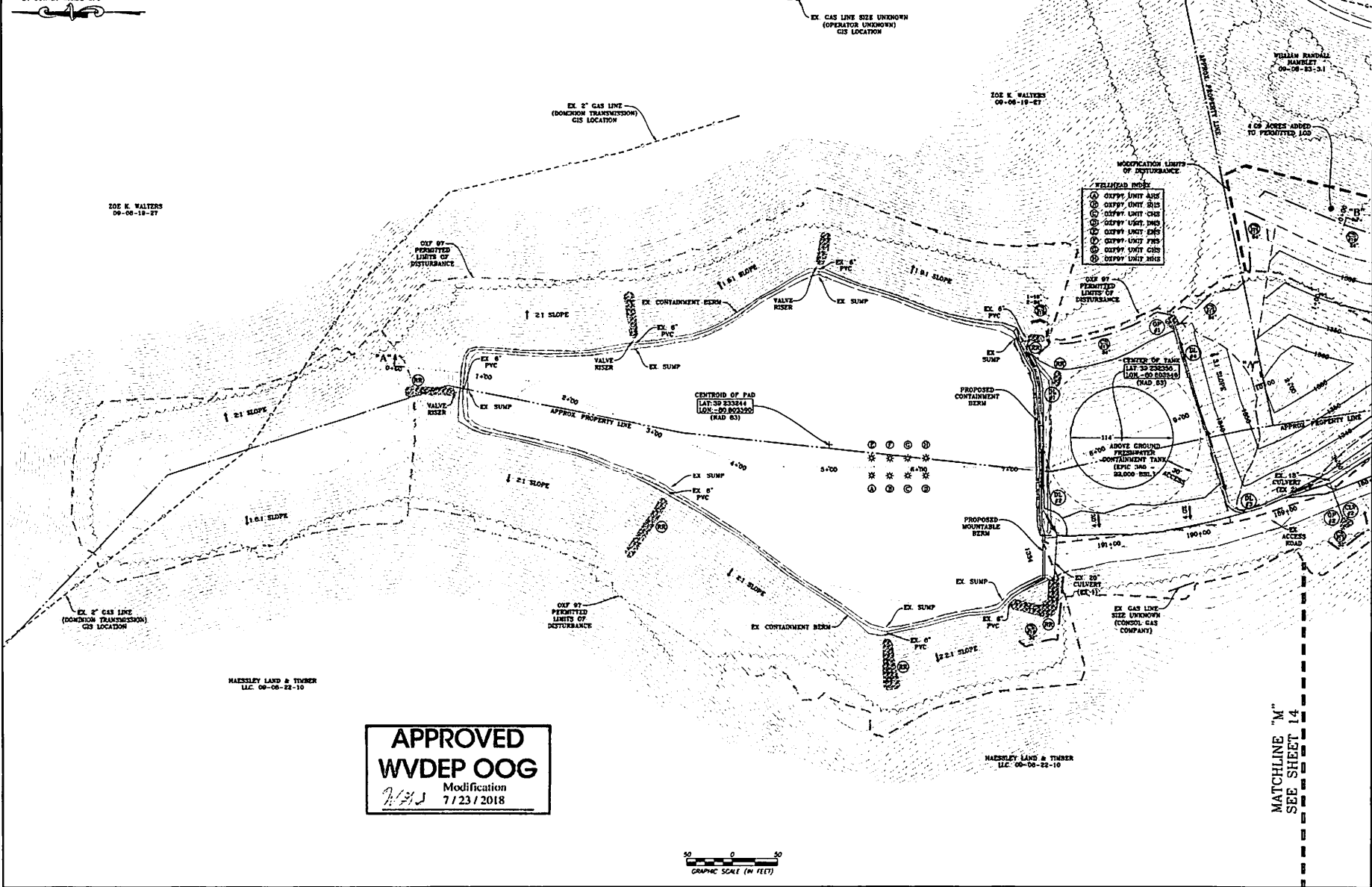
OXFORD 97
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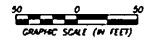
DATE: 02/14/2018
 SCALE: 1" = 50'
 SHEET 8 OF 38

CSD NORTH AND ELEVATIONS
SHOWN HEREON WERE ESTABLISHED
BY SURVEY GRADE CFS

WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN



**APPROVED
WVDEP OOG**
Modification
7/23/2018



MATCHLINE "M"
SEE SHEET 14

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WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN
OXFORD 97
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SOUTHWEST & WEST UNION DISTRICTS
BODDRIDGE COUNTY, WEST VIRGINIA



DATE: 02/14/2018
SCALE: 1" = 50'
SHEET 15 OF 36