



west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://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 DHS  
47-017-06484-00-00

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: OXF97 DHS  
Farm Name: HAESSLY LAND & TIMBER   
U.S. WELL NUMBER: 47-017-06484-00-00  
Horizontal 6A Fracture  
Date Issued: 7/30/2018

Promoting a healthy environment.

08/03/2018

**PERMIT CONDITIONS****4701706484**

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.

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**CONDITIONS**

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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.

# PERMIT CONDITIONS 4701706484

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](mailto:DEPOOGNotify@wv.gov).

WW-6B  
(04/15)

API NO. 47-017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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 Uni Oxford 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: OXF97 DHS 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: 6905' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 6905' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17225' MD

11) Proposed Horizontal Leg Length: 10082'

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

13) Method to Determine Fresh Water Depths: OXF97 DHS (API #47-017-06484)

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: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

DRF  
6/5/18

WW-6B  
(04/15)

API NO. 47- 017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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#	891	891	CTS, 1238 Cu. Ft.
Coal	9-5/8"	New	HCK-55	36#	<del>3000</del> 3003	<del>3000</del> 3003	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	17199	17199	4322 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-HPOZ & 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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6/5/18

WW-6B  
(10/14)

API NO. 47- 017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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 - 17,225'. 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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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.

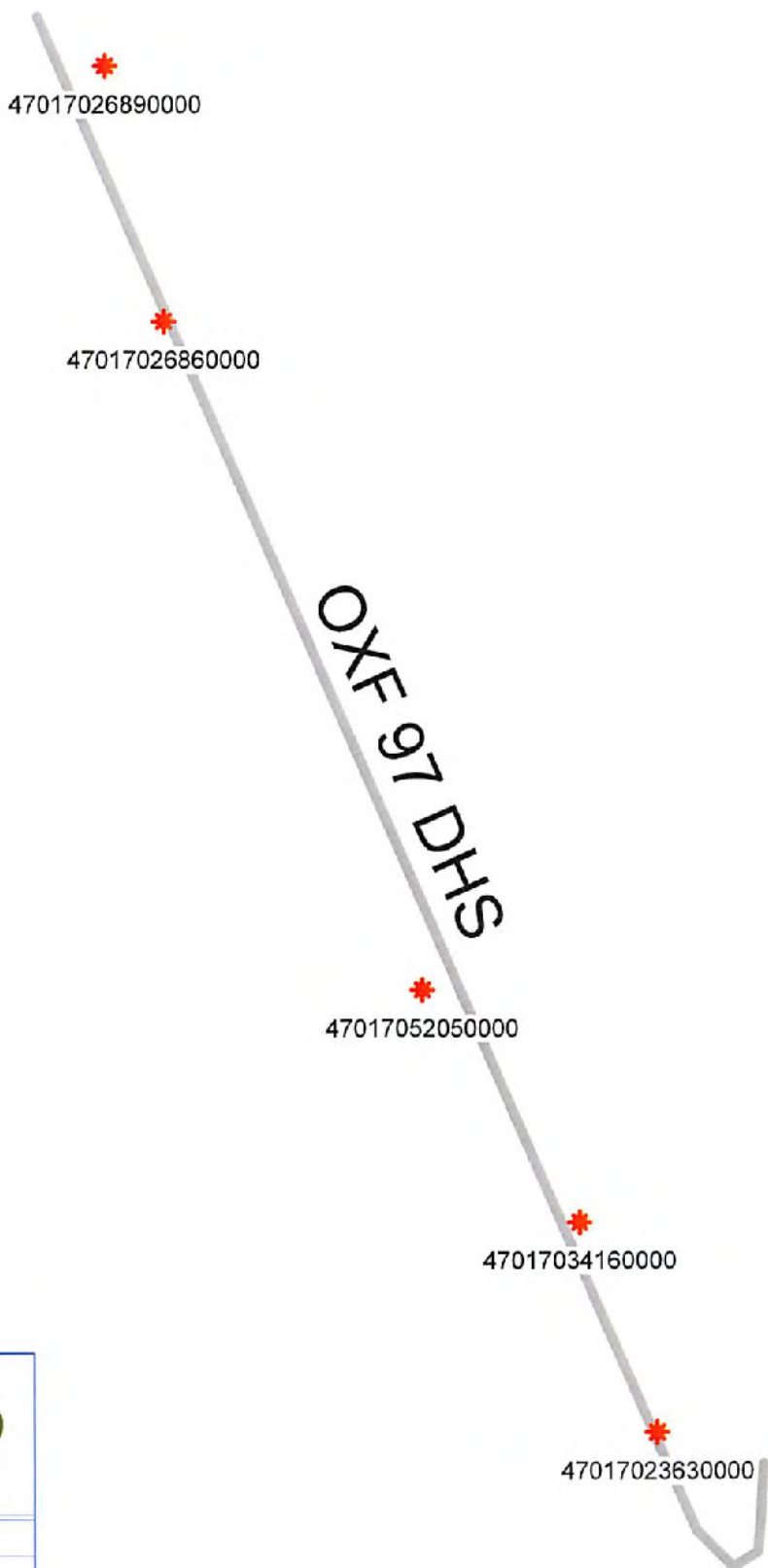
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\*Note: Attach additional sheets as needed.

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6/5/18



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Antero Resources Corporation

OXF 97 DHS - AOR



WELL SYMBOLS  
Gas Well

May 7, 2018

08/03/2018

## OXF97 DHS (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
47017026890000	FOXWORTHY EUGENE	J-278	ENERGY CORP OF AMER	J & J ENTERPRISES	5,477	5298-5329	Alexander	Big Injun, Weir, Balltown, Bradford
47017026860000	FOXWORTHY EUGENE R	J-277	ENERGY CORP OF AMER	J & J ENTERPRISES	5,355	5143-5175	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
47017034160000	POST M K & R A ETAL	1512	CONSOL GAS COMPANY	CNG DEVELOPMENT CO	5,402	5174-5213	Weir, Alexander	Big Injun, Balltown, Bradford
47017023630000	STEWART D C	12571	CONSOL GAS COMPANY	CONSOL GAS SUPPLY CRP	5,394	5221-5249	Big Injun, Gordon, Speechley, Alexander	Weir, Balltown, Bradford

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Rev. 8/23/13

NAME: [Signature]

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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 47-017-06484 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 DHS  
 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 plat 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

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Date permit issued 07/24/2014 Date drilling commenced 12/04/2014 Date drilling ceased 05/09/2015  
 Date completion activities began Not completed Date completion activities ceased na  
 Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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

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

N JAN 17 2017

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Reviewed by: \_\_\_\_\_

08/03/2018

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API 47-017-06484

Farm name Haessly Land & Timber, LLC Well number Oxf 97 DHS

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"	58.6'	New	J-55		
Surface	17.5"	13 3/8"	891.2'	New	J-55		Y
Coal							
Intermediate 1	12.38"	9 5/8"	3003.6'	New	HCK-55		N
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5 1/2"	17,199.4'	New	P-110		N
Tubing							
Packer type and depth set							

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Comment Details \_\_\_\_\_

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CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	WV Department of Environmental Protection	
						Cement Top (MD)	Time (hrs)
Conductor	58.6'	50	16.0	1.56	78	18.6	8
Surface	Type 1 / Class A	763	15.6	1.18	900.34	18.6	8
Coal							
Intermediate 1	Type 1 / Class A	stage (1) 1185	15.6	Stage (1) 1.18	1398.3	18.6	8
Intermediate 2							
Intermediate 3							
Production	Type 1 / Class A	Lead 512 Tail 3280	14.5	lead 1.58 Tail 1.27	Total 4974.56	18.6	8
Tubing							

Drillers TD (ft) 17225'      Loggers TD (ft) 17200'

Deepest formation penetrated Marcellus      Plug back to (ft) \_\_\_\_\_

Plug back procedure \_\_\_\_\_

Kick off depth (ft) 5952'

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.

11 Centralizers on Surface Casing 36 Centralizers on Intermediate String (50w string centralizers on first two joints then every third joint to 100' from surface).

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

WAS WELL COMPLETED AS SHOT HOLE     Yes     No      DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?     Yes     No      DETAILS \_\_\_\_\_

WERE TRACERS USED     Yes     No      TYPE OF TRACER(S) USED \_\_\_\_\_

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API 47-017 - 06484

Farm name Haessly Land & Timber, LLC

Well number Oxf 97 DHS

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	well not complete				

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Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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

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Please insert additional pages as applicable.

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API 47- 017 . 06484 Farm name Haessly Land & Timber, LLC Well number Oxf 97 DHS

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		

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Please insert additional pages as applicable.

Drilling Contractor Whipstock 23 Top Hole & Precision 543 Horizontal Rig  
Address 13646 Route 403 Hwy N / 5400D Big Tyler Rd City Clymer / Charleston State PAWV Zip 15728-7815 / 25313

Logging Company Baker Hughes  
Address 400 Technology Drive City Canonsburg State PA Zip 15317

Cementing Company Schlumberger  
Address 4600 J. Barry Ct., Suite 200 City Canonsburg State PA Zip 15317

Stimulating Company \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by Dee Swiger Telephone 724-820-15317  
Signature *Dee Swiger* Title Regulatory Analyst, III Date 01/09/2017

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

4701706484

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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# NOBLE ENERGY

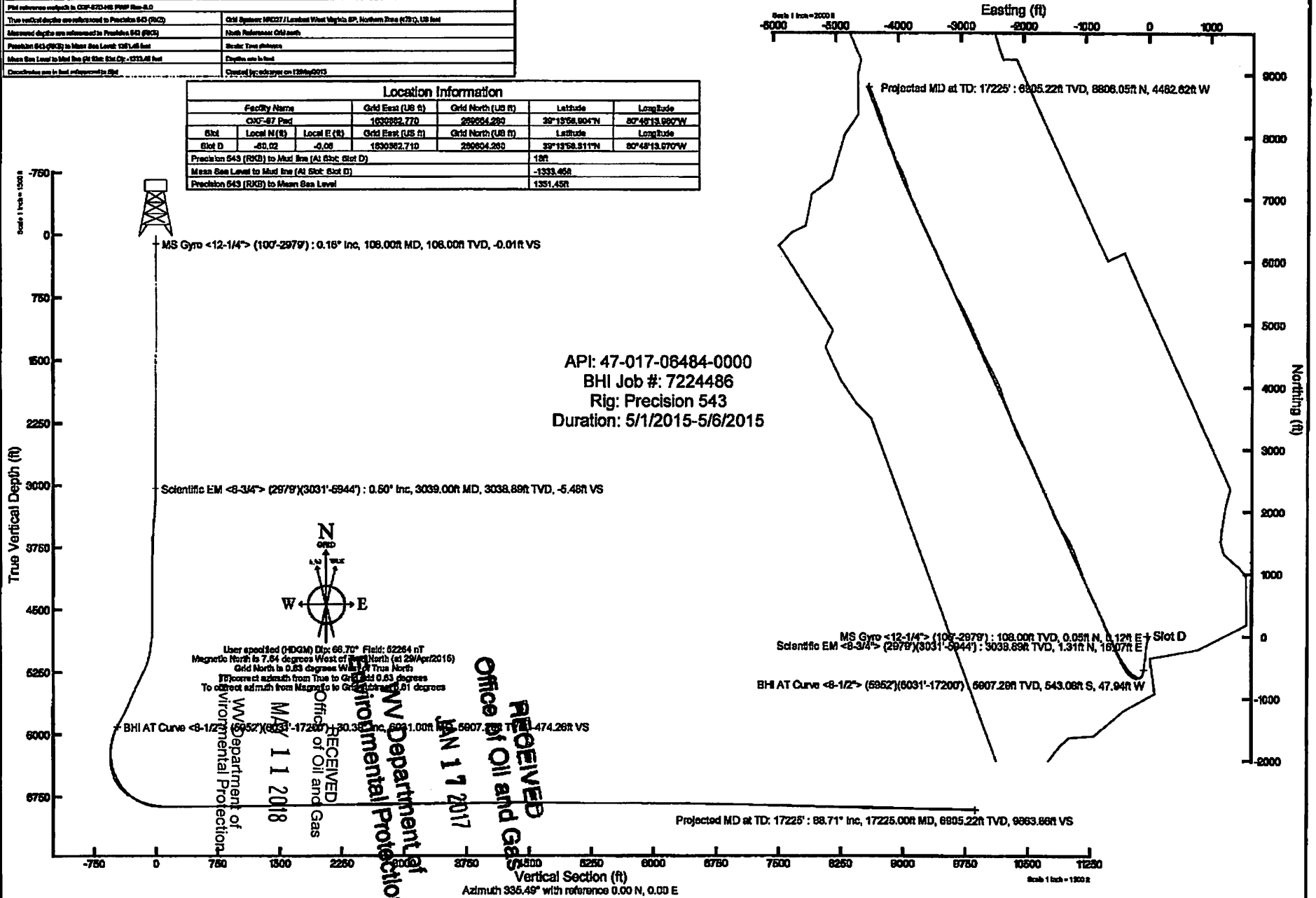


Location: Doddridge Co., WV  
 Field: Doddridge  
 Facility: OXF-97 Pad

Slot: Slot D  
 Well: OXF-97D-HS  
 Wellbore: OXF-97D-HS PWB

Plot reference wellpath is OXF-97D-HS PWB Slot-D	Old Survey: NDC27 / Local West Mights, SP, Northern Zone (727), US Nat
This vertical depth was referenced to Precision 543 (RKB)	North Reference: Old south
Measured depths are referenced to Precision 543 (RKB)	Scale: True meters
Precision 543 (RKB) to Mean Sea Level: 1351.46 ft	Depth unit is feet
Mean Sea Level to Mud line (At Slot: Slot D): -1333.48 ft	Created by: edwray on 12/04/2013
Mean Sea Level to Mud line (At Slot: Slot D)	
Created by: edwray on 12/04/2013	

Location Information					
Facility Name		Grid East (UB ft)	Grid North (UB ft)	Latitude	Longitude
OXF-97 Pad		1630262.770	290604.260	39°13'58.904"N	80°48'13.907"W
Slot	Local N (ft)	Local E (ft)	Grid East (UB ft)	Grid North (UB ft)	Latitude
Slot D	-60.02	-0.06	1630302.710	290604.200	39°13'58.811"N
Precision 543 (RKB) to Mud line (At Slot: Slot D)				18ft	
Mean Sea Level to Mud line (At Slot: Slot D)				-1333.48ft	
Precision 543 (RKB) to Mean Sea Level				1351.46ft	



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4701706484



# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'  
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### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot D
Area	Doddridge Co., WV	Well	OXF-97D-HS
Field	Doddridge	Wellbore	OXF-97D-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	12/May/2015 at 16:51
Convergence at slot	0.83° West	Database/Source file	WellArchitectEasternDB/OXF-97D-HS_AWB.xml

### WELLPATH LOCATION

Slot Location	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Facility Reference Pt	-60.02	-0.06	1630662.71	269604.26	39°13'58.311"N	80°48'13.970"W
Field Reference Pt			1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W
			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	1351.45ft
Horizontal Reference Pt	Slot	Precision 543 (RKB) to Mean Sea Level	1351.45ft
Vertical Reference Pt	Precision 543 (RKB)	Precision 543 (RKB) to Mud Line at Slot (Slot D)	18.00ft
Section Origin	Precision 543 (RKB)	Section Azimuth	N 0.00, E 0.00 ft
Section Azimuth	Mean Sea Level		335.49°

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12/May/2015



# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'

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## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (228 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	69.010	0.00	0.00	0.00	0.00	1630662.71	269604.26	39°13'58.311"N	80°48'13.970"W	0.00	0.000	0.00	0.00	0.00
18.00	0.000	69.010	18.00	0.00	0.00	0.00	1630662.71	269604.26	39°13'58.311"N	80°48'13.970"W	0.00	0.000	0.00	0.00	0.00
108.00	0.160	69.010	108.00	-0.01	0.05	0.12	1630662.83	269604.31	39°13'58.311"N	80°48'13.969"W	0.13	69.010	0.18	0.18	0.00
208.00	0.090	345.770	208.00	0.06	0.17	0.23	1630662.94	269604.43	39°13'58.312"N	80°48'13.967"W	0.29	53.150	0.17	-0.07	-83.24
308.00	0.130	178.340	308.00	0.10	0.17	0.12	1630663.04	269604.44	39°13'58.312"N	80°48'13.967"W	0.31	36.929	0.19	0.19	15.25
408.00	0.440	147.640	408.00	-0.32	-0.23	0.25	1630662.96	269604.03	39°13'58.308"N	80°48'13.967"W	0.34	133.019	0.43	0.31	-78.70
508.00	0.450	99.100	508.00	-0.91	-0.62	0.84	1630663.55	269603.64	39°13'58.305"N	80°48'13.959"W	1.05	126.317	0.37	0.01	-48.54
608.00	0.420	36.420	607.99	-0.95	-0.39	1.45	1630664.16	269603.87	39°13'58.307"N	80°48'13.952"W	1.50	104.965	0.45	-0.03	-62.68
708.00	0.550	12.210	707.99	-0.39	0.38	1.77	1630664.48	269604.64	39°13'58.315"N	80°48'13.948"W	1.81	77.973	0.24	0.13	-24.21
808.00	0.240	32.610	807.99	0.21	1.00	1.90	1630664.74	269605.36	39°13'58.326"N	80°48'13.945"W	2.19	55.957	0.28	0.25	5.25
908.00	0.230	82.610	907.99	0.54	1.52	2.03	1630664.74	269605.78	39°13'58.326"N	80°48'13.945"W	2.54	53.256	0.13	-0.06	26.32
1008.00	0.590	85.490	1007.98	0.47	1.73	2.65	1630665.36	269605.99	39°13'58.328"N	80°48'13.937"W	3.17	56.946	0.49	0.36	52.88
1108.00	0.690	72.160	1107.98	0.22	1.95	3.74	1630666.45	269606.21	39°13'58.330"N	80°48'13.923"W	4.22	62.440	0.18	0.10	-13.33
1208.00	0.790	57.130	1207.97	0.25	2.51	4.89	1630667.60	269606.77	39°13'58.336"N	80°48'13.908"W	5.50	62.835	0.22	0.10	-15.03
1308.00	0.780	43.630	1307.96	0.47	3.27	6.05	1630667.74	269607.23	39°13'58.336"N	80°48'13.908"W	6.96	51.329	0.03	-0.01	-1.71
1408.00	0.770	47.150	1407.95	0.80	4.11	7.09	1630669.80	269608.37	39°13'58.352"N	80°48'13.881"W	8.19	59.856	0.11	-0.01	-8.27
1508.00	0.730	43.600	1507.95	1.16	4.84	7.84	1630670.55	269609.10	39°13'58.360"N	80°48'13.871"W	9.21	58.283	0.34	-0.34	-3.55
1608.00	0.700	97.700	1607.94	1.12	5.07	8.42	1630671.13	269609.33	39°13'58.362"N	80°48'13.864"W	9.83	58.924	0.37	-0.06	54.10
1708.00	0.630	105.520	1707.94	0.54	4.86	9.35	1630672.06	269609.12	39°13'58.360"N	80°48'13.852"W	10.54	62.543	0.37	0.36	7.82
1808.00	0.570	111.540	1807.93	0.41	4.41	10.07	1630672.44	269609.51	39°13'58.358"N	80°48'13.852"W	11.36	62.548	0.19	0.14	0.66
1908.00	0.420	109.720	1907.92	-1.46	3.89	12.05	1630674.76	269608.15	39°13'58.351"N	80°48'13.818"W	12.66	72.113	0.06	-0.05	-1.82
2008.00	0.360	89.610	2007.91	-2.16	3.65	13.21	1630675.92	269607.91	39°13'58.349"N	80°48'13.803"W	13.71	74.553	0.35	-0.26	-20.11
2108.00	0.260	71.920	2107.91	-2.38	3.72	13.92	1630676.63	269607.98	39°13'58.349"N	80°48'13.794"W	14.41	75.016	0.32	-0.30	-17.69
2208.00	0.210	80.460	2207.91	-2.46	3.83	14.31	1630677.02	269608.09	39°13'58.350"N	80°48'13.789"W	14.81	75.036	0.06	-0.05	8.54
2308.00	0.130	143.250	2307.91	-4.00	3.77	14.53	1630677.54	269607.64	39°13'58.346"N	80°48'13.782"W	15.21	77.164	0.31	0.31	-3.72
2408.00	0.400	158.880	2407.90	-3.79	2.75	15.18	1630677.89	269607.01	39°13'58.340"N	80°48'13.778"W	15.43	79.721	0.12	-0.03	15.63
2508.00	0.370	140.330	2507.90	-4.45	2.18	15.51	1630678.22	269606.44	39°13'58.334"N	80°48'13.773"W	15.67	82.005	0.13	-0.03	-18.55
2608.00	0.380	108.560	2607.90	-4.99	1.82	16.03	1630678.74	269606.08	39°13'58.331"N	80°48'13.767"W	16.14	83.507	0.21	0.01	-31.77

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Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'



REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (228 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]
2908.00	0.090	240.140	2907.90	-5.26	1.74	16.50	1630679.21	269606.00	39°13'58.330"N	80°48'13.761"W	16.59	83.979	0.22	-0.04	165.45
2987.00	0.560	202.800	2986.90	-5.53	1.35	16.30	1630679.01	269605.61	39°13'58.326"N	80°48'13.763"W	16.35	85.252	0.62	0.59	-47.27
3039.00	0.500	326.430	3038.89	-5.48	1.31	16.07	1630678.78	269605.57	39°13'58.326"N	80°48'13.766"W	16.13	85.347	1.80	-0.12	237.75
3070.00	0.270	69.140	3069.89	-5.35	1.45	16.07	1630678.78	269605.71	39°13'58.327"N	80°48'13.766"W	16.13	84.854	1.99	-0.74	331.32
3100.00	0.390	114.420	3119.89	-5.44	1.44	16.30	1630679.01	269605.76	39°13'58.327"N	80°48'13.764"W	16.43	84.951	0.54	0.10	150.37
3130.00	1.280	159.630	3129.89	-5.81	1.09	16.39	1630679.10	269605.35	39°13'58.324"N	80°48'13.762"W	16.43	86.185	3.63	3.27	150.67
3160.00	2.310	158.040	3159.88	-6.74	0.22	16.73	1630679.44	269604.48	39°13'58.315"N	80°48'13.757"W	16.74	89.253	3.44	3.43	-5.30
3190.00	3.330	151.380	3189.84	-8.22	-1.11	17.38	1630680.09	269603.15	39°13'58.302"N	80°48'13.749"W	17.41	93.647	3.57	3.40	-22.20
3221.00	3.640	153.730	3220.78	-10.10	-2.78	18.24	1630680.95	269601.48	39°13'58.286"N	80°48'13.738"W	18.46	98.665	1.10	1.00	7.58
3251.00	3.940	152.880	3250.77	-12.07	-4.56	18.41	1630681.84	269599.77	39°13'58.270"N	80°48'13.729"W	18.61	105.367	0.57	0.90	-2.04
3281.00	3.710	150.800	3280.65	-14.06	-6.30	20.07	1630682.78	269597.96	39°13'58.251"N	80°48'13.714"W	21.04	107.431	0.81	-0.67	-6.93
3311.00	4.000	155.090	3310.58	-16.07	-8.10	20.99	1630683.70	269596.16	39°13'58.234"N	80°48'13.702"W	22.49	111.101	1.36	0.97	14.30
3341.00	4.490	150.320	3340.50	-18.29	-10.07	22.01	1630684.72	269594.19	39°13'58.214"N	80°48'13.689"W	24.20	114.582	2.01	1.63	-15.90
3372.00	4.540	152.080	3371.40	-20.72	-12.21	23.18	1630685.89	269592.05	39°13'58.193"N	80°48'13.673"W	26.20	117.766	0.48	0.16	5.68
3403.00	4.530	153.180	3401.51	-23.12	-14.24	24.29	1630687.07	269589.52	39°13'58.170"N	80°48'13.659"W	28.30	121.357	0.62	0.20	1.00
3433.00	4.640	149.870	3431.21	-25.54	-16.47	25.44	1630688.15	269587.80	39°13'58.151"N	80°48'13.644"W	30.31	122.910	0.89	0.03	-10.97
3463.00	4.640	148.300	3461.11	-27.95	-18.55	26.69	1630689.40	269585.71	39°13'58.131"N	80°48'13.628"W	32.50	124.797	0.42	0.00	-5.23
3493.00	4.370	147.550	3491.02	-30.28	-20.54	27.94	1630690.65	269583.72	39°13'58.112"N	80°48'13.611"W	34.68	126.327	0.92	-0.90	-2.50
3523.00	4.690	147.860	3521.94	-32.44	-22.38	29.11	1630691.82	269581.88	39°13'58.093"N	80°48'13.596"W	36.72	127.561	2.19	-2.19	0.35
3553.00	4.880	147.190	3551.89	-34.15	-25.84	30.29	1630692.77	269579.70	39°13'58.074"N	80°48'13.584"W	38.74	129.432	2.20	0.59	1.53
3583.00	4.640	146.030	3581.86	-35.58	-25.12	30.69	1630693.40	269579.15	39°13'58.067"N	80°48'13.575"W	39.66	129.296	1.63	-0.80	29.67
3613.00	4.570	145.780	3611.83	-36.95	-26.35	31.27	1630693.98	269577.91	39°13'58.055"N	80°48'13.568"W	40.89	130.123	0.68	-0.23	-14.17
3643.00	4.250	145.220	3641.80	-38.20	-27.45	31.88	1630694.58	269576.81	39°13'58.044"N	80°48'13.560"W	42.07	130.738	1.18	-1.07	-11.87
3673.00	4.350	145.170	3675.78	-39.27	-28.37	32.42	1630695.12	269575.89	39°13'58.035"N	80°48'13.553"W	43.08	131.196	2.65	-2.65	2.79
3703.00	4.100	144.630	3706.77	-40.95	-29.72	33.34	1630696.25	269574.35	39°13'58.027"N	80°48'13.538"W	44.81	131.328	0.77	0.36	33.97
3733.00	0.690	152.530	3857.76	-42.12	-30.61	34.39	1630697.10	269573.65	39°13'58.013"N	80°48'13.527"W	46.04	131.673	0.48	-0.24	30.66
3763.00	0.470	154.870	3947.75	-43.03	-31.43	34.80	1630697.51	269572.83	39°13'58.005"N	80°48'13.522"W	46.89	132.086	0.25	-0.24	2.60
4040.00	0.140	101.520	4038.75	-43.47	-31.79	35.07	1630697.77	269572.47	39°13'58.001"N	80°48'13.519"W	47.33	132.193	0.44	-0.36	-58.63
4131.00	0.480	246.680	4129.75	-43.53	-31.96	34.82	1630697.53	269572.30	39°13'58.000"N	80°48'13.522"W	47.27	132.544	0.66	0.37	159.52
4222.00	0.000	0.000	4222.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'

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

WELLPATH DATA (228 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]
4312.00	1.180	260.030	4310.72	-42.82	-32.58	31.76	1630694.46	269571.68	39°13'57.993"N	80°48'13.561"W	45.50	135.734	0.02	0.02	-0.30
4403.00	1.030	247.930	4401.71	-42.55	-33.05	30.07	1630692.78	269571.21	39°13'57.988"N	80°48'13.582"W	44.69	137.698	0.30	-0.16	-13.30
4495.00	0.120	102.080	4493.70	-42.57	-33.38	29.40	1630692.11	269570.88	39°13'57.985"N	80°48'13.590"W	44.48	138.625	1.23	-0.99	-158.53
4586.00	0.870	56.660	4584.70	-42.52	-33.02	30.07	1630692.78	269571.24	39°13'57.989"N	80°48'13.582"W	44.66	137.675	0.87	0.82	-49.91
4677.00	2.610	202.760	4705.67	-43.90	-34.61	29.93	1630692.63	269569.65	39°13'57.973"N	80°48'13.583"W	45.75	139.151	4.25	4.23	12.53
4740.00	4.160	195.470	4738.61	-45.33	-36.46	29.32	1630692.02	269567.81	39°13'57.954"N	80°48'13.591"W	46.78	141.196	4.87	4.70	-22.09
4770.00	5.360	201.050	4768.51	-47.15	-38.81	28.52	1630691.23	269565.45	39°13'57.931"N	80°48'13.600"W	48.17	143.689	4.28	4.00	18.60
4801.00	5.990	198.930	4799.36	-49.34	-41.69	27.48	1630690.19	269562.57	39°13'57.902"N	80°48'13.613"W	49.93	146.614	2.14	2.03	-6.84
4892.00	7.210	191.520	4890.30	-51.19	-44.60	24.69	1630687.38	269554.86	39°13'57.848"N	80°48'13.647"W	51.23	151.478	5.30	5.19	1.07
4923.00	11.130	202.460	4919.86	-62.53	-59.25	20.79	1630683.50	269545.01	39°13'57.728"N	80°48'13.695"W	62.79	160.667	3.25	3.20	3.18
4983.00	13.070	201.370	4978.52	-71.21	-70.92	16.10	1630678.81	269533.34	39°13'57.612"N	80°48'13.752"W	72.73	167.208	3.26	3.23	-1.82
5014.00	14.730	201.400	5008.61	-76.39	-77.86	13.39	1630676.10	269526.41	39°13'57.543"N	80°48'13.786"W	79.00	170.244	5.35	5.35	0.10
5044.00	15.870	200.360	5037.55	-81.95	-85.25	10.57	1630673.28	269519.01	39°13'57.470"N	80°48'13.820"W	85.90	172.934	3.91	3.80	-3.47
5074.00	17.900	197.370	5066.21	-88.28	-90.19	7.33	1630670.40	269511.77	39°13'57.394"N	80°48'13.854"W	93.81	175.267	1.35	1.33	-0.97
5105.00	19.930	193.800	5095.58	-95.96	-103.16	5.03	1630667.74	269501.10	39°13'57.292"N	80°48'13.887"W	103.29	177.206	7.69	6.55	-12.48
5135.00	21.720	191.650	5123.62	-104.45	-113.57	2.69	1630665.40	269490.70	39°13'57.189"N	80°48'13.915"W	113.60	178.641	6.49	5.97	-7.17
5165.00	23.600	188.840	5151.30	-113.95	-124.94	0.65	1630663.36	269479.33	39°13'57.076"N	80°48'13.939"W	124.94	179.702	7.23	6.27	-9.37
5196.00	26.190	186.630	5179.42	-124.99	-137.87	-1.09	1630661.62	269466.40	39°13'56.948"N	80°48'13.959"W	137.87	180.455	8.88	8.35	-7.13
5226.00	27.870	184.420	5207.54	-136.09	-151.41	-2.71	1630659.02	269452.86	39°13'56.819"N	80°48'13.979"W	151.20	181.027	5.82	5.81	1.01
5256.00	29.800	182.700	5232.52	-148.77	-165.57	-4.53	1630658.18	269438.69	39°13'56.674"N	80°48'13.997"W	165.63	181.568	3.99	3.77	2.77
5287.00	29.520	180.780	5259.61	-161.52	-180.51	-6.57	1630656.14	269423.75	39°13'56.526"N	80°48'14.020"W	180.63	182.085	0.71	0.71	0.06
5317.00	30.030	186.010	5285.69	-174.18	-195.23	-8.36	1630654.35	269409.03	39°13'56.380"N	80°48'14.040"W	195.41	182.451	3.90	2.70	-5.70
5377.00	29.650	188.650	5333.71	-200.06	-222.06	-11.16	1630651.55	269379.31	39°13'56.086"N	80°48'14.070"W	225.23	182.840	1.31	-0.63	-2.30
5438.00	28.830	187.420	5390.23	-205.36	-224.74	-13.05	1630649.80	269349.59	39°13'55.917"N	80°48'14.090"W	249.07	183.078	2.15	-1.18	-0.52
5498.00	28.120	187.570	5443.63	-211.90	-283.36	-14.29	1630648.42	269320.91	39°13'55.508"N	80°48'14.099"W	283.72	182.887	1.35	-1.35	0.15
5529.00	28.180	182.300	5470.98	-264.88	-297.80	-15.04	1630647.67	269306.31	39°13'55.364"N	80°48'14.106"W	298.35	182.890	1.13	0.19	2.35
5559.00	27.620	184.400	5497.58	-277.29	-311.98	-16.86	1630646.85	269292.29	39°13'55.225"N	80°48'14.114"W	312.38	182.910	1.87	-1.87	0.33
5589.00	27.270	180.260	5524.12	-289.46	-325.77	-17.78	1630645.93	269278.50	39°13'55.089"N	80°48'14.123"W	326.21	182.949	1.76	-1.17	2.87

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 Division of Oil and Gas  
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12/May/2015











# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'

Page 9 of 11



## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (228 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]
15789.00	88.800	333.770	6875.86	8432.97	7465.50	-3953.69	1626709.17	277069.48	39°15'11.520"N	80°49'05.601"W	8447.80	332.095	4.89	0.10	-4.89
15878.00	88.830	332.750	6877.70	8521.88	7544.96	-3993.73	1626669.13	277148.94	39°15'12.300"N	80°49'06.125"W	8536.76	332.107	1.15	0.03	-1.15
15968.00	88.830	334.850	6879.54	8611.82	7625.70	-4033.45	1626629.41	277229.67	39°15'13.092"N	80°49'06.645"W	8626.70	332.124	2.33	0.00	2.33
16058.00	88.890	340.770	6881.33	8701.69	7708.98	-4067.42	1626595.44	277312.94	39°15'13.910"N	80°49'07.092"W	8716.21	332.183	6.58	0.07	6.58
16147.00	88.920	341.990	6883.16	8794.31	7792.41	-4096.29	1626560.00	277396.31	39°15'14.722"N	80°49'07.485"W	8804.22	332.268	9.25	0.15	9.25
16237.00	89.020	339.320	6884.50	8880.02	7877.48	-4127.71	1626535.16	277481.45	39°15'15.566"N	80°49'07.890"W	8893.41	332.346	1.41	0.00	-1.41
16326.00	89.010	337.860	6886.03	8968.88	7960.33	-4160.19	1626502.68	277564.29	39°15'16.380"N	80°49'08.318"W	8981.87	332.408	1.64	-0.01	-1.64
16416.00	89.110	342.900	6887.50	9058.51	8045.06	-4190.40	1626472.47	277649.02	39°15'17.213"N	80°49'08.718"W	9070.97	332.487	5.60	0.11	5.60
16505.00	89.080	343.670	6888.91	9146.67	8130.29	-4215.99	1626446.88	277734.24	39°15'18.052"N	80°49'09.059"W	9158.40	332.591	0.87	-0.03	0.87
16595.00	89.150	342.490	6890.34	9235.87	8219.05	-4242.41	1626426.07	277820.35	39°15'18.922"N	80°49'09.448"W	9246.65	332.697	1.31	0.04	1.31
16685.00	88.650	341.290	6892.19	9325.29	8301.91	-4270.15	1626392.72	277905.85	39°15'19.740"N	80°49'09.780"W	9335.73	332.781	1.41	-0.44	-1.33
16774.00	88.580	341.460	6894.34	9413.80	8386.22	-4298.56	1626364.31	277990.16	39°15'20.569"N	80°49'10.157"W	9423.71	332.861	0.21	-0.08	0.19
16864.00	88.670	339.450	6896.50	9503.43	8471.01	-4328.66	1626334.21	278074.94	39°15'21.403"N	80°49'10.555"W	9512.90	332.933	2.23	0.10	-2.23
16953.00	88.550	338.280	6898.66	9592.25	8553.99	-4360.74	1626302.13	278157.93	39°15'22.218"N	80°49'10.978"W	9601.40	332.988	1.32	-0.13	-1.31
17042.00	88.650	339.690	6900.85	9681.12	8637.90	-4392.07	1626270.18	278240.96	39°15'23.021"N	80°49'11.387"W	9690.29	333.061	1.52	0.15	1.52
17132.00	88.550	337.280	6903.03	9770.90	8720.71	-4425.73	1626237.15	278324.64	39°15'23.856"N	80°49'11.836"W	9779.46	333.092	2.61	-0.11	-2.61
17200.00	88.710	336.250	6904.66	9838.86	8783.18	-4452.55	1626210.33	278387.10	39°15'24.470"N	80°49'12.188"W	9847.30	333.118	1.53	0.24	-1.51
17225.00	88.710	336.250	6905.22	9863.86	8806.05	-4462.62	1626200.26	278409.98	39°15'24.695"N	80°49'12.320"W	9872.26	333.126	0.00	0.00	0.00

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# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Doddridge Co., WV	Well	OXF-97D-HS
Field	Doddridge	Wellbore	OXF-97D-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-97D-HS LP Rev-2		6870.00	-154.72	-525.06	1630137.67	269449.55	39°13'56.706"N	80°48'20.613"W	point
OXF-97D-HS BHL Rev-2		6902.00	8762.20	-4590.60	1626072.28	278366.13	39°15'24.243"N	80°49'13.939"W	point
OXF-97D-HS BHL Rev-3		6902.13	8808.74	-4488.50	1626174.38	278412.67	39°15'24.717"N	80°49'12.650"W	point
OXF-97 LL		7198.45	60.02	0.06	1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: OXF-97D-HS AWB Ref Wellpath: OXF-97D-HS AWP Proj: 17225'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	2987.00	Generic gyro - northseeking (Standard)	01 MS Gyro <12-1/4"> (100'-2979')	OXF-97D-HS AWB
2987.00	5952.00	ISCWSA MWD, Rev. 2 (Standard)	02 Scientific EM <8-3/4"> (2979')(3031'-5944')	OXF-97D-HS AWB
5952.00	17200.00	NaviTrak (AT Curve Short Spaced)	03 BHI AT Curve <8-1/2"> (5952')(6031'-17200')	OXF-97D-HS AWB
17200.00	17225.00	Blind Drilling (std)	Projection to bit	OXF-97D-HS AWB

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# Actual Wellpath Report

OXF-97D-HS AWP Proj: 17225'

Page 11 of 11



## REFERENCE WELLPATH IDENTIFICATION

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

## COMMENTS

Wellpath general comments  
 API: 47-017-06484-0000  
 BHI Job #: 7224486  
 Rig: Precision 543  
 Duration: 5/1/2015-5/6/2015  
 MS Gyro <12-1/4"> (100'-2979')  
 Scientific EM <8-3/4"> (2979')(3031'-5944')  
 BHI AT Curve <8-1/2"> (5952')(6031'-17200')  
 Projected MD at TD: 17225'

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WW-9  
(4/16)

API Number 47 - 017 - 06484  
Operator's Well No. OXF97 DHS

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 494507082

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 banded 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 - Dust/Solids 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.

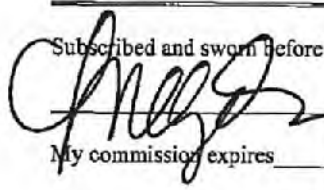
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 Carty, 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



MEGAN GRIFFITH  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20184011866  
MY COMMISSION EXPIRES MARCH 13, 2022

Notary Public  
3/13/2022

08/03/2018

Form WW-9

Operator's Well No. OXF97 DHS

**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: *Jul 9 m*

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

4701706484



**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.

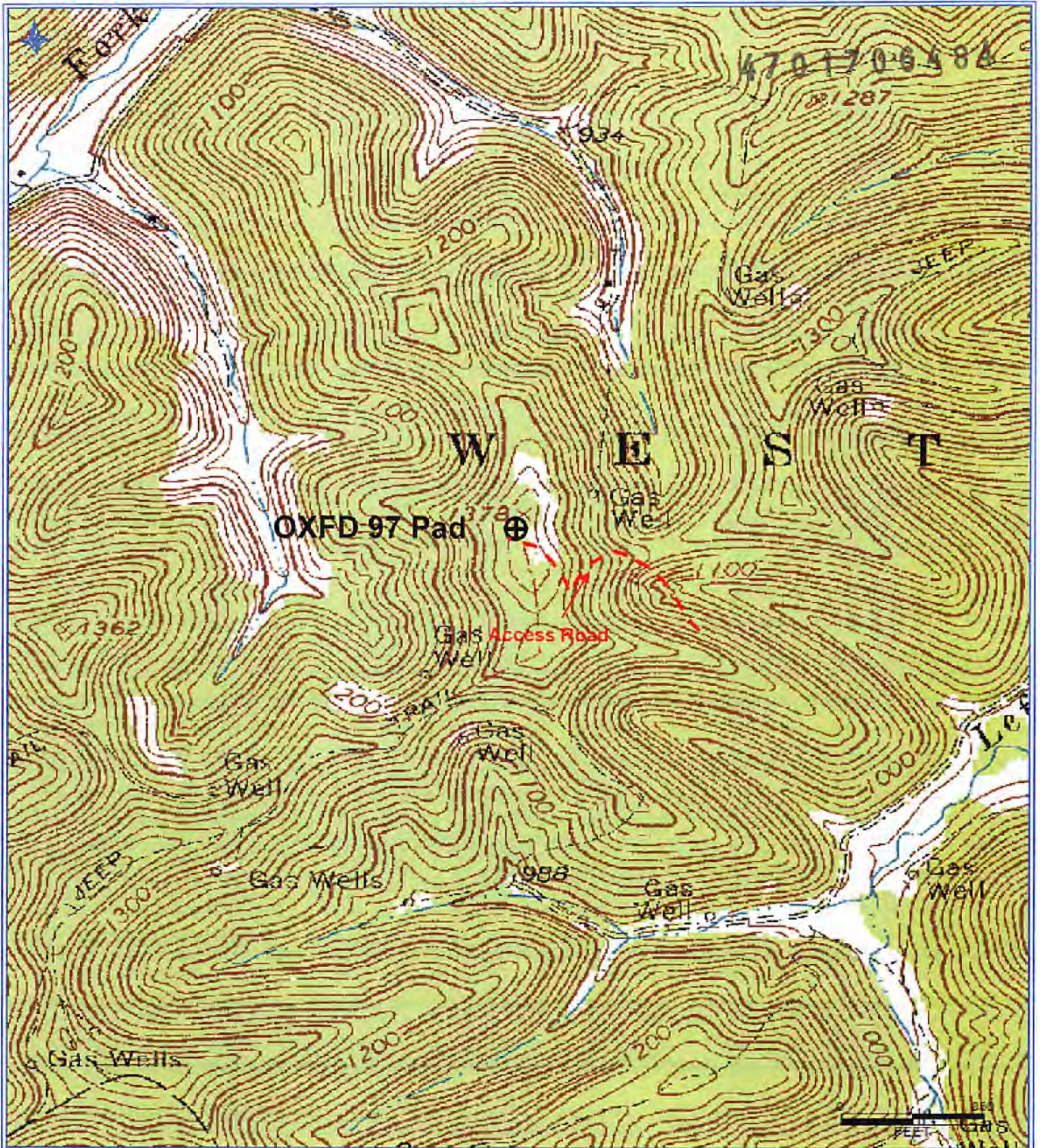
#### **Alternate Route:**

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 1<sup>st</sup> 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**

*John A. ...*  
*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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08/03/2018

SURFACE HOLE DEC. LONG.: 80.803880  
 SURVEYED LONG.: 80° 48' 13.97" E  
 3,460'

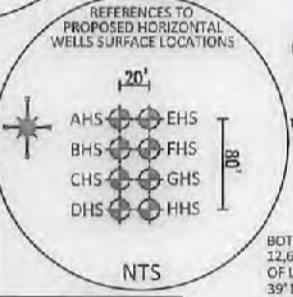
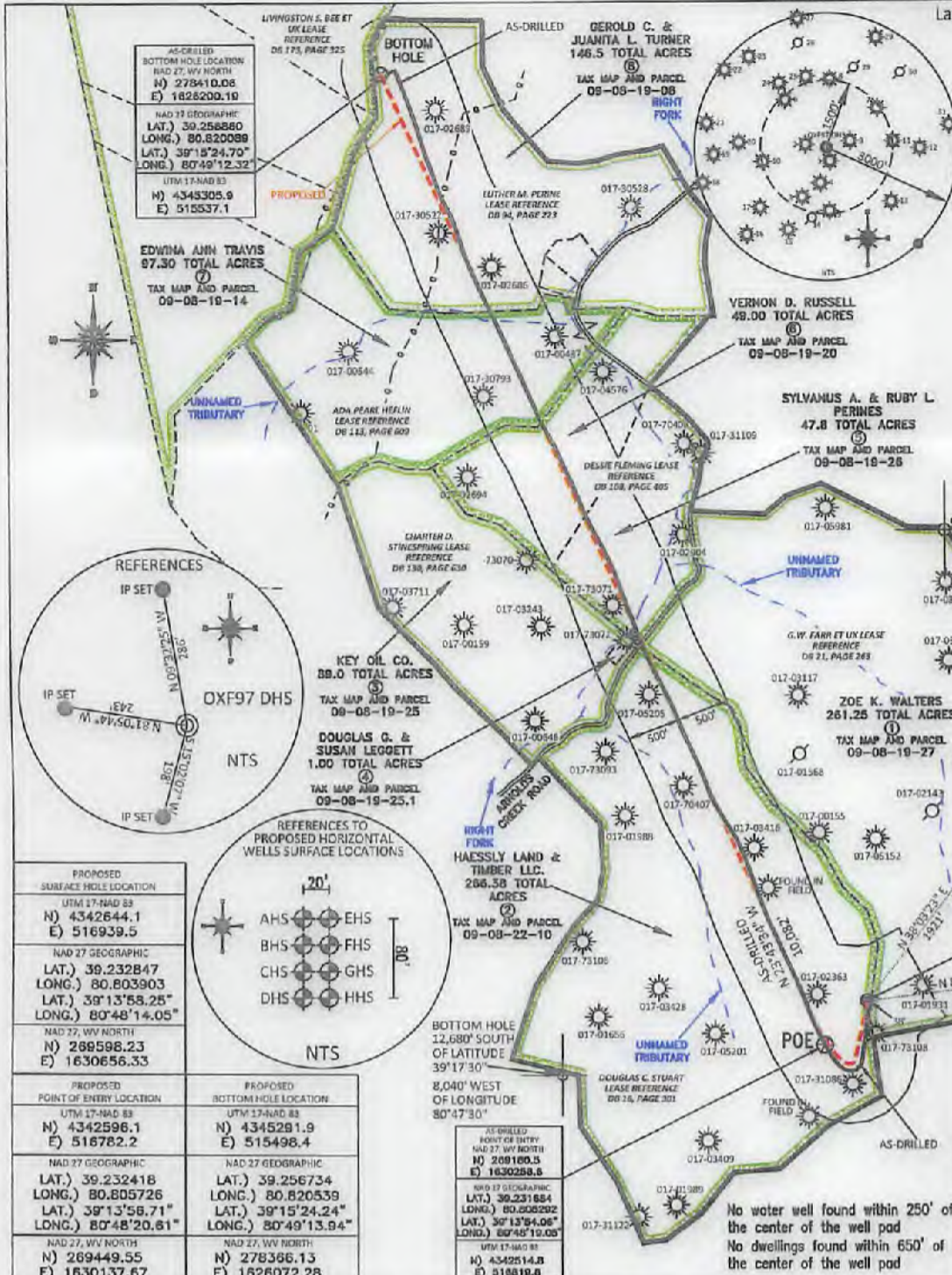
Latitude: 39° 15' 00" (NAD 27)

WELL REFERENCE (API#, DISTANCE TO WELL HEAD)

1. 017-73108 - S 14° 46' 53" E 316'
2. 017-02363 - N 82° 01' 08" W 478'
3. 017-01931 - N 74° 39' 54" E 556'
4. 017-31086 - S 09° 52' 38" W 807'
5. FOUND IN FIELD - S 26° 38' 50" W 1235'
6. FOUND IN FIELD - N 41° 26' 44" W 1424'
7. 017-03458 - N 52° 45' 08" E 1451'
8. 017-05152 - N 03° 14' 30" E 1529'
9. 017-03955 - S 02° 34' 32" E 1424'
10. 017-05701 - S 77° 56' 19" W 1481'
11. 017-05938 - N 84° 37' 54" E 1516'
12. 017-73086
13. 017-03701
14. 017-00085
15. 017-73107
16. 017-01989
17. 017-03409
18. 017-05144
19. 017-01656
20. 017-03428
21. 017-73106
22. 017-01988
23. 017-70407
24. 017-03416
25. 017-00155
26. 017-01568
27. 017-08117
28. 017-02143
29. 017-03650
30. 017-00033
31. 017-04017

Longitude: 80° 47' 30" (NAD 27)

SURFACE HOLE DEC. LAT.: 39° 13' 58.31"  
 SURVEYED LAT.: 39° 13' 58.31"



PROPOSED SURFACE HOLE LOCATION	
UTM 17-NAD 83	UTM 17-NAD 83
N) 4342644.1	N) 4345291.9
E) 516939.5	E) 515498.4
NAD 27 GEOGRAPHIC	
LAT.) 39.232847	LAT.) 39.256734
LONG.) 80.803903	LONG.) 80.820539
LAT.) 39° 13' 58.25"	LAT.) 39° 15' 24.24"
LONG.) 80° 48' 14.05"	LONG.) 80° 49' 13.94"
NAD 27, WV NORTH	
N) 289598.23	N) 278366.13
E) 1630656.33	E) 1628072.28
PROPOSED POINT OF ENTRY LOCATION	
UTM 17-NAD 83	UTM 17-NAD 83
N) 4342596.1	N) 268100.5
E) 516782.2	E) 1630298.8
NAD 27 GEOGRAPHIC	
LAT.) 39.232418	LAT.) 39.231684
LONG.) 80.805726	LONG.) 80.805892
LAT.) 39° 13' 58.71"	LAT.) 39° 13' 54.06"
LONG.) 80° 48' 20.61"	LONG.) 80° 48' 19.00"
NAD 27, WV NORTH	
N) 289449.55	N) 4342514.8
E) 1630137.67	E) 518819.8

AS-DRILLED SURFACE HOLE LOCATION  
 NAD 27, WV NORTH  
 N) 268603.92  
 E) 1630682.88  
 NAD 27 GEOGRAPHIC  
 LAT.) 39.232843  
 LONG.) 80.803880  
 LAT.) 39° 13' 58.31"  
 LONG.) 80° 48' 13.97"  
 UTM 17-NAD 83  
 N) 4342645.9  
 E) 516941.5

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 #: 2346  
 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: *[Signature]*  
 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

WATERSHED: HEADWATERS MIDDLE ISLAND CREEK  
 COUNTY/DISTRICT: DODDRIDGE / WEST UNION  
 SURFACE OWNER: HAESSLY LAND & TIMBER LLC.  
 OIL & GAS ROYALTY OWNER: G.W. FARR et al., DOUGLAS G. STUART, CHARTER D. STINESPRING, DESSIE FLEMING, ADA PEARL HEFLIN, LUTHER M. PERINE  
 LEASE NUMBERS: \_\_\_\_\_

DATE: February 14, 2018  
 OPERATOR'S WELL #: OXF97 DHS  
 API WELL #: 47 17 06484  
 STATE COUNTY PERMIT

AS-BUILT  
 ELEVATION: 1,333'

QUADRANGLE: (SHL) OXFORD WV. (BHL) WEST UNION WV.  
 ACREAGE: 266.38 +/-

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  
 WELL OPERATOR: ANTERO RESOURCES CORPORATION  
 ADDRESS: 1615 WYNKOOP STREET  
 CITY: DENVER STATE: CO ZIP CODE: 80202

ESTIMATED DEPTH: TVD: 6,905' TMD: 17,225'  
 DESIGNATED AGENT: DIANNA STAMPER - CT CORPORATION SYSTEM  
 ADDRESS: 5400 D BIG TYLER ROAD  
 CITY: CHARLESTON STATE: WV ZIP CODE: 25313

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
<b><u>G.W. Farr, et ux Lease</u></b>			
G.W. Farr, et ux	Hope Natural Gas Company	1/8	0021/0263
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
<b><u>Douglas C. Stuart Lease</u></b>			
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
<b><u>Charter D. Stinespring Lease</u></b>			
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	Exhibit 1
<b><u>Dessie Fleming Lease</u></b>			
Dessie Fleming	Key Oil Company	1/8	0108/0405
Key Oil Company	J&J Enterprises	Assignment	0141/090
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

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WV Department of 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.

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>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

WW-6A1  
(5/13)

Operator's Well No. OXF97 DHS

**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 Corp.	Assignment	0289/0490
	Antero Resources Appalachian Corp.	Antero Resources Corporation	Name Change	046/0523

\*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.

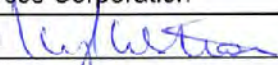
**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

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 DEP, 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

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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

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.wvscs.com](http://www.wvscs.com)

E-mail: [business@wvscs.com](mailto:business@wvscs.com)

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

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

\*\*\*\* 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) 357-7310

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: *Alvyn A. Schopp*

Date: June 10, 2013

*\*Important Legal Notice Regarding Signature:* Per West Virginia Code §31D-1-122. 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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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 57<sup>th</sup> Street SE  
Charleston, WV 25304

RE: OXF97 DHS  
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 DHS 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 DHS 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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08/03/2018

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

Date of Notice Certification: 05/09/2018

API No. 47- 017 - 06484

Operator's Well No. OXF97 DHS

Well Pad Name: Oxford 97 Pad

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>516941.5m</u>
County: <u>Doddridge</u>		Northing: <u>4342645.9m</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 &amp; Timber, LLC</u>	
Watershed: <u>Headwaters Middle Island Creek</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED Office of Oil and Gas</p> <p><input checked="" type="checkbox"/> RECEIVED MAY 11 2018</p>
--	---

**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

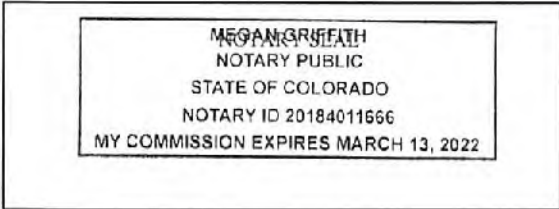
WV Department of  
Environmental Protection

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> <i>[Signature]</i>		<u>Denver, CO 80202</u>
Its:	<u>Senior Vice President - Production</u>	Facsimile:	<u>303-357-7315</u>
Telephone:	<u>303-357-7310</u>	Email:	<u>mstanton@anteroresources.com</u>



Subscribed and sworn before me this 10<sup>th</sup> day of MAY 2018.  
*[Signature]* 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](mailto:depprivacyofficer@wv.gov).

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 MAY 11 2018  
 WV Department of  
 Environmental Protection

08/03/2018

WW-6A  
(9-13)

API NO. 47- 017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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 Sheets Run Road  
Marietta, OH 45750

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

Name: \_\_\_\_\_  
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 - 05484  
OPERATOR WELL NO. OXF97 DHS  
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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.demwv.gov/office-of-oil-and-gas/pages/default.aspx](http://www.demwv.gov/office-of-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 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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 the 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 57<sup>th</sup> 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.**

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Environmental Protection

08/03/2018

WW-6A  
(8-13)

API NO. 47- 017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
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.

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08/03/2018

WW-6A  
(8-13)

API NO. 47- 017 - 06484  
OPERATOR WELL NO. OXF97 DHS  
Well Pad Name: Oxford 97 Pad

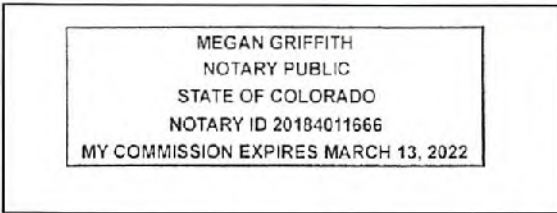
**Notice is hereby given by:**

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

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**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](mailto:depprivacyofficer@wv.gov).



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

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WV Department of  
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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WW-6A4  
(1/12)Operator Well No. OXF97 DHS  
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:** 01/09/2017 **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 Sheets 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>516941.5m</u>
County:	<u>Doddridge</u>		Northing:	<u>4342645.9m</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 &amp; Timber, LLC</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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/REGdefault.aspx](http://www.dep.wv.gov/oil-and-gas/REGdefault.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

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](mailto:depprivacyofficer@wv.gov).

08/03/2018

WW-6A5  
(1/12)

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

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

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

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

**CERTIFIED MAIL**                                       **HAND**  
**RETURN RECEIPT REQUESTED**                                      **DELIVERY**

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

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

(at the address listed in the records of the sheriff at the time of notice):

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

Name: Zoe K. Waters  
 Address: 9407 Scratch Ct.  
Wilmington, NC 28412

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on 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>518941.5m</u>
County:	<u>Doddridge</u>		Northing:	<u>4342645.9m</u>
District:	<u>West Union</u>	Public Road Access:	<u>Waco Rd.</u>	
Quadrangle:	<u>Oxford 7.5'</u>	Generally used farm name:	<u>Haessley Land &amp; Timber, LLC</u>	
Watershed:	<u>Headwaters Middle Island Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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

Address: 1615 Wynkoop Street  
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 Facsimile: 303-357-7315

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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](mailto:depprivacyofficer@wv.gov).

08/03/2018



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 57<sup>th</sup> Street, SE  
 Charleston, WV 25304

Subject: DOH Permit for the OXF97 Pad, Doddridge County  
 OXF97 DHS 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  
 Office of Oil and Gas

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

MAY 11 2018  
 WV Department of  
 Environmental Protection



# List of Anticipated Additives Used for Fracturing or Stimulating Well

4701706484

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	3605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	3605-74-5
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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WV Department of Environmental Protection

SHEET INDEX

- 1 COVER SHEET
2 CONSTRUCTION AND E&S CONTROL NOTES
3 LEGEND
4 MATERIAL QUANTITIES
5 STORM DRAINAGE & E&S CONSIDERATIONS
6 CORROSION SHEET METAL AND VOLUMES
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16 ACCESS ROAD 30' SHOULDER & STOCKPILE PLAN
17 WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN
18 WELL PAD & WATER CONTAINMENT PAD GRADING PLAN
19-22 ACCESS ROAD DETAILS
23-25 WELL PAD & WATER CONTAINMENT PAD SECTIONS
26 WELL PAD WATER CONTAINMENT PAD & STOCKPILE SECTIONS
27-33 CONSTRUCTION DETAILS
34 WELL PAD & WATER CONTAINMENT PAD RECLAMATION PLAN

LOCATION COORDINATES

ADDRESS ROAD ENTRANCE
LATITUDE 39.200508 LONGITUDE -90.702556 (NAD 83)
ACCESS ROAD 1 39.200513 -90.702556 (NAD 83)
CENTER OF PAD
LATITUDE 39.203324 LONGITUDE -90.802090 (NAD 83)



GENERAL DESCRIPTION

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

FLOODPLAIN NOTES

THE SITE IS LOCATED WITHIN FEMA FLOOD ZONE "X" PER FEMA FLOOD MAP #245782C03

MISS UTILITY STATEMENT

ANTERO RESOURCES CORPORATION HAS NOTIFIED 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 ENCROACHMENT PERMIT FROM AM-108 FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES

STREAM AND WETLAND DELINEATIONS WERE PERFORMED IN NOVEMBER 2007 BY ALISTAR ECOLOGY TO VERIFY 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, 2007 STREAM AND WETLAND DELINEATION INDEX MAP WAS PREPARED BY ALISTAR ECOLOGY AND SUMMARIZED THE RESULTS OF THE FIELD DELINEATION.

PROJECT CONTACTS

- WVDEP REGION - EAST AREA
CELL: (304) 889-8033
CHARLES E. COMPTON III - SUPERVISING ENGINEER
CELL: (304) 710-8849
ENGINEER-IN-CHARGE
NATIVE ENGINEERING, INC.
COURT S. DUMPS, PE - PROJECT MANAGER/ENGINEER
OFFICE: (800) 692-1896 CELL: (504) 608-6747
ENVIRONMENTAL SCIENTIST
DAN L. HART - ENVIRONMENTAL SCIENTIST
OFFICE: (504) 692-1896 CELL: (504) 692-7427
MASON KUNZEL - CONSTRUCTION SUPERVISOR
CELL: (405) 227-8934
ROBERT P. WISER - FIELD ENGINEER
OFFICE: (504) 692-1896 CELL: (504) 227-7905

RESTRICTIONS NOTES

- 1 THERE ARE NO LAND TOWNS OR ASSOCIATED WITHIN 100 FEET OF THE WELL PAD AND 100 FEET ARE 2 WETLANDS AND 1 PERSONAL STREAM ADJACENT TO THE EXISTING ACCESS ROAD THAT HAVE REMAIND UNDEVELOPED.
2 THERE ARE NO NATURAL OBSTACLES (SHOULDER BERMS) WITHIN 200 FEET OF THE WELL PAD AND 100.
3 THERE ARE NO GROUNDWATER INTAKE OR FRESH WATER SUPPLY FACILITIES WITHIN 100 FEET OF THE WELL PAD AND 100.
4 THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 200 FEET OF THE WELLS BEING DRILLED.
5 THERE ARE NO EXISTING BUILDING STRUCTURES WITHIN 400 FEET OF THE CENTER OF THE WELL PAD.
6 THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2000 SQUARE FEET WITHIN 400 FEET OF THE CENTER OF THE WELL PAD.

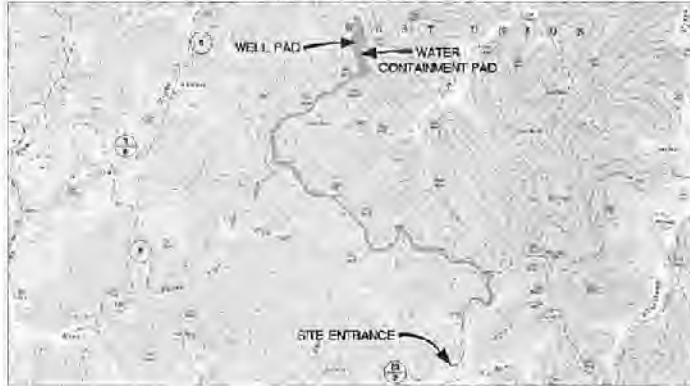
REPRODUCTION NOTE

THIS PLAN WHEN CREATED BY COMPUTER SHALL BE DEEMED TO BE A TRUE AND CORRECT COPY OF THE ORIGINAL AND SHALL BE VALID FOR ALL PURPOSES UNLESS OTHERWISE INDICATED BY A SIGNATURE AND NOTED ON A REVISION OR CHANGE SHEET.

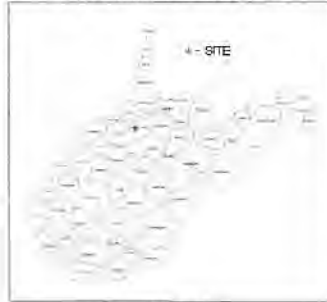
OXFORD 97 WELL PAD & WATER CONTAINMENT PAD AS-BUILT AND EROSION & SEDIMENT CONTROL IMPROVEMENT PLAN

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)

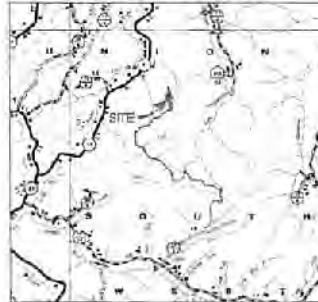


WEST VIRGINIA COUNTY MAP



(NOT TO SCALE)

WVDOH COUNTY ROAD MAP



(NOT TO SCALE)

AS-BUILT CERTIFICATIONS

THE DRAWING, CONSTRUCTION NOTES, AND REFERENCE DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS REG. 15-1.

MISS Utility of West Virginia 1-800-245-4008 West Virginia State Law (Section XV, Chapter 84-C) Requires that you call two business days before you dig in the state of West Virginia. IT'S THE LAW!

WEST VIRGINIA STATE CLARE CONTAINMENT SYSTEM NORTH ZONE WELLS CAN SAFELY OPERATE WITH A WVP

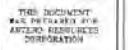
Table with columns: Impacts to, Well Name, WV North NAD 27, WV North NAD 83, UTM (METERS) Zone 17, NAD 83 E & L and Log. Rows include various well names and their impact data.

Table with columns: Well Name, WV North NAD 27, WV North NAD 83, UTM (METERS) Zone 17, NAD 83 E & L and Log. Rows include well names like OXF97 Well AHS (Drill) and OXF97 Well BHS (Drill).

Table with columns: Well Name, WV North NAD 27, WV North NAD 83, UTM (METERS) Zone 17, NAD 83 E & L and Log. Rows include well names like OXF97 Well AHS (Drill) and OXF97 Well BHS (Drill).



REVISION table with columns: DATE, REVISED FOR, REVISED BY, REVISED REF. NO.



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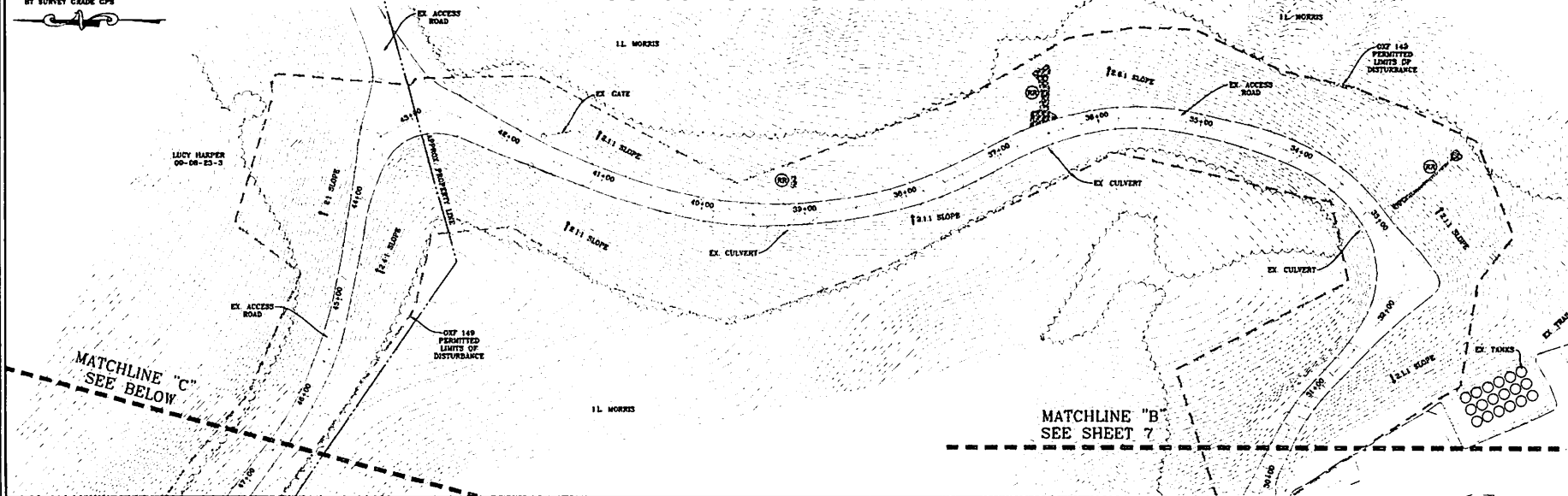
COVER SHEET OXFORD 97 WELL PAD SOUTHWEST & WEST UNION DISTRICTS, DODDRIDGE COUNTY, WEST VIRGINIA



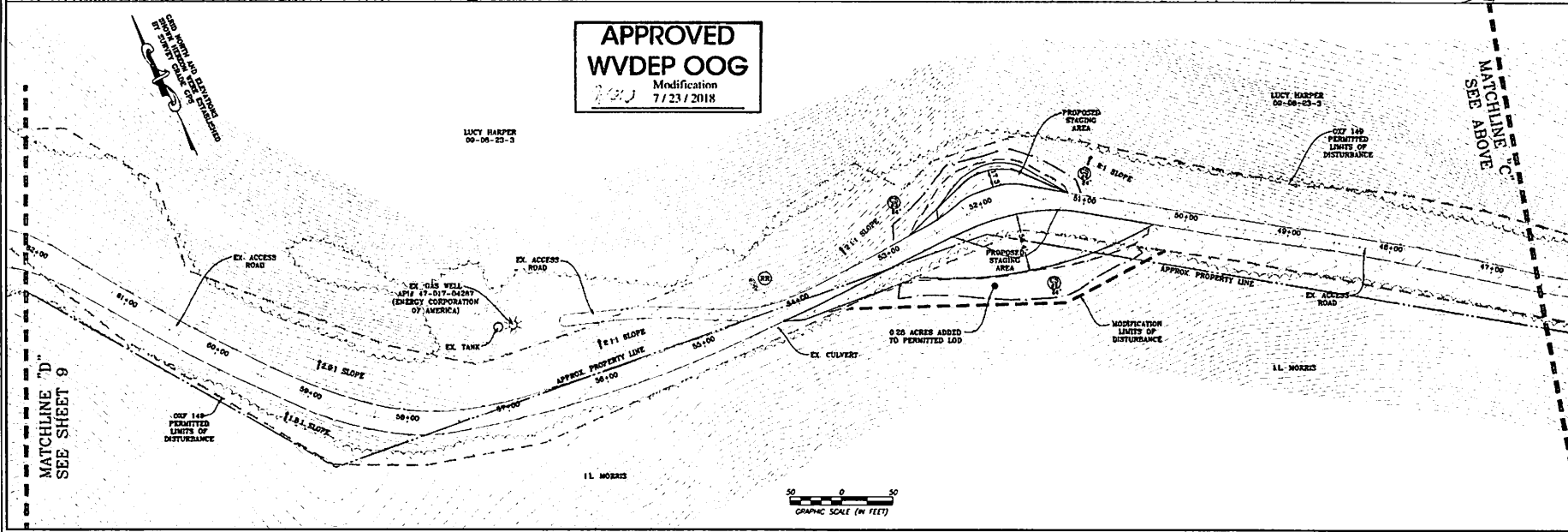
DATE: 02/14/2018 SCALE: AS SHOWN SHEET 1 OF 36

GRID NORTH AND ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY SURVEY CHAIN C/S

# ACCESS ROAD AS-BUILT PLAN



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



**NAVITUS**  
 ENERGY ENGINEERING

DATE	REVISION	REVISION FOR	REVISED FOR
02/12/2018	1	REVISED FOR OOG	

**Antero**  
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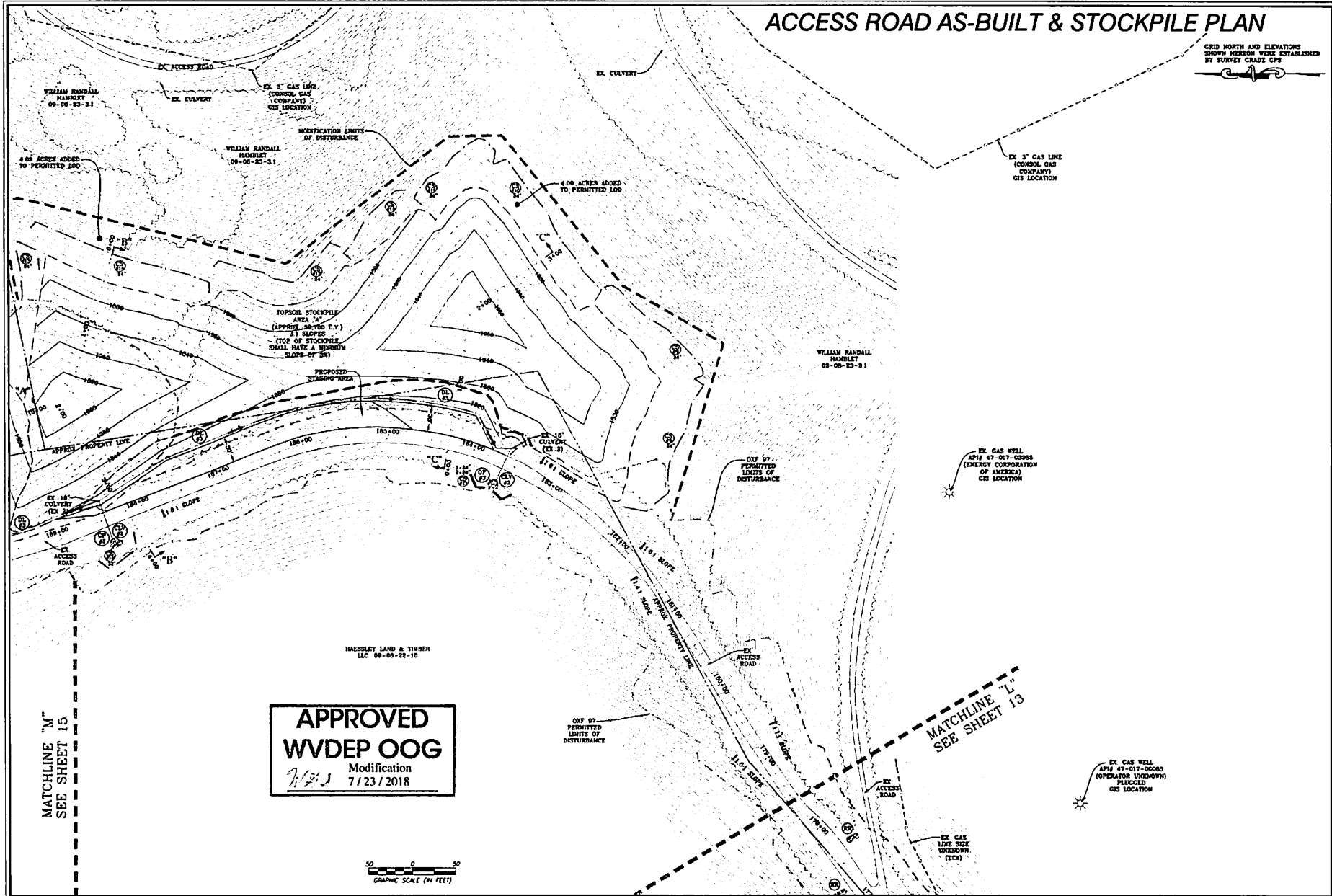
ACCESS ROAD AS-BUILT PLAN  
**OXFORD 97**  
 WELL PAD  
 SOUTHWEST & WEST UNION DISTRICTS  
 DODDRIIDGE COUNTY, WEST VIRGINIA



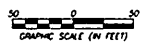
DATE: 02/14/2018  
 SCALE: 1" = 50'  
 SHEET 8 OF 38

# ACCESS ROAD AS-BUILT & STOCKPILE PLAN

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



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



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DATE	REVISION
02/14/2018	REVISED PER LOD

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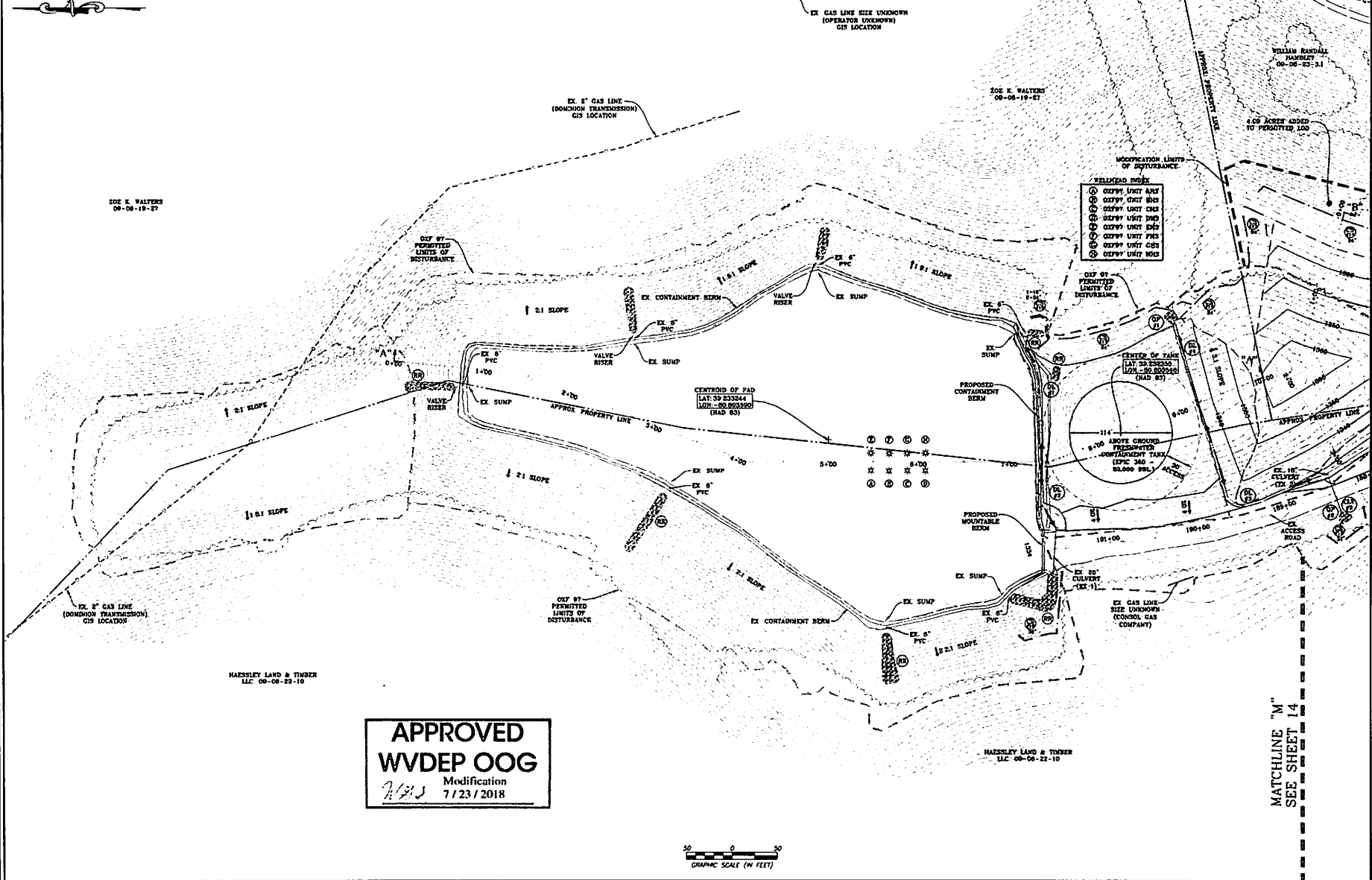
ACCESS ROAD AS-BUILT & STOCKPILE PLAN  
**OXFORD 97**  
 WELL PAD  
 SOUTHWEST & WEST UNION DISTRICTS  
 DODDGE COUNTY, WEST VIRGINIA



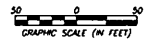
DATE 02/14/2018  
 SCALE 1" = 50'  
 SHEET 14 OF 36

GRID NORTH AND ELEVATIONS  
SHOWN HEREON WERE ESTABLISHED  
BY SURVEY GRADE C/P

# WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN



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



MATCHLINE "M"  
SEE SHEET 14

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02/14/2018	REVISED PER IAD
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**OXFORD 97**  
WELL PAD  
SOUTHWEST & WEST UNION DISTRICTS  
BODDRIDGE COUNTY, WEST VIRGINIA



DATE: 02/14/2018  
SCALE: 1" = 50'  
SHEET 15 OF 38