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west virginia department of environmental protection

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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

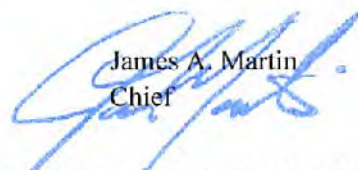
DENVER, CO 80202


Re: Permit approval for OXF97 EHS  
47-017-06583-00-00

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

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

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

  
James A. Martin  
Chief

Operator's Well Number:  
Farm Name: HAESSLY LAND & TIMBER   
U.S. WELL NUMBER: 47-017-06583-00-00  
Horizontal 6A Fracture  
Date Issued: 7/30/2018

# PERMIT CONDITIONS 4701706583

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

## CONDITIONS

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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 4701706583

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 - 06583  
OPERATOR WELL NO. OXF97 EHS  
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 EHS 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: 6580' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 6580' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12724' MD

11) Proposed Horizontal Leg Length: 5001'

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

13) Method to Determine Fresh Water Depths: OXF97 EHS (API #47-017-06583)

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

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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JUN 06 2018  
WV Department of  
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DAF  
6/5/18



WW-6B  
(04/15)

API NO. 47- 017 - 06583  
 OPERATOR WELL NO. OXF97 EHS  
 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, 56 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	915	915	CTS, 1271 Cu. Ft.
Coal	9-5/8"	New	HCK-55	36#	<del>3000</del> 3018	<del>3000</del> 3018	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	12724	12724	3092 Cu. Ft
Tubing							
Liners							

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

**PACKERS**

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

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6/5/18

WW-6B  
(10/14)

API NO. 47- 017 - 06583

OPERATOR WELL NO. OXF97 EHS

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, 12,724'. 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

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 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.

\*Note: Attach additional sheets as needed.

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6/5/18



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OXF 97 EHS

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47017034310000



47017036500000



Antero Resources Corporation

OXF 97 EHS - AOR



WELL SYMBOLS  
Gas Well



May 7, 2018

08/03/2018



4701706583

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

UWI (API Num)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Produced Formation(s) not perf'd
47017034310000	MAXWELL RUBY T	1614	CONSOL GAS COMPANY	CNG DEVELOPMENT CO	5,385	5157-5207	Speechley, Greenland Gap, Balltown, Alexander	Big Injun, Weir, Balltown, Bradford
47017036500000	MAXWELL RUBY T	1916	CONSOL GAS COMPANY	CNG DEVELOPMENT CO	5,445	3703-5183	Fift, Speechley, Balltown, Berson, Alexander	Big Injun, Weir, Bradford

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08/03/2018



WR-35  
Rev. 8/23/13

**APPROVED**

NAME: Clyde G. Turner agc of \_\_\_\_\_

DATE: 1/23/17  
State of West Virginia

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

**47 017 06583**

API 47-017-06583 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 EHS  
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 Nothing as drilled plat to be submitted by CNX Easting \_\_\_\_\_  
Landing Point of Curve Nothing upon completion of the well. Easting \_\_\_\_\_  
Bottom Hole Nothing Easting \_\_\_\_\_

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**MAY 11 2018**

Elevation (ft) 1335 GL Type of Well  New  Existing Type of Report  Interim  Final  
WV Department of Environmental Protection

Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow

Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate

Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_

Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_

Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine

Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)

Synthetic Oil Based

Date permit issued 11/17/2014 Date drilling commenced 12/28/2014 Date drilling ceased 06/27/2015

Date completion activities began Not completed Date completion activities ceased na

Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by **RECEIVED**

**Office of Oil and Gas**

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug **JAN 17 2017**

Freshwater depth(s) ft 266', 503', 810'

Open mine(s) (Y/N) depths WV Department of

Salt water depth(s) ft none noted for offsets

Void(s) encountered (Y/N) Environmental Protection

Coal depth(s) ft NA

Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) No

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

**08/03/2018**

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API 47-017 - 06583

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

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/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"	915.9'	New	J-55		Y
Coal							
Intermediate 1	12.38"	9 5/8"	3018.7'	New	HCK-55		Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5 1/2"	12,724.2'	New	P-110		N
Tubing							
Packer type and depth set							

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

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WV Department of Environmental Protection WOC (hrs)
Conductor							
Surface	Type 1 / Class A	830	15.6	1.18	979.4	18.6	8
Coal							
Intermediate 1	Type 1 / Class A	stage (1) 1195	15.6	Stage (1) 1.18	1410.1	18.6	8
Intermediate 2							
Intermediate 3							
Production	Type 1 / Class A	Lead 733.7 Tail 1819	14.5	lead 1.58 Tail 1.58	Total 4033.26	18.6	8
Tubing							

Drillers TD (ft) 12724'

Loggers TD (ft) 12695'

Deepest formation penetrated Marcellus

Plug back to (ft) \_\_\_\_\_

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

Kick off depth (ft) 5677'

Check all wireline logs run

- caliper     density     deviated/directional     induction  
 neutron     resistivity     gamma ray     temperature     sonic

Well cored  Yes  No

Conventional    Sidewall

Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING No centralizers used on conductor.

8 Centralizers on Surface Casing 38 Centralizers on Intermediate String (Bow string centralizers on first two joints then every third joint to 100' from surface).

181 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 \_\_\_\_\_

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

JAN 17 2017

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API 47- 017 - 06583

Farm name Haessly Land & Timber, LLC

Well number Oxf 97 EHS

### PERFORATION RECORD

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

Please insert additional pages as applicable.

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### 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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Page \_\_\_ of \_\_\_

API 47- 017 - 06583 Farm name Haessly Land & Timber, LLC Well number Oxf 97 EHS

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 PA/WV 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 724-820-3961  
Signature *Dee Swiger* Title Regulatory Analyst, III Date 01/09/2017

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JAN 17 2017  
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Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

4701706583

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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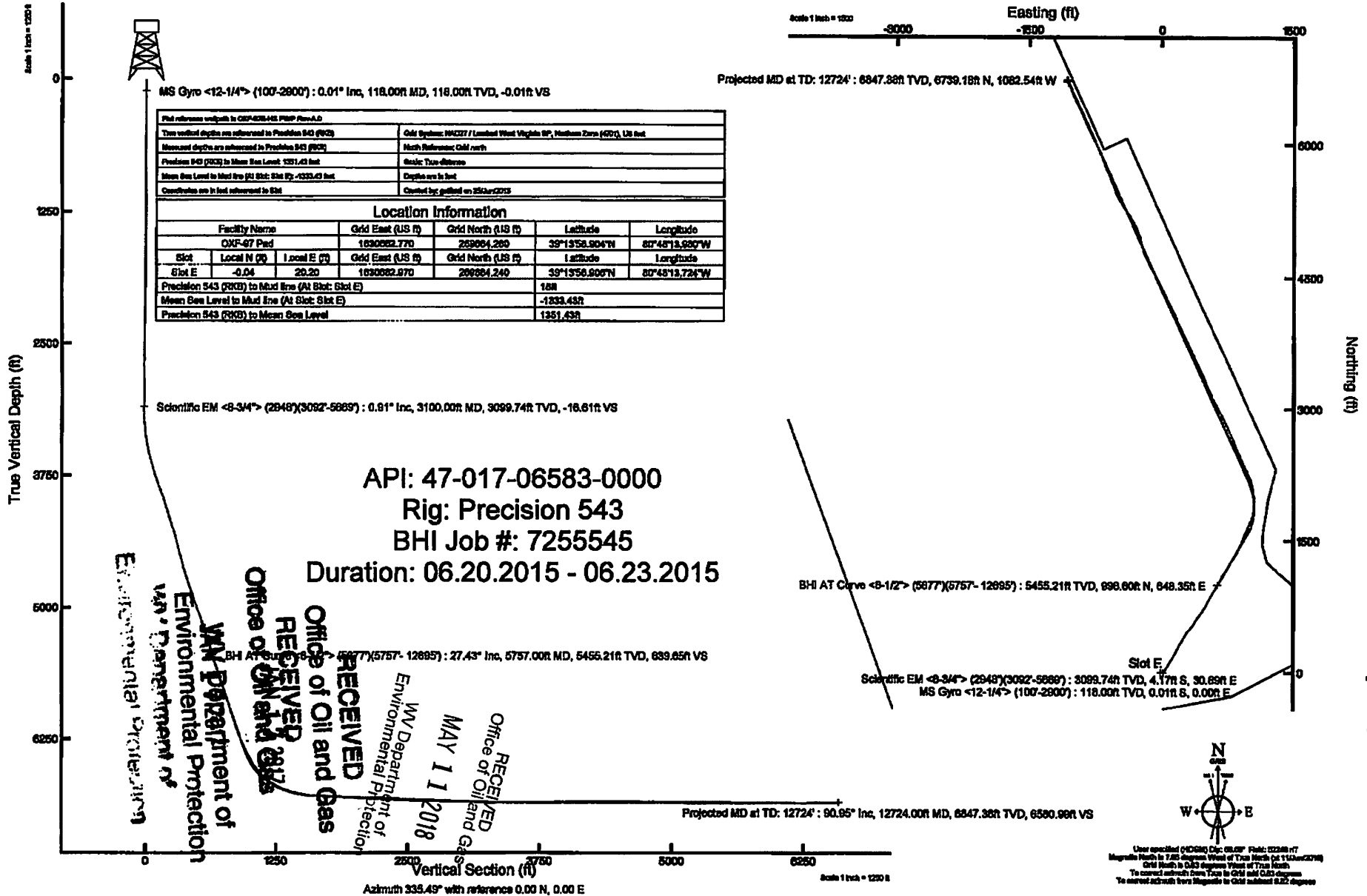


# NOBLE ENERGY



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

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



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4701706583

Use specified (NAD83) Dat: 8308' Field: 12248' r7  
 Magnetic North is 7.85 degree West of True North (at 11/10/2014)  
 Grid North is 0.00 degree West of True North  
 To convert azimuth from True to Grid add 0.00 degree  
 To convert azimuth from Magnetic to Grid subtract 7.85 degree



4701706583



# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-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	Gotfbral
Scale	0.999964	Report Generated	25/Jun/2015 at 09:21
Convergence at slot	0.83° West	Database/Source file	WANorthEast/OXF-97E-HS_AWB.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.04	20.20	1630682.97	269664.24	39°13'58.906"N	80°48'13.724"W
Facility Reference Pt			1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Precision 543 (RKB) to Facility Vertical Datum	1351.43ft
Horizontal Reference Pt	Slot	Precision 543 (RKB) to Mean Sea Level	1351.43ft
Vertical Reference Pt	Precision 543 (RKB)	Precision 543 (RKB) to Mud Line at Slot (Slot E)	18.00ft
MD Reference Pt	Precision 543 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	335.49°

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-IIS
Field	Doddridge	Wellbore	OXF-97E-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (156 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]
0.00†	0.000	157.810	0.00	0.00	0.00	0.00	1630682.97	269664.24	39°13'58.906"N	80°48'13.724"W	0.00	0.000	0.00
18.00	0.000	157.810	18.00	0.00	0.00	0.00	1630682.97	269664.24	39°13'58.906"N	80°48'13.724"W	0.00	0.000	0.00
118.00	0.010	157.810	118.00	-0.01	-0.01	0.00	1630682.97	269664.23	39°13'58.906"N	80°48'13.724"W	0.07	157.810	0.01
218.00	0.200	83.740	218.00	-0.07	0.00	0.18	1630683.15	269664.24	39°13'58.906"N	80°48'13.721"W	0.18	89.087	0.20
318.00	0.370	59.990	318.00	-0.18	0.11	0.66	1630683.50	269664.25	39°13'58.907"N	80°48'13.717"W	0.27	80.743	0.25
418.00	0.400	59.990	418.00	-0.19	0.37	1.28	1630684.25	269664.61	39°13'58.910"N	80°48'13.708"W	1.33	73.840	0.10
518.00	0.150	67.930	518.00	-0.17	0.59	1.70	1630684.67	269664.83	39°13'58.912"N	80°48'13.702"W	1.80	70.754	0.25
618.00	0.100	52.530	617.99	-0.15	0.70	1.89	1630684.86	269664.94	39°13'58.913"N	80°48'13.700"W	2.02	69.795	0.06
718.00	0.120	8.850	717.99	-0.04	0.85	1.98	1630684.95	269665.09	39°13'58.915"N	80°48'13.699"W	2.15	66.668	0.08
818.00	0.100	288.200	817.54	0.22	0.42	1.01	1630684.38	269665.72	39°13'58.916"N	80°48'13.700"W	2.45	62.790	0.14
918.00	0.090	159.230	917.99	0.08	0.94	1.86	1630684.83	269665.18	39°13'58.916"N	80°48'13.700"W	2.08	63.197	0.17
1018.00	0.320	92.630	1017.99	-0.12	0.85	2.16	1630685.13	269665.09	39°13'58.915"N	80°48'13.696"W	2.32	68.513	0.30
1118.00	0.440	89.130	1117.99	-0.40	0.84	2.83	1630685.80	269665.08	39°13'58.915"N	80°48'13.688"W	2.95	73.364	0.12
1218.00	0.370	101.140	1217.99	-0.75	0.79	3.53	1630686.50	269665.03	39°13'58.915"N	80°48'13.679"W	3.61	77.408	0.11
1318.00	0.500	108.930	1317.99	-1.21	0.68	4.30	1630687.25	269665.20	39°13'58.913"N	80°48'13.670"W	4.30	81.096	0.11
1418.00	0.530	94.280	1417.98	-1.73	0.44	5.14	1630688.11	269664.68	39°13'58.911"N	80°48'13.658"W	5.16	85.142	0.12
1518.00	0.590	88.520	1517.98	-2.16	0.42	6.11	1630689.08	269664.66	39°13'58.911"N	80°48'13.646"W	6.13	86.112	0.08
1618.00	0.900	87.180	1617.97	-2.65	0.47	7.41	1630690.38	269664.71	39°13'58.912"N	80°48'13.630"W	7.43	86.392	0.31
1718.00	0.940	89.620	1717.96	-3.28	0.51	9.02	1630691.99	269664.75	39°13'58.913"N	80°48'13.609"W	9.03	86.754	0.06
1818.00	1.230	92.530	1817.94	-4.10	0.47	10.91	1630693.80	269664.77	39°13'58.912"N	80°48'13.594"W	14.42	87.590	0.06
1918.00	1.560	94.130	1917.91	-5.24	0.32	13.34	1630696.31	269664.56	39°13'58.911"N	80°48'13.554"W	13.34	88.608	0.33
2018.00	1.430	95.630	2017.87	-6.52	0.10	15.94	1630698.91	269664.34	39°13'58.910"N	80°48'13.521"W	15.94	89.627	0.14
2118.00	1.440	93.900	2117.84	-7.74	-0.10	18.44	1630701.40	269664.14	39°13'58.908"N	80°48'13.489"W	18.44	90.324	0.04
2218.00	1.150	104.030	2217.82	-8.97	-0.43	20.66	1630703.63	269663.81	39°13'58.905"N	80°48'13.461"W	20.67	91.200	0.37
2318.00	0.700	106.050	2317.38	-10.22	-0.44	22.56	1630705.53	269663.30	39°13'58.900"N	80°48'13.433"W	22.56	92.260	0.06

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-HS AWP
Facility	OXF-97 Pad		

WELLPATH DATA (156 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]
2418.00	1.040	107.920	2417.78	-11.45	-1.49	24.34	1630707.31	269662.75	39°13'58.895"N	80°48'13.414"W	24.39	93.493	0.07
2518.00	0.960	113.510	2517.77	-12.69	-2.10	25.98	1630708.95	269662.14	39°13'58.889"N	80°48'13.393"W	26.06	94.621	0.13
2618.00	0.700	123.160	2617.75	-13.83	-2.77	27.26	1630710.22	269661.47	39°13'58.883"N	80°48'13.377"W	27.40	95.799	0.29
2718.00	0.490	123.550	2717.75	-14.70	-3.34	28.12	1630711.09	269660.90	39°13'58.877"N	80°48'13.366"W	28.32	96.769	0.21
2818.00	0.310	104.990	2817.75	-15.28	-3.78	28.72	1630711.89	269660.51	39°13'58.871"N	80°48'13.358"W	28.96	97.185	0.19
2918.00	0.260	121.090	2917.75	-15.68	-3.94	29.16	1630712.13	269660.30	39°13'58.872"N	80°48'13.352"W	29.42	97.690	0.05
2954.00	0.330	104.890	2953.75	-15.81	-4.01	29.33	1630712.30	269660.23	39°13'58.871"N	80°48'13.350"W	29.60	97.778	0.30
3100.00	0.910	92.980	3099.74	-16.61	-4.17	30.89	1630713.86	269660.07	39°13'58.869"N	80°48'13.330"W	31.17	97.695	0.40
3130.00	2.140	53.220	3129.73	-16.60	-3.85	31.58	1630714.55	269660.39	39°13'58.873"N	80°48'13.322"W	31.81	96.953	5.18
3160.00	3.260	43.380	3129.69	-16.10	-2.99	32.27	1630715.24	269661.17	39°13'58.842"N	80°48'13.349"W	32.74	95.867	1.89
3190.00	4.080	39.000	3189.63	-15.36	-1.44	33.88	1630716.85	269662.80	39°13'58.897"N	80°48'13.293"W	33.91	92.432	2.82
3224.00	5.720	30.490	3223.50	-13.85	0.96	35.50	1630718.47	269665.20	39°13'58.921"N	80°48'13.273"W	35.51	88.448	5.26
3254.00	7.260	26.170	3253.31	-11.79	3.95	37.09	1630720.06	269668.19	39°13'58.951"N	80°48'13.253"W	37.30	83.920	5.38
3284.00	9.200	26.690	3283.00	-9.09	7.80	39.01	1630721.97	269672.04	39°13'58.989"N	80°48'13.229"W	39.78	78.698	6.47
3314.00	10.510	20.160	3312.34	-5.39	12.37	41.37	1630724.47	269676.61	39°13'59.133"N	80°48'13.199"W	41.30	75.400	5.33
3344.00	12.570	32.090	3341.92	-2.53	17.57	44.64	1630727.61	269681.81	39°13'59.086"N	80°48'13.160"W	47.98	68.518	6.01
3375.00	14.300	34.610	3372.07	1.29	23.58	48.61	1630731.58	269687.82	39°13'59.146"N	80°48'13.110"W	54.03	64.124	5.89
3405.00	16.230	34.790	3401.01	5.33	30.07	53.11	1630736.08	269694.31	39°13'59.211"N	80°48'13.054"W	61.03	60.480	6.44
3435.00	17.860	35.290	3429.69	9.78	37.27	58.16	1630741.13	269701.51	39°13'59.283"N	80°48'12.992"W	69.08	57.347	5.46
3466.00	19.310	35.060	3454.08	14.80	45.29	63.88	1630746.87	269709.63	39°13'59.364"N	80°48'12.978"W	78.34	54.644	5.32
3496.00	20.460	35.100	3487.25	19.99	53.78	69.77	1630752.74	269718.02	39°13'59.448"N	80°48'12.847"W	88.09	52.375	3.17
3526.00	21.800	34.500	3515.23	25.51	62.66	75.94	1630758.91	269726.90	39°13'59.536"N	80°48'12.770"W	98.46	50.474	4.52
3556.00	23.370	32.530	3542.93	31.61	72.27	82.30	1630765.26	269736.51	39°13'59.632"N	80°48'12.691"W	109.52	48.712	5.81
3586.00	24.150	31.600	3570.39	38.27	82.51	88.71	1630771.68	269746.75	39°13'59.734"N	80°48'12.612"W	121.15	47.074	2.88
3616.00	24.870	29.890	3597.69	45.37	93.21	95.07	1630778.04	269757.47	39°13'59.841"N	80°48'12.537"W	133.12	45.547	3.37

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (156 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TYD [ft]	Vert Sect [ft]	Norib [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
3647.00	25.660	29.950	3625.72	53.06	104.68	101.67	1630784.64	269768.91	39°13'59.955"N	80°48'12.451"W	145.93	44.166	2.55
3677.00	26.990	30.650	3652.61	60.73	116.16	108.39	1630791.35	269780.40	39°14'00.070"N	80°48'12.368"W	158.87	43.017	4.55
3707.00	28.210	31.030	3679.20	68.63	128.09	115.51	1630798.48	269792.33	39°14'00.189"N	80°48'12.280"W	172.48	42.043	4.11
3738.00	28.860	31.100	3706.43	77.00	140.78	123.15	1630806.12	269805.01	39°14'00.315"N	80°48'12.185"W	187.04	41.179	2.10
3769.00	29.440	30.890	3733.88	85.58	153.78	130.95	1630813.92	269818.09	39°14'00.445"N	80°48'12.100"W	202.97	40.415	2.53
3859.00	32.500	29.590	3810.56	112.40	193.89	154.32	1630837.29	269858.13	39°14'00.845"N	80°48'11.798"W	247.81	38.516	3.26
3950.00	31.080	26.200	3887.91	141.62	236.23	176.77	1630859.73	269900.47	39°14'01.266"N	80°48'11.521"W	295.05	36.806	2.51
4041.00	29.590	27.700	3966.45	170.26	277.21	197.58	1630880.55	269941.43	39°14'01.674"N	80°48'11.264"W	340.41	35.480	1.84
4132.00	28.950	32.360	4045.84	196.07	315.71	219.82	1630902.78	269979.94	39°14'02.058"N	80°48'10.989"W	384.70	34.848	2.60
4212.00	28.770	30.880	4123.67	220.52	353.88	242.33	1630925.20	270019.19	39°14'02.422"N	80°48'10.700"W	428.65	34.191	1.24
4313.00	29.230	29.340	4204.26	246.32	391.17	264.20	1630947.16	270055.39	39°14'02.810"N	80°48'10.439"W	472.03	34.035	0.64
4404.00	29.490	32.550	4283.57	271.60	429.42	287.13	1630970.09	270093.64	39°14'03.191"N	80°48'10.154"W	516.57	33.769	1.75
4494.00	31.150	39.100	4361.28	294.00	466.17	313.74	1630996.70	270130.39	39°14'03.558"N	80°48'09.823"W	561.91	33.942	4.11
4585.00	30.810	39.540	4439.30	314.66	502.41	343.42	1631026.38	270166.63	39°14'03.921"N	80°48'09.452"W	608.57	34.355	0.45
4675.00	27.820	34.710	4517.88	335.53	537.48	374.95	1631052.99	270201.70	39°14'04.271"N	80°48'09.121"W	652.55	34.595	1.21
4766.00	26.880	30.830	4598.61	358.14	572.62	392.64	1631075.60	270236.84	39°14'04.622"N	80°48'08.840"W	694.31	34.438	2.17
4857.00	30.750	34.870	4678.34	381.70	609.39	416.50	1631099.45	270273.61	39°14'04.988"N	80°48'08.544"W	738.12	34.351	4.76
4948.00	32.760	35.380	4755.71	405.90	648.56	444.05	1631127.01	270312.77	39°14'05.379"N	80°48'08.201"W	786.01	34.399	2.23
5038.00	33.070	33.500	4831.26	431.12	688.89	471.71	1631154.66	270353.10	39°14'05.782"N	80°48'07.857"W	834.91	34.401	1.19
5129.00	31.370	31.090	4908.25	457.27	729.80	491.47	1631180.56	270394.18	39°14'06.191"N	80°48'07.537"W	883.39	34.280	1.45
5220.00	31.320	28.090	4985.98	485.43	771.04	520.99	1631203.94	270435.26	39°14'06.601"N	80°48'07.245"W	930.56	34.047	1.70
5310.00	31.200	27.680	5062.91	513.93	812.32	542.83	1631225.78	270476.53	39°14'07.012"N	80°48'06.976"W	977.01	33.753	0.27
5404.00	29.580	28.780	5143.99	542.73	854.22	565.32	1631248.26	270518.43	39°14'07.429"N	80°48'06.698"W	1024.34	33.496	1.82
5496.00	28.050	29.750	5224.60	568.94	892.91	586.98	1631269.93	270557.11	39°14'07.815"N	80°48'06.429"W	1068.57	33.320	1.74
5586.00	27.840	29.820	5304.09	593.57	929.34	607.95	1631290.90	270597.72	39°14'08.180"N	80°48'06.170"W	1114.99	33.186	0.16

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**Actual Wellpath Report**  
 OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (156 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]
5677.00	28.130	30.940	5384.43	618.14	966.40	629.56	1631312.50	270630.60	39°14'08.547"N	80°48'05.902"W	1153.37	33.082	0.64
5757.00	27.430	29.570	5455.21	639.65	998.60	648.35	1631331.29	270662.80	39°14'08.868"N	80°48'05.669"W	1190.61	32.994	1.18
5847.00	30.960	29.650	5533.77	665.37	1036.76	670.04	1631352.98	270700.96	39°14'09.248"N	80°48'05.400"W	1234.43	32.874	3.92
5936.00	31.020	27.490	5610.00	692.89	1077.00	691.95	1631374.89	270741.20	39°14'09.649"N	80°48'05.129"W	1280.13	32.720	1.25
6026.00	31.320	29.110	5687.10	726.87	1117.77	714.44	1631396.98	270781.91	39°14'10.051"N	80°48'04.851"W	1326.34	32.577	1.28
6115.00	30.900	33.110	5763.52	746.57	1156.90	737.79	1631420.73	270821.09	39°14'10.445"N	80°48'04.562"W	1372.13	32.527	2.14
6205.00	31.280	31.350	5840.60	772.06	1196.21	762.57	1631445.51	270860.40	39°14'10.837"N	80°48'04.254"W	1418.60	32.517	1.09
6294.00	31.340	32.590	5916.64	797.60	1235.44	787.06	1631470.00	270899.63	39°14'11.229"N	80°48'03.950"W	1464.85	32.500	0.73
6384.00	31.050	32.600	5993.62	822.92	1274.72	812.17	1631495.11	270938.91	39°14'11.620"N	80°48'03.638"W	1511.46	32.503	0.32
6473.00	31.200	32.650	6070.62	848.17	1313.42	837.25	1631520.51	270978.11	39°14'12.011"N	80°48'03.330"W	1558.08	32.507	0.24
6564.00	31.710	29.370	6147.40	874.77	1354.19	861.50	1631544.44	271018.38	39°14'12.413"N	80°48'03.026"W	1605.00	32.463	1.99
6653.00	31.450	24.830	6223.23	903.69	1395.65	882.72	1631565.66	271059.84	39°14'12.826"N	80°48'02.764"W	1651.38	32.313	2.69
6743.00	31.580	21.770	6299.96	935.28	1438.85	901.32	1631584.26	271103.03	39°14'13.255"N	80°48'02.535"W	1697.84	32.064	1.78
6832.00	36.070	21.700	6373.88	969.53	1484.86	919.66	1631602.60	271149.04	39°14'13.713"N	80°48'02.311"W	1746.59	31.772	5.05
6922.00	38.890	23.340	6444.71	1007.35	1536.11	941.05	1631623.89	271200.29	39°14'14.222"N	80°48'02.094"W	1801.89	31.491	8.51
7011.00	45.670	23.650	6509.90	1047.83	1591.62	965.09	1631648.03	271255.80	39°14'14.774"N	80°48'01.753"W	1861.36	31.231	6.27
7101.00	54.170	25.920	6567.80	1092.63	1654.04	994.01	1631676.94	271318.22	39°14'15.395"N	80°48'01.397"W	1929.74	31.004	9.64
7190.00	58.300	22.960	6617.26	1141.23	1721.39	1024.57	1631707.50	271385.57	39°14'16.065"N	80°48'01.021"W	2003.23	30.761	5.40
7280.00	61.310	12.030	6662.62	1198.97	1795.44	1047.79	1631730.72	271459.61	39°14'16.800"N	80°48'00.740"W	2078.81	30.267	11.01
7370.00	65.780	3.120	6707.25	1266.44	1875.44	1094.69	1631752.02	271539.21	39°14'17.580"N	80°48'00.600"W	2153.71	29.473	8.46
7459.00	71.040	358.540	6735.51	1340.58	1957.67	1062.25	1631745.18	271621.83	39°14'18.406"N	80°48'00.586"W	2227.29	28.485	9.06
7548.00	77.190	351.950	6759.89	1421.08	2042.87	1055.09	1631738.02	271707.04	39°14'19.247"N	80°48'00.693"W	2299.25	27.315	9.92
7638.00	80.130	345.730	6777.60	1506.89	2129.39	1037.99	1631720.92	271793.55	39°14'20.099"N	80°48'00.926"W	2368.91	25.987	7.52
7727.00	84.980	339.650	6789.14	1594.38	2213.57	1011.73	1631694.66	271877.72	39°14'20.927"N	80°48'01.275"W	2433.82	24.563	8.69
7817.00	85.140	332.370	6796.81	1683.99	2295.41	975.50	1631658.71	271959.50	39°14'21.751"N	80°48'01.753"W	2494.61	23.871	9.21

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELL PATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (156 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)
7907.00	87.880	335.040	6802.19	1773.77	2375.97	935.51	1631618.44	272040.12	39°14'22.521"N	80°48'02.273"W	2553.51	21.491	4.15
7996.00	88.000	336.400	6805.39	1862.71	2457.04	898.93	1631581.87	272121.19	39°14'23.317"N	80°48'02.753"W	2616.32	20.096	1.53
8086.00	87.540	336.760	6808.89	1952.62	2539.56	863.19	1631546.13	272203.71	39°14'24.128"N	80°48'03.223"W	2682.25	18.773	0.65
8175.00	87.410	337.740	6812.81	2041.49	2621.56	828.81	1631511.75	272285.70	39°14'24.933"N	80°48'03.675"W	2749.45	17.544	1.11
8265.00	87.380	336.810	6816.90	2131.36	2701.49	794.06	1631477.02	272368.80	39°14'25.748"N	80°48'04.131"W	2818.80	16.303	1.45
8354.00	87.010	334.380	6821.26	2220.24	2785.43	757.35	1631440.29	272449.56	39°14'26.543"N	80°48'04.613"W	2886.55	15.211	2.76
8444.00	86.920	334.420	6826.02	2310.10	2866.48	718.52	1631401.46	272530.61	39°14'27.338"N	80°48'05.121"W	2955.16	14.072	0.11
8533.00	86.860	334.230	6830.85	2398.95	2946.58	680.01	1631362.96	272610.70	39°14'28.124"N	80°48'05.625"W	3024.02	12.995	0.22
8623.00	87.880	332.660	6834.98	2488.80	3026.99	639.82	1631322.77	272691.12	39°14'28.913"N	80°48'06.151"W	3093.87	11.935	2.08
8715.00	87.870	332.340	6838.24	2578.61	3106.79	599.29	1631281.20	272776.39	39°14'29.696"N	80°48'06.677"W	3163.85	10.906	0.37
8802.00	89.420	334.980	6840.27	2667.54	3186.50	558.82	1631241.77	272850.62	39°14'30.478"N	80°48'07.210"W	3235.13	9.947	3.38
8892.00	89.880	339.410	6840.82	2757.47	3269.44	523.94	1631206.89	272933.56	39°14'31.293"N	80°48'07.668"W	3311.16	9.104	4.95
8982.00	88.770	335.900	6841.88	2847.39	3352.66	489.73	1631172.69	273016.78	39°14'32.110"N	80°48'08.118"W	3388.24	8.311	4.09
9071.00	89.380	335.280	6843.32	2936.37	3433.70	452.96	1631135.91	273097.81	39°14'32.906"N	80°48'08.601"W	3463.45	7.515	0.98
9161.00	89.420	336.480	6844.20	3026.36	3515.87	416.26	1631099.21	273179.97	39°14'33.711"N	80°48'09.057"W	3540.42	6.757	1.45
9250.00	88.830	333.140	6845.62	3115.33	3596.41	378.46	1631061.41	273260.52	39°14'34.503"N	80°48'09.577"W	3616.27	6.007	3.92
9340.00	88.920	333.840	6847.39	3205.26	3676.93	338.29	1631021.25	273341.04	39°14'35.293"N	80°48'10.103"W	3692.46	5.257	0.78
9429.00	89.110	336.620	6848.92	3294.24	3757.73	301.01	1630983.97	273421.82	39°14'36.086"N	80°48'10.591"W	3769.76	4.580	3.13
9519.00	89.660	335.070	6849.88	3384.23	3839.84	264.19	1630947.15	273503.93	39°14'36.892"N	80°48'11.074"W	3848.92	3.936	1.83
9608.00	89.720	332.340	6850.36	3474.19	3921.76	225.04	1630910.46	273585.85	39°14'37.677"N	80°48'11.567"W	3928.21	3.286	1.69
9698.00	89.780	338.130	6850.76	3563.15	4001.58	187.64	1630870.60	273665.67	39°14'38.480"N	80°48'12.077"W	4005.98	2.685	5.99
9787.00	90.090	336.570	6850.86	3652.10	4083.72	153.37	1630836.33	273747.80	39°14'39.287"N	80°48'12.528"W	4086.60	2.151	1.79
9876.00	90.830	333.820	6850.14	3741.09	4164.49	116.04	1630799.00	273828.58	39°14'40.080"N	80°48'13.017"W	4166.11	1.596	3.20
9966.00	90.980	335.620	6848.72	3831.07	4245.86	77.61	1630760.58	273909.94	39°14'40.878"N	80°48'13.521"W	4246.57	1.047	2.01
10056.00	88.950	332.440	6847.30	3921.81	4326.76	38.22	1630721.19	273990.00	39°14'41.675"N	80°48'14.036"W	4326.93	0.446	0.51

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Doddridge Co., WV	Well	OXF-97E-HS
Field	Doddridge	Wellbore	OXF-97E-HS AWB
Facility	OXF-97 Pad		

WELLPATH DATA (156 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]
10145.00	90.580	333.710	6846.02	4009.92	4406.11	-2.06	1630680.91	274070.18	39°14'42.451"N	80°48'14.563"W	4406.11	359.973	1.46
10234.00	90.620	333.270	6845.08	4098.87	4485.75	-41.78	1630641.19	274149.82	39°14'43.232"N	80°48'15.082"W	4485.94	359.466	0.50
10324.00	90.220	329.900	6844.42	4188.64	4564.89	-84.60	1630598.37	274228.96	39°14'44.008"N	80°48'15.641"W	4565.67	358.938	3.77
10413.00	90.030	329.600	6844.23	4277.19	4641.77	-129.44	1630553.54	274305.84	39°14'44.761"N	80°48'16.225"W	4643.58	358.403	0.40
10502.00	89.990	341.700	6844.11	4367.01	4723.32	-177.47	1630511.31	274385.48	39°14'45.311"N	80°48'16.724"W	4723.32	357.870	1.47
10592.00	90.060	341.850	6844.02	4455.85	4803.95	-204.39	1630478.59	274468.00	39°14'46.353"N	80°48'17.208"W	4808.29	357.564	8.03
10682.00	89.750	349.140	6844.17	4544.42	4891.02	-226.92	1630456.06	274555.07	39°14'47.211"N	80°48'17.510"W	4896.28	357.344	8.11
10771.00	89.720	340.750	6844.58	4632.13	4976.89	-250.02	1630432.95	274640.94	39°14'48.056"N	80°48'17.819"W	4983.16	357.124	9.43
10864.00	89.750	333.890	6845.01	4725.03	5062.64	-285.85	1630397.13	274726.69	39°14'48.898"N	80°48'18.291"W	5070.71	356.768	7.38
10954.00	89.780	325.100	6845.34	4816.30	5138.25	-326.82	1630356.17	274802.28	39°14'49.620"N	80°48'18.824"W	5138.25	356.361	1.55
11040.00	89.780	325.060	6845.76	4899.82	5213.80	-375.65	1630307.33	274877.85	39°14'50.379"N	80°48'19.460"W	5227.32	355.879	4.60
11129.00	89.750	327.500	6846.12	4987.67	5287.83	-425.06	1630257.93	274951.86	39°14'51.104"N	80°48'20.101"W	5304.88	355.404	2.74
11219.00	89.720	329.870	6846.54	5077.03	5364.71	-471.83	1630211.16	275028.74	39°14'51.857"N	80°48'20.710"W	5385.42	354.974	2.63
11308.00	89.780	333.800	6846.93	5165.83	5443.15	-513.83	1630169.16	275107.19	39°14'52.626"N	80°48'21.258"W	5467.35	354.607	4.42
11397.00	89.820	339.300	6847.24	5254.78	5524.79	-549.17	1630133.82	275188.15	39°14'53.428"N	80°48'21.724"W	5552.01	354.221	6.27
11487.00	89.820	338.500	6847.52	5344.61	5608.78	-581.52	1630101.48	275272.81	39°14'54.253"N	80°48'22.149"W	5638.85	354.081	0.98
11577.00	89.880	336.840	6847.76	5434.54	5692.03	-615.71	1630067.28	275356.05	39°14'55.071"N	80°48'22.599"W	5725.23	353.826	1.85
11666.00	89.780	338.830	6848.02	5523.46	5774.45	-649.28	1630033.71	275438.47	39°14'55.881"N	80°48'23.041"W	5810.84	353.585	2.24
11756.00	89.780	338.120	6848.37	5613.34	5858.17	-682.31	1630000.69	275522.19	39°14'56.703"N	80°48'23.476"W	5897.77	353.357	0.79
11845.00	89.600	344.520	6848.83	5701.34	5949.64	-718.01	1629964.95	275603.68	39°14'57.503"N	80°48'23.900"W	5982.91	353.107	4.05
11935.00	89.380	332.810	6849.65	5792.26	6020.32	-757.97	1629925.03	275684.33	39°14'58.295"N	80°48'24.468"W	6067.84	352.824	1.92
12024.00	89.350	334.380	6850.63	5881.20	6100.02	-797.54	1629885.46	275764.03	39°14'59.077"N	80°48'24.986"W	6151.94	352.551	1.76
12114.00	89.510	335.610	6851.53	5971.20	6181.58	-835.58	1629847.42	275845.59	39°14'59.877"N	80°48'25.484"W	6237.80	352.302	1.38
12204.00	89.450	336.700	6852.35	6061.18	6263.89	-871.96	1629811.04	275927.90	39°15'00.686"N	80°48'25.962"W	6324.29	352.075	1.21
12294.00	89.450	335.520	6853.20	6150.17	6345.14	-906.29	1629771.72	276008.14	39°15'01.480"N	80°48'26.420"W	6409.82	351.814	1.18

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# Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'



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

WELLPATH DATA (156 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]
12383.00	90.890	333.830	6852.93	6240.16	6426.35	-947.07	1629735.94	276090.35	39°15'02.280"N	80°48'26.947"W	6495.76	351.617	2.15
12472.00	90.890	336.240	6851.55	6329.14	6507.02	-984.62	1629698.38	276171.01	39°15'03.072"N	80°48'27.439"W	6581.09	351.395	2.71
12562.00	91.020	337.490	6850.05	6419.10	6589.77	-1019.98	1629663.03	276253.76	39°15'03.885"N	80°48'27.904"W	6668.24	351.201	1.40
12651.00	90.890	337.120	6848.57	6508.04	6671.86	-1054.31	1629628.70	276335.85	39°15'04.691"N	80°48'28.355"W	6754.65	351.020	0.44
12724.00	90.950	337.310	6847.38	6580.99	6739.18	-1082.54	1629600.47	276403.16	39°15'05.352"N	80°48'28.726"W	6825.57	350.874	0.00

TARGETS										
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
OXF-97E-HS LP Rev-2		6790.00	2205.16	987.94	1631670.87	271869.32	39°14'20.841"N	80°48'01.576"W	point	
OXF-97E-HS BHL Rev-2		6855.00	6718.21	-1069.73	1629613.28	276382.20	39°15'05.147"N	80°48'28.560"W	point	
OXF-97 LL		7198.43	0.04	-20.20	1630662.77	269664.28	39°13'58.904"N	80°48'13.980"W	polygon	

WELLPATH COMPOSITION - Ref Wellbore: OXF-97E-HS AWB Ref Wellpath: OXF-97E-HS AWP Proj: 12724'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	2954.00	Generic gyro - northseeking (Standard)	01 MS Gyro <12-1/4"> (100'-2900')	OXF-97E-HS AWB
2954.00	5677.00	ISCWSA MWD, Rev. 2 (Standard)	02 Scientific EM <8-3/4"> (2946')(3092'-5669')	OXF-97E-HS AWB
5677.00	12695.00	NaviTrak (AT Curve Short Spaced)	03_BHI AT Curve <8-1/2"> (5677')(5757'-12695')	OXF-97E-HS AWB
12695.00	12724.00	Blind Drilling (std)	Projection to bit	OXF-97E-HS AWB

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## Actual Wellpath Report

OXF-97E-HS AWP Proj: 12724'

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

### COMMENTS

#### Wellpath general comments

API: 47-017-06583-0000

Rig: Precision 543

BHI Job #: 7255545

Duration: 06.20.2015 - 06.23.2015

MS Gyro <12-1/4"> (100'-2900')

Scientific EM <8-3/4"> (2946')(3092'-5669')

BHI AT Curve <8-1/2"> (5677')(5757'- 12695')

Projected MD at TD: 12724'

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08/03/2018

29 Jun 2015



WW-9  
(4/16)

API Number 47 - 017 - 06583  
Operator's Well No. OXF07 EHS

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 494507062

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

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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 - Diesel/Oil Base, 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

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

*[Signature]*  
My commission expires \_\_\_\_\_

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

Notary Public  
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Form WW-9

Operator's Well No. OXF97 EHS

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 (3.77 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
See attached Table IV-3 for additional seed type (Oxford 97 Pad Design)		See attached Table IV-4A for additional seed type (Oxford 97 Pad Design)	
*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: [Signature]

Comments:

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Title: Oil + Gas Inspects Date: 6/5/18

Field Reviewed? ( ) Yes ( ) No

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

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

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

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

**PRODUCTION INTERVAL**

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

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

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4701706583



**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:

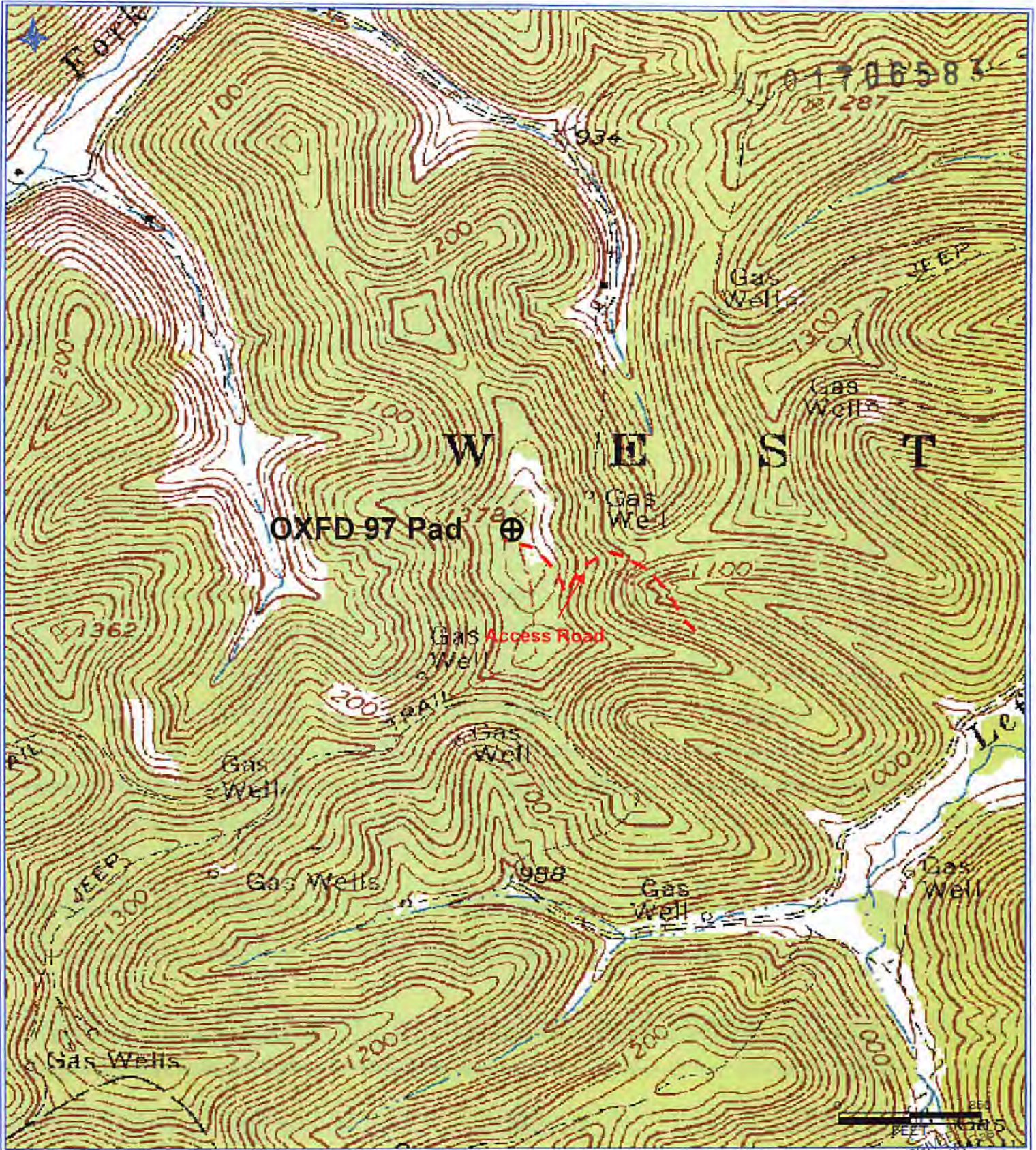
From the intersection of Sunnyside Rd and Oxford Rd: Head east on Old U.S 50 W/Sunnyside Rd toward Co Rte/6 for 1.9 miles. Turn right onto US-50 E for 0.5 miles. Turn right at the 1<sup>st</sup> cross street onto Arnolds Creek Rd/Central Station Rd/Right Fork Rd toward Rte 11/3 for 0.7 miles. Continue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

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

*John G. ...*  
6/5/18





**Antero Resources Corporation**  
 Appalachian Basin  
 OXFD 97 Unit  
 Doddridge County

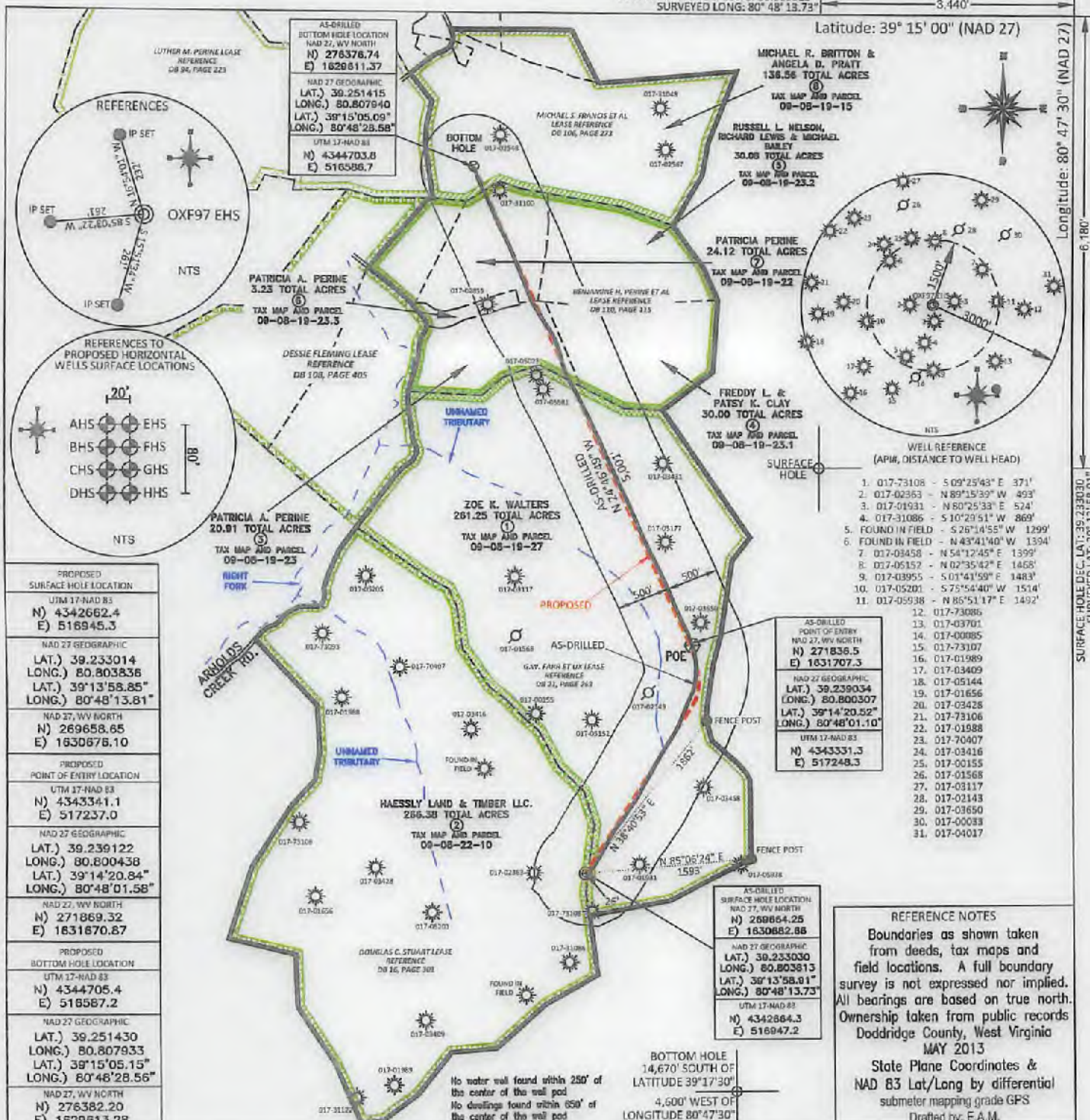
Quadrangle: Oxford  
 Watershed: Middle Island Creek  
 District: West Union  
 Date: 5-7-2018

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08/03/2018



SURFACE HOLE DEC. LONG: 80.803813  
 SURVEYED LONG: 80° 48' 13.73"  
 3.440'  
 Latitude: 39° 15' 00" (NAD 27)  
 Longitude: 80° 47' 30" (NAD 27)  
 SURFACE HOLE DEC. LAT: 39.233030  
 SURVEYED LAT: 39° 15' 58.91"

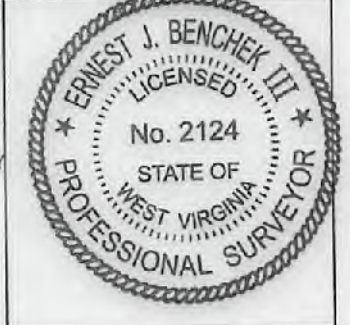


PROPOSED SURFACE HOLE LOCATION UTM 17-NAD 83 N) 4342662.4 E) 516945.3
NAD 27 GEOGRAPHIC LAT.) 39.233014 LONG.) 80.803836 LAT.) 39°13'58.85" LONG.) 80°48'13.81"
NAD 27, WV NORTH N) 269658.65 E) 1630676.10
PROPOSED POINT OF ENTRY LOCATION UTM 17-NAD 83 N) 4343341.1 E) 517237.0
NAD 27 GEOGRAPHIC LAT.) 39.239122 LONG.) 80.800438 LAT.) 39°14'20.84" LONG.) 80°48'01.58"
NAD 27, WV NORTH N) 271869.32 E) 1631670.67
PROPOSED BOTTOM HOLE LOCATION UTM 17-NAD 83 N) 4344705.4 E) 516587.2
NAD 27 GEOGRAPHIC LAT.) 39.251430 LONG.) 80.807933 LAT.) 39°15'05.15" LONG.) 80°48'28.56"
NAD 27, WV NORTH N) 276382.20 E) 1629613.28

FILE #: NOB 009  
 DRAWING #: 2359  
 SCALE: PLAT - 1" = 1400'  
 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 WYDEP

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 C. STUART, BENJAMINE H. PERINE et al, MICHAEL S. FRANCIS et al

LEASE NUMBERS: \_\_\_\_\_

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

TARGET FORMATION: MARCELLUS

WELL OPERATOR: ANTERO RESOURCES CORPORATION

ADDRESS: 1615 WYNKOOP STREET  
 CITY: DENVER STATE: CO ZIP CODE: 80202

DATE: February 14, 2018

OPERATOR'S WELL #: OXF97 EHS

API WELL #: 47 17 06513  
 STATE COUNTY PERMIT

AS-BUILT ELEVATION: 1,333'

QUADRANGLE: (SHL) OXFORD WV. (BHL) WEST UNION WV.

ACREAGE: 266.38 +/-

ACREAGE: 262.00+/-, 266.00+/-, 122.00+/-, 08/03/2018

ESTIMATED DEPTH: TVD: 6,580' TMD: 12,724'

DESIGNATED AGENT: DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS: 5400 D BIG TYLER ROAD  
 CITY: CHARLESTON STATE: WV ZIP CODE: 25313



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>Douglas C. Stuart Lease</u></b>			
Douglas C. Stuart	The Carter Oil Co.	1/8	016/0301
The Carter Oil Co.	Hope Natural Gas Company	Assignment	042/0410
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger	0143/0345
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	00135/0583
CNG Transmission Corporation	Dominion Transmission, Inc.	Certificate of Authority	058/0362
Dominion Transmission, Inc.	Consol Energy Holdings LLC XVI	Assignment	0245/01
Consol Energy Holdings LLC XVI	CNX Gas Company	Corp Book	1472/0295
CNX Gas Company	Antero Resources Corporation	Assignment	0387/0216
<b><u>G.W. Farr et ux Lease</u></b>			
G.W. Farr et ux	Hope Natural Gas Company	1/8	021/0263
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger	0143/0345
Consolidated Gas Supply	Consolidated Gas Transmission Corporation	Assignment	0135/0583
Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Certificate of Authority	051/0795
CNG Transmission Corporation	Dominion Transmission Corporation	Certificate of Authority	058/0362
Dominion Transmission, Inc.	Consol Energy Holdings LLC XVI	Assignment	0245/01
Consol Energy Holdings LLC XVI	CNX Gas Company	Corp Book	01472/0295
CNX Gas Company	Antero Resources Corporation	Assignment	0387/0216
<b><u>Benjamine H. Perine, et al Lease</u></b>			
Benjamine H. Perine, et al	Key Oil Company	1/8	0104/0409
Key Oil Company	J & J Enterprises	Assignment	0141/0090
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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\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

WW-6A1  
(5/13)

Operator's Well No. OXF97 EHS

**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>Michael S. Francis et ux Lease</u>	Michael S. Francis et ux	Key Oil Company	1/8	0106/0273
	Key Oil Company	J&J Enterprises	Assignment	0141/090
	J&J Enterprises	Eastern American Energy Corporation	Assignment	0159/0139
	Eastern American Energy Corporation	Antero Resources Appalachian Corp.	Assignment	0240/0498
	Antero Resources Appalachian Corp.	Antero Resources Corporation	Name Change	Exhibit 1

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

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

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the 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 4701706583

JUN 10 2013

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



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

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

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

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

\*\*\*\* 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)
- 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.)  
Alwyn A. Schopp (303) 357-7310  
Contact Name Phone Number
- Signature information (See below \*Important Legal Notice Regarding Signature\*):  
Print Name of Signer: Alwyn A. Schopp Title/Capacity: Authorized Person  
Signature: [Handwritten Signature] Date: June 10, 2013

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

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4701706583



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

May 10, 2018

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 EHS  
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 EHS 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 EHS 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 circular stamp.

Tyler Adams  
Landman

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08/03/2018





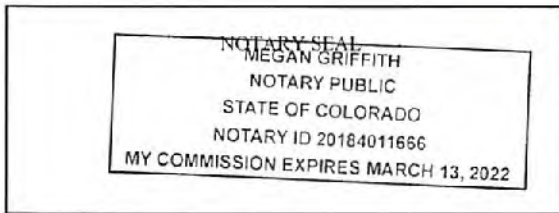
WW-6AC  
(1/12)

**Certification of Notice is hereby given:**

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

Well Operator: Antero Resources Corporation  
By: Kevin Kilstrom  
Its: Senior Vice President - Production  
Telephone: 303-357-7182

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315  
Email: mstanton@anteroresources.com



Subscribed and sworn before me this 10<sup>th</sup> day of May 2018  
Megan Griffith 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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08/03/2018

WW-6A  
(9-13)

API NO. 47- 017 - 06583  
OPERATOR WELL NO. OXF97 EHS  
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

08/03/2018



WW-6A  
(8-13)

API NO. 47- 017 - 06583  
OPERATOR WELL NO. OXF97 EHS  
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.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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**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

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(8-13)

API NO. 47- 017 - 06583  
OPERATOR WELL NO. OXF97 EHS  
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

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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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(8-13)

API NO. 47- 017 - 06583  
OPERATOR WELL NO. OXF97 EHS  
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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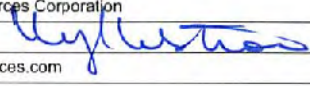
08/03/2018

WW-6A  
(8-13)

API NO. 47- 017 - 06583  
OPERATOR WELL NO. OXF97 EHS  
Well Pad Name: Oxford 97 Pad

**Notice is hereby given by:**

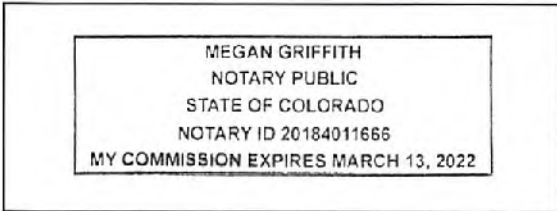
Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310  
Email: mslantoni@anteroresources.com

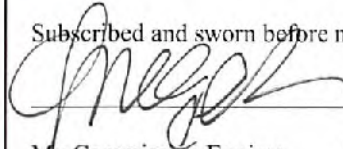


Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**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.  
  
\_\_\_\_\_  
Notary Public  
My Commission Expires 3/13/2022

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

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

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

**Date of Notice:** 01/08/2017

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

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

- HAND DELIVERY
- CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

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

Name: Haessly Land & Timber, LLC  
Address: 25 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:	West Virginia	UTM NAD 83 Easting:	516947.2m
County:	Doddridge	UTM NAD 83 Northing:	4342664.3m
District:	West Union	Public Road Access:	Waco Rd.
Quadrangle:	Oxford 7.5'	Generally used farm name:	Haessly Land & Timber, LLC
Watershed:	Headwaters Middle Island Creek		

**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/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

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

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

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**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).



WW-6A5  
(1/12)

Operator Well No. OXF97 EHS  
47 01 - 0658

**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>516947.2m</u>
County:	<u>Doddridge</u>		Northing:	<u>4342664.3m</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

Denver, CO 80202

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 of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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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 EHS 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

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



# List of Anticipated Additives Used for Fracturing or Stimulating Well

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

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**SHEET INDEX**

- 1 - COVER SHEET
- 2 - CONSTRUCTION AND EROSION CONTROL NOTES
- 3 - LEGEND
- 4 - MATERIAL QUANTITIES
- 5 - STORM DRAINAGE & EROSION COMPUTATIONS
- 6 - DRAINAGE SHEET INDEX AND TOLLING
- 7-15 - ACCESS ROAD AS-BUILT PLAN
- 14 - ACCESS ROAD AS-BUILT & STORMFLOW PLAN
- 15 - WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN
- 16 - WELL PAD & WATER CONTAINMENT PAD GRADING PLAN
- 17-20 - ACCESS ROAD SECTIONS
- 21-23 - ACCESS ROAD SECTIONS
- 23-24 - WELL PAD & WATER CONTAINMENT PAD SECTIONS
- 25 - WELL PAD WATER CONTAINMENT PAD A. PROTECTIVE SYSTEM
- 25-30 CONSTRUCTION DETAILS
- 31 - WELL PAD & WATER CONTAINMENT PAD REGULATION PLAN

**LOCATION COORDINATES**

ACCESS ROAD ENTRANCE  
 LATITUDE 38°28'00" N LONGITUDE -80°28'00" W (PAD #01)  
 N 82°00'00" E 0.5670136 (LOW ZONE TP METERS)

CENTRE OF PAD  
 LATITUDE 38°28'00" N LONGITUDE -80°28'00" W (PAD #01)  
 N 82°00'00" E 0.5670136 (LOW ZONE TP METERS)

CONTRE OF PAD  
 LATITUDE 38°28'00" N LONGITUDE -80°28'00" W (PAD #01)  
 N 82°00'00" E 0.5670136 (LOW ZONE TP METERS)

**GENERAL DESCRIPTION**

THE ACCESS ROAD AND WELL PAD ARE BEING UPGRADED AND THE WATER CONTAINMENT PAD IS BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL WATERSHED SCALE GAS WELLS

**FLOODPLAIN NOTES**

THE SITE IS LOCATED WITHIN FEMA FLOOD ZONE V-1 PER FEMA FLOOD MAP #40707020C

**MISS UTILITY STATEMENT**

ANTERO RESOURCES CORPORATION HAS REVIEWED MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT REGION. 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 (19704 WJ 104) 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 2017 BY ALUSTAR ECOLOGY TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE NOVEMBER 16, 2017 STREAM AND WETLAND DELINEATION SURVEY MAP WAS PREPARED BY ALUSTAR ECOLOGY AND SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE MAP DOES NOT IN ANY WAY REPRESENT A JURISDICTIONAL DETERMINATION OF THE LAWFUL LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USE OF OR THE WATER.

**PROJECT CONTACTS**

**MARK HUNTER - LAND RIGHT**  
 CELL: (304) 409-8010

**CHARLES E. CUYLER III - SURVEYING COORDINATOR**  
 CELL: (304) 716-4644

**ENGINEER/ARCHITECT**  
 NAVITUS ENERGY INC.  
 2100 S. KEMP, 2E. PROJECT MANAGEMENT SERVICES  
 OFFICE: (800) 842-4100 CELL: (506) 608-0781

**ENVIRONMENTAL**  
 ALUSTAR ECOLOGY, LLC  
 1000 S. PARK - ENVIRONMENTAL SCIENTISTS  
 OFFICE: (800) 242-2847 CELL: (304) 852-7177

**ROBERT D. WIND - FIELD ENGINEER**  
 OFFICE: (304) 842-4100 CELL: (304) 827-7000

**RESTRICTIONS NOTES**

1. THERE ARE NO LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD AND 100 FEET PER 2 WETLANDS AND 1 PERENNIAL STREAM ADJACENT TO THE EXISTING ACCESS ROAD THAT HAVE REMAINED UNDISTURBED.
2. THERE ARE NO NATURALLY FORMED TRIBUTARY STREAMS WITHIN 100 FEET OF THE WELL PAD AND 100.
3. THERE ARE NO CONSUMPTIVE INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 100 FEET OF THE WELL PAD AND 100.
4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 100 FEET OF THE WELL PAD AND 100.
5. THERE ARE NO OCCUPIED DWELING STRUCTURES WITHIN 100 FEET OF THE CENTER OF THE WELL PAD.
6. THERE ARE NO ADJACENT STRUCTURES LARGER THAN 2,500 SQUARE FEET WITHIN 100 FEET OF THE CENTER OF THE WELL PAD.

**REPRODUCTION NOTE**

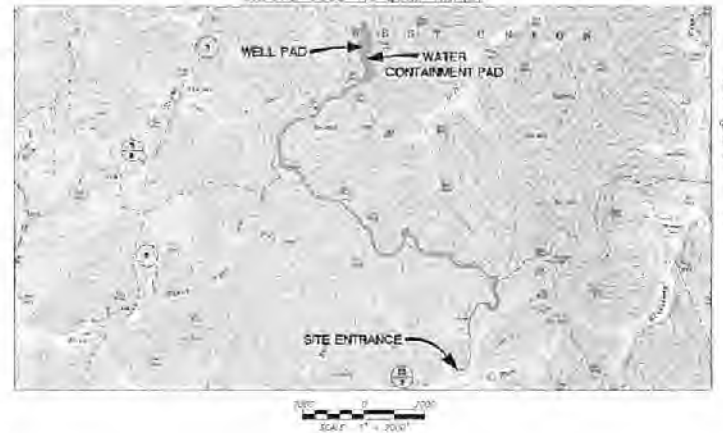
THIS PLAN WAS CREATED BY OR MODIFIED ON 02/14/2018 BY THE CAD FILE PROVIDED AND ON 02/14/2018 BY THE USER.  
 THESE PLANS WERE CREATED FROM DRAWING PLOTTING AND NOT REPRODUCED FROM A CAD FILE. SCALE BAR LENGTHS MAY VARY BY APPROXIMATELY 0.001 UNITS. THESE PLANS SHOULD BE USED FOR CONSTRUCTION PURPOSES.

# OXFORD 97 WELL PAD & WATER CONTAINMENT PAD

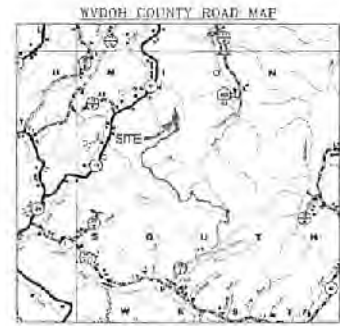
## AS-BUILT AND EROSION & SEDIMENT CONTROL IMPROVEMENT PLAN

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

**OXFORD USGS 7.5 QUAD MAP(S)**



WEST VIRGINIA STATE PLANE COORDINATE SYSTEM  
 NORTH ARROW NORTH  
 DISTANCE MEASURED BY SURVEY GRADE AND GPS  
 POINT PROJECTION



**AS-BUILT CERTIFICATIONS**  
 THE DRAWING, CONSTRUCTION NOTES, AND SPECIFICATIONS ATTACHED HERETO HAVE BEEN PREPARED BY ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, DIVISION OF ENVIRONMENTAL PROTECTION, TITLE 60, AND GAS CODE 55-7.

MISS UTILITY of West Virginia  
 1-800-245-4009  
 West Virginia State Law  
 (Section XV, Chapter 24-C)  
 Requires that you call two  
 business days before you dig in  
 the state of West Virginia  
 IT'S THE LAW!

OXFORD 97 LIMITS OF DISTURBANCE AREA (AC)		
Total Area	Permitted	Modification
DW 142 Access Road "A" (1.027)	24.43	0.28
OXF 97 Access Road "B" (0.200)	15.83	0.30
Well Pad	7.04	0.00
Water Containment Pad	7.00	0.00
Exposed/Open Material Stockpiles	2.77	3.79
<b>Total Affected Area</b>	<b>58.89</b>	<b>4.37</b>
<b>Total Wooded Acres Disturbed</b>	<b>15.83</b>	<b>0.31</b>
<b>Impacts to L.L. Morris</b>		
OXF 149 Access Road "A" (4.635)	8.16	0.24
<b>Total Affected Area</b>	<b>8.16</b>	<b>0.24</b>
<b>Total Wooded Acres Disturbed</b>	<b>0.00</b>	<b>0.24</b>
<b>Impacts to Lucy Harper 08-08-21-0</b>		
OXF 149 Access Road "A" (0.127)	16.32	0.04
OXF 97 Access Road "B" (207)	0.51	0.00
<b>Total Affected Area</b>	<b>16.83</b>	<b>0.04</b>
<b>Total Wooded Acres Disturbed</b>	<b>0.31</b>	<b>0.04</b>
<b>Impacts to Hanesley Land &amp; Timber LLC 09-07-05-04</b>		
OXF 97 Access Road "B" (207)	2.06	0.00
<b>Total Affected Area</b>	<b>2.06</b>	<b>0.00</b>
<b>Total Wooded Acres Disturbed</b>	<b>0.04</b>	<b>0.04</b>
<b>Impacts to Hanesley Land &amp; Timber LLC 09-26-22-14</b>		
OXF 97 Access Road "B" (207)	1.44	0.00
<b>Total Affected Area</b>	<b>1.44</b>	<b>0.00</b>
<b>Total Wooded Acres Disturbed</b>	<b>0.00</b>	<b>0.00</b>
<b>Impacts to Williams Ranch Hamilton 09-09-23-34</b>		
OXF 97 Access Road "B" (0.200)	12.61	0.01
Exposed/Open Material Stockpiles	0.45	0.63
<b>Total Affected Area</b>	<b>13.10</b>	<b>0.64</b>
<b>Total Wooded Acres Disturbed</b>	<b>4.70</b>	<b>0.73</b>
<b>Impacts to Hanesley Land &amp; Timber LLC 09-08-22-10</b>		
OXF 97 Access Road "B" (1.024)	3.95	0.23
Well Pad	2.00	0.00
Water Containment Pad	0.44	0.00
Exposed/Open Material Stockpiles	1.22	0.15
<b>Total Affected Area</b>	<b>8.30</b>	<b>0.38</b>
<b>Total Wooded Acres Disturbed</b>	<b>6.05</b>	<b>0.30</b>
<b>Impacts to Zoe K. Trifirov 09-08-18-27</b>		
Well Pad	3.95	0.20
Water Containment Pad	0.50	0.10
Exposed/Open Material Stockpiles	1.05	0.10
<b>Total Affected Area</b>	<b>6.00</b>	<b>0.40</b>
<b>Total Wooded Acres Disturbed</b>	<b>3.95</b>	<b>0.20</b>

Well Name	WV North NAD 27	WV North NAD 83	UTM (METERS) Zone 17	NAD 83 Lat & Long
<b>OXF 97 Unit #01 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #02 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #03 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #04 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #05 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #06 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #07 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #08 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #09 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #10 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438

Well Name	WV North NAD 27	WV North NAD 83	UTM (METERS) Zone 17	NAD 83 Lat & Long
<b>OXF 97 Unit #11 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #12 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #13 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #14 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #15 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #16 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #17 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #18 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #19 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438
<b>OXF 97 Unit #20 (Drilled)</b> APR 47-01-2049	N 28969.02 E 183296.17	N 28969.02 E 183296.17	N 429280.33 E 176949.20	LAT 38-15-08.745 LONG 80-44-13.438

NAVITUS ENERGY ENGINEERING

DATE	REVISION	DESCRIPTION



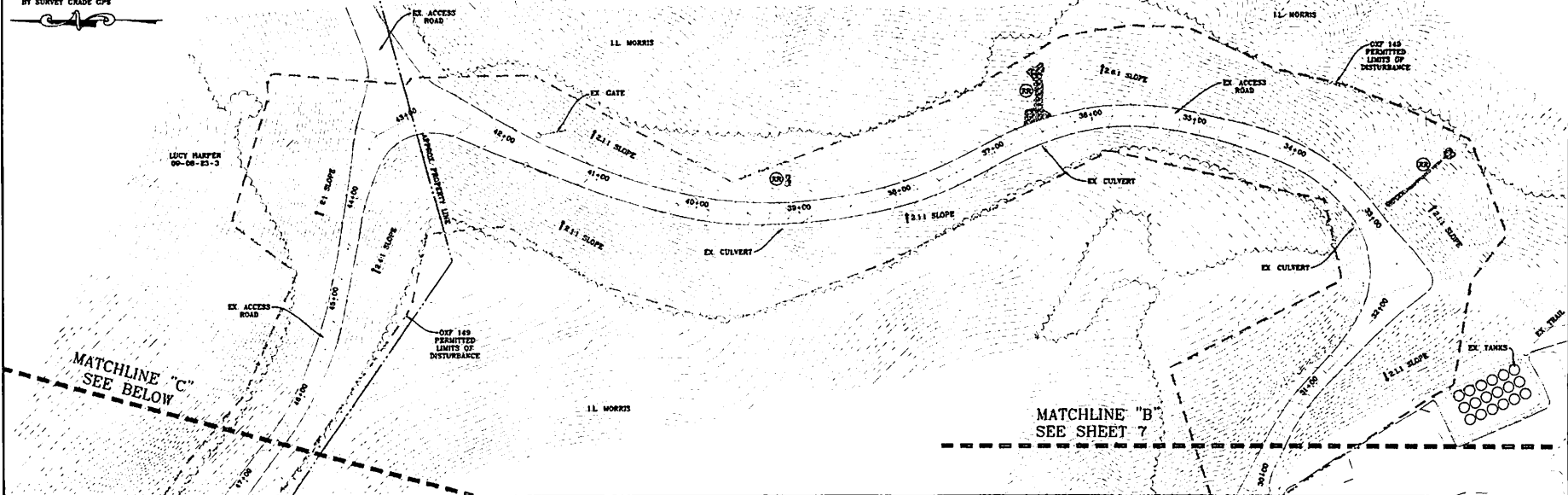
COVER SHEET  
**OXFORD 97 WELL PAD**  
 SOUTHWEST & WEST UNION DISTRICTS  
 DODDRIDGE COUNTY, WEST VIRGINIA



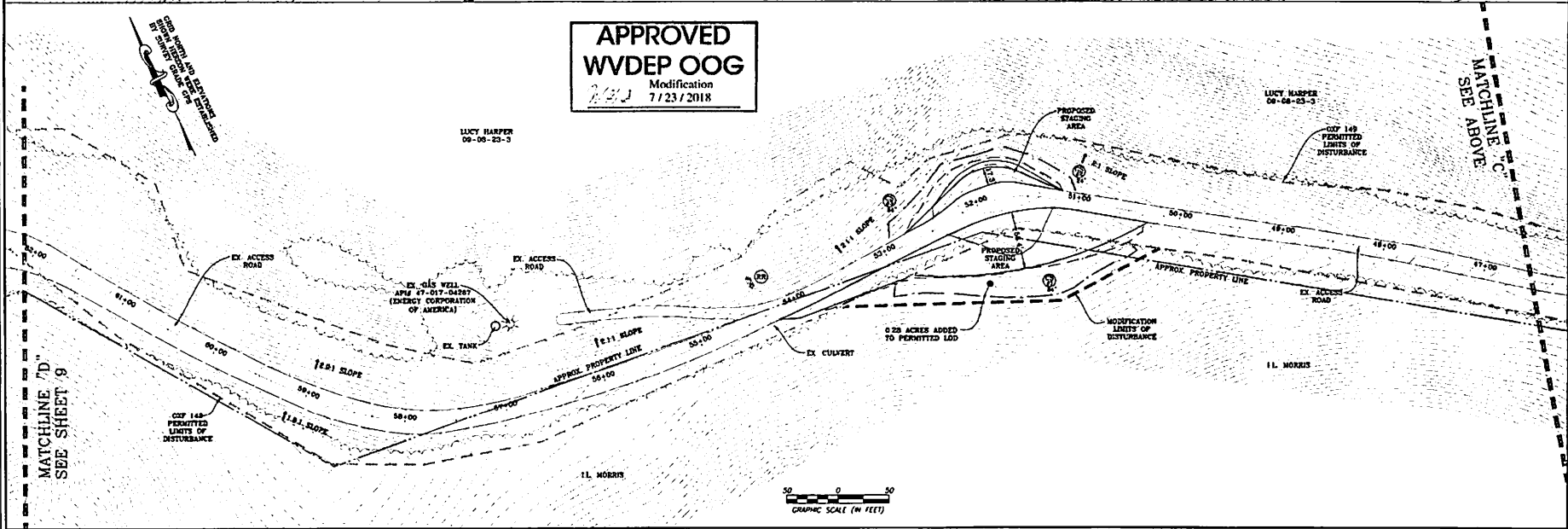


GRID NORTH AND ELEVATIONS SHOWN HEREON WERE ESTABLISHED BY SURVEY CHAIN C/S

# ACCESS ROAD AS-BUILT PLAN



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



**NAVITUS**  
 ENERGY ENGINEERING  
 Telephone: (828) 632-4155 | www.NavitusEng.com

DATE	REVISION
02/02/2018	REVISED PER EXISTING C/S LINES
02/02/2018	REVISED PER IOD

**Antero**  
 THIS DOCUMENT WAS PREPARED FOR ANTERO RESOURCES CORPORATION

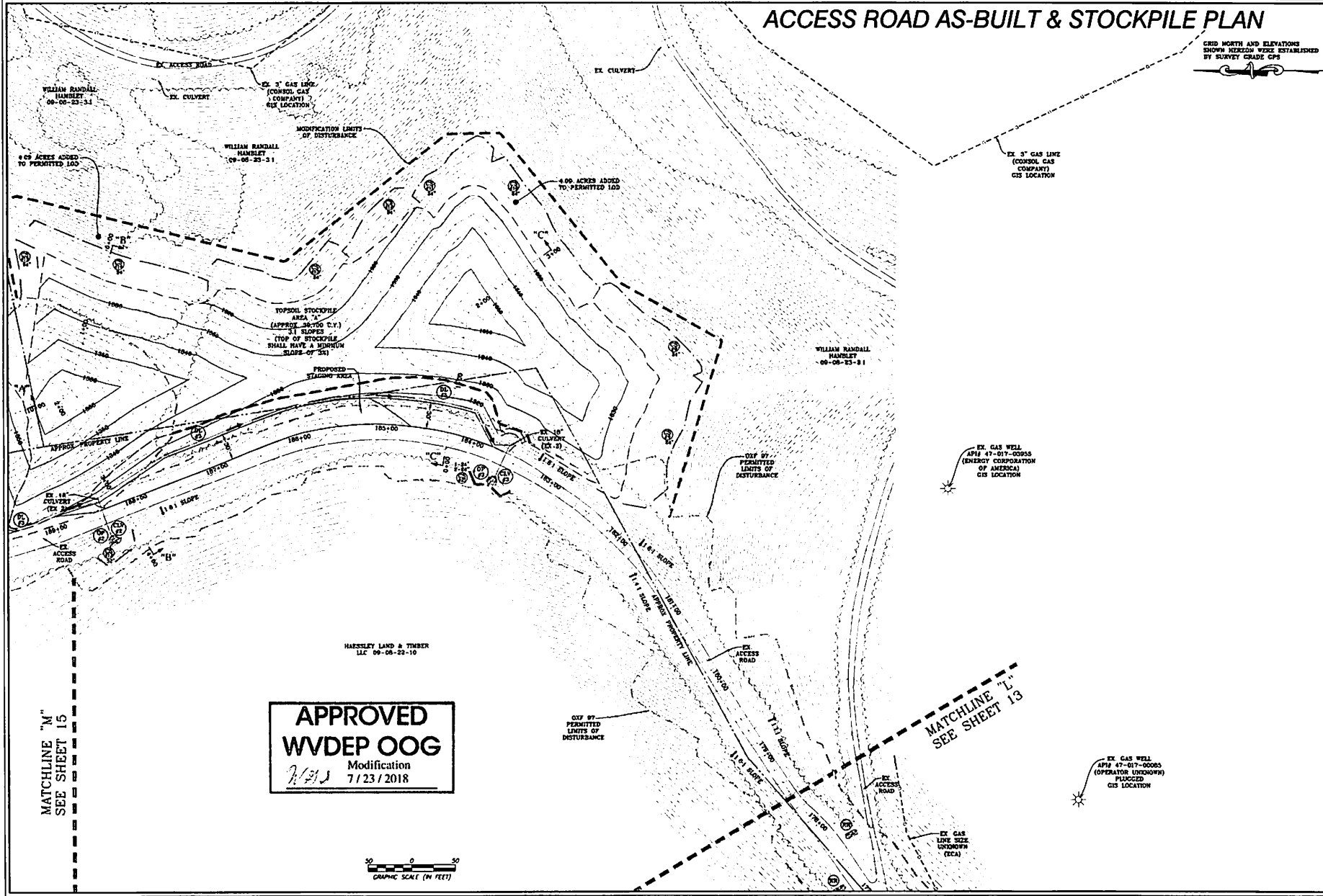
**OXFORD 97**  
 WELL PAD  
 SOUTHWEST & WEST UNION DISTRICTS  
 BODDRIDGE COUNTY, WEST VIRGINIA



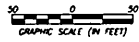
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 SCALE: 1" = 50'  
 SHEET 8 OF 36

# ACCESS ROAD AS-BUILT & STOCKPILE PLAN

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



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



**NAVITUS**  
 ENERGY ENGINEERING  
 Telephone: (833) 882-4151 | www.NavitusEE.com

DATE	REVISION
02/14/2018	REVISED PER EXISTING GAS LINES
02/13/2018	REVISED PER IJD

**Antero**  
 THIS DOCUMENT WAS PREPARED FOR ANTERO RESOURCES CORPORATION

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

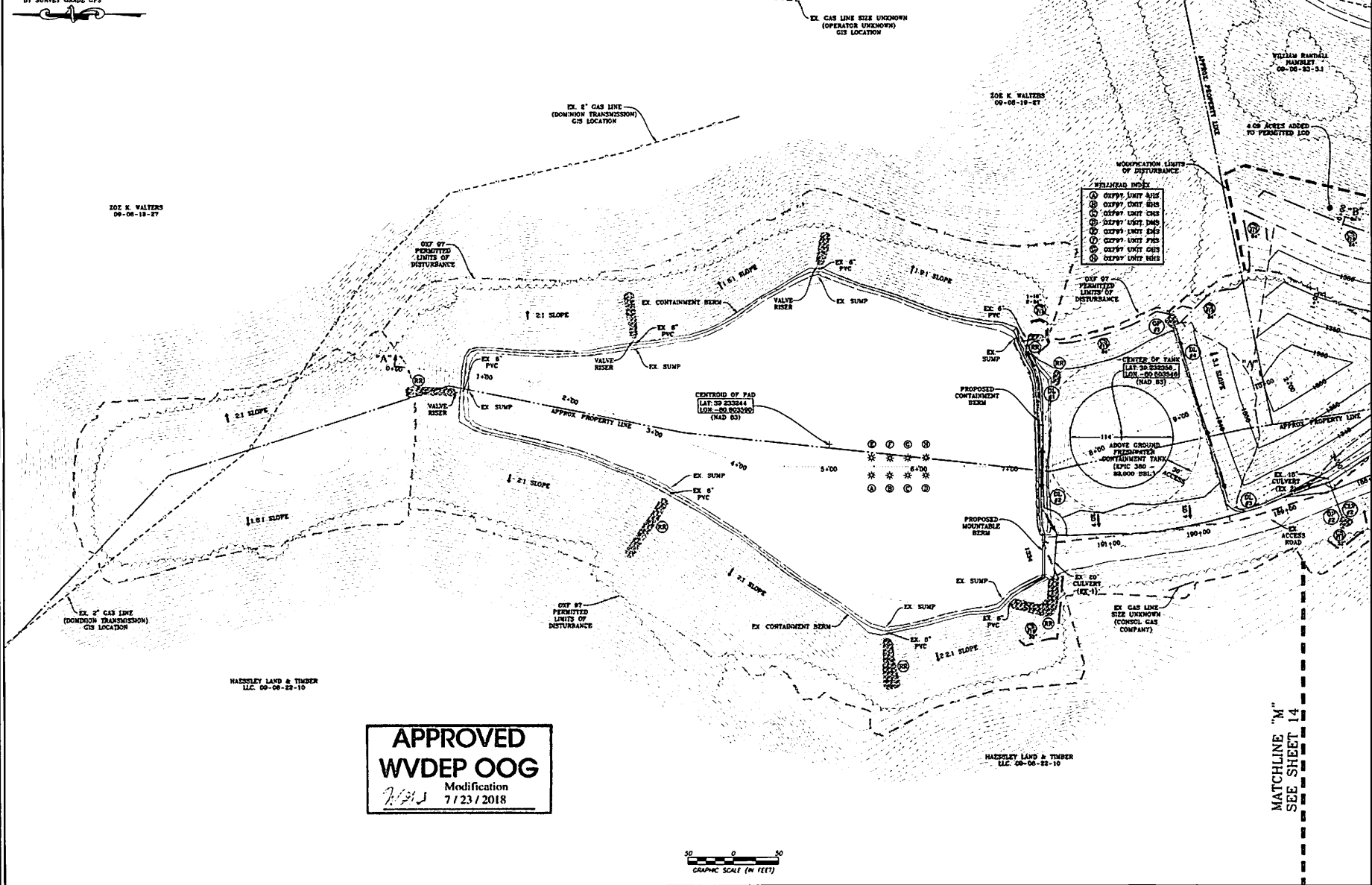


02/14/2018  
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 SHEET 14 OF 38



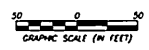
GRID NORTH AND ELEVATIONS  
SHOWN HEREON WERE ESTABLISHED  
BY SURVEY GRADE CIPS

# WELL PAD AS-BUILT & WATER CONTAINMENT PAD PLAN



- WELLED INDEX**
- ⊙ OXF97 UNIT AHS
  - ⊙ OXF97 UNIT BHS
  - ⊙ OXF97 UNIT CHS
  - ⊙ OXF97 UNIT DMS
  - ⊙ OXF97 UNIT EHS
  - ⊙ OXF97 UNIT FHS
  - ⊙ OXF97 UNIT GHS
  - ⊙ OXF97 UNIT HHS

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



**NAVITUS**  
ENERGY ENGINEERING

DATE	REVISION
02/14/2018	REVISED PER OOG
	REVISED PER OOG

**Antero**  
THIS DOCUMENT  
WAS PREPARED FOR  
ANTERO RESOURCES  
CORPORATION

**OXFORD 97**  
WELL PAD  
SOUTHWEST & WEST UNION DISTRICTS  
BOYD COUNTY, WEST VIRGINIA



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

MATCHLINE "M"  
SEE SHEET 14