



**west virginia** department of environmental protection

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

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

April 11, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

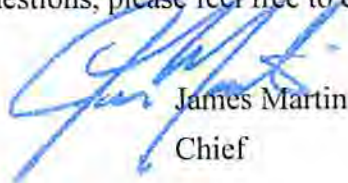
This permit, API Well Number: 47-8510087, issued to EQT PRODUCTION COMPANY, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all 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 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: WV 512427  
Farm Name: RAY, RICHARD L. & SHERYL A.  
**API Well Number: 47-8510087**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 04/11/2014

Promoting a healthy environment.

04/11/2014

**PERMIT CONDITIONS 4708510087**

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

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**CONDITIONS**

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1. The Office of Oil and Gas has approved your permit application, which includes your addendum. Please be advised that the addendum is part of the terms of the well work permit, and will be enforced as such. The Office of Oil and Gas must receive a copy of all data collected, and submitted in a timely fashion, but no later than the WR35 submittal.
2. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
3. 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 fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
4. 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.
5. 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.
6. 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.
7. 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.

## PERMIT CONDITIONS

8. 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.
9. 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.

4708510087

**EQT Production**  
**Hydraulic Fracturing Monitoring Plan**  
**Pad ID: Oxford 122**  
**Ritchie County, WV**

**3/25/14**

## **Purpose**

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Ritchie County, WV prior to hydraulic fracturing at the following EQT wells on the Oxford 122 pad: 513762, 512427, and 512501.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 6,400' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Alexander formation (approximately 5,200' TVD).

The plan is being implemented as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the site. These additional measures include pre-notification of conventional well operators of the timing and location of the hydraulic fracturing, establishment of measures conventional well operators should implement, and assurance that the OOG is notified of the timeline, as well as any issues that may arise during fracturing.

### **1. Communications with Conventional Well Operators**

EQT, using available data (WV Geological Survey, WVDEP website, and IHS data service), has identified all known conventional wells and well operators within 1,500 feet of this pad and the lateral sections. A map showing these wells along with a list of the wells and operators is attached.

Upon approval of this plan, EQT will notify these operators, via letter, of the hydraulic fracturing schedule for these wells. A copy of this letter is attached.

The letter provides recommendations to these conventional operators to 1) increase their monitoring of their wells during that time period, 2) ensure that their well head equipment is sound, and 3) provide immediate notification to EQT and the OOG in the event of any changes in their well conditions.

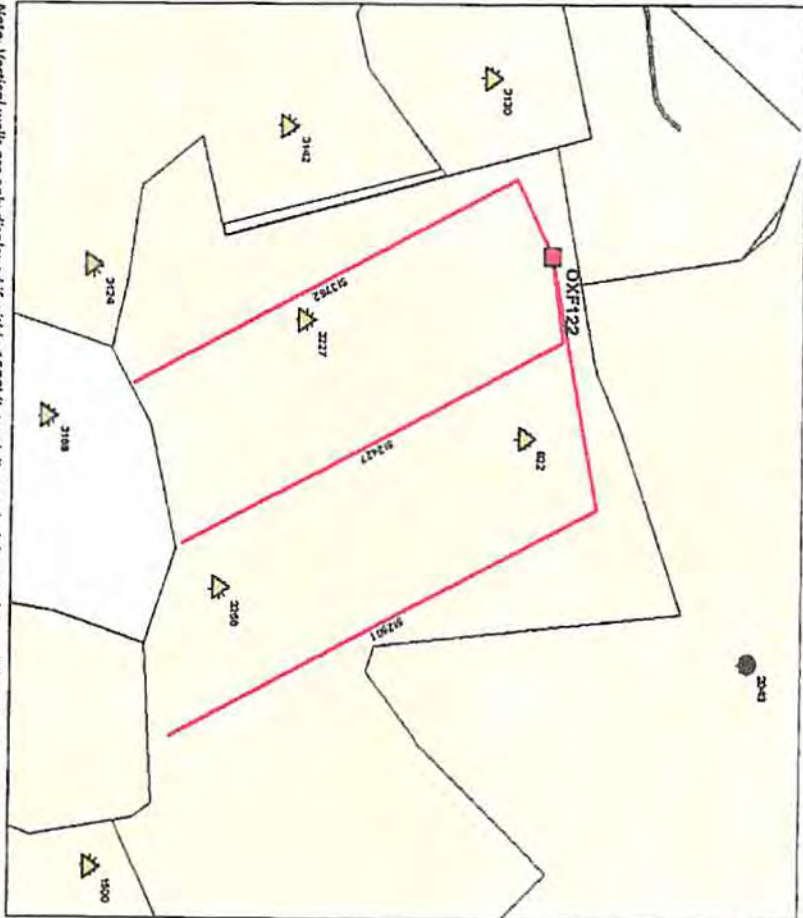
Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity
4. Notify the OOG and EQT if any changes in water, gas production, pressure, or other anomalies are identified

### **2. Reporting**

EQT will provide information relating to the hydraulic fracturing schedule, communication with conventional operators, and ongoing monitoring of the work upon request of OOG or immediately in the event of any noted abnormalities.

**OXF122 Vertical Offsets**



Note: Vertical wells are only displayed if within 1500' (lateral distance) of the new/planned horizontal OXF122 wells.

	Landed above 2,500'
	Plugged
	Planned/New EQT Horizontal Wells







**CASING AND TUBING PROGRAM**

18)

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu.Ft.)
Conductor	20	New	MC-50	81	40	40	38 CTS
Fresh Water	13 3/8	New	MC-50	54	1,049	1,049	909 CTS
Coal							
Intermediate	9 5/8	New	MC-50	40	2,934	2,934	1144 CTS
Production	5 1/2	New	P-110	20	10,283	10,283	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100' less than TD
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	24	0.375	-	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,480	1	1.21
Coal						
Intermediate	9 5/8	12 3/8	0.395	3,590	1	1.21
Production	5 1/2	8 1/2	0.361	12,640	-	1.27/1.86
Tubing						
Liners						

**Packers**

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

Note 1: EQT plans to bring the TOC on the production casing cement job 1,000' above kick off point, which is at least 500' above the shallowest production zone, to avoid communication.

*Done*  
1-30-14

**Received**

FEB 14 2014 04/11/2014

Office of Oil and Gas  
WV Dept. of Environmental Protection



4708510087

January 13, 2014

Mr. Gene Smith  
West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304

Re: Casing on OXF122 (512427)

Dear Mr. Smith,

EQT is requesting the 13 3/8" surface casing to be set 50' below the deepest red rock show to cover potential red rock issues. The proposed casing set depth is above ground elevation. The reason for this is the red rock swells during drilling of the intermediate section causing many drilling problems such as but not limited to lost drilling assemblies and casing running issues.

In reviewing the OXF122, we would like to request to set the surface casing deeper on each well. The 13 3/8" casing will be set at a depth of approximately 1049' KB (50' below the anticipated red rock show).

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki Roark'.

Vicki Roark  
Permitting Supervisor-WV

Enc.

Received 04/11/2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

(3/13)

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

Drill and complete a new horizontal well in the Marcellus formation. The vertical drill to go down to an approximate depth of 5038' then kick off the horizontal leg into the Marcellus formation using a slick water frac.

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

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, gelling agent, gel breaker, friction reducer, biocides, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated treating pressures are expected to average approximately 8500 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

21) Total area to be disturbed, including roads, stockpile area, pits, etc. (acres): 29.51

22) Area to be disturbed for well pad only, less access road (acres): 18.14

23) Describe centralizer placement for each casing string.

- Surface: Bow spring centralizers – One at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers – One cent at the shoe and one spaced every 500'.
- Production: One spaced every 1000' from KOP to Int csg shoe

24) Describe all cement additives associated with each cement type. Surface (Type 1 Cement): 0-3% Calcium Chloride

Used to speed the setting of cement slurries.

0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone.

Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.4% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.

Production:

Lead (Type 1 Cement): 0.2-0.7% Lignosulfonate (Retarder). Lengthens thickening time.

0.3% CFR (dispersant). Makes cement easier to mix.

Tail (Type H Cement): 0.25-0.40% Lignosulfonate (Retarder). Lengthens thickening time.

0.2-0.3% CFR (dispersant). This is to make the cement easier to mix.

60 % Calcium Carbonate. Acid solubility.

0.4-0.6% Halad (fluid loss). Reduces amount of water lost to formation.

25) Proposed borehole conditioning procedures. Surface: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating

one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5

minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors back on

and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at

surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam drilling, to enhance

hole cleaning use a soap sweep or increase injection rate & foam concentration.

Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume.

Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across

the shakers every 15 minutes.

\*Note: Attach additional sheets as needed.

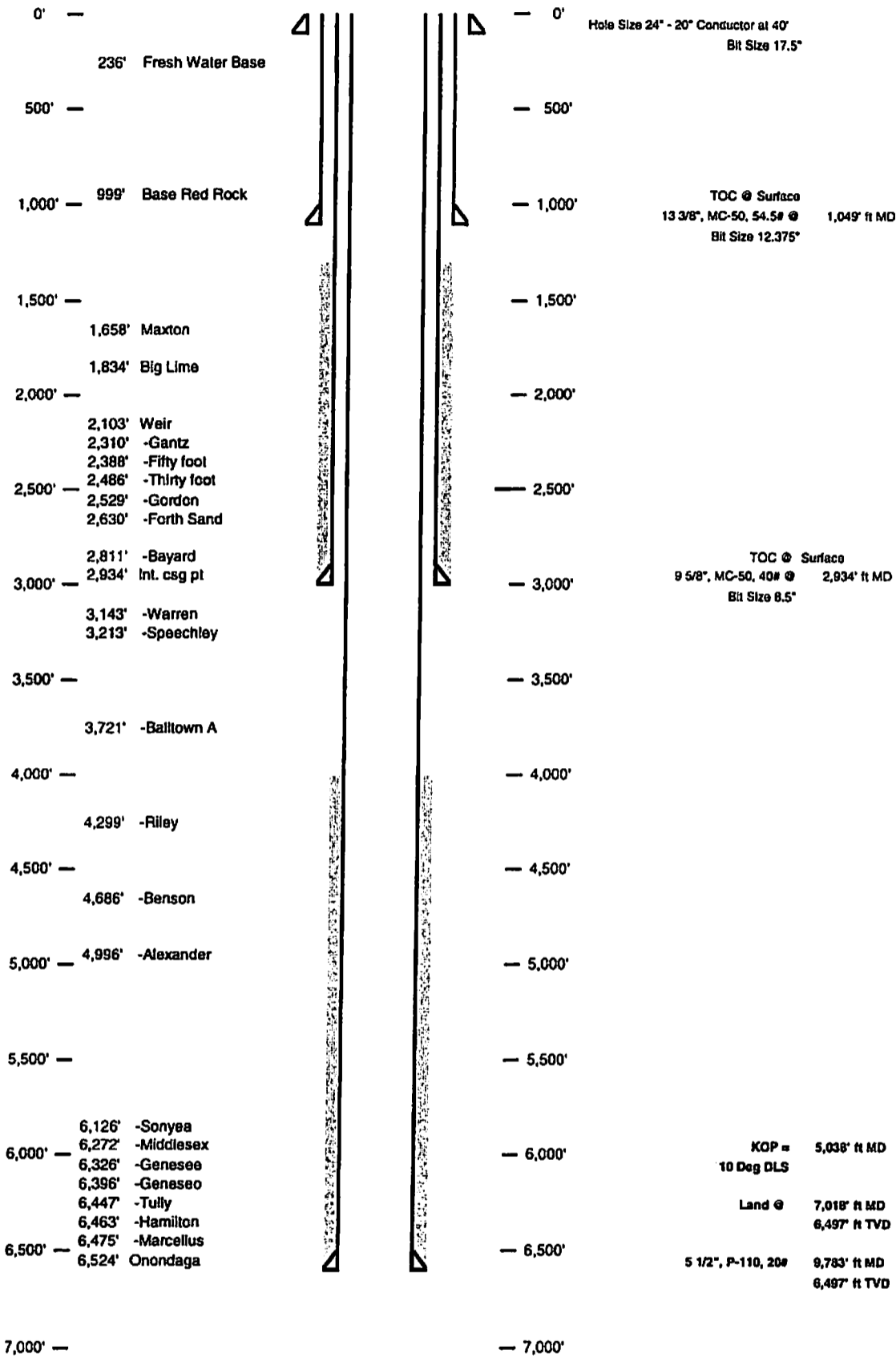
Received  
04/11/2014  
FEB 14 2014

Well Schematic  
EQT Production

Well Name 512427 (OXF122H2)  
County Ritchie  
State West Virginia

Elevation KB:  
Target  
Prospect  
Azimuth  
Vertical Section

1124
Marcellus
155
2959



*Handwritten signature*

Received 04/11/2014

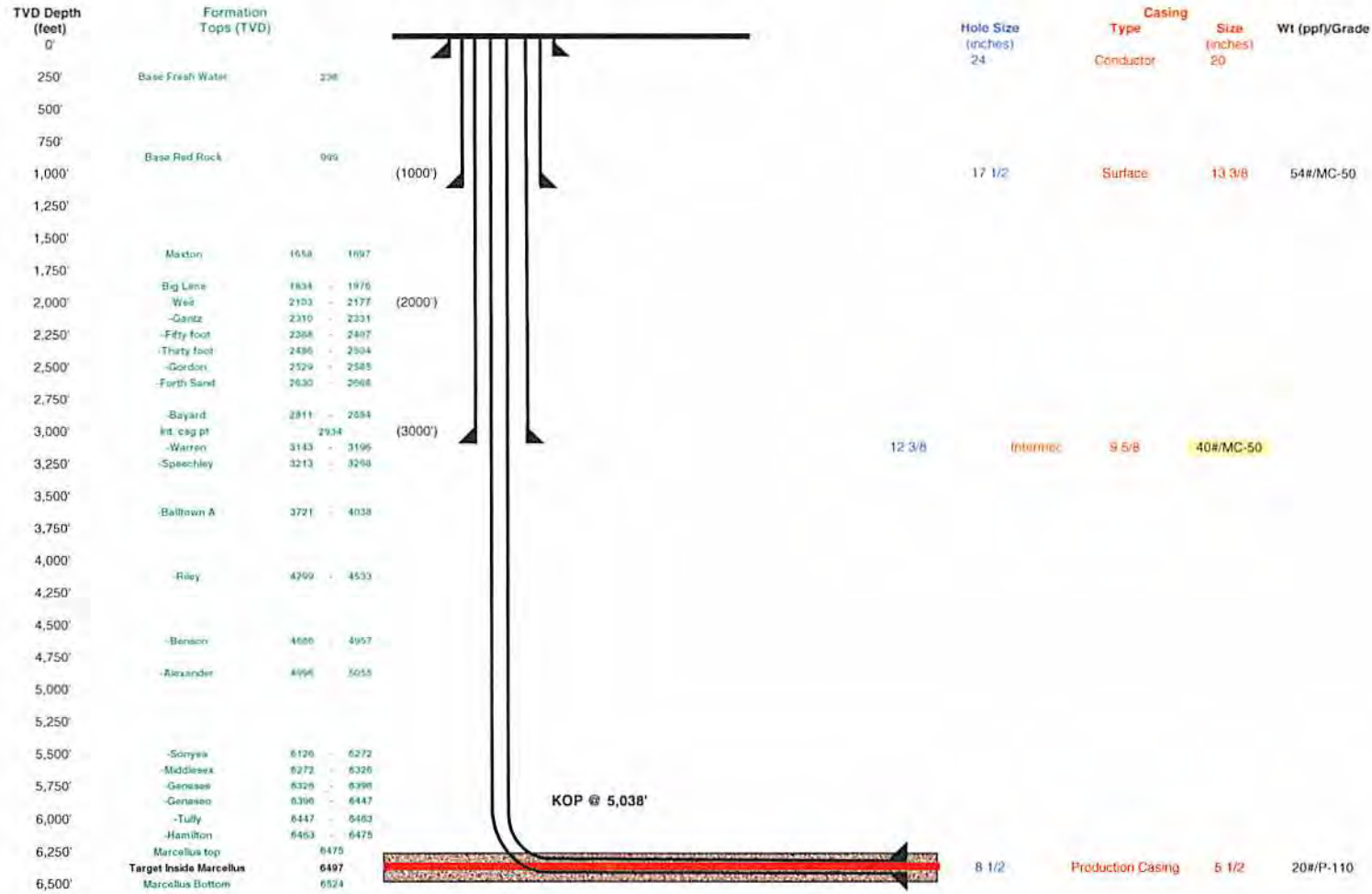
FEB 14 2014

Office of Oil and Gas  
WV Dept. of Environmental Protection

4708510087

Well 512427 (OXF122H2)  
 EQT Production  
 Oxford Quad  
 Ritchie West Virginia

Azimuth 155  
 Vertical Section 2959



Land curve @ 6,497' ft TVD  
 7,018' ft MD  
 Est. TD @ 6,497' ft TVD  
 9,783' ft MD

2,765' ft Lateral

Proposed Well Work:  
 Drill and complete a new horizontal well in the Marcellus formation.  
 The vertical drill to go down to an approximate depth of 5038'.  
 Then kick off the horizontal leg into the Marcellus formation using a slick water frac.

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 WV Dept. of Environmental Protection

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

Fluids/Cuttings Disposal & Reclamation Plan

Operator Name OXF122 OP Code \_\_\_\_\_

Watershed (HUC10) Straight Fork Quadrangle Oxford 7.5'

Elevation 1111.0 County Ritchie District Union

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

Will a pit be used? Yes: \_\_\_\_\_ No: X

If so please describe anticipated pit waste: \_\_\_\_\_

Will a synthetic liner be used in the pit? Yes \_\_\_\_\_ No X If so, what ml.? 60

Proposed Disposal Method For Treated Pit Wastes:

- \_\_\_\_\_ Land Application
- \_\_\_\_\_ Underground Injection ( UIC Permit Number 0014, 8462, 4037 )
- \_\_\_\_\_ Reuse (at API Number \_\_\_\_\_)
- \_\_\_\_\_ Off Site Disposal (Supply form WW-9 for disposal location)
- \_\_\_\_\_ Other (Explain \_\_\_\_\_)

Will closed loop system be used? Yes, The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air is used to drill the top-hole sections of the wellbore. Surface, Intermediate, and Pilot hole sections, water based mud is used to drill the curve and lateral.

If oil based, what type? Synthetic, petroleum, etc \_\_\_\_\_

Additives to be used in drilling medium? MILBAR, Viscosifer, Alkalinity Control, Lime, Chloride Salts, Rate Filtration Control, Deflocculant, Lubricant, Detergent, Defoaming, Walnut Shell, X-Cide, SOLTEX Terra. Of the listed chemicals the following are generally used when drilling on air: lubricant, detergent, defoaming. Water based fluids use the following chemicals: MILBAR, viscosifer, alkalinity control, lime, chloride salts, rate filtration control, deflocculant, lubricant, detergent, defoaming, walnut shell, x-cide, SOLTEX terra

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. 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? See Attached List

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.

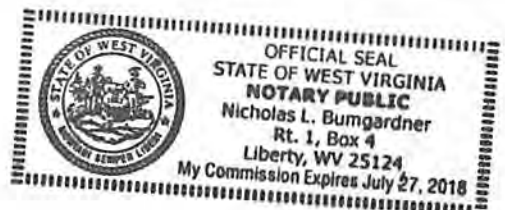
Company Official Signature \_\_\_\_\_  
Company Official (Typed Name) Victoria J. Roark  
Company Official Title Permitting Supervisor

Subscribed and sworn before me this 17 day of JANUARY, 20 14

Notary Public

My commission expires 6/27/2018 04/11/2014

Received



WW-9

Operator's Well No. 512427

Proposed Revegetation Treatment: Acres Disturbed 29.51 Prevegetation pH 5.8

Lime 3 Tons/acre or to correct to pH 6.5

Fertilize type \_\_\_\_\_

Fertilizer Amount 13 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

Attach:

Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments:

Proceed with mulch all cut areas no less than 2  
tons per acre. maintain all C&S throughout operations

Title: oil & gas inspector

Date: 1-30-14

Field Reviewed?

( ✓ )

(yes)

( ) No

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04/11/2014

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Office of Oil and Gas  
WV Dept. of Environmental Protection

<b>EQT Production Water plan</b> <b>Offsite disposals for Marcellus wells</b>
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**CWS TRUCKING INC.**

P.O. Box 391  
 Williamstown, WV 26187  
 740-516-3586  
 Noble County/Noble Township  
 Permit # 3390

**LAD LIQUID ASSETS DISPOSAL INC.**

226 Rankin Road  
 Washington, PA 15301  
 724-350-2760  
 724-222-6080  
 724-229-7034 fax  
 Ohio County/Wheeling  
 Permit # USEPA WV 0014

**TRI COUNTY WASTE WATER MANAGEMENT, INC.**

1487 Toms Run Road  
 Holbrook, PA 15341  
 724-627-7178 Plant  
 724-499-5647 Office  
 Greene County/Waynesburg  
 Permit # TC-1009

**Waste Management - Meadowfill Landfill**

Rt. 2, Box 68 Dawson Drive  
 Bridgeport, WV 26330  
 304-326-6027  
 Permit #SWF-1032-98  
 Approval #100785WV

**Waste Management - Northwestern Landfill**

512 E. Dry Road  
 Parkersburg, WV 26104  
 304-428-0602  
 Permit #SWF-1025 WV-0109400  
 Approval #100833WV

**BROAD STREET ENERGY LLC**

37 West Broad Street  
 Suite 1100  
 Columbus, Ohio 43215  
 740-516-5381  
 Washington County/Belpre Twp.  
 Permit # 8462

**TRIAD ENERGY**

P.O. Box 430  
 Reno, OH 45773  
 740-516-6021 Well  
 740-374-2940 Reno Office Jennifer  
 Nobel County/Jackson Township  
 Permit # 4037

**KING EXCAVATING CO.**

Advanced Waste Services  
 101 River Park Drive  
 New Castle, Pa. 16101  
 Facility Permit# PAR000029132

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04/11/2014

Office of Oil and Gas  
 WV Dept. of Environmental Protection





Where energy meets innovation.™

# Site Specific Safety and Environmental Plan For

EQT OXF 122 Pad  
West Union  
Ritchie County, WV

For Wells:

513762   512501   512427   \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date Prepared:

January 15, 2014

[Signature]  
EQT Production  
Permitting Supervisor  
Title  
1-16-14  
Date

[Signature]  
WV Oil and Gas Inspector  
adviser inspector  
Title  
1-30-14  
Date

Received 04/11/2014

FEB 14 2014

# W.M. ADAMS LEASE WELL NO.S WV 512426, WV 512427, WV 512428, WV 512500, WV 512501, WV 513762, WV 514081 & WV 514082



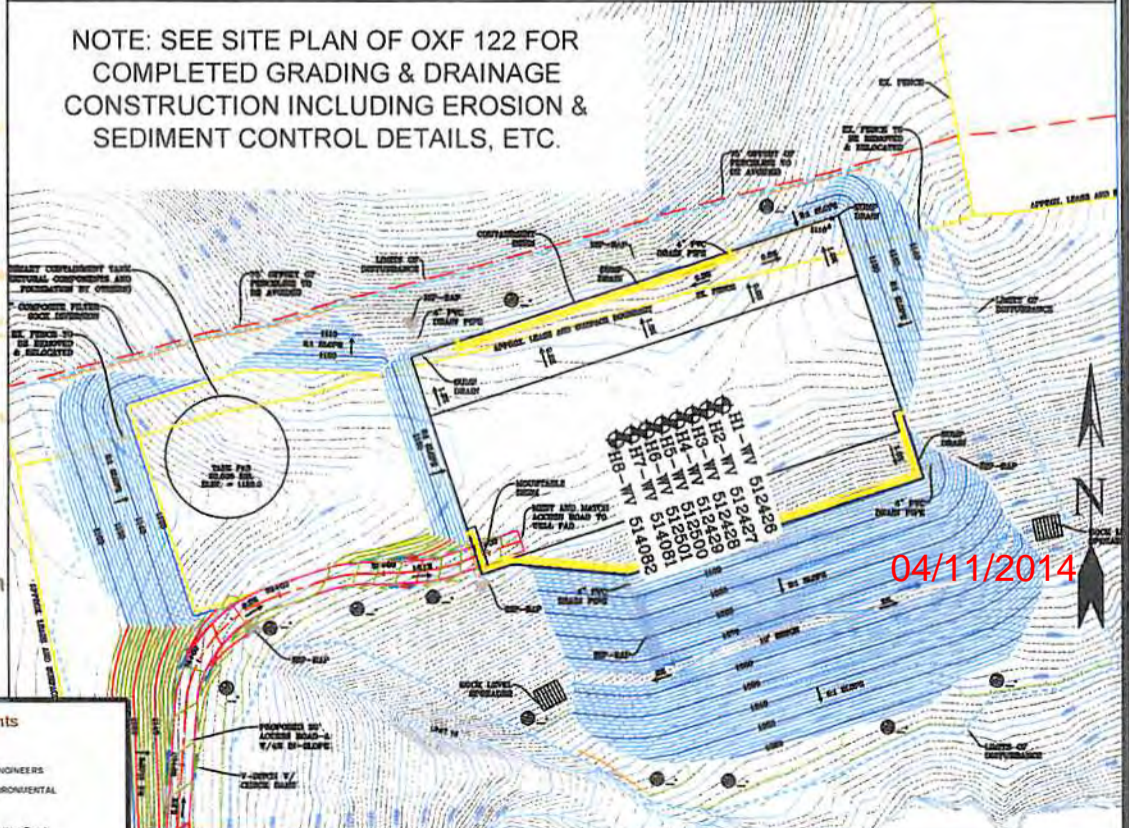
NOTE: SEE SITE PLAN OF OXF122 FOR COMPLETED GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.

SCALE: 1"=500'



## Detail Sketch for Proposed Wells WV 512426, WV 512427, WV 512428, WV 512500, WV 512501, WV 513762, WV 514081 & WV 514082

NOTE: SEE SITE PLAN OF OXF 122 FOR COMPLETED GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.



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Office of Oil and Gas  
WV Dept. of Environmental Protection

04/11/2014



Professional Energy Consultants  
A DIVISION OF SMITH LAND SURVEYING

SURVEYORS  
PROJECT MGMT



ENGINEERS  
ENVIRONMENTAL

225 West Main St.  
P.O. Box 100  
Greenville, WV 26351  
(304) 462-5634

88865 Dolle Baitman Road  
Shady Side, OH 43167  
(740) 671-8911

HONESTY. INTEGRITY. QUALITY.

TOPO SECTION OF OXFORD 7.5'  
USGS TOPO QUADRANGLE

Not To Scale

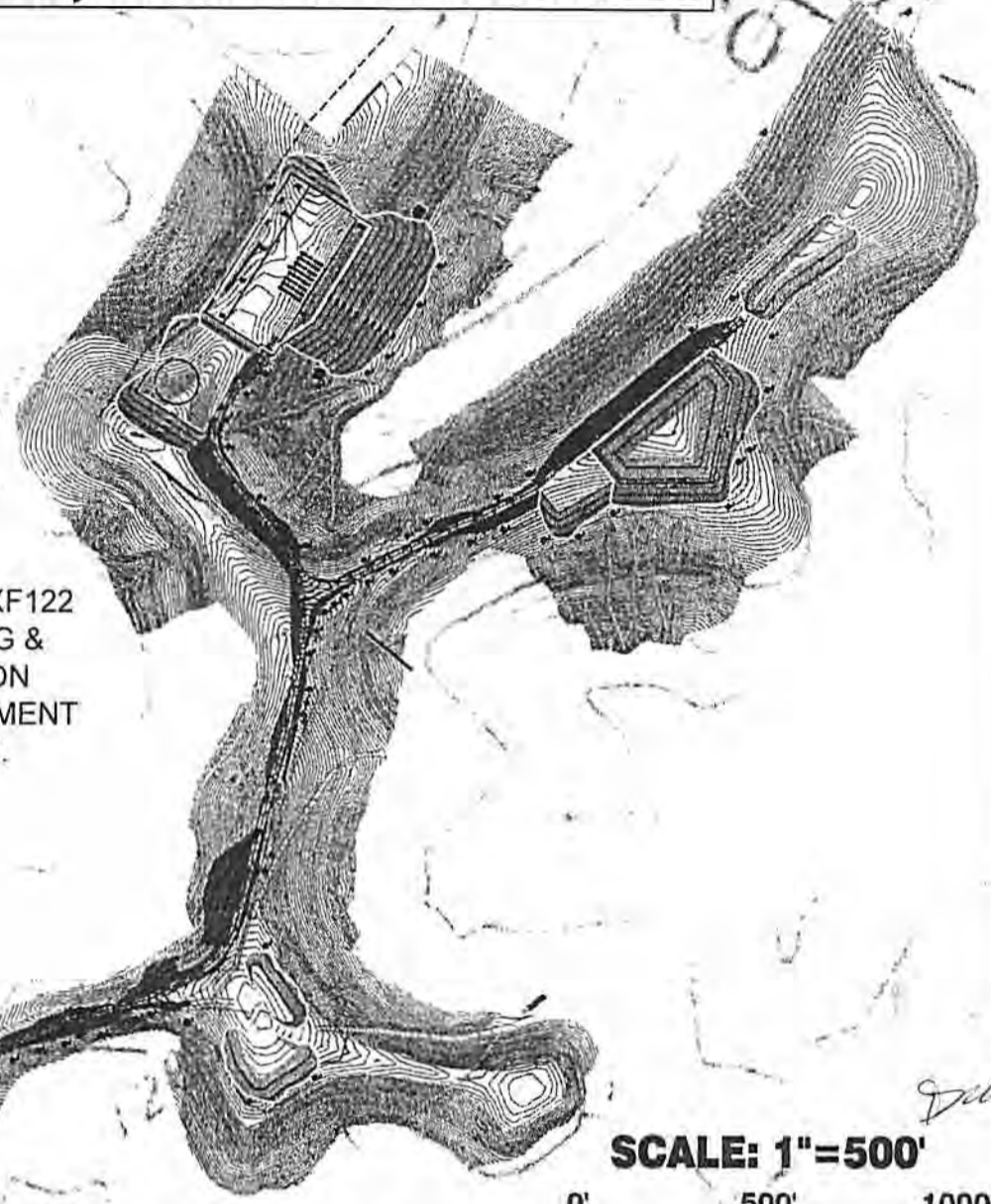
DRAWN BY: K.D.W. FILE NO.: 6811 DATE: 12-12-13 CADD FILE: 6811REC.PLAN5.dwg

**W.M. ADAMS LEASE**  
**WELL NO.S WV 512426, WV 512427,**  
**WV 512428, WV 512500, WV 512501,**  
**WV 513762, WV 514081 & WV 514082**

4708510087



NOTE: SEE SITE PLAN OF OXF122 FOR COMPLETED GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.

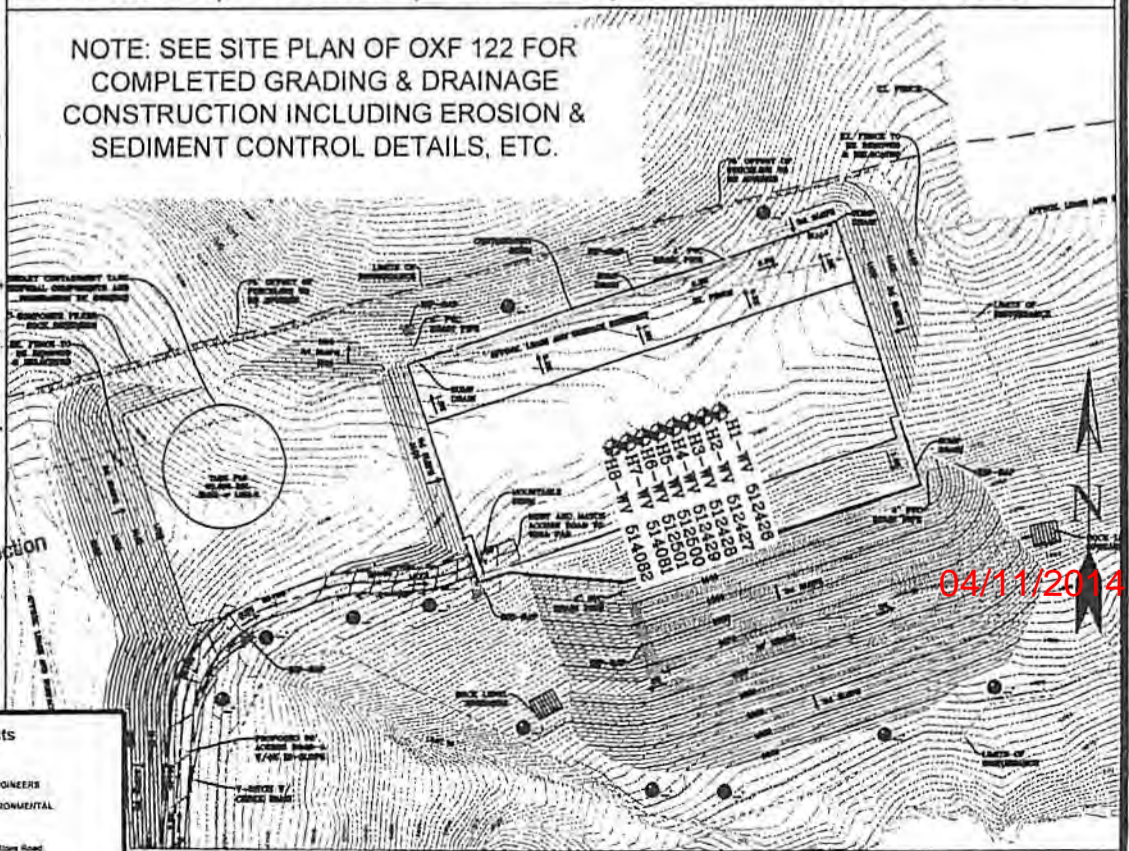


SCALE: 1"=500'



Detail Sketch for Proposed Wells WV 512426, WV 512427, WV 512428, WV 512500, WV 512501, WV 513762, WV 514081 & WV 514082

NOTE: SEE SITE PLAN OF OXF 122 FOR COMPLETED GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.



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 WV Dept. of Environmental Protection

04/11/2014

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 A DIVISION OF SMITH LAND SURVEYING



SURVEYORS PROJECT MGMT ENGINEERS ENVIRONMENTAL

238 World Class Dr.  
 P.O. Box 120  
 Glenview, WV 26031  
 (304) 842-0234

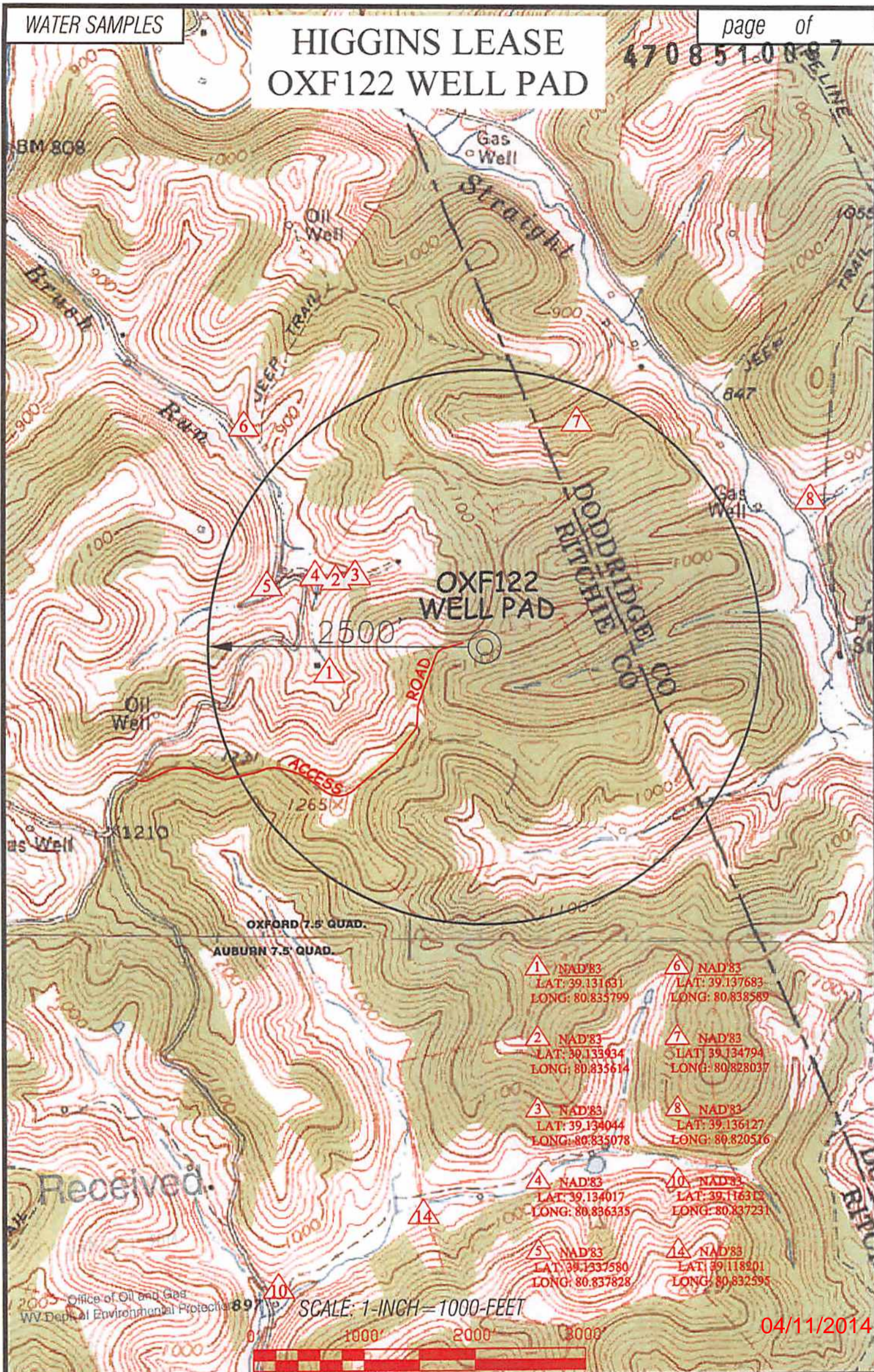
3046 Deles Bottom Road  
 Shuylkill, OH 43047  
 (740) 471-8911

HONESTY. INTEGRITY. QUALITY.

TOPO SECTION OF OXFORD 7.5'  
 USGS TOPO QUADRANGLE

Not To Scale

# HIGGINS LEASE OXF122 WELL PAD



- 1 NAD'83  
LAT: 39.131631  
LONG: 80.835799
- 2 NAD'83  
LAT: 39.133934  
LONG: 80.835614
- 3 NAD'83  
LAT: 39.134044  
LONG: 80.835078
- 4 NAD'83  
LAT: 39.134017  
LONG: 80.836335
- 5 NAD'83  
LAT: 39.1337580  
LONG: 80.837828
- 6 NAD'83  
LAT: 39.137683  
LONG: 80.838589
- 7 NAD'83  
LAT: 39.134794  
LONG: 80.828037
- 8 NAD'83  
LAT: 39.136127  
LONG: 80.820516
- 10 NAD'83  
LAT: 39.116312  
LONG: 80.837231
- 14 NAD'83  
LAT: 39.118201  
LONG: 80.832595

SCALE: 1-INCH=1000-FEET

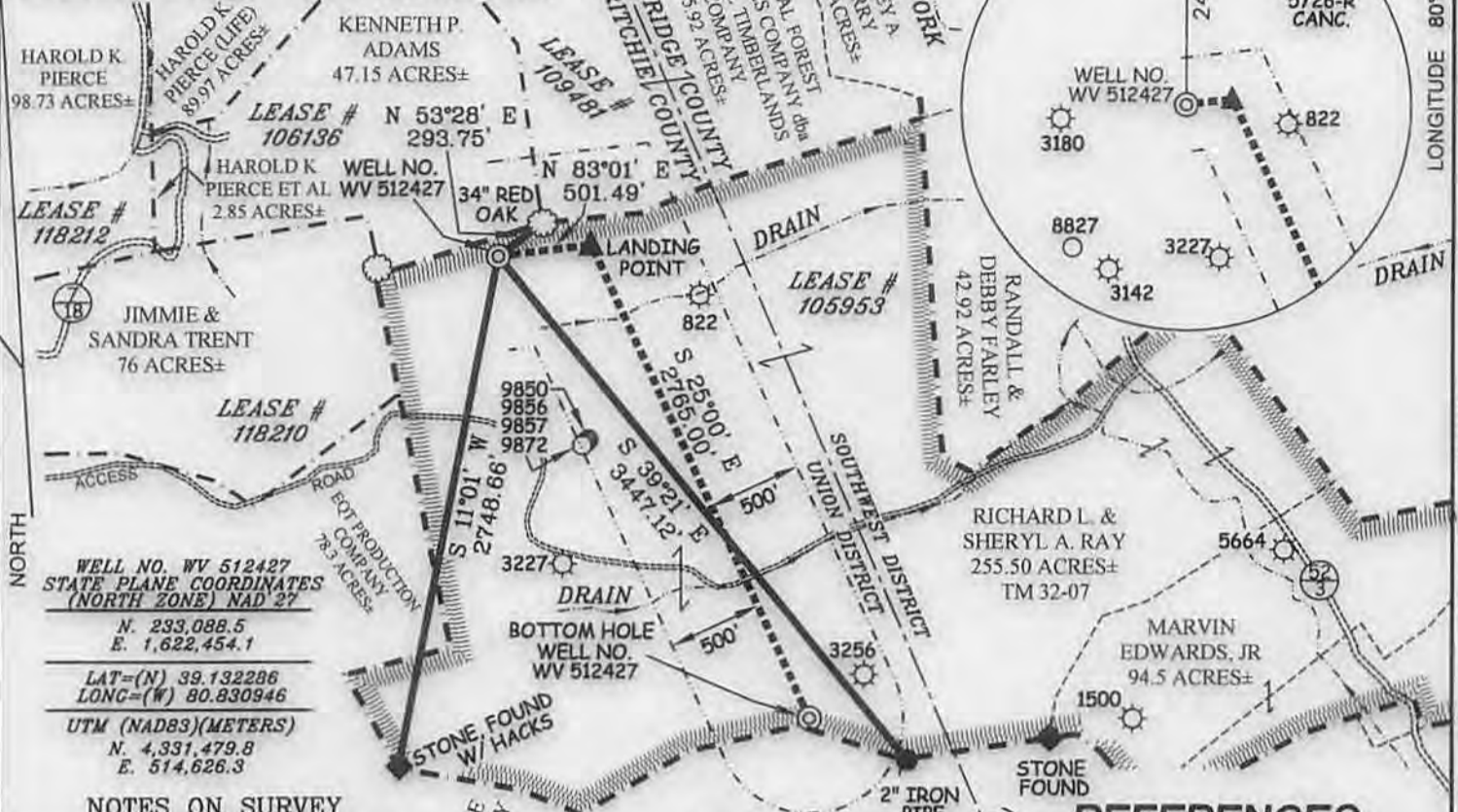


04/11/2014

Received.  
Office of Oil and Gas  
WV Dept. of Environmental Protection

				TOPO SECTION OF: <b>OXFORD, WV 7.5' QUAD.</b>		OPERATOR: <b>EQT PRODUCTION COMPANY</b> 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330	
DRAWN BY K.D.W.	FILE NO. 6811	DATE 01/03/14	CADD FILE: 6811WSOXF122	DISTRICT UNION	COUNTY RITCHIE	TAX MAP-PARCEL NO. 32-07	

# EQT PRODUCTION COMPANY W.M. ADAMS LEASE WELL NO. WV 512427



WELL NO. WV 512427  
STATE PLANE COORDINATES  
(NORTH ZONE) NAD 27  
N. 233,088.5  
E. 1,622,454.1

LAT=(N) 39.132286  
LONG=(W) 80.830946

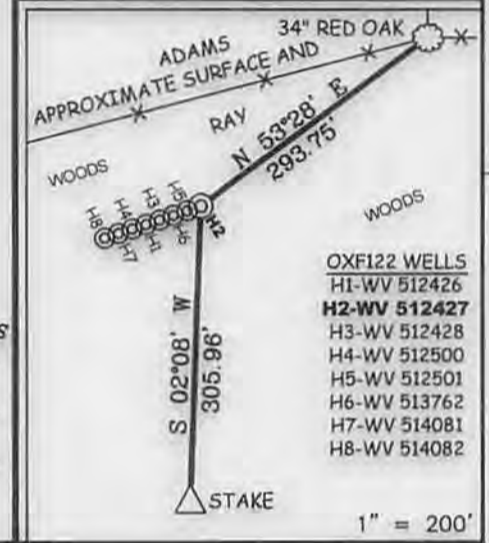
UTM (NAD83)(METERS)  
N. 4,331,479.8  
E. 514,626.3

### NOTES ON SURVEY

1. TIES TO WELLS, CORNERS & REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 79 PAGE 563 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF DODDRIDGE & RITCHIE COUNTY IN JULY, 2013.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE TIE TO CORS NETWORK).
5. NO WATER WELLS WERE FOUND WITHIN 250 FEET OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS (GREATER THAN 2500 SQUARE FEET) OR DWELLINGS WERE FOUND WITHIN 625 FEET OF CENTER OF PROPOSED PAD.
6. ORIGINAL PLAT DATED 03/01/10 (API 9850 & 9872) REVISED 11/15/2013 & 12/12/13 TO SHOW NEW COORDINATES ETC.



### REFERENCES



- OXF122 WELLS  
H1-WV 512426  
H2-WV 512427  
H3-WV 512428  
H4-WV 512500  
H5-WV 512501  
H6-WV 513762  
H7-WV 514081  
H8-WV 514082

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE DECEMBER 12, 20 13  
OPERATORS WELL NO. WV 512427  
API WELL NO. 47 - 085 - 10087 H6A  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 6811P512427R  
PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIES TO CORS NETWORK) SCALE 1" = 1,000'

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

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

LOCATION: ELEVATION 1,123'(GROUND) 1,111'(PROPOSED) WATERSHED STRAIGHT FORK  
DISTRICT UNION COUNTY RITCHIE QUADRANGLE OXFORD 7.5'  
SURFACE OWNER RICHARD L. & SHERYL A. RAY ACREAGE 255.50±  
ROYALTY OWNERS HAUGHT FAMILY TRUST, ET AL (402 AC ±)  
PROPOSED WORK: LEASE NO. 105953  
DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS SHALE  
ESTIMATED DEPTH TVD 6497 TTD 10283

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY  
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

04/11/2014

COUNTY NAME PERMIT