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: 47-8510085, 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 513762
Farm Name: RAY, RICHARD L. & SHERYL A.
API Well Number: 47-8510085
Permit Type: Horizontal 6A Well
Date Issued: 04/11/2014

Promoting a healthy environment.

API Number:

PERMIT CONDITIONS 4708510085

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

CONDITIONS

1. 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 4708510085

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.

4708510085

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:

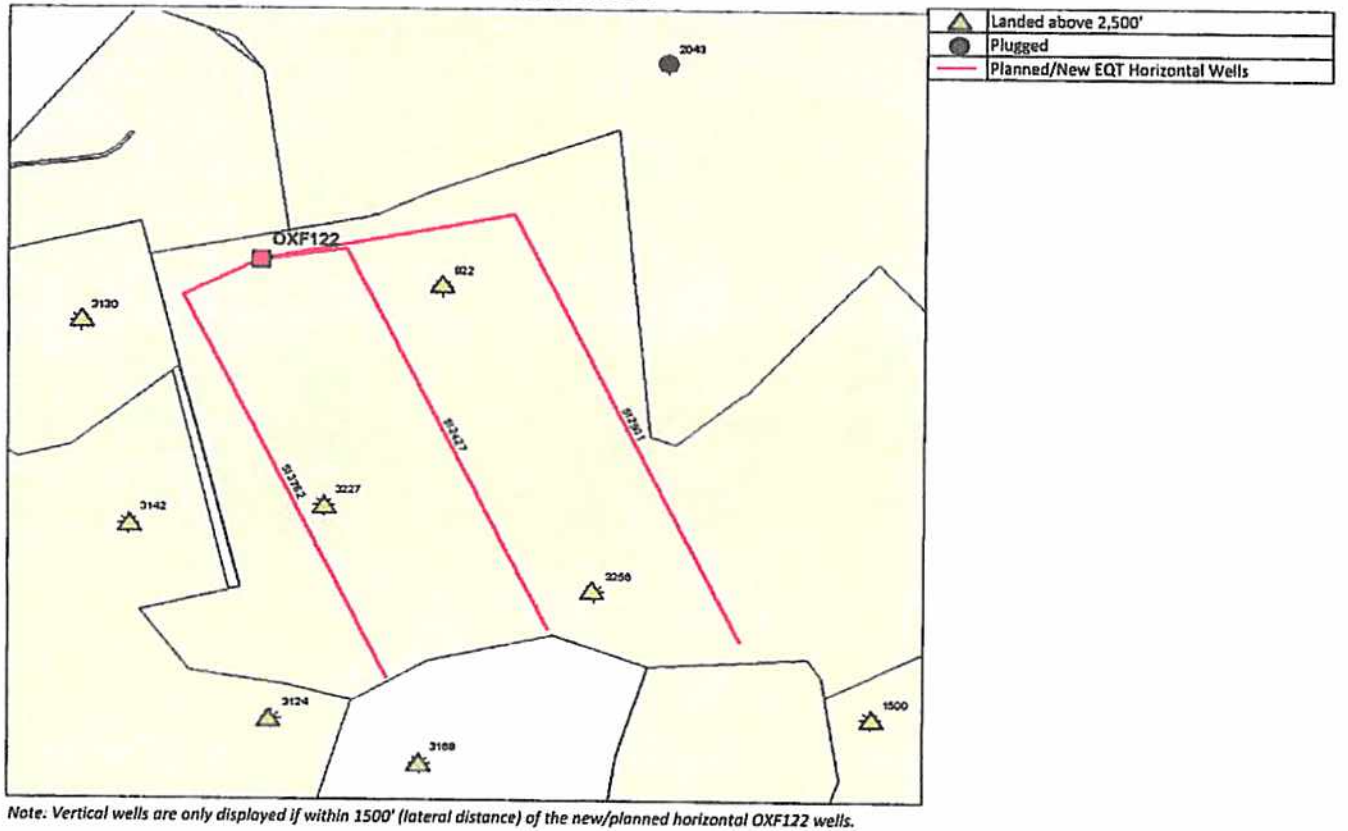
1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure
3. Inspect or install master valves rated to 3,000 psi or other necessary 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.

4708510085

OXF122 Vertical Offsets



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

4708510085

Well ID	Prior Operator on Record	Operator DEP*	Status	Latitude	Longitude	Vertical TD	Closest Distance from Pen15 Lateral Map View	DXF122 Horizontal TVD minus Offset Vertical TD	Hypotenuse Distance	Closest Well	Producing Formation	Gas Show/Pay Zone Depths	Notes
4701701500	WILLARD FERRELL	Jesam Energy	GAS	39.12402	-80.81815	2045	530.072	4453	4549.092539	512501	Big Lime, Big Injun	1964-2045	Not completed
4701702043	EPC	EQT	GAS-P	39.135802	-80.822424	1838	1349.239	4426	4627.085679	512501	Big Injun	1835	Plugged 5/1988
4708500822	EPC	EQT	GAS	39.131775	-80.827141	1821.8	408.451	4459.5	4478.166195	512427	Big Injun	1802-1810	Completed 6/1940 - Nitrogen frac
4708503114	E W BOWERS & R WEEKS	Jay-Bee Oil & Gas Co.	GAS	39.124	-80.8307	2093	745.78	4423	4485.431848	513782	Big Injun	1998-2030	Not completed
4708503130	WILLARD FERRELL	Deem, J.F. Oil and Gas, LLC	GAS	39.131128	-80.834704	1880	634.947	4370	4415.886966	513782	Big Injun	1909-1938	Completed 6/1968 - 700 bbls fluid, 500 gal acid, 40,000 lbs sand
4708503142	WOLF RUN OIL & GAS	Jay-Bee Oil & Gas Co.	GAS	39.1275	-80.8337	2120	949.716	4426	4528.748788	513782	Big Injun	1923-2120	Completed 6/1968 - acid, gelling agent, sand
4708503166	E W BOWERS & R WEEKS	Jay-Bee Oil & Gas Co	GAS	39.1232	-80.8276	1905	602.916	4576	4615.548039	513782	Big Injun	1834-1869	Completed 12/1968 - acid, water, sand
4708503227	STARLIGHT DEVELOP	Prusack, James	GAS	39.127834	-80.829634	1929	142.828	4493	4495.269607	513782	Big Injun	2040-2105	Not completed
4708503256	STARLIGHT DEVELOP	Jesam Energy	GAS	39.126291	-80.823935	2031	355.521	4503	4517.01275	512427	Big Lime	1953-1970	Completed 1/1968 - 800 bbls fluid, 40,000 lbs sand

WW - 6B
(9/13)

4708510085

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company

	085	4	528
Operator ID	County	District	Quadrangle

2) Operator's Well Number: 513762 Well Pad Name: OXF122

3) Farm Name/Surface Owner : Richard L & Sheryl A Rey Public Road Access: Co Rt 22/3

4) Elevation, current ground: 1,123.0 Elevation, proposed post-construction: 1,111.0

5) Well Type: (a) Gas • Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow • Deep _____

Horizontal •

6) Existing Pad? Yes or No: no

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Target formation is Marcellus at a depth of 6497' with the anticipated thickness to be 49 feet and anticipated target pressure of 4241 PSI

8) Proposed Total Vertical Depth: 6,497
9) Formation at Total Vertical Depth: Marcellus
10) Proposed Total Measured Depth: 9,842
11) Proposed Horizontal Leg Length: 2,780
12) Approximate Fresh Water Strata Depths: 236
13) Method to Determine Fresh Water Depth: By offset wells
14) Approximate Saltwater Depths: n/a
15) Approximate Coal Seam Depths: 929
16) Approximate Depth to Possible Void (coal mine, karst, other): None reported
17) Does proposed well location contain coal seams directly overlying or adjacent to an active mine?
(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

WW - 6B
(3/13)

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	10,342	10,342	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.

Dul
1-30-14

Received

FEB 14 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

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 (513762)

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,

Vicki Roark
Permitting Supervisor-WV

Enc.

Received

JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

WW - 6B

(3/13)

4708510085

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 6624', tag the Onondaga not more than 100', run logs then plug back to approximately 4860' 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, biocide, 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 % Calcuim 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.

gwc

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FEB 14 2014

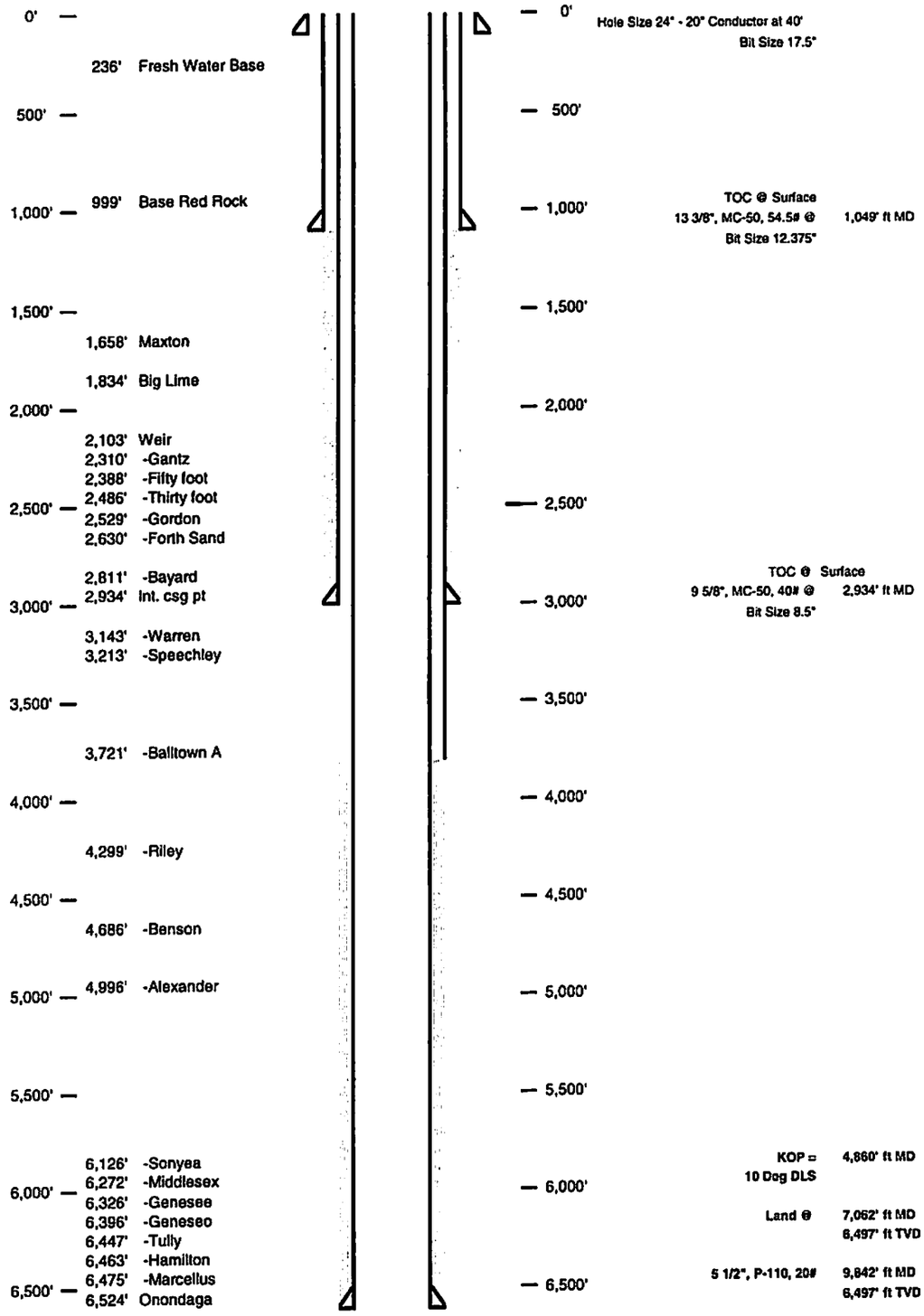
Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

Well Schematic
EQT Production

Well Name	513762 (OXF122H6)
County	Ritchie
State	West Virgina

Elevation KB:	1124
Target	Marcellus
Prospect	
Azimuth	155
Vertical Section	2838



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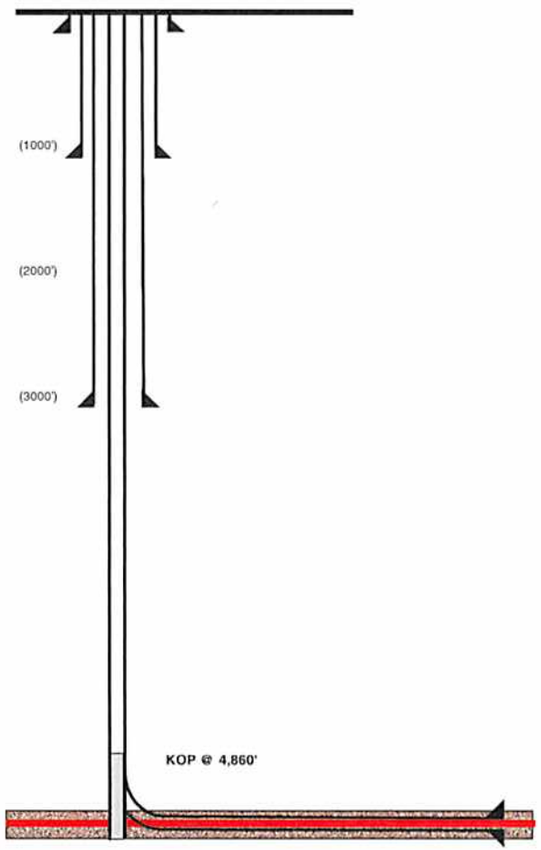
Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

Well 513762 (OXF122H6)
EQT Production
Oxford Quad
Ritchie West Virgina

Azimuth 155
Vertical Section 2838

TVD Depth (feet)	Formation Tops (TVD)	
0'		
250'	Base Fresh Water	236
500'		
750'		
	Base Red Rock	999
1,000'		
1,250'		
1,500'		
	Maxton	1658 - 1697
1,750'		
	Big Lime	1834 - 1976
2,000'		
	Weir	2103 - 2177
2,250'	-Gantz	2310 - 2331
	-Fifty foot	2388 - 2407
2,500'	-Thirty foot	2486 - 2504
	-Gordon	2529 - 2585
2,750'	-Forth Sand	2630 - 2668
	-Bayard	2811 - 2884
3,000'	Int. csg pt	2934
	-Warren	3143 - 3196
3,250'	-Speechley	3213 - 3298
3,500'		
	-Balltown A	3721 - 4038
3,750'		
4,000'		
4,250'	-Riley	4299 - 4533
4,500'		
	-Benson	4686 - 4957
4,750'		
	-Alexander	4996 - 5055
5,000'		
5,250'		
5,500'	-Sonyea	6126 - 6272
	-Middlesex	6272 - 6326
5,750'	-Genesee	6326 - 6396
	-Geneseo	6396 - 6447
6,000'	-Tully	6447 - 6463
	-Hamilton	6463 - 6475
6,250'	Marcellus top	6475
	Target Inside Marcellus	**6497**
6,500'	Marcellus Bottom	6524



Hole Size (inches)	Casing Type	Size (inches)	Wt (ppf)/Grade
24	Conductor	20	
17 1/2	Surface	13 3/8	54#/MC-50
12 3/8	Intermediate	9 5/8	40#/MC-50
8 1/2	Production Casing	5 1/2	20#/P-110

Land curve @ 6,497' ft TVD
7,062' ft MD

Est. TD @ 6,497' ft TVD
9,842' ft MD

2,780' 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 6624'.
Tag the Onondaga not more than 100', run logs, then plug back to approximately 4860'.
Then kick off the horizontal leg into the Marcellus formation using a slick water frac.

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JAN 21 2014
Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

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WW-9
(5/13)

API No. 47 - 085 - 0
Operator's Well No. 513762

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, Line, 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 16 day of January, 20 14

____ Notary Public

My commission expires 6/27/2018

Received

JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Nicholas L. Bumgardner
Rt. 1, Box 4
Liberty, WV 25124
My Commission Expires July 27, 2018

4708510085

WW-9

Operator's Well No. 513762

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 1/3 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

Temporary Seed Type	lbs/acre	Permanent 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: David W Cunn

Comments: Preseed & mulch all cut areas maintain all E&S through out operation

Title: oil & gas inspector Date: 1-30-14

Field Reviewed? (✓) Yes ( ) No

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Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

EQT Production Water plan
Offsite disposals for Marcellus wells

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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JAN 2 1 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

4708510085

EQT

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

EQT Production

Permitting Supervisor
Title

1-16-14
Date

WV Oil and Gas Inspector

oil & gas inspector
Title

1-30-14
Date

Received

FEB 14 2014

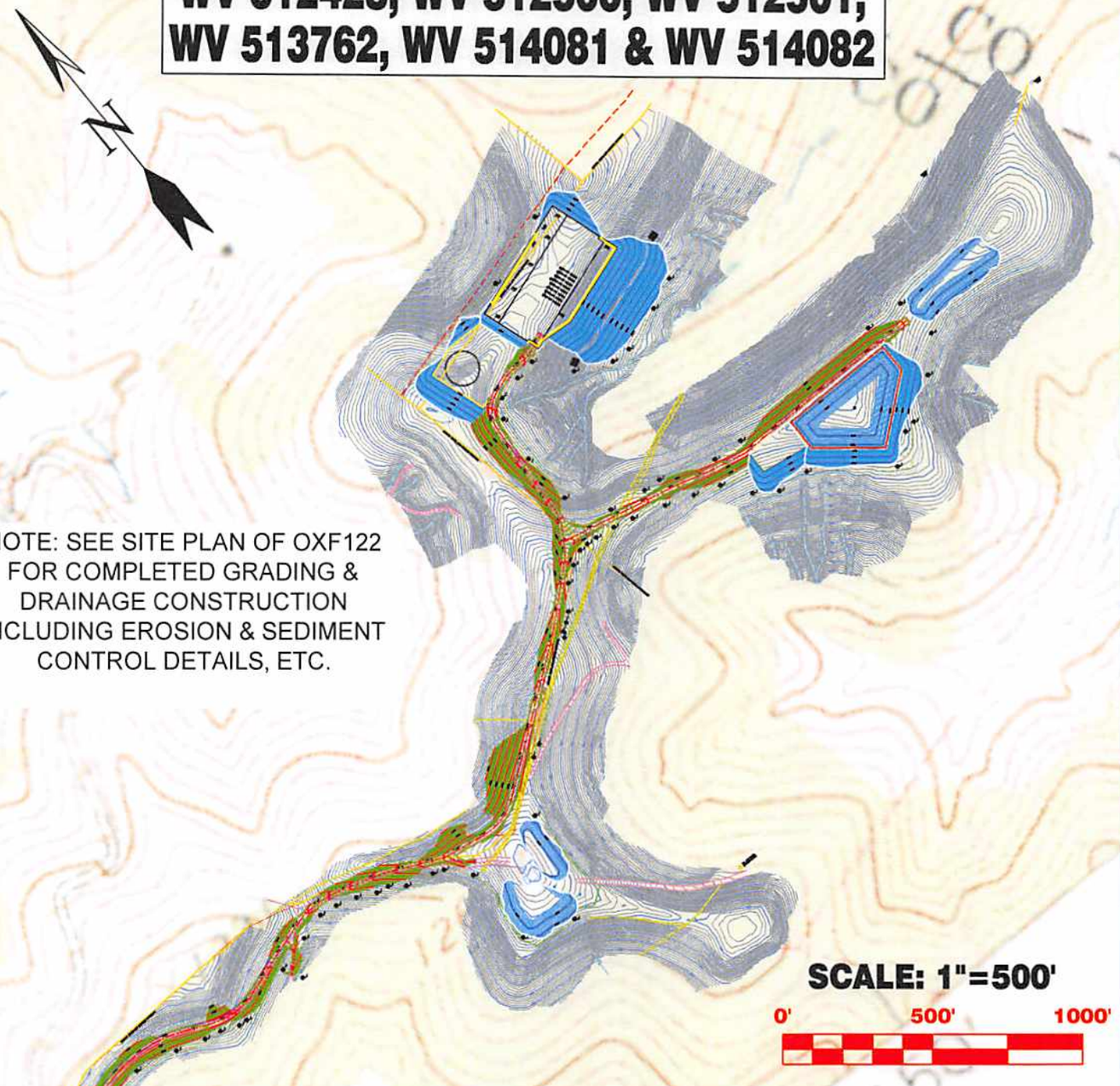
Office of Oil and Gas
WV Dept. of Environmental Protection

Form WW-9

page of

4708510085

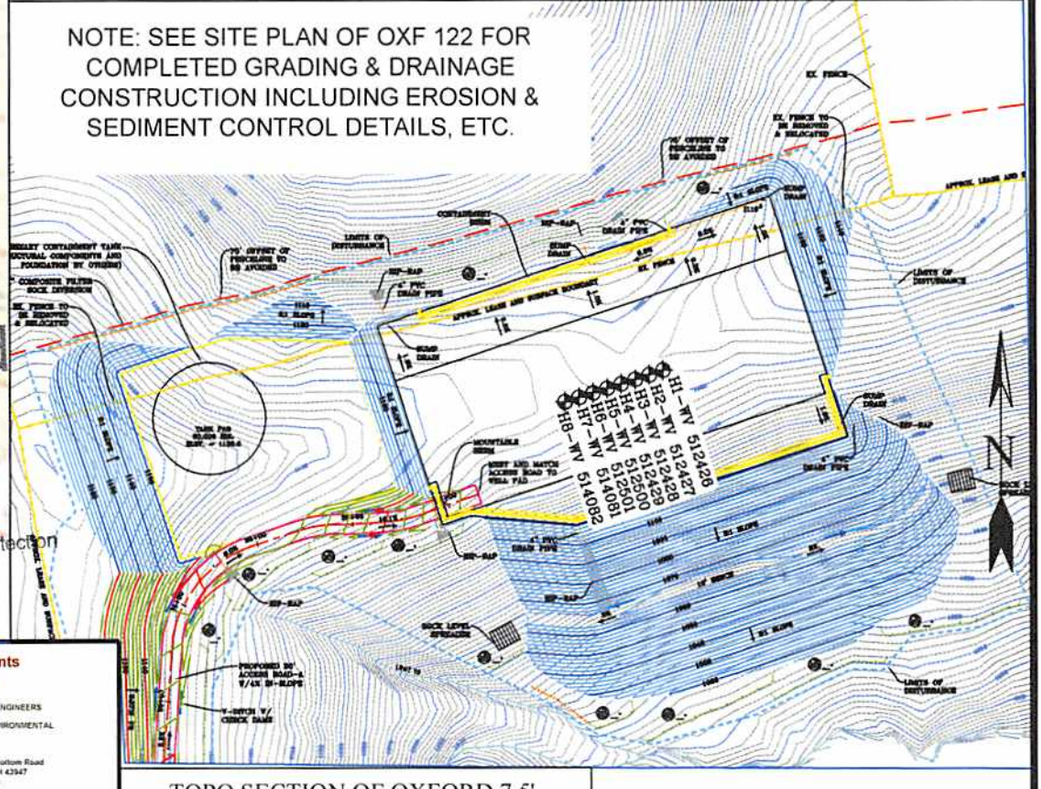
W.M. ADAMS LEASE
WELL NO.S WV 512426, WV 512427, WV 512428, WV 512500, WV 512501, WV 513762, WV 514081 & WV 514082



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

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.



Received

JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING

SURVEYORS PROJECT MGMT. SLS ENGINEERS ENVIRONMENTAL

226 West Main St. P.O. Box 150 Glenville, WV 26351 (304) 462-5634

58065 Dillies Bottom Road Shadyside, OH 43947 (740) 671-9911

HONESTY, INTEGRITY, QUALITY

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

TOPO SECTION OF OXFORD 7.5' USGS TOPO QUADRANGLE

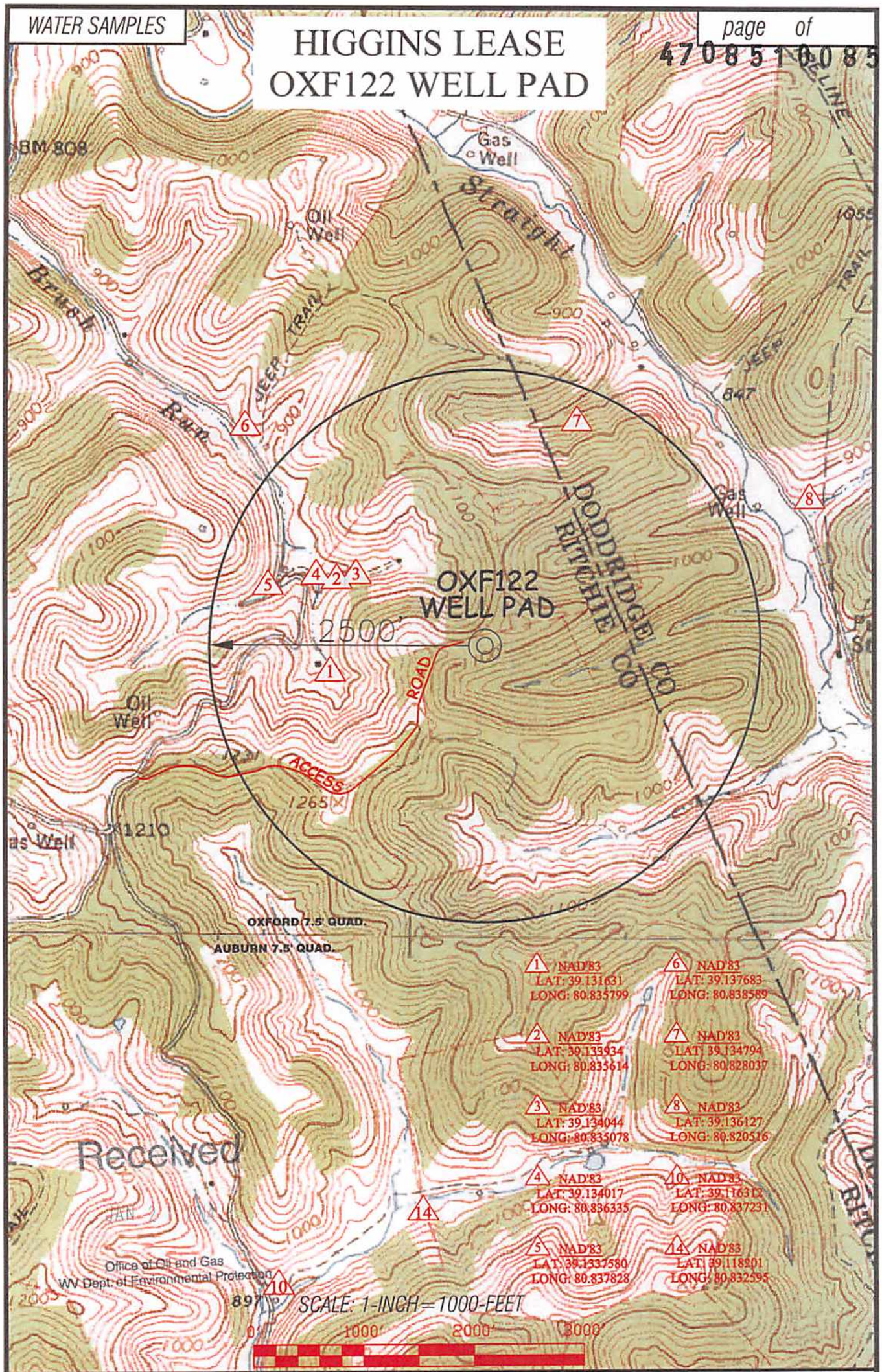
Not To Scale

WATER SAMPLES

HIGGINS LEASE
OXF122 WELL PAD

page of

4708510085



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SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

DRAWN BY	FILE NO.	DATE	CADD FILE:
K.D.W.	6811	01/03/14	6811WSOXF122

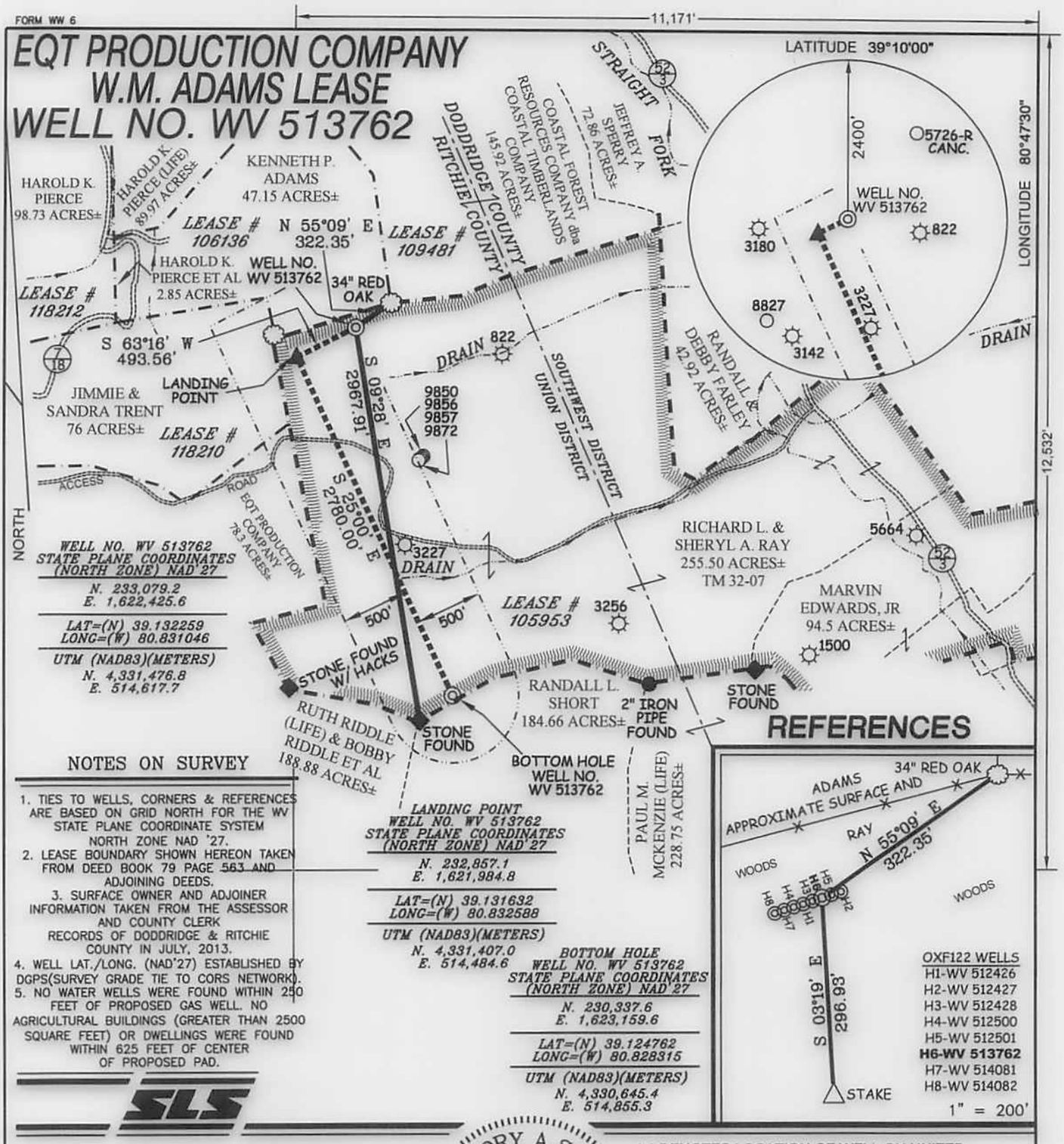
TOPO SECTION OF:
OXFORD, WV 7.5' QUAD.

DISTRICT	COUNTY	TAX MAP-PARCEL NO.
UNION	RITCHIE	32-07

OPERATOR:
EQT PRODUCTION COMPANY
115 PROFESSIONAL PLACE
P.O. BOX 280
BRIDGEPORT, WV 26330

FORM WW 6

EQT PRODUCTION COMPANY
W.M. ADAMS LEASE
WELL NO. WV 513762



WELL NO. WV 513762 STATE PLANE COORDINATES (NORTH ZONE) NAD '27
N. 233,079.2
E. 1,622,425.6

LAT=(N) 39.132259
LONG=(W) 80.831046

UTM (NAD83)(METERS)
N. 4,331,476.8
E. 514,617.7

LANDING POINT WELL NO. WV 513762 STATE PLANE COORDINATES (NORTH ZONE) NAD '27
N. 232,857.1
E. 1,621,984.8

LAT=(N) 39.131632
LONG=(W) 80.832588

UTM (NAD83)(METERS)
N. 4,331,407.0
E. 514,484.6

BOTTOM HOLE WELL NO. WV 513762 STATE PLANE COORDINATES (NORTH ZONE) NAD '27
N. 230,337.6
E. 1,623,159.6

LAT=(N) 39.124762
LONG=(W) 80.828315

UTM (NAD83)(METERS)
N. 4,330,645.4
E. 514,855.3

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.

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

SLS

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

P.S. 677 Gregory A. Smith

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

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

DATE DECEMBER 12 , 20 13

OPERATORS WELL NO. WV 513762

API WELL NO. 47 — 85 — 10085 H6A
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 6811P513762

SCALE 1" = 1,000'

PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIES TO CORS NETWORK)

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

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

LOCATION:
ELEVATION 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 X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____
PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS SHALE
ESTIMATED DEPTH TVD 6497 TMD 10342

COUNTY NAME

PERMIT

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