



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

June 12, 2012

WELL WORK PERMIT

Horizontal Well

This permit, API Well Number: 47-8509951, 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 of completion of drilling, 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: 513042 EQT PRODUCTION
Farm Name: HEARTWOOD FOREST FUND IV
API Well Number: 47-8509951
Permit Type: Horizontal Well
Date Issued: 06/12/2012

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6-11 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. 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 § 22-6-20, 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.
2. 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 twenty-five 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.
3. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
4. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.

85-09951H

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

1) Well Operator: EQT PRODUCTION COMPANY

Operator ID	085	District	1	Quadrangle	539
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2) Operator's Well Name: 513042 EQT Production 3) Elevation: 795'

4) Well Type: (a) Oil _____ or Gas X
(b) If Gas: Production X Underground Storage _____
Deep _____ Shallow X

5) Proposed Target Formation(s): Marcellus Proposed Target Depth: 6,074'

6) Proposed Total Depth: **TVD:** 6,120' **MD:** 9,951'
Formation at Proposed Depth: Onondaga

7) Approximate fresh water strata depths: 67,443, 546

8) Approximate salt water depths: 1325, 1616, 2194

9) Approximate coal seam depths: 52, 233, 422

10) Approximate void depths (coal, Karst, other): N/A

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work in detail: Drill and complete a new horizontal well.
The vertical drill to go down to the approx depth of 6,120', tagging the Onondaga not more than 20', then plug back to approx. 5,501' and kick off the horizontal leg into the Marcellus, using a slick water frac.

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft.			
Conductor	20"	L.S.	65	For Drilling 40	Left in Well 40	Fill-up (Cu.Ft) C.T.S.
Fresh Water	13 3/8"	MC-50	54.5	763'	763'	C.T.S.
Coal						
Intermediate	9 5/8"	MC-50	40	3,106'	3,106'	C.T.S.
Production	5 1/2"	P-110	20	9,951'	9,951'	100' Above Marcellus
Tubing	2 3/8"	J-55	4.6	May not be run, if run will be set 100' less than TD		
Liners						

Packers: Kind _____
Size _____
Depths Set _____

*Duck GCS
6/12/12*

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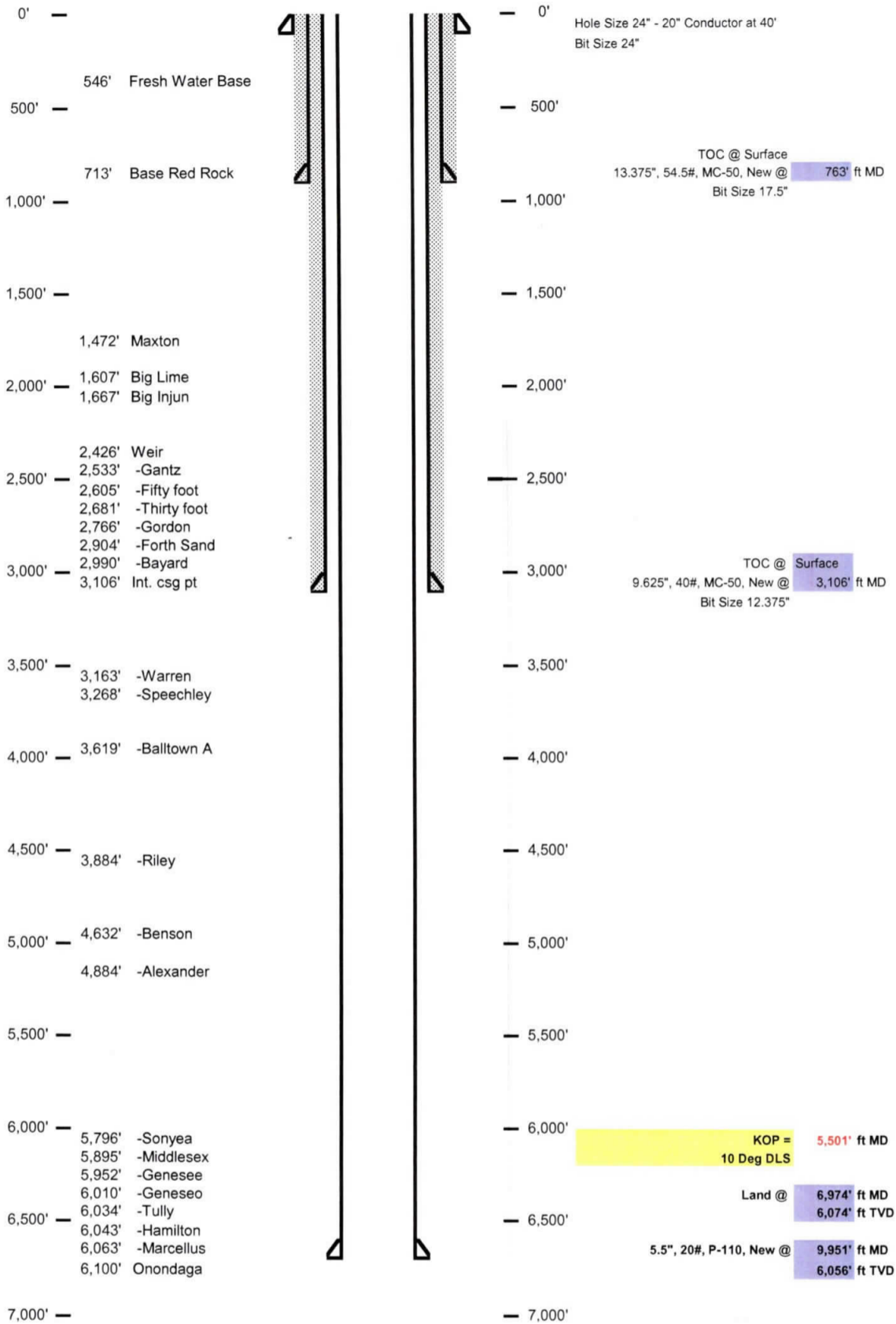
85-09951H

Well Schematic
EQT Production

Well Name 513042 (PEN16H2)
County Ritchie County
State West Virginia

Elevation KB:
Target
Prospect
Azimuth
Vertical Section

805
Marcellus
155
3550



85-09951H

Well Number: 513042 (PEN16H2)

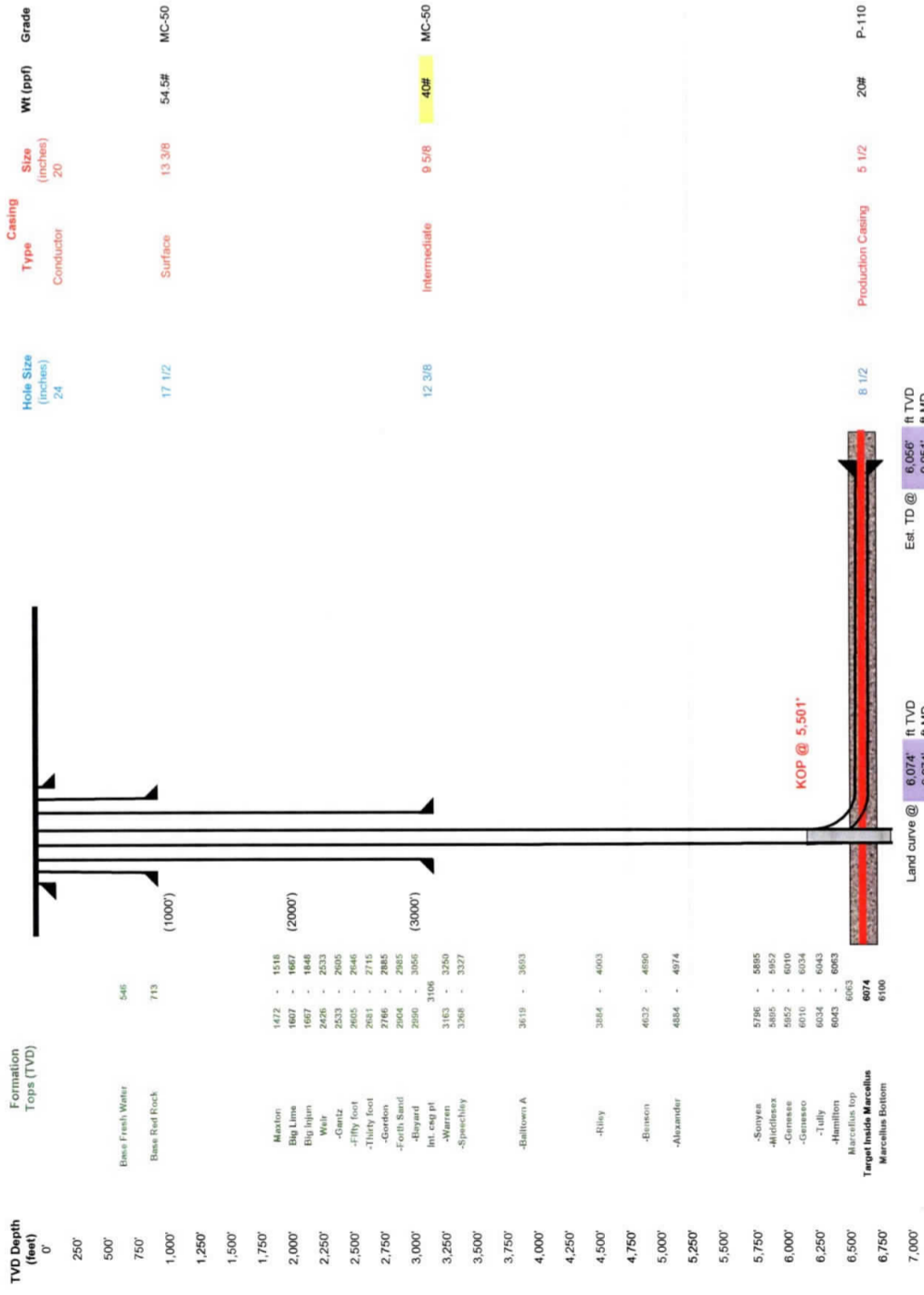
Casing and Cementing			Deepest Fresh Water: 546'		
Type	Conductor	Mine Protection	Surface	Intermediate	Production
Hole Size, In.	24	-	17 1/2	12 3/8	8 1/2
Casing Size, OD In.	20	-	13 3/8	9 5/8	5 1/2
Depth, MD	40'	-	646'	3,106'	9,951'
Depth, TVD	40'	-	646'	3,106'	6,056'
Centralizers Used	Yes	-	Yes	Yes	Yes
Weight / Grade	81#/MC-50	-	54#/MC-50	40#/MC-50	20#/P-110
New or Used	New	-	New	New	New
Pressure Testing	-	-	20% Greater than exp. Pressure	20% Greater than exp. Pressure	20% greater than exp. fracture pressure
After Fracture Pressure Testing	-	-	-	-	20% greater than exp. shut pressure
ID, in	19.25	-	12.625	8.835	4.778
Burst (psi)	-	-	2,485	3,600	12,640
Collapse (psi)	-	-	1,110	2,480	11,100
Tension (mlbs)	-	-	454	456	548
Cement Class	-	-	-	-	H
Cement Type	Construction	-	1	1	-
Meets API Standards	-	-	Yes	Yes	Yes
WOC Time	-	-	Min. 8 hrs	Min. 8 hrs	Min. 8 hrs
Top of Cement (Planned)	Surface	-	Surface	Surface	2,606'
Fill (ft.)	40'	-	646'	3,106'	7,345'
Percent Excess	-	-	20	20	10
Est. Volume (BBLs)	-	-	102	218	331

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Well 513042 (PEN16H2)
EQT Production
Pennsboro Quad
Ritchie County West Virginia

Azimuth 155
 Vertical Section 3398



TD Pilot Hole @ 6120
 20' below top of Onondaga
 Run Logs Plug back to KOP at 5501
 Kick off for horizontal well in Marcellus

Formation	Formation Tops (TVD)	Hole Size (inches)	Casing Type	Casing Size (inches)	WT (ppf)	Grade
Base Fresh Water	546	24	Conductor	20		
Base Red Rock	713	17 1/2	Surface	13.3/8	54.5#	MC-50
Maxton	1472 - 1518	12 3/8	Intermediate	9 5/8	40#	MC-50
Big Lime	1607 - 1667					
Big Ligon	1667 - 1848					
Weir	2426 - 2533					
-Gantz	2533 - 2605					
-Tully foot	2605 - 2646					
-Tully foot	2681 - 2715					
-Gordon	2766 - 2885					
-Forth	2904 - 2945					
-Beyard	2986 - 3056					
-Warren	3163 - 3250					
-Speckley	3268 - 3327					
-Balltown A	3619 - 3693					
-Riley	3884 - 4003					
-Benson	4632 - 4690					
-Alexander	4884 - 4974					
-Soyka	5786 - 5895					
-Hedden	5885 - 5952					
-Grenase	5952 - 6070					
-Lully	6070 - 6034					
-Hamilton	6034 - 6043					
Marcellus top	6043 - 6063					
Target Inside Marcellus	6074		Production Casing	5 1/2	20#	P-110
Marcellus Bottom	6100					

Land curve @ 6,074' ft TVD
 6,974' ft MD
 Est. TD @ 6,066' ft TVD
 6,951' ft MD
 3,550' ft Lateral

2) Operator's Well Number

513042 J. Broadwater

3) API Well No.: 47 085 - 9951

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL & GAS
CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE**

Operator Name: EQT PRODUCTION COMPANY OP ID: _____

Watershed: North Fork Hughes River Quadrangle: Pennsboro 7.5'

Elevation: 795' County: Ritchie District: Clay

Description of anticipated Pit Waste: Drill water and various formation cuttings

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

Will synthetic liner be used in the pit? Yes Is so, what ml.? 40 ml

Proposed Disposal Method for Treated Pit Wastes:

- Land Application
- Underground Injection - UIC Permit Number 0014, 8462, 4037
- Reuse (at API Number)
- Offsite Disposal Permit #'s 3390, 1009, 29132
- Other: Explain _____

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. air and water based mud

If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used? MILBAR, Viscosifer, Alkalinity Control, Lime, Chloride Salts, Filtration

Control, Deflocculant, Lubricant, Detergent, Defoaming, Walnut shell, X-Cide, SOLTEX, Terra Rate

Will closed loop system be used? No

Drill Cuttings disposal method? Leave in pit, landfill, remove 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 Division of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any terms 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.

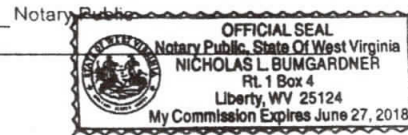
Company Official Signature *Victoria J. Roark*

Company Official (Typed or Printed) Victoria J. Roark

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 6 day of FEBRUARY, 2012

My Commission Expires 6/27/2018



85-951

LEGEND

Property Boundary		Diversion	
Road		Spring	
Planned Fence		Drain Pipe with size in inches	
Existing Fence		Stream	
Open Ditch		Artificial Filter Strip	
North		Building	
		Water well	
		Drill site	
Pit with Cut Walls		Pit with Compacted Walls	
		Area of Land Application of Pit Waste	

Proposed Revegetation Treatment: Acres Disturbed: 37.01± Prevegetation pH 6.6

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20) or equivalent 1/3 ton lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre or hydroseed.

SEED MIXTURES

Area I		Area II	
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.
Photocopies section of involved 7.5' topographic sheet

Plan approved by: David Cowan by GCS

Comments: _____

Title: Inspector Date: 6/12/12
Field Reviewed? Yes No

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Environmental Protection

1) Date: October 20, 2011

2) Operator's Well Number

513042 J. Broadwater

3) API Well No.: 47 085 - 09951 H
State County Permit

**STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL & GAS
NOTICE AND APPLICATION FOR A WELL WORK PERMIT**

4) **Surface Owner(s) to be served:**

(a) Name Heartwood Forest Fund IV
Address C/O Greg Wilhelm
3001 Emerson Avenue
Parkersburg, WV 26104

(b) Name 0
Address 0
0

(c) Name 0
Address 0
0

(d) Name _____
Address _____

6) **Inspector:** David Cowan
Address Rt. 1 Box 202
Harrisville, WV 26362
Telephone 304-389-3509

5) (a) **Coal Operator:**
Name None found
Address _____

(b) **Coal Owner(s) with Declaration:**
Name Thomas J. Broadwater
Address 603 N. 6th St.
Cambridge, OH 43725
0
Name see attached
Address _____

Name _____
Address _____

(c) **Coal Lessee(s) with Declaration:**
None found

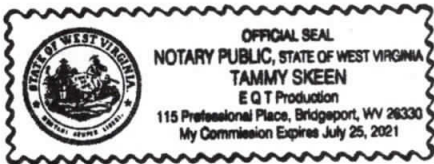
TO THE PERSONS NAMED ABOVE TAKE NOTE THAT:

 Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas
OR
X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application,
a location plat, and accompanying documents pages 1 through _____ on the above named parties by:
 Personal Service (Affidavit Attached)
 X Certified Mail (Postmarked Postal Receipt Attached)
 Publication (Notice of Publication Attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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, 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.

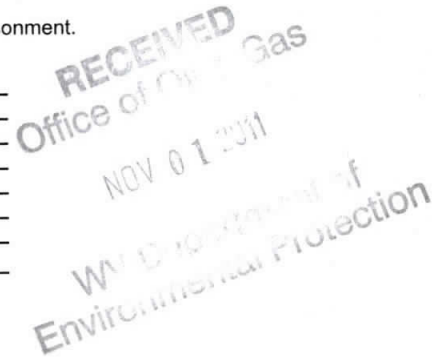
I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator: EQT Production Company
By: [Signature]
Its: Permitting Supervisor
Address: 115 Professional Place
P.O. Box 280
Bridgeport, WV 26330
Telephone: (304) 848-0082

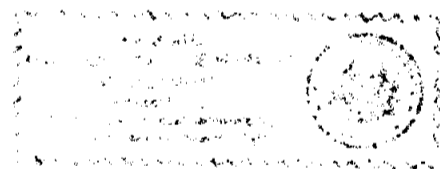
Subscribed and sworn before me this 31 day of October, 2011
[Signature] Notary Public

My Commission Expires: 7-25-21



Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information such as name, address and phone number, as a part of our regular 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.



85-09951H

WW2-A

Additional Coal Owners:

Barbara A. Basil ↘
2620 Berwyn Rd.
Columbus, OH 43220

Martha Wilson ↘
837 Fairview Ave.
Parkersburg, wv 26101

Calvin H. Grosscup, Jr. ↘
1309 Cove PL.
Ocean Springs, MS 39564

Michael C. Broadwater ↘
4400 Reed Rd.
Columbus, OH 43220

Mary J. Smith ↘
5229 Glenbrook Dr.
Vienna, WV 26105

Mabel Broadwater ↘
5504 12th Ave.
Vienna, WV 26105

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ENERGY DIVISION

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
CHAPTER 22, ARTICLE 6, SECTION 8(d)
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 and gas as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
Creed Collins & Susan Collins	W.A. Flanagan	1/8th	24/315
Premma Oil and Gas, LLC			Letter of Intent

**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: EQT PRODUCTION COMPANY
By: *[Signature]*
Its: Permitting Supervisor

EQT

COPY

October 12, 2011

Mr. Andrew J. Padden
Premma Oil and Gas, LLC
906 56th Street
Vienna, WV 26105

Re: PEN16H2 and PEN16H³ Wells
Ritchie County, West Virginia

Dear Mr. Padden:

Whereas, EQT Production Company (EQT) and Premma Oil and Gas, LLC (Premma) have entered into that certain Letter of Intent dated September 22, 2011 related to EQT's acquisition of certain leasehold rights in and to the oil and gas lease described on Exhibit "A" attached hereto (Subject Lease).

Whereas, EQT and Premma are working towards the execution of mutually agreeable definitive agreements that will vest EQT with certain leasehold rights that would allow EQT to extend the referenced wells under and through the Subject Lease.

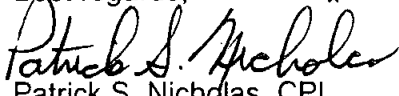
Whereas, EQT desires to permit the referenced wells prior to the execution of the definitive agreements mentioned above.

To that end EQT hereby requests Premma's permission to proceed with its plans to permit the referenced wells to be located in Clay District, Ritchie County, West Virginia, as depicted on the attached map and survey plats, with the understanding that the referenced wells will not be drilled through Premma leasehold (Subject Lease) unless and until EQT and Premma enter into a definitive agreement which grants EQT the necessary rights to drill under and through the Subject Lease.

If you agree with the above, please execute in the space provided below.

Should you have any questions or wish to discuss this matter, please do not hesitate to contact the undersigned at 304-848-0080, or at the following e-mail address pnicholas@eqt.com.

Best regards,


Patrick S. Nicholas, CPL
Landman IV

Premma Oil and Gas, LLC

Agreed to this 13~~th~~ day of October, 2011.

By: A. Padden

Its: Owner

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL & GAS**NOTICE TO SURFACE OWNERS**

The well operator named below is preparing to file for a permit from the State to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

If no water well or spring is located within 1000 feet, the Chief may require the operator to sample and analyze water from a water well or spring within 2000 feet of the proposed well site.

Be advised, you have the right to sample and analyze any water supply at your own expense.

The laboratory used by the operator to analyze the samples will be approved by the Chief. A list of approved commercial laboratories is maintained by the WVDEP and may be viewed at: <http://www.dep.wv.gov/WWE/Programs/lab/Pages/default.aspx>

Listed below is the laboratory chosen by operator to perform analysis and contractor chosen to collect sample.

Certified Laboratory Name
Contractor Name

Sturm Environmental Services
Smith Surveying INC.

Well Operator
Address
Telephone

EQT Production Co.
1710 Pennsylvania Ave
Charleston, WV 25302
(304) 348-3845

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underlining which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site please indicate such.

6±

water supplies within 2,500' of the proposed well site.



OPERATOR: EQT Production Company

LEASE NAME AND NUMBER: WV # 513042 (PEN 16 H 2)

COMMENTS

The initial mapping review of the area surrounding the proposed well site revealed the below listed surface owner(s) that were potentially utilizing groundwater (potable) for Human Consumption or other purposes within 2500' of the proposed well site. The following landowners will be notified of the opportunity to request a water sample.

*Please note that the following information is subject to change upon field inspection.

INDIVIDUAL CONTACTED OR NOTIFIED

Owner/Occupant: Steven J. & Janet M. Stanley

Address: 1410 Lynn Camp Rd., Pennsboro, WV. 26415 Letter/Notice Date: _____

Comments: Par # 9 & # 12.1

Owner/Occupant: Joseph M. Jr. & Dorothy Anne Guth

Address: 65 Stoney Hollow Rd., Pennsboro, WV. 26415 Letter/Notice Date: _____

Comments: Par # 9.1

Owner/Occupant: David A. Hardman

Address: 16508 SW Two Wood Way, Indiantown, FL. 34956 Letter/Notice Date: _____

Comments: Par # 9.2

Owner/Occupant: Phillip Cary & Rachel A. Mueller

Address: RR 1 Box 108, Pennsboro, WV. 26415 Letter/Notice Date: _____

Comments: Par # 9.4

Owner/Occupant: Donald E. & Barbara A. Deem

Address: RR 1 Box 108-1, Pennsboro, WV. 26415 Letter/Notice Date: _____

Comments: Par # 10

7566.potential.EQT.WV#513042

Handwritten notes and stamps, including a circular stamp with the number 10.

Owner/Occupant: Heartwood Forestland Fund IV Limited Partnership

Address: 3001 Emerson Avenue, Parkersburg, WV. 26104 Letter/Notice Date: _____

Comments: Par # 14

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

Owner/Occupant: _____

Address: _____ Letter/Notice Date: _____

Comments: _____

EQT Production Water plan Offsite disposals for Marcellus wells
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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



WELL INFORMATION AND FINAL WATER WELL SAMPLE DATA SHEET

OPERATOR: EQT Production Company

LEASE NAME AND NUMBER: Pen 16 H1, H2, H3, H4, H5 and H6.

COMMENTS

The initial field and/or mapping review of the area surrounding the proposed well site revealed the below listed surface owner(s) that were potentially utilizing groundwater (potable) for Human Consumption or other purposes within 1000' of the proposed well site. (For location of each site see attached area map.)

INDIVIDUAL CONTACTED OR NOTIFIED

Site: 1 Spacing 2300 Owner/Occupant: Joseph Guth
 Address: 65 Stoney Hollow Rd. Pennsboro, WV 26415 Ph: (304) 659-3174
 Field Contact Date: 3-11-13 Sampled: Yes Date Sampled: 3-11-13 Source: Water Well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: _____

Site: 2 Spacing 900 Owner/Occupant: Donald Deem
 Address: 1109 Stoney Hollow Rd. Pennsboro, WV 26415 Ph: (304) 659-3326
 Field Contact Date: 3/11/13 Sampled: Yes Date Sampled: 3/11/13 Source: Water Well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: _____

Site: 3 Spacing 2500 Owner/Occupant: Janet Stanley
 Address: 1410 Lynn Camp Rd. Pennsboro WV 26415 Ph: (304)659-3076
 Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Water Well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: _____

Site: 4 Spacing 3300 Owner/Occupant: Janet Stanley
 Address: 1410 Lynn Camp Rd. Pennsboro WV 264153 Ph: (304)659-3076
 Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Water Well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: _____

Received

MAY 23 2013

Site: 5 Spacing 1700 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304)-659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 6 Spacing 800 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304) 659-3076
Field Contact Date: 3-13-13 Sampled: No Date Sampled: _____ Source: Spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Spring was dry, could not test.

Site: 7 Spacing 1000 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304) 873-3076
Field Contact Date: 3-14-13 Sampled: No Date Sampled: _____ Source: spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Spring was dry, could not test.

Site: 8 Spacing 1900 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304) 659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 9 Spacing 1400 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304)659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 10 Spacing 1900 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304)659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3/13/13 Source: Spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Received

MAY 23 2013

Site: 11 Spacing 1600 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304) 659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Spring
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 12 Spacing 4000 Owner/Occupant: Janet Stanley
Address: 1410 Lynn Camp Rd. Pennsboro, Wv 26415 Ph: (304)659-3076
Field Contact Date: 3-13-13 Sampled: Yes Date Sampled: 3-13-13 Source: Pond
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 13 Spacing 2100 Owner/Occupant: Josh Hilver
Address: 181 Stoney Hollow Rd. Pennsboro, WV 26415 Ph: (304)-588-1837
Field Contact Date: 3-14-13 Sampled: Yes Date Sampled: 3-14-13 Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 14 Spacing 2400 Owner/Occupant: Raye Hardmen
Address: 16508 SW. Two wood way Indian Town, Florida 34956 Ph: (772)-577-8194
Field Contact Date: 4-3-13 Sampled: Yes Date Sampled: 4-3-13 Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 15 Spacing 2400 Owner/Occupant: Raye Hardmen
Address: 16508 SW. Two wood way Indian Town, Florida 34956 Ph: (772)-577-8194
Field Contact Date: 4-3-13 Sampled: Yes Date Sampled: 4-3-13 Source: Water well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 16 Spacing 2300 Owner/Occupant: Raye Hardmen
Address: 16508 SW. Two wood way Indian Town, Florida 34956 Ph: (772)-577-8194
Field Contact Date: 4-3-13 Sampled: Yes Date Sampled: 4-3-13 Source: Pond
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Received

MAY 23 2013

Site: 17 Spacing 600 Owner/Occupant: Tom Dempsey
Address: 709 Duncan Fork Delbarton, Wv 25670 Ph: (304)475-2357
Field Contact Date: 5-5-13 Sampled: Yes Date Sampled: 5-5-13 Source: Water well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: _____ Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: _____ Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: _____ Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: _____ Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: _____ Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Received
MAY 23 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

85-09951

625 Liberty Ave, Suite 1700
Pittsburgh PA 15222
www.eqt.com

TEL: (412) 395-3305
FAX: (412) 395-2156

John Centofanti
Corporate Director,
Environmental Affairs



July 3, 2013

CERTIFIED MAIL: 7012 3050 0002 0883 1789

Mr. Dennis P. Harton
Gassearch Corporation
13 Industrial Boulevard
Parkersburg, WV 26104

RE: Ritchie County Hydraulic Fracturing Notice

Dear Mr. Harton,

EQT and Energy Corporation of America (ECA) have been working closely with the West Virginia Office of Oil and Gas (OOG) to investigate hydraulic fracturing activities in Ritchie County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

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).

EQT is implementing a Hydraulic Fracturing Monitoring Plan as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the PEN16 pad in Ritchie County. The plan will further enable us to obtain data and information for a root cause analysis in the event communication between zones does occur during hydraulic fracturing.

We will be closely monitoring our drilling and fracturing activities, as well as obtaining real-time pressure data from selected EQT and ECA conventional wells.

EQT anticipates conducting hydraulic fracturing at the PEN16 pad on approximately August 15, 2013. We have identified conventional natural gas wells operated by your company within 1,500' of this pad and laterals. We have included plats for each well on this pad in **Attachment A**.

Received

JUL 8 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

We recommend that conventional well operators conduct the following activities before, during and after fracturing operations:

1. Inspect surface equipment prior to fracturing to establish integrity and establish pre-fracturing 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.

Please feel free to contact me at 412-395-3305 with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0440.

Sincerely,
EQT Production



John Centofanti
Corporate Director, Environmental Affairs

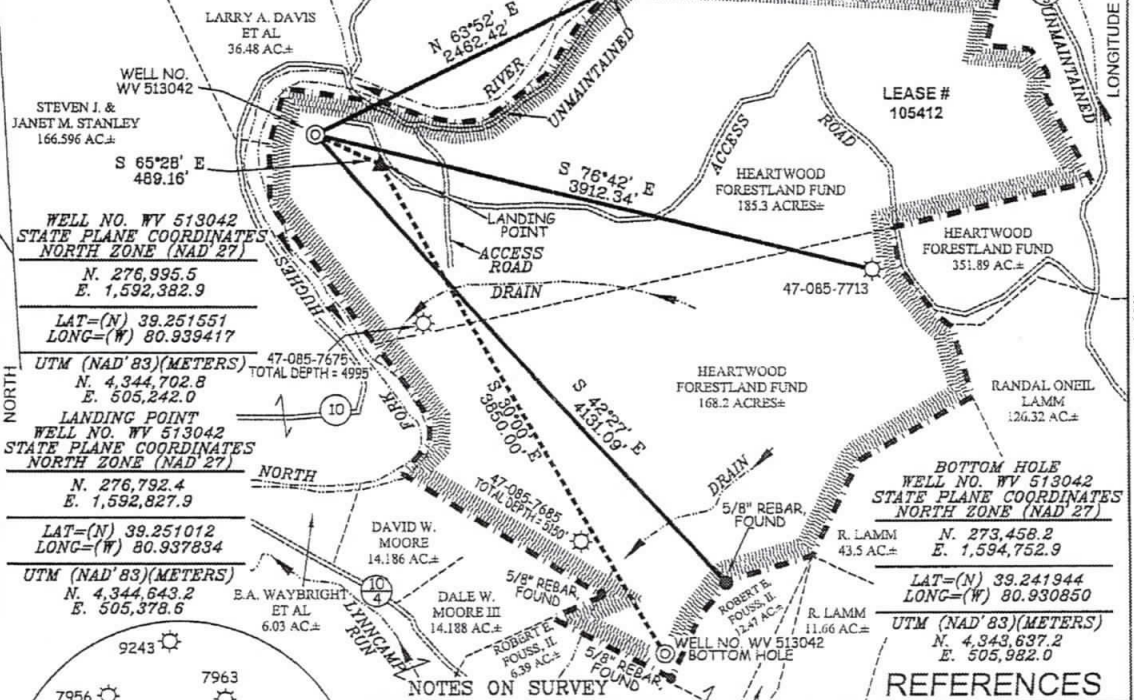
cc: James Martin, WV Office of Oil and Gas
Kyle Mork, ECA

Received

Office of Oil and Gas
WV Dept. of Environmental Protection

85-09951

BROADWATER LEASE 360 ACRES ± WELL NO. 513042



WELL NO. WV 513042
STATE PLANE COORDINATES
NORTH ZONE (NAD '27)
N. 276,995.5
E. 1,592,382.9
LAT=(N) 39.251551
LONG=(W) 80.939417

UTM (NAD '83)(METERS)
N. 4,344,702.8
E. 505,242.0

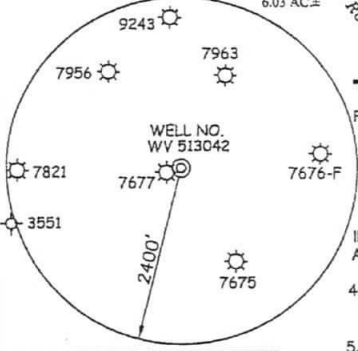
LANDING POINT
WELL NO. WV 513042
STATE PLANE COORDINATES
NORTH ZONE (NAD '27)
N. 276,792.4
E. 1,592,827.9

LAT=(N) 39.251012
LONG=(W) 80.937834

UTM (NAD '83)(METERS)
N. 4,344,643.2
E. 505,378.6

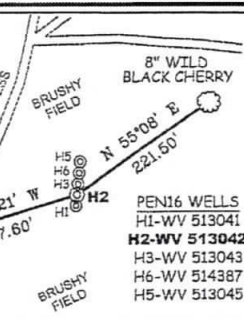
WELL NO. WV 513042
STATE PLANE COORDINATES
NORTH ZONE (NAD '27)
N. 273,458.2
E. 1,594,752.9
LAT=(N) 39.241944
LONG=(W) 80.930850

UTM (NAD '83)(METERS)
N. 4,343,637.2
E. 505,922.0



- ### 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 157 PAGE 568.
 3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF RITCHIE COUNTY IN JULY, 2010.
 4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK).
 5. PLAT DATED 9/22/11 REVISED 9/20/12 TO SHOW NEW LANDING POINT & COORDINATES ETC.

REFERENCES



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 SEPTEMBER 20, 20 12


OPERATORS WELL NO. WV 513042

API WELL NO. 47 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7566P513042EQT (329-36)

PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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



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

LOCATION: ELEVATION 787' (GROUND) - 795' (PROPOSED) WATERSHED NORTH FORK HUGHES RIVER

DISTRICT CLAY COUNTY RITCHIE QUADRANGLE PENNSBORO 7.5'

SURFACE OWNER HEARTWOOD FORESTLAND FUND ACREAGE 185.3±

ROYALTY OWNER JEFFERSON BROADWATER HEIRS ET AL LEASE ACREAGE 360±

PROPOSED WORK: LEASE NO. 105412

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 ESTIMATED DEPTH

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

COUNTY NAME
PERMIT

Received

Office of Oil and Gas
WV Dept. of Environmental Protection



625 Liberty Ave, Suite 1700
Pittsburgh PA 15222
www.eqt.com

TEL: (412) 395-3305
FAX: (412) 395-2156

John Centofanti
Corporate Director,
Environmental Affairs

July 3, 2013

CERTIFIED MAIL: 7012 3050 0002 0883 1796

WVDEP
Mr. James Martin, Chief, Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304

RE: Ritchie County Hydraulic Fracturing Notice

Dear Mr. Martin,

Please find enclosed copies of EQT's notifications to conventional well operations pursuant to our Hydraulic Fracturing Monitoring Plans for the PEN13 and PEN16 pads in Ritchie County, WV.

Please feel free to contact me at 412-395-3305 with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0440.

Sincerely,
EQT Production

A handwritten signature in black ink, appearing to read 'J. Centofanti', written over a horizontal line.

John Centofanti
Corporate Director, Environmental Affairs

Received

JUL 8 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

4708509951

EQT Production
Hydraulic Fracturing Monitoring Plan
Pad ID: PEN16
Ritchie County, WV
513642

5/15/13

Page 1 of 3

Received

MAY 23 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to establish a joint effort between EQT, the West Virginia Office of Oil and Gas (OOG), and local conventional well operators in the Ritchie County area. This plan applies to proposed wells on this pad: 513042, 513045, 514387, and 513041.

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. The plan will further enable the participants to obtain data and information for a root cause analysis in the event communication between zones does occur during hydraulic fracturing.

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 included in **Attachment A**.

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 included in **Attachment B**.

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. Monitoring

EQT will conduct pressure monitoring on select conventional wells before, during, and after hydraulic fracturing of this pad. EQT has selected conventional wells which are directly above its lateral section and completed within the Alexander formation, at approximately 1,000' intervals. EQT will also monitor select conventional wells that lie within the 1500' area identified above. EQT will monitor the wells prior to, during and post fracturing. Wells selected for monitoring are identified in **Attachment A**.

Received

MAY 23 2013

The wells to be monitored are conventional wells operated by GasSearch, ECA, Mountain State, Oiltex, and EQT. EQT or the third-party operator will inspect the wells and monitor the pressures daily.

EQT will closely monitor drilling and hydraulic fracturing activities to identify any abnormalities related to geology such as loss of fluid circulation during drilling or pressure anomalies noted during fracturing.

This pad will be drilled and hydraulically fractured by EQT without any other modifications to our normal practices, unless communication is observed. These include casing and cementing practices, hydraulic fracturing volumes, pumping rates, drillout, and flowback timeframes. This will assist in establishing a baseline for future monitoring of activities in this area. Should communication be observed, EQT may vary the completion design on fracturing stages completed after the communication is observed.

3. Reporting

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

Upon completion of the hydraulic fracturing and monitoring, EQT will provide a written report documenting the monitoring activities identified in this plan.

Received

MAY 23 2013

4708509951

Attachment A

Conventional Wells Within 1,500' of Pad and Laterals

and

Wells to be Monitored by EQT

Received

MAY 23 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

Monitor	API Number	Prior Operator on Record	Operator- DEP	STATUS	LAT	LONG	Vertical Well TD	Closest Distance from Pen16 Lateral Map View	Pen16 Horizontal TVD minus Vertical TD	Hypotenuse Distance	Producing Formation	Gas Show/Pay Zone Depths
Y	4708507685	EAE	ECA	GAS	39.2441	-80.9327	5130	680	1063	1065	Riley & Warren	4102-4339, 3230-3198
Y	4708507675	EAE	ECA	GAS	39.2482	-80.9368	4995	145	1061	1101	Benson, Speechley, & Warren	4566-4569, 3859-4209, 3528-3650, 3066-3103
Y	4708507677	EAE	ECA	GAS	39.2517	-80.9401	4939	293	1104	1194	Riley & Warren	4190-4210, 3066-3098
Y	4708507686	EAE	ECA	GAS	39.2477	-80.9306	4942	455	1330	1337	Benson, Riley, & Warren	4659-4797, 4403-4467, 3307-3325
Y	4708507704	EAE	ECA	GAS	39.2442	-80.9275	4988	141	1331	1353	Riley & Warren	4111-4475, 3335-3357
Y	4708506816	FRENCH CREEK DEVELOP	OLITEX, INC	GAS	39.2437	-80.9379	5016	305	1144	1310	Riley	4726-4235
Y	4708503978	EPC	EOT	GAS	39.24479	-80.92999	1845	16	4295	4303	Big Lime & Big Injun	1653-1790

Received

MAY 23 2013

Attachment A continued

Monitor	API Number	Notes
Y	4708507685	Fractured 1988 - 2 stage foam frac - 75Q Foam, 20/40 sand, and N2 - drilled to the Alexander
Y	4708507675	Fractured 9/15/1987 - Benson, 5 holes, 15k# 20/40, 10,500 SCF of N2 Assist - remaining stages 20/40 sand, 75Q Foam - Drilled to the Alexander
Y	4708507677	Fractured 1990 - 2 stage foam frac - Acid, 75Q Foam, 20/40 sand, and N2
Y	4708507686	Fractured 1988 - 3 stage foam frac - 75Q Foam, 20/40 sand, and N2 - drilled to the Alexander
Y	4708507704	Fractured 1988 - 2 stage foam frac - 75Q Foam, 20/40 sand, and N2 - drilled to the Alexander
Y	4708506816	Fractured 1/16/1984 with 800k SCF N2 + 500 gal 15% HCl-Drilled down to the Marcellus Shale
Y	4708503978	State report notes well was completed (no further data)

Received

MAY 23 2013

4708509951

Attachment B

Letter to Conventional Well Operators

Received

MAY 23 2013

Office of Oil and Gas
WV Dept. of Environmental Protection



April 29, 2013

[Conventional Well Operator]
[address]
[state]

RE: Ritchie County Hydraulic Fracturing Notice

Dear Sir/Madam,

EQT and Energy Corporation of America (ECA) have been working closely with the West Virginia Office of Oil and Gas (OOG) to investigate hydraulic fracturing activities in Ritchie County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

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).

EQT is implementing a Hydraulic Fracturing Monitoring Plan as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the PEN16 pad in Ritchie County. The plan will further enable us to obtain data and information for a root cause analysis in the event communication between zones does occur during hydraulic fracturing.

We will be closely monitoring our drilling and fracturing activities, as well as obtaining real-time pressure data from selected EQT and ECA conventional wells.

EQT anticipates conducting hydraulic fracturing at the PEN16 pad on {insert date}. We have identified conventional natural gas wells operated by your company within 1,500' of this pad and laterals. We have included plats for each well on this pad in **Attachment A**.

Received

MAY 23 2013

We recommend that conventional well operators conduct the following activities before, during and after fracturing operations:

1. Inspect surface equipment prior to fracturing to establish integrity and establish pre-fracturing 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.

Please feel free to contact me at 412-395-3305 with any questions or comments. You may also contact the West Virginia Office of Oil and Gas at 304-926-0440.

Sincerely,
EQT Production

John Centofanti
Corporate Director, Environmental Affairs

cc: James Martin, WV Office of Oil and Gas
Kyle Mork, ECA

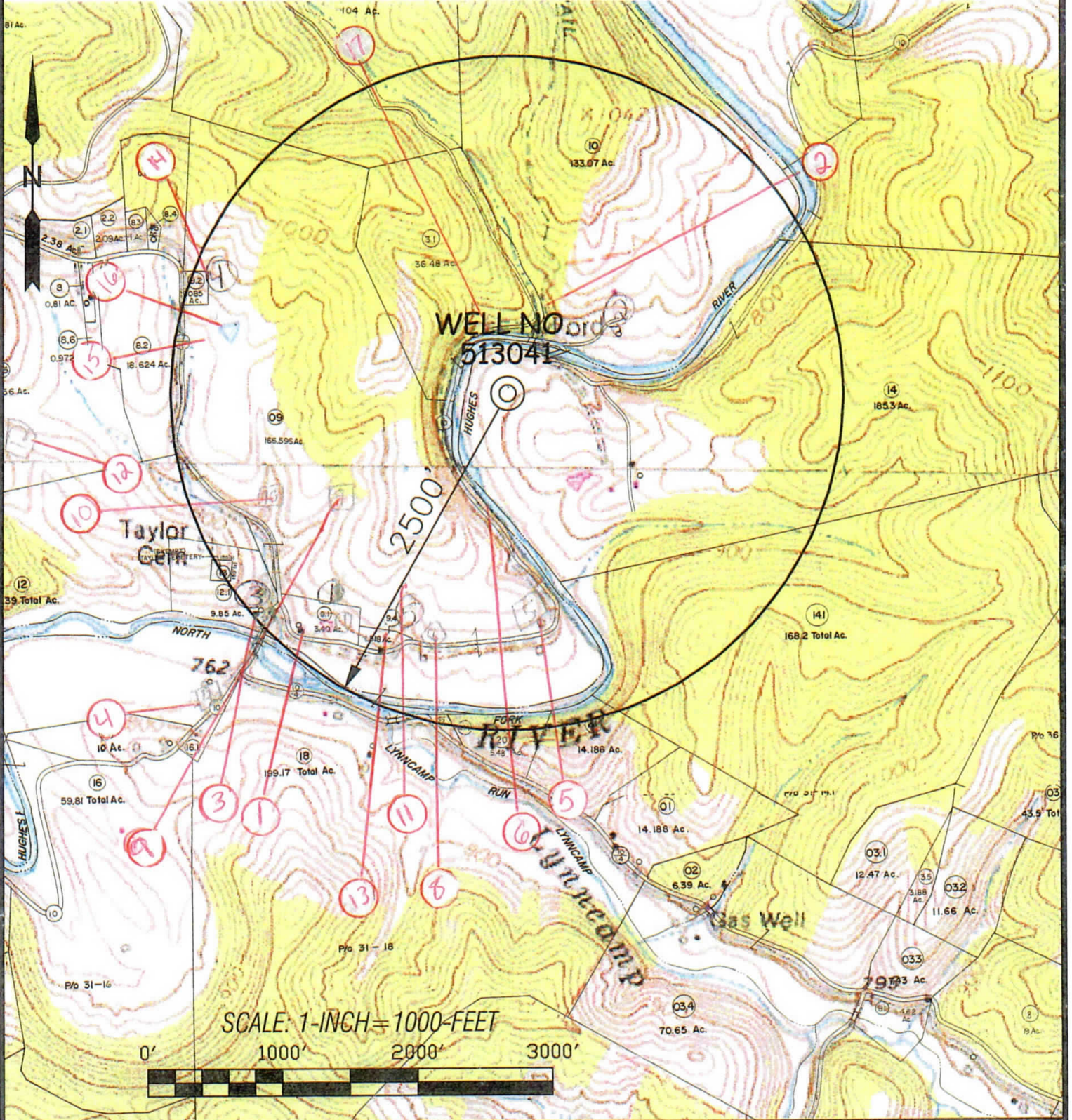
Received

MAY 23 2013

WATER SAMPLES

page of

BROADWATER LEASE WELL NO. 513041



SLS
SMITH LAND SURVEYING, INC.
 P.O. BOX 150 GLENVILLE, WV. 26351
 PH: (304)462-5634 FAX: (304)462-5656 E-MAIL: sls@slsurveys.com

DRAWN BY J.L.D.	FILE NO. 7566	DATE 10-03-11	CADD FILE: 7566WSH1.DWS
--------------------	------------------	------------------	----------------------------

TOPO SECTION OF:
 PENNSBORO, WV 7.5' QUAD.

DISTRICT	COUNTY	TAX MAP-PARCEL NO.
CLAY	RITCHIE	31-14

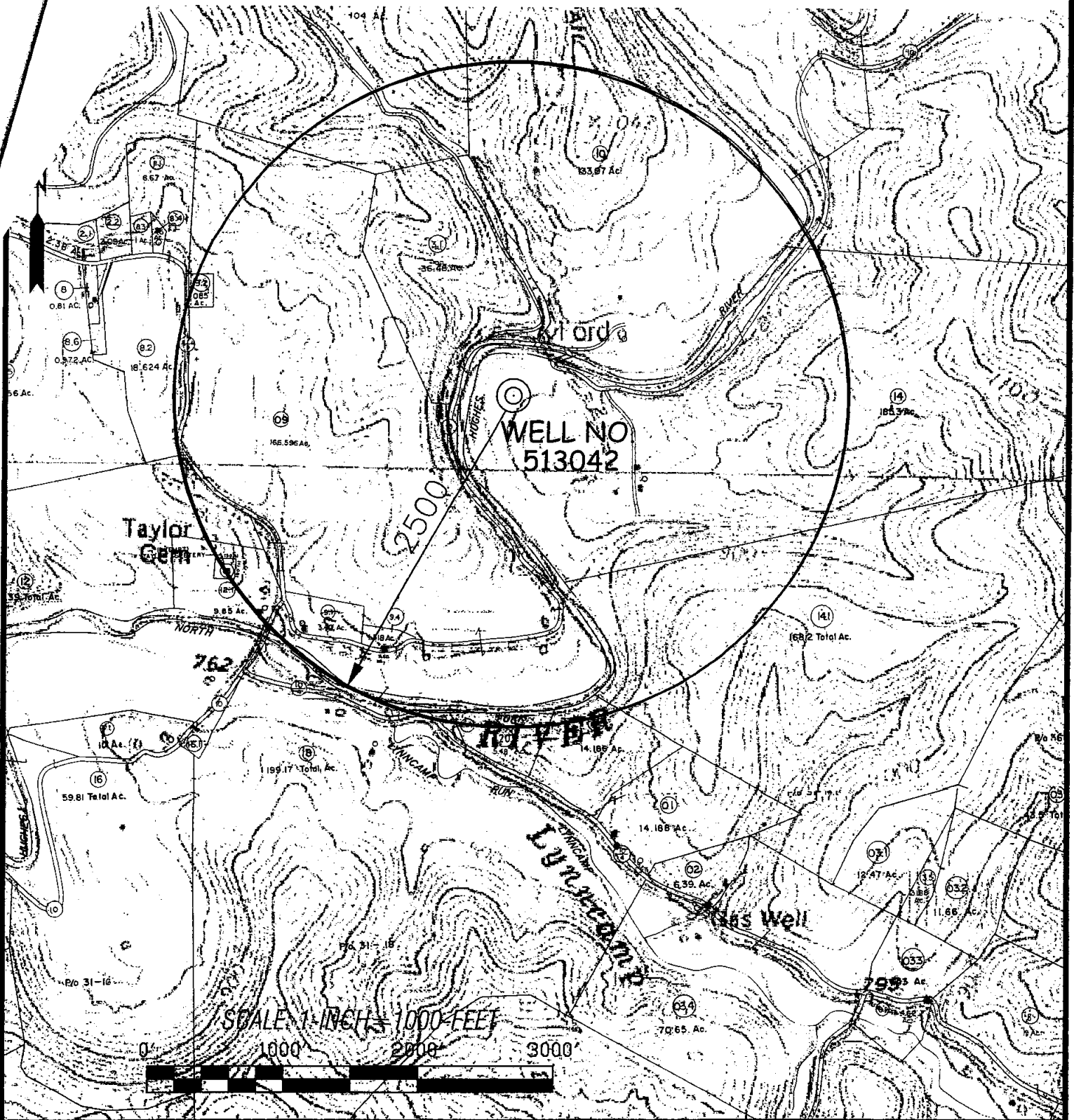
OPERATOR:
EQT PRODUCTION COMPANY
 1710 PENNSYLVANIA AVE
 CHARLESTON, WV 25302

Received

MAY 23 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

BROADWATER LEASE WELL NO. 513042



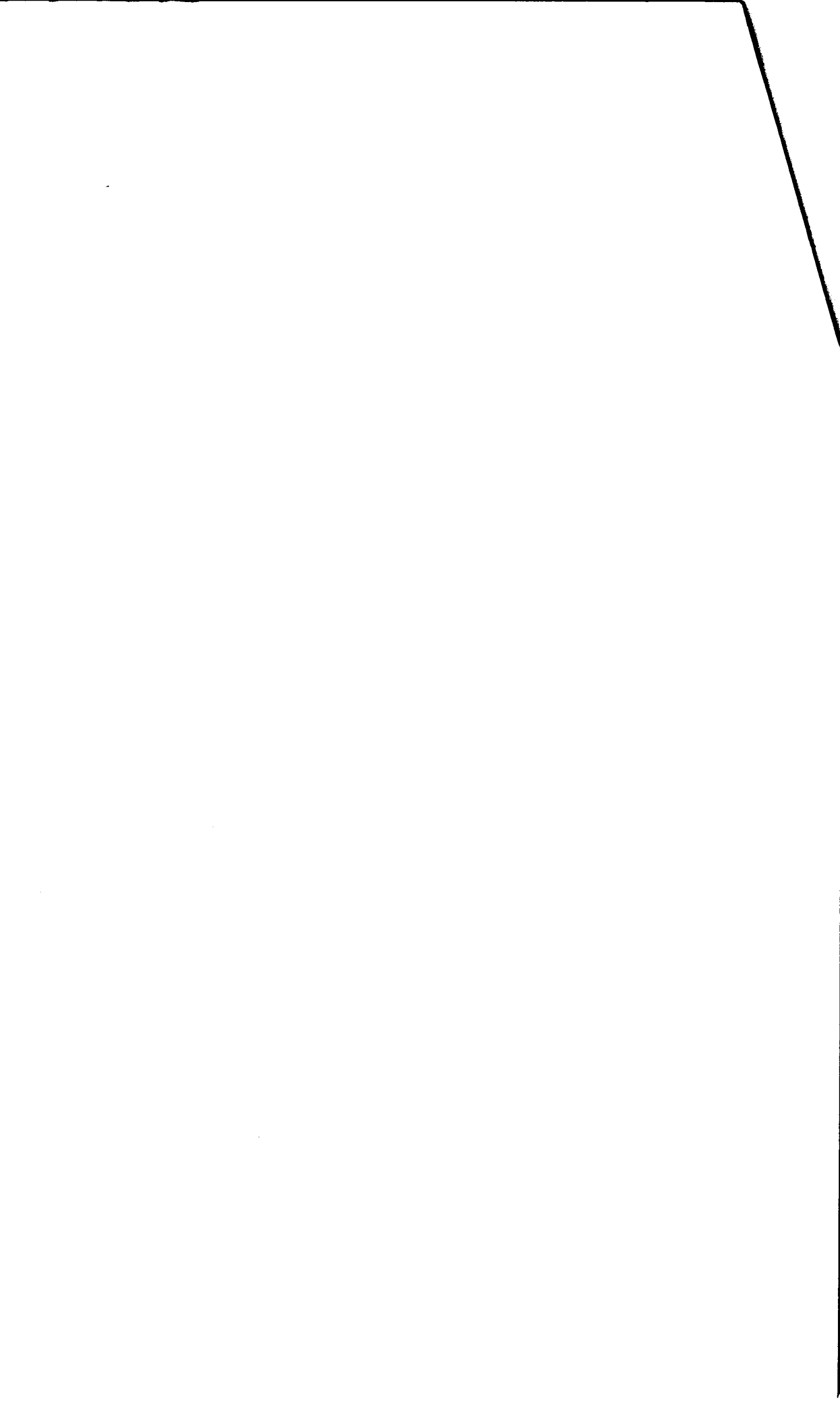
SLS
 SMITH LAND SURVEYING, INC.
 P.O. BOX 150 GLENVILLE, WV, 26351
 PH: (304)462-5634 FAX: (304)462-5656 E-MAIL: sls@slsurveys.com

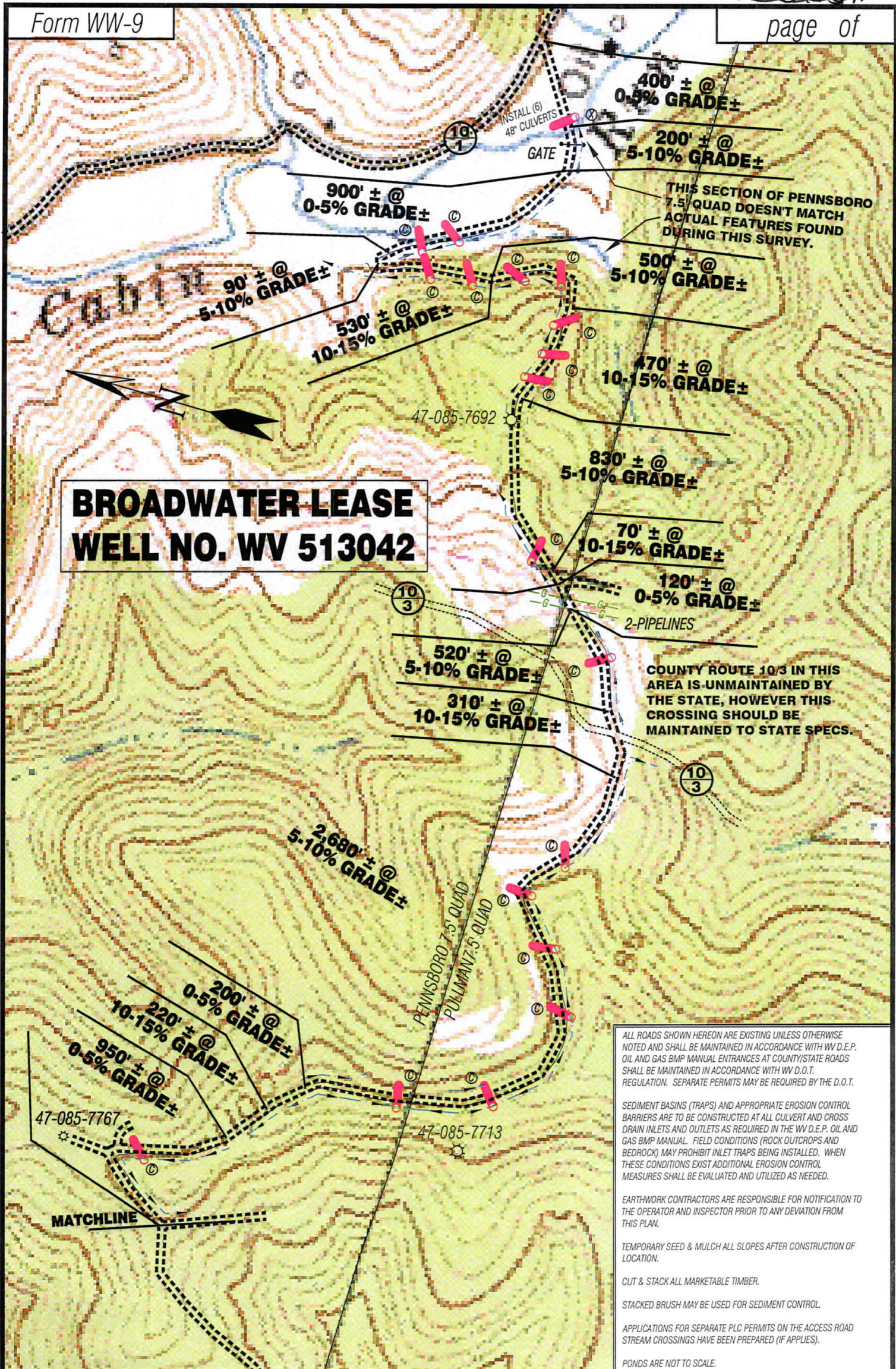
DRAWN BY: J.L.B.	FILE NO. 7566	DATE 10-03-11	CADD FILE: 7566WSH2.DWG
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TOPO SECTION OF:
 PENNSBORO, WV 7.5' QUAD.

DISTRICT	COUNTY	TAX MAP-PARCEL NO.
CLAY	RITCHIE	31-14

OPERATOR:
 EQT PRODUCTION COMPANY
 1710 PENNSYLVANIA AVE
 CHARLESTON, WV 25302





**BROADWATER LEASE
WELL NO. WV 513042**

ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.E.P. OIL AND GAS BMP MANUAL ENTRANCES AT COUNTY/STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATION. SEPARATE PERMITS MAY BE REQUIRED BY THE D.O.T.

SEDIMENT BASINS (TRAPS) AND APPROPRIATE EROSION CONTROL BARRIERS ARE TO BE CONSTRUCTED AT ALL CULVERT AND CROSS DRAIN INLETS AND OUTLETS AS REQUIRED IN THE WV D.E.P. OIL AND GAS BMP MANUAL. FIELD CONDITIONS (ROCK OUTCROPS AND BEDROCK) MAY PROHIBIT INLET TRAPS BEING INSTALLED. WHEN THESE CONDITIONS EXIST ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.

EARTHWORK CONTRACTORS ARE RESPONSIBLE FOR NOTIFICATION TO THE OPERATOR AND INSPECTOR PRIOR TO ANY DEVIATION FROM THIS PLAN.

TEMPORARY SEED & MULCH ALL SLOPES AFTER CONSTRUCTION OF LOCATION.

CUT & STACK ALL MARKETABLE TIMBER.

STACKED BRUSH MAY BE USED FOR SEDIMENT CONTROL.

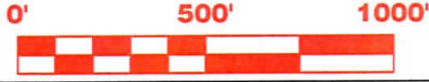
APPLICATIONS FOR SEPARATE PLC PERMITS ON THE ACCESS ROAD STREAM CROSSINGS HAVE BEEN PREPARED (IF APPLIES).

PONDS ARE NOT TO SCALE.

= EXISTING CULVERT = PROPOSED CULVERT 12\"/>

= PROPOSED STREAM CROSSING (IF APPLIES)
*SEE TABLE FOR CULVERT DETAIL

SCALE: 1" = 500'



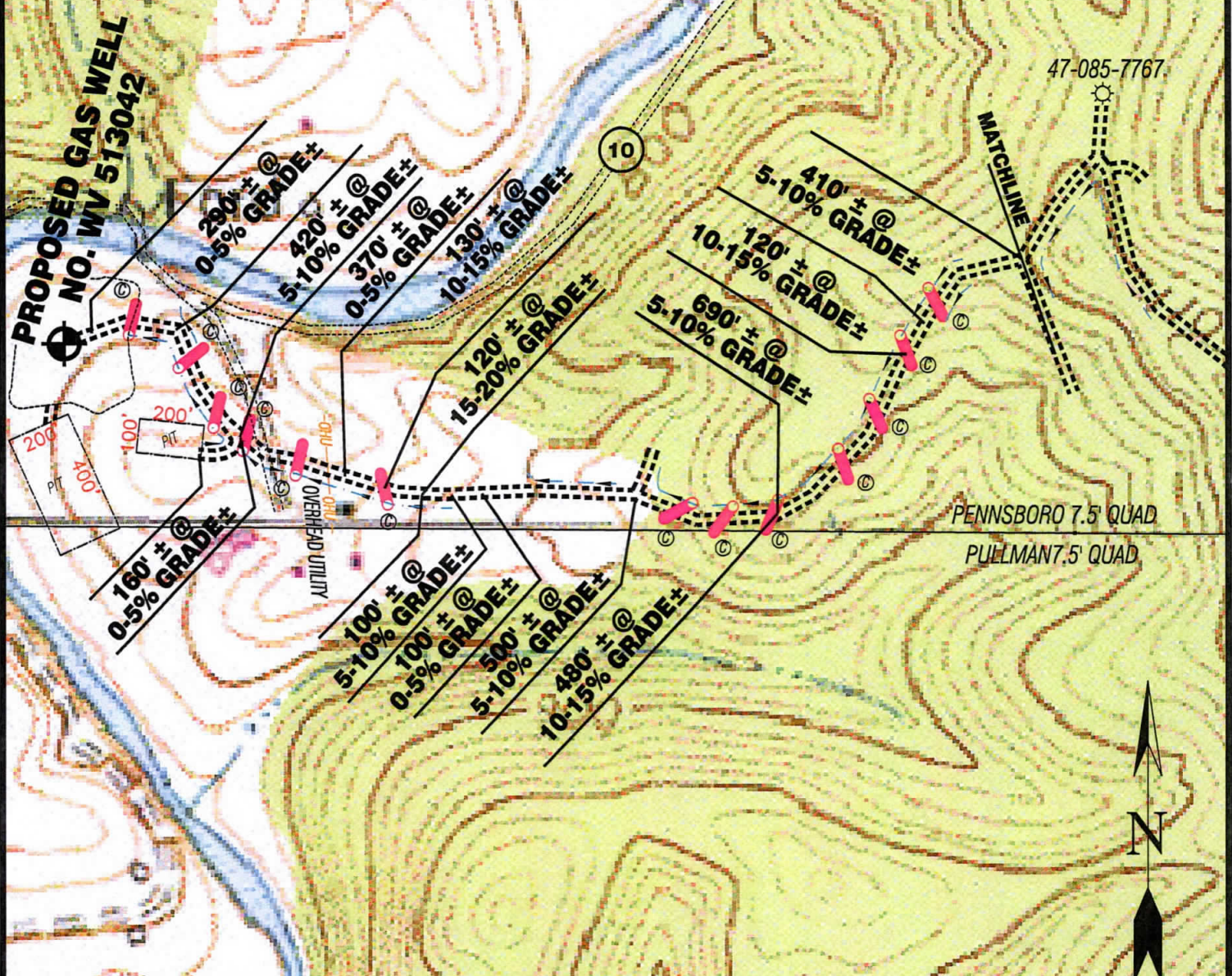
TOPO SECTION OF USGS PENNSBORO & PULLMAN 7.5' QUADRANGLES



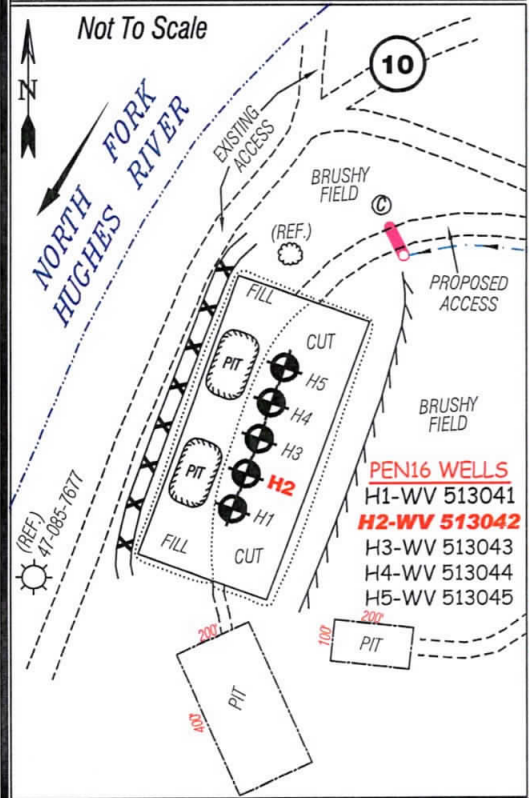
SMITH LAND SURVEYING, INC.
P.O. BOX 150 GLENVILLE, WV. 26351
PH: (304) 462-5634 FAX: (304) 462-5656 E-MAIL: sls@sls-surveys.com

DRAWN BY D.L.P.	FILE NO. 7566	DATE 09/22/11	CADD FILE: 7566RECWW513042R.dwg
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BROADWATER LEASE WELL NO. WV 513042



Detail Sketch for Proposed Well WV 513042



ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.E.P. OIL AND GAS BMP MANUAL ENTRANCES AT COUNTY/STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATION. SEPARATE PERMITS MAY BE REQUIRED BY THE D.O.T.

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SCALE: 1"=500'



- = EXISTING CULVERT
- = PROPOSED CULVERT 12" MIN. UNLESS OTHERWISE NOTED
- = PROPOSED STREAM CROSSING (IF APPLIES)
- *SEE TABLE FOR CULVERT DETAIL

SLS
 SMITH LAND SURVEYING, INC.
 P.O. BOX 150 GLENVILLE, WV. 26351
 PH: (304)462-5634 FAX: (304)462-5656 E-MAIL: sls@slssurveys.com

DRAWN BY D.L.P.	FILE NO. 7566	DATE 09/22/11	CADD FILE: 7566RECVWV513042R.dwg
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TOPO SECTION OF USGS PENNSBORO & PULLMAN 7.5' QUADRANGLES

State of West Virginia
 Department of Environmental Protection
 Office of Oil and Gas

Well Work Permit Application Addendum

(To be completed when fluid volumes used or disposed may be greater than 5000 barrels)

- 1) Well Operator: **EQT Production Co**
- 2) Operator ID #: **306686**
- 3) Operator's Well Number: **513042 PEN16H2**
- 4) County: **Ritchie**
- 5) Approximate Amount of Water to be Us Used (bbls) **150,000**
- 6) Fracture/Drilling Water Source (estimate % of each source to be used)

90	Surface Water	0	Ground Water	Purchased Water	ReUsed Wa	10
-----------	---------------	----------	--------------	-----------------	-----------	-----------
- 7) Location of Surface Water Source (if applicable) **N/A**
 - a) County: **Ritchie**
 Water Source Name: **North Fork of Hughes River**
 Latitude (d/m/s) **39 15' 08"** Longitude (d/m/s) **-80° 56' 24"**
 - b) Anticipated month(s) of water withdrawals **_ Jan - Dec**
- 8) Location of Groundwater Source (if applicable) **N/A**
 - a) County:
 Water Source Name:
 Latitude (d/m/s) Longitude (d/m/s)
 - b) Anticipated month(s) of water withdrawals _____
- 9) Location of Purchased Water Source (if applicable)
 Public/Private Water System Name
- 10) Location of Reused Water (if applicable)
 County: **Ritchie**
 Well/Facility ID: **PEN 15**
- 11) Will Centralized Pits/Ponds Be Utilized **x** yes no
 Location (if applicable) (NAD83)
 Latitude (d/m/s) **39.25042000** Longitude (d/m/s) **-80.93923000**
 Dimensions in Feet (if applicable)
 Length **412'** Width **212'** Depth **19'**
- 12) Water Disposal Method (estimate % each facility is to receive)

	Land Application	UIC		UIC permit number
	POTW - facility name			
	NPDES - permit #			
100	Other			Reuse/Recycle

Location of additional Surface Water Source:
 County: **Ritchie**
 Water Source name: **North Fork of Hughes River**
 Lat **39° 13' 38.07"**
 Long **-81° 02' 06.09"**

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Sent To **Martha Wilson**
837 Fairview Ave.
Parkersburg, WV 26101

Street, Apt. No. or PO Box No.
City, State, ZIP+

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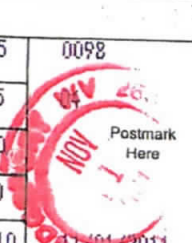
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VIENNA WV 26105

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Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 11.10	11/01/2011

Sent To **Mary J. Smith**
5229 Glenbrook Dr.
Vienna, WV 26105

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City, State, ZIP+4

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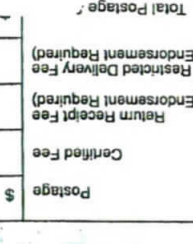
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COLUMBUS OH 43220

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Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 11.10	11/01/2011

Sent To **Michael C. Broadwater**
4400 Reed Rd.
Columbus, OH 43220

Street, Apt. No. or PO Box No.
City, State, ZIP

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Sent To **Thomas J. Broadwater**
603 N. 6th St.
Cambridge, OH 43725

Street, Apt. No. or PO Box No.
City, State, ZIP+

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Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 11.10	11/01/2011

Sent To **Mabel Broadwater**
5504 12th Ave.
Vienna, WV 26105

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City, State, ZIP+

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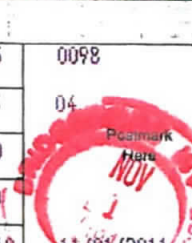
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PARKERSBURG WV 26104

Postage	\$ 5.95	0098
Certified Fee	\$ 2.85	04
Return Receipt Fee (Endorsement Required)	\$ 2.30	
Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 11.10	11/01/2011

Sent To **Heartwood Forest Fund IV**
c/o Greg Wilhelm
3001 Emerson Ave.
Parkersburg, WV 26104

Street, Apt. No. or PO Box No.
City, State, ZIP

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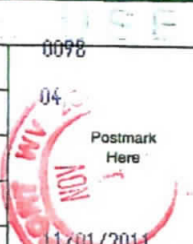
For delivery information visit our website at www.usps.com
COLUMBUS OH 43220

Postage	\$ 5.95	0098
Certified Fee	\$ 2.85	04
Return Receipt Fee (Endorsement Required)	\$ 2.30	
Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 11.10	11/01/2011

Sent To **Barbara A. Basil**
2620 Berwyn Rd.
Columbus, OH 43220

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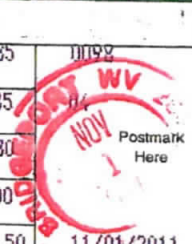
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OCEAN SPRINGS MS 39564

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Certified Fee	\$ 2.85	04
Return Receipt Fee (Endorsement Required)	\$ 2.30	
Restricted Delivery Fee (Endorsement Required)	\$ 0.00	
Total Postage & Fees	\$ 14.50	11/01/2011

Sent To **Calvin H. Grosscup, Jr.**
1309 Cove Pl.
Ocean Springs, MS 39564

Street, Apt. No. or PO Box No.
City, State, ZIP+4

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7009 2250 0004 3161 7430

7009 2250 0004 3161 7430

7009 2250 0004 3161 7447

7009 2250 0004 3161 7346

7009 2250 0004 3161 7393

7009 2250 0004 3161 7416

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WV Department of Environmental Protection

NOV 01 11
WV Department of Environmental Protection

513042 513044 513045

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1117 1/2

Pennsboro

Operator: EQT PRODUCTION COMPAN API: 8509951

WELL No: 513042 EQT PRODUCTION

Reviewed by: JA Date: 12-30-11

15 Day End of Comment: 1/17

CHECKLIST FOR FILING A PERMIT

Horizontal Well

- WW-2B *need explanation*
- Inspector signature on WW-2B *Pen 16 Pad*
- WW-2A (Notarized)
- Certified Mail Receipts, Waivers, or Affidavits of Personal Service
- Surface Owner Waiver
- Coal Owner / Lessee / Operator Waiver
- WW-2A-1 (Signed) Showing Book/Page Number and Royalty Percentage
- WW-2B-1 (Names, addresses, and spot on topographical map listed as water testing)
- WW-9 (Page 1 & 2) (Notarized) *cutting disposal*
- More than 5,000 bbls
- Inspector Signature on WW-9
- Reclamation plan *location surrounded by river on 3 sides, large bridge*
- Topographic Map of location of well
- Mylar Plat (Signed and Sealed) (Surface owner on plat matches WW-2A)
- Bond
- Company is Registered with the SOS *Is access existing?*
- Worker's Compensation / Unemployment Insurance account is OK
- \$650.00 check (\$550.00 if no pit)
- Mine Data
- Addendum
- Flow Distance to Nearest Intake *Not functional*
- Horizontal Rule Series 8 Effective August 30, 2011-Well Sites Greater Than 3 Acres
- Erosion and Sediment Control Plan
- Site Construction Plan
- Well Site Safety Plan
- Water Management Plan (Plan to withdraw 210,000 gallons or more during any one month period)
- Within a Municipality *Fracs additives*
- Class I Legal Advertisement in Newspaper for first permit on well pad

59 Days

Need approved

OK

Smith, Gene C

To: Roark, Vicki
Subject: pen16 pad 513042 85-9951 and 513045 85-9953

Vicki, the following needs completed to make the subject apps complete:

- Site safety needs field approval
- OK -Site Construction and Erosion and Sediment Control plans need field approval 6/11/12
- Need a statement of why the surface casing will need to be set more than 300 feet
- Cuttings disposal method should not be solidification-need hauled to landfill