



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

July 30, 2013

WELL WORK PERMIT

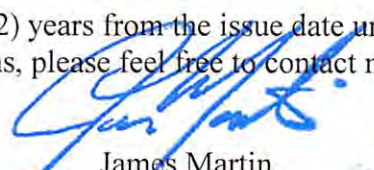
Drilling Deeper

This permit, API Well Number: 47-10302621, 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: 513135 - J. M. ALLEN
Farm Name: UNDERWOOD, RICHARD M. & N
API Well Number: 47-10302621
Permit Type: Drilling Deeper
Date Issued: 07/30/2013

Promoting a healthy environment.

08/02/2013

PERMIT CONDITIONS

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. 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.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

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

	103	4	254
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Operator ID County District Quadrangle

2) Operator's Well Number: 513135 Well Pad Name BIG182

3 Elevation, current ground: 941' Elevation, proposed post-construction: 941'

4) Well Type: (a) Gas Oil
Other _____

(b) If Gas: Shallow Deep
Horizontal

5) Existing Pad? Yes or No: yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Target formation is Marcellus at a depth of 7,105' with the anticipated thickness to be 47 feet and anticipated target pressure of 4496 PSI

7) Proposed Total Vertical Depth: 7,237

8) Formation at Total Vertical Depth: Onondaga

9) Proposed Total Measured Depth: 11,928

10) Approximate Fresh Water Strata Depths: 58,70,80

11) Method to Determine Fresh Water Depth: By offset wells

12) Approximate Saltwater Depths: 1,545

13) Approximate Coal Seam Depths: 270,370,440,534,630

14) Approximate Depth to Possible Void (coal mine, karst, other): n/a

15) Does land contain coal seams tributary or adjacent to, active mine? no

16) Describe proposed well work: Drill and complete a new horizontal well. The vertical drill to go down to approximately depth of 7,237
Tagging the Onondaga not more than 100' then plug back to approximately 5,553' and kick off the horizontal leg into the marcellus using a
slick water frac.

Slick Water Frac

17) Describe fracturing/stimulating methods in detail:
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). Stage lengths vary from 150 to 450 feet. Average approximately
400,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 400,000 pounds of sand per stage.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): no additional disturbance

19) Area to be disturbed for well pad only, less access road (acres): no additional disturbance

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Office of Oil and Gas
WV Dept. of Environmental Protection

CASING AND TUBING PROGRAM

20)

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu.Ft.)
Conductor	30	New	LS	99#	Completed	see form WR-35	
Fresh Water	13 3/8	New	MC-50	54#	Completed	see form WR-35	
Coal		New					
Intermediate	9 5/8	New	MC-50	40#	Completed	see form WR-35	
Production	5 1/2	New	P-110	20#	11,928'	11,928'	See Note 1
Tubing	2 3/8		J-55	4.6			will be set 100' less than TD
liners							

DMAH 6-14-13

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	30	36	0.312	-	construction	1.18
Fresh Water	13 3/8	17 1/2	0.038	2,480	1	1.21
Coal						
Intermediate	9 5/8	12 3/8	0.0395	3,590	1	1.21
Production	5 1/2	8 1/2	0.0361	12,640		1.27/1.86
Tubing	2 3/8					
liners						

Packers

Depth:	N/A		
Types:	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.

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WV Department of
Environmental Protection

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 5/28/2013
API #: 47-10302621

Farm name: Underwood, Richard M. & M. Operator Well No.: 513135

LOCATION: Elevation: 941' Quadrangle: Big Run

District: Grant County: Wetzel, WV
Latitude: 10,080' Feet South of 39 Deg. 35 Min. 00 Sec.
Longitude: 8,080' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: EQT Production Company

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
EQT Plaza, Suite 1700 625 Liberty Avenue, Pittsburgh, PA 15222	30	65	65	165
Agent: Cecil Ray	13 3/8	767	767	973
Inspector: <u>Derek Haught</u>	9 5/8	3,147	3,147	1,298
Date Permit Issued: <u>1/26/2011</u>				
Date Well Work Commenced: <u>1/21/2013</u>				
Date Well Work Completed: <u>3/11/2013</u>				
Verbal Plugging: <u>N/A</u>				
Date Permission granted on: <u>N/A</u>				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input checked="" type="checkbox"/>				
Total Vertical Depth (ft.): <u>5,066'</u>				
Total Measured Depth (ft.): <u>5,066'</u>				
Fresh Water Depth (ft.): <u>80'</u>				
Salt Water Depth (ft.): <u>1,545'</u>				
Is coal being mined in area (N/Y)? <u>No</u>				
Coal Depths (ft.): <u>270', 370', 440', 534, 630'</u>				
Void(s) encountered (N/Y) Depth(s) <u>No</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) N/A
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow N/A MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure N/A psig (surface pressure) after N/A Hours

Second producing formation No second formation. Pay zone depth (ft)
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.


Signature

5/28/2013
Date

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21) 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

22) 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.

23) 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.

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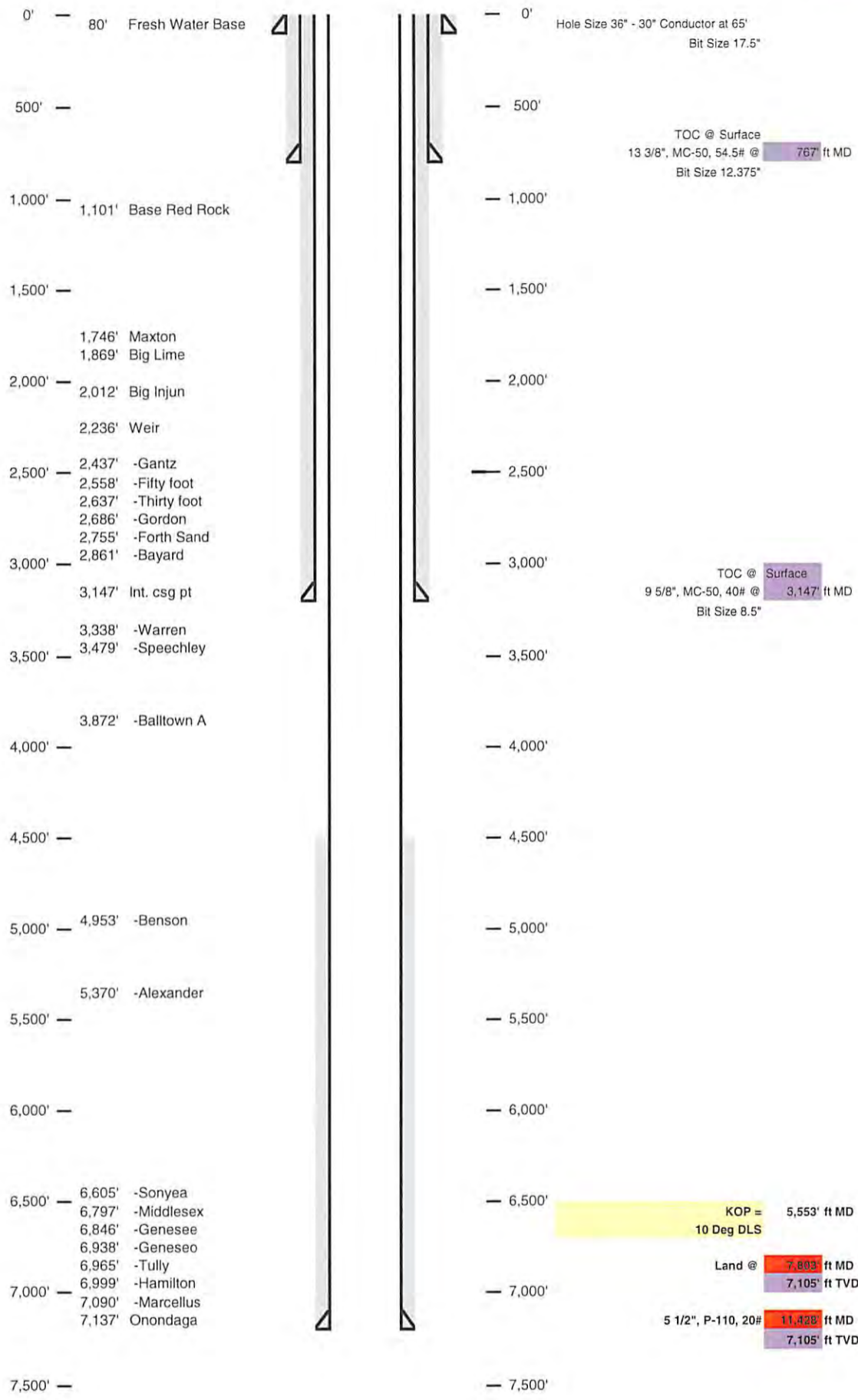
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Well Schematic
EQT Production

Well Name 513135 (BIG182H6)
County Wetzel
State West Virginia

Elevation KB: 951
Target Marcellus
Prospect
Azimuth 133
Vertical Section 3963



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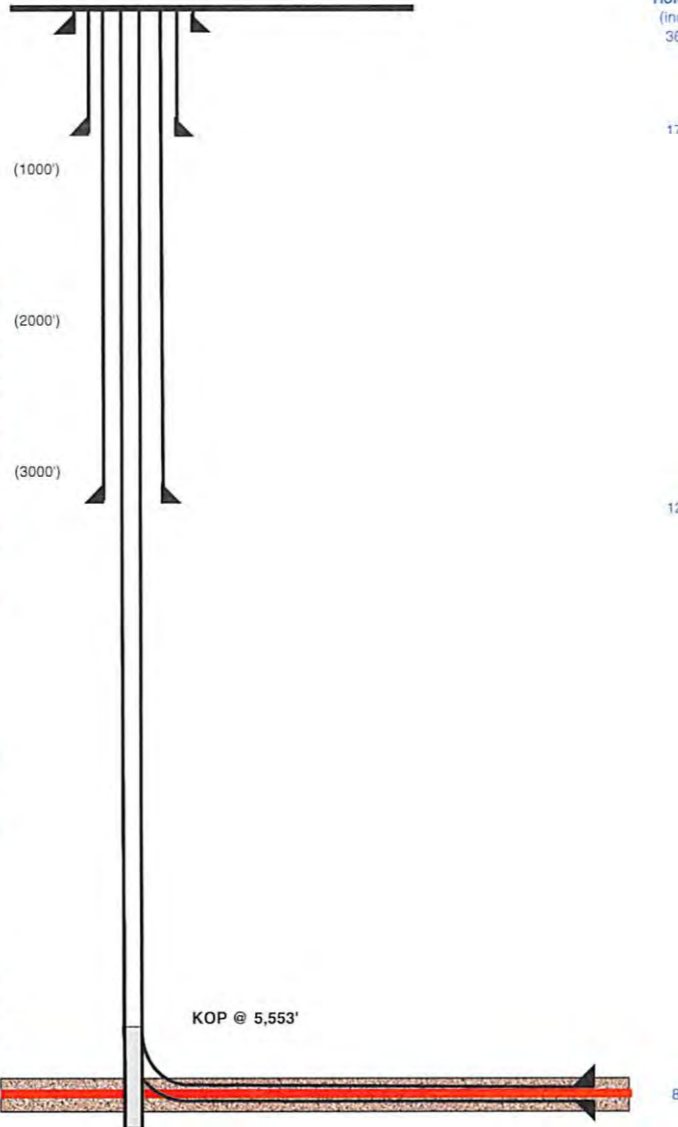
Office of Oil and Gas
WV Dept. of Environmental Protection

4710302621

Well 513135 (BIG182H6)
 EQT Production
 Big Run
 Wetzel West Virginia

Azimuth 133
 Vertical Section 3963

TVD Depth (feet)	Formation Tops (TVD)
0'	
250'	Base Fresh Water 80
500'	
750'	
1,000'	Base Red Rock 1101
1,250'	
1,500'	
1,750'	Maxton 1746 - 1801
	Big Lime 1889 - 1989
2,000'	Big Injun 2012 - 2239
	Weir 2238 - 2306
2,250'	-Gantz 2437 - 2477
	-Fifty foot 2558 - 2588
2,500'	-Thirty foot 2637 - 2725
	-Gordon 2686 - 2751
2,750'	-Forth Sand 2755 - 2780
	-Bayard 2861 - 2911
3,000'	
3,250'	Int. csg pt 3147
	-Warren 3338 - 3388
3,500'	-Speechley 3479 - 3529
3,750'	
4,000'	-Balltown A 3872 - 3872
4,250'	
4,500'	
4,750'	
5,000'	-Benson 4953 - 4993
5,250'	
5,500'	-Alexander 5370 - 5528
5,750'	
6,000'	
6,250'	-Snyea 6605 - 6797
	-Middlesex 6797 - 6846
6,500'	-Genesee 6846 - 6938
	-Genesee 6938 - 6965
6,750'	-Tully 6965 - 6999
	-Hamilton 6999 - 7090
7,000'	Marcellus top 7090
	Target Inside Marcellus 7105
7,250'	Marcellus Bottom 7137
7,500'	



Hole Size (inches)	Casing Type	Casing Size (inches)	Wt (ppf)/Grade
36	Conductor	30	
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 @ 7,105' ft TVD
 7,803' ft MD
 Est. TD @ 7,105' ft TVD
 11,428' ft MD
 3,626' ft Lateral

TD Pilot Hole @ 7237
 100' below top of Onondaga
 Run Logs, Plug back to KOP at 5553
 Kick off for horizontal well in Marcellus

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NOV 12 2013

Office of Oil and Gas
 WV Dept. of Environmental Protection

WW-PN
(1-30-12)

47-10302621

**Horizontal Natural Gas Well Work Permit
Application Notice By Publication**

Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: Wetzel Chronicle

Public Notice Date: 4/17 & 4/24/13

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: EQT Production Company **Well Number:** 513135

Address: 115 Professional Place, P.O. Box 280
Bridgeport, WV 26330

Business Conducted: Natural gas production.

Location:

State:	<u>West Virginia</u>	County:	<u>Wetzel</u>
District:	<u>Grant</u>	Quadrangle:	<u>Big Run 7.5'</u>
UTM Coordinate NAD83 Northing:			<u>541129.0</u>
UTM coordinate NAD83 Easting:			<u>4378567.0</u>
Watershed:	<u>Wiley Fork of North Fork Fishing Creek</u>		

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/llutm_conus.php

Electronic notification:

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

Reviewing Applications:

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to DEP.oog@wv.gov.

Submitting Comments:

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx

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08/02/2013
12:00

Office of Oil and Gas
WV Dept. of Environmental Protection

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name BIG182 OP Code _____

Watershed Wiley Fork of North Fork Fishing Creek Quadrangle Big Run 7.5'

Elevation 941' County Wetzel District Grant

Description of anticipated Pit Waste: n/a

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

Will a synthetic liner be used in the pit? n/a If so, what mil.? n/a

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 _____)

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

If oil based, what type? Synthetic, petroleum, etc _____

Additives to be used? MILBAR, Viscosifer, Alkalinity Control, Lime, Chloride Salts, Filtration Control, Deflocculant, Lubricant, Detergent, Defoaming, Walnut Shell, X-Gide, SOLTEX Terra Rate

Will closed loop system be used? YES

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

If left in pit and plan to solidify what medium will be used? Cement, lime, 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 _____ *Victoria J. Roark*

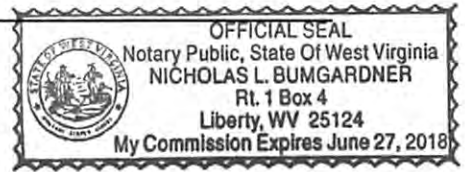
Company Official (Typed Name) Victoria J. Roark

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 10 day of June, 20 13

Notary Public

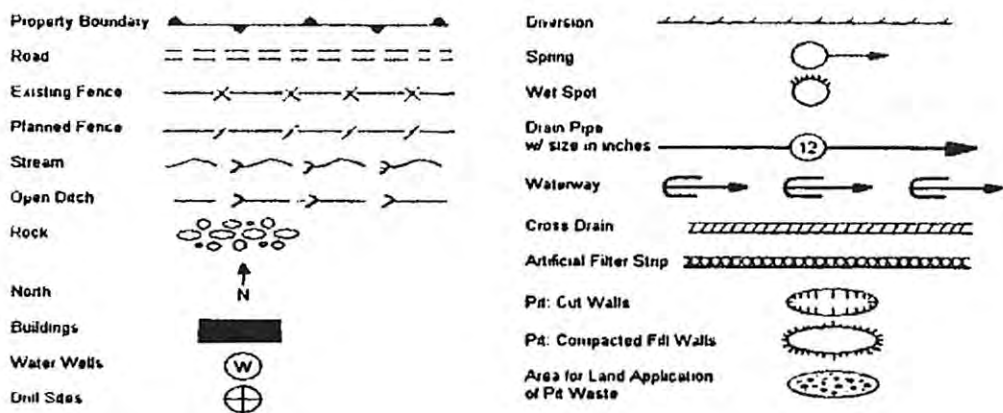
My commission expires 6/27/2018



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Proposed Revegetation Treatment: Acres Disturbed _____ Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

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

Mulch 2 Tons/acre

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.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

Title: Oil & Gas Inspector Date: 6-14-13

Field Reviewed? (/) Yes () No

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Wy Department of
Environmental Protection

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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

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12 2013

Office of Oil and Gas
 WV Dept. of Environmental Protection



Water Management Plan: Primary Water Sources



WMP-01367

API/ID Number: 047-103-02621

Operator:

EQT Production Company

513135 (BIG182H6)

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for multiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interpreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED 08/30/2013

Source Summary

WMP- 01367

API Number:

047-103-02621

Operator:

EQT Production Company

513135 (BIG182H6)

Stream/River

● Source **Ohio River at Hannibal, OH** Wetzel Owner: **Richard Potts/Rich Merryman**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
6/1/2013	6/1/2014	6,100,000		39.655883	-80.86678

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): **1,500** Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

● Source **S. Fork of Fishing Creek @ Hastings Truck Pad** Wetzel Owner: **Dominion Transmission**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
6/1/2013	6/1/2014	6,100,000		39.553	-80.669

Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,260** Min. Gauge Reading (cfs): **78.05** Min. Passby (cfs) **10.32**

DEP Comments:

● Source **S. Fork of Fishing Creek @ Jacksonburg Truck Pad** Wetzel Owner: **Ronald Anderson**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
6/1/2013	6/1/2014	6,100,000		39.52609	-80.6338

Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,260** Min. Gauge Reading (cfs): **73.12** Min. Passby (cfs) **8.86**

DEP Comments:

08/02/2013

● Source **N. Fork of Fishing Creek @ Pine Grove Truck Pad** **Wetzel** Owner: **Town of Pine Grove**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:
6/1/2013 6/1/2014 6,100,000 39.571562 -80.677848

Regulated Stream? Ref. Gauge ID: **3114500** **MIDDLE ISLAND CREEK AT LITTLE, WV**

Max. Pump rate (gpm): 2,520 Min. Gauge Reading (cfs): 85.35 Min. Passby (cfs) 6.22

DEP Comments:

● Source **N. Fork of Fishing Creek @ Edgell Property** **Wetzel** Owner: **Cathy Edgell**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:
6/1/2013 6/1/2014 6,100,000 39.58191 -80.622839

Regulated Stream? Ref. Gauge ID: **3114500** **MIDDLE ISLAND CREEK AT LITTLE, WV**

Max. Pump rate (gpm): 1,260 Min. Gauge Reading (cfs): 78.74 Min. Passby (cfs) 5.76

DEP Comments:

● Source **N. Fork of Fishing Creek @ Lydick Property** **Wetzel** Owner: **Les Lydick**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:
6/1/2013 6/1/2014 6,100,000 39.57795 -80.59221

Regulated Stream? Ref. Gauge ID: **3114500** **MIDDLE ISLAND CREEK AT LITTLE, WV**

Max. Pump rate (gpm): 1,260 Min. Gauge Reading (cfs): 75.93 Min. Passby (cfs) 3.28

DEP Comments:

08/02/2013

● Source **N. Fork of Fishing Creek @ BIG176 Pad** Wetzel Owner: **John W. Kilcoyne**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
6/1/2013	6/1/2014	6,100,000		39.560283	-80.560763

Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): 1,260 **Min. Gauge Reading (cfs): 73.12** **Min. Passby (cfs) 2.19**

DEP Comments:

● Source **N. Fork of Fishing Creek @ Big 57 Pad** Wetzel Owner: **EQT Corporation**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
6/1/2013	6/1/2014	6,100,000		39.55316	-80.53064

Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): 1,260 **Min. Gauge Reading (cfs): 70.31** **Min. Passby (cfs) 1.71**

DEP Comments:

08/02/2013

Source Detail

WMP-01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

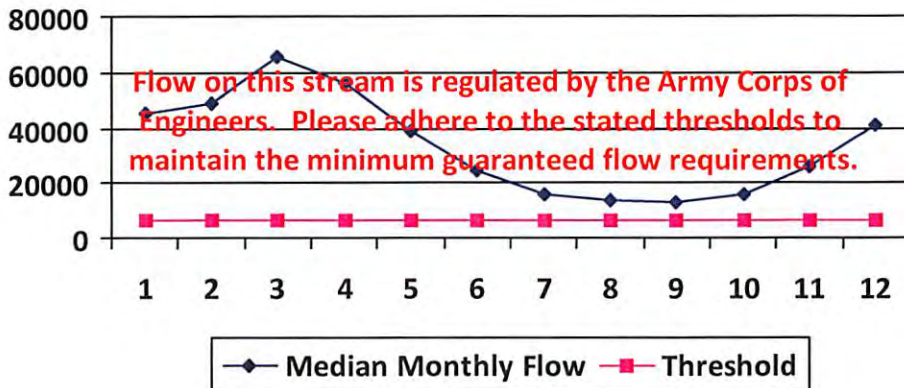
513135 (BIG182H6)

Source ID: 20675	Source Name: Ohio River at Hannibal, OH Richard Potts/Rich Merryman	Source Latitude: 39.655883
HUC-8 Code: 5030201		Source Longitude: -80.86678
Drainage Area (sq. mi.): 25000	County: Wetzel	Anticipated withdrawal start date: 6/1/2013
		Anticipated withdrawal end date: 6/1/2014
<input type="checkbox"/> Endangered Species?	<input type="checkbox"/> Mussel Stream?	Total Volume from Source (gal): 6,100,000
<input type="checkbox"/> Trout Stream?	<input type="checkbox"/> Tier 3?	Max. Pump rate (gpm): 1,500
<input checked="" type="checkbox"/> Regulated Stream?	Ohio River Min. Flow	Max. Simultaneous Trucks: 0
<input checked="" type="checkbox"/> Proximate PSD?	New Martinsville	Max. Truck pump rate (gpm): 0
<input checked="" type="checkbox"/> Gauged Stream?		

Reference Gaug: 9999999	Ohio River Station: Willow Island Lock & Dam	
Drainage Area (sq. mi.): 25,000.00		Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	3.34
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00

Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP-01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20676 Source Name S. Fork of Fishing Creek @ Hastings Truck Pad
 Dominion Transmission

Source Latitude: 39.553
 Source Longitude: -80.669

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 70.02 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 1,260

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

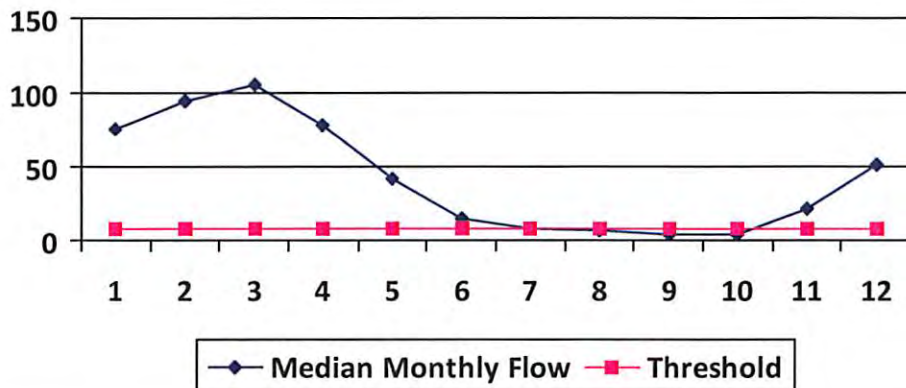
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	75.09	20.87	54.35
2	94.45	20.87	73.72
3	105.69	20.87	84.95
4	78.48	20.87	57.75
5	41.40	20.87	20.66
6	14.46	20.87	-6.28
7	8.18	20.87	-12.56
8	6.74	20.87	-14.00
9	3.45	20.87	-17.29
10	4.33	20.87	-16.40
11	21.17	20.87	0.43
12	51.72	20.87	30.99

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 6.88

Upstream Demand (cfs): 7.74

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 1.72

Ungauged Stream Safety (cfs): 1.72

Min. Gauge Reading (cfs): 78.05

Passby at Location (cfs): 10.32

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP- 01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20677 Source Name: S. Fork of Fishing Creek @ Jacksonburg Truck Pad
Ronald Anderson

Source Latitude: 39.52609

Source Longitude: -80.6338

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 45.72 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 1,260

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

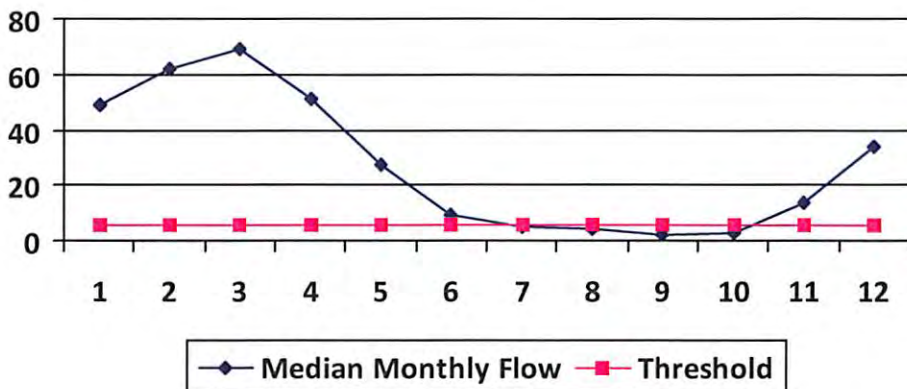
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	49.03	12.36	37.12
2	61.67	12.36	49.76
3	69.01	12.36	57.10
4	51.25	12.36	39.33
5	27.03	12.36	15.12
6	9.44	12.36	-2.47
7	5.34	12.36	-6.57
8	4.40	12.36	-7.51
9	2.25	12.36	-9.66
10	2.83	12.36	-9.08
11	13.82	12.36	1.91
12	33.77	12.36	21.86

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 4.49

Upstream Demand (cfs): 2.81

Downstream Demand (cfs): 2.12

Pump rate (cfs): 2.81

Headwater Safety (cfs): 1.12

Ungauged Stream Safety (cfs): 1.12

Min. Gauge Reading (cfs): 73.12

Passby at Location (cfs): 8.86

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP- 01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20678 Source Name: N. Fork of Fishing Creek @ Pine Grove Truck Pad
Town of Pine Grove

Source Latitude: 39.571562
Source Longitude: -80.677848

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 42.17 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 2,520

Regulated Stream?

Proximate PSD? Pine Grove

Max. Simultaneous Trucks: 0

Gauged Stream?

Max. Truck pump rate (gpm): 0

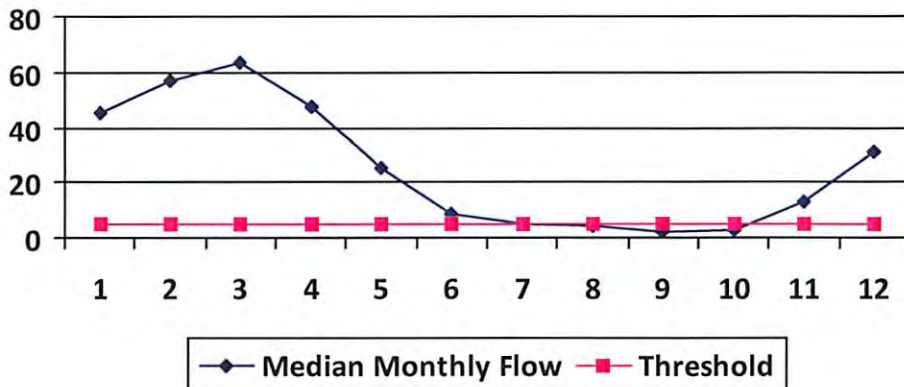
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	45.22	24.07	21.25
2	56.89	24.07	32.91
3	63.65	24.07	39.68
4	47.27	24.07	23.29
5	24.93	24.07	0.96
6	8.71	24.07	-15.27
7	4.93	24.07	-19.05
8	4.06	24.07	-19.92
9	2.08	24.07	-21.90
10	2.61	24.07	-21.37
11	12.75	24.07	-11.23
12	31.15	24.07	7.17

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	4.14
Upstream Demand (cfs):	12.24
Downstream Demand (cfs):	0.00
Pump rate (cfs):	5.61
Headwater Safety (cfs):	1.04
Ungauged Stream Safety (cfs):	1.04
Min. Gauge Reading (cfs):	85.35
Passby at Location (cfs):	6.22

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP- 01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20679 Source Name: N. Fork of Fishing Creek @ Edgell Property
Cathy Edgell

Source Latitude: 39.58191
Source Longitude: -80.622839

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 32.23 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 1,260

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

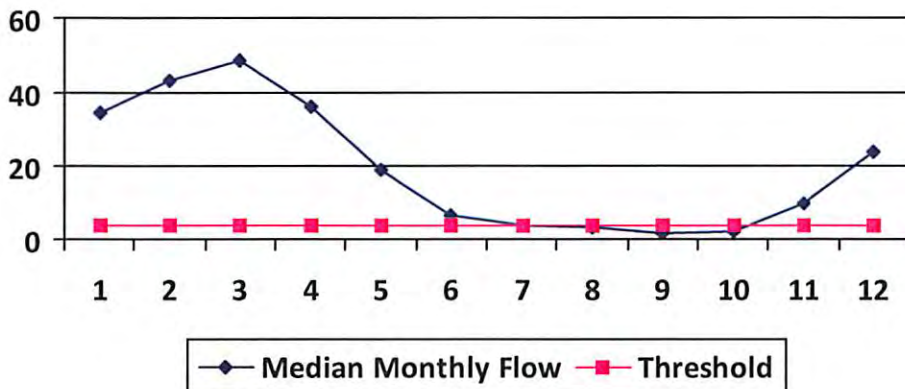
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	34.56	15.99	18.59
2	43.48	15.99	27.51
3	48.65	15.99	32.68
4	36.13	15.99	20.16
5	19.06	15.99	3.09
6	6.65	15.99	-9.32
7	3.77	15.99	-12.20
8	3.10	15.99	-12.87
9	1.59	15.99	-14.38
10	2.00	15.99	-13.98
11	9.74	15.99	-6.23
12	23.81	15.99	7.84

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	3.17
Upstream Demand (cfs):	8.43
Downstream Demand (cfs):	1.00
Pump rate (cfs):	2.81
Headwater Safety (cfs):	0.79
Ungauged Stream Safety (cfs):	0.79
Min. Gauge Reading (cfs):	78.74
Passby at Location (cfs):	5.75

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP- 01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20680 Source Name N. Fork of Fishing Creek @ Lydick Property
Les Lydick

Source Latitude: 39.57795
Source Longitude: -80.59221

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 15.46 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 1,260

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm) 0

Gauged Stream?

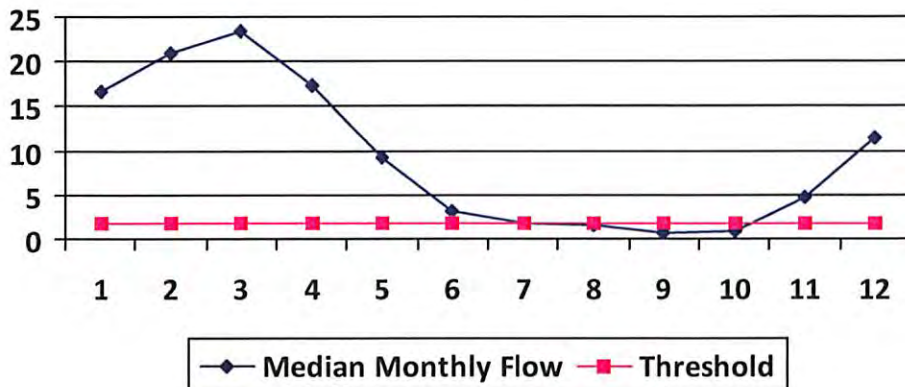
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	16.58	10.71	6.04
2	20.86	10.71	10.32
3	23.34	10.71	12.80
4	17.33	10.71	6.79
5	9.14	10.71	-1.40
6	3.19	10.71	-7.34
7	1.81	10.71	-8.73
8	1.49	10.71	-9.05
9	0.76	10.71	-9.78
10	0.96	10.71	-9.58
11	4.67	10.71	-5.86
12	11.42	10.71	0.88

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 1.52

Upstream Demand (cfs): 5.62

Downstream Demand (cfs): 1.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 0.38

Ungauged Stream Safety (cfs): 0.38

Min. Gauge Reading (cfs): 75.93

Passby at Location (cfs): 3.28

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP- 01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20681 Source Name N. Fork of Fishing Creek @ BIG176 Pad
John W. Kilcoyne

Source Latitude: 39.560283
Source Longitude: -80.560763

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 8.09 County: Wetzel

- Endangered Species? Mussel Stream?
- Trout Stream? Tier 3?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

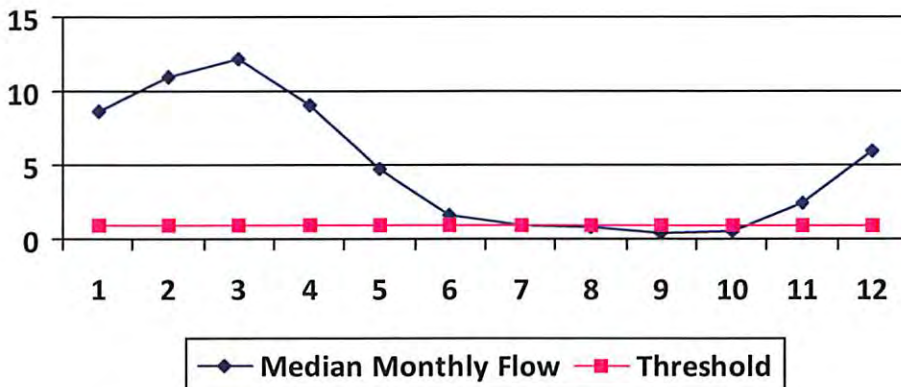
Anticipated withdrawal start date: 6/1/2013
Anticipated withdrawal end date: 6/1/2014
Total Volume from Source (gal): 6,100,000
Max. Pump rate (gpm): 1,260
Max. Simultaneous Trucks: 0
Max. Truck pump rate (gpm): 0

Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00 Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	8.68	6.81	2.21
2	10.91	6.81	4.45
3	12.21	6.81	5.75
4	9.07	6.81	2.60
5	4.78	6.81	-1.68
6	1.67	6.81	-4.79
7	0.95	6.81	-5.52
8	0.78	6.81	-5.69
9	0.40	6.81	-6.07
10	0.50	6.81	-5.96
11	2.45	6.81	-4.02
12	5.98	6.81	-0.49

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.79
 Upstream Demand (cfs): 2.81
 Downstream Demand (cfs): 1.00
 Pump rate (cfs): 2.81
 Headwater Safety (cfs): 0.20
 Ungauged Stream Safety (cfs): 0.20

Min. Gauge Reading (cfs): 73.12
 Passby at Location (cfs): 2.19

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013

Source Detail

WMP-01367

API/ID Number: 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Source ID: 20682 Source Name: N. Fork of Fishing Creek @ Big 57 Pad
EQT Corporation

Source Latitude: 39.55316

Source Longitude: -80.53064

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 4.77 County: Wetzel

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,100,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 1,260

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

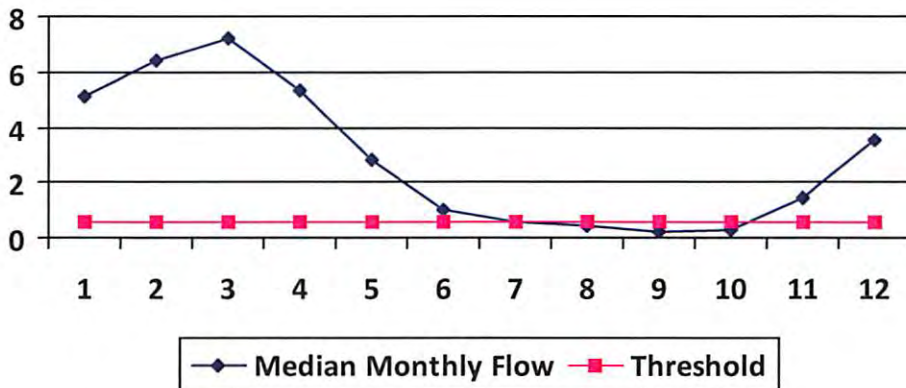
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	5.12	3.51	1.62
2	6.43	3.51	2.94
3	7.20	3.51	3.71
4	5.35	3.51	1.85
5	2.82	3.51	-0.67
6	0.98	3.51	-2.51
7	0.56	3.51	-2.93
8	0.46	3.51	-3.03
9	0.24	3.51	-3.26
10	0.30	3.51	-3.20
11	1.44	3.51	-2.05
12	3.52	3.51	0.03

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 0.47

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 1.00

Pump rate (cfs): 2.81

Headwater Safety (cfs): 0.12

Ungauged Stream Safety (cfs): 0.12

Min. Gauge Reading (cfs): 70.31

Passby at Location (cfs): 1.70

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

08/02/2013



Water Management Plan: Secondary Water Sources



WMP- 01367

API/ID Number| 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Ground Water

Source ID: 20683	Source Name	Groundwater Well TW#1		Source start date:	6/1/2013	
				Source end date:	6/1/2014	
	Source Lat:	39.56059	Source Long:	-80.56027	County	Wetzel
	Max. Daily Purchase (gal)			Total Volume from Source (gal):	6,100,000	
DEP Comments:						

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID: 20684	Source Name	Groundwater Well TW#5	Source start date:	6/1/2013
			Source end date:	6/1/2014
	Source Lat:	39.553434	Source Long:	-80.528871
			County	Wetzel
	Max. Daily Purchase (gal)		Total Volume from Source (gal):	6,100,000
DEP Comments:				

Multi-site impoundment

Source ID: 20685	Source Name	BIG176 Centralized Freshwater Impoundment	Source start date:	6/1/2013
			Source end date:	6/1/2014
	Source Lat:	39.561403	Source Long:	-80.561554
			County	Wetzel
	Max. Daily Purchase (gal)		Total Volume from Source (gal):	6,100,000
DEP Comments:				

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1322

WMP-01367

API/ID Number 047-103-02621

Operator: EQT Production Company

513135 (BIG182H6)

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Recycled Frac Water

Source ID: 20686 Source Name Various

Source start date: 6/1/2013

Source end date: 6/1/2014

Source Lat:

Source Long:

County

Max. Daily Purchase (gal)

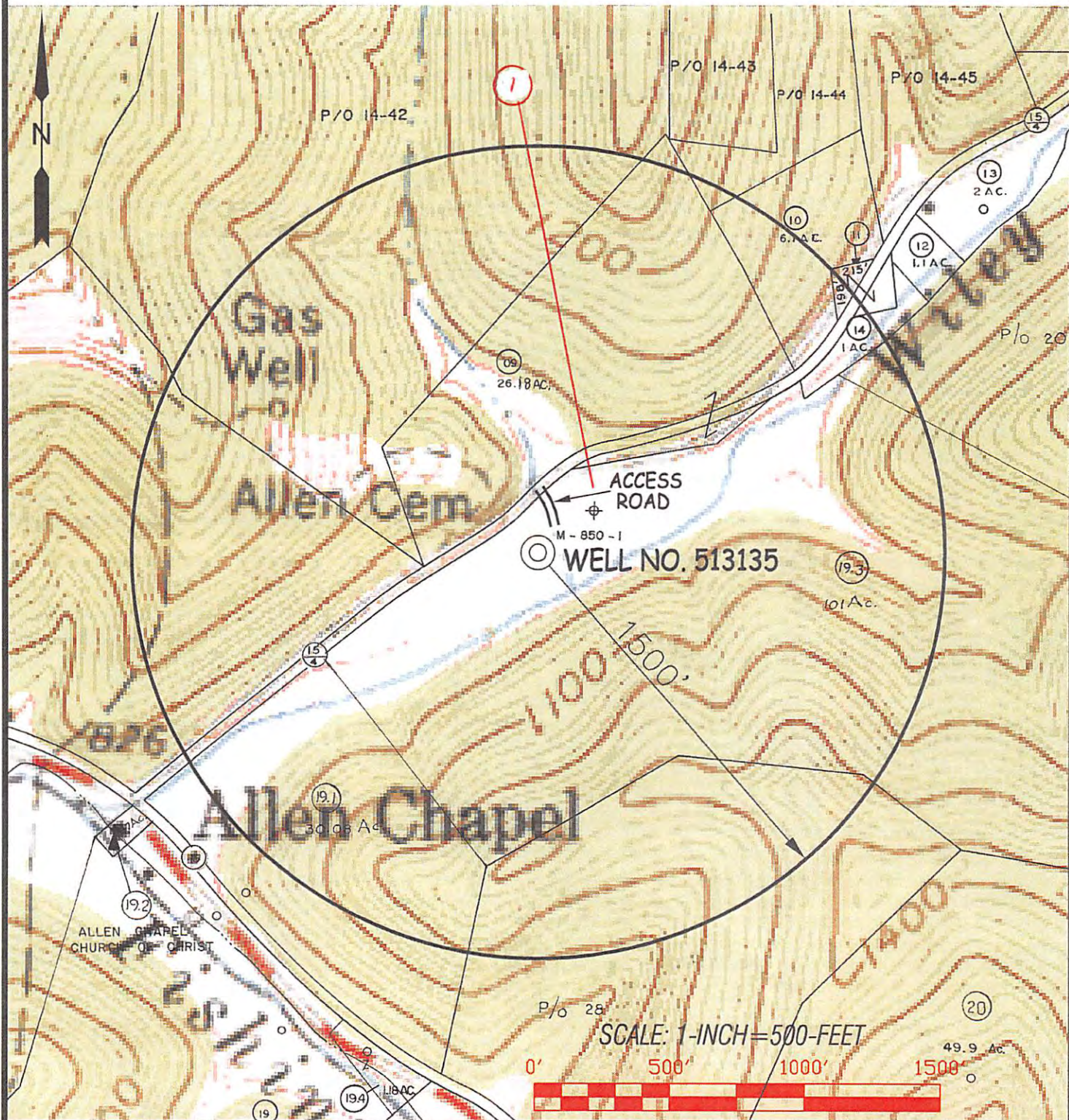
Total Volume from Source (gal): 6,100,000


DEP Comments:

WATER SAMPLES

page of

J.M. ALLEN LEASE WELL NO. WV 513135



 Professional Energy Consultants <small>A DIVISION OF SOUTH LAND SURVEYORS</small> SURVEYORS PROJECT MGMT. ENGINEERS ENVIRONMENTAL <small>225 Wood Run Dr. P.O. Box 110 Chesapeake, WV 26031 (304) 462-2634</small>		TOPO SECTION OF: BIG RUN, WV 7.5' QUAD.		OPERATOR: EQT PRODUCTION COMPANY 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV. 26330			
DRAWN BY K.D.W.	FILE NO. 6242	DATE 05/28/13	CADD FILE: 6242WS513135R2	DISTRICT GRANT	COUNTY WETZEL	TAX MAP-PARCEL NO. 19-19.3	68/02/2013

Received

JUN 12 2013

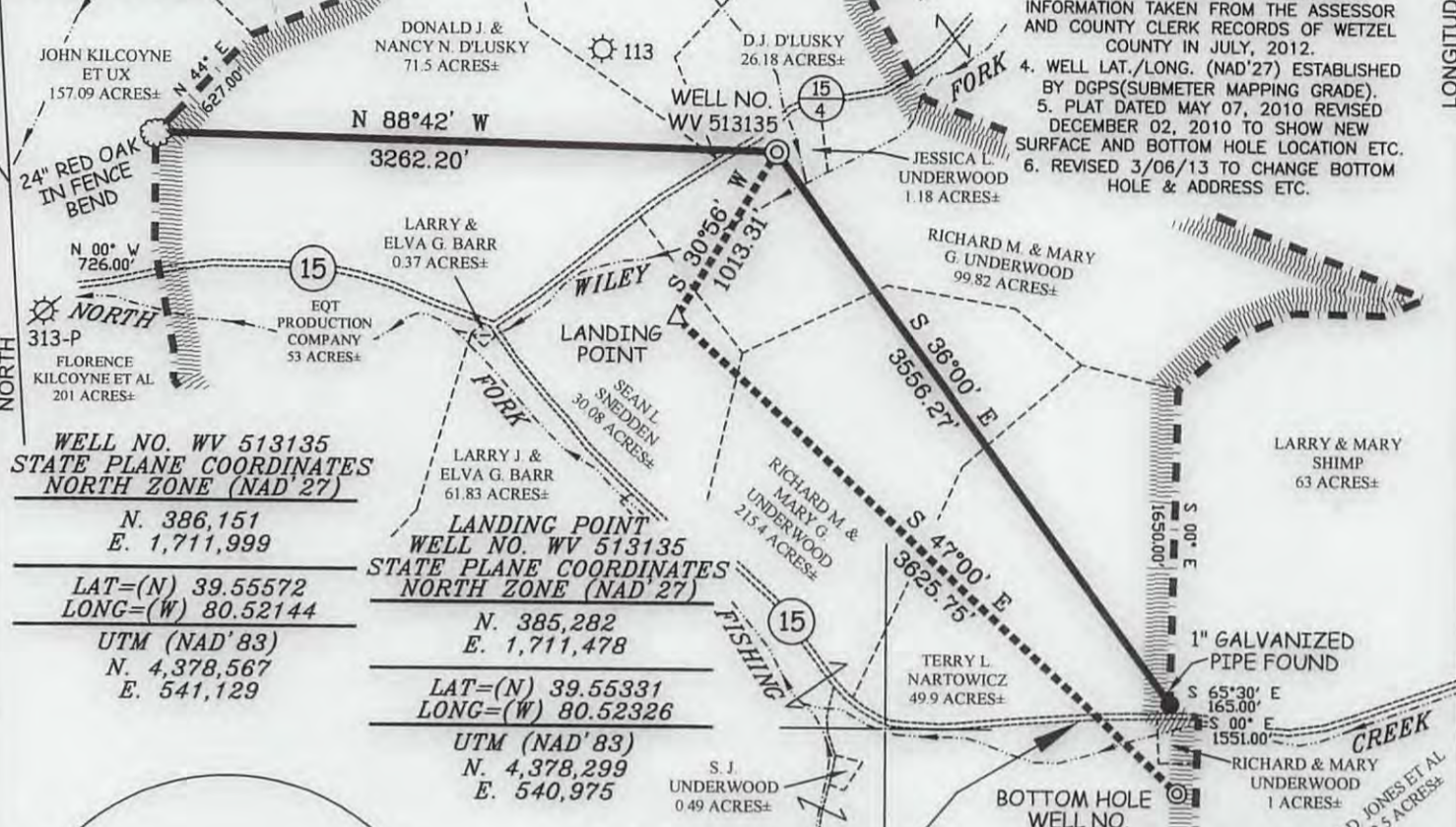
Office of Oil and Gas
WV Dept. of Environmental Protection

Office of Oil and Gas
WV Dept. of Environmental Protection

J.M. ALLEN ET AL LEASE 858 ACRES± WELL NO. WV 513135

LATITUDE 39°35'00"
NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND 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 14 PAGE 302.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JULY, 2012.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SUBMETER MAPPING GRADE).
5. PLAT DATED MAY 07, 2010 REVISED DECEMBER 02, 2010 TO SHOW NEW SURFACE AND BOTTOM HOLE LOCATION ETC.
6. REVISED 3/06/13 TO CHANGE BOTTOM HOLE & ADDRESS ETC.



**WELL NO. WV 513135
STATE PLANE COORDINATES
NORTH ZONE (NAD 27)**

N. 386,151
E. 1,711,999

LAT=(N) 39.55572
LONG=(W) 80.52144

UTM (NAD'83)
N. 4,378,567
E. 541,129

**LANDING POINT
WELL NO. WV 513135
STATE PLANE COORDINATES
NORTH ZONE (NAD 27)**

N. 385,282
E. 1,711,478

LAT=(N) 39.55331
LONG=(W) 80.52326

UTM (NAD'83)
N. 4,378,299
E. 540,975

NOTE: CO. RT. 15 IN THIS AREA IS KNOWN AS THE OLD "OHIO RIVER & MARYLAND TURNPIKE" A 60 FOOT WIDE STRIP OF LAND WITH OWNERSHIP IN FEE CLAIMED BY W.V.D.O.H. HOWEVER A TITLE OPINION DATED 12/01/10 BY ROBERT FLUHARTY ESQ. PREPARED FOR EQT PRODUCTION INDICATES THAT OWNERSHIP OF SAID STRIP OF LAND GOES WITH THE J.M. ALLEN LEASE.

**BOTTOM HOLE
WELL NO. WV 513135
STATE PLANE COORDINATES
NORTH ZONE (NAD 27)**

N. 382,810
E. 1,714,130

LAT=(N) 39.54661
LONG=(W) 80.51375

UTM (NAD'83)
N. 4,377,559
E. 541,795

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. 849 *C. Victor Moyers*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MARCH 08, 20 13
OPERATORS WELL NO. WV 513135
API WELL NO. 47 - 103 - 02621/HQA
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 6242P513135R5 (329-28)
PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 1000'

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 941' (PAD ELEVATION) WATERSHED WILEY FORK OF NORTH FORK FISHING CREEK
DISTRICT GRANT COUNTY WETZEL QUADRANGLE BIG RUN 7.5'

SURFACE OWNER RICHARD M. AND MARY G. UNDERWOOD ACREAGE 99.82±
ROYALTY OWNER J.M. ALLEN ESTATE ET AL LEASE ACREAGE 858± LEASE NO. 300645

PROPOSED WORK: 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 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

08/02/2013