



---

**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

February 03, 2016

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-8510270, 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: 515472

Farm Name: MARKWITH, DENNIS M. & VALE

**API Well Number: 47-8510270**

**Permit Type: Horizontal 6A Well**

Date Issued: 02/03/2016

**Promoting a healthy environment.**

**02/05/2016**

# PERMIT CONDITIONS

4708510270

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. Operator shall take additional measures with this permitted activity to avoid communication with offset wells. Such additional measures are described in the attached addendum. This addendum is part of the terms of the well work permit, and includes a description of depth and completed formations of offset wells. Also included is a description of monitoring activities that will take place during fracturing operations of the permitted well work.
2. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
3. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
4. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
5. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
6. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

# PERMIT CONDITIONS

4708510270

7. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
8. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
9. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
10. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).



WW - 6B  
(4/15)

API NO. 47 - 085 - 0  
OPERATOR WELL NO: 515472  
Well Pad Name: PEN40

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

1) Well Operator: EQT Production Company  
Operator ID: 306686 County: 085 District: 1 Quadrangle: 539

2) Operator's Well Number: 515472 Well Pad Name: PEN40

3) Farm Name/Surface Owner: Dennis M. and Valerie L. Markwith Public Road Access: Co. Rt. 50/21

4) Elevation, current ground: 1,045.3 Elevation, proposed post-construction: 1,025.8

5) Well Type: (a) Gas  Oil  Underground Storage   
Other \_\_\_\_\_

(b) If Gas: Shallow  Deep   
Horizontal

4708510270

Michael Hoff  
11/18/15

6) Existing Pad? Yes or No: No

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Target formation is Marcellus at a depth of 6293 with the anticipated thickness to be 52 feet and anticipated target pressure of 2190 PSI  
Top of the Marcellus: 6267

8) Proposed Total Vertical Depth: 6293

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 9647

11) Proposed Horizontal Leg Length: 2,407

12) Approximate Fresh Water Strata Depths: 99,180,198,234, ,

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

14) Approximate Saltwater Depths: 1589,1677, ,

15) Approximate Coal Seam Depths: None Reported

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No x

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

RECEIVED  
Office of Oil and Gas  
DEC. 01 2015  
WV Department of  
Environmental Protection  
02/05/2016

WW - 6B  
(4/15)

API NO. 47 - 085 - 0  
 OPERATOR WELL NO. 515472  
 Well Pad Name: PEN40

**CASING AND TUBING PROGRAM**

18)

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu.Ft.)
Conductor	20	New	MC-50	81	40	40	38 C.T.S.
Fresh Water	13 3/8	New	MC-50	54.5	384	384	355 C.T.S.
Coal	-	-	-	-	-	-	
Intermediate	9 5/8	New	A-500	40	2,448	2,448	973 C.T.S.
Production	5 1/2	New	P-110	20	9,647	9,647	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100 less than TD
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	24	0.375	-	18	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,730	2,184	* See Note 2	1.21
Coal							
Intermediate	9 5/8	12 3/8	0.395	3,950	3,160	* See Note 2	1.21
Production	5 1/2	8 1/2	0.361	12,640	10,112	-	1.27/1.86
Tubing							
Liners							

Packers

MAG  
11/18/15

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

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

**Note 2:** Reference Variance 2014-17. (Attached)

RECEIVED  
Office of Oil and Gas

DEC. 01 2015

WV Department of  
Environmental Protection

02/05/2016



WW - 6B  
(10/14)

API NO. 47 - 085 - 0  
OPERATOR WELL NO 515472  
Well Pad Name: PEN40

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

MAC  
11/18/15

Drill and complete a new horizontal well in the Marcellus formation.

The vertical drill to go down to an approximate depth of 3784'.

Then kick off the horizontal leg into the Marcellus using a slick water frac.

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

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

21) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 56.52

22) Area to be disturbed for well pad only, less access road (acres): 28.44

23) Describe centralizer placement for each casing string.

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

4708510270

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

Used to speed the setting of cement slurries.

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

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

**Production:**

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

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

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

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

60 % Calcium Carbonate. Acid solubility.

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

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

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

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

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

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

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

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

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

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

the shakers every 15 minutes.

\*Note: Attach additional sheets as needed.

RECEIVED  
Office of Oil and Gas  
Page 3 of 3

DEC 01 2015

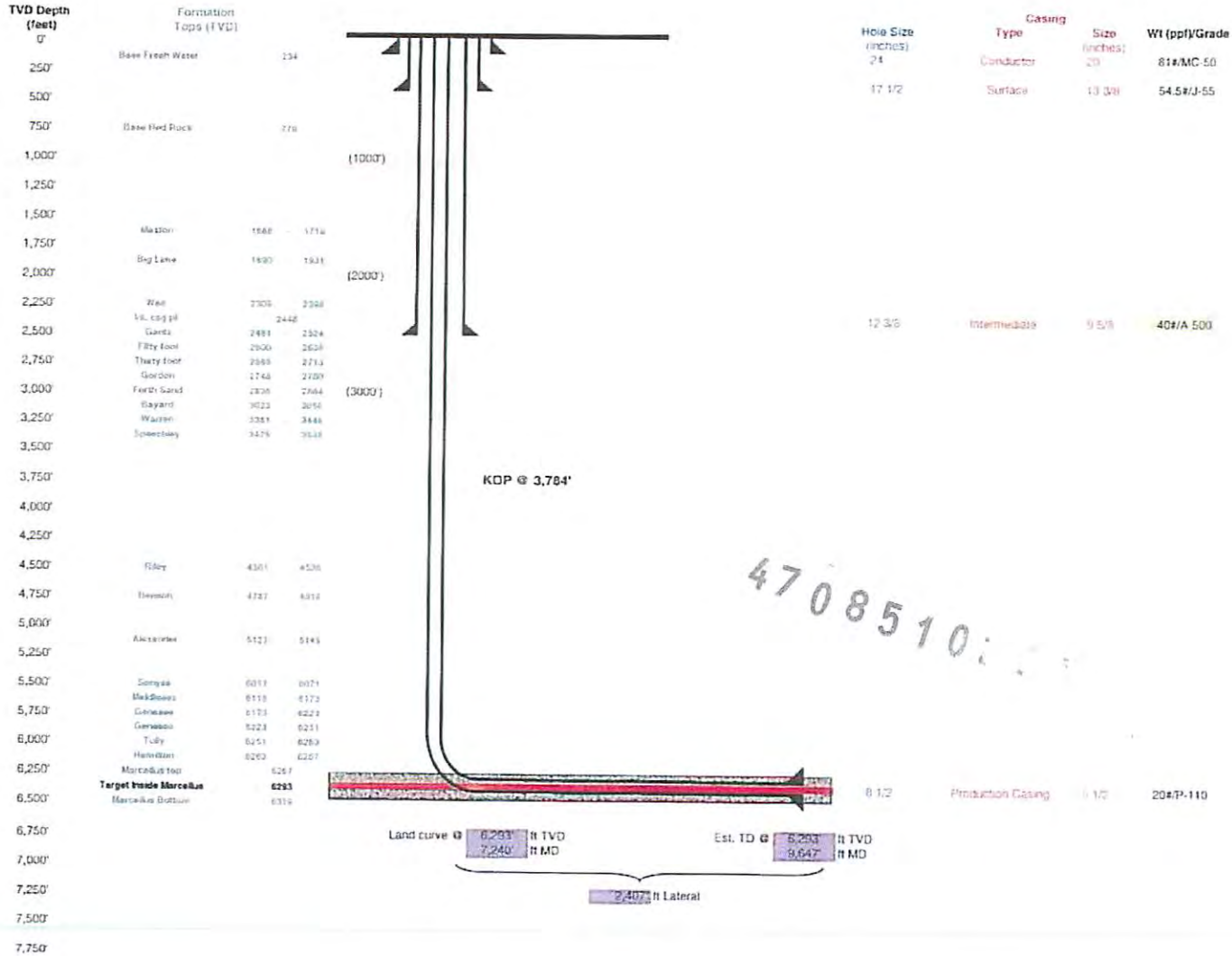
02/05/2016

WV Department of  
Environmental Protection

47-085-10270

Well 515472 (PEN40H4)  
 EQT Production  
 Panneboro  
 Ritchie West Virginia

Azimuth 349  
 Vertical Section 2942



Proposed Well Work:  
 Drill and complete a new horizontal well in the Marcellus formation.  
 The vertical drill to go down to an approximate depth of 3784'.  
 Then kick off the horizontal leg into the Marcellus using a slick water frac.

RECEIVED  
 Office of Oil and Gas  
 DEC. 01 2015  
 WV Department of  
 Environmental Protection

MAG  
 11/18/15



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 928-0450  
(304) 926-0452 fax

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

March 18, 2014

Nabors Completion & Production Services Company  
1380 Route 286 Hwy E #121  
Indiana PA 15701

4708510270

Re: Cement Variance Request

Dear Sir or Madam,

This agency is approving a variance request for the cement blend listed below to be used on surface and coal protection strings for the drilling of oil and gas wells in the state of West Virginia. The variance cannot be used without requesting its use on a permit application and approval by this agency:

- Type 1 (2% Calcium Chloride-Accelerator, 0.25% Super Flake-Lost Circulation, 5.2% Water, 94% Type "1" Cement)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson  
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

Received  
Office of Oil & Gas

NOV 09 2015

02/05/2016





west virginia department of environmental protection

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

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

**BEFORE THE OFFICE OF OIL AND GAS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
STATE OF WEST VIRGINIA**

**IN THE MATTER OF A VARIANCE FROM ) ORDER NO. 2014 - 17**  
**REGULATION 35 CSR § 4-11.4/11.5/14.1 )**  
**AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE )**  
**THE OPERATIONAL )**  
**REGULATIONS OF CEMENTING OIL )**  
**AND GAS WELLS )**

**REPORT OF THE OFFICE**

Nabors Completion & Production Services Co. requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

**FINDINGS OF FACT**

1.) Nabors Completion & Production Services Co. proposes the following cement blend:

- 2% Calcium Chloride (Accelerator)
- 0.25 % Super Flake (Lost Circulation)
- 94% Type "1" Cement
- 5.20 % Water

4708510270

2.) Laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 6 hours and a 2,435 psi compressive strength within 24 hours.

Promoting a healthy environment.

**Received**  
**Office of Oil & Gas**  
NOV 09 2015

02/05/2016

**CONCLUSIONS OF LAW**

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

**ORDER**

It is ordered that Nabors Completion & Production Services Co. may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Nabors Completion & Production Services Co. shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 18th day of March, 2014.

IN THE NAME OF THE STATE OF WEST VIRGINIA

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



James Martin, Chief  
Office of Oil and Gas

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



October 6, 2015

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

4708510270

Re: Casing on Wells (PEN40)

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 384' KB, 150' below the deepest fresh water. We will set the 9-5/8" intermediate string at 2448' KB, 50' below the base of the Weir formation.

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

Sincerely,

Vicki Roark  
Permitting Supervisor

Enc.

Received  
Office of Oil & Gas  
NOV 09 2015



WW-9  
(2/15)

Page 1 of 2  
API No. 47 - 085 - 0  
Operator's Well No. 515472

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
Fluids/Cuttings Disposal & Reclamation Plan

Operator Name EQT Production Company OP Code 306686  
Watershed (HUC10) Unnamed Tributary of Bunnell Run Quadrangle Pennsboro  
Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes x No   

Will a pit be used? Yes: X No:   

If so please describe anticipated pit waste: flowback water & residual solids

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

Proposed Disposal Method For Treated Pit Wastes:

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

MAG  
11/18/15

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.

Air is used to drill the top-hole sections of the wellbore (surface, intermediate, and pilot). Water based mud may be necessary depending on hole conditions to stabilize and drill the intermediate section. The pilot hole, curve, and lateral sections will be drilled with either air, water based mud, or oil based mud.

4708510270

- If oil based, what type? Synthetic, petroleum, etc Synthetic mud  
Additives to be used in drilling medium? Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud - Barite, viscosifier, alkalinity control, lime, filtration control, deflocculants, biodegradable oil lubricant, defoaming, walnut shell, salt, x-cide, carbonates.  
Oil based mud - synthetic base oil, emulsifier, salt, lime, viscosifier, alkalinity control, filtration control, deflocculants, biodegradable oil lubricant, defoaming, carbonates.

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill  
- If left in pit and plan to solidify what medium will be used? (Cement, Lime, sawdust) n/a  
- Landfill or offsite name/permit number? See Attached List

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature [Signature]  
Company Official (Typed Name) Victoria J. Roark  
Company Official Title Permitting Supervisor

Subscribed and sworn before me this 5<sup>th</sup> day of November, 20 15

Rebecca L. Heater Notary Public

My commission expires 4-7-20

RECEIVED  
Office of Oil and Gas  
DEC 01 2015  
WV Department of  
Environmental Protection



Form WW-9

Operator's Well No. 515472

Proposed Revegetation Treatment: Acres Disturbed 56.82 Prevegetation pH 5.92

Lime 3 Tons/acre or to correct to pH 6.5

Fertilize type Granular 10-20-20

Fertilizer Amount 13 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

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

4708510270

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael Gaff

Comments: Proceed + Mulch any disturbed areas per WV DSP regulations. Maintain + Upgrade E-n-s as necessary.

Title: Oil + Gas Inspector Date: 11/18/15

Field Reviewed? (  ) Yes (  ) No

RECEIVED  
Office of Oil and Gas

DEC 01 2015

WV Department of  
Environmental Protection

02/05/2016

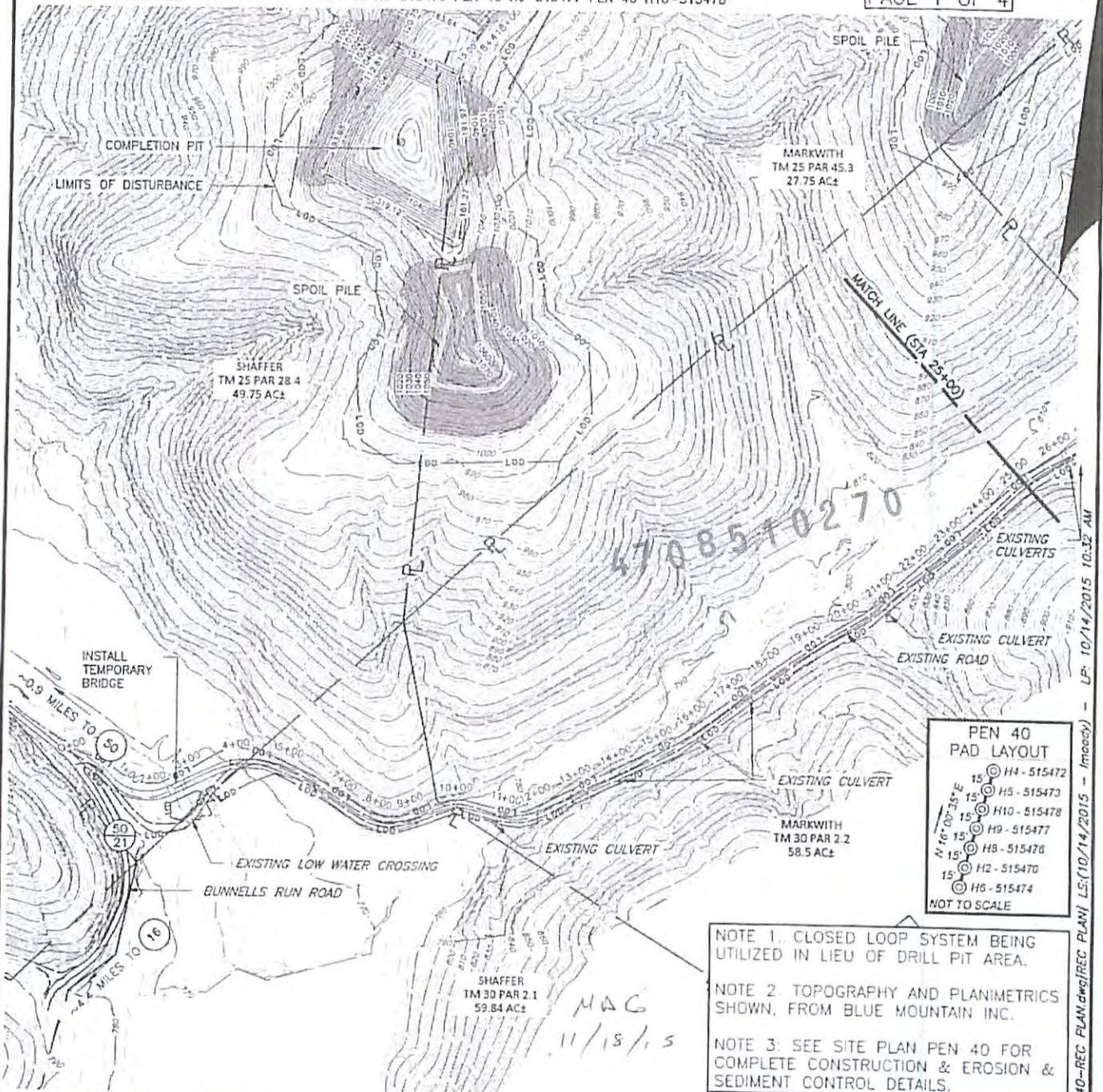


WW-9

PEN 40 H2-515470 PEN 40 H4-515472 PEN 40 H5-515473 PEN 40 H6-515474  
PEN 40 H8-515476 PEN 40 H9-515477 PEN 40 H10-515478

PAGE 1 OF 4

NORTH



**PEN 40  
PAD LAYOUT**

- 15' H4-515472
- 15' H5-515473
- 15' H10-515478
- 15' H9-515477
- 15' H8-515476
- 15' H2-515470
- 15' H6-515474

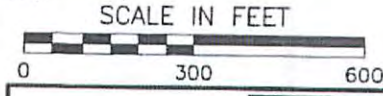
NOT TO SCALE

NOTE 1. CLOSED LOOP SYSTEM BEING UTILIZED IN LIEU OF DRILL PIT AREA.

NOTE 2. TOPOGRAPHY AND PLANIMETRICS SHOWN, FROM BLUE MOUNTAIN INC.

NOTE 3. SEE SITE PLAN PEN 40 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

© - DENOTES INSTALL MINIMUM 15" DIA. CMP OR HDPE CULVERT



**CEC**  
**Civil & Environmental Consultants, Inc.**  
 600 Market Avenue Suite 200 - Bridgeport, WV 26330  
 TEL: 304.338.3119 • 855.488.9539 • Fax: 304.933.3327  
 www.cecinc.com

**EQT PRODUCTION COMPANY**  
**PEN 40 WELL PAD**  
**CLAY DISTRICT**  
**RITCHIE COUNTY, WEST VIRGINIA**  
**PERMIT APPLICATION**  
**REC PLAN**

DRAWN BY: LDM	CHECKED BY: REA	APPROVED BY: DEM	FIGURE NO.:
DATE: OCTOBER 2015	DWG SCALE: 1"=300'	PROJECT NO: 141-002	

Office of Oil and Gas  
 RECEIVED  
 DEC 01 2015

P:\2014\141-002\141002-PEN40-REC PLAN.dwg[REC PLAN] LS:(10/14/2015 10:32 AM) - LP: 10/14/2015 10:32 AM

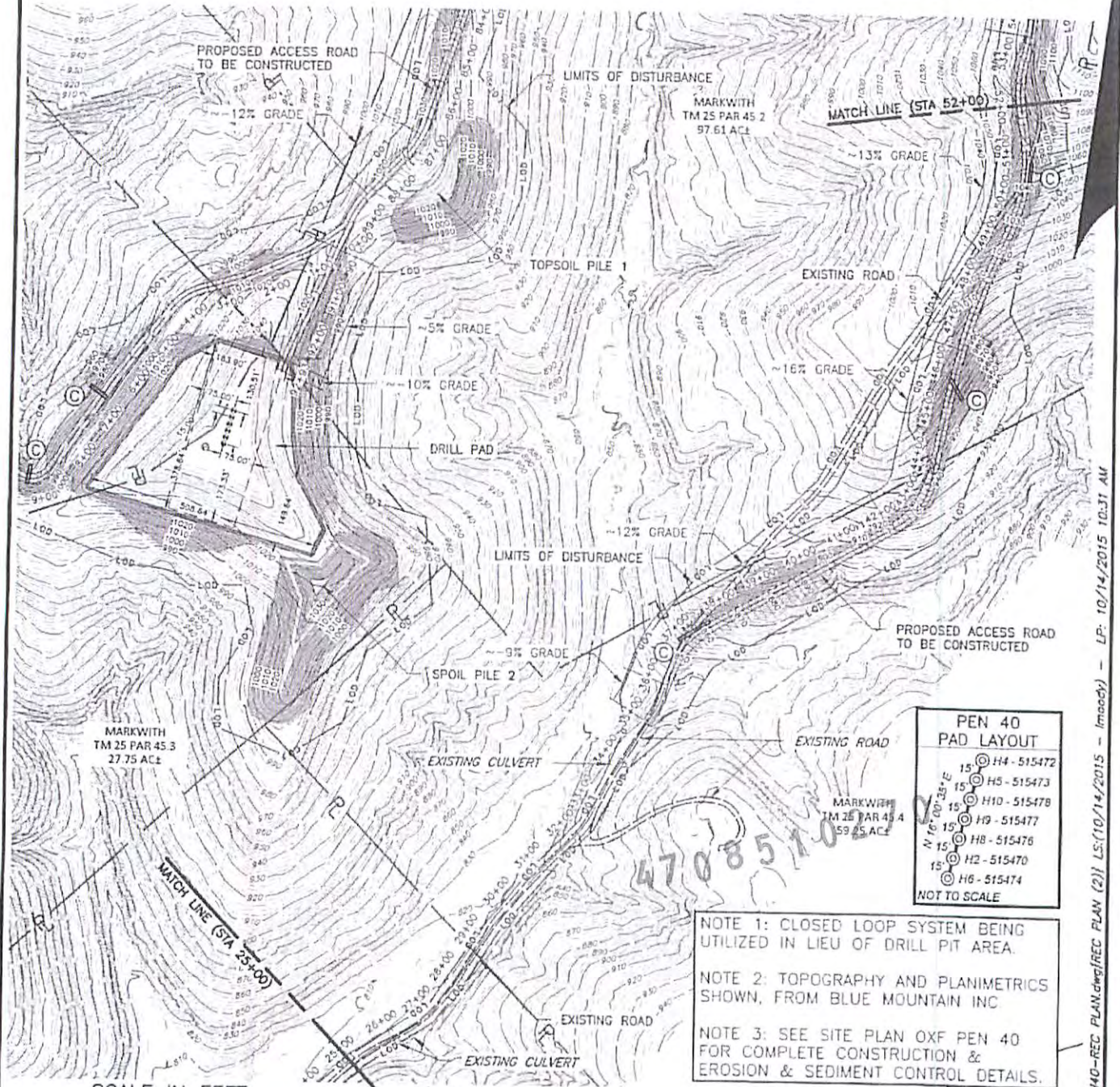


WW-9

PEN 40 H2-515470 PEN 40 H4-515472 PEN 40 H5-515473 PEN 40 H6-515474  
PEN 40 H8-515476 PEN 40 H9-515477 PEN 40 H10-515478

PAGE 2 OF 4

NORTH



**C&E**  
**Civil & Environmental Consultants, Inc.**  
 600 Market Avenue Suite 200 - Bridgeport, WV 26330  
 Ph: 304.933.3119 · 855.488.9539 · Fax: 304.933.3327  
 www.ccecinc.com

**EQT PRODUCTION COMPANY**  
**PEN 40 WELL PAD**  
**CLAY DISTRICT**  
**RITCHIE COUNTY, WEST VIRGINIA**

**PERMIT APPLICATION**  
**REC PLAN**

DRAWN BY: LDM CHECKED BY: REA APPROVED BY: DEM FIGURE NO.:  
 DATE: OCTOBER 2015 DWG SCALE: 1"=300' PROJECT NO: 141-002

DEC 01 2015

WV Department of Environmental Protection

02/05/2016

P:\2014\141-002-CADD\DWG\141002-PEN40-REC PLAN.dwg REC PLAN (2) LS:10/14/2015 10:31 AM LP: 10/14/2015 10:31 AM



WW-9

PEN 40 H2-515470 PEN 40 H4-515472 PEN 40 H5-515473 PEN 40 H6-515474  
PEN 40 H8-515476 PEN 40 H9-515477 PEN 40 H10-515478

PAGE 3 OF 4

NORTH

- PEN 40 PAD LAYOUT**
- 15' H4 - 515472
  - 15' H5 - 515473
  - 15' H10 - 515478
  - 15' H9 - 515477
  - 15' H8 - 515476
  - 15' H2 - 515470
  - 15' H5 - 515474
- NOT TO SCALE



NOTE 1: CLOSED LOOP SYSTEM BEING UTILIZED IN LIEU OF DRILL PIT AREA.

NOTE 2: TOPOGRAPHY AND PLANIMETRICS SHOWN, FROM BLUE MOUNTAIN INC

NOTE 3: SEE SITE PLAN PEN 40 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

SCALE IN FEET  
0 300 600

© - DENOTES INSTALL MINIMUM 15" DIA. CMP OR HDPE CULVERT

**C&E**  
**Civil & Environmental Consultants, Inc.**  
600 Market Avenue Suite 200 - Bridgeport, WV 26330  
Ph: 304.933.3119 · 855.488.9539 · Fax: 304.933.3327  
www.cecinc.com

**EQT PRODUCTION COMPANY**  
**PEN 40 WELL PAD**  
**CLAY DISTRICT**  
**RITCHIE COUNTY, WEST VIRGINIA**

**PERMIT APPLICATION**  
**RECEIVED REC PLAN**

DRAWN BY: LDM CHECKED BY: REY APPROVED BY: DEM  
DATE: OCTOBER 2015 DWG SCALE: 1"=300' PROJECT NO: 141-002 FIGURE NO.:

DEC 01 2015

P:12014\141-002-CADD\DWG\141002-PEN40-REC PLAN.dwg REC PLAN (3) LS:(10/14/2015 - Imoody) - LP: 10/14/2015 10:31 AM

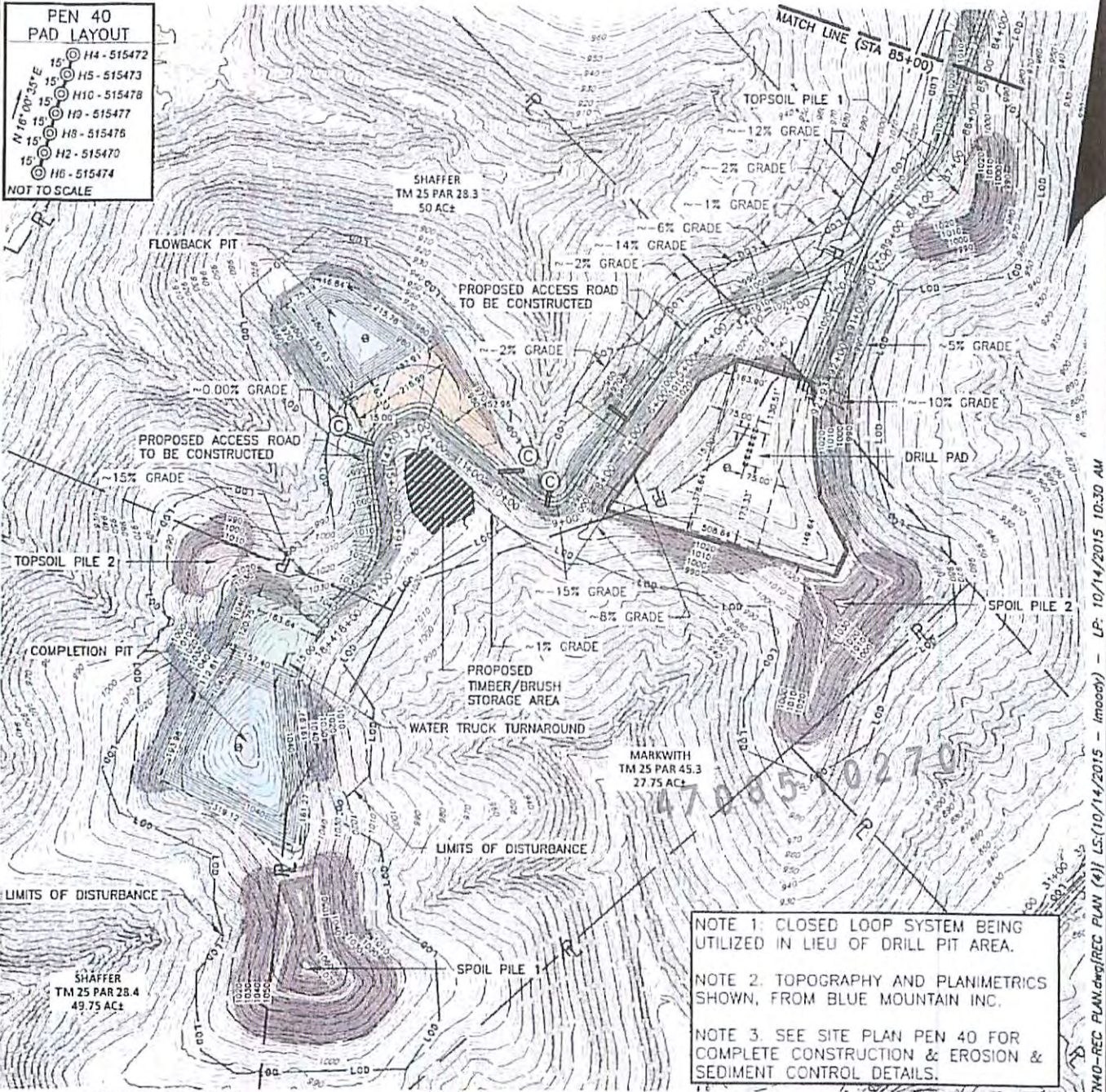
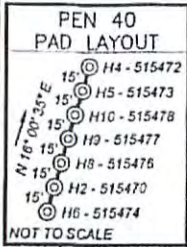


WW-9

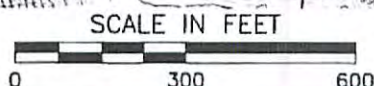
PEN 40 H2-515470 PEN 40 H4-515472 PEN 40 H5-515473 PEN 40 H6-515474  
PEN 40 H8-515476 PEN 40 H9-515477 PEN 40 H10-515478

PAGE 4 OF 4

NORTH



NOTE 1: CLOSED LOOP SYSTEM BEING UTILIZED IN LIEU OF DRILL PIT AREA.  
 NOTE 2: TOPOGRAPHY AND PLANIMETRICS SHOWN, FROM BLUE MOUNTAIN INC.  
 NOTE 3: SEE SITE PLAN PEN 40 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.



© - DENOTES INSTALL MINIMUM 15" DIA. CMP OR HDPE CULVERT

**CEC**  
**Civil & Environmental Consultants, Inc.**  
 600 Market Avenue Suite 200 - Bridgeport, WV 26330  
 Ph: 304.933.3119 · 855.488.9539 · Fax: 304.933.3327  
 www.cecinc.com

**EQT PRODUCTION COMPANY**  
**PEN 40 WELL PAD**  
**CLAY DISTRICT**  
**RITCHIE COUNTY, WEST VIRGINIA**  
**PERMIT APPLICATION**  
**REC PLAN**

DRAWN BY: LDM	CHECKED BY: REA	APPROVED BY: DEM	FIGURE NO.:
DATE: OCTOBER 2015	DWG SCALE: 1"=100'	141-002	

Office of Oil and Gas

DEC 01 2015

WV Department of

02/05/2016

P:\2014\141-0021-CADD\Draw\141002-PEV40-REC PLAN.dwg[REC PLAN (4)] LS:(10/14/2015 10:30 AM) - LP: 10/14/2015 10:30 AM



**EQT Production Water plan**  
**Offsite disposals for Marcellus wells**

**CWS TRUCKING INC.**

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

**BROAD STREET ENERGY LLC**

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

**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

**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

**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

**KING EXCAVATING CO.**

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

**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

4708510270

Received  
Office of Oil & Gas

NOV 09 2015

02/05/2016



Where energy meets innovation.™

# Site Specific Safety Plan

EQT PEN 40 Pad  
Pennsboro Quardrant  
Pennsboro  
Ritchie County, WV

For Wells:

515472 515473 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date Prepared: September 28, 2015

[Signature]  
 EQT Production  
Permitting Supervisor  
 Title

Date

11-5-15

[Signature]  
 WV Oil and Gas Inspector

Title

Date

11/18/15



SURVEYED LONGITUDE 80°59'01.11"

7,165'

LATITUDE: 39°17'30"

# EQT PRODUCTION COMPANY WELL NO. WV 515472 JOHN P. THOMAS, ET AL LEASE

### NOTES ON SURVEY

1. NO OCCUPIED DWELLINGS OR BUILDINGS 2500 SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY WITHIN 625' OF THE CENTER OF THE WELL PAD WERE OBSERVED.
2. NO WATER WELLS OR DEVELOPED SPRINGS USED FOR HUMAN OR DOMESTIC ANIMAL CONSUMPTION WERE FOUND WITHIN 250'.
3. SURFACE OWNERSHIP TAKEN FROM THE RITCHIE COUNTY TAX ASSESSOR AND COUNTY CLERK OFFICES IN OCTOBER, 2014.
4. WELL LATITUDE AND LONGITUDE FROM SURVEY GRADE OPUS SOLUTION DERIVED ON JULY 1, 2014.
5. BEARINGS SHOWN ARE BASED UPON THE WV STATE PLANE COORDINATE SYSTEM, NAD 83 GRID NORTH ZONE.
6. LEASE INFORMATION PROVIDED BY EQT PRODUCTION COMPANY

LEASE BOUNDARY	
OUTER LEASE BOUNDARY	
SURFACE BOUNDARY	
CREEK/STREAM	
ROADS	
CONTROLLED ACCESS R/W	
BOUNDARY	
PROPOSED LATERAL	
PERMITTED LATERAL	
500' LATERAL OFFSET	
EXISTING FENCELINE	
EXISTING GAS WELL (active)	
EXISTING GAS WELL (plugged)	
EXISTING GAS WELL (abandoned)	
GAS WELL (never drill)	
FOUND MONUMENT (as noted)	
WATER SOURCE	

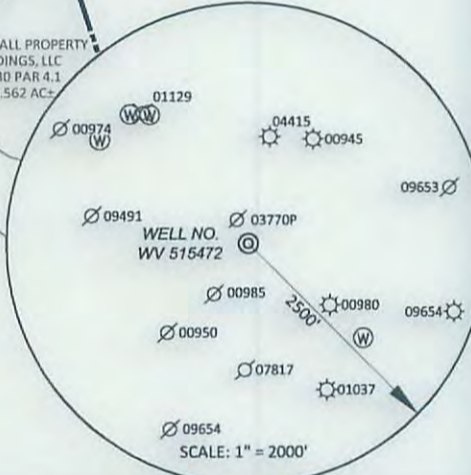
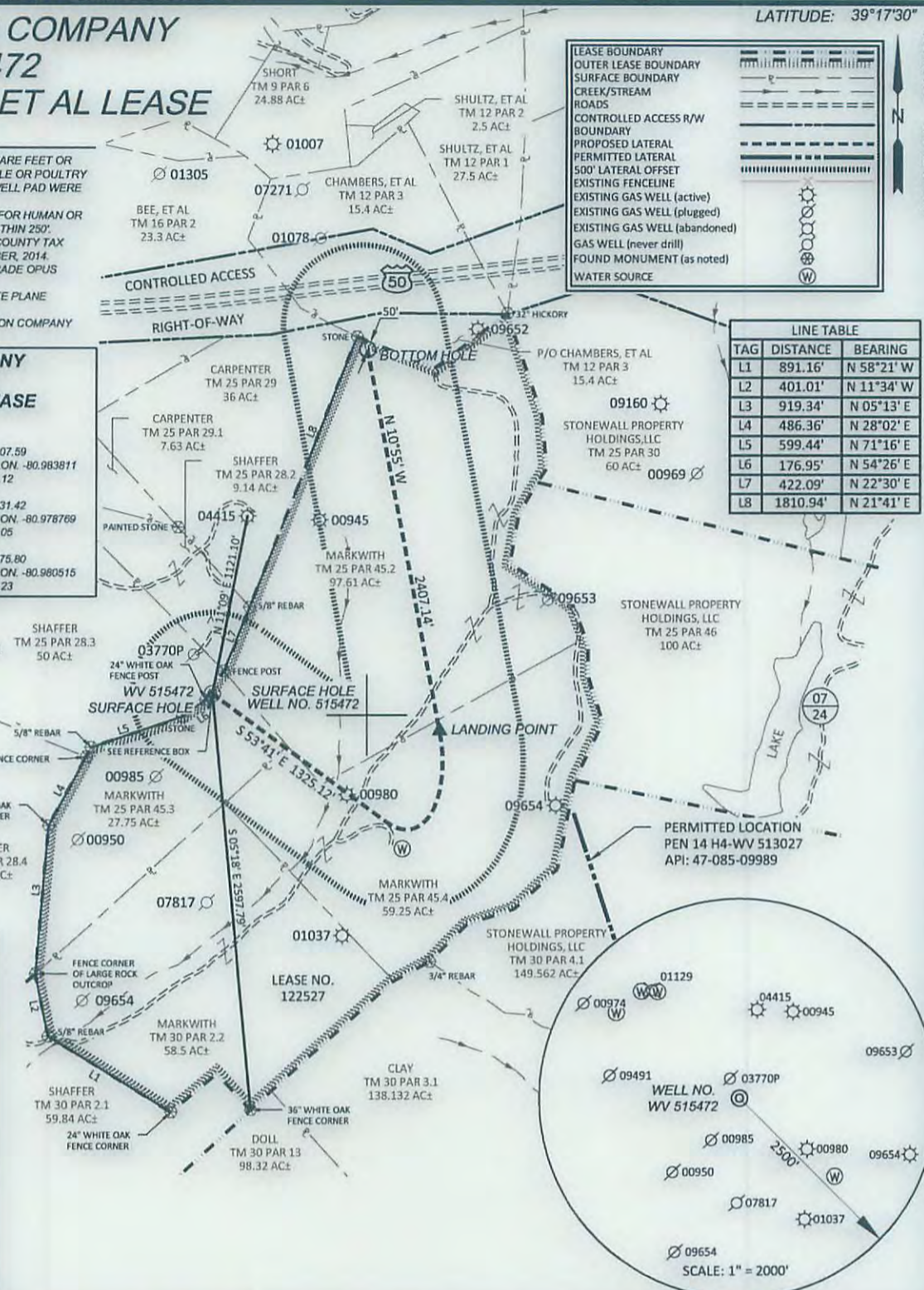
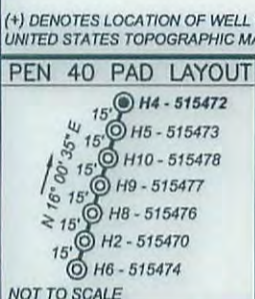
LINE TABLE		
TAG	DISTANCE	BEARING
L1	891.16'	N 58°21' W
L2	401.01'	N 11°34' W
L3	919.34'	N 05°13' E
L4	486.36'	N 28°02' E
L5	599.44'	N 71°16' E
L6	176.95'	N 54°26' E
L7	422.09'	N 22°30' E
L8	1810.94'	N 21°41' E

**EQT PRODUCTION COMPANY  
WELL NO. WV 515472  
JOHN P. THOMAS, ET AL LEASE  
274 ACRES ±**

**SURFACE HOLE**  
NAD 27 NORTH S.P.C.: N. 282956.78 E. 1579907.59  
NAD 27 NORTH GEO. COORDINATES: LAT. 39.267358 LON. -80.983811  
NAD '83 UTM 17N.: N. 4346455.31 E. 501411.12

**LANDING POINT**  
NAD 27 NORTH S.P.C.: N. 282726.70 E. 1581331.42  
NAD 27 NORTH GEO. COORDINATES: LAT. 39.266791 LON. -80.978769  
NAD '83 UTM 17N.: N. 4346392.47 E. 501846.05

**BOTTOM HOLE**  
NAD 27 NORTH S.P.C.: N. 285090.34 E. 1580875.80  
NAD 27 NORTH GEO. COORDINATES: LAT. 39.273259 LON. -80.980515  
NAD '83 UTM 17N.: N. 4347110.23 E. 501695.23



600 Marketplace Avenue, Suite 200  
Bridgeport, WV 26330  
Toll Free 855-488-9539  
Fax 304-933-3327  
**Civil & Environmental Consultants, Inc.**



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 rules issued and prescribed by the Division of Environmental Protection.

DATE JANUARY 21, 2016  
SCALE 1" = 1000' ACCURACY 1:200  
OPERATORS WV 515472  
WELL No. 47 - 085 - 10270 HGA  
API No.

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



TYPE OF WELL:  
GAS:  
Production  Storage  \*Deep  \*Shallow

PROPOSED WORK ON LOCATION:  
Drill  Drill Deeper  Redrill  Convert   
Fracture/ Stimulate  \*Plug off to Formation   
Perforate New Formation  Plug and Abandon   
Clean/ Replug  Other Than Above   
If "Other" Please see Details below—  
DETAILS OF PROPOSED WORK \_\_\_\_\_  
\*TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH 6,267'

WELL AREA & LOCATION INFORMATION:  
ELEVATION SOURCE DGPS (OPUS)  
ELEVATION 1045.3' (GROUND), 1025.8' (PROPOSED)  
WATERSHED UNNAMED TRIBUTARY OF BUNNELL RUN DISTRICT 02/05/2016  
COUNTY RITCHIE TOPO QUAD PENNSBORO  
SURFACE OWNER DENNIS M. & VALERIE L. MARKWITH  
ACREAGE 27.75 ±  
ROYALTY OWNER JOHN P. THOMAS, ET AL, LEASE NO. 122527  
LEASE ACREAGE 274 ±

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

DESIGNATED AGENT REX C. RAY  
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280  
BRIDGEPORT, WV 26330



WW-6A1  
(5/13)

Operator's Well No. 515472

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>122527</u>			Min 1/8 pd	
	John P. Thomas, et al	Pittsburgh & WV Cas Co.		DB 67/163
	Pittsburgh & WV Cas Co.	Equitable Gas Company		DB 126/473
	Equitable Gas Company	Equitrans, LP		LB 201/253
	Equitrans, LP	Equitable Production-Eastern States, Inc.		LB 235/830
	Equitable Production-Eastern States, Inc.	EQT Production Company		CB 6/443

Upon information and belief, Operator's lease and/or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

4708510270

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

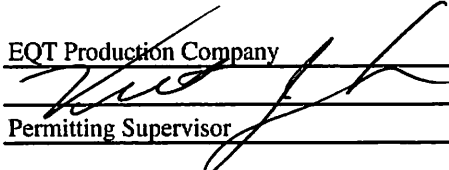
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- 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

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.

Received  
Office of Oil & Gas

Well Operator: EQT Production Company

By: 

Its: Permitting Supervisor

NOV 09 2015



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

Date of Notice Certification: \_\_\_\_\_

API No. 47 - 085 - 0  
 Operator's Well No. 515472  
 Well Pad Name: PEN40

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>WV</u>	UTM NAD 83 Easting: <u>501,408.74</u>
County: <u>Ritchie</u>	UTM NAD 83 Northing: <u>4,346,446.48</u>
District: <u>Clay</u>	Public Road Access: <u>Co. Rt. 50/21</u>
Quadrangle: <u>Pennsboro</u>	Generally used farm name: <u>Dennis M. and Valerie L. Markwith</u>
Watershed: <u>Unnamed Tributary of Bunnell Run</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

\*PLEASE CHECK ALL THAT APPLY

- NOTICE OF SEISMIC ACTIVITY or  NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- NOTICE OF ENTRY FOR PLAT SURVEY or  NO PLAT SURVEY WAS CONDUCTED
- NOTICE OF INTENT TO DRILL or  NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED OR
- WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- NOTICE OF PLANNED OPERATION
- PUBLIC NOTICE
- NOTICE OF APPLICATION

**OOG OFFICE USE ONLY**

- RECEIVED/NOT REQUIRED
- RECEIVED
- RECEIVED/NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

Received

Office of Oil & Gas

**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

NOV 09 2015

02/05/2016



**Certification of Notice is hereby given**

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

Well Operator: EQT Production Company  
By: Victoria J. Roark  
Its: Permitting Supervisor  
Telephone: 304-848-0076

Address: P.O. Box 280  
Bridgeport, WV 26330  
Facsimile: 304-848-0040  
Email: vroark@eqt.com



Subscribed and sworn before me this 5<sup>th</sup> day of November, 2015

Rebecca L. Heater Notary Public

My Commission Expires 4-7-20

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015



WW-6A  
(9-13)

API NO. 47 - 085 - 0  
OPERATOR WELL NO. 515472  
Well Pad Name: PEN40

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

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 11-5-15 Date Permit Application Filed: 11-5-15

Notice of:

4708510270

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

- Application Notice
- WSSP Notice
- E&S Plan Notice
- Well Plat Notice is hereby provided to:

SURFACE OWNER(s)  
Name: See Attached  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: See Attached  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNERS(s) (Road and/or Other Disturbance)  
Name: See Attached  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
Name: See Attached  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments/Pits)  
Name: See Attached  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Received  
Office of Oil & Gas

NOV 09 2015

\*Please attach additional forms if necessary

02/05/2016

WW6-A

**Surface Owners:**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

**Received**  
**Office of Oil & Gas**  
NOV 09 2015

02/05/2016



WW6-A

**Surface Owners: (road or other disturbance):**

Dennis M. and Valerie L. Markwith ✓  
969 Bunnells Run Rd.  
Pennsboro WV 26415

Harry E. Shaffer ✓  
251 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016

WW6-A

Surface Owners(Pits or Impoundments):

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



WW6-A

**Coal Owner With Declaration**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pensboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016

WW6-A

**Owners of Water Wells:**

Dennis M. and Valerie L. Markwith ✓  
969 Bunnells Run Rd.  
Pennsboro WV 26415

Harry E. Shaffer ✓  
251 Bunnells Run Rd.  
Pennsboro WV 26415

Archie M Carpenter Jr. ✓  
164 Lauranna Ln.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

Received  
Office of Oil & Gas

NOV 09 2015  
02/05/2016

WW-6A  
(8-13)

API NO. 47 - 085 - 0  
OPERATOR WELL NO. 515472  
Well Pad Name: PEN40

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57th St. SE  
Charleston, WV 25304  
(304) 926-0450

470857  
Received  
Office of Oil & Gas

NOV 09 2015

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.  
NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

02/05/2016



WW-6A  
(8-13)

API NO. 47 - 085 - 0  
OPERATOR WELL NO. 515472  
Well Pad Name: PEN40

### Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have THIRTY (30) DAYS after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article

### Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

### Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016

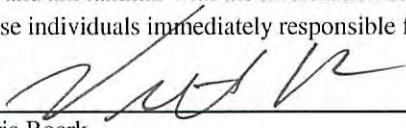
**Notice is hereby given by:**

Well Operator: EQT Production Company Address: 115 Professional Place P.O. Box 280  
Telephone: 304-848-0082 Bridgeport, WV 26330  
Email: Vroark@eqt.com Facsimile: 304-848-0041

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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.



By: Victoria Roark

Its: Permitting Supervisor

Subscribed and sworn before on 5<sup>th</sup> day of November, 2015  
Rebecca L. Heater Notary Public

My Commission Expires 4-7-20



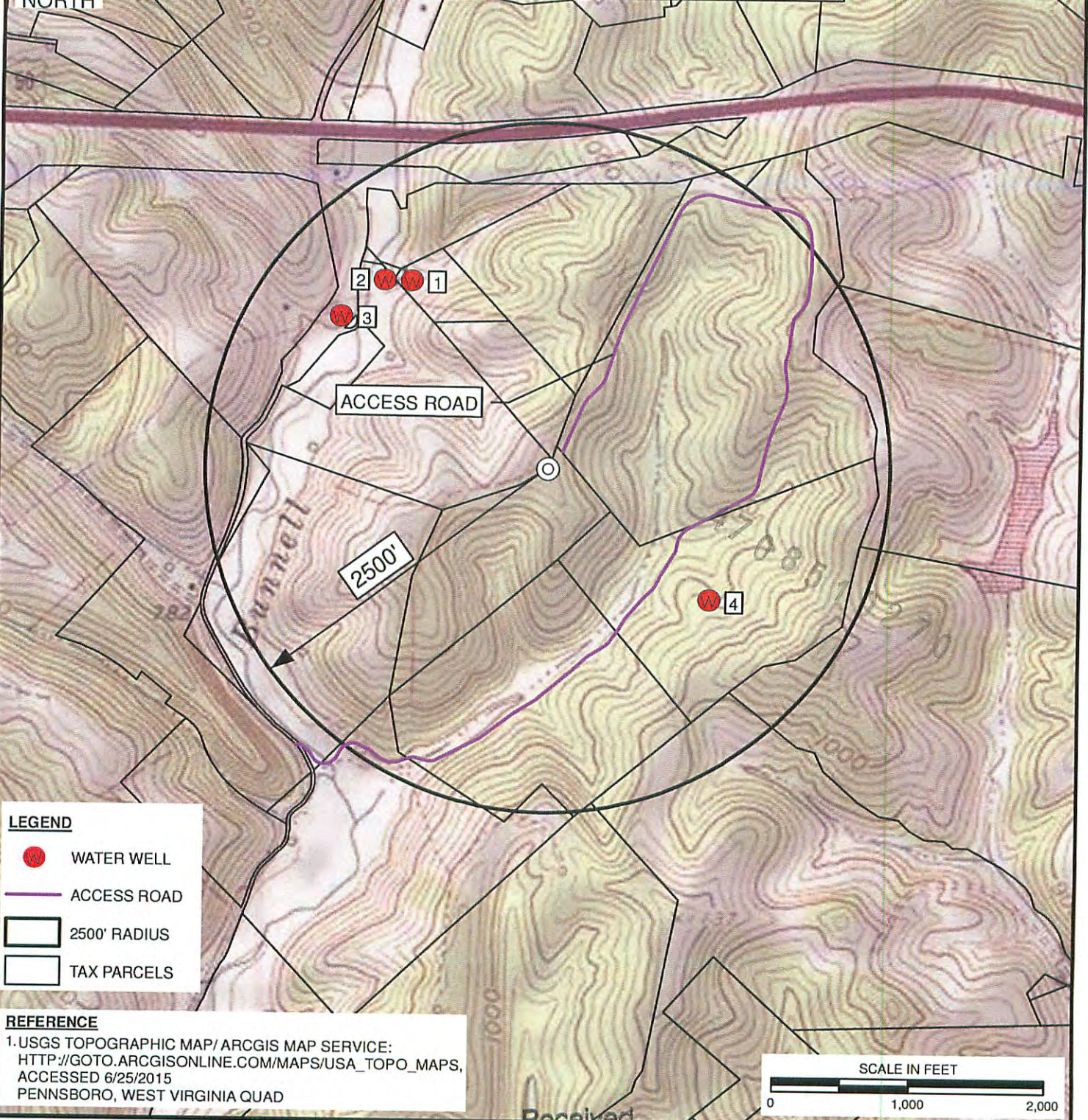
Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016





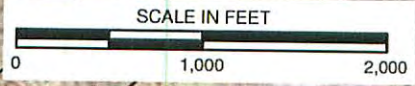
# WATER SOURCE LOCATIONS FOR JOHN P. THOMAS ET AL. LEASE



**LEGEND**

- WATER WELL
- ACCESS ROAD
- 2500' RADIUS
- TAX PARCELS

**REFERENCE**  
 1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:  
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA\\_TOPO\\_MAPS](http://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS),  
 ACCESSED 6/25/2015  
 PENNSBORO, WEST VIRGINIA QUAD



\\Svr-bridgeport\F\20141141-002-GIS\Maps\Task\_0021141002\_0021\_WATER\_SOURCES\_TOPO.mxd 6/25/2015 9:00 AM (easprll)



**Civil & Environmental Consultants, Inc.**  
 99 Cambridge Place - Bridgeport, WV 26330-2820  
 Ph: 304-933-3119 Toll: 855-488-9539 Fax: 304-933-3327  
[www.cecinc.com](http://www.cecinc.com)

Office of Oil & Gas  
 NOV 09 2015  
 EQT PRODUCTION COMPANY  
 PEN 40 WELL PAD  
 RITCHIE COUNTY, WEST VIRGINIA

## WATER WELL LOCATION MAP

DRAWN BY: ECA	CHECKED BY: JDR	APPROVED BY: DEM	FIGURE NO: WT
DATE: 06/25/2015	SCALE: 1" = 1,000'	PROJECT NO: 141-002.0021	02/05/2016







WW6-A

**Surface Owners:**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

47 0 8 5 1 0 2 7 0

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016

WW6-A

**Surface Owners: (road or other disturbance):**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

Harry E. Shaffer  
251 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



WW6-A

Surface Owners(Pits or impoundments):

Dennis M. and Valerie L. Markwith ✓  
969 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas

NOV 09 2015

02/05/2016

WW-6A5  
(1/12)

Operator Well No. 515472

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

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 11-5-15 Date Permit Application Filed: 11-5-15

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

CERTIFIED MAIL RETURN RECEIPT REQUESTED  HAND DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: See Attached Name: See Attached  
Address: \_\_\_\_\_ Address: \_\_\_\_\_

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: WV UTM NAD 83 Easting: 501,408.740000  
County: Ritchie Northing: 4,346,446.480000  
District: Clay Public Road Access: Co. Rt. 50/21  
Quadrangle: Pennsboro Generally used farm name: Dennis M. and Valerie L. Markwith  
Watershed: Unnamed Tributary of Bunnell Run

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

4708510270

Well Operator: EQT Production Company Address: 115 Professional Place, P.O. Box 280  
Telephone: 304-848-0082 Bridgeport, WV 26330  
Email: vroark@eqt.com Facsimile: 304-848-0040

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



WW6-A

**Surface Owners:**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016

WW6-A

**Surface Owners: (road or other disturbance):**

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

Harry E. Shaffer  
251 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas

NOV 09 2015

02/05/2016



WW6-A

Surface Owners(Pits or impoundments):

Dennis M. and Valerie L. Markwith  
969 Bunnells Run Rd.  
Pennsboro WV 26415

4708510270

Received  
Office of Oil & Gas  
NOV 09 2015

02/05/2016



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin  
Governor

Paul A. Mattox, Jr., P. E.  
Secretary of Transportation/  
Commissioner of Highways

November 3, 2015

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

Subject: DOH Permit for the PEN40 Pad Site, Ritchie County

515469 PEN40H1	515470 PEN40H2	515471 PEN40H3	515472 PEN40H4
515473 PEN40H5	515474 PEN40H6	515475 PEN40H7	515476 PEN40H8
515477 PEN40H9	515478 PEN40H10		

Dear Mr. Martin,

This well site will be accessed from existing Permit #03-2014-0713 issued to EQT Production Company for access to the State Road for a well site located off of Ritchie Country Route 50/21 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

*Gary K. Clayton* 8510270

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

Cc: Nick Bumgardner  
EQT Production Company  
CH, OM, D-3, File

Received  
Office of Oil & Gas

NOV 09 2015



**Anticipated Frac Additives**  
**Chemical Names and CAS numbers**

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Water		
Sand	Hydrotreated light petroleum distillate	14808-60-7
Friction Reducer	Tributyl tetradecyl phosphonium chloride	64742-47-8
Biocide	Ammonium chloride	81741-28-8
Scale Inhibitor	Hydrochloric Acid	12125-02-9
15% Hydrochloric Acid	Propargyl Alcohol	7647-01-0
Corrosion Inhibitor	Methanol	107-19-7
Corrosion Inhibitor	Guar Gum	67-56-1
Gelling Agent	Sodium Persulfate	9000-30-0
Oxidizing Breaker	Potassium Carbonate	7775-27-1
Buffering Agent		584-08-7

4708510270

**Received**  
**Office of Oil & Gas**  
NOV 09 2015

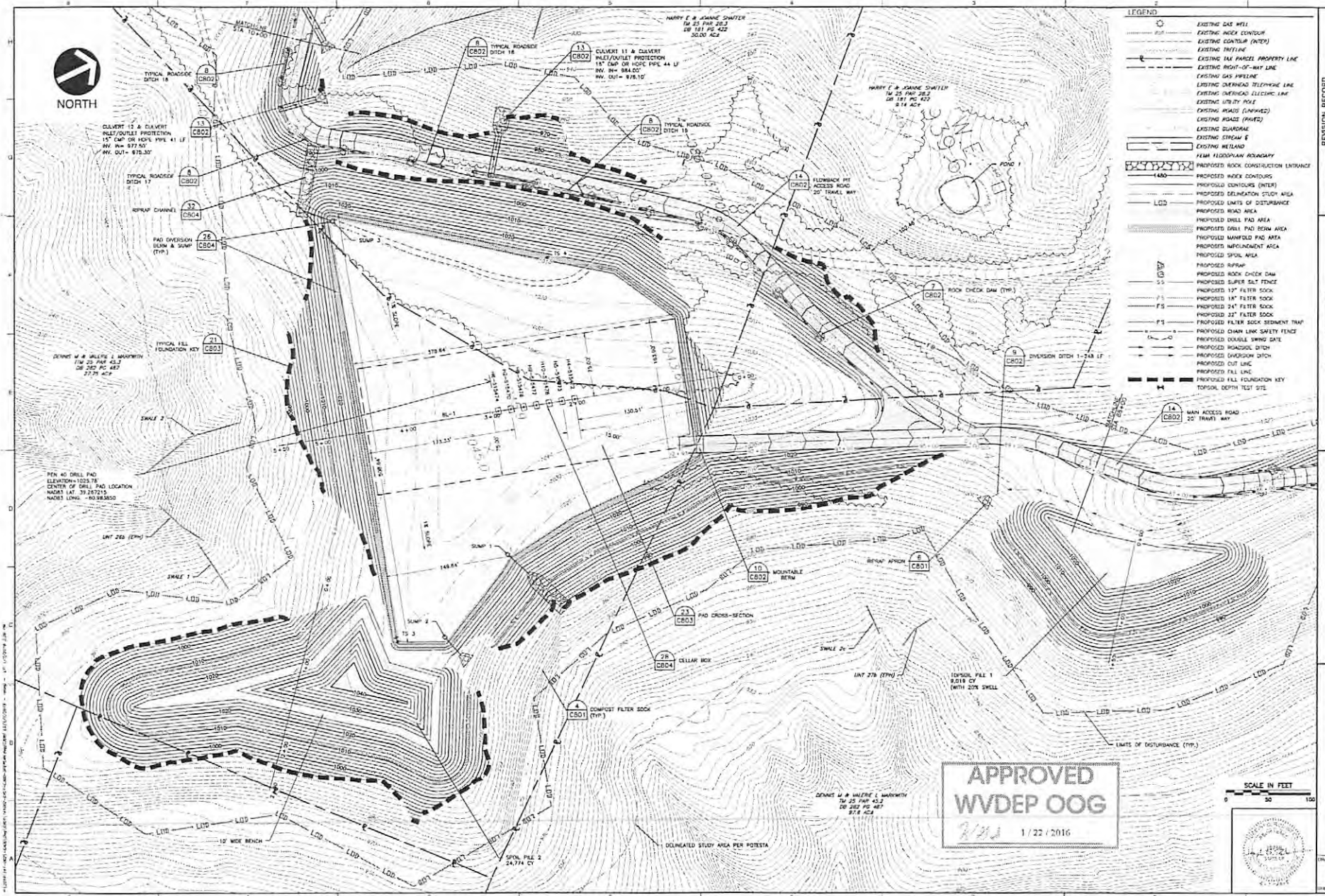
02/05/2016







NORTH



- LEGEND**
- EXISTING GAS WELL
  - EXISTING INDEX CONTOUR
  - EXISTING CONTOUR (INTER)
  - EXISTING PAVING
  - EXISTING 1/4" PARCEL PROPERTY LINE
  - EXISTING RIGHT-OF-WAY LINE
  - EXISTING GAS PIPELINE
  - EXISTING OVERHEAD TELEPHONE LINE
  - EXISTING OVERHEAD ELECTRIC LINE
  - EXISTING UTILITY POLE
  - EXISTING MANHOLE (UNCOVERED)
  - EXISTING MANHOLE (COVERED)
  - EXISTING QUADRANT
  - EXISTING STREAM & CREEK
  - EXISTING WETLAND
  - FIRM FLOODPLAIN BOUNDARY
  - PROPOSED ROCK CONSTRUCTION ENTRANCE
  - PROPOSED INDEX CONTOUR
  - PROPOSED CONTOUR (INTER)
  - PROPOSED DELIMITATION STUDY AREA
  - PROPOSED LIMITS OF DISTURBANCE
  - PROPOSED ROAD AREA
  - PROPOSED SWELL PAD AREA
  - PROPOSED DRILL PAD BERM AREA
  - PROPOSED MANHOLE PAD AREA
  - PROPOSED WELLDRAW AREA
  - PROPOSED SPILL AREA
  - PROPOSED RIPRAP
  - PROPOSED ROCK CHECK DAM
  - PROPOSED SUPER SALT FENCE
  - PROPOSED 12" FILTER SOCK
  - PROPOSED 14" FILTER SOCK
  - PROPOSED 24" FILTER SOCK
  - PROPOSED 32" FILTER SOCK
  - PROPOSED FILTER SOCK SEDIMENT TRAP
  - PROPOSED CHAIN LINK SAFETY FENCE
  - PROPOSED GRAVEL SPRING DATE
  - PROPOSED ROADSIDE DITCH
  - PROPOSED CUT LINE
  - PROPOSED FILL LINE
  - PROPOSED FILL FOUNDATION KEY
  - TERRAZZO DEPTH TEST SITE

**APPROVED**  
**WVDEP OOG**  
2/21 1/22/2016



**REVISION RECORD**

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

**Civil & Environmental Consultants, Inc.**  
600 Monmouth Avenue Suite 205 • Bridgetown, WV 26335  
P.O. Box 323119 • 855-582-8558 • Fax: 304-933-3527  
www.civilce.com

**EQT PRODUCTION COMPANY**  
PEN 40  
CLAY DISTRICT  
RITCHIE COUNTY, WEST VIRGINIA

**FINAL DESIGN SITE PLAN**  
DATE: MAY 2015  
DRAWN BY: J. W. WILSON  
CHECKED BY: J. W. WILSON  
PROJECT NO.: 151-201  
SHEET 11 OF 16  
**C308**