



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

May 03, 2016

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10303057, 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: 512915
Farm Name: COASTAL FOREST RESOURCES
API Well Number: 47-10303057
Permit Type: Horizontal 6A Well
Date Issued: 05/03/2016

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. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. In the event of an explosion, fire or other accident on or near a well or well work location, the well operator or its contractor shall give notice, stating the particulars of the event to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. 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.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-6B
(04/15)

API NO. 47-103 - 03057
 OPERATOR WELL NO. 512915
 Well Pad Name: BIG177

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

1) Well Operator: EQT Production Company 306686 103-Wetzel 4-Grant 254-Big Run
 Operator ID County District Quadrangle

2) Operator's Well Number: 512915 Well Pad Name: BIG177

3) Farm Name/Surface Owner: Coastal Forest Resources Co. dba Coastal Timberlands Co. Public Road Access: Rt 19

4) Elevation, current ground: 809.0 Elevation, proposed post-construction: 811.0

5) Well Type (a) Gas Oil _____ Underground Storage _____
 Other _____
 (b) If Gas Shallow Deep _____
 Horizontal _____

6) Existing Pad: Yes or No Yes DMH
2-19-16

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Geneseo, 6755, 35, 2620

8) Proposed Total Vertical Depth: 6755

9) Formation at Total Vertical Depth: Geneseo

10) Proposed Total Measured Depth: 13076

11) Proposed Horizontal Leg Length: 5841

12) Approximate Fresh Water Strata Depths: 170, 280, 480, 630

13) Method to Determine Fresh Water Depths: by offset wells

14) Approximate Saltwater Depths: 1135, 1450

15) Approximate Coal Seam Depths: 100, 153, 431, 541

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

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

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4710303057

WW-6B
(04/15)

API NO. 47- 103 - 03057

OPERATOR WELL NO. 512915

Well Pad Name: BIG177

18)

CASING AND TUBING PROGRAM

| TYPE | Size (in) | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling (ft) | INTERVALS: Left in Well (ft) | CEMENT: Fill-up (Cu. Ft.)/CTS |
|--------------|-----------|-------------|-------|------------------------|----------------------------|------------------------------|------------------------------------------|
| Conductor | 26 | New | A-500 | 85.6 | 80 | 80 | 98 ft ³ / CTS |
| Fresh Water | 18 5/8 | New | J-55 | 87.5 | 320 | 320 | 519 ft ³ / CTS |
| Coal | 13 3/8 | New | J-55 | 54.5 | 765 | 765 | 644 ft ³ / CTS |
| Intermediate | 9 5/8 | New | A-500 | 40 | 2728 | 2728 | 1072 ft ³ / CTS |
| Production | 5 1/2 | New | P-110 | 20 | 13076 | 13076 | 500' above top producing zone |
| Tubing | 2 3/8 | | J-55 | 4.7 | | | May not be run, if run set 100' from TD. |
| Liners | | | | | | | |

Dmt
2-19-16

| 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 | 26 | 30 | .312 | - | 18 | Class A | 1.18 |
| Fresh Water | 18 5/8 | 24 | .435 | 2250 | 1800 | See Variance | 1.19 |
| Coal | 13 3/8 | 17 1/2 | .38 | 2700 | 2160 | See Variance | 1.19 |
| Intermediate | 9 5/8 | 12 3/8 | .395 | 3950 | 3160 | Class H | 1.07 |
| Production | 5 1/2 | 8 1/2 | .361 | 12640 | 10112 | Class H | 1.07/1.86 |
| Tubing | 2 3/8 | NA | .19 | 7700 | | | |
| Liners | | | | | | | |

PACKERS

| | | | | |
|-------------|-----|--|--|--|
| Kind: | n/a | | | |
| Sizes: | n/a | | | |
| Depths Set: | n/a | | | |

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

Drill and complete a new horizontal well in the Geneseo Formation. Drill the vertical to an approximate depth of 5242'. Kick off and drill curve. Drill the lateral in the Geneseo. Cement casing.

DmH
2-K-16

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 be approximately 10000 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): 6.9

22) Area to be disturbed for well pad only, less access road (acres): 6.5

23) Describe centralizer placement for each casing string:

- Freshwater: Bow spring centralizers – One at the shoe and one spaced every 500'.
- Coal: 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 solid body cent spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Conductor: Class A no additives
 Freshwater (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries. .25% Flake Loss Circulation Material (LCM)
 Coal (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries. .25% Flake Loss Circulation Material (LCM)
 Intermediate (Class H Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries. 0.25% flake. Loss Circulation Material (LCM) .6% Super FL-300 (fluid loss/lengthens thickening time)
 Production:
 Lead (Type H Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time) .15% SEC-10 (fluid loss) 50:50 POZ (extender)
 Tail (Type H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss) .2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation.
 60 % Calcium Carbonate. Acid solubility.

25) Proposed borehole conditioning procedures:

Freshwater: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
 Coal: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
 Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
 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 shale shakers stop. Check volume of cuttings coming across the shakers every 15 minutes.

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*Note: Attach additional sheets as needed.

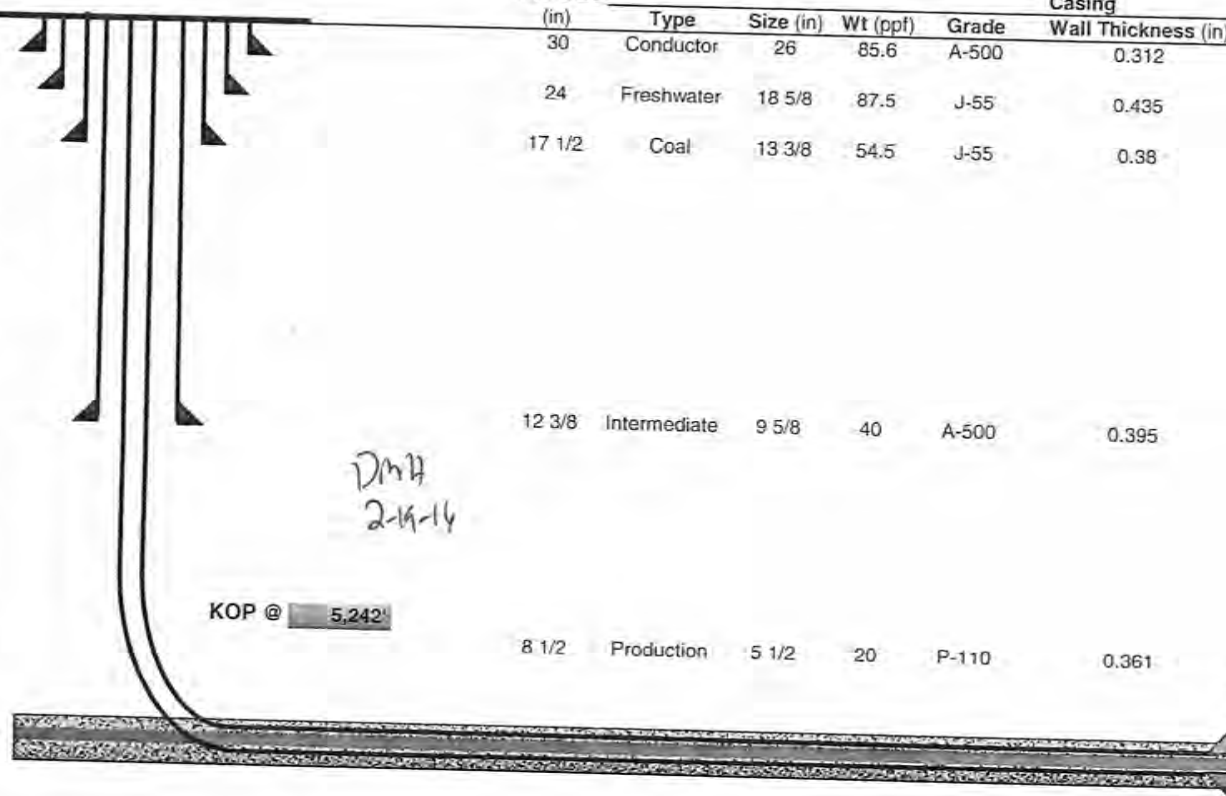
Well 512915(BIG177H3)

EQT Production
Big Run Quad
Wetzel County, WV

Azimuth 332
 Vertical Section 5926

Note: Diagram is not to scale

| Formations | Top TVD | Base TVD | Hole Size (in) | Casing | | | | | | |
|---------------------|---------|----------|----------------|--------------|-----------|----------|-------|---------------------|-------------------------------|--------------|
| | | | | Type | Size (in) | Wt (ppf) | Grade | Wall Thickness (in) | Top of Cement | Method |
| Conductor | 80 | | 30 | Conductor | 26 | 85.6 | A-500 | 0.312 | Surface | Displacement |
| Freshwater Casing | 320 | | 24 | Freshwater | 18 5/8 | 87.5 | J-55 | 0.435 | Surface | Displacement |
| Base Fresh Water | 630 | | 17 1/2 | Coal | 13 3/8 | 54.5 | J-55 | 0.38 | Surface | Displacement |
| Coal Casing | 765 | | | | | | | | | |
| Maxton | 1692 | 1736 | | | | | | | | |
| Big Lime | 1808 | 1861 | | | | | | | | |
| Weir | 2190 | 2218 | | | | | | | | |
| Gantz | 2364 | 2402 | | | | | | | | |
| Base Red Rock | 2546 | | | | | | | | | |
| Fifty foot | 2515 | 2560 | | | | | | | | |
| Thirty foot | 2586 | 2620 | | | | | | | | |
| Gordon | 2633 | 2678 | | | | | | | | |
| Intermediate Casing | 2728 | | 12 3/8 | Intermediate | 9 5/8 | 40 | A-500 | 0.395 | Surface | Displacement |
| Forth Sand | 2720 | 2731 | | | | | | | | |
| Bayard | 2772 | 2845 | | | | | | | | |
| Warren | 3229 | 3275 | | | | | | | | |
| Speechley | 3379 | 3393 | | | | | | | | |
| Balltown A | 3768 | 3785 | | | | | | | | |
| Riley | 4228 | 4241 | | | | | | | | |
| Benson | 4880 | 4919 | | | | | | | | |
| Alexander | 5228 | 5254 | | | | | | | | |
| Sonyea | 6418 | 6588 | | | | | | | | |
| Middlesex | 6588 | 6633 | | | | | | | | |
| Genesee | 6633 | 6710 | | | | | | | | |
| Genesee | 6710 | 6744 | | | | | | | | |
| Production Casing | 13076 | MD | 8 1/2 | Production | 5 1/2 | 20 | P-110 | 0.361 | 500' above top Producing Zone | Displacement |
| Tully | 6744 | 6767 | | | | | | | | |
| Hamilton | 6767 | 6859 | | | | | | | | |
| Marcellus | 6859 | 6911 | | | | | | | | |
| Onondaga | 6911 | | | | | | | | | |



Land curve @ 6,755' ft TVD
 7,235' ft MD

Est. TD @ 6,755' ft TVD
 13,076' ft MD

5,841' ft Lateral

Proposed Well Work:
 Drill and complete a new horizontal well in the Genesee formation.
 Drill the vertical to an approximate depth of 5242'.
 Kick off and drill curve. Drill lateral in the Genesee. Cement casing.

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 Office of Oil & Gas
 FEB 25 2016

4710303057



4710303057

February 10, 2016

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

Re: Casing plan on Wells (BIG177)

Dear Mr. Smith,

EQT is requesting the 18 5/8" surface string be set at 320' KB, 150' below the FW at 170' KB. 13-3/8" surface casing be set at 765' KB, 135' below the water show at 630' MD. We will set the 9-5/8" intermediate string at 2728' KB, below the base of the Gordon formation.

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

Sincerely,

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

Vicki Roark
Permitting Supervisor

Enc.

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Charleston, WV 25304
(304) 926-0450
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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

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.

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05/06/2016



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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
- 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.

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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

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Office of Oil & Gas

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WW-9
(2/15)

47 10303057

API Number 47 - 103 - 03057
Operator's Well No. 512915

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 (HUC 10) Wiley Fork of North Fork Fishing Creek Quadrangle Big Run

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: n/a

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

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 _____)

Will closed loop system be used? If so, describe: 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. See Attached

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Mud

Additives to be used in drilling medium? See Attached

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 *Victoria J. Roark*

Company Official (Typed Name) Victoria J. Roark

Company Official Title Permitting Supervisor

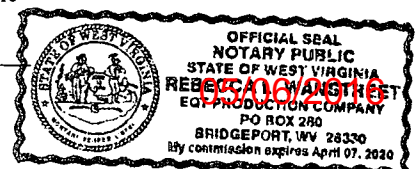
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Subscribed and sworn before me this 10 day of February, 2016

Rebecca J. Wamstreet Notary Public

My commission expires 4-7-20



Proposed Revegetation Treatment: Acres Disturbed 6.9 Prevegetation pH 5.2

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type Granular 10-20-20

Fertilizer amount 1/3 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

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

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

Title: Oil + Gas Inspector

Date: 2-19-16

Field Reviewed? Yes No

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WW-9

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.

Additives to be used in drilling medium?

- Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud – Barite, viscosifier, alkalinity control, lime, filtration control, deflocculates, biodegradable oil lubricant, defoaming, walnut shell, salt, x-cide, carbonates. Oil based mud – synthetic base oil, emulsifier, salt, lime, viscosifier, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant, defoaming, carbonates.

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| |
|----------------------------------------------------------------------------------|
| 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

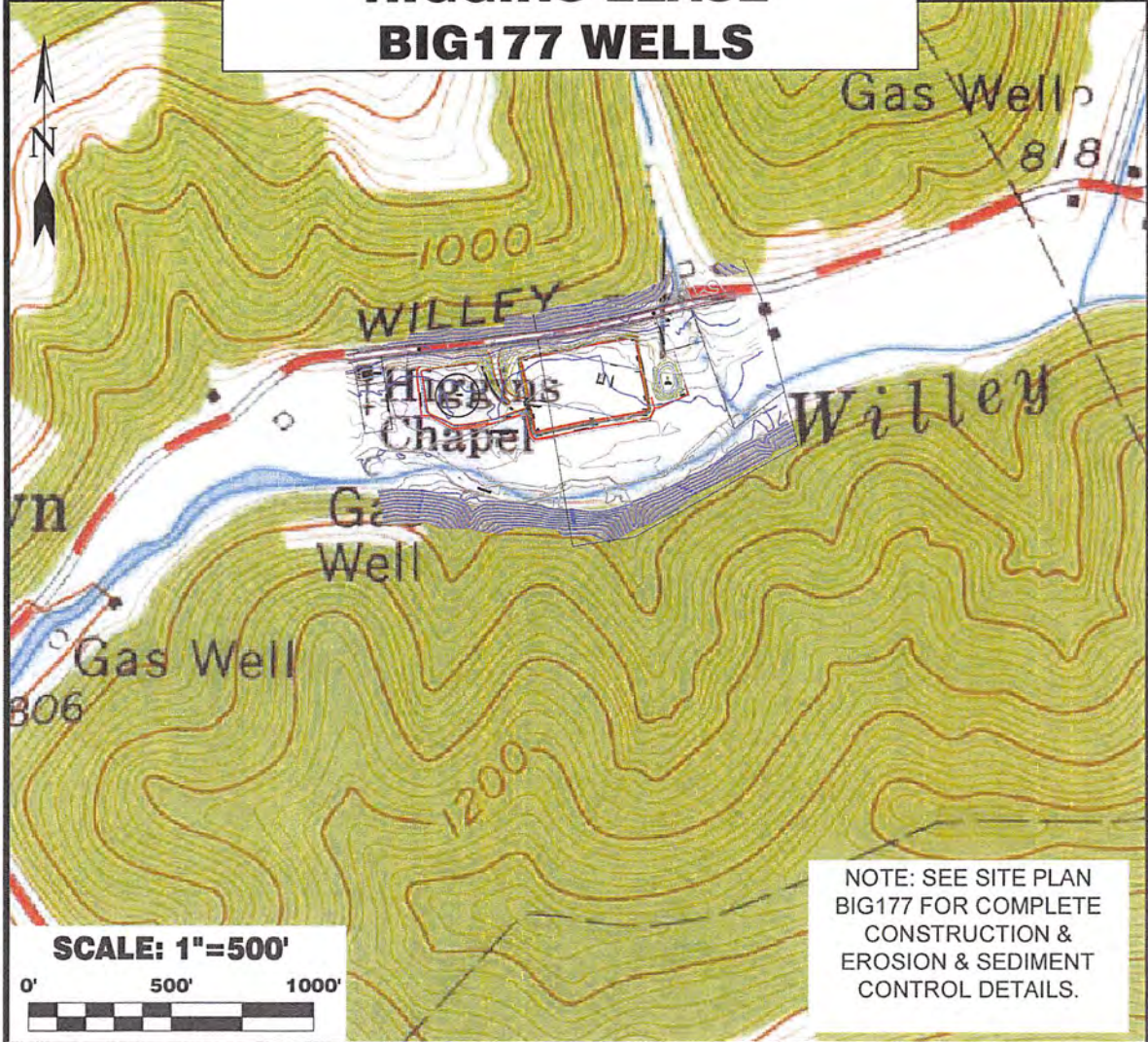
512 E. Dry Road
 Parkersburg, WV 26104
 304-428-0602
 Permit #SWF-1025 WV-0109400
 Approval #100833WV

103-03057

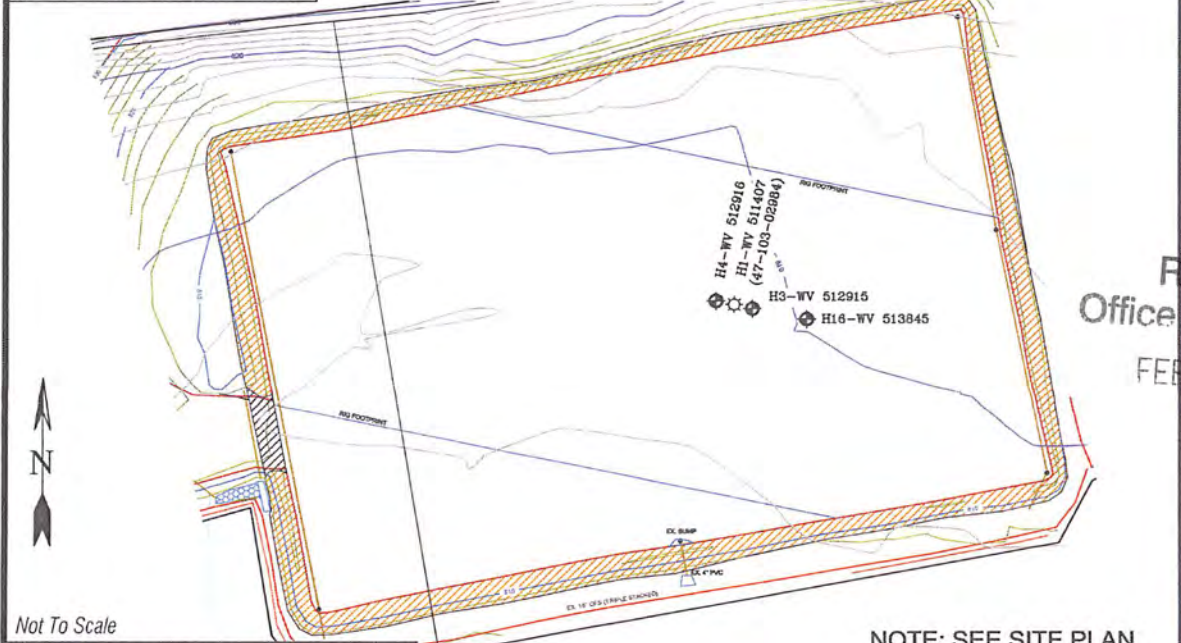
Form WW-9

HIGGINS LEASE BIG177 WELLS

page of



Detail Sketch for Proposed BIG177 Wells



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Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.

SLS
SURVEYORS
ENGINEERS
ENVIRONMENTAL
PROJECT MGMT.

(204) 462-5534
WWW.SLSURVEYS.COM

| | | | |
|--------------------|------------------|------------------|--------------------------------|
| DRAWN BY K.D.W. | FILE NO. 6806 | DATE 09-09-15 | CADD FILE: 65068G177REC.dwg |
|--------------------|------------------|------------------|--------------------------------|

NOTE: SEE SITE PLAN BIG177 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

05/06/2016



Where energy meets innovation.™

Site Specific Safety Plan

EQT BIG177 Pad

Jacksonburg

Wetzel County, WV

For Wells:

512915 512916

Date Prepared:

February 9, 2016

[Signature]
EQT Production

[Signature]
WV Oil and Gas Inspector

Title

Title

2-10-16

Date

Date

Received
Office of Oil & Gas

FEB 25 2016

COASTAL FOREST RESOURCES COMPANY
d/b/a COASTAL TIMBERLANDS COMPANY
178 ACRES±

LATITUDE 39° 35' 00"

EQT PRODUCTION COMPANY HIGGINS LEASE 217 ACRES± WELL NO. WV 512915

NAD'27 S.P.C.(FT) N. 396,136.078 E. 1,694,455.526
NAD'27 GEO. LAT-(N) 39.582563 LONG-(W) 80.584085
NAD'83 UTM (M) N. 4,381,519.296 E. 535,733.668

LANDING POINT

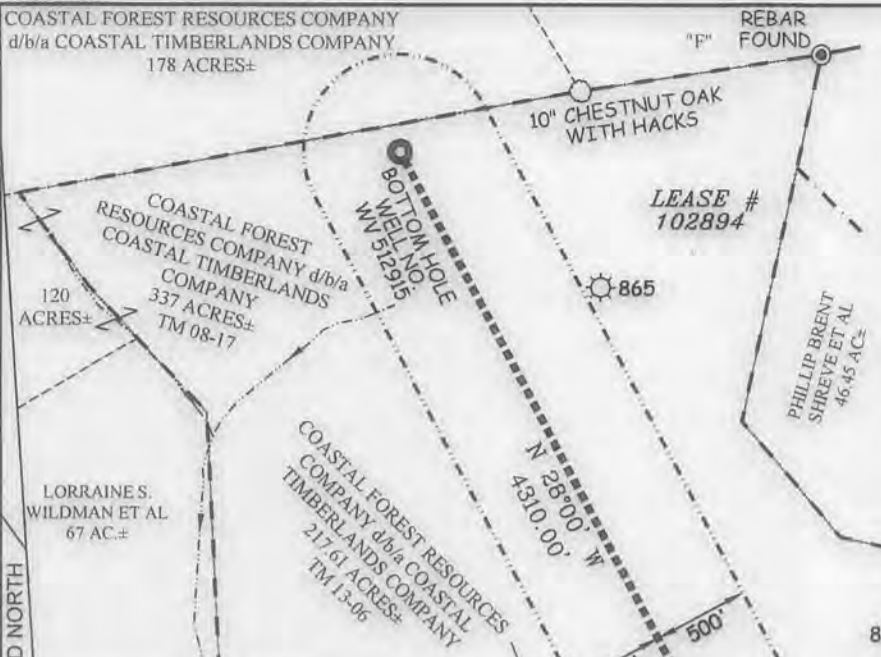
NAD'27 S.P.C.(FT) N. 396,369.29 E. 1,694,719.00
NAD'27 GEO. LAT-(N) 39.583212 LONG-(W) 80.583161
NAD'83 UTM (M) N. 4,381,591.69 E. 535,812.76

BEND POINT

NAD'27 S.P.C.(FT) N. 397,847.24 E. 1,694,313.52
NAD'27 GEO. LAT-(N) 39.587256 LONG-(W) 80.584662
NAD'83 UTM (M) N. 4,382,039.90 E. 535,681.72

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 401,652.75 E. 1,692,290.09
NAD'27 GEO. LAT-(N) 39.597636 LONG-(W) 80.592006
NAD'83 UTM (M) N. 4,383,188.98 E. 535,045.95



| ARC | RADIUS | CHORD BEARING | LENGTH |
|-----|---------|---------------|-----------------------|
| C1 | 161.94' | 63.49' | N 81°20'52" E 121.48' |
| C2 | 224.59' | 634.27' | N 01°37'51" E 223.42' |

- A- JOHN D. PARKS (15.50 AC±)
- B- JAMES L. & KAREN DULANEY (14.10 AC±)
- C- JAMES L. & KAREN DULANEY (14.12 AC±)
- D- MARY S. SNODGRASS ET AL (1.45 AC±)
- E- HIGGINS CHAPEL CHURCH (0.466 AC±)
- F- DANNY STOCKSLAGER ET AL (170 AC±)
- G- COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY (55.06 AC±)
- H- IKEY J. & TINA M. WILLEY (2.15 AC±)
- I- EQT GATHERING, LLC. (0.418 AC±) TM 08-66

REFERENCES

- BIG177 WELLS
- H1-WV 511407
- H3-WV 512915
- H4-WV 512916
- H16-WV 513845



LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD. SEE REFERENCE BOX FOR EXISTING DWELLING LESS THAN 625' FROM CENTER OF PROPOSED PAD.



ROYALTY OWNERS
EQT PRODUCTION COMPANY 300 AC± LEASE NO. 102894

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.

SURVEYORS
ENGINEERS
ENVIRONMENTAL
PROJECT MGMT.

(304) 482-5834 WWW.SLSURVEYS.COM

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 MAY 20, 20 13
REVISED 07/29/13, 12/04/13, 09/10/14, 08/25/15 & 09/14/15
OPERATORS WELL NO. WV 512915
API WELL NO. 47 - 103 - 03057
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 6806P512915R9
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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

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

LOCATION: ELEVATION 809' (GROUND) 811' (PROPOSED) WATERSHED WILLEY FORK OF NORTH FORK FISHING CREEK
DISTRICT GRANT COUNTY WETZEL QUADRANGLE BIG RUN 7.5'
SURFACE OWNER COASTAL FOREST RESOURCES CO. d/b/a COASTAL TIMBERLANDS CO. ACREAGE 27± OF 217±
ROYALTY OWNER HIGGINS FAMILY TRUST ACREAGE 242.5

PROPOSED WORK: DRILL CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION GENESECO ESTIMATED DEPTH 6741'

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

05/06/2016

COUNTY WETZEL PERMIT

WW-6A1
(5/13)

Operator's Well No. 512915

**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 |
|-------------------------|-----------------------|-----------------------|---------|-----------|
|-------------------------|-----------------------|-----------------------|---------|-----------|

see attached

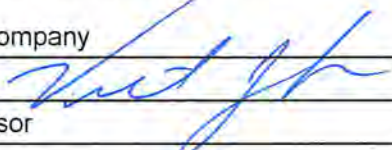
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: EQT Production Company
 By: Victoria J. Roark 
 Its: Permitting Supervisor

Well Designation: 512915

| Lease no. | Leasehold - Grantor, Lessor, etc. | Grantee, Lessee, etc. | Royalty | Book/Page |
|-----------|-------------------------------------------------------|----------------------------------------|--------------|------------|
| | <u>Coastal Forest Resources Co DBA Coastal</u> | | | |
| 103021 | <u>Timberlands Co. (current royalty owner)</u> | | min pd 1/8th | |
| | James V. Higgins (original lessor) | The Philadelphia Company of West Va. | | DB 60/414 |
| | The Philadelphia Company of West Va. | Pittsburgh & West Virginia Gas Company | | DB 98/146 |
| | Pittsburgh & West Virginia Gas Company | Equitable Gas Company | | DB 187/321 |
| | Equitable Gas Company | Equitrans, Inc. | | OG 71A/453 |
| | Equitrans, Inc. | Equitrans, LP | | DB 105/908 |
| | Equitrans, L.P. | EQT Production Company | | DB 131A/81 |
| 102894 | <u>EQT Production Company (current royalty owner)</u> | | in fee | |
| | J. B. Hicks (original lessor) | The Philadelphia Company of West Va. | | OG 47/441 |
| | The Philadelphia Company of West Va. | Pittsburgh & West Virginia Gas Company | | OG 22A/352 |
| | Pittsburgh & West Virginia Gas Company | Equitable Gas Company | | DB 187/321 |
| | Equitable Gas Company | Equitrans, Inc. | | OG 71A/453 |
| | Equitrans, Inc. | Equitrans, LP | | DB 105/908 |
| | Equitrans, L.P. | EQT Production Company | | DB 131A/81 |

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February 24, 2016

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

Re: BIG177, well 512915 (47-103-003057)
Grant District, Wetzel County

Dear Mr. Martin,

EQT Production Company is submitting an application for a new well work permit for the above well number. 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.

Sincerely,

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

Vicki Roark
Permitting Supervisor-WV

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FEB 25 2016

WW6-A

103-03059

Coal Owners

Coastal Forest Resources Co
fka Coastal Lumber Company
C/O Edward G. Kraynok
P.O. Box 709
Buckhannon, WV 26201

CNX Land LLC
Attn: Analyst
Engineering & Ops Support Dept. Coal
CNX Center, 1000 Consol Energy Drive
Canonsburg, PA 15317

Irrevocable Intervivos Trust of Billy Higgins
Frances J & William P. Higgins, co-trustees
531 Franklin Terrace
Washington, PA 15301

WPP, LLC
C/O George Angus
5260 Irwin Road
Huntington, WV 25705

Deanna Merle Weber
633 Carothers Road
Weirton, WV 26062

Doris E. Hamilton
55 Parker Street
Wheeling, WV 26003-7404

Robin Barr
4060 S.W. County Road 232
Bell, FL 32619

Murray American Energy, Inc
1 Bridge Street
Monongah WV 26554

Murray American Energy, Inc
C/O Murray Energy Corporation
46226 National Road
St Clairsville, OH 43950

Additional Coal Owners: CBM

CNX Gas Company, LLC
Attn Analyst Engineering & Operations Support Dept. Coal
Casey Saunders
1000 Consol Energy Drive
Cannonsburg, PA 15317

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

Date of Notice Certification: NOV 17 2014

API No. 47 - 103 - 0
Operator's Well No. 512915
Well Pad Name: BIG177

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>4,381,517.90</u> |
| County: | <u>Wetzel</u> | UTM NAD 83 Northing: | <u>535,721.70</u> |
| District: | <u>Grant</u> | Public Road Access: | <u>Rt. 19</u> |
| Quadrangle: | <u>Big Run 7.5</u> | Generally used farm name: | <u>Coastal Forest Resources Co dba Coastal Timberlands Co</u> |
| Watershed: | <u>Willey Fork of North Fork Fishing Creek</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.

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED OR</p> <p><input checked="" type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> NOTICE OF APPLICATION</p> | <p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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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.

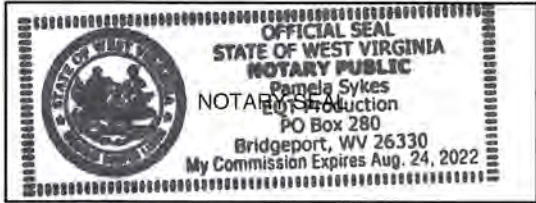
05/06/2016

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 13 day of Oct., 2014

[Signature] Notary Public

My Commission Expires 8-24-22

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.

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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: ~~NOV 17 2014~~ Date Permit Application Filed: ~~NOV 17 2014~~

Notice of:

- 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: Coastal Forest Resources Co
Address: dba Coastal Timberlands Co
P.O. Box 709
Buckhannon, WV 26201

Name: 0
Address: 0
0
0

SURFACE OWNERS(s) (Road and/or Other Disturbance)
Name: Coastal Forest Resources Co
Address: dba Coastal Timberlands Co
P.O. Box 709
Buckhannon, WV 26201

Name: 0
Address: 0
0
0

SURFACE OWNER(s) (Impoundments/Pits)
Name: Coastal Forest Resources Co
Address: dba Coastal Timberlands Co
P.O. Box 709
Buckhannon, WV 26201

COAL OWNER OR LESSEE
Name: CNX Land Resources, Inc
Address: Ryan Arp
1000 Consol Energy Dr
Canonsburg, PA 15317
See attached for additional coal owners.

COAL OPERATOR
Name: 0
Address: 0
0
0

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: Ike Willey
Address: HC 62 Box 92
Pine Grove, WV 26419
See Attached

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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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.

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

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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

Received
Office of Oil & Gas
NOV 18 2014

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.

05/06/2016

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 18 2014

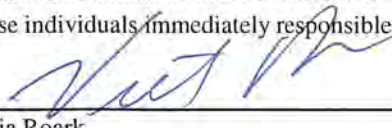
Notice is hereby given by:

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:

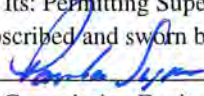
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory 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.

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 13 day of Oct., 2014
 Notary Public

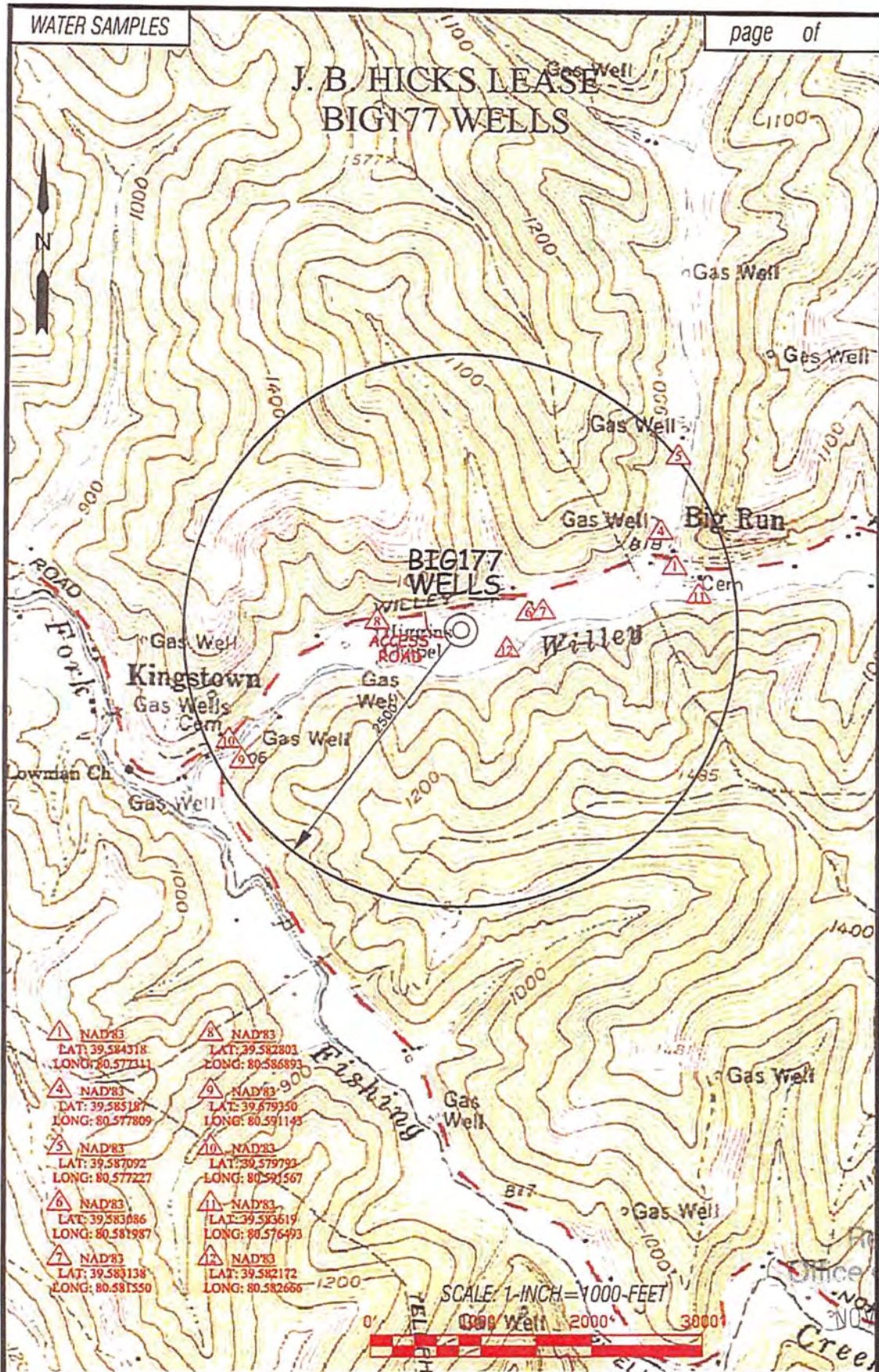
My Commission Expires 8-24-20



Received
Office of Oil & Gas
NOV 18 2014

05/06/2016

J. B. HICKS LEASE BIG177 WELLS



- 1 NAD83
LAT: 39.584318
LONG: 80.577111
- 2 NAD83
LAT: 39.585187
LONG: 80.577809
- 3 NAD83
LAT: 39.587092
LONG: 80.577227
- 4 NAD83
LAT: 39.583086
LONG: 80.581987
- 5 NAD83
LAT: 39.583138
LONG: 80.581550
- 6 NAD83
LAT: 39.582801
LONG: 80.586893
- 7 NAD83
LAT: 39.579350
LONG: 80.591143
- 8 NAD83
LAT: 39.579793
LONG: 80.591567
- 9 NAD83
LAT: 39.583619
LONG: 80.576493
- 10 NAD83
LAT: 39.582172
LONG: 80.582666

SCALE: 1-INCH=1000-FEET



Received
Office of Oil & Gas
18 2014

Professional Energy Consultants
a member of the SLS Group

DRAWN BY: K.E.S.
FILE NO: 6206
DATE: 10/11/13
CADD FILE: 6206W28G177

TOPO SECTION OF:
BIG RUN, WV 7.5' QUAD.

| DISTRICT | COUNTY | TAX MAP-PARCEL NO. |
|----------|--------|--------------------|
| GRANT | WETZEL | 8 - 18 |

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

WELL INFORMATION AND FINAL WATER WELL SAMPLE DATA SHEET

OPERATOR: EQT Production Company
LEASE NAME AND NUMBER: HIGGINBOTHAM LEASE BIG 177

COMMENTS

The initial field and/or mapping review of the area surrounding the proposed well site revealed the below listed surface owner(s) that were potentially utilizing groundwater (potable) for Human Consumption or other purposes within 2500' of the proposed well site. (For location of each site see attached area map.)

INDIVIDUAL CONTACTED OR NOTIFIED

Site: 1 Spacing 2050 Owner/Occupant: Elias Leasure
 Address: PO Box 156 Big Run, WV 26561 Ph: (304)889-2609
 Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: Water well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: Tax Map 8 Par. 46
Northing: 39.584318
Easting: 80.577311

Site: 2 Spacing 1800 Owner/Occupant: Judy Utt
 Address: HC 62 box 125 Pine Grove, WV 26419 Ph: _____
 Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: _____
 If No, declined by who Judy Utt Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: Tax Map 8 Par. 43
Northing: _____
Easting: _____

Site: 3 Spacing 1800 Owner/Occupant: Judy Utt
 Address: HC 62 box 125 Pine Grove, WV 26419 Ph: _____
 Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: _____
 If No, declined by who Judy Utt Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: Tax Map 8 Par. 43
Northing: _____
Easting: _____

Site: 4 Spacing 2100 Owner/Occupant: Sherry Dulancy
 Address: HC 62 box 117 Pine Grove, WV 26561 Ph: (304)-889-3478
 Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: Water well
 If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
 Comments: Tax Map 8 Par. 38
Northing: 39.585187
Easting: 80.577809

Site: 5 Spacing 2500 Owner/Occupant: Karen Dalancy
Address: HC 62 box 118 Pine Grove, WV 26561 Ph: (304)-880-2701
Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Tax Map 8 Par. 23,1
Northing: 39,587092
Easting: 80,3577227

Site: 6 Spacing 625 Owner/Occupant: Ike Willey
Address: HC 62 box 92 Pine Grove, WV 26419 Ph: (304)-889-2760
Field Contact Date: 9-24-13 Sampled: No Date Sampled: N/A Source: Water well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Tax Map 8 Par. 65
Northing: 39,583086
Easting: 80,581987

Site: 7 Spacing 700 Owner/Occupant: Sarah Bates
Address: HC 62 box 93 Pine Grove, WV 26419 Ph: (304)-889-3484
Field Contact Date: 10-3-13 Sampled: No Date Sampled: N/A Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st 9-24-13 2nd _____ Certified (3rd) _____
Comments: Tax Map 8 Par. 35
Northing: 39,
Easting: 80,

Site: 8 Spacing 750 Owner/Occupant: Mary Eastham
Address: HC 62 box 90 Pine Grove, WV 26419 Ph: _____
Field Contact Date: 9-24-2013 Sampled: No Date Sampled: N/A Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Northing: 39,582803
Easting: 80,586893
Shares well with chapel (neighboring parcel).

Site: 9 Spacing 2200 Owner/Occupant: Susan Lydick
Address: HC 62 box 71 Pine Grove, WV 26419 Ph: _____
Field Contact Date: 10-3-2013 Sampled: No Date Sampled: N/A Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Northing: 39,579350
Easting: 80,591143

Site: 10 Spacing 2450 Owner/Occupant: EQT Production Company
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: Creek
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Northing: 39,579793
Easting: 80,591567
Information taken, request of EQT.

Site: 11 Spacing 2200 Owner/Occupant: EQT Production Company
Address: _____ Ph: _____
Field Contact Date: 10-3-13 Sampled: No Date Sampled: N/A Source: Creek
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Northing: 39.583619
Easting: 80.576493
Information taken, request of EQT.

Site: 12 Spacing 500 Owner/Occupant: EQT Production Company
Address: _____ Ph: _____
Field Contact Date: 10-3-13 Sampled: _____ Date Sampled: _____ Source: Creek
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Northing: 39.582172
Easting: 80.581666
Information taken, request of EQT.

Site: 13 Spacing 750 Owner/Occupant: Higgins Chapel, Church of Christ
Address: 12597 Willey Fork Rd. Pine Grove WV 26419 Ph: _____
Field Contact Date: 9-24-13 Sampled: ND Date Sampled: N/A Source: Water Well
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: Share Well with Mary Eastham
Northing 39.582803
Easting 80.586893

Site: 14 Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 15 Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____

Site: 16 Spacing _____ Owner/Occupant: _____
Address: _____ Ph: _____
Field Contact Date: _____ Sampled: _____ Date Sampled: _____ Source: _____
If No, declined by who _____ Letter/Notice Date: 1st _____ 2nd _____ Certified (3rd) _____
Comments: _____



SMITH LAND SURVEYING, INC.

P.O. BOX 150, GLENVILLE, WV 26361

(304) 462-5634 • FAX 407-5656

To Whom It May Concern:

Smith Land Surveying, Inc. of Glenville, WV has been contracted by:

JOT

To do some preliminary work for a proposed oil and gas well permit application.

Due to 1994 regulations set by the State of West Virginia Division of Environmental Protection, Department of Oil and Gas, operators are required to offer water testing for water wells or other non-public water sources that fall within 1500 feet of the proposed well, if they are requested to do so by the resident or owner. This test will only help ensure the water quality control, which in turn benefits you as the resident or landowner.

Since your residence falls within the 2500 foot radius, you are entitled to have your potable water source(s) sampled and analyzed at an independent lab. Your lab analysis results would then be mailed to your home. This is done at no expense to you.

Please notify Smith Land Surveying immediately if you are interested in having your potable water tested. Please have this letter with you at the time of contact so that the client and well number may be referenced.

Thank you for your cooperation in this matter. I look forward to hearing from you at your earliest convenience. If you have any questions, please feel free to contact me at:

Smith Land Surveying, Inc.
PO Box 150
Glenville, WV 26351

Date: 9-24-13

Left/sent by: Nathan Spencer

(304) 462-5634 (voice)
(304) 463-5656 (fax)
E-Mail mmurphy@slssurvey.com

Well Number: 511407 (Big 122)

Site Number: Site # 223

*If you do not have a water well or other non-public water source, please make note of it and include your name and address when you return this sheet.

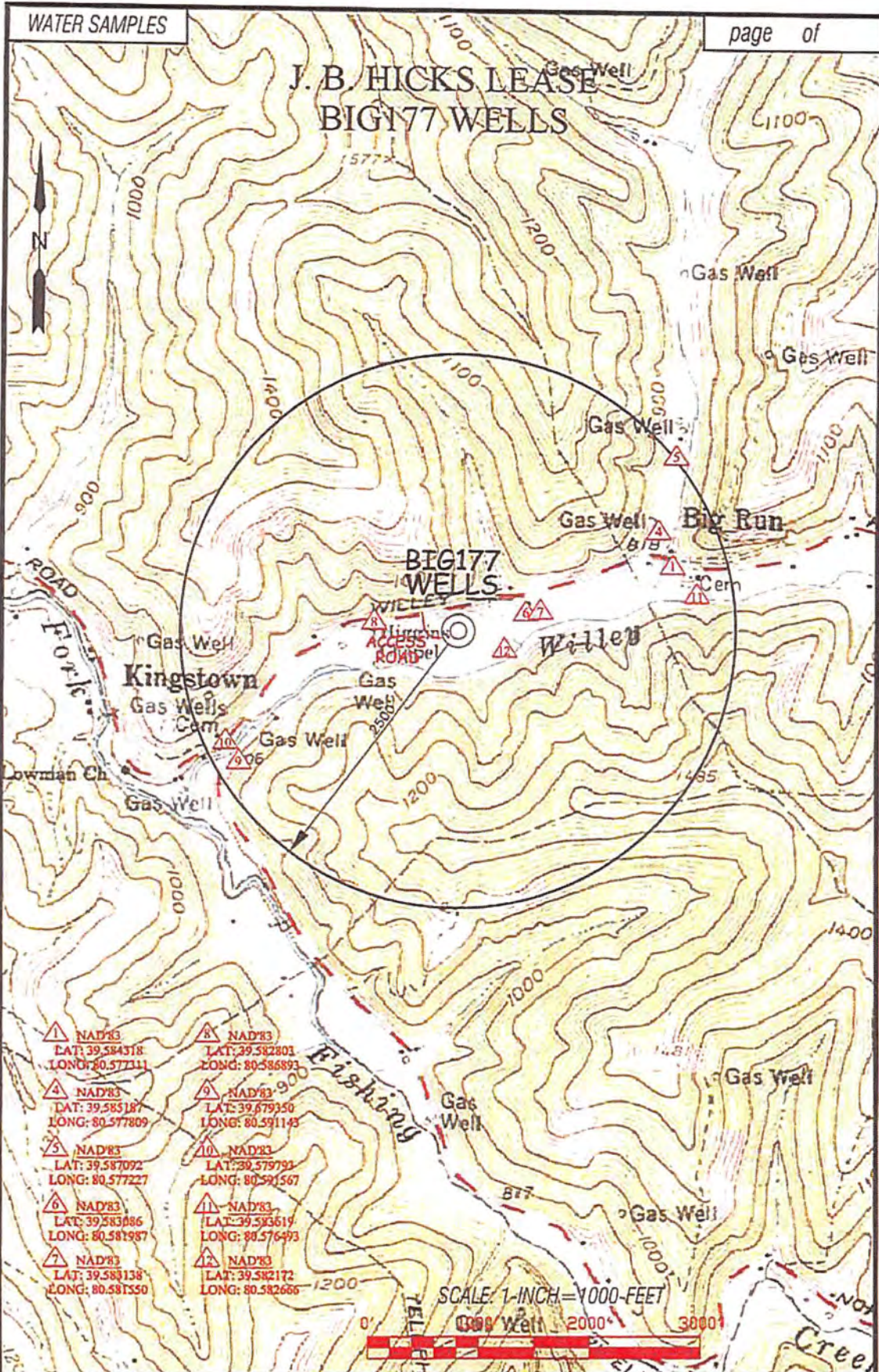
If you do not feel the need to have your Water well/spring/or other non-public water source sampled, please sign on the line below and return to the above address. This will signify that a sample has been offered to the surface owner and has been declined.

Signature: Judy Utt

Date: 9/24/13

05/06/2016

J. B. HICKS LEASE BIG177 WELLS



- ▲ NAD'83
LAT: 39.584318
LONG: 80.577111
- ▲ NAD'83
LAT: 39.585187
LONG: 80.577809
- ▲ NAD'83
LAT: 39.587092
LONG: 80.577227
- ▲ NAD'83
LAT: 39.583086
LONG: 80.581987
- ▲ NAD'83
LAT: 39.581138
LONG: 80.581550
- ▲ NAD'83
LAT: 39.582801
LONG: 80.586893
- ▲ NAD'83
LAT: 39.679350
LONG: 80.591143
- ▲ NAD'83
LAT: 39.579791
LONG: 80.591567
- ▲ NAD'83
LAT: 39.583619
LONG: 80.576493
- ▲ NAD'83
LAT: 39.582172
LONG: 80.582666

SCALE: 1-INCH=1000-FEET
0' 2000' 3000'

Professional Energy Consultants
SLS

DRAWN BY: K.E.S. FILE NO: 6806 DATE: 10/11/13 CAD FILE: 6806WSPG177

TOPO SECTION OF:
BIG RUN, WV 7.5' QUAD.

| DISTRICT | COUNTY | TAX MAP-PARCEL NO. |
|----------|--------|--------------------|
| GRANT | WETZEL | 8 - 18 |

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

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application.

Date of Notice: 9/16/2014 **Date Permit Application Filed:** 9/26/14

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

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: Provided, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: Provided, however, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

| | | | |
|----------|------------------------------------|----------|----------|
| Name: | <u>Coastal Forest Resources Co</u> | Name: | <u>0</u> |
| Address: | <u>dba Coastal Timberlands Co</u> | Address: | <u>0</u> |
| | <u>P.O. Box 709</u> | | <u>0</u> |
| | <u>Buckhannon, WV 26201</u> | | |

Notice is hereby given:

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

| | | | | |
|-------------|------------------------------------------------|---------------------------|---------------------------------------------------------------|---------------------|
| State: | <u>WV</u> | UTM NAD 83 | Easting | <u>4,381,517.90</u> |
| County: | <u>Wetzel</u> | | Northing | <u>535,721.70</u> |
| District: | <u>Grant</u> | | Public Road Access: | <u>Rt. 19</u> |
| Quadrangle: | <u>Big Run 7.5</u> | Generally used farm name: | <u>Coastal Forest Resources Co dba Coastal Timberlands Co</u> | |
| Watershed: | <u>Willey Fork of North Fork Fishing Creek</u> | | | |

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. 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

Received
Office of Oil & Gas
NOV 18 2014

Notice is hereby given by:

| | | | |
|----------------|--------------------------------------------|----------------------------|--------------------------------------------|
| Well Operator: | <u>EQT Production Company</u> | Authorized Representative: | <u>Victoria Roark</u> |
| Address: | <u>115 Professional Place, P.O Box 280</u> | Address: | <u>115 Professional Place, P.O Box 280</u> |
| | <u>Bridgeport, WV 26330</u> | | <u>Bridgeport, WV 26330</u> |
| Telephone: | <u>304-848-0076</u> | Telephone: | <u>304-848-0076</u> |
| Email: | <u>vroark@eqt.com</u> | Email: | <u>vroark@eqt.com</u> |
| Facsimile: | <u>304-848-0041</u> | Facsimile: | <u>304-848-0041</u> |

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.

05/06/2016

WW-6A5
(1/12)

Operator Well No. 512915

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: NOV 17 2014 Date Permit Application Filed: NOV 17 2014

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: Coastal Forest Resources Co Name: 0
Address: dba Coastal Timberlands Co Address: 0
P.O. Box 709 0
Buckhannon, WV 26201

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: 4,381,517.900000
County: Wetzel Northing: 535,721.700000
District: Grant Public Road Access: Rt. 19
Quadrangle: Big Run 7.5 Generally used farm name: Coastal Forest Resources Co dba Coastal Timberlands Co
Watershed: Willey Fork of North Fork Fishing Creek

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.

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 or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

Received
Office of Oil & Gas
NOV 18 2014
05/06/2016

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, EQT Production Company is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), 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.

WAIVER

I, _____, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 535,721.7
County: Wetzel UTM NAD 83 Northing: 4,381,517.9
District: Grant Public Road Access: CR 19 / Willey Fork Road
Quadrangle: Big Run 7.5" Generally used farm name: _____
Watershed: Willey Fork

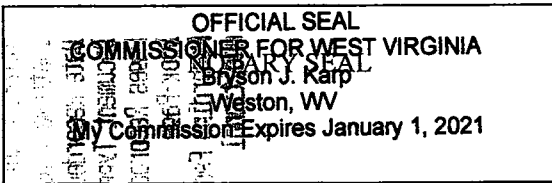
I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>WELL SITE RESTRICTIONS BEING WAIVED</p> <p>*Please check all that apply</p> <p><input type="checkbox"/> EXISTING WATER WELLS</p> <p><input type="checkbox"/> DEVELOPED SPRINGS</p> <p><input checked="" type="checkbox"/> DWELLINGS</p> <p><input type="checkbox"/> AGRICULTURAL BUILDINGS</p> <p style="text-align: right;"><i>Received Office of Oil & Gas NOV 18 2014</i></p> | <p>FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: <u>Tina M. Willey</u></p> <p>Print Name: <u>Tina M. Willey</u></p> <p>Date: <u>7-31-2013</u></p> <p>FOR EXECUTION BY A CORPORATION,</p> <p>Company: _____</p> <p>By: _____</p> <p>Its: _____</p> <p>Signature: _____</p> <p>Date: _____</p> <p style="font-size: small;"> Date Recorded 12/03/2013 Document Type NS Fees Reported 1 Book-Page Fee 105.672 Report/Title Fee \$5.00 Additions Fee \$6.00 </p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Carol S Haught
WETZEL County 02-24-21 PM
Instrument No 154547

Well Operator: EQT Production Company
By: John W. Damato
Its: Attorney-In-Fact

Signature: _____
Telephone: _____



Subscribed and sworn before me this 31 day of July 2013
[Signature] Notary Public
My Commission Expires Jan. 1 2021

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WW-6RW
(1-12)

EQT PRODUCTION COMPANY
PO BOX 280
BRIDGEPORT, WV 26330-0280

API NO. 47-
OPERATOR WELL NO. H3-512915
Well Pad Name: BIG 177

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL LOCATION RESTRICTION WAIVER

The well operator, EQT Production Company is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), 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.

WAIVER

I, _____, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

| | |
|---------------------------------|-----------------------------------------------------|
| State: <u>West Virginia</u> | UTM NAD 83 Easting: <u>535,721.7</u> |
| County: <u>Wetzel</u> | UTM NAD 83 Northing: <u>4,381,517.9</u> |
| District: <u>Grant</u> | Public Road Access: <u>CR 19 / Willey Fork Road</u> |
| Quadrangle: <u>Big Run 7.5"</u> | Generally used farm name: _____ |
| Watershed: <u>Willey Fork</u> | |

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>WELL SITE RESTRICTIONS BEING WAIVED</p> <p>*Please check all that apply</p> <p><input type="checkbox"/> EXISTING WATER WELLS</p> <p><input type="checkbox"/> DEVELOPED SPRINGS</p> <p><input checked="" type="checkbox"/> DWELLINGS</p> <p><input type="checkbox"/> AGRICULTURAL BUILDINGS</p> | <p>FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: <u>Key Joe Willey</u></p> <p>Print Name: <u>Key Joe Willey</u></p> <p>Date: <u>7-31-2013</u></p> <p>FOR EXECUTION BY A CORPORATION</p> <p>Company: _____</p> <p>By: _____</p> <p>Its: _____</p> <p>Signature: _____</p> <p>Date: _____</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Received
Office of Oil & Gas
NOV 18 2014

Carol S Haught
WETZEL County 02:23:27 PM
Instrument No 154546
Date Recorded 12/03/2013
Document Type MS
Pages Recorded 1
Book-Page 105-471
Repor dir on \$5.00
Add'l Land \$6.00

| | |
|----------------------------------------------|-------------------------------|
| Well Operator: <u>EQT Production Company</u> | Signature: <u>[Signature]</u> |
| By: <u>John W. Damato</u> | Telephone: _____ |
| Its: <u>Attorney-in-Fact</u> | |

OFFICIAL SEAL
COMMISSIONER FOR WEST VIRGINIA
Bryson J. Karp
Weston, WV
My Commission Expires January 1, 2021

Subscribed and sworn before me this 31 day of July 2013

[Signature] Notary Public

My Commission Expires Jan 1 2021

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05/06/2016

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, EDWARD G. KRAYNOK, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through 8, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

| | | | |
|-------------|----------------------|---------------------------|---------------------------------|
| State: | <u>West Virginia</u> | UTM NAD 83 Easting: | <u>535,721.7</u> |
| County: | <u>Wetzel</u> | Northing: | <u>4,381,517.9</u> |
| District: | <u>Grant</u> | Public Road Access: | <u>CR 19 / Willey Fork Road</u> |
| Quadrangle: | <u>Big Run 7.5"</u> | Generally used farm name: | _____ |
| Watershed: | <u>Willey Fork</u> | | |

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>*Please check the box that applies</p> <p><input checked="" type="checkbox"/> SURFACE OWNER</p> <p><input checked="" type="checkbox"/> SURFACE OWNER (Road and/or Other Disturbance)</p> <p><input type="checkbox"/> SURFACE OWNER (Impoundments/Pits)</p> <p><input type="checkbox"/> COAL OWNER OR LESSEE</p> <p><input type="checkbox"/> COAL OPERATOR</p> <p><input type="checkbox"/> WATER PURVEYOR</p> <p><input type="checkbox"/> OPERATOR OF ANY NATURAL GAS STORAGE FIELD</p> | <p style="text-align: center;">FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: _____</p> <p>Print Name: _____</p> <p>Date: _____</p> <hr/> <p style="text-align: center;">FOR EXECUTION BY A CORPORATION, ETC.</p> <p>Company: <u>COASTAL TIMBERLANDS COMPANY</u></p> <p>By: <u>EDWARD G. KRAYNOK</u></p> <p>Its: <u>VICE PRESIDENT</u></p> <p>Signature: <u>Edward G. Kraynok</u></p> <p>Date: <u>4/11/13</u></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

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Comment and Waiver Provisions

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: Provided, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, FRANCES J. HIGGINS hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

| | | | |
|-------------|------------------------------------------------|---------------------------|---------------------------------------------------------------|
| State: | <u>WV</u> | UTM NAD 83 Easting: | <u>535,721.70</u> |
| County: | <u>Wetzel</u> | UTM NAD 83 Northing: | <u>4,381,517.90</u> |
| District: | <u>Grant</u> | Public Road Access: | <u>Rt. 19</u> |
| Quadrangle: | <u>Big Run 7.5</u> | Generally used farm name: | <u>Coastal Forest Resources Co dba Coastal Timberlands Co</u> |
| Watershed: | <u>Willey Fork of North Fork Fishing Creek</u> | | |

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

*Please check the box that applies

- SURFACE OWNER
- SURFACE OWNER (Road and/or Other Disturbance)
- SURFACE OWNER (IMPOUNDMENTS/PITS)
- COAL OWNER OR LESSEE
- COAL OPERATOR
- WATER PURVEYOR
- OPERATOR OF ANY NATURAL GAS STORAGE FIELD

FOR EXECUTION BY A NATURAL PERSON
 Signature: Frances J Higgins Co Trustee
 Print Name: HIGGINS FAMILY TRUST
 Date: 4/3/14 FRANCES J HIGGINS
FOR EXECUTION BY A CORPORATION, ETC.
 Company: _____
 By: _____
 Its: _____
 Signature: _____
 Date: _____

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Office of Oil & Gas

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05/06/2016

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

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.

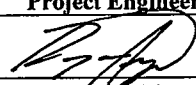
Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, Ryan Arp, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

| | | | | |
|-------------|----------------------|---------------------------|-----------|----------------------|
| State: | <u>West Virginia</u> | WVSPN NAD 27 | Easting: | <u>1,692,505.416</u> |
| County: | <u>Wetzel</u> | | Northing: | <u>399,761.167</u> |
| District: | <u>Center</u> | Public Road Access: | | |
| Quadrangle: | <u>BIG RUN</u> | Generally used farm name: | | |
| Watershed: | | | | |

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials, **provided that EQT Production Company drills the well on WV North NAD27 coordinates of North 399,761.167, East 1,692,505.416. This statement does not serve as notice that CNX Land LLC has waived its rights to mine all the coal or accept any responsibility for any damage to the well or surface facilities associated with the well by CNX Land LLC mining activity. This Voluntary Statement of No Objection does not waive CNX Land LLC's Common Law Property Rights in the State of West Virginia.**

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>*Please check the box that applies</p> <p><input type="checkbox"/> SURFACE OWNER</p> <p><input type="checkbox"/> SURFACE OWNER (Road and/or Other Disturbance)</p> <p><input type="checkbox"/> SURFACE OWNER (Impoundments/Pits)</p> <p><input checked="" type="checkbox"/> COAL OWNER OR LESSEE</p> <p><input checked="" type="checkbox"/> COAL OPERATOR</p> <p><input type="checkbox"/> WATER PURVEYOR</p> <p><input type="checkbox"/> OPERATOR OF ANY NATURAL GAS STORAGE FIELD</p> | <p style="text-align: center;">FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: _____</p> <p>Print Name: _____</p> <p>Date: _____</p> <hr/> <p style="text-align: center;">FOR EXECUTION BY A CORPORATION, ETC.</p> <p>Company: <u>CNX Land LLC</u></p> <p>By: <u>Ryan Arp</u></p> <p>Its: <u>Project Engineer</u></p> <p>Signature: </p> <p>Date: <u>4/3/2014</u></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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Office of Oil & Gas
NOV 18 2014

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05/06/2016



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

April 16, 2014

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

| | | |
|-----------------------------|----------------------------------------|------------------|
| Subject: DOH Permit for the | BIG177 Well Site, Wetzel County | |
| 511407 BIG177H1 | 511408 BIG177H2 | 512915 BIG177H3 |
| 512916 BIG177H4 | 512917 BIG177H5 | 512918 BIG177H6 |
| 513836 BIG177H7 | 513837 BIG177H8 | 513838 BIG177H9 |
| 513839 BIG177H10 | 513840 BIG177H11 | 513841 BIG177H12 |
| 513842 BIG177H13 | 513823 BIG177H14 | 513844 BIG177H15 |
| 513845 BIG177H16 | 513846 BIG177H17 | 513847 BIG177H18 |

Dear Mr. Martin,

This well site will be accessed from existing Permit # 06-2013-0292 issued to EQT Production Company for access to the State Road for a well site located off of Wetzel County Route 19 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
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Cc: Nick Bumgardner
EQT Production Company
CH, OM, D-6
File

Received
Office of Oil & Gas

NOV 18 2014

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 |

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Office of Oil & Gas
NOV 18 2014

05/06/2016

PROJECT INFORMATION

PROJECT NAME: BIG 177 H1-H6, H15, H16

TAX PARCEL:
GRANT DISTRICT
MAP 13-6, 13-6-1

SURFACE OWNER:
CAPITAL FOREST RESOURCES COMPANY D/B/A
CONANT TIMBERLANDS COMPANY
GRANT DISTRICT
WETZEL COUNTY, WV
TOTAL PROPERTY AREA: 27 ± ACRES OF 217 ± ACRES
AND 55 ± ACRES

OIL AND GAS ROYALTY OWNER:
BOGGS FAMILY TRUST (LEASE NO. 103021)
GRANT DISTRICT
WETZEL COUNTY, WV
TOTAL PROPERTY AREA: 242.5 ± ACRES

SITE LOCATION:
THE BIG 177 SITE IS LOCATED IN THE BOTTOM NORTH OF
WILLEY FORK APPROXIMATELY 2,300 FT EAST OF THE CO.
ST. 18 AND CO. ST. 15 INTERSECTION.

LOCATION COORDINATES

BIG 177 H1-H6, H15, H16 WELL PAD ENTRANCE
LATITUDE: 39.56563 LONGITUDE: -80.56657 (NAD 83)

BIG 177 H1-H6, H15, H16 WELL PAD
LATITUDE: 39.56263 LONGITUDE: -80.56412 (NAD 83)

BIG 177 H1-H6, H15, H16 TANK PAD
LATITUDE: 39.56252 LONGITUDE: -80.56570 (NAD 83)

SITE DISTURBANCE COMPUTATIONS

PAD AREA = 6.5 ± ACRES*
ACCESS ROAD = 0.4 ± ACRES
TOTAL SITE DISTURBANCE = 6.9 ± ACRES
*INCLUDES AREA OF THE WELL PAD, TANK PAD, & STOCKPILES

ENTRANCE PERMIT

EQT PRODUCTION COMPANY WILL OBTAIN AN ENCROACHMENT PERMIT (FORM
EM-108) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION
ACTIVITIES.

MISS UTILITY STATEMENT

MISS UTILITY OF WEST VIRGINIA WAS NOTIFIED FOR THE LOCATING OF
UTILITIES PRIOR TO THIS PROJECT DESIGN. TICKET #10184014.
IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO START OF THE
PROJECT.

FLOODPLAIN NOTE

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT IS LOCATED IN FEMA FLOOD ZONE
"X". PER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBER 843300000C, DATED SEPT. 28,
2009. A FLOODPLAIN ANALYSIS FOR THE PROPOSED DISTURBANCE HAS BEEN PROVIDED BY
NAVITAS ENGINEERING, DATED AUGUST 1, 2013 SHOWING THE IMPACTS OF THE PROPOSED
IMPROVEMENTS. PLEASE REFER TO THE ANALYSIS FOR ADDITIONAL INFORMATION.

ENVIRONMENTAL NOTES

A WETLAND DELINEATION WAS PERFORMED ON SEPTEMBER 22, 2011; AND DECEMBER 14, 2012 AND
DECEMBER 17, 2012 BY POTESTA & ASSOCIATES, INC. TO REVIEW THE SITE FOR WATERS AND
WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF
ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
(WVDEP). THE FEBRUARY 4, 2013 REPORT PROJECT # 2005-11-147-1790 WAS PREPARED BY
POTESTA & ASSOCIATES, INC. SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE REPORT
DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF
WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY
RECOMMENDED THAT THE APPOINTED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN
WRITTEN CONFIRMATION OF THE DELINEATION DESCRIBED BY THIS REPORT PRIOR TO ENGAGING
CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE
APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY
PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CHANGES.

GENERAL DESCRIPTION

THE WELL PAD AND TANK PAD ARE BEING CONSTRUCTED TO AID IN THE
DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XIV, Chapter 24-C)
Requires that you call two
business days before you dig in
the state of West Virginia.
IT'S THE LAW!!

BIG 177 H1-H6, H15, H16 SITE PLAN EQT PRODUCTION COMPANY

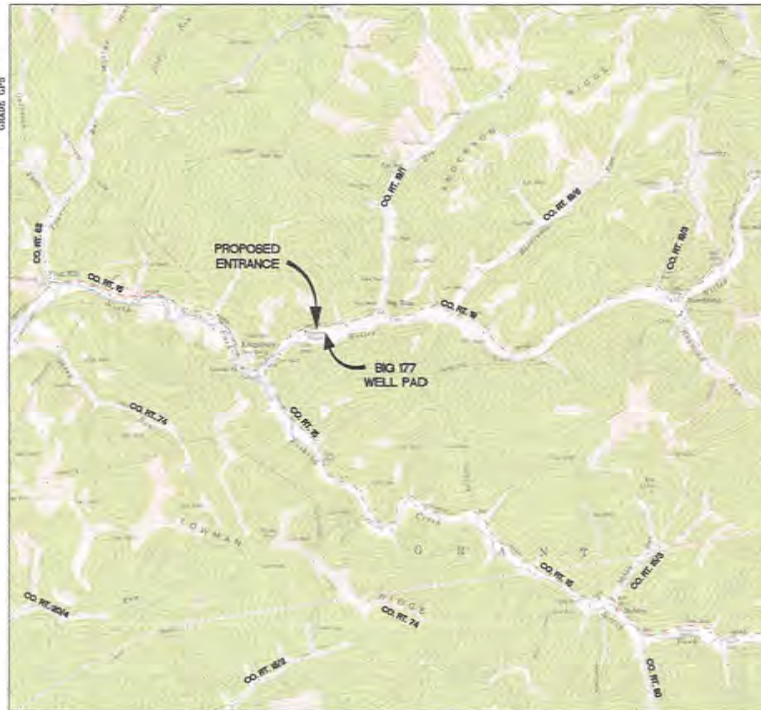
(PROPOSED WELL NO. WV 511407, WV 512915, WV 512916, WV 512917, WV 512918, WV 513844, WV 513845)

SITUATE ON THE WATERS OF WILLEY FORK OF NORTH FORK FISHING CREEK IN
GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.



API# 10302984

GRID NORTH AND ELEVATIONS
SHOWN HEREON WERE
DTERMINED BY
SMITH LAND SURVEYING
INC. DATE:



Electronic plans maybe viewed at: Q:\OIL GAS\SAY FILES\REVIEWS\EQT

OPERATOR

EQT PRODUCTION COMPANY
OPERATOR ID: 308688
115 PROFESSIONAL PLACE
P.O. BOX 500
BRIDGEPORT, WV 26330
PHONE: (304) 348-3870

SURVEYOR/ENGINEER

SMITH LAND SURVEYING, INC.
12 VANHORN DRIVE
P.O. BOX 150
GLENVILLE, WV 26351
PHONE: (304) 462-5834

LIST OF DRAWINGS

- 1 - COVER SHEET
- 2 - NOTES AND DETAIL SKETCH
- 3 - WELL PAD AND ACCESS ROAD DETAILS AND VOLUMES
- 4 - WELL PAD SECTION AND ROAD PROFILE AND SECTIONS
- 5 - WELL PAD RECLAMATION PLAN
- 6 - CONSTRUCTION DETAILS
- 7 - CONSTRUCTION DETAILS
- 8 - CONSTRUCTION DETAILS

| LEGEND | |
|-----------------------------------|-------------------------------------------|
| EX. INDEX CONTOUR | PROF. INDEX CONTOUR |
| EX. INTERMEDIATE CONTOUR | PROF. INTERMEDIATE CONTOUR |
| EX. BOUNDARY LINE | PROF. CREAMING LIMITS |
| EX. RIGHT-OF-WAY LINE | PROF. LIMITS OF DISTURBANCE |
| EX. ROAD EDGE OF GRAVEL/DIRT | PROF. WELL PAD |
| EX. ROAD EDGE OF PAVEMENT | PROF. WELL HEAD |
| EX. ROAD CENTERLINE | PROF. 4" PVC DRAIN PIPE |
| EX. STYCOLINE | PROF. SOUP DRAIN |
| EX. CULVERT | PROF. CONTAINMENT BEAM |
| EX. GUARDRAIL | PROF. PVI/IMPEDIMENT CL. |
| EX. FENCELINE | PROF. PERIMETER SAFETY FENCE |
| EX. GATE | PROF. ACCESS GATE WITH EMERGENCY LIFELINE |
| EX. OVERHEAD UTILITY | PROF. ROCK CONSTRUCTION ENTRANCE |
| EX. OVERHEAD UTILITY R/W | PROF. ROAD CENTERLINE |
| EX. POWER POLE | PROF. ROAD EDGE OF GRAVEL |
| EX. DOT WELL | PROF. 5'-6" DITCH W/ CHECK BANKS |
| EX. TELEPHONE LINE | PROF. DITCH RELIEF CULVERT (DR) |
| EX. GASLINE | PROF. 80'-RIP OUTLET PROTECTION |
| EX. GASLINE R/W | PROF. GUARDRAIL |
| EX. WATERLINE | PROF. ROCK LEVEL SPREADER |
| EX. GAS WELL | EX. TOP OF BANK |
| EX. TRENCH | EX. 100 YEAR FIRM FLOODPLAIN |
| EX. REFERENCE TREE | EX. 100 YEAR FLOODPLAIN |
| EX. DELINEATED STREAM | EX. 100' WETLAND/STREAM BUFFER |
| EX. DELINEATED WETLAND/POND | EX. FLOOD PROTECTION SETBACK |
| EX. BUILDING | EX. 100 YEAR FLOODPLAIN |
| EX. BEAMS | EX. 100 YEAR FLOODPLAIN |
| EX. SANDPIT OVERSIDE BEAM | EX. 100 YEAR FLOODPLAIN |
| EX. GRANITE SAFETY FENCE | EX. 100 YEAR FLOODPLAIN |
| EX. SUPER SILT FENCE | EX. 100 YEAR FLOODPLAIN |
| EX. REINFORCED SILT FENCE | EX. 100 YEAR FLOODPLAIN |
| EX. CHAINPOST ROCK DIVERSION | EX. 100 YEAR FLOODPLAIN |
| EX. GROUNDWATER DEWATERING TRENCH | EX. 100 YEAR FLOODPLAIN |
| EX. GROUNDWATER DEWATERING PIPE | EX. 100 YEAR FLOODPLAIN |
| EX. MATCHLINE | EX. 100 YEAR FLOODPLAIN |
| EX. 1-SECTION GRID INDEX | EX. 100 YEAR FLOODPLAIN |
| EX. 1-SECTION GRID INTERMEDIATE | EX. 100 YEAR FLOODPLAIN |
| EX. 1-SECTION PROPOSED GRADE | EX. 100 YEAR FLOODPLAIN |
| EX. 1-SECTION EXISTING GRADE | EX. 100 YEAR FLOODPLAIN |
| EX. 1-SECTION WATER SURFACE | EX. 100 YEAR FLOODPLAIN |
| EX. SPOT ELEVATION | EX. 100 YEAR FLOODPLAIN |
| EX. CENTER OF PAD | EX. 100 YEAR FLOODPLAIN |



THIS DOCUMENT WAS
REVIEWED BY: SMITH
LAND SURVEYING, INC.
FOR: EQT PRODUCTION
COMPANY

COVER SHEET
BIG 177
GRANT DISTRICT
WETZEL COUNTY, WV

DATE: 05/09/2013
SCALE: 1" = 2000'
DESIGNED BY: CSK
FILE NO. 6806
SHEET 1 OF 8
REV: 11/10/14

CONSTRUCTION NOTES:

1. THE CONTRACTOR IS TO VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND WILL NOTIFY SMETS LAND SURVEYING AT (614) 462-2424 IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLAN. ANY WORK PREPARED BY THE CONTRACTOR AFTER THE FILING OF THIS DRAWING, SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HEREIN SHALL CONFORM TO THE CURRENT COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND/OR CURRENT FLOOD PROOFING AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP) STANDARDS AND SPECIFICATIONS. SHOULD A DISCREPANCY BETWEEN THE DESIGN SPECIFICATIONS AND PLANS OCCUR, THE MOST STRINGENT REQUIREMENT WILL APPLY. THE APPROVAL OF THESE PLANS IN NO WAY DELAYS THE CONTRACTOR OR HIS AGENT OF THE RESPONSIBILITIES CONTAINED IN THE WORK ORDER AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
3. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE. ALSO, A REPRESENTATIVE OF THE EMPLOYEE MUST BE AVAILABLE AT ALL TIMES.
4. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING AND FRESH TRUCK AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN TRUCKS, ALLAY DUST, AND TO TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT THE STREETS ARE MAINTAINED AS A CLEAR AND SAFE DRIVE THROUGHOUT ALL TIMES.
5. THE LOCATION OF EXISTING UTILITIES SHOWN IN THESE PLANS ARE FROM FIELD LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AS NEEDED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ANY CORRECTIVE ACTIONS FROM ANY EXISTING UTILITY VERIFICATION AND THE PROPOSED CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION OF WATER AND/OR GAS FOR LIFE LINES. INFORMATION SHOULD ALSO BE OBTAINED FROM THE APPROPRIATE AUTHORITY CONCERNING PERMITS, CUT SHEETS, AND CONNECTIONS TO EXISTING LINES.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGES TO THE EXISTING STREET AND UTILITIES WHICH OCCUR AS A RESULT OF HIS CONSTRUCTION PROJECT WITHIN 60 DAYS OF THE EXISTING DRIVE-UP-LANE.
8. WHEN GRADING IS PROPOSED WITHIN EASEMENTS OF UTILITIES LETTERS OF PERMISSION FROM ALL INVOLVED COMPANIES MUST BE OBTAINED PRIOR TO GRADING AND/OR SITE DEVELOPMENT.
9. THE DEVELOPER WILL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES WHICH IS REQUIRED AS A RESULT OF THE PROPOSED RELOCATION INCLUDING THE WORK DONE PRIOR TO CONSTRUCTION.
10. THESE PLANS IDENTIFY THE LOCATION OF ALL KNOWN GRAVITATIONAL DRAINAGES SHOWN ON THIS PLAN WILL BE PROTECTED IN ACCORDANCE WITH STATE LAW. IN THE EVENT GRAVITATIONAL DRAINAGES ARE DISCOVERED DURING CONSTRUCTION, THE OWNER AND ENGINEER MUST BE NOTIFIED IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR SLABBING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR SLABBING.
12. CONTRACTOR TO CONTACT OPERATOR AND ENGINEER IF DISCOVERED IN ENCOUNTERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE ENGINEER AND SEDIMENT CONTROL INSPECTOR 2 DAYS PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL FIELD MATERIAL TESTING REQUIRED DURING THE CONSTRUCTION OF THIS PROJECT. ALL MATERIAL TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND A CERTIFICATION OF THE MATERIALS TESTED SHALL BE PROVIDED BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER CERTIFYING THE CONTRACTOR'S FACILITY. FAILURE TO CONDUCT THE TESTING SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE CONSTRUCTED FACILITY.
15. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SITE IN ACCORDANCE WITH THE DESIGN PLANS AND CONSTRUCTION DOCUMENTS AND THE SCOPE OF WORK SHALL CONFORM WITH THE GRADES, SIZES, DEPTHS, DIMENSIONS, ETC. SHOWN HEREON.
16. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF TRAFFIC WHILE WORKING WITHIN EXISTING ROW AS PER ANY FEDERAL, STATE, OR LOCAL REGULATIONS.

CONSTRUCTION SEQUENCE

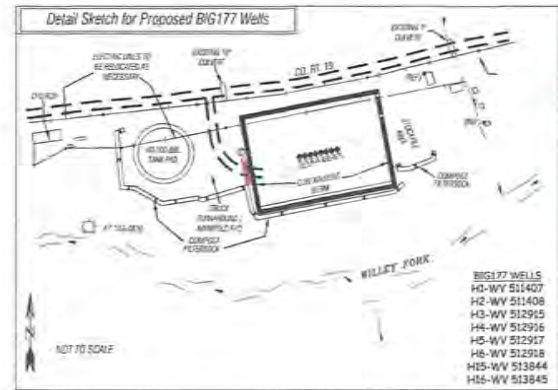
- THE DEVELOPMENT OF THIS SITE SHALL BE CONSENT WITH THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT, MAINTAIN AND OPERATE ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES TO EFFECTIVELY MITIGATE THE RISK OF ACCELERATED EROSION AND SEDIMENTATION TO ACCEPTABLE LEVELS. MINOR DEVIATIONS FROM THIS SEQUENCE SHALL BE APPROVED BY THE PROJECT'S SUPERVISOR, AS NEEDED TO ELIMINATE ANY POTENTIAL EROSION CONDITIONS THAT MAY ARISE FOR THE PROPOSED CONSTRUCTION. THE WORK OFFICES OF ALL-AND-GAS SHALL BE NOTIFIED OF ANY AND ALL SUCH DEVIATIONS FROM THE APPROVED PLAN.
- 1) A PRE-CONSTRUCTION CONFERENCE WITH THE CONTRACTOR AND THE APPROPRIATE ENGINEER AND SEDIMENT CONTROL INSPECTOR AN HOUR PRIOR TO BEGINNING WORK TO PERFORM THE CONSTRUCTION AND EROSION AND SEDIMENT CONTROL SEQUENCE.
 - 2) STAKE THE LIMITS OF CONSTRUCTION.
 - 3) INSTALL THE SOIL CONSTRUCTION PROTECTIVE AS SHOWN ON THE PLANS.
 - 4) INSTALL ALL ORANGE SAFETY FENCE AS SHOWN AROUND ANY DELINEATED STREAMS AND RETAINERS TO CLEARLY IDENTIFY THOSE AREAS THAT ARE NOT TO BE DISTURBED.
 - 5) INSTALL ALL BMP'S (COMPOST FILTER SOCKS, SEDIMENT TRAPS ETC) AS SHOWN ON THE PLANS AND DETAIL THE SEDIMENT TRAPS SHOWN ON THIS PLAN WILL FUNCTION AS A FLOODING POOL TO REDUCE THE VELOCITY ON THE PROPOSED DITCHES CHANNELS UPON THEM THE SEDIMENT TRAPS TO THESE FACILITIES WILL BE SEDIMENT FREE.
 - 6) CLEAR AND GRUB THE ACCESS ROAD AND PAD AREA. ALL WOODY MATERIAL, BRUSH, TREES, STUMP, LARGE ROOTS, BRUSHES, AND BRUSH SHALL BE CLEARED FROM THE SITE AREA AND LEFT TO THE MAXIMUM EXTENT FOR PROPER CONSTRUCTION. INCLUDING THE INSTALLATION OF NECESSARY SEDIMENT CONTROL. TREES TO BE REMOVED IN SHADERS AND LARGER SHALL BE CUT AND LOGS STACKED. GRASSES, TREES, BRUSH, & STUMPS SHALL BE CUT AND OR CHIPPED AND MONITORED IN APPROPRIATE AREAS FOR USE AS SEDIMENT BARRIERS AT FUTURE DRAINAGE OUTLETS. FERTILIZER SHALL BE APPLIED TO THE SITE PER WILDEYRE HANDBOOK, SECTIONS 143 PER BY PRESENT FEE LAWS, REMOVED FROM SITE, OR REMOVED BY OTHER METHODS APPROVED BY DEP.
 - 7) CONSTRUCT THE ACCESS ROAD. BOTH SIDING CURBS SHALL BE INSTALLED AT A GRADE OF 1% TO MONITOR OUTLET VELOCITY TO THE EXTENT POSSIBLE. INITIAL OUTLET PROTECTION AS SHOWN ON PLANS SHALL BE THE ROAD WITH IMPERMEABLE FABRIC & STONE AND SIDE SLOPES AS SPECIFIED WITH PERMANENT SEDIMENT STOCKPILE AND STABILIZE EXCESS MATERIAL ALONG THE ACCESS ROAD, AS NEEDED.
 - 8) STEEP THE TOPSOIL FROM THE PAD AREA. ALL STEEPED TOPSOIL SHALL BE STOCKPILED IN AREAS SHOWN ON THE PLANS AND ADEQUATELY STABILIZED. ADDITIONAL STEEP SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES, IF NECESSARY.
 - 9) ALL DITCH LINES SHALL BE CLEARED PRIOR TO INSTALLATION OF LINE PROTECTION. ALL DITCHES SHALL HAVE SOON AND GENERATE FABRIC LINED. INITIAL OUTLET PROTECTION SHALL BE WITH SEDIMENT CURBS AS SHOWN ON THE PLAN.
 - 10) GRADE THE PAD AREA AS SHOWN ON THE PLANS. IMMEDIATELY STABILIZE THE OUTER AREAS OF THE PAD AND THE PERIMETER GRASS SHALL BE STABILIZED WITH IMPERMEABLE FABRIC & STONE AND THE SIDE SLOPES WITH EROSION CONTROL BLANKETS. IN ALL SLOPES GREATER THAN 1:1, AFTER SLOPES AND SLOPES TO ALL DISTURBED AREAS THIS SHALL INCLUDE ALL AREAS THAT WILL NOT BE SUBJECT TO REGULAR TRAFFIC ACTIVITY IT SHALL BE STABILIZED WITH SODS, OR ANY DISTURBED AREA THAT WILL NOT BE RE-DISTURBED PERFORM SITE RECLAMATION WORK.
 - 11) PRIOR TO THE INSTALLATION OF THE DANK, THE CONTRACTOR SHALL CONTACT THE ENGINEER/SUPERVISOR TO COMPLETE AN AS-BUILT SURVEY OF THE CONSTRUCTED TANK PAD TO ENSURE CONFORMANCE WITH THE DESIGN DRAWINGS. THE AS-BUILT WILL BE REVIEWED BY THE ENGINEER AND THE CONTRACTOR IS RESPONSIBLE FOR ANY CORRECTIVE ACTION (S) AS NEEDED BY THE ENGINEER FOR ANY DEVIATION(S) FROM THE DESIGN DRAWINGS.
 - 12) PREVIOUSLY DISTURBED AREAS AND IMMEDIATE DOWN SLOPE AREAS SHALL BE DISTURBED AFTER EACH RAINFALL EVENT AND MONITORED WEEKLY FOR SIGNS OF ACCELERATED EROSION. ADEQUATE ADDITIONAL BMP'S AS DEEMED NECESSARY, THESE MEASURES SHALL CONTINUE DURING THE DURATION OF THE PROJECT AND SUBSEQUENT SITE RECLAMATION.
 - 13) COMMENCE THE DRILLING ACTIVITY.
 - 14) ONCE DISTURBED AREAS HAVE BEEN RE-VEGETATED AND STABILIZED FOLLOWING RECLAMATION, THE TEMPORARY BMP'S IN THOSE AREAS MAY BE REMOVED. CONTINUE TO MONITOR THESE AREAS TO ENSURE A UNIFORM RATE OF THE REVEGETATION COVERAGE IS MAINTAINED. ANY AREAS FOUND TO BE DEFICIENT SHALL BE RE-DISTURBED AND REVEGETATED.

SITE CLEANUP & RECYCLE PROGRAM

1. GARBAGE, RUBBISH OR ANY SUBSTANCE HARMFUL TO HUMAN, ANIMAL OR FISH LIFE, WILL BE PREVENTED FROM ENTERING SPILLS, STREAMS, PONDS, LAKE, WETLANDS OR ANY WATER COURSE OF WATER BODY.
2. ALL FUEL TANKS AND COILS WILL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED PROPERLY.
3. ALL TRASH AND GARBAGE WILL BE COLLECTED AND DISPOSED PROPERLY.
4. ALL SEDIMENT REMOVED FROM SEDIMENT CAPTURED DEVICES SHALL BE PLACED ON THE TOPSOIL STOCKPILE, THEN STORED AND RECYCLED, AS NECESSARY. ALTERNATIVELY, THE REMOVED SEDIMENT CAN BE TRANSPORTED TO A SITE WITH AN APPROVED PERMIT.

MAINTENANCE PROGRAM

1. BMP'S WILL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH REARVABLE RAINFALL EVENT DURING THE ACTIVE CONSTRUCTION PHASE OF THE PROJECT.
2. ALL REVEGETATED ACCESS ROADS AND FACILITIES ARE TO BE MAINTAINED THROUGHOUT THE LIFE OF EACH STRUCTURE.
3. CURBS, SOIL DITCHES, BRUSH-BASED TRAPS, SEDIMENT DITCHES, AND ROCK CHECK DAMS MUST BE MAINTAINED IN PROPER WORKING ORDER AND WILL BE CLEARED, REPAIRED, OR REPLACED AS NECESSARY.
4. FILTER STRIPS AND/OR Silt FENCE WILL BE MAINTAINED.
5. ALL AREAS OF EARTH DISTURBANCE WILL BE REPAIRED WITHIN 30 DAYS OF ACCELERATED EROSION ARE DETECTED.
6. SEEDING AND MULCHING WILL BE REPEATED IN THOSE AREAS THAT APPEAR TO BE FAILING OR HAVE FAILED.



APPROVED
WVDEP OOG
[Signature]
11/12/2014

- BIG177 WELLS
H1-WV 511407
H2-WV 511408
H3-WV 512915
H4-WV 512916
H5-WV 512917
H6-WV 512918
H15-WV 513844
H16-WV 513845



Professional Energy Consultants
A DIVISION OF SMETS LAND SURVEYING
SURVEYORS
ENGINEERS
PLANNERS
WETZEL COUNTY, WV
www.smetsthe.com

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LAND SURVEYING, INC.
FOR SET PRODUCTION
COMPANY

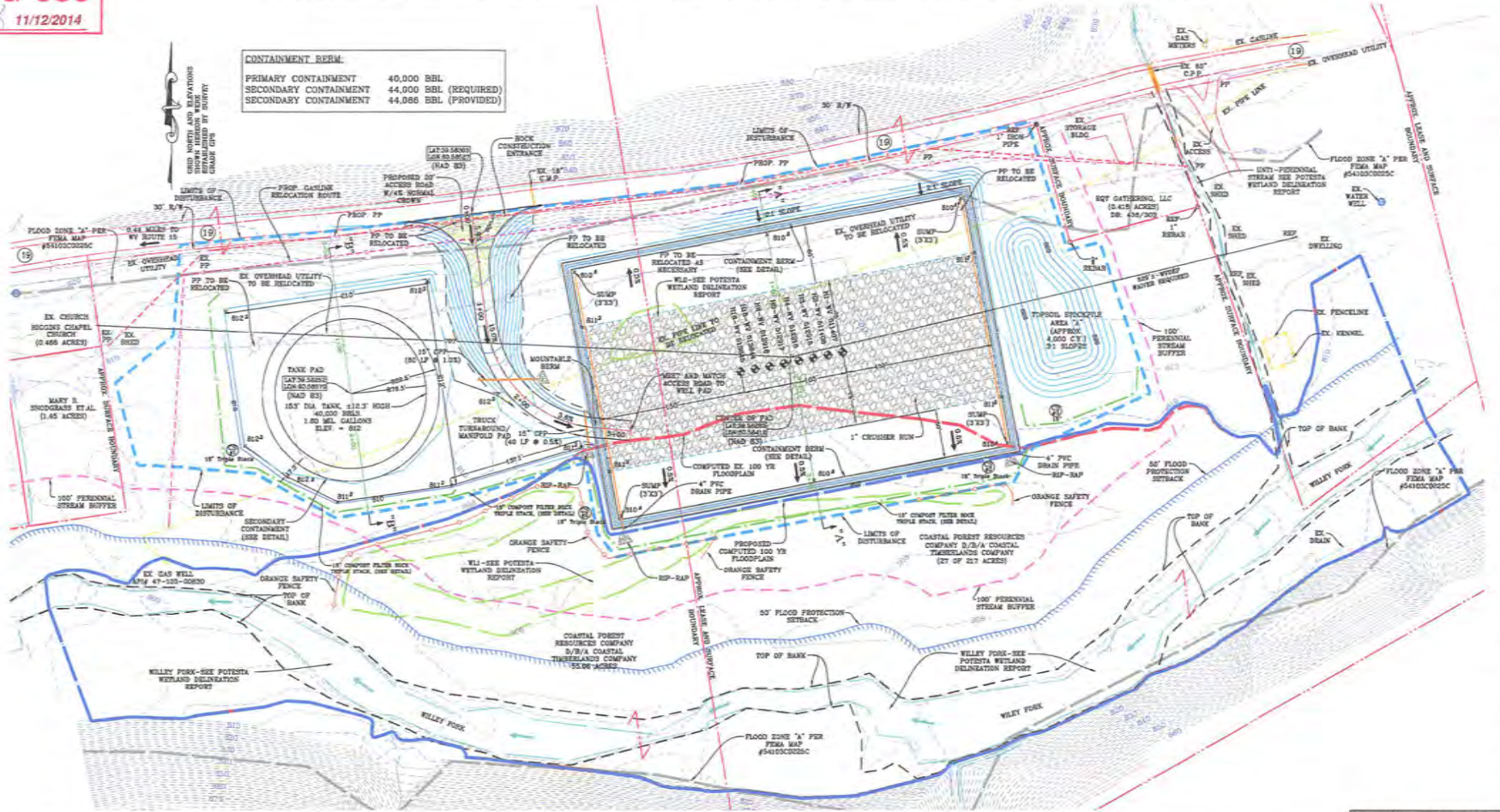
NOTES AND DETAIL SKETCH
BIG 177
GRANT DISTRICT
WETZEL COUNTY, WV

DATE: 05/19/2015
SCALE: N/A
DESIGNED BY: CMC
FILE NO.: 5809
SHEET 5 OF 5
REV: 11/20/14

APPROVED
WVDEP OOG
11/12/2014

WELL PAD & ACCESS ROAD DETAILS

PROPOSED WELL NO. WV 511407, WV 511408, WV 512915, WV 512916, WV 512917, WV 512918, WV 513844, WV 513845



CONTAINMENT BERM.

| | |
|-----------------------|-----------------------|
| PRIMARY CONTAINMENT | 40,000 BBL |
| SECONDARY CONTAINMENT | 44,000 BBL (REQUIRED) |
| SECONDARY CONTAINMENT | 44,086 BBL (PROVIDED) |

- NOTE:**
1. ALL PROPOSED DRAINAGE CULVERTS AND DRAIN PIPES SHALL HAVE ADEQUATE OUTLET PROTECTION (RIP-RAP) AS SHOWN ON THESE PLANS.
 2. ALL FILL AREAS SHALL BE "KEYED IN" AND COMPACTED IN 12" LIFTS (9" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTER.
 3. TOPSOIL SHALL BE STRIPPED FROM ALL STOCKPILE AREAS PRIOR TO CONSTRUCTING STOCKPILES. AFTER STOCKPILES ARE CONSTRUCTED TOPSOIL IS TO BE REAPPLIED AT A DEPTH OF 6" SLOPES SHALL BE TRACKED BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR.
 4. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.0 AND A FILL SHRINK FACTOR OF 1.0.
 5. THERE WILL BE NO DISCHARGE FROM THE SUMPS DURING DRILLING OR COMPLETION.

- GENERAL NOTES AND ADDITIONAL DESIGN CONCERNS:**
1. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON FIELD LOCATED MAPPING PROVIDED BY SLS, INC.
 2. THE WETLAND AND STREAM DELINEATION SHOWN HEREON WAS PROVIDED BY SLS, INC. AND POTESTA.
 3. THERE IS ONE OCCUPIED DWELLING WITHIN 600 FEET OF THE CENTER OF THE PROPOSED PAD. W/DEP WAIVER IS REQUIRED.
 4. THERE ARE NO APPARENT WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE CENTER OF THE PROPOSED PAD.
 5. THE PROPOSED SITE IS LOCATED WITHIN FEMA FLOOD ZONE "X" AND "A" PER FEMA FLOOD MAP #54100C025C. THE PROPOSED WELL PAD IS LOCATED IN FEMA ZONE "A". A FLOODPLAIN STUDY SHALL BE COMPLETED AND A FLOODPLAIN PERMIT SHALL BE OBTAINED FROM THE COUNTY FLOODPLAIN MANAGER.
 6. ALL WETLAND AND STREAM IMPACTS SHALL BE PERMITTED THROUGH THE ARMY CORPS OF ENGINEERS.
 7. THE ACCESS ROAD HAS BEEN DESIGNED TO ACCOMMODATE A 95-67 TRUCK.
 8. THE CONTRACTOR AND OPERATOR SHALL MAINTAIN A MINIMUM OF 300' OF SIGHT DISTANCE. TREES AND BRUSH SHALL BE TRACKED AND REMOVED AS NECESSARY FOR THE DURATION OF THIS SITE.



Final Stockpiles

| Name | CY |
|-------|--------|
| A | 4000.0 |
| Total | 4000.0 |

STREAM / WETLAND IMPACT

| Item | Peak Wetland Impact (Square Feet) |
|----------------------|-----------------------------------|
| WL1 (Well Pad) | 3,222 |
| WL2 (Well Pad) | 3,222 |
| Total Area (Sq. Ft.) | 6,454 |
| Total Area (Acres) | 0.14 |

BIG 177 PAD QUANTITIES

| Description | Cut (CY) | FB (CY) | Spill (CY) | Borrow (CY) | Max. Slope (%) | Length of Slope (FT) |
|---------------------------|----------|---------|------------|-------------|----------------|----------------------|
| Access Road-A | 1.3 | 4040.3 | 0.0 | 4039.0 | 15.0 | 75.0 |
| Well Pad | 1680.0 | 7357.5 | 0.0 | 5677.5 | n/a | n/a |
| Well Pad Containment Berm | 0.0 | 378.0 | 0.0 | 378.0 | n/a | n/a |
| Tank Pad-A | 289.0 | 3125.9 | 0.0 | 2836.9 | n/a | n/a |
| Track Turnaround Pad-A | 0.0 | 917.1 | 0.0 | 917.1 | n/a | n/a |
| Shipped Topsoil (CY) | 3638.0 | 0.0 | 3638.0 | 0.0 | n/a | n/a |
| Material Stockpiles | 0.0 | 4000.0 | 0.0 | 4000.0 | n/a | n/a |
| Total | 5608.3 | 19818.8 | 3638.0 | 17848.5 | n/a | n/a |
| Total Spill (CY) = | | | -14210.5 | | | |



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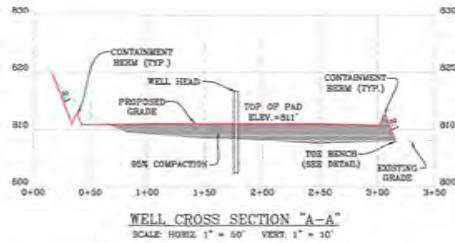
BIG 177

GRANT DISTRICT
WETZEL COUNTY, WV

DATE: 05/09/2013
SCALE: 1" = 50'
DESIGNED BY: CSK
FILE NO: 6808
SHEET 3 OF 6
REV: 11/10/14

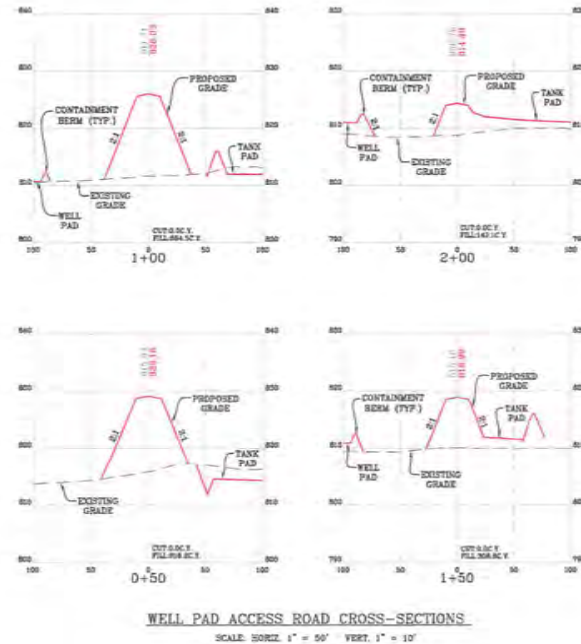
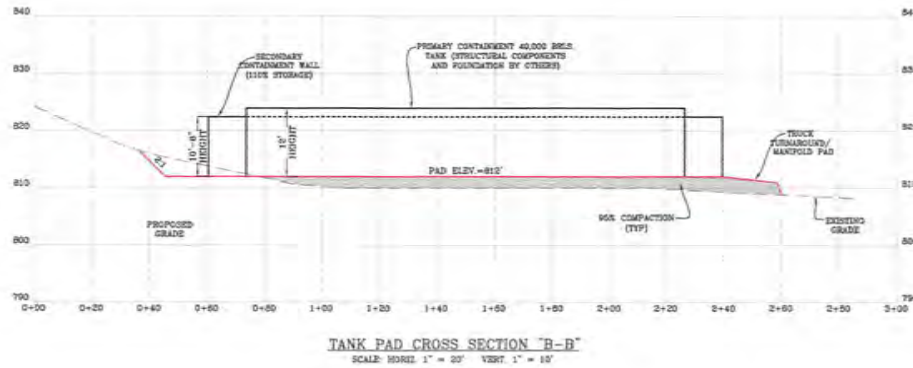
APPROVED
WVDEP OOG
 11/12/2014

WELL PAD SECTION AND ROAD PROFILE AND SECTIONS



- NOTE:**
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| CONTAINMENT BERM: | |
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| PRIMARY CONTAINMENT | 40,000 BBL |
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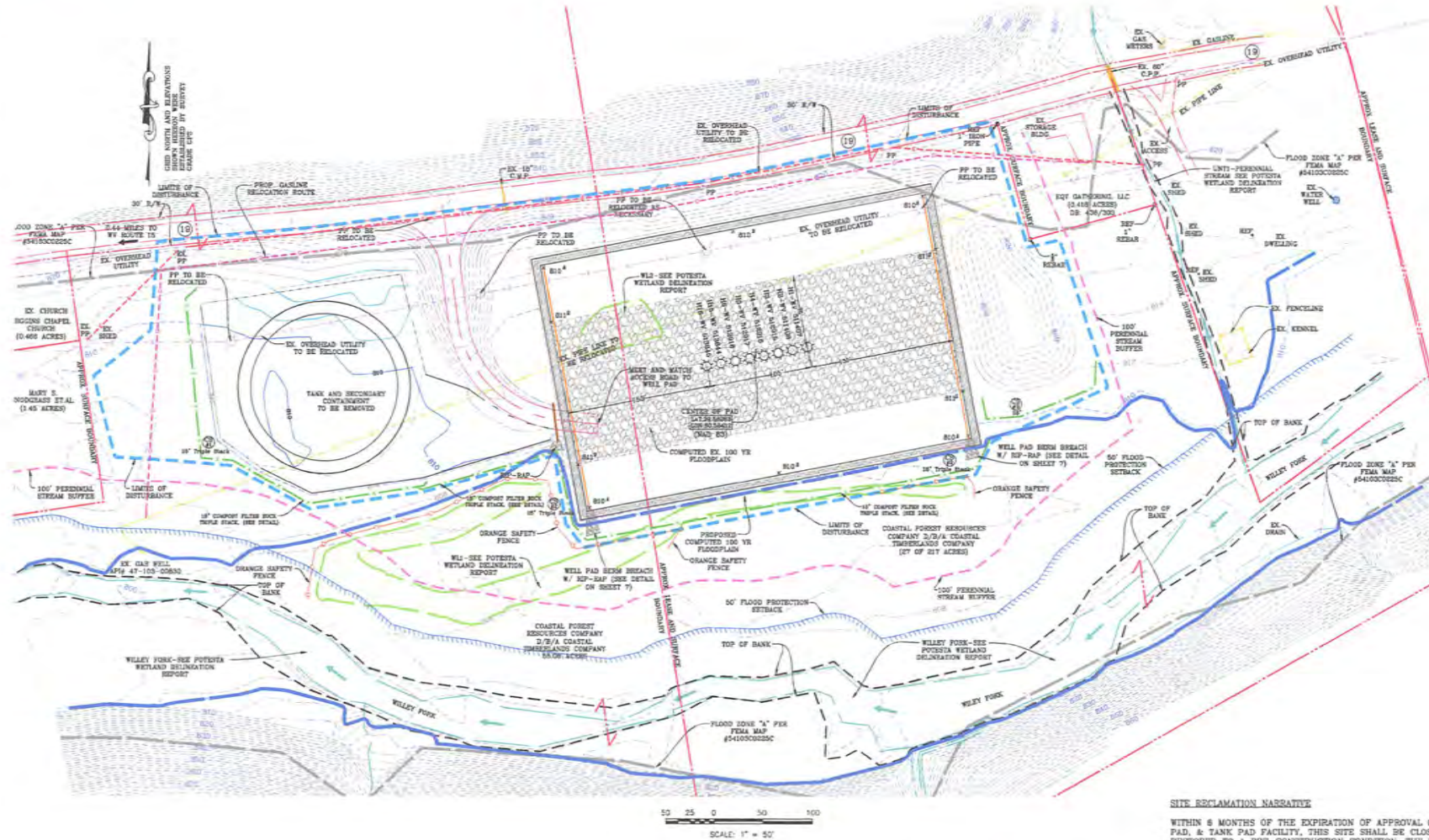
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 LAND SURVEYING, INC.
 FOR: EQT PRODUCTION
 COMPANY

WELL PAD SECTION AND ROAD PROFILE AND SECTIONS
BIG 177
 GRANT DISTRICT
 WETZEL COUNTY, WV

DATE: 05/09/2013
 SCALE: AS SHOWN
 DESIGNED BY: CSK
 FILE NO.: 6826
 SHEET: 4 OF 8
 REV: 11/02/14

APPROVED
WVDEP OOG
11/12/2014

WELL PAD AND TANK PAD RECLAMATION PLAN



NOTE:
1. DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 24" MAXIMUM LIFT THICKNESS (12" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 90% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-699.

SITE RECLAMATION NARRATIVE
WITHIN 6 MONTHS OF THE EXPIRATION OF APPROVAL OF THE WELL PAD & TANK PAD FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL PIPING FOR THE GROUNDWATER DEWATERING SYSTEM, WATER LINES, AND ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EX. BMP'S SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON PLANS TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 8.

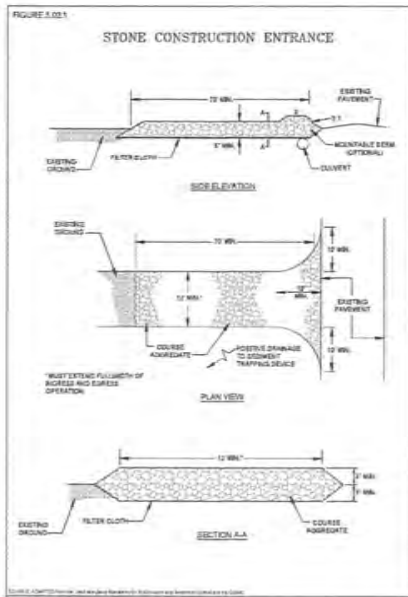


Professional Energy Consultants
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THIS DOCUMENT WAS
REVIEWED BY: SMITH
LAND SURVEYING, INC.
FOR: EQT PRODUCTION
COMPANY

WELL PAD AND TANK PAD RECLAMATION PLAN
BIG 177
GRANT DISTRICT
WETZEL COUNTY, WV

DATE: 05/09/2013
SCALE: 1" = 50'
DESIGNED BY: CSK
FILE NO: 6808
SHEET 5 OF 8
REV: 11/10/14



NOTE:
 ALL STONE LINE PROTECTION SHALL BE INSTALLED AS RECOMMENDED IN THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP) MANUAL. DITCH LINE PROTECTION SHALL BE BASED ON THE FOLLOWING CRITERIA:

1. LESS THAN 3% - GRADED
2. 3-5% - GRADES WITH SCALES EROSION CONTROL PRODUCTS (SECT)
3. GREATER THAN 5% - REPAIR OR EQUIVALENT EROSION CONTROL

IF SUCH EROSION RISKS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHOULD BE CONTACTED FOR FURTHER EVALUATION.

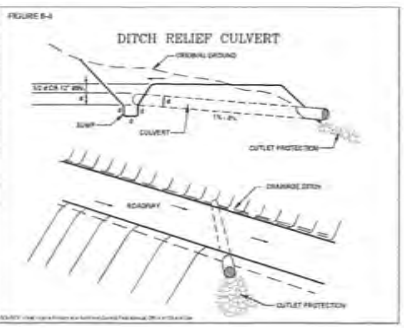
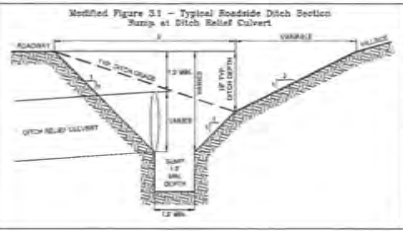


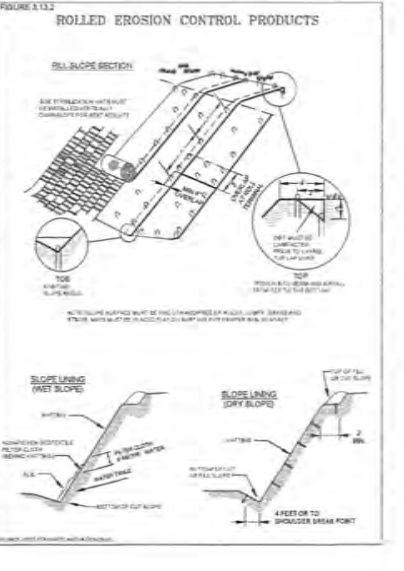
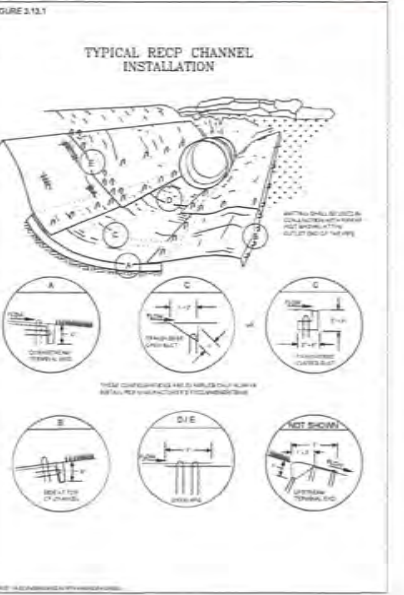
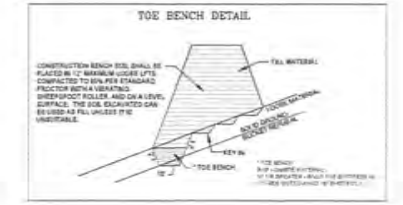
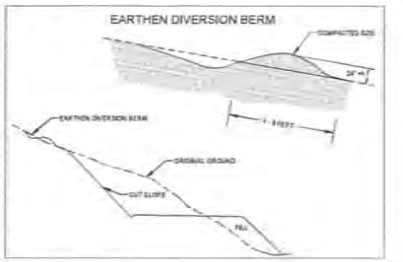
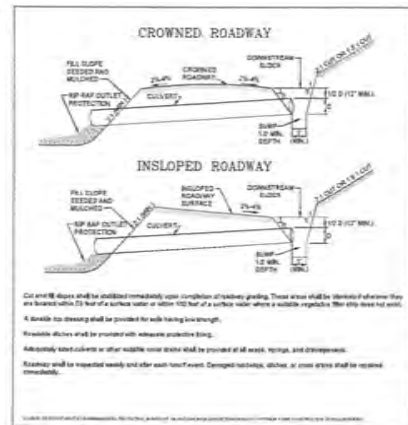
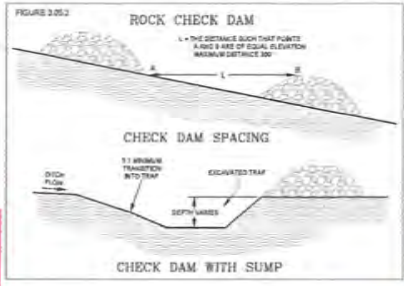
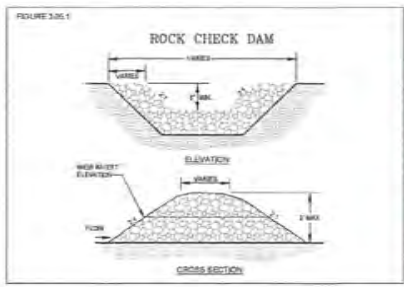
Table 3-5 - Pipe Sizes for Culverts Across Roads

| Drainage Area (Ac) | Pipe Diameter (in) | Pipe Capacity (CFS) |
|--------------------|--------------------|---------------------|
| 10 | 18 | 3 |
| 20 | 24 | 6 |
| 30 | 27 | 10 |
| 40 | 30 | 14 |
| 50 | 36 | 20 |
| 75 | 42 | 30 |
| 100 | 48 | 40 |
| 150 | 54 | 60 |
| 200 | 60 | 80 |
| 300 | 72 | 120 |

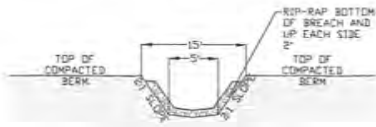
Table 3-6 - Spacing of Culverts

| Road Grade (%) | Distance (ft) |
|----------------|---------------|
| 2% | 500-200 |
| 3-5% | 300-100 |
| 10-15% | 200-100 |
| 16-20% | 100 |

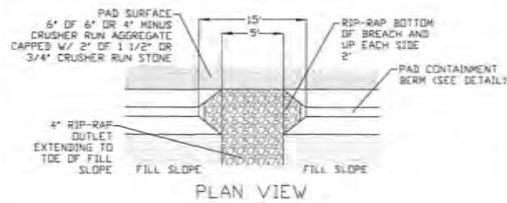
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 11/12/2014



PAD BERM BREACH DETAIL NTS



PROFILE VIEW



PLAN VIEW

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MOUNTABLE BERM TYPICAL NOT TO SCALE

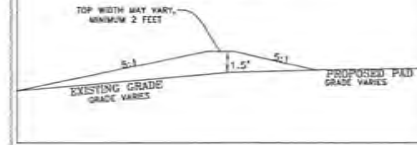


FIGURE 11-10

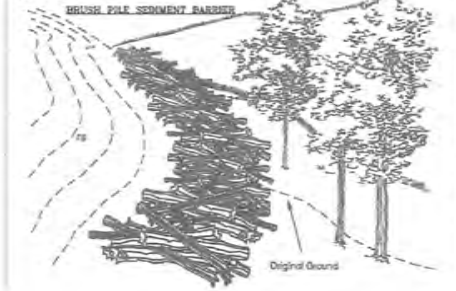
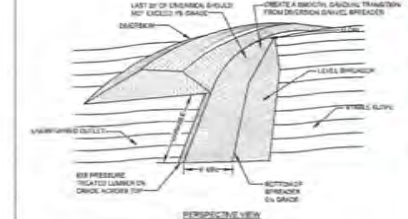
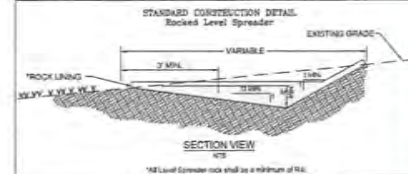


FIGURE 13D-1

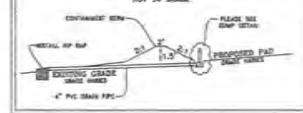
LEVEL SPREADER



NOTE: ALL TEMPORARY BARRIERS SHALL BE BRUSH OR LOGS AND SHALL BE REINFORCED WITH STEEL AND BUILT UP AFTER INSTALLATION.



BERM TYPICAL NOT TO SCALE



SUMP TYPICAL

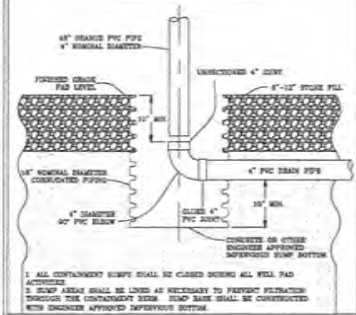
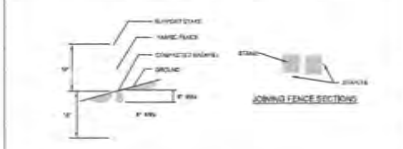
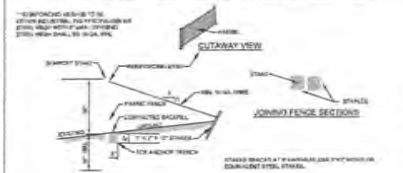


FIGURE 8-11 SILT FENCE SEDIMENT BARRIER



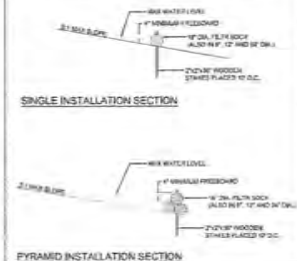
STANDARD FILTER FABRIC SHALL BE PLACED AT EXISTING LEVEL, GRADE, BOTH SIDES OF THE BARRIER. FABRIC SHALL BE TIGHTLY FASTENED TO BOTH SIDES OF THE BARRIER. FABRIC SHALL BE REINFORCED WITH STEEL AND BUILT UP AFTER INSTALLATION.

FIGURE 9-11D REINFORCED SILT FENCE SEDIMENT BARRIER

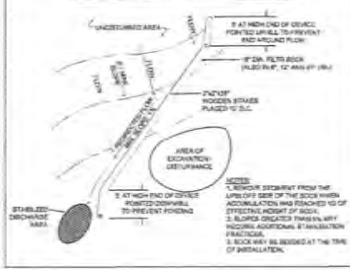


STANDARD FILTER FABRIC SHALL BE PLACED AT EXISTING LEVEL, GRADE, BOTH SIDES OF THE BARRIER. FABRIC SHALL BE TIGHTLY FASTENED TO BOTH SIDES OF THE BARRIER. FABRIC SHALL BE REINFORCED WITH STEEL AND BUILT UP AFTER INSTALLATION.

COMPOST FILTER SOCK SECTIONS



RUNOFF DIVERSION SOCK DETAIL



| Berm Height shall meet standards of Table 4.1. Slopes shall meet the following standards: | |
|-------------------------------------------------------------------------------------------|---------------------|
| Grass Water Erosion | 5:1 (5:1 max slope) |
| Grass Surface | 3:1 (3:1 max slope) |
| Grass Slope | 3:1 (3:1 max slope) |
| Grass Slope | 3:1 (3:1 max slope) |
| Grass Slope | 3:1 (3:1 max slope) |

Contractor shall be permitted to raise filter socks.
Aerialized sediment shall be removed when it reaches 1/2 the above ground height of the sock and deposited in the nearest diversion structure in the area.
Socks shall be inspected weekly and after each event. Damaged socks shall be replaced according to manufacturer's specifications or replaced within 48 hours of damage.
Substandard filter socks shall be replaced when 4 weeks of sedimentation occur after 1 year.
Polypropylene socks shall be replaced according to manufacturer's specifications.
Type stabilization of the area tributary to the sock, where shall be removed. The sock may be left in place and replaced as required in the future.
In the event the ground is frozen, all water with sediment shall be used instead of water to replace the sock. The ground cover shall be replaced when the water reaches 2\"/>

REVEGETATION

Taken from the
West Virginia Erosion and Sediment Control Field Manual
West Virginia Division of Environmental Protection Office of Oil and Gas
Charleston, W. Va.
Section IV

**APPROVED
WVDEP OOG**
11/12/2014

Temporary Seeding

a. General Conditions Where Practice Applies
These exposed soil surfaces are not to be fine-graded or worked for periods longer than 21 days. Temporary vegetative cover with sediment controls must be established where runoff will go directly into a stream. Immediately upon construction of the site (site includes road and location), vegetation must be established on road bank and location slopes. A permanent vegetative cover shall be applied to areas that will be left un-worked for a period of more than six months.

b. Seed Mixtures and Planting Dates
Refer to Tables 2 through 4 for recommended dates to establish vegetative cover and the approved date of temporary and permanent plant species and planting rates. Table 3 gives recommended types of temporary vegetation, rates of application, and optimum seeding dates. In situations where similar cover is desired, contact the local soil conservation district for seeding recommendations.

c. Seed Application
Apply seed by broadcasting, drilling, or by hydroseeded according to the rates indicated in Table IV-3. Perform all planting operations at right angles to the slope. Necessary site preparation and roughening of the soil surface should be done just prior to seeding. Seedbed preparation may not be required on newly disturbed areas.

Permanent Seeding

a. General
Permanent vegetative cover will be established where no further soil disturbance is anticipated or needed. Soil fertility and pH level should be tested and adjusted according to seed species planted. Planting of permanent vegetative covers must be performed on all disturbed areas after completion of the drilling process. Any site that contains significant amounts of topsoil shall have the topsoil removed and stockpiled when feasible. Topsoil should not be added to slopes steeper than 2:1 unless a good seeding to the sub-layer can be achieved. After proper grading and seeded preparation, the vegetation will reestablish ground cover for the control of surface water runoff erosion.

All required seeded preparation and loosening of soil by tilling or close tracking should be performed just prior to seeding. If seeded preparation is not feasible, 50% more seed shall be added to the recommended rates shown in Tables IV-3 and IV-4. When hydroseeding, seeded preparation may not be necessary if adequate site preparation was performed. Incorporate the appropriate amount of lime and/or fertilizer in the slurry mix when hydroseeding.

When hydroseeding, first mix the lime, fertilizer, and hydro-mulch in the recommended amount of water. Mix the seed and inoculants together within one hour prior to planting, and add to the slurry just before seeding. Apply the slurry uniformly over the prepared site. Assure that agitation is continuous throughout the seeding operation and the mix is applied within one hour of initial mixing.

b. Lime and Fertilizer
Lime shall be applied to all permanent seedings. The pH of the soil is to be determined and lime applied accordingly. Once the pH is known, select the amount of lime to be applied from Table IV-5.

Fertilizer shall be applied to all permanent seedings. Apply the equivalent for 500 lbs. minimum 10-20-20 fertilizer per acre or use the amount of fertilizer and lime recommended by a certified soil test.

Application: For best results and maximum benefits, the lime and fertilizer are to be applied at the time of seeded preparation.

c. Permanent Seed Mixtures
Planners should take into consideration the species makeup of the existing pasture and the landowner's future pasture management plans when recommending seed mixtures. Selection: From Tables IV 4a and 5, Permanent Seeding Mixtures Suitable for Establishment in West Virginia.

Notes:
1. All legumes must be planted with the proper inoculants prior to seeding.
2. Larkspur is potentially poisonous to some livestock.
3. Only zoophyte free varieties of Tall Fescue should be used. Tall Fescue and Crowsfoot are also very invasive species, non-native to WV.

4. For unprepared seedbeds or seeding outside the optimum timeframes, add 50% more seed to the specified rate. Mixtures in Table 4a are more wildlife and farm friendly; those listed in bold are suitable for use in shaded woodland settings. Mixtures in Table 4b are suitable for use in filter strips.

5. All legumes must be planted with the proper inoculants prior to seeding.

d. Seeding for Wildlife Habitat
Consider the use of the native plants or locally adapted plants when selecting cover types and species for wildlife habitat. Wildlife friendly species or mixes that have multiple values should be considered. See wildlife friendly species/mixtures in Table IV-4b. Consider selecting one or two maintenance long-lived plants adaptable to sites which may be difficult to maintain with equipment.

Mulching

a. General Organic Mulches
The application of straw, hay or other suitable materials to the soil surface to prevent erosion. Straw made from wheat or oats is the preferred mulch, the use of hay is permissible, but not encouraged due to the risk of spreading invasive species. Mulch must be applied to all temporary and permanent seeding on all disturbed areas. Depending on site conditions, in critical areas such as waterways or steep slopes, additional or substitute soil protective measures may be used if deemed necessary. Examples include jute mesh and soil stabilization blankets or erosion control matting.

Areas that have been temporarily or permanently seeded should be mulched immediately following seeding. Mulches conserve desirable soil properties, reduce soil moisture loss, prevent crusting and sealing of the soil surface and provide a suitable microclimate for seed germination. Areas that cannot be seeded because of the season should be mulched to provide some protection to the soil surface. An organic mulch, straw or hay should be used and the area then seeded as soon as weather or seasonal conditions permit. Do not use fiber mulch (cellulose-hydroseed) alone for this practice; at normal application rates it will not give the soil protection of other types of mulch. Wood cellulose fiber mulch is used in hydroseeding operations and applied as part of the slurry. It creates the best seed-soil contact when applied over the top of (at a separate operation) newly seeded areas. Fiber mulch does not alone provide sufficient protection on highly erodible soils, or during less than favorable growing conditions. Fiber mulch should not be used alone during the dry summer months or when used for late fall mulch cover. Use straw mulch during these periods and fiber mulch may be used to tack (anchor) the straw mulch. Fiber mulch is well suited for steep slopes, critical areas and areas susceptible to wind.

b. Chemical Mulches, Soil Binders and Tackifiers
A wide range of synthetic spray on materials are marketed to stabilize and protect the soil surface. These are mixed with water and sprayed over the mulch and to the soil. They may be used alone in some cases as temporary stabilizers, or in conjunction with fiber mulch, straw or hay. When used alone most chemical mulches do not have the capability to insulate the soil or retain soil moisture that organic mulches have.

c. Specifications
From Table IV-6 select the type of mulch and rate of application that will best suit the conditions at the site.

d. Anchoring
Depending on the field situation, mulch may not stay in place because of wind action or rapid water runoff. In such cases, mulch is to be anchored mechanically or with mulch netting.
1. Mechanical Anchoring: Apply mulch and pull mulch anchoring tool over the mulch. When a disk is used set the disk straight and pull across slope. Mulch material should be tacked into the soil about three inches.
2. Mulch netting: Follow manufacturer's recommendation when positioning and stapling the mulch netting in the soil.

Table IV-1
Recommended Seeding Dates

| Planting Dates | Best Seeding Periods | Suitability |
|---------------------------------------------|----------------------------------------------|------------------|
| March 1 - April 15 and August 1 - October 1 | HIGH RISK - moisture stress likely | Well - Mod. Well |
| April 15 - August 1 | HIGH RISK - freeze damage to young seedlings | Well - Mod. Well |
| October 1 - December 1 | Good seeding period. Dormant seeding | Well - Mod. Well |
| December 1 - March 1 | Good seeding period. Dormant seeding | Well - Mod. Well |

Table 2
Acceptable Fertilization Recommendation

| Species | N (lb/acre) | P205 (lb/acre) | Example Rate (per acre) |
|-------------------|-------------|----------------|-------------------------|
| Cool Season Grass | 40 | 80 | 400 lbs. 10-20-20 |
| CI Grass & Legume | 30 | 60 | 300 lbs. 10-20-20 |
| Temporary Cover | 40 | 40 | 200 lbs. 10-10-10 |

Table 3
Temporary Cover

| Species | Seeding Rate (lb/acre) | Optimum Seeding Dates | Drainage | pH Range |
|------------------|------------------------|---------------------------|------------------|-----------|
| Annual Ryegrass | 40 | 3/1 - 6/15 or 8/15 - 9/15 | Well - Poorly | 5.5 - 7.5 |
| Field Bromegrass | 40 | 3/1 - 8/15 or 8/15 - 9/15 | Well - Mod. Well | 6.0 - 7.0 |
| Spring Data | 56 | 3/1 - 6/15 | Well - Poorly | 5.5 - 7.0 |
| Summer Data | 40 | 5/15 - 8/15 | Well - Poorly | 5.5 - 7.5 |
| Winter Wheat | 180 | 8/15 - 10/15 | Well - Poorly | 5.5 - 7.5 |
| Winter Wheat | 180 | 8/15 - 11/15 | Well - Mod. Well | 5.5 - 7.0 |
| Japanese Millet | 30 | 6/15 - 9/15 | Well | 4.5 - 7.0 |
| Redtop | 5 | 3/1 - 6/15 | Well | 4.0 - 7.5 |
| Annual Ryegrass | 25 | 3/1 - 6/15 | Well - Poorly | 5.5 - 7.5 |
| Spring Data | 64 | 3/1 - 6/15 | Well - Poorly | 5.5 - 7.5 |

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

Table 4a
Permanent Seeding Mixture

| Species/Mixture | Seeding Rate (lb/acre) | Soil Disturbance preference | pH Range |
|---------------------------------------------------|------------------------|-----------------------------|-----------|
| Crowsfoot / Tall Fescue | 10 - 15 | Well - Mod. Well | 5.0 - 7.5 |
| Crowsfoot / Perennial Ryegrass | 10 - 15 | Well - Mod. Well | 5.0 - 7.5 |
| Perennial Ryegrass / Tall Fescue | 20 | Well - Mod. Well | 4.0 - 8.0 |
| Ladino Clover / Larkspur / Lonicera / Tall Fescue | 30 | Well - Mod. Well | 5.0 - 7.5 |
| Ladino Clover / Redtop | 7 | Well - Mod. Well | 5.0 - 7.5 |
| Crowsfoot / Tall Fescue | 10 | Well - Mod. Well | 5.0 - 7.5 |
| Redtop / Tall Fescue | 25 | Well - Mod. Well | 5.0 - 7.5 |
| Redtop / Redtop | 3 | Well - Mod. Well | 5.0 - 7.5 |
| Tall Fescue / Tall Fescue | 40 | Well - Mod. Well | 5.0 - 7.5 |
| Birdfoot Trefoil / Tall Fescue | 10 | Well - Mod. Well | 5.0 - 7.5 |
| Severcia Leguminosa / Tall Fescue | 25 | Well - Mod. Well | 4.5 - 7.5 |
| Redtop / Redtop | 3 | Well - Mod. Well | 5.0 - 7.5 |
| Tall Fescue / Tall Fescue | 3 | Well - Mod. Well | 5.0 - 7.5 |
| Crowsfoot / Crowsfoot | 50 | Well - Poorly | 4.5 - 7.5 |
| Tall Fescue / Tall Fescue | 30 | Well - Poorly | 4.5 - 7.5 |
| Perennial Ryegrass / Tall Fescue | 10 | Well - Poorly | 5.0 - 8.0 |
| Larkspur / Larkspur | 18 | Well - Poorly | 5.0 - 8.0 |

* Larkspur / Redtop is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding outside the optimum timeframe, add 50% more seed to the specified rate. Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips.

Table 4b
Wildlife and Farm Friendly Seed Mixtures

| Species/Mixture | Seeding Rate (lb/acre) | Soil Disturbance preference | pH Range |
|---------------------------------------------------|------------------------|-----------------------------|-----------|
| KY Bluegrass / Redtop | 20 | Well - Mod. Well | 5.5 - 7.5 |
| Ladino Clover or Birdfoot Trefoil | 2 / 8 | Well - Mod. Well | 5.5 - 8.0 |
| Timothy / Alfalfa | 12 | Well - Mod. Well | 5.5 - 8.0 |
| Timothy / Birdfoot Trefoil | 8 | Well - Poorly | 5.5 - 7.5 |
| Orchardgrass / Ladino Clover | 2 | Well - Mod. Well | 5.5 - 7.5 |
| Redtop / Orchardgrass | 1 | Well - Mod. Well | 5.5 - 7.5 |
| Ladino Clover / Orchardgrass | 20 | Well - Mod. Well | 5.5 - 7.5 |
| Perennial Ryegrass / Creeping Red Fescue | 10 | Well - Mod. Well | 5.5 - 7.5 |
| Perennial Ryegrass / Orchardgrass or KY Bluegrass | 20 | Well - Mod. Well | 6.0 - 7.5 |
| Birdfoot Trefoil / Redtop | 5 | Well - Mod. Well | 5.5 - 7.5 |
| Orchardgrass / Perennial Ryegrass | 20 | Well - Mod. Well | 5.5 - 7.5 |
| Larkspur / Larkspur | 30 | Well - Mod. Well | 5.5 - 7.5 |
| Orchardgrass / Orchardgrass | 20 | Well - Mod. Well | 5.5 - 7.5 |

* Larkspur / Redtop is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding outside the optimum timeframe, add 50% more seed to the specified rate. Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips.

Table IV-5
Lime and Fertilizer Application Table

| pH of Soil | Lime in Tons per Acre | Fertilizer (lb. per Acre 10-20-20 or Equivalent) |
|------------|-----------------------|--------------------------------------------------|
| Above 6.0 | 0 | 500 |
| 5.0 to 6.0 | 3 | 500 |
| Below 5.0 | 4 | 500 |

The pH can be determined with a portable pH testing kit or by sending the soil samples to a soil testing laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by disking, backblading or tracking up and down the slope.

Table IV-6
Mulch Materials Rates and Uses

| Material | Minimum Rates per acre | Coverage | Remarks |
|------------------|------------------------|-----------------------------|-----------------------------------------------------|
| Hay or Straw | 2 to 3 Tons | Cover 75% to 90% of Surface | Subject to wind blowing or washing unless tied down |
| Wood Fiber | 100 to 150 bales | Cover all | For hydroseeding |
| Pulp Fiber | 1000 to 1500 lbs. | Disturbed Areas | |
| Wood - Cellulose | | | |
| Recycled Paper | | | |

Tables IV 1-4 taken from Natural Resources Conservation Service Manual 'Critical Area Planning'



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LAND ENGINEERS, INC.
FOR BEST PRACTICES
COMPLIANCE

CONSTRUCTION DETAILS
BIG 17
GRANT DISTRICT
WETZEL COUNTY, WV

DATE: 05/09/2013
SCALE: N/A
DESIGNED BY: CSK
FILE NO: 6809
SHEET # OF #
REV: 11/09/14