



**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

August 18, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-10303111, 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: 515949  
Farm Name: DALLISON, RICHARD  
**API Well Number: 47- 10303111**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 08/18/2015

**Promoting a healthy environment.**

**08/21/2015**

# PERMIT CONDITIONS 47 10303111

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

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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. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
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.

4710303111

API NO. 47 - 103 - 03111  
OPERATOR WELL NO. 515949  
Well Pad Name: BIG192

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	4	254
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Operator ID      County      District      Quadrangle

2) Operator's Well Number: 515949      Well Pad Name BIG192

3) Farm Name/Surface Owner : Richard Dallison et al      Public Road Access: RT 20

4) Elevation, current ground: 1,452.0      Elevation, proposed post-construction: 1,452.0

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

(b) If Gas:      Shallow       Deep   
Horizontal

6) Existing Pad? Yes or No: yes

*DMH  
8-3-15*

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Target formation is Marcellus at a depth of 7655 with the anticipated thickness to be 53 feet and anticipated target pressure of 2620 PSI  
Marcellus top at 7631.

8) Proposed Total Vertical Depth: 7655

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 13732

11) Proposed Horizontal Leg Length 4,483

12) Approximate Fresh Water Strata Depths: 549, 581, 780

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

14) Approximate Saltwater Depths: 2257, 2370

15) Approximate Coal Seam Depths: 743, 804, 919, 1009, 1240

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

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

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

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WW - 6B  
(4/15)

4710303111

API NO. 47 - 103 - 03111  
 OPERATOR WELL NO. 515949  
 Well Pad Name: BIG192

**CASING AND TUBING PROGRAM**

18)

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.)
Conductor	30	New	MC-50	77	40	40	49 C.T.S.
Fresh Water	17 1/2	New	J-55	54.5	974	974	847 C.T.S.
Coal	-	-	-	-	-	-	-
Intermediate	12 3/8	New	A-500	40	2,765	2,765	1,079 C.T.S.
Production	5 1/2	New	P-110	20	13,732	13,732	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100' less than TD
Liners							

DMH 8-7-15

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	30	26	0.312	-	18	Construction	1.18
Fresh Water	17 1/2	13 3/8	0.38	2,730	2184	* See Note 2	1.21
Coal							
Intermediate	12 3/8	9 5/8	0.395	3,950	3160	* See Note 2	1.21
Production	8 1/2	5 1/2	0.361	12,640	10112	-	1.27/1.86
Tubing							
Liners							

**Packers**

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

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

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

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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 Marcellus formation. The vertical drill to go down to an approximate depth of 3440'.

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

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

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

21) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 0.15

22) Area to be disturbed for well pad only, less access road (acres): No Additional

23) Describe centralizer placement for each casing string.

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

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

Used to speed the setting of cement slurries.

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

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

Production:

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

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

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

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

60 % Calcuim Carbonate. Acid solubility.

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

DMA  
8-7-15

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

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

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

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

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

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

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

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

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

the shakers every 15 minutes.

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AUG 10 2015

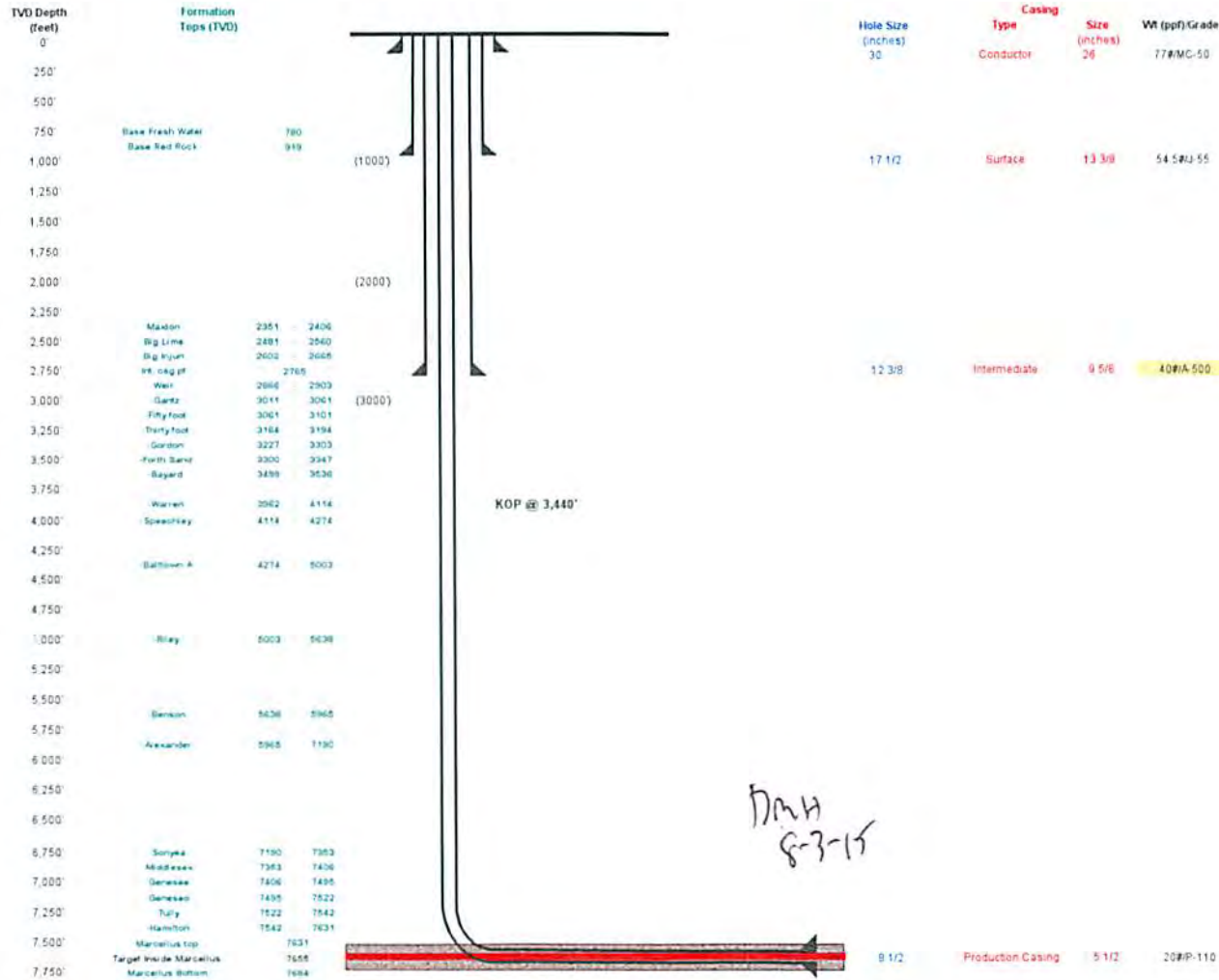
\*Note: Attach additional sheets as needed.

Well 515949 (BIG192H19)  
 EQT Production  
 Big Run  
 Wetzel West Virginia

Azimuth 136  
 Vertical Section T009

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DMH  
 8-3-15

Land curve @ 7,655' TVD  
 9,249' MD  
 Est TD @ 7,655' TVD  
 13,732' MD  
 4,483' Lateral

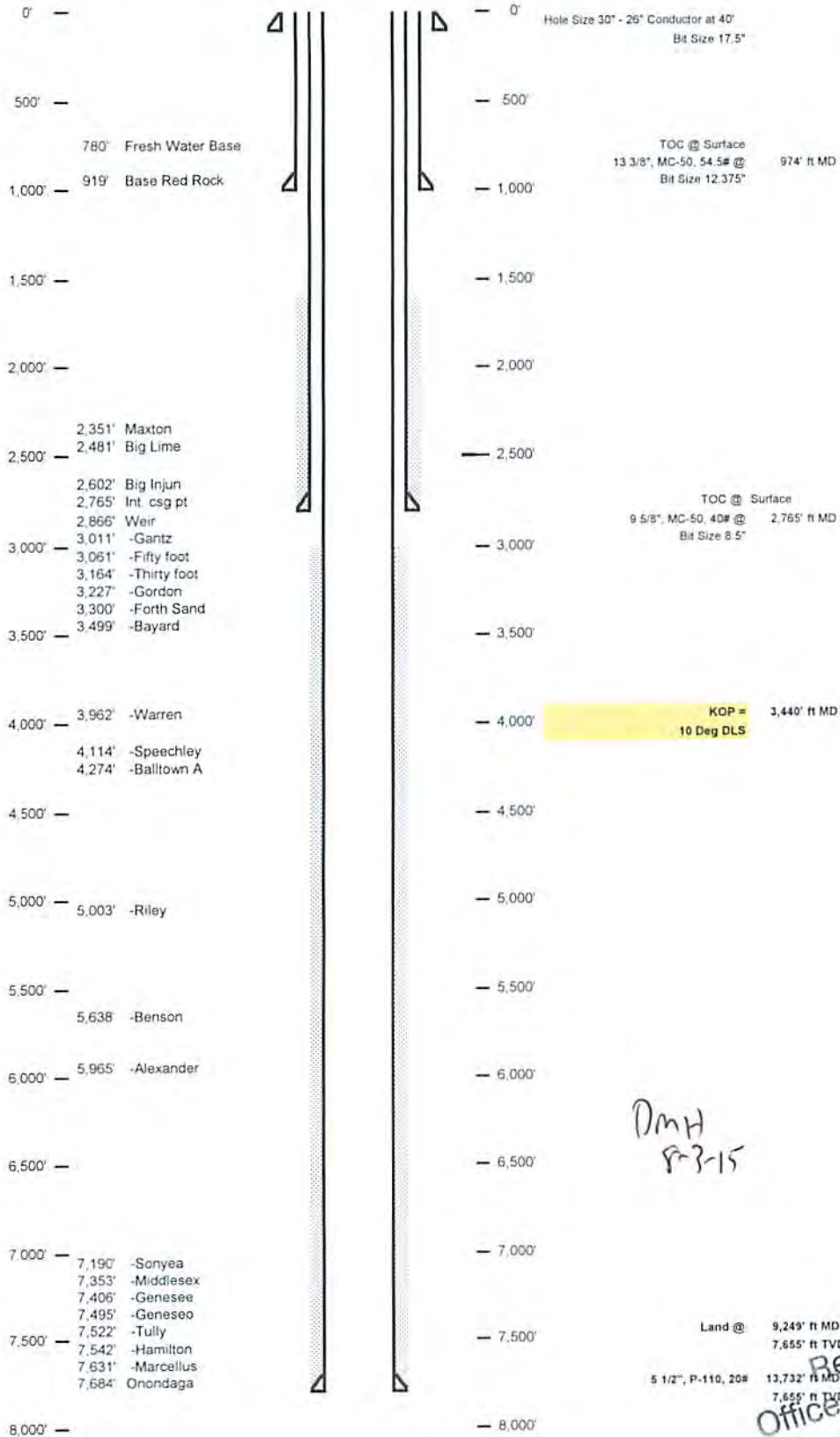
Proposed Well Work  
 Drill and complete a new horizontal well in the Marcellus formation  
 The vertical drill to go down to an approximate depth of 3440'  
 Then kick off the horizontal leg into the Marcellus using a slick water frac

# 4710303111

## Well Schematic EQT Production

Well Name 515949 (BIG192H19)  
County Wetzel  
State West Virginia

Elevation KB:	1465
Target	Marcellus
Prospect	
Azimuth	136
Vertical Section	7009



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

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

March 18, 2014

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

47 10 303 111

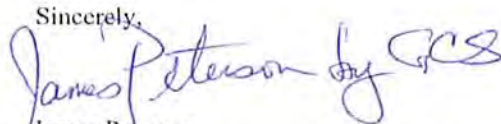
Re: Cement Variance Request

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

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WV Department of  
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08/21/2015





west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 926-0450  
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Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
dep.wv.gov

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

4710303111

IN THE MATTER OF A VARIANCE FROM )  
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 )

ORDER NO. 2014 - 17

**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.

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08/21/2015

**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.

4710303111

**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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WV Department of Environmental Protection  
08/21/2015

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

Operator Name EQT Production Company OP Code 306686

Watershed (HUC10) Aunty Run of South Fork Fishing Creek Quadrangle Big Run 7.5

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: flowback water & residual solids

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Undergound 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? Yes, The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

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

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

- If oil based, what type? Synthetic, petroleum, etc Synthetic mud

Additives to be used in drilling medium? Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud - Barite, viscosifer, 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, viscosifer, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant, defoaming, carbonates.

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

- If left in pit and plan to solidify what medium will be used? (Cement, Lime, sawdust) n/a

- Landfill or offsite name/permit number? See Attached List

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

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

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

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

Subscribed and sworn before me this 7 day of Aug

My commission expires 8-24-20



4710303111

Form WW-9

Operator's Well No. 515949

Proposed Revegetation Treatment: Acres Disturbed 0.15 Prevegetation pH 6.5

Lime 3 Tons/acre or to correct to pH 6.5

Fertilize type Granular 10-20-20

Fertilizer Amount 1/3 lbs/acre (500 lbs minimum)

Mulch 2 Tons/acre

Seed Mixtures

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

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: Oil + Gas Inspector Date: 4-27-15

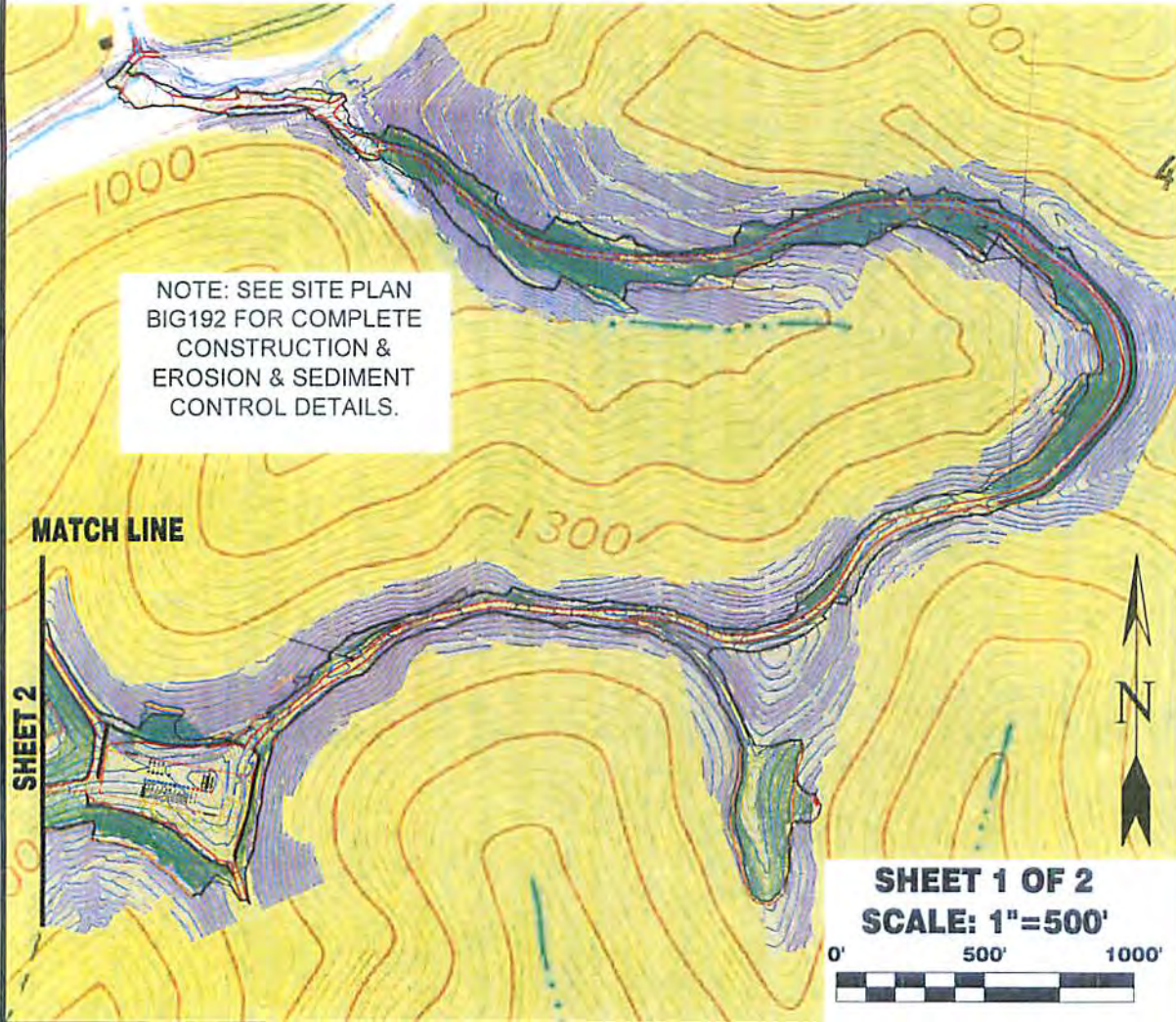
Field Reviewed? (  ) Yes (  ) No

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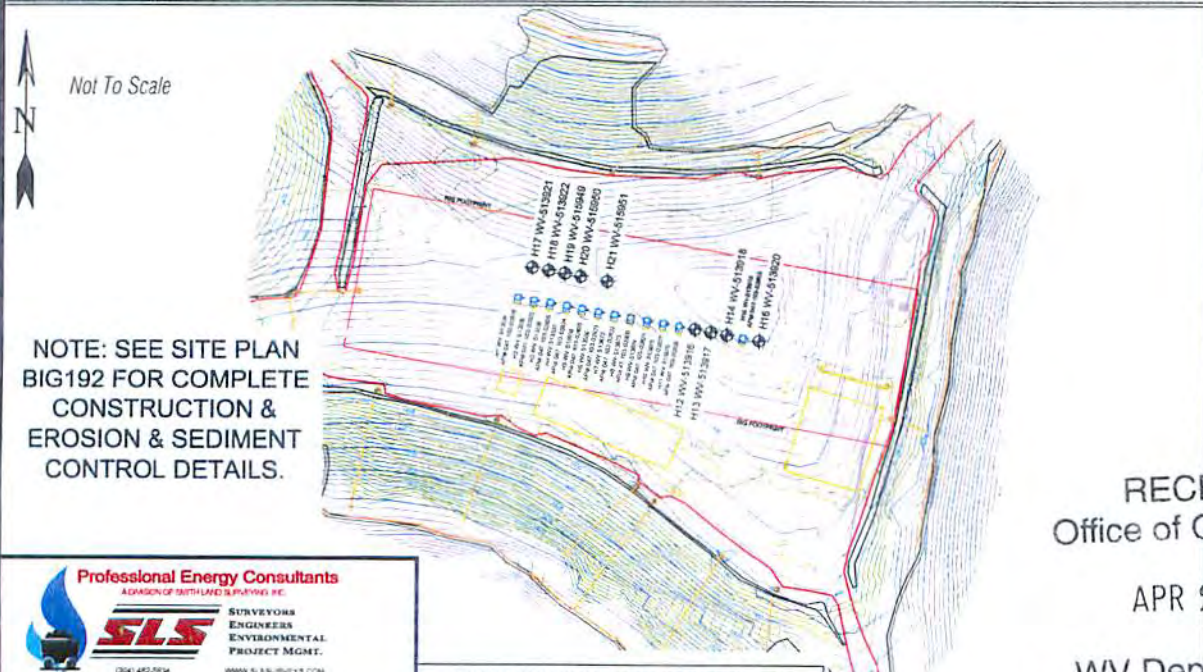
WV Department of  
Environmental 08/26/2015

**BIG192 WELL NO.S WV 513916, WV 513917, WV 513918, WV 513920, WV 513921, WV 513922, WV 515949, WV 515950 & WV 515951**



4710303111

Detail Sketch for Proposed BIG192 Well No.s WV 513916, WV 513917, WV 513918, WV 513920, WV 513921, WV 513922, WV 515949, WV 515950 & WV 515951



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08/21/2015

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A DIVISION OF SURVEYORS ENGINEERS ARCHITECTS INC.

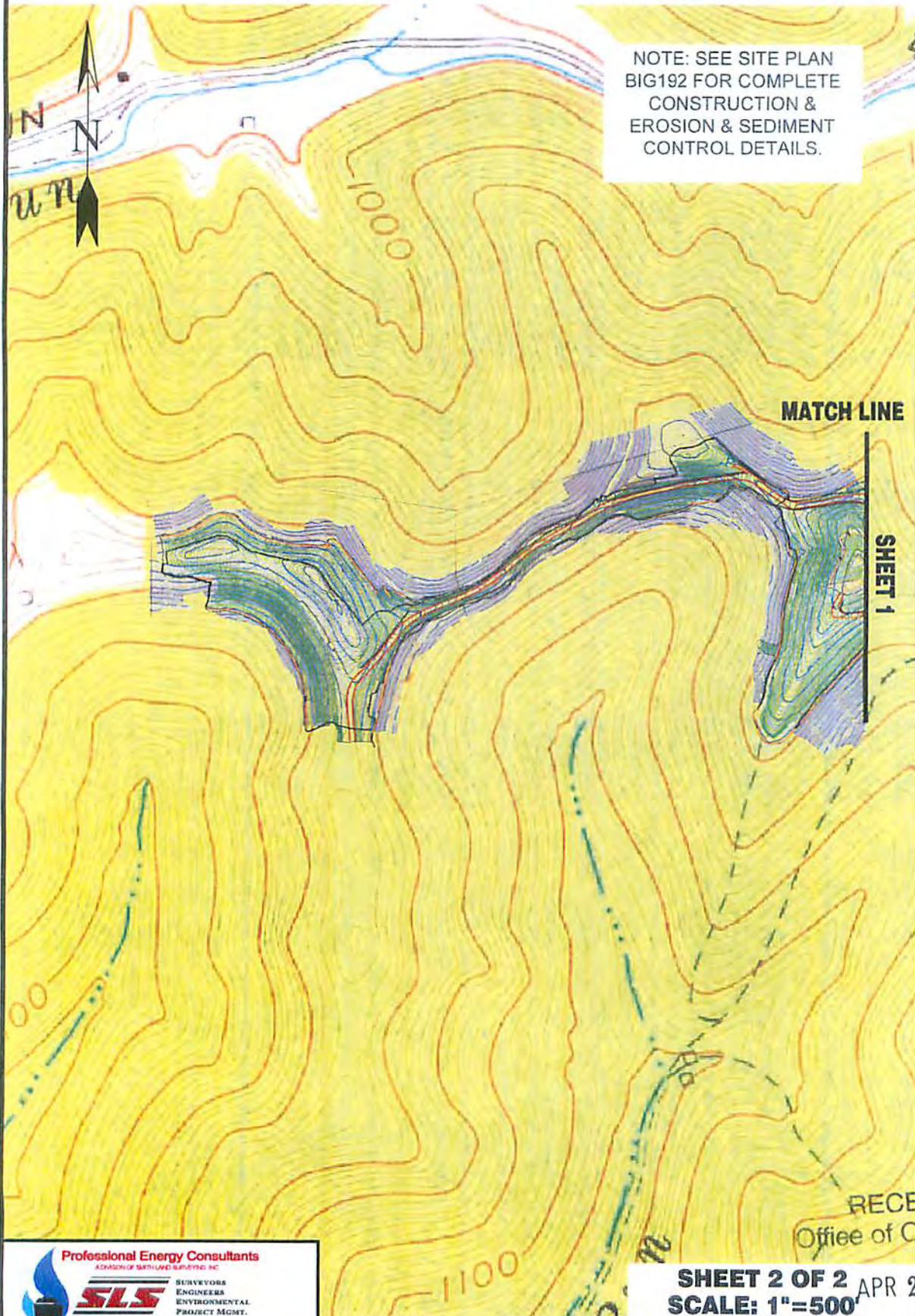
**SLS**  
SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.

(304) 482-9534  
WWW.SLSURVEYS.COM

DRAWN BY: K.D.W. FILE NO.: 7797 DATE: 02-24-15 CADD FILE: 7797RECDBIG192.dwg

TOPO SECTIONS OF BIG RUN 7.5' TOPO QUADRANGLE

**BIG192 WELL NO.S WV 513916, WV 513917, WV 513918, WV 513920, WV 513921, WV 513922, WV 515949, WV 515950 & WV 515951**



NOTE: SEE SITE PLAN BIG192 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

710303111

**MATCH LINE**

**SHEET 1**

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**SHEET 2 OF 2**  
**SCALE: 1"=500'**

APR 24 2015



TOPO SECTIONS OF BIG RUN 7.5'  
TOPO QUADRANGLE

WV Department of  
Environmental Protection

08/21/2015

**Professional Energy Consultants**  
A DIVISION OF SUTHLAND SURVEYING, INC.

**SLS**  
SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.

(304) 482-9554  
WWW.SLSURVEYS.COM

DRAWN BY K.D.W.	FILE NO. 7797	DATE 02-24-15	CADD FILE: 7797REC09192R.dwg
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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

**LAD LIQUID ASSETS DISPOSAL INC.**

226 Rankin Road  
Washington, PA 15301  
724-350-2760  
724-222-6080  
724-229-7034 fax  
Ohio County/Wheeling  
Permit # USEPA WV 0014

**TRI COUNTY WASTE WATER MANAGEMENT, INC.**

1487 Toms Run Road  
Holbrook, PA 15341  
724-627-7178 Plant  
724-499-5647 Office  
Greene County/Waynesburg  
Permit # TC-1009

**Waste Management - Meadowfill Landfill**

Rt. 2, Box 68 Dawson Drive  
Bridgeport, WV 26330  
304-326-6027  
Permit #SWF-1032-98  
Approval #100785WV

**Waste Management - Northwestern Landfill**

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

47 1030  
**BROAD STREET ENERGY LLC**  
37 West Broad Street  
Suite 1100  
Columbus, Ohio 43215  
740-516-5381  
Washington County/Belpre Twp.  
Permit # 8462

**TRIAD ENERGY**

P.O. Box 430  
Reno, OH 45773  
740-516-6021 Well  
740-374-2940 Reno Office Jennifer  
Nobel County/Jackson Township  
Permit # 4037

**KING EXCAVATING CO.**

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



SMITH LAND SURVEYING, INC.

P.O. BOX 150, GLENVILLE, WV 26351

(304) 462-6634 - FAX 462-6660

# WELL INFORMATION AND POTENTIAL WATER WELL SAMPLE DATA SHEET

OPERATOR: EQT Production Company

LEASE NAME AND NUMBER: BIG-192 Well Pad

## 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 7250' Owner/Occupant: Susan Goodrich  
 Address: P.O. Box 43, Jacksonburg, WV 26377 Ph: (304)-889-2748  
 Field Contact Date: 09/08/2014 Located: Yes Date Located: 09/08/2014 Source: Water Well  
 If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st N/A 2nd N/A Certified (3rd) N/A  
 Comments: Nothing: 39.533458  
Easting: 80.605796

Site: 2 Spacing 6975' Owner/Occupant: Harry Goodrich  
 Address: P.O. Box 144, Jacksonburg, WV 26377 Ph: (304)-889-2709  
 Field Contact Date: 09/08/2014 Located: Yes Date Located: 09/08/2014 Source: Water Well  
 If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st N/A 2nd N/A Certified (3rd) N/A  
 Comments: Nothing: 39.533377  
Easting: 80.607097

Site: 3 Spacing 7315' Owner/Occupant: Susan Goodrich  
 Address: P.O. Box 43, Jacksonburg, WV 26377 Ph: (304)-889-2748  
 Field Contact Date: 09/08/2014 Located: Yes Date Located: 09/08/2014 Source: Creek  
 If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st N/A 2nd N/A Certified (3rd) N/A  
 Comments: Nothing: 39.533745  
Easting: 80.606700

Site: 4 Spacing \_\_\_\_\_ Owner/Occupant: Coastal Timberland CO.  
 Address: P.O. Box 709 Buckhannon, WV 26201 Ph: \_\_\_\_\_  
 Field Contact Date: N/A Located: No Date Located: N/A Source: Unknown  
 If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st 09/08/2014 2nd N/A Certified (3rd) 08/15/2014  
 Comments: Tax Map 23, Parcel 13 and Tax Map 17, Parcel 14  
No response to certified letter as of 09/18/2014



47103031

Site: 5 Spacing \_\_\_\_\_ Owner/Occupant Richard, Joyce, Thomas & Trenton Dulsburg  
Address: RT. 1 box 41 Folsom, WV 26348 Ph: \_\_\_\_\_  
Field Contact Date: N/A Located: No Date Located: N/A Source: Unknown  
If No, declined by who Richard Dulsburg Letter/Notice Date: 1st 09/08/2014 2nd N/A Certified (3rd) 08/15/2014  
Comments: Tax Map 23, Parcel 14  
Letter of refusal signed 08/16/2014

Site: 6 Spacing \_\_\_\_\_ Owner/Occupant Thomas E. Wyatt  
Address: P.O. Box 14, Jacksonburg, WV 26377 Ph: \_\_\_\_\_  
Field Contact Date: N/A Located: No Date Located: N/A Source: Unknown  
If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st 09/08/2014 2nd N/A Certified (3rd) 08/15/2014  
Comments: Tax Map 23, Parcel 5  
No response to certified letter as of 09/18/2014

Site: 7 Spacing \_\_\_\_\_ Owner/Occupant Arthur J. Fuch  
Address: 7625 orchard view DR, SE East Canton, Ohio 44730 Ph: \_\_\_\_\_  
Field Contact Date: N/A Located: No Date Located: N/A Source: Unknown  
If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st 09/08/2014 2nd N/A Certified (3rd) 08/15/2014  
Comments: Tax Map 23, Parcel 16  
No response to certified letter as of 09/18/2014

Site: 8 Spacing \_\_\_\_\_ Owner/Occupant: \_\_\_\_\_  
Address: \_\_\_\_\_ Ph: \_\_\_\_\_  
Field Contact Date \_\_\_\_\_ Located: \_\_\_\_\_ Date Located: \_\_\_\_\_ Source: \_\_\_\_\_  
If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st \_\_\_\_\_ 2nd \_\_\_\_\_ Certified (3rd) \_\_\_\_\_  
Comments: \_\_\_\_\_

Site: 9 Spacing \_\_\_\_\_ Owner/Occupant: \_\_\_\_\_  
Address: \_\_\_\_\_ Ph: \_\_\_\_\_  
Field Contact Date: \_\_\_\_\_ Located: \_\_\_\_\_ Date Located: \_\_\_\_\_ Source: \_\_\_\_\_  
If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st \_\_\_\_\_ 2nd \_\_\_\_\_ Certified (3rd) \_\_\_\_\_  
Comments: \_\_\_\_\_

Site: 10 Spacing \_\_\_\_\_ Owner/Occupant: \_\_\_\_\_  
Address: \_\_\_\_\_ Ph: \_\_\_\_\_  
Field Contact Date: \_\_\_\_\_ Located: \_\_\_\_\_ Date Located: \_\_\_\_\_ Source: \_\_\_\_\_  
If No, declined by who \_\_\_\_\_ Letter/Notice Date: 1st \_\_\_\_\_ 2nd \_\_\_\_\_ Certified (3rd) \_\_\_\_\_  
Comments: \_\_\_\_\_

RECEIVED AUG 25 2014



SMITH LAND SURVEYING, INC.

P.O. BOX 150, GLENVILLE, WV 26351

4710303111 (304) 462-5634 • FAX 462-5656

To Whom It May Concern:

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

EQT

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. The operator is testing within 2500 feet of the 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.

Date: 8/15/14

PO Box 150

Glenville, WV 26351

Left/sent by: Daniel McKee

(304) 462-5634 (voice)

(304) 462-5656 (fax)

Well Number: BIG-192

E-Mail [DMcKee@slssurveys.com](mailto:DMcKee@slssurveys.com)

Site Number: N/A

**Wetzel County, WV Grant District**

\*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. Please include your name in print as well as an address and phone number.

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: [Handwritten Signature]  
[Handwritten Signature]

Date: 8-16-14  
8-16-14

08/21/2015



4710303111

Where energy meets innovation.™

# Site Specific Safety Plan

EQT BIG 192 Pad

Jacksonburg


Wetzel County, WV


For Wells:

515949 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date Prepared:

August 21, 2014

  
\_\_\_\_\_  
EQT Production  
Permitting Supervisor  
Title  
4-14-15  
Date

  
\_\_\_\_\_  
WV Oil and Gas Inspector  
Oil & Gas Inspector  
Title  
4-27-15  
Date

RECEIVED  
Office of Oil and Gas

MAY 04 2015

WV Department of  
Environmental Protection **08/21/2015**

LEGEND

LEASE LINE	---
SURFACE LINE	----
WELL LATERAL	-----
OFFSET LINE	-----
TIE LINE	-----
CREEK	~~~~~
ROAD	=====
COUNTY ROUTE	=====
PROPOSED WELL	⊙
PLUGGED WELL	⊙
EXISTING WELL	⊙
TAX MAP-PARCEL	00-00

EQT PRODUCTION COMPANY  
ROBINSON LEASE

1,100 ACRES±  
WELL NO. WV 515949

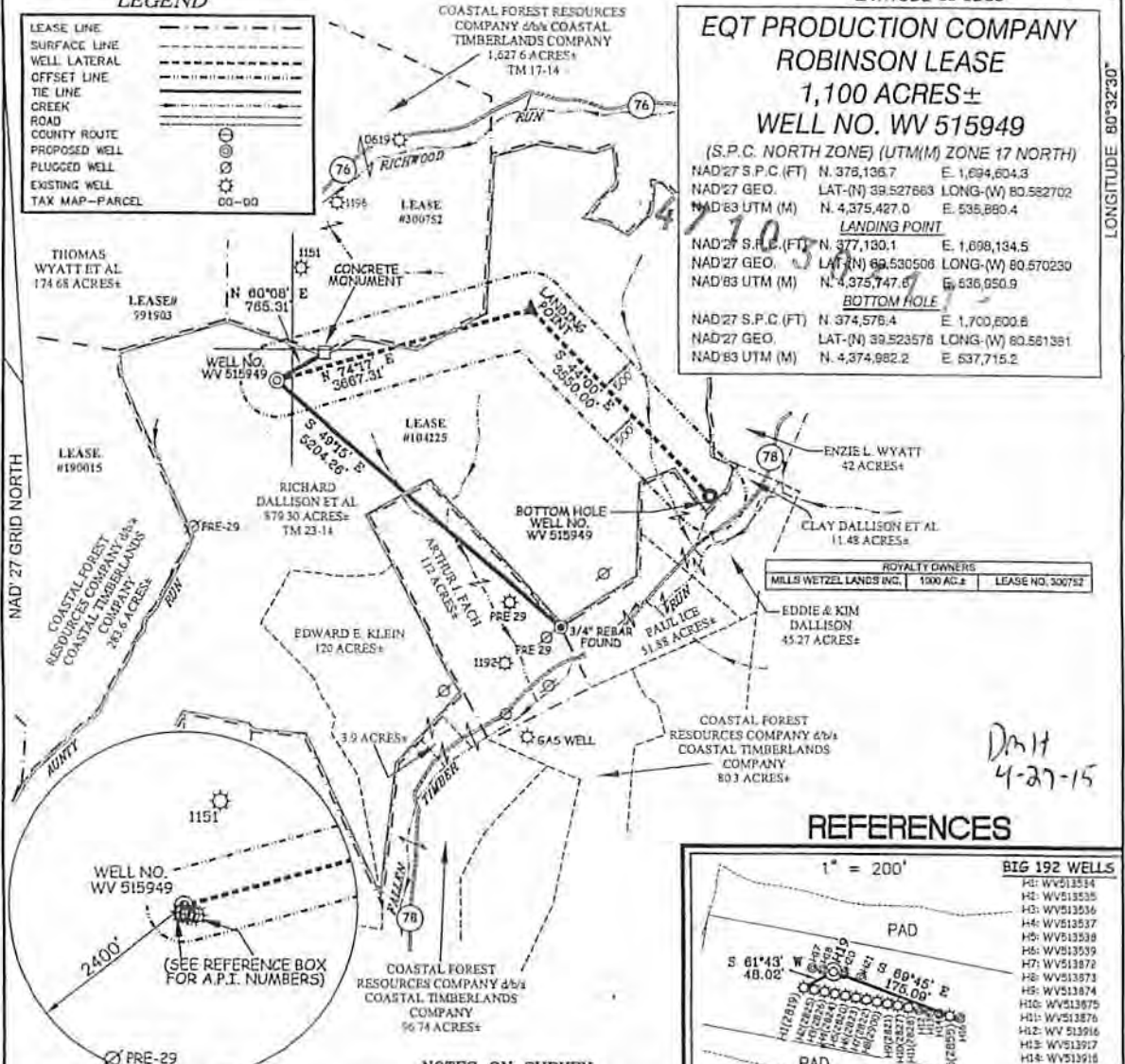
(S.P.C. NORTH ZONE) (UTM/M ZONE 17 NORTH)  
 NAD27 S.P.C. (FT) N. 375,136.7 E. 1,694,604.3  
 NAD27 GEO. LAT. (N) 39.527663 LONG. (W) 80.582702  
 NAD83 UTM (M) N. 4,375,427.0 E. 535,860.4

LANDING POINT

NAD27 S.P.C. (FT) N. 377,130.1 E. 1,699,134.5  
 NAD27 GEO. LAT. (N) 39.530508 LONG. (W) 80.570230  
 NAD83 UTM (M) N. 4,375,747.6 E. 536,950.9

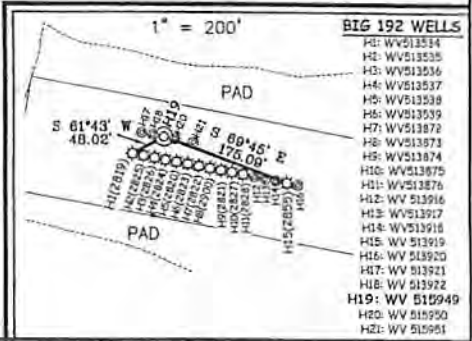
BOTTOM HOLE

NAD27 S.P.C. (FT) N. 374,576.4 E. 1,700,600.6  
 NAD27 GEO. LAT. (N) 39.523578 LONG. (W) 80.581381  
 NAD83 UTM (M) N. 4,374,982.2 E. 537,715.2



ROYALTY OWNERS		
MILLS WETZEL LANDS INC.	1000 AC.±	LEASE NO. 300752
EDDIE & KIM DALLISON		45.27 ACRES±

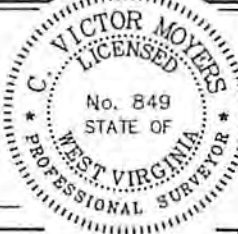
REFERENCES



NOTES ON SURVEY  
 1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.

Professional Energy Consultants  
 A DIVISION OF SACHS LABORATORY, INC.  
**SLS**  
 SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.  
 13044 442 RD SW  
 WASHINGTON STATE SURVEYORS & ENGINEERS

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. *C. Victor Moyers*  
 849



(\*) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE FEBRUARY 23, 20 15  
 REVISED MARCH 25, 20 15  
 OPERATORS WELL NO. WV 515949  
 API WELL NO. 47  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7797P515949R2  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)  
 SCALE 1" = 2000'

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 1,452' (PAD ELEVATION) WATERSHED AUNTY RUN OF SOUTH FORK FISHING CREEK  
 DISTRICT GRANT COUNTY WETZEL QUADRANGLE BIG RUN 7.5'  
 SURFACE OWNER RICHARD DALLISON ET AL ACREAGE 879.30  
 ROYALTY OWNER ED BROOME, INC ET AL ACREAGE 1,100±  
 PROPOSED WORK: LEASE NO. 104225  
 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 NADCOAL  
 ESTIMATED DEPTH TVD 7,531'

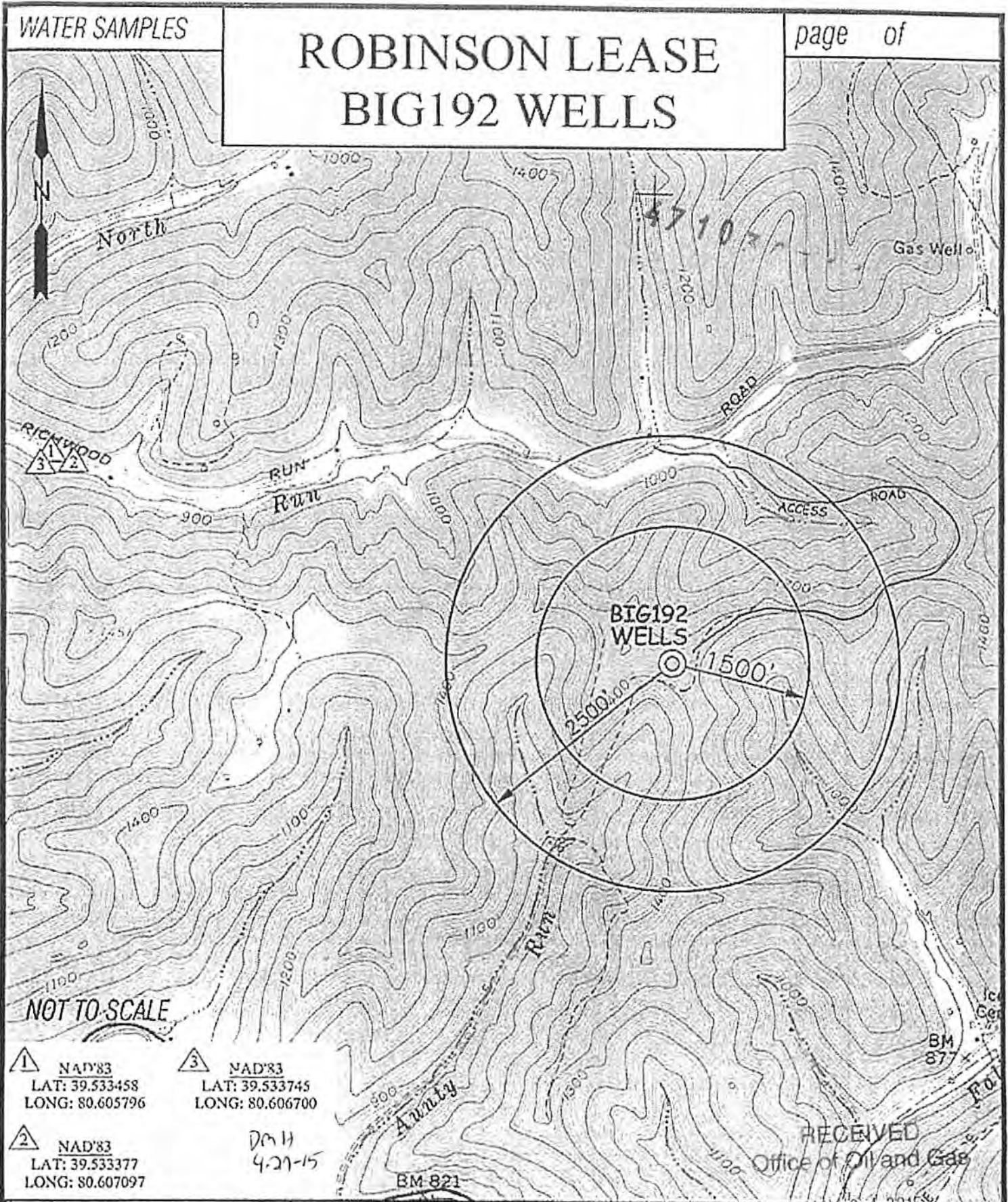
WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY  
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 260 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 260

RECEIVED  
 Office of Oil and Gas  
 MAY 04 2015  
 WV Department of Environmental Protection  
 08/21/2015

WATER SAMPLES

# ROBINSON LEASE BIG192 WELLS

page of



NOT TO SCALE

① NAD'83  
LAT: 39.533458  
LONG: 80.605796

③ NAD'83  
LAT: 39.533745  
LONG: 80.606700

② NAD'83  
LAT: 39.533377  
LONG: 80.607097

DmH  
4-27-15

RECEIVED  
Office of Oil and Gas

MAY 04 2015



TOPO SECTION OF:  
BIG RUN, WV 7.5' QUAD

OPERATOR:  
EQT PRODUCTION COMPANY  
115 PROFESSIONAL PLACE  
P.O. BOX 200  
BRIDGEPORT, WV 26330

DRAWN BY K.E.S.	FILE NO. 7797	DATE 02/27/15	CADD FILE: 7797c-2wel.dwg
--------------------	------------------	------------------	------------------------------

DISTRICT GRANT	COUNTY WETZEL	TAX MAP-PARCEL NO. 23-14
-------------------	------------------	-----------------------------

08/21/2015

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

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

DMH  
4-27-15



471030

April 10, 2015

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

Re: Casing on Wells (BIG192)

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 930' KB, 150' below the deepest fresh water. The previous wells drilled on this pad set 13-3/8" casing at approximately 1000' KB. This will cover up red rock formations that have given EQT drilling issues in the past. We will set the 9-5/8" intermediate string at 2765' KB, below the porosity zone in the Big Injun formation.

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

Sincerely,

Vicki Roark  
Permitting Supervisor

Enc.

RECEIVED  
Office of Oil and Gas

APR 24 2015

**WEST VIRGINIA GEOLOGICAL PROGNOSIS**

Horizontal Well  
515949 (BIG192H19)

v 2015.1

**Drilling Objectives:**

County: Marcellus  
Wetzel  
Quad: Big Run

4710303111

Elevation: 1465 KB 1452 GL

Surface location Northing: 376136.67 Easting: 1694604.33

Landing Point Northing: 377130.11 Easting: 1698134.52 TVD: 7655

Toe location Northing: 373906.04 Easting: 1701247.97 TVD: 7655

Recommended Azimuth 136 Degrees Recommended LP to TD: 4,482'

Proposed Logging Suite: Formation top depths based on open hole log run on pilot hole well 513538  
Mudloggers to be on location at kickoff point to run samples and measure gas thru both the curve and lateral sections.

Recommended Gas Tests: 1800, 2050, 2600, Intm Csg. Pt., 3400, 4900, 5250, KOP. (Gas test at any mine void)  
Gas test during any trip or significant downtime while drilling the lateral section.

**ESTIMATED FORMATION TOPS**

Formation	Top (TVD)	Base (TVD)	Lithology	Comments	Top RR	Base RR
Fresh Water Zone	1	780		FW @ 549,581,780, . .	73	919
Washington	743	745	Coal			
Coal	804	814	Coal			
Coal	919	924	Coal			
Coal	1009	1019	Coal			
Pittsburgh	1240	1245	Coal	No past, active, or planned mining in Pittsburgh seam		
Maxton	2351	2406	Sandstone	SW @ 2257,2370, . .		
Big Lime	2481	2560	Limestone			
Big Injun	2602	2665	Sandstone	Storage is not of concern		
Int. csg pt	2765					
Weir	2866	2903	Sandstone			
Top Devonian	3011					
-Gantz	3011	3061	Silty Sand			
-Fifty foot	3061	3101	Silty Sand			
-Thirty foot	3164	3194	Silty Sand			
-Gordon	3227	3303	Silty Sand			
-Forth Sand	3300	3347	Silty Sand			
-Bayard	3499	3538	Silty Sand			
-Warren	3962	4114	Silty Sand			
-Speecheley	4114	4274	Silty Sand			
-Balltown A	4274	5003	Silty Sand			
-Riley	5003	5638	Silty Sand			
-Benson	5638	5965	Silty Sand			
-Alexander	5965	7190	Silty Sand			
-Elks	7190	7190	Gray Shales and Silts			
-Sonyea	7190	7353	Gray shale			
-Middlesex	7353	7406	Shale			
-Genesee	7406	7495	with black shale			
-Genesee	7495	7522	Black Shale			
-Tully	7522	7542	Limestone			
-Hamilton	7542	7631	calcareous shales			
-Marcellus	7631	7684	Black Shale			
-Purcell	7641	7644	Limestone			
-Lateral Zone	7655	7655		Start Lateral at 7655 ft, drill to 7655 ft		
-Cherry Valley	7660	7664	Limestone			
Onondaga	7684		Limestone			

Target Thickness	53 feet
Max Anticipated Rock Pressure	2620 PSI

**Comments:**

Note that this is a TVD prog for a horizontal well (azimuth of 136 degrees, target formation = Marcellus). All measurements taken from estimated KB elevation. Water and coal information estimated from surrounding well data.  
Intermediate casing point is recommended 100' beneath the Big Injun to shut off any water production from the Upper Devonian sands. Intermediate casing should be cemented into the surface string, per WV regulations.  
The estimated TD is the TVD landing point for the horizontal section of well, with the plan to then drill to a final TVD of 7655' at the toe of the lateral. The geologic structure is unknown at this time.

Red rock information updated using offsetting wells in addition to subsea red rock encountered while drilling nearby laterals of the BIG190 pad.

**LATERAL DRILLING TOLERANCES**

Mapview - Left of borehole: Deviate as little as possible left to remain on lease  
Mapview - Right of borehole: Deviate as little as possible right to avoid planned lateral 513922  
Mapview - TD: DO NOT EXTEND beyond recommended wellbore to avoid lease line

**RECOMMENDED CASING POINTS**

Fresh Water/Coal	CSG OD	13 3/8	CSG DEPTH	974
Intermediate I:	CSG OD	9 5/8	CSG DEPTH	2765
Production:	CSG OD	5 1/2	CSG DEPTH	@ TD

J. Dercume/ E. Glick	Author	Date Created	Plat Date
Prog created:	JMD	2/3/2015	9/7/2014
updated	EVG	3/5/2015	2/23/2015
surface casing revised to 150' below	EVG	4/21/2015	
Revised surface casing to 50' below	EVG	7/8/2015	
revised TD	EVG	7/21/2015	7/16/2015

- COAL
- PILOT HOLE
- CASING PROGRAM
- STORAGE

Received 450' below coal seam  
100' past the base of the  
Office of Oil & Gas  
AUG 10 2015

08/21/2015



4710303111

Well Number: 515949 (BIG192H19)

Casing and Cementing		Deepest Fresh Water: 780'		
Type	Conductor	Surface	Intermediate	Production
Hole Size, In.	30	17 1/2	12 3/8	8 1/2
Casing Size, OD In.	26	13 3/8	9 5/8	5 1/2
Casing Wall Thickness, In.	0.312	0.380	0.395	0.361
Depth, MD	40'	974'	2,765'	13,732'
Depth, TVD	40'	974'	2,765'	7,655'
Centralizers Used	Yes	Yes	Yes	Yes
Weight/Grade	77#/MC-50	54.5#/J-55	40#/A-500	20#/P-110
New or Used	New	New	New	New
Pressure Testing	-	20% Greater than exp. Pressure	20% Greater than exp. Pressure	20% greater than exp. fracture pressure
After Fracture Pressure Testing	-	-	-	20% greater than exp. shut pressure
ID, in	25.376	12.615	8.835	4.778
Burst (psi)	-	2,730	3,950	12,640
Collapse (psi)	-	1,130	2,570	11,100
Tension (mlbs)	-	514	493	587
Cement Class	-	-	-	H
Cement Type	Construction	1	1	-
Cement Yield	1.18	1.21	1.21	1.27/1.86
Meets API Standards	-	Yes	Yes	Yes
WOC Time	-	Min. 8 hrs	Min. 8 hrs	Min. 8 hrs
Top of Cement (Planned)	Surface	Surface	Surface	2,965'
Fill (ft.)	40'	974'	2,765'	10,767'
Percent Excess	-	20	20	10
Est. Volume (cu ft)	49	847	1,079	2,725
Est. Volume (BBLs)	9	151	192	485

DH  
8-3-15

Received  
Office of Oil & Gas  
AUG 10 2015

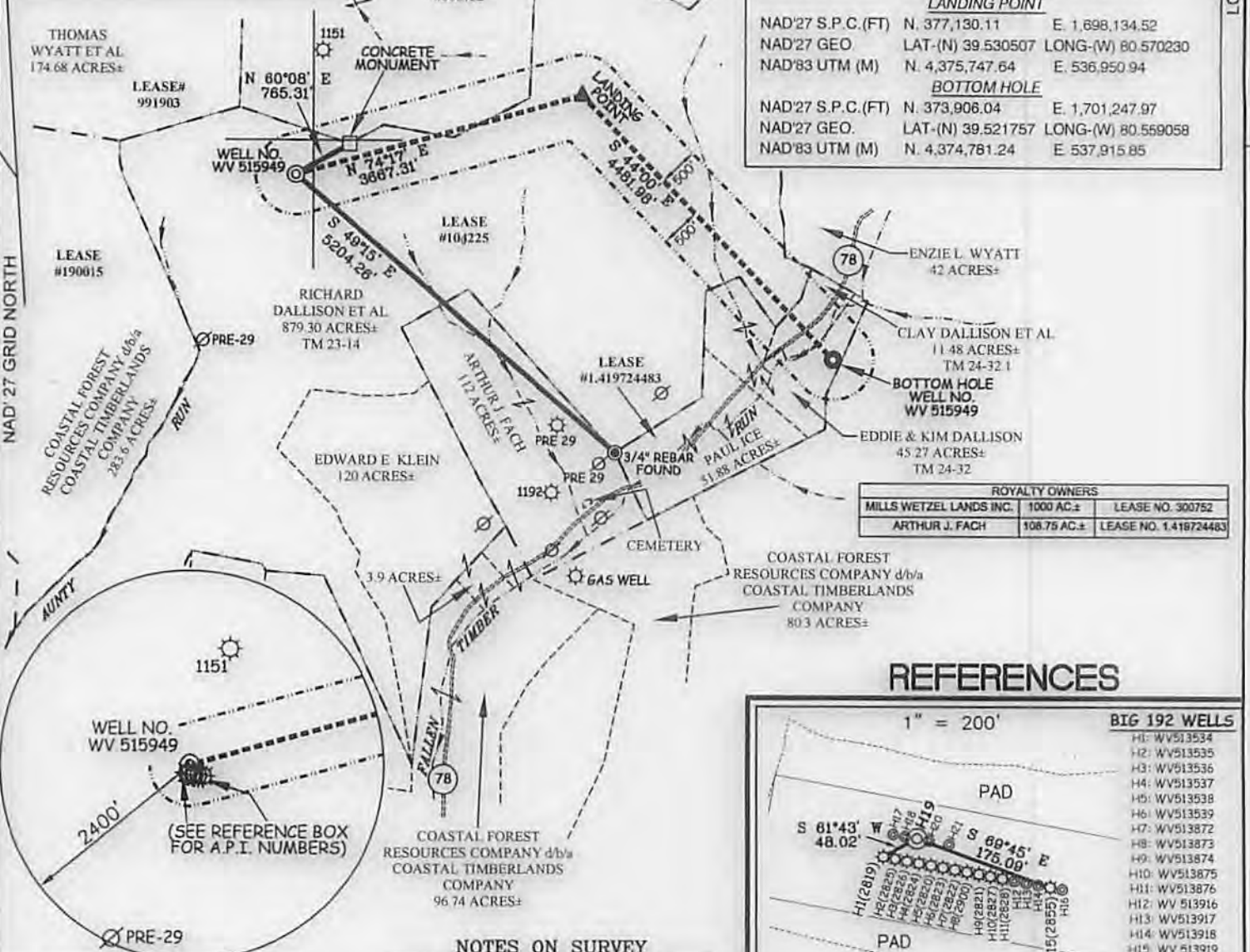
08/21/2015

LEGEND

LEASE LINE	---
SURFACE LINE	----
WELL LATERAL	-----
OFFSET LINE	- - - - -
TIE LINE	=====
CREEK	~~~~~
ROAD	=====
COUNTY ROUTE	○-----○
PROPOSED WELL	⊙
PLUGGED WELL	⊙
EXISTING WELL	⊙
TAX MAP-PARCEL	00-00

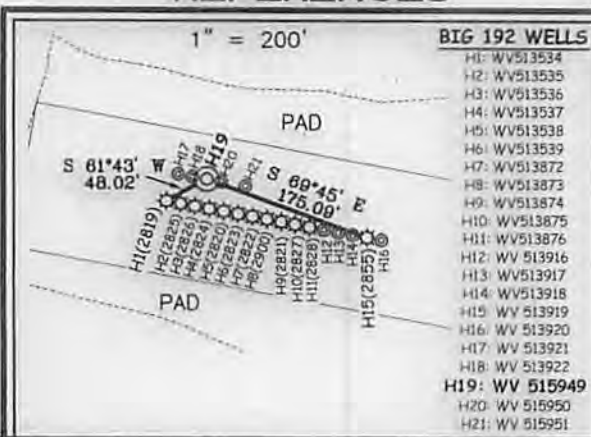
**EQT PRODUCTION COMPANY  
ROBINSON LEASE  
1,100 ACRES±  
WELL NO. WV 515949**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'27 S.P.C.(FT) N. 376,136.67 E. 1,694,604.33  
 NAD'27 GEO. LAT.-(N) 39.527663 LONG.-(W) 80.582702  
 NAD'83 UTM (M) N. 4,375,427.00 E. 535,880.45  
**LANDING POINT**  
 NAD'27 S.P.C.(FT) N. 377,130.11 E. 1,698,134.52  
 NAD'27 GEO. LAT.-(N) 39.530507 LONG.-(W) 80.570230  
 NAD'83 UTM (M) N. 4,375,747.64 E. 536,950.94  
**BOTTOM HOLE**  
 NAD'27 S.P.C.(FT) N. 373,906.04 E. 1,701,247.97  
 NAD'27 GEO. LAT.-(N) 39.521757 LONG.-(W) 80.559058  
 NAD'83 UTM (M) N. 4,374,781.24 E. 537,915.85



ROYALTY OWNERS		
MILLS WETZEL LANDS INC.	1000 AC±	LEASE NO. 300752
ARTHUR J. FACH	108.75 AC±	LEASE NO. 1.418724483

REFERENCES



NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.

**Professional Energy Consultants**  
 A DIVISION OF SMITH LAND SURVEYING, INC.  
**SLS**  
 SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.  
 204-482-9834 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 FEBRUARY 23 20 15  
 REVISED 03/25/15 & 07/21/15  
 OPERATORS WELL NO. WV 515949  
 API WELL NO. 47 - 103 - 0311/H6A  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7797P515949R3  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
 LOCATION: ELEVATION 1,452' (PAD ELEVATION) WATERSHED AUNTY RUN OF SOUTH FORK FISHING CREEK  
 DISTRICT GRANT COUNTY WETZEL QUADRANGLE BIG RUN 7.5'  
 SURFACE OWNER RICHARD DALLISON ET AL ACREAGE 879.30±  
 ROYALTY OWNER ED BROOME, INC ET AL ACREAGE 1,100-08/21/2015  
 PROPOSED WORK: LEASE NO. 104225  
 DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ OTHER \_\_\_  
 PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 7,631'

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

LONGITUDE 80°32'30" COUNTY NAME PERMIT

**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 Min 1/8 pd	Book/Page
Lease No. 104225	L G. Robinson, etal H. L. Smith Philadelphia Company Pittsburgh & West Virginia Gas Company Equitable Gas Company Equitrans, LLC	H. L. Smith Philadelphia Company Pittsburgh & West Virginia Gas Company Equitable Gas Company Equitrans, Inc. EQT Production Company		LB111/452 LB47A/287 DB146/98 DB187/321 CB71A/453 DB192/19 Doddridge
<u>1.419724483</u>			Min 1/8 pd	
	Arthur J. Fach Eddie D. Dallison & Kim L. Dallison Clay D.C. Dallison	EQT Production Company EQT Production Company EQT Production Company		LB 166A/3 LB 166A/22 LB 166A/24

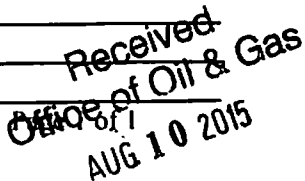
Upon information and belief, Operator's lease and/or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

**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

Well Operator: EQT Production Company  
 By: [Signature]  
 Its: Permitting Supervisor



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WW-6A  
(9-13)

API NO. 47 - 103 - 0  
OPERATOR WELL NO. 515949  
Well Pad Name: BIG192

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

Notice Time Requirements: Section 20-2-1(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o), (p), (q), (r), (s), (t), (u), (v), (w), (x), (y), (z)

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

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

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

Well Operator: EQT Production Company  
By: [Signature]  
Its: Permitting Supervisor

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WV Department of  
Environmental Protection

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. 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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(8-13)

API NO. 47 - 103 - 0  
OPERATOR WELL NO. 515949  
Well Pad Name: BIG192

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

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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.

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WW-6A  
(8-13)

API NO. 47 - 103 - 0  
OPERATOR WELL NO. 515949  
Well Pad Name: BIG192

### 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.

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Notice is hereby given by:

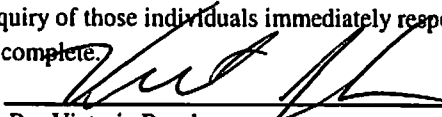
Well Operator: EQT Production Company  
Telephone: 304-848-0082  
Email: Vroark@eqt.com

Address: 115 Professional Place P.O. Box 280  
Bridgeport, WV 26330  
Facsimile: 304-848-0041

Oil and Gas Privacy Notice:

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

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

  
\_\_\_\_\_

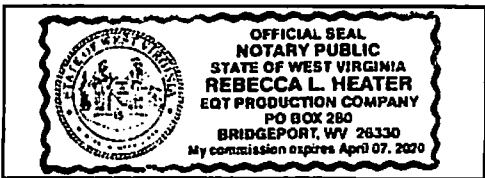
By: Victoria Roark

Its: Permitting Supervisor

Subscribed and sworn before n 8<sup>th</sup> day of June, 2015

Rebecca L Heater Notary Public

My Commission Expires 4-7-2020



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**Additional Surface Owners**

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

**Additional Surface Owner, Pit/ Impoundment**

Thomas P. Dallison  
452 Trader Fork Road  
Folsom, WV 26348-6021

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

**Additional Surface Owner Access Road**

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

Coastal Forest Resources dba  
Coastal Timberlands Company  
P.O. Box 709  
Buckhannon, WV 26201

**Additional Coal Owners**

Consol Mining Company LLC  
CNX Center  
1000 Consol Energy Dr.  
Canonsburg PA 15318-6506

CNX Land LLC  
Engineer Operations Support Dept.  
Coal  
1000 Consol Energy Dr.  
Canonsburg PA 15318-6506

David Bowyer  
RT. 1 Box 4598  
Salem, WV 26426-5217

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

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**CBM Only**

CNX Gas Company, LLC  
CNX Center  
1000 Consol Energy Drive  
Cannonsburg, PA 15317-6506

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WV Department of  
Environmental Protection

08/21/2015

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David Bowyer  
12088 Middle Island Rd  
Alma WV 26320-7211

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

**CBM Only**

CNX Gas Company, LLC  
CNX Center  
1000 Consol Energy Drive  
Cannonsburg, PA 15317-6506

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08/21/2015

**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:** 3/10/2015 **Date Permit Application Filed:** 3/20/15

**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:** Richard B. and Jaynee C Dallison  
**Address:** 28855 Shortline Hwy  
Folsom, WV 26348-6021

**Name:** Thomas P. Dallison  
**Address:** 452 Trader Fork Road  
Folsom, WV 26348-6021

**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>535,880.40</u>
County:	<u>Wetzel</u>		Northing	<u>4,375,427.00</u>
District:	<u>Grant</u>		Public Road Access:	<u>RT 20</u>
Quadrangle:	<u>Big Run 7.5</u>		Generally used farm name:	<u>Richard Dallison et al</u>
Watershed:	<u>Aunty Run of South 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)

**Notice is hereby given by:**

**Well Operator:** EQT Production Company  
**Address:** 115 Professional Place, P.O Box 280  
Bridgeport, WV 26330  
**Telephone:** 304-848-0076  
**Email:** vroark@eqt.com  
**Facsimile:** 304-848-0041

**Authorized Representative:** Victoria Roark  
**Address:** 115 Professional Place, P.O Box 280  
Bridgeport, WV 26330  
**Telephone:** 304-848-0076  
**Email:** vroark@eqt.com  
**Facsimile:** 304-848-0041

**Oil and Gas Privacy Notice:**

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

**RECEIVED**  
**Office of Oil and Gas**  
**APR 24 2015**  
**WV Department of Environmental Protection**  
**08/21/2015**

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
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**Delivery method pursuant to West Virginia Code § 22-6A-16(b)**

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>Trenton D. Dallison</u>	Name: <u>Coastal Forest Resources dba Coastal Timberlands Company</u>
Address: <u>2975 Barker Run Road</u>	Address: <u>P.O. Box 709</u>
<u>Pine Grove, WV 26419-8325</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>535,880.40</u>
County: <u>Wetzel</u>		Northing <u>4,375,427.00</u>
District: <u>Grant</u>	Public Road Access: <u>RT 20</u>	
Quadrangle: <u>Big Run 7.5'</u>	Generally used farm name: <u>Richard Dallison et al</u>	
Watershed: <u>Aunty Run of South 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)

**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><a href="mailto:vroark@eqt.com">vroark@eqt.com</a></u>	Email: <u><a href="mailto:vroark@eqt.com">vroark@eqt.com</a></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 [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

**RECEIVED**  
**Office of Oil and Gas**  
**APR 24 2015**  
**WV Department of Environmental Protection**  
**08/21/2015**

4710303111

WW-6A4  
(1/12)

Operator Well No.

515949

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: 6/8/2015 Date Permit Application Filed: TBD

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

HAND DELIVERY

CERTIFIED MAIL RETURN RECEIPT REQUESTED

4710303111

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: Richard and Roxanne Funk  
Address: 4832 Fairport Road  
Newton Falls OH 44444

Name: Larry Larew  
Address: 12750 W Middletown Road  
Salem OH 44460

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>535,880.40</u>
County:	<u>Wetzel</u>		Northing	<u>4,375,427.00</u>
District:	<u>Grant</u>		Public Road Access:	<u>RT 20</u>
Quadrangle:	<u>Big Run 7.5'</u>		Generally used farm name:	<u>Richard Dallison et al</u>
Watershed:	<u>Aunty Run of South Fork Fishing Creek</u>			

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RECEIVED  
Office of Oil and Gas  
30,810,2015

Notice is hereby given by:

Well Operator: EQT Production Company  
Address: 115 Professional Place, P.O Box 280  
Bridgeport, WV 26330  
Telephone: 304-848-0076  
Email: vroark@egt.com  
Facsimile: 304-848-0041

Authorized Representative: Virginia Roark  
Address: 115 Professional Place, P.O Box 280  
Bridgeport, WV 26330  
Telephone: 304-848-0076  
Email: vroark@egt.com  
Facsimile: 304-848-0041

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08/21/2015

4710303111

WW-6A4  
(1/12)

Operator Well No. 515949

**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: 6/8/2015 Date Permit Application Filed: TBD

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

HAND DELIVERY  CERTIFIED MAIL RETURN RECEIPT REQUESTED

4710303111

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: Lydle M Martyn Name: \_\_\_\_\_  
Address: PO Box 7 Address: \_\_\_\_\_  
Jacksonburg WV 26377

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: WV UTM NAD 83 Easting 535,880.40  
County: Wetzel Northing 4,375,427.00  
District: Grant Public Road Access: RT 20  
Quadrangle: Big Run 7.5' Generally used farm name: Richard Dallison et al  
Watershed: Aunty Run of South Fork Fishing Creek

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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx)

RECEIVED  
Office of Oil and Gas  
JUN 10 2015

Notice is hereby given by:

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

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08/21/2015

WW-6A5  
(1/12)

Operator Well No. 515949

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:** 6/8/2015 **Date Permit Application Filed:** June 8, 2015

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

CERTIFIED MAIL  HAND  
RETURN RECEIPT REQUESTED 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: Richard and Roxanne Funk  
Address: 4832 Fairport Road  
Newtown Falls OH 44444

Name: Larry Larew  
Address: 12750 W Middletown Road  
Salem OH 44460

**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:	<u>WV</u>	UTM NAD 83	Easting:	<u>535,880.400000</u>
County:	<u>Wetzel</u>		Northing:	<u>4,375,427.000000</u>
District:	<u>Grant</u>	Public Road Access:		<u>RT 20</u>
Quadrangle:	<u>Big Run 7.5</u>	Generally used farm name:		<u>Richard Dallison et al</u>
Watershed:	<u>Aunty Run of South Fork Fishing Creek</u>			

**This Notice Shall Include:**

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

Well Operator: EQT Production Company  
Telephone: 304-848-0082  
Email: [vroark@eqt.com](mailto:vroark@eqt.com)

Address: 115 Professional Place, P.O. Box 280  
Bridgeport, WV 26330  
Facsimile: 304-848-0040

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Office of Oil and Gas  
JUN 10 2015

WV Department of  
Environmental Protection

08/21/2015



WW-6A5  
(1/12)

Operator Well No. 515949

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: 6/8/2015 Date Permit Application Filed: June 8, 2015

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

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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: Lydle M. Martyn  
Address: PO Box 7  
Jacksonburg WV 26377

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

Notice is hereby given:

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

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>535,880.400000</u>
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Quadrangle:	<u>Big Run 7.5</u>	Generally used farm name:	<u>Richard Dallison et al</u>	
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Well Operator: EQT Production Company  
Telephone: 304-848-0082  
Email: vroark@eqt.com

Address: 115 Professional Place, P.O. Box 280  
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Facsimile: 304-848-0040

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08/21/2015

WW-6A5  
(1/12)

Operator Well No. 515949

4710303111

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: APR 22 2015 Date Permit Application Filed: APR 22 2015

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: Richard B. and Jaynee C Dallison  
Address: 28855 Shortline Hwy.  
Folsom, WV 26348-6021

Name: Thomas P. Dallison  
Address: 452 Trader Fork Road  
Folsom, WV 26348-6021

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: 535,880.400000  
County: Wetzel Northing: 4,375,427.000000  
District: Grant Public Road Access: RT 20  
Quadrangle: Big Run 7.5 Generally used farm name: Richard Dallison et al  
Watershed: Aunty Run of South Fork Fishing Creek

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Address: 115 Professional Place, P.O. Box 280  
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Facsimile: 304-848-0040

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Office of Oil and Gas  
APR 24 2015  
WV Department of Environmental Protection 08/21/2015

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: APR 22 2015 Date Permit Application Filed: APR 22 2015

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

CERTIFIED MAIL RETURN RECEIPT REQUESTED  HAND DELIVERY

APR 22 2015  
10303111

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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: Trenton D. Dallison  
Address: 2975 Barker Run Rd  
Pine Grove WV 26419-8325

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

Notice is hereby given:

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State: WV UTM NAD 83 Easting: 535,880.400000  
County: Wetzel Northing: 4,375,427.000000  
District: Grant Public Road Access: RT 20  
Quadrangle: Big Run 7.5 Generally used farm name: Richard Dallison et al  
Watershed: Aunty Run of South Fork Fishing Creek

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Well Operator: EQT Production Company Address: 115 Professional Place, P.O. Box 280  
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Office of Oil and Gas  
APR 24 2015  
WV Department of  
Environmental Protection  
08/21/2015

WW6-A

**Additional Surface Owners**

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

**Additional Surface Owner, Pit/ Impoundment**

Thomas P. Dallison  
452 Trader Fork Road  
Folsom, WV 26348-6021

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

**Additional Surface Owner Access Road**

Trenton Dallison  
2975 Barker Run Road  
Pine Grove, WV 26419-8325

Coastal Forest Resources dba  
Coastal Timberlands Company  
P.O. Box 709  
Buckhannon, WV 26201

Richard and Roxanne Funk  
4832 Fairport Road  
Newton Falls OH 44444

Larry Larew  
12750 W Middletown Road  
Salem OH 44460

Lydie M. Martyn  
PO Box 7  
Jacksonburg WV 26377

**Additional Coal Owners**

Consol Mining Company LLC  
CNX Center  
1000 Consol Energy Dr.  
Canonsburg PA 15318-6506

CNX Land LLC  
Engineer Operations Support Dept.  
Coal  
1000 Consol Energy Dr.  
Canonsburg PA 15318-6506

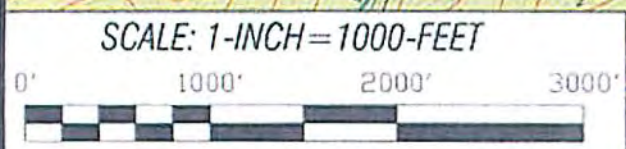
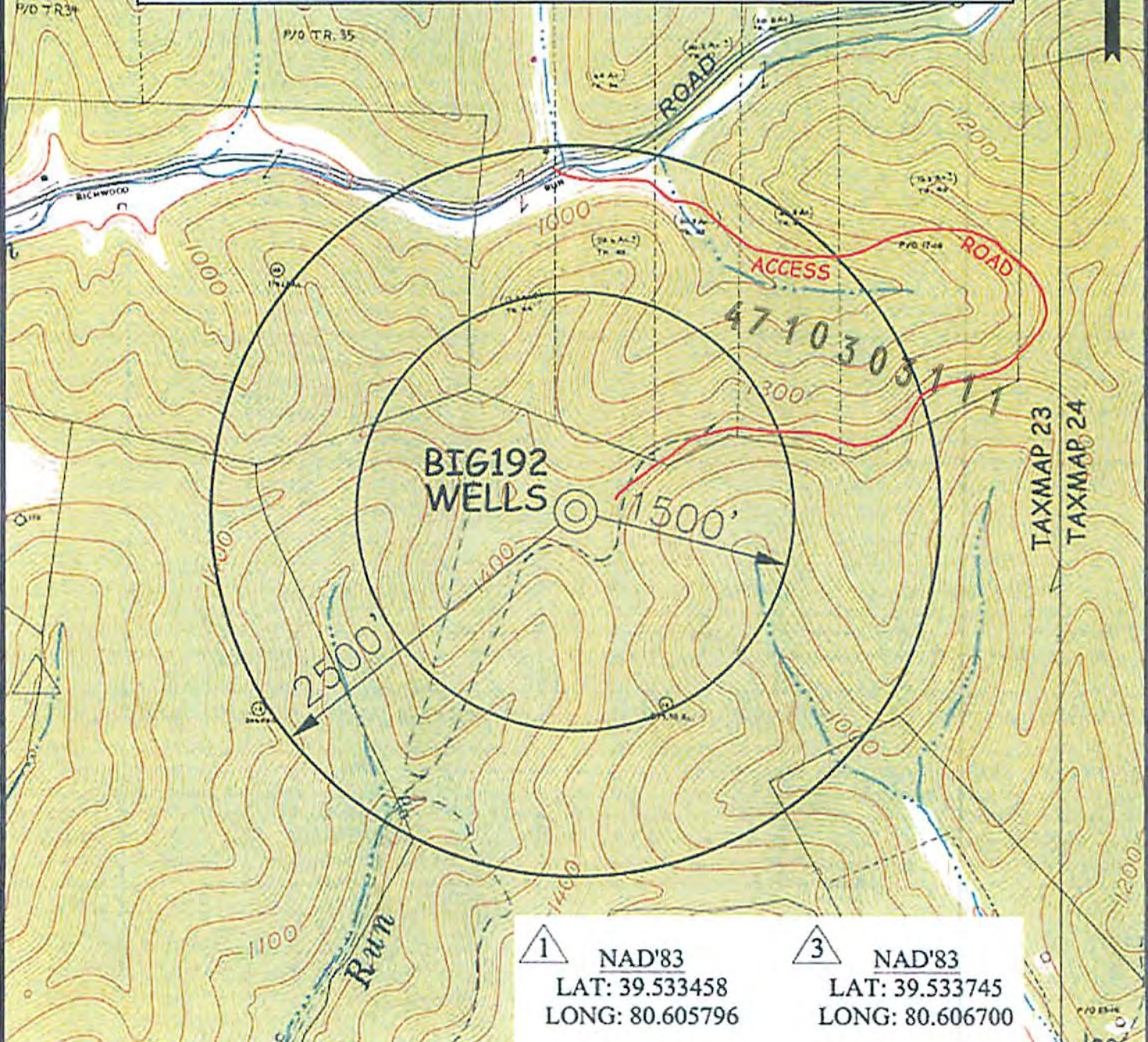
RECEIVED  
Office of Oil and Gas

JUN 10 2015

WV Department of  
Environmental Protection

08/21/2015

# WATER SOURCE LOCATIONS FOR ROBINSON LEASE BIG192 WELLS



- |  |  |
|--|--|
| <p>① NAD'83<br/>LAT: 39.533458<br/>LONG: 80.605796</p> | <p>③ NAD'83<br/>LAT: 39.533745<br/>LONG: 80.606700</p> |
| <p>② NAD'83<br/>LAT: 39.533377<br/>LONG: 80.607097</p> | <p>RECEIVED<br/>Office of Oil and Gas</p>              |

APR 24 2015

**Professional Energy Consultants**  
A DIVISION OF SLS CONSULTANTS, INC.

1301 402 3634  
www.slsgeophysical.com

REGULATORY ENGINEERS ENVIRONMENTAL PROJECT MGMT.

DRAWN BY: K.E.S. FILE NO: 7797 DATE: 02/27/15 CADD FILE: 779700192WATER.dwg

TOPO SECTION OF:  
BIG RUN, WV 7.5' QUAD

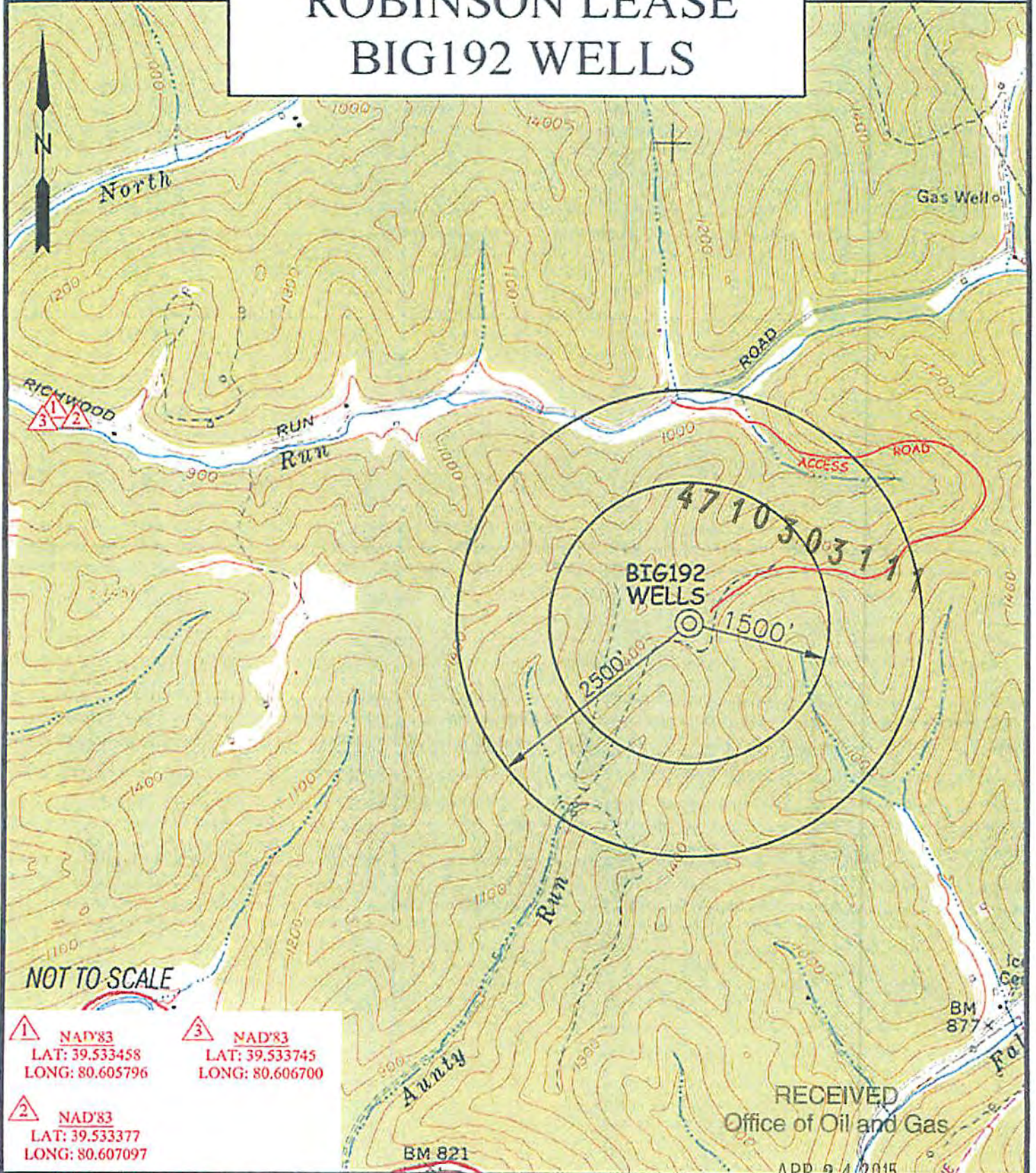
DISTRICT	COUNTY	TAX MAP-PARCEL NO.
GRANT	WETZEL	23-14

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

Environmental Protection

08/21/2015

# ROBINSON LEASE BIG192 WELLS



NOT TO SCALE

1 NAD'83  
LAT: 39.533458  
LONG: 80.605796

3 NAD'83  
LAT: 39.533745  
LONG: 80.606700

2 NAD'83  
LAT: 39.533377  
LONG: 80.607097

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Office of Oil and Gas

APR 24 2015

**Professional Energy Consultants**  
A DIVISION OF INTERNATIONAL SURVEYING INC.

SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.

DRAWN BY: K.E.S. FILE NO: 7797 DATE: 02/27/15 CADD FILE: 7797S-2wel.dwg

TOPO SECTION OF:  
BIG RUN, WV 7.5' QUAD

DISTRICT	COUNTY	TAX MAP--PARCEL NO.
GRANT	WETZEL	23-14

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

WV Department of Environmental Protection

08/21/2015



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

March 12, 2015

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

4710303111

Subject: DOH Permit for the BIG192 Pad Site, Wetzel County  
513921 BIG192H17      513922 BIG192H18      513949 BIG192H19

Dear Dr. Martin,

This well site will be accessed from existing Permit # 06-12-0519 issued to EQT Production Company for access to the State Road for a well site located off of Wetzel County Route 76 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, P.E.  
Regional Maintenance Engineer  
Central Office O&G Coordinator

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

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Office of Oil and Gas

APR 24 2015

WV Department of  
Environmental Protection

**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

47 10 303 111

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APR 24 2015

WV Department of  
Environmental Protection

08/24/2015



# BIG 192 H1-H14 SITE PLAN EQT PRODUCTION COMPANY

(PROPOSED WELLS NO. WV 513534, WV 513535, WV 513536, WV 513537, WV 513538, WV 513539, WV 513872, WV 513873, WV 513874, WV 513875, WV 513876, WV 513916, WV 513917, WV 513918)

SITUATE ON THE WATERS OF TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMER RUN, & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

### PROJECT INFORMATION

PROJECT NAME: BIG 192 H1-H14  
TAX PARCEL: GRANT DISTRICT MAP 23-14  
SURFACE OWNER: RICHARD B. BALLZON ET AL GRANT DISTRICT WETZEL COUNTY WV TOTAL PROPERTY AREA: 879.30 ± ACRES  
OIL AND GAS ROYALTY OWNER: EQT PRODM INC ET AL GRANT DISTRICT WETZEL COUNTY WV TOTAL PROPERTY AREA: 1100.0 ± ACRES

**SITE LOCATION**  
THIS BIG 192 SITE IS LOCATED ON A RIDGE SOUTH OF CO RT 76, APPROXIMATELY 18,387 FT EAST OF THE CO RT 76 AND WV RT 30 INTERSECTION.

### LOCATION COORDINATES

BIG 192 H1-H14 WELL PAD ENTRANCE  
LATITUDE: 39.524182 LONGITUDE: -80.553105 (NAD 83)  
BIG 192 H1-H14 WELL PAD  
LATITUDE: 39.527641 LONGITUDE: -80.562553 (NAD 83)  
BIG 192 ASSOCIATED PIT  
LATITUDE: 39.526821 LONGITUDE: -80.561420 (NAD 83)  
BIG 192 ASSOCIATED IMPOUNDMENT  
LATITUDE: 39.526841 LONGITUDE: -80.562005 (NAD 83)

### SITE DISTURBANCE COMPUTATIONS

PAV/ASSOCIATED PIT/ASSOCIATED IMPONDMENT AREA = 35.09 ± ACRES  
ACCESS ROAD = 32.97 ± ACRES  
TOTAL SITE DISTURBANCE = 68.06 ± ACRES  
\*INCLUDES AREA OF THE WELL PAD, ASSOCIATED PIT, ASSOCIATED IMPONDMENT & STOCKPILES

### ENTRANCE PERMIT

EQT PRODUCTION COMPANY WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MW-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 #120266109. 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 54152C015C, DATED DEPT 20, 2006.

### ENVIRONMENTAL NOTES

A WETLAND DELINEATION WAS PERFORMED ON MARCH 23, 2011, MARCH 8 & 7, 2012, & JULY 10 & 16 2012 BY POTESTA ENGINEERS AND ENVIRONMENTAL CONSULTANTS TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE AUGUST 03, 2012 REPORT PROJECT # 010-11-0149-1800 WAS PREPARED BY POTESTA ENGINEERS AND ENVIRONMENTAL CONSULTANTS. SUMMARY OF THE RESULTS OF THE FIELD DELINEATION, THE REPORT DOES NOT, IN ANY WAY, REPRESENT A CONSIDERATIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDNR. IT IS STRONGLY RECOMMENDED THAT THE APPROPRIATE AGENCIES BE CONSULTED IN AN EFFORT TO OBTAIN WRITTEN COORDINATION 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 WETLANDS, FRESH AND STREAM CROSSINGS.

### GENERAL DESCRIPTION

THE WELL PAD, ASSOCIATED PIT & ASSOCIATED IMPONDMENT IS 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!

API#10302819  
API#10302820  
API#10302821  
API#10302822  
API#10302823  
API#10302824  
API#10302825  
API#10302826  
API#10302827  
API#10302828

### OPERATOR

EQT PRODUCTION COMPANY  
OPERATOR ID: 308686  
115 PROFESSIONAL PLAZA  
P.O. BOX 290  
BRIDGEPORT, WV 26301  
PHONE: (304) 348-2872

### ENGINEER

NAVITUS ENGINEERING, INC.  
151 WINDY HILL LANE  
WINCHESTER, VA 22603  
PHONE: (540) 663-4185

### SURVEYOR

SMITH LAND SURVEYING, INC.  
224 WEST MAIN STREET  
P.O. BOX 150  
CLEVELAND, WV 26631  
PHONE: (304) 482-5404



BIG RUN QUAD



### LIST OF DRAWINGS

- 1 - COVER SHEET
- 2 - NOTES
- 3 - OVERALL PLAN VIEW
- 4 - WELL PAD ASSOCIATED PIT AND IMPONDMENT DETAILS
- 5 - STOCKPILE F & G
- 6 - STOCKPILE C, A & J AND ACCESS ROAD TO BIG 333
- 7 - STOCKPILE A, B, L & E AND ACCESS ROAD TO BIG 333
- 8-12 - WELL PAD ACCESS ROAD DETAILS
- 13 - ASSOCIATED PIT SECTIONS
- 14 - WELL PAD & ASSOCIATED IMPONDMENT SECTIONS
- 15 - STREAM CROSSING 'A' DETAILS
- 16 - STREAM CROSSING 'B' DETAILS
- 17 - STREAM CROSSING 'C' DETAILS
- 18-22 - ROAD PROFILES
- 23-25 - ROAD SECTIONS
- 24 - TEMPORARY SLOPE DRAIN PROFILES
- 26-28 - WELL PAD, PIT AND IMPONDMENT RECLAMATION PLAN
- 29-31 - CONSTRUCTION DETAILS

**APPROVED  
WVDEP OOG**  
*SAY 10/19/2012*

LEGEND	
EX DOUBLE CONTOUR	PROP. DOUBLE CONTOUR
EX INTERMEDIATE CONTOUR	PROP. INTERMEDIATE CONTOUR
EX BOUNDARY LINE	PROP. BOUNDARY LINE
EX ROAD EDGE OF GRAVEL/DIRT	PROP. LIMITS OF DISTURBANCE
EX ROAD EDGE OF PAVEMENT	PROP. WELL PAD
EX ROAD CENTERLINE	PROP. WELL PAD
EX DITCHLINE	PROP. AT PAV. DRAIN PAVE
EX UTILITY	PROP. DRAIN DRAIN
EX GUARDRAIL	PROP. CONTAINMENT DRAIN
EX FENCELINE	PROP. PIT/IMPONDMENT CL.
EX DATE	PROP. PERMETER SAFETY FENCE
EX OVERROAD UTILITY	PROP. ACCESS GATE WITH EMERGENCY LIGHTING
EX OVERROAD UTILITY R/W	
EX POWER POLE	
EX GUY WIRE	
EX TELEPHONE LINE	
EX GASLINE	PROP. ROCK CONSTRUCTION ENTRANCE
EX WATERLINE	
EX WATER WELL	
EX CAS WELL	
EX TRAILING	
EX REFERENCE TREE	PROP. ROAD EDGE OF GRAVEL
EX DELIMITED STREAM	PROP. ROAD CENTERLINE
EX UNDELIMITED STREAM	PROP. V-DITCH W/ CHALK MARK
EX BULWARK	PROP. SLOPE RELIEF (VEGET. LINCS)
EX BRIDGE	PROP. RIP-RAP OUTLET PROTECTION
	PROP. DIAGONAL
	PROP. ROCK LEVEL SPREADER
	PROP. EASTERN DIVERSION FENCE
	PROP. GRAND SAFETY FENCE
	PROP. SUPER SELF FENCE
	PROP. REINFORCED SELF FENCE
	PROP. COMPOST ROCK SUPERBARRIER
	PROP. GROUNDWATER DEWATERING TRENCH
	PROP. GROUNDWATER DEWATERING PIPE
	SECTION LINE
	MASTHEAD
	X-SECTION GRID INDEX
	X-SECTION GRID INTERMEDIATE
	X-SECTION PROPOSED GRADE
	X-SECTION EXISTING GRADE
	X-SECTION WATER SURFACE
	SPOT ELEVATION

**NAVITUS ENGINEERING, INC.**  
Engineering Survey Environmental GIS

**SLS SMITH LAND SURVEYING, INC.**  
PROFESSIONAL SURVEYING AND ENVIRONMENTAL SERVICES  
215 W. 11TH ST. SUITE 100  
CLEVELAND, WV 26631  
PHONE: (304) 482-5404  
FAX: (304) 482-5554  
E-MAIL: sls@smithland.com



THIS DOCUMENT WAS PREPARED BY NAVITUS ENGINEERING, INC. FOR EQT PRODUCTION COMPANY.

**LOCATION MAP**  
**BIG 192**  
GRANT DISTRICT  
WETZEL COUNTY, WV

DATE: 08/08/2012  
SCALE: 1" = 2000'  
DESIGNED BY: CEK  
FILE NO.: 7797  
SHEET 1 OF 43

4710303111

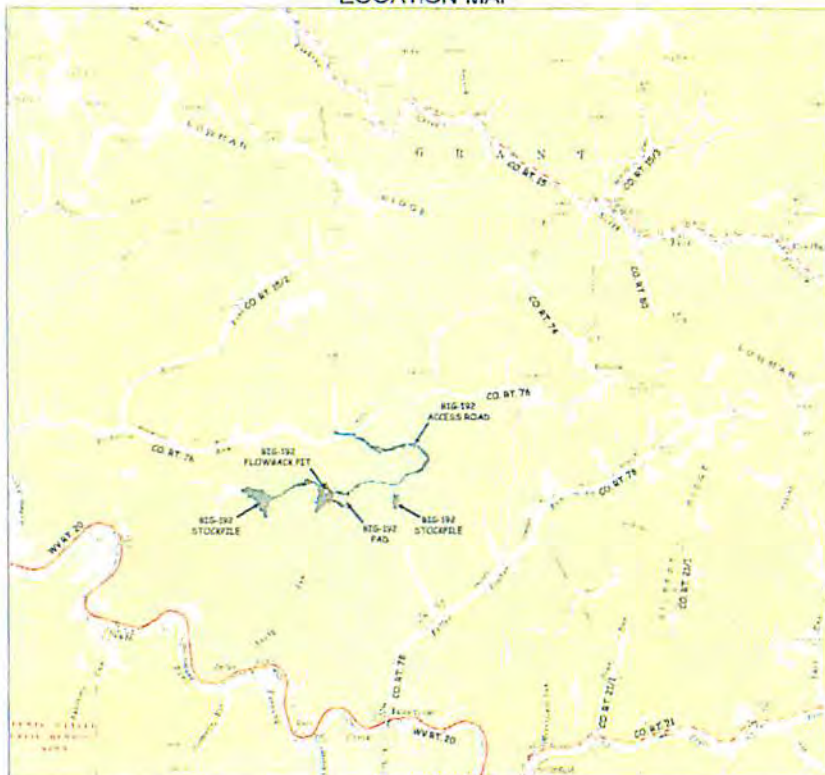
# BIG-192 AS-BUILT SITE PLAN EQT PRODUCTION COMPANY

**EXISTING WELLS API NO's:** 47-103-02819, 47-103-02825, 47-103-02826, 47-103-02824, 47-103-02820, 47-103-02823, 47-103-02822, 47-103-02821, 47-103-02827, 47-103-02828, 47-103-02855, 47-103-02900, 47-103-03040, 47-103-03041, 47-103-03042 & 47-103-02855

**PROPOSED WELLS:** WV 513921, WV 513922, WV 515949, WV 515950, & WV515951.

SITUATE ON THE WATERS OF TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

## LOCATION MAP



### PROJECT INFORMATION

PROJECT NAME: BIG-192 AS-BUILT SITE PLAN

TAX PARCEL:  
GRANT DISTRICT  
MAP 23-14

### SURFACE OWNER

RICHARD B. DALLISON ET AL.  
GRANT DISTRICT  
WETZEL COUNTY, WV  
TOTAL PROPERTY AREA: 416.76 ACRES

### ROYALTY OWNER

ED BROOKER JR ET AL.  
GRANT DISTRICT  
WETZEL COUNTY, WV  
TOTAL PROPERTY AREA: 1102.00 ACRES

### SITE LOCATION

THE BIG-192 SITE IS LOCATED ON A RIDGE SOUTH OF CO. BY 76, APPROXIMATELY 1/4 MILE EAST OF THE CO. BY 76 AND STATE 20 INTERSECTION.

### BIG-192 LOCATION COORDINATES

BIG-192 WELL ENTRANCE:  
LATITUDE: 39 52'53.1" N LONGITUDE: 80 52'05.1" W  
N 47°08'19.5" E S 33°03'18.4" W 107.940' DISTANCE TO

BIG-192 WELL PAD (CENTER PAD):  
LATITUDE: 39 52'54.1" N LONGITUDE: 80 50'03.1" W  
N 45°54'00.0" E S 33°03'18.4" W 107.940' DISTANCE TO

BIG-192 ASSOCIATED PIT:  
LATITUDE: 39 52'54.1" N LONGITUDE: 80 50'03.1" W  
N 45°54'00.0" E S 33°03'18.4" W 107.940' DISTANCE TO

### SITE DISTURBANCE COMPUTATIONS

UNGRAZED LUD ACREAGE= 50.45 ACRES  
PROPOSED ACCESS ROAD ACREAGE= 15.4 ACRES  
DELETED LAND DISTURBED ACREAGE= 14 ACRES  
NET DISTURBED AREA WITH LUD= 24.45 ACRES  
TOTAL ACREAGE AFTER REDUCTION IN LUD APPROXIMATE= 103.54 ACRES

### GENERAL DESCRIPTION

THE WELL PAD AND ASSOCIATED PIT HAVE BEEN CONTRACTED TO ACCORDING TO THE TERMS AND CONDITIONS OF INDIVIDUAL AGREEMENTS WITH GAS OWNERS.

### BIG-192 AS-BUILT DISTURBANCE

SURFACE OWNER	TAX MAP PARCELS	AS-BUILT DISTURBANCE (AC)
CORRAL LUNGER COMPANY	191 23 13	12.31
THOMAS & WHITT ET AL.	191 23 17	0.04
RICHARD B. DALLISON ET AL.	191 23 14	31.53
CORRAL LUNGER COMPANY	191 17 14	12.51

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!

### LIST OF DRAWINGS

1. COVER SHEET
2. CONSTRUCTION DETAILS
3. INDEX SHEET
4. BIG-192 ACCESS ROAD AS-BUILT
5. BIG-192 ACCESS ROAD AS-BUILT
6. BIG-192 ACCESS ROAD AS-BUILT
7. BIG-192 ACCESS ROAD AS-BUILT
8. BIG-192 ACCESS ROAD AS-BUILT
9. BIG-192 ACCESS ROAD AS-BUILT
10. BIG-192 ACCESS ROAD AS-BUILT
11. BIG-192 ACCESS ROAD AS-BUILT
12. BIG-192 ACCESS ROAD AS-BUILT
13. BIG-192 ACCESS ROAD AS-BUILT
14. CONSTRUCTION DETAILS
15. CONSTRUCTION DETAILS
16. CONSTRUCTION DETAILS
17. RECLAMATION DETAILS

### LEGEND

LIMIT OF JURISDICTION	SYMBOL
CONCRETE FENCE PICKET	---
EXISTING FENCE LINE	---
EXISTING ROAD EDGE OF CONCRETE	---
EXISTING ROAD EDGE OF ASPHALT	---
EXISTING ROAD CENTERLINE	---
EXISTING UTILITY	---
EXISTING FENCING	---
EXISTING GATE	---
EXISTING HIGHWAY UTILITY	---
EXISTING OVERHEAD UTILITY	---
EXISTING POWER POLE	---
EXISTING BODY WARE	---
EXISTING TELEPHONE LINE	---
EXISTING GASLINE	---
EXISTING GASLINE P.W.	---
EXISTING WATERLINE	---
EXISTING MONITORING WELL	---
EXISTING TRENCH	---
EXISTING ROCKPILE	---
EXISTING DECONTAMINATED STREAM	---
EXISTING DECONTAMINATED WETLAND	---
EXISTING STRUCTURE	---
EXISTING TYPING MARKER	---
EXISTING FOOTPRINT	---
EDGE OF GRAVEL PAD	---
EDGE OF DEEM	---
EXISTING SUPER SILE FENCE	---
EXISTING REINFORCED GUT FENCE	---
EXISTING CONCRETE	---
EXISTING ORIGINAL GROUND IF CONTAINED	---
AS-BUILT 2' CONTOUR	---
PHOTO NUMBER & LOCATION	---
AS-BUILT WELL LOCATION	---
PROPOSED WELL LOCATIONS	---
EXISTING ELEVATIONS	---
BATHYMETRY	---
ADDITIONAL LUD AREA	---

DAN  
4-27-15

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 Office of Oil and Gas  
 MAY 04 2015

WV Department of Environmental Protection  
 Professional Energy Consultants  
 SLS  
 1105 EAST MAIN STREET  
 MARTINSBURG, WV 26101  
 WWW.SLS-INC.COM  
 BIG-192 SITE PLAN MODIFICATION  
 THIS DOCUMENT WAS PREPARED BY SLS FOR EQT PRODUCTION COMPANY  
 DATE: 07-31-15  
 EQT  
 SCALE: 8" = 200'  
 DESIGNED BY: JES  
 PLOT NO: 7727  
 SHEET 1 OF 17  
 SCALE: AS SHOWN  
 T&M © 2015



4710303111

# BIG-192 AS-BUILT SITE PLAN

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY DGP'S  
SURVEY GRADE



**BIG-192 AS BUILT VOLUMES**

PHASE 1 AS BUILT BIG-192 ACCESS ROAD			
DATE OF SURVEY	PROJECT NO.	AS BUILT DATE	BY
01/15/15	100000000	01/15/15	DGP

\* APPROXIMATE QUANTITIES OF MATERIALS IN PLACE AND QUANTITIES OF REMOVALS TO BE MADE BY THE CONTRACTOR SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

PHASE 2 AS BUILT BIG-192 WELLS PAD			
DATE OF SURVEY	PROJECT NO.	AS BUILT DATE	BY
01/15/15	100000000	01/15/15	DGP

\* APPROXIMATE QUANTITIES OF MATERIALS IN PLACE AND QUANTITIES OF REMOVALS TO BE MADE BY THE CONTRACTOR SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

PHASE 3 AS BUILT BIG-192 BRANCH DRAINAGE			
DATE OF SURVEY	PROJECT NO.	AS BUILT DATE	BY
01/15/15	100000000	01/15/15	DGP

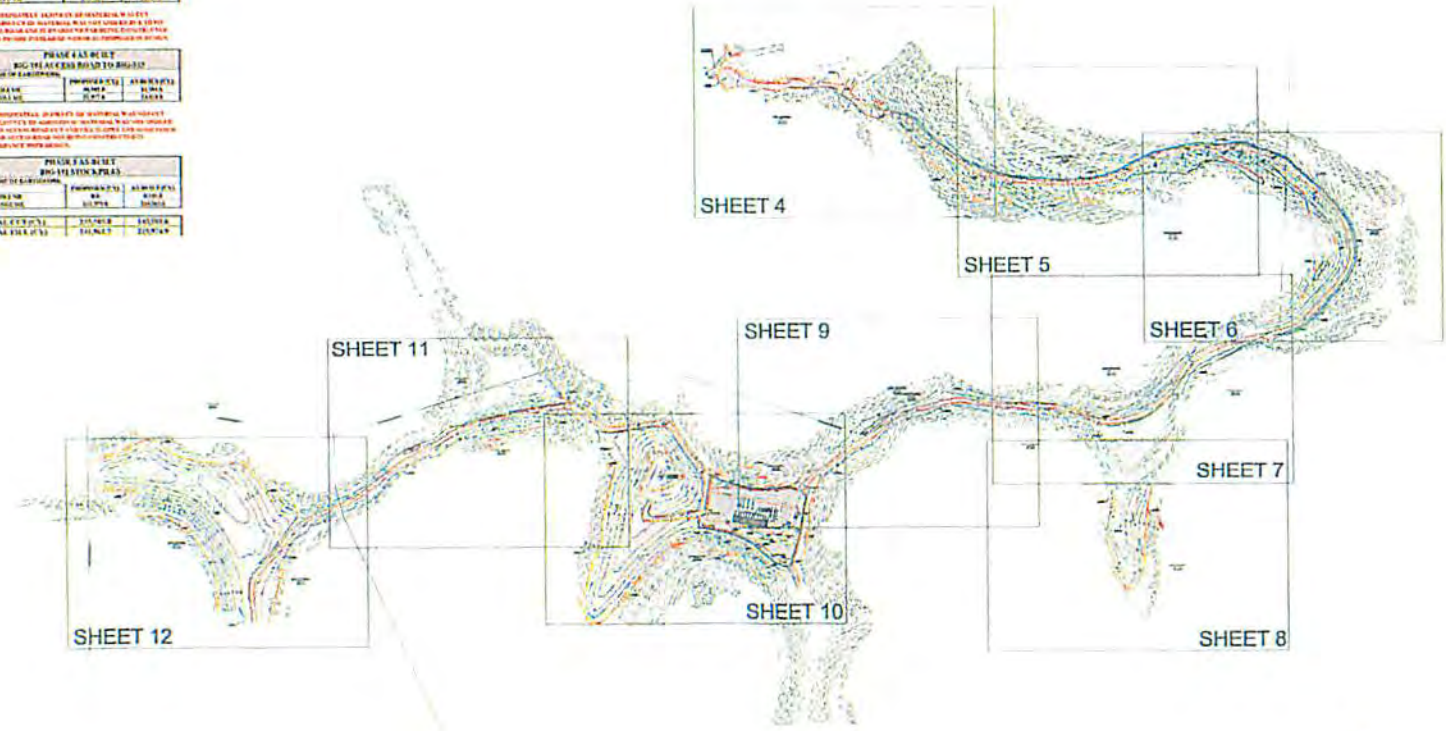
\* APPROXIMATE QUANTITIES OF MATERIALS IN PLACE AND QUANTITIES OF REMOVALS TO BE MADE BY THE CONTRACTOR SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

PHASE 4 AS BUILT BIG-192 ACCESS ROAD TO BIG-192			
DATE OF SURVEY	PROJECT NO.	AS BUILT DATE	BY
01/15/15	100000000	01/15/15	DGP

\* APPROXIMATE QUANTITIES OF MATERIALS IN PLACE AND QUANTITIES OF REMOVALS TO BE MADE BY THE CONTRACTOR SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

PHASE 5 AS BUILT BIG-192 STORM PIPES			
DATE OF SURVEY	PROJECT NO.	AS BUILT DATE	BY
01/15/15	100000000	01/15/15	DGP

\* APPROXIMATE QUANTITIES OF MATERIALS IN PLACE AND QUANTITIES OF REMOVALS TO BE MADE BY THE CONTRACTOR SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



**EQ3**  
Water Energy Trade Innovation

**SLS**  
Professional Energy Consultants  
SURVEYOR  
ENGINEER  
PAVING CONTRACTOR  
PROJECT MANAGER  
www.slsenergy.com

THIS DOCUMENT WAS  
PREPARED BY  
DGP SURVEYING, P.C.  
FOR SLS

**BIG-192 SITE PLAN  
MODIFICATION**  
THIS DOCUMENT WAS PREPARED BY  
DGP SURVEYING, P.C.  
FOR SLS

DATE: 07-11-15  
BY: [Signature]  
SCALE: 1" = 300'  
DESIGNED BY: DGP  
FILE NO: 7797  
SHEET 3 OF 17  
DGP SURVEYING, P.C.

DGP  
4-22-15



4710303111

# BIG-192 SITE PLAN MODIFICATION

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY  
SURVEY GRADE

RECEIVED  
Office of Oil and Gas



MAY 04 2015

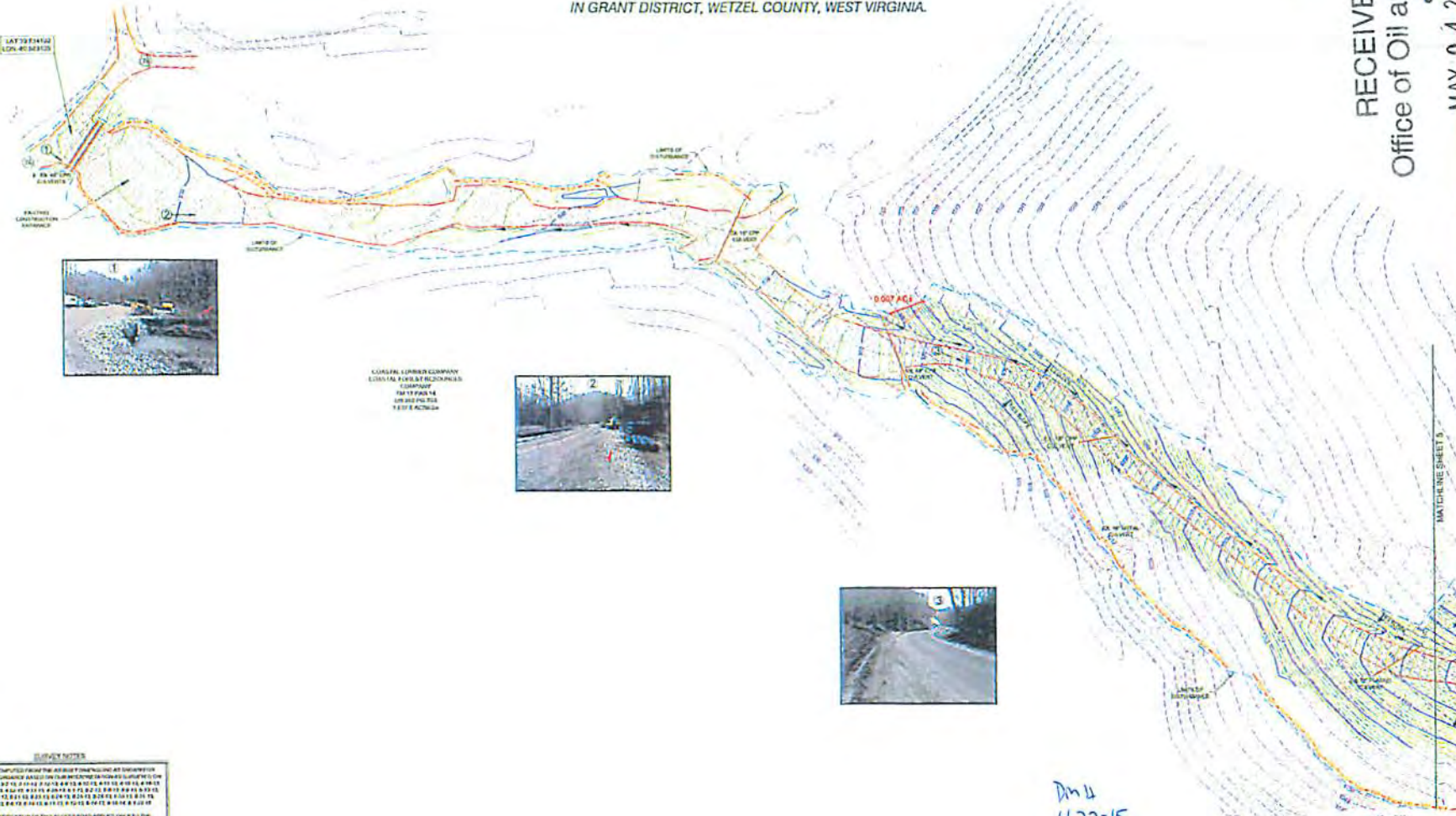


Professional Energy Consultants  
SLS  
SLOAN LEE SLOAN  
ENGINEERS  
PLANNERS  
PAINTERS  
INC.  
1000 S. MAIN ST.  
MARTINSBURG, WV 26158  
WWW.SLS-PC.COM

THIS DOCUMENT WAS PREPARED BY  
SLOAN LEE SLOAN ENGINEERS  
PLANNERS PAINTERS INC.  
FOR EQT

BIG-192 SITE PLAN  
MODIFICATION  
THIS DOCUMENT WAS PREPARED BY  
SLOAN LEE SLOAN ENGINEERS  
PLANNERS PAINTERS INC.  
FOR EQT

DATE: 04-14-15  
EST  
SCALE: 1" = 50'  
DRAWN BY: EBS  
FILE NO: 7721  
SHEET 4 OF 17  
SLS  
1000 S. MAIN ST.  
MARTINSBURG, WV 26158



LOGS FOR LUMBER COMPANY  
EXISTING FOREST RECONSTRUCTION  
COMPANY  
10017 FORD RD  
MARTINSBURG, WV  
26158

Amu  
4-27-15

1" = 50'  
SCALE

**SURVEY NOTES**  
1. AREA IS COMPLETED FROM THE ADJACENT TOWN OF...  
2. THE LOCATION OF THE PROPOSED ROAD...  
3. THE LOCATION OF THE PROPOSED ROAD...  
4. THE LOCATION OF THE PROPOSED ROAD...  
5. THE LOCATION OF THE PROPOSED ROAD...



4710303111

# BIG-192 SITE PLAN MODIFICATION

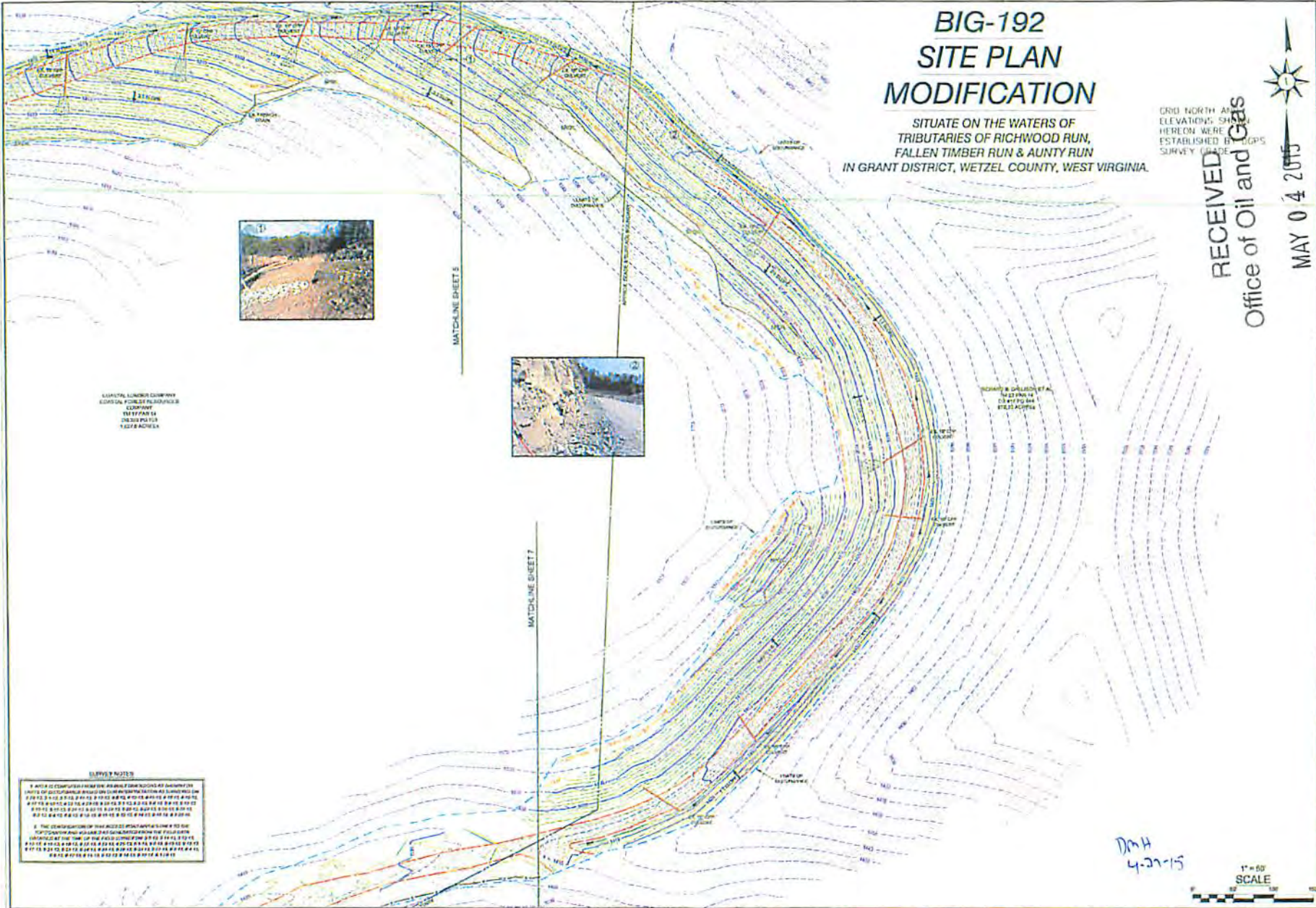
SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY TOPOS  
SURVEY MADE



RECEIVED  
Office of Oil and Gas

MAY 04 2015



KAPITAL LUMBER COMPANY  
CORPORAL FOREST PLANTATION  
CORPORATION  
1111 FAN LN  
28000 PAULINA  
12278 ADRIENNA

INDIAN & DALESON ET AL.  
SURVEYING &  
CONSULTING ENGINEERS  
1000 W. 10TH ST. S.W.  
TULSA, OKLA. 74106

**NOTES**

1. THIS IS A PRELIMINARY SITE PLAN. IT IS SUBJECT TO APPROVAL BY THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE WEST VIRGINIA DEPARTMENT OF MINERAL RESOURCES.

2. THE CONTIGUOUS PROPERTY OWNERS HAVE BEEN NOTIFIED OF THE PROPOSED PROJECT AND HAVE BEEN GIVEN AN OPPORTUNITY TO COMMENT ON THE PROPOSED PROJECT.

3. THE PROPOSED PROJECT IS SUBJECT TO THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S REGULATIONS AND THE WEST VIRGINIA DEPARTMENT OF MINERAL RESOURCES' REGULATIONS.

4. THE PROPOSED PROJECT IS SUBJECT TO THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S REGULATIONS AND THE WEST VIRGINIA DEPARTMENT OF MINERAL RESOURCES' REGULATIONS.



THIS DOCUMENT WAS  
PREPARED BY  
SURFACE  
SURVEYING, INC.  
FOR EOP

**BIG-192 SITE PLAN  
MODIFICATION**  
THIS DOCUMENT WAS PREPARED BY  
SURFACE SURVEYING, INC.  
FOR EOP

DATE: 03-11-15  
EOP  
SCALE: 1" = 50'  
DRAWN BY: ECK  
FILE NO: 7797  
SHEET: 6 OF 19  
SLS  
100 W. 10TH ST. S.W. TULSA, OKLA. 74106



DCH  
4-27-15

4710303191

# BIG-192 SITE PLAN MODIFICATION

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY DEEPS  
SURVEY COMPANY



RECEIVED  
Office of Oil and Gas  
MAY 04 2015

Department of  
**EQ** Environmental Protection

Professional Energy Consultants  
**SLS**  
SOLUTIONS  
SERVICES  
ENVIRONMENTAL  
PROJECT SUPPORT  
WWW.SLSOLUTIONS.COM  
304.488.8888

THIS DOCUMENT WAS  
PREPARED BY  
BALTIMORE  
SURVEYING INC.  
FOR E&P

BIG-192 SITE PLAN  
MODIFICATION  
THIS DOCUMENT WAS PREPARED BY  
BALTIMORE SURVEYING INC.  
FOR E&P PRODUCTION COMPANY

DATE 02-23-15  
SHEET  
SCALE 1" = 50'  
DESIGNED BY E&P  
FILE NO 7127  
SHEET 1 OF 17  
DATE  
1" = 50'  
SCALE

MATCHLINE SHEET 3



COASTAL LUMBER COMPANY  
LUMBER FOREST FURNACE'S  
COMPANY  
TM 87 PAGE 14  
DT 10/25/02  
K223AC0204

RICHARD B. GALLAGHER ET AL.  
TM 22 PAGE 14  
DT 04/17/08  
K223AC0204



MATCHLINE SHEET 6

MATCHLINE SHEET 6

### SURVEY NOTES

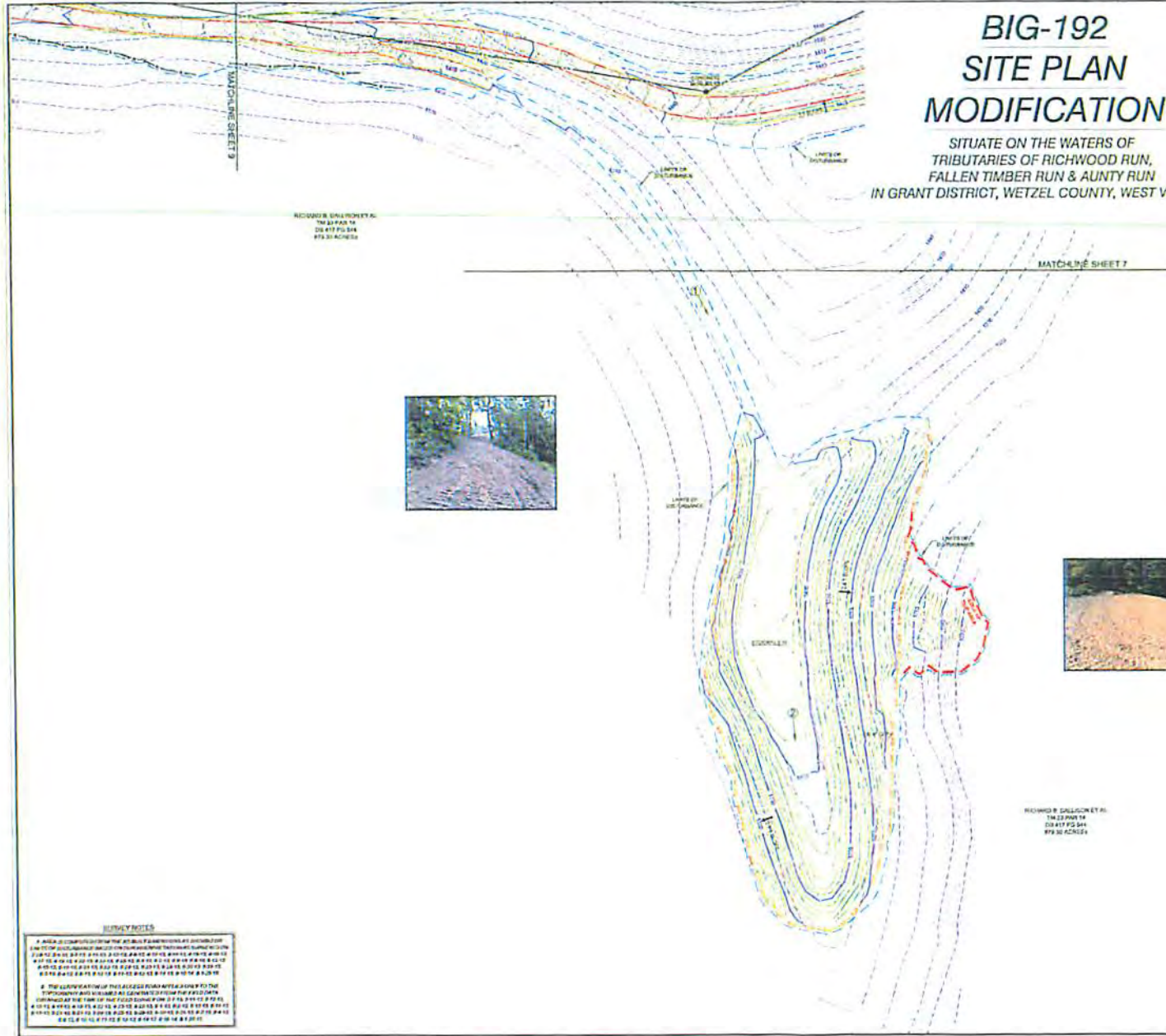
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998.00, 999.00, 1000.00

DATE  
4-22-15





4710303111



# BIG-192 SITE PLAN MODIFICATION

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY  
SURVEY



RECEIVED  
Office of Oil and Gas

MAY 04 2015

REINHOLD & CALLOONEY P.L.L.C.  
100 EAST MAIN  
DUNSMITH, WV 26034  
879.31.4222

MATCHLINE SHEET 7



REINHOLD & CALLOONEY P.L.L.C.  
100 EAST MAIN  
DUNSMITH, WV 26034  
879.31.4222

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Professional Energy Consultants  
AN ASSOCIATE OF SLS  
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ENVIRONMENTAL  
PROJECT MGMT.  
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2014-05-08

THIS DOCUMENT HAS  
BEEN REVIEWED  
AND APPROVED FOR  
FILED

**BIG-192 SITE PLAN  
MODIFICATION**  
THIS DOCUMENT IS THE  
PROPERTY OF REINHOLD &  
CALLOONEY P.L.L.C.

DATE: 02-21-15  
BY:  
SCALE: 1" = 50'  
DESIGNED BY: JRM  
FILE NO: 1477  
SHEET # OF 17



Ditch  
4-27-15

4710303111

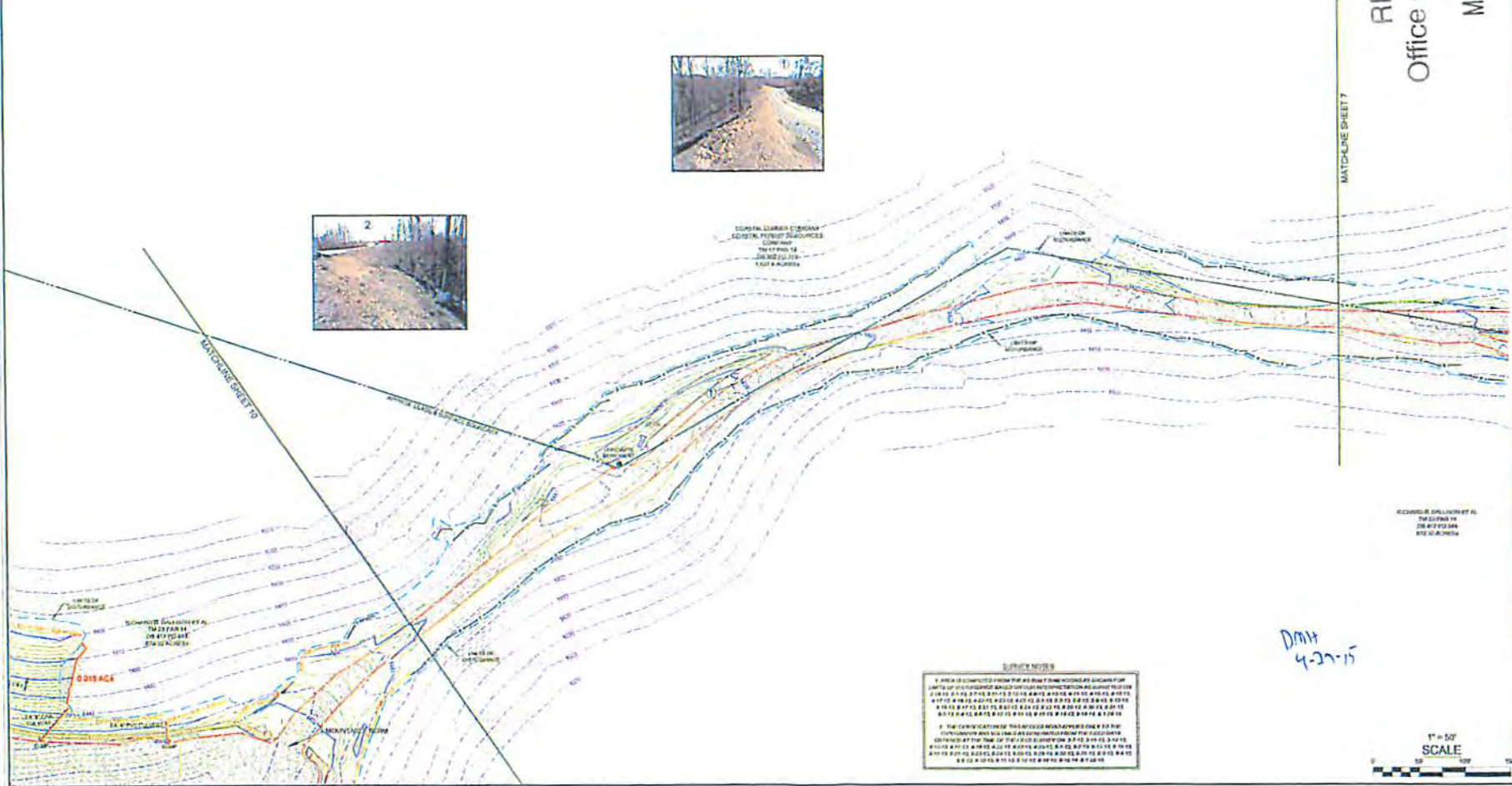
# BIG-192 SITE PLAN MODIFICATION

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY  
SURVEY TRAVERSE

RECEIVED  
Office of Oil and Gas

MAY 04 2015



REVISIONS CALL OUT BY #1  
DATE 05/04/15  
BY: [Signature]

DMH  
4-22-15

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2. THE ACCURACY OF THIS DOCUMENT IS GUARANTEED ONLY FOR THE CONDITIONS AND USES SPECIFICALLY IDENTIFIED HEREIN. SLS DOES NOT WARRANT THE ACCURACY OF THIS DOCUMENT FOR ANY OTHER USES OR CONDITIONS.  
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4. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY EASEMENTS AND RIGHTS OF WAY FROM ALL APPLICABLE OWNERS AND INTERESTED PARTIES.  
5. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY INSURANCE COVERAGE.  
6. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONTRACTS AND AGREEMENTS FROM ALL APPLICABLE VENDORS AND SUPPLIERS.  
7. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY TRAINING AND CERTIFICATION FOR ALL PERSONNEL INVOLVED IN THE PROJECT.  
8. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY SAFETY AND HEALTH MEASURES FOR ALL PERSONNEL INVOLVED IN THE PROJECT.  
9. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY COMMUNITY AND PUBLIC RELATIONS MEASURES FOR ALL PERSONNEL INVOLVED IN THE PROJECT.  
10. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY LEGAL AND REGULATORY MEASURES FOR ALL PERSONNEL INVOLVED IN THE PROJECT.

1" = 50'  
SCALE  
0 50 100

Professional Energy Consultants  
SLS  
SOUTHLAND SURVEYING, INC.  
FOR OIL PRODUCTION COMPANY

THIS DOCUMENT WAS  
PREPARED BY  
SOUTHLAND  
SURVEYING, INC.  
FOR EOG

**BIG-192 SITE PLAN  
MODIFICATION**  
THE DOCUMENT WAS PREPARED BY  
SOUTHLAND SURVEYING, INC.  
FOR OIL PRODUCTION COMPANY

DATE: 02-11-15  
BY:  
SCALE: 1" = 50'  
DESIGNED BY: ERS  
FILE NO: 7727  
SHEET: 0 OF 17  
Fig. 8. PLAN SHEET 1 of 1

Department of  
Environmental Protection  
Where energy meets innovation

4710303111

# BIG-192 SITE PLAN MODIFICATION

SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTY RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH AND ELEVATION SHOWN HEREON ARE ESTABLISHED BY DEPT. OF NATURAL RESOURCES

RECEIVED  
Office of Oil and Gas

MAY 04 2015



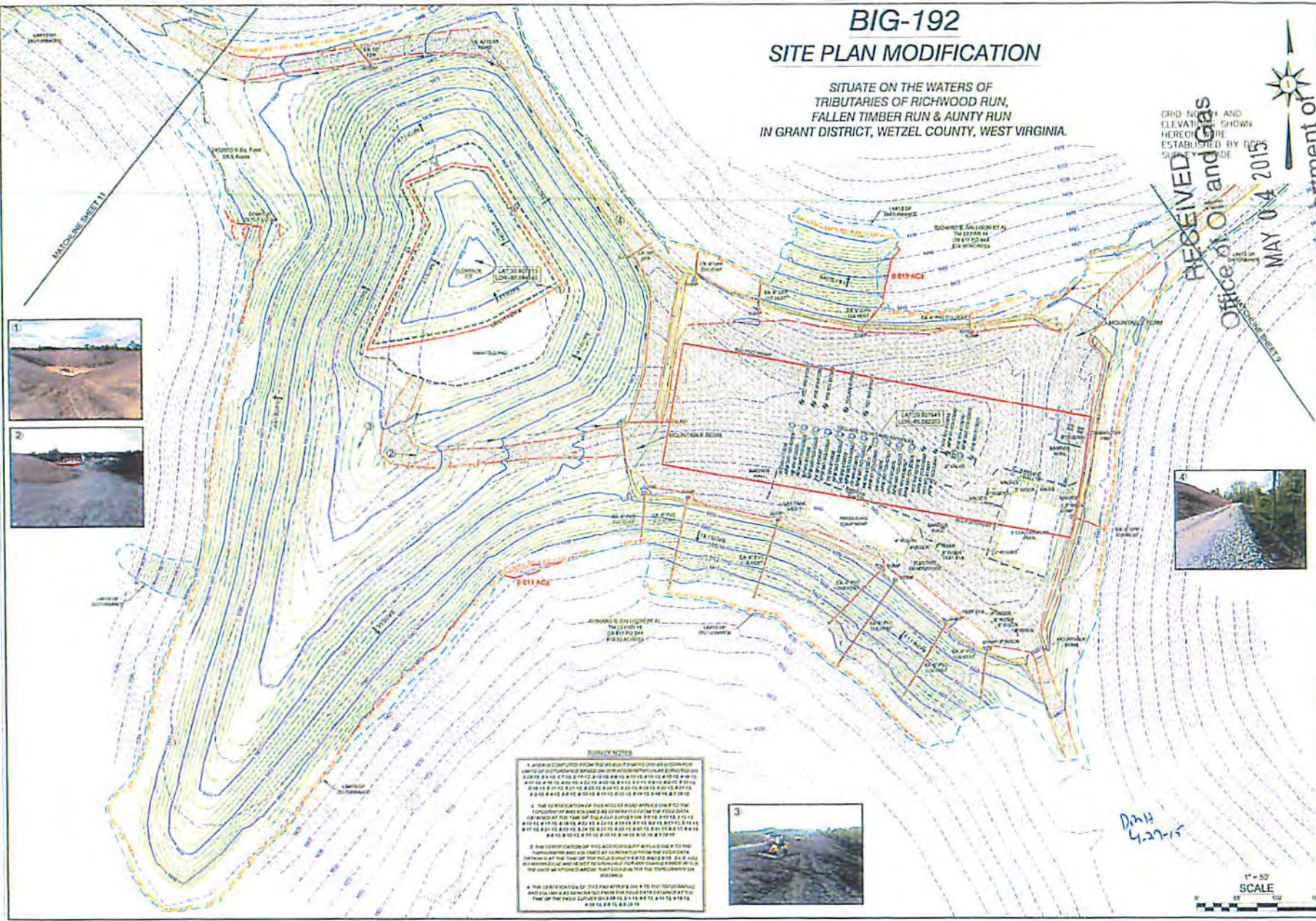
WV Department of Environmental Protection



THIS PROJECT HAS BEEN FORWARDED BY THE STATE OF WEST VIRGINIA TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR REVIEW

BIG-192 SITE PLAN MODIFICATION

DATE: 02-11-15  
SHEET: 1 OF 1  
SCALE: 1" = 50'  
DESIGNED BY: ESD  
FILE NO: 7997  
SHEET NO OF 17  
SHEET NO: 17  
17th & 18th St. Wetzel, WV 26061



**REVISIONS**

1. AREA IS COMPLETED FROM THE ORIGINAL PLANING AND CONSTRUCTION OF THE PROJECT. THE ORIGINAL PLANING AND CONSTRUCTION OF THE PROJECT WAS COMPLETED IN 2011. THE ORIGINAL PLANING AND CONSTRUCTION OF THE PROJECT WAS COMPLETED IN 2011. THE ORIGINAL PLANING AND CONSTRUCTION OF THE PROJECT WAS COMPLETED IN 2011.
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DWH  
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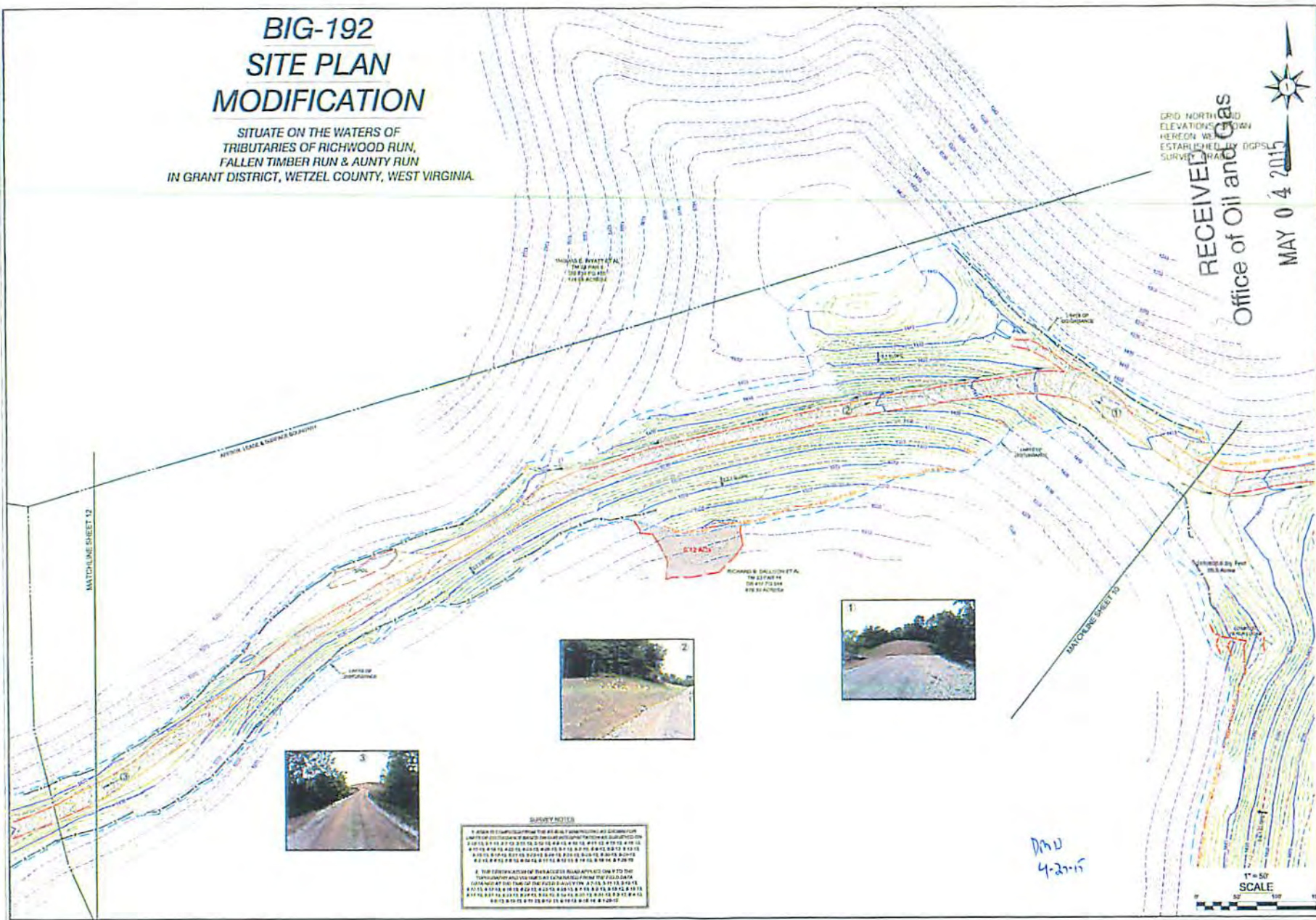
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GRID NORTH AND  
ELEVATIONS SHOWN  
HEREON WERE  
ESTABLISHED BY DGPS  
SURVEY DATA

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MAY 04 2015



**SURVEY NOTES**

1. AREA IS COMPRISED OF THE AREAS 7 AND 8 OF THE 1997 SURVEY AND IS LOCATED ON THE WEST SIDE OF THE ROAD. THE SURVEY DATA IS SHOWN ON SHEETS 12 AND 13 OF THE 1997 SURVEY. THE SURVEY DATA IS SHOWN ON SHEETS 12 AND 13 OF THE 1997 SURVEY. THE SURVEY DATA IS SHOWN ON SHEETS 12 AND 13 OF THE 1997 SURVEY.

2. THE ELEVATION OF THE BENCHMARK IS 410.00 FEET TO THE TOP OF THE BENCHMARK. THE SURVEY DATA IS SHOWN ON SHEETS 12 AND 13 OF THE 1997 SURVEY. THE SURVEY DATA IS SHOWN ON SHEETS 12 AND 13 OF THE 1997 SURVEY.

DMU  
4-20-15

1" = 50'  
SCALE

THIS DOCUMENT WAS  
PREPARED BY  
SWEETLAND  
ENGINEERING, INC.  
FOR EOT

**Professional Energy Consultants**  
SWEETLAND  
ENGINEERING, INC.  
PROJECT SHEET  
www.seconline.com

**Department of Environmental Protection**  
West Virginia Energy Commission

**BIG-192 SITE PLAN  
MODIFICATION**  
THIS DOCUMENT WAS PREPARED BY  
SWEETLAND ENGINEERING, INC.  
FOR EOT PRODUCTION COMPANY

DATE: 02-11-10  
NET  
SCALE: 1" = 50'  
DESIGNED BY: DMU  
FILE NO: 7797  
SHEET 11 OF 17

4710303111

# BIG-192 SITE PLAN MODIFICATION

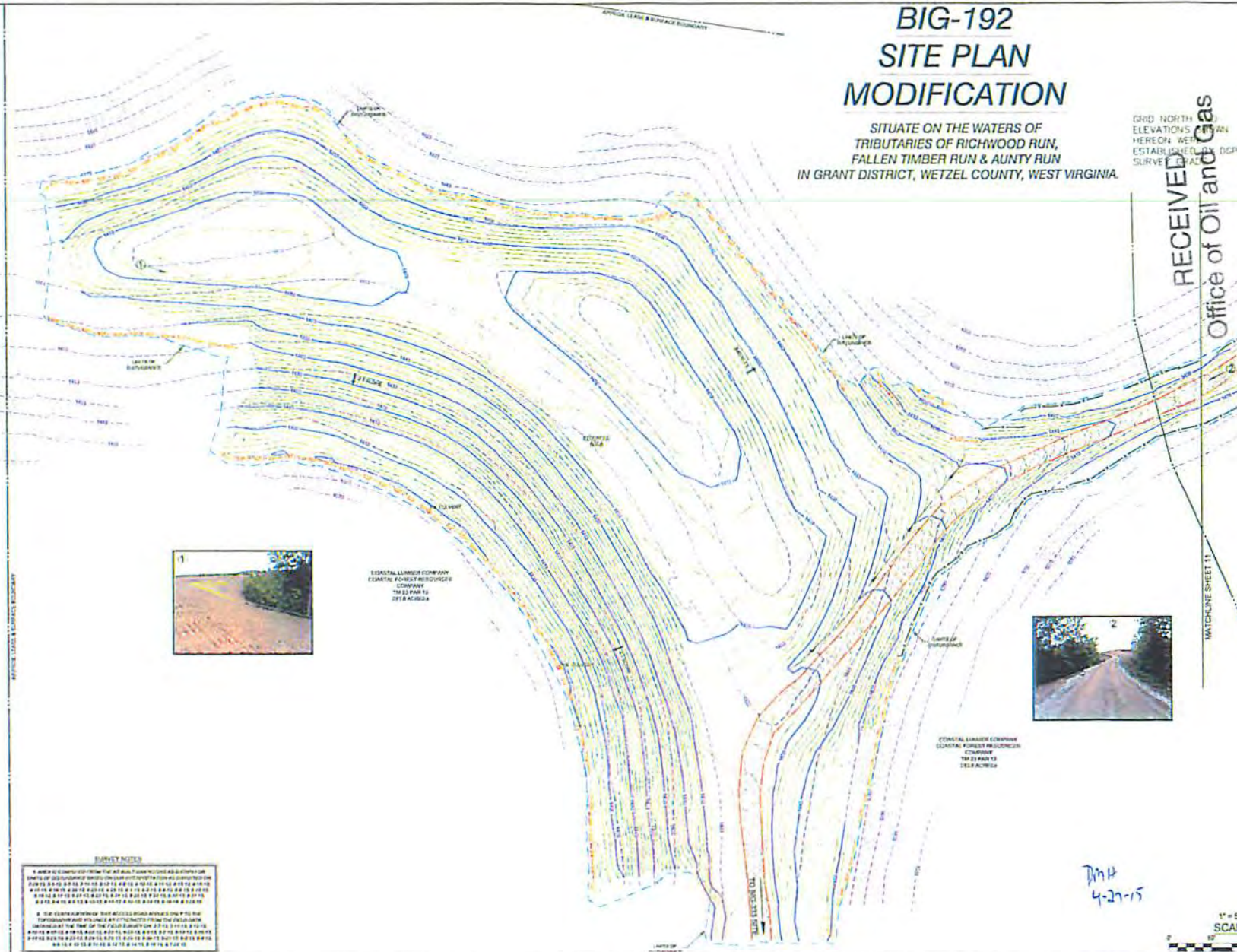
SITUATE ON THE WATERS OF  
TRIBUTARIES OF RICHWOOD RUN,  
FALLEN TIMBER RUN & AUNTJ RUN  
IN GRANT DISTRICT, WETZEL COUNTY, WEST VIRGINIA.

GRID NORTH  
ELEVATIONS  
HEREON WERE  
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SURVEY



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MAY 04 2015



ESCAPAL LUMBER COMPANY  
EQUATORIAL FOREST PRODUCTS  
COMPANY  
TRAIL #2 PAR 13  
DELAWARE



ESCAPAL LUMBER COMPANY  
EQUATORIAL FOREST PRODUCTS  
COMPANY  
TRAIL #2 PAR 13  
DELAWARE

**SURVEY NOTES**

1. ALL SURVEY CORNER POINTS AND BENCHMARKS ARE TO BE MAINTAINED AND PROTECTED AT ALL TIMES.
2. ALL SURVEY CORNER POINTS AND BENCHMARKS ARE TO BE MAINTAINED AND PROTECTED AT ALL TIMES.
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10. ALL SURVEY CORNER POINTS AND BENCHMARKS ARE TO BE MAINTAINED AND PROTECTED AT ALL TIMES.

1" = 50'  
SCALE

DATE  
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ENVIRONMENTAL  
PRODUCTS, INC.

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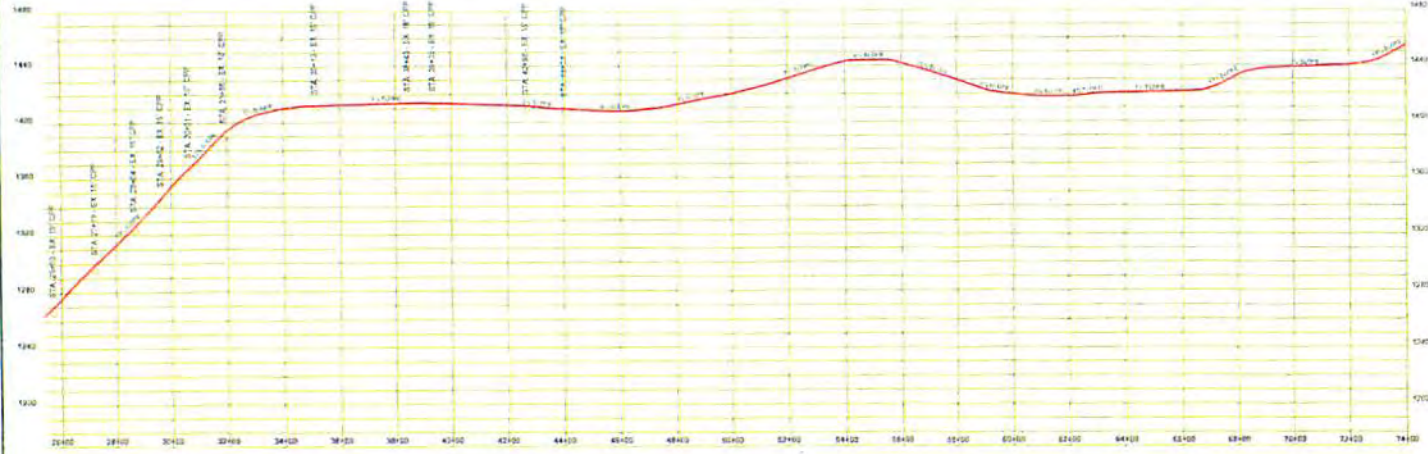
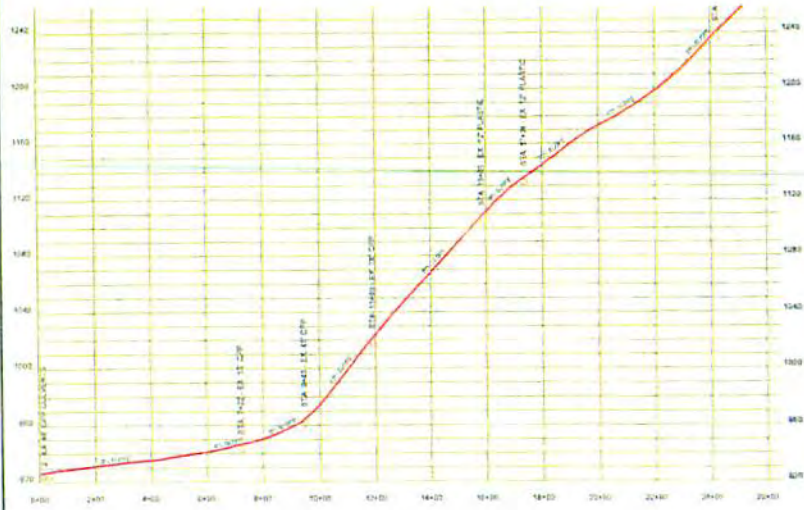
BIG-192 SITE PLAN  
MODIFICATION  
PROPOSED AND MODIFIED BY  
ESCAPAL LUMBER COMPANY  
FOR LOT PRODUCTION COMPANY

DATE: 04-15-15  
SHEET:  
SCALE: 1" = 50'  
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FILE NO: 2797  
SHEET 11 OF 17

Department of  
Environmental Protection  
Wetzel County, West Virginia

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# BIG-192 SITE AS-BUILT ROAD PROFILE



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4-27-11

REVISIONS DATE DESCRIPTION

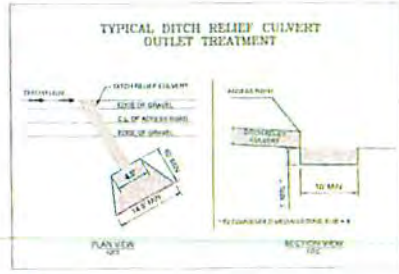
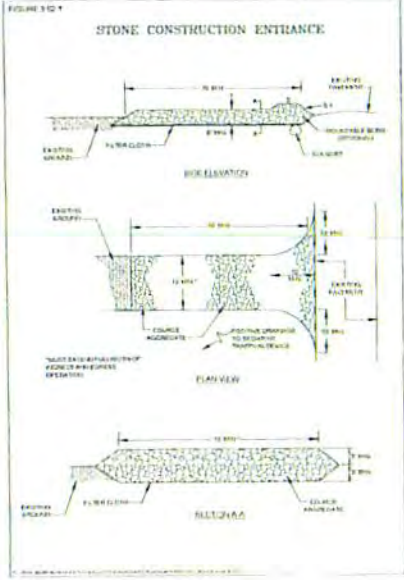


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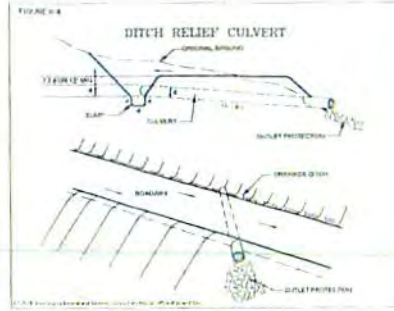
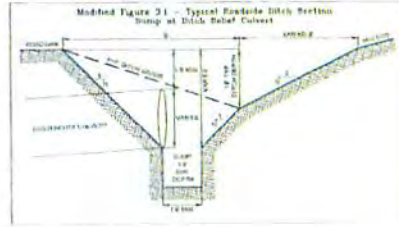
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DATE: 02/11/14  
SCALE: 200' HGT  
4" VERT  
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FILE NO: 7737  
SHEET 13 OF 17

4710303111



**NOTE:**  
 ALL DITCH RELIEF PROTECTION SHALL BE INSTALLED AS RECOMMENDED OR AS BY VARIOUS ENGINEERING DESIGN CODES, BEST MANAGEMENT PRACTICE, AND OTHER. PROTECTION SHALL BE BASED ON THE FOLLOWING CRITERIA:  
 1. AFTER TRUCKS ARE DISBANDED  
 2. DRAIN CHANNELS APPROXIMATELY EQUAL TO CONTROL PRODUCTS UNLESS  
 3. GREATER THAN 6" RIPRAP OR A SIMILAR DRAINAGE DEVICE  
 IF INFLUENCING SOIL ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHALL BE CONTACTED FOR FURTHER EVALUATION.

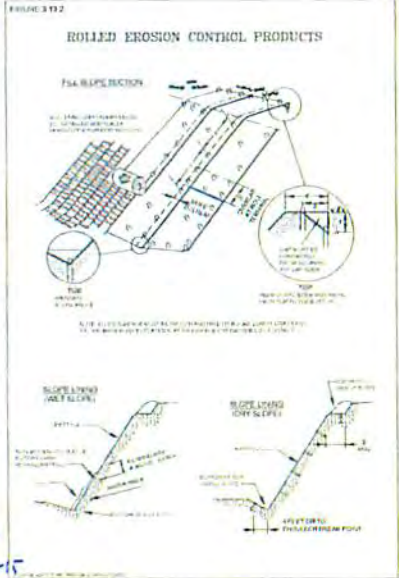
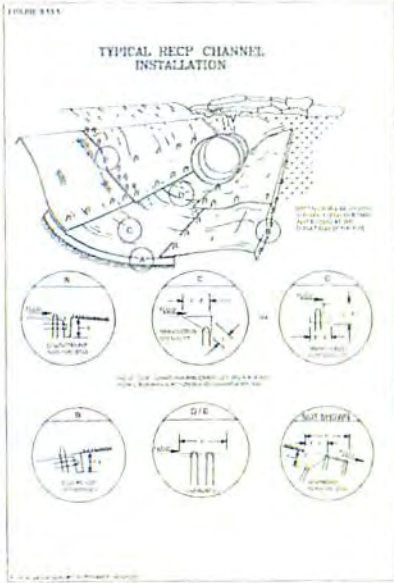
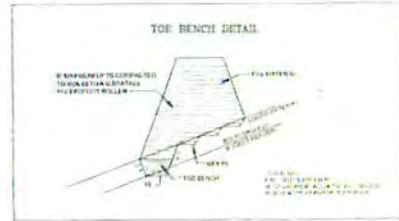
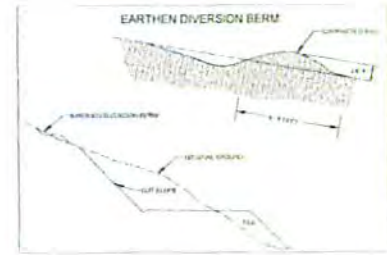
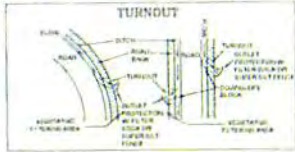
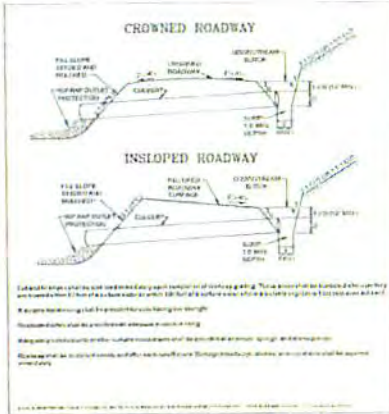
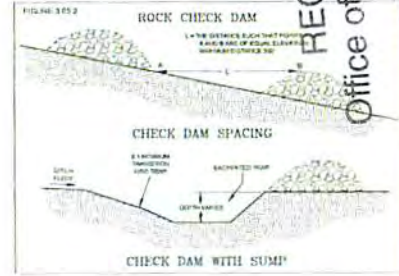
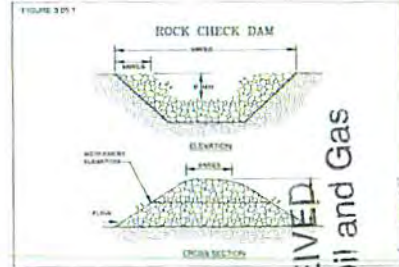


**Table 3-10-1**  
**Pipe Sizes for Culverts Across Roads**

Drainage Area (Ac)	Pipe Diameter (in)	Pipe Capacity (cfs)
10	18	7
15	24	11
20	30	15
25	36	20
30	42	25
35	48	30
40	54	35
45	60	40
50	66	45
55	72	50
60	78	55
65	84	60
70	90	65

**Table 3-10-2**  
**Spacing of Culverts**

Road Class. No.	Drainage Area (Ac)	Spacing (ft)
1-3	100,000	200
4-6	100,000	300
7-8	100,000	400
9-10	100,000	500



Dm  
4-27-11

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MAY 04 2011

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 A DIVISION OF SLS CONSULTANTS, INC.  
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 DENVER, CO 80202  
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BIG-192 SITE PLAN  
MODIFICATION

DATE: 02-03-10  
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 SCALE: N/A  
 DESIGNED BY: NAW  
 FILE NO: 192P  
 SHEET: 14 OF 17  
 TOTAL SHEETS: 192P & 192D

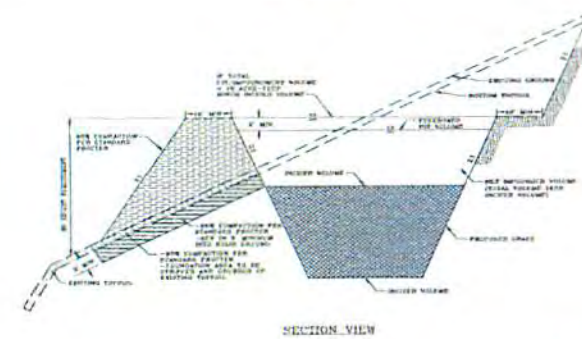
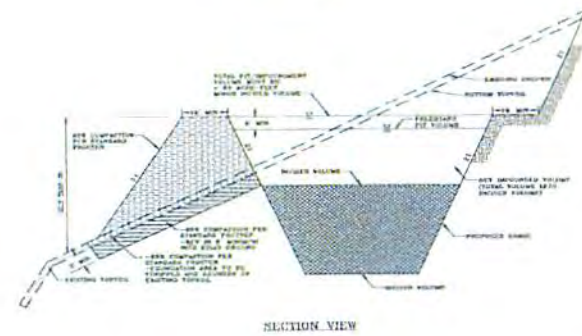
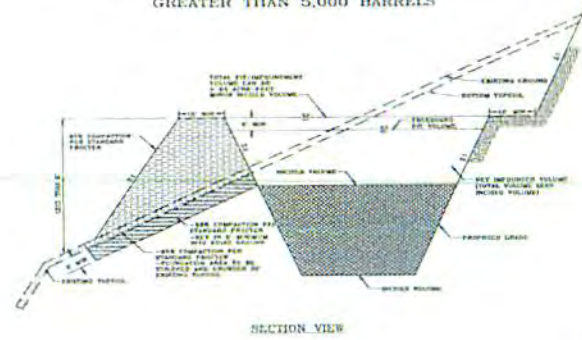
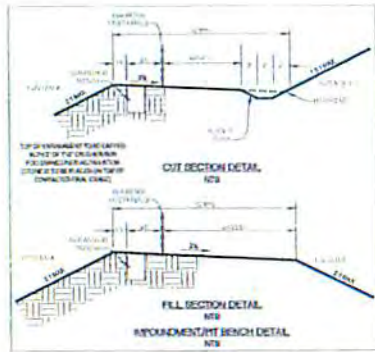
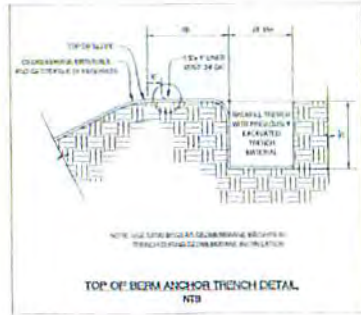
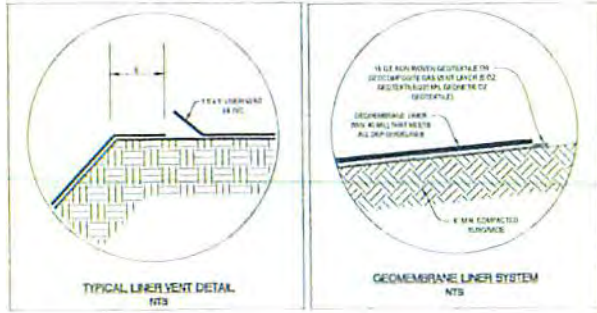
U.S. Department of Environmental Protection





4710303111

WEST VIRGINIA CODE 35 CSR 4  
 DESIGN AND CONSTRUCTION REQUIREMENTS  
 FOR ASSOCIATED PITS, ASSOCIATED IMPOUNDMENTS, &  
 CENTRALIZED IMPOUNDMENTS  
 GREATER THAN 5,000 BARRELS



NOTES:  
 1. ALL FILL SHOULD BE KEVED IN TO ORIGINAL GROUND EVERY 2-5 VERTICAL FEET DEPENDING ON EXISTING GROUND SLOPE.  
 2. MINIMUM OUTSIDE AND INSIDE EMBANKMENT (FILL) SLOPES SHALL BE 3:1. THE INSIDE AND OUTSIDE SLOPES MUST ADD UP TO 6:1. V.

NTS

*DMH*  
 4-22-15

**EQT**  
 ENERGY CONSULTANTS

**Professional Energy Consultants**  
 A DIVISION OF EQUATE CONSULTING

UNIVERSITY  
 ENVIRONMENTAL  
 PROJECTS, INC.

DATE: 02-11-15

SCALE: N/A

DESIGNED BY: MWM

FILE NO: 1705

SHEET 10 OF 11

SITE  
 TOTAL: 10244261.10

4710303111

**VEGETATION**  
 Great Valley Environmental Remedial Action Plan Manual  
 West Virginia Division of Environmental Protection Office of Use and Control  
 Charleston, West Virginia  
 Version 1.0

**Temporary Seeding**

- 1. **Soil Erosion Control Practice**  
 Where erosion control practices will be required, the goal is to provide roughness 2-4 ft high. Temporary erosion control practices should be installed as soon as possible after site stabilization. Seeding is a critical component of the site stabilization process. A permanent vegetation cover will be applied to the site as soon as possible, or a period of time may be required.
- 2. **Seed Mixtures and Planting Dates**  
 Refer to Tables 1 through 4 for recommended seed mixtures and planting dates. The amount of seed to be applied is determined by the soil type and the amount of erosion control practice to be installed. Refer to Table 1 for recommended seed mixtures and planting dates. The amount of seed to be applied is determined by the soil type and the amount of erosion control practice to be installed.
- 3. **Seed Application**  
 Apply seed by broadcasting, drilling, or by hydroseeding. The rate of application is determined by the soil type and the amount of erosion control practice to be installed. The amount of seed to be applied is determined by the soil type and the amount of erosion control practice to be installed.

**Mulch**

- 1. **General Organic Mulch**  
 The application of organic mulch to the soil surface to prevent erosion, retain moisture, and suppress weeds is a common practice. The use of organic mulch is recommended for all areas where erosion control practices are installed. The amount of mulch to be applied is determined by the soil type and the amount of erosion control practice to be installed.
- 2. **Application**  
 Refer to Table 5 for the type of mulch and rate of application that is recommended for the site. The amount of mulch to be applied is determined by the soil type and the amount of erosion control practice to be installed.
- 3. **Hydroseeding**  
 Hydroseeding is a process of applying a mixture of seed, mulch, and water to the soil surface. This process is recommended for all areas where erosion control practices are installed. The amount of hydroseed to be applied is determined by the soil type and the amount of erosion control practice to be installed.

**Permanent Seeding**

- 1. **Soil Erosion Control Practice**  
 Permanent erosion control practices should be installed as soon as possible after site stabilization. The goal is to provide roughness 2-4 ft high. Permanent erosion control practices should be installed as soon as possible after site stabilization. The goal is to provide roughness 2-4 ft high.
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- 3. **Seed Application**  
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**Permanent Seed Mixture**

- 1. **Permanent Seed Mixture**  
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- 3. **Seed Application**  
 Apply seed by broadcasting, drilling, or by hydroseeding. The rate of application is determined by the soil type and the amount of erosion control practice to be installed.

**Table 1-1**  
 Recommended Seeding Dates

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

**Table 2**  
 Acceptable Fertilization Recommendation

Species	N (lb/ac)	P2O5 (lb/ac)	Example Pac. (lb per acre)
Cool Season Grass	40	80	400 lbs. 10-20-20
CS Grass & Legume	35	80	350 lbs. 10-20-20
Temperary Grass	40	40	200 lbs. 10-20-20

**Table 3**  
 Temporary Cover

Species	Seeding Rate (lb/acre)	Optimum Seeding Dates	Drainage	pH Ranges
Annual Ryegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Poorly	5.5 - 7.5
Field Broomrape	40	3/1 - 6/15 or 8/15 - 9/15	Well - Mod. Well	6.0 - 7.0
Spring Oats	90	3/1 - 6/15	Well - Poorly	5.5 - 7.0
Sunbarngrass	40	5/15 - 8/15	Well - Poorly	5.5 - 7.5
Winter Rye	110	8/15 - 10/15	Well - Poorly	5.5 - 7.5
Winter Wheat	110	8/15 - 11/15	Well - Mod. Well	5.5 - 7.0
Japanese Millet	10	6/15 - 8/15	Well	6.5 - 7.0
Redtop	5	3/1 - 6/15	Well	6.0 - 7.5
Annual Ryegrass	20	3/1 - 6/15	Well - Poorly	5.5 - 7.5
Spring Oats	64	3/1 - 6/15	Well - Poorly	5.5 - 7.5

NOTE: These rates should be increased by 50% if planted April 15 - August 2 and October 1 - March 1

**Table 4a**  
 Permanent Seeding Mixture

Species/Genus	Seeding Rate (lb/acre)	Soil Drainage Preference	pH Range
Crowmitch /	10 - 15	Well - Mod. Well	5.0 - 7.5
Tall Fescue	30	Well - Mod. Well	5.0 - 7.5
Crowmitch /	10 - 15	Well - Mod. Well	5.0 - 7.5
Perennial Ryegrass	20	Well - Mod. Well	5.0 - 7.5
Flattus or Perennial Poa /	20	Well - Mod. Well	4.0 - 8.0
Tall Fescue	15	Well - Mod. Well	4.0 - 8.0
Ladino Clover /	25	Well - Mod. Well	4.5 - 7.5
Sericea Leporella /	25	Well - Mod. Well	4.5 - 7.5
Tall Fescue /	2	Well - Mod. Well	4.5 - 7.5
Ladino Clover /	4	Well - Mod. Well	4.5 - 7.5
Redtop	1	Well - Mod. Well	4.5 - 7.5
Crowmitch /	10	Well - Mod. Well	4.5 - 7.5
Tall Fescue /	20	Well - Mod. Well	4.5 - 7.5
Redtop	3	Well - Mod. Well	4.5 - 7.5
Tall Fescue /	4	Well - Mod. Well	4.5 - 7.5
Ladino Clover /	10	Well - Mod. Well	4.5 - 7.5
Redtop	1	Well - Mod. Well	4.5 - 7.5
Sericea Leporella /	15	Well - Mod. Well	4.5 - 7.5
Tall Fescue /	20	Well - Mod. Well	4.5 - 7.5
Redtop	3	Well - Mod. Well	4.5 - 7.5
Tall Fescue /	2	Well - Mod. Well	4.5 - 7.5
Crowmitch /	10	Well - Mod. Well	4.5 - 7.5
Tall Fescue	50	Well - Poorly	4.5 - 7.5
Perennial Ryegrass /	10	Well - Poorly	4.5 - 7.5
Tall Fescue /	15	Well - Poorly	4.5 - 7.5
Ladino Clover *	20	Well - Poorly	4.5 - 7.5

\* Ladino Clover is generally preferred to other species. All legumes should be planted with proper inoculation prior to seeding. For unimproved seedlots or seedlots outside the optimum time frame, 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 Drainage Preference	pH Range
KY Bluegrass /	20	Well - Mod. Well	5.5 - 7.5
Redtop /	1	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdfoot Trefoil	1/10	Well - Mod. Well	5.5 - 7.5
Timothy /	5	Well - Mod. Well	6.5 - 8.0
Alfalfa	12	Well - Mod. Well	6.5 - 8.0
Timothy /	5	Well - Poorly	5.5 - 7.5
Birdfoot Trefoil	6	Well - Poorly	5.5 - 7.5
Ochloa grass /	10	Well - Mod. Well	5.5 - 7.5
Ladino Clover /	2	Well - Mod. Well	5.5 - 7.5
Redtop	1	Well - Mod. Well	5.5 - 7.5
Ochloa grass /	10	Well - Mod. Well	5.5 - 7.5
Ladino Clover	2	Well - Mod. Well	5.5 - 7.5
Ochloa grass /	20	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Creeping Red Fescue /	30	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Ochloa grass or KY Bluegrass	10	Well - Mod. Well	5.5 - 7.5
Birdfoot Trefoil /	10	Well - Mod. Well	5.5 - 7.5
Redtop /	1	Well - Mod. Well	5.5 - 7.5
Ochloa grass	20	Well - Mod. Well	5.5 - 7.5
Ladino Clover *	20	Well - Mod. Well	5.5 - 7.5
Perennial Ryegrass *	20	Well - Mod. Well	5.5 - 7.5
Ladino Clover *	20	Well - Mod. Well	5.5 - 7.5
Ochloa grass	20	Well - Mod. Well	5.5 - 7.5

\* 1 inch/100 lbs. Flaxseed is generally preferred to other species. All legumes should be planted with proper inoculation prior to seeding. For unimproved seedlots or seedlots outside the optimum time frame, 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 4c**  
 Lime and Fertilizer Application Table

pH of Soil	Lime in Tons per Acre	Fertilizer, lbs. per Acre (10-20-20 or Equivalent)
above 6.0	0	500
5.0 to 6.0	1	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 plowing, disking, or tilling or used down the slope.

**Table 4d**  
 Mulch Materials Rates and Uses

Material	Minimum Rates per acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to 90%	Subject to wind blowing or washing unless tied down
Wood Fiber	100 to 150 tons	Cover 75% to 90%	For hydroseeding
Poly Fiber	500 to 1500 lbs	Cover All	For hydroseeding
Wood - Cellulose		Individual Areas	
Recycled Paper			

Table 4e taken from Natural Resources Commission Service Manual, Critical Area Planning



THIS DOCUMENT WAS PREPARED BY SMITH LAND SURVEYING, INC. FOR EQT

**BIG-192 SITE PLAN MODIFICATION**  
 PREPARED BY SMITH LAND SURVEYING, INC. FOR EQT PROFESSIONAL ENGINEERING

DATE	02-11-15
DWG	
SCALE	N/A
DESIGNED BY	NAF
FILE NO.	7787
SHEET	17 OF 17
NO.	
PROJECT NO.	15-00000000000000000000

DM 7-27-15