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

September 24, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10303022, 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: 513932
Farm Name: COASTAL FOREST RESOURCES
API Well Number: 47-10303022
Permit Type: Horizontal 6A Well
Date Issued: 09/24/2014

09/26/2014

API Number: 47 10303022

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) 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.

09/26/2014

WW - 6B
(9/13)

10303022

4710303022 9/18

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company | | 103 | 4 | 254
Operator ID | County | District | Quadrangle

2) Operator's Well Number: 513932 Well Pad Name: BIG190

3) Farm Name/Surface Owner : Coastal Forest Resources Co. Public Road Access: Co Rt 15/2

4) Elevation, current ground: 1,473.5 Elevation, proposed post-construction: 1,473.5

5) Well Type: (a) Gas • Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow • Deep _____

Horizontal •

6) Existing Pad? Yes or No: Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Target formation is Geneseo at a depth of 7408' with the anticipated thickness to be 32 feet and anticipated target pressure of 4678 PSI

8) Proposed Total Vertical Depth: 7,408

9) Formation at Total Vertical Depth: Geneseo

10) Proposed Total Measured Depth 12,030

11) Proposed Horizontal Leg Length 3,438

12) Approximate Fresh Water Strata Depths: 388, 445

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

14) Approximate Saltwater Depths: 2230, 2355

15) Approximate Coal Seam Depths: 855, 1048, 1240, 1550

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?

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

DMH
7-22-14

WW - 6B
(3/13)

47103030 22

CASING AND TUBING PROGRAM

18)

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill- up (Cu.Ft.)
Conductor	26	New	MC-50	77	40	40	49 C.T.S.
Fresh Water	13 3/8	New	MC-50	54	844	844	738 C.T.S.
Coal					2,750	2,750	
Intermediate	9 5/8	New	MC-50	40			1,078 C.T.S.
Production	5 1/2	New	P-110	20	12,030	12,030	See Note 1
Tubing	2 3/8		J-55	4.6			May not be run, if run will be set 100' less than TD
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	26	30	0.312	-	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,480	* See Note 2	1.21
Coal						
Intermediate	9 5/8	12 3/8	0.395	3,590	* See Note 2	1.21
Production	5 1/2	8 1/2	0.361	12,640	-	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.

DMH
7-22-14

EQT

47103030 22

August 14, 2014

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

Re: Casing Plan on Wells (BIG190) 47-103-03020, 03021, 03022, 03023

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 844' KB. The previous wells drilled on this pad set the 13-3/8" casing at approximately 844'KB. Based on the previous wells, the fresh water and the problematic red rock zones were covered and no drilling issues were seen while drilling the intermediate section. We will set the 9-5/8" intermediate string at 2750' KB, below the base of 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.

EQT Production 115 Professional Place I P.O. Box 280 I Bridgeport, WV 26330
T 304.848.0000 I F 304.848.0040 I www.eqt.com

09/26/2014

WW - 6B

(3/13)

47 10303022

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

Drill and complete a new horizontal well in the Geneseo formation. The vertical drill to go down to an approximate depth of 5909'.

Then kick off the horizontl leg into the Geneseo 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 treating pressures are 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): no additional

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.

25) Proposed borehole conditioning procedures. **Surface:** Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors back on and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam drilling, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.

Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

*Note: Attach additional sheets as needed.

DmH
7-22-14

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dep

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
dep.wv.gov

March 18, 2014

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

Re: Cement Variance Request

Dear Sir or Madam,

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

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

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

Sincerely,

James Peterson

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

47103030 22

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
dep.wv.gov

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

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

REPORT OF THE OFFICE

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

FINDINGS OF FACT

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

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

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

09/26/2014

4710303022

CONCLUSIONS OF LAW

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

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

ORDER

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

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

IN THE NAME OF THE STATE OF WEST VIRGINIA

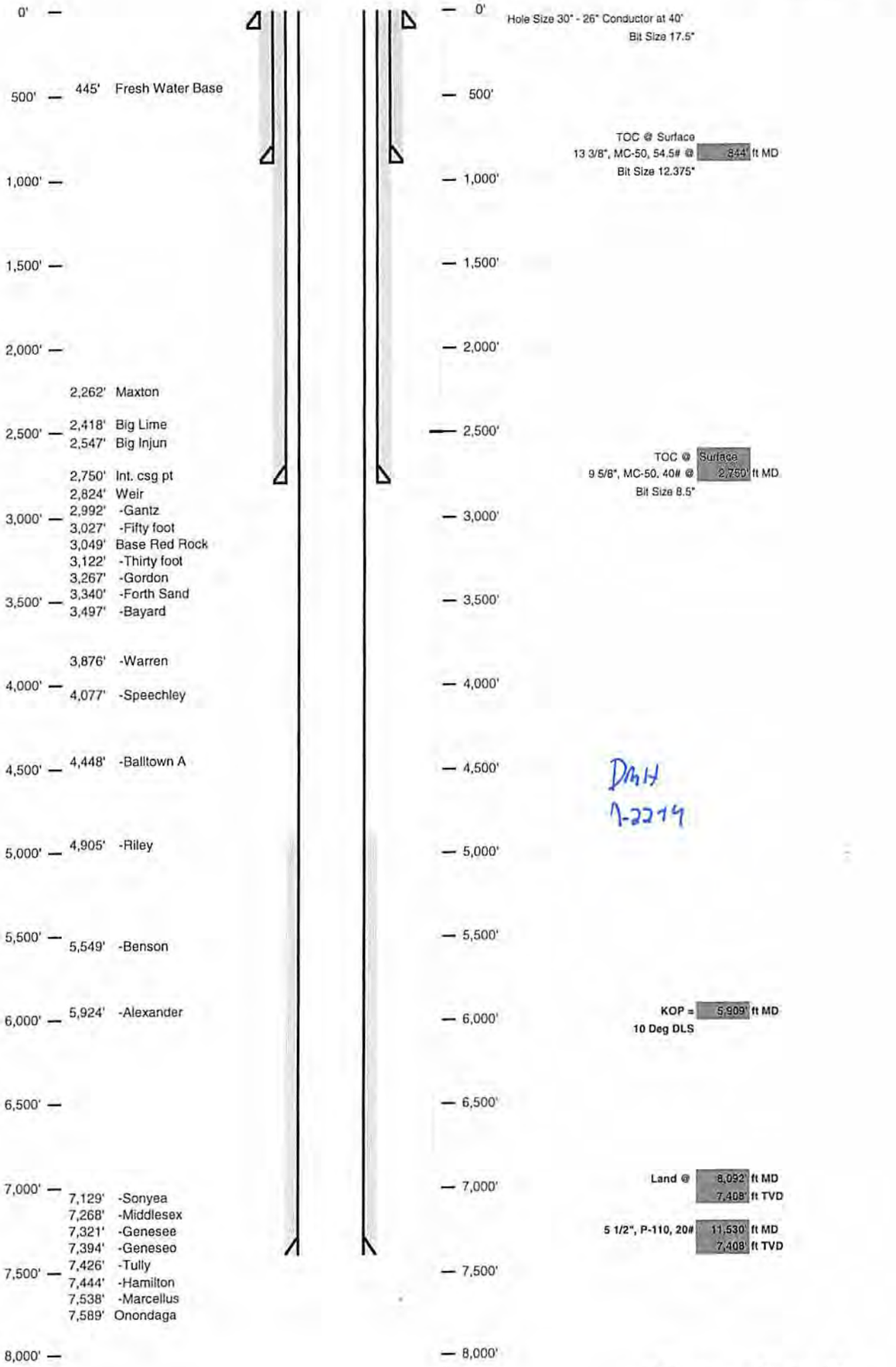
OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA

James Martin, Chief
Office of Oil and Gas

Well Schematic
EQT Production

4710303022

Well Name	513932 (BIG190H16)
County	Wetzel
State	West Virgina
Elevation KB:	1487
Target	Geneseo
Prospect	
Azimuth	154
Vertical Section	9807



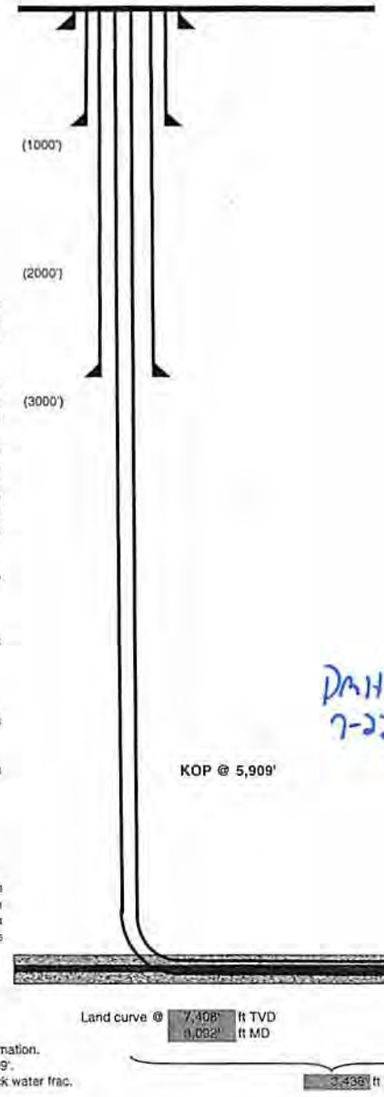
DMH
7-22-14

4710303022

Well 513932 (BIG190H16)
EQT Production
Big Run
Wetzel West Virgina

Azimuth 154
Vertical Section 2867

TVD Depth (feet)	Formation Tops (TVD)		
0'			
250'	Base Fresh Water	446	
500'			
750'			
1,000'			
1,250'			
1,500'			
1,750'			
2,000'			
2,250'	Maxton	2262 -	2340
	Big Lime	2418 -	2532
2,500'	Big Injun	2547 -	2653
2,750'	Int. csg pt	2750	
	Weir	2824 -	2881
3,000'	-Gantz	2992 -	3027
	-Fifty foot	3027 -	3068
3,250'	Base Red Rock	3049	
	-Thirty foot	3122 -	3153
3,500'	-Gordon	3267 -	3297
	-Forth Sand	3340 -	3381
3,750'	-Bayard	3497 -	3530
	-Warren	3876 -	3887
4,000'	-Speechley	4077 -	4205
4,250'			
	-Balltown A	4448 -	4580
4,500'			
4,750'			
	-Riley	4905 -	4953
5,000'			
5,250'			
5,500'	-Benson	5549 -	5626
5,750'			
	-Alexander	5924 -	5984
6,000'			
6,250'			
6,500'			
6,750'	-Sonyea	7129 -	7268
	-Middlesex	7268 -	7321
7,000'	-Genesee	7321 -	7394
	-Geneseo	7394 -	7426
7,250'	Geneseo top	7994	
	Target inside Geneseo	**7408**	
7,500'	Geneseo Bottom	7426	



DMH
7-22-14

Hole Size (inches)	Casing Type	Size (inches)	Wt (ppf)/Grade
30	Conductor	26	
17 1/2	Surface	13 3/8	54#/MC-50
12 3/8	Intermediate	9 5/8	40#/MC-50
8 1/2	Production Casing	5 1/2	20#/P-110

Land curve @ 7,408' ft TVD
6,092' ft MD

Est. TD @ 7,408' ft TVD
11,530' ft MD

5,438' ft Lateral

Proposed Well Work:
Drill and complete a new horizontal well in the Geneseo formation.
The vertical drill to go down to an approximate depth of 5909'.
Then kick of the horizontal leg into the Geneseo using a slick water frac.

4710303022

WW-9
(5/13)

Page 1 of 2
API No. 47 - 103 - 03022
Operator's Well No. 513932

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

Watershed (HUC10) Upper Run and North Fork Quadrangle Big Run

Elevation 1473.5 County Wetzel District Grant

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

Will a pit be used ? Yes: X No:

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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? Air, freshwater, oil based, etc. Air is used to drill the top-hole sections of the wellbore. Surface, intermediate, and Pilot hole sections. water based mud is used to drill the curve and lateral.

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

Additives to be used in drilling medium? MILBAR, Viscosifer, Alkalinity Control, Lime, Chloride Salts,Rate Filtration Control, Deflocculant, Lubricant, Detergent, Defoaming, Walnut Shell, X-Cide, SOLTEX Terra. Of the listed chemicals the following are generally used when drilling on air: lubricant, detergent, defoaming. Water based fluids use the following chemicals: MILBAR, viscosifer, alkalinity control, lime, chloride salts, rate filtration control, deflocculant, lubricant, detergent, defoaming, walnut shell, x-cide, SOLTEX terra

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

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

Subscribed and sworn before me this 23 day of SEPTEMBER, 20 14

Notary Public

My commission expires 6/27/2018

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Nicholas L. Bumgardner
Rt 1, Box 4
[illegible] WV 25124
[illegible] July 2[illegible] 2018

09/26/2014

WW-9

47 10303022

Operator's Well No. 513932

Proposed Revegetation Treatment: Acres Disturbed no additional Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilize type _____

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	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: V. -

Comments: _____

Title: Oil + Gas Inspect. Date: 7-22-14

Field Reviewed? (✓) Yes ( ) No

Received
09/26/2014
JUL 29 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

EQT Production Water plan
Offsite disposals for Marcellus wells

47 10303022

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

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

TRI COUNTY WASTE WATER MANAGEMENT, INC.
1487 Toms Run Road
Holbrook, PA 15341
724-627-7178 Plant
724-499-5647 Office
Greene County/Waynesburg
Permit # TC-1009

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

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

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

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

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

DmH
7-22-14

EQT

Where energy meets innovation.

47103030 22

Site Specific Safety Plan

EQT BIG 190 Pad

Pine Grove

Wetzel County, WV

For Wells:

__513929__ __513931__ __513932__ __513933__ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____

Date Prepared: **June 30, 2014**

EQT Production

Permitting Supervisor
Title

7-2-14
Date

WV Oil and Gas Inspector

Oil + Gas Inspector
Title

7-22-14
Date

Received

JUL 29 2014

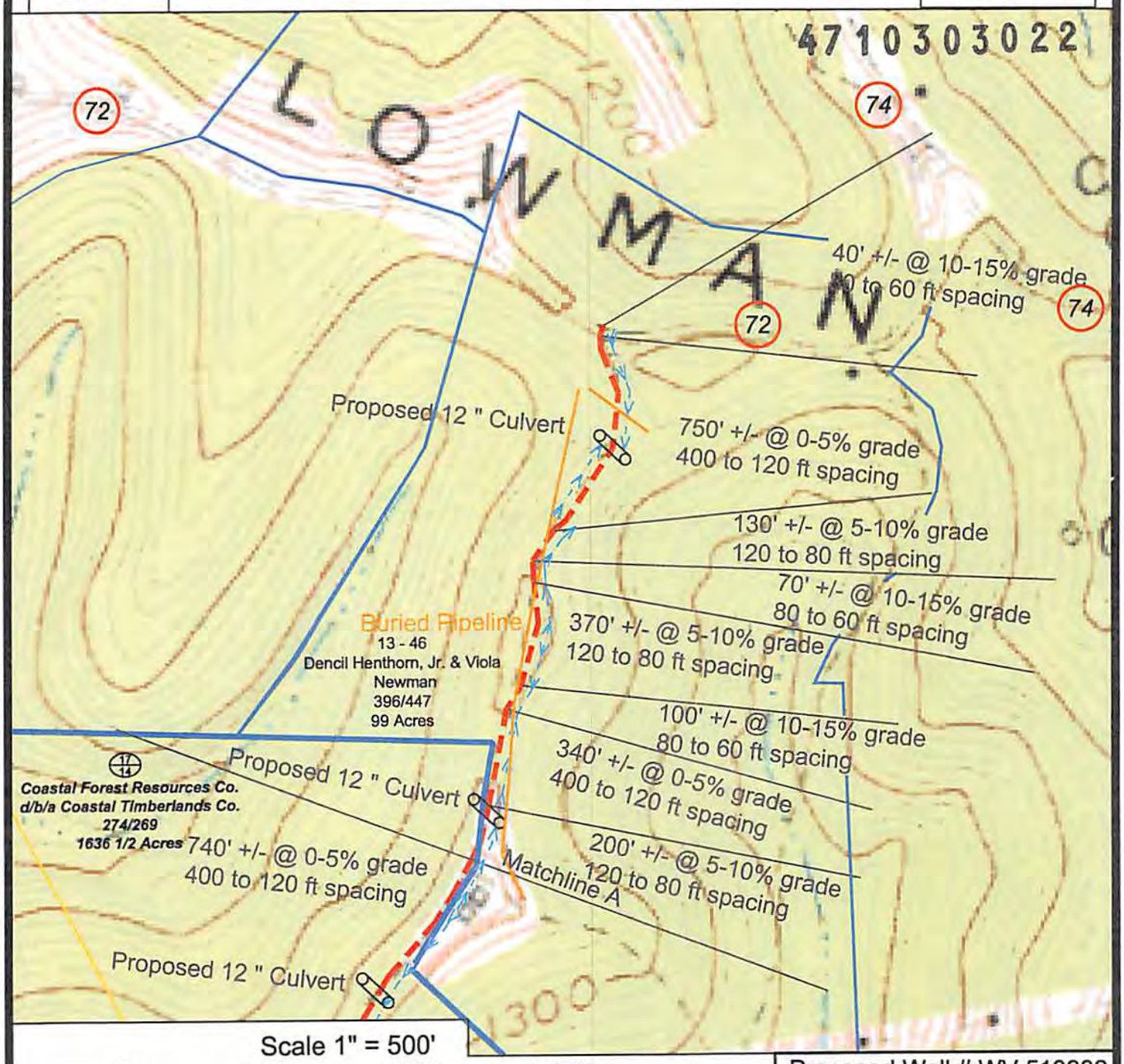
Office of Oil and Gas
WV Dept. of Environmental Protection

09/26/2014

WW-9

Proposed BIG 190 H16 WV 513932

PAGE OF



Scale 1" = 500'

0′ 500′ 1000′ 1500′

Ⓒ Denotes to install 12" minimum culvert

Ⓧ Denotes a proposed stream crossing (if applies) *see table for culvert detail*

Unless otherwise noted, all roads shown hereon are existing and shall be maintained in accordance with WV D.E.P., Office of Oil and Gas Erosion and Sediment Control Field Manual as revised 2/98

Entrances upon county/state roads shall be maintained in accordance with WV D.O.T. regulations, however, separate permits may be required by the WV D.O.T.

Sediment basins (traps) and appropriate erosion control barriers are to be constructed at all culverts and cross-drains as required in the aforementioned Erosion and Sediment Control Field Manual. Where field conditions dictate, alternative erosion control measures shall be enacted as required.

Earthwork contractors are responsible for notification to the operator and inspector prior to any deviation from this plan.

Temporary seed and mulch all slopes after construction of location.

Cut and stack all marketable timber.

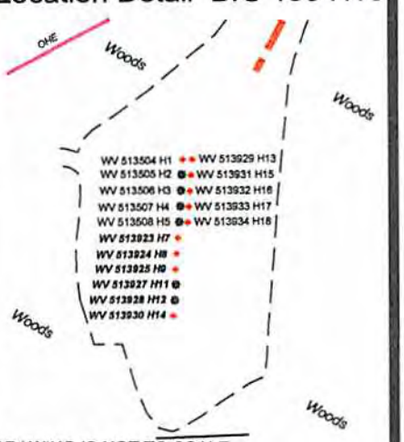
Stacked brush may be used for sediment control.

Applications for seperate Public Land Corporation Permits on the access roads stream crossings have been prepared (if applies).

Additional culverts and/or other drainage structures and sediment control devices may be required by the WV D.E.P. Oil & Gas Inspector.

Operator is responsible for the coordination with contractor and Allegheny Surveys regarding any changes or additions the state may require

Proposed Well # WV 513932
Location Detail BIG 190 H16



DRAWING IS NOT TO SCALE

SECTION OF THE Big Run 7.5' USGS QUADRANGLE	
Projected culvert inventory. (for bid purposes only)	
12" minimum diameter culverts	0 Culverts
15" minimum diameter culverts	0 Culverts

DRAWN BY:	DATE:	FILE NO.	DRAWING FILE NO.
Scott Brown	Nov. 1, 2013	196-34-G-10	19610 BIG 190 H16 Rec pg 1

PROPERTY BOUNDARY
ROAD
DITCH
SILT FENCE
PROPOSED WELL LOCATION
BROAD BASED DIP
EXISTING GATE
EXISTING CULVERT
PROPOSED CULVERT
CROSS DRAIN
PIT-CUT WALLS
PIT-COMPACTED WALLS
AREA OF LAND APPLICATION OF PIT WASTE

RECEIVED
Office of Oil and Gas
09/26/2014
JUL 28 2014
WV Department of Environmental Protection

SURVEYING AND MAPPING SERVICES PERFORMED BY:

ALLEGHENY SURVEYS, INC.

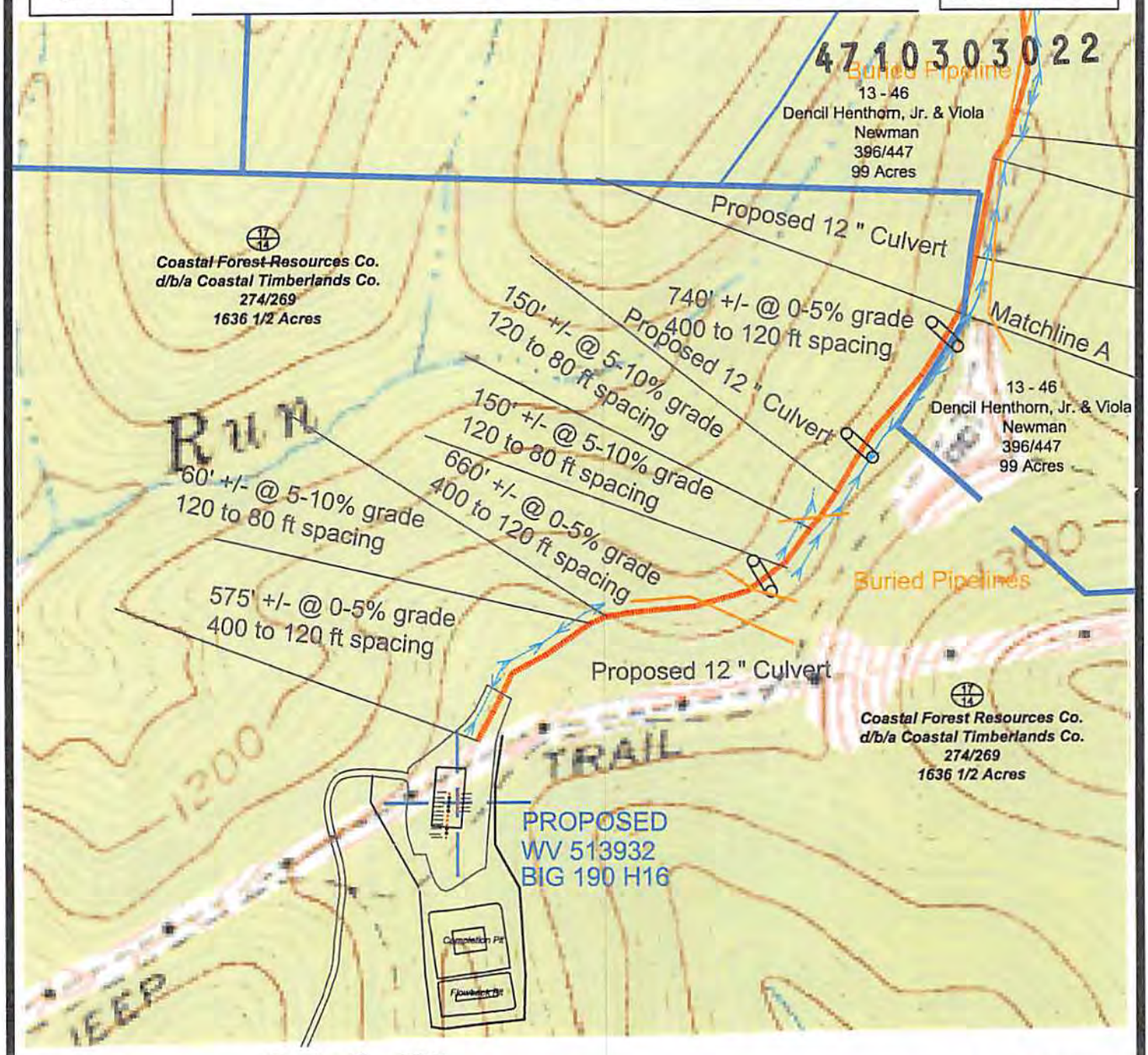
1-800-482-8606

Birch River Office
Phone: (304) 649-8606
Fax: (304) 649-8608

237 Birch River Road
P.O. Box 438
Birch River, WV 26610

WW-9

Proposed BIG 190 H16 WV 513932



Scale 1" = 500'

0′ 500′ 1000′ 1500′

Ⓒ Denotes to install 12" minimum culvert

Ⓧ Denotes a proposed stream crossing (if applies) *see table for culvert detail*

Unless otherwise noted, all roads shown hereon are existing and shall be maintained in accordance with WV D.E.P., Office of Oil and Gas Erosion and Sediment Control Field Manual as revised 2/98

Entrances upon county/state roads shall be maintained in accordance with WV D.O.T. regulations, however, separate permits may be required by the WV D.O.T.

Sediment basins (traps) and appropriate erosion control barriers are to be constructed at all culverts and cross-drains as required in the aforementioned Erosion and Sediment Control Field Manual. Where field conditions dictate, alternative erosion control measures shall be enacted as required.

Earthwork contractors are responsible for notification to the operator and inspector prior to any deviation from this plan.

Temporary seed and mulch all slopes after construction of location.

Cut and stack all marketable timber.

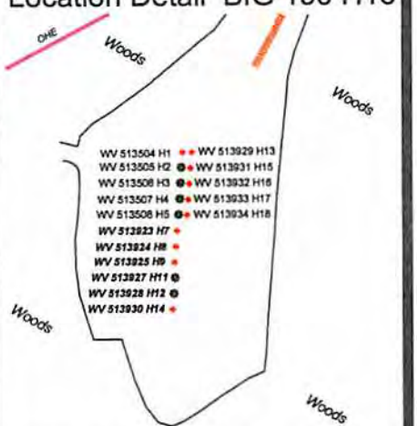
Stacked brush may be used for sediment control.

Applications for seperate Public Land Corporation Permits on the access roads stream crossings have been prepared (if applies).

Additional culverts and/or other drainage structures and sediment control devices may be required by the WV D.E.P. Oil & Gas Inspector.

Operator is responsible for the coordination with contractor and Allegheny Surveys regarding any changes or additions the state may require

Proposed Well # WV 513932
Location Detail BIG 190 H16



DRAWING IS NOT TO SCALE

SECTION OF THE Big Run 7.5' USGS QUADRANGLE		Proposed Disturbance Area	
Projected culvert inventory. (for bid purposes only)		Well Site Location	Construction Complete
12" minimum diameter culverts	0 Culverts	Proposed Access Road	Construction Complete
15" minimum diameter culverts	0 Culverts	Approximate Total Disturbance	Construction Complete

DRAWN BY:	DATE:	FILE NO.	DRAWING FILE NO.
Ben Singleton	Nov. 1, 2013	196-34-G-10	19610 BIG 190 H16 Rec pg 2

PROPERTY BOUNDARY
ROAD
DITCH
SILT FENCE
PROPOSED WELL LOCATION
BROAD BASED DIP
EXISTING GATE
EXISTING CULVERT
PROPOSED CULVERT
CROSS DRAIN
PIT-CUT WALLS
PIT-COMPACTED WALLS
AREA OF LAND APPLICATION OF PIT WASTE

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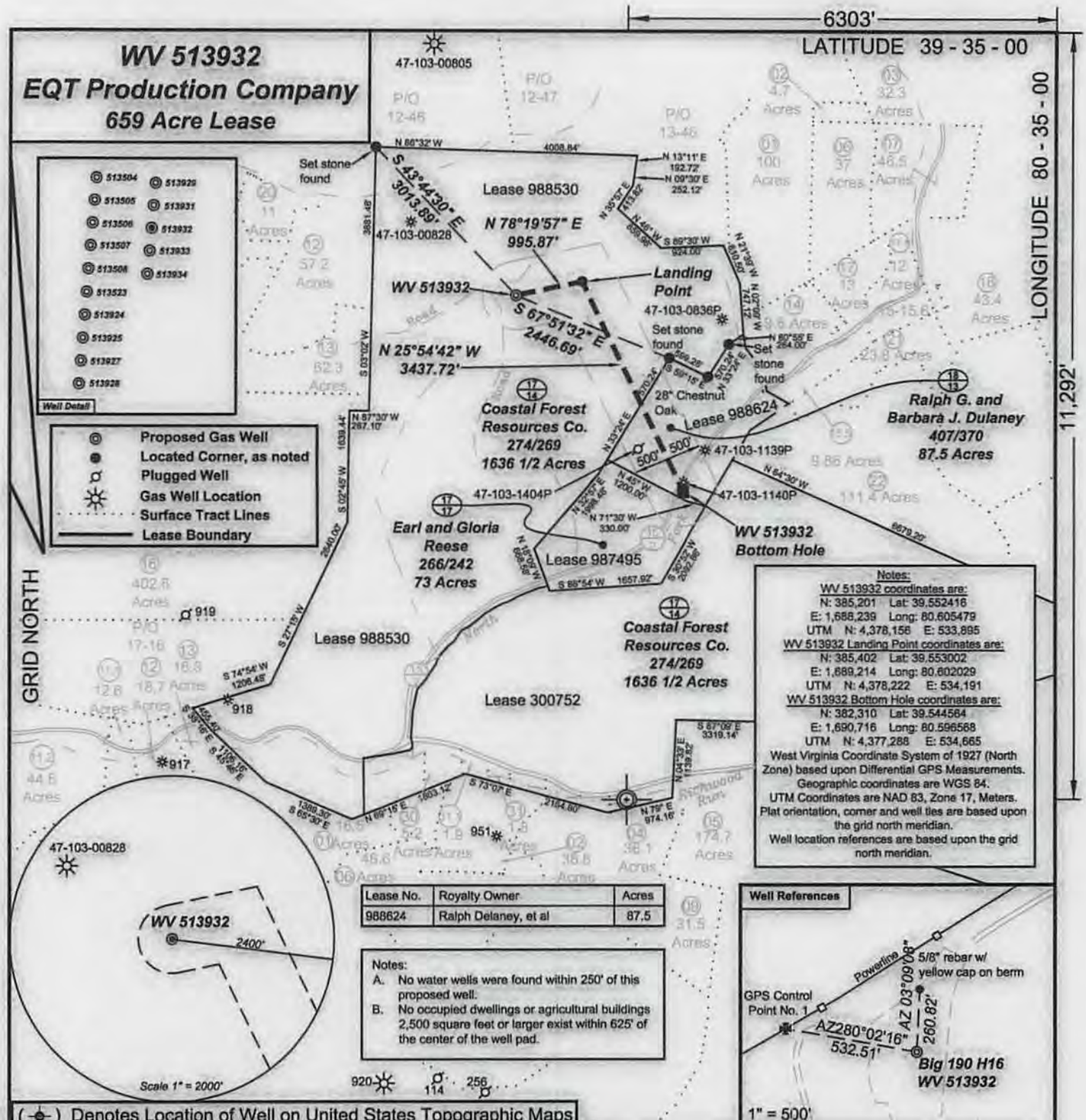
237 Birch River Road
P.O. Box 438
Birch River, WV 26610

WV 513932
EQT Production Company
659 Acre Lease



Notes:
WV 513932 coordinates are:
N: 385,201 Lat: 39.552416
E: 1,688,239 Long: 80.605479
UTM N: 4,378,156 E: 533,895
WV 513932 Landing Point coordinates are:
N: 385,402 Lat: 39.553002
E: 1,689,214 Long: 80.602029
UTM N: 4,378,222 E: 534,191
WV 513932 Bottom Hole coordinates are:
N: 382,310 Lat: 39.544564
E: 1,690,716 Long: 80.596568
UTM N: 4,377,288 E: 534,665
West Virginia Coordinate System of 1927 (North Zone) based upon Differential GPS Measurements. Geographic coordinates are WGS 84.
UTM Coordinates are NAD 83, Zone 17, Meters.
Plat orientation, corner and well ties are based upon the grid north meridian.
Well location references are based upon the grid north meridian.

Lease No.	Royalty Owner	Acres
988624	Ralph Delaney, et al	87.5

Notes:
A. No water wells were found within 250' of this proposed well.
B. No occupied dwellings or agricultural buildings 2,500 square feet or larger exist within 625' of the center of the well pad.

(⊕) Denotes Location of Well on United States Topographic Maps

ALLEGHENY SURVEYS, INC.

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.

Ben R. Singleton
P.S. 2092

Ben R. Singleton LICENSED NO. 2092 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR SEAL

FILE NO: 196-34-G-10
DRAWING NO: 196-10 Big 190 H16.dwg
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: June 30 20 14
OPERATOR'S WELL NO. WV 513932
API WELL NO HM
47 - 103 - 03022
STATE COUNTY PERMIT

WELL TYPE: ☐ OIL ☒ GAS ☐ LIQUID INJECTION ☐ WASTE DISPOSAL
(IF GAS) PRODUCTION: ☐ STORAGE ☐ DEEP ☒ SHALLOW
LOCATION: ELEVATION: 1473.5' (As-built) WATERSHED Upper Run and North Fork QUADRANGLE: Big Run
DISTRICT: Grant COUNTY: Wetzel
SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 1,636.5
ROYALTY OWNER: Mills-Wetzel Land, Inc. LEASE NO: 988530 ACREAGE: 659
PROPOSED WORK: ☒ DRILL ☐ CONVERT ☐ DRILL DEEPER ☒ FRACTURE OR STIMULATE ☐ PLUG OFF OLD FORMATION
☐ PERFORATE NEW FORMATION ☐ OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
☐ PLUG AND ABANDON ☐ CLEAN OUT AND REPLUG TARGET FORMATION: Geneseo ESTIMATED DEPTH: TVD=7,800 MD=13,200

09/26/2014

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330 Bridgeport, WV 26330