



**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

October 31, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-4902345, 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: 513436  
Farm Name: NEELY, SHIRLEY J.  
**API Well Number: 47-4902345**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 10/31/2014

**Promoting a healthy environment.**

**10/31/2014**

## 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.

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### 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 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](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.





**CASING AND TUBING PROGRAM**

18)

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: for Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill- up (Cu.Ft.)</u>
Conductor	20	New	MC-50	81	40	40	38 C.T.S.
Fresh Water	13 3/8	New	MC-50	54	850/650	850/650*	743 C.T.S.
Coal	-	-	-	-	-	-	-
Intermediate	9 5/8	New	MC-50	40	3,054	3,054	1,198 C.T.S.
Production	5 1/2	New	P-110	20	11,779	11,779	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							

*WR# 10-27-14*

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20	24	0.375	-	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.

\* see attached casing letter

Received  
Office of Oil & Gas  
OCT 31 2014

(3/13)

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 5310'. 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 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.

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Office of Oil and Gas
JUL 29 2014
10/31/2014
WV Department of Environmental Protection



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west virginia department of environmental protection

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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

March 18, 2014

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

Re: Cement Variance Request

Dear Sir or Madam,

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

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

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

Sincerely,

James Peterson  
Environmental Resources Specialist / Permitting

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Office of Oil and Gas

AUG 28 2014

WV Department of  
Environmental Protection

10/31/2014



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, SE  
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(304) 926-0450  
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Earl Ray Tomblin, Governor  
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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.

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**CONCLUSIONS OF LAW**

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

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

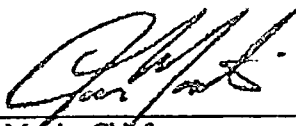
**ORDER**

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

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

IN THE NAME OF THE STATE OF WEST VIRGINIA

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



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James Martin, Chief  
Office of Oil and Gas

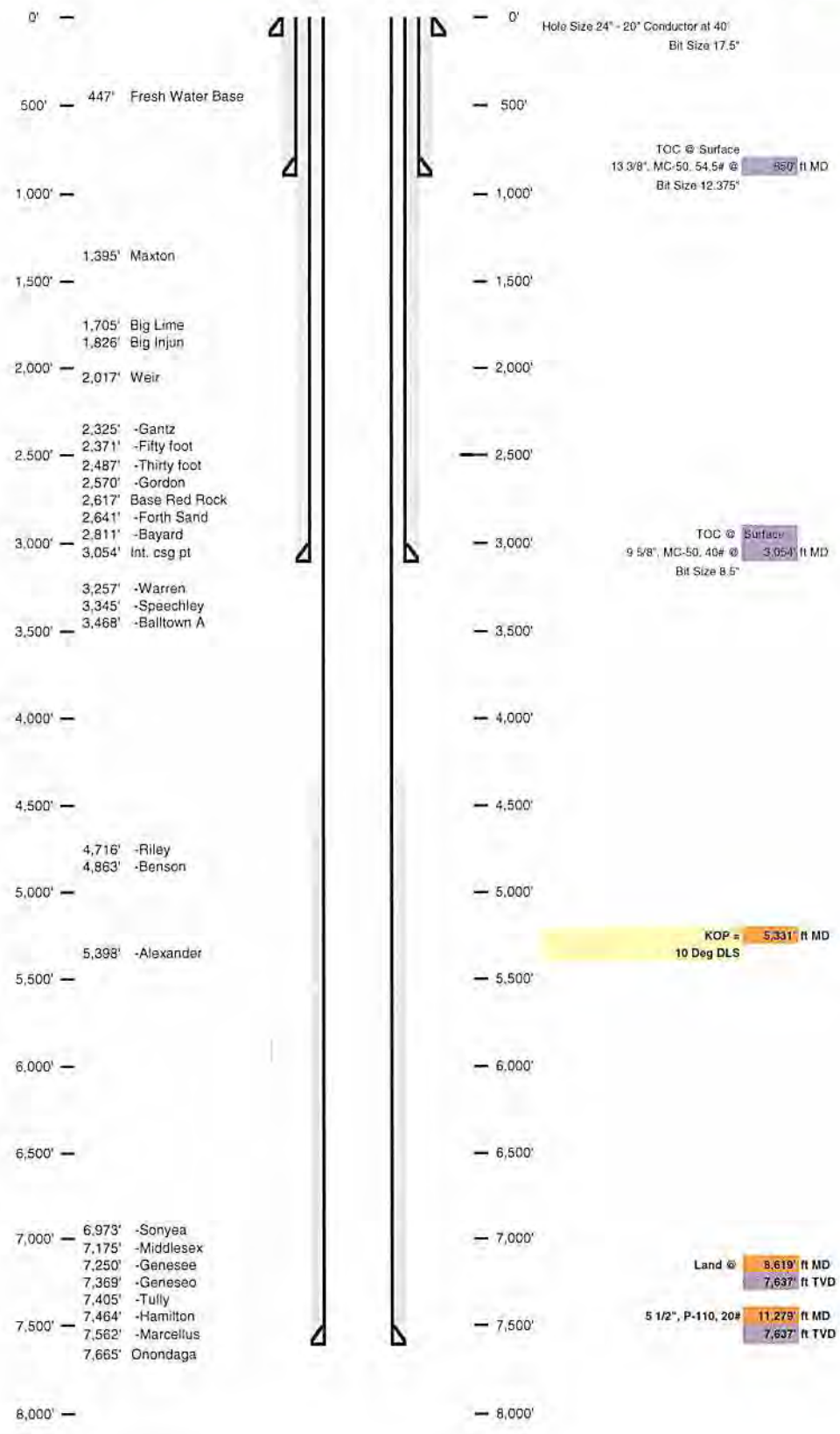


Well Schematic  
EQT Production

Well Name: 513436(GRT26H2)  
County: Marion  
State: West Virginia

Elevation KB:  
Target:  
Prospect:  
Azimuth:  
Vertical Section:

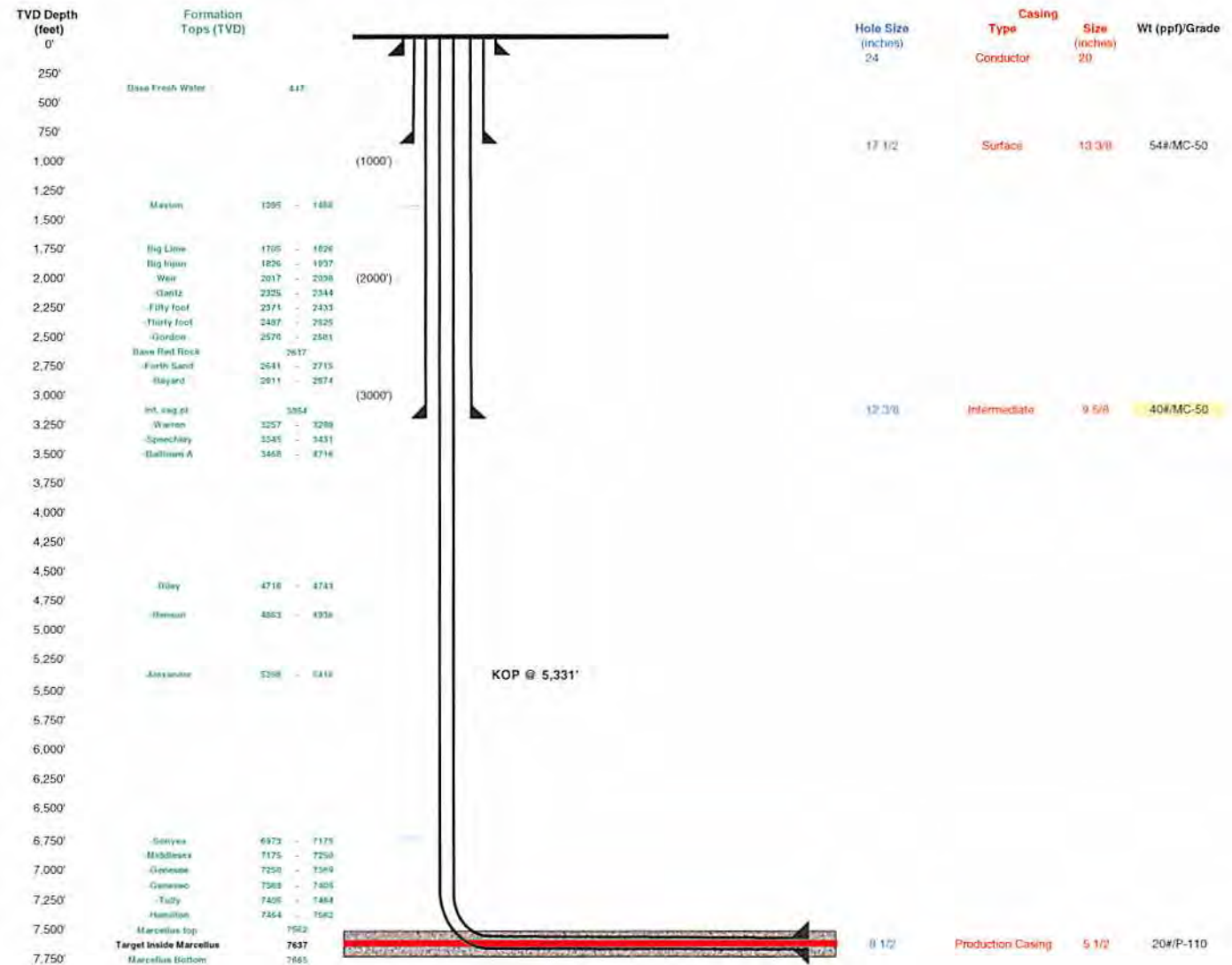
1154
Marcellus
160.67
3429



49-02345

Well 513436(GRT26H3)  
 EQT Production  
 Grant Town  
 Marion West Virginia

Vertical Section 3423  
 Azimuth 168.82



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 5331'  
 Then kick of the horizontal leg into the Marcellus using a slick water frac.

Land curve @ 7,637' ft TVD / 8,610' ft MD  
 Est. TD @ 7,637' ft TVD / 11,279' ft MD  
 2,660' ft Lateral

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 AUG 28 2014  
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WW-9  
(5/13)

Page 49 of 02345  
API No. 47 - 049 - 02345  
Operator's Well No. 513436

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

Fluids/Cuttings Disposal & Reclamation Plan

Operator Name EQT Production Co. OP Code \_\_\_\_\_

Watershed (HUC10) Rush Run Quadrangle \_\_\_\_\_ Grant Town \_\_\_\_\_

Elevation 1141' County Marion District Paw Paw

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

Subscribed and sworn before me this 30 day of Oct., 20 14

My commission expires 10-24-22

Notary Public

OFFICIAL SEAL  
STATE OF WEST VIRGINIA  
NOTARY PUBLIC  
Victoria J. Roark  
EQT Production  
PO Box 280  
Bridgeport, WV 26330  
My Commission Expires Aug. 24, 2022

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Office of Oil & Gas  
OCT 31 2014

<b>EQT Production Water plan</b> <b>Offsite disposals for Marcellus wells</b>
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**CWS TRUCKING INC.**

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

**LAD LIQUID ASSETS DISPOSAL INC.**

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

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

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

**Waste Management - Meadowfill Landfill**

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

**Waste Management - Northwestern Landfill**

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

**BROAD STREET ENERGY LLC**

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

**TRIAD ENERGY**

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

**KING EXCAVATING CO.**

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

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 Environmental Protection



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: [Signature]

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

Title: ENVIRONMENTAL INSPECTOR Date: 7-29-14

Field Reviewed? (  ) Yes (  ) No

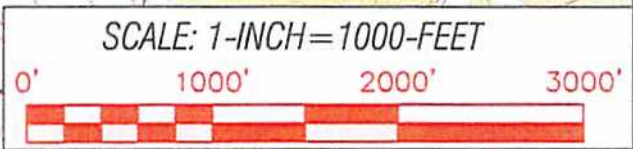
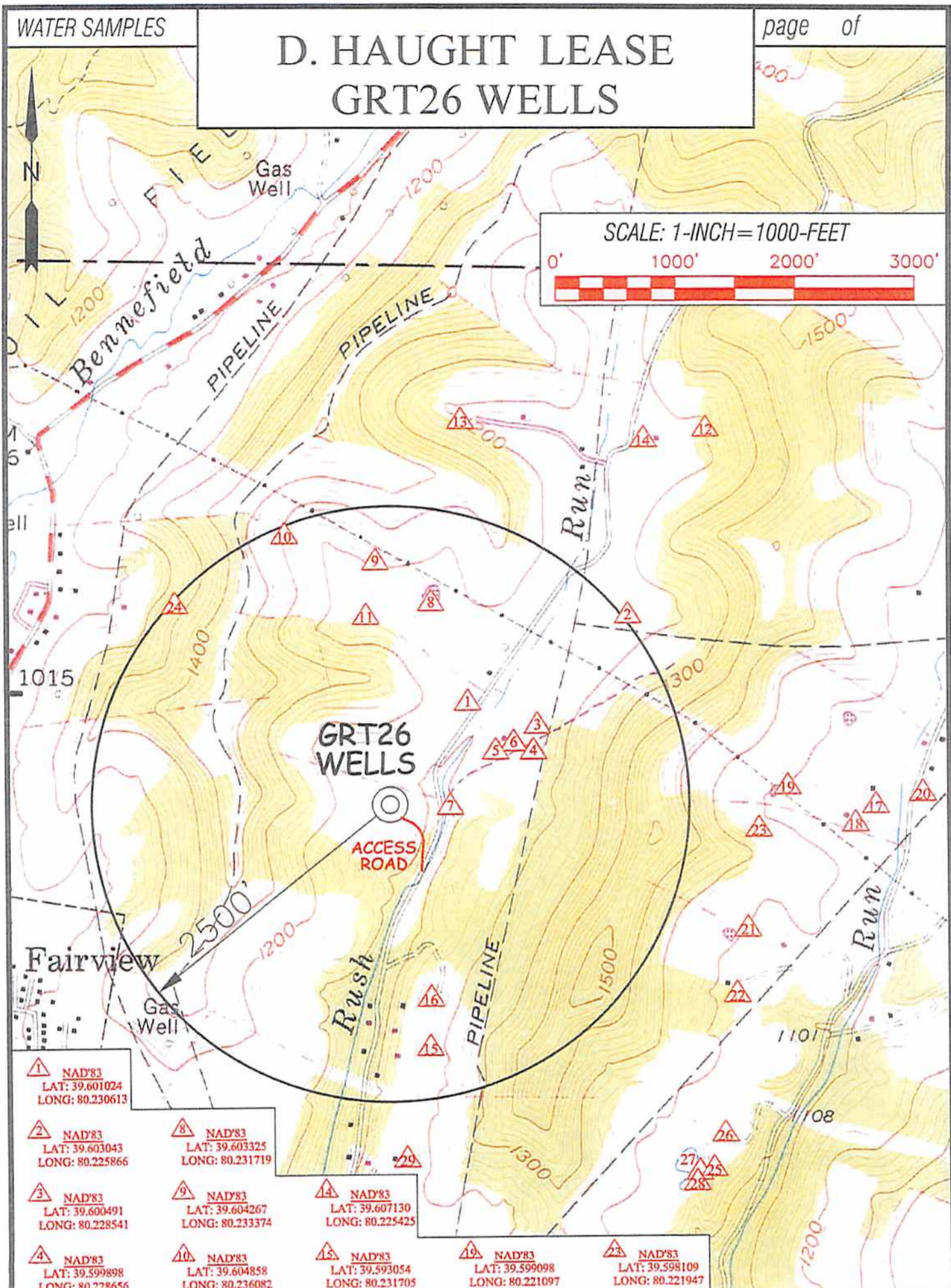
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10/31/2014  
JUL 29 2014  
WV Department of  
Environmental Protection



WATER SAMPLES

page of

# D. HAUGHT LEASE GRT26 WELLS



1 NAD'83 LAT: 39.601024 LONG: 80.230613	8 NAD'83 LAT: 39.603325 LONG: 80.231719	13 NAD'83 LAT: 39.598246 LONG: 80.219072	19 NAD'83 LAT: 39.599098 LONG: 80.221097	23 NAD'83 LAT: 39.598109 LONG: 80.221947	29 NAD'83 LAT: 39.590469 LONG: 80.232399
2 NAD'83 LAT: 39.603043 LONG: 80.225866	9 NAD'83 LAT: 39.604267 LONG: 80.233374	14 NAD'83 LAT: 39.607130 LONG: 80.225425	20 NAD'83 LAT: 39.598960 LONG: 80.217073	24 NAD'83 LAT: 39.603269 LONG: 80.239347	30 NAD'83 LAT: 39.590178 LONG: 80.223698
3 NAD'83 LAT: 39.600491 LONG: 80.228541	10 NAD'83 LAT: 39.604858 LONG: 80.236082	15 NAD'83 LAT: 39.593054 LONG: 80.231705	21 NAD'83 LAT: 39.598960 LONG: 80.217073	25 NAD'83 LAT: 39.590257 LONG: 80.223263	31 NAD'83 LAT: 39.589936 LONG: 80.223771
4 NAD'83 LAT: 39.599898 LONG: 80.228656	11 NAD'83 LAT: 39.603012 LONG: 80.233647	16 NAD'83 LAT: 39.594192 LONG: 80.231684	22 NAD'83 LAT: 39.59797 LONG: 80.222268	26 NAD'83 LAT: 39.598257 LONG: 80.223263	32 NAD'83 LAT: 39.590469 LONG: 80.232399
5 NAD'83 LAT: 39.599898 LONG: 80.229777	12 NAD'83 LAT: 39.607375 LONG: 80.223586	17 NAD'83 LAT: 39.598669 LONG: 80.218472	27 NAD'83 LAT: 39.594292 LONG: 80.222588	28 NAD'83 LAT: 39.591056 LONG: 80.222930	
6 NAD'83 LAT: 39.600090 LONG: 80.229246	13 NAD'83 LAT: 39.6075427 LONG: 80.230861	18 NAD'83 LAT: 39.598246 LONG: 80.219072			
7 NAD'83 LAT: 39.598626 LONG: 80.2311201					

10/31/2014

**Professional Energy Consultants**  
A DIVISION OF SARTH LAZAR SERVICES, INC.

SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.

TOPO SECTION OF:  
GRANT TOWN, WV 7.5' QUAD

DISTRICT	COUNTY	TAX MAP-PARCEL NO.
PAW PAW	MARION	09-16

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

DRAWN BY: K.D.W. FILE NO: 7248 DATE: 07/10/14 CADD FILE: 7248WSCR26.dwg

RESERVED Gas  
Office of the  
Department of  
Environmental Protection



NOTES ON SURVEY

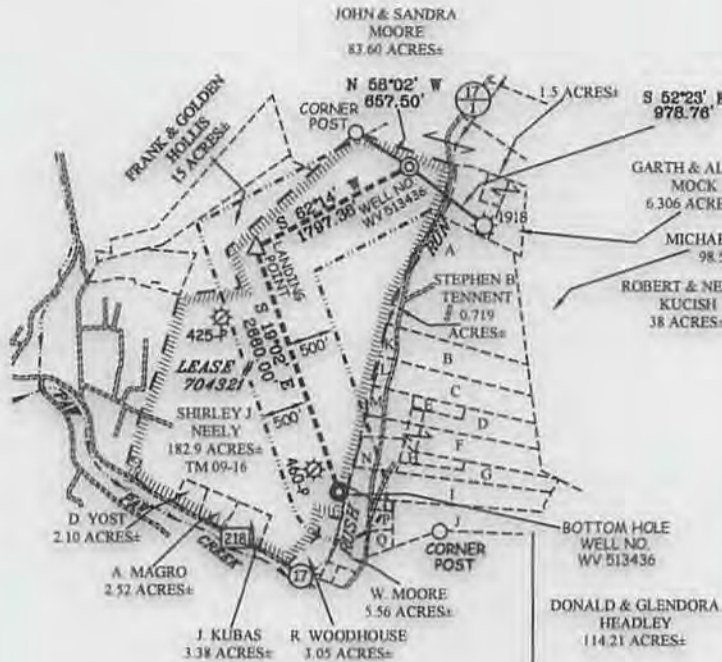
- 1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS
- ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.

LATITUDE 39°37'30"

LEGEND

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

LONGITUDE 80°12'30"



A - D. TENNANT ET AL	33.99 ACRES±
B - E. TENNANT	10.98 ACRES±
C - H. LAYMAN	9.35 ACRES±
D - C. TENNANT ET AL	8.61 ACRES±
E - C. TENNANT	1.57 ACRES±
F - C. TENNANT ET AL	9.46 ACRES±
G - W. ICE	5.65 ACRES±
H - H. HAUGHT	1.90 ACRES±
I - A. HENDERSON ET AL	11.70 ACRES±
J - D. HEADLEY ET AL	9.86 ACRES±
K - S. TENANT	1.2 ACRES±
L - R. EDDY	1.71 ACRES±
M - F. MARKLEY	2.29 ACRES±
N - R. HUNTER	3.35 ACRES±
O - D. WOOD ET AL	0.608 ACRES±
P - D. ROWAN	1 ACRES±
Q - P. MARKLEY	1.32 ACRES±

NORTH

1,891.8

**EQT PRODUCTION COMPANY  
D. HAUGHT LEASE  
190.5 ACRES±  
WELL NO. WV 513436**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

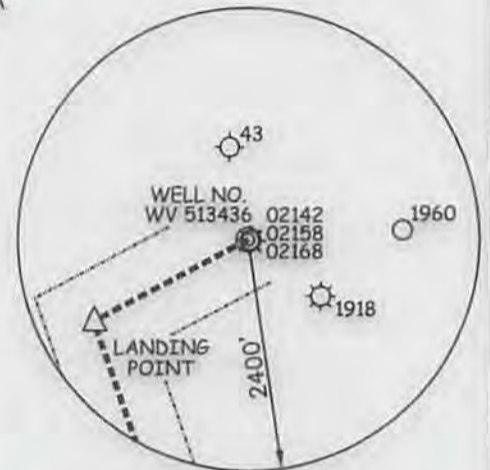
NAD'27 S.P.C.(FT)	N. 400,932.2	E. 1,793,400.3
NAD'27 GEO.	LAT-(N) 39.598477	LONG-(W) 80.233183
NAD'83 UTM (M)	N. 4,383,483.7	E. 565,854.4

LANDING POINT

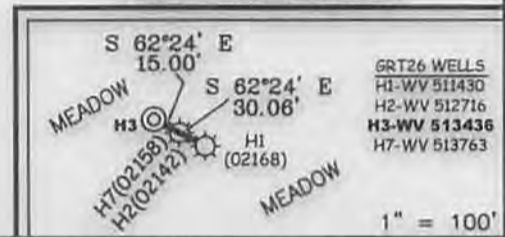
NAD'27 S.P.C.(FT)	N. 400,095.1	E. 1,791,809.8
NAD'27 GEO.	LAT-(N) 39.596143	LONG-(W) 80.238803
NAD'83 UTM (M)	N. 4,383,220.6	E. 565,374.2

BOTTOM HOLE

NAD'27 S.P.C.(FT)	N. 397,580.5	E. 1,792,677.2
NAD'27 GEO.	LAT-(N) 39.589259	LONG-(W) 80.235852
NAD'83 UTM (M)	N. 4,382,458.9	E. 565,651.2



REFERENCES



**Professional Energy Consultants**  
A DIVISION OF SMITH LAND SURVEYING INC.  
**SLS**  
SURVEYORS  
ENGINEERS  
ENVIRONMENTAL  
PROJECT MGMT.  
(304) 461-8834 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. *C. Victor Moyers*  
849



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE APRIL 29, 20 13

REVISED AUGUST 06, 20 14

OPERATORS WELL NO. WV 513436

API WELL NO. 47 - 049 - 02345  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7248P513436R4  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2,000'

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 1,141' WATERSHED RUSH RUN  
DISTRICT PAW PAW COUNTY MARION QUADRANGLE GRANT TOWN 7.5'  
SURFACE OWNER SHIRLEY J. NEELY ACREAGE 182.9±  
ROYALTY OWNER JUDITH YOST ROBINSON, ET AL ACREAGE 190.5±  
PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH TVD 7561'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY  
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT

10/31/2014