



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 30, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-4902329, 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: 514745
Farm Name: TONKERY, ROBERT E.
API Well Number: 47-4902329
Permit Type: Horizontal 6A Well
Date Issued: 09/30/2014

Promoting a healthy environment.

10/03/2014

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.

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.



49-02329

September 15, 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 (GLO76 - 514745, 515495, 515496, 515497, 515524, 515525)
API# 47-049-02329, 02330, 02331, 02332, 02333, 02334

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 948' KB, 50' below the red rock base at 898'MD without setting below elevation. 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 3051' KB, 50' below the base of the Weir formation.

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

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki Roark', is written over a light blue horizontal line.

Vicki Roark
Permitting Supervisor

Enc.

RECEIVED
Office of Oil and Gas

SEP 24 2014

WV Department of
Environmental Protection

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 | 20 | New | MC-50 | 81 | 40 | 40 | 38 C.T.S. |
| Fresh Water | 13 3/8 | New | MC-50 | 54 | 948 | 948 | 825 C.T.S. |
| Coal | | | | | | | |
| Intermediate | 9 5/8 | New | MC-50 | 40 | 3,051 | 3,051 | 1,193 C.T.S. |
| Production | 5 1/2 | New | P-110 | 20 | 13,572 | 13,572 | 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 | | | | | | | |

*WRH
7-30-14*

| TYPE | Size | Wellbore Diameter | Wall Thickness | Burst Pressure | Cement Type | Cement Yield (cu. ft./k) |
|--------------|--------|-------------------|----------------|----------------|--------------|--------------------------|
| 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.

(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 7788' tag the onondage not more than 100' run logs, then plug back to approximately 6052' then kick off the horizontal leg into the marcellus formation 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): 60.2

22) Area to be disturbed for well pad only, less access road (acres): 19.7

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 % Calcium Carbonate. Acid solubility.

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

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

one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors back on and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.

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

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

Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

*Note: Attach additional sheets as needed.

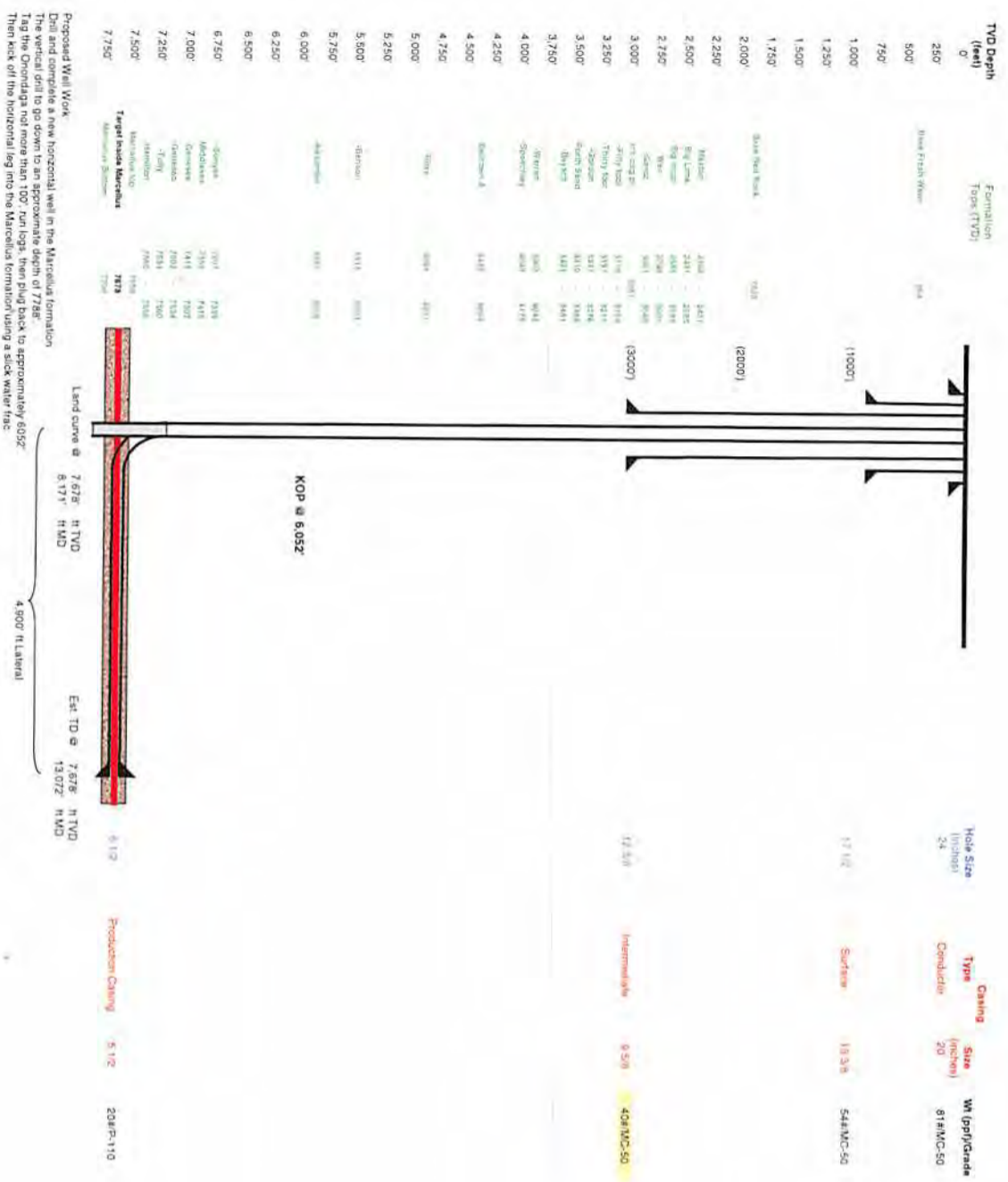
Received

JUN 19 2014

Office of Oil and Gas
WV Dept. of Environmental Protection
10/05/2014

49-02329

Well 514745 (GL076H2)
 EOT Production
 Glover
 Marion
 West Virginia
 Admon 153.5
 Vertical Section 4300



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 WV Dept. of Environmental Protection

10/03/2014

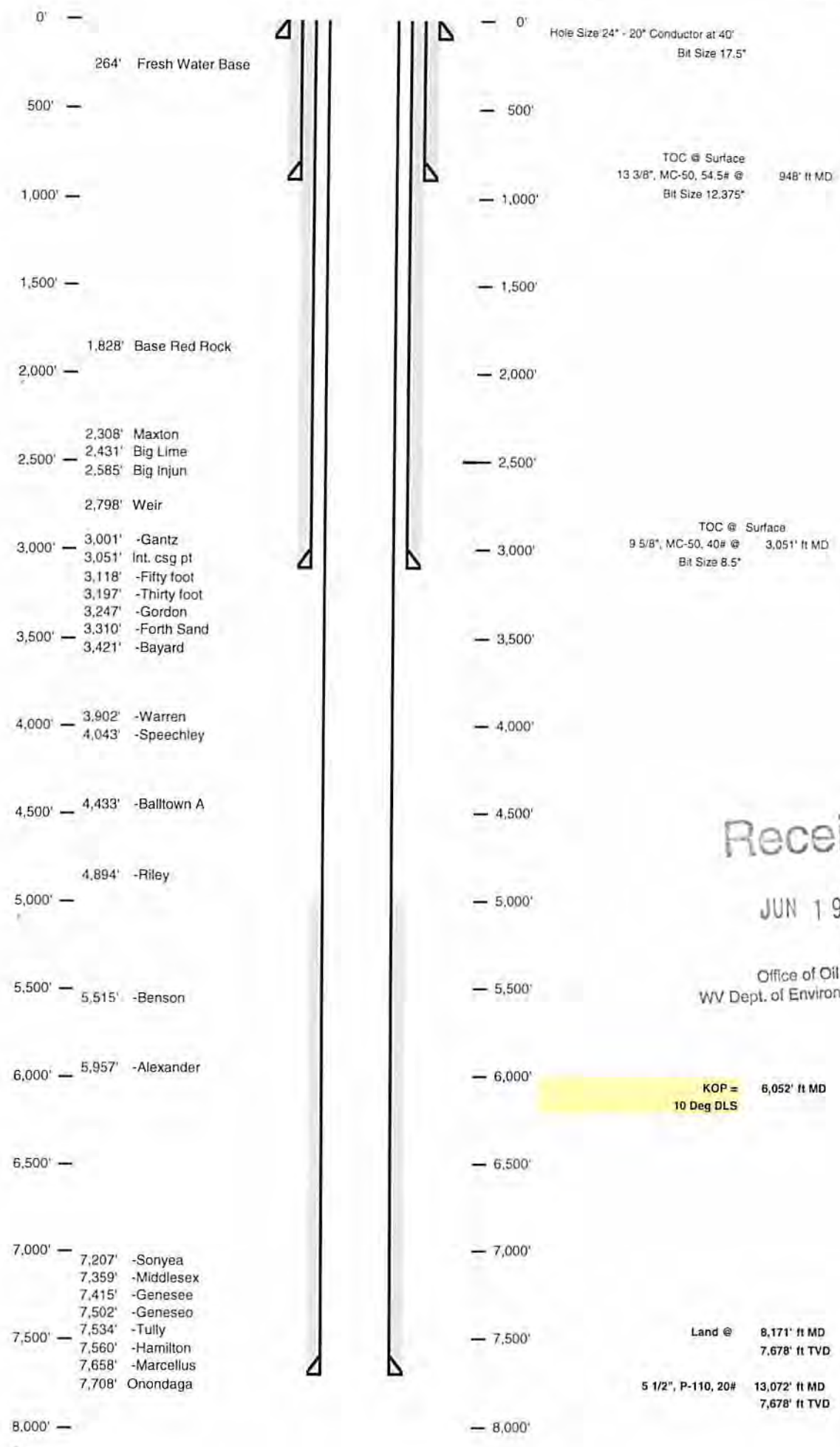
49-02329

Well Schematic
EQT Production

Well Name 514745 (GLO76H2)
County Marion
State West Virginia

Elevation KB:
Target
Prospect
Azimuth
Vertical Section

| |
|-----------|
| 1438 |
| Marcellus |
| 153.5 |
| 4930 |



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JUN 19 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014

49-02329

WW-9
(5/13)

Page 1 of 2
API No. 47 - 049 - 02329
Operator's Well No. 514745

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) Starkey Run Quadrangle Glover Gap
Elevation 1425.0 County Marion District Mannington

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

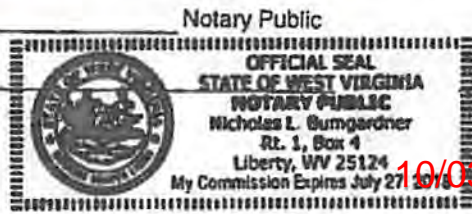
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 24 day of SEPTEMBER, 20 14

My commission expires 6-27-2018



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SEP 24 2014

WV Department of
Environmental Protection

10/03/2014

Proposed Revegetation Treatment: Acres Disturbed 60.2 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: 7-30-14

Field Reviewed? () Yes () No

49-02329

EQT Production Water plan
Offsite disposals for Marcellus wells

CWS TRUCKING INC.

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

BROAD STREET ENERGY LLC

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

LAD LIQUID ASSETS DISPOSAL INC.

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

TRIAD ENERGY

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

TRI COUNTY WASTE WATER MANAGEMENT, INC.

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

KING EXCAVATING CO.

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

Waste Management - Meadowfill Landfill

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

Waste Management - Northwestern Landfill

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

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JUN 19 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

10/03/2014



Where energy meets innovation.™

Site Specific Safety Plan

EQT GLO76 Pad

Mannington

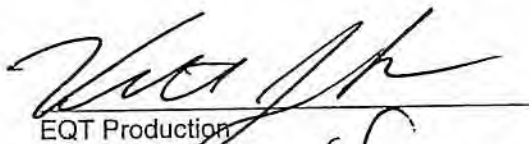
Marion County, WV

For Wells:

514745 _____

Date Prepared:

May 20, 2014


EQT Production

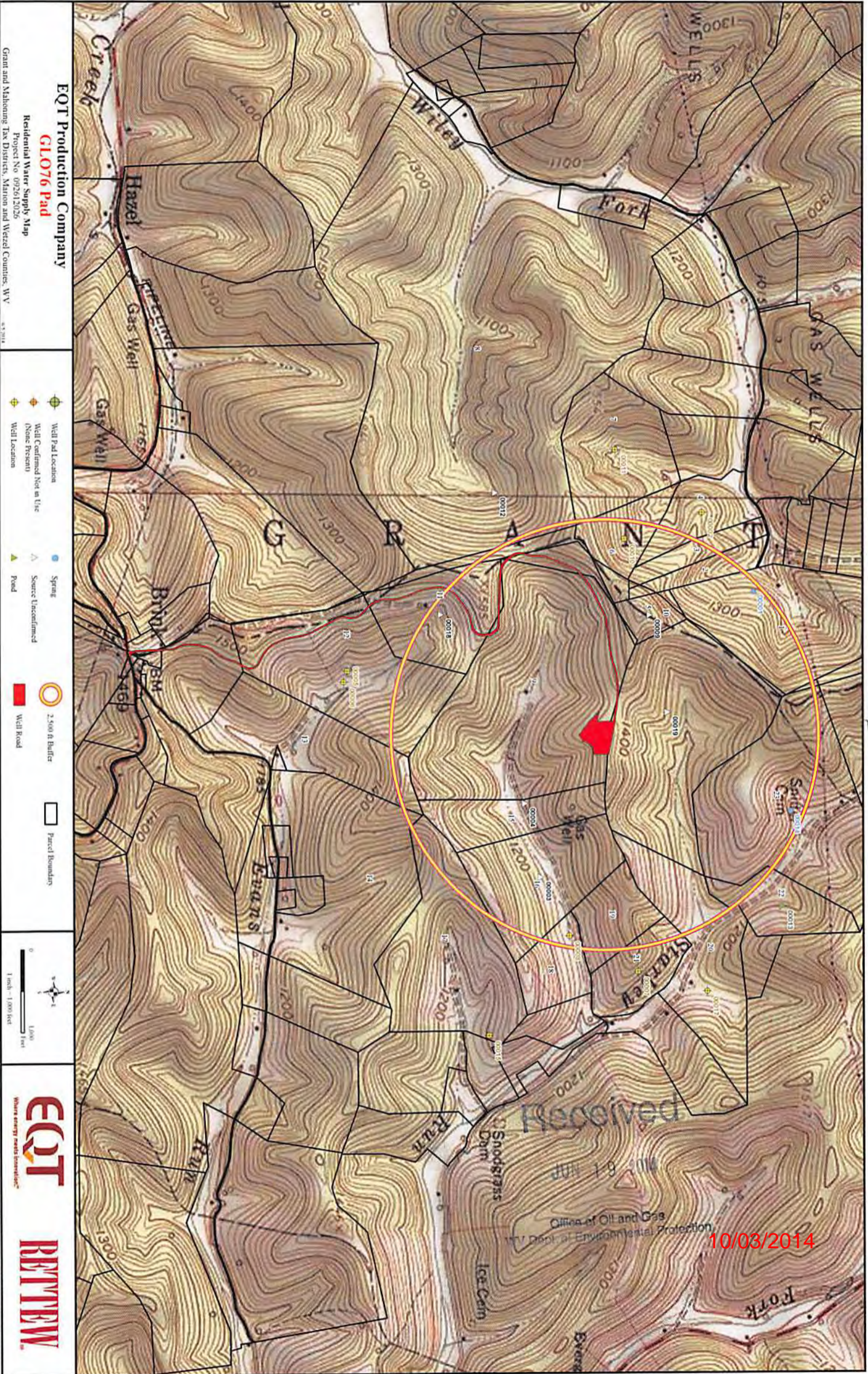

WV Oil and Gas Inspector

Permitting Supervisor
Title

Environmental Inspector
Title

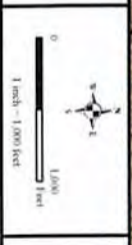
6-16-14
Date

7-30-14 10/03/2014
Date



EQT Production Company
GLO76 Pad
 Residential Water Supply Map
 Project No. 092612026
 Grant and Mahoning Tax Districts, Marion and Wetzel Counties, WV

- Well Pad Location
- Well Confirmed Not in Use (None Present)
- Well Location
- Spring
- Source Unconfined
- Pond
- 2,500 ft Buffer
- Well Road
- Parcel Boundary



EQT
 Where energy meets intelligence.SM

BETHEM

Received
 Mr. G. J. H.P.
 Office of Oil and Gas
 WV Dept. of Environmental Protection
 10/03/2014

**EQT PRODUCTION COMPANY
BROWER et al LEASE
111.0 ACRES ±
WELL NO. WV 514745**

GLO 76 WELLS

- H1 - WV 514744
- H2 - WV 514745**
- H3 - WV 514746
- H4 - WV 514747
- H5 - WV 515495
- H6 - WV 515496
- H7 - WV 515497
- H8 - WV 515524
- H9 - WV 515525



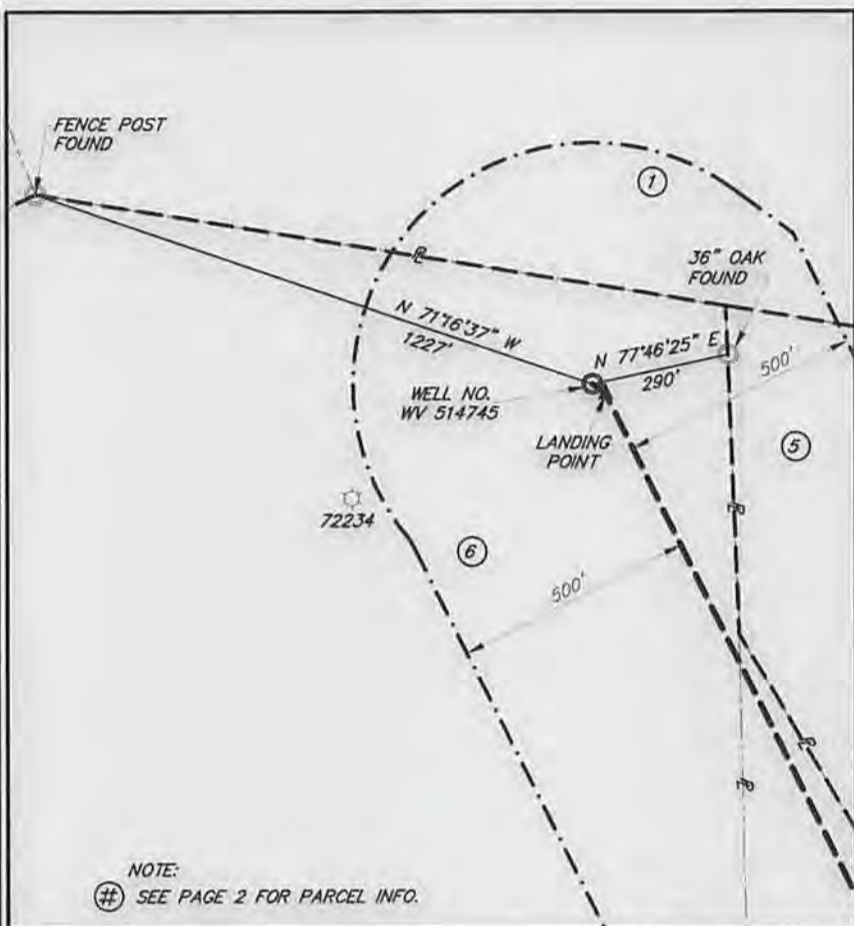
NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '83
2. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN JANUARY, 2014
3. WELL LAT./LONG. (NAD'27) ESTABLISHED BY GPS
4. THE LOCATION OF BOUNDARY LINES SHOWN HEREIN ARE BASED ON RECORD DEED, PLATS AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS, UNLESS OTHERWISE NOTED.
5. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
6. THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
7. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR, OR LAKE
8. THERE ARE NO DWELLINGS OR BARNES GREATER THAN 2,500SF WITHIN 625' OF PROPOSED WELL HEAD.

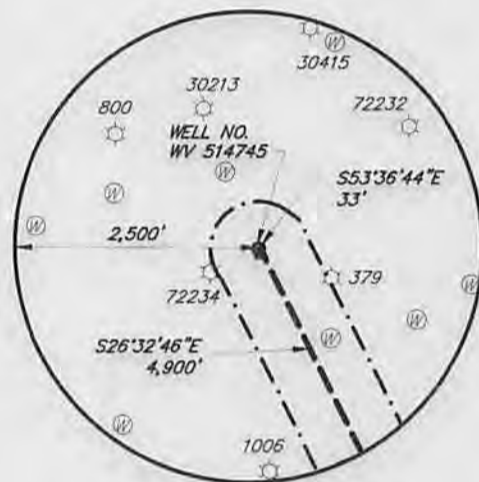
GRID NORTH
NAD 83

WELLHEAD LAYOUT

1" = 100'



NOTE:
SEE PAGE 2 FOR PARCEL INFO.



EXISTING WELL LOCATIONS

SCALE: 1" = 2000'



WELLHEAD TIES

1" = 400'

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S.
923

Kevin D. Schafer



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

DATE SEPTEMBER 25, 20 14

OPERATORS WELL NO. WV 514745

API WELL NO. 47 049 02329
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY ±3' FILE NO. BROWER et al WELL PLAT
PROVEN SOURCE OF ELEVATION GPS SCALE: AS NOTED

SHEET NO.
1 OF 2

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: 1455' (GROUND)
ELEVATION 1425' (PROPOSED) WATERSHED STARKEY RUN
DISTRICT MANNINGTON COUNTY MARION QUADRANGLE GLOVER GAP, WV
SURFACE OWNER ROBERT E. TONKERY ACREAGE 111.00 ±
ROYALTY OWNER LYNN ANN BROWER, et al LEASE ACREAGE 111.00 ± AC
PROPOSED WORK: LEASE NO. 991935
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 7,649'

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

GRID NORTH
NAD 83

LEGEND

- EXISTING GAS WELL
- WATER FEATURE
- LEASE BOUNDARY
- PROPERTY LINE
- STREAM
- COUNTY LINE

WELL NO. WV 514745

1. BUILD-OUT
BEARING - S53°36'44"E
LENGTH - 33'
2. LATERAL
BEARING - S26°32'46"E
LENGTH - 4,900'

**EQT PRODUCTION COMPANY
BROWER et al LEASE
111.0 ACRES ±
WELL NO. WV 514745**

TOP HOLE

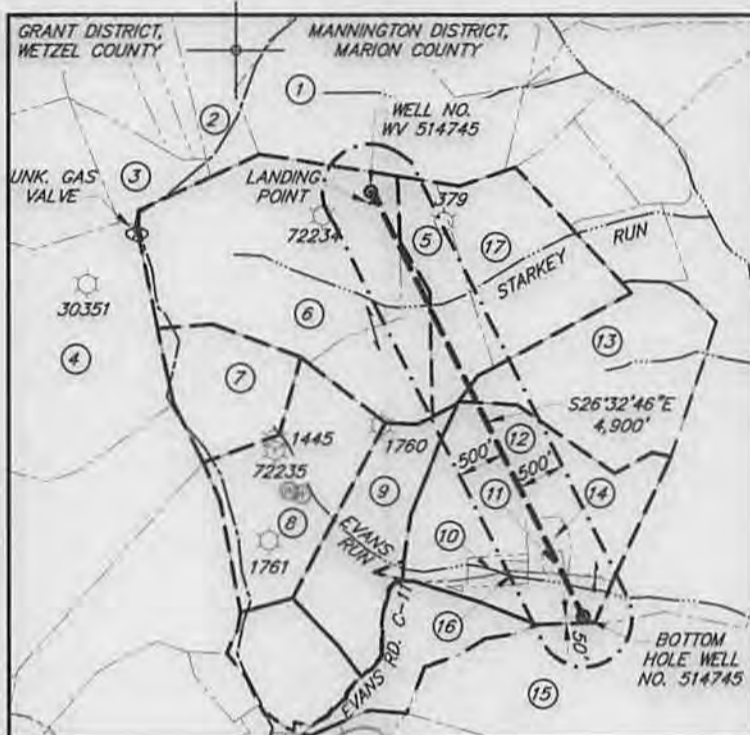
| | | |
|--------------------|-------------------|--------------------|
| NAD'27 S.P.C. (FT) | N. 389,057.7 | E. 1,721,030.0 |
| NAD'27 GEO | LAT-(N) 39.563972 | LONG-(W) 80.489529 |
| NAD'83 UTM 17N (M) | N. 4,379,498.1 | E. 543,865.9 |
| NAD'83 S.P.C. (FT) | N. 389,095.3 | E. 1,689,591.3 |

LANDING POINT

| | | |
|--------------------|-------------------|--------------------|
| NAD'27 S.P.C. (FT) | N. 389,037.9 | E. 1,721,056.9 |
| NAD'27 GEO | LAT-(N) 39.563919 | LONG-(W) 80.489433 |
| NAD'83 UTM 17N (M) | N. 4,379,492.2 | E. 543,874.2 |
| NAD'83 S.P.C. (FT) | N. 389,075.5 | E. 1,689,618.1 |

BOTTOM HOLE

| | | |
|--------------------|-------------------|--------------------|
| NAD'27 S.P.C. (FT) | N. 384,654.5 | E. 1,723,246.9 |
| NAD'27 GEO | LAT-(N) 39.551951 | LONG-(W) 80.481496 |
| NAD'83 UTM 17N (M) | N. 4,378,167.9 | E. 544,563.7 |
| NAD'83 S.P.C. (FT) | N. 384,692.1 | E. 1,691,808.0 |



LATERALS - LAYOUT PLAN
1" = 2,000'

| PARCEL OWNERS | | | |
|---------------|------------|----------------------------------|---------|
| NUMBER | TAX MAP ID | OWNER | ACRES ± |
| 1 | TM 43-22 | PAUL ABLE TRUSTEE, et. al. | 83 |
| 2 | TM 15-36 | WILLIAM JACK & BEVERLY LYNN BARR | 7 |
| 3 | TM 15-35 | DONALD JOSEPH D'LUSKY, JR. | 17.6 |
| 4 | TM 20-01 | COASTAL LUMBER CO. | 520 |
| 5 | TM 43-10 | ROBERT S. & GLORIA L. THORN | 25.33 |
| 6 | TM 43-11 | ROBERT E. TONKERY | 111 |
| 7 | TM 43-11.1 | DAVID A. & DIANE E. FLOYD | 30 |
| 8 | TM 45-29 | DELBERT C. TEAGARDEN | 61.17 |
| 9 | TM 45-28 | DELBERT C. TEAGARDEN | 40.8 |
| 10 | TM 45-26.4 | RICHARD & WANDA JONES | 2.82 |
| 11 | TM 45-26.1 | WAYMAN & KATHERINE WYCKOFF | 1 |
| 12 | TM 45-26 | GLENN & BONNIE ANN WYCKOFF | 97.46 |
| 13 | TM 43-5 | RONNIE STARKEY | 67.25 |
| 14 | TM 45-26.3 | WAYMAN & CATHERINE WYCKOFF | 4.22 |
| 15 | TM 45-17 | HEARTWOOD FORESTLAND FUND | 125.73 |
| 16 | TM 45-26.2 | RICHARD & WANDA JONES | 1 |
| 17 | TM 43-9 | ROBERT S. & GLORIA L. THORN | 46.79 |

LEASE OWNERS
 300684 (79AC) - RICHARD G. THORNE et. al.
 993296 (35AC) - RONNIE DAVID STARKEY
 993303 (106.5AC) - EAST RESOURCES INC. et. al.



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S.
923

Kevin D. Schafer



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAP

DATE SEPTEMBER 25, 20 14

OPERATORS WELL NO. WV 514745

API WELL NO. 47 STATE 049 COUNTY 02329 PERMIT

MINIMUM DEGREE OF ACCURACY ±3' FILE NO. BROWER et al WELL PLAT
 PROVEN SOURCE OF ELEVATION GPS SCALE: 1" = 2000'

SHEET NO.
2 OF 2

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

