



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

PERMIT MODIFICATION APPROVAL

March 24, 2016

EQT PRODUCTION COMPANY
120 PROFESSIONAL PLACE
BRIDGEPORT, WV 26330

Re: Permit Modification Approval for API Number 9502255, Well #: 514462

Extend Lateral, Sub-surface Easement

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gene Smith', with a horizontal line underneath it.

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

03/25/2016



January 12, 2016

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

Re: Modification of 47-095-02257, 02264, ^{MSP}02255, 02220, 02256

Dear Mr. Smith,

Enclosed is an updated WW-6B, schematics, WW-6A1, rec plan, Site Safety plan and mylar plat. EQT would like to revise the length of the lateral. The top hole has not changed. The Safety plan is being updated to include changes to the cement. All has been signed by the inspector.

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

Sincerely,

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

Vicki Roark
Permitting Supervisor-WV

Enc.

Received
Office of Oil & Gas
JAN 14 2016

4709502255 *MOA*

API NO. 47 - 095 - 02255
OPERATOR WELL NO. 514462
Well Pad Name: SHR60

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

1) Well Operator: EQT Production Company
Operator ID 306686 County 095 District 5 Quadrangle 607

2) Operator's Well Number: 514462 Well Pad Name SHR60

3) Farm Name/Surface Owner : Vivian J Wells et al Public Road Access: 60/2

4) Elevation, current ground: 1,018.0 Elevation, proposed post-construction: 1,011.0

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

(b) If Gas: Shallow Deep
Horizontal

6) Existing Pad? Yes or No: yes

*Draft
1-11-16*

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Target formation is Marcellus at a depth of 6596 with the anticipated thickness to be 52 feet and anticipated target pressure of 2747 PSI
Top of Marcellus: 6571

8) Proposed Total Vertical Depth: 6596

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16900

11) Proposed Horizontal Leg Length: 8014

12) Approximate Fresh Water Strata Depths: 83,133,570,906

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

14) Approximate Saltwater Depths: 1198, 1865

15) Approximate Coal Seam Depths: 19, 420, 686, 875, 1315

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

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

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

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Office of Oil & Gas
JAN 14 2016

WW - 6B
(4/15)

47-09502255 MDD

API NO. 47 - 95 - 02255
 OPERATOR WELL NO. 514462
 Well Pad Name: SHR60

CASING AND TUBING PROGRAM

18)

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: for Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu.Ft.)
Conductor	20	New	A-500	78.6	60	60	90 C.T.S.
Fresh Water	13 3/8	New	J-55	54.5	1,000	1,000	931 C.T.S.
Coal	-	-	-	-	-	-	
Intermediate	9 5/8	New	A-500	40	2,780	2,780	1,085 C.T.S.
Production	5 1/2	New	P-110	20	16,900	16,900	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							

Dmit 1-11-16

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	0.375	-	18	Construction	1.18
Fresh Water	13 3/8	17 1/2	0.38	2,730	2,184	* See Note 2	1.19
Coal							
Intermediate	9 5/8	12 3/8	0.395	3,950	3,160	* See Note 2	1.19
Production	5 1/2	8 1/2	0.361	12,640	10,112	-	1.07/1.86
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 500' above the top producing zone.

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

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 Office of Oil & Gas
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47 09502255 *NOO*

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 5127 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): no additional disturbance

22) Area to be disturbed for well pad only, less access road (acres): no additional disturbance

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 joint from production casing shoe to KOP

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.

0.25% 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. 0.25% 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 H Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time)
.15% SEC-10 (fluid loss) 50:50 POZ (extender)

Tail (Type H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss)

.2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation.

60 % Calcuim Carbonate. Acid solubility.

*DMH
1-11-16*

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. 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.

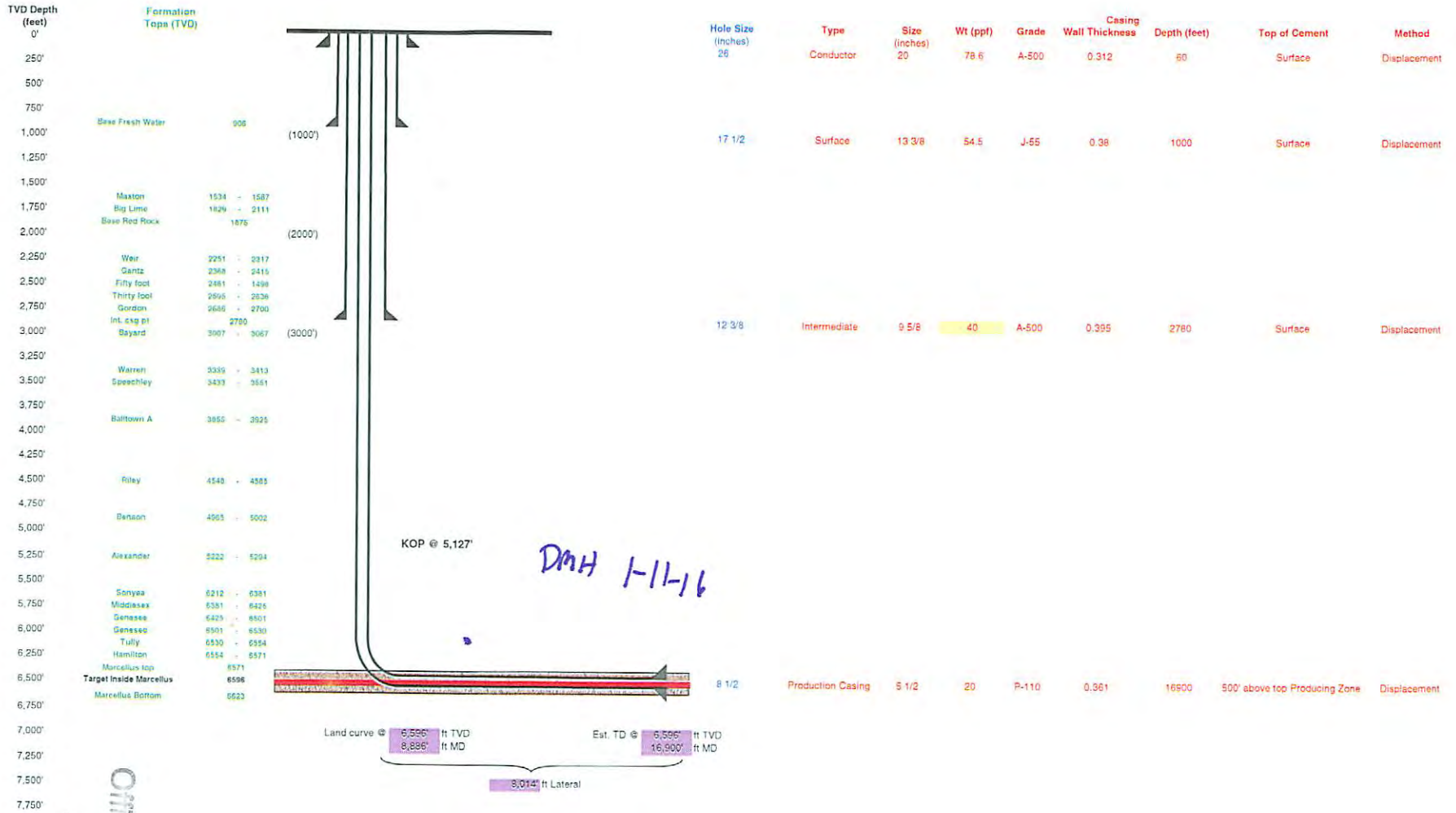
Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

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*Note: Attach additional sheets as needed.

Well 514462 (SHR60H3)
 EQT Production
 Shirley
 Tyler West Virginia

Pad Name
 Azimuth 150
 Vertical Section 9105



Proposed Well Work:
 Drill and complete a new horizontal well in the Marcellus formation
 Drill the vertical to an approximate depth of 5127'.
 Kick off and drill curve horizontal in the Marcellus. Cement casing.

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 Office Oil & Gas
 JAN 4 2016

4709502255 NW



4709502255 ^{NOT}

west virginia department of environmental protection

Office of Oil and Gas
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(304) 926-0450
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Earl Ray Tomblin, Governor
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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 "I" Cement)

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

Sincerely,

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

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Office of Oil & Gas

JAN 14 2016

03/25/2016



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.

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CONCLUSIONS OF LAW

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

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

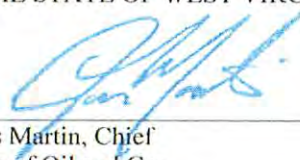
ORDER

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

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

IN THE NAME OF THE STATE OF WEST VIRGINIA

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



James Martin, Chief
Office of Oil and Gas

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Office of Oil & Gas
JAN 14 2016

WW-9
(2/15)

Page 1 of 2
API No. 47 - 095 - 02255
Operator's Well No. 514462

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) Morrison Run of McElroy Creek Quadrangle Shirley

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 (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

DAH
H11-16

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

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Office of Oil & Gas
JAN 14 2016

Subscribed and sworn before me this 17 day of December, 20 15

Rebecca J Wanstreet Notary Public

4-7-20



03/25/2016

4709502255 MSB

Form WW-9

Operator's Well No. 514462

Proposed Revegetation Treatment: Acres Disturbed no additional disturbance Prevegetation pH 6.3

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	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: Oil + Gas Inspector Date: 1-11-16

Field Reviewed? (✓) Yes () No

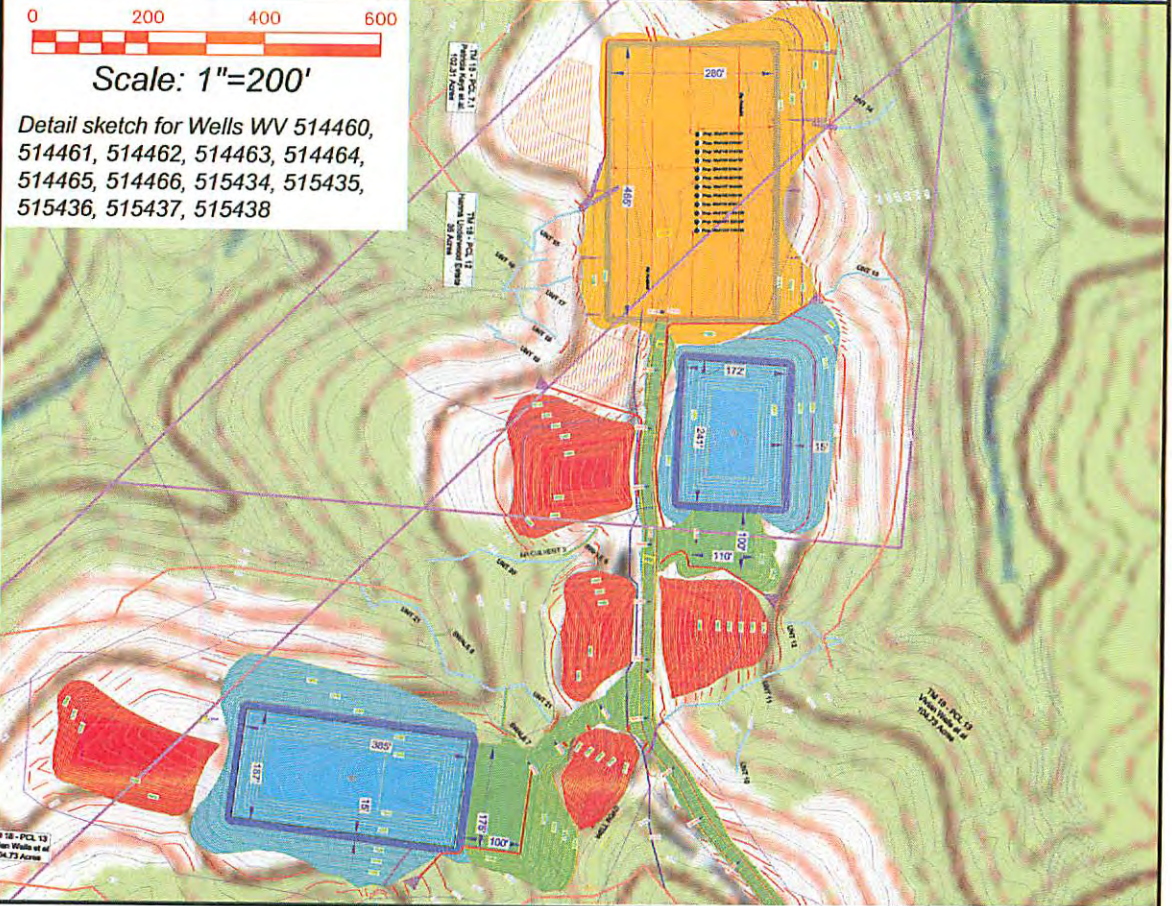
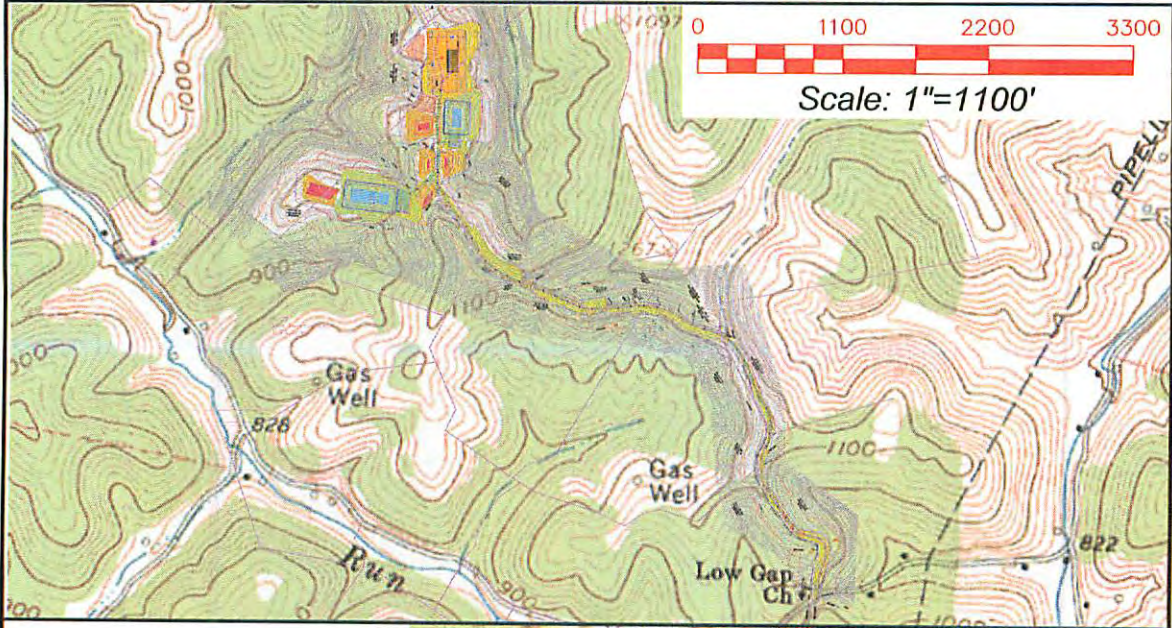
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WW-9

SHR 60 H1-514460 SHR 60 H4-514463 SHR 60 H7-514466 SHR 60 H10-515436
 SHR 60 H2-514461 SHR 60 H5-514464 SHR 60 H8-515434 SHR 60 H11-515437
 SHR 60 H3-514462 SHR 60 H6-514465 SHR 60 H9-515435 SHR 60 H12-515438

PAGE 1 OF 1



Shirley 7.5' USGS QUADRANGLE		Proposed Disturbance Area	
Projected culvert inventory. (for bid purposes only)		Well Site Location	See Site Plan
15" minimum diameter culverts	See Site Plan	Proposed Access Road	See Site Plan
24" minimum diameter culverts	See Site Plan	Approximate Total Disturbance	See Site Plan
DRAWN BY: Dale Tomlin PS	DATE: October 24, 2014	FILE NO: 208-13	DRAWING FILE NO: ACAD-208-13-Rec Plan

Note: SEE SITE PLAN OF SHR 60 FOR COMPLETE GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.

DmH
1-11-16

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Office of Oil & Gas
JAN 14 2016



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



Where energy meets innovation.™

Site Specific Safety Plan

EQT SHR 60 Pad

Shirley Tyler County, WV

For Wells: 514460 514461 514462 514463 514464 514465 514466

Date Prepared: October 24, 2014

Date Reviewed: December 7, 2015

[Signature]
EQT Production
Permitting Supervisor
Title

[Signature]
WV Oil and Gas Inspector
Oil + Gas Inspector
Title

Date 1/7/14

Date 1-11-16

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JAN 14 2016

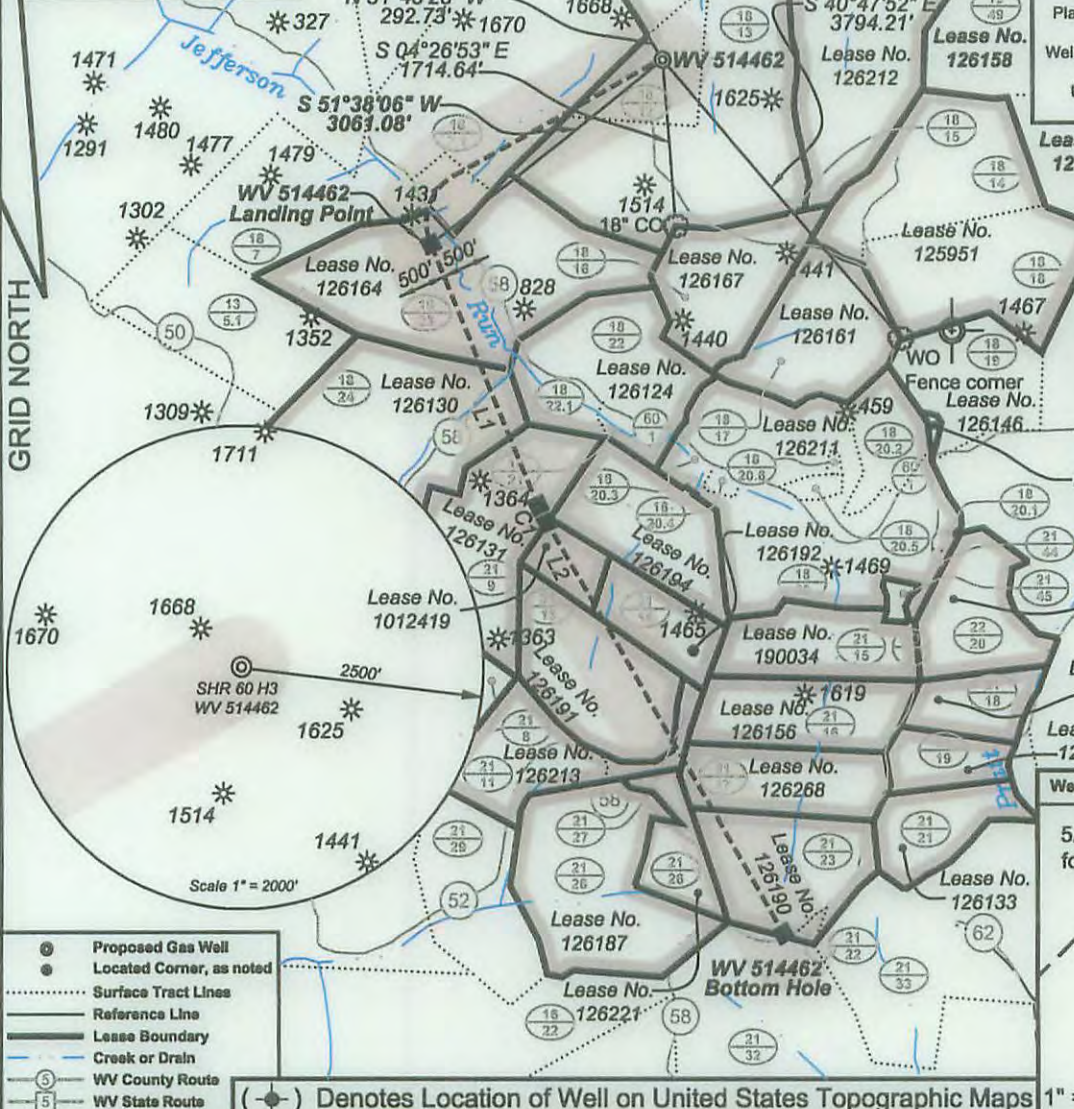
SHR 60
WV 514462
EQT Production Company

5525'
 LATITUDE 39 - 25 - 00

LONGITUDE 80 - 47 - 30
 8008'

- SHR 60
- H1, 514460
 - H2, 514461
 - H3, 514462
 - H4, 514463
 - H5, 514464
 - H6, 514465
 - H7, 514466
 - H8, 515434
 - H9, 515435
 - H10, 515436
 - H11, 515437
 - H12, 515438

Notes:
 WV 514462 coordinates are
 NAD 27 N: 328,552.13 E: 1,629,438.94
 NAD 27 Lat: 39.394645 Long: -80.811237
 NAD 83 UTM N: 4,360,598.26 E: 516,268.95
 WV 514462 Landing Point coordinates are
 NAD 27 N: 326,652.21 E: 1,627,038.84
 NAD 27 Lat: 39.389333 Long: -80.819630
 NAD 83 UTM N: 4,360,007.22 E: 515,547.41
 WV 514462 Bottom Hole coordinates are
 NAD 27 N: 319,532.87 E: 1,630,682.16
 NAD 27 Lat: 39.369934 Long: -80.806375
 NAD 83 UTM N: 4,357,856.85 E: 516,693.55
 West Virginia Coordinate system of 1927 (North Zone)
 based upon Differential GPS Measurements.
 Plat orientation, corner and well ties are based upon
 the grid north meridian.
 Well location references are based upon the grid north
 meridian.
 UTM coordinates are NAD83, Zone 17, Meters.

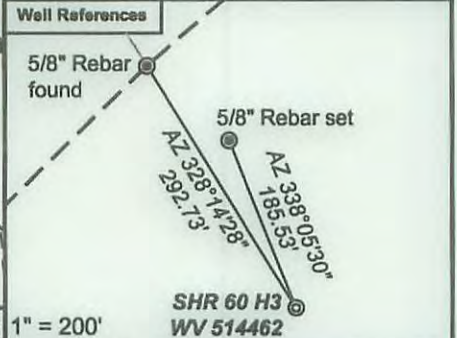


Lease No.	Acres	Owner
126164	113	Robert D. Seckman, et. al.
126130	90	Donald Underwood, et. al.
126131	66	CNX Gas Co.
1012419	10	Barbara S. Stack
126192	22	Sue E. Costlow
126191	55	Thomas J. Haught
126213	55	Clarence B. Conner, et al.
126268	36	Paul Weekley, et al.
126190	50	Donald L. Seckman, et al.

Curve	Radius	Arc Length	Chord Bearing
C1	1921.31'	200.00'	S 27°08'03" E

LINE	BEARING	DISTANCE
L1	S 22°13'17" E	2,914.51'
L2	S 30°00'00" E	4,899.83'

- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route



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



FILE NO: 208-13
 DRAWING NO: 208-13 SHR 60 H3
 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: January 7 20 16
 OPERATOR'S WELL NO.: 514462
 API WELL NO
 47 - 95 - 02255
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Proposed 1,011' Ground 1,018' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
 DISTRICT: McElroy COUNTY: Tyler
 SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
 ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240
 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: Marcellus ESTIMATED DEPTH: TVD 8,596'

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

03/25/2016

**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:

470950225 MOD

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	
126101	<u>George Birklein, et al(current royalty owner)</u>		Min 1/8 pd		
	WM. Blaine Underwood Et ux et al (original lessor)	Equitable Gas Co.		DB186/86	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	
	Equitrans, L.P.	EQT Production Company		OG420/10	Tyler Co.
5-18-7	Ok Nan Keys	EQT Production Company	N/A	508/179	Subsurface Easement Attached
5-18-7.1	Brenda J. Ashley, et al	EQT Production Company	N/A	508/181	Subsurface Easement Attached
5-18-7.1	Patricia A. Keys	EQT Production Company	N/A	514/375	Subsurface Easement Attached
126164	<u>Robert D. Seckman et al(current royalty owner)</u>		Min 1/8 pd		
	Retha Seckman, et al (original lessor)	Equitable Gas Co.		DB192/351	
	Equitable Gas Co.	Equitrans, Inc.		DB274/471	
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	Tyler
126130	<u>Donald Underwood, et al (current royalty owner)</u>		Min 1/8 pd		
	Donald Underwood, et al(original lessor)	Equitable Gas Company		LB191/313	
	Equitable Gas Company	Equitrans, Inc		DB274/471	
	Equitrans, Inc	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	Tyler
126131	<u>CNX Gas Co.(current royalty owner)</u>		Min 1/8 pd		
	Walton E. Smith, Jr., et ux(original lessor)	Equitable Gas Co.		DB211/555	
	Equitable Gas Company	Equitrans, Inc		DB274/471	
	Equitrans, Inc	Equitrans, L.P.		DB433/777	
	Equitrans, L.P.	EQT Production Company		DB396/640	Tyler

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<u>1012419</u>	<u>Barbara S. Stack (current royalty owner)</u>		Min 1/8 pd	
	Barbara S.Stack (original lessor)	EQT Production Company		516/40
<u>126192</u>	<u>Sue E Costilow(current royalty owner)</u>		Min 1/8 pd	
	Rex Underwood, et al(original lessor)	Equitable Gas Co.		DB195/472
	Equitable Gas Co.	Equitrans, Inc.		DB274/471
	Equitrans, Inc	Equitrans, L.P.		DB433/777
	Equitrans, L.P.	EQT Production Company		DB396/640 Tyler
<u>126191</u>	<u>Thomas J. Haught(current royalty owner)</u>		Min 1/8 pd	
	D. L. Haught, et al (original lessor)	Equitable Gas Co.		DB195/469
	Equitable Gas Co.	Equitrans, Inc.		DB274/471
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777
	Equitrans, L.P.	EQT Production Company		DB396/640 Tyler
<u>126213</u>	<u>Clarence B. Connor et al (current royalty owner)</u>		Min 1/8 pd	
	J. B. Robinson, et ux (original lessor)	Hope Natural Gas Co.		DB70/483
	Hope Natural Gas Co.	Consolidated Gas Supply Corp.		DB169/26
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation		DB249/287
	Consolidated Gas Transmission Corporation	CNG Producing Company		253/57
	CNG Producing Company	Dominion Exploration & Production		Unrecorded Name Change (attached)
	Dominion Exploration & Production	CNX Gas Company LLC		4709502253 MOP DB384/191
	CNX Gas Company LLC	EQT Production Co.		480/740
<u>126268</u>	<u>Paul Weekley et al (current royalty owner)</u>		Min 1/8 pd	
	Logan Hassig, et ux (original lessor)	Equitable Gas Co.		DB205/119
	Equitable Gas Co.	Equitrans, Inc.		DB274/471
	Equitrans, Inc./Equitable Gas Company/Equitable Resrouces, Inc.	Equitrans, L.P.		DB433/777
	Equitrans, L.P.	EQT Production Company		DB396/640 Tyler

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Office of Oil & Gas
JAN 14 2016

<u>126190</u>	<u>Donald L. Seckman et al (current royalty owner)</u>		Min 1/8 pd
	Robert D. Ferguson, et al (original lessor)	Equitable Gas Co.	DB196/4
	Equitable Gas Co.	Equitrans, Inc.	DB274/471
	Equitrans, Inc./Equitable Gas	Equitrans, L.P.	DB433/777
	Company/Equitable Resources, Inc.	Equitrans, L.P.	DB396/640 Tyler
	Equitrans, L.P.	EQT Production Company	

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

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: 
 Its: Permitting Supervisor

4709502255 MSV

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Office of Oil & Gas
JAN 14 2016



EQT Production Company
2400 Zenith Ridge Rd.
Suite 200
Canonsburg, PA 15317
www.eqt.com

Todd Klaner
Manager, Permitting
tklaner@eqt.com

January 12, 2016

WV DEP Reviewer

RE: EQT Production Company
PAD ID – SHR60
Well# - 514462
Tyler County

Dear Reviewer,

This well indicated by this permit application contains a Subsurface Easement Agreement for non-productive portions of the well bore. Attached is a Memorandum of Subsurface Use Agreement which gives EQT the right to drill below the surface of the tracts 18-7.1 and 18-7, shown on the well plat.

EQT Production understands that the WVDEP will issue the permit in the normal process subject to the completeness of the requirements of the Office of Oil and Gas and does not take a position with regards to the property rights under this agreement.

EQT Production agrees that the WVDEP's issuance of the permit is in no way an affirmation or validation of EQT Production's claimed rights.

Regards,

Todd Klaner
Manager, Permitting
EQT Production Company

4709502255 MOD

Received
Office of Oil & Gas
JAN 14 2016

03/25/2016

MEMORANDUM OF
SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT

115 PROFESSIONAL PLACE PO BOX 280
MUSKOGEE, WV 26330-0280

1. NAME AND ADDRESS OF GRANTOR:

Patricia A. Keys
536 Briarcliff CT
New Martinsville, WV 26155

2. NAME AND ADDRESS OF GRANTEE:

EQT Production Company
625 Liberty Avenue
Suite 1700
Pittsburgh, PA 15222

3. SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT REFERENCE:

A SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT dated the 29th day of September, 2015, was entered into for good and valuable consideration by and between Patricia A. Keys, a single woman ("Grantor", whether one or more) and EQT Production Company ("Grantee").

4. DESCRIPTION OF PREMISES: That certain tract or parcel of land containing 102.31 acres, more or less, located on the waters of Jefferson Run in Tyler County, West Virginia, being the same lands conveyed to Grantor by Deed dated the 15th day of October, 1998, of record in the Office of the Clerk of the County Commission of Tyler County, West Virginia in Deed Book 326, at Page 372. ("the Property").

5. TERM: The SUBSURFACE RIGHT-OF-WAY AND EASEMENT shall run with the land and shall remain in full force and effect until released and relinquished by the Grantee back to the Grantor, in writing.

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Received
Office of Oil & Gas

JAN 14 2016

Tyler Co R Hamilton
TYLER County 10:47:32 AM
Instrument No 115900
Date Recorded 12/28/2015
Document Type ROW
Pages Recorded 2
Book-Page 514-375
Recording Fee \$5.00
Additional \$6.00

03/25/2016

IN WITNESS WHEREOF, the parties have signed their names hereto as of the date of the Agreement referenced in Section 3 above.

GRANTOR:

GRANTEE:

EQT Production Company

Patricia A. Keys
Patricia A. Keys

[Signature]
By: John W. Damato
Its Attorney in fact

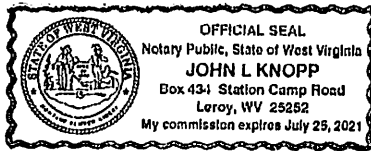
STATE OF WEST VIRGINIA:

COUNTY OF WETZEL:

I, John Knopp, a Notary Public, in and for said State and County, do hereby certify that Patricia A. Keys, a single woman, personally known to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be their free act and deeds for uses and purposes therein set forth.

Given under my hand this 29th day of September, 2015.

My Commission expires: July 25, 2021



[Signature]
Notary Public

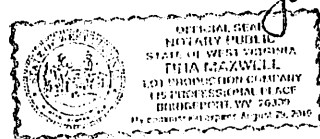
STATE OF WEST VIRGINIA:

COUNTY OF HARRISON:

I, Tina Maxwell, a Notary Public, in and for said State and County, do hereby certify that John W. Damato, personally known to be the same person whose name is subscribed to the foregoing instrument and the Attorney in fact of EQT Production Company, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be his free act and deed for uses and purposes therein set forth on behalf of said company.

Given under my hand this 1st day of October, 2015.

My Commission expires: August 29, 2019



Tina Maxwell
Notary Public

Received
Office of Oil & Gas

Teresa R Hamilton
TYLER County 01:21:34 PM
Instrument No 114424
Date Recorded 11/05/2015
Document Type AGR
Pages Recorded 2
Book-Page 508-181
Recording Fee \$5.00
Additional \$6.00

MEMORANDUM OF
SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT

U.S. PROFESSIONAL PLANE PO BOX 280
BRIDGEPORT, WV 26330-0280

1. NAME AND ADDRESS OF GRANTOR:

Brenda J. Ashley and Stephen D. Ashley
1048 Middle Island Road
Middlebourne, WV 26149

2. NAME AND ADDRESS OF GRANTEE:

EQT Production Company
625 Liberty Avenue
Suite 1700
Pittsburgh, PA 15222

3. SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT REFERENCE:

A SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT dated the 5th day of October, 2015, was entered into for good and valuable consideration by and between Brenda J. Ashley and Stephen D. Ashley, her husband, ("Grantor", whether one or more) and EQT Production Company ("Grantee").

4. DESCRIPTION OF PREMISES: That certain tract or parcel of land containing 102.31 acres, more or less, located on the waters of Jefferson Run in Tyler County, West Virginia, being the same lands conveyed to Grantor by Deed dated the 15th day of October, 1998, of record in the Office of the Clerk of the County Commission of Tyler County, West Virginia in Deed Book 326, at Page 372, ("the Property").

5. TERM: The SUBSURFACE RIGHT-OF-WAY AND EASEMENT shall run with the land and shall remain in full force and effect until released and relinquished by the Grantee back to the Grantor, in writing.

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Received
Office of Oil & Gas

JAN 14 2016

03/25/2016

IN WITNESS WHEREOF, the parties have signed their names hereto as of the date of the Agreement referenced in Section 3 above.

GRANTOR:

GRANTEE:
EQT Production Company

Brenda J. Ashley
Brenda J. Ashley

John W. Damato *JD*
By: John W. Damato
His: Attorney in fact

Stephen D. Ashley
Stephen D. Ashley

STATE OF WEST VIRGINIA: 4709502255 Mod

COUNTY OF TYLER :

I, John Knopp, a Notary Public, in and for said State and County, do hereby certify that Brenda J. Ashley and Stephen D. Ashley, personally known to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be their free act and deeds for uses and purposes therein set forth.

Given under my hand this 5th day of October, 2015.

My Commission expires: July 25, 2021



John Knopp
Notary Public

STATE OF WEST VIRGINIA ;

COUNTY OF HARRISON ;

I, Tina Maxwell, a Notary Public, in and for said State and County, do hereby certify that John W. Damato, personally known to be the same person whose name is subscribed to the foregoing instrument and the Attorney in fact of EQT Production Company, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be his free act and deed for uses and purposes therein set forth on behalf of said company.

Given under my hand this 12th day of October, 2015.

My Commission expires: August 29, 2019



Tina Maxwell
Notary Public

Received
Office of Oil & Gas

JAN 14 2016

Teresa R Hamilton
TYLER County 01:20:14 PM
Instrument No 114422
Date Recorded 11/05/2015
Document Type AGR
Pages Recorded 2
Book-Page 509-179
Recording Fee \$5.00
Additional \$6.00

MEMORANDUM OF
SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT

U.S. DISTRICT COURT, TYLER, WV
BRIDGEPORT, WV 26330-0280

1. NAME AND ADDRESS OF GRANTOR:

Ok Nan Keys
3332 Jefferson Run Road
Alma, WV 26320

2. NAME AND ADDRESS OF GRANTEE:

EQT Production Company
625 Liberty Avenue
Suite 1700
Pittsburgh, PA 15222

3. SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT REFERENCE:

A SUBSURFACE RIGHT-OF-WAY AND EASEMENT AGREEMENT dated the 5th day of October, 2015, was entered into for good and valuable consideration by and between Ok Nan Keys, a widow ("Grantor", whether one or more) and EQT Production Company ("Grantee").

4. DESCRIPTION OF PREMISES: That certain tract or parcel of land containing 13.01 acres, more or less, located on the waters of Jefferson Run in Tyler County, West Virginia, being the same lands conveyed to Grantor by Deed dated the 5th day of November, 1999, of record in the Office of the Clerk of the County Commission of Tyler County, West Virginia in Deed Book 329, at Page 414. ("the Property").

5. TERM: The SUBSURFACE RIGHT-OF-WAY AND EASEMENT shall run with the land and shall remain in full force and effect until released and relinquished by the Grantee back to the Grantor, in writing.

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4709502255 MOD

Received
Office of Oil & Gas
JAN 14 2016

03/25/2016

IN WITNESS WHEREOF, the parties have signed their names hereto as of the date of the Agreement referenced in Section 3 above.

GRANTOR:

GRANTEE:

EQT Production Company

OK Nan Keys
OK NAN KEYS

[Signature]
By: John W. Damato
As: Attorney in fact

STATE OF WEST VIRGINIA;

COUNTY OF TYLER;

I, John Knopp, a Notary Public, in and for said State and County, do hereby certify that Ok Nan Keys, a widow personally known to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be her free act and deeds for uses and purposes therein set forth.

Given under my hand this 5th day of October, 2015.

My Commission expires: July 25, 2021



[Signature]
Notary Public

STATE OF WEST VIRGINIA ;

COUNTY OF HARRISON ;

470950225 - MoD

I, Tina Maxwell, a Notary Public, in and for said State and County, do hereby certify that John W. Damato, personally known to be the same person whose name is subscribed to the foregoing instrument and the Attorney in fact of EQT Production Company, appeared before me this day in person in the State and County aforesaid, and acknowledged and delivered the said instrument to be his free act and deed for uses and purposes therein set forth on behalf of said company.

Given under my hand this 14th day of October, 2015.

My Commission expires: August 29, 2019



[Signature]
Notary Public

Office of Notary Public

This instrument was prepared by EQT Production Company, 1710 Pennsylvania Avenue, Charleston, WV 25302

JAN 14 2016

03/25/2016

State of West Virginia



Certificate

I, Ken Hechter, Secretary of State of the State of West Virginia, hereby certify that

originals of an application by

CNG PRODUCING COMPANY

for an amended certificate of authority to transact business in West Virginia are filed in my office, as required by the provisions of Chapter 31, Article 1, Sections 57 and 59 of the West Virginia Code and conform to law. Therefore, I issue this

AMENDED CERTIFICATE OF AUTHORITY

to transact business in West Virginia under the name of

DOMINION EXPLORATION & PRODUCTION, INC.

and I attach to this certificate a duplicate original of the application.

4709502255 M.D



Given under my hand and the Great Seal of the State of West Virginia on

May 10, 2000

Secretary of State

Office

3

JAN 14 2016

03/25/2016