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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, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, December 21, 2021  
PERMIT MODIFICATION APPROVAL  
New Drill / Modification

EQT CHAP, LLC  
625 LIBERTY AVE  
SUITE 1700  
PITTSBURGH, PA 15222

Re: Permit Modification Approval for LONGWORTH M07H  
47-051-01917

**UPDATED TRANSFER OF OPERATOR NAME, UPDATE TO SITE SAFETY PLAN**

EQT CHAP, LLC

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.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

Operator's Well Number: LONGWORTH M07H  
Farm Name: GRAHAM H LONGWORTH JR  
U.S. WELL NUMBER: 47-051-01917  
New Drill Modification  
Date Modification Issued: 12/21/2021

Promoting a healthy environment.

12/24/2021

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

1) Well Operator: EQT CHAP, LLC 494525804 Marshall Clay Glen Easton  
Operator ID County District Quadrangle

2) Operator's Well Number: M07H Well Pad Name: Longworth

3) Farm Name/Surface Owner: Graham H. Longworth, Jr. Public Road Access: Roberts Ridge Road/WV-21

4) Elevation, current ground: 1,270' (built) Elevation, proposed post-construction: 1,270'

5) Well Type (a) Gas  Oil  Underground Storage   
Other \_\_\_\_\_  
(b) If Gas Shallow  Deep   
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus, 6,674', 61', 0.64 psi/ft gradient

8) Proposed Total Vertical Depth: 6,674' (Drilled)

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15,944' (Drilled)

11) Proposed Horizontal Leg Length: 8,854' (Drilled)

12) Approximate Fresh Water Strata Depths: 99', 605'

13) Method to Determine Fresh Water Depths: Tophole drilling

14) Approximate Saltwater Depths: 1,576', 1,998', 2,102', 2,139'

15) Approximate Coal Seam Depths: 583', 853'

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A

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

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

WV Department of  
Environmental Protection

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	20"	New	X-52	218	40'	40'	N/A
Fresh Water	13 3/8"	New	J-55	54.5	621'	621'	579
Coal							
Intermediate	9 5/8"	New	L-80	40	2,162'	2,162'	982
Production	5 1/2"	New	P-110	20	15,944'	15,867'	825/2213
Tubing							
Liners							

*Bryan Harris* 11/17/21

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
Conductor	20"	30"				Class A	
Fresh Water	13 3/8"	17 1/2"	0.38	2730	1911	Class A	1.20
Coal							
Intermediate	9 5/8"	12 3/8"	0.395	5750	2768	Class A	1.19
Production	5 1/2"	8 1/2"	0.361	14360	9975	Class H/ Class H	1.14/1.15
Tubing							
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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

EQT CHAP is proposing to complete development operations on this well. The well has been drilled horizontally as shown on the attached WR-35.

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 0.1%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10,000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 350,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000-600,000 pounds of proppant per stage

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 38.9

22) Area to be disturbed for well pad only, less access road (acres): 19.3

23) Describe centralizer placement for each casing string:

SURFACE- ON SHOE TRACK AND EVERY 500' TO SURFACE  
INTERMEDIATE: ON SHOE TRACK AND EVERY 500' FEET TO SURFACE  
PRODUCTION: ON SHOE TRACK AND EVERY JOINT TO ABOVE TOC

24) Describe all cement additives associated with each cement type:

25) Proposed borehole conditioning procedures:

N/A - The well is already drilled

\*Note: Attach additional sheets as needed.

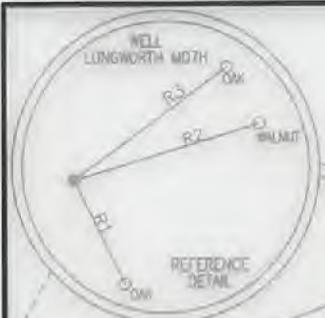
BHL is located on topo map 2,211 feet south of Latitude: 39° 50' 00"  
 SHL is located on topo map 10,166 feet south of Latitude: 39° 52' 30"

**SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS**

**LEGEND**

- TOPO MAP POINT
  - WELL
  - ALL ARE POINTS UNLESS OTHERWISE NOTED.
  - MINERAL TRACT BOUNDARY
  - PARCEL LINES
  - WELL REFERENCE
  - ROAD
  - STREAM CENTER LINE
  - LESSORS
  - SURFACE OWNERS
  - AS-DRILLED
- GAS WELLS**
- EXISTING WELLS
  - PLUGGED WELLS

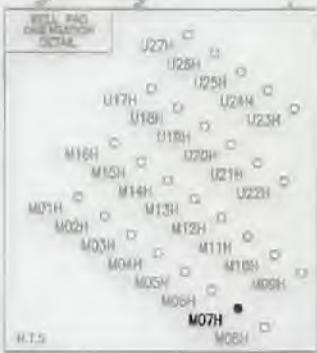
LINE	BEARING	DISTANCE
R1	S 26°26'07" E	144.46'
R2	N 73°06'39" E	244.58'
R3	N 53°56'44" E	239.58'
R4	S 75°15'28" W	2317.79'
R5	N 89°44'45" W	1616.50'
R6	N 37°16'10" W	794.99'



AS-DRILLED LOCATIONS UTM 17-WN083(M)
SURFACE HOLE LOCATION (SHL)
N:4410830.392 E:523397.236
APPROX LANDING POINT (LP)
N:4410742.24 E:523717.52
BOTTOM HOLE LOCATION (BHL)
N:4408636.13 E:525389.69

- NOTES:
- There are no water wells or developed springs within 250' of proposed well.
  - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
  - There are no native trout streams within 300' of proposed well.
  - Proposed well is greater than 1000' from surface groundwater intake or public water supply.
  - It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.
  - There are no existing buildings within 625' of proposed well.

**THRASHER**  
 THE THRASHER GROUP, INC.  
 600 WHITE OAKS BLVD.  
 BRIDGEPORT, WV 26330  
 PHONE 304-624-4108



**AS-DRILLED PLAT**



FILE #: LONGWORTH M07H - AS-DRILLED  
 DRAWING #: LONGWORTH M07H - AS-DRILLED  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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.

Signed: *Joseph H. Lowther*  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2346

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: FEBRUARY 23, 2021  
 OPERATOR'S WELL #: LONGWORTH M07H - AS-DRILLED  
 API WELL #: 47 51 01917 MOB  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  Gas  Liquid Injection  Storage  Shallow

WATERSHED: MIDDLE GRAVE CREEK-GRAVE CREEK ELEVATION: 1295'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: GLEN EASTON, WV 7.5'

SURFACE OWNER: GRAHAM H. LONGWORTH JR. ACREAGE: 123.589±

OIL & GAS ROYALTY OWNER: GRAHAM H. LONGWORTH JR. ACREAGE: 615.367±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION

PERFORATE NEW FORMATION  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE

(SPECIFY): AS-DRILLED PLAT

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,674± TMD: 15,944±

WELL OPERATOR EQT CHAP LLC DESIGNATED AGENT JOSEPH C. MALLOW  
 Address 400 WOODCLIFF DRIVE Address 115 PROFESSIONAL PLACE, PO BOX 280  
 City CANONSBURG State PA Zip Code 15317 City BRIDGEPORT State WV Zip Code 26330

BHL is located on topo map 10,344 feet west of Longitude: 80° 40' 00"  
 SHL is located on topo map 5,157 feet west of Longitude: 80° 42' 30"

12/24/2021

# LONGWORTH M07H PAGE 2 OF 2 AS-DRILLED PLAT

	LESSOR	DIST-TM/PAR
A	GRAHAM H. LONGWORTH JR. ET AL	4-11/1
B	GRAHAM H. LONGWORTH JR. ET AL	4-11/2
	LISA NICEWARNER	
	JULIA RODGERS	
	KEITH FRIESE	
	MARK FREISE	
	ANTHONY FREISE	
	JAMES FRIESE	
	HENRY FREISE	
	STEVEN FRIESE	
C	DELORES J. FOX	4-11/54
D	CNX GAS COMPANY LLC	4-11/52
E	CNX GAS COMPANY LLC	4-11/59
F	JOE PAUL WELLMAN	9-1/2
	WILLIAM R. LEVASSEUR, JR.	
	FRANCIS THOMAS KROL, JR.	
	CHRISTINA L. BOARDWINE	
	DIANA L. WELLMAN	
	MARGARET ANN BONNETT	
	DOROTHY SEDOSKY	
	MARGARET E. DAKAN	
	DOLLYE GUZEK	
	LINDSEY R. FOSTER	
	NANCY DAKAN RACKLEY ET VIR	
	CNX GAS COMPANY LLC	
	RONALD W. DAKAN	
	DAVID H. DAKAN	
	SUZANNE SWIFT	
	BARBARA D. FURFARI	
	DIANE CLARE WILLIS ET VIR	
	LESLIE MARIE BUTTS	
	JOSEPH G. DAKAN	
	ELAINE A. FONTES	
	DIANA K. COSLICK	
	LESLEY D. BALLA	
G	HOWARD E. YOUNG BY AIF SUSAN YOUNG	9-1/18
H	DANIEL L. DOBBS ET UX	9-1/16
J	*VICKIE J. MASON	9-1/24.1
K	PETER MILLER	9-1/24

\* -- DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

	SURFACE OWNER	DIST-TM/PAR
1	GRAHAM H. LONGWORTH JR.	4-11/1
2	GRAHAM H. LONGWORTH JR.	4-11/2
3	DUNCAN OR SUSAN ARNETT	4-11/54
4	HARRY & DONNA ROUSH	4-11/52
5	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	4-11/59
6	HARRY & DONNA ROUSH	9-1/2
7	CNX LAND RESOURCES INC.	9-1/18
8	CNX LAND RESOURCES INC.	9-1/16
9	MACK A. CROW ET UX.	9-1/17
10	MACK A. CROW ET UX.	9-1/16.1
11	*VICKIE CROW	9-1/24.1
12	PETER A. MILLER	9-1/24

AS-DRILLED LOCATIONS UTM 17-NAD83(M)
SURFACE HOLE LOCATION (SHL)
N:4410830.392 E:523397.236
APPROX LANDING POINT (LP)
N:4410742.24 E:523717.52
BOTTOM HOLE LOCATION (BHL)
N:4408636.13 E:525389.69

12/24/2021

FEBRUARY 23, 2021

## THRASHER

THE THRASHER GROUP, INC.  
600 WHITE OAKS BLVD.  
BRIDGEPORT, WV 26330  
PHONE 304-624-4108

MODI

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See Attached Form				

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

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Office of Oil and Gas

DEC 01 2021

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 Office of Oil and Gas, including but not limited to the following:

WV DEP  
Department of Environmental Protection

- 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: John Zavatchan  
 Its: Project Specialist - Permitting

Parcel ID	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
04-11-1.0	Graham H. Longworth Jr., et al. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 790/129 AB 47/1
04-11-2.0	Graham H. Longworth Jr., et al. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 790/129 AB 47/1
04-11-2.0	Lisa Nicewarner TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/260 AB 28/348 AB 47/1
04-11-2.0	Julia Rodgers TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/262 AB 28/348 AB 47/1
04-11-2.0	Keith Friese TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/264 AB 28/348 AB 47/1
04-11-2.0	Mark Friese TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/250 AB 28/348 AB 47/1
04-11-2.0	Anthony Friese	TriEnergy Holdings, LLC	"at least 1/8th per WV Code 22-6-8"	DB 753/580

	TriEnergy Holdings, LLC Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC		AB 28/348 AB 47/1
04-11-2.0	James Friese TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/254 AB 28/348 AB 47/1
04-11-2.0	Henry Friese TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 752/382 AB 28/348 AB 47/1
04-11-2.0	Steven Friese TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 751/252 AB 28/348 AB 47/1
04-11-54.0	Delores J. Fox Central Michigan Exploration LLC Stone Energy Corporation Chevron U.S.A. Inc.	Central Michigan Exploration LLC Stone Energy Corporation Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 670/572 AB 21/288 AB 33/276 AB 47/1
04-11-52.0	CNX Gas Company LLC Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 818/553 AB 47/1
04-11-59.0	CNX Gas Company LLC Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 818/553 AB 47/1
09-1-2.0	Joe Paul Wellman	TriEnergy Holdings, LLC	"at least 1/8th per WV Code 22-6-8"	DB 745/469

	TriEnergy Holdings, LLC Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC		AB 28/348 AB 47/1
09-1-2.0	William R. Levasseur, Jr. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 880/373 AB 47/1
09-1-2.0	Francis Thomas Krol, Jr. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 880/394 AB 47/1
09-1-2.0	Christina L. Boardwine Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 880/379 AB 47/1
09-1-2.0	Diana L. Wellman TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 753/557 AB 28/348 AB 47/1
09-1-2.0	Margaret Ann Bonnett TriEnergy Holdings, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 748/115 AB 28/348 AB 47/1
09-1-2.0	Dorothy Sedosky Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 811/630 AB 47/1
09-1-2.0	Margaret E. Dakan Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 813/586 AB 47/1
09-1-2.0	Doliye Guzek	Chevron U.S.A. Inc.	"at least 1/8th per WV Code 22-6-8"	DB 814/439

	Chevron U.S.A. Inc.	EQT Aurora LLC		AB 47/1
09-1-2.0	Lindsey R. Foster Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 818/66 AB 47/1
09-1-2.0	Nancy Dakan Rackley, et vir. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 820/234 AB 47/1
09-1-2.0	CNX Gas Company LLC Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 818/553 AB 47/1
09-1-2.0	Ronald W. Dakan Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 837/154 AB 47/1
09-1-2.0	David H. Dakan Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 837/145 AB 47/1
09-1-2.0	Suzanne Swift Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 839/373 AB 47/1
09-1-2.0	Barbara D. Furfari Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 847/364 AB 47/1
09-1-2.0	Diane Clare Willis, et vir. Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 849/636 AB 47/1

09-1-2.0	Leslie Marie Butts Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 849/630 AB 47/1
09-1-2.0	Joseph G. Dakan Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 885/464 AB 47/1
09-1-2.0	Elaine A. Fontes Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 882/293 AB 47/1
09-1-2.0	Diana K. Coslick Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 882/290 AB 47/1
09-1-2.0	Lesley D. Balla Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 882/287 AB 47/1
09-1-18.0	Howard E. Young by AIF Susan Young Chevron U.S.A. Inc.	Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 797/272 AB 47/1
09-1-16.0	Daniel L. Dobbs, et ux. AB Resources LLC Chevron U.S.A. Inc.	AB Resources LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 730/270 DB 756/397 AB 47/1
09-1-24.1	Vickie J. Mason TriEnergy Holdings, LLC NPAR, LLC Chevron U.S.A. Inc.	TriEnergy Holdings, LLC NPAR, LLC Chevron U.S.A. Inc. EQT Aurora LLC	"at least 1/8th per WV Code 22-6-8"	DB 706/309 AB 24/190 DB 756/332 AB 47/1

09-1-24.1

Peter A. Miller  
Fossil Creek Ohio, LLC  
Fossil Creek Ohio, LLC and Gulfport Energy Corp.  
American Petroleum Partners Operating LLC  
Chevron U.S.A. Inc.

Fossil Creek Ohio, LLC  
Gulfport Energy Corp.  
American Petroleum Partners Operating LLC  
Chevron U.S.A. Inc.  
EQT Aurora LLC

"at least 1/8th per  
WV Code 22-6-8"

DB 838/523  
AB 033/09  
AB 036/588  
AB 040/267  
AB 47/1



EQT CHAP, LLC  
400 Woodcliff Drive | Canonsburg, PA 15317

November 29, 2021

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

Re: Longworth M07H  
Clay District, Marshall County, WV

Dear Mr. Brewer,

EQT CHAP, LLC is applying for a well work permit for the well referenced above. Upon information and belief, the 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.

Sincerely,

A handwritten signature in blue ink, appearing to read 'J. Zavatchan'.

John Zavatchan  
Project Specialist - Permitting

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12/24/2021



November 29, 2021

*Via Electronic Delivery*

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304

RE: EQT CHAP, LLC Relationship to EQT Aurora, LLC

WVDEP Recipient,

This letter serves as notification to WVDEP of the relationship between the two subject entities. EQT CHAP LLC, a Pennsylvania limited liability company (EIN 20-8243540) having an address of 625 Liberty Ave., Suite 1700, Pittsburgh, PA 15222, is a wholly owned subsidiary of EQT CNEU LLC, a Delaware limited liability company (EIN 51-0404430), also having an address of 625 Liberty Ave., Suite 1700, Pittsburgh, PA 15222. EQT CNEU LLC is a wholly owned subsidiary of EQT Aurora LLC, a Pennsylvania limited liability company (EIN 85-3135326) also having an address of 625 Liberty Avenue, Suite 1700, Pittsburgh, PA 15222. All entities fall under the parent of EQT Corporation.

Because of this relationship, EQT CHAP LLC has the right to to develop, extract, produce and market natural resources allowed, including natural gas, from any lease in which EQT Aurora LLC has that same right.

If you require any additional information, feel free to contact me at your earliest convenience.

Best Regards,

John Zavatchan  
Project Specialist – Permitting  
[jzavatchan@eqt.com](mailto:jzavatchan@eqt.com)  
724-746-9073

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EQT Production  
Hydraulic Fracturing Monitoring Plan  
Pad ID: Longworth  
County: Marshall

November 22, 2021

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Environmental Protection

Page 1 of 2

12/24/2021

## **Purpose**

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Marshall County, WV prior to hydraulic fracturing at the following EQT wells on the Longworth well pad: 5H, 6H, 7H,8H,9H,10H, 11H, 12H, 13H, 14H, 15H and 16H.

Due to the requirements under 35CSR8 5.11, the permittee is required to review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation.

A report is required to be submitted along with a well work permit application.

The plan is being implemented as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the site. These additional measures include coordination with well operators of the timing and location of the hydraulic fracturing, establishment of measures well operators should implement, and assurance that the OOG is notified of the timeline, as well as any issues that may arise during fracturing.

### **1. Communications with Well Operators**

EQT, using available data (WV Geological Survey, WVDEP website, and IHS data service), has identified all known wells and well operators within 500 feet of this pad and the lateral sections that are known or could reasonably be expected to be within range of the fracture propagation. A map showing these wells along with a list of the wells and operators is included in **Attachment A**.

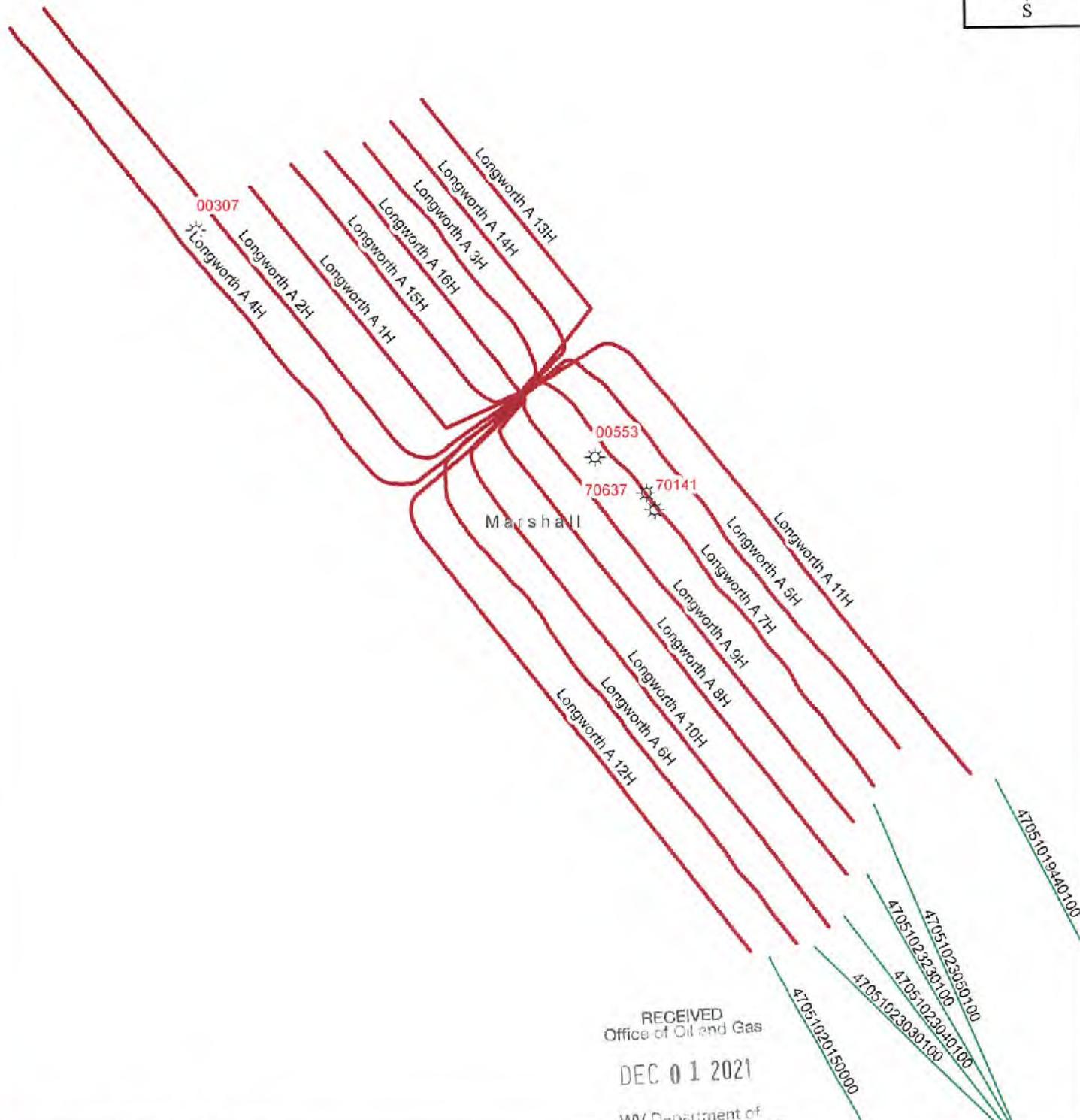
EQT will notify these operators of the hydraulic fracturing schedule for these wells, and coordinate with them throughout the fracturing process.

EQT will recommend to these operators at a minimum to:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure
3. Inspect or install master valves or other necessary equipment for wellhead integrity capable of a pressure recommended by EQT
4. Notify the OOG and EQT if any changes in water, gas production, pressure, or other anomalies are identified

### **2. Reporting**

EQT will provide information relating to the hydraulic fracturing schedule, communication with other operators, and ongoing monitoring of the work upon request of OOG or immediately in the event of any noted abnormalities.



**EQT**  
 EQT Corporation  
 625 Liberty Avenue  
 Pittsburgh, PA 15222

Longworth

Vertical Offsets and Foreign Laterals within 500'

Created By: Kelvin Wehrman Printed By: McClayG on 11/16/2021

**Legend**

- Foreign Offset Wells
- Foreign Offset Horizontals
- Well Lateral\_FM
- Genesee
- Marcellus
- Utica

Disclaimer:

This map is confidential and is to be used only for the express informational purposes for which it was created. Unauthorized use, copying, or dissemination is strictly prohibited. EQT does not warrant the accuracy of the location of any items shown on this map, including, but not limited to, any structures, well or pipeline facilities, property boundaries, topography, roadways, or waterways. The items shown on the map may not have been placed on the map using survey lines or GPS coordinates. The specific location of any of the map items should be determined by a field survey performed by a licensed surveyor upon consultation with EQT.

2,400 1,200 0 2,400 Feet  
 1:31,107



UWI	ACT_STATUS	CURR_OPER	FNL_CLASS	FNL_STAT	INIT_CLASS	LATITUDE	LONGITUDE	OPER_NAME	DATUM	ELEVATION	TOT_DEPTH	TVD
00553	Completed Wells/WHCS	KENTUCKY CENTRAL & CO	NEW FIELD WILDCAT-DRY (INCLUDING TEMPORARILY ABANDONED WELL)	D&A	NEW FIELD WILDCAT	39.84403540	-80.72188190	KENTUCKY CENTRAL & CO	NAD27	1184.00	800.00	0.00
00307	Completed Wells	ARROWHEAD EXPLORATION	UNCLASSIFIED	D&A	NEW FIELD WILDCAT	39.85569700	-80.74838000	ARROWHEAD EXPLORATION	NAD27	1235.00	3000.00	0.00
70141	Completed Wells	BURT OIL CO	PSEUDO-ORIGINAL WELL - UNKNOWN CLASS	PSEUDO	PSEUDO-ORIGINAL WELL - UNKNOWN CLASS	39.84132800	-80.71792200	BURT OIL CO	NAD27	0.00	0.00	0.00
70637	Completed Wells	UNKNOWN	UNCLASSIFIED	UNKWN	UNCLASSIFIED	39.84219900	-80.71848600	UNKNOWN	NAD27	0.00	0.00	0.00

Horizontals

UWI	ACT_STATUS	CURR_OPER	FNL_CLASS	FNL_STAT	INIT_CLASS	LATITUDE	LONGITUDE	OPER_NAME	DATUM	ELEVATION	TOT_DEPTH	TVD	WELL_NAME
47051020150000	Completed Wells	TUG HILL OPERATING LLC	NEW FIELD WILDCAT-DISCOVERY	GAS	NEW FIELD WILDCAT	39.80852930	-80.69355660	TUG HILL OPERATING LLC	NAD27	1352.00	15275.00	6760.00	3N-9HM HEAVEN HILL
47051023050100	Permit	TUG HILL OPERATING LLC		PERMIT	NEW FIELD WILDCAT REDRILL	39.80860930	-80.69367060	TUG HILL OPERATING LLC	NAD27	1326.00	0.00	0.00	3N-14HM HEAVEN HILL
47051023230100	Permit	TUG HILL OPERATING LLC		PERMIT	NEW FIELD WILDCAT REDRILL	39.80853730	-80.69360060	TUG HILL OPERATING LLC	NAD27	1326.00	0.00	0.00	3N-13HM HEAVEN HILL
47051019440100	Completed Wells	TUG HILL OPERATING LLC	SUCCESSFUL OUTPOST EXTENSION	GAS-WO	WILDCAT OUTPOST REDRILL	39.80666710	-80.68117720	TUG HILL OPERATING LLC	NAD27	1310.00	15465.00	0.00	3HM TEN HIGH 1N
47051023030100	Permit	TUG HILL OPERATING LLC		PERMIT	NEW FIELD WILDCAT REDRILL	39.80855330	-80.69368760	TUG HILL OPERATING LLC	NAD27	1326.00	0.00	0.00	3N-11HM HEAVEN HILL
47051023040100	Permit	TUG HILL OPERATING LLC		PERMIT	NEW FIELD WILDCAT REDRILL	39.80854530	-80.69364360	TUG HILL OPERATING LLC	NAD27	1326.00	0.00	0.00	3N-12HM HEAVEN HILL

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

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Sand (Proppant)	Silica Substrate	14808-60-7
Water	Water	7732-18-5
Hydrochloric Acid (HCl)	Hydrogen Chloride	7647-01-0
Friction Reducer	Copolymer of 2-propenamide	Proprietary
	Petroleum Distillate	64742-47-8
	Oleic Acid Diethanolamide	93-83-4
	Alcohols, C12-16, ethoxylated	68551-12-2
	Ammonium chloride ((NH4)Cl)	12125-02-9
Biocide	Glutaraldehyde	111-30-8
	Alkyl dimethyl benzyl ammonium chloride	68391-01-5
	Didecyl dimethyl ammonium chloride	7173-51-5
	Non-hazardous substances	Proprietary
	Bis(HexaMethylene Triamine Penta(Methylene Phosphonic Acid))(BHMT)	34690-00-1
Scale Control	Non-hazardous substances	Proprietary
Acid Chelating Agent	Citric Acid	77-92-9
	Methanol	67-56-1
Corrosion Inhibitor	pyridinium, 1-(phenylmethyl)-, ethyl methyl derivs., chlorides	68909-18-2
	Nonoxynol-9	127087-87-0
	2-ethyl-1-hexanol	104-76-7
	4-nonylphenyl, ethoxylated	26027-38-3

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12/24/2021



November 29, 2021

Via FedEx Overnight

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304

RE: Well Work Permit Modification Application  
Longworth Mo7H  
Permit Number 47-051-01917  
Clay District, Marshall County, WV

WVDEP Recipient,

Attached please find the Well Work Permit Modification Application for the well referenced above. You will find the following included with this submittal:

- Check in the amount of \$2,500.00
- Completed WW-6B, approved by the Oil & Gas Inspector
- Well Location Plat
- Completed Form WW-6A1 and supporting documentation
- Road Crossing Letter
- Anticipate Frac Additives List
- Hydraulic Fracturing Monitoring Plan
- DVD containing the Site Specific Safety and Environmental Plan and Water Management Plan for all wells (Longworth Mo5H, Mo6H, Mo7H, Mo8H, Mo9H, M10H, M11H and M12H)

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This modification is being submitted to reflect EQT CHAP's intent to hydraulically fracture this well, and to provide the information related to those operations. This well was drilled to TMD by Chevron Appalachia, LLC. The WR-35 has been included to show how the well was drilled by Chevron. Pad construction was completed on this site on October 20<sup>th</sup>, 2017, and no additional earth disturbance is proposed.

EQT CHAP, LLC trusts that if any portion of the submitted documentation is found to be inadequate for processing the permit, notification will be made to our Permitting department at your earliest convenience. It is EQT CHAP's intent to cooperate fully to provide any additional requested documentation and clarification in a timely manner such that permitting proceeds in a predictable and logical manner.

Best Regards,

John Zavatchan  
Project Specialist – Permitting  
[jzavatchan@eqt.com](mailto:jzavatchan@eqt.com)  
724-746-9073

CHK# 590592  
Amt \$ 2500  
Date 11/9/21

12/24/2021



Stansberry, Wade A &lt;wade.a.stansberry@wv.gov&gt;

---

**Modification Horizontal H6A Well Work Permit (API: 47-051-01914)**

1 message

**Stansberry, Wade A** <wade.a.stansberry@wv.gov>

Wed, Dec 22, 2021 at 2:05 PM

To: John &lt;JZavatchan@eqt.com&gt;, Todd &lt;tklaner@eqt.com&gt;, Erin Spine &lt;espine@eqt.com&gt;, "Shrum, Becky" &lt;bshrum@eqt.com&gt;, Olivia Pishioneri &lt;opishioneri@eqt.com&gt;, Eric Buzzard &lt;ebuzzard@marshallcountywv.org&gt;, "Gayne J. Knitowski" &lt;gayne.j.knitowski@wv.gov&gt;

I have attached a copy of the newly issued well [permit](#) numbers:

**47-051-01914 - LONGWORTH M05H**

This will serve as your copy.

If you have any questions, then [please](#) contact us here at the Office of Oil and Gas.

Thank you,

**Wade A. Stansberry****Environmental Resource Specialist 3****West Virginia Department of Environmental Protection****Office of Oil & Gas****601 57th St. SE****Charleston, WV 25304****(304) 926-0499 ext. 41115****(304) 926-0452 fax****[Wade.A.Stansberry@wv.gov](mailto:Wade.A.Stansberry@wv.gov)**

---

 **47-051-01914 - mod.pdf**  
1225K**12/24/2021**



Stansberry, Wade A &lt;wade.a.stansberry@wv.gov&gt;

**Re: [EXTERNAL] Modification Horizontal H6A Well Work Permit (API: 47-051-01914, 01916, 01917, 02128, 02129, 02130, 02131, 02132)**

1 message

**Stansberry, Wade A** <wade.a.stansberry@wv.gov>  
To: "Zavatchan, John" <JZavatchan@eqt.com>

Wed, Dec 22, 2021 at 2:32 PM

Same to you, Merry Christmas.

Thank you,

**Wade A. Stansberry****Environmental Resource Specialist 3****West Virginia Department of Environmental Protection****Office of Oil & Gas****601 57th St. SE****Charleston, WV 25304****(304) 926-0499 ext. 41115****(304) 926-0452 fax****[Wade.A.Stansberry@wv.gov](mailto:Wade.A.Stansberry@wv.gov)**

On Wed, Dec 22, 2021 at 2:28 PM Zavatchan, John &lt;JZavatchan@eqt.com&gt; wrote:

Got 'em all! Thanks Wade, and have a great Christmas!

JZ

**From:** Stansberry, Wade A <wade.a.stansberry@wv.gov>**Sent:** Wednesday, December 22, 2021 2:25 PM**To:** Zavatchan, John <JZavatchan@eqt.com>; Klaner, Todd <TKlaner@eqt.com>; Spine, Erin <ESpine@eqt.com>; Shrum, Becky <BShrum@eqt.com>; Wilson, Olivia <OPishioneri@eqt.com>; Eric Buzzard <ebuzzard@marshallcountywv.org>; Gayne J. Knitowski <gayne.j.knitowski@wv.gov>**Subject:** [EXTERNAL] Modification Horizontal H6A Well Work Permit (API: 47-051-01914, 01916, 01917, 02128, 02129, 02130, 02131, 02132)**...This email is from an external source. Please use caution when clicking links or opening attachments...**I have attached a copy of the newly issued well [permit](#) numbers:**47-051-01914 - LONGWORTH M05H****47-051-01916 - LONGWORTH M06H****47-051-01917 - LONGWORTH M07H****47-051-02128- LONGWORTH M08H****47-051-02129 - LONGWORTH M09H****47-051-02130 - LONGWORTH M10H****47-051-02131 - LONGWORTH M11H****47-051-02132 - LONGWORTH M12H****12/24/2021**

This will serve as your copy.

If you have any questions, then [please](#) contact us here at the Office of Oil and Gas.

Thank you,

**Wade A. Stansberry**

**Environmental Resource Specialist 3**

**West Virginia Department of Environmental Protection**

**Office of Oil & Gas**

**601 57th St. SE**

**Charleston, WV 25304**

**(304) 926-0499 ext. 41115**

**(304) 926-0452 fax**

**[Wade.A.Stansberry@wv.gov](mailto:Wade.A.Stansberry@wv.gov)**

*To learn about EQT's environmental, social and governance efforts visit: <https://esg.eqt.com>*

**12/24/2021**