

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

RECEIVED
Office of Oil and Gas
JUN 14 2022
WV Department of
Environmental Protection

API 47 - 051 - 02082 County Marshall District Clay
Quad Glen Easton Pad Name Longworth Field/Pool Name N/A
Farm name Graham H. Longworth Jr. Well Number Longworth M15H
Operator (as registered with the OOG) EQT CHAP LLC
Address 400 Woodcliff Drive City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,410,850.60 Easting 523,383.18
Landing Point of Curve Northing 4,410,932.65 Easting 523,070.94
Bottom Hole Northing 4,412,150.25 Easting 522,080.15

Elevation (ft) 1270' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
Synthetic Oil Based Mud 13.7 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 09/18/2018 Date drilling commenced 12/28/2018 Date drilling ceased 09/28/2019
Date completion activities began _____ Date completion activities ceased _____
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 99,605 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1576,1998,2102,2139 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 583,853 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Review

Reviewed by: SG 8/23/22
09/09/2022

API 47-051 - 02082 Farm name Graham H. Longworth Jr. Well number Longworth M15H

CASING STRINGS	Hole Size	Casing Size	Depth (GL)	New or Used	Grade wt/ft	Basket Depth(s) (GL)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	20"	40'	NEW	X-52 78.67#	N/A	Y
Surface	17-1/2"	13-3/8"	629'	NEW	J-55 54.5#	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2178'	NEW	L-80 40#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	12,052'	NEW	P-110 20#	N/A	N
Tubing							
Packer type and depth set							

Comment Details Production Cement job has a calculated TOC of 1748' GL, which is greater than 500' TVD above the producing formation. No issues during cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (GL)	WOC (hrs)
Conductor	CLASS A	18BBLS	15.6	N/A	N/A	0	8+
Surface	CLASS A	520	15.6	1.20	624	0	8
Coal							
Intermediate 1	CLASS A	817	15.6	1.19	972	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	1818	15.0	1.23	2178	1748	8+
Tubing							

Drillers TD (ft) 12,071' Loggers TD (ft) N/A
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 5606'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____
 CONDUCTOR- NONE
 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

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd
GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		

Please insert additional pages as applicable.

Drilling Contractor Highlands Drilling LLC (Rig 9)
Address 900 Virginia Street East City Charleston State WV Zip 25301

Logging Company Baker Hughes
Address 400 Technology Dr Suite 100 City Canonsburg State PA Zip 15317

Cementing Company BJ Services
Address 1036 East Main Street City Bridgeport State WV Zip 26330
Cementing Company _____
Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by John Zavatchan Telephone 724-746-9073
Signature  Title Project Specialist - Permitting Date 6/13/2022

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

09/09/2022

API 47- 051 - 02082 Farm name Graham H. Longworth Jr. Well number Longworth M15H

Drilling Contractor Precision Drilling (Rig 572)
Address 10350 Richmond Ave. Suite 700 City Houston State TX Zip 77042

Logging Company Scientific Drilling International
Address 124 Vista Drive City Charleroi State PA Zip 15022

Logging Company _____
Address _____ City _____ State _____ Zip _____

Drilling Contractor _____
Address _____ City _____ State _____ Zip _____

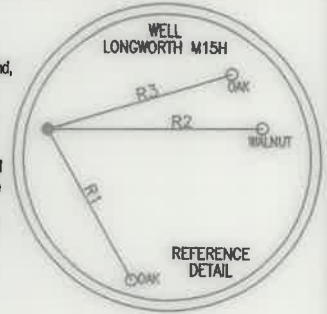
Well # Longworth 15H Final Formations API# 47-051-02082				
Formation Name	Drill Top MD (ftGRD)	Drill Top (TVD) (ftGRD)	Drill Btm MD (ftGRD)	Drill Btm (TVD) (ftGRD)
Sand/Shale	1	1	583	583
Waynesburg Coal	583	583	583	583
Sand/Shale	583	583	853	853
Pittsburgh Coal	853	853	858	858
Sand/Shale	858	858	1,872	1,869
Big Lime	1,872	1,869	2,100	2,096
Big Injun	2,100	2,096	2,182	2,177
Sand/Shale	2,182	2,177	2,819	2,811
Gantz	2,819	2,811	2,880	2,872
Gordon	2,880	2,872	2,960	2,951
50F	2,960	2,951	3,009	3,000
Sand/Shale	3,009	3,000	3,088	3,078
Bayard	3,088	3,078	3,453	3,441
Sand/Shale	3,453	3,441	5,255	5,235
Alexander	5,255	5,235	5,692	5,668
Elks	5,692	5,668	6,246	6,184
Sonyea	6,246	6,184	6,355	6,267
Middlesex	6,355	6,267	6,390	6,293
Genesee	6,390	6,293	6,463	6,344
Geneseo	6,463	6,344	6,499	6,367
Tully	6,499	6,367	6,584	6,414
Hamilton	6,584	6,414	6,735	6,476
Marcellus	6,735	6,476	21,071	6,509

BHL is located on topo map 5,821 feet south of Latitude: 39° 52' 30"
 SHL is located on topo map 10,072 feet south of Latitude: 39° 52' 30"

AS-DRILLED PLAT

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
3. There are no native trout streams within 300' of proposed well.
4. Proposed well is greater than 1000' from surface groundwater intake or public water supply.
5. 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.
6. There are no existing buildings within 625' of proposed well.



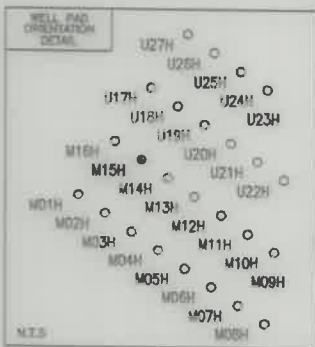
LEGEND

- 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 29°05'53" E	224.61'
R2	N 89°10'57" E	279.07'
R3	N 72°47'27" E	249.89'
R4	S 08°02'50" W	1300.39'
R5	S 40°10'20" E	1372.40'
R6	N 46°12'14" W	2284.09'

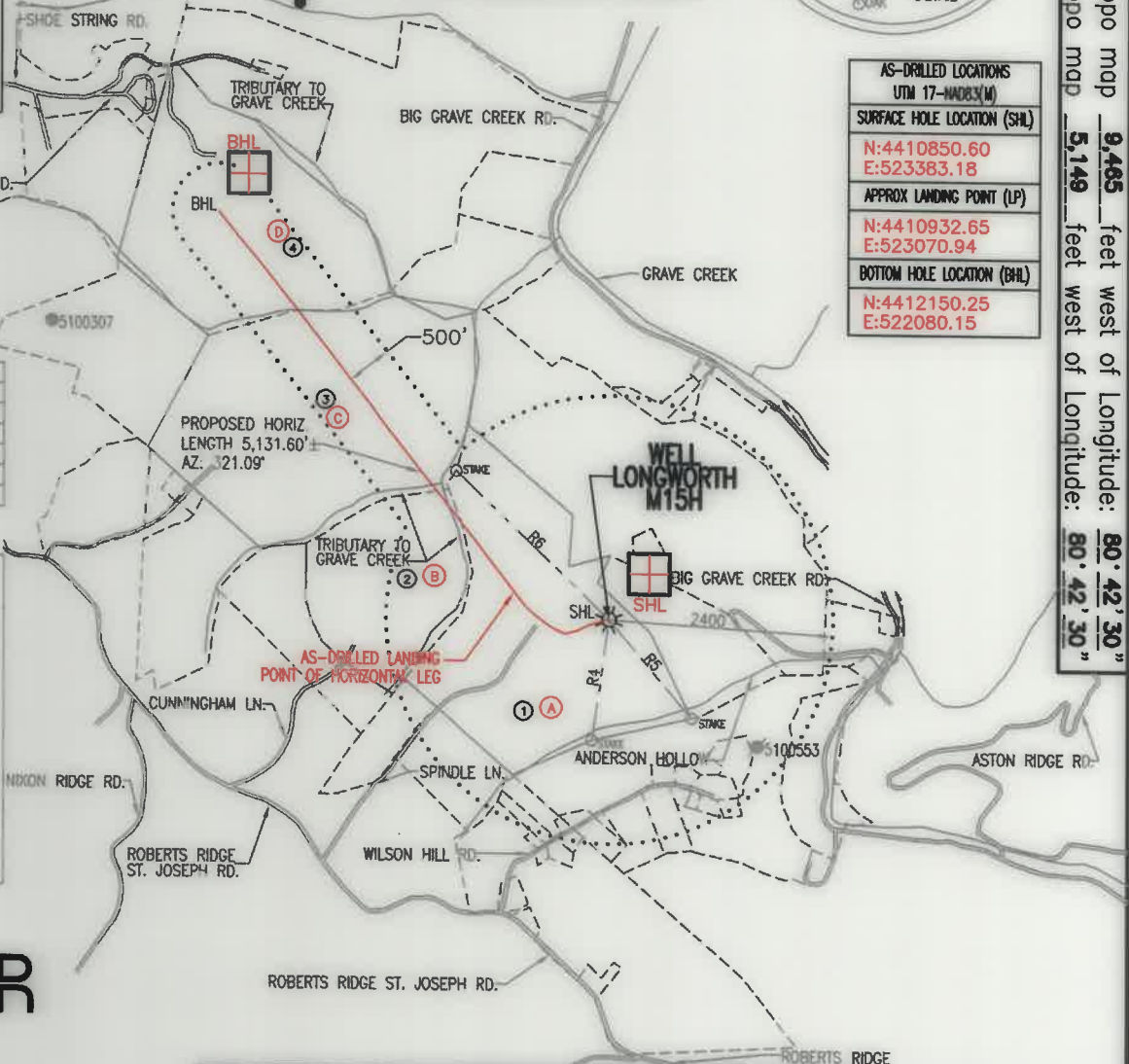


AS-DRILLED LOCATIONS UTM 17-MAD83(M)

SURFACE HOLE LOCATION (SHL)
 N:4410850.60
 E:523383.18

APPROX LANDING POINT (LP)
 N:4410932.65
 E:523070.94

BOTTOM HOLE LOCATION (BHL)
 N:4412150.25
 E:522080.15



BHL is located on topo map 9,485 feet west of Longitude: 80° 42' 30"
 SHL is located on topo map 5,149 feet west of Longitude: 80° 42' 30"

THRASHER

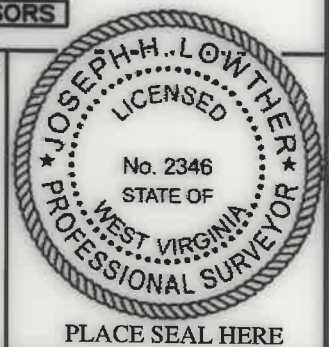
THE THRASHER GROUP, INC.
 600 WHITE OAKS BLVD.
 BRIDGEPORT, WV 26330
 PHONE 304-624-4108

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

FILE #: LONGWORTH M15H - AS-DRILLED
 DRAWING #: LONGWORTH M15H - 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: DECEMBER 28, 2021
 OPERATOR'S WELL #: LONGWORTH M15H - AS-DRILLED
 API WELL #: 47 51 02082
 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: 456.706± 09/09/2022

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: 6,480± TMD: 12,095±

WELL OPERATOR EQT CHAP, LLC DESIGNATED AGENT JOSEPH C. MALLOW
 Address 400 WOODCLIFF DRIVE Address 427 MIDSTATE DRIVE
 City CANONSBURG State PA Zip Code 15317 City CLARKSBURG State WV Zip Code 26301

LONGWORTH

M15H

PAGE 2 OF 2

AS-DRILLED

	LESSOR	DIST-TM/PAR
A	GRAHAM H. LONGWORTH JR. ET AL	4-11/1
B	DALE CUNNINGHAM ET UX	4-13/33
C	BRETT A. ANDREWS ET UX	4-12/19
D	JMK IREV TRST - SFX	4-12/4
	PURPLEBURGH VENTURES LLC - SFX	
	MARCELLUS TX MINERAL PRTRNS LTD - SFX	

	SURFACE OWNER	DIST-TM/PAR
1	GRAHAM H. LONGWORTH JR.	4-11/1
2	DALE & MARY CUNNINGHAM	4-13/33
3	CODY M. JARRETT	4-12/19
4	MERLE L. CHAPLIN ET UX	4-12/4

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N:4412150.25 E:522080.15

09/09/2022

DECEMBER 28, 2021

THRASHER

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