

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: Longworth M11H

API: 47 - 051 - 02131

Submission: Initial Amended

Notes:

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WV Department of
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12/16/2022

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

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API 47 - 051 - 02131 County Marshall District Clay
Quad Glen Easton Pad Name Longworth Field/Pool Name N/A
Farm name Graham H. Longworth Jr. Well Number Longworth M11H
Operator (as registered with the OOG) EQT CHAP LLC
Address 2400 Ansys Drive, Suite 200 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 4,410,840.54 Easting 523,398.45
Landing Point of Curve Northing 4,410,891.32 Easting 524,163.06
Bottom Hole Northing 4,408,699.33 Easting 525,942.15

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 13.6 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 01/25/2019 Date drilling commenced 04/16/2019 Date drilling ceased 10/19/2019
Date completion activities began 06/11/2022 Date completion activities ceased 08/19/2022
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

APPROVED

Reviewed by:

[Signature]
12/13/2022
12/16/2022

API 47-051 - 02131

Farm name Graham H. Longworth Jr.

Well number Longworth M11H

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 78.6#	N/A	Y
Surface	17-1/2"	13-3/8"	626'	NEW	J-55 54.5#	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2231'	NEW	L-80 40#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	17,265'	NEW	P-110 20#	N/A	N
Tubing							
Packer type and depth set							

Comment Details Production Cement job has a calculated TOC of 1908' 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	15BBLS	15.6	N/A	N/A	0	8+
Surface	CLASS A	521	15.6	1.19	620	0	8
Coal							
Intermediate 1	CLASS A	858	15.6	1.19	1021	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2736	15.0	1.23	3365	1908	8+
Tubing							

Drillers TD (ft) 17,297'

Loggers TD (ft) N/A

Deepest formation penetrated MARCELLUS

Plug back to (ft) N/A

Plug back procedure Cement Plug 6/20/2019 730' (526sks @ 17ppg and 1.03yld)

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Kick off depth (ft) 3171'

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 _____

API 47- 051 - 02131 Farm name Graham H. Longworth Jr. Well number Longworth M11H

Drilling Contractor Precision Drilling
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 _____

Stimulation Contractor US Well Services LLC
Address 770 S Post Oak Ln Ste 405 City Houston State TX Zip 77056

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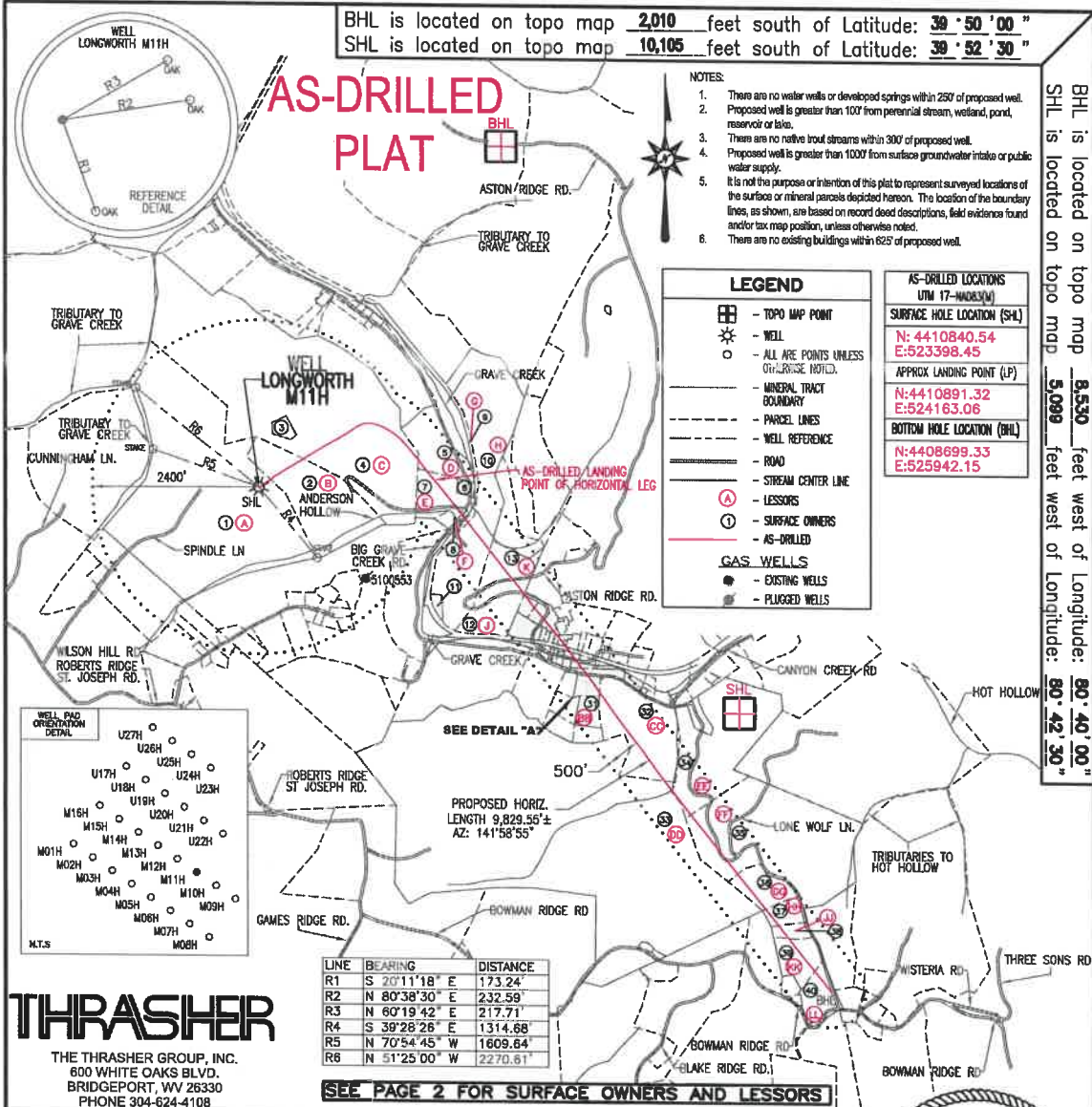
Well # Longworth M11H Final Formations API# 47-051-02131				
Formation Name	Drill Top MD (ftGRD)	Drill Top (TVD) (ftGRD)	Drill Btm MD (ftGRD)	Drill Btm (TVD) (ftGRD)
Sand/Shale	1	1	583	583
Waynesburg Coal	583	583	583	583
Sand/Shale	583	583	853	853
Pittsburgh Coal	853	853	858	858
Sand/Shale	858	858	1,872	1,872
Big Lime	1,872	1,872	2,100	2,100
Big Injun	2,100	2,100	2,182	2,182
Sand/Shale	2,182	2,182	2,819	2,819
Gantz	2,819	2,819	2,880	2,880
Gordon	2,880	2,880	2,960	2,960
50F	2,960	2,960	3,009	3,009
Sand/Shale	3,009	3,009	3,088	3,088
Bayard	3,088	3,088	3,453	3,453
Sand/Shale	3,453	3,453	5,255	5,027
Alexander	5,255	5,027	5,692	5,387
Elks	5,692	5,387	6,705	6,231
Sonyea	6,705	6,231	6,825	6,313
Middlesex	6,825	6,313	6,865	6,339
Genesee	6,865	6,339	6,951	6,390
Geneseo	6,951	6,390	6,995	6,414
Tully	6,995	6,414	7,093	6,459
Hamilton	7,093	6,459	7,286	6,523
Marcellus	7,286	6,523	17,297	6,666

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BHL is located on topo map **2,010** feet south of Latitude: **30° 50' 00"**
 SHL is located on topo map **10,105** feet south of Latitude: **30° 52' 30"**

AS-DRILLED PLAT



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 M11H - AS-DRILLED
 DRAWING #: LONGWORTH M11H - 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 WYDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304

DATE: FEBRUARY 23, 2021
 OPERATOR'S WELL #: LONGWORTH M11H - AS-DRILLED
 API WELL #: 47 51 02131
 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: 871.063±

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: 6,690'± TMD: 17,321'±

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

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LONGWORTH M11H PAGE 2 OF 2 AS-DRILLED

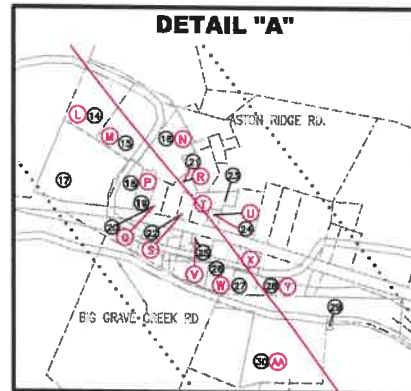
	LESSOR	DIST-TM/PAR
A	GRAHAM H. LONGWORTH JR., ET AL	4-11/1
B	GRAHAM H. LONGWORTH JR., ET AL	4-11/2
	LISA NICEWARNER	
	JULIA RODGERS	
	KEITH FRIESE	
	MARK FRIESE	
	ANTHONY FRIESE	
	JAMES FRIESE	
C	GRAHAM H. LONGWORTH JR., ET AL	4-12/16
	SHERI L. EVRAETS FAMILY TRUST	
	LISA NICEWARNER	
	JULIA RODGERS	
	KEITH FRIESE	
	MARK FRIESE	
	ANTHONY FRIESE	
D	ROBERT L. SR. & PAMELA L. SHAFFER	4-12/15.3
	ROBERT L. SR. & PAMELA L. SHAFFER	
	KELLY B. & CONNIE S. WINLAND	
	CNX GAS COMPANY LLC	
	HARRY F. & DONNA L. ROUSH	
	GLEN W. & RHONDA S. CONNER	
	HARRY F. & DONNA L. ROUSH	
E	HEIRS OF HARRISON M. EVANS	4-11/5
	LARRY E. YOHO	
	LARRY E. YOHO	
	WILLIAM CONNER GLEN	
	HOMER W. WHITE	
	*ALVIN D. BARRETT	
	*DALE L. WITLACH	
R	DALE L. WITLACH	4-11A/5
	CHARLES M. HENRY	4-11A/6

	LESSOR	DIST-TM/PAR
T	CHARLES M. HENRY	4-11A/7
U	*CHARLES M. HENRY	4-11A/8
V	*HARRY F. & DONNA L. ROUSH	4-11/4
W	JOHN Z. GARRISON	4-11A/35
X	JOHN Z. GARRISON	4-11A/36
Y	GOLDIE M. OLIVER	4-11A/37
AA	WELLMAN HEIRS	9-1/4
BB	ROBERT L., SR. & MARGARET J. TRAYON	9-1/4.3
	*WELLMAN HEIRS	
CC	*ROBERT L., JR. & AMY J. TRAYON	9-1/5
	CONSOLIDATION COAL	
DD	HOWARD E. BY AIF SUSAN YOUNG	9-1/18
EE	R.G. & ELIZABETH J. DAKAN HEIRS	9-1/12
FF	ROBERT A. WILLIAMS	9-1/13
GG	ROBERT A. WILLIAMS	9-1/13.3
HH	ROBERT A. WILLIAMS	9-1/13.4
JJ	ROBERT A. WILLIAMS	9-1/13.5
KK	KENNETH D. TUCKER	9-1/13.7
LL	GERALD E. LOGSDON	9-1/13.6

	SURFACE OWNER	DIST-TM/PAR
1	GRAHAM H. LONGWORTH JR.	4-11/1
2	GRAHAM H. LONGWORTH JR.	4-11/2
3	DANIEL C. SR., & JEANNETTE L. LONGWORTH	4-12/16.1
4	DANIEL C. LONGWORTH	4-12/16
5	ROBERT L. SHAFFER SR., ET AL	4-12/15.3
6	ROBERT S. COWGILL	4-12/15.1
7	ROBERT L. SHAFFER SR., ET AL	4-12/15
8	KELLY BRUCE WINLAND ET UX	4-12/15.2
9	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	4-11A/25
10	HARRY F. ROUSH ET UX	4-11/3
11	DEAN ROUSH ET UX	4-11/3.1
12	GLEN W. CONNER ET UX	4-11/51
13	HARRY F. ROUSH ET UX	4-11/5
14	LARRY E. YOHO ET UX - G. E. YOHO	4-11A/24
15	LARRY E. YOHO ET UX	4-11A/23
16	GLEN WILLIAM CONNER ET AL	4-11A/22
17	KERMIT W. YOHO JR.	4-11A/1
18	ALVIN D. & CAROL D. BARRETT	4-11A/2
19	*ALVIN DALE BARRETT ET UX	4-11A/3
20	*DALE L. WHITLATCH ET UX	4-11A/4
21	DALE L. WHITLATCH ET UX	4-11A/5
22	CHARLES M. HENRY ET UX	4-11A/6
23	CHARLES M. HENRY ET UX	4-11A/7
24	*CHARLES M. HENRY ET UX	4-11A/8
25	*HARRY F. ROUSH	4-11/4
26	JONATHAN Z. & CARLA L. GARRISON	4-11A/35
27	JONATHAN Z. & CARLA L. GARRISON	4-11A/36
28	VIRGINIA L. CROW	4-11A/37
29	MANUFACTURERS LIGHT & HEAT	9-1/6
30	MARGARET JUNE TRAYON - LIFE	9-1/4
31	*ROBERT L. TRAYON ET UX	9-1/4.3
32	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	9-1/5
33	CNX LAND RESOURCES INC	9-1/18
34	ROBERT L. CLARK ET AL	9-1/12
35	CNX LAND RESOURCES INC	9-1/13
36	CNX LAND LLC	9-1/13.3
37	MACK L. CROW	9-1/13.4
38	MACK L. CROW	9-1/13.5
39	MISTY D. & MACK L. CROW	9-1/13.7
40	GERALD E. LOGSDON ET UX	9-1/13.6

AS-DRILLED LOCATIONS	
UTM 17-NAD83(W)	
SURFACE HOLE LOCATION (SHL)	
N: 4410840.54	E: 523398.45
APPROX LANDING POINT (LP)	
N: 4410891.32	E: 524163.06
BOTTOM HOLE LOCATION (BHL)	
N: 4408699.33	E: 525942.15

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CHEVRON COMPLETED

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/27/2020
Job End Date:	1/27/2020
State:	West Virginia
County:	Marshall
API Number:	47-051-02131-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Longworth 11H
Latitude:	39.84726000
Longitude:	-80.72649300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,685
Total Base Water Volume (gal):	2,063,418
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Chevron	Carrier/Base Fluid	Water	7732-18-5	100.0000	88.5135	None
Sand	UPP	Proppant	Crystalline Silica in the form of Quartz	14808-60-7	99.9000	10.2996	None
FR-11	UPP	Friction reducer	Water	7732-18-5	55.0000	0.0494	None
	RECEIVED Office of Oil and Gas NOV 18 2022 Environmental Protection		CHEMPLEX-Polymer_00019	Trade Secret	25.0000	0.0224	None
			Hydrotreated Petroleum Distillate	64742-47-8	25.0000	0.0224	None
			Sodium Chloride	7647-14-5	15.0000	0.0134	None
			Oleic Acid Diethanolamide	93-83-4	3.0000	0.0026	None
			Alcohol Ethoxylate Surfactants	68551-12-2	3.0000	0.0026	None
			Ammonium Chloride	12125-02-9	2.0000	0.0018	None
			Polyoxyethylene Sorbitan Monoleate	9005-65-6	1.0000	0.0009	None
HCL Acid (7.5%)	UPP	Acidizing	Hydrochloric Acid	7647-01-0	7.5000	0.0770	None
K-BAC 1020	UPP	Biocide					

CHEVRON COMPLETED

			Polyethylene glycol	25322-68-3	50.00000	0.01038	None
			Water	7732-18-5	30.00000	0.00623	None
			2,2-Dibromo-3-nitrilopropionamide	10222-01-2	21.00000	0.00436	None
Scale Hib PE-18	UPP	Scale Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00702	None
			Proprietary Scale Inhibitor	Proprietary	30.00000	0.00527	None
17L	UPP	Iron Control Agent					
			Ammonium glycolate	35249-89-9	20.00000	0.00411	None
			Ethylene Glycol	107-21-1	20.00000	0.00411	None
			Hydroxyacetic acid	79-14-1	5.00000	0.00103	None
Unihib G	UPP	Acid inhibitor					
			Butyl diglycol	112-34-5	75.00000	0.00060	None
			Alcohols, C10-16, ethoxylated	68002-97-1	50.00000	0.00040	None
			Methanol	67-56-1	5.00000	0.00004	None
			Formaldehyde	50-00-0	1.00000	0.00001	None
			Thiourea	62-56-6	1.00000	0.00001	None
Unigel 5F	UPP	Viscosifier					
			Guar Gum	9000-30-0	99.00000	0.00025	None
AP Breaker	UPP	Gel Breaker					
			Ammonium Persulfate	7727-54-0	100.00000	0.00001	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	55.00000	0.04940	
			Hydrotreated Petroleum Distillate	64742-47-8	25.00000	0.02246	
			Sodium Chloride	7647-14-5	15.00000	0.01347	
			Polyethylene glycol	25322-68-3	50.00000	0.01038	
			Ethylene glycol	107-21-1	40.00000	0.00702	
			Water	7732-18-5	30.00000	0.00623	
			Ammonium glycolate	35249-89-9	20.00000	0.00411	
			Alcohol Ethoxylate Surfactants	68551-12-2	3.00000	0.00269	
			Oleic Acid Diethanolamide	93-83-4	3.00000	0.00269	
			Ammonium Chloride	12125-02-9	2.00000	0.00180	
			Hydroxyacetic acid	79-14-1	5.00000	0.00103	
			Polyoxyethylene Sorbitan Monoleate	9005-65-6	1.00000	0.00090	
			Alcohols, C10-16, ethoxylated	68002-97-1	50.00000	0.00040	
			Methanol	67-56-1	5.00000	0.00004	
			Formaldehyde	50-00-0	1.00000	0.00001	
			Thiourea	62-56-6	1.00000	0.00001	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

EQT COMPLETED

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/11/2022
Job End Date:	8/1/2022
State:	West Virginia
County:	Marshall
API Number:	47-051-02131-00-00
Operator Name:	EQT Production
Well Name and Number:	Longworth A 11H
Latitude:	39.84725960
Longitude:	-80.72649280
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,690
Total Base Water Volume (gal):	18,298,434
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	EQT	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.50280	None
Sand (Proppant)	EQT	Proppant	Silica Substrate	14808-60-7	100.00000	11.40485	None
Clearal 268	ChemStream	Biocide	Non-hazardous substances	Proprietary	80.00000	0.00895	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor	Non-hazardous substances	Proprietary	90.00000	0.00760	None
StimSTREAM FR 9800	ChemStream	Friction Reducer	Copolymer of 2-propenamide	Proprietary	30.00000	0.00340	None
StimSTREAM FR 9800	ChemStream	Friction Reducer	Petroleum Distillate	64742-47-8	20.00000	0.00151	None
15% HCl	US Well Services	Acid	Hydrogen Chloride	7647-01-0	15.00000	0.00070	None
Clearal 268	ChemStream	Biocide	Glutaraldehyde	111-30-8	20.00000	0.00056	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor					

EQT COMPLETED

			Bis(HexaMethylene Triamine Penta(Methylene Phosphonic Acid)(BHMT)	34690-00-1	10.00000	0.00009	None
StimSTREAM FR 9800	ChemStream	Friction Reducer					
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00002	None
StimSTREAM FR 9800	ChemStream	Friction Reducer					
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00002	None
Clearal 268	ChemStream	Biocide					
			Quaternary Ammonium Compounds	68424-85-1	3.00000	0.00001	None
Clearal 268	ChemStream	Biocide					
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00001	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Pyridinium, 1-(phenylmethyl)-, ethyl methyl derivs., chlorides	68909-18-2	25.00000	0.00001	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Methanol	67-56-1	25.00000	0.00001	None
StimSTREAM FR 9800	ChemStream	Friction Reducer					
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Ethoxylated Alcohols	68439-50-9	15.00000	0.00000	None
Clearal 268	ChemStream	Biocide					
			Ethanol	64-17-5	1.50000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Ethanoic Acid	64-19-7	15.00000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Proprietary	Proprietary	10.00000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Proprietary	Proprietary	10.00000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Ethoxylated Nonylphenols	127087-87-0	5.00000		None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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Perforation Data

12/16/2022

Stage No.	Perforation Date	Stage Perforated From TMD Ft.	Stage Perforated To TMD Ft.	# of Perforations/Stage	Formation(s)
1	07/14/2022	16223	16042	40	Marcellus
2	07/14/2022	16018	15838	40	Marcellus
3	07/14/2022	15819	15638	40	Marcellus
4	07/15/2022	15619	15439	40	Marcellus
5	07/15/2022	15420	15239	40	Marcellus
6	07/16/2022	15220	15040	40	Marcellus
7	07/16/2022	15021	14840	40	Marcellus
8	07/17/2022	14821	14641	40	Marcellus
9	07/17/2022	14622	14441	40	Marcellus
10	07/18/2022	14422	14242	40	Marcellus
11	07/18/2022	14223	14042	40	Marcellus
12	07/18/2022	14023	13843	40	Marcellus
13	07/19/2022	13824	13643	40	Marcellus
14	07/19/2022	13624	13444	40	Marcellus
15	07/19/2022	13425	13244	40	Marcellus
16	07/20/2022	13225	13045	40	Marcellus
17	07/20/2022	13026	12845	40	Marcellus
18	07/21/2022	12826	12646	40	Marcellus
19	07/21/2022	12627	12446	40	Marcellus
20	07/22/2022	12427	12247	40	Marcellus
21	07/22/2022	12228	12047	40	Marcellus
22	07/23/2022	12028	11848	40	Marcellus
23	07/23/2022	11829	11648	40	Marcellus
24	07/24/2022	11629	11449	40	Marcellus
25	07/24/2022	11430	11249	40	Marcellus
26	07/24/2022	11230	11050	40	Marcellus
27	07/25/2022	11031	10850	40	Marcellus
28	07/25/2022	10831	10651	40	Marcellus
29	07/26/2022	10632	10451	40	Marcellus
30	07/26/2022	10432	10252	40	Marcellus
31	07/27/2022	10233	10052	40	Marcellus
32	07/27/2022	10033	9853	40	Marcellus
33	07/28/2022	9834	9653	40	Marcellus
34	07/28/2022	9634	9454	40	Marcellus
35	07/29/2022	9435	9254	40	Marcellus
36	07/29/2022	9235	9055	40	Marcellus
37	07/30/2022	9036	8855	40	Marcellus
38	07/30/2022	8836	8656	40	Marcellus
39	07/30/2022	8637	8456	40	Marcellus
40	07/31/2022	8437	8257	40	Marcellus
41	07/31/2022	8238	8057	40	Marcellus

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42	07/31/2022	8038	7858	40	Marcellus
43	07/31/2022	7839	7658	40	Marcellus
44	07/31/2022	7639	7459	40	Marcellus
45	08/01/2022	7440	7319	40	Marcellus

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Stimulation Data

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Well_UID	Stage #	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/oth (units)
-015630	1	07/14/2022	94	8992	5114	4672	440100	10508	
-015630	2	07/14/2022	94	8696	5446	4316	440200	9893	
-015630	3	07/15/2022	94	8634	5766	4183	440100	9847	
-015630	4	07/16/2022	93	8591	5676	4039	440100	9869	
-015630	5	07/16/2022	95	8536	5655	4680	440300	9857	
-015630	6	07/16/2022	100	9068	5417	4417	440100	9870	
-015630	7	07/17/2022	95	9013	4525	4733	440400	10186	
-015630	8	07/17/2022	100	8871	5228	4519	440240	9856	
-015630	9	07/18/2022	95	8637	5192	4427	440100	9836	
-015630	10	07/18/2022	100	8630	5167	4610	440140	9817	
-015630	11	07/18/2022	100	8572	5888	4627	440100	9805	
-015630	12	07/19/2022	95	8556	3607	4672	440500	9791	
-015630	13	07/19/2022	100	8546	4815	4651	440180	9784	
-015630	14	07/19/2022	100	8634	5123	4357	440100	9799	
-015630	15	07/20/2022	95	8482	4765	4490	440400	9781	
-015630	16	07/20/2022	100	8410	4816	4341	440100	9784	
-015630	17	07/21/2022	99	8270	5588	4681	440100	9759	
-015630	18	07/21/2022	100	8590	4493	4507	440120	9795	
-015630	19	07/22/2022	100	8285	5842	4660	440060	9734	
-015630	20	07/22/2022	98	8144	6229	4943	440150	9740	
-015630	21	07/23/2022	100	8306	5047	4713	440200	9723	
-015630	22	07/23/2022	95	8240	6051	4573	440100	9710	
-015630	23	07/24/2022	94	7889	5624	4760	440910	9698	
-015630	24	07/24/2022	64	5517	6519	4934	440075	9691	
-015630	25	07/25/2022	100	8024	4586	5007	440120	9691	
-015630	26	07/25/2022	100	7975	6266	5031	440100	9669	
-015630	27	07/25/2022	99	7788	5304	4892	440100	9684	
-015630	28	07/26/2022	97	8229	4800	4833	440810	9692	
-015630	29	07/26/2022	100	8061	4973	4851	440100	10233	
-015630	30	07/27/2022	100	7968	5252	4866	440600	9640	
-015630	31	07/27/2022	100	8091	7085	4729	440100	9641	
-015630	32	07/28/2022	100	7891	5163	4728	440360	9644	
-015630	33	07/28/2022	100	7830	5473	5212	440050	9628	
-015630	34	07/29/2022	101	7680	5791	5036	440710	9618	
-015630	35	07/29/2022	100	7919	5739	5075	440150	9609	
-015630	36	07/30/2022	95	7439	5639	4905	440100	9593	
-015630	37	07/30/2022	100	7487	5639	5050	440075	9594	
-015630	38	07/30/2022	100	7456	5142	4876	440120	9584	
-015630	39	07/31/2022	100	7435	5425	5013	440460	9594	
-015630	40	07/31/2022	100	6990	5878	5150	440050	9572	
-015630	41	07/31/2022	100	7648	5264	5136	440100	9557	

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-015630	42	07/31/2022	100	7416	5099	4856	440320	9559
-015630	43	08/01/2022	97	7313	5361	4860	440080	9558
-015630	44	08/01/2022	99	7396	5598	4734	440250	9539
-015630	45	08/01/2022	93	8343	5660	5079	308000	6645

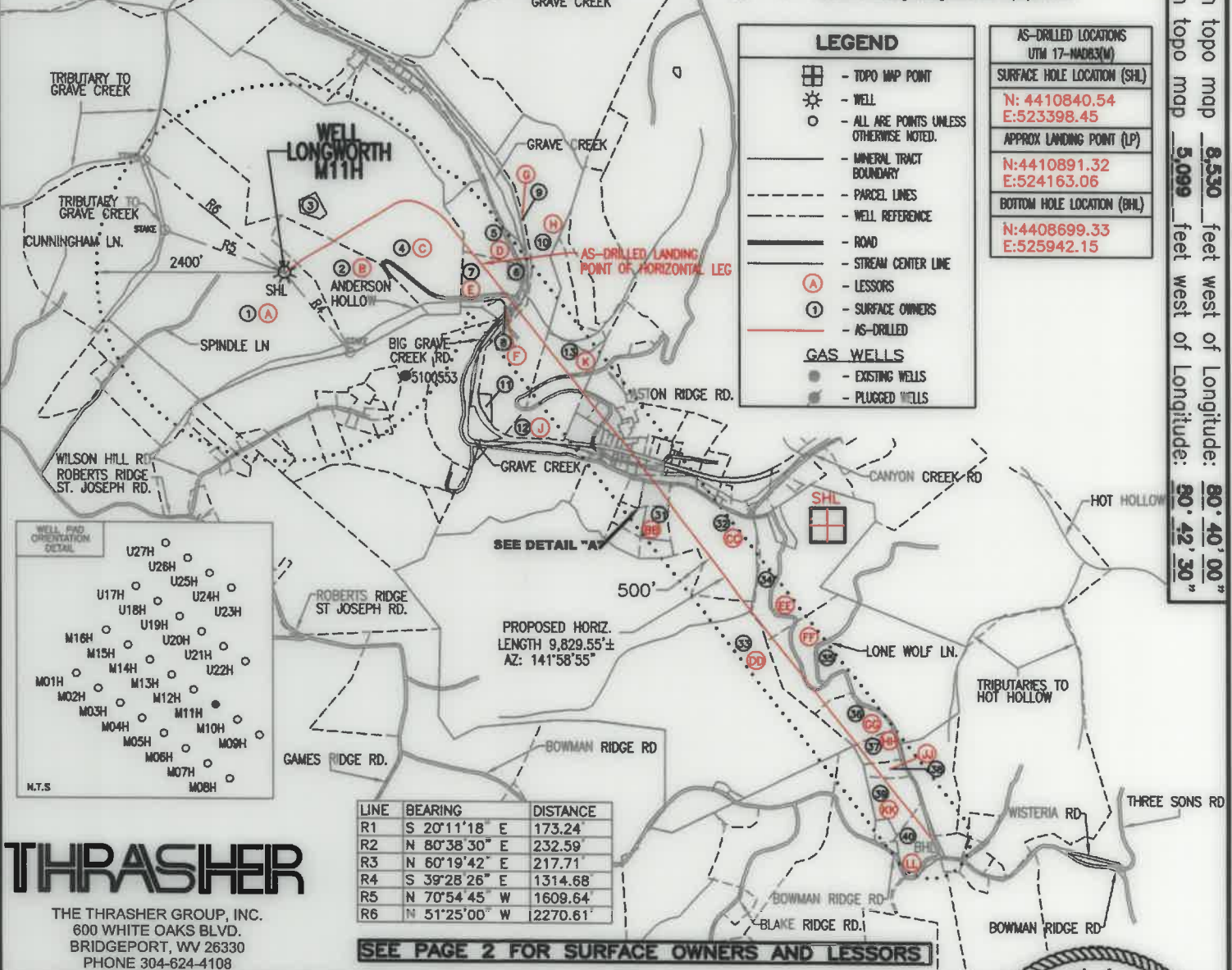
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BHL is located on topo map 2,010 feet south of Latitude: 39° 50' 00"
 SHL is located on topo map 10,105 feet south of Latitude: 39° 52' 30"

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 intakes 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.

BHL is located on topo map 8,530 feet west of Longitude: 80° 40' 00"
 SHL is located on topo map 5,099 feet west of Longitude: 80° 42' 30"



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

AS-DRILLED LOCATIONS UTM 17-MAD83(M)

SURFACE HOLE LOCATION (SHL)
 N: 4410840.54
 E: 523398.45

APPROX LANDING POINT (LP)
 N: 4410891.32
 E: 524163.06

BOTTOM HOLE LOCATION (BHL)
 N: 4408699.33
 E: 525942.15

PROPOSED HORIZ. LENGTH 9,829.55' ±
 AZ: 141°58'55"

LINE	BEARING	DISTANCE
R1	S 20°11'18" E	173.24
R2	N 80°38'30" E	232.59
R3	N 60°19'42" E	217.71
R4	S 39°28'26" E	1314.68
R5	N 70°54'45" W	1609.64
R6	N 51°25'00" W	2270.61

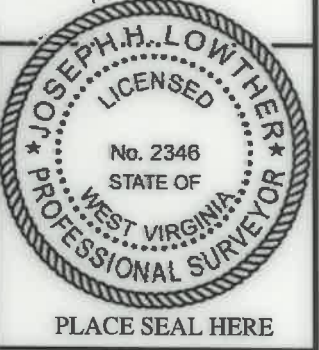
THRASHER
 THE THRASHER GROUP, INC.
 600 WHITE OAKS BLVD.
 BRIDGEPORT, WV 26330
 PHONE 304-624-4108

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS.

FILE #: LONGWORTH M11H - AS-DRILLED
 DRAWING #: LONGWORTH M11H - 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 M11H - AS-DRILLED
 API WELL #: 47 51 02131
 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: 871.063± **12/16/2022**

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: 6,690' ± TMD: 17,321' ±

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

LONGWORTH

M11H

PAGE 2 OF 2

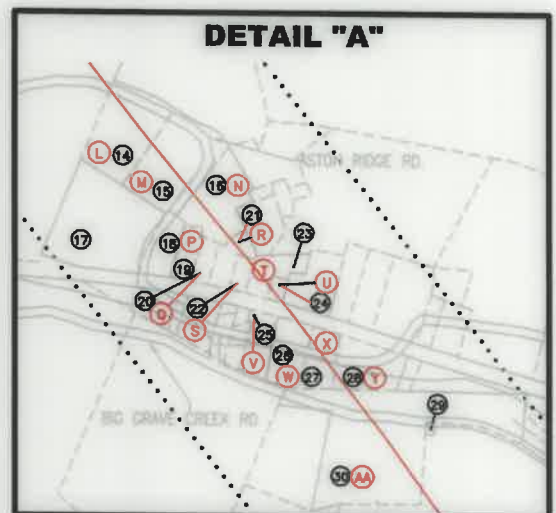
AS-DRILLED

	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 FRIESE	
	ANTHONY FRIESE	
	JAMES FRIESE	
	HENRY FRIESE	
C	GRAHAM H. LONGWORTH JR., ET AL	4-12/16
	SHERI L. EVRAETS FAMILY TRUST	
	LISA NICEWARNER	
	JULIA RODGERS	
	KEITH FRIESE	
	MARK FRIESE	
	ANTHONY FRIESE	
	JAMES FRIESE	
D	ROBERT L. SR. & PAMELA L. SHAFFER	4-12/15.3
	ROBERT L. SR. & PAMELA L. SHAFFER	4-12/15
	KELLY B. & CONNIE S. WINLAND	4-12/15.2
	CNX GAS COMPANY LLC	4-11A/25
	HARRY F. & DONNA L. ROUSH	4-11/3
	GLEN W. & RHONDA S. CONNER	4-11/51
	HARRY F. & DONNA L. ROUSH	4-11/5
	HEIRS OF HARRISON M. EVANS	
	LARRY E. YOHO	4-11A/24
	LARRY E. YOHO	4-11A/23
	WILLIAM CONNER GLEN	4-11A/22
	HOMER W. WHITE	
	*ALVIN D. BARRETT	4-11A/3
	*DALE L. WITLACH	4-11A/4
	DALE L. WITLACH	4-11A/5
	CHARLES M. HENRY	4-11A/6

	LESSOR	DIST-TM/PAR
T	CHARLES M. HENRY	4-11A/7
U	*CHARLES M. HENRY	4-11A/8
V	*HARRY F. & DONNA L. ROUSH	4-11/4
W	JOHN Z. GARRISON	4-11A/35
X	JOHN Z. GARRISON	4-11A/36
Y	GOLDIE M. OLIVER	4-11A/37
AA	WELLMAN HEIRS	9-1/4
	ROBERT L., SR. & MARGARET J. TRAYON	
BB	*WELLMAN HEIRS	9-1/4.3
	*ROBERT L., JR. & AMY J. TRAYON	
CC	CONSOLIDATION COAL	9-1/5
DD	HOWARD E. BY AIF SUSAN YOUNG	9-1/18
EE	R.G. & ELIZABETH J. DAKAN HEIRS	9-1/12
FF	ROBERT A. WILLIAMS	9-1/13
GG	ROBERT A. WILLIAMS	9-1/13.3
HH	ROBERT A. WILLIAMS	9-1/13.4
JJ	ROBERT A. WILLIAMS	9-1/13.5
KK	KENNETH D. TUCKER	9-1/13.7
LL	GERALD E. LOGSDON	9-1/13.6

AS-DRILLED LOCATIONS
UTM 17-MAD83(M)
SURFACE HOLE LOCATION (SHL)
N: 4410840.54
E: 523398.45
APPROX LANDING POINT (LP)
N: 4410891.32
E: 524163.06
BOTTOM HOLE LOCATION (BHL)
N: 4408699.33
E: 525942.15

	SURFACE OWNER	DIST-TM/PAR
1	GRAHAM H. LONGWORTH JR.	4-11/1
2	GRAHAM H. LONGWORTH JR.	4-11/2
3	DANIEL C. SR., & JEANNETTE L. LONGWORTH	4-12/16.1
4	DANIEL C. LONGWORTH	4-12/16
5	ROBERT L. SHAFFER SR., ET AL	4-12/15.3
6	ROBERT S. COWGILL	4-12/15.1
7	ROBERT L. SHAFFER SR., ET AL	4-12/15
8	KELLY BRUCE WINLAND ET UX	4-12/15.2
9	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	4-11A/25
10	HARRY F. ROUSH ET UX	4-11/3
11	DEAN ROUSH ET UX	4-11/3.1
12	GLEN W. CONNER ET UX	4-11/51
13	HARRY F. ROUSH ET UX	4-11/5
14	LARRY E. YOHO ET UX - G. E. YOHO	4-11A/24
15	LARRY E. YOHO ET UX	4-11A/23
16	GLEN WILLIAM CONNER ET AL	4-11A/22
17	KERMIT W. YOHO JR.	4-11A/1
18	ALVIN D. & CAROL D. BARRETT	4-11A/2
19	*ALVIN DALE BARRETT ET UX	4-11A/3
20	*DALE L. WHITLATCH ET UX	4-11A/4
21	DALE L. WHITLATCH ET UX	4-11A/5
22	CHARLES M. HENRY ET UX	4-11A/6
23	CHARLES M. HENRY ET UX	4-11A/7
24	*CHARLES M. HENRY ET UX	4-11A/8
25	*HARRY F. ROUSH	4-11/4
26	JONATHAN Z. & CARLA L. GARRISON	4-11A/35
27	JONATHAN Z. & CARLA L. GARRISON	4-11A/36
28	VIRGINIA L. CROW	4-11A/37
29	MANUFACTURERS LIGHT & HEAT	9-1/6
30	MARGARET JUNE TRAYON - LIFE	9-1/4
31	*ROBERT L. TRAYON ET UX	9-1/4.3
32	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	9-1/5
33	CNX LAND RESOURCES INC	9-1/18
34	ROBERT L. CLARK ET AL	9-1/12
35	CNX LAND RESOURCES INC	9-1/13
36	CNX LAND LLC	9-1/13.3
37	MACK L. CROW	9-1/13.4
38	MACK L. CROW	9-1/13.5
39	MISTY D. & MACK L. CROW	9-1/13.7
40	GERALD E. LOGSDON ET UX	9-1/13.6



12/16/2022

THRASHER

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FEBRUARY 23, 2021