

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: Longworth M05H

API: 47 - 051 - 01914

Submission: Initial Amended

Notes:

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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

API 47 - 051 - 01914 County Marshall District Clay
Quad Glen Easton Pad Name Longworth Field/Pool Name N/A
Farm name Graham H. Longworth Jr. Well Number Longworth M05H
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 4,410,835.42 Easting 523,389.60
Landing Point of Curve Northing 4,410,857.41 Easting 523,897.40
Bottom Hole Northing 4,408,848.18 Easting 525,535.92

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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 12.6 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 01/29/2018 Date drilling commenced 08/30/2017 Date drilling ceased 03/26/2018

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

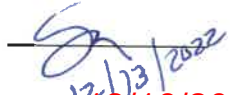
Freshwater depth(s) ft 99,605 Open mine(s) (Y/N) depths _____

Salt water depth(s) ft 1576,1998,2102,2139 Void(s) encountered (Y/N) depths _____

Coal depth(s) ft 583,853 Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) N

Reviewed by:


12/16/2022
12/16/2022

APPROVED

API 47- 051 - 01914 Farm name Graham H. Longworth Jr. Well number Longworth M05H

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-52 218#	N/A	Y
Surface	17-1/2"	13-3/8"	634'	NEW	J-55 54.5#	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2184'	NEW	L-80 40#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	15,839'	NEW	P-110 20#	N/A	N
Tubing							
Packer type and depth set							

Comment Details Production Cement job has a calculated TOC of 1452' 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	17BBLS	N/A	N/A	N/A	0	8+
Surface	CLASS A	483	15.6	1.20	579	0	8
Coal							
Intermediate 1	CLASS A	780	15.6	1.19	928	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H/CLASS H	781/1909	14.7/15.2	1.14/1.15	890/2195	1452	8+
Tubing							

Drillers TD (ft) 15,861' Loggers TD (ft) N/A
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 2850'

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 - 01914 Farm name Graham H. Longworth Jr. Well number Longworth M05H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
ATTACHED					
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Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations 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/other (units)
ATTACHED								

Please insert additional pages as applicable.

API 47- 051 - 01914 Farm name Graham H. Longworth Jr. Well number Longworth M05H

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 4571.70 mcfpd Oil 0 bpd NGL 0 bpd Water 22.56 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		<p style="text-align: center;">RECEIVED Office of Oil and Gas NOV 18 2022 WV Department of Environmental Protection</p>

Please insert additional pages as applicable.

Drilling Contractor Highlands Drilling LLC
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 Adam Hughey Telephone 724-575-5475
Signature _____ Title Director of Completions Date 2022-11-12

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

12/16/2022

API 47- 051 - 01914 Farm name Graham H. Longworth Jr. Well number Longworth M05H

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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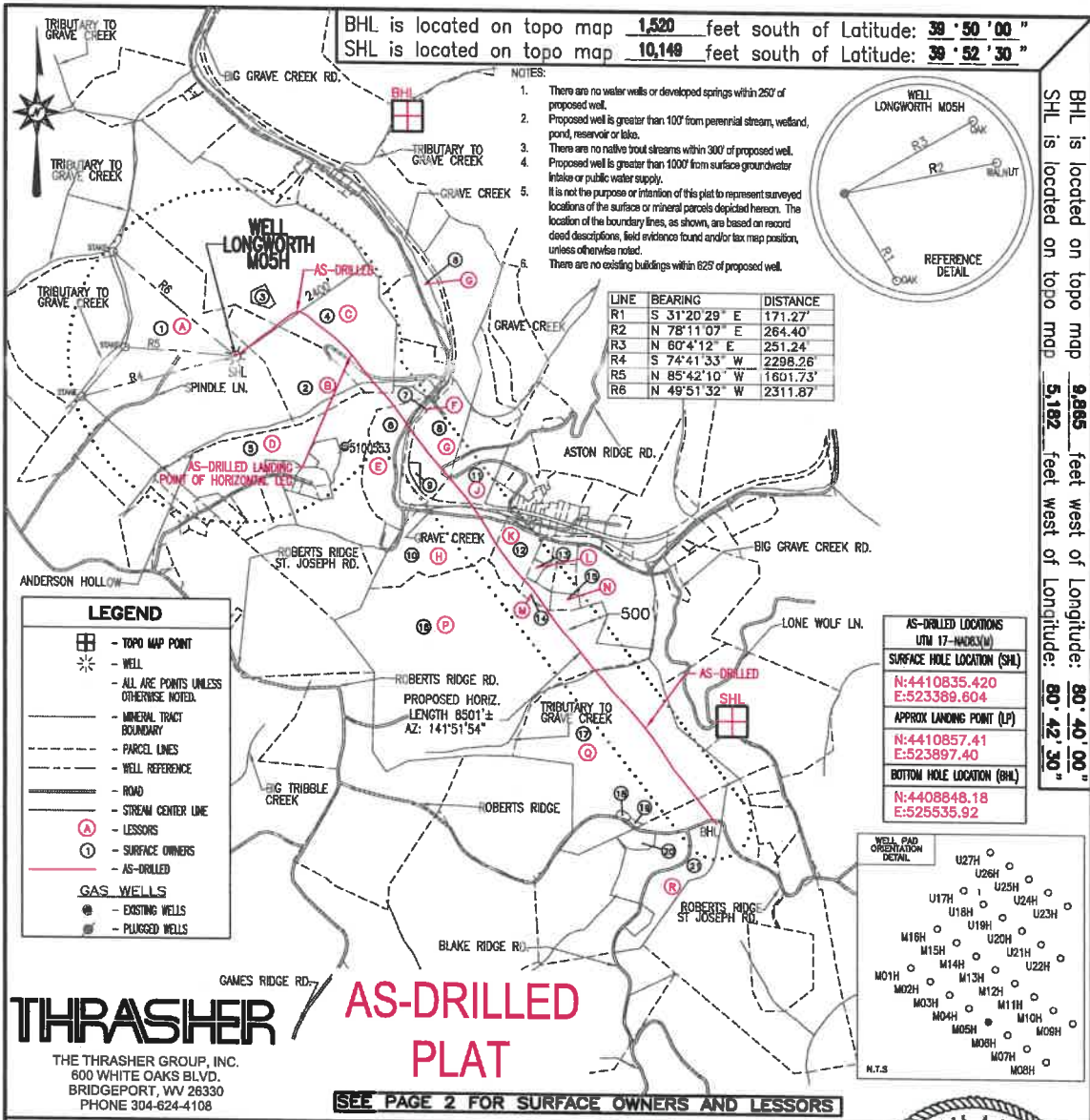
Well # Longworth M05H Final Formations API# 47-051-01914				
Formation Name	Drill Top MD (ftGRD)	Drill Top (TVD) (ftGRD)	Drill Btm MD (ftGRD)	Drill Btm (TVD) (ftGRD)
Sand/Shale	1	1	583	583
Waynesburg Coal	583	583	583	583
Sand/Shale	583	583	853	853
Pittsburgh Coal	853	853	858	858
Sand/Shale	858	858	1,872	1,871
Big Lime	1,872	1,871	2,100	2,099
Big Injun	2,100	2,099	2,182	2,181
Sand/Shale	2,182	2,181	2,819	2,818
Gantz	2,819	2,818	2,880	2,879
Gordon	2,880	2,879	2,960	2,959
50F	2,960	2,959	3,009	3,007
Sand/Shale	3,009	3,007	3,088	3,085
Bayard	3,088	3,085	3,453	3,445
Sand/Shale	3,453	3,445	5,255	5,106
Alexander	5,255	5,106	5,692	5,509
Elks	5,692	5,509	6,560	6,216
Sonyea	6,560	6,216	6,712	6,299
Middlesex	6,712	6,299	6,759	6,325
Genesee	6,759	6,325	6,852	6,375
Geneseo	6,852	6,375	6,895	6,399
Tully	6,895	6,399	6,987	6,446
Hamilton	6,987	6,446	7,143	6,507
Marcellus	7,143	6,507	15,861	6,639

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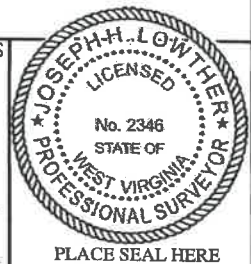


BHL is located on topo map 9,865 feet west of Longitude: 80° 40' 00"
 SHL is located on topo map 5,182 feet west of Longitude: 80° 42' 30"

FILE #: LONGWORTH M05H - AS-DRILLED
 DRAWING #: LONGWORTH M05H - AS-DRILLED
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE: U.S.G.S. MONUMENT THOMAS 1498.61'

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



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(+) 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 M05H - AS-DRILLED
 API WELL #: 47 51 01914
 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: 849.548±

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: 6,664± TMD: 15,886±

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

12/16/2022

LONGWORTH M05H 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 FRIESE			
	ANTHONY FRIESE			
	JAMES FRIESE			
	HENRY FRIESE			
	STEVEN 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				
HENRY FRIESE				
STEVEN FRIESE				
D		DELORES J. FOX	4-11/54	
E		CNX GAS COMPANY LLC	4-11/52	
F		CNX GAS COMPANY LLC	4-11/59	
G		HARRY F. ROUSH ET UX	4-11/3	
H	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			
	J		GLEN WILLIAM CONNER	4-11/51
	K		ALVIN D. BARRETT ET UX	9-1/3
	L		*ROSEANN TRAYON	9-1/4.4
*DIANA L. WELLMAN				
*MARGARET ANN BONNETT				
*JOE PAUL WELLMAN				
*CHRISTINA L. BOARDWINE				
*FRANCIS THOMAS KROL, JR.				
*WILLIAM R. LEVASSEUR, JR.				
M	CINDY S. TRAYON ET AL	9-1/4.6		
	DIANA L. WELLMAN			
	MARGARET ANN BONNETT			
	JOE PAUL WELLMAN			
	CHRISTINA L. BOARDWINE			
	FRANCIS THOMAS KROL, JR.			
WILLIAM R. LEVASSEUR, JR.				
N	ROBERT L. TRAYON, JR. ET UX	9-1/4.5		
	DIANA L. WELLMAN			
	MARGARET ANN BONNETT			
	JOE PAUL WELLMAN			
	CHRISTINA L. BOARDWINE			
	FRANCIS THOMAS KROL, JR.			
WILLIAM R. LEVASSEUR, JR.				
P	HOWARD E. YOUNG BY AIF SUSAN YOUNG	9-1/18		
Q	DANIEL L. DOBBS ET UX	9-1/16		
R	PETER MILLER	9-1/24		

	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. AND JEANNETTE L. LONGWORTH	4-12/16.1
4	DANIEL C. LONGWORTH	4-12/16
5	DUNCAN OR SUSAN ARNETT	4-11/54
6	HARRY & DONNA ROUSH	4-11/52
7	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT.	4-11/59
8	HARRY F. ROUSH ET UX	4-11/3
9	DEAN ROUSH ET UX	4-11/3.1
10	HARRY & DONNA ROUSH	9-1/2
11	GLEN W. CONNER ET UX	4-11/51
12	ALVIN DALE BARRETT ET UX	9-1/3
13	*ROSEANN TRAYON	9-1/4.4
14	CINDY SUE TRAYON & BRIAN CROW	9-1/4.6
15	ROBERT L. JR. & AMY J. TRAYON	9-1/4.5
16	CNX LAND RESOURCES INC.	9-1/18
17	CNX LAND RESOURCES INC.	9-1/16
18	MACK A. CROW ET UX	9-1/17
19	MACK A. CROW ET UX	9-1/16.1
20	VICKIE CROW	9-1/24.1
21	PETER A. MILLER	9-1/24

AS-DRILLED LOCATIONS UTM 17-14083(M)
SURFACE HOLE LOCATION (SH)
N:4410835.420 E:523389.604
APPROX LANDING POINT (LP)
N:4410857.41 E:523897.40
BOTTOM HOLE LOCATION (BH)
N:4408848.18 E:525535.92

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THRASHER

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

* - DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

FEBRUARY 23, 2021

12/16/2022

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:	47-051-01914-00-00
Operator Name:	EQT Production
Well Name and Number:	Longworth A 5H
Latitude:	39.84721380
Longitude:	-80.72659630
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,664
Total Base Water Volume (gal):	17,610,852
Total Base Non Water Volume:	0



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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	88.50733	None
Sand (Proppant)	EQT	Proppant	Silica Substrate	14808-60-7	100.00000	11.37266	None
Clearal 268	ChemStream	Biocide	Non-hazardous substances	Proprietary	80.00000	0.00896	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor	Non-hazardous substances	Proprietary	90.00000	0.00762	None
StimSTREAM FR 9800	ChemStream	Friction Reducer	Copolymer of 2-propenamide	Proprietary	30.00000	0.00452	None
StimSTREAM FR 9800	ChemStream	Friction Reducer	Petroleum Distillate	64742-47-8	20.00000	0.00201	None
15% HCl	US Well Services	Acid	Hydrogen Chloride	7647-01-0	15.00000	0.00104	None
Clearal 268	ChemStream	Biocide	Glutaraldehyde	111-30-8	20.00000	0.00056	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor					

			Bis(HexaMethylene Triamine Penta(Methylene Phosphonic Acid)(BHMT)	34690-00-1	10.00000	0.00000	None
StimSTREAM FR 9800	ChemStream	Friction Reducer					
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00002	None
StimSTREAM FR 9800	ChemStream	Friction Reducer					
			Oleic Acid Diethanolamide	93-83-4	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	0.00001	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Ethoxylated Alcohols	68439-50-9	15.00000	0.00000	None
OPTIINHIBIT PLUS	USWS	Corrosion Inhibitor					
			Ethanoic Acid	64-19-7	15.00000	0.00000	None
Clearal 268	ChemStream	Biocide					
			Ethanol	64-17-5	1.50000	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

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Stage No.	Perforation Date	Stage Perforated From TMD Ft.	Stage Perforated To TMD Ft.	# of Perforations/Stage	Formation(s)
2	07/15/2022	15652	15472	40	Marcellus
3	07/01/2022	15453	15272	40	Marcellus
4	07/01/2022	15253	15073	40	Marcellus
5	07/16/2022	15054	14873	40	Marcellus
6	07/16/2022	14854	14674	40	Marcellus
7	07/16/2022	14655	14474	40	Marcellus
8	07/17/2022	14455	14275	40	Marcellus
9	07/17/2022	14256	14075	40	Marcellus
10	07/18/2022	14056	13876	40	Marcellus
11	07/18/2022	13857	13676	40	Marcellus
12	07/18/2022	13657	13477	40	Marcellus
13	07/19/2022	13458	13277	40	Marcellus
14	07/19/2022	13258	13078	40	Marcellus
15	07/20/2022	13059	12878	40	Marcellus
16	07/20/2022	12859	12679	40	Marcellus
17	07/20/2022	12660	12479	40	Marcellus
18	07/21/2022	12460	12280	40	Marcellus
19	07/21/2022	12261	12080	40	Marcellus
20	07/22/2022	12061	11881	40	Marcellus
21	07/22/2022	11862	11681	40	Marcellus
22	07/23/2022	11662	11482	40	Marcellus
23	07/23/2022	11463	11282	40	Marcellus
24	07/24/2022	11263	11083	40	Marcellus
25	07/24/2022	11064	10883	40	Marcellus
26	07/25/2022	10864	10684	40	Marcellus
27	07/25/2022	10665	10484	40	Marcellus
28	07/26/2022	10465	10285	40	Marcellus
29	07/26/2022	10266	10085	40	Marcellus
30	07/26/2022	10066	9886	40	Marcellus
31	07/27/2022	9867	9686	40	Marcellus
32	07/27/2022	9667	9487	40	Marcellus
33	07/28/2022	9468	9287	40	Marcellus
34	07/28/2022	9268	9088	40	Marcellus
35	07/29/2022	9069	8888	40	Marcellus
36	07/30/2022	8869	8638	40	Marcellus
37	07/30/2022	8620	8441	40	Marcellus
38	07/30/2022	8422	8243	40	Marcellus
39	07/31/2022	8224	8045	40	Marcellus
40	07/31/2022	8026	7847	40	Marcellus
41	07/31/2022	7828	7649	40	Marcellus
42	07/31/2022	7630	7451	40	Marcellus

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43	07/31/2022	7432	7253	40	Marcellus
44	08/01/2022	7234	7173	40	Marcellus

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Stimulation Data

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Environmental Protection

12/16/2022

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/other (units)
-015640	1	07/15/2022	73	8832	6092	3720	220200	5265	
-015640	2	07/15/2022	100	9112	5222	4451	440160	9891	
-015640	3	07/15/2022	93	8920	5795	4171	440180	9845	
-015640	4	07/16/2022	94	8003	6014	4566	440300	9861	
-015640	5	07/16/2022	100	8942	5780	4416	440120	9638	
-015640	6	07/16/2022	99	8985	5735	4283	440200	9837	
-015640	7	07/17/2022	100	9036	5330	4474	440160	9832	
-015640	8	07/17/2022	101	8813	5341	4528	440200	9832	
-015640	9	07/18/2022	100	8719	4380	4448	440200	9799	
-015640	10	07/18/2022	101	8790	5241	4593	440060	9795	
-015640	11	07/18/2022	101	8617	5474	4672	440300	9805	
-015640	12	07/19/2022	100	8477	5270	4305	440600	9789	
-015640	13	07/19/2022	100	8741	5839	4356	440080	9780	
-015640	14	07/20/2022	100	8397	5569	4505	440200	9771	
-015640	15	07/20/2022	100	8651	5554	4352	440180	9769	
-015640	16	07/20/2022	100	8497	5084	4729	440200	9761	
-015640	17	07/21/2022	100	8484	5716	4835	440200	9763	
-015640	18	07/22/2022	95	8135	5740	4556	440180	9748	
-015640	19	07/22/2022	100	8438	5709	4648	440200	9717	
-015640	20	07/23/2022	93	8606	5908	4566	440040	9782	
-015640	21	07/23/2022	100	8215	5711	4758	440150	9703	
-015640	22	07/23/2022	99	8577	5734	4354	440080	9702	
-015640	23	07/24/2022	67	5532	5708	5027	440000	9681	
-015640	24	07/24/2022	97	8653	5804	4464	440075	9705	
-015640	25	07/25/2022	98	8663	6026	4664	440400	9688	
-015640	26	07/25/2022	100	8253	5147	5014	440100	9988	
-015640	27	07/26/2022	98	8639	5367	4626	440100	9677	
-015640	28	07/26/2022	93	8493	5775	4735	440050	10279	
-015640	29	07/27/2022	95	8950	5553	4511	440100	9695	
-015640	30	07/27/2022	95	8737	5648	4685	440100	9653	
-015640	31	07/28/2022	100	8311	5642	4563	440100	9646	
-015640	32	07/28/2022	93	8656	5087	4519	440380	9640	
-015640	33	07/29/2022	99	8315	5761	4934	440160	9644	
-015640	34	07/29/2022	100	7931	5590	4812	440075	9601	
-015640	35	07/29/2022	100	7895	5615	5064	440450	9598	
-015640	36	07/30/2022	91	8375	5725	4954	440310	12008	
-015640	37	07/30/2022	96	8365	5334	4635	440500	9446	
-015640	38	07/31/2022	100	7997	5457	5031	440020	9505	
-015640	39	07/31/2022	100	7874	5079	5065	440050	9500	
-015640	40	07/31/2022	100	7881	5456	4983	440050	9492	
-015640	41	07/31/2022	100	7715	6380	5019	440050	9477	

RECEIVED
Office of Oil and Gas
NOV 18 2022
WV Department of
Environmental Protection

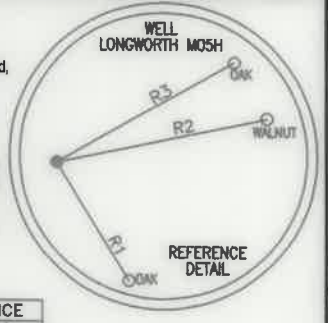
-015640	42	07/31/2022	99	7369	5902	4779	440400	9478
-015640	43	08/01/2022	100	7567	5806	4689	440150	9463
-015640	44	08/01/2022	58	9102	5897	4633	176000	3757

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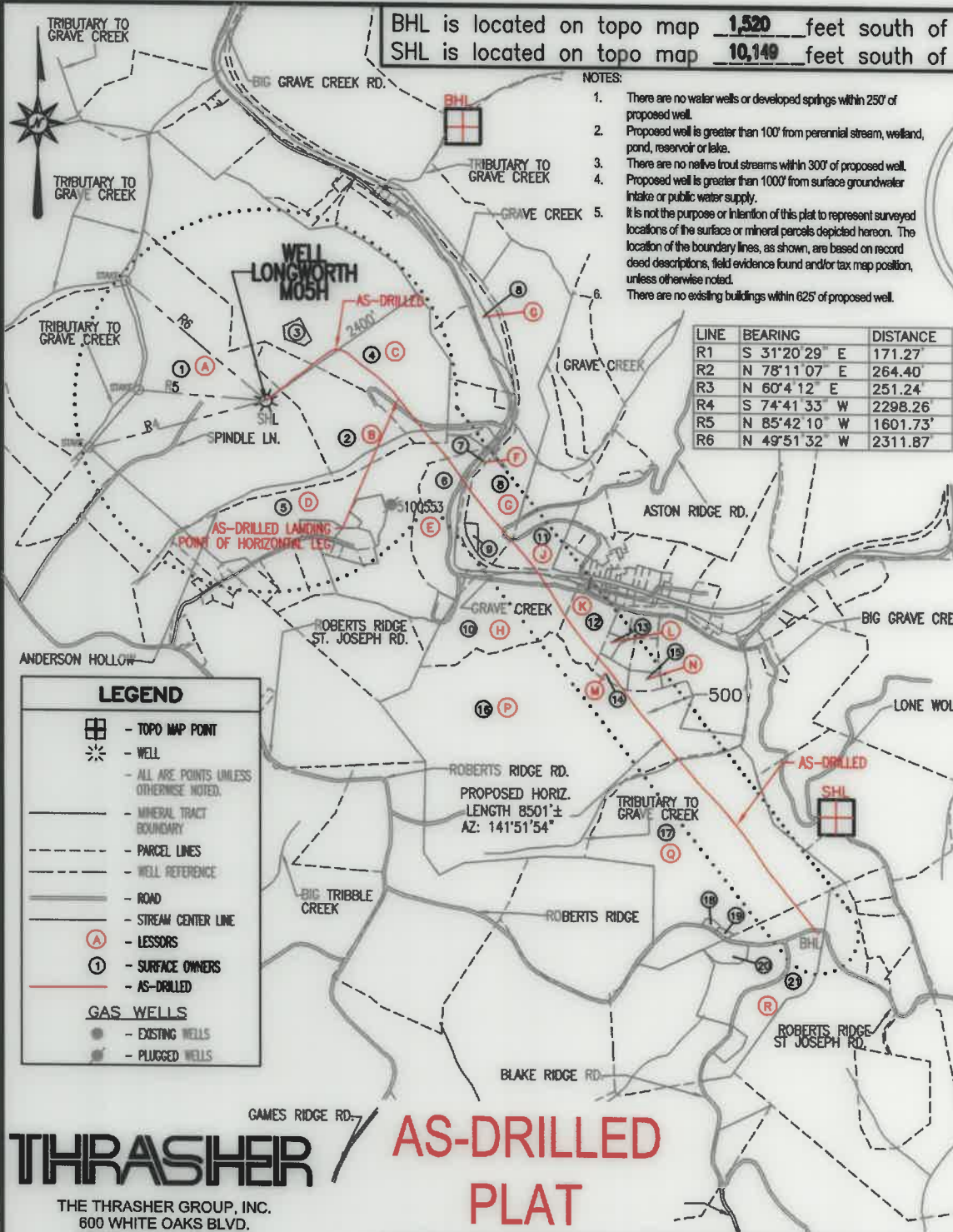
BHL is located on topo map 1,520 feet south of Latitude: 39° 50' 00"
 SHL is located on topo map 10,149 feet south of Latitude: 39° 52' 30"

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 record, unless otherwise noted.
6. There are no existing buildings within 625' of proposed well.



LINE	BEARING	DISTANCE
R1	S 31°20'29" E	171.27
R2	N 78°11'07" E	264.40
R3	N 60°4'12" E	251.24
R4	S 74°41'33" W	2298.26
R5	N 85°42'10" W	1601.73
R6	N 49°51'32" W	2311.87



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-NAD83(M)

SURFACE HOLE LOCATION (SHL)

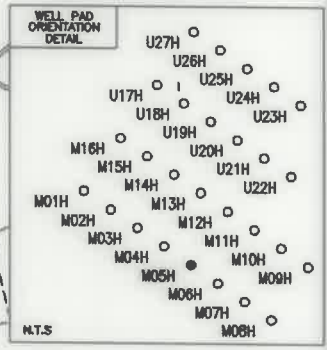
N:4410835.420
E:523389.604

APPROX LANDING POINT (LP)

N:4410857.41
E:523897.40

BOTTOM HOLE LOCATION (BHL)

N:4408848.18
E:525535.92



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

AS-DRILLED PLAT

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

FILE #: LONGWORTH M05H - AS-DRILLED
 DRAWING #: LONGWORTH M05H - 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 C. Mallow
 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 M05H - AS-DRILLED
 API WELL #: 47 51 01914
 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: 849.548± 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: 6,664'± TMD: 15,886'±

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

M05H

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 FRIESE	
	ANTHONY FRIESE	
	JAMES FRIESE	
	HENRY FRIESE	
	STEVEN FRIESE	
	C	
SHERI L. EVRAETS FAMILY TRUST		
LISA NICEWARNER		
JULIA RODGERS		
KEITH FRIESE		
MARK FRIESE		
ANTHONY FRIESE		
JAMES FRIESE		
HENRY FRIESE		
STEVEN FRIESE		
D	DELORES J. FOX	4-11/54
E	CNX GAS COMPANY LLC	4-11/52
F	CNX GAS COMPANY LLC	4-11/59
G	HARRY F. ROUSH ET UX	4-11/3
H	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	
	J	
K	ALVIN D. BARRETT ET UX	9-1/3
L	*ROSEANN TRAYON	9-1/4.4
	*DIANA L. WELLMAN	
	*MARGARET ANN BONNETT	
	*JOE PAUL WELLMAN	
	*CHRISTINA L. BOARDWINE	
	*FRANCIS THOMAS KROL, JR.	
	*WILLIAM R. LEVASSEUR, JR.	
M	CINDY S. TRAYON ET AL	9-1/4.6
	DIANA L. WELLMAN	
	MARGARET ANN BONNETT	
	JOE PAUL WELLMAN	
	CHRISTINA L. BOARDWINE	
	FRANCIS THOMAS KROL, JR.	
N	ROBERT L. TRAYON, JR. ET UX	9-1/4.5
	DIANA L. WELLMAN	
	MARGARET ANN BONNETT	
	JOE PAUL WELLMAN	
	CHRISTINA L. BOARDWINE	
	FRANCIS THOMAS KROL, JR.	
P	HOWARD E. YOUNG BY AIF SUSAN YOUNG	9-1/18
	DANIEL L. DOBBS ET UX	9-1/16
R	PETER MILLER	9-1/24

	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. AND JEANNETTE L. LONGWORTH	4-12/16.1
4	DANIEL C. LONGWORTH	4-12/16
5	DUNCAN OR SUSAN ARNETT	4-11/54
6	HARRY & DONNA ROUSH	4-11/52
7	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT.	4-11/59
8	HARRY F. ROUSH ET UX	4-11/3
9	DEAN ROUSH ET UX	4-11/3.1
10	HARRY & DONNA ROUSH	9-1/2
11	GLEN W. CONNER ET UX	4-11/51
12	ALVIN DALE BARRETT ET UX	9-1/3
13	*ROSEANN TRAYON	9-1/4.4
14	CINDY SUE TRAYON & BRIAN CROW	9-1/4.6
15	ROBERT L. JR. & AMY J. TRAYON	9-1/4.5
16	CNX LAND RESOURCES INC.	9-1/18
17	CNX LAND RESOURCES INC.	9-1/16
18	MACK A. CROW ET UX	9-1/17
19	MACK A. CROW ET UX	9-1/16.1
20	VICKIE CROW	9-1/24.1
21	PETER A. MILLER	9-1/24

AS-DRILLED LOCATIONS UTM 17-MDDX(M)	
SURFACE HOLE LOCATION (SHL)	
N:4410835.420	E:523389.604
APPROX LANDING POINT (LP)	
N:4410857.41	E:523897.40
BOTTOM HOLE LOCATION (BHL)	
N:4408848.18	E:525535.92

12/16/2022



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* - DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

FEBRUARY 23, 2021