



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Monday, August 8, 2022
WELL WORK PLUGGING PERMIT
Vertical Plugging

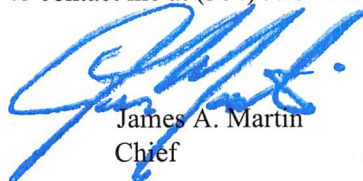
CHESAPEAKE APPALACHIA, L.L.C.
6100 N. WESTERN AVE.
OKLAHOMA CITY, OK 73118

Re: Permit approval for 1-2178
47-023-00011-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. Please be advised that form WR-38, Affidavit of Plugging and Filling Well, is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless 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: 1-2178
Farm Name: UNION LAND MGMT. CO.
U.S. WELL NUMBER: 47-023-00011-00-00
Vertical Plugging
Date Issued: 8/8/2022

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.

4702300011A

WW-4B
Rev. 2/01

1) Date July 13, 2022
2) Operator's
Well No. 1-2178 UNION LAND MANAGEMENT #1
3) API Well No. 47-023 - 00011

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil ___ / Gas X / Liquid injection ___ / Waste disposal ___ /
(If "Gas, Production ___ or Underground storage ___) Deep ___ / Shallow ___

5) Location: Elevation 2885' Watershed HEADWATERS ELKLAND RUN
District UNION County GRANT Quadrangle GREENLAND GAP

6) Well Operator CHESAPEAKE APPALACHIA LLC 7) Designated Agent ERIC HASKINS - MANAGER REG OPS
Address PO BOX 18496 Address 14 CHESAPEAKE LANE
OKLAHOMA CITY, OK 73154-0496 SAYRE, PA 18840

8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name GAYNE J KNITOWSKI Name PLANTS AND GOODWIN
Address 601 57TH STREET SE Address 360 HIGH STREET
CHARLESTON, WV 25304 BRADFORD, PA 16701

10) Work Order: The work order for the manner of plugging this well is as follows:
SEE ATTACHED

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JUL 18 2022
WV Department of
Environmental Protection

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector Gayne Knitowski Date Inspector
Digitally signed by Gayne Knitowski Date: 2022.07.14 10:48:18 -0400

08/12/2022

CHESAPEAKE

ENERGY

Union Land MGMT Co. 1-2178

Grant County, WV
 Lat. 38.18546; Long. -79.21778
 API: 4702300011

Plug and Abandonment Procedure

PN: 821094
 AFE: TBD
 WO: TBD

EXECUTIVE SUMMARY

The Union Land MGMT Co. 1-2178 well in Grant County, West Virginia will be plugged and abandoned. Chesapeake has agreed to P&A this well in accordance with the request of the WVDEP. No future potential remains in this wellbore.

Operational Summary:

The Union Land MGMT Co.1-2178 was drilled in 1985 and ownership was later transferred to Chesapeake through an acquisition. The P&A procedure will consist of killing the well and removing 2-3/8" tubing. A CIBP will be set about the top perforation and a cement plug will be set on top of it. A CBL will be run on the 5-1/2" casing to find TOC behind the pipe, cut pipe 100' above TOC and pull same. All free pipe should attempt to be pulled 1-1.5x string weight. A cement plug will be set across the 5-1/2" stub and into open hole. A CBL will be run on the 9-5/8" casing to verify TOC behind casing at surface. A cement plug will be set in the open hole portion and across 9-5/8" shoe. There will be a final cement plug set at surface after ensuring no annular gas exists.

CASING AND TUBULAR DATA

Casing Detail										
String	OD (in)	ID (in)	Weight (lbs./ft)	Grade	Casing Cap (bbl/ft)	Annular Cap (bbl/ft)	Top (ft-MD)	Bttm (ft-MD)	TOC	Hole Size
Conductor										
Surface	13.375	12.715	48	H-40	0.1337		0	40		
Intermediate	9.625	8.921	36	K-55	0.0658		0	2,446		
Production	5.5	4.89	17	N-80	0.0198	0.074	0	9,343		8.75

Tubing Design						
Item/No	OD (in)	ID (in)	Description	Length (ft)	Depth (ft-MD)	
Tubing	2.375	1.995	2-3/8" 4.7#/ft	9,020	9,020	

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Plug and Abandonment Procedure

Cement Summary

RKB	Variable
KOP	N/A
Depth of Top Perf (MD)	8,934'
Cement Yield	1.18
Density	15.6

Estimated Plug Set Depths and Cement Needed								
Item	Plug Height	Top of Plug	Bottom of Plug	Cement Type	% Excess Cmt	Cement Sacks	Gel Volume (BBL)	Displacement Volume (BBL)
Plug 1	200'	8,700'	8,900'	Class H	0%	24	0	33
Plug 2	200'	5,253'	5,453'	Class H	20%	56	74	19
Plug 3	200'	2,347'	2,547'	Class A	20%	73	352	8
Plug 4	140'	0'	140'	Class A	0%	52	0	0

Plugging Details					
Plug #	Depth Code	Depth	Csg or Open Hole?	Peforate?	Cmt Behind Csg
Plug 1	CIBP	8,900'	Csg	N/A	Yes
Plug 2	5.5" Stub Plug	5,453'	Open Hole	N/A	No
Plug 3	9-5/8" Casing Plug	2,547'	Open Hole	N/A	No
Plug 4	9-5/8" Surface Plug	140'	Csg	N/A	Yes

*All volumes assume 2-3/8" tubing is used

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Plug and Abandonment Procedure**ABANDONMENT PROCEDURE**

All personnel on site are required to have gas monitors at all times during this operation.

Safety is the highest priority. Hold PJSA meetings each morning and prior to all significant operations. Review critical parameters, objectives, and emergency action plans.

Prior to rig arriving on site:

- a. Make sure all casing valves are readily accessible and suck down water from the cellar.
- b. Perform 72-hour pressure build up test on all annuli.
- c. Make sure A, B, and C section flanges are properly identified.
- d. Verify regulatory permit and approval to plug and abandon.
- e. Notify WVDEP, municipality and Landowner 1 week prior to commencing operations.

1. MIRU on containment
2. Pump 207bbl FW through production tubing to kill well
3. RU slickline and remove 3 x pump-through plugs from production tubing
4. NU 7-1/16" 5k double ram BOP
5. POOH 2-3/8" tubing
6. RU wireline; run CBL on 5-1/2" casing to verify TOC @ 5,353'; set CIBP above perms @ 8900'
7. TIH w/ work string to 8,900'
8. **Plug #1 (Bottom Hole Plug)** Pump 4bbl (24sks) of 16.4ppg/1.05 yield Class H neat slurry on top of CIBP from 8,900' – 8,700.' Displace w/ 32.5bbl FW for a 1.5bbl under displacement. POOH. WOC.
9. RU wireline; tag cement; cut 5-1/2" casing @ ~5,353'.
10. ND double ram BOP. RD work floor. Spear 5-1/2" casing and PU to remove head slips. ND well head. NU 7-1/16" 5k annular and double ram BOPs. RU work floor.
11. POOH 5-1/2" casing.
12. TIH with 2-3/8" work string to 8,700.'
13. **Plug #2 (5-1/2" Casing Stub Plug)** Pump 64.2 bbl of gel from 8,700' to 5,453'. PU with work string to 5,453'. Pump 11.6bbl (56sks) of 15.6ppg/1.18 yield Class H slurry from 5,453' – 5,253' across the stub and into 8-3/4" open hole (includes 20% excess). Displace with 19bbl fresh water for a 1.5bbl under displacement. PU to 4,700' and reverse circulate with 36bbl fresh water (two times tubing capacity). WOC.
14. RU wireline. Tag cement. Run CBL on 9-5/8" intermediate casing to verify cement to surface.
15. **Plug #3 (9-5/8" Casing Seat Plug)** TIH with tubing to 5,253'. Pump 352bbl of gel. PU with work string to 2,547'. Pump 15.2bbl (73sks) of 15.6ppg/1.18 yield Class A neat slurry from 2,547' – 2,347'. Displace with 7.5bbl FW for a 1.5bbl under displacement. POOH (do not reverse circulate). WOC.
16. Tag plug. PU with work string to 140'.
17. **Plug #4 (13-3/8" Casing Shoe Plug)** Pump 10.8bbl (52sks) of 15.6ppg/1.18 yield Class A neat slurry from 140' - 0'.

Set monument per WVDEP specifications

Gayne
Kritowski

Digitally signed by Gayne
Kritowski
Date: 2022.07.14 10:48:53
-0400

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Plug and Abandonment Procedure

ATTACHMENTS

- Current Well Bore Diagram Schematic
- Proposed Plugged Well Bore Diagram Schematic

MD (ftKB)	Vertical schematic (actual)	Vertical schematic (proposed)	Column list (proposed)				
			Des	Depth MD	Length	OD	
0.0	<p>Casing Joints; 0.0-40.0; 40.00; 13 3/8; 12.72; 1-1</p> <p>Casing Joints; 0.0-2,446.7; 2,446.70; 9 5/8; 8.92; 2-1</p> <p>Casing Joints; 0.0-9,343.5; 9,343.52; 5 1/2; 4.89; 3-1</p> <p>Historical; 8,934.0-9,078.0; 12/20/1985</p>						
40.0			Cement Plug	0.0-140.0	140.00	8 3/4	
140.1							
2,347.1							
2,446.0			Cement Plug	2,347.0-2,547.0	200.00	8 3/4	
2,548.0							
3,253.0			Gelled Water	2,547.0-5,253.0	2,706.00	8 3/4	
3,253.0			Cement Plug	5,253.0-5,453.0	200.00	8 3/4	
3,453.1							
3,700.1			Gelled Water	5,453.0-8,700.0	3,247.00	8 3/4	
3,700.1			Cement Plug	8,700.0-8,900.0	200.00	4.89	
3,900.0			Cast Iron Bridge Plug	8,900.0-8,901.0	1.00	4.89	
3,901.0							
3,934.1							
3,978.1							
3,983.0							
3,984.2							
3,989.1							

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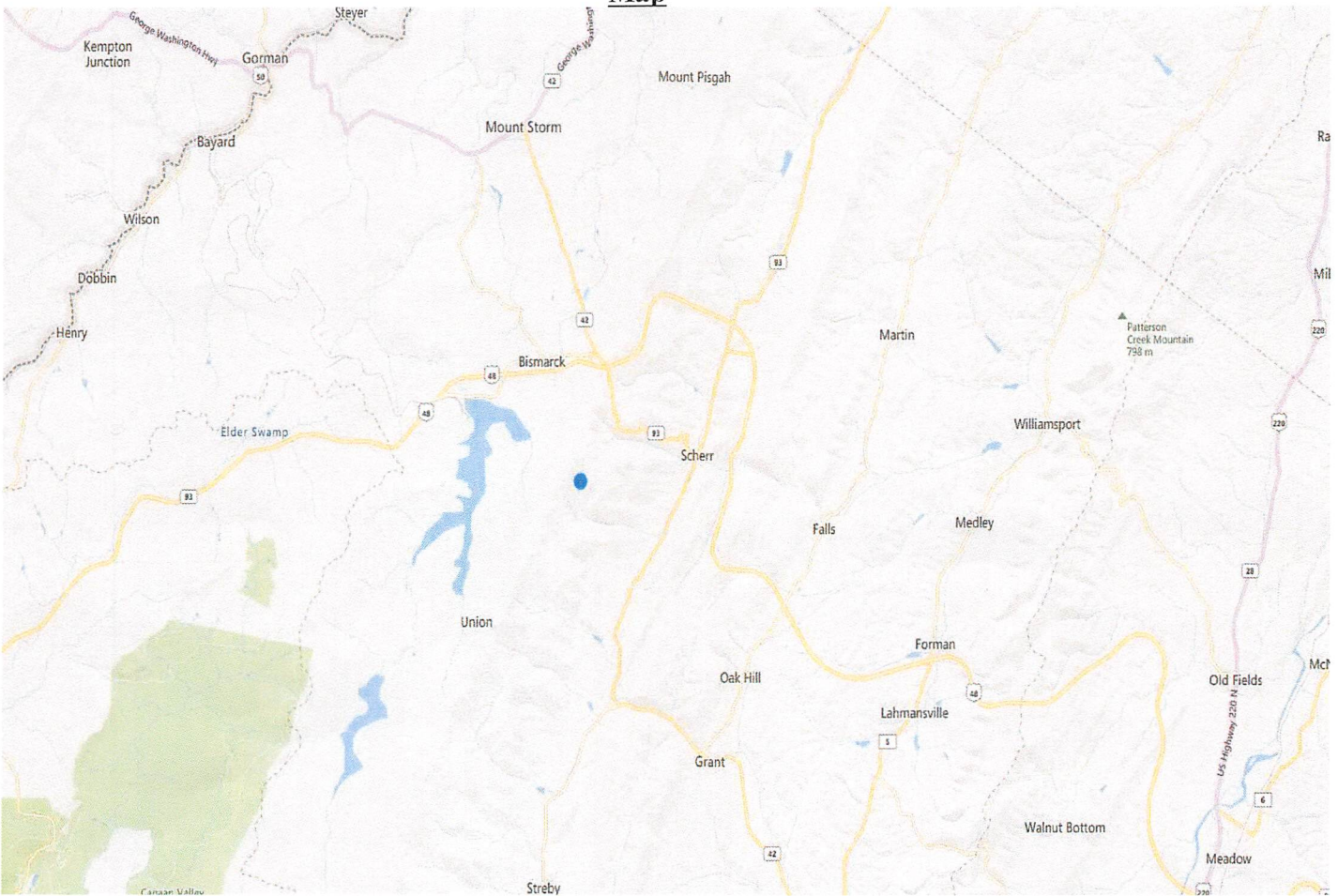
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Plug and Abandonment Procedure

PERSONNEL / PHONE LIST

Title	Name	Office	Mobile
Production Superintendent	Chris Sprute	-	(318)-771-2769
Production Manager	John Van Gels	(405)-766-8012	(636)-448-1104
Production Supervisor	Keeley Bergman	(405)-766-8438	(918)-991-5520
Production Engineer	Brent Antolik	(405)-400-7461	(570)-592-1589

Map

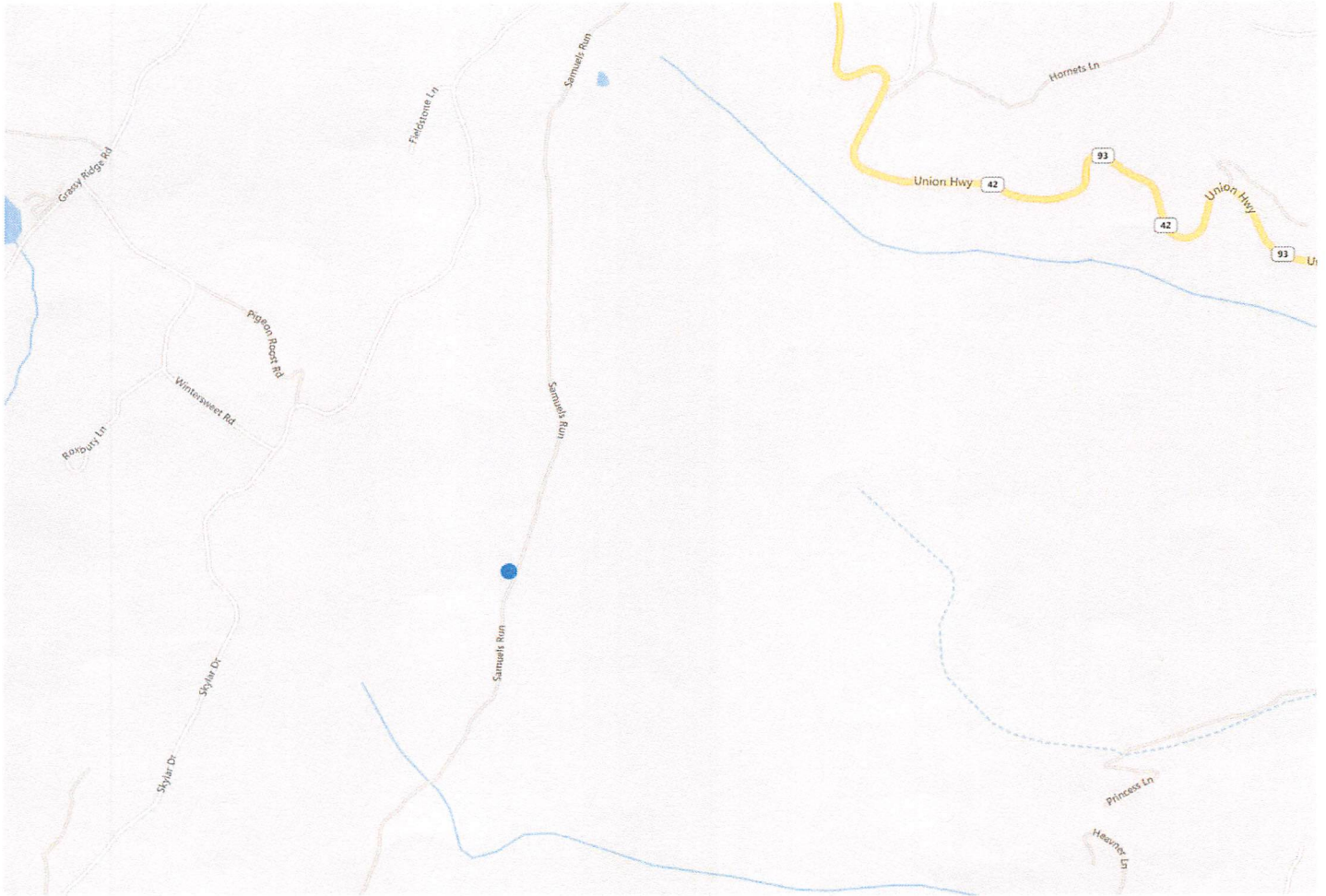


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Plug and Abandonment Procedure



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IV-35
(Rev 8-81)

Date December 4, 1986
Operator's
Well No. 1 - 2178
Farm Union Land Management #1
API No. 47 - 023 - 0011
(CONFIDENTIAL WELL)

State of West Virginia
Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil / Gas x / Liquid Injection / Waste Disposal /
(If "Gas," Production / Underground Storage / Deep x / Shallow /)

LOCATION: Elevation: 2885' Watershed Headwaters Elklick Run
District: Union 3 County Grant Quadrangle Greenland Gap
383

COMPANY Union Drilling, Inc. 050550
ADDRESS P.O. Drawer 40, Buckhannon, WV 26201
DESIGNATED AGENT Joseph C. Pettev
ADDRESS P.O. Drawer 40, Buckhannon, WV 26201
SURFACE OWNER Union Land Management Company
ADDRESS Box 466, Herndon, VA 22070
MINERAL RIGHTS OWNER same
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK
Donald Ellis ADDRESS 2604 Crab Apple Lane, Fairmont, WV 26554
PERMIT ISSUED 7/19/85
DRILLING COMMENCED 8/20/85
DRILLING COMPLETED 10/21/85
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cased.			
13-10"	40.00	40.00	
9 5/8	2446.70	2446.70	1121 cf
8 5/8			
7			
5 1/2		9343.52'	1074 cf
4 1/2			
3			
2.375		8942.79'	
Liners used			

GEOLOGICAL TARGET FORMATION Oriskany Depth 9100' feet
Depth of completed well 9349' feet Rotary XXX / Cable Tools
Water strata depth: Fresh 17.97' feet; Salt feet
Coal seam depths: none Is coal being mined in the area?

OPEN FLOW DATA
Producing formation Oriskany Pay zone depth 9078' feet
Gas: Initial open flow 5050 Mcf/d Oil: Initial open flow Bbl/d
Final open flow N/A Mcf/d Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure N/A psig (surface measurement) after hours shut in
(If applicable due to multiple completion--)
Second producing formation Pay zone depth feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/d
Final open flow Mcf/d Oil: Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig (surface measurement) after hours shut in

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Halliburton - 1 stage Foam Frac - 12/20/85

8934/42, 8955/59, 9032/38, 9047/51, 9061/9068, 9077/78

Oriskany - 95,000# sand, 1717 bbls water and 167,000 scf nitrogen

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Sand & Shale			0	187	1/2" stream fresh water @17'
Big Lime			187	705	3/4" stream fresh water @97'
Injun			712	742	
Pocona			743	1588	
Hampshire			1589	2831	
Fore Knobs (Chemung)			2832	2940	
Pound Sandstone			2941	3144	
Brier Gap Sandstone			3454	3667	
Scherr			4650	6793	
Brallier			6794	7908	
Harrell Shale			7909	8076	
Tully Horizon			8077	8093	
Mahantango			8094	8513	
Upper Marcellus			8514	8640	
Lower Marcellus			8709	8766	
Needmore Shale			8782	8911	
Oriskany			8912	9141	
Helderberg			9151	9349' T.D	

(Attach separate sheets as necessary)

Union Drilling, Inc.

Well Operator

By: Joseph C. Petty
Date: Joseph C. Petty, Vice President of Production

12/4/86

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including ... encountered in the drilling of a well."

4702300011P



Select County: (023) Grant Select datatypes: (Check All) Location Production Plugging Owner/Completion Stratigraphy Sample Pay/Show/Water Logs Btm Hole Loc

- Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
Pipeline-Plus New

WV Geological & Economic Survey:

Well: County = 23 Permit = 00011

Report Time: Monday, August 08, 2022 9:18:50 AM

Location Information: View Map

Table with columns: API, COUNTY, PERMIT, TAX_DISTRICT, QUAD_75, QUAD_15, LAT_DD, LON_DD, UTME, UTMN

There is no Bottom Hole Location data for this well

Owner Information:

Table with columns: API, CMP_DT, SUFFIX, STATUS, SURFACE_OWNER, WELL_NUM, CO_NUM, LEASE, LEASE_NUM, MINERAL_OWN, OPERATOR_AT_COMPLETION, PROP_VD, PROP_TRGT

Completion Information:

Table with columns: API, CMP_DT, SPUD_DT, ELEV, DATUM, FIELD, DEEPEST_FM, DEEPEST_FMT, INITIAL_CLASS, FINAL_CLASS, TYPE, RIG, CMP_MTHD, TVD, TMD, NEW_FTC

Pay/Show/Water Information:

Table with columns: API, CMP_DT, ACTIVITY, PRODUCT, SECTION, DEPTH_TOP, FM_TOP, DEPTH_BOT, FM_BOT, G_BEF, G_AFT, O_BEF, O_AFT, WATER_QNTY

Production Gas Information: (Volumes in Mcf) * 2021 data for H6A wells only. Other wells are incomplete at this time.

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_GAS, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil * 2021 data for H6A wells only. Other wells are incomplete at this time.

Table with columns: API, PRODUCING_OPERATOR, PRD_YEAR, ANN_OIL, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DCM

08/12/2022

4702300011P

4702300011	Chesapeake Appalachia, LLC	2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil * 2021 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4702300011	Chesapeake Appalachia, LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons) * 2021 data for H6A wells only. Other wells are incomplete at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4702300011	Chesapeake Appalachia, LLC	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4702300011	Chesapeake Appalachia, LLC	2020	0	0	0	0	0	0	0	0	0	0	0	0	0

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4702300011	Original Loc	Big Lime	Well Record	187	Reasonable	518	Reasonable	2885	Ground Level
4702300011	Original Loc	Big Injun (undiff)	Well Record	712	Reasonable	30	Reasonable	2885	Ground Level
4702300011	Original Loc	Price Fm & equivs	Well Record	743	Reasonable	845	Reasonable	2885	Ground Level
4702300011	Original Loc	Hampshire Grp	Well Record	1589	Reasonable	1242	Reasonable	2885	Ground Level
4702300011	Original Loc	Foreknobs Fm	Well Record	2832	Reasonable	1818	Reasonable	2885	Ground Level
4702300011	Original Loc	Scherr Fm	Well Record	4650	Reasonable	2143	Reasonable	2885	Ground Level
4702300011	Original Loc	Harrell Sh	Well Record	7909	Reasonable	170	Reasonable	2885	Ground Level
4702300011	Original Loc	Tully Ls	Well Record	8077	Reasonable	16	Reasonable	2885	Ground Level
4702300011	Original Loc	Up Mahantango	Well Record	8094	Reasonable	419	Reasonable	2885	Ground Level
4702300011	Original Loc	Up Marcellus	Well Record	8514	Reasonable	126	Reasonable	2885	Ground Level
4702300011	Original Loc	Purcell Ls Mbr	WVGES Staff Geologist	8640	Reasonable	69	Reasonable	2885	Ground Level
4702300011	Original Loc	lo Marcellus	Well Record	8709	Reasonable	57	Reasonable	2885	Ground Level
4702300011	Original Loc	Needmore Sh	Well Record	8782	Reasonable	129	Reasonable	2885	Ground Level
4702300011	Original Loc	Oriskany	Well Record	8912	Reasonable	229	Reasonable	2885	Ground Level
4702300011	Original Loc	Helderberg	Well Record	9151	Reasonable	0	Reasonable	2885	Ground Level

Wireline (E-Log) Information:

API	LOG_TOP	LOG_BOT	LOG_BOT	DEEPEST_FML	LOGS_AVAIL	SCAN	DIGITIZED	GR_TOP	GR_BOT	D_TOP	D_BOT	N_TOP	N_BOT	I_TOP	I_BOT	T_TOP	T_BOT	S_TOP	S_BOT	O_TOP
4702300011	100	9300			G,D,N,I,S*	Y	N	100	9288	2450	9288	200	9300	2500	9300					100

Comment: *logs: caliper, tension, PE, TT, azimuth, relative bearing, waveforms; different scale on #146A

Downloadable Log Images: We advise you to save the log image file to your PC for viewing. To do so, right-click the .tif image of interest and select the save option. Then you can direct the file to a location of your choice. Please note these images vary in size and some may take several minutes to download, especially if using a 56k or slower dialup connection.

Quick Reference Guide for Log File Names For more info about WVGES scanned logs click [here](#)

FILENAME
4702300011gdnc.tif
4702300011gl.tif
4702300011go.tif
4702300011gs.tif
4702300011o1.tif
4702300011o2.tif

- geologic log types:
- d density (includes bulk density, compensated density, density, density porosity, grain density, matrix density, etc.)
 - e photoelectric adsorption (PE or Pe, etc.)
 - g gamma ray
 - i induction (includes dual induction, medium induction, deep induction, etc.)
 - l laterolog
 - m dipmeter
 - n neutron (includes neutron porosity, sidewall neutron-SWN, etc.)
 - o other¹
 - s sonic or velocity
 - t temperature (includes borehole temperature, BHT, differential temperature, etc.)
 - z spontaneous potential or potential
- mechanical log types:
- b cement bond
 - c caliper
 - o other¹
 - p perforation depth control or perforate

¹other logs may include, but are not limited to, such curves as audio, bit size, CCL—casing collar locator, continuous meter, directional survey, gas detector, guard, NCTL—Nuclear Cement Top Locator, radioactive tracer, tension

There is no Plugging data for this well

Sample Information:

API	CUT1_TOP	CUT1_BOT	CUT2_TOP	CUT2_BOT	CORE1_TOP	CORE1_BOT	FM1_TOP	FM1_BOT	CORE2_TOP	CORE2_BOT	FM2_TOP	FM2_BOT	SMPL	THN_SEC1	SCAN1	SLAI
4702300011	6000		9349													

47 0 2 3 0 0 0 1 1 e

WW-4A
Revised 6-07

1) Date: 7/13/2022
2) Operator's Well Number 1-2178 Union Land Management #1
3) API Well No.: 47 - 023 - 00011

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>UNION LAND & MANAGEMENT COMPANY</u>	Name _____
Address <u>481 CARLISLE DR, SUITE 2</u>	Address _____
<u>HERNDON, VA 20170</u>	
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>UNION LAND & MANAGEMENT COMPANY</u>
	Address <u>481 CARLISLE DR, SUITE 2</u>
	<u>HERNDON, VA 20170</u>
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>GAYNE J KNITOWSKI</u>	(c) Coal Lessee with Declaration
Address <u>601 57TH STREET SE</u>	Name _____
<u>CHARLESTON WV 25304</u>	Address _____
Telephone <u>304-546-8171</u>	

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

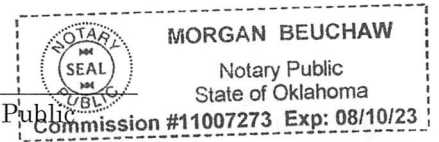
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JUL 18 2022

WV Department of
Environmental Protection

Well Operator CHESAPEAKE APPALACHIA LLC
 By: *[Signature]*
 Its: REGULATORY SPECIALIST
 Address PO BOX 18496
OKLAHOMA CITY, OK 73154-0496
 Telephone 405-935-1154

Subscribed and sworn before me this 14th day of July, 2022
[Signature]
 My Commission Expires 8/10/2023



Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyoffier@wv.gov.

08/12/2022

4702300011P

From: UPS
To: Keri Fieno
Subject: [EXTERNAL] UPS Delivery Notification, Tracking Number 1Z4352W51351598388
Date: Thursday, July 14, 2022 11:50:47 AM



Hello, your package has been delivered.

Delivery Date: Thursday, 07/14/2022

Delivery Time: 12:47 PM

Signed by: OCONNOR

CHESAPEAKE ENERGY CORPORATION

Tracking Number: 1Z4352W51351598388

Ship To: UNION LAND & MANAGEMENT COMPANY
481 CARLISLE DR
SUITE 2
HERNDON, VA 20170
US

Number of Packages: 1

UPS Service: UPS Next Day Air Saver®

Package Weight: 0.3 LBS

Reference Number: 141059 UNION LAND MANAGEMENT #1

Reference Number: BG

Reference Number: 2022-07-13 08:44:32.333

Reference Number: 062615

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Discover more about UPS:

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08/12/2022

SURFACE OWNER WAIVER

47 0 2 3 0 0 0 1 TP

Operator's Well
Number

1-2178 UNION LAND MANAGEMENT #1

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

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Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application For A Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON
ETC.

FOR EXECUTION BY A CORPORATION,

_____	Date	_____	Name	_____
Signature			By	_____
			Its	_____
				Date

Signature

Date
08/12/2022

47 0 23 000 1 1 P

WW-9
(5/16)

API Number 47 - 023 - 00011
Operator's Well No. I-2178 UNION LAND MANAGEMENT #1

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name CHESAPEAKE APPALACHIA LLC OP Code 22680

Watershed (HUC 10) HEADWATERS ELKCLICK RUN Quadrangle GREENLAND GAP

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

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Environmental P

Will closed loop system be used? If so, describe: DRILL CUTTINGS WILL BE CIRCULATED BACK INTO AN OPEN TANK

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. FRESH WATER

-If oil based, what type? Synthetic, petroleum, etc. N/A

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Additives to be used in drilling medium? NONE

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Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. LANDFILL

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) SAWDUST AND CEMENT

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-Landfill or offsite name/permit number? KIMBLE SANITARY LANDFILL OR MUD MASTERS

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.


I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Keri Fieno
Company Official (Typed Name) KERI FIENO
Company Official Title REGULATORY SPECIALIST

Subscribed and sworn before me this 14th day of July, 2022

Morgan Beuchaw
My commission expires 8/10/2023

Notary Public

MORGAN BEUCHAW
Notary Public
State of Oklahoma
Commission #11007273 Exp: 08/10/23
08/12/2022

47 0230001TP

Proposed Revegetation Treatment: Acres Disturbed 10 Prevegetation pH _____

Lime 3.90 Tons/acre or to correct to pH 7

Fertilizer type 8-16-16

Fertilizer amount 968 lbs/acre

Mulch 3 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
<u>OATS/ANNUAL RYE</u>	<u>40LBS/ACRE</u>
<u>HAY/STRAW MULCH</u>	<u>3 TONS/ACRE</u>

Seed Type	lbs/acre
<u>BIRDSFOOT TREFOIL</u>	<u>8LBS/ACRE</u>
<u>TALL FESCUE</u>	<u>40LBS/ACRE</u>

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____

Comments: _____

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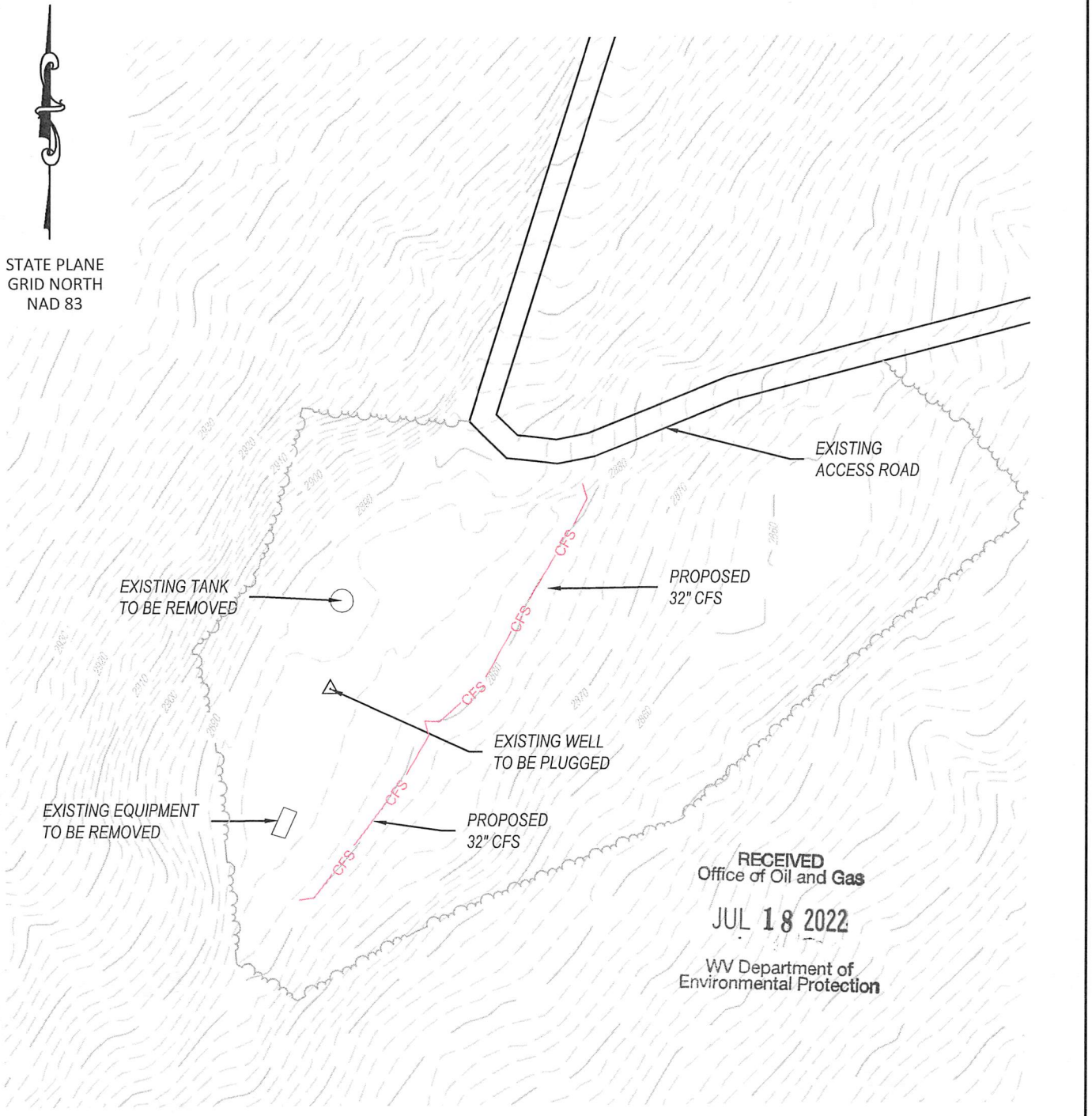
WV Department of
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Title: Gayne Knitowski

Digitally signed by Gayne Knitowski
Date: 2022.07.14 10:49:45 -0400

Date: _____

Field Reviewed? () Yes () No



STATE PLANE
GRID NORTH
NAD 83

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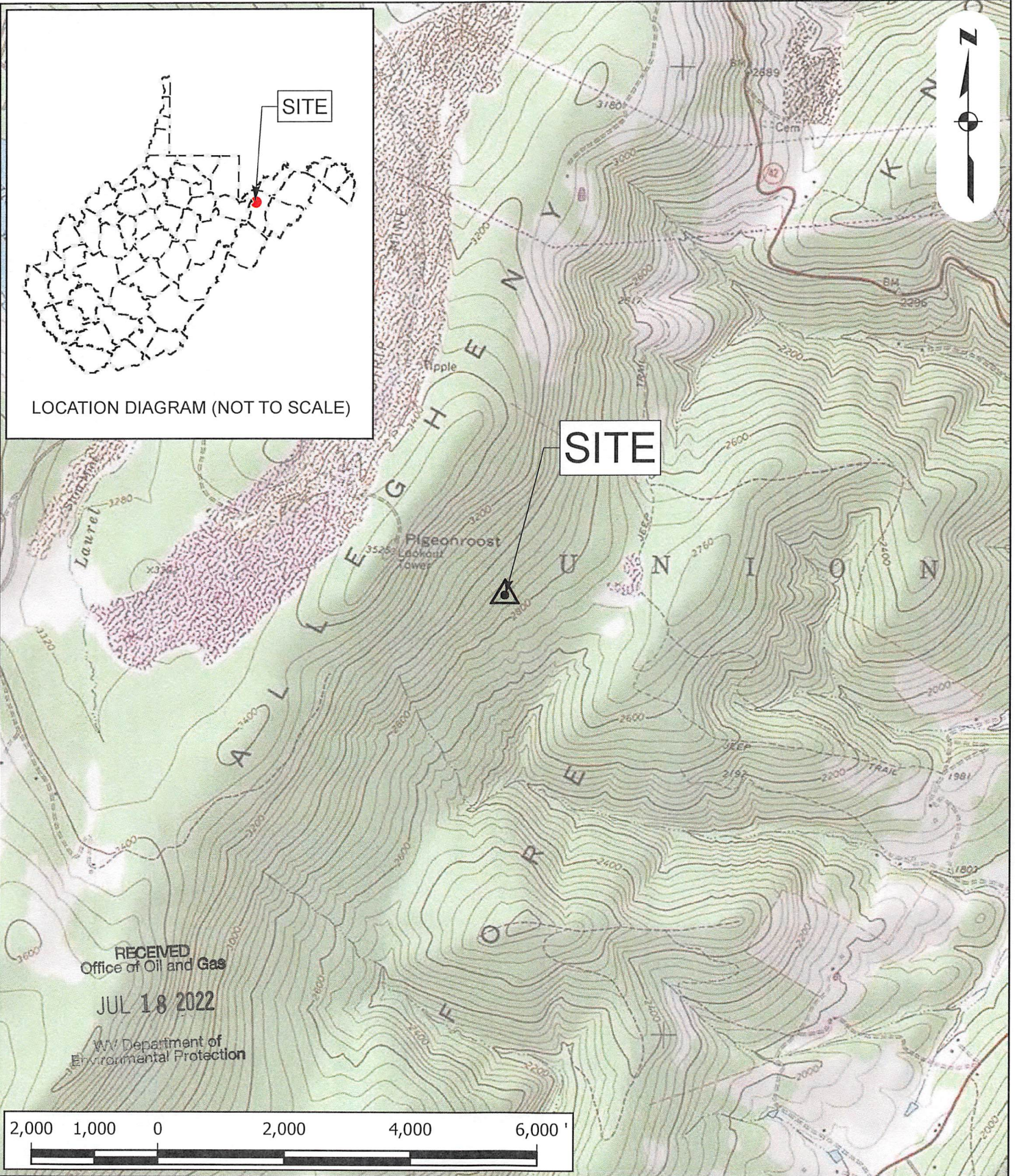
NOTE: ALL PRODUCTION FACILITIES
WILL BE REMOVED UPON COMPLETION
OF THE PLUGGING OPERATIONS.



SCALE IN FEET

<p>UNION LAND MGMT CO 1-2178 SITE RECLAMATION API# 47-023-00011 FOR CHESAPEAKE ENERGY LOCATED IN GRANT COUNTY, WEST VIRGINIA</p>	<p>LEGEND</p> <ul style="list-style-type: none"> EXISTING CONTOUR -1500- EXISTING TREE LINE EXISTING ACCESS ROAD EDGE WELLHEAD COMPOSITE FILTER SOCK 	<p>JHA Companies</p> <p>ENGINEERS SURVEYORS ENVIRONMENTAL GIS MAPPING</p> <p>www.jhacompanies.com</p> <p>844-542-4757</p> <p>466 SOUTH MAIN STREET MONTROSE, PA 18801 PA • OH • NY • WV • VA • MD</p>
<p>SITE PLAN</p>		
<p>FILE NUMBER: FINAL</p>	<p>DATE: 02/08/2022</p>	<p>PAGE: 1</p>

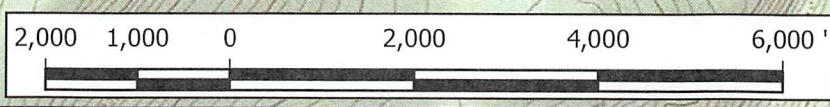
08/12/2022



LOCATION DIAGRAM (NOT TO SCALE)

SITE

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USGS LOCATION MAP
PREPARED FOR
UNION LAND MGMT CO 1-2178 SITE
GRANT COUNTY, WEST VIRGINIA
GREENLAND GAP USGS QUAD

PROJECT -	UNION LAND MGMT CO 1-2178
DATE -	2/8/2022
SCALE -	1" = 2,000'
DRAWN -	JKANE
FILE -	UNION LAND MGMT CO 1-2178_USGS_LOCATION_MAP.mxd



(844) 542-4757
08/12/2022

4702300011P

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 47-023-00011 WELL NO.: 1-2178
FARM NAME: UNION LAND MANAGEMENT #1
RESPONSIBLE PARTY NAME: CHESAPEAKE APPALACHIA LLC
COUNTY: GRANT DISTRICT: UNION
QUADRANGLE: GREENLAND GAP
SURFACE OWNER: UNION LAND & MANAGEMENT COMPANY
ROYALTY OWNER: UNION LAND & MANAGEMENT COMPANY
UTM GPS NORTHING: 4338885
UTM GPS EASTING: 653948 GPS ELEVATION: 2890'

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

- Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
- Accuracy to Datum – 3.05 meters
- Data Collection Method:
Survey grade GPS ; Post Processed Differential
Real-Time Differential
Mapping Grade GPS ; Post Processed Differential
Real-Time Differential

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4. Letter size copy of the topography map showing the well location.
I the undersigned, hereby certify this data 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 Office of Oil and Gas.

[Signature]
Signature

REGULATORY SPECIALIST
Title

8/4/2022
Date

08/12/2022