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west virginia department of environmental protection

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

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

Friday, July 8, 2022  
WELL WORK PLUGGING PERMIT  
Horizontal Plugging

WEST VIRGINIA LAND RESOURCES, INC.  
46226 NATIONAL ROAD WEST

ST. CLAIRSVILLE, OH 43950

Re: Permit approval for 832638 ESTHER CLARK 1H  
47-061-01616-00-00

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: 832638 ESTHER CLARK 1H  
Farm Name: CLARK, ESTHER C. - LIFE T<sub>+</sub>  
U.S. WELL NUMBER: 47-061-01616-00-00  
Horizontal Plugging  
Date Issued: 7/8/2022

# 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.

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## CONDITIONS

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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.

1) Date JUNE 10, 20 22  
2) Operator's  
Well No. ESTHER CLARK 1H  
3) API Well No. 47-061-01616

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 1424.00' Watershed NORTH FORK OF WEST VIRGINIA FORK OF DUNKARD CREEK  
District BATTELLE County MONONGALIA Quadrangle HUNDRED W.VA,PA

6) Well Operator WEST VIRGINIA LAND RESOURCES INC. 7) Designated Agent DAVID RODDY  
Address 1 BRIDGE STREET Address 1 BRIDGE STREET  
MONONGAH, WV 26554 MONONGAH, WV 26554

8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name KENNETH L. GREYNOLDS Name \_\_\_\_\_  
Address 613 BROAD RUN RD. Address \_\_\_\_\_  
JANE LEW, WV 26378

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

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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 \_\_\_\_\_ Date \_\_\_\_\_

07/08/2022

4706101616P

Office of Oil and Gas

JUN 21 2022

WV Department of  
Environmental Protection

- Exhibit 1. Alternate Methods
1. Record the shut-in pressure and monitor the casing pressure.
  2. Move in equipment. Rig up the wireline rig and the pumping unit to the well head. Load fresh water (8.3 lbs./gallon) and weighted brine water (10.0 lbs./gallon) into their respective tanks.
  3. Pump sufficient amount of weighted brine water into the wellbore first. Switch to fresh water and finish loading the wellbore. Fresh and brine water will be pumped until the well is officially "killed". ("Killed" means the well is dead and has no gas delivered to the surface.)
  4. Rig up the wireline well head control. Run into the hole with a 2" 10,000 psi rated Cast Iron Bridge Plug (CIBP) and set the CIBP within the 2-3/8" production tubing at the location where the existing arrow set packer is installed (located just above the "kick off point" in the well). Pull out of the hole and rig down the wireline rig.
  5. Pressure test the installed 2" - 10,000 psi CIBP up to 80% of its working pressure for a minimum of one hour (surface + hydrostatic). Record pressure test results.
  6. Rig up the drill rig and install a 10,000 psi Wellhead Blowout Preventer.
  7. Pressure test the Wellhead Blowout Preventer up to 90% of its working pressure for one hour. Record pressure test results.
  8. Rig up the wireline rig, run into the hole and cut the 2-3/8" production tubing just above the installed 2" 10,000 psi CIBP. Run out of the hole and rig down the wireline rig.
  9. Using the drill rig, pull all of the free 2-3/8" production tubing out of the hole. Load the hole with fresh water as required.
  10. Rig up the wireline rig and perform a test run with a 5" Gauge Ring down to the installed 2" -10,000 psi CIBP.
  11. Run into the hole with a 5-1/2" - 10,000 psi rated Cast Iron Bridge Plug (CIBP) and set the CIBP against the previously cut 2-3/8" production tubing (located just above the existing arrowset packer and 2" CIBP). Pull out of the hole and rig down the wireline rig.
  12. Pressure test the installed 5-1/2" - 10,000 psi CIBP up to 80% of its working pressure for a minimum of one hour (surface + hydrostatic). Record the pressure test results. If it is unable to hold 80% of its working pressure, an additional CIBP will be set in the wellbore directly above it.
  13. Rig up the wireline rig and perform a cement bond log to determine the "top of cement" within the annulus of the 5-1/2" casing. Pull out of the hole and rig down the wireline rig. Preliminarily, based on the existing bond logs, the "top of cement" is expected to be located below the 9-5/8" casing seat (see existing bond logs in Appendix F and G).
  14. Pick up the drill pipe and trip in the hole down to the installed 5-1/2" CIBP. Set a cement plug with a gas blocker additive from the existing 5-1/2" CIBP up to the "top of cement" of the 5-1/2" casing (determined by the new bond log results). Wait on cement to cure for a minimum of eight hours.

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15. Rig up the wireline rig, run into the hole to the top of the existing cement plug and cut the 5-1/2" casing. Run out of the hole and rig down the wireline rig.
16. Using the drill rig, pull all of the free 5-1/2" casing out of the hole. Load the hole with fresh water as required.
17. After removing the 5-1/2" casing, shut-in the well and monitor the gas pressure for a minimum of one hour. Record shut-in test results. If any gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration.
18. Rig up the wireline rig and perform a cement bond log on the 9-5/8" casing. Pull out of the hole and rig down the wireline rig. Preliminarily, the 9-5/8" casing is expected to be fully cemented within the annulus. It was reported that cement was circulated to the surface upon install for the 9-5/8" casing, the 13-3/8" casing, and the 20" casing (see the details in the existing "Well Operator's Report of Well Work" in Appendix D and E). Any voids encountered within the 9-5/8" annulus will be addressed appropriately.
19. Pick up the drill pipe and trip in the hole down to the previous cement plug. Set an additional cement plug with a gas blocker additive from the existing cement plug up to 100' above the 9-5/8" casing seat. Wait on cement to cure for a minimum of eight hours.
20. Shut-in the well and monitor the gas pressure while the cement is curing. Record shut-in test results. If additional gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration.
21. Pick up the drill pipe and trip in the hole down to the previous cement plug. Set an additional cement plug with a gas blocker additive from the existing cement plug up to 400' below the bottom of the Pittsburgh #8 coal seam. Wait on cement to cure for a minimum of eight hours.
22. Shut-in the well and monitor the gas pressure while the cement is curing. Record shut-in test results. If any gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration.
23. The 9 5/8" casing will be cut ripped or perforated every 50' starting from 400' below the Pittsburgh coal seam to 100' above. Then starting from 10' below the coal seam to 10' above the 9 5/8" casing will be cut, ripped, or perforated.
24. Class A cement will circulate through tubing or drill steal from the previous cement plug, 400' below the coal seam to the surface.

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## U. S. Department of Labor

Mine Safety and Health Administration  
201 12<sup>th</sup> Street South, Suite 401  
Arlington, VA 22202-5452



December 10, 2021

In the matter of  
Marion County Coal Resources, Inc.  
Marion County Mine  
I.D. No. 46-01433

MSHA 101 C  
EXEMPTION

Petition for Modification

Docket No. M-2021-026-C

**PROPOSED DECISION AND ORDER**

On July 14, 2021, counsel for Marion County Coal Resources, Inc., filed an Amended Petition for Modification for the Marion County Mine. The Petition requests modification of standard 30 C.F.R. § 75.1700 as it pertains to an alternative method of compliance with respect to unconventional gas wells within the Marcellus shale.

The petition filed on July 14, 2021 incorrectly stated the operator name as "Marion County Coal Company." As per the legal ID for 46-01433, the correct operator's name is "Marion County Coal Resources, Inc." Marion County Coal Company was the previous operator name for the Marion County Mine, which changed to the current name, Marion County Coal Resources, Inc., on September 17, 2020.

The Petitioner alleges that the proposed alternative method will at all times guarantee no less than the same measure of protection afforded miners under 30 C.F.R. § 75.1700 as that provided by the standard, which states:

**§ 75.1700 Oil and gas wells.**

Each operator of a coal mine shall take reasonable measures to locate oil and gas wells penetrating coalbeds or any underground area of a coal mine. When located, such operator shall establish and maintain barriers around such oil and gas wells in accordance with State laws and regulations, except that such barriers shall not be less than 300 feet in diameter, unless the Secretary or his authorized representative permits a lesser barrier consistent with the applicable State laws and regulations where such lesser barrier will be adequate to protect against hazards from such wells to the miners in such mine, or unless the Secretary or his authorized representative requires a greater barrier where the depth of the mine, other geologic conditions, or other factors warrant such a greater barrier.

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## BACKGROUND

Marion County Mine is located in Marion County, West Virginia. The mine is a belt haulage coal mine, mining the Pittsburgh #8 coal seam with average depth of cover of approximately 850 to 1000 feet. The mine has eight air shafts and one slope opening located at Sugar Run Portal in Fairview, West Virginia. The mine operates three working sections, one longwall and an advancing gate section and a mains section utilizing continuous mining machines.

The mine currently operates with 712 employees. The mine runs five days a week with three production shifts. The average daily production at the mine is approximately 25,000 raw tons of coal per day. The mine liberates up to 9,000,000 cubic feet of methane on a daily basis.

On July 5, 2018, MSHA and Marion County entered into a settlement concerning the contest of certain conditions in a Proposed Decision and Order concerning 30 C.F.R. §75.1700 at docket No. 2017-MSA-06 (M-2016-017-C). That agreement specifically excluded certain types of wells as follows:

Unconventional wells in the Marcellus, Utica and all other unconventional shale oil and gas wells are not subject to this modification.

On August 31, 2020, Marion County Coal Resources, filed an Amended Petition for Modification for the Marion County Mine (Docket No. M-2020-021-C). The Petition requested modification of standard 30 C.F.R. § 75.1700 as it pertains to an alternative method of compliance with respect to unconventional oil and gas wells in the Marcellus and Utica shales and all other unconventional shale oil and gas wells. The petition was dismissed on December 18, 2020 as the alternative method in this proposed modification failed to adequately address the depth of unconventional wells and associated high gas pressures and volumes that are characteristic of unconventional wells.

In the current submittal, Marion County has addressed terms and conditions specific to two unconventional wells as follows;

1. The Esther Clark 1H Marcellus Gas well API#: 47-061-01616. See Appendix D for the 1H construction details (casing diameters, depths, tops of cement), pressures, production history, site specific geology, locations of gas producing formations, relevant logging information, well plat of surface location, mine map with gas well location, well record and completion report.
2. The Esther Clark 3H Marcellus Gas well API#: 47-061-01623. See Appendix F

for the 3H construction details (casing diameters, depths, tops of cement), pressures, production history, site specific geology, locations of gas producing formations, relevant logging information, well plat of surface location, mine map with gas well location, well record and completion report.

MSHA investigators conducted an investigation into the merits of the petition and filed a written report of their findings with the Administrator for Mine Safety and Health Enforcement. After a careful review of the entire record, including the petition and MSHA's investigative report, the Administrator issues this Proposed Decision and Order.

### FINDINGS OF FACT AND CONCLUSIONS OF LAW

On September 27, 2021, the Morgantown District completed their investigation of the current petition, which included review of this petition by Technical Support personnel. The miners at the Marion County Mine are represented by a labor union; and a miner's representative participated in the investigation.

Petitioner specifically addresses two Marcellus wells within its mining projections, and proposes to permanently plug and mine through such wells.

Plugging and mining through unconventional wells presents higher risk to the miners than low pressure, low volume conventional wells. Therefore the procedures followed for unconventional wells must be based on the specific characteristics of the particular unconventional well to be plugged, including:

- Well construction, including all casing diameters, their depths, and tops of cement,
- Well pressure and production history,
- Site-specific geology, including the location of all potential gas-producing formations,
- Cement bond logs, well deviation logs, and other relevant logs, and
- Well plat of surface location, mine map with deviated gas well location at coal seam elevation, well record and completion report.

These items are addressed in this petition as they pertain to the Esther Clark 1H and 3H Marcellus Gas wells. There are several differences between the petitioner's proposal



and the amended terms and conditions set forth by MSHA. The essential changes include:

1. Removed the following statement in the alternative methods described in condition 2(a)(1), "On active Wells, cuts start at 200 feet above the bottom of the Pittsburgh coal seam where Appendix B outlines cut interval minimums" as this statement is not applicable to this petition.
2. Added description of the cement to be used as a plugging material.
3. Added that the Dispatcher is to be notified and review procedures prior to any planned intersection with the petitioned Marcellus gas wells.
4. Added notes to Appendix A to define "killed well" and "effectively plugged", and to emphasize no gas pressure is acceptable following installation of the 5-1/2" - 10,000 psi Cast Iron Bridge Plug.

Therefore, the terms and conditions as amended by MSHA will at all times guarantee no less than the same measure of protection afforded the miners under 30 CFR 75.1700 for plugging and mining through the Esther Clark 1H and 3H Marcellus Gas wells. On the basis of the petition, comments received, and the findings of MSHA's investigation, Marion County Coal Resources, Inc. is granted a modification of the application of 30 C.F.R. § 75.1700 to its Marion County Mine.

#### ORDER

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Mine Safety and Health Enforcement, and pursuant to § 101(c) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. § 811(c), it is ordered that Marion County Coal Resources' Petition for Modification of the application of 30 C.F.R. § 75.1700 in the Marion County Mine is hereby:

GRANTED, subject to the following terms and conditions;

1. **DISTRICT MANAGER APPROVAL REQUIRED**
  - a. This Petition specifically applies to the Esther Clark 1H and Esther Clark 3H Marcellus gas wells.

- b. A safety barrier of 300 feet in diameter shall be maintained around these two gas wells until approval to proceed with mining has been obtained from the District Manager.
- c. Prior to mining within the safety barrier around these wells, the mine operator shall provide to the District Manager a sworn affidavit or declaration executed by a company official, the person at the mine who is in charge of health and safety at the mine, stating that all mandatory procedures for cleaning out, preparing, and plugging each gas well has been completed as described by the terms and conditions of this petition.

The affidavit or declaration must be accompanied by all logs, electronic or otherwise, described in subparagraphs 2(a)(3) below and any other records described in those subparagraphs which the District Manager may request. The District Manager will review the affidavit or declaration, the logs and any other records that have been requested, and may inspect the well itself, and will then determine if the operator has complied with the procedures for cleaning out, preparing, and plugging each well as described by the terms and conditions of this Petition. If the District Manager determines that the procedures have been complied with, he will provide his approval, and the mine operator may then mine within the safety barrier of the well, subject to the terms of this Petition.

- d. The terms and conditions of this petition apply to all types of underground coal mining.

2. **MANDATORY PROCEDURES FOR CLEANING OUT, PREPARING, PLUGGING THE ESTHER CLARK 1H AND 3H GAS WELLS**

- a. **MANDATORY PROCEDURES FOR CLEANING OUT AND PREPARING THE ESTHER CLARK 1H AND 3H WELLS PRIOR TO PLUGGING**

The mine operator shall test for gas emissions inside the hole before cleaning out, preparing, and plugging gas wells. The District Manager shall be contacted if gas is being produced.

- (1) Since these wells are unconventional and greater than 4,000' in depth, a diligent effort shall be made to remove all the casing in the well and clean the well down to the original arrowset packer installed just above the "kick off point" in the well. The operator shall completely clean out the well from the surface to at least the same arrowset packer originally installed (see Appendix D and F). The operator shall provide the District Manager with all information it possesses concerning the geological nature of the strata and the pressure of the well. The operator shall make a diligent effort to remove all material from the entire diameter of the well, wall to wall. Additional details and procedures specific to cleaning out and preparing the Esther Clark 1H and 3H gas wells can be found in Appendix A.

Since these wells are no longer producing and are being cleaned and prepared subject to this petition, the operator must: 1) attempt to remove all of the casing using a diligent effort, and comply with all other applicable provisions in this petition, or 2) if the casing cannot be removed from the total depth, must be filled with cement from the lowest possible depth to 400 feet below the Pittsburgh #8 coal seam, and the other applicable provisions in this petition still apply, or 3) if the casing cannot be removed it shall be perforated from 400 feet below the Pittsburgh #8 coal seam, and the annuli shall be cemented or otherwise filled, and the other applicable provisions in this Petition still apply.

If the casing cannot be removed, it must be cut, milled, perforated or ripped at sufficient intervals to facilitate the removal of any remaining casing in the coal seam by the mining equipment. Any casing which remains shall be cut, perforated or ripped to permit the injection of cement into voids within and around the well. All casing remaining at the Pittsburgh #8 coal seam shall be cut, perforated or ripped at least every 5 feet from 10 feet below the coal seam to 10 feet above the coal seam.

In order to make a diligent effort to remove the casing, the operator shall pull a minimum of 150% of casing string weight and/or have made at least three attempts to spear or overshot to grip the casing for the required minimum pull effort. The operator shall keep a record of these efforts, including casing length and weight, and make available for MSHA review. The District Manager may reserve the right to require additional measures in efforts to remove casing, as appropriate.

Perforations or rips are required at least every 50 feet from 400 feet below the base of the Pittsburgh #8 coal seam up to 100 feet above the uppermost mineable coal seam. For perforations in the Pittsburgh #8 seam, see Appendix B. The mine operator must take appropriate steps to ensure that the annulus between the casing and the well walls are filled with expanding (minimum 0.5% expansion upon setting) cement and contain no voids.

If it is not possible to remove all of the casing, the operator shall notify the District Manager before any other work is performed. If the well cannot be cleaned out or the casing removed, the operator shall prepare the well as described from the surface to at least 400 feet below the base of the Pittsburgh #8 coal seam, unless the District Manager requires cleaning out and removal of casing to a greater depth based on his judgement as to what is required due to geological strata, or due to the pressure within the well.

If the operator, using a casing bond log, can demonstrate to the satisfaction of the District Manager that all annuli in the well are already adequately sealed with cement, then the operator will not be required to perforate or rip the casing for that particular well. When multiple casing and tubing strings are present in the coal horizon(s), any casing which remains shall be ripped or perforated and filled with expanding cement as indicated above. An acceptable casing bond log for each casing and tubing string is needed if used in lieu of ripping or perforating multiple strings. Original bond logs for the Esther Clark 1H and 3H can be found in Appendix E and G which the mine operator will make available upon request.

- (2) *Cement.* Class A cement with gas blocker is the minimum cement specification to be used as a plugging material.
- (3) The operator shall prepare down-hole logs for each well. Logs shall consist of a caliper survey, a bond log if appropriate, a deviation survey, and a gamma survey for determining the top, bottom, and thickness of all coal seams down to the coal seam to be mined, or the lowest mineable coal seam, whichever is lower, potential hydrocarbon producing strata and the location of any existing bridge plug. In addition, a journal shall be maintained describing the depth of each material encountered; the nature of each material encountered; bit size and type used to drill each portion of the hole;

length and type of each material used to plug the well; length of casing(s) removed, perforated or ripped or left in place; any sections where casing was cut or milled; and other pertinent information concerning cleaning and sealing the well. Invoices, work-orders, and other records relating to all work on the well shall be maintained as part of this journal and provided to MSHA upon request.

- (4) A diligent effort must be made to remove the casing down to the arrowset packer installed just above the "kickoff point" (where the well transitions from vertical to horizontal - see Exhibits D and F). If all of the vertical casing above the existing packer can be removed, the operator shall prepare the well for plugging, and use seals described below, 400 feet below the Pittsburgh #8 coal seam. MSHA may retain the right to review and direct the operator's sealing protocol, in the event geologic or well conditions require further measures. Additional details and procedures specific to cleaning out, preparing, and subsequently plugging the Esther Clark 1H and 3H gas wells can be found in Appendix A.
- (5) If the District Manager concludes that the completely cleaned-out well is emitting excessive amounts of gas, the operator must place additional mechanical bridge plugs in the well.

The mechanical bridge plug must be placed in a competent stratum at least 400 feet below the base of the lowest mineable coal seam, but above the top of the uppermost hydrocarbon-producing stratum, unless the District Manager requires a greater distance based on his judgment that it is required due to the geological strata, or due to the pressure within the well. The operator shall provide the District Manager with all information it possesses concerning the geological nature of the strata and the pressure of the well. If it is not possible to set a mechanical bridge plug, an appropriately sized packer may be used. The mine operator shall document what has been done to "kill the well" and plug the hydrocarbon producing strata.

- (6) If the upper-most hydrocarbon-producing stratum is within 300 feet of the base of the Pittsburgh #8 coal seam the operator shall properly place mechanical bridge plugs as described in subparagraph (a)(5) to isolate the hydrocarbon-producing stratum from the expanding cement plug.

Nevertheless, the operator shall place a minimum of 400 feet of expanding cement below the Pittsburgh #8 coal seam, unless the District Manager requires a greater distance based on his judgment that it is required due to the geological strata, or due to the pressure within the well.

b. MANDATORY PROCEDURES FOR PLUGGING THE ESTHER CLARK 1H AND 3H GAS WELLS TO THE SURFACE

After completely cleaning out the well as specified in paragraph 2(a) above, the following procedures shall be used to plug the Esther Clark 1H and 3H wells:

- (1) The operator shall pump cement slurry down the well to form a plug which runs from at the original arrowset packer installed just above the "kick off point" in the well to 400' below the Pittsburgh #8 coal seam (see details in Appendix A and C). The cement will be placed in the well under a pressure of at least 200 pounds per square inch. The operator shall pump expanding cement slurry down the well to form a plug which runs from 400' below the Pittsburgh #8 coal seam to the surface (see details in Appendix A and C). The District Manager can modify the cementing plan based on his judgment due to the geological strata or the pressure within the well. Additional details and procedures specific to cleaning out, preparing, and subsequently plugging the Esther Clark 1H and 3H gas wells can be found in Appendix A.
- (2) The operator shall embed steel turnings or other small magnetic particles in the top of the cement near the surface to serve as a permanent magnetic monument of the well. In the alternative, a 4-inch or larger diameter casing, set in cement, shall extend at least 36 inches above the ground level with the API well number engraved or welded on the casing. When the hole cannot be marked with a physical monument (e.g. prime farmland), high resolution GPS coordinates (one-half meter resolution) are required.

3. MANDATORY PROCEDURES WHEN MINING WITHIN A 100-FOOT DIAMETER BARRIER AROUND THE ESTHER CLARK 1H ND 3H GAS WELLS

- a. A representative of the operator, a representative of the miners, the appropriate State agency, or the MSHA District Manager may request that a conference be conducted prior to intersecting any plugged well. Upon receipt of any such request, the District Manager shall schedule such a conference. The party requesting the conference shall notify all other parties listed above within a reasonable time prior to the conference to provide opportunity for participation. The purpose of the conference shall be to review, evaluate, and accommodate any abnormal or unusual circumstance related to the condition of the well or surrounding strata when such conditions are encountered.
- b. The operator shall intersect a well on a shift approved by the District Manager. The weather will be evaluated for possible lightning storms when deciding when to intersect the well. The operator shall notify the District Manager and the miners' representative in sufficient time prior to intersecting a well in order to provide an opportunity to have representatives present.
- c. When using continuous mining methods, the operator shall install drivage sights at the last open crosscut near the place to be mined to ensure intersection of the well. The drivage sites shall not be more than 50 feet from the well. When using longwall-mining methods, distance markers shall be installed on 5-foot centers for a distance of 50 feet in advance of the well in the headgate entry and in the tailgate entry.
- d. The operator shall ensure that fire-fighting equipment including fire extinguishers, rock dust, and sufficient fire hose to reach the working face area of the well intersection (when either the conventional or continuous mining method is used) is available and operable during all well intersections. The fire hose shall be located in the last open crosscut of the entry or room. The operator shall maintain the water line to the belt conveyor tailpiece along with a sufficient amount of fire hose to reach the farthest point of penetration on the section. When the longwall mining method is used, a hose to the longwall water supply is sufficient.
- e. The operator shall ensure that sufficient supplies of roof support and ventilation materials shall be available and located at the last open crosscut.

In addition, emergency plugs and suitable sealing materials shall be available in the immediate area of the well intersection.

- f. On the shift prior to intersecting the well, the operator shall service all equipment and check it for permissibility. Water sprays, water pressures, and water flow rates used for dust and spark suppression shall be examined and any deficiencies corrected.
- g. The operator shall calibrate the methane monitor(s) on the longwall, continuous mining machine, or cutting machine and loading machine on the shift prior to intersecting the well.
- h. When mining is in progress, the operator shall perform tests for methane with a handheld methane detector at least every 10 minutes from the time that mining with the continuous mining machine or longwall face is within 30 feet of the well until the well is intersected. During the actual cutting process, no individual shall be allowed on the return side until the well intersection has been completed, and the area has been examined and declared safe. All workplace examinations on the return side of the shearer will be conducted while the shearer is idle. The operator's most current Approved Ventilation Plan will be followed at all times unless the District Manager deems a greater air velocity for the intersect is necessary.
- i. When using continuous or conventional mining methods, the working place shall be free from accumulations of coal dust and coal spillages, and rock dust shall be placed on the roof, rib, and floor to within 20 feet of the face when intersecting the well. On longwall sections, rock dusting shall be conducted and placed on the roof, rib, and floor up to both the headgate and tailgate gob.
- j. When the well is intersected, the operator shall de-energize all equipment, and thoroughly examine and determine the area to be safe before permitting mining to resume.
- k. After a well has been intersected and the working place determined to be safe, mining shall continue in by the well a sufficient distance to permit adequate ventilation around the area of the well.



- l. If the casing is cut or milled at the coal seam level, the use of torches should not be necessary. However, in rare instances, torches may be used for inadequately or inaccurately cut or milled casings. No open flames shall be permitted in the area until adequate ventilation has been established around the well bore and methane levels of less than 1.0% are present in all areas that will be exposed to flames and sparks from the torch. The operator shall apply a thick layer of rock dust to the roof, face, floor, ribs and any exposed coal within 20 feet of the casing prior to the use of torches.
- m. Non-sparking (brass) tools will be available and will be used exclusively to expose and examine cased wells.
- n. No person shall be permitted in the area of the well intersection except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA, and personnel from the appropriate State agency.
- o. The operator shall alert all personnel in the mine to the planned intersection of the well prior to their going underground if the planned intersection is to occur during their shift. This warning shall be repeated for all shifts until the well has been mined through.
- p. The well intersection shall be under the direct supervision of a certified individual. Instructions concerning the well intersection shall be issued only by the certified individual in charge.
- q. If the mine operator cannot find the well in the longwall panel or if a development section misses the anticipated intersection, the operator shall cease mining to examine for hazardous conditions at the projected location of the well, notify the District Manager, and take reasonable measures to locate the well, including visual observation/inspection or through survey data. Mining may resume if the well is located and no hazardous conditions exist. If the well cannot be located, the mine operator shall work with the District Manager to resolve any issues before mining resumes.
- r. The provisions of this Petition do not impair the authority of representatives of MSHA to interrupt or halt the well intersection, and to issue a withdrawal order, when they deem it necessary for the safety of the miners. MSHA may

- order an interruption or cessation of the well intersection and/or a withdrawal of personnel by issuing either a verbal or written order to that effect to a representative of the operator, which order shall include the basis for the order. Operations in the affected area of the mine may not resume until a representative of MSHA permits resumption. The mine operator and miners shall comply with verbal or written MSHA orders immediately. All verbal orders shall be committed to writing within a reasonable time as conditions permit.
- s. A copy of this Petition shall be maintained at the mine and be available to the miners.
  - t. If the well is not plugged to the total depth of all minable coal seams identified in the core hole logs, any coal seams beneath the lowest plug will remain subject to the barrier requirements of 30 C.F.R. §75.1700, should those coal seams be developed in the future.
  - u. All necessary safety precautions and safe practices according to Industry Standards, required by MSHA regulations and State regulatory agencies having jurisdiction over the plugging site will be followed to provide the upmost protection to the miners involved in the process.
  - v. All miners involved in the plugging or re-plugging operations will be trained on the contents of this Petition prior to starting the process and a copy of this Petition will be posted at the well site until the plugging or re-plugging has been completed.
  - w. Mechanical bridge plugs should incorporate the best available technologies that are either required or recognized by the State regulatory agency and/or oil and gas industry.
  - x. *Notification.* Where the operator is required to notify the District Manager pursuant to the terms of this Petition, the method of notification will be set forth in the cut-through procedures for each well. The District Manager agrees to provide a number wherein he or his designee is available at all times.
  - y. Within 30 days after this Petition becomes final, the operator shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plan to the

District Manager. These proposed revisions shall include initial and refresher training on compliance with the terms and conditions stated in the Petition. The operator shall provide all miners involved in well intersection with training on the requirements of this Petition prior to mining within 150 feet of the next well intended to be mined through.

- z. The responsible person required under 30 C.F.R. § 75.1501 Emergency Evacuations, is responsible for well intersection emergencies. The well intersection procedures should be reviewed by the responsible person prior to any planned intersection. Additionally, the mine dispatcher will be notified and review procedures prior to any planned intersection.
- aa. Within 30 days after this Petition becomes final, the operator shall submit proposed revisions for its approved mine emergency evacuation and firefighting program of instruction required under 30 C.F.R § 75.1502. The operator will revise the program of instruction to include the hazards and evacuation procedures to be used for well intersections. All underground miners will be trained in this revised plan within 30 days of submittal.

Any party to this action desiring a hearing on this matter must file in accordance with 30 C.F.R. § 44.14, within 30 days. The request for hearing must be filed with the Administrator for Mine Safety and Health Enforcement, 201 12<sup>th</sup> Street South, Suite 401 Arlington, Virginia 22202.

If a hearing is requested, the request shall contain a concise summary of position on the issues of fact or law desired to be raised by the party requesting the hearing, including specific objections to the proposed decision.

A party other than Petitioner who has requested a hearing shall also comment upon all issues of fact or law presented in the petition, and any party to this action requesting a hearing may indicate a desired hearing site. If no request for a hearing is filed within 30 days after service thereof, the Decision and Order will become final.

**TIMOTHY  
WATKINS**

Digitally signed by TIMOTHY  
WATKINS  
Date: 2021.12.10 12:14:11  
-05'00'

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Timothy R. Watkins  
Deputy Administrator for  
Mine Safety and Health Enforcement

Certificate of Service

I hereby certify that a copy of this proposed decision was served personally or mailed, postage prepaid, or provided by other electronic means this 10th day of December, 2021, to:

R. Henry Moore  
Fisher & Phillips LLP  
6 PPG Place, Suite 830  
Pittsburgh, PA 15222

[hmoore@fisherphillips.com](mailto:hmoore@fisherphillips.com)

Rick Rinehart  
UMWA Representative  
67 Cellular Drive  
Mannington, WV 26582

DONALD  
VICKERS

Digitally signed by DONALD  
VICKERS  
Date: 2021.12.10 12:28:01  
-05'00'

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Don Vickers  
Mine Safety and Health Specialist

cc: West Virginia Office of Miners' Health Safety and Training  
Director, Eugene White [Eugene.E.White@wv.gov](mailto:Eugene.E.White@wv.gov)

# APPENDIX A

## PROPOSED PLUGGING PROCEDURES

EstherClar 1H API# 47-061-01616

Esther Clark 3H API# 47-061-01623

The following detailed cleaning and plugging procedures are to comply with the additional specifications and guidelines found within the main body of the Petition for Modification part 2(a) "Mandatory Procedures for Cleaning Out and Preparing the Esther Clark Gas Wells" and part 2(b) "Mandatory Procedures for Plugging the Esther Clark Gas Wells to the Surface".

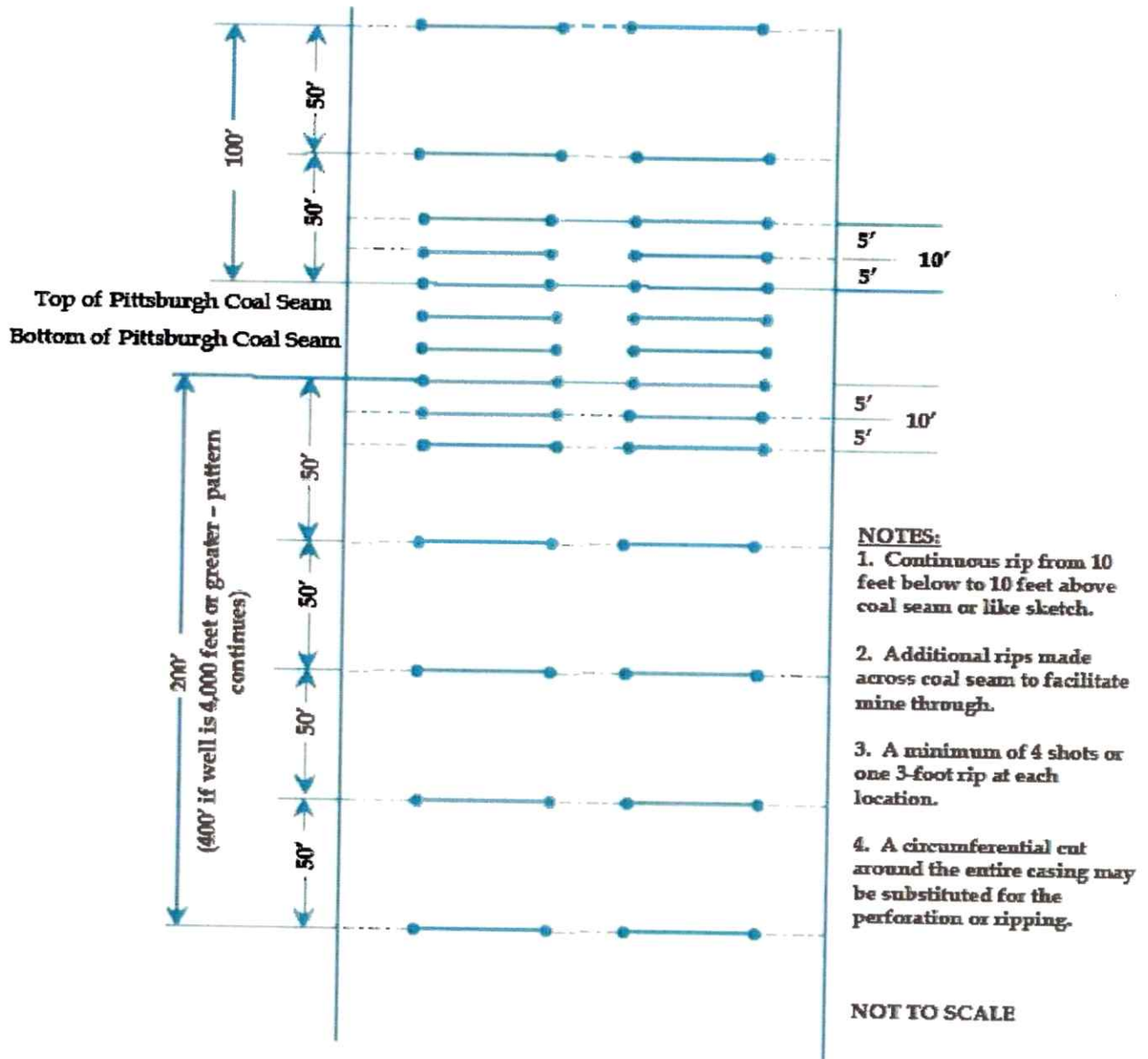
1. Record the shut-in pressure and monitor the casing pressure.
2. Move in equipment. Rig up the wireline rig and the pumping unit to the well head. Load fresh water (8.3 lbs./gallon) and weighted brine water (10.0 lbs./gallon) into their respective tanks.
3. Pump sufficient amount of weighted brine water into the wellbore. Switch to fresh water and finish loading the wellbore. Fresh and brine water will be pumped until the well is officially "killed". ("Killed" means the well is dead and has no gas delivered to the surface.)
4. Rig up the wireline well head control. Run into the hole with a 2" - 10,000 psi rated Cast Iron Bridge Plug (CIBP) and set the CIBP within the 2-3/8" production tubing at the location where the existing arrow set packer is installed (located just above the "kick off point" in the well). Pull out of the hole and rig down the wireline rig.
5. Pressure test the installed 2" - 10,000 psi CIBP up to 80% of its working pressure for a minimum of one hour (surface + hydrostatic). Record pressure test results.
6. Rig up the drill rig and install a 10,000 psi Wellhead Blowout Preventer.
7. Pressure test the Wellhead Blowout Preventer up to 90% of its working pressure for one hour. Record pressure test results.
8. Rig up the wireline rig, run into the hole and cut the 2-3/8" production tubing just above the installed 2" - 10,000 psi CIBP. Run out of the hole and rig down the wireline rig.

9. Using the drill rig, pull all of the fr 2-3/8" production tubing out of the hole. Load the hole with fresh water as required.
10. Rig up the wireline rig and perfo a test run with a 5" Gauge Ring down to the installed 2" - 10,000 psi CIBP.
11. Run into the hole with a 5-1/2" - 10,000 psi rated Cast Iron Bridge Plug (CIBP) and set the CIBP against the previously cut 2-3/8" production tubing (located just above the existing arrowset packer and 2" CIBP). Pull out of the hole and rig down the wireline rig.
12. Pressure test the installed 5-1/2" - 10,000 psi CIB up to 80% of its working pressure fo a minimum of one hour (surface + hydrostatic). Record the pressure test results. If it is unable to hold 80% of its working pressure, an additional CIBP will be set in the wellbore directly above it.
13. Rig up the wireline rig an perfo a cement bond log to determine the "top of cement" within the ann of the 5-1/2" casing. Pull out of the hole an rig down the wireline rig. Preliminarily, based on the existing bond logs, the "top of cement" is expected to be located below the 9-5/8" casing seat (see existing bond logs in Appendix F and G).
14. Pick up the drill pipe and trip in the hole down to the installed 5-1/2" CIBP. Set a cement plug with a gas blocker additive fr m the existing 5-1/2" CIBP up to the "top of cement" of the 5-1/2" casing (determ by the new bond log results). Wait on cement to cure fo a minimum of eight hours.
15. Rig up the wireline rig, run into the hole to the top of the existing cement plug and cut the 5-1/2" casing. Run out of the hole and rig down the wireline rig.
16. Using the drill rig, pull all of the fr e 5-1/2" casing out of the hole. Load the hole with fr h water as required.
17. Aft removing the 5-1/2" casing, shut-in the well and monitor the gas pressur for a minimum of one hour. Record shut-in test results. If any gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration. (No gas pressure is acceptable.)

18. Rig up the wireline rig and perform a cement bond log on the 9-5/8" casing. Pull out of the hole and rig down the wireline rig. Preliminarily, the 9-5/8" casing is expected to be fully cemented within the annulus. It was reported that cement was circulated to the surface upon install for the 9-5/8" casing, the 13-3/8" casing, and the 20" casing (see the details in the existing "Well Operator's Report of Well Work" in Appendix D and E). Any voids encountered within the 9-5/8" annulus will be addressed appropriately.
19. Pick up the drill pipe and trip in the hole down to the previous cement plug. Set an additional cement plug with a gas blocker additive from the existing cement plug up to 100' above the 9-5/8" casing seat. Wait on cement to cure for a minimum of eight hours.
20. Shut-in the well and monitor the gas pressure while the cement is curing. Record shut-in test results. If additional gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration.
21. Pick up the drill pipe and trip in the hole down to the previous cement plug. Set an additional cement plug with a gas blocker additive from the existing cement plug up to 400' below the bottom of the Pittsburgh #8 coal seam. Wait on cement to cure for a minimum of eight hours.
22. Shut-in the well and monitor the gas pressure while the cement is curing. Record shut-in test results. If any gas pressure is encountered during the shut-in test, an additional CIBP or packers may be used to mitigate gas migration. (No gas pressure is acceptable.)
23. At this point, the well has been effectively plugged from the original arrangement packer which was installed just above the "kick off point" (vertical to horizontal) up to 400' below the Pittsburgh #8 coal seam. (Effectively plugged means no sign of any gas detected in the well bore.) The remaining procedures to complete the plugging process from 400' below the Pittsburgh #8 coal seam to the surface can be found in the main body of the Petition for Modification part 2(a) "Mandatory Procedures for Cleaning Out and Preparing the Esther Clark Gas Wells", part 2(b) "Mandatory Procedures for Plugging the Esther Clark Gas Wells to the Surface", and Appendix B.

# APPENDIX B

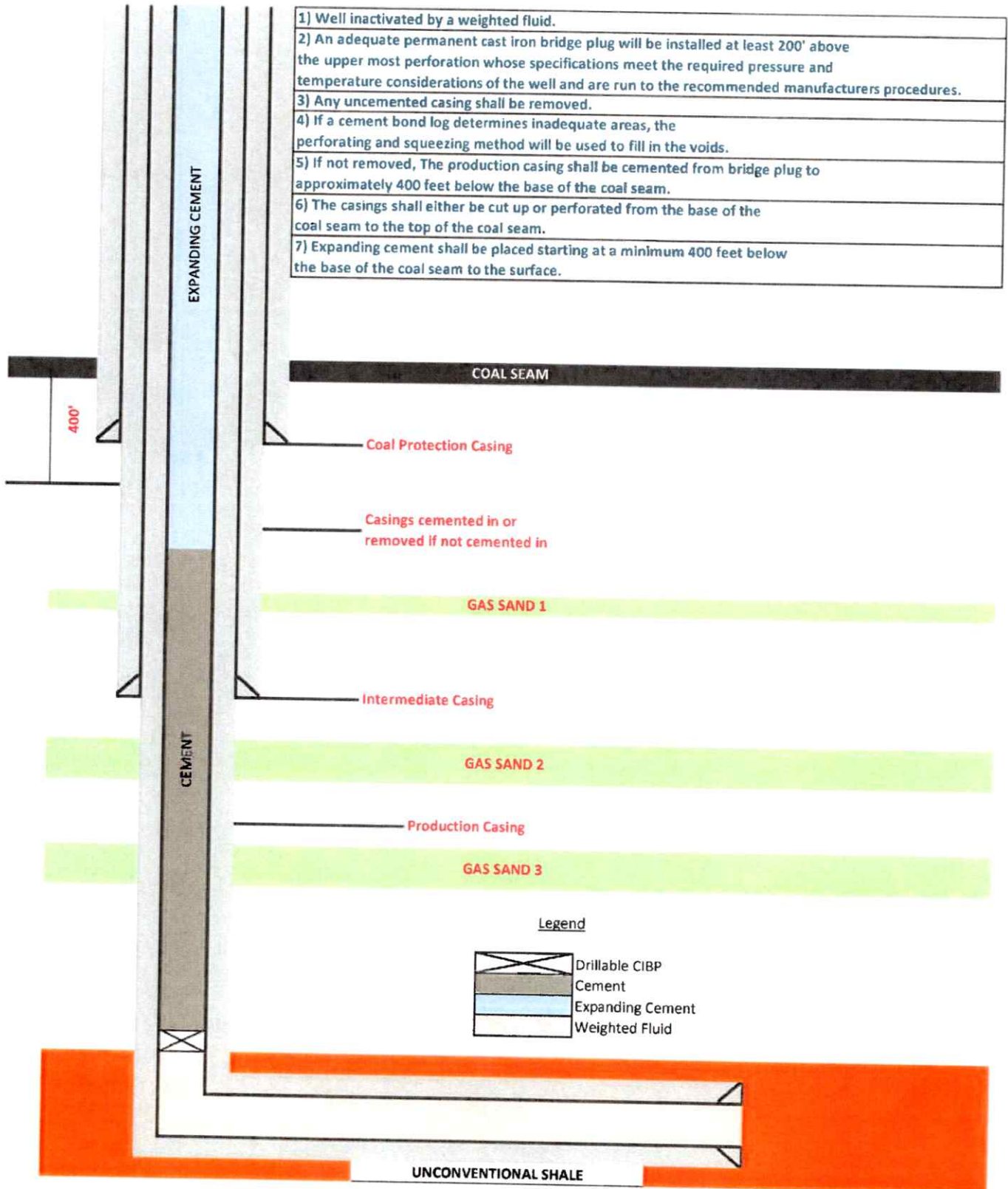
Requirements for cutting, milling, perforating, or ripping well casing above and below the Pittsburgh #8 coal seam





# APPENDIX C

GENERAL PROPOSED PERMANENT PLUGGING SCHEMATIC FOR AN UNCONVENTIONAL GAS WELL



# APPENDIX D

## Esther Clark 1H Marcellus Gaswell Details

API #: 47-061-01616

County: Monongalia

Permit: 1616

Tax District: Battelle

7.5-minute quadrangle: Hundred

15-minute quadrangle: Mannington

Surface Hole Location:

Latitude (decimal degrees): 39.650387

Longitude (decimal degrees): -80.394303

UTM E: 551965

UTM N: 4389130

Bottom Hole Location:

Latitude (decimal degrees): 39.656863

Longitude (decimal degrees): -80.420323

UTM E: 549728

UTM N: 4389834

Spud date: December 2011

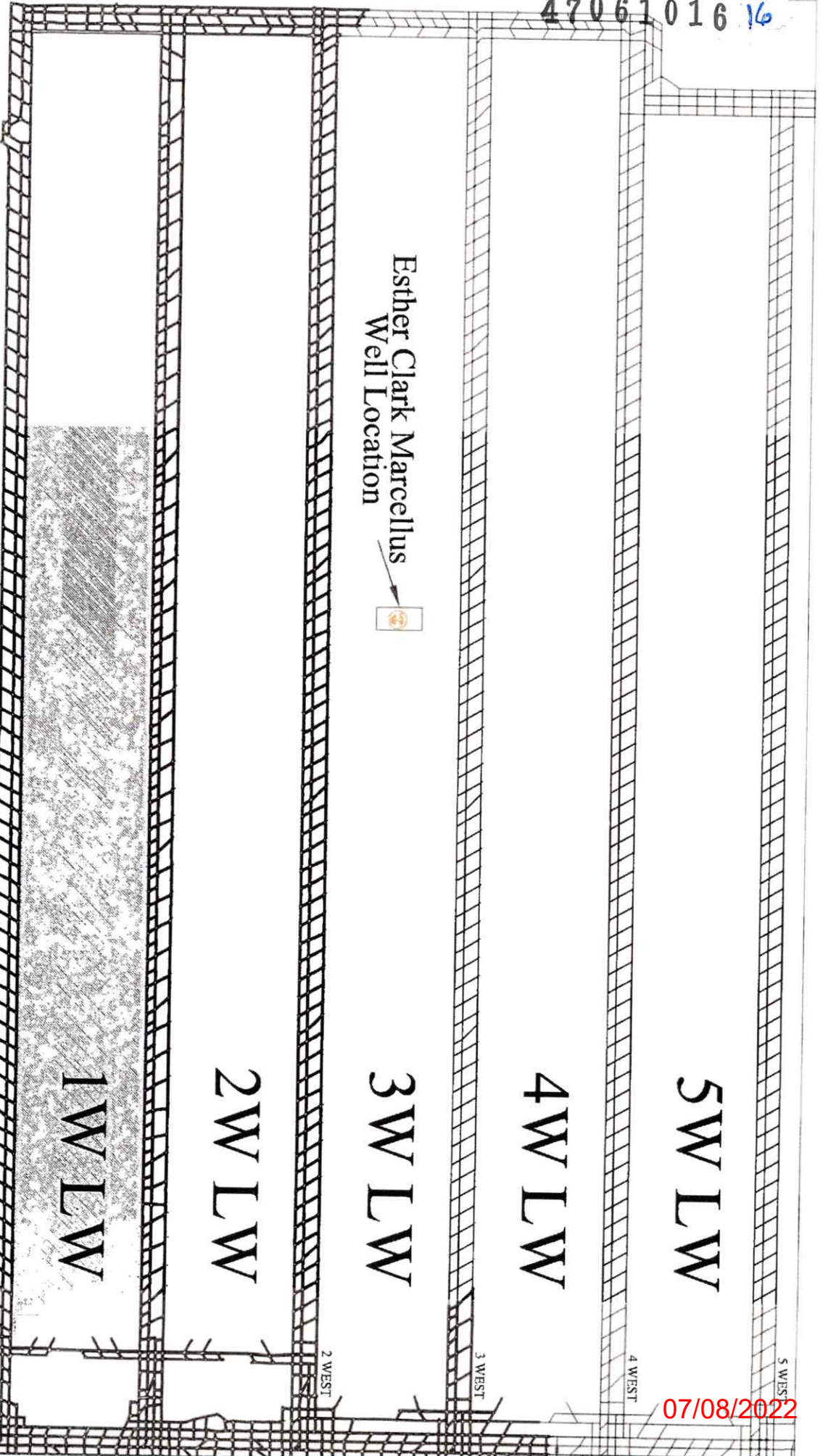
Initial static rock pressure: 5,130 psi

Last reported production: September 2020

Current shut in pressure: 1,550 psi

47061016 16

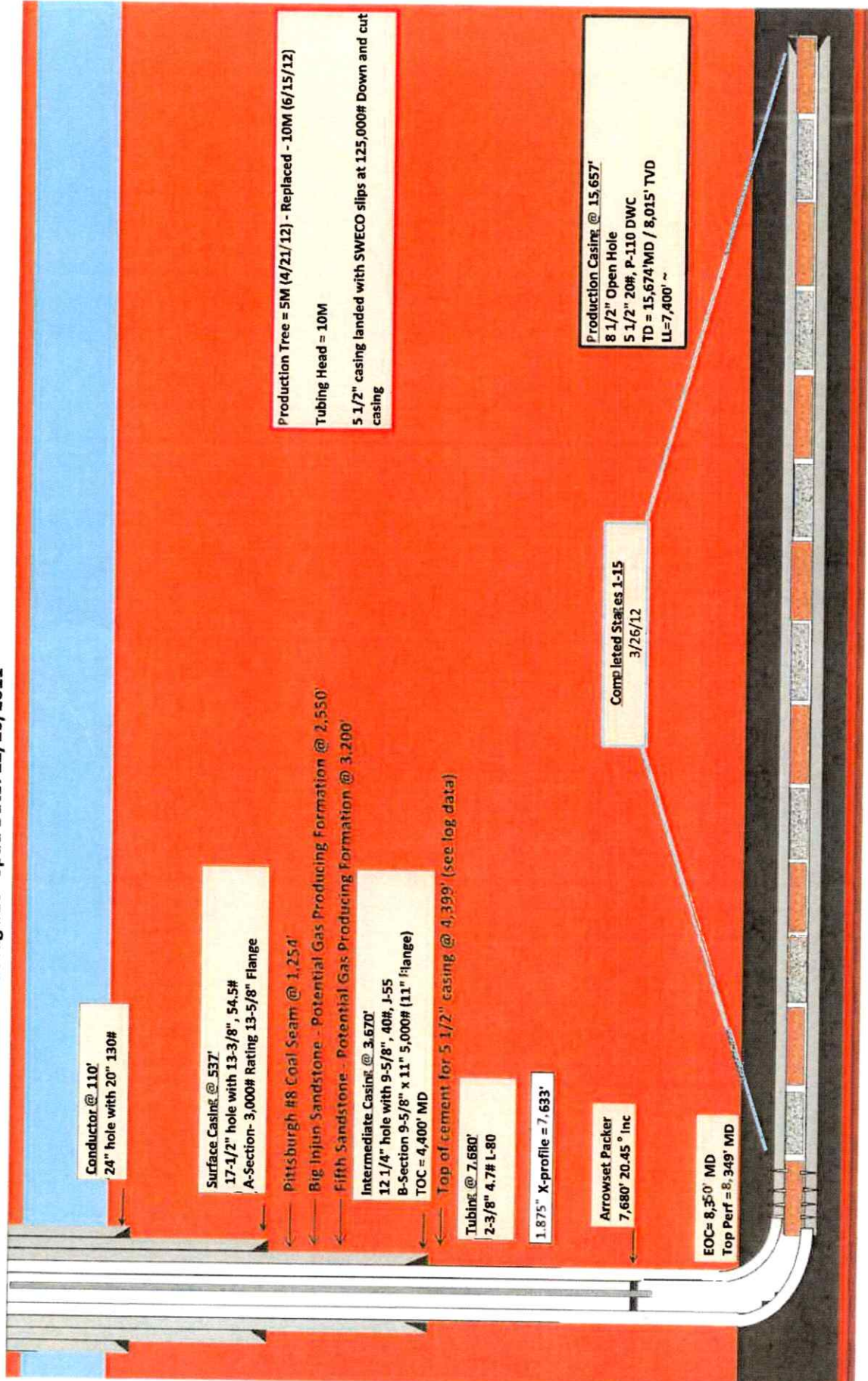
Esther Clark Marcellus  
Well Location



07/08/2022

ESTHER CLARK GAS WELL LOCATIONS  
 MARION COUNTY MINE  
 151 Johnny Cake Rd. Metz WV 26585  
 State ID # D-4038-----MSHA ID # 46-04433  
 Pittsburgh #6 Coalbed  
 Mannington Quadrangle  
 6/19/2021

Esther Clark 1H - Esther Clark Pad Nomac Rig #20 Spud Date: 12/10/2011



4706101616

WR-35  
Rev (9-11)

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

DATE: 9-7-2012  
API #: 47-061-01616

Farm name: Esther Clark 1H Operator Well No.: 832638

LOCATION: Elevation: 1424' Quadrangle: Hundred

District: Battelle County: Monongalia  
Latitude: 5480' Feet South of 39 Deg. 40 Min. 00 Sec.  
Longitude 5960' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>P.O. Box 18496</u> <u>Oklahoma City, OK 73154-0496</u>	<u>20"</u>	<u>110'</u>	<u>110'</u>	<u>106 Cu. Ft.</u>
Agent: <u>Eric Gillespie</u>	<u>13 3/8"</u>	<u>525'</u>	<u>525'</u>	<u>623 Cu. Ft.</u>
Inspector: <u>Sam Ward</u>	<u>9 5/8"</u>	<u>3660'</u>	<u>3660'</u>	<u>1852 Cu. Ft.</u>
Date Permit Issued: <u>1-25-2011</u>	<u>5 1/2"</u>	<u>15657'</u>	<u>15657'</u>	<u>3357 Cu. Ft.</u>
Date Well Work Commenced: <u>12-10-2011</u>				
Date Well Work Completed: <u>3-26-2012</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7962'</u>				
Total Measured Depth (ft): <u>15674'</u>				
Fresh Water Depth (ft.): <u>400'</u>				
Salt Water Depth (ft.): <u>None</u>				
Is coal being mined in area (N/Y)? <u>Y</u>				
Coal Depths (ft.): <u>221', 1200'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,349-15,536'

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 4011\* MCF/d Final open flow 0 Bbl/d  
Time of open flow between initial and final tests 77 Hours \*Calculated  
Static rock Pressure 5130\* psig (surface pressure) after \_\_\_\_\_ Hours

Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments 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.

*Marcellus Williams*

9-11-2012

07/08/2022

12/14/2012

Were core samples taken? Yes \_\_\_\_\_ No X

Were cuttings caught during drilling? Yes X No \_\_\_\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list \_\_\_\_\_  
MWD IN LATERAL

**NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.**

Perforated Intervals, Fracturing, or Stimulating:

(See Attached)

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			

(See Attached)

4706101616

## PERFORATION RECORD ATTACHMENT

Well Number and Name: 832638 Esther Clark 1H

PERFORATION RECORD			STIMULATION RECORD							
Date	Interval Perforated		Date	Interval Treated		Fluid		Propping Agent		Average Injection
	From	To		Type	Amount	Type	Amount			
2/15/2012	15,144	15,536	3/12/2012	15,144	15,536	Sik wtr	13,281	Sand	568,080	81
3/13/2012	14,658	15,051	3/14/2012	14,658	15,051	Sik wtr	9,916	Sand	569,480	76
3/14/2012	14,175	14,570	3/14/2012	14,175	14,570	Sik wtr	10,729	Sand	568,500	78
3/15/2012	13,688	14,080	3/16/2012	13,688	14,080	Sik wtr	10,270	Sand	571,840	77
3/16/2012	13,203	13,595	3/17/2012	13,203	13,595	Sik wtr	10,410	Sand	571,980	84
3/17/2012	12,717	13,113	3/18/2012	12,717	13,113	Sik wtr	10,526	Sand	571,880	76
3/18/2012	12,232	12,624	3/18/2012	12,232	12,624	Sik wtr	11,981	Sand	571,880	82
3/18/2012	11,747	12,139	3/19/2012	11,747	12,139	Sik wtr	10,706	Sand	570,900	80
3/19/2012	11,262	11,654	3/21/2012	11,262	11,654	Sik wtr	10,859	Sand	570,980	70
3/21/2012	10,776	11,169	3/21/2012	10,776	11,169	Sik wtr	16,450	Sand	571,720	50
3/22/2012	10,295	10,683	3/22/2012	10,295	10,683	Sik wtr	10,891	Sand	572,280	81
3/22/2012	9,806	10,198	3/23/2012	9,806	10,198	Sik wtr	10,638	Sand	570,180	84
3/23/2012	9,321	9,713	3/23/2012	9,321	9,713	Sik wtr	10,410	Sand	565,980	83
3/24/2012	8,835	9,228	3/25/2012	8,835	9,228	Sik wtr	9,979	Sand	565,250	85.8
3/26/2012	8,349	8,747	3/26/2012	8,349	8,747	Sik wtr	9,866	Sand	568,160	84.6

07/08/2022

12/14/2012

**LATERAL WELLBORE****Maximum TVD of wellbore: 7962 ft TVD @ 8370 ft MD**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SHALE	0	0	250	250
SANDSTONE/SHALE	250	250	500	500
SHALE	500	500	930	930
SANDSTONE	930	930	990	990
LIMESTONE/SHALE	990	990	1140	1140
COAL	1140	1140	1156	1156
COAL/LIMESTONE/SHALE	1156	1156	1240	1240
COAL	1240	1240	1260	1260
COAL/LIMESTONE/SHALE	1260	1260	1320	1320
SHALE	1320	1320	1600	1600
SANDSTONE/SHALE	1600	1600	2460	2460
BIG LIME	2640	2640	2550	2550
BIG INJUN SANDSTONE	2550	2550	2750	2750
SANDSTONE/SHALE	2750	2750	3210	3210
BEREA SANDSTONE	3210	3210	3550	3550
SHALE	3550	3550	4100	4100
SHALE/SANDSTONE	4100	4100	4580	4580
SHALE	4580	4580	7849	7749
GENESEO	7849	7749	7881	7775
TULLY	7881	7775	7911	7797
HAMILTON	7911	7797	8121	7914
MARCELLUS	8121	7914	15674	15674
TD	15674	7894		0



## WVDEP Office of Oil and Gas - Well Search

**Disclaimer:** Per §22-6-6. Permit required for all well work; permit fee; application; soil erosion control plan.

(a) It is unlawful for any person to commence any well work, including site preparation work, which involves any disturbance of land, without first securing a well work permit from the director of the WVDEP Office of Oil and Gas.

The appearance of an API number on the web page does not signify that a permit has been issued. The API number is used as a tracking mechanism until the permit has been issued. Under no circumstances should well work be commenced without a signed permit.

### Current Operator

Well API	Operator	Surface Owner	Well Number	Well Status	Well Type	Last Permit Issue Date
4706101616	ANTERO RESOURCES CORPORATION	CLARK, ESTHER C. - LIFE TENANT	832638 ESTHER CLARK 1H	Active Well	Horizontal	01/25/2011

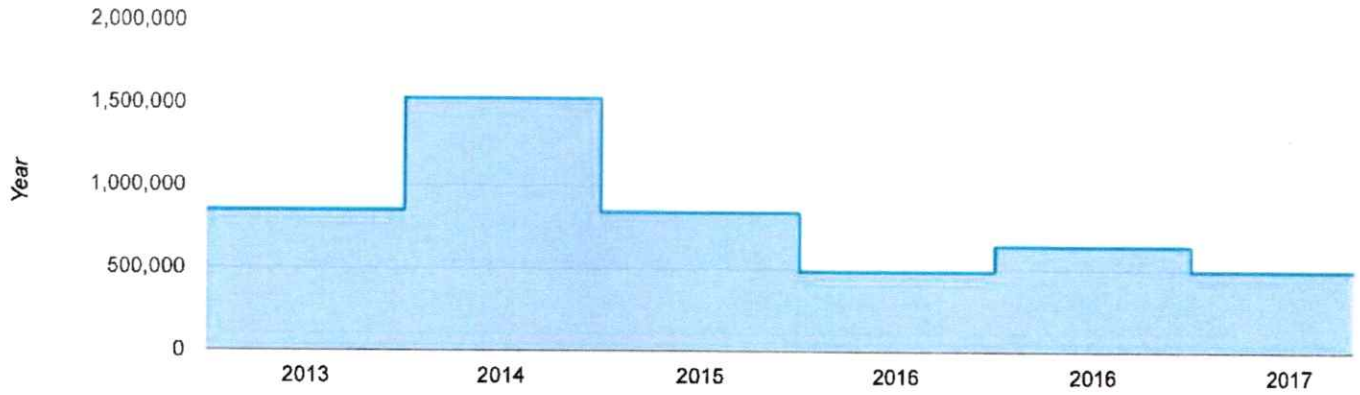
**Notes:** The operator listed above is the CURRENT operator of the well. This operator may or may not have recorded production for this well for the years listed below. The production listed below spans the years shown, regardless of the operator who originally recorded a particular year's production numbers.

### Production by Energy Type

#### Well Lifetime Gas Production

All amounts expressed in mcfg (thousand cubic feet)

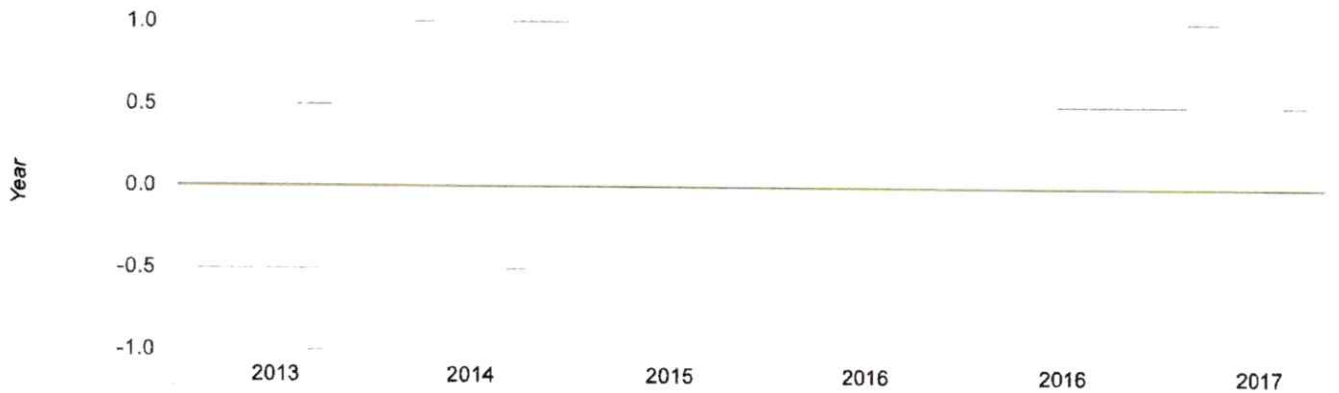
Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ANTERO RESOURCES CORPORATION	2020	17,582	24,644	27,882	27,004	26,390	26,307	21,558	21,330	1,987	0	0	0	194,684
ANTERO RESOURCES CORPORATION	2019	30,857	31,995	25,682	28,453	23,838	18,718	24,597	28,256	26,070	17,166	14,157	20,954	290,743
ANTERO RESOURCES CORPORATION	2018	37,742	32,275	35,692	32,596	33,790	17,209	24,727	21,932	24,753	22,808	25,194	22,187	330,704
ANTERO RESOURCES CORPORATION	2017	51,211	44,534	45,665	42,918	48,268	39,148	37,897	43,043	40,601	39,423	20,626	35,818	489,162
ANTERO RESOURCES CORPORATION	2016	59,436	56,310	53,036	54,222	57,312	55,759	51,657	46,588	48,186	53,772	51,804	48,662	636,744
SWN PRODUCTION COMPANY, LLC	2016	59,168	56,278	52,745	53,889	56,723	55,445	51,378	46,512	51,336	0	0	0	483,474
SWN PRODUCTION COMPANY, LLC	2015	81,361	75,950	78,855	62,061	62,245	66,349	77,255	72,521	67,290	73,342	62,028	59,118	838,376
CHESAPEAKE APPALACHIA, L.L.C.	2014	138,264	150,803	178,004	160,929	143,177	126,962	120,427	110,189	101,438	94,311	104,742	96,703	1,525,949
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	70,249	160,523	166,098	140,618	160,064	149,917	847,469



∨

All

Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ANTERO RESOURCES CORPORATION	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
SWN PRODUCTION COMPANY, LLC	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
SWN PRODUCTION COMPANY, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0



### Well Lifetime NGL Production

All amounts expressed in barrels

Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWN PRODUCTION COMPANY, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

07/08/2022

FORM WV 6

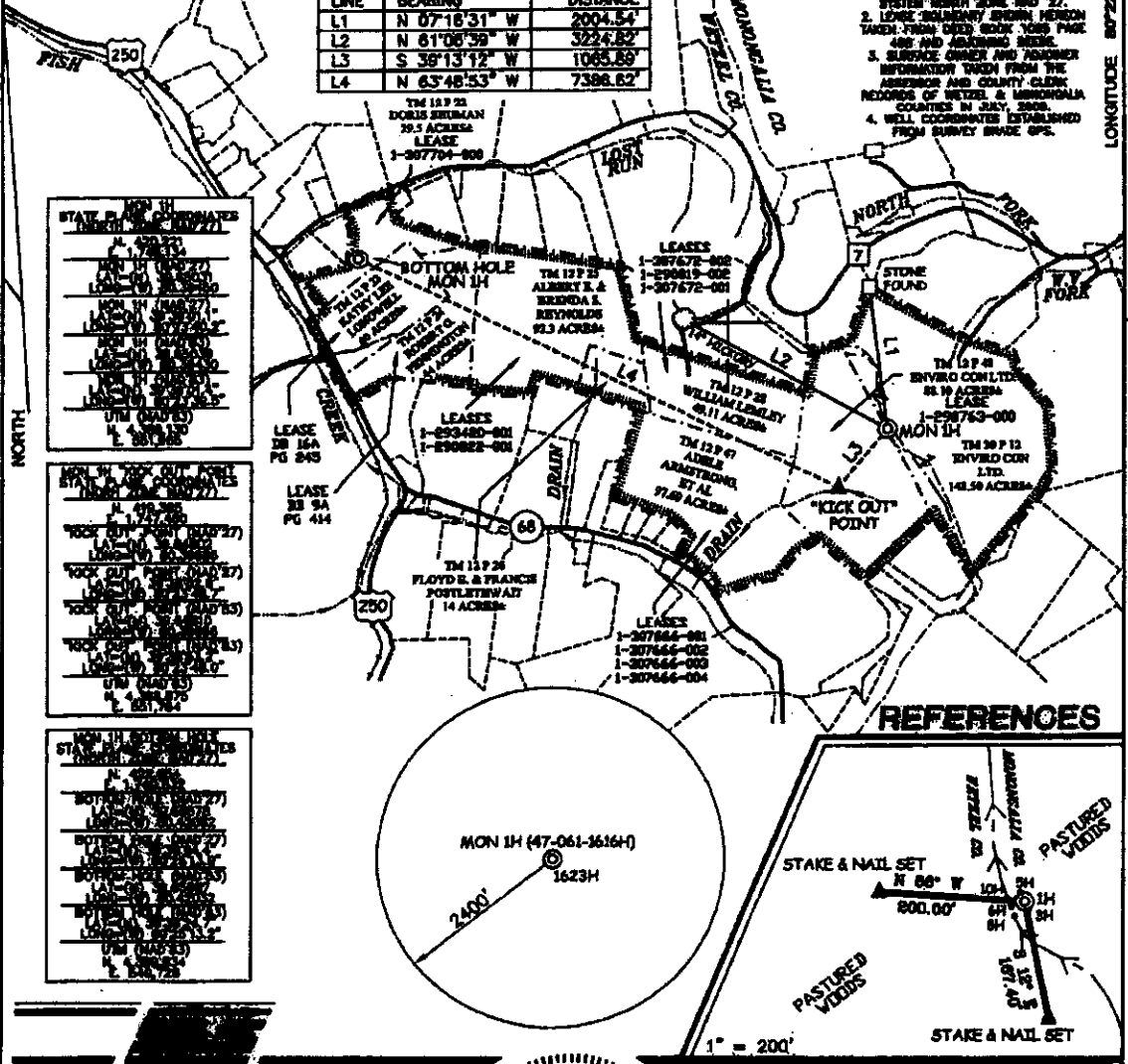
# ESTHER CLARK LEASE MON 1H

MON 1H TIES

LINE	BEARING	DISTANCE
L1	N 07°16'31" W	2004.54'
L2	N 61°06'39" W	3224.82'
L3	S 39°13'12" W	1065.69'
L4	N 63°48'53" W	7398.62'

### NOTES ON SURVEY

1. TIES TO BENCH REFERENCES AND CORNERS ARE SHOWN SO AND NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM MERID ZONE AND '22.
2. LEASE BOUNDARY BEING HEREIN TAKEN FROM DEED BOOK PAGE 408 AND ADJACENT DEEDS.
3. SURFACE OWNER AND ADDRESS INFORMATION TAKEN FROM THE ADDRESS AND COUNTY CLERK RECORDS OF DEEDS & MORGENTHAU COUNTY IN JULY, 2008.
4. WELL COORDINATES ESTABLISHED FROM SURVEY GRADE OPS.



**STATE PLAT MON 1H**

MON 1H (47-061-3616-1)

MON 1H (47-061-3616-2)

MON 1H (47-061-3616-3)

MON 1H (47-061-3616-4)

MON 1H (47-061-3616-5)

MON 1H (47-061-3616-6)

MON 1H (47-061-3616-7)

MON 1H (47-061-3616-8)

MON 1H (47-061-3616-9)

MON 1H (47-061-3616-10)

MON 1H (47-061-3616-11)

MON 1H (47-061-3616-12)

MON 1H (47-061-3616-13)

MON 1H (47-061-3616-14)

MON 1H (47-061-3616-15)

MON 1H (47-061-3616-16)

MON 1H (47-061-3616-17)

MON 1H (47-061-3616-18)

MON 1H (47-061-3616-19)

MON 1H (47-061-3616-20)

MON 1H (47-061-3616-21)

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MON 1H (47-061-3616-28)

MON 1H (47-061-3616-29)

MON 1H (47-061-3616-30)

MON 1H (47-061-3616-31)

MON 1H (47-061-3616-32)

MON 1H (47-061-3616-33)

MON 1H (47-061-3616-34)

MON 1H (47-061-3616-35)

MON 1H (47-061-3616-36)

MON 1H (47-061-3616-37)

MON 1H (47-061-3616-38)

MON 1H (47-061-3616-39)

MON 1H (47-061-3616-40)

MON 1H (47-061-3616-41)

MON 1H (47-061-3616-42)

MON 1H (47-061-3616-43)

MON 1H (47-061-3616-44)

MON 1H (47-061-3616-45)

MON 1H (47-061-3616-46)

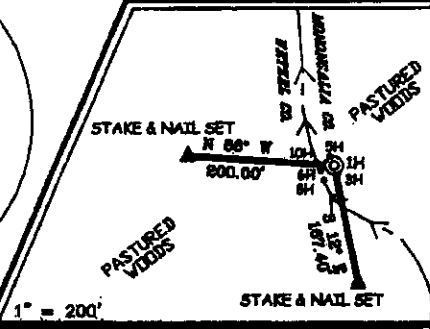
MON 1H (47-061-3616-47)

MON 1H (47-061-3616-48)

MON 1H (47-061-3616-49)

MON 1H (47-061-3616-50)

### REFERENCES



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 DIVISION OF ENVIRONMENTAL PROTECTION.

**GREGORY A. SMITH**  
LICENSED  
No. 677  
STATE OF WEST VIRGINIA  
PROFESSIONAL SURVEYOR

P.S. 677 *Gregory A. Smith*

(\*) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE SEPTEMBER 1, 20 11

OPERATORS WELL NO. ESTHER CLARK 1H

API WELL NO. 47-061-01616H

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 74398P1HR9 (308-60)

PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 2,000'

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

WELL TYPE: OIL  GAS  INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: 1,424' WATERSHED: NORTH FORK & WEST VIRGINIA CREEK

DISTRICT: BATTELLE COUNTY: MONONGALIA QUADRANGLE: HUNDRED 7.5'

SURFACE OWNER: ENVIRO CON LTD. ACREAGE: 65.10 & 148.80A

ROYALTY OWNER: ESTHER H. CLARK, ET AL

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD

FORMATION:  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION: MARCELLUS

ESTIMATED DEPTH: 7,890' TVD 16,343 TMD

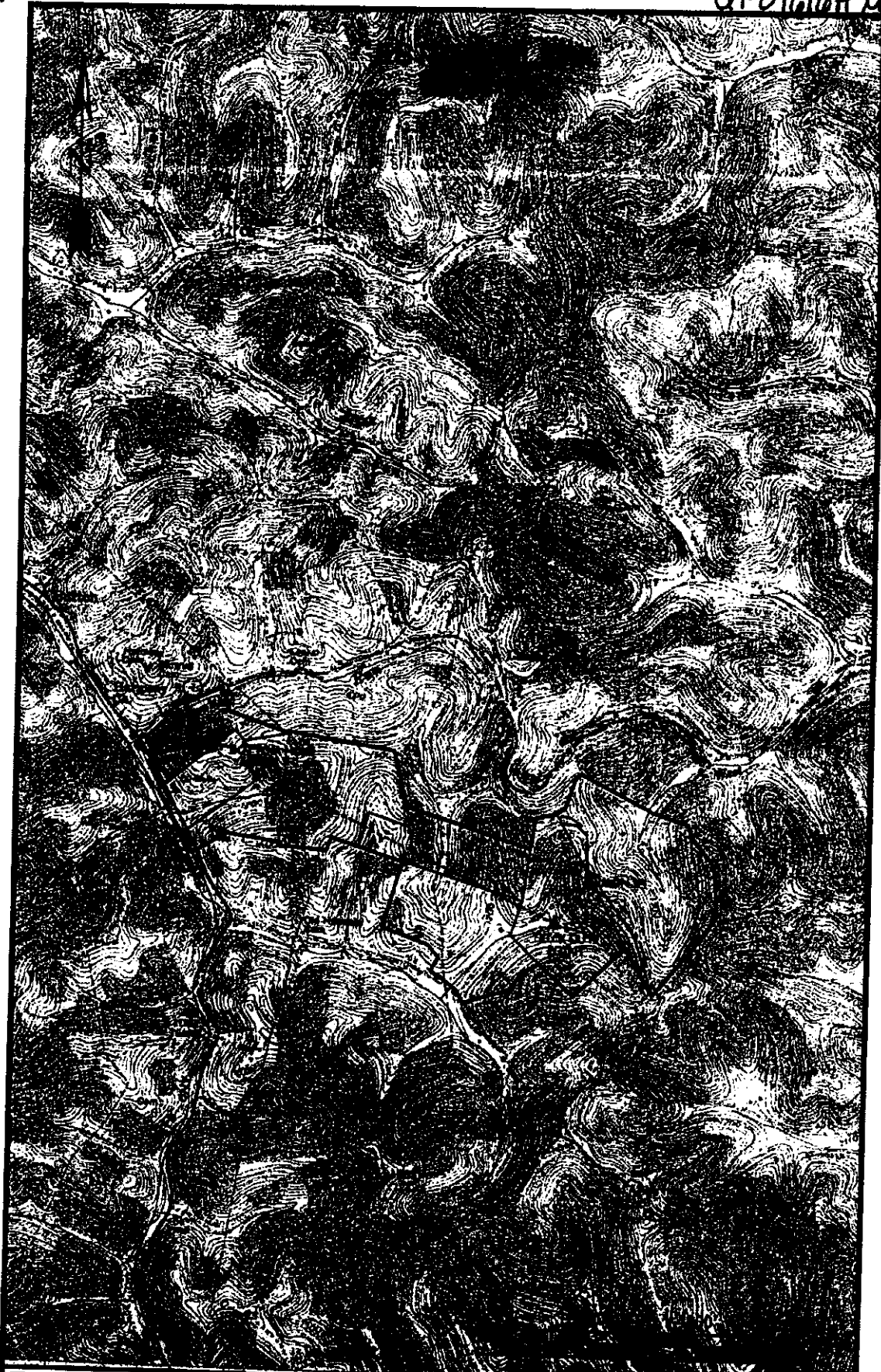
WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC. DESIGNATED AGENT: ERIC B. GILLESPIE

ADDRESS: P.O. BOX 18496 ADDRESS: P.O. BOX 6070

OKLAHOMA CITY, OK 73154-0496 CHARLESTON, WV 25362

COUNTY NAME  
PERMIT

4706101616  
Cel-Ellett Assoc.



<b>SLS</b> SMITH LAND SURVEYING, INC. P.O. BOX 180 GLENVILLE, WV 26031 PHONE: 304-885-1111 FAX: 304-885-1112	<b>WETZEL/MON. COUNTIES</b>		OPERATOR:
	MONROE W 25 040		CHESAPEAKE APPALACHIA, LLC.
DRAWN BY C.P.M.	FILE NO. 10/10/08	DATE 08-30-11	P.O. BOX 18498 CHARLESTON, WV 25301

07/08/2022

# APPENDIX F

## Esther Clark 3H Marcellus Gaswell Details

API #: 47-061-01623

County: Monongalia

Permit: 1623

Tax District: Battelle

7.5-minute quadrangle: Hundred

15-minute quadrangle: Mannington

Surface Hole Location:

Latitude (decimal degrees): 39.650353

Longitude (decimal degrees): -80.39428

UTM E: 551967

UTM N: 4389126.3

Bottom Hole Location:

Latitude (decimal degrees): 39.659315

Longitude (decimal degrees): -80.418259

UTM E: 549903.3

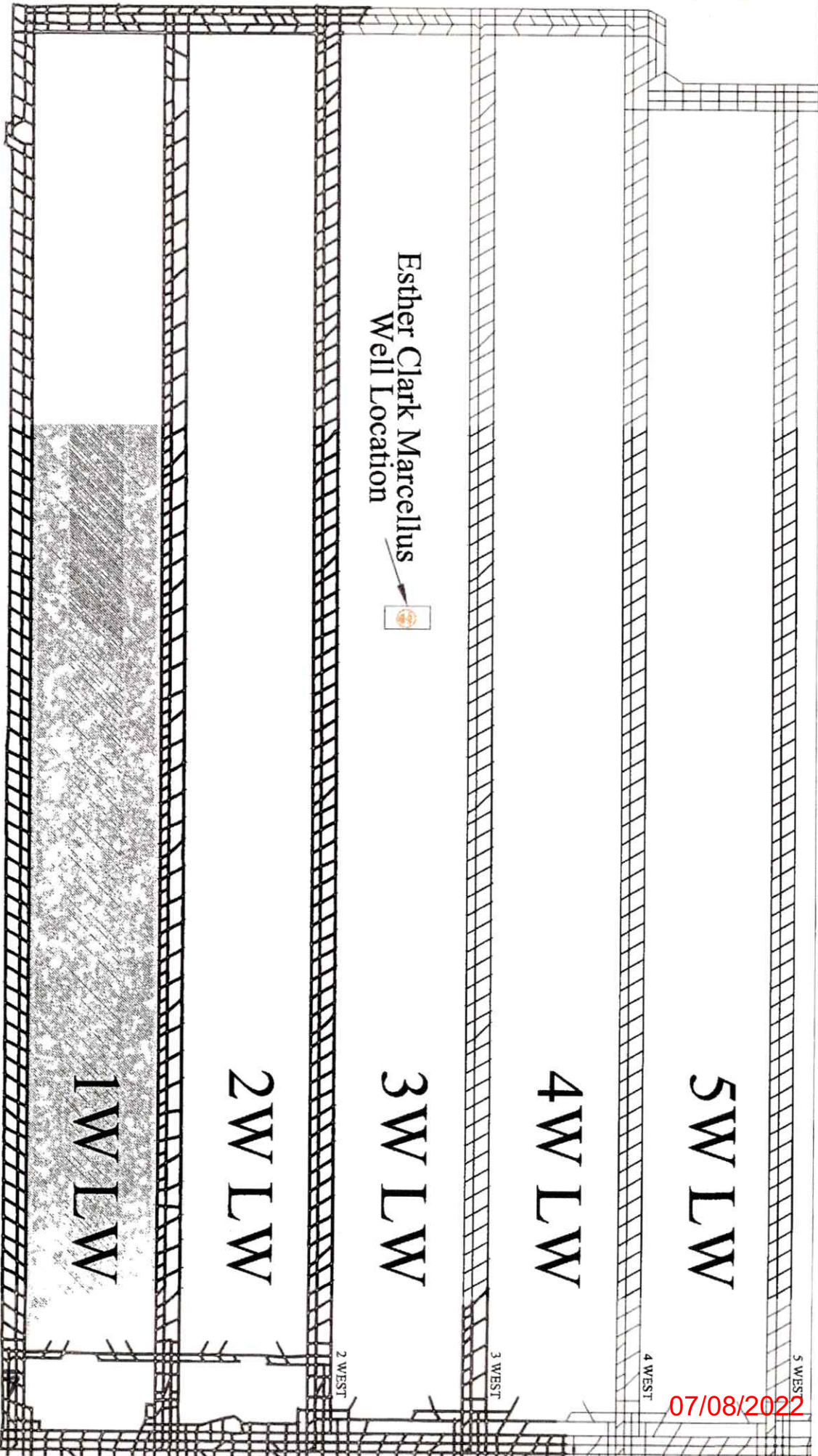
UTM N: 4390107.3

Spud date: October 2011

Initial static rock pressure: 5,153 psi

Last reported production: September 2020

Current shut in pressure: 1,340 psi



Esther Clark Marcellus  
Well Location

5W LW

4W LW

3W LW

2W LW

1W LW

5 WEST

4 WEST

3 WEST

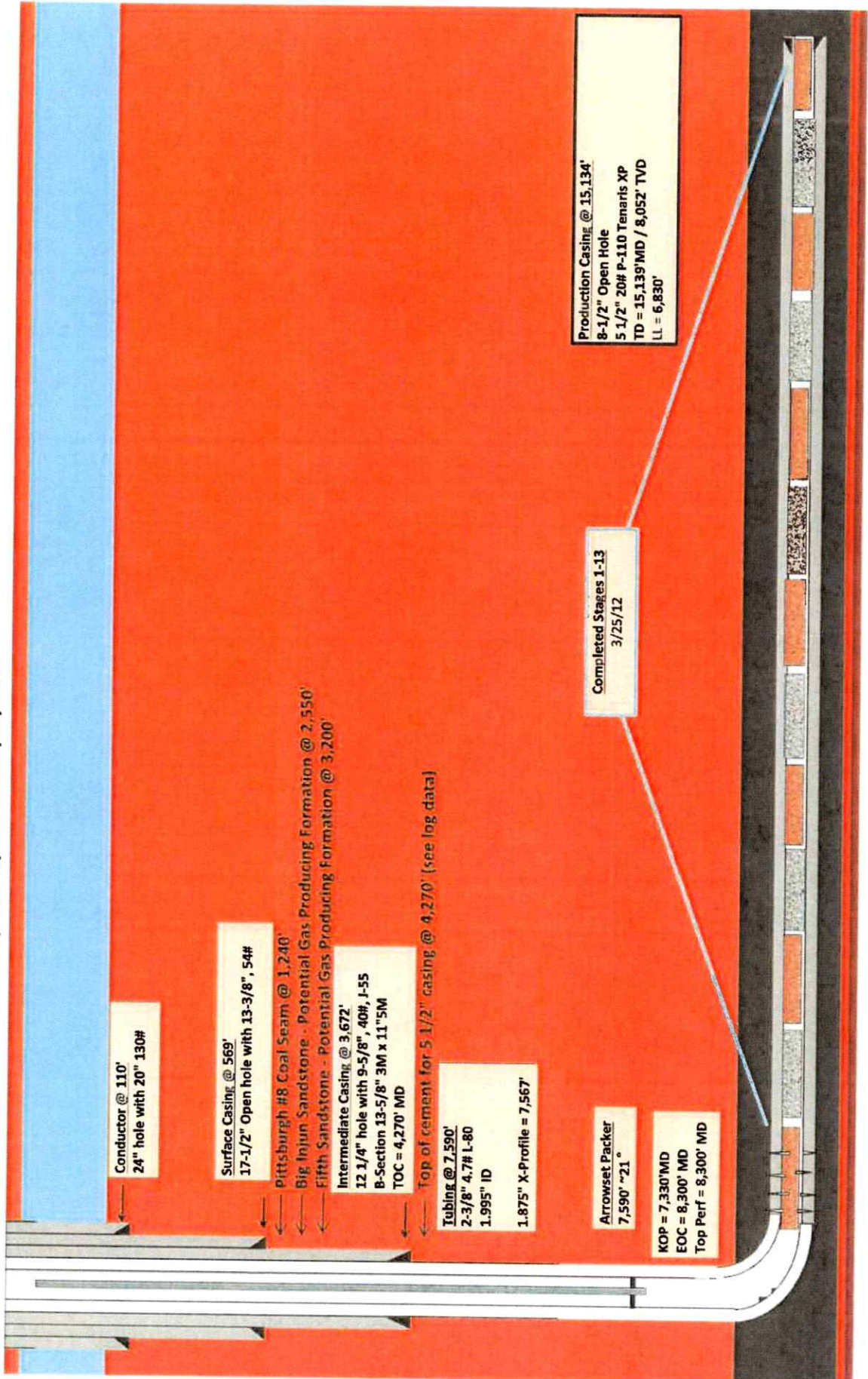
2 WEST

07/08/2022

ESTHER CLARK GAS WELL LOCATIONS  
MARION COUNTY MINE  
151 Johnny Cake Rd. Metz WV 26585  
State ID # D-403B-----MSHA ID # H0-01433  
Pittsburgh #9 Coalbed  
Mannington Quadrangle  
6/19/2021



Esther Clark 3H - Esther Clark Pad Nomac Rig #290 Spud Date: 10/18/2011



WR-35  
Rev (9-11)

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

4706101616P  
DATE: 8-7-2012  
API #: 47-061-01623

Farm name: Esther Clark 3H Operator Well No.: 833083

LOCATION: Elevation: 1424' Quadrangle: Hundred 7.5'

District: Battelle County: Monongalia  
Latitude: 5484' Feet South of 39 Deg. 40 Min. 00 Sec.  
Longitude 5973' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	20"	110'	110'	101 Cu. Ft.
Agent: <u>Eric Gillespie</u>	13 3/8"	580'	580'	684 Cu. Ft.
Inspector: <u>Sam Ward</u>	9 5/8"	3672'	3672'	1667 Cu. Ft.
Date Permit Issued: <u>6/3/2011</u>	5 1/2"	15136'	15136'	3317 Cu. Ft.
Date Well Work Commenced: <u>10/18/2011</u>				
Date Well Work Completed: <u>3/25/2012</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>8183'(cement plug 6,992 - 8183')</u>	referring to	initial pilot hole		
Total Measured Depth (ft): <u>15139'</u>				
Fresh Water Depth (ft.): <u>400'</u>				
Salt Water Depth (ft.): <u>None</u>				
Is coal being mined in area (N/Y)? <u>Y</u>				
Coal Depths (ft.): <u>221', 1200'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,300' - 15,004'

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow 5010' MCF/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests 47 Hours \* Calculated

Static rock Pressure 5153' psig (surface pressure) after \_\_\_\_\_ Hours

Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d

Time of open flow between initial and final tests \_\_\_\_\_ Hours

Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments 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.

*Max Reed*

8-11-2012

07/08/2022

12/14/2012



Were core samples taken? Yes  No

Were cuttings caught during drilling? Yes  No

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list \_\_\_\_\_  
Triple Combo, spectral gamma ray, borehole image and dipole sonic in pilot and MWD gamma ray in lateral

**NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.**

Perforated Intervals, Fracturing, or Stimulating:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Plug Back Details Including Plug Type and Depth(s): **Cement plug @ 6992' - 8183'** (pilot hole cemented)

Formations Encountered:	Top Depth	/	Bottom Depth
<u>Surface:</u>			

see attached

\_\_\_\_\_  
\_\_\_\_\_  
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## PERFORATION RECORD ATTACHMENT

Well Number and Name: 833083 Esther Clark 3H

PERFORATION RECORD			STIMULATION RECORD							
Date	Interval Perforated		Date	Interval	Treated	Fluid		Propping Agent		Average Injection
	From	To				Type	Amount	Type	Amount	
2/10/2012	14,575	15,004	3/13/2012	14,575	15,004	Sik wtr	11,886	Sand	490,500	57
3/13/2012	14,052	14,482	3/13/2012	14,052	14,482	Sik wtr	10,409	Sand	588,240	84
3/14/2012	13,529	13,959	3/15/2012	13,529	13,959	Sik wtr	10,870	Sand	588,820	84
3/16/2012	13,008	13,436	3/16/2012	13,008	13,436	Sik wtr	11,821	Sand	588,420	80
3/16/2012	12,483	12,960	3/17/2012	12,483	12,960	Sik wtr	11,750	Sand	588,210	84
3/17/2012	11,956	12,390	3/18/2012	11,956	12,390	Sik wtr	10,122	Sand	593,180	84
3/19/2012	11,438	11,867	3/19/2012	11,438	11,867	Sik wtr	13,887	Sand	582,620	80
3/19/2012	10,915	11,345	3/22/2012	10,915	11,345	Sik wtr	10,953	Sand	588,860	85
3/22/2012	10,389	10,822	3/23/2012	10,389	10,822	Sik wtr	10,191	Sand	591,580	84
3/23/2012	9,863	10,298	3/23/2012	9,863	10,298	Sik wtr	10,963	Sand	588,760	81
3/24/2012	9,350	9,776	3/25/2012	9,350	9,776	Sik wtr	10,102	Sand	588,700	85
3/25/2012	8,823	9,252	3/25/2012	8,823	9,252	Sik wtr	10,241	Sand	588,200	82
3/25/2012	8,300	8,730	3/25/2012	8,300	8,730	Sik wtr	10,205	Sand	589,060	88

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**VERTICAL PILOT HOLE**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SHALE	0		250	
SANDSTONE/SHALE	250		500	
SHALE	500		930	
SANDSTONE	930		990	
LIMESTONE/SHALE	990		1140	
COAL	1140		1156	
COAL/LIMESTONE/SHALE	1156		1240	
COAL	1240		1260	
COAL/LIMESTONE/SHALE	1260		1320	
SHALE	1320		1600	
SANDSTONE/SHALE	1600		2640	
BIG LIME	2640		2550	
BIG INJUN SANDSTONE	2550		2750	
SANDSTONE/SHALE	2750		3210	
BEREA SANDSTONE	3210		3550	
SHALE	3550		4100	
SHALE/SANDSTONE	4100		4580	
SHALE	4580		7744	
GENESEO	7744		7782	
TULLY	7782		7820	
HAMILTON	7820		7924	
MARCELLUS	7924		7994	
ONONDAGA	7994			
PILOT TD	8183			
PLUG BACK DEPTH	7107			

**LATERAL WELLBORE**

**Maximum TVD of wellbore:** 7972 ft TVD @ 13289 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SHALE	0	0	250	250

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4706101616

SANDSTONE/SHALE	250	250	500	500
SHALE	500	500	930	930
SANDSTONE	930	930	990	990
LIMESTONE/SHALE	990	990	1140	1140
COAL	1140	1140	1156	1156
COAL/LIMESTONE/SHALE	1156	1156	1240	1240
COAL	1240	1240	1260	1260
COAL/LIMESTONE/SHALE	1260	1260	1320	1320
SHALE	1320	1320	1600	1600
SANDSTONE/SHALE	1600	1600	2460	2460
BIG LIME	2640	2640	2550	2550
BIG INJUN SANDSTONE	2550	2550	2750	2750
SANDSTONE/SHALE	2750	2750	3210	3210
BEREA SANDSTONE	3210	3210	3550	3550
SHALE	3550	3550	4100	4100
SHALE/SANDSTONE	4100	4100	4580	4580
SHALE	4580	4580	7764	7730
GENESEO	7764	7730	7821	7774
TULLY	7821	7774	7854	7798
HAMILTON	7854	7798	8074	7910
MARCELLUS	8074	7910	15139	7905
LATERAL TD	15139	7905		0

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12/14/2012

## WVDEP Office of Oil and Gas - Well Search

**Disclaimer:** Per §22-6-6. Permit required for all well work; permit fee; application; soil erosion control plan.

(a) It is unlawful for any person to commence any well work, including site preparation work, which involves any disturbance of land, without first securing a well work permit from the director of the WVDEP Office of Oil and Gas.

The appearance of an API number on the web page does not signify that a permit has been issued. The API number is used as a tracking mechanism until the permit has been issued. Under no circumstances should well work be commenced without a signed permit.

### Current Operator

Well API	Operator	Surface Owner	Well Number	Well Status	Well Type	Last Permit Issue Date
4706101623	ANTERO RESOURCES CORPORATION	CLARK, ESTHER C. - LIFE TENANT	833083 ESTHER CLARK 3H	Active Well	Horizontal	06/03/2011

**Note:** The operator listed above is the CURRENT operator of the well. This operator may or may not have recorded production for this well for the years listed below. The production listed below spans the years shown, regardless of the operator who originally recorded a particular year's production numbers.

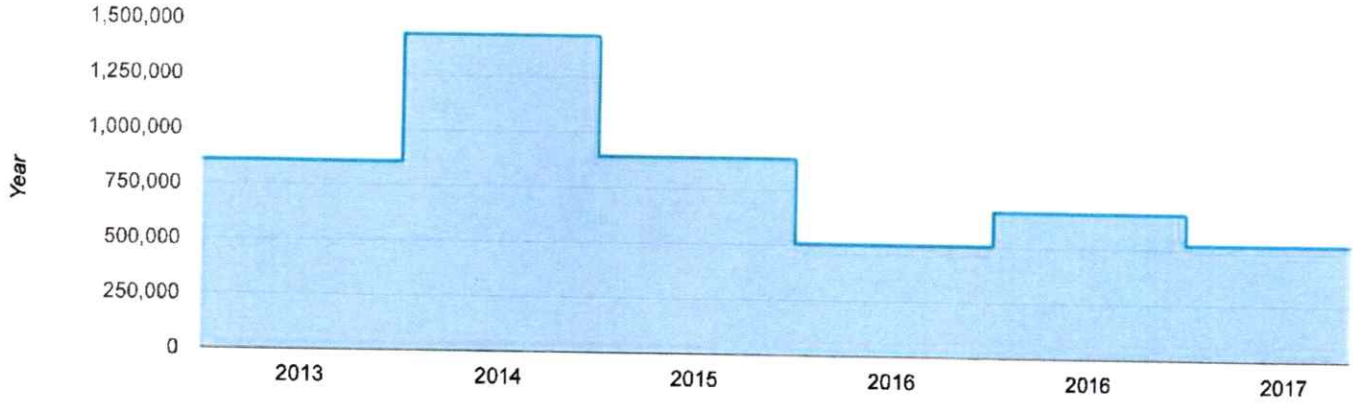
### Production by Energy Type

#### Well Lifetime Gas Production

All amounts expressed in mcfg (thousand cubic feet)

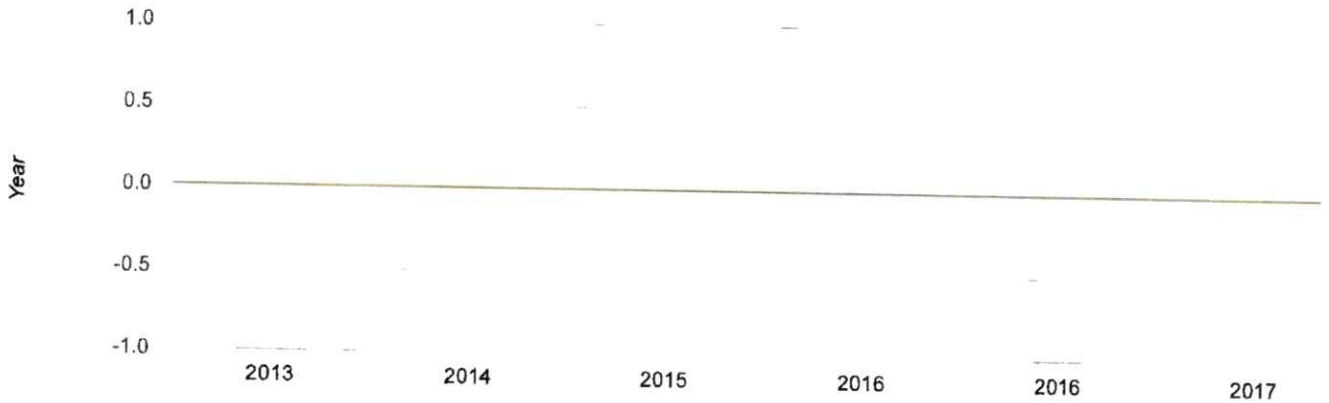
Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ANTERO RESOURCES CORPORATION	2020	23,972	15,634	18,282	30,137	31,940	29,391	21,754	13,762	2,634	0	0	0	187,506
ANTERO RESOURCES CORPORATION	2019	30,061	33,119	26,804	19,686	27,339	12,773	30,360	15,059	34,019	28,188	25,258	22,661	306,327
ANTERO RESOURCES CORPORATION	2018	37,438	34,707	37,286	33,223	36,393	24,574	32,596	28,911	26,389	27,012	23,243	30,227	372,001
ANTERO RESOURCES CORPORATION	2017	51,400	45,070	49,886	44,157	48,333	43,742	41,782	42,273	41,335	41,146	38,497	35,536	623,166
ANTERO RESOURCES CORPORATION	2016	63,936	58,352	59,605	56,713	59,439	57,083	54,508	50,661	50,662	53,066	51,740	46,957	662,723
SWN PRODUCTION COMPANY, LLC	2016	63,650	58,317	59,277	56,361	58,831	56,764	54,213	50,576	49,032	0	0	0	607,021
SWN PRODUCTION COMPANY, LLC	2015	87,745	77,189	83,140	73,358	72,540	69,563	77,930	73,905	68,867	72,592	67,559	65,491	889,879
CHESAPEAKE APPALACHIA, L.L.C.	2014	139,031	147,837	160,854	138,868	129,405	116,835	113,738	106,526	99,270	89,902	99,633	96,641	1,438,540
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	69,536	159,706	164,114	154,174	160,226	149,783	867,539

07/08/2022



∨  
All

Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ANTERO RESOURCES CORPORATION	2020	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERO RESOURCES CORPORATION	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
SWN PRODUCTION COMPANY, LLC	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
SWN PRODUCTION COMPANY, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0



Well Lifetime NGL Production

All amounts expressed in barrels

Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWN PRODUCTION COMPANY, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

07/08/2022



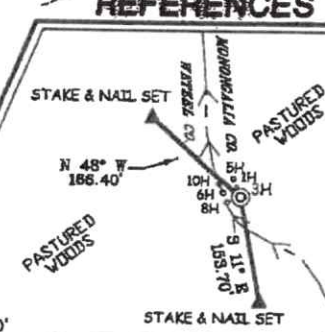
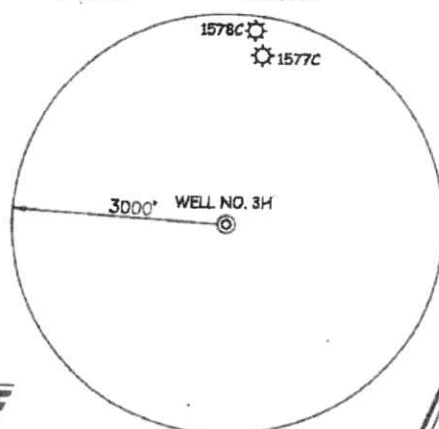
LATITUDE 39°40'00"  
 LONGITUDE 80°22'30"

**NOTES ON SURVEY**

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 1095 PAGE 468 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL & MONONGALIA COUNTIES IN JULY, 2009.
4. WELL COORDINATES ESTABLISHED FROM SURVEY GRADE GPS.

**ESTHER CLARK LEASE  
 WELL NO. 3H**

WELL NO. 3H STATE PLANNED OPERATOR	N. 4529345
WELL NO. 3H (WV 27)	L. 476, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



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 DIVISION OF ENVIRONMENTAL PROTECTION.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE APRIL 12, 2011  
 OPERATORS WELL NO. ESTHER CLARK 3H  
 API WELL NO. 47-061-01123H  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7438P3HR9 (308-50)  
 PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 1,000'

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

**WELL TYPE:** OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION X STORAGE \_\_\_ DEEP X SHALLOW \_\_\_

**LOCATION:**  
 ELEVATION 1411' WATERSHED NORTH FORK & WEST VIRGINIA CREEK  
 DISTRICT BATTELLE COUNTY MONONGALIA QUADRANGLE HUNDRED 7.5'

**SURFACE OWNER:** ENVIRO CON LTD. ACREAGE 88.10 & 148.50±

**ROYALTY OWNER:** ESTHER H. CLARK, ET AL ACREAGE 148.50±, 88.10±, 48.11±, 41.25±, 62.2±, 65.07±, 12.89±, 11.72±, & 1.82±

**PROPOSED WORK:**  
 DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ OTHER \_\_\_

**PHYSICAL CHANGE IN WELL (SPECIFY):** TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 7,890', TMD 15,400'

**WELL OPERATOR:** CHESAPEAKE APPALACHIA, LLC. DESIGNATED AGENT ERIC B. GILLESPIE

COUNTY NAME WEST VIRGINIA

07/08/2022

4706101616



Select County: (061) Monongalia  (Check All)

Enter Permit #: 01616

Get Data  Reset

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](#)

07/08/2022

WV Geological & Economic Survey:

Well: County = 61 Permit = 01616

Report Time: Monday, June 27, 2022 9:15:28 AM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	LON_DD	UTME	UTMN
4706101616	Monongalia	1616	Battelle	Hundred	Mannington	39.650387	-80.354303	551965	4389130	

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4706101616	1	As Proposed	549728	4389834	-80.420323
					39.656863

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERAT
4706101616	3/26/2012	Dvld	Orgnl Loc	Completed	Esther H Clark	1H	832638	Esther Clark	1-293420-001/1-290822-001/1-307666-01/1-304666-003	Esther H Clark et al Chesape

Completion Information:

API	CMP_DT	SPUD_DT	ELEV_DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW
4706101616	3/26/2012	12/10/2011	1424	Ground Level	Maple-Wadestown	Marcellus Fm	Marcellus Fm	Development Well	Development Well	Gas	Rotary	Fractured	7962	15674
														1

Comment: 3/26/2012 Lease #: /1-307666-004;

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4706101616	3/26/2012	Water	Fresh Water	Vertical			400	Pennsylvanian System					
4706101616	3/26/2012	Pay	Gas	Deviated	8349	Marcellus Fm	8747	Marcellus Fm	70,249	160,523	166,098	140,618	160,064
4706101616	3/26/2012	Pay	Gas	Deviated	8835	Marcellus Fm	9228	Marcellus Fm	110,189	101,438	94,311	104,742	96,703
4706101616	3/26/2012	Pay	Gas	Deviated	9321	Marcellus Fm	9713	Marcellus Fm	77,255	72,521	67,290	73,342	62,028
4706101616	3/26/2012	Pay	Gas	Deviated	9806	Marcellus Fm	10198	Marcellus Fm	111,204	103,035	93,100	99,521	51,804
4706101616	3/26/2012	Pay	Gas	Deviated	10295	Marcellus Fm	10683	Marcellus Fm	39,147	37,897	40,600	39,423	20,625
4706101616	3/26/2012	Pay	Gas	Deviated	10776	Marcellus Fm	11169	Marcellus Fm	48,267	48,267	40,600	39,423	35,818
4706101616	3/26/2012	Pay	Gas	Deviated	11262	Marcellus Fm	11654	Marcellus Fm	17,208	24,726	21,931	24,753	22,186
4706101616	3/26/2012	Pay	Gas	Deviated	11747	Marcellus Fm	12139	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	12323	Marcellus Fm	12624	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	12717	Marcellus Fm	13113	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	13203	Marcellus Fm	13595	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	13688	Marcellus Fm	14080	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	14175	Marcellus Fm	14570	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	14658	Marcellus Fm	15051	Marcellus Fm					
4706101616	3/26/2012	Pay	Gas	Deviated	15144	Marcellus Fm	15536	Marcellus Fm					

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

API	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101616	2013	847,469	0	0	0	0	0	0	70,249	160,523	166,098	140,618	160,064	149,917
4706101616	2014	1,525,949	138,264	150,803	178,004	160,929	143,177	126,962	120,427	110,189	101,438	94,311	104,742	96,703
4706101616	2015	838,375	81,361	75,950	78,855	62,061	62,245	66,349	77,255	72,521	67,290	73,342	62,028	59,118
4706101616	2016	1,120,218	118,604	112,588	105,781	108,111	114,035	111,204	103,035	93,100	99,521	53,772	51,804	48,662
4706101616	2017	489,151	51,211	44,533	45,664	42,917	48,267	39,147	37,897	43,042	40,600	39,423	20,625	35,818
4706101616	2018	330,698	37,742	32,275	35,691	32,596	33,790	17,208	24,726	21,931	24,753	22,607	25,193	22,186



4706101616	Antero Resources Corporation	2019	290,743	30,857	31,995	25,682	28,453	23,838	18,718	24,597	28,256	26,070	17,166	14,157	20,954
4706101616	Antero Resources Corporation	2020	194,684	17,582	24,644	27,882	27,004	26,390	26,307	21,558	21,330	1,987	0	0	0

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101616	Chesapeake Appalachia, LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Chesapeake Appalachia, LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	SWN Production Company, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2020	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 :

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101616	Chesapeake Appalachia, LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Chesapeake Appalachia, LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	SWN Production Company, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	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
4706101616	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101616	Antero Resources Corporation	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
4706101616	Dvdt	Original Loc	unidentified coal	1140	Reasonable	16	Qstnble Pick	1424	Ground Level
4706101616	Dvdt	Original Loc	unidentified coal	1240	Reasonable	20	Qstnble Pick	1424	Ground Level
4706101616	Dvdt	Original Loc	Big Lime	2460	Reasonable	90	Reasonable	1424	Ground Level
4706101616	Dvdt	Original Loc	Big Injun (Price&eq)	2550	Reasonable	200	Reasonable	1424	Ground Level
4706101616	Dvdt	Original Loc	Berea Ss	3210	Reasonable	340	Qstnble Pick	1424	Ground Level
4706101616	Dvdt	Original Loc	Geneseo Sh Mbr	7749	Reasonable	26	Reasonable	1424	Ground Level
4706101616	Dvdt	Original Loc	Tully Ls	7775	Reasonable	22	Reasonable	1424	Ground Level
4706101616	Dvdt	Original Loc	Hamilton Grp	7797	Reasonable	117	Reasonable	1424	Ground Level
4706101616	Dvdt	Original Loc	Marcellus Fm	7914	Reasonable			1424	Ground Level

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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

4706101616P

DATE: 9-7-2012

API #: 47-061-01616

Farm name: Esther Clark 1H Operator Well No.: 832638

LOCATION: Elevation: 1424' Quadrangle: Hundred

District: Battelle County: Monongalia  
Latitude: 5490' Feet South of 39 Deg. 40 Min. 00 Sec.  
Longitude: 5960' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>P.O. Box 18496</u> <u>Oklahoma City, OK 73154-0496</u>	<u>20"</u>	<u>110'</u>	<u>110'</u>	<u>106 Cu. Ft.</u>
Agent: <u>Eric Gillespie</u>	<u>13 3/8"</u>	<u>525'</u>	<u>525'</u>	<u>623 Cu. Ft.</u>
Inspector: <u>Sam Ward</u>	<u>9 5/8"</u>	<u>3660'</u>	<u>3660'</u>	<u>1852 Cu. Ft.</u>
Date Permit Issued: <u>1-25-2011</u>	<u>5 1/2"</u>	<u>15657'</u>	<u>15657'</u>	<u>3357 Cu. Ft.</u>
Date Well Work Commenced: <u>12-10-2011</u>				
Date Well Work Completed: <u>3-26-2012</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7962'</u>				
Total Measured Depth (ft): <u>15674'</u>				
Fresh Water Depth (ft.): <u>400'</u>				
Salt Water Depth (ft.): <u>None</u>				
Is coal being mined in area (N/Y)? <u>Y</u>				
Coal Depths (ft.): <u>221', 1200'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,349'-15,536'

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 4011' MCF/d Final open flow 0 Bbl/d  
Time of open flow between initial and final tests 77 Hours \*Calculated  
Static rock Pressure 5130' psig (surface pressure) after \_\_\_\_\_ Hours

Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_

Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

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Office of Oil and Gas

JUN 21 2022

WV Department of  
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments 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.

Marlene Williams  
Signature

9-11-2012  
Date

07/08/2022  
12/14/2012

## PERFORATION RECORD ATTACHMENT

Well Number and Name: 832638 Esther Clark 1H

PERFORATION RECORD			STIMULATION RECORD							
Date	Interval Perforated		Date	Interval Treated		Fluid		Propping Agent		Average Injection
	From	To		Type	Amount	Type	Amount			
2/15/2012	15,144	15,536	3/12/2012	15,144	15,536	Sik wtr	13,281	Sand	568,080	81
3/13/2012	14,658	15,051	3/14/2012	14,658	15,051	Sik wtr	9,916	Sand	569,480	76
3/14/2012	14,175	14,570	3/14/2012	14,175	14,570	Sik wtr	10,729	Sand	568,500	78
3/15/2012	13,688	14,080	3/16/2012	13,688	14,080	Sik wtr	10,270	Sand	571,840	77
3/16/2012	13,203	13,595	3/17/2012	13,203	13,595	Sik wtr	10,410	Sand	571,980	84
3/17/2012	12,717	13,113	3/18/2012	12,717	13,113	Sik wtr	10,526	Sand	571,880	76
3/18/2012	12,232	12,624	3/18/2012	12,232	12,624	Sik wtr	11,981	Sand	571,880	82
3/18/2012	11,747	12,139	3/19/2012	11,747	12,139	Sik wtr	10,706	Sand	570,900	80
3/19/2012	11,262	11,654	3/21/2012	11,262	11,654	Sik wtr	10,859	Sand	570,960	70
3/21/2012	10,776	11,169	3/21/2012	10,776	11,169	Sik wtr	16,450	Sand	571,720	50
3/22/2012	10,295	10,683	3/22/2012	10,295	10,683	Sik wtr	10,891	Sand	572,280	81
3/22/2012	9,806	10,198	3/23/2012	9,806	10,198	Sik wtr	10,638	Sand	570,180	84
3/23/2012	9,321	9,713	3/23/2012	9,321	9,713	Sik wtr	10,410	Sand	565,980	83
3/24/2012	8,835	9,228	3/25/2012	8,835	9,228	Sik wtr	9,979	Sand	565,250	85.8
3/26/2012	8,349	8,747	3/26/2012	8,349	8,747	Sik wtr	9,866	Sand	568,160	84.6

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JUN 21 2022

WV Department of  
Environmental Protection

12/14/2012 07/08/2022

FORM WW 6

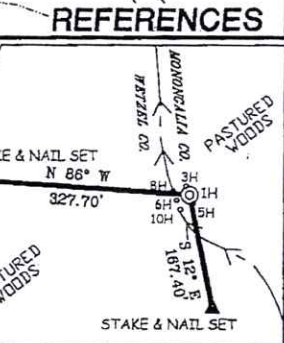
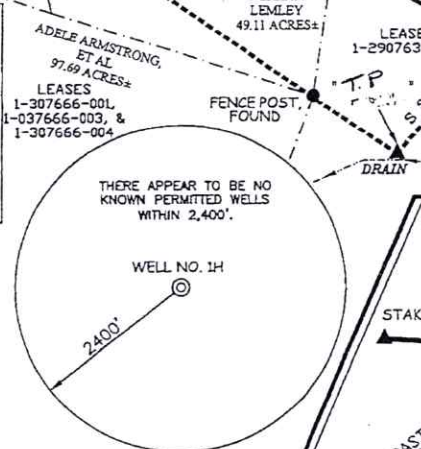
# ESTHER CLARK LEASE WELL NO. 1H



**LATITUDE 39°40'00"**  
**NOTES ON SURVEY**

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 1095 PAGE 468 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL & MONONGALIA COUNTIES IN JULY, 2009.
4. WELL COORDINATES ESTABLISHED FROM SURVEY GRADE GPS.

WELL NO. 1H STATE PLANE COORDINATES (NORTH ZONE NAD 27)	WELL NO. 1H BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27)
N. 420.221 E. 1,740.134	N. 422.734 E. 1,742.845
WELL NO. 1H (NAD 27) LAT-(N) 38.62031 LONG-(W) 80.32840	BOTTOM HOLE (NAD 27) LAT-(N) 38.62070 LONG-(W) 80.31408
WELL NO. 1H (NAD 83) LAT-(N) 39°33' 01.1" LONG-(W) 80°23' 43.4"	BOTTOM HOLE (NAD 83) LAT-(N) 39°33' 25.5" LONG-(W) 80°24' 50.7"
UTM (NAD 83) N. 4388.150 E. 667,366	UTM (NAD 83) N. 4388.066 E. 667,290



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 DIVISION OF ENVIRONMENTAL PROTECTION.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE OCTOBER 1, 20 10  
OPERATORS WELL NO. ESTHER CLARK 1H  
API WELL NO. 47-061-01616 H  
STATE OKLAHOMA COUNTY DEWELL PERMIT

P.S. 677  
MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7436P1HR5 (308-50)  
PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 1,000'

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

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1,424' WATERSHED NORTH FORK & WEST VIRGINIA CREEK  
DISTRICT BATTELLE COUNTY MONONGALIA QUADRANGLE HUNDRED 7.5'

SURFACE OWNER ENVIRO CON LTD. ACREAGE 88.10 & 148.50±  
ROYALTY OWNER ESTHER H. CLARK, ET AL  
PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD   
FORMATION PERFORATE NEW FORMATION PI.UG AND ABANDON  CLEAN OUT AND REPLUG  OTHER   
PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH 7,890'

WELL OPERATOR CHESAPEAKE APPALACHIA, LLC. DESIGNATED AGENT ERIC B. GILLESPIE  
ADDRESS P.O. BOX 18496 ADDRESS P.O. BOX 6070  
OKLAHOMA CITY, OK 73154-0496 CHARLESTON, WV 25362

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4706101616P

WW-4A  
Revised 6-07

1) Date: JUNE 10, 2022  
2) Operator's Well Number ESTHER CLARK 1H  
3) API Well No.: 47 - 061 - 01616

**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>ENVIRO CON LTD. (LIFE ESTHER H. CLARK)</u>	Name <u>WEST VIRGINIA LAND RESOURCES INC.</u>
Address <u>PO BOX 2156</u>	Address <u>1 BRIDGE STREET</u>
<u>FAIRMONT, WV 26555</u>	<u>MONONGAH, WV 26554</u>
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name _____
	Address _____
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>KENNETH L. GREYNOLDS</u>	(c) Coal Lessee with Declaration
Address <u>613 BROAD RUN RD.</u>	Name _____
<u>JANE LEW, WV 26378</u>	Address _____
Telephone <u>(304) 206-6613</u>	

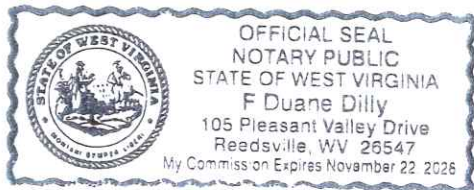
**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (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 reverse 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.

*David Roddy* 6-10-22



Well Operator WEST VIRGINIA LAND RESOURCES INC.  
 By: DAVID RODDY  
 Its: PROJECT ENGINEER  
 Address 1 BRIDGE STREET  
MONONGAH, WV 26554  
 Telephone (304) 534-4748

Subscribed and sworn before me this 10<sup>th</sup> day of June  
F Duane Dilly Notary Public  
 My Commission Expires 11/22/26

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Office of Oil and Gas  
JUN 21 2022

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 [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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**U.S. Postal Service™**  
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Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

**OFFICIAL USE**

Postmark  
JUN 13 2022  
MONROE, LA 70001

Certified Mail Fee \$

Extra Services & Fees (check box, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$

Total Postage and Fees \$

Sent To *Enville Lon LTD*

Street and Apt. No. or PO Box No. *P.O. Box 2156*

City, State, ZIP+4® *Fairmont, WV 26535*

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 0160 0001 2020 2020 5446

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WW-4B

4706101616  
47-061-01616P

API No. \_\_\_\_\_  
Farm Name \_\_\_\_\_  
Well No. ESTHER CLARK 1H

**INSTRUCTIONS TO COAL OPERATORS  
OWNERS AND LESSEE**

The well operator named on the obverse side of WW-4 (B) is about to abandon the well described in the enclosed materials and will commence the work of plugging and abandoning said well on the date the inspector is notified. Which date shall not be less than five days after the day on which this notice and application so mailed is received, or in due course should be received by the Department of Environmental Protection Office of Oil & Gas.

This notice and application is given to you in order that your respective representatives may be present at the plugging and filling of said well. You are further notified that whether you are represented or not the operator will proceed to plug and fill said well in the manner required by Section 24, Article 6, Chapter 22 of the Code and given in detail on obverse side of this application.

NOTE: If you wish this well to be plugged according to 22-6-24(d) then as per Regulation 35CSR4-13.9 you must complete and return to this office on form OB-16 "Request by Coal Operator, Owner, or Lessee for plugging" prior to the issuance of this plugging permit.

**WAIVER**

The undersigned coal operator X / owner X / lessee \_\_\_\_\_ / of the coal under this well location has examined this proposed plugging work order. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: 6-10-22

By: [Signature]  
Its Designated Agent

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Environmental Protection

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WW-9  
(5/16)

4706101616P

API Number 47 - 061 - 01616  
Operator's Well No. 1#

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

Operator Name WEST VIRGINIA LAND RESOURCES INC. OP Code \_\_\_\_\_

Watershed (HUC 10) NORTH FORK OF WEST VIRGINIA FORK OF DUNKARD CREEK Quadrangle HUNDRED W.VA.PA

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 Tanks. see attached letter)

Will closed loop system be used? If so, describe: Yes. Gel circulated from tank thru well bore and returned to tank

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Gel or Cement

-If oil based, what type? Synthetic, petroleum, etc. \_\_\_\_\_

Additives to be used in drilling medium? Bentonite, Bicarbonate of Soda

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Shaker cutting buried on site.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? N/A

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 [Signature] 6-10-22

Company Official (Typed Name) David Roddy

Company Official Title Project Engineer

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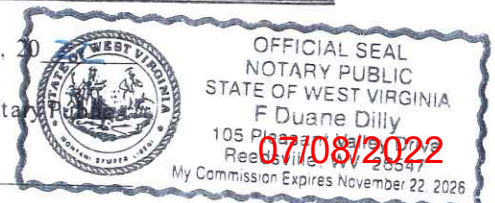
JUN 21 2022

WV Department of  
Environmental Protection

Subscribed and sworn before me this 10 day of June, 2022

[Signature] Notary

My commission expires 11/22/24





Consolidation Coal Company  
Northern West Virginia Operations  
1 Bridge Street  
Monongah, WV 26554

phone: 304-534-4748  
fax: 304-534-4739  
e-mail: [ronnieharsh@consolenergy.com](mailto:ronnieharsh@consolenergy.com)  
web: [www.coalsource.com](http://www.coalsource.com)

\*Name: RONNIE HARSH  
\*title: Project Engineer

April. 7, 2014

Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304-2345  
Phone: (304) 926-0499  
Fax: (304) 926-0452

To Whom It May Concern:

As per the Department of Environmental Protection, Office of Oil and Gas request, Consolidation Coal Company, Northern West Virginia Operations, submits the following procedures utilizing pit waste.

Upon submitting a well work application (without general permit for Oil and Gas Pit Waste Discharge Application), Consolidation Coal Company, Northern West Virginia Operations, will construct no pits, but instead will use mud tanks to contain all drilling muds.

Once the well is completed, that material (minus the cave material) will be trucked to the next well to be plugged or to DEP impoundment facilities number U-78-83, U-104-83, or U-1011-93.

Sincerely,



Ronnie Harsh  
Project Engineer

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Proposed Revegetation Treatment: Acres Disturbed 1 Prevegetation pH

Lime 3 Tons/acre or to correct to pH 6.0

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre See Attachment 100

Seed Type lbs/acre See Attachment 100

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: [Signature]

Comments: [Handwritten notes]

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JUN 21 2022

Title: Oil & Gas [Handwritten]

Date: 6-19-22

Field Reviewed? ( ) Yes ( [X] ) No

WV Department of Environmental Protection

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CAUDILL SEED

1834 E MAIN HWY 60 HOUSE #2 MOREHEAD KY 40351 PMS # 4923



NOTICE TO CONSUMERS

Notice Arbitration/condition/medication required by several states. Under the seed laws of several states, arbitration, medication, or condition is required as a prerequisite to maintaining a legal action based upon the failure of seed, to which this notice is attached, to produce as represented. The consumer should file a complaint (sworn for AR, FL, IN, MS, SC, TX, WA, signed only CA, ID, ND, SD) along with the required filing fee (where applicable) with the Commissioner or Director/Secretary of Agriculture, Seed Commission or Plant or Chief Agricultural Officer within such time as to permit inspection of the crops, plants, or trees by the designated agency and the seedsmen from whom the seed was purchased. A copy of the complaint shall be sent to the seller by certified or registered mail or as otherwise provided by state statute.

MIXTURE-COASTAL SEED 2015

LOT NO: 7M1000

CROP: .58

INERT: 1.56

NET WT 50

WEED SEED: .26

KIND  
ANNUAL RYEGRASS  
ORCHARDGRASS  
COATING MATERIAL  
PERENNIAL RYEGRASS  
CLOVER  
COATING MATERIAL  
TIMOTHY  
BIROSFOT TREFOIL  
COATING MATERIAL  
LADINO CLOVER  
COATING MATERIAL

VARIETY  
MAGNUM  
POTOMAC  
LINN  
NOT STATED  
CLIMAX  
NOT STATED  
SEMINOLE

ORG	PURE	GERM	HARD	COAR	TEST
OR	29.40	93.00	.00	.00	10/16
OR	11.30	85.00	.00	.00	11/16
OR	0.00	.00	.00	.00	11/16
OR	10.60	65.00	.00	.00	11/16
OR	6.40	85.00	.00	.00	12/16
OR	3.40	.00	.00	.00	12/16
CAN	9.80	85.00	.00	.00	10/16
CAN	2.80	83.00	7.00	.00	11/16
OR	1.91	.00	.00	.00	11/16
OR	3.17	60.00	25.00	.00	8/16
	1.70	.00	.00	.00	8/16

NOTICE TO BUYER: WE WARRANT THAT SEEDS WE SELL WILL CONFORM TO THE LABEL DESCRIPTION REQUIRED UNDER STATE AND FEDERAL LAWS, WITHIN RECOGNIZED TOLERANCES. WE MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHERWISE, WHICH WOULD EXTEND BEYOND SUCH DESCRIPTIONS, AND IN ANY EVENT OUR LIABILITY FOR BREACH OF ANY WARRANTY OR CONTRACT WITH RESPECT TO SUCH SEED IS LIMITED TO THE PURCHASE PRICE OF SUCH SEEDS.

Hemo  
Treatments

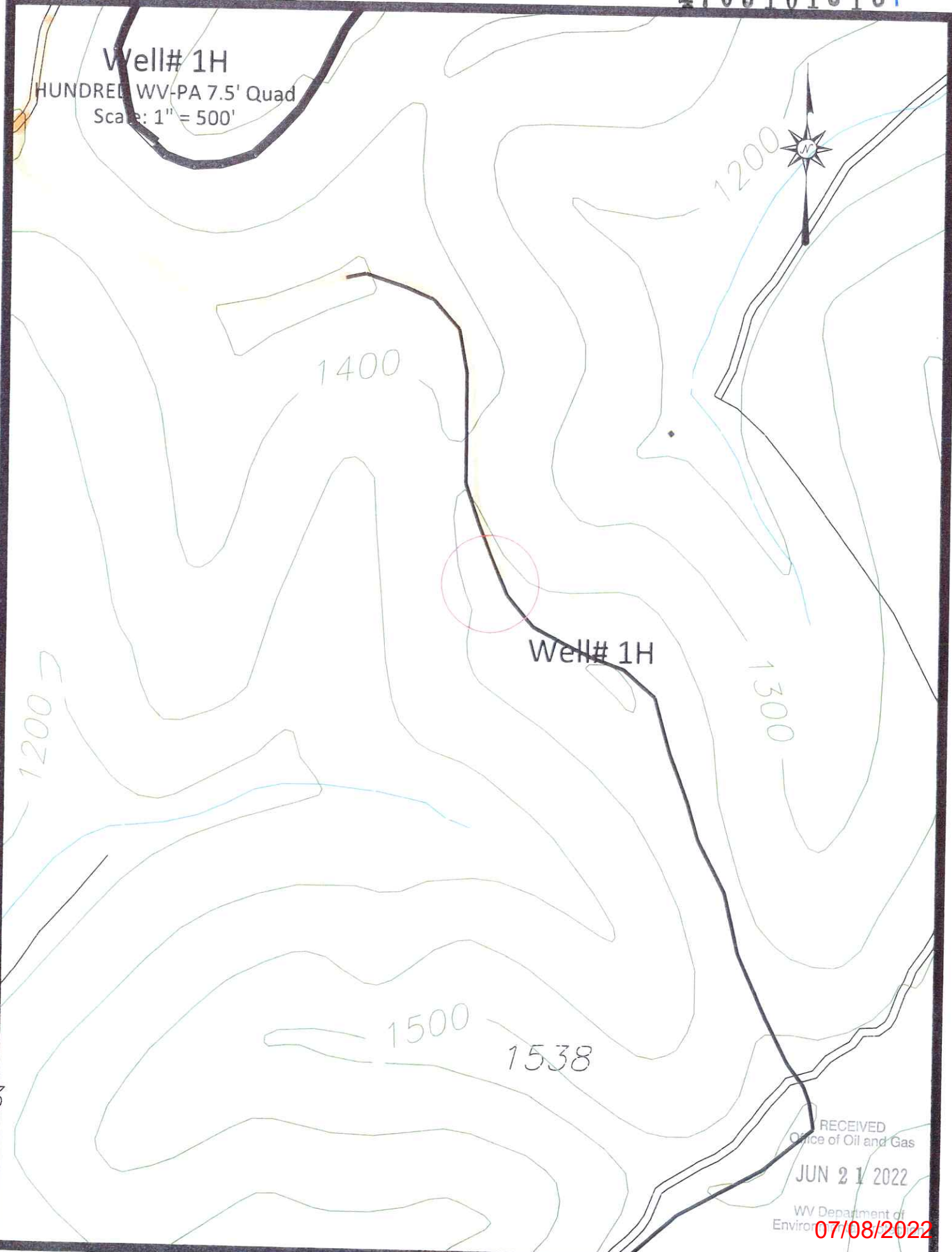
NOXIOUS WEEDS PER LB

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Well# 1H  
HUNDRED WV-PA 7.5' Quad  
Scale: 1" = 500'



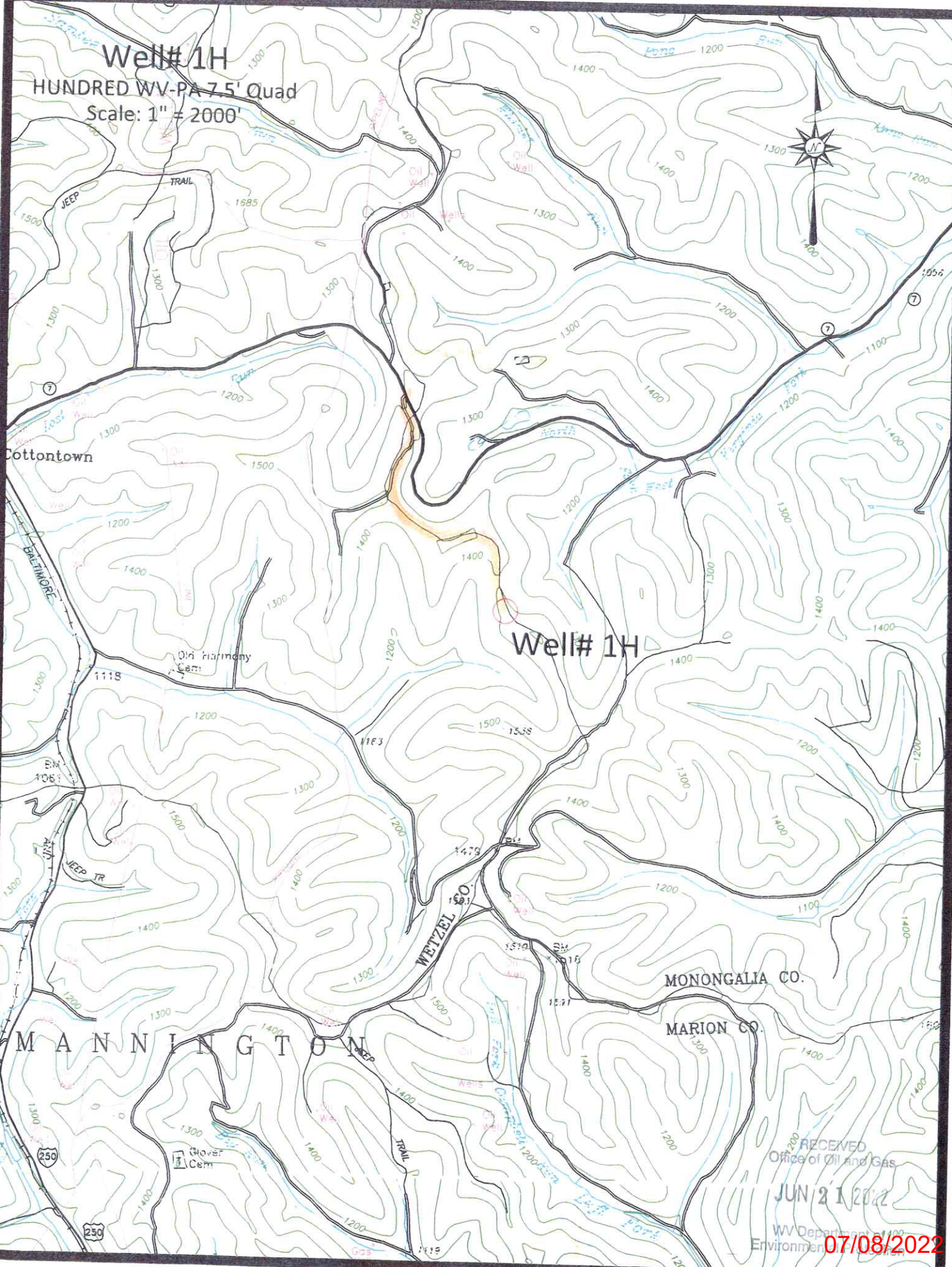
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Well# 1H

HUNDRED WV-PA 7.5' Quad

Scale: 1" = 2000'



Well# 1H

Cottontown

MANNINGTON

MONONGALIA CO.

MARION CO.

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*Handwritten note:* H 1000' (Rm 1)

4706101616P

WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas

WELL LOCATION FORM: GPS

API: 47-061-01616 WELL NO.: ESTHER CLARK 1H

FARM NAME: ESTHER CLARK

RESPONSIBLE PARTY NAME: WEST VIRGINIA LAND RESOURCES INC.

COUNTY: MONONGALIA DISTRICT: BATTELLE

QUADRANGLE: HUNDRED W.VA, PA

SURFACE OWNER: ENVIRO CON LTD. (LIFE ESTHER H. CLARK)

ROYALTY OWNER: \_\_\_\_\_

UTM GPS NORTHING: 4,389,129 m

UTM GPS EASTING: 551,966 m GPS ELEVATION: 434 m (1424')

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:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS \_\_\_\_\_: Post Processed Differential \_\_\_\_\_

Real-Time Differential \_\_\_\_\_

Mapping Grade GPS X: Post Processed Differential X

Real-Time Differential \_\_\_\_\_

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.

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WV Department of  
Environmental Protection

Signature

[Signature]  
Professional Surveyor

Title

JUNE 10, 2022

Date

07/08/2022



Kennedy, James P <james.p.kennedy@wv.gov>

## 4706101616 4706101623 plugging permits

3 messages

**Kennedy, James P** <james.p.kennedy@wv.gov>


Fri, Jul 8, 2022 at 11:17 AM


To: Wade A Stansberry <wade.a.stansberry@wv.gov>, Jeffrey W McLaughlin <jeffrey.w.mclaughlin@wv.gov>, Kenneth L Greynolds <kenneth.l.greynolds@wv.gov>, mmusick@assessor.org, jdevincent@assessor.org, kliller@assessor.org, DavidRoddy@acnrinc.com

To whom it may concern 4706101616 and 4706101623 have been issued.

James Kennedy  
WVDEP OOG

### 2 attachments

 **4706101623.pdf**  
10937K

 **4706101616.pdf**  
8831K

**Mail Delivery Subsystem** <mailer-daemon@googlemail.com>

Fri, Jul 8, 2022 at 11:17 AM

To: james.p.kennedy@wv.gov



### Message too large

Your message couldn't be delivered to **DavidRoddy@acnrinc.com** because it exceeds the size limit. Try reducing the message size and resending.

The response from the remote server was:

552 size limit exceeded

Final-Recipient: rfc822; [DavidRoddy@acnrinc.com](mailto:DavidRoddy@acnrinc.com)

Action: failed

Status: 5.0.0

Remote-MTA: dns; [mx1.hc3867-53.iphmx.com](https://mx1.hc3867-53.iphmx.com). (68.232.141.84, the server for the domain [acnrinc.com](https://acnrinc.com).)

Diagnostic-Code: smtp; 552 size limit exceeded

Last-Attempt-Date: Fri, 08 Jul 2022 08:17:54 -0700 (PDT)

07/08/2022

----- Forwarded message -----

From: "Kennedy, James P" <james.p.kennedy@wv.gov>

To: Wade A Stansberry <wade.a.stansberry@wv.gov>, Jeffrey W McLaughlin <jeffrey.w.mclaughlin@wv.gov>, Kenneth L Greynolds <kenneth.l.greynolds@wv.gov>, mmusick@assessor.org, jdevincent@assessor.org, kliller@assessor.org, DavidRoddy@acnrinc.com

Cc:

Bcc:

Date: Fri, 8 Jul 2022 11:17:37 -0400

Subject: 4706101616 4706101623 plugging permits

----- Message truncated -----

---

**Kennedy, James P** <james.p.kennedy@wv.gov>

Fri, Jul 8, 2022 at 1:04 PM


To: Wade A Stansberry <wade.a.stansberry@wv.gov>, Jeffrey W McLaughlin <jeffrey.w.mclaughlin@wv.gov>, Kenneth L Greynolds <kenneth.l.greynolds@wv.gov>, mmusick@assessor.org, jdevincent@assessor.org, kliller@assessor.org, DavidRoddy@acnrinc.com

[Quoted text hidden]

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**2 attachments**

 **4706101623.pdf**  
4962K

 **4706101616.pdf**  
4430K

07/08/2022