west virginia department of environmental protection

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

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

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 833083 ESTHER CLARK 3H
47-061-01623-00-00

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: 833083 ESTHER CLARK 3H
Farm Name: CLARK, ESTHER C. - LIFE TE
U.S. WELL NUMBER: 47-061-01623-00-00
Horizontal Plugging
Date Issued: 7/8/2022

07/08/2022

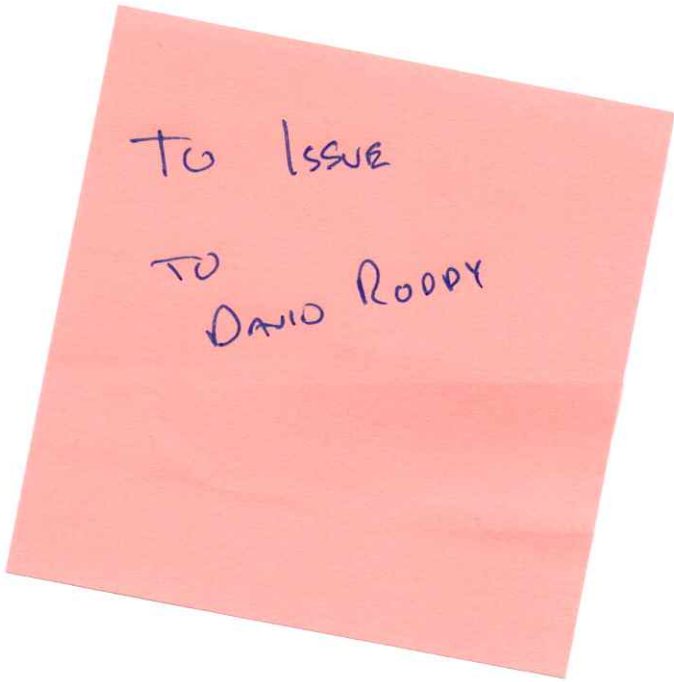
4706101623

PERMIT CONDITIONS

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

CONDITIONS

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



07/08/2022

WW-4B
Rev. 2/01

4706101623P

1) Date JUNE 10, 20 22
2) Operator's
Well No. ESTHER CLARK 3H
3) API Well No. 47- 061 - 01623

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.
Address 1 BRIDGE STREET
MONONGAH, WV 26554

7) Designated Agent DAVID RODDY
Address 1 BRIDGE STREET
MONONGAH, WV 26554

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

9) Plugging Contractor
Name
Address

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

RECEIVED
Office of Oil and Gas
JUN 21 2022
WV Department of
Environmental Protection

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

Work order approved by inspector Kenneth L. Greynolds Date 6-13-22

07/08/2022

Exhibit 1. Alternate Methods

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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 surf ace.)

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-l/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-l/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-l/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-l/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.

4706101623P

U. S. Department of Labor

Mine Safety and Health Administration
201 12th 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.

07/08/2022

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 lH 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 ofcement), 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 lH 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 lH 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 agreater 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 inby 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 flame 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 12th 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'

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

4706101623P

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 hmoore@fisherphillips.com
Fisher & Phillips LLP
6 PPG Place, Suite 830
Pittsburgh, PA 15222

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'

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

07/08/2022

APPENDIX A

PROPOSED PLUGGING PROCEDURES
Esther Clark 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 specifics 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 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 arrowset 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.

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. (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 arrowset 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.

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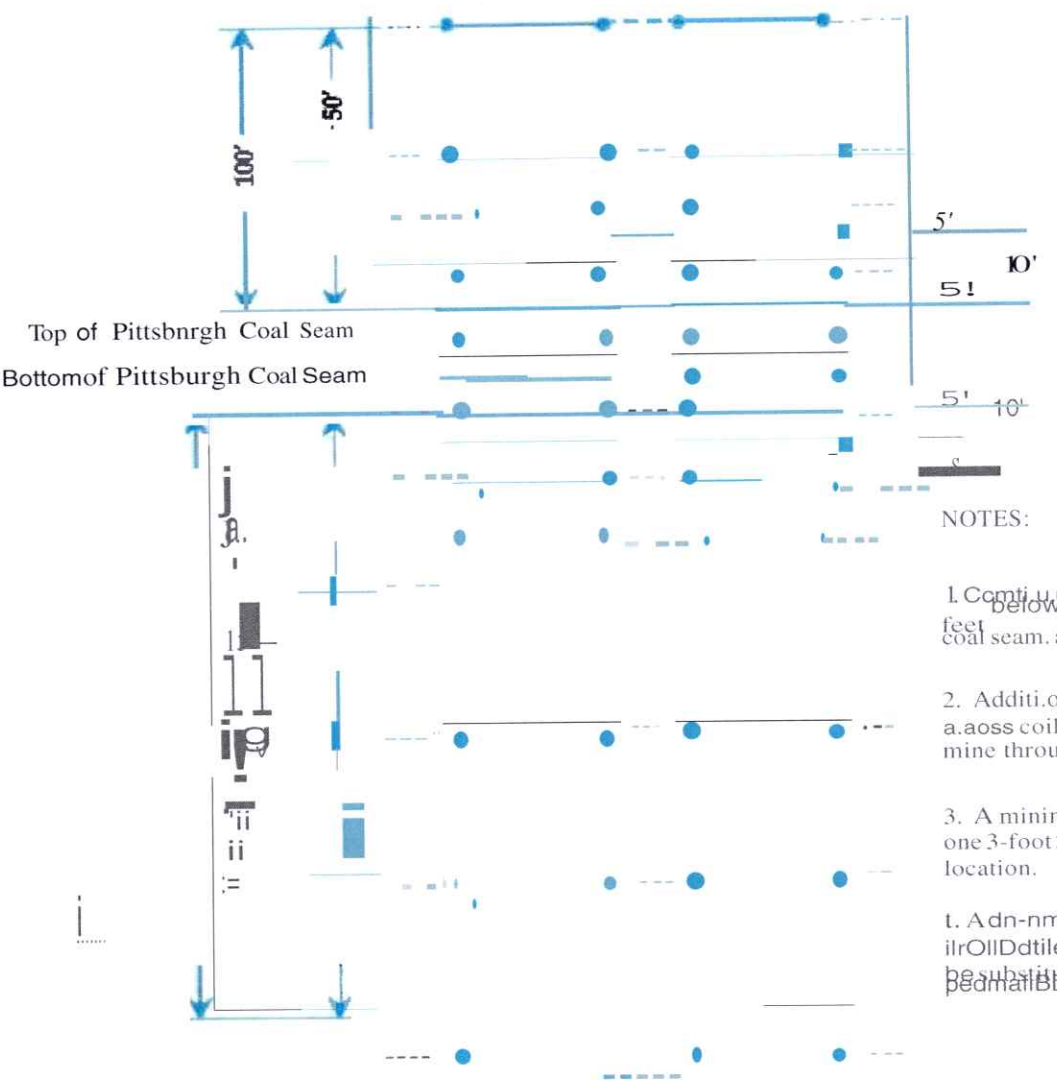
APPENDIX B

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



NOTES:

1. Comti u uausrlpfrym 10 below to 10 feet above coal seam. ar like sl:.eh:h.

2. Additi.omd rips made a.aoss coil seam to fadlitate mine through.

3. A minimum of 4 shots m one 3-foot :ripateada location.

t. Adn-nmferenl::ia eat ilrOllDdtile entire cmay be substituted for the pedmatlBD. or.tipping.

NOTTO SCALE

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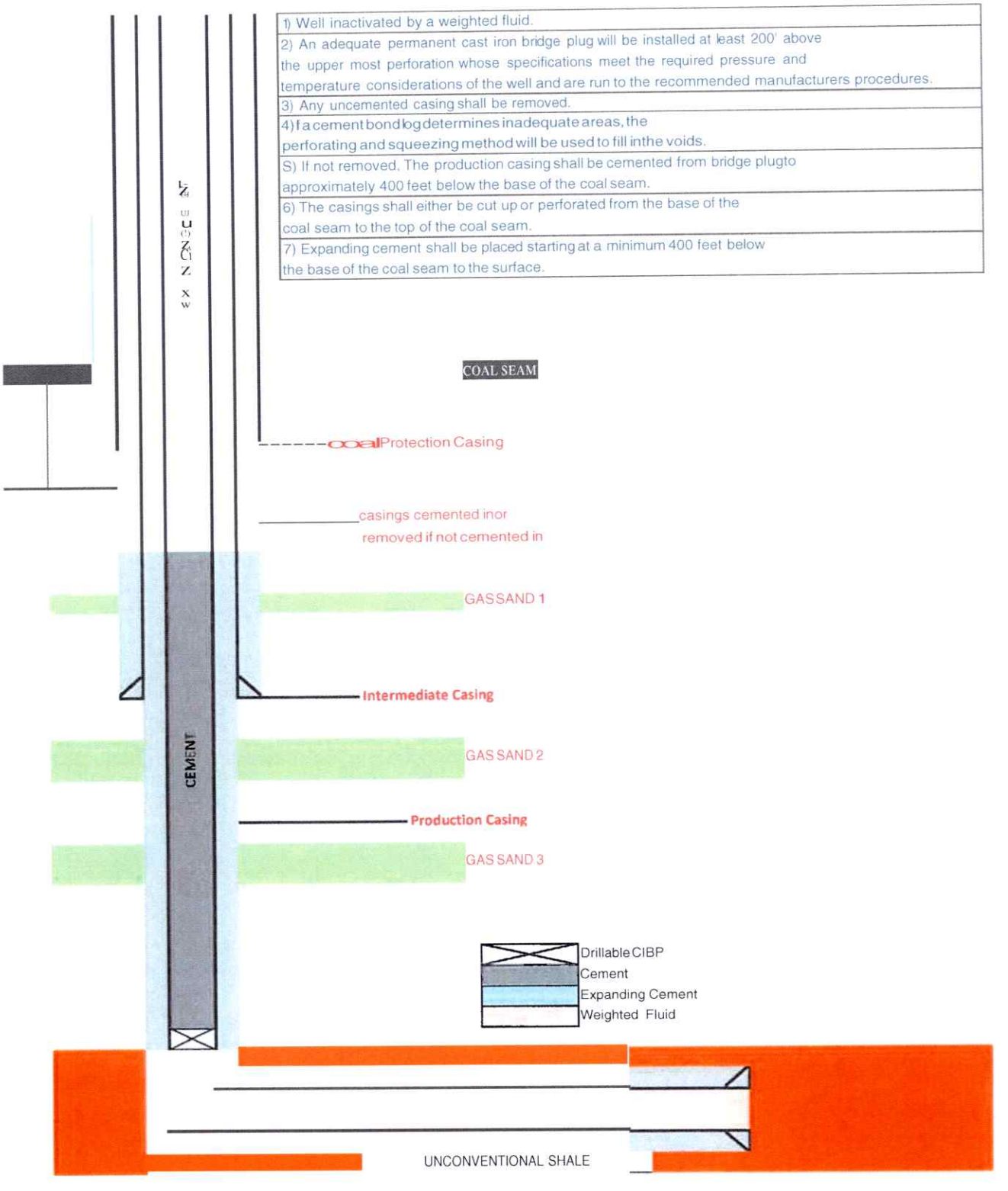
APPENDIX C

GENERAL PROPOSED PERMANENT PLUGGING SCHEMATIC FOR AN UNCONVENTIONAL GAS WELL

1) Well inactivated by a weighted fluid.
2) An adequate permanent cast iron bridge plug will be installed at least 200' above the upper most perforation whose specifications meet the required pressure and temperature considerations of the well and are run to the recommended manufacturers procedures.
3) Any uncemented casing shall be removed.
4) If a cement bond log determines inadequate areas, the perforating and squeezing method will be used to fill in the voids.
S) If not removed. The production casing shall be cemented from bridge plug to approximately 400 feet below the base of the coal seam.
6) The casings shall either be cut up or perforated from the base of the coal seam to the top of the coal seam.
7) Expanding cement shall be placed starting at a minimum 400 feet below the base of the coal seam to the surface.



07/08/2022

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

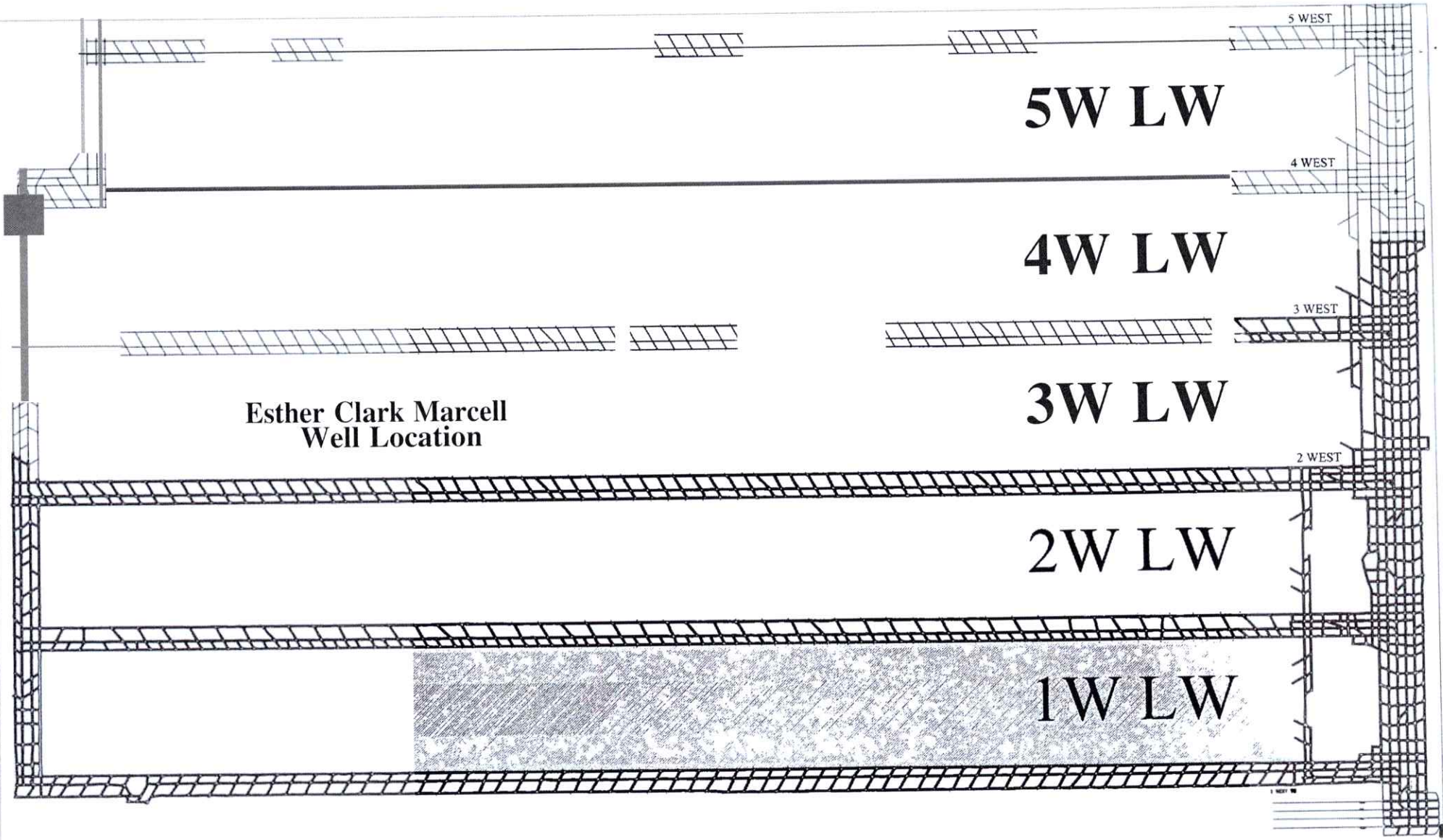
Spud date: December 2011

Initial static rock pressure: 5,130 psi

Last reported production: September 2020

Current shut in pressure: 1,550 psi

Appendix D:



ESTHER CLARK GAS WELL LOCATIONS
MARION COUNTY MINE
151 Johnny Coke Rd. Metz WV 26585
State ID # D-4038------MSHA ID # 46-01433
Pittsburgh #8 Coalbed
Mannington Quadrangle
6 10 2021

0 1000 2000 3000

N

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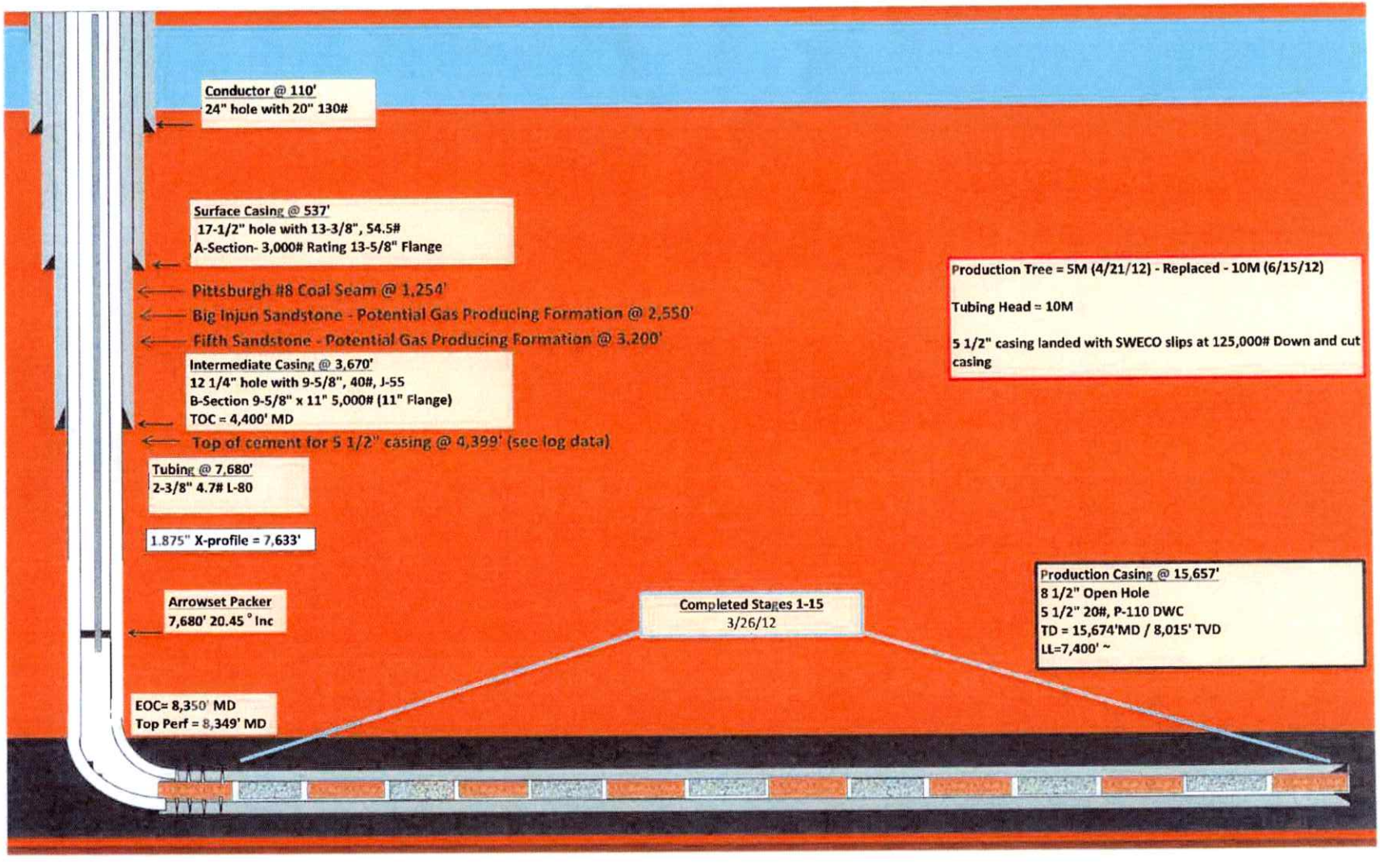
Esther Clark 1H - Esther Clark Pad Nomac Rig #20 Spud Date: 12/10/2011



07/08/2022

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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

Fann name: Esther Clark 1H Operator Well No.: 832638
LOCATION: Elevation: 1424' Quadrangle: Hundred

District: BatteOe County: Monongafia
Latitude: 54SO' Feet S ""outh of 39 Deg. 40 Min. 00 Sec.
Longitude 5960' Feet West of ao Deg. 22 Min 30 Sec.

Co1mnanv: Chesapeake Appalachia, LLC

Address: P.O. Box 18496	Casing & Tubin2	Used in drillin2	Left in well	Cement fill uo Cu. Ft.
Oklahoma City, OK 73154-0496	20A	110'	110'	106 Cu. Ft
Ae.ent: Bric Gillespie	13 3/8"	525'	525'	623 Cu. Ft.
Insoector: Sam Ward	9 5/8"	3660'	3660'	1852 Cu. Ft.
Date Permit lued: 1-25-2011	5 1!2"	15657'	15657'	3357 Cu. Fl
Date Well Work Commenced: 12-10-2011				
Date Well Work Comoleted: 3-26-2012				
Verbal Plu22in2:				
Date Permission E!rallted on:				
Rotarv lLt Cable D Rie: r I				
Total Vertical Deoth (ft): 7962'				
Total Measured Deoth (ft): 15674'			7111/.	
Fresh Water De1>th (ft.): 400'				
Salt Water Deoth (ft.): None				
Iscoal bein2 mined in area <NM? y				
Coal De1>tbs (ft.): 221', 1300'				
VoidCs) encountered <NM Deoth(s) N				

OPEN FLOW DATA (If more than two producing fonnations please include additional data on separate sheet)
Producing fonnation MarceDus Pay zone depth (ft) 8.349'.S.538'
Gas: Initial open flow MCF/d Oil: Initial open Oow BbUd
Final open flow 401 l• MCF/d Final open flow o BbUd
Time of open flow between initial and final tests 77 Hours *Calculated
Static rock Pressure 5130• psis (surface pressure) after ___ Hours

Second producing formation Pay zone depth (ft)_____
Gas:- liiitial operi fl0w . - . --MCFidOil: - iiiitial open flow Bblld
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 oflaw that I have personally examined and am familiar with the infonnation submitted on this document and all the attaclunents and that, based on my inquiry of those individuals immediately responsible for obtaining the infonnation I believe that the information is true, accurate, and complete.

Marlene Williams 9-1-2012 Date 12/14/2012

07/08/2022

4706101623

Were core samples taken? Yes_____ No Were cuttings caught during drilling? Yes No_____

Were Elecirical, Mechanical or Geophysical logs recorded on this well? Ifyes, please list MWD IN LATERAL

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERV, 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):

fOfPlations Encountered: Top Depth / Bottom Depth
Surface:

(See Attached)

12/14/2012
07/08/2022

4706101623

PERFORATION RECORD ATTACHMENT

WeU Number and Name: 832838 Esthar Clark 1H

PERFORATION RECORD			STIMULATION RECORD							
	hterval Perforaled					Fluid		Pforv1	nnAl'IRIlf	Average
Dale	From	To	Date	hterval Treated		Tvne	Amount	Woe	Amount	hiaclion
211512012	15144	15536	311212012	15144	15538	Slk wlr	13281	Sand	568080	81
311312012	14658	15051	311412012	14858	16061	Sile wtr	9916	Sand	569480	76
311412012	14175	14570	311412012	14175	14570	Slk wtr	10729	Sand	568500	78
3115/2012	13688	14080	311812012	13688	14080	Slk wtr	10270	Sand	571840	n
3116/2012	13:m:i	13595	311712012	13203	13595	Slk wtr	10410	Sand	571980	84
311712012	12717	13113	3118/2012	12717	13113	Slk wlr	10526	Sand	571880	76
311812012	12232	12624	3118/2012	12232	12624	Slk wlr	11981	Sand	571.BBO	82
311812012	11747	12139	311912012	11747	12139	Slk wlr	10706	Sand	570900	80
311912012	11262	f1654	312112012	11262	11654	Slk wlr	10859	Sand	570980	70
312112012	Iona	11169	312112012	10776	11189	Slkwlr	16450	Sand	571720	50
312212012	10295	10683	312212012	10.295	10683	Slkwtr	10891	Sand	572.280	81
312212012	9808	10198	3123/2012	9808	10198	Slk wtr	10638	Sand	570180	84
3/2312012	9321	9713	312312012	9321	9713	Slk wtr	10410	Sand	565980	83
3124/2012	8635	9228	312512012	8835	9.2211	Slk wlr	9979	Sand	565 250	85.8
312612012	8,349	8747	3/26/2012	8349	8747	Slkwlr	9888	Sand	568160	84.6

12/14/2012
07/08/2022

4706101623

LATERAL WELLBORE

Maximum TVO of wellbore: 7962 ft TVD @ 8370 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, IVD (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

12/14/2012

07/08/2022

4706101623

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

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.

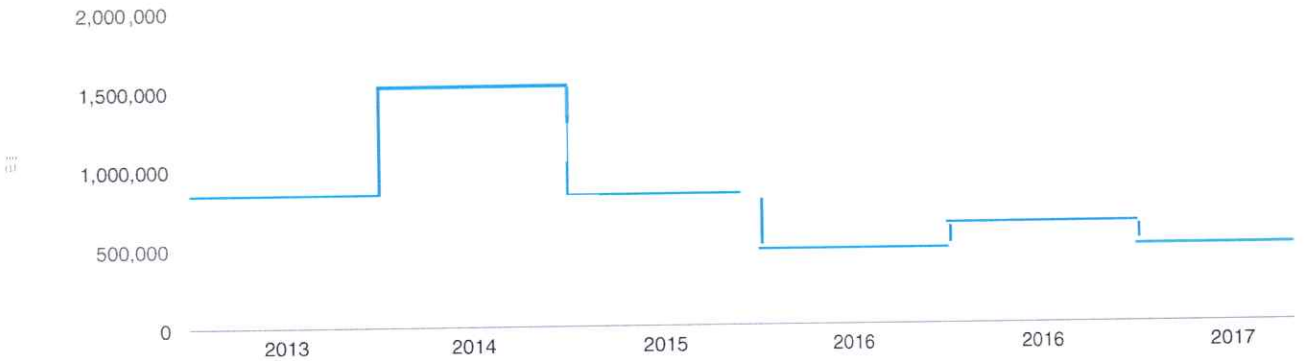
Production by Energy Type

Well Lifetime Gas Production

All amounts expressed in mcfg (thousand cubic feet)

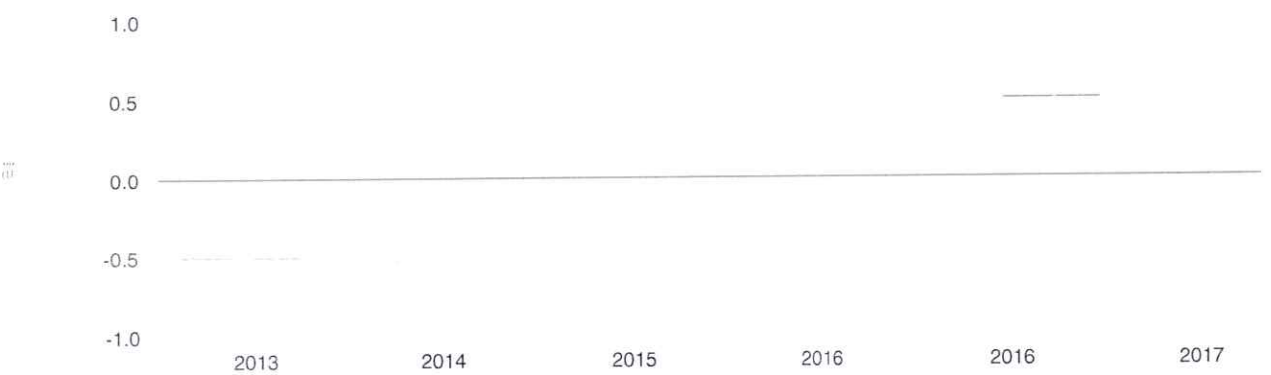
Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ANTERO RESOURCES CORPORATION	2020	17,582	24,644	27,882	27,004	26,390	26,307	21,558	21,330	1,987	0	0	0	**194,684**
ANTERO RESOURCES CORPORATION	2019	30,857	31,995	25,682	28,453	23,838	18,718	24,597	28,256	26,070	17,166	14,157	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	22,608	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	**1,626,949**
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**

4706101623



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	201a	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

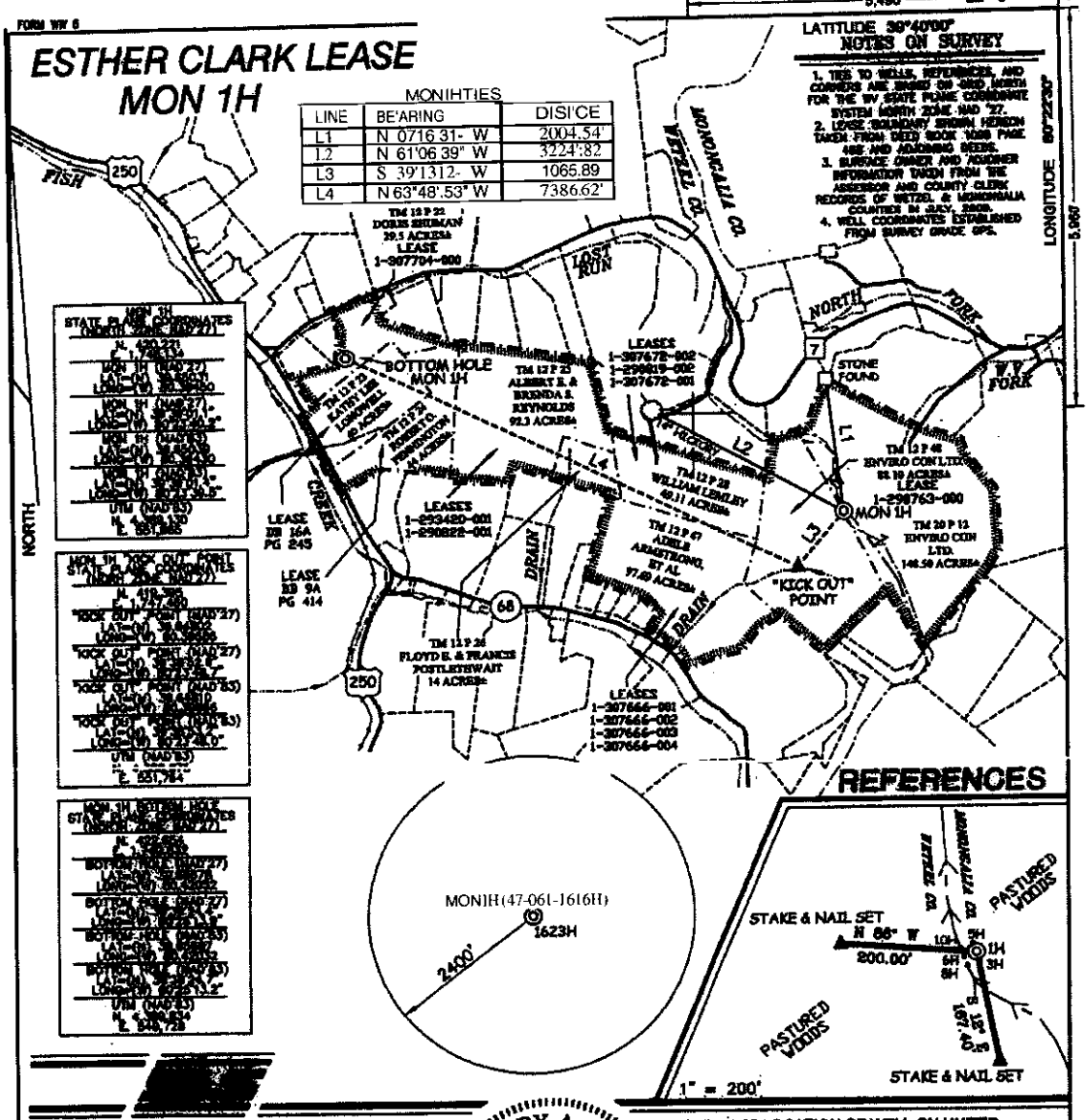
Reporting Operator	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SWN PRODUCTION COMPANY, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

4706101623

FORM WW 6

ESTHER CLARK LEASE
MON 1H

MONIHTIES		
LINE	BE'ARING	DISI'CE
L1	N 0716 31- W	2004.54'
L2	N 61'06.39" W	3224'.82
L3	S 39'1312- W	1065.89
L4	N 63°48'.53" W	7386.62'



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATI REQUIRED BY LAW AND THE REGUL>; S ISSUED AND PRESCRIBED BY THE .DM, OF ENVIRONMENTAL CTION.

P.S. 677 Gregory A. Smith

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

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

DATE SEPTEMBER 1 , 20 11

OPERATORS WELL NO. ESTHER CLARK' 1H Revised

API WELL NO. 47 — 061 — 01616H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7436P1HR9 (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.1L. ,NJECTION.... LIQUID DISPOSAL — WASTE "GAS" PRODUCTION..L IF STORAGE DEEP.____SHALLowx_

LOCATION:
ELEVATION· 1 84' WATERSHED NORTH FORK & WEST VIRGINIA CREEK
DISTRLT BATTELLE COUNTY MONONGALIA QUADRANGLE HUNDRED 7.5

SURFACE OWNER · ENVIRO CON TD. ACREAGE 811.10 & 148.5

ROYALTY OWNER ESTHER H CLARK, ET AL LEASE NO

PROPOSED WORK:
DRILL . X CONVERI — DRILL DEEPER-- REDRILL...-. FRACTIJRE OR STIMULA PLUG OFF OLD

FORMATION-- PERFORATE NEW FORMATION_____ PLUG AND ABANDON- CLEAN OUT AND REPLUG--OTHER..___

PHYSICAL CHANGE N WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 7,896' TVD; 7,943' MD

WELL OPERATOR CHESAPEAKE APPALACHIA, LLC.
ADDRESS P.O. BOX 18496
OKLAHOMA CITY, OK 73154-0496

DESIGNATED AGENT ERIC B. GUTHRIE
ADDRESS P.O. BOX 6070
CHARLESTON, WV 25362

07/08/2022

09/30/2011

4706101623

GI-O Hallett Mod.

SLS SMITH LAND SURVEYING, INC. P.O.BOX 150 GLENVILLE, WV. 26351	WETZEL/MON. COUNTIES MAGNOLIA, W 7.5 QUAD		OPERATOR: CHESAPEAKE APPALACHIA, LLC. P.O. BOX 18496 CHARLESTON, WV 25301
	DRAWN BY C.P.M.	FILE NO. [redacted]	DATE 08-30-11

4706101623P

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

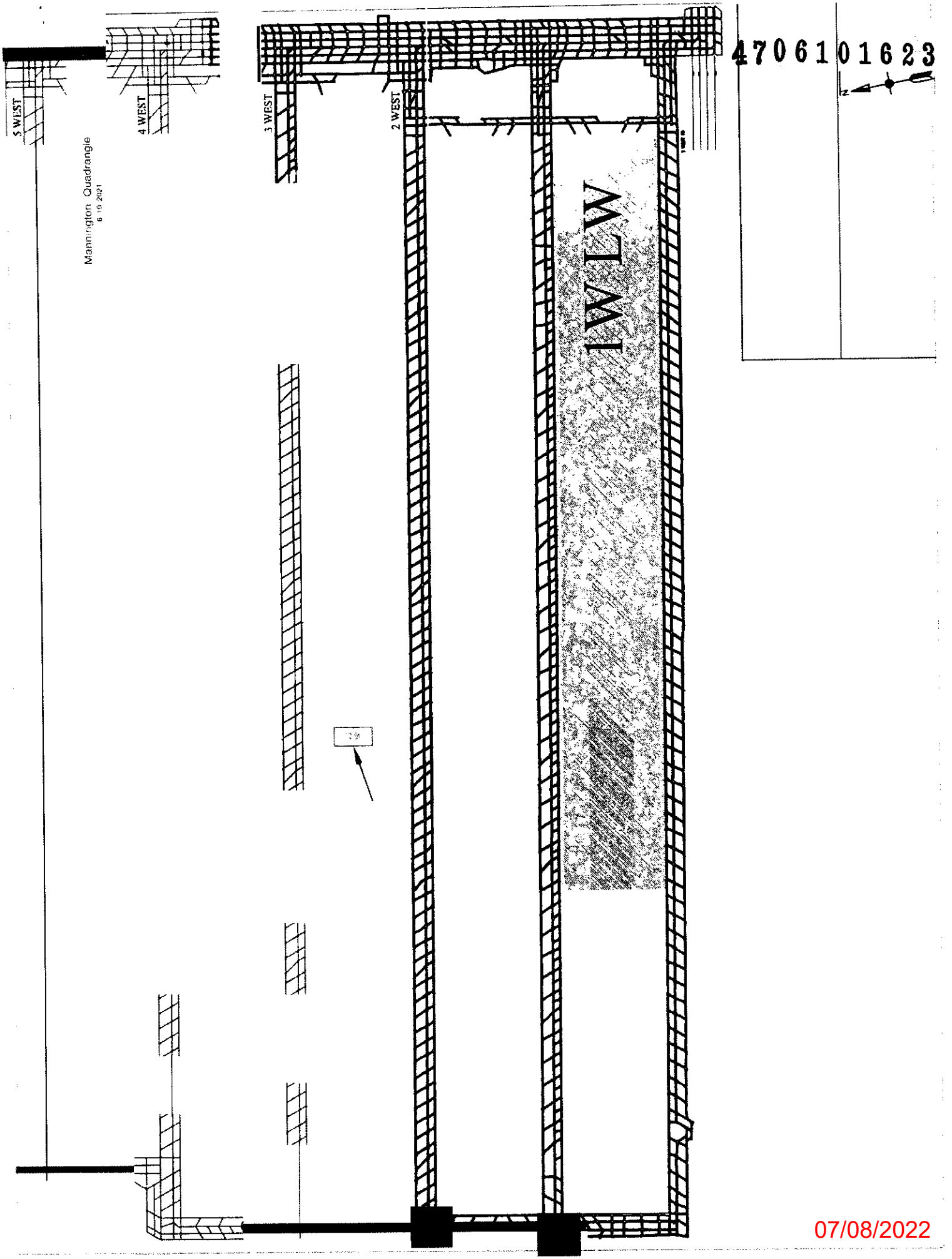
UTM N: 4390107.3

Spud date: October 2011

Initial static rock pressure: 5,153 psi

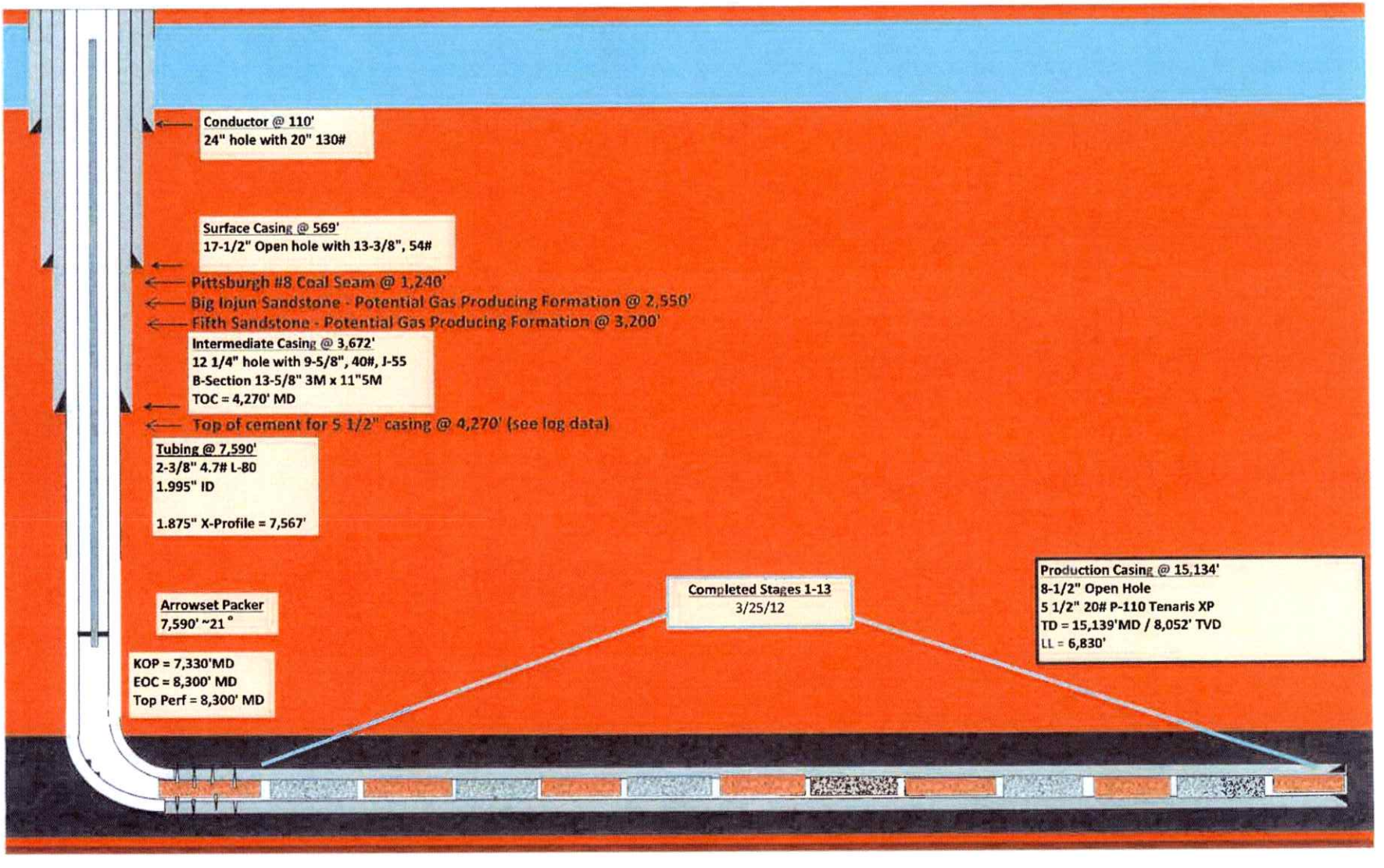
Last reported production: September 2020

Current shut in pressure: 1,340 psi


4706101623
5 WEST
4 WEST
3 WEST
2 WEST
1 WEST
Mannington Quadrangle
6-10-2021

07/08/2022

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



07/08/2022

47061016 23

4706101623

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--061-01623

Fann name: Esther Cieri< 3H Operator Well No: 833083

LOCATION: Elevation: 1421 4' Quadrangle: Hundred 7.5'

District: Battle County: Monongalia
Latitude: 5484' Feet South of 39 Deg. 40 Min. 00 Sec.
Longitude fliTn Feet West of so Deg. 22 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address: P.O. Box 18496	Casing & Tubin2	Used in drillin2	Left in well	Cement fill uo Cu. Ft
Oklahoma City, OK 73154-0496	20"	110'	110'	101 Cu. Ft.
A2ent: Eric Gillespie	133/8"	580'	580'	684 Cu. Ft
Insoector: Sam Ward	9 518"	3672'	3672'	1667 Cu. Ft.
Date Permit Issued: 6/3/2011	5 1/2D	15136'	15136'	3317 Cu.Fl
Date Well Work Commenced: 10/1812011				
Date Well Work Comoleted: 3/25/2012				
Verbal Plu1dne.:				
Date Pennission lmlllted on:				
Rotarv V'J Cable D Rie. 1 I				
Total Vertical Deoth (ft): B183'(cementplug6,882•8183')	referring tc	irt il Ptpt	01a	
Total Measured Deoth (ft): 15139'				
Fresh Water.Deoth (ft.): 400'				
Salt Water Deoth (ft.): None				
Is coal bein Jt mined in area (NIY)? y				
Coal Deotbs (ft.):221', 1200'				
Void(s) encountered (NIY) Depth(s) N				

OPEN FLOW DATA (If more than two producing fonnations please include additional data on separate sheet)
Producing fmmation MarceRus Pay zone depth (ft)..-·s.DIM'
Gas: Initial open flow MCF/d Oil: Initial open flow BbVd Final open flow so10•
MCF/d Final open flow O BbVd
Time of open flow between initial and final tests 47 Hours • Calculated
Static rock Pressure 5153" psig (surface pressure) after Hours

'!9nd pRK.fu gJonntion 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 infonnation submitted on this document and all the attachments and that, based on my inquiy of those individuals immediately responsible for obtaining the infonnation I believe that the infonnation is true, accurate, and complete.

Marlene Williams
Signature

9-11-2012
Date

12/1 07/08/2022

4706101623

Were core samples taken? Yesx_____No_____ Were cuttings caught during drilling? Yesx_____No_____

Were Elecb'ical, Mechanical or Geophysical logs recorded on this well? If yes, please list_____
Triple Combo, spectral gamma ray, borahde Image and dlploe IICIRIC In pDat and MWD gamma ray hlaleral

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: l). 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 De.pth / Bottom IXpth
Surface:

see attached

12/14/2012
07/08/2022

PERFORATION RECORD ATTACHMENT

Well Number and Name: 833083 Eather Clark 3H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					Fluid		PrDDDnaAaent		Average
Date	From	To	Date	Interval Treated		TvDB	Amount	Tvoe	Amount	Inecllon
2110/2012	14 575	16004	311312012	14575	15004	Slk wlr	11888	Sand	490500	57
3113/2012	14052	14482	3/13'2012	14052	14A82	Slk wtr	10409	Sand	588.240	84
3/14/2012	13529	13959	3/15/2012	13.529	13859	SDc wtr	10870	Sand	588820	84
311612012	13006	13436	3116/2012	13008	13438	Slkwlr	11821	Sand	588420	80
311612012	.12483	12960	311712012	12483	12IHlll	Slkwtr	11750	Sand	588210	84
3117/2012	11956	12.390	311812012	11956	12390	Slkwtr	10122	Sand	593180	84
31191201 2	11438	11887	31191201 2	11438	11887	Slkwtr	13887	Sand	582820	80
3119f1012	10915	11345	312212012	10915	11345	Slkwtr	10953	Sand	588880	85
3/22/2012	10389	10822	3123/2012	10389	10822	Slkwtr	10191	Sand	691 680	84
31231201 2	9.883	10298	312312012	9883	10 21111	Slkwtr	10983	IIIIIINI	588780	81
3124/2012	9350	9776	312512012	9:.iliO	9.778	Slkwtr	10102	Sand	588700	85
312512012	8.823	9252	312512012	8.823	9252	51kwtr	10241	Sand	588200	82
3/2512012	8300	8730	312512012	8.300	8.730	Slkwtr	10205	Sand	589.080	88

VERTICAL PILOT HOLE

Formation/Lithology	Top Depth, MD (ft)	Top Depth,TVD (ft)	Bottom Depth, MD (ft}	Bottom Depth, IVD (ft)
SHALE	0		250	
SANDSTONE/SHALE	250		500	
SHALE	500		930	
SANDSTONE	930		990	
LIMESTONE/SHALE	990		1 140	
COAL	114 0		1 156	
COAL/LIMESTONE/SHALE	1156		1240	
COAL	1240		1260	
COAL/LIMESTONE/SHALE	126 0		1320	
SHALE	1320		160 0	
SANDSTONE/SHALE	1600		26 4 0	
BIG LIME	26 4 0		2550	
BIG INJUN SANDSTONE	2550		2750	
SANDSTONE/SHALE	2750		3210	
BEREA SANDSTONE	3210		3550	
SHALE	3550		410 0	
SHALE/SANDSTONE	4100		4580	
SHALE	4580		7 74 4	
GENESEO	774 4		7 782	
TULLY	7782		7820	
HAMILTON	7820		7924	
MARCELLUS	7924		79 94	
ONONDAGA	79 9 4			
PILOT TD	8183			
PLUG BACK DEPTH	7107			

- ----TE W!J8-Q

Maximum TVD of wellbore: 797 2 ft TVD @ 1 3 28 9 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

12/14/2012

07/08/2022

4706101623

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	8
HAMILTON	7854	7798	8074	1910
MARCELLUS	8074	7910	15139	1905
LATERAL TD	15139	7905		0

12/14/2012

07/08/2022

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 IBBUS Date
4706101623	ANTERO RESOURCES CORPORATION	CLARK, ESTHER C. - LIFE TENANT	833083 ESTHER CLARK 3H	Active Well	Horizontal	06/03/2011

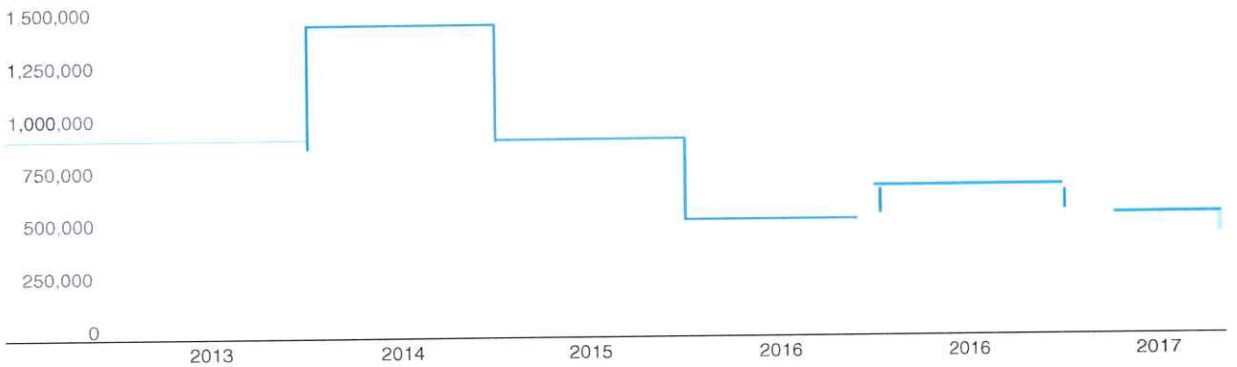
Note: The operator listed above is the CURRENT operator of the well. This operator may or may not have recorded production for this well for the years listed below. The production listed below spans the years shown, regardless of the operator who originally recorded a particular year's production numbers.

Production by Energy Type

Well Lifetime Gas Production

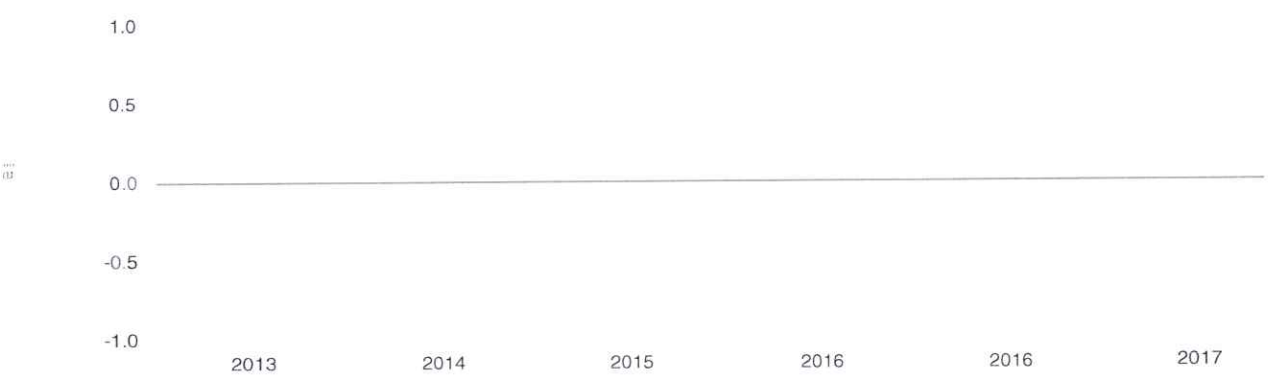
All amounts expressed in mcfg (thousand cubic feet)

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	187,606
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	305,327
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	1,438,640
CHESAPEAKE APPALACHIA, L.L.C.	2013	0	0	0	0	0	0	69,536	159,706	164,114	154,174	160,226	149,783	857,539



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

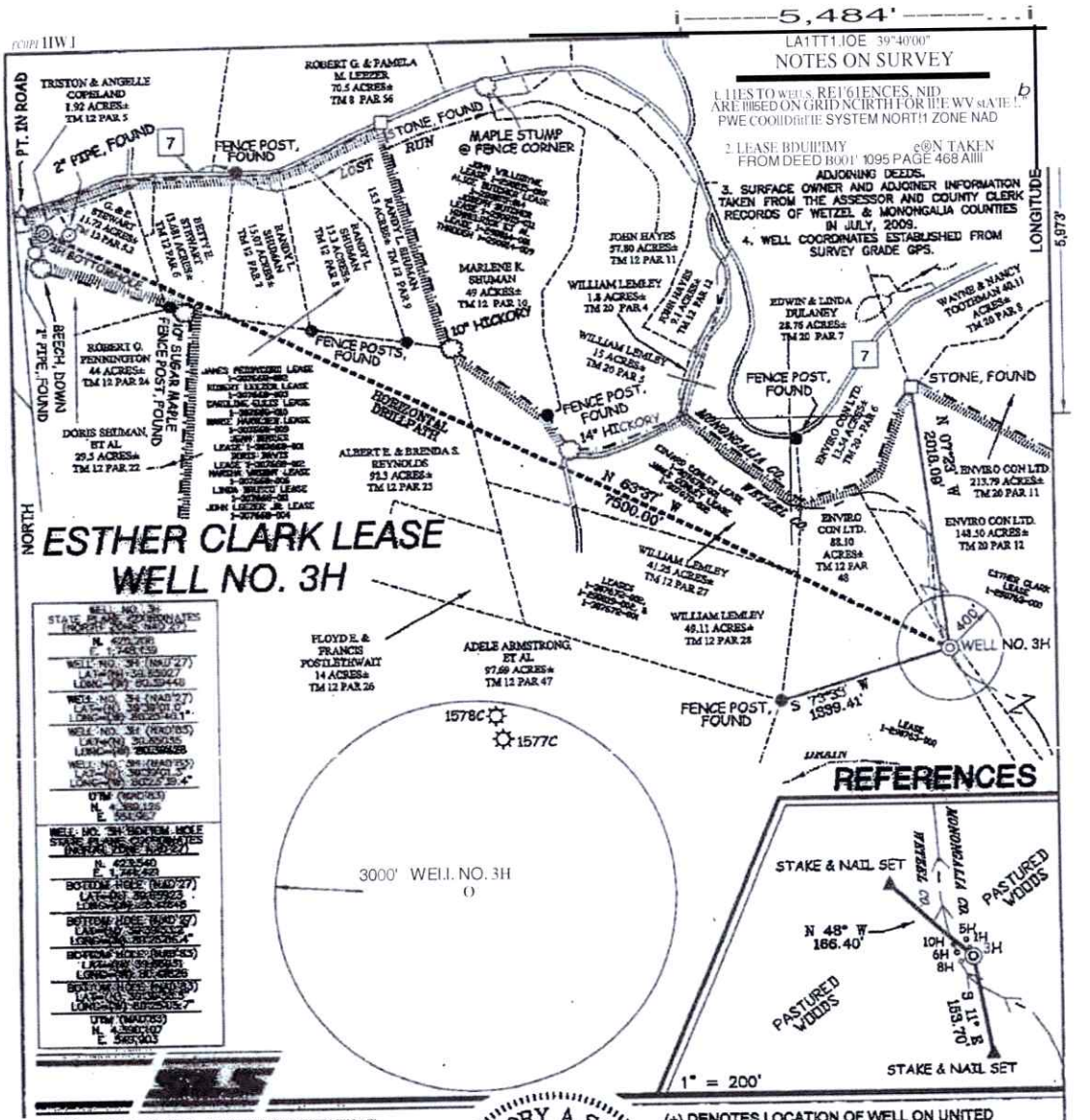


Well Lifetime NGL Production

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

4706101623



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 17171

Gregory A. Smith

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

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

DATE APRIL 12, 20 11

OPERATORS WELL NO. ESTHER CLARK 3H

API WELL NO. 47 — 061 — 01623H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200

PROVEN SOURCE OF ELEVATION DGPS SUBMETER MAPPING GRADE)

FILE NO. 7436P3HR9 (308-50)

SCALE 1" = 1000'

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 ____ SHALLOW X

LOCATION : ELEVATION 1414.11' WATERSHED NORTH FORK & WEST VIRGINIA CREEK

DISTRICT BATTELLE COUNTY MONONGALIA QUADRANGLE HUNDRED 7.5'

SURFACE OWNER PNG, V, I, RO CON'-ENT.O. ACREAGE 88TO & 14850t

ROYALTY OVIMER ESTHER H. CLARK, ET AL ACREAGE

PROPOSED WORK : LEASE NO.

DRILL X — DRILL DEEPER — REDRILL — FRACTURE OR STIMULATE — PLUG OFF OLD

CONVERT:

FORMATION ___ PERFORATE NEW FORMATION — PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER —

PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 7890', TMD 15400'

WELL OPERATOR CHESAPEAKE APPALACHIA, LLC

ADDRESS P.O. BOX 18496
OKLAHOMA CITY, OK 73154-0496

DESIGNATED AGENT ERIC G. HESS

ADDRESS P.O. BOX 6070
CHARLESTON, WV 25362

07/08/2022

06/03/2011

4706101623

WVGES
GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (061) Monongalia Select datatypes: (Check All)
Enter Permit #: 01623
Get Data Reset
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 = 01623

Report Time: Monday, June 27, 2022 9:53:42 AM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4706101623	Monongalia	1623	Battelle	Hundred	Mannington	39.650353	-80.39428	551967	4389126.3

Bottom Hole Location Information:

API	EP	FLAG	UTME	UTMN	LON_DD	LAT_DD
4706101623	1	As Proposed	549903.3	4390107.3	-80.418259	39.659315

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROF
4706101623	3/25/2012	Dvtd Orgnl Loc	Completed	Esther H Clark	3H	833083	Esther Clark		Esther H Clark et al	Chesapeake Appalachia, LLC	7890	Marce

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_
4706101623	3/25/2012	10/18/2011	1424	Ground Level	Maple-Wadestown	Onondaga Ls	Onondaga Ls	Development Well	Development Well	Gas	Rotary	Fractured	8183	15139	1

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
4706101623	3/25/2012	Water	Fresh Water	Vertical			400	Pennsylvanian System					
4706101623	3/25/2012	Pay	Gas	Deviated	8300	Marcellus Fm	8730	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	8823	Marcellus Fm	9252	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	9350	Marcellus Fm	9776	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	9863	Marcellus Fm	10298	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	10389	Marcellus Fm	10822	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	10915	Marcellus Fm	11345	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	11438	Marcellus Fm	11867	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	11956	Marcellus Fm	12390	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	12483	Marcellus Fm	12960	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	13006	Marcellus Fm	13436	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	13529	Marcellus Fm	13959	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	14052	Marcellus Fm	14482	Marcellus Fm					
4706101623	3/25/2012	Pay	Gas	Deviated	14575	Marcellus Fm	15004	Marcellus Fm					

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101623	Chesapeake Appalachia, LLC	2013	857,539	0	0	0	0	0	0	69,536	159,706	164,114	154,174	160,226	149,783
4706101623	Chesapeake Appalachia, LLC	2014	1,438,540	139,031	147,837	160,854	138,868	129,405	116,835	113,738	106,526	99,270	89,902	99,633	96,641
4706101623	SWN Production Company, LLC	2015	889,879	87,745	77,189	83,140	73,358	72,540	69,563	77,930	73,905	68,867	72,592	67,559	65,491
4706101623	Antero Resources Corporation	2016	1,169,743	127,586	116,669	118,882	113,074	118,270	113,847	108,721	101,237	99,693	53,066	51,740	46,957
4706101623	Antero Resources Corporation	2017	523,156	51,399	45,070	49,885	44,156	48,333	43,742	41,781	42,273	41,334	41,145	38,497	35,536
4706101623	Antero Resources Corporation	2018	371,996	37,438	34,707	37,286	33,222	36,393	24,573	32,596	28,911	26,388	27,012	23,243	30,227
4706101623	Antero Resources Corporation	2019	305,327	30,061	33,119	26,804	19,686	27,339	12,773	30,360	15,059	34,019	28,188	25,258	22,661
4706101623	Antero Resources Corporation	2020	187,506	23,972	15,634	18,282	30,137	31,940	29,391	21,754	13,762	2,634	0	0	0

4706101623

07/08/2022

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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101623	Chesapeake Appalachia, LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Chesapeake Appalachia, LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	SWN Production Company, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Antero Resources Corporation	2016	0												
4706101623	Antero Resources Corporation	2017	0												
4706101623	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	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 at this time.

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4706101623	Chesapeake Appalachia, LLC	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Chesapeake Appalachia, LLC	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	SWN Production Company, LLC	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Antero Resources Corporation	2016	0												
4706101623	Antero Resources Corporation	2017	0												
4706101623	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	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
4706101623	Antero Resources Corporation	2016	0												
4706101623	Antero Resources Corporation	2017	0												
4706101623	Antero Resources Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	Antero Resources Corporation	2019	0	0	0	0	0	0	0	0	0	0	0	0	0
4706101623	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
4706101623	Dvtd Orgnl Loc	unidentified coal	Offset Well	1140	Reasonable	16	Qstnble Pick	1424	Ground Level
4706101623	Dvtd Orgnl Loc	unidentified coal	Offset Well	1240	Reasonable	20	Qstnble Pick	1424	Ground Level
4706101623	Dvtd Orgnl Loc	Big Lime	Offset Well	2460	Reasonable	90	Reasonable	1424	Ground Level
4706101623	Dvtd Orgnl Loc	Big Injun (Price&eq)	Offset Well	2550	Reasonable	200	Reasonable	1424	Ground Level
4706101623	Dvtd Orgnl Loc	Berea Ss	Offset Well	3210	Reasonable	340	Qstnble Pick	1424	Ground Level
4706101623	Original Loc	Middlesex Sh	Electric Log: RI35 Dvn Sh	7585	Reasonable	17	Reasonable	1445	Log Datum
4706101623	Original Loc	Genesee Fm	Electric Log: RI35 Dvn Sh	7602	Reasonable	180	Reasonable	1445	Log Datum
4706101623	Original Loc	West River Sh Mbr	Electric Log: RI35 Dvn Sh	7602	Reasonable	140	Reasonable	1445	Log Datum
4706101623	Original Loc	Geneseo Sh Mbr	Electric Log: RI35 Dvn Sh	7742	Reasonable	40	Reasonable	1445	Log Datum
4706101623	Dvtd Orgnl Loc	Geneseo Sh Mbr	Offset Well	7744	Reasonable	38	Reasonable	1424	Ground Level
4706101623	Original Loc	Tully Ls	Electric Log: RI35 Dvn Sh	7782	Reasonable	64	Reasonable	1445	Log Datum
4706101623	Dvtd Orgnl Loc	Tully Ls	Offset Well	7782	Reasonable	38	Reasonable	1424	Ground Level
4706101623	Dvtd Orgnl Loc	Hamilton Grp	Offset Well	7820	Reasonable	104	Reasonable	1424	Ground Level
4706101623	Original Loc	Mahantango Fm	Electric Log: RI35 Dvn Sh	7846	Reasonable	89	Reasonable	1445	Log Datum
4706101623	Original Loc	Hamilton Grp	Electric Log: RI35 Dvn Sh	7846	Reasonable	156	Reasonable	1445	Log Datum
4706101623	Dvtd Orgnl Loc	Marcellus Fm	Offset Well	7924	Reasonable	70	Reasonable	1424	Ground Level
4706101623	Original Loc	Marcellus Fm	Electric Log: RI35 Dvn Sh	7935	Reasonable	67	Reasonable	1445	Log Datum
4706101623	Original Loc	upper Marcellus A	Electric Log: RI35 Dvn Sh	7935	Reasonable	14	Reasonable	1445	Log Datum
4706101623	Original Loc	Up Marcellus	Electric Log: RI35 Dvn Sh	7935	Reasonable	41	Reasonable	1445	Log Datum
4706101623	Original Loc	upper Marcellus B	Electric Log: RI35 Dvn Sh	7949	Reasonable	27	Reasonable	1445	Log Datum
4706101623	Original Loc	lo Marcellus	Electric Log: RI35 Dvn Sh	7976	Reasonable	19	Reasonable	1445	Log Datum
4706101623	Dvtd Orgnl Loc	Onondaga Ls	Offset Well	7994	Reasonable			1424	Ground Level
4706101623	Original Loc	Marcellus trans zone	Electric Log: RI35 Dvn Sh	7995	Reasonable	7	Reasonable	1445	Log Datum
4706101623	Original Loc	Onesquethaw Grp	Electric Log: RI35 Dvn Sh	8002	Reasonable			1445	Log Datum

Wireline (E-Log) Information:

API	LOG_TOP	LOG_BOT	DEEPEST_FML	LOGS_AVAIL	SCAN	DIGITIZED	GR_TOP	GR_BOT	D_TOP	D_BOT	N_TOP	N_BOT	I_TOP	I_BOT	T_TOP	T_BOT	S_TOP	S_BOT	D_
4706101623	2620	8176		G,D,N,I,C,*	Y	N	2620	8144	3632	8162	3632	8150	3624	8176					

Comment: *logs: tension, caliper, PE

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

FILENAME
4706101623gdnceo.tif
4706101623gico.tif
4706101623go.tif

Quick Reference Guide for Log File Names For more info about WVGES scanned logs click here

geologic log types:
- d density (includes bulk density, compensated density, density, density porosity, grain density, matrix density, etc.)
- e photoelectric adsorption (PE or Pe, etc.)
- g gamma ray
- i induction (includes dual induction, medium induction, deep induction, etc.)
- l laterolog
- m dipmeter
- n neutron (includes neutron porosity, sidewall neutron--SWN, etc.)
- o other[1]
- s sonic or velocity
- t temperature (includes borehole temperature, BHT, differential temperature, etc.)
- z spontaneous potential or potential

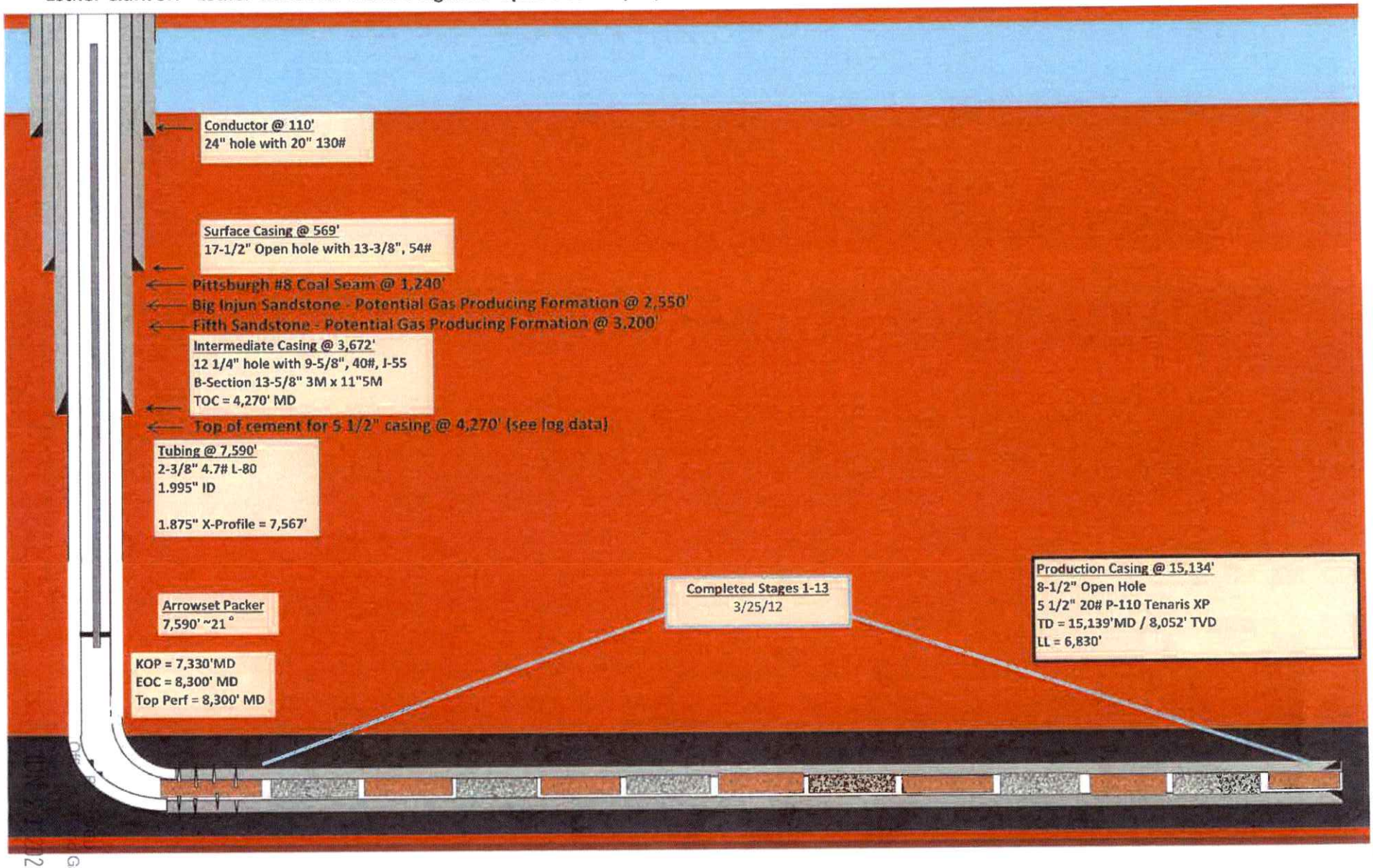
mechanical log types:
- b cement bond
- c caliper
- o other[1]
- p perforation depth control or perforate

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

There is no Plugging data for this well

There is no Sample data for this well

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



4706101623

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 #: 47-061-01623

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

RECEIVED
SEP 12 2012
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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

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

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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.

07/08/2022

4706101623

Were core samples taken? Yes X No_____ Were cuttings caught during drilling? Yes X 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'

Formations Encountered: Top Depth / Bottom Depth
Surface:

see attached

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12/14/2012

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

4706101623

PERFORATION RECORD ATTACHMENT

Well Number and Name: 833083 Esther Clark 3H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					*Fluid*		*Propping Agent*		Average
Date	From	To	Date	Interval Treated		Type	Amount	Type	Amount	Injection
2/10/2012	14,575	15,004	3/13/2012	14,575	15,004	Slk wtr	11,886	Sand	490,500	57
3/13/2012	14,052	14,482	3/13/2012	14,052	14,482	Slk wtr	10,409	Sand	588,240	84
3/14/2012	13,529	13,959	3/15/2012	13,529	13,959	Slk wtr	10,870	Sand	588,820	84
3/16/2012	13,006	13,436	3/16/2012	13,006	13,436	Slk wtr	11,821	Sand	588,420	80
3/16/2012	12,483	12,960	3/17/2012	12,483	12,960	Slk wtr	11,750	Sand	588,210	84
3/17/2012	11,956	12,390	3/18/2012	11,956	12,390	Slk wtr	10,122	Sand	593,180	84
3/19/2012	11,438	11,867	3/19/2012	11,438	11,867	Slk wtr	13,887	Sand	582,620	80
3/19/2012	10,915	11,345	3/22/2012	10,915	11,345	Slk wtr	10,953	Sand	588,860	85
3/22/2012	10,389	10,822	3/23/2012	10,389	10,822	Slk wtr	10,191	Sand	591,580	84
3/23/2012	9,863	10,298	3/23/2012	9,863	10,298	Slk wtr	10,963	Sand	588,760	81
3/24/2012	9,350	9,776	3/25/2012	9,350	9,776	Slk wtr	10,102	Sand	588,700	85
3/25/2012	8,823	9,252	3/25/2012	8,823	9,252	Slk wtr	10,241	Sand	588,200	82
3/25/2012	8,300	8,730	3/25/2012	8,300	8,730	Slk wtr	10,205	Sand	589,060	88

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

4706101623P

WW-4A
Revised 6-07

1) Date: JUNE 10, 2022
2) Operator's Well Number
ESTHER CLARK 3H

3) API Well No.: 47 - 061 - 01623

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE 0F APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:
(a) Name ENVIRO CON LTD. (LIFE ESTHER H. CLARK)
Address PO BOX 2156
FAIRMONT, WV 26555
(b) Name
Address
(c) Name
Address

5) (a) Coal Operator
Name WEST VIRGINIA LAND RESOURCES INC
Address 1 BRIDGE STREET
MONONGAH, WV 26554
(b) Coal Owner(s) with Declaration
Name
Address
Name
Address
(c) Coal Lessee with Declaration
Name
Address

6) Inspector KENNETH L. GREYNOLDS
Address 613 BROAD RUN RD.
JANE LEW, WV 26378
Telephone (304) 206-6613

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

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

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

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

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

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
F Duane Dilly
105 Pleasant Valley Drive
Reedsville, WV 26547
My Commission Expires November 22, 2026

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Office of Oil and Gas
JUN 21 2022
WV Department of
Environmental Protection

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

Oil and Gas Privacy Notice

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

07/08/2022

4706101623

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- ☐ Adult Signature Restricted Delivery $

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JUN 13 2022

MONONGALIA CFU

Sent To Enviro Con LTD
Street and Apt. No., or PO Box No. P.O. Box 2456
City, State, ZIP+4® Fairmont, WV 26555

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

9429 0160 0001 0720 6702

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WW-4B

API No. 4706101623
47-061-01623
Farm Name
Well No. ESTHER CLARK 3H

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 then 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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Office of Oil and Gas
JUN 21 2022
WV Department of
Environmental Protection

07/08/2022

4706101623P

WW-9
(5/16)

API Number 47 - 061 - 01623
Operator's Well No. 317

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.

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Company Official Signature _____ 6-10-22

Company Official (Typed Name) David Roddy

Company Official Title Project Engineer

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

_____ Notary Public

My commission expires 11/22/26

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
F Duane Dilly
105 Pleasant Valley Drive
Beech Bottom, WV 26047
My Commission Expires November 22, 2026

07/08/2022

4706101623P

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
web: www.coalsource.com

*Name: RONNIE HARSH
*title: Project Engineer

April. 7, 2014

Department of Environmental Protection
Office of Oil and Gas
601 57th 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

4706101623P

Form WW-9

Operator's Well No. 34

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	Seed Type	lbs/acre
See Attachment	100	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: Edward L. Snyder

Comments: RECLAIM, REGRADE & MULCH ASAP

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Title: OIL & GAS INSPECTOR Date: 6-13-22

Field Reviewed? ( ) Yes (V) No

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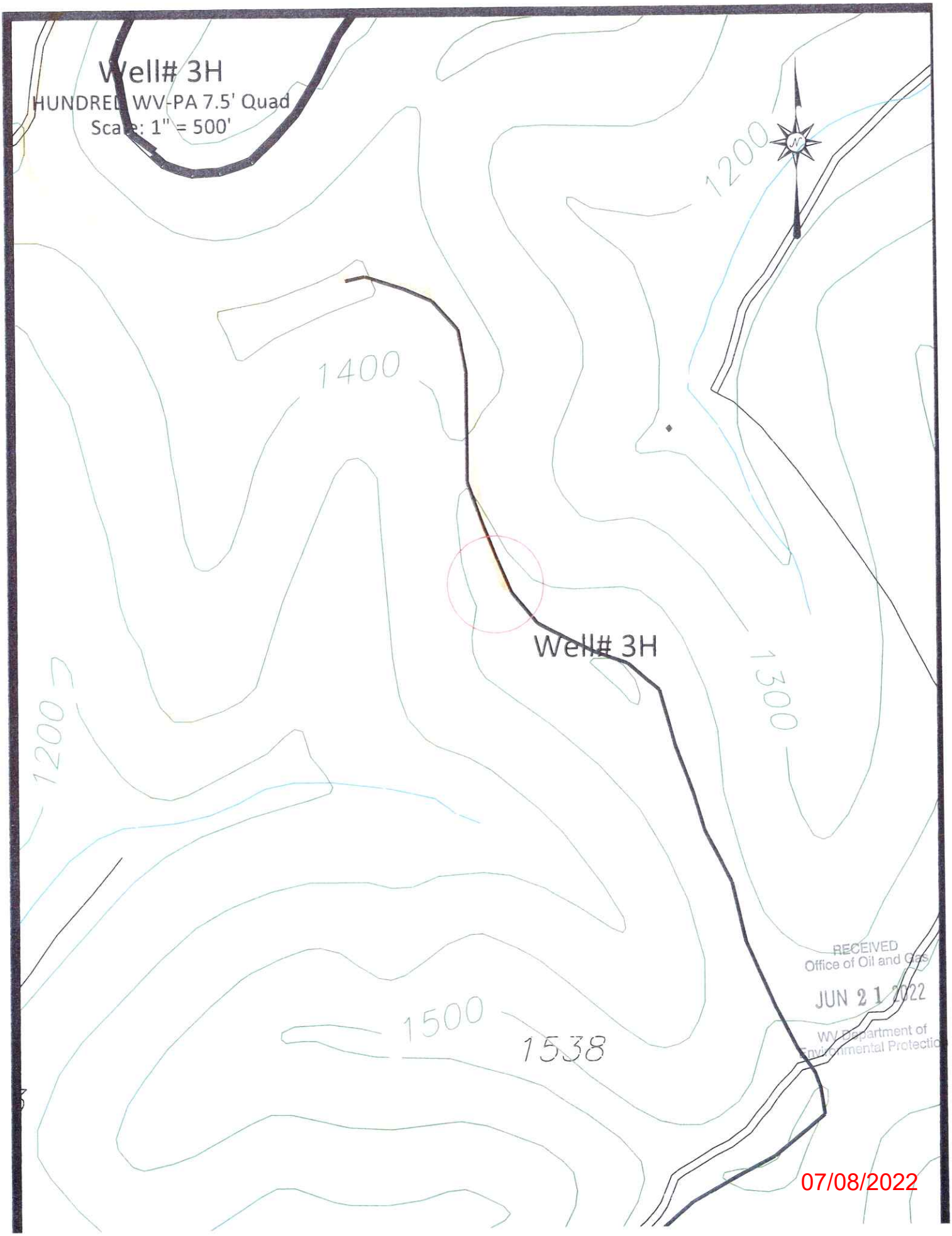

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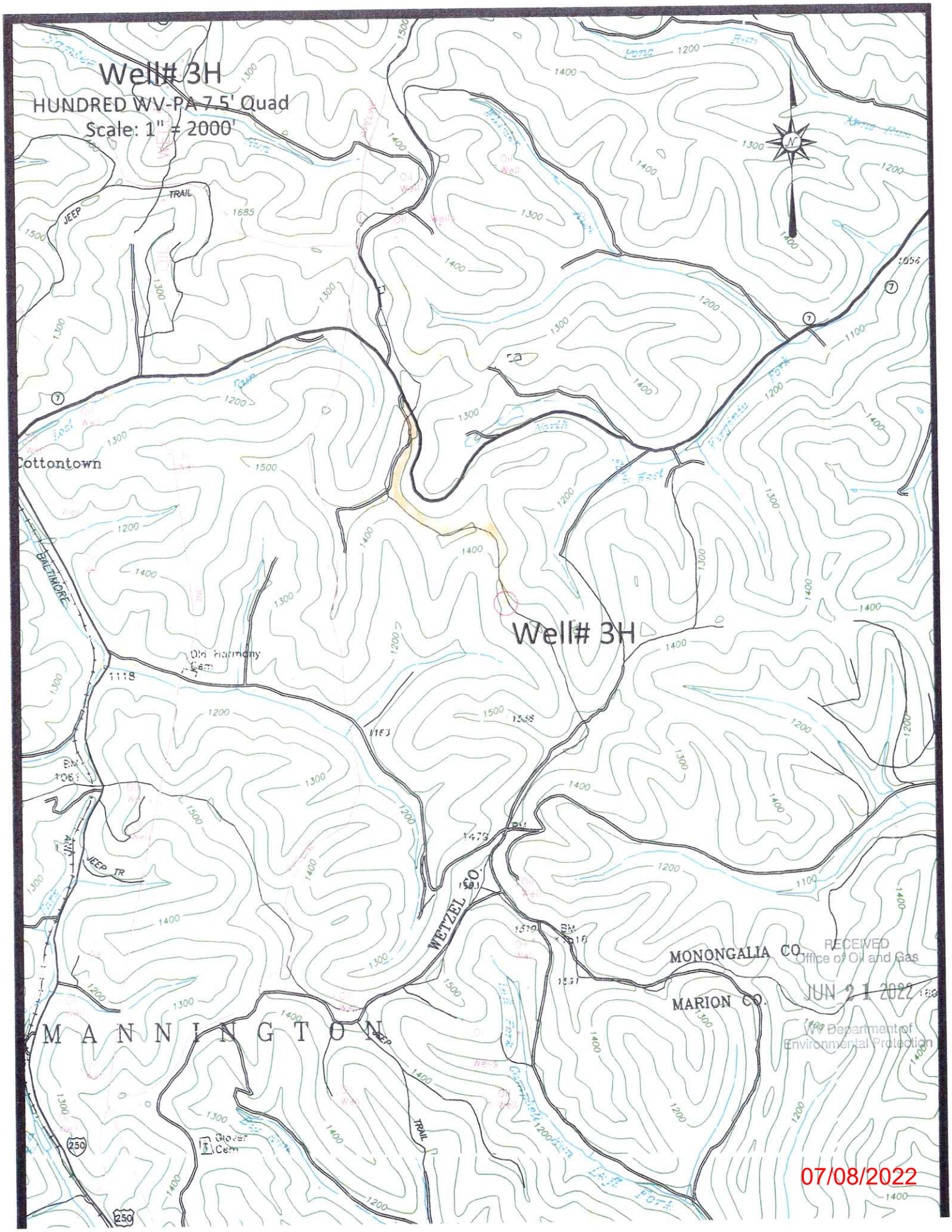

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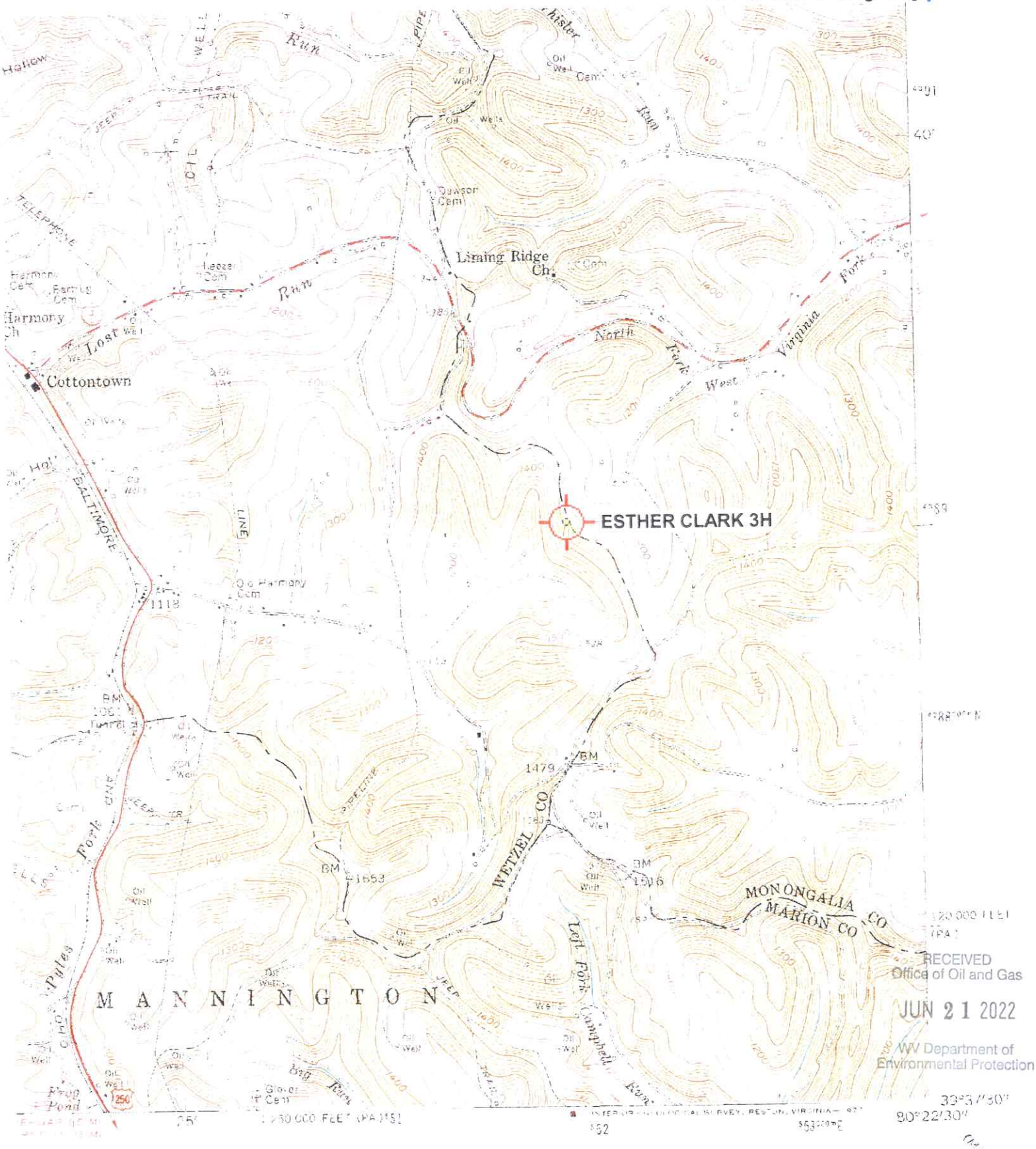

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WW-7
8-30-06

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

API: 47-061-01623 WELL NO.: ESTHER CLARK 3H

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: 4,389,125 m (1424')

UTM GPS EASTING: 551,967 m GPS ELEVATION: 434 m

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 _____

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4. **Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

D.S. Lee

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
Action: failed
Status: 5.0.0
Remote-MTA: dns; mx1.hc3867-53.iphmx.com. (68.232.141.84, the server for the domain 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

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