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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, February 26, 2020

WELL WORK PLUGGING PERMIT
Vertical Plugging

ICG TYGART VALLEY, LLC
100 TYGART DR

GRAFTON, WV 26354

Re: Permit approval for 486
47-091-00419-00-00

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: 486
Farm Name: SHUMAKER, WARREN L.
U.S. WELL NUMBER: 47-091-00419-00-00
Vertical Plugging
Date Issued: 2/26/2020

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47-091-00419P

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.

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WW-4B
Rev. 2/01

1) Date February 11, 2020
2) Operator's
Well No. CNGD-486
3) API Well No. 47- 91 - 0419 P

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 ____/ Liquid injection ____/ Waste disposal ____/
(If "Gas, Production ____ or Underground storage ____) Deep ____/ Shallow X

5) Location: Elevation 1648.8' Watershed Sandy Creek
District Knottsville County Taylor Quadrangle Thornton (638)

6) Well Operator ICG Tygart Valley, LLC
Address 100 Tygart Drive
Grafton, WV 26354

7) Designated Agent Charles E. Duckworth
Address 100 Tygart Drive
Grafton, WV 26354

8) Oil and Gas Inspector to be notified
Name Kenneth Greynolds
Address 613 Broad Run Road
Jane Lew, WV 26378

9) Plugging Contractor
Name Coastal Drilling East, LLC
Address 130 Meadows Ridge Road
Mt. Morris, PA 15349

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

See Exhibit Nos. 1 and 2 and MSHA 101-C Exemption

ICG Tygart Valley, LLC (47-091-01089)

Leer Mine (MSHA ID# 46-09192

MSHA 101-C Docket No. M-2012-065-C

ISSUE ~~AFTER~~ ON OR AFTER Feb 24, 2020.

Appropriate coal seam top = 461.60'

Approximate coal seam bottom = 467.17'

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 2-13-20

47-091-00449P

EXHIBIT NO. 1

From the experience and technology developed since 1970 in plugging oil and gas wells for mining through, ICG Tygart Valley, LLC will utilize the following method to plug all future wells.

SOLID PLUG METHOD

a) If active well: clean out to total depth and plug back according to state regulations to a minimum of 200 feet below lowest minable coal seam.
b) If abandoned well: clean out to first plug 200 feet below lowest minable coal seam.
c) Circulate through tubing or drill steel an expanding cement plug from a minimum of 200 feet below minable coal seam to a point 100 feet above minable coal.

Circulate through tubing or drill steel from 100 feet above coal seam to surface.

A monument will be installed with API No. and stating "solid plug".

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EXHIBIT No. 2

COASTAL DRILLING EAST

"A Shaft Drillers International Company"

Coastal Drilling East LLC • 130 Meadow Ridge Road, Mt. Morris, PA 15349

Phone 304-296-1120 Fax 304-413-0061

05/26/2016

Mr. Chuck Duckworth
Gas Well & Property Manager
Arch Coal, Inc. – Leer Mine Complex
100 Tygart Drive
Grafton, WV 26354

Mr. Duckworth,

Below is the proposed plugging plan we discussed that can be used on wells similar to the wells we have been plugging for the last few years.

Plugging Plan

- Move to site, rig up, mix mud, drill rathole
- Attempt to clean out well to original total depth (TD).
- Run cement bond log on 4 ½" casing to determine top of cement
- Set bottom hole cement plug as required by the WV DEP from TD to top of cement determined by the bond log.
- Tag top of bottom hole plug to insure plug is at correct depth. Re-cement if necessary.
- Cut and pull 4 ½" casing from the free point determined by the bond log.
- Clean out wellbore to top of remaining 4 ½" casing
- Run suite of logs to determine casing size, bottom of casing, depth of coal seams, deviation of wellbore and cement bond to casing.
- Cement hole from top of bottom hole plug to a depth within 25' of the bottom of the 8 5/8" casing.
- If necessary cut and pull any free casing.
- Perforate, cut, rip or mill any remaining casing at depths determined by MSHA's 101C Petition.

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- Cement hole from top of intermediate plug to surface using cement required by MSHA's 101C Petition.
- Rig down and set monument as required by WV DEP.

COASTAL DRILLING - EAST

47-091-00498P

MSHA 101 C EXEMPTION

face area will be available. The fire hose will be located near the working face.

(5) Sufficient supplies of roof support and ventilation materials will be available and located near the working face. In addition, an emergency plug and/or plugs will be available within the immediate area of the well intersection.

(6) Equipment involved in mining through the well will be checked for permissibility and serviced on the maintenance shift prior to mining through the well. The methane monitor on the continuous mining machine involved in mining through the well will also be calibrated on the maintenance shift prior to mining through the well.

(7) When mining is in progress, tests for methane will be made with a hand-held methane detector at least every 10 minutes, from the time that mining with the continuous mining machine is within 30 feet of the well until the well is intersected, and immediately prior to mining through. During the actual cutting-through process, no individual will be allowed on the return side until mining-through has been completed and the area has been examined and declared safe.

(8) The working area will be free from accumulations of coal dust and coal spillages, and rock dust will be placed on the roof, rib, and floor to within 20 feet of the face when mining through the well.

(9) When the well is intersected, all equipment will be deenergized and the place thoroughly examined and determined safe before mining is resumed.

(10) Any casing will be removed and no open flame will be permitted in the area until adequate ventilation has been established around the well.

(11) After a well has been intersected and the working place determined safe, mining will continue inby the well at a distance sufficient to permit adequate ventilation around the area of the well.

(12) No person will be permitted in the area of the mining-through operation except those actually engaged in the operation, company personnel, personnel from MSHA, and personnel from the Kentucky OMSL.

(13) The mining-through operation will be under the direct supervision of a certified individual. Instructions concerning the mining-through operation will be issued only by the certified individual in charge. MSHA personnel may interrupt or halt the mining through operation when necessary for the safety of the miners.

(14) Within 30 days after this Order becomes final, the petitioner will submit proposed revisions for its approved mine emergency evacuation and firefighting plan required by 30 CFR 75.1501. The petitioner will revise the plans to include the hazards and evacuation procedures to be used for well intersections.

The petitioner further states that this petition will apply to all types of mining (conventional, continuous, and longwall) and asserts that the proposed alternative method will at all times provide a measure of protection no less than that of the existing standard.

Docket Number: M–2012–064–C.

Petitioner: Lone Mountain Processing, Inc., Drawer C, St. Charles, Virginia 24282.

Mine: Mine No. 1, MSHA I.D. No. 15–18734, Route 636 Benedict Road, St. Charles, Virginia 24282, located in Harlan County, Kentucky.

Regulation Affected: 30 CFR 75.208 (Warning devices).

Modification Request: The petitioner requests a modification of the existing standard to permit a readily visible warning to be posted at the second row of permanent roof support outby unsupported roof or a physical barrier to be installed to impede travel beyond permanent support, except during the installation of roof supports. The petitioner states that:

(1) The Kentucky Office of Mine Safety and Licensing requires "a warning device to be installed on the second row of permanent roof support outby unsupported roof."

(2) MSHA's approved Precautions for Remote Control Operation of Continuous Mining Machines states that "While using remote controls, the continuous mining machine operator and all other persons will position themselves no closer than the second 'full row' of installed roof bolts outby the face."

(3) This petition is necessary to improve safety and to attain commonality between State and Federal regulations.

(4) Safety increases when the distance an employee keeps from unsupported roof increases.

The petitioner asserts that the proposed alternative method will at all times guarantee no less than the same measure of protection afforded by the existing standard.

Docket Number: M–2012–065–C.

Petitioner: ICG Tygart Valley, LLC, 1200 Tygart Drive, Grafton, West Virginia 26354.

Mine: Tygart #1 Mine, MSHA I.D. No. 46–09192, located in Taylor County, West Virginia.

Regulation Affected: 30 CFR 75.1700 (Oil and gas wells).

Modification Request: The petitioner requests a modification of the existing standard requiring that barriers be established and maintained around oil and gas wells penetrating coalbeds or underground areas of coal mines to permit an alternative method of compliance. The petitioner states that:

(1) The mine is projected to encounter vertical in-seam boreholes, typical to oil and natural gas wells, as mine development progresses.

(2) The active development section is approaching these boreholes, and is projected to encounter additional boreholes in the future as mining operations continue.

(3) The procedure presented in this petition will be used to ensure that mining through these boreholes is accomplished safely and, as an alternative to compliance with 30 CFR 75.1700, will provide no less than the same measure of protection to the miners, as required by the MSHA standard.

The petitioner proposes to use the following procedures when plugging oil or gas wells:

(1) Prior to plugging an oil or gas well, a diligent effort will be made to clean the borehole to the original total depth. If this depth cannot be reached, the borehole will be cleaned out to a depth that would permit the placement of at least 200 feet of expanding cement below the base of the lowest minable coal bed.

(2) When cleaning the borehole, a diligent effort will be made to remove all of the casing in the borehole. If it is not possible to remove all of the casing, the casing that remains will be perforated or ripped at intervals spaced close enough to permit expanding cement slurry to infiltrate the annulus between the casing and the borehole wall for a distance of at least 200 feet below the base of the lowest minable coal bed.

(3) If the cleaned-out borehole produces gas, a mechanical bridge plug will be placed in the borehole in a competent stratum at least 200 feet below the base of the lowest minable coal bed, but above the top of the uppermost hydrocarbon-producing stratum. If it is not possible to set a mechanical bridge plug, a substantial brush plug may be used in its place.

The District Manager may allow the use of other effective methods of stopping any and all gas flow emitting from the wellbore before placement of cement through the minable coal seam(s). Such approval will be documented in a written response to the operators' submittal of a detailed explanation of the method to be used

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and an engineering evaluation of the relative effectiveness of the alternative.

(4) A suite of logs will be made, consisting of a caliper survey, directional deviation survey, and log(s) suitable for determining the top and bottom of the lowest minable coal bed and potential hydrocarbon-producing strata and the location for the bridge plug.

(5) If the uppermost hydrocarbon-producing stratum is within 200 feet of the base of the lowest minable coal bed, properly placed mechanical bridge plugs or a suitable brush plug described in paragraph (3) above will be used to isolate the hydrocarbon-producing stratum from the expanding cement plug. Nevertheless, a minimum of 200 feet of expanding cement will be placed below the lowest minable coal bed.

(6) The wellbore will be completely filled and circulated with a gel that inhibits any flow of gas, supports the walls of the borehole, and increases the density of the expanding cement. This gel will be pumped through open-end tubing run to a point approximately 20 feet above the bottom of the cleaned out area of the borehole or bridge plug.

The petitioner proposes to use the following procedures when plugging gas and oil wells to the surface:

(1) A cement plug will be set in the wellbore by pumping expanding cement slurry down the tubing to displace the gel and fill the borehole to the surface. As an alternative, the cement slurry may be pumped down the tubing so that the borehole is filled. There will be at least 200 feet of expanding cement below the base of the lowest minable coal bed.

(2) A marker conforming to the requirements of the state regulatory authority will be installed at the borehole, or a small quantity of steel turnings or other small magnetic particles will be embedded in the top of the cement near the surface. The method used will be suitable to serve as a permanent magnetic monument of the borehole.

The following procedures will be used for the vent pipe method for plugging oil and gas wells:

(1) A 4½-inch or larger pipe will be run into the wellbore to a depth of 100 feet below the lowest minable coal bed and wedged to a smaller diameter pipe that, if desired, will extend to a point approximately 20 feet above the bottom of the cleaned-out area of the borehole or bridge plug.

(2) A cement plug will be set in the wellbore by pumping expanding cement slurry, Portland cement, or a Portland cement-fly ash mixture down the tubing to displace the gel so that the borehole is filled with cement. The borehole and the vent pipe will be filled with expanding cement for a minimum of 200 feet below the base of the lowest minable coal bed. The top of the expanding cement will extend upward to a point approximately 100 feet above the top of the lowest minable coal bed.

(3) All fluid will be evacuated from the vent pipe to facilitate testing for gases. During the evacuation of fluid, the expanding cement will not be disturbed.

(4) The top of the vent pipe will be protected to prevent liquids or solids from entering the wellbore, but permit ready access to the full internal diameter of the vent pipe when necessary.

The petitioner proposes to use the following procedures when plugging oil or gas wells for subsequent use as degasification boreholes:

(1) A cement plug will be set in the wellbore by pumping expanding cement slurry down the tubing to displace the gel and provide at least 200 feet of expanding cement below the lowest minable coal bed. The top of the expanding cement will extend upward to a point above the top of the coal bed being mined. This distance will be based on the average height of the roof strata breakage for the mine.

(2) To facilitate methane drainage, degasification casing of suitable diameter, slotted or perforated throughout its lower 150 to 200 feet, will be set in the borehole to a point 10 to 30 feet above the top of the expanding cement.

(3) The annulus between the degasification casing and the borehole wall will be cemented from a point immediately above the slots or perforations to the surface.

(4) The degasification casing will be cleaned out for its total length.

(5) The top of the degasification casing will be fitted with a wellhead equipped as required by the District Manager. Such equipment may include check valves, shut-in valves, sampling port, flame arrestor equipment, and security fencing.

The following alternative procedures for preparing and plugging oil and gas wells will apply to wells that the petitioner and the District Manager agree cannot be completely cleaned out due to damage to the well caused by subsidence, caving, or other factors; as determined by the petitioner and agreed to by the District Manager. These provisions will apply unless alternative measures are agreed upon and based upon a plan submitted to the District Manager:

(1) The petitioner will drill a hole adjacent and parallel to the well to a depth of at least 200 feet below the lowest minable coal seam.

(2) The petitioner will use a geophysical sensing device to locate any casing that may remain in the well.

(3) If the well contains casing(s), the petitioner will drill into the well from the parallel hole. From 10 feet below the coal seam to 10 feet above the coal seam, the petitioner will perforate or rip all casings at intervals of at least 5 feet. Beyond this distance, the petitioner will perforate or rip at least every 50 feet from at least 200 feet below the base of the lowest minable coal seam up to 100 feet above the seam being mined. The petitioner will fill the annulus between the casing, and between the casings and the well wall with expanding cement (minimum 0.5 percent expansion upon setting), and will ensure that these areas contain no voids. If the petitioner, using a casing bond log, can demonstrate to the satisfaction of the District Manager that the annulus of the well is adequately sealed with cement, then the petitioner will not be required to perforate or rip the casing for that particular well or fill these areas with cement. When multiple casing and tubing strings are present in the coal horizon(s), any casing that remains will 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.

(4) Where the petitioner determines and the District Manager agrees that there is insufficient casing in the well to allow the method outlined in paragraph (3) above to be used, then the petitioner will use a horizontal hydraulic fracturing technique to intercept the original well. From at least 200 feet below the base of the lowest minable coal seam to a point at least 50 feet above the seam being mined, the petitioner will fracture at least six places at intervals to be agreed upon by the petitioner and the District Manager after considering the geological strata and the pressure within the well. The petitioner will then pump expanding cement into the fractured well in sufficient quantities and in a manner that fills all intercepted voids.

(5) The petitioner will prepare down-hole logs for each well. The logs will consist of a caliper survey and log(s) suitable for determining the top, bottom, and thickness of all coal seams and potential hydrocarbon-producing strata and the location for the bridge plug. The petitioner may obtain the logs from the adjacent hole rather than the well if the condition of the well makes it impractical to insert the equipment

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necessary to obtain the log. The District Manager may approve the use of a down-hole cameral survey in lieu of down-hole logs if, in his or her judgment, such logs would not be suitable for obtaining the data or are impractical to obtain due to the condition of the drill hole. A journal will be maintained describing the length and type material used to plug the well; the length of casing(s) removed, perforated, or ripped or left in place; and other pertinent information concerning sealing the well.

(6) After the petitioner has plugged the well, the petitioner will plug the open portions of both holes from the bottom to the surface with Portland cement or a lightweight cement mixture. The petitioner will 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 4½-inch or larger casing set in cement will extend at least 36 inches above the ground level. A combination of the methods outlined in paragraph (3) and (4) above may have to be used in a single well, depending upon the conditions of the hole and the presence of casings. The petitioner and the District Manager may discuss the nature of each hole and the District Manager may require the use of more than one method.

The petitioner proposes to use the following cut-through procedures whenever the safety barrier diameter is reduced to a distance less than the District Manager would approve pursuant to §75.1700 or the petitioner proceeds with an intent to cut through a plugged well:

(1) Prior to reducing the safety barrier to a distance less than the District Manager would approve or proceeding with intent to cut through a plugged well, the petitioner will notify the District Manager.

(2) Mining in close proximity to or through a plugged well will be done on a shift approved by the District Manager.

(3) The District Manager, a representative of the miners, and the appropriate States agency will be notified by the operator in sufficient time prior to the mining-through operation to provide an opportunity for them to have a representative present.

(4) When using continuous mining equipment, drivage sights will be installed at the last open crosscut near the place to be mined to ensure intersection of the well. The drivage sights will not be more that 50 feet from the well. When using longwall mining methods, drivage sights will be installed on 10-foot centers for a distance of 50 feet in advance of the well bore. The drivage sights will be installed in the headgate and tailgate.

(5) Firefighting equipment, including fire extinguishers, rock dust, and sufficient fire hose to reach the working face area of the mining-through will be available when either the conventional or continuous mining method is used. The fire hose will be located in the last open crosscut of the entry or room. All fire hoses will be ready for operation during the mining-through.

(6) Sufficient supplies of roof support and ventilation materials will be available and located at the last open crosscut. In addition, an emergency plug and/or plugs will be available in the immediate area of the cut-through.

(7) The quantity of air required by the approved mine ventilation plan, but not less than 6,000 cubic feet per minute (cfm) of air for scrubber-equipped continuous miners or not less than 9,000 cfm for continuous miner sections using auxiliary fans or line brattice only, will be used to ventilate the working face during the mining-through operation. The quantity of air required by the ventilation plan, but not less than 30,000 cfm, will reach the working face of each longwall during the mining-through operation.

(8) Equipment will be checked for permissibility and serviced on the shift prior to mining-through the well. The methane monitors on the continuous mining machine or the longwall shear and face will be calibrated on the shift prior to mining through the well.

(9) When mining is in progress, tests for methane will be made with a hand-held methane detector at least every 10 minutes from the time that mining with the continuous mining machine is within 30 feet of the well until the well is intersected and immediately prior to mining through. When mining with longwall mining equipment, tests for methane will be made at least every 10 minutes when the longwall face is within 10 feet of the well. During the actual cutting-through process, no individual will be allowed on the return side until mining through has been completed and the area has been examined and declared safe.

(10) When using continuous mining methods, the working area will be free from accumulations of coal dust and coal spillages, and rock dust will be placed on the roof, rib, and floor to within 20 feet of the face when mining through or near the well on the shift or shifts during which the cut-through will occur. On longwall sections, rock-dusting will be conducted and placed on the roof, rib, and floor up to both headgate and tailgate gob.

(11) When the wellbore is intersected, all equipment will be deenergized and the area thoroughly examined and determined safe before mining is resumed. Any well casing will be removed and no open flame will be permitted in the area until adequate ventilation has been established around the wellbore.

(12) After a well has been intersected and the working area determined safe, mining will continue inby the well at a distance sufficient to permit adequate ventilation around the area of the wellbore.

(13) No person will be permitted in the area of the mining-through operation except those actually engaged in the operation, company personnel, representatives of the miners, personnel from MSHA, and personnel from the appropriate State agency.

(14) The mining-through operation will be under the direct supervision of a certified official. Instructions concerning the mining-through operation will be issued only by the certified official in charge. MSHA personnel may interrupt or halt the mining-through operation when necessary for the safety of the miners.

(15) The petitioner will file a plugging affidavit setting forth the persons who participated in the work, a description of the plugging work, and a certification by the petitioner that the well has been plugged as described.

(16) Within 60 days after the Proposed Decision and Order (PDO) becomes final, the petitioner will submit proposed revisions for its approved 30 CFR Part 48 training plan to the District Manager. The provisions will include initial and refresher training regarding compliance with the terms and conditions stated in the PDO.

The petitioner asserts that the proposed alternative method will at all times guarantee miners no less than the same measure of protection as afforded by the existing standard.

Docket Number: M–2012–002–M.

Petitioner: Hecla Greens Creek Mining Company, P.O. Box 32199, Juneau, Alaska 99803.

Mine: Greens Creek Mine, MSHA I.D. No. 50–01267, located in Juneau County, Alaska.

Regulation Affected: 30 CFR 57.14130 (Roll-over protective structures [ROPS] and seat belts for surface equipment).

Modification Request: The petitioner requests a modification of the existing standard to permit employees to be transported 1,600 feet to and from the surface dry facility to work sites underground using underground mine

47-091-00419P

IV-35
(Rev 8-91)

RECEIVED
JUL 30 1984
OIL & GAS DIVISION
DEPT. OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

Date 7/23/84
Operator's
Well No. CNGD 486
Farm Howard W. Spring
API No. 47 - 091 - 0419

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

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

LOCATION: Elevation: 1648.8 Watershed Sandy Creek (MT 18)
District: Knottsville County Taylor Quadrangle Thornton 7.5' (1976)

COMPANY CNG Development Company
ADDRESS P.O. Box 15746 Pittsburgh, PA 15275
DESIGNATED AGENT Gary A. Nicholas
ADDRESS Rt. 2 Box 698 Bridgeport, WV 26330
SURFACE OWNER Warren L. Shumaker, etux
ADDRESS P.O. Box 461, Grafton, West Virginia 26354
MINERAL RIGHTS OWNER Warren L. Shumaker, etal
ADDRESS P.O. Box 461, Grafton, West Virginia 26354
OIL AND GAS INSPECTOR FOR THIS WORK Donald Ellis ADDRESS P.O. Box 47 Belmont, WV 26134
PERMIT ISSUED 6/7/84
DRILLING COMMENCED 6/19/84
DRILLING COMPLETED 6/26/84
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1046	1046	To surf
7			
5 1/2			
4 1/2	4378	4378	565 sks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Haverty Depth 5600 feet
Depth of completed well 5741 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 580 feet; Salt ___ feet
Coal seam depths: 180 - 184, 400 - 404, 725 - 727 Is coal being mined in the area? No

OPEN FLOW DATA
Producing formation Benson, Riley, Bayard Pay zone depth 4223 - 4228, 4062 - 4065, 2479 - 2493 ft.
Gas: Initial open flow - Mcf/d Oil: Initial open flow - Bbl/d
Final open flow 267 Mcf/d Final open flow - Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure 1150 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

TAY 419

RECEIVED
Office of Oil and Gas
FEB 18 2020
WV Department of Environmental Protection

47-091-00419P

FORM IV-35
(REVERSE)

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

Allegheny Perforated: Benson 4223 - 4228, 7 holes (.39)
Riley 4062 - 4065, 3 holes (.39)
Bayard 2479 - 2493, 10 holes (.39)

Halliburton Fractured: Benson/Riley 1500 gal. 10% HCl, 65,000# Sand, 780 BBL Fluid
Bayard 750 gal MOD 202 Acid, 19300# Sand, 375 BBL Fluid

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
KB - GL			0	10	1/2" stream water - 75'
Clay			10	15	1/2" stream water - 580'
Coal			15	17	2" stream water - 670'
Sd & Sh			17	180	2" stream water - 935'
Coal			180	184	
Sd & Sh			184	400	
Coal			400	403	
Sd & Sh			403	725	
Coal			725	727	
RR, Sd & Sh			727	1285	
Little Lime			1285	1315	
Big Lime			1315	1400	
Injun			1400	1500	
RR, Sd & Sh			1500	4250	
Benson			4250	4275	
Sd & Sh			4275	4520	
1st Elk			4520	4630	
Shale			4630	4750	
2nd Elk			4750	4830	
Sd & Sh			4830	5010	
3rd Elk			5010	5120	
Sd & Sh			5120	5275	
4th Elk			5275	5320	
Sd & Sh			5320	5530	
Haverty			5530	5615	
Sd & Sh			5615	5741	

(Attach separate sheets as necessary)

See Attached Sheet for Log Tops

CNG Development Company
Well Operator

By:

Date: July 23, 1984

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

47-091-00419.P

WVGES
GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (091) Taylor
Enter Permit #: 00419
Get Data | Reset

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

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

WV Geological & Economic Survey:

Well: County = 91 Permit = 00419

Report Time: Friday, February 21, 2020 2:45:38 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4709100419	Taylor	419	Knottsville	Thornton	Thornton	39.30109	-79.945206	590949.1	4350720

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4709100419	6/26/1984	Original Loc	Completed	W L Shumaker		CNGD-486				CNG Development Co.			

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_FTG	KOD	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH_P_AFT	G_M
4709100419	6/26/1984	-/-/-	1649	Ground Level	Hiram	Brallier	Brallier	Development Well	Shallower-pool Discovery	Gas	Rotary	Acid+Frac	5741	5741		0	267	0	0			0	0	1150	24			

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
4709100419	6/26/1984	Water	Fresh Water	Vertical			75						0
4709100419	6/26/1984	Water	Fresh Water	Vertical			580						0
4709100419	6/26/1984	Water	Fresh Water	Vertical			670						0
4709100419	6/26/1984	Water	Fresh Water	Vertical			935						0
4709100419	6/26/1984	Pay	Gas	Vertical	2479		2493	Bayard	0	0			
4709100419	6/26/1984	Pay	Gas	Vertical	4062		4065	Riley	0	0			
4709100419	6/26/1984	Pay	Gas	Vertical	4223		4228	Benson	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4709100419	CNG Producing Co.	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1985	21,379	4,284	2,472	1,601	1,557	1,782	1,413	1,979	1,505	1,925	898	1,066	897
4709100419	CNG Development Co.	1986	11,644	1,259	559	1,082	1,093	1,124	828	1,058	1,013	948	931	804	945
4709100419	CNG Development Co.	1987	9,834	786	676	888	949	891	851	861	798	731	726	783	894
4709100419	CNG Development Co.	1988	8,390	926	955	899	796	234	820	732	768	671	591	538	460
4709100419	CNG Development Co.	1989	7,226	480	1,136	596	206	6	804	646	592	523	717	731	789
4709100419	CNG Development Co.	1990	7,842	734	477	503	625	764	714	655	725	685	680	632	648
4709100419	CNG Development Co.	1991	7,103	666	629	610	586	649	608	650	632	524	540	482	527
4709100419	CNG Development Co.	1992	5,931	485	468	762	514	249	461	532	555	538	566	386	415
4709100419	CNG Development Co.	1993	4,590	286	418	349	472	585	514	19	449	453	432	250	363
4709100419	CNG Development Co.	1994	3,865	365	449	436	347	269	188	265	213	260	412	343	318
4709100419	CNG Development Co.	1995	4,685	370	321	332	363	419	370	475	428	429	391	402	385
4709100419	CNG Development Co.	1996	4,461	438	378	431	397	240	372	418	405	404	381	312	285
4709100419	CNG Development Co.	1997	3,795	321	266	303	323	351	349	336	354	355	383	279	175
4709100419	CNG Development Co.	1998	2,118	190	290	228	319	296	279	294	54	51	40	58	19
4709100419	CNG Development Co.	1999	3,117	35	167	237	186	217	91	93	527	431	431	407	295
4709100419	Dominion Exploration & Production	2001	3,032	173	281	301	236	322	208	291	257	215	267	248	233
4709100419	Dominion Exploration & Production	2002	3,336	67	227	286	228	281	307	306	375	340	317	331	271
4709100419	Dominion Exploration & Production	2003	2,814	229	218	256	188	226	257	231	270	260	196	186	297
4709100419	Dominion Exploration & Production	2004	2,816	206	200	247	235	227	250	239	241	223	293	187	268
4709100419	Dominion Exploration & Production	2005	2,451	193	159	231	224	214	219	230	222	204	184	166	205
4709100419	Dominion Exploration & Production	2006	2,663	206	159	194	158	224	223	269	261	241	263	265	200
4709100419	Dominion Exploration & Production	2007	2,308	180	162	181	185	189	202	215	255	236	194	153	156
4709100419	Dominion Exploration & Production	2008	2,082	157	164	210	193	166	201	193	187	165	161	143	142
4709100419	Dominion Exploration & Production	2009	1,985	127	115	170	172	171	196	231	184	167	146	155	151
4709100419	CNX Gas Co. LLC (North)	2010	1,667	139	81	143	138	136	111	144	156	132	164	177	146
4709100419	CNX Gas Co. LLC (North)	2011	1,760	140	114	154	149	150	156	157	152	146	157	142	143
4709100419	Consol Gas Company	2012	1,364	127	132	149	66	6	0	56	221	153	158	102	194
4709100419	Consol Gas Company	2013	1,850	141	112	146	184	216	173	74	29	244	148	149	234
4709100419	Consol Gas Company	2014	1,737	155	152	155	147	147	143	203	181	151	135	124	44
4709100419	Consol Gas Company	2015	1,213	98	133	161	149	166	147	198	81	24	20	13	23
4709100419	Consol Gas Company	2016	1,165	15	28	31	33	230	53	62	30	12	249	232	184
4709100419	Alliance Petroleum Corporation	2017	1,292	153	112	112	126	117	117	108	105	93	89	83	77
4709100419	Alliance Petroleum Corporation	2018	726	0	0	0	0	0	0	90	95	86	41	282	132

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4709100419	CNG Producing Co.	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1984	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1985	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1986	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1988	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1990	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1991	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1992	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1993	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1994	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1995	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNG Development Co.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2001	0	0	0	0	0	0	0	0	0	0	0	0	0

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4709100419	Dominion Exploration & Production	2002	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2003	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2004	41	0	0	0	41	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2005	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2006	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2007	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2008	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Dominion Exploration & Production	2009	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNX Gas Co. LLC (North)	2010	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	CNX Gas Co. LLC (North)	2011	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2012	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2013	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2014	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2015	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2016	0											
4709100419	Alliance Petroleum Corporation	2017	0											
4709100419	Alliance Petroleum Corporation	2018	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

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4709100419	Consol Gas Company	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4709100419	Consol Gas Company	2016	0												
4709100419	Alliance Petroleum Corporation	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4709100419	Consol Gas Company	2016	0												
4709100419	Alliance Petroleum Corporation	2018	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
4709100419	Original Loc	unidentified coal	Well Record	15	Reasonable	2	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	unidentified coal	Well Record	180	Reasonable	4	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	unidentified coal	Well Record	403	Reasonable	0	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	unidentified coal	Well Record	725	Reasonable	2	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Little Lime	Well Record	1285	Reasonable	30	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Big Lime	Well Record	1315	Reasonable	85	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Greenbrier Group	Well Record	1315	Reasonable	185	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Big Injun (Grnbr)	Well Record	1400	Reasonable	100	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Benson	Well Record	4250	Reasonable	25	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Elk	Well Record	4520	Reasonable	110	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Elk	Well Record	4750	Reasonable	80	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Elk	Well Record	5010	Reasonable	110	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Elk	Well Record	5275	Reasonable	45	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Haverty	Well Record	5530	Reasonable	85	Reasonable	1659	Kelly Bushing
4709100419	Original Loc	Braflier	Well Record	5615	Reasonable	0	Reasonable	1659	Kelly Bushing

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	O_TOP	O_BOT	INCH2	INCH5	REDUCED	KOP	LOGMD	ELEV_KB	ELEV_GL	ELEV_DF	LOG_MSRD_FROM
4709100419	0	5750		G,D,I,T,C,*	Y	N	0	5726	1040	5750			1040	5748	1040	5747			1040	5747	Y	Y	N						

Comment: *logs: caliper, bit size

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
4709100419gdltco.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 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

47-091-00419P

WW-4A
Revised 6-07

1) Date: February 11, 2020
2) Operator's Well Number
CNGD - 486

3) API Well No.: 47 - 91 - 0419 P

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: Donald and Linda Hershman
Address: 299 Shumaker Ridge Road
Thornton, West Virginia 26440

(b) Name
Address

(c) Name
Address

5) (a) Coal Operator
Name: CoalQuest Development, LLC
Address: 100 Tygart Drive
Grafton, West Virginia 26354

(b) Coal Owner(s) with Declaration
Name
Address

Name
Address

(c) Coal Lessee with Declaration
Name
Address

6) Inspector: Kenneth Greynolds
Address: 613 Broad Run Road
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.

RECEIVED
Office of Oil and Gas
FEB 18 2020
WV Department of
Environmental Protection

Well Operator: ICG Tygart Valley, LLC
By: Charles E. Duckworth
Its: Designated Agent
Address: 100 Tygart Drive
Grafton, West Virginia 26354
Telephone: (304) 265-9704

Subscribed and sworn before me this 11 day of February, 2020

Notary Public

My Commission Expires December 22, 2024

OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
Thomas Gregory Nair
329 Webster Avenue
Morgantown, WV 26501
My Commission Expires December 22, 2024

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.

47-091-00419P

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- ☐ Adult Signature Restricted Delivery $

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Donald and Linda Hershman
299 Shumaker Ridge Road
Thornton, West Virginia 26440
47-091-00419

PS Form 3800,

47-091-00419P

A Subsidiary of

ArchCoal

ICG TYGART VALLEY, LLC

100 Tygart Drive, Grafton, West Virginia 26354

February 11, 2020

Donald and Linda Hershman
299 Shumaker Ridge Road
Thornton, West Virginia 26440

Re: Plugging Permit – API # 47-91-00419 – Well No. CNGD-486

Dear Mr. & Mrs. Hershman:

As required by the permit process of the WV Department of Environmental Protection – Office of Oil and Gas enclosed please find a copy of the plugging permit application for the above referenced well that ICG Tygart Valley, LLC plans to submit to the WV Department of Environmental Protection, Office of Oil and Gas.

If you have no objection to the plugging, permit application, please sign the page, titled Surface Owner Waiver and return in the enclosed self-addressed stamped envelope.

If you should have any questions concerning this application, please feel free to contact Charles Duckworth at (304) 265-9704 or me at (304) 265-9778 or via email at gnair@archcoal.com.

Sincerely,

Greg Nair
Manager Surface Mine Planning

Enclosures

CERTIFIED MAIL NO. 7019 0700 0000 1949 2629
RETURN RECEIPT REQUESTED

47-091-00419P

SURFACE OWNER WAIVER

Operator's Well Number CNGD - 486

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A

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

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

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

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

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

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

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

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

VOLUNTARY STATEMENT OF NO OBJECTION

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

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

FOR EXECUTION BY A NATURAL PERSON ETC.

_____ Date _____
Signature

RECEIVED
Office of Oil and Gas
FEB 18 2020
WV Department of Environmental Protection

FOR EXECUTION BY A CORPORATION,

Name _____
By _____
Its _____ Date _____

Signature Date

47-091-00419P

WW-4B

API No. 47-091-0419
Farm Name Warren L. Shumaker et ux
Well No. CNGD - 486

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 ____ / 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: 2/11/2020

CoalQuest Development, LLC
By: Greg Nair
Its Power of Attorney

RECEIVED
Office of Oil & Gas
FEB 18 2020
WV Department of
Environmental Protection

47-091-0049 P

POWER OF ATTORNEY

ICG TYGART VALLEY, LLC
TO
GREG NAIR

Dated: January 1, 2020

Expires: December 31, 2020

KNOW ALL MEN BY THESE PRESENTS: That ICG Tygart Valley, LLC, a limited liability company formed under the laws of the State of Delaware (the "Company"), acting by and through Robert G. Jones, its duly authorized Secretary, has and does hereby appoint Greg Nair its true and lawful Attorney-in-Fact with power and authority, for and on behalf, and in the name of the Company, during the period specified above, and subject to the restrictions and limitations set forth in this Power of Attorney to execute and deliver in the ordinary and regular course of the Company's business, applications for mining, environmental, safety and health permits, permit transfers, or permit bond releases or bond adjustments, amendments, supplements or modifications to such permits, certificates or other instruments directly related to such amendments, supplements or modifications, monthly production reports, air quality, water quality or other environmental reports, quarterly discharge monitoring reports and any other like or similar reports required to be filed with any local, state or federal governmental agency.

The Attorney herein appointed shall be authorized to act pursuant to this Power from the date hereof only so long as such Attorney shall remain an employee of Arch Coal, Inc. or any subsidiary thereof, or until December 31, 2020, or until such earlier time as this instrument has been revoked, annulled, rescinded or set aside by an instrument of revocation filed with the Secretary of the Company, whichever first occurs.

IN WITNESS WHEREOF, the Company has caused this Power of Attorney to be executed on its behalf, and its seal to be hereunto affixed as of the day and year first above written, by the undersigned, Robert G. Jones, duly authorized Secretary of the Company.

ICG TYGART VALLEY, LLC

By: _____
Robert G. Jones
Secretary

47-091-00419 P

STATE OF MISSOURI)
) ss
COUNTY OF ST. LOUIS)

On this 13th day of December, 2019, before me, the undersigned notary public, personally appeared Robert G. Jones, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

PEGGY FELDMANN
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: December 01 2021
Commission Number: F13552693

Peggy Feldmann
Notary Public

My Commission Expires: December 1, 2021

47-091-00419P

POWER OF ATTORNEY

COALQUEST DEVELOPMENT LLC
TO
GREG NAIR

Dated: January 1, 2020

Expires: December 31, 2020

KNOW ALL MEN BY THESE PRESENTS: That CoalQuest Development LLC, a limited liability company formed under the laws of the State of Delaware (the "Company"), acting by and through Robert G. Jones, its duly authorized Secretary, has and does hereby appoint Greg Nair its true and lawful Attorney-in-Fact with power and authority, for and on behalf, and in the name of the Company, during the period herein specified, and subject to the restrictions and limitations set forth in this Power, to execute, acknowledge and deliver in the ordinary and regular course of the Company's business, applications for mining, environmental, safety, and health permits, permit transfers, or permit bond releases or bond adjustments, amendments, supplements or modifications to such permits, certificates, gas well plugging applications, shallow well drilling permit applications, or other instruments directly related to such amendments, supplements or modifications, monthly production reports, air quality, water quality or other environmental reports, quarterly discharge monitoring reports and any other like or similar reports required to be filed with any local, state or federal governmental agency.

The Attorney herein appointed shall be authorized to act pursuant to this Power from the date hereof only so long as such Attorney shall remain an employee of Arch Coal, Inc. or any subsidiary thereof, or until December 31, 2020, or until such earlier time as this instrument has been revoked, annulled, rescinded or set aside by an instrument of revocation filed with the Secretary of the Company, whichever first occurs.

IN WITNESS WHEREOF, the Company has caused this Power of Attorney to be executed on its behalf, and its seal to be hereunto affixed as of the day and year first above written, by the undersigned, Robert G. Jones, duly authorized Secretary of the Company.

COALQUEST DEVELOPMENT LLC

By: _____
Robert G. Jones
Secretary

47-091-00499P

STATE OF MISSOURI)
) ss
COUNTY OF ST. LOUIS)

On this 13th day of December, 2019, before me, the undersigned notary public, personally appeared Robert G. Jones, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

PEGGY FELDMANN
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: December 01, 2021
Commission Number: F13552693

Peggy Feldmann
Notary Public

My Commission Expires: December 1, 2021

47-091-00419P

WW-9
(5/16)

API Number 47 - 091 - 0419
Operator's Well No. 486

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

Operator Name ICG Tygart Valley, LLC OP Code

Watershed (HUC 10) Sandy Creek Quadrangle Thornton (638)

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: N/A

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 systembe 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. freshwater

-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. removed offisite

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

-Landfill or offsite name/permit number? ICG Tygart Valley, LLC - Permit No. O-2017-06

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

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

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

Company Official Signature

Company Official (Typed Name) Charles E. Duckworth

Company Official Title Designated Agent

Subscribed and sworn before me this 11 day of February, 20 20

Notary Public

My commission expires 12/22/2024

OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
Gregory Nair
329 Webster Avenue
Morgantown, WV 26501
My Commission Expires December 22, 2024

47-091-00449P

A Subsidiary of

ArchCoal

ICG TYGART VALLEY, LLC

100 Tygart Drive, Grafton, West Virginia 26354

February 11, 2020

WV Department of Environmental Protection
Office of Oil and Gas
601 – 57th Street, S.E.
Charleston, West Virginia 25304

To Whom It May Concern:

As per the WV Department of Environmental Protection, Office of Oil and Gas request, ICG Tygart Valley, LLC, submits the following procedures utilizing pit waste.

Upon submitting a well work application (without a general permit for Oil and Gas Pit Waste Discharge Application), ICG Tygart Valley, LLC, 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 O-2017-06 or to an approved facility that can handle the material.

Sincerely,

Charles E. Duckworth
Designated Agent

Form WW-9

47-091-00419P

Operator's Well No. 486

Proposed Revegetation Treatment: Acres Disturbed 1.50 / 2.0 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch Hay Bales Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchard Grass	12	Orchard Grass	12
Landino Clover	3	Landino Clover	3
Timothy	10	Timothy	10

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: Lemuel L. Kegley

Comments: RECLAIM, RESEED & MULCH ASAP

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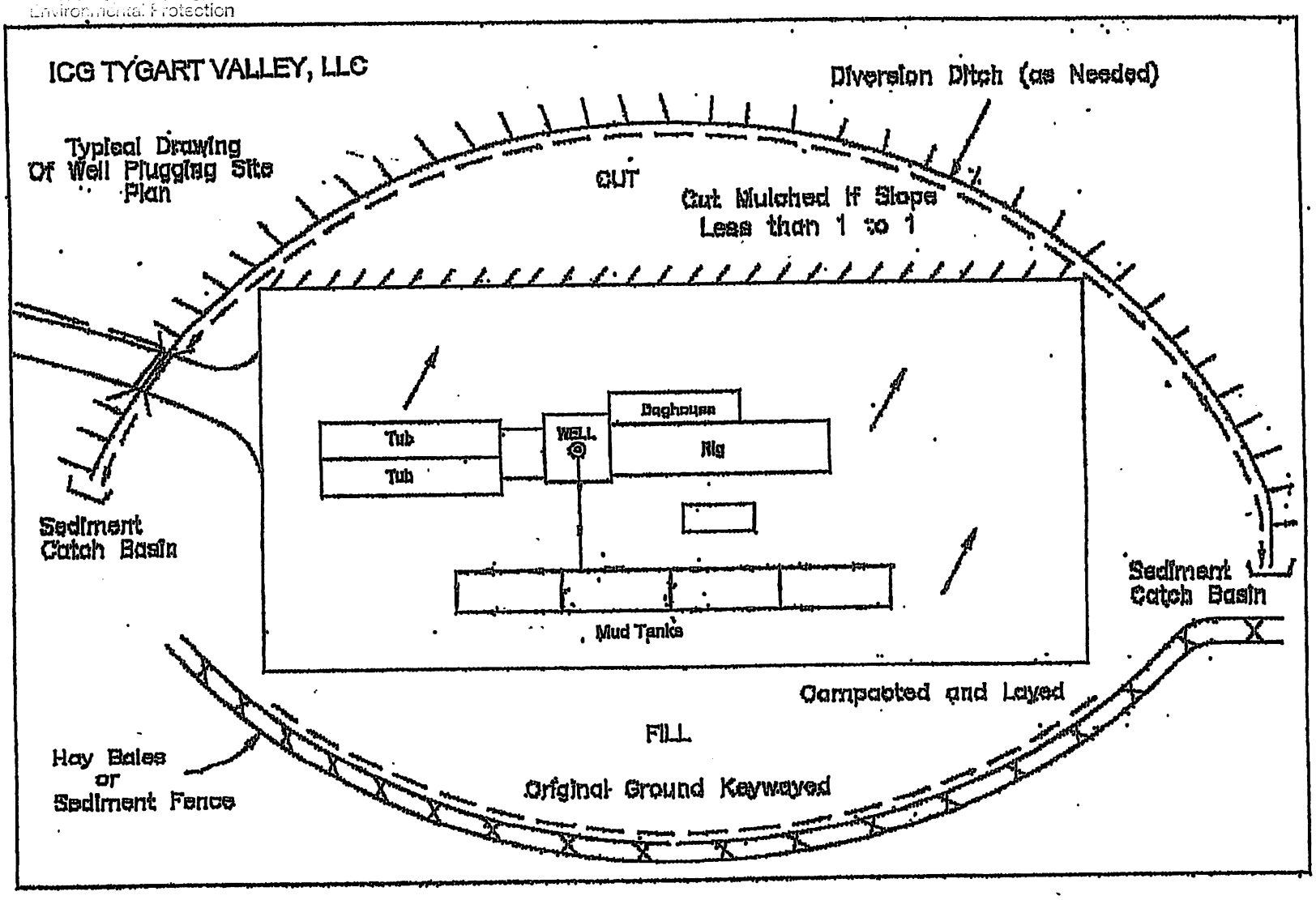
Office of Oil and Gas
FEB 18 2020
WV Department of
Environmental Protection

Title: OIL & GAS INSPECTOR Date: 2-13-20

Field Reviewed? (_____) Yes (__V__) No



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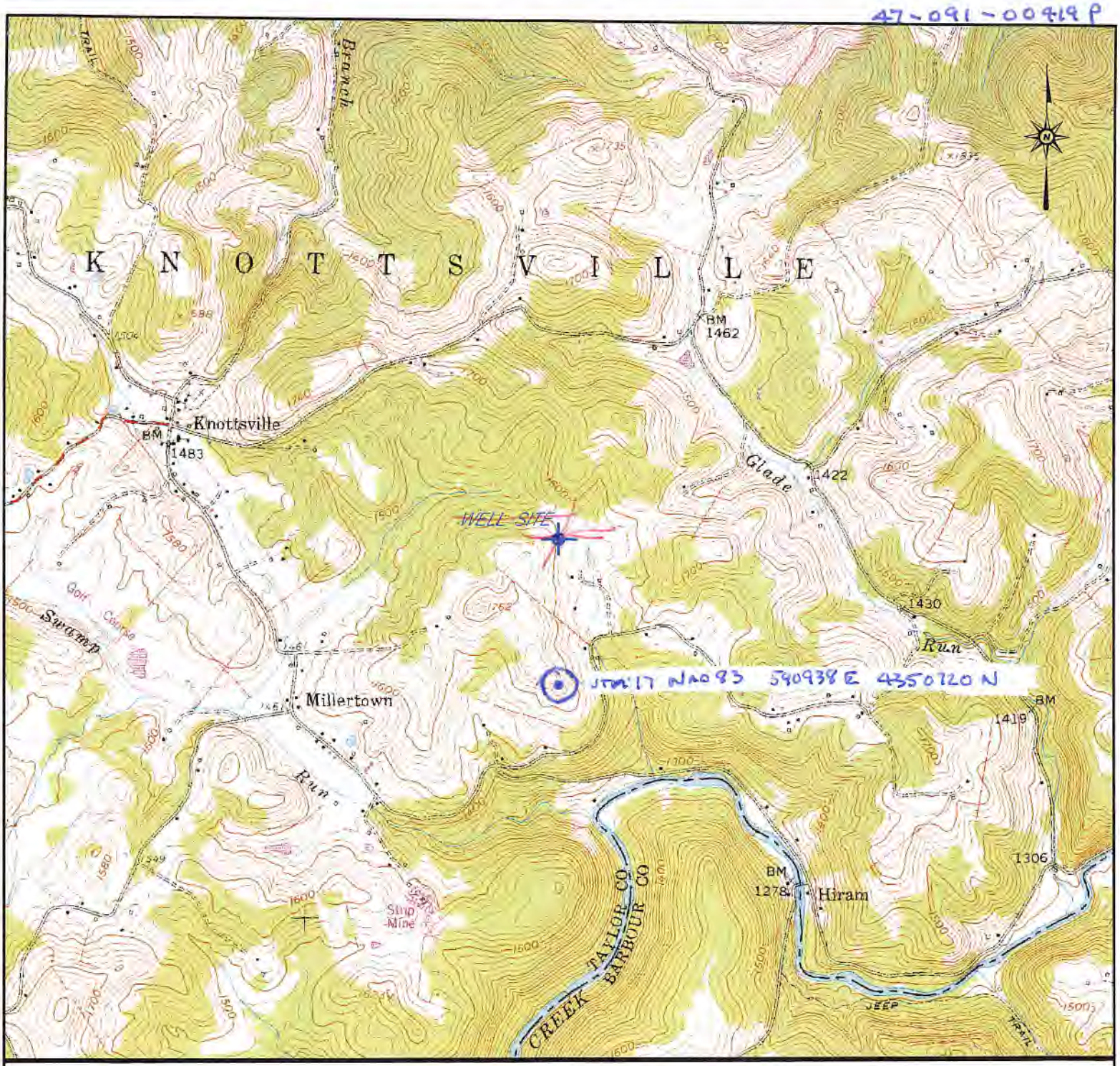

LATITUDE: 39° 18' 03"
LONGITUDE: 79° 56' 44"
NEARTEST WATERCOURSE: Sandy Creek
NEAREST TOWN: Knottsville

OPERATOR'S WELL NO. CNGD-486
API WELL NO.
47 — 091 — 0419
STATE COUNTY PERMIT

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____
(IF "GAS") PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X
LOCATION: ELEVATION 1048.8 WATERSHED Sandy Creek
DISTRICT Knottsville COUNTY Taylor
QUADRANGLE Thornton 7 1/2'
SURFACE OWNER: Donald and Linda Hershman ACREAGE 30.70
OIL & GAS ROYALTY OWNER Donald and Linda Hershman LEASE ACREAGE 35.00
LEASE NO. 75214
PROPOSED WORK: DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) ____

PLUG AND ABANDON X CLEAN OUT AND REPLUG ____
TARGET FORMATION Haverly ESTIMATED DEPTH 5600'
WELL OPERATOR ICG Tygart Valley, LLC DESIGNATED AGENT Charles E. Duckworth
ADDRESS 1200 Tygart Drive, Grafton, WV 26354 ADDRESS 100 Tygart Drive, Grafton, WV 26508

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Office of Oil and Gas
FEB 14 2020
WV Department of
Environmental Protection

DRAWN	
DATE	BY
2/20	TAN
REVISED	
DATE	BY
APPROVED	
DATE	BY

ICG Tygart Valley LLC
A Subsidiary of Arch Coal, Inc.
1200 Tygart Drive
Grafton, WV 26354

API WELL No. 47-091-0419
CNGD-486
SITE LOCATION MAP

Article 3 Permit No.: U-2004-06
Associated NPDES Permit No.: WV1017764
Leer Deep Mine

Knottsville District
Grafton, WV 7.5' Quadrangle
Taylor County
West Virginia

TOPOGRAPHIC CONTOUR INTERVAL = 20'	Scale: 1"=2000'	File No.: 47-091-0419 CNGD-486.dgn	Sheet No.: 1 of 1

Path: DWG/TYG VALLEY/TYG #1/TYGART #1 PERMITS/U-2004-06/OIL & GAS WELL PERMITS/

47-091-00419 P

WW-7
8-30-06

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

API: 47-091-00419 **WELL NO.:** 486

FARM NAME: Warren L. Shumaker, et ux

RESPONSIBLE PARTY NAME: ICG Tygart Valley, LLC

COUNTY: Taylor **DISTRICT:** Knottsville

QUADRANGLE: Thornton

SURFACE OWNER: Donald and Linda Hershman

ROYALTY OWNER: Donald and Linda Hershman

UTM GPS NORTHING: 4350720.323

UTM GPS EASTING: 590938.066 **GPS ELEVATION:** 1671.12

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 ___X___: Post Processed Differential _____

Real-Time Differential ___X___

Mapping Grade GPS _____: Post Processed Differential _____

Real-Time Differential _____

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

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

Signature	Power of Attorney Title	February 11, 2020 Date

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Office of Oil and Gas
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WV Department of Environmental Protection