09/21/2018

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

Tuesday, September 18, 2018
WELL WORK PLUGGING PERMIT
Vertical Plugging

ICG TYGART VALLEY, LLC
100 TYGART DR

GRAFTON, WV 26354

Re: Permit approval for MCCARTNEY 1
47-091-01128-00-00

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: MCCARTNEY 1
Farm Name: MCCARTNEY, CLAUDE R.
U.S. WELL NUMBER: 47-091-01128-00-00
Vertical Plugging
Date Issued: 9/18/2018

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47-091-01128P

09/21/2018

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.

47-091-01128 P

IV-4B
Rev. 2/01

1) Date August 6, 2018
2) Operator's Well No. McCartney #1 09/21/2018
3) API Well No. 47- 91 - 01128

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 1670' Watershed Glade Run
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

Appropriate coal seam top = 567.4'

Approximate coal seam bottom = 572.2'

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

Work order approved by inspector Kenneth Greynolds Date 8-7-18

47-091-01128P

09/21/2018

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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47-091-01128P
09/21/2018

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

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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.

7" => CTS
9 5/8" => CTS

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. 7" CASING @ ≈ 1800'
- If necessary cut and pull any free casing.
- Perforate, cut, rip or mill any remaining casing at depths determined by MSHA's 101C Petition.

* WILL HAVE TO MILL THROUGH 7" TO ACCESS COAL SEAM

47-091-01128P
09/21/2018

- 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.

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DRILLING · EAST

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AUG 09 2018
09/21/2018
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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

47-091-01128P
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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

47-091-01128P

09/21/2018

WR-35
Rev (8-10)

DATE: 6/24/2011
API #: 4709101128

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: MCCARTNEY, CLAUDE Operator Well No.: 1

LOCATION: Elevation: 1670 Quadrangle: THORNTON

District: KNOTTSVILLE County: TAYLOR
Latitude: 6,130 Feet South of 39 Deg. 20 Min. 0 Sec.
Longitude: 7,190 Feet West of 79 Deg. 55 Min. 0 Sec.

Company: Texas Keystone, Inc.

Address: 560 Epsilon Drive Pittsburgh, PA 15238	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Agent: Jon Farmer	13 3/8"	42	42	Sanded In
Inspector: Bryan Harris				
Date Permit Issued: 05/05/09	9 5/8"	462	462	160
Date Well Work Commenced: 04/27/11				
Date Well Work Completed: 05/03/11	7"	1769	1769	235
Verbal Plugging:				
Date Permission granted on:	4 ½"	0	5372	250
Rotary [X] Cable [ ] Rig [ ]				
Total Vertical Depth (ft.): 5779				
Total Measured Depth(ft.): 5779				
Fresh Water Depth (ft.): 180				
Salt Water Depth (ft.): none reported				
Is coal being mined in the area (N/Y)? N				
Coal Depths (ft.): none reported				
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: 3RD ELK Pay zone Depth (ft) 5177 - 5257
Gas: Initial open flow: G/S TSTM MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow 231 MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: N/A Hours
Static rock Pressure: 825 psig(surface pressure) after 720 Hours

Second Producing formation: 2ND ELK Pay zone Depth (ft) 4924 - 4937
Gas: Initial open flow: Co-mingled MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow Co-mingled MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: ___ Hours
Static rock Pressure: Co-mingled 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.

Signature

6-29-11
Date

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47 - 091 - 01281 P
09/21/2018

Were core samples taken? Yes ___ No X Were cuttings caught during drilling? Yes ___ No X

Were N Electrical, N Mechanical, Y or Geophysical logs recorded on this well?
Y/N Y/N Y/N

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

Perforated Intervals, Fracturing, or Stimulating:

Perfed 3rd Elk 5177' - 5257' (20 shots). BD 3452 #. 100 sks 40/70 & 100 sks 20/40. 452 bbl. Gel Frac.
Perfed 2nd Elk 4924' - 4937' (18 shots). BD 4600 #. 150 sks 40/70 & 100 sks 20/40. 565 bbl. Gel Frac.
Perfed Upper Riley 3996' - 4006' (21 shots). BD 4720 #. 100 sks 40/70 & 100 sks 20/40 sks. 470 bbl. Gel Frac.
Perfed Balltown B 3157' - 3197' (32 shots). BD 2000 #. 100 sks 40/70 & 100 sks 20/40. 470 bbl. Gel Frac.
Perfed Balltown A 3100' - 3110' (20 shots). BD 2400 #. 200 sks 40/70 & 100 sks 20/40. 534 bbl. Gel Frac.
Perfed Lower 4th Sand 2353' - 2380' (24 shots). BD 2560 #. 150 sks 40/70 & 100 sks 20/40. 464 bbl. Gel Frac.

Formations Encountered:	Top Depth	Bottom Depth	Notes:
FILL	0	10	
SHALE	10	100	
SANDSTONE	100	110	
SANDY SHALE	110	220	1" FW @ 180'
REDROCK SHALE	220	230	
SANDY SHALE	230	340	
SANDSTONE	340	590	
SANDY SHALE	590	740	
SANDSTONE	740	880	
SANDY SHALE	880	995	
REDROCK SHALE	995	1070	
SANDY SHALE	1070	1260	
REDROCK SHALE	1260	1285	
LITTLE LIME	1285	1302	
PENCIL CAVE SHALE	1302	1321	
BIG LIME	1321	1525	
SHALE	1525	1576	
SANDSTONE	1576	1586	
SHALE	1586	1628	
WEIR SANDSTONE	1628	1663	
SHALE	1663	1755	
SANDY SHALE	1755	1810	
GANTZ SANDSTONE	1810	1853	
SANDY SHALE	1853	2346	
LOWER 4TH SAND	2346	2393	
SANDY SHALE	2393	2526	
BAYARD SANDSTONE	2526	2551	
SANDY SHALE	2551	3093	
BALLTOWN A SANDSTONE	3093	3128	
SANDY SHALE	3128	3174	
BALLTOWN B SANDSTONE	3174	3201	
SHALE	3201	3985	
UPPER RILEY SILTSTONE	3985	4016	
SHALE	4016	4052	
SANDY SHALE	4052	4662	
1ST ELK SILTSTONE	4662	4690	
SANDY SHALE	4690	4887	
2ND ELK SILTSTONE	4887	4948	
SANDY SHALE	4948	5144	
3RD ELK SILTSTONE	5144	5190	
SANDY SHALE	5190	5779	TD

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09/21/2018

Third Producing formation: UPPER RILEY Pay zone Depth (ft) 3996 - 4006
Gas: Initial open flow: Co-mingled MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow Co-mingled MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: ____ Hours
Static rock Pressure: Co-mingled psig(surface pressure) after - Hours

Fourth Producing formation: BALLTOWN B Pay zone Depth (ft) 3157 - 3197
Gas: Initial open flow: Co-mingled MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow Co-mingled MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: ____ Hours
Static rock Pressure: Co-mingled psig(surface pressure) after - Hours

Fifth Producing formation: BALLTOWN A Pay zone Depth (ft) 3100 - 3110
Gas: Initial open flow: Co-mingled MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow Co-mingled MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: ____ Hours
Static rock Pressure: Co-mingled psig(surface pressure) after - Hours

Sixth Producing formation: LOWER 4TH SAND Pay zone Depth (ft) 2353 - 2380
Gas: Initial open flow: Co-mingled MCF/D Oil: Initial open flow: 0 Bbl/d
Final open flow Co-mingled MCF/D Oil: Final open flow: 0 Bbl/d
Time of open flow between initial and final tests: ____ Hours
Static rock Pressure: Co-mingled psig(surface pressure) after - Hours

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WW-4A
Revised 6-07

1) Date: August 6, 2018
2) Operator's Well Number
McCartney #1

3) API Well No.: 47 - 91 - 01128

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: Timothy B. Carr
Address: 6181 Knottsville Road
Thornton, West Virginia 26440

(b) Name
Address

(c) Name
Address

6) Inspector: Kenneth Greynolds
Address: 613 Broad Run Road
Jane Lew, WV 26378
Telephone: (304) 206-6613

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

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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.

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 6 day of August, 2018

Notary Public

My Commission Expires December 22, 2019

Official Seal
Notary Public
State of West Virginia
Thomas Gregory Nair
329 Webster Avenue, Morgantown, WV 26501
My Commission Expires December 22, 2019

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 deprivacyoffier@wv.gov.

47-091-01128P
09/21/2018

SURFACE OWNER WAIVER

Operator's Well Number McCartney #1 47-091-01128

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 AUG 14 2018
Signature

FOR EXECUTION BY A CORPORATION,

Name _____
By _____
Its _____ Date

Signature Date

47-091-01128P
09/21/2018

WW-4B

API No. 47-91-01128
Farm Name McCartney
Well No. McCartney #1

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: 8/6/18

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

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47-091-01128P
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POWER OF ATTORNEY

ICG TYGART VALLEY, LLC
TO
GREG NAIR

Dated: January 1, 2018

Expires: December 31, 2018

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, 2018, 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

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47-091-01128 P
09/21/2018

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

On this 2nd day of January, 2018, 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.

Jolene Jouett Mermis
Notary Public

My Commission Expires: May 21, 2019

JOLENE JOUETT MERMIS
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: May 21, 2019
Commission Number: 15388596

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47-091-01128P
09/21/2018

POWER OF ATTORNEY

COALQUEST DEVELOPMENT LLC
TO
GREG NAIR

Dated: January 1, 2018

Expires: December 31, 2018

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, 2018, 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

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Office of Oil and Gas
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WV Department of
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47-091-01128P
09/21/2018

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

On this 2nd day of January, 2018, 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.

Jolene Jouett Mermis
Notary Public

My Commission Expires: May 21, 2019

JOLENE JOUETT MERMIS
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: May 21, 2019
Commission Number: 15388596

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47-091-01128 P

WW-9
Rev. 5/08

Page 1 of 2
API Number 47 - 91 - 01128 09/21/2018
Operator's Well No. McCartney #1

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name ICG Tygart Valley, LLC OP Code _____

Watershed Glade Run Quadrangle Thornton (638)

Elevation 1670' County Taylor District Knottsville

Description of anticipated Pit Waste: N/A

Will a synthetic liner be used in the pit? N/A.

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
_____ Underground Injection (UIC Permit Number _____)
_____ Reuse (at API Number _____)
_____ Off Site Dispposal (Supply form WW-9 for disposal location)
X Other (Explain Tanks - See attached letter

Proposed Work For Which Pit Will Be Used:

_____ Drilling
_____ Workover
_____ Other (Explain _____
_____ Swabbing
X Plugging

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, 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

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WV Department of
Environmental Protection

Subscribed and sworn before me this 6 day of August, 2018

_____ Notary Public

My commission expires December 22, 2019

Official Seal
Notary Public
State of West Virginia
Thomas Gregory Nair
329 Webster Avenue, Morgantown, WV 26501
My Commission Expires December 22, 2019

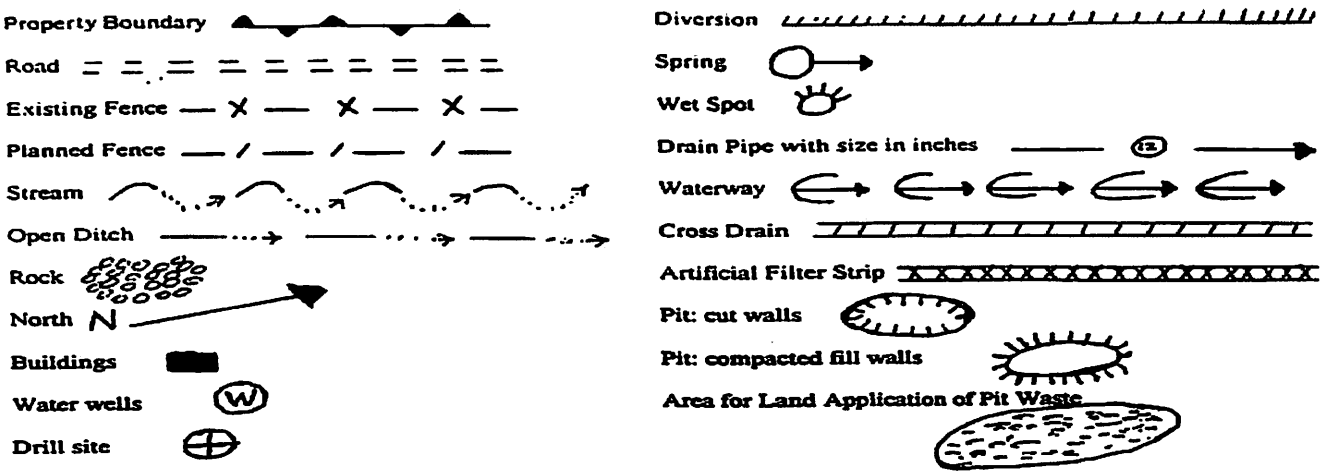
47-091-01128P

09/21/2018

Form WW-9

Operator's Well No. McCartney #1

LEGEND



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

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch Hay Bales Tons/acre

Seed Mixtures

Area I		Area II	
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:
Drawing(s) of road, location,pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

See attached

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Environmental Protection

Plan Approved by: [signature]

Comments: RECLAIM, SEED + MULCH ASAP

Title: OIL & GAS INSPECTOR Date: 8-7-18

Field Reviewed? (_____) Yes (V) No

47-091-01128P

09/21/2018

A Subsidiary of ArchCoal

ICG TYGART VALLEY, LLC

100 Tygart Drive, Grafton, West Virginia 26354

August 6, 2018

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

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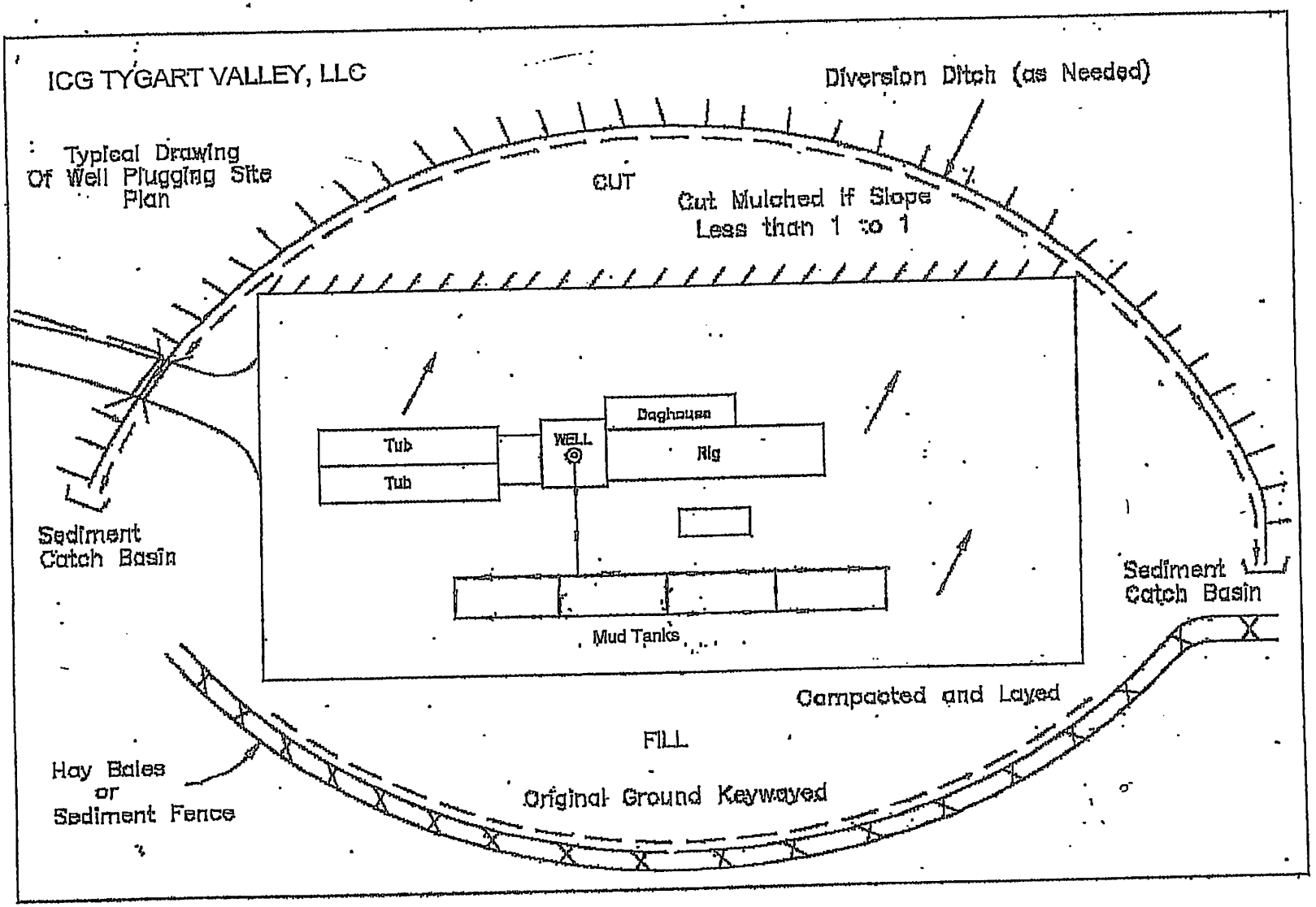
ICG TYGART VALLEY, LLC

Typical Drawing
Of Well Plugging Site
Plan



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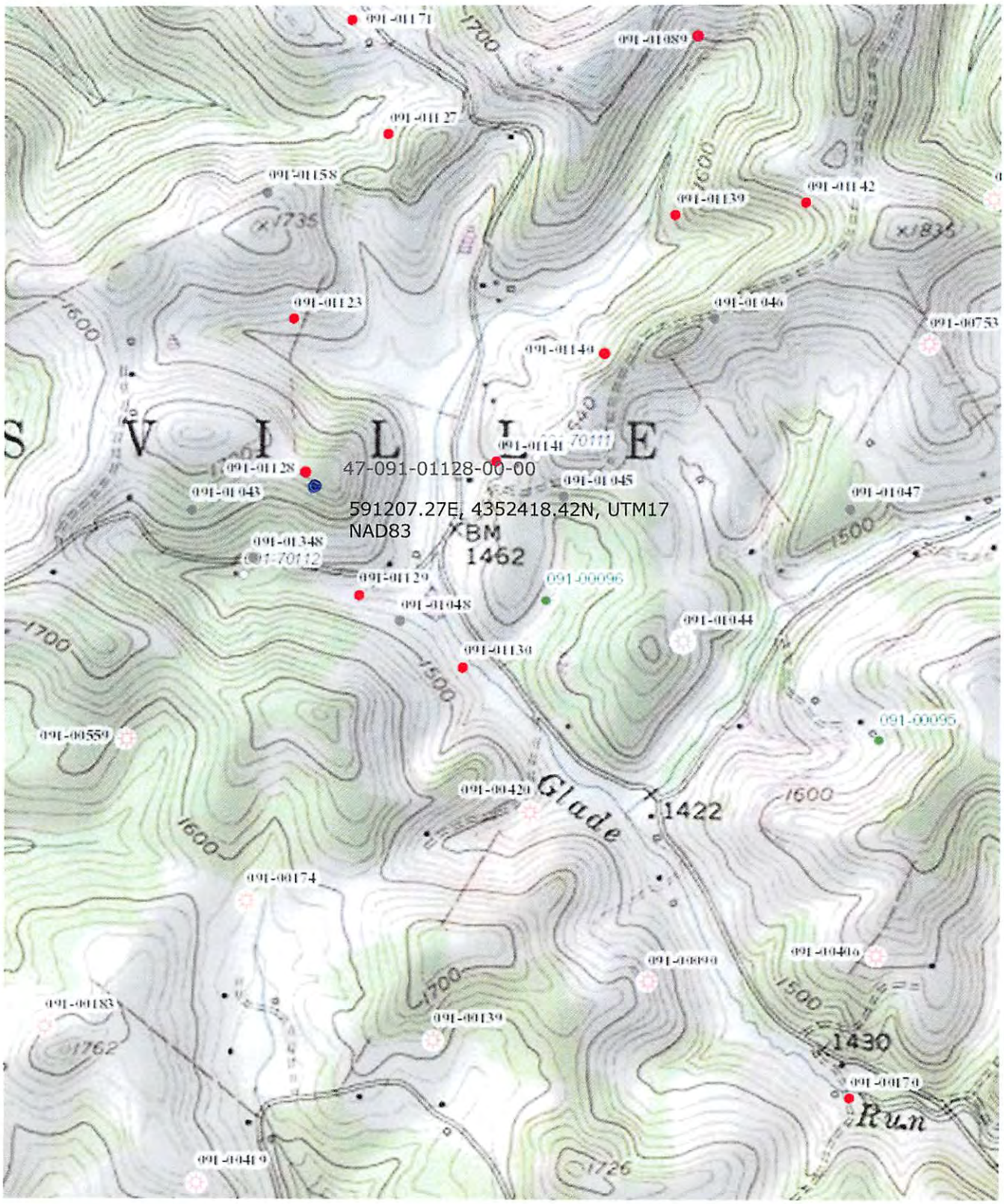

47-091-01128P
09/21/2018

WW-7
8-30-06

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

API: 47-091-01128 **WELL NO.:** McCartney #1

FARM NAME: McCartney, Claude

RESPONSIBLE PARTY NAME: ICG Tygart Valley, LLC

COUNTY: Taylor **DISTRICT:** Knottsville

QUADRANGLE: Thornton

SURFACE OWNER: Timothy B. Carr

ROYALTY OWNER: Timothy B. Carr

UTM GPS NORTHING: 4352418.416

UTM GPS EASTING: 591207.269 **GPS ELEVATION:** 1659.18

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 _____

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WV Department of Environmental Protection

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	August 6, 2018
	Title	Date