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

Monday, June 18, 2018
WELL WORK PLUGGING PERMIT
Vertical Plugging

WOLF RUN MINING LLC
100 TYGART DR

GRAFTON, WV 26354

Re: Permit approval for BAR-1032
47-001-01032-00-00

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: BAR-1032
Farm Name: SAYERS, EZRA
U.S. WELL NUMBER: 47-001-01032-00-00
Vertical Plugging
Date Issued: 6/18/2018

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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 May 29, 2018
2) Operator's Well No. BAR-1032
3) API Well No. 47- 001 - 01032

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 1470' Watershed Foxgrape Run
District Pleasant County Barbour Quadrangle Philippi (545)

6) Well Operator Wolf Run Mining 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

Wolf Run Mining LLC (47-001-00288)

Sentinel Mine (MSHA ID# 46-04168)

MSHA 101-C Docket No. M-2012-002-C

RECEIVED
Office of Oil and Gas
JUN 08 2018
WV Department of
Environmental Protection

Appropriate coal seam top = 823.36'

Approximate coal seam bottom = 828.70'

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

Work order approved by inspector Leonard J. Knopick Date 6-7-18

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EXHIBIT NO. 1

From the experience and technology developed since 1970 in plugging oil and gas wells for mining through, Wolf Run Mining 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".

- CLEAN OUT WELL TO PBTD ± 4500'.
- SPOT GEL.
- SET CLASS A CEMENT PLUG TO TOC OF 4 1/2" CASING WHICH IS AT A DEPTH OF 4080'.
- CUT AND REMOVE 4 1/2" CASING JUST ABOVE FREE POINT, WHILE CEMENTING WITH CLASS A CEMENT TO A POINT 200' BELOW DEEPEST MINABLE COAL. THIS WILL BE INSIDE 8 5/8" CASING.
- CIRCULATE EXPANDING CEMENT PLUG FROM 200' BELOW DEEPEST MINABLE COAL TO A POINT 100' ABOVE SHALLOWEST MINABLE COAL.
- CEMENT WITH CLASS A CEMENT FROM A POINT 100' ABOVE SHALLOWEST MINABLE COAL TO SURFACE.
- SET MONUMENT

JWM
6/15/18

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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

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U.S. Department of Labor

Mine Safety and Health Administration
1100 Wilson Boulevard
Arlington, Virginia 22209-3939

SEP 30 2013

In the matter of:
Wolf Run Mining Company
Sentinel Mine
I. D. No. 46-04168

MSHA 101C EXEMPTION

Petition for Modification

Docket No. M-2012-002-C

PROPOSED DECISION AND ORDER

On January 1, 2012, a petition was filed seeking a modification of the application of 30 CFR 75.1700 to Petitioner's Sentinel Mine located near Buckhannon in Upshur County, West Virginia. The petitioner alleges that the alternative method outlined in the petition will at all times guarantee no less than the same measure of protection afforded by the standard.

On July 3, 2012, MSHA conducted an investigation of the petition and filed a report of their findings and recommendations with the Administrator for Coal Mine Safety and Health. After a careful review of the entire record, including the petition and MSHA's investigative reports and recommendations, this Proposed Decision and Order (PDO) is issued.

Finding of Fact and Conclusion of Law

The alternative method proposed by the Petitioner (as amended by the recommendations of MSHA) will at all times guarantee no less than the same measure of protection afforded the miners under 30 CFR 75.1700.

The Sentinel Mine operates in the Clarion coal seam and the mining height averages approximately 84 inches. The mine has three working sections utilizing continuous miners and produces approximately 8,000 tons of raw coal per day. Oil and gas production in this area includes older wells completed in the salt sands and newer wells that are targeting the Marcellus shale.

On the basis of the petition and the findings of MSHA's investigation, Wolf Run Mining Company, is granted a modification of the application of 30 CFR 75.1700 to its Sentinel Mine.

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ORDER

Under the authority delegated by the Secretary of Labor to the Administrator for Coal Mine Safety and Health, and under § 101(c) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C. § 811(c), and 30 C.F.R. Part 44, a modification of the application of 30 C.F.R. § 75.1700 at the Sentinel Mine is hereby:

GRANTED, subject to the following terms and conditions:

1. DISTRICT MANAGER APPROVAL REQUIRED

   a. A safety barrier of 300 feet in diameter (150 feet between any mined area and a well) shall be maintained around all oil and gas wells (defined herein to include all active, inactive, abandoned, shut-in, and previously plugged wells, and including water injection wells) until approval to proceed with mining has been obtained from the district manager.

   b. Prior to mining within the safety barrier around any well, the mine operator shall provide to the district manager a sworn affidavit or declaration executed by a company official stating that all mandatory procedures for cleaning out, preparing, and plugging each gas or oil well have been completed as described by the terms and conditions of this order. The affidavit or declaration must be accompanied by all logs described in subparagraphs 2(a)(2) and 2(a)(3) below and any other records described in those subparagraphs which the district manager may request. The district manager will review the affidavit or declaration, the logs and any other records that have been requested, and may inspect the well itself, and will then determine if the operator has complied with the procedures for cleaning out, preparing and plugging each well as described by the terms and conditions of this Order. If the district manager determines that the procedures have been complied with, he will provide his approval, and the mine operator may then mine within the safety barrier of the well, subject to the terms of this Order.

   c. The terms and conditions of this Order apply to all types of coal mining.

2. MANDATORY PROCEDURES FOR CLEANING OUT, PREPARING, PLUGGING AND REPLUGGING OIL OR GAS WELLS

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a. MANDATORY PROCEDURES FOR CLEANING OUT AND PREPARING OIL AND GAS WELLS PRIOR TO PLUGGING OR REPLUGGING

(1) If the total depth of the well is less than 4,000 feet., the operator shall completely clean out the well from the surface to at least 200 ft. below the base of the lowest mineable coal seam, unless the district manager requires cleaning to a greater depth based on his judgment as to what is required due to the geological strata, or due to the pressure within the well (the operator shall provide the district manager with all information it possesses concerning the geological nature of the strata and the pressure of the well). If the total depth of the well is 4,000 feet, or greater, the operator shall completely clean out the well from the surface to at least 400 feet below the base of the lowest mineable coal seam. The operator shall remove all material from the entire diameter of the well, wall to wall.

(2) The operator shall prepare down-hole logs for each well. They shall 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 a bridge plug. The district manager may approve the use of a down-hole camera survey in lieu of down-hole logs. In addition, a journal shall be maintained describing the depth of each material encountered, the nature of each material encountered; bit size and type used to drill each portion of the hole; length and type of each material used to plug the well; length of casing(s) removed, perforated or ripped or left in place, any sections where casing was cut or milled; and other pertinent information concerning cleaning and sealing the well. Invoices, work-orders, and other records relating to all work on the well shall be maintained as part of this journal and provided to MSHA upon request.

(3) When cleaning out the well as provided for in subparagraph (a)(1), the operator shall make a diligent effort to remove all of the casing in the well. If it is not possible to remove all of the casing, then the operator must take appropriate steps to ensure that the annulus between the casing and between the casings and the well walls are filled with expanding (minimum 0.5% expansion upon setting) cement and contain no voids. If the casing cannot be removed, it must be cut or milled at all mineable coal seam levels. Any casing which remains shall be perforated or ripped. Perforations or rips are required at least every 50 feet from 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the base of the lowest mineable

coal seam up to 100 feet above the uppermost mineable coal seam. If the operator, using a casing bond log, can demonstrate to the satisfaction of the district manager that all annuli in the well are already adequately sealed with cement, then the operator will not be required to perforate or rip the casing for that particular well. When multiple casing and tubing strings are present in the coal horizon(s), any casing which remains shall be ripped or perforated and filled with expanding cement as indicated above. An acceptable casing bond log for each casing and tubing string is needed if used in lieu of ripping or perforating multiple strings.

(4) If the district manager concludes that the completely cleaned-out well is emitting excessive amounts of gas (potential to cut uncured cement), the operator must place a mechanical bridge plug in the well. It must be placed in a competent stratum at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the base of the lowest mineable coal seam, but above the top of the uppermost hydrocarbon-producing stratum, unless the district manager requires a greater distance based on his judgment that it is required due to the geological strata, or due to the pressure within the well (the operator shall provide the district manager with all information it possesses concerning the geological nature of the strata and the pressure of the well). If it is not possible to set a mechanical bridge plug, an appropriately sized packer may be used.

(5) If the upper-most hydrocarbon-producing stratum is within 300 feet of the base of the lowest minable coal seam, the operator shall properly place mechanical bridge plugs as described in subparagraph (a)(4) to isolate the hydrocarbon producing stratum from the expanding cement plug. Nevertheless, the operator shall place a minimum of 200 feet (400 feet if the total well depth is 4,000 feet or greater) of expanding cement below the lowest mineable coal seam, unless the district manager requires a greater distance based on his judgment that it is required due to the geological strata, or due to the pressure within the well.

b. <u>MANDATORY PROCEDURES FOR PLUGGING OR REPLUGGING OIL OR GAS WELLS TO THE SURFACE.</u>

After completely cleaning out the well as specified in paragraph 2(a) above, the following procedures shall be used to plug or replug gas or oil wells to the surface:

(1) The operator shall pump expanding cement slurry down the well to form a plug which runs from at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the base of the lowest mineable coal seam (or lower if required by the district manager based on his judgment that a lower depth is required due to the geological strata, or due to the pressure within the well) to the surface. The expanding cement will be placed in the well under a pressure of at least 200 pounds per square inch. Portland cement or a lightweight cement mixture may be used to fill the area from 100 feet above the top of the uppermost mineable coal seam (or higher if required by the district manager based on his judgment that a higher distance is required due to the geological strata, or due to the pressure within the well) to the surface.

(2) The operator shall embed steel turnings or other small magnetic particles in the top of the cement near the surface to serve as a permanent magnetic monument of the well. In the alternative, a 41/2 inch or larger casing, set in cement, shall extend at least 36 inches above the ground level with the API well number engraved or welded on the casing. When the hole cannot not be marked with a physical monument (i.e. prime farmland), high-resolution GPS coordinates (one-half meter resolution) are required.

c. MANDATORY PROCEDURES FOR PLUGGING OR REPLUGGING OIL AND GAS WELLS FOR USE AS DEGASIFICATION BOREHOLES.

After completely cleaning out the well as specified in paragraph 2(a) above, the following procedures shall be utilized when plugging or replugging oil or gas wells that are used as degasification boreholes:

(1) The operator shall set a cement plug in the well by pumping an expanding cement slurry down the tubing to provide at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) of expanding cement below the lowest mineable coal seam, unless the district manager requires a greater depth based on his judgment that a greater depth is required due to the geological strata, or due to the pressure within the well. The expanding cement will be placed in the well under a pressure of at least 200 pounds per square inch. The top of the expanding cement shall extend at least 50 feet above the top of the coal seam being mined, unless the district manager requires a greater distance based on his judgment that a greater distance is required due to the geological strata, or due to the pressure within the well.

(2) The operator shall securely grout into the bedrock of the upper portion of the degasification well, a suitable casing in order to protect it. The remainder of this well may be cased or uncased.

(3) The operator shall fit the top of the degasification casing with a wellhead equipped as required by the district manager in the approved ventilation plan. Such equipment may include check valves, shut-in valves, sampling ports, flame arrestor equipment, and security fencing.

(4) Operation of the degasification well shall be addressed in the approved ventilation plan. This may include periodic tests of methane levels and limits on the minimum methane concentrations that may be extracted.

(5) After the area of the coal mine that is degassed by a well is sealed or the coal mine is abandoned, the operator must seal degas holes using the following procedures:

(i) The operator shall insert a tube to the bottom of the drill hole or, if not possible, to at least 100 feet above the coal seam being mined. Any blockage must be removed to ensure that the tube can be inserted to this depth.

(ii) The operator shall set a cement plug in the well by pumping Portland cement or a lightweight cement mixture down the tubing until the well is filled to the surface.

(iii) The operator shall embed steel turnings or other small magnetic particles in the top of the cement near the surface to serve as a permanent magnetic monument of the well. In the alternative, a 4'/2 inch or larger casing, set in cement, shall extend at least 36 inches above the ground level with the API well number engraved or welded on the casing.

d. MANDATORY ALTERNATIVE PROCEDURES FOR PREPARING AND PLUGGING OR REPLUGGING OIL OR GAS WELLS.

The following provisions apply to all wells which the operator determines, and the MSHA district manager agrees, cannot be completely cleaned out due to damage to the well caused by subsidence, caving or other factors.

(1) The operator shall drill a hole adjacent and parallel to the well, to a depth of at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the lowest mineable coal seam, unless the district manager requires a greater depth based on his judgment that a greater depth is required due to the geological strata, or due to the pressure within the well.

(2) The operator shall use a geophysical sensing device to locate any casing which may remain in the well.

(3) If the well contains casing(s), the operator shall drill into the well from the parallel hole. From 10 feet below the coal seam to 10 feet above the coal seam, the operator shall perforate or rip all casings at intervals of at least 5 feet. Beyond this distance, the operator shall perforate or rip at least every 50 feet from at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the base of the lowest mineable coal seam up to 100 feet above the seam being mined, unless the district manager requires a greater distance based on his judgment that a greater distance is required due to the geological strata, or due to the pressure within the well. The operator shall fill the annulus between the casings and between the casings and the well wall with expanding (minimum *0.5%* expansion upon setting) cement, and shall ensure that these areas contain no voids. If the operator, 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 operator 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 which remains shall be ripped or perforated and filled with expanding cement as indicated above. An acceptable casing bond log for each casing and tubing string is needed if used in lieu of ripping or perforating multiple strings.

(4) Where the operator determines, and the district manager agrees, that there is insufficient casing in the well to allow the method outlined in subparagraph (d)(3) to be used, then the operator shall use a horizontal hydraulic fracturing technique to intercept the original well. From at least 200 feet (400 feet if the total well depth is 4,000 feet or greater) below the base of the lowest mineable coal seam to a point at least 50 feet above the seam being mined, the operator shall fracture in at least six places (12 places if the total well depth is 4,000 feet or greater) at intervals to be agreed upon by the operator and the district manager after considering the

geological strata and the pressure within the well. The operator shall then pump expanding cement into the fractured well in sufficient quantities and in a manner which fills all intercepted voids.

(5) The operator shall prepare down-hole logs for each well. They shall 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 operator 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 necessary to obtain the log. The district manager may approve the use of a down-hole camera survey in lieu of down-hole logs if in his judgment such logs would not be suitable for obtaining the above-listed data or are impractical to obtain due to the condition of the drill hole. A journal shall be maintained describing the depth of each material encountered, the nature of each material encountered; bit size and type used to drill each portion of the hole; length and type of each material used to plug the well; length of casing(s) removed, perforated or ripped or left in place; and other pertinent information concerning sealing the well. Invoices, work-orders, and other records relating to all work on the well shall be maintained as part of this journal and provided to MSHA upon request.

(6) After the operator has plugged the well as described in subparagraphs (d)(3) and/or (d)(4), the operator shall plug the adjacent hole, from the bottom to the surface, with Portland cement or a lightweight cement mixture. The operator shall embed steel turnings or other small magnetic particles in the top of the cement near the surface to serve as a permanent magnetic monument of the well. In the alternative, a 4 1/2 inch or larger casing, set in cement, shall extend at least 36 inches above the ground level

A combination of the methods outlined in subparagraphs (d)(3) and (d)(4) may have to be used in a single well, depending upon the conditions of the hole and the presence of casings. The operator and the district manager should discuss the nature of each hole. The district manager may require that more than one method be utilized.

3. MANDATORY PROCEDURES AFTER APPROVAL HAS BEEN GRANTED BY THE DISTRICT MANAGER TO MINE WITHIN THE SAFETY BARRIER, OR TO MINE THROUGH A PLUGGED OR REPLUGGED WELL

a. A representative of the operator, a representative of the miners, the appropriate State agency, or the MSHA district manager may request that a conference be conducted prior to mining through any plugged or replugged well. Upon receipt of any such request, the district manager shall schedule such a conference. The party requesting the conference shall notify all other parties listed above within a reasonable time prior to the conference to provide opportunity for participation. The purpose of the conference shall be to review, evaluate, and accommodate any abnormal or unusual circumstance(s) related to the condition of the well or surrounding strata when such conditions are encountered.

b. The operator shall mine through a well on a shift approved by the district manager. The operator shall notify the district manager and the miners' representative in sufficient time prior to mining-through a well in order to provide an opportunity to have representatives present.

c. When using continuous mining methods, the operator shall install drivage sights at the last open crosscut near the place to be mined to ensure intersection of the well. The drivage sites shall not be more than 50 feet from the well. When using longwall-mining methods, drivage sights shall be installed on 10-foot centers for a distance of 50 feet in advance of the well. The drivage sights shall be installed in the headgate.

d. The operator shall ensure that fire-fighting equipment including fire extinguishers, rock dust, and sufficient fire hose to reach the working face area of the mine through (when either the conventional or continuous mining method is used) is available and operable during all well mine throughs. The fire hose shall be located in the last open crosscut of the entry or room. The operator shall maintain the water line to the belt conveyor tailpiece along with a sufficient amount of fire hose to reach the farthest point of penetration on the section. When the longwall mining method is used, a hose to the longwall water supply is sufficient.

e. The operator shall ensure that sufficient supplies of roof support and ventilation materials shall be available and located at the last open crosscut. In addition, emergency plugs and suitable sealing materials shall be available in the immediate area of the well intersection.

f. On the shift prior to mining through the well, the operator shall service all equipment and check it for permissibility. Water sprays, water pressures and water flow rates used for dust and spark suppression shall be examined and any deficiencies corrected.

g. The operator shall calibrate the methane monitor(s) on the longwall, continuous mining machine, or cutting machine and loading machine on the shift prior to mining through the well.

h. When mining is in progress, the operator shall perform tests for methane with a handheld methane detector at least every 10 minutes from the time that mining with the continuous mining machine or longwall face is within 30 feet of the well until the well is intersected and immediately prior to mining through it. During the actual cutting process, no individual shall be allowed on the return side until the mine through has been completed and the area has been examined and declared safe. All workplace examinations will be conducted on the return side of the shearer while the shearer is idle.

i. When using continuous or conventional mining methods, the working place shall be free from accumulations of coal dust and coal spillages, and rock dust shall be placed on the roof, rib, and floor to within 20 feet of the face when mining through the well. On longwall sections, rock dusting shall be conducted and placed on the roof, rib, and floor up to both the headgate and tailgate gob.

j. When the well is intersected, the operator shall de-energize all equipment, and thoroughly examine and determine the area is safe before mining is resumed.

k. After a well has been intersected and the working place determined safe, mining shall continue inby the well a sufficient distance to permit adequate ventilation around the area of the well.

l. If the casing is cut or milled at the coal seam level, the use of torches should not be necessary. However, in rare instances, torches may be used for inadequately or inaccurately cut or milled casings. No open flame shall be permitted in the area until adequate ventilation has been established around the well bore and methane levels of less 1.0% are present in all areas that will be exposed to flames and sparks from the torch. The operator shall apply a thick layer of rock dust to the roof, face, floor, ribs and any exposed coal within 20 feet of the casing prior to any use of torches.

m. Non-sparking (brass) tools will be located on the working section and will be used to expose and examine cased wells.

n. No person shall be permitted in the area of the mine through operation except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA, and personnel from the appropriate State agency.

o. The operator shall alert all personnel in the mine to the planned intersection of the well prior to their going underground if the planned intersection is to occur during their shift. This warning shall be repeated for all shifts until the well has been mined through.

p. The mine through operation shall be under the direct supervision of a certified individual. Instructions concerning the mine through operation shall be issued only by the certified individual in charge.

q. The provisions of this Order do not impair the authority of representatives of MSHA to interrupt or halt the mine through operation, and to issue a withdrawal order, when they deem it necessary for the safety of the miners. MSHA may order an interruption or cessation of the mine through operation and/or a withdrawal of personnel by issuing either a verbal or written order to that effect to a representative of the operator, which order shall include the basis for the order. Operations in the affected area of the mine may not resume until a representative of MSHA permits resumption of mine through operations. The mine operator and miners shall comply with verbal or written MSHA orders immediately. All verbal orders shall be committed to writing within a reasonable time as conditions permit.

r. A copy of this Order shall be maintained at the mine and be available to the miners.

s. Within 30 days after this Order becomes final, the operator shall submit proposed revisions for its approved 30 C.F.R. Part 48 training plan to the district manager. These proposed revisions shall include initial and refresher training regarding compliance with the terms and conditions stated in the Order. The operator shall provide all miners involved in the mine through of a well with training regarding the requirements of this Order prior to mining within 150 feet of the next well intended to be mined through.

t. The responsible person required under 30 C.F.R. § 75.1501 is responsible for well intersection emergencies. The well intersection procedures should be reviewed by the responsible person prior to any planned intersection.

u. Within 30 days after this Order becomes final, the operator shall submit proposed revisions for its approved mine emergency evacuation and firefighting plan required by 30 CF.R § 75.1501 The operator will revise the plans to include the hazards and evacuation procedures to be used for well intersections. All underground miners will be trained in this revised plan within 30 days of the submittal of the revised evacuation plan.

Any party to this action desiring a hearing on this matter must file in accordance with 30 CFR 44.14, within 30 days. The request for hearing must be files with the Administrator for Coal Mine Safety and Health, 1100 Wilson Boulevard, Arlington, Virginia 22209-3939.

If a hearing is requested, the request shall contain a concise summary of position on the issues of fact or law desired to be raised by the party requesting the hearing, including specific objections to the proposed decision. A party other than Petitioner who has requested a hearing shall also comment upon all issues of fact or law presented in the petition, and any party to this action requesting a hearing may indicate a desired hearing sire. If no request for a hearing is filed within 30 days after service thereof, the Decision and Order will become final and must be posted by the operator on the mine bulletin board at the mine.

Charles J. Thomas

Charles J. Thomas
Deputy Administrator for
Coal Mine Safety and Health

1-01032 P

Certificate of Service

I hereby certify that a copy of this Proposed Decision and Order was served personally or mailed, postage prepaid, this 30th day of September, 2013, to:

Mr. Nathan Sypolt
Project Engineer
Wolf Run Mining Company
99 Edmiston Way
Buckhannon, WV 26201

SeDonia Little
Secretary

cc: Mr. C.A. Phillips, Acting Director
Office of Miners' Health Safety & Training,
Dept of Energy, Division of Mines & Minerals
1615 Washington Street
Charleston, WV 25311

1-01032P

OG-10
Rev. - 9-71

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED
FEB - 7 1979
OIL & GAS DIVISION
DEPT. OF MINES

Oil and Gas Division

WELL RECORD 4

Rotary XX Oil ____
Cable ____ Gas XX
Recycling ____ Comb. ____
Water Flood ____ Storage ____
Disposal ____ ____ (Kind)

Quadrangle Philippi

Permit No. BAR-1032
47-001

Company Petroleum Development Corporation
Address P.O. Box 26, Bridgeport, WV 26330
Farm Ezra Sayers Acres 167
Location (waters) Foxgrape Run
Well No. Six Elev. 1420
District Pleasant County Barbour
The surface of tract is owned in fee by
Republic Steel Corp.
Address Fayette Bk. Bldg. Uniontown, PA
Mineral rights are owned by Republic Steel Corp.
Address Rt. 2, Philippi, W.V.
Drilling Commenced 8/05/78
Drilling Completed 8/11/78
Initial open flow ____ cu. ft. ____ bbls.
Final production 140 m cu. ft. per day ____ bbls.
Well open 48 hrs. before test 1400 RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1125	1125	280 sks CTS.
7			
5 1/2			
4 1/2	4301	4301	100 sks TOC 4080'
3			
2			
Liners Used			

Attach copy of cementing record.

Well treatment details:

Riley 646 bbls 10,000 80/100
30,000 20/40
Benson 536 bbls 10,000 80/100
30,000 20/40

Coal was encountered at 774; 803 Feet ____ Inches
Fresh water ____ Feet ____ Salt Water ____ Feet ____
Producing Sand Benson; Riley Depth 4468-72; 4282-85

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Clay			0	22		
Shale			22	774		
Coal			774	781		
Sand & Shale			781	803		
Coal			803	806		
Sand & Shale			806	1570		
Big Lime			1570	1710		
Injun			1710	1780		
Shale			1780	1950		
Gantz			1950	2000		
Shale			2000	2185		
4th			2185	2220		
Shale			2220	2294		
5th			2294	2320		
Shale			2320	2470		
Speechly			2470	2600		
Shale			2600	3056		
Balltown			3056	3065		
Shale			3065	3430		
Bradford			3430	3440		
Shale			3440	4280		
Riley			4280	4290		
Shale			4290	4462		

(over)

* Indicates Electric Log tops in the remarks section.

FEB 20 1979

1-01032P

Formation	Color	Hard or Soft	Top Feet 4	Bottom Feet	Oil, Gas or Water	* Remarks
Benson			4462	4475		
				4595		T.D. Logger
				4593		T.D. Driller

Date February 6, 1979

APPROVED Petroleum Development Corp., Owner

By [signature]

(Title)

Petroleum Engineer

1-01032P

OG-11

STATE OF WEST VIRGINIA

DEPARTMENT OF MINES

OIL AND GAS WELLS DIVISION

INSPECTOR'S WELL REPORT

Permit No. 3AR-1032 Oil or Gas Well (KIND) Co. & S

Company Petroleum Development

Address Bridgeport W/VA

Farm EZRA SAYERS

Well No. 6-1007

District Pleasant County Barbour

Drilling commenced 8-5-78

Drilling completed ____ Total depth ____

Date shot ____ Depth of shot ____

Initial open flow ____ /10ths Water in ____ Inch

Open flow after tubing ____ /10ths Merc. in ____ Inch

Volume ____ Cu. Ft.

Rock pressure ____ lbs. ____ hrs.

Oil ____ bbls., 1st 24 hrs.

Fresh water ____ feet ____ feet

Salt water ____ feet ____ feet

CASING AND TUBING	USED IN DRILLING	LEFT IN WELL	PACKERS
Size			
16			Kind of Packer
13			
10			Size of
~~8¼~~ 8 5/8	1113	Cement	300 SAX
6⅝			Depth set
5 3/16			
3			Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED 8 5/8 SIZE 1113 No. FT. ____ Date 8-7-78

NAME OF SERVICE COMPANY HALLIBURTON

774-781 805-806

COAL WAS ENCOUNTERED AT ____ FEET ____ INCHES

____ FEET ____ INCHES ____ FEET ____ INCHES

____ FEET ____ INCHES ____ FEET ____ INCHES

Drillers' Names Walnut DR16 R16 @ 5

Remarks:

Coal Co Run Coal Analysis Log

Cement 8 5/8 To Surface

8-7-78
DATE

Robert Stuart 511
DISTRICT WELL INSPECTOR

1-01032 P

WW-4A
Revised 6-07

1) Date: May 29, 2018
2) Operator's Well Number
BAR-1032

3) API Well No.: 47 - 001 - 01032

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: Robert R. & Mindy J. Jacobs
Address: Route 1, Box 421-A
Flemington, West Virginia 26347

(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 Waiver
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

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: Wolf Run Mining LLC
By: Charles E. Duckworth
Its: Designated Agent
Address: 100 Tygart Drive
Grafton, West Virginia 26354
Telephone: (304) 265-9704

RECEIVED
Office of Oil and Gas
JUN 08 2018
WV Department of Environmental Protection

Subscribed and sworn before me this 29th day of May 2018

Notary Public

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

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 deppprivacyoffier@wv.gov.

1-01032P

A Subsidiary of:

WOLF RUN MINING LLC

ArchCoal

June 4, 2018

Robert R. & Mindy J. Jacobs
Route 1, Box 421-A
Flemington, West Virginia 26347

Re: Plugging Permit – API # 47-001-01032 – Well No. BAR-1032

Dear Mr. & Mrs. Jacobs:

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 Wolf Run Mining 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

RECEIVED
Office of Oil and Gas
JUN 08 2018
WV Department of
Environmental Protection

CERTIFIED MAIL NO. 7017 2400 0000 0193 9841
RETURN RECEIPT REQUESTED

100 Tygart Drive - Grafton, West Virginia 26354
*Phone: (304) 265-9778 * Fax: (304) 265-5544*

1-01032P

WW-4B

API No. 47-001-01032
Farm Name E. Sayers
Well No. BAR-1032

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: 5/29/18

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

RECEIVED
Office of Oil and Gas
JUN 08 2018
WV Department of
Environmental Protection

1-01032 P

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

1-01032P

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

1-010328

POWER OF ATTORNEY

WOLF RUN MINING LLC
TO
GREG NAIR

Dated: January 1, 2018

Expires: December 31, 2018

KNOW ALL MEN BY THESE PRESENTS: That Wolf Run Mining LLC, a limited liability company formed under the laws of the State of West Virginia (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 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.

WOLF RUN MINING LLC

By: _____
Robert G. Jones
Secretary

1-01032P

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

1-01032 P

WW-9
Rev. 5/08

Page _____ of _____
API Number 47 - 001 - 01032
Operator's Well No. BAR-1032

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 Wolf Run Mining LLC OP Code _____

Watershed Foxgrape Run Quadrangle Philippi (545)

Elevation 1420' County Barbour District Pleasant

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 _____ Swabbing
_____ Workover X Plugging
_____ Other (Explain _____

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

Subscribed and sworn before me this 29th day of May, 2018

Thomas Gregory Nair
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

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WV Department of
Environmental Protection

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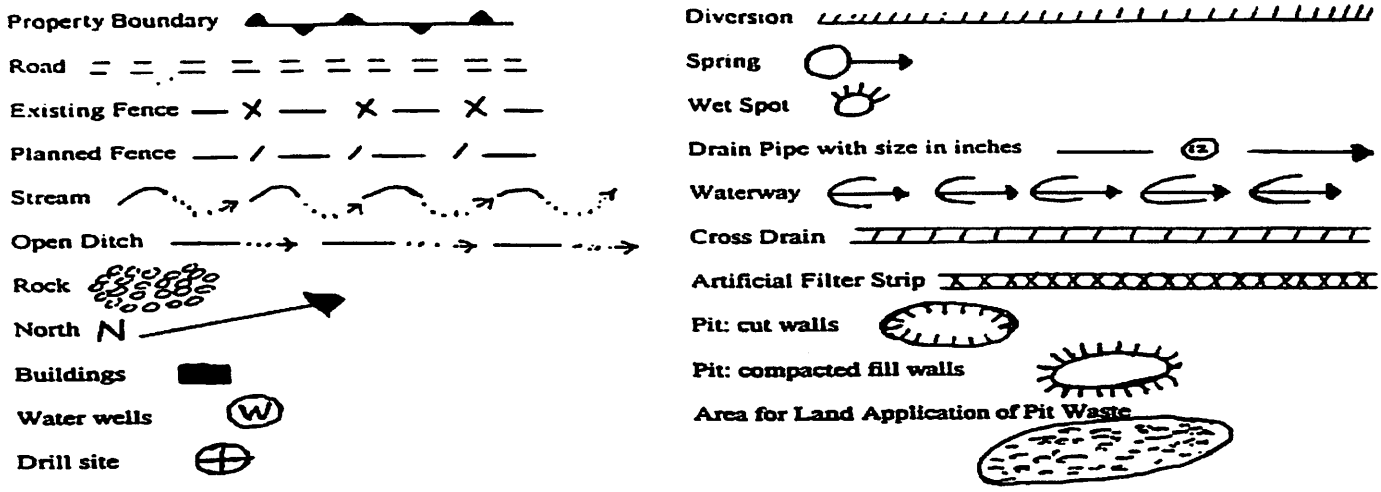
Form WW-9

Operator's Well No. BAR-1032

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

Plan Approved by: Leonard R. Heymach

Comments: RECLAIM, RESEED & MULCH ASAP

Title: OIL & GAS INSPECTOR Date: 6-7-18

Field Reviewed? ( ) Yes (✓) No

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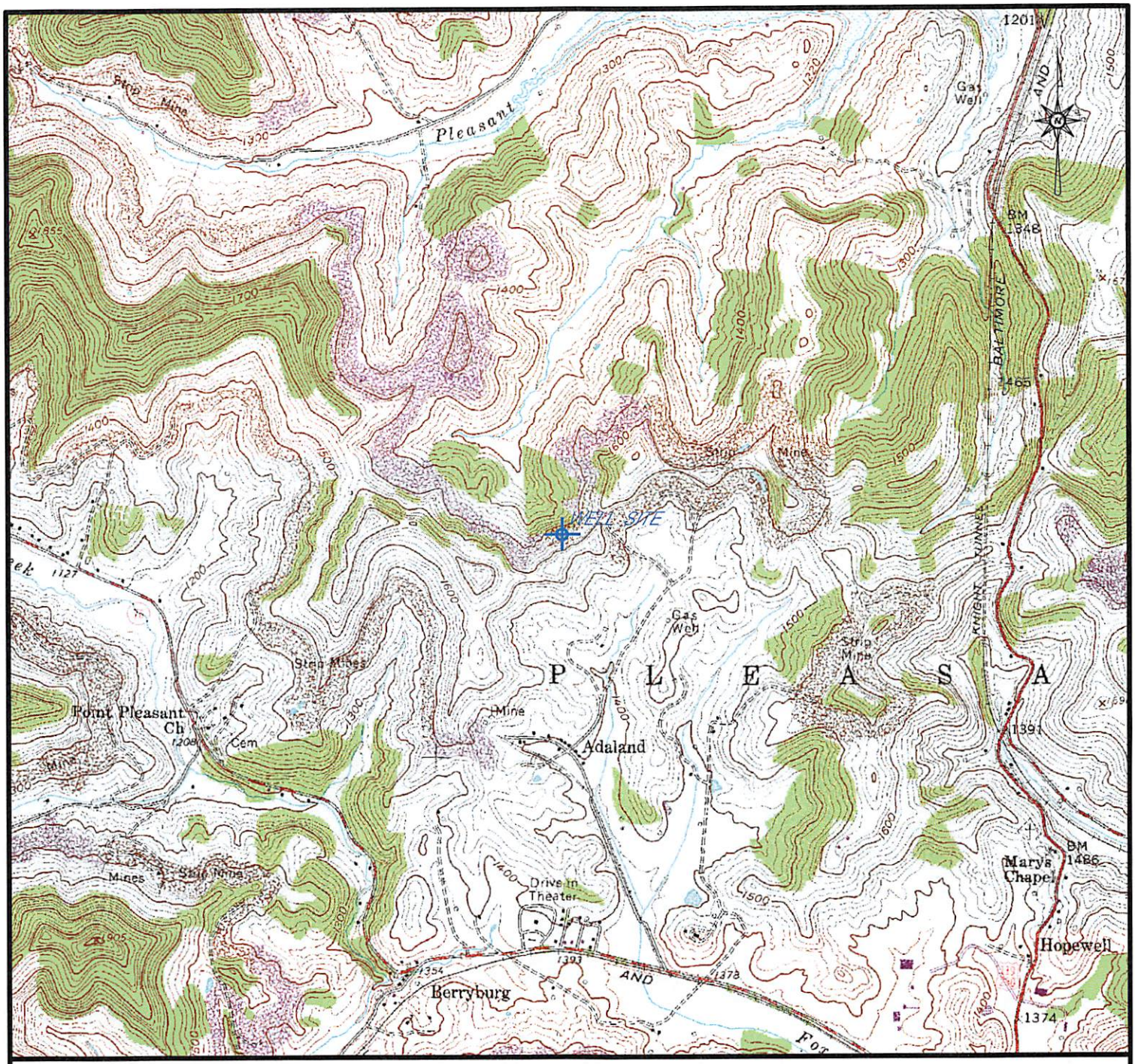
Office of Oil and Gas
JUN 08 2018
WV Department of
Environmental Protection

WOLF RUN MINING LLC

Typical Drawing
Of Well Plugging Site
Plan

1-010328

1-01032P



LATITUDE: 39° 13' 01"
LONGITUDE: 80° 04' 37"
NEAREST WATERCOURSE: Foxgrape Run
NEAREST TOWN: Philippi

OPERATOR'S WELL NO. _____
API WELL NO. BAR-1032

47 — 001 — 01032
STATE COUNTY PERMIT

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____
(IF "GAS") PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X
LOCATION: ELEVATION ____ WATERSHED Foxgrape Run
DISTRICT Pleasant COUNTY Barbour
QUADRANGLE Philippi 7 1/2'
SURFACE OWNER: Robert R. & Mindy J. Jacobs ACREAGE 167
OIL & GAS ROYALTY OWNER Robert R. & Mindy J. Jacobs LEASE ACREAGE 167
LEASE NO. B-1007
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 Benson ESTIMATED DEPTH 4500'
WELL OPERATOR Wolf Run Mining LLC DESIGNATED AGENT Charles E. Duckworth
ADDRESS 100 Tygart Drive, Grafton, WV 26354 ADDRESS 100 Tygart Drive, Grafton, WV 26354

DRAWN	
DATE	BY
5/18	TAN
REVISED	
DATE	BY
APPROVED	
DATE	BY

Wolf Run Mining LLC
A Subsidiary of Arch Coal, Inc.
100 Tygart Drive
Grafton, WV 26354

API WELL NO. 47-001-01032
BAR-1032
LOCATION MAP

Pleasant District
Philippi, WV 7.5' Quadrangle
Barbour County
West Virginia

TOPOGRAPHIC CONTOUR INTERVAL = 20'	Scale: 1"=2000'	File No.: 47-001-01032 BAR-1032.dgn	Sheet No.: 1 of 1

Path DWG/WOLF RUN/SENTINEL/SENTINEL PERMITS/WV OIL & GAS PERMIT MAPS/

1-01032P

WW-7
8-30-06

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

API: 47-001-01032 **WELL NO.:** BAR-1032

FARM NAME: E. Sayers

RESPONSIBLE PARTY NAME: Wolf Run Mining LLC

COUNTY: Barbour **DISTRICT:** Pleasant

QUADRANGLE: Philippi

SURFACE OWNER: Robert R. & Mindy J. Jacobs

ROYALTY OWNER: Robert R. & Mindy J. Jacobs

UTM GPS NORTHING: 4341284.394

UTM GPS EASTING: 579703.426 **GPS ELEVATION:** 1523.67

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.

RECEIVED
Office of Oil and Gas
JUN 08 2018
WV Department of
Environmental Protection

Signature	Power of Attorney Title	May 29, 2018 Date