west virginia department of environmental protection

Office of Oil and Gas
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Earl Ray Tomblin , Governor
Randy C. Huffman , Cabinet Secretary
www.dep.wv.gov

Tuesday, October 18, 2016
WELL WORK PERMIT
Coal Bed Methane Well / Plugging

CONSOLIDATION COAL COMPANY
1 BRIDGE STREET

MONONGAH, WV 265540000

Re: Permit approval for MC 59
47-051-01116-00-00

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.

Please be advised that form WR-35, Well Operators Report of Well Work 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: MC 59
Farm Name: KNIGHT, MELISSA
U.S. WELL NUMBER: 47-051-01116-00-00
Coal Bed Methane Well / Plugging
Date Issued: 10/18/2016

5101116CP

PERMIT CONDITIONS

COALBED METHANE WELLS

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.
4. If this well is associated with a mine through by a coal operator, then the plugging methodology (work order) must have Mine Safety and Health Administration (MSHA) approval.

5101116P

FORM WW-4(B)
Rev. 2/01

1.) Date: August 18, 20 16
2.) Operator's Well No. MC-59
3.) API Well No. 47 - 51 - 01116
State County Permit

WV Department of Environmental Protection
AUG 29 2016
Office of Oil & Gas

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL & GAS
APPLICATION FOR A PERMIT TO PLUG & ABANDON

4.) WELL TYPE Oil ____ / Gas X / Liquid injection ____ / Waste disposal ____
(IF "Gas", Production ____ / Underground storage ____ / Deep ____ / Shallow X

5.) LOCATION Elevation: 1337.10' Watershed: Burgh Run of Grave Creek

District: Cameron County: Marshall Quadrangle: Cameron, WV-PA 7.5'

6.) WELL OPERATOR Consolidation Coal Co
Address 1 Bridge St.
Monongah, WV 26554

7.) DESIGNATED AGENT Ronnie Harsh
Address 1 Bridge St.
Monongah, WV 26554

8.) OIL & GAS INSPECTOR TO BE NOTIFIED
Name Jim Nicholson
Address PO BOX 44
Moundsville WV, 26041
304-552-3874

9.) PLUGGING CONTRACTOR
Name
Address

10.) WORK ORDER. The work order for the manner of plugging this well is as follows

SEE MSHA Docket No M-2014-020-C

SEE EXHIBIT NO. 1

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

gwm OK 10/17/2016

Work order approved by inspector _____ Date _____

5101116P

Exhibit Number 1

Consolidation Coal Company in WV will utilize the following methods to plug CBM wells.

CBM wells are a directionally drilled well with horizontal wellbores through the Pittsburgh coal seam. The wellbores through the coal will be water infused for first intersection of the laterals. Then the lateral system will be cemented/grouted. The vertical wellbore will be cleaned out to the total depth or PBTD attainable bottom. The well sump, ~~4½"~~ 7" casing, and packer will be pulled if possible. This proposed method of plugging the wellbore will apply to that portion of the wellbore to the top of the coal seam to be mine to the surface. All Casings will be removed and as no time will more than a single string be left in the wellbore.

All casing will be removed so that only a single string will be left in the wellbore, if it cannot be removed. Intact and uncemented casings as determined by electronic logging shall be perforated, ripped, or milled at no greater than 100' intervals to the top of the casing. A borehole survey will be conducted to determine the top and bottom of the coal seam to be mined. In addition, starting at a point 5' below through 5' above the coal to be mined, any casing shall be ripped, cut or perforated on no greater than a 5' interval.

5101116C P

U.S. Department of Labor

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

MAY 12 2015

In the matter of:
McElroy Coal Company
McElroy Mine
I.D. No. 46-01437

Petition for Modification

Docket No. M-2014-020-C

Proposed Decision and Order

On May 28, 2014, a petition was filed seeking a modification of the application of 30 C.F.R. § 75.1700 to Petitioner's McElroy Mine located in Marshall County, West Virginia. The Petitioner alleges that the proposed alternative method of compliance with the standard with respect to vertical coalbed methane degasification wells with horizontal laterals in the coal seam will at all times guarantee no less than the same measure of protection afforded by the standard. The petitioned standard, 30 C.F.R. § 75.1700, states:

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

The extraction of methane from coal seams and surrounding strata is a rapidly growing component of the domestic natural gas supply. Recent innovations in drilling techniques have resulted in development of several types of wells and production methods to extract coalbed methane (CBM) resources. Drill holes are deviated in both the horizontal and vertical planes using these techniques. These techniques differ from vertical gas wells and require different techniques in order to plug the wells. Procedures to address the potential hazards presented by CBM wells must be implemented to protect the coal miners who will be exposed to these wells. When coal mines intersect inadequately plugged CBM wells, methane inundations, ignitions and explosions are possible.

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The alternative method proposed by the Petitioner includes well plugging procedures, water infusion and ventilation methods, and procedures for mining through a CBM well with horizontal laterals.

MSHA personnel conducted an investigation of the petition and filed a report of their findings with the Administrator for Coal Mine Safety and Health. After a careful review of the entire record, including the petition and MSHA's investigative report and recommendation, this Proposed Decision and Order is issued.

Findings of Fact and Conclusions of Law

The McElroy Mine opens into the Pittsburgh #8 coal seam by means of 12 shafts and two slope openings. The mine employs approximately 970 persons working three shifts per day, seven days per week. The mine has six advancing continuous mining working sections and two retreating longwall working sections. Average production is 58,000 raw tons of material per day. The Pittsburgh #8 coal seam ranges from 60 inches to 72 inches in height. The mine is ventilated by ten exhausting fans and liberates approximately 12 million cubic feet of methane per 24 hours.

The McElroy Mine plans to mine through coalbed methane wells. The wells are drilled from the surface using directional drilling technology to develop horizontal branches within the coal seam being mined. Drill holes may be deviated in both the horizontal and vertical planes using these techniques. Multiple horizontal branches may be developed from a single well and multiple seams may be developed from a single well. The drilling industry has trademarked several different proprietary names for these drilling processes. For purposes of this Order, these proprietary drilling processes will be referred to as generic "surface directional drilled" (SDD) wells.

Based on information gathered during the investigation, MSHA evaluated Petitioner's proposed alternative method and, as amended by the terms and conditions of MSHA, concluded that it would provide the same measure of protection afforded by 30 C.F.R. § 75.1700. This alternative method has been successfully used to prepare CBM wells for safe intersection by using one or more of the following methods: (1) Cement Plug, (2) Polymer Gel, (3) Bentonite Gel, (4) Active Pressure Management and Water Infusion, and (5) Remedial Work. The alternative method will prevent the CBM well methane from entering the underground mine.

Accordingly, after a review of the entire record, including the petition and MSHA's investigative report, McElroy Coal Company is granted a modification of the application of 30 C.F.R. § 75.1700 to its McElroy Mine, and this Proposed Decision and Order (PDO) is issued.

ORDER

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Coal Mine Safety and Health, and pursuant to Section 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 McElroy Mine is hereby:

GRANTED, to allow mining within or through the 300 foot barrier around SDD oil and gas wells, conditioned upon compliance with the following terms and conditions:

1. DISTRICT MANAGER APPROVAL REQUIRED

A minimum working barrier of 300 feet in diameter shall be maintained around all SDD wells until approval to proceed with mining has been obtained from the District Manager. This barrier extends around all vertical and horizontal branches drilled in the coal seam. This barrier also extends around all vertical and horizontal branches within overlying coal seams subject to caving or subsidence from the coal seam being mined when methane leakage through the subsidence zone is possible. The District Manager may choose to approve each branch intersection, each well, or a group of wells as applicable to the conditions. The District Manager may require a certified review of the proposed methods to prepare the SDD wells for intersection by a professional engineer in order to assess the applicability of the proposed system(s) to the mine-specific conditions.

2. MANDATORY PROCEDURES FOR PREPARING, PLUGGING, AND REPLUGGING SDD WELLS

a. MANDATORY COMPUTATIONS AND ADMINISTRATIVE PROCEDURES PRIOR TO PLUGGING OR REPLUGGING

1. Probable Error of Location - Directional drilling systems rely on sophisticated angular measurement systems and computer models to calculate the estimated location of the well bore. This estimated hole location is subject to cumulative measurement errors so that the distance between actual and estimated location of the well bore increases with the depth of the hole. Modern directional drilling systems are typically accurate within one or two degrees depending on the specific equipment and techniques. The probable error of location is defined by a cone described by the average accuracy of angular measurement around the length of the hole. For example: a hole that is drilled 500 vertical feet and deviated into a coal seam at a depth of 700 feet would have a probable error of location at a point that is 4,000 feet from the hole collar

(about 2,986 ft. horizontally from the well collar) of 69.8 ft. (4,000 ft. x sine (1.0 degree)) if the average accuracy of angular measurement was one degree and 139.6 ft if the average accuracy of angular measurement was two degrees. In addition to the probable error of location, the true hole location is also affected by underground survey errors, surface survey errors, and random survey errors.

2. Minimum Working Barrier Around Well - For purposes of this Order, the minimum working barrier around any coalbed methane well or branches of a coalbed methane well in the coal seam is 50 feet plus the probable error of location. For example: for a hole that is drilled 500 vertical feet and deviated into a coal seam at a depth of 700 feet using drilling equipment that has an average accuracy of angular measurement of one degree, the probable error of location at a point that is 4,000 feet from the hole collar is 69.8 ft. Therefore, the minimum working barrier around this point of the well bore is 120 ft. (69.8 ft. plus 50 ft., rounded up to the nearest foot). The 50 additional feet is a reasonable separation between the probable location of the well and mining operations. When mining is within the minimum working barrier distance from a coalbed methane well or branch, the mine operator must comply with the provisions of this Order. Coalbed methane wells must be prepared in advance for safe intersection and specific procedures must be followed on the mining section in order to protect the miners when mining within this minimum working barrier around the well. The District Manager may require a greater minimum working barrier around coalbed methane wells where geologic conditions, historical location errors, or other factors warrant a greater barrier.

3. Ventilation Plan Requirements - The ventilation plan shall contain a description of all SDD coalbed methane wells drilled in the area to be mined. This description should include the well numbers, the date drilled, the diameter, the casing information, the coal seams developed, maximum depth of the wells, abandonment pressures, and any other information required by the District Manager. All or part of this information may be listed on the 30 C.F.R. § 75.372 map. The ventilation plan shall include the techniques that the mine operator plans to use to prepare the SDD wells for safe intersection, the specifications and steps necessary to implement these techniques, and the operational precautions that are required when mining within the minimum working barrier. In addition, the ventilation plan will contain any additional information or provisions related to the SDD wells required by the District Manager.

4. Ventilation Map - The ventilation map specified in 30 C.F.R. § 75.372 shall contain the following information:

   i. The surface location of all coalbed methane wells in the active mining area and any projected mining area as specified in 30 C.F.R. § 75.372(b)(14);

   ii. Identifying information of coalbed methane wells (i.e. API hole number or equivalent);

   iii. The date that gas production began from the well;

   iv. The coal seam intersection of all coalbed methane wells;

   v. The horizontal extents in the coal seam of all coalbed methane wells and branches;

   vi. The outline of the probable error of location of all coalbed methane wells; and

   vii. The date of mine intersection and the distance between estimated and actual locations for all intersections of the coalbed methane well and branches.

b. MANDATORY PROCEDURES FOR PLUGGING OR REPLUGGING SDD WELLS

The mine operator shall include in the mine ventilation plan one or more of the following methods to prepare SDD wells for safe intersection. The methods approved in the ventilation plan must be completed on each SDD well before mining encroaches on the minimum working barrier around the well or branch of the well in the coal seam being mined. If methane leakage through subsidence cracks is a problem when retreat mining, the minimum working barrier must be maintained around wells and branches in overlying coal seams or the wells and branches must be prepared for safe intersection as specified in the mine ventilation plan.

1. Cement Plug - Cement may be used to fill the entire SDD hole system. Squeeze cementing techniques are necessary for SDD plugging due to the lack of tubing in the hole. Cement should fill void spaces and eliminate methane leakage along the hole. Once the cement has cured, the SDD system may be intersected multiple times without further hole preparation. Gas cutting occurs if the placement pressure of the cement is less than the methane pressure in the coal seam. Under these conditions, gas will bubble out of the coal seam and into the unset cement creating a pressurized void or series of interconnected

pressurized voids. Water cutting occurs when formation water and standing water in the hole invades or displaces the unset cement. Standing water has to be bailed out of the hole or driven into the formation with compressed gas to minimize water cutting. The cement pressure must be maintained higher than the formation pressure until the cement sets to minimize both gas and water cutting. The cementing program in the ventilation plan must address both gas and water cutting.

Due to the large volume to be cemented and potential problems with cement setting prior to filling the entire SDD system, adequately sized pumping units with back-up capacity must be used. Various additives such as retarders, lightweight extenders, viscosity modifiers, thixotropic modifiers, and fly ash may be used in the cement mix. The volume of cement pumped should exceed the estimated hole volume to ensure the complete filling of all voids. The complete cementing program, including hole dewatering, cement, additives, pressures, pumping times and equipment must be specified in the ventilation plan. The material safety data sheets (MSDS) for all cements, additives and components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the cement and cement components should be included in the ventilation plan. Records of cement mixes, cement quantities, pump pressures, and flow rates and times should be retained for each hole plugged.

SDD holes may be plugged with cement years in advance of mining. However, the District Manager shall require suitable documentation of the cement plugging in order to approve mining within the minimum working barrier around coalbed methane wells.

2. Polymer Gel - Polymer gels start out as low viscosity, water-based mixtures of organic polymers that are crosslinked using time-delayed activators to form a water-insoluble, high-viscosity gel after being pumped into the SDD system. Although polymer gel systems never solidify, the activated gel should develop sufficient strength to resist gas flow. A gel that is suitable for treating SDD wells for mine intersection will reliably fill the SDD system and prevent gas-filled voids. Any gel chemistry used for plugging SDD wells should be resistant to bacterial and chemical degradation and remain stabile for the duration of mining through a SDD system.

Water may dilute the gel mixture to the point where it will not set to the required strength. Water in the holes should be removed before

injecting the gel mixture. Water removal can be accomplished by conventional bailing and then injecting compressed gas to squeeze the water that accumulates in low spots back into the formation. Gas pressurization should be continued until the hole is dry. Another potential problem with gels is that dissolved salts in the formation waters may interfere with the cross-linking reactions. Any proposed gel mixtures must be tested with actual formation waters.

Equipment to mix and pump gels should have adequate capacity to fill the hole before the gel sets. Back-up units should be available in case something breaks while pumping. The volume of gel pumped should exceed the estimated hole volume to ensure the complete filling of all voids and allow for gel to infiltrate the joints in the coal seam surrounding the hole. Gel injection and setting pressures should be specified in the ventilation plan. To reduce the potential for an inundation of gel, the final level of gel should be close to the level of the coal seam and the remainder of the hole should remain open to the atmosphere until mining in the vicinity of the SDD system is completed. Packers may be used to isolate portions of the SDD system.

The complete polymer gel program, including advance testing of the gel with formation water, dewatering systems, gel specifications, gel quantities, gel placement, pressures, and pumping equipment must be specified in the ventilation plan. The MSDS for all gel components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the gel and gel components should be included in the ventilation plan. A record of the calculated hole volume, gel quantities, gel formulation, pump pressures, and flow rates and times should be retained for each hole that is treated with gel. Other gel chemistries other than organic polymers may be included in the ventilation plan with appropriate methods, parameters, and safety precautions.

3. Bentonite Gel - High-pressure injection of bentonite gel into the SDD system will infiltrate the cleat and butt joints of the coal seam near the well bore and effectively seal these conduits against the flow of methane. Bentonite gel is a thixotropic fluid that sets when it stops moving. Bentonite gel has a significantly lower setting viscosity than polymer gel. While the polymer gel fills and seals the borehole, the lower strength bentonite gel must penetrate the fractures and jointing in the coal seam in order to be effective in reducing formation permeability around the hole. The use of bentonite gel is restricted to depleted CBM applications that have low abandonment pressures and limited recharge potential. In

general, these applications will be mature CBM fields with long production histories.

A slug of water should be injected prior to the bentonite gel in order to minimize moisture-loss bridging near the well bore. The volume of gel pumped should exceed the estimated hole volume to ensure that the gel infiltrates the joints in the coal seam for several feet surrounding the hole. Due to the large gel volume and potential problems with premature thixotropic setting, adequately sized pumping units with back-up capacity are required. Additives to the gel may be required to modify viscosity, reduce filtrates, reduce surface tension, and promote sealing of the cracks and joints around the hole. To reduce the potential for an inundation of bentonite gel, the final level of gel should be approximately the elevation of the coal seam and the remainder of the hole should remain open to the atmosphere until mining in the vicinity of the SDD system is completed. If a water column is used to pressurize the gel, it must be bailed down to the coal seam elevation prior to intersection.

The complete bentonite gel program, including formation infiltration and permeability reduction data, hole pretreatment, gel specifications, additives, gel quantities flow rates, injection pressures and infiltration times, must be specified in the ventilation plan. The ventilation plan should list the equipment used to prepare and pump the gel. The MSDS for all gel components and any personal protective equipment and techniques to protect workers from the potentially harmful effects of the gel and additives should be included in the ventilation plan. A record of hole preparation, gel quantities, gel formulation, pump pressures, and flow rates and times should be retained for each hole that is treated with bentonite gel.

4. Active Pressure Management and Water Infusion - Reducing the pressure in the hole to less than atmospheric pressure by operating a vacuum blower connected to the wellhead may facilitate safe intersection of the hole by a coal mine. The negative pressure in the hole will limit the quantity of methane released into the higher pressure mine atmosphere. If the mine intersection is near the end of a horizontal branch of the SDD system, air will flow from the mine into the upstream side of the hole and be exhausted through the blower on the surface. On the downstream side of the intersection, if the open hole length is short, the methane emitted from this side of the hole may be diluted to safe levels with ventilation air. Conversely, safely intersecting this system near the bottom of the vertical hole may not be possible because the

methane emissions from the multiple downstream branches may be too great to dilute with ventilation air. The methane emission rate is directly proportional to the length of the open hole. Successful application of vacuum systems may be limited by caving of the hole or water collected in dips in the SDD system. Another important factor in the success of vacuum systems is the methane liberation rate of the coal formation around the well—older, more depleted wells that have lower methane emission rates are more amenable to this technique. The remaining methane content and the formation permeability should be addressed in the ventilation plan.

Packers may be used to reduce methane inflow into the coal mine after intersection. All packers on the downstream side of the hole must be equipped with a center pipe so that the inby methane pressure may be measured or so that water may be injected. Subsequent intersections should not take place if pressure in a packer-sealed hole is excessive. Alternatively, methane produced by the downstream hole may be piped to an in-mine degas system to safely transport the methane out of the mine or may be piped to the return air course for dilution. In-mine methane piping should be protected as stipulated in "Piping Methane in Underground Coal Mines," MSHA IR 1094, (1978). Protected methane diffusion zones may be established in return air courses if needed. Detailed sketches and safety precautions for methane collection, piping and diffusion systems must be included in the ventilation plan (30 C.F.R. § 75.371(ee)).

Water infusion prior to intersecting the well will temporarily limit methane flow. Water infusion may also help control coal dust levels during mining. High water infusion pressures may be obtained prior to the initial intersection by the hydraulic head resulting from the hole depth or by pumping. Water infusion pressures for subsequent intersections are limited by leakage around in-mine packers and limitations of the mine water distribution system. If water infused prior to the initial intersection, the water level in the hole must be lowered to the coal seam elevation before the intersection.

The complete pressure management strategy including negative pressure application, wellhead equipment, and use of packers, in-mine piping, methane dilution, and water infusion must be specified in the ventilation plan. Procedures for controlling methane in the downstream hole must be specified in the ventilation plan. The remaining methane content and formation permeability should be addressed in the ventilation plan. The potential for the coal seam to cave into the well

should be addressed in the ventilation plan. Dewatering methods should be included in the ventilation plan. A record of the negative pressures applied to the system, methane liberation, use of packers and any water infusion pressures and application time should be retained for each intersection.

5. Remedial work - If problems are encountered in preparing the holes for safe intersection, then remedial measures must be taken to protect the miners. For example: if only one-half of the calculated hole volume of cement could be placed into a SDD well due to hole blockage, holes should be drilled near each branch that will be intersected and squeeze cemented using pressures sufficient to fracture into the potentially empty SDD holes. The District Manager will approve remedial work in the ventilation plan on a case-by-case basis.

3. **MANDATORY PROCEDURES AFTER APPROVAL HAS BEEN GRANTED BY THE DISTRICT MANAGER TO MINE WITHIN THE MINIMUM WORKING BARRIER AROUND THE WELL OR BRANCH OF THE WELL**

a. The mine operator, the District Manager, the miners' representative, or the State may request a conference prior to any intersection or after any intersection to discuss issues or concerns. Upon receipt of any such request, the District Manager shall schedule 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.

b. The mine operator must notify the District Manager, the State and the miners' representative at least 48 hours prior to the intended intersection of any coalbed methane well.

c. The initial intersection of a well or branch of a well typically has a higher risk than subsequent intersections. The initial intersection typically indicates if the well preparation is sufficient to prevent the inundation of methane. For the initial intersection of a well or branch, the following procedures are mandatory:

1. When mining advances within the minimum barrier distance of the well or branches of the well, the entries that will intersect the well or branches must be posted with a readily visible marking. For longwalls, both the head and tailgate entries must be so marked. Marks must be advanced to within 100 feet of the working face as mining progresses. Marks will be removed after well or branches are intersected in each

entry or after mining has exited the minimum barrier distance of the well.

2. Entries that will intersect vertical segments of a well shall be marked with drivage sights in the last open crosscut when mining is within 100 feet of the well. When a vertical segment of a well will be intersected by a longwall, drivage sights shall be installed on 10-foot centers starting 50 feet in advance of the anticipated intersection. Drivage sights shall be installed in both the headgate and tailgate entries of the longwall.

3. 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 the 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. All fire hoses shall be connected and ready for use, but do not have to be charged with water, during the cut-through.

4. The operator shall ensure that sufficient supplies of roof support and ventilation materials are available at the working section. In addition, emergency plugs, packers, and setting tools to seal both sides of the well or branch shall be available in the immediate area of the cut-through.

5. When mining advances within the minimum working barrier distance from the well or branch of the well, the operator shall service all equipment and check for permissibility at least once daily. Daily permissibility examinations must continue until the well or branch is intersected or until mining exits the minimum working barrier around the well or branch.

6. When mining advances within the minimum working barrier distance from the well or branch of the well, the operator shall calibrate the methane monitor(s) on the longwall, continuous mining machine, or cutting machine and loading machine at least once daily. Daily methane monitor calibration must continue until the well or branch is intersected or until mining exits the minimum working barrier around the well or branch.

7. 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 the minimum working barrier around the well or branch. During the 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. The shearer must be idle when any miners are inby the tail drum.

8. 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 within 20 feet of the face when mining through the well or branch. On longwall sections, rock dust shall be applied on the roof, rib, and floor up to both the headgate and tailgate pillared area.

9. Immediately after the well or branch is intersected, the operator shall de-energize all equipment, and the certified person shall thoroughly examine and determine the working place safe before mining is resumed.

10. After a well or branch 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 or branch.

11. No open flame shall be permitted in the area until adequate ventilation has been established around the well bore or branch. Any casing, tubing or stuck tools will be removed using the methods approved in the ventilation plan.

12. No person shall be permitted in the area of the mine-through operation inby the last open crosscut during active mining except those actually engaged in the operation, including company personnel, representatives of the miners, personnel from MSHA, and personnel from the appropriate State agency.

13. The operator shall warn all personnel in the mine of the planned intersection of the well or branch 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 or branch has been intersected.

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

15. All miners shall be in known locations and in constant two-way communications with the responsible person under 30 C.F.R. § 75.1501 when active mining occurs within the minimum working barrier of the well or branch.

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

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

18. 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 a 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.

d. For subsequent intersections of branches of a well, appropriate procedures to protect the miners shall be specified in the ventilation plan.

3. <u>MANDATORY PROCEDURES AFTER SDD INTERSECTIONS</u>

a. All intersections with SDD wells and branches that are in intake air courses shall be examined as part of the pre-shift examinations required under 30 C.F.R. § 75.360.

b. All other intersections with SDD wells and branches shall be examined as part of the weekly examinations required under 30 C.F.R. § 75.364.

4. **OTHER REQUIREMENTS**

a. 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 this Order. The operator shall provide all miners involved in the mine-through of a well or branch with training regarding the requirements of this Order prior to mining within the minimum working barrier of the next well or branch intended to be mined through.

b. Within 30 days after this Order becomes final, the operator shall submit proposed revisions for its approved mine emergency evacuation and firefighting program of instruction required by 30 C.F.R § 75.1502. The operator shall revise the program to include the hazards and evacuation procedures to be used for well intersections. All underground miners shall be trained in this revised program within 30 days of the approval of the revised mine emergency evacuation and firefighting program of instruction.

Any party to this action desiring a hearing on this matter must file in accordance with 30 C.F.R. § 44.14, within 30 days. The request for hearing must be filed with the Administrator for 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 may also comment upon all issues of fact or law presented in the petition, and any party to this action requesting a hearing may indicate a desired hearing site. If no request for a hearing is filed within 30 days after service thereof, the Proposed Decision and Order will become final and must be posted by the operator on the mine bulletin board at the mine.

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

5101116c P

Certificate of Service

I hereby certify that a copy of this proposed decision was served personally or mailed, postage prepaid, or provided by other electronic means this 12th day of May, 2015, to:

Eric S. Grimm, General Superintendent
McElroy Coal Company
57 Goshorn Woods Road
Cameron, WV 26033

Don Braenovich

Don Braenovich

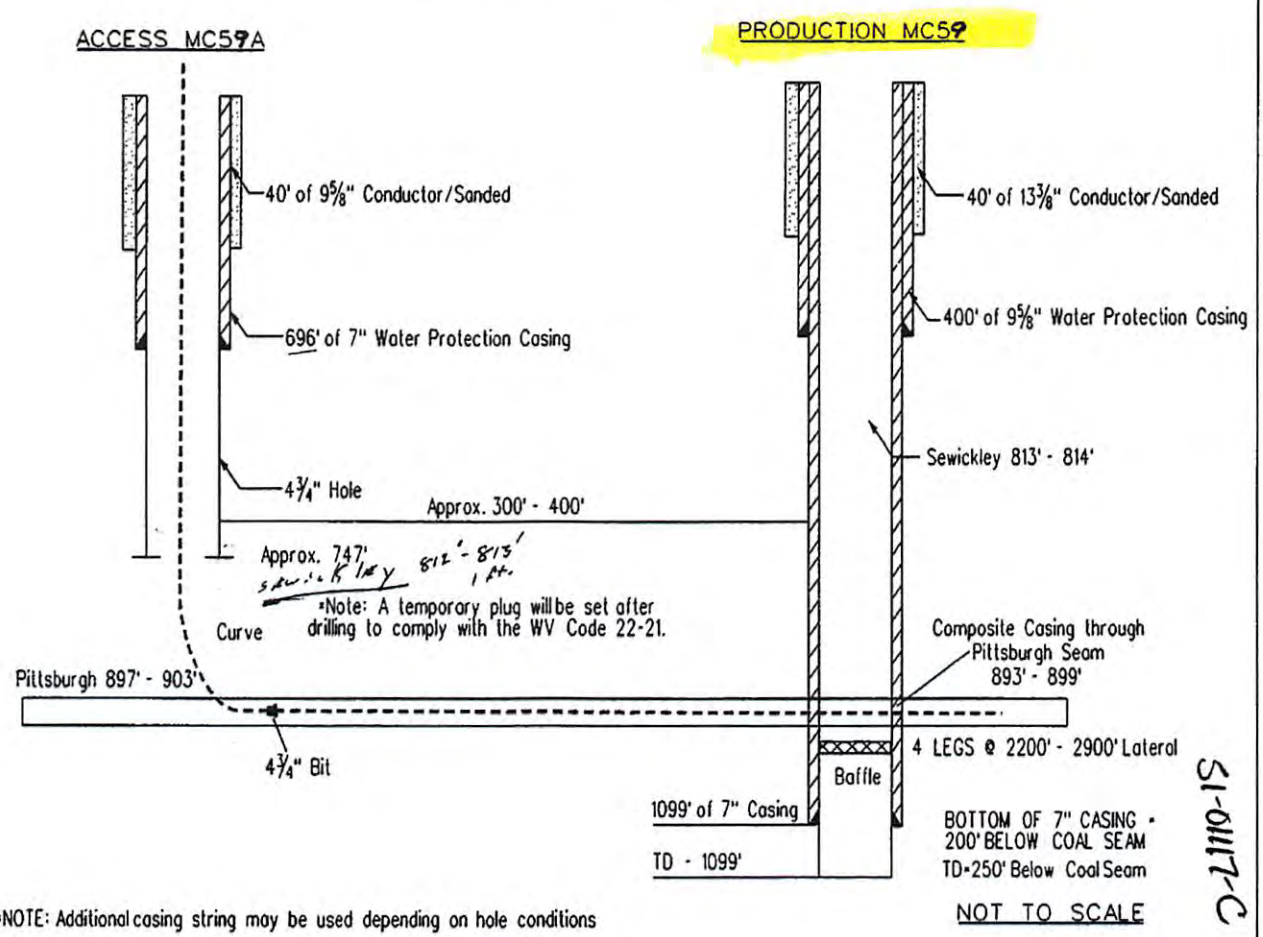
cc: Eugene White, Director, West Virginia Office of Miners' Health Safety & Training

5101116cP

VERTICAL WELL

FIGURE 1

CNX GAS COMPANY LLC



51-01117-C

5101116 cP

51-01116-C

Alternate Method MC59

The following method describes a process to drain water and methane from the Pittsburgh coal seam ahead of mining operations. The drilling of two wells is required to complete this process. The first well will be used ONLY to access the Pittsburgh Seam and will intercept the second wellbore. The second well will be a vertical production hole. This well will be used to lift water to the surface and to collect the methane. This well will be equipped with a meter and connected to a sales pipeline. NOTE: The access well could be used at a later time for necessary cleanout or remedial work.

Access Hole:

This hole will be drilled to a depth 200'- 300' above the Pittsburgh coal seam. Conductor, water/shale strata protection casing will be set in this hole. The water/shale strata protection string will be set at a depth of approximately 675'. All casing strings will be cemented to surface. The casing will be equipped with a shutoff valve at surface. An additional string of casing may be required to address unforeseen hole conditions.

Production Well:

This hole will be drilled to a depth of 250' below the Pittsburgh coal seam. Conductor, water protection and production casing will be set in this hole. The water protection string will be set at a depth of approximately 400'. An additional string may be required based on hole conditions. The production casing will be 7" and set at a depth 200' below the Pittsburgh coal seam. All casing strings will be cemented to surface. The 7" casing string will include two joints (60') of fiberglass. This fiberglass casing will be set across the Pittsburgh coal seam interval to facilitate future mining. A baffle will be included in the 7" casing string and will be placed approximately 10-20' below the Pittsburgh coal seam. The baffle will be knocked out at the conclusion of horizontal drilling

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Directional Drilling Details:

Horizontal drilling operations will begin in the access hole using a 4 ¾" bit, bent sub and motor. The plan is to exit the vertical casing, build an angle and continue drilling 4 ¾" vertical to approximately 400' above the coal where we will then build angle to 90-degrees and achieve a horizontal status. Once this is accomplished, we will penetrate the 7" string of fiberglass that is in the production hole. Upon penetration we will drill through and continue drilling until 2900'± of lateral section has been achieved. We will then trip back to approximately 400' short of the production hole and create a sidetrack at a 28° ± angle and drill 2200'±. We will then trip back to the production hole and create a sidetrack at a 60° ± angle and continue drilling until 2600'±. We will now trip back and create a sidetrack at a 36° ± angle to a distance of 2900'±. ~~Note, that the length and or number of horizontal holes will be dependent on coal control and down hole conditions~~

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WR-35
Rev (5-01)

DATE: 11/12/08
API #: 47-5101116 C

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

Well Operator's Report of Well Work

MS

Farm name: MELISSA KNIGHT & THOMAS FOX Operator Well No.: MC-59

LOCATION: Elevation: 1335.44 Quadrangle: CAMERON, WV-PA 7.5'

District: CAMERON County: MARSHALL
Latitude: 4,114' Feet South of 39 Deg. 51 Min. 49.92 Sec.
Longitude: 7,723 Feet West of 80 Deg. 36 Min. 38.26 Sec.

Company: CNX Gas Company, LLC

	Casing & Tubing	Used in drilling	Left in well	Cement Fill Up (# of Sacks)
Address: 2481 John Nash BLVD	13 3/8'	42.0'	42.0'	SANDED IN
Bluefield Wv 24701	9 5/8'	350.8'	350.8'	135 SKS
Agent: Les Arrington	7'	1143.2'	1143.2'	105 SKS
Inspector: Bill Hatfield				
Date Permit Issued: 4/14/08				
Date Well Work Commenced: 5/12/08				
Date Well Work Completed: 5/25/08				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable Rig				
Total Depth (feet): 1170'				
Fresh Water Depth (ft.): 300'				
Salt Water Depth (ft.): N/A				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): 260-264;907-913				

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OPEN FLOW DATA
Producing formation Pittsburgh COAL SEAM depth (ft) 907'-913'
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

NOTE: ON BACK OF THIS FORM 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 ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Gas Well DOE MC-59 (API No. 47-5101116) is a horizontal well for CNX Gas Company, LLC. Refer to the attached information for additional information.

Signed: Geoff Fanning
By: Geoff Fanning Drilling Manager
Date: 1/9/09

FEB 13 2009

MARS 1116C

5101116P

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AUG 29 2016
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ATTACHMENT A

Marshall County CBM Well No. MC-59 PG Drill Log

API #47-5101116

Depth	Description
0-5'	FILL & DIRT
5-15'	SHALE
15-35'	SAND
35-47'	SHALE
47-115'	SAND
115-175'	SHALE
175'-260'-264'	COAL
260'-264'-320'	SHALE
320'-570'	R.R
570'-850'	SHALE
850'-907'-913'	COAL
907'-913'990'	R.R
990'-1105	SAND
1105'-1170'	SHALE

CONSOL ENERGY
MC 59
47-051-01116
800 -83-3755

5101116P

FORM WW-4(A)
Revised 6-07

1) Date: August 18, 2016
2) Operator's Well No. MC-59
3) API Well No. 47 - 51 - 01116
State County Permit

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

4) SURFACE OWNER(S) TO BE SERVED
(a) Name Melissa Knight
Address 314 McNinch Lane
Glen Easton, WV 26039

(b) Name
Address

(c) Name
Address

(6) INSPECTOR Jim Nicholson
Address PO BOX 44
Moundsville WV, 26041
Telephone 304-552-3874

5)a) COAL OPERATOR
Name CONSOLIDATION COAL CO.
Address 1 Bridge Street
Monongah, WV 26554

(b) COAL OWNER(S) WITH DECLARATION:
Name
Address

(c) COAL LESSEE WITH DECLARATION:
Name
Address

TO THE PERSON(S) 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 and its location and the plugging work order; and
(2) The Plat (surveyor's map) showing the well location on Form WW-6.

THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON THE REVERSE SIDE OF THE COPY OF THE APPLICATION (FORM WW-4(B) DESIGNATED FOR YOU. HOWEVER, YOU ARE NOT REQUIRED TO TAKE ANY ACTION AT ALL.

Take notice 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 From WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivery by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery by the Chief.

WELL OPERATOR Consolidation Coal Company
By Mason Smith
Its Project Engineer
Address 6126 Energy Road
Moundsville, WV 26041
Telephone (304) – 843 – 3565

Subscribed and sworn before me this 26th day of August, 2016
Joseph E. Williams Joseph E Williams Notary Public
Marshall County, State of West Virginia
My commission expires June 5th, 2024

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Joseph E Williams
1512 Fifth Street
Moundsville, WV 26041
My Commission Expires June 5, 2024

Oil and Gas Privacy Notice

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

5101116P

WW-9
Rev. 5/08

Page _____ of _____
API Number 47 - 051 - 01116
Operator's Well No. MC-59

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 Consolidation Coal Company OP Code _____

Watershed Burch Run of Grave Creek Quadrangle Cameron, WV-PA

Elevation 1337.10' County Marshall District Cameron

Description of anticipated Pit Waste: N/A

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes_____ No X

Will a synthetic liner be used in the pit? N/A. If so, what mil.?_____

Proposed Disposal Method For Treated Pit Wastes:

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

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Freshwater
If oil based, what type? Synthetic, petroleum, etc.? _____
Additives to be used? Bentonite, Bicarbonate of Soda

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Reused or Disposed (see attached letter)
-If left in pit and plan to solidify what medium will be used? Cement, lime, sawdust _____
-Landfill or offsite name/permit number? _____

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) Mason Smith

Company Official Title Project Engineer

Subscribed and sworn before me this 26th day of August, 2016

Joseph E. Williams Joseph E Williams Notary Public

My commission expires June 5th, 2024

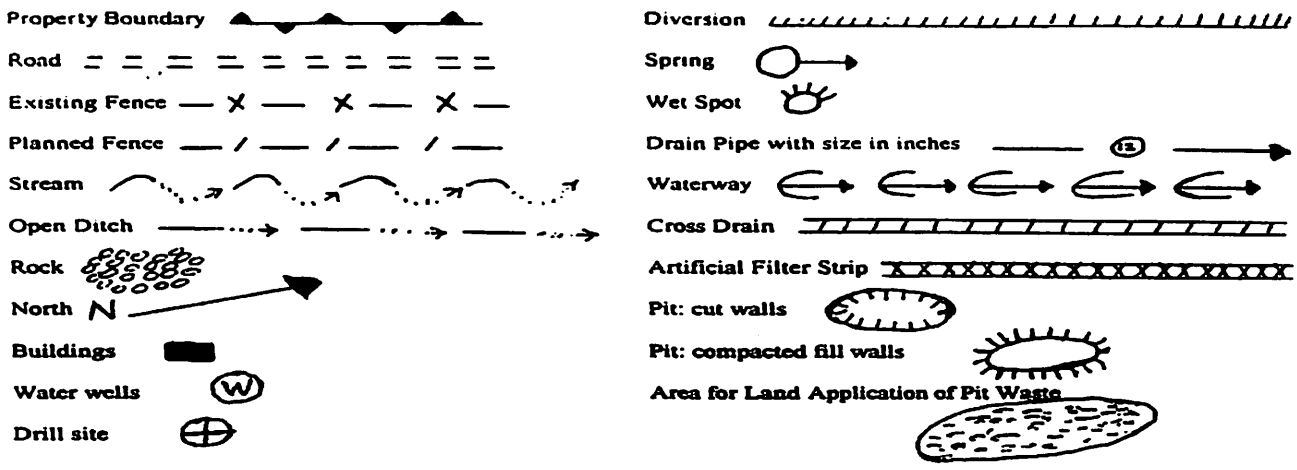
OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Joseph E Williams
1312 Fifth Street
Moundsville, WV 26041
My Commission Expires June 5, 2024

5101116P

Form WW-9

Operator's Well No. MC-59

LEGEND



Proposed Revegetation Treatment: Acres Disturbed <5 Prevegetation pH 6

Lime 2 Tons/acre or to correct to pH 6

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

Mulch 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
		Seed mix in accordance with WVDEP oil and	
		gas Erosion and Sediment Control Field Manuel	

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____

Comments: _____

Title: _____ Date: _____

Field Reviewed? (_____) Yes (_____) No

WW-9
ATTACHMENT

47-057-01116P

MURRAY AMERICAN ENERGY, INC. & CONSOLIDATION COAL COMPANY

MURRAY AMERICAN ENERGY, INC. & CONSOLIDATION COAL COMPANY
46226 National Road
St. Clairsville, OH 43950

phone: 304.843.3565
fax: 304.843.3546
e-mail: MasonSmith@coalsource.com

MASON SMITH
Project Engineer

August 26, 2016

Department of Environmental Protection
Office of Oil and Gas
601-57th Street
Charleston, WV 25320

To Whom It May Concern,

As per the Division of Environmental Protection, Office of Oil and Gas request, Consolidation Coal Company submits the following procedures utilizing pit waste.

Upon submitting a well work application (without a general permit for Oil & Gas Pit Waste Discharge Application), Consolidation Coal Company 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 facilities number U-0033-83, O-1001-00, U-1035-91U-46-84, U-78-83, O-1044-9, or U-100-83.

Sincerely,

Mason M Smith Project Engineer

Mason Smith
Project Engineer

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Office of Oil and Gas
AUG 29 2016
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Environmental Protection

CONSOLIDATION COAL COMPANY
NORTHERN WEST VIRGINIA
OPERATIONS

TYPICAL DRAWING OF WELL PLUGGING SITE PLAN

RECEIVED
Office of Oil and Gas
AUG 29 2016
WV Department of

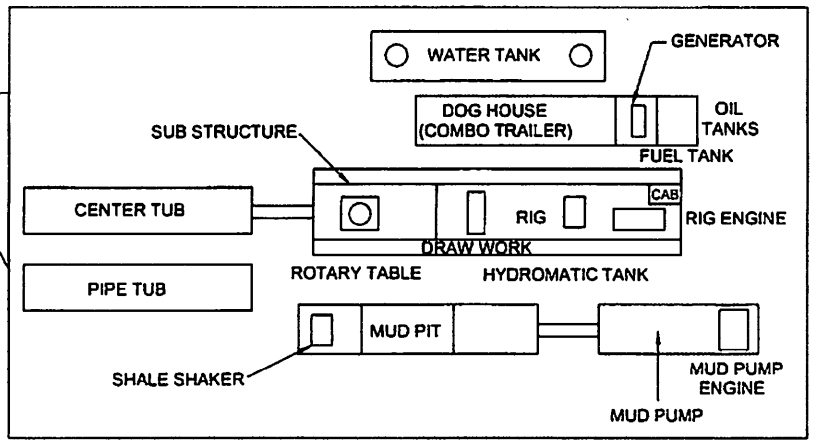
DIVERSION DITCH(IF NEEDED)

CUT

CUT MULCHED IF SLOPE
LESS THAN 1 TO 1

ROAD & BERM

TYPICAL EQUIPMENT LAYOUT



SEDIMENT
CATCH BASIN

SEDIMENT
CATCH BASIN

FILL

COMPACTED & LAYED

HAY BALES OR
SEDIMENT FENCE

ORIGINAL GROUND KEYWAYED

S101116 P

5101116P

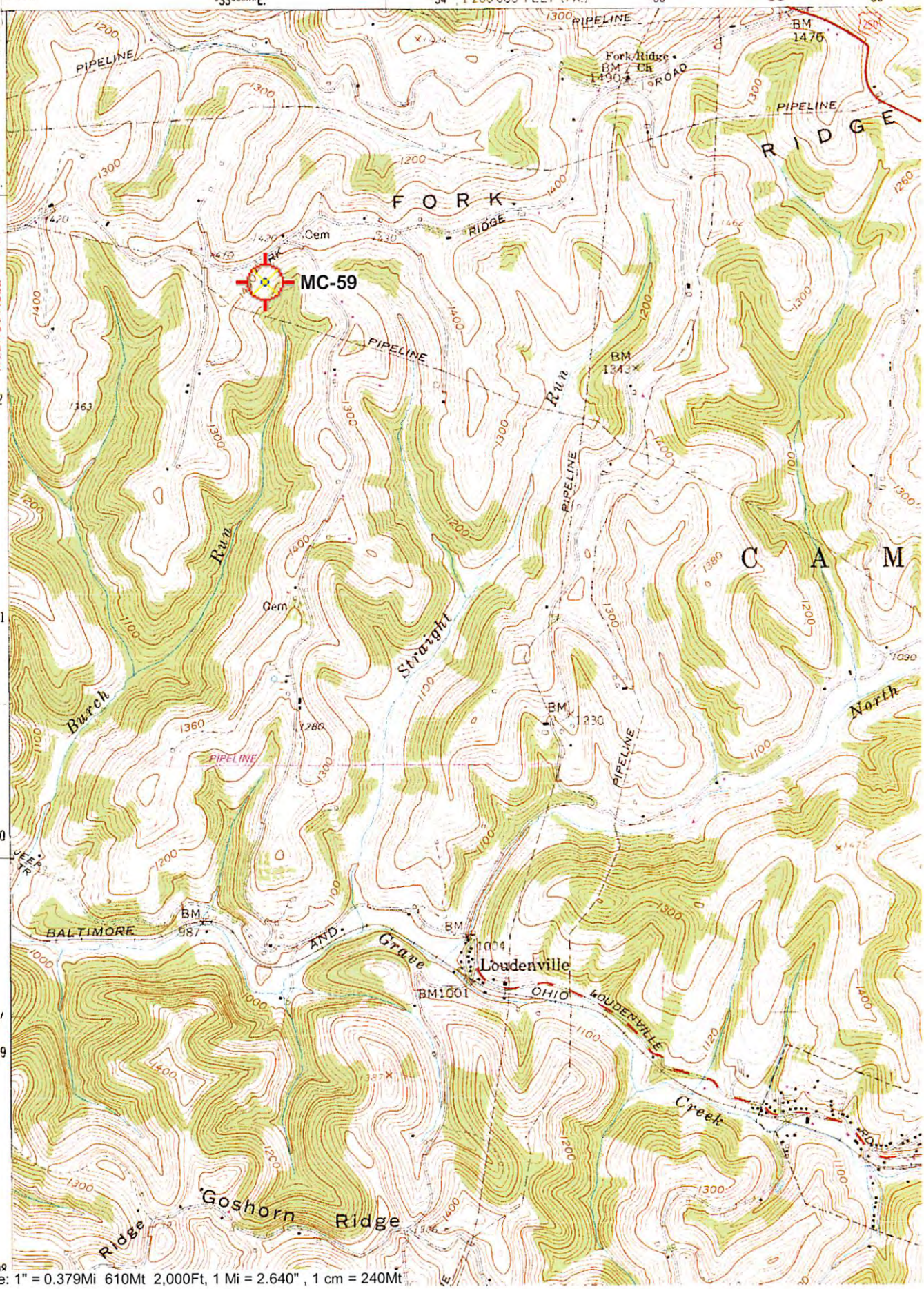
(4863 I NW (MOUNDSVILLE))

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MOUNDSVILLE 13 MI.
PLEASANT VALLEY 3.8 M

80°37'30"
39°52'30"
210 000 FEET (PA.)
4413000m N.
4412
4411
4410
50'
4409
4408

533000m E. 534 1 200 000 FEET (PA.) 535 35' 536



'Cameron; WV,PA' Scale: 1" = 0.379Mi 610Mt 2,000Ft, 1 Mi = 2.640" , 1 cm = 240Mt

5101116P

WW-7
8-30-06

WV Department of Environmental Protection
AUG 29 2016
Office of Oil and Gas
RECEIVED

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

API: 47-051-01116 **WELL NO.:** MC-59

FARM NAME:

RESPONSIBLE PARTY NAME: Consolidation Coal Company

COUNTY: Marshall **DISTRICT:** Cameron

QUADRANGLE: Cameron, WV PA

SURFACE OWNER: Melissa Knight

ROYALTY OWNER:

UTM GPS NORTHING: 4,412,711 m

UTM GPS EASTING: 533,285 m **GPS ELEVATION:** 408 m (1337')

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.

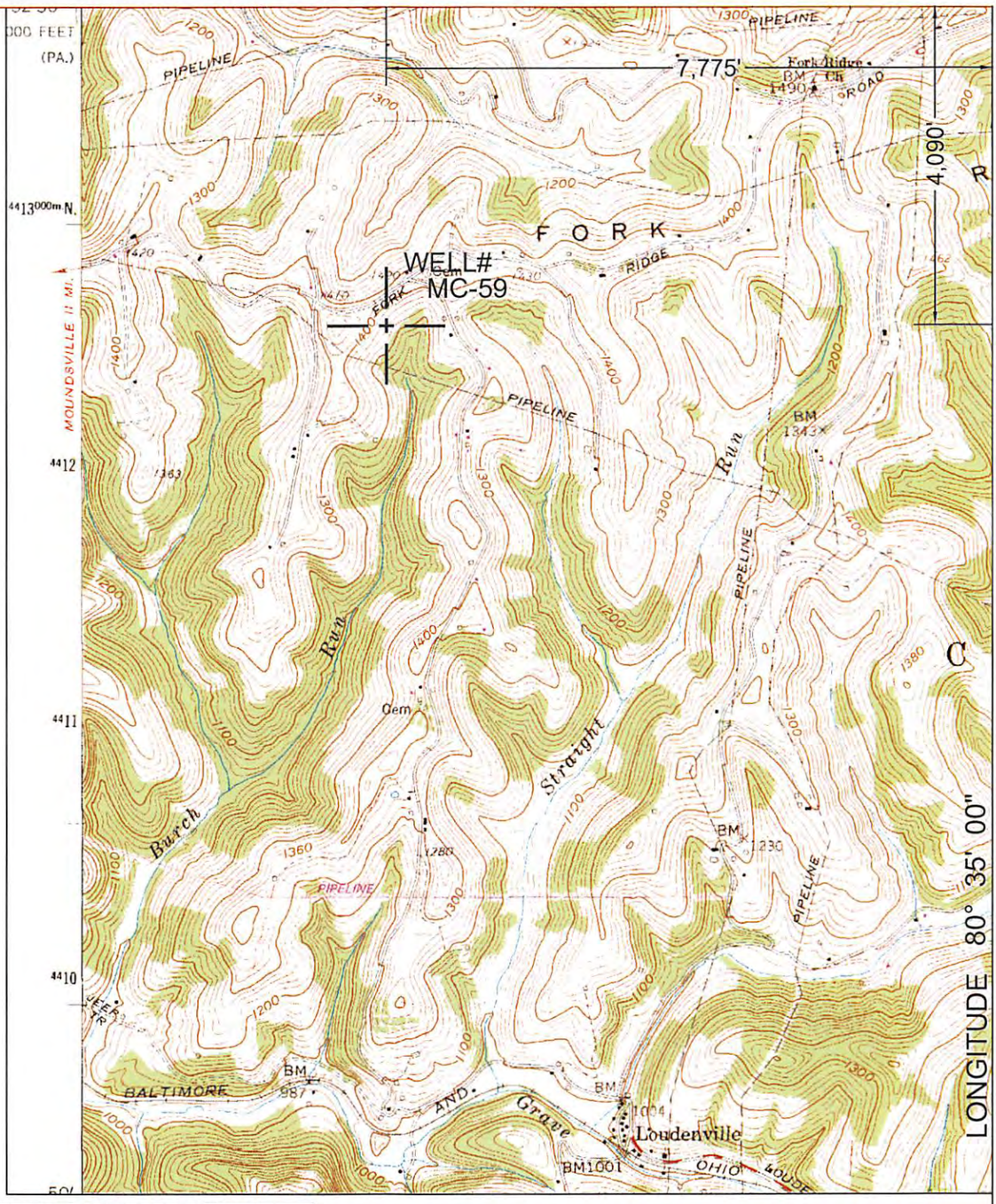
_____ **Professional Surveyor**
Signature Title

August 18, 2016
Date

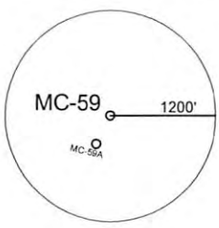
51011 6P

FORM WW 6

LATITUDE
39° 52' 30"



SURROUNDING WELLS
WITHIN 1200' RADIUS



UTM ZONE 17N NAD83 CONUS			LAT/LONG NAD27 CONUS
NORTHING	4,412,711	METERS	39° 51' 49.3" N
EASTING	533,285	METERS	80° 36' 39.7" W

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

P.S. 2002

TROY B. FREELS LICENSED No. 2002 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE AUGUST 17 , 20 16

OPERATORS WELL NO. MC-59

API WELL NO. 47 — 51 — 01116P
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY: 1 / 2500

PROVEN SOURCE OF ELEVATION: GPS METADATA OR COMPANY NETWORK TIED INTO U.S.G.S.

FILE NO.: CAMERON 1.DWG

SCALE: 1"=2000'

WV DEP
OFFICE OF OIL AND GAS
601 57TH ST., CHARLESTON, WV 25304

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

LOCATION:

ELEVATION: 1337.10' WATERSHED: BURCH RUN OF GRAVE CREEK

DISTRICT: CAMERON COUNTY: MARSHALL QUADRANGLE: CAMERON, WV-PA 7.5'

SURFACE OWNER: MELISSA KNIGHT ACREAGE: 35.36± ACRES

ROYALTY OWNER: ____ LEASE ACREAGE: ____

PROPOSED WORK: ____ LEASE NO.: ____

DRILL: ____ CONVERT: ____ DRILL DEEPER: ____ REDRILL: ____ FRACTURE OR STIMULATE: ____ PLUG OFF OLD: ____

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

PHYSICAL CHANGE IN WELL (SPECIFY): ____ TARGET FORMATION: NONE

ESTIMATED DEPTH: ____

COUNTY NAME

PERMIT

WELL OPERATOR: CONSOLIDATION COAL COMPANY DESIGNATED AGENT: RONNIE HARSH

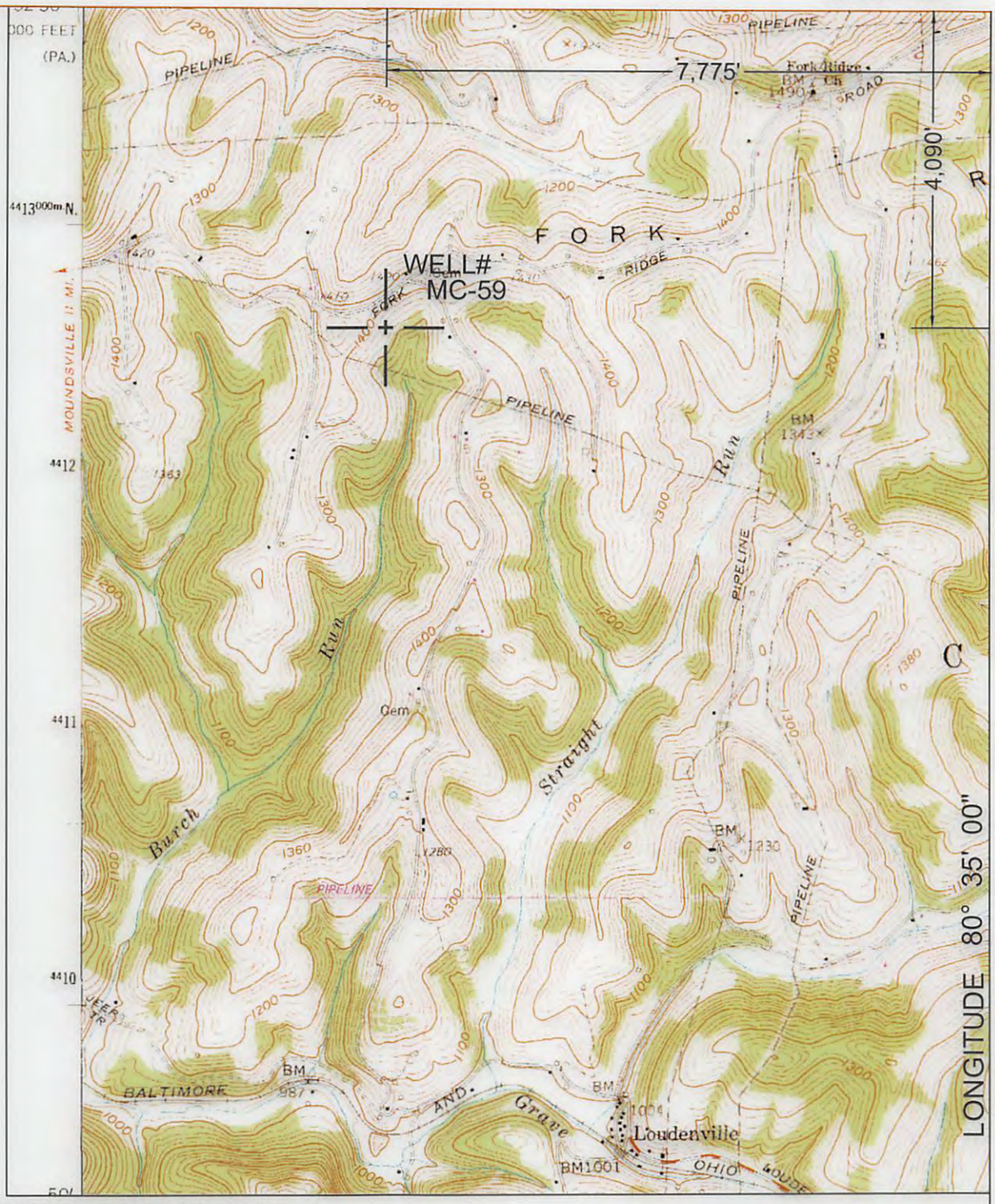
ADDRESS: 6126 ENERGY DRIVE, MOUNDSVILLE WV 26041 ADDRESS: 6126 ENERGY DRIVE, MOUNDSVILLE WV 26041

RECEIVED Office of Oil & Gas

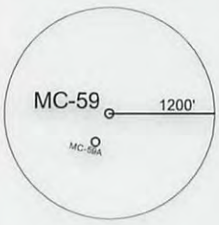
510116P

FORM WW 6

LATITUDE
39° 52' 30"



SURROUNDING WELLS
WITHIN 1200' RADIUS



UTM ZONE 17N NAD83 CONUS		LAT/LONG NAD27 CONUS
NORTHING 4,412,711	METERS	39° 51' 49.3" N
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P.S. 2002

TROY B. FREELS LICENSED No. 2002 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE AUGUST 17 , 20 16

OPERATORS WELL NO. MC-59

API WELL NO. 47 — 51 — 01116 P
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY: 1 / 2500

FILE NO.: CAMERON 1.DWG

SCALE: 1"=2000'

PROVEN SOURCE OF ELEVATION: GPS METADATA OR COMPANY NETWORK TIED INTO U.S.G.S.

WV DEP
OFFICE OF OIL AND GAS
601 57TH ST., CHARLESTON, WV 25304

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

LOCATION:
ELEVATION: 1337.10' WATERSHED: BURCH RUN OF GRAVE CREEK
DISTRICT: CAMERON COUNTY: MARSHALL QUADRANGLE: CAMERON, WV-PA 7.5'
SURFACE OWNER: MELISSA KNIGHT ACREAGE: 35.36± ACRES
ROYALTY OWNER: ____ LEASE ACREAGE: ____
PROPOSED WORK: ____ LEASE NO.: ____
DRILL: ____ CONVERT: ____ DRILL DEEPER: ____ REDRILL: ____ FRACTURE OR STIMULATE: ____ PLUG OFF OLD: ____
FORMATION: ____ PERFORATE NEW FORMATION: ____ PLUG AND ABANDON: X CLEAN OUT AND REPLUG: ____ OTHER: ____
PHYSICAL CHANGE IN WELL (SPECIFY): ____ TARGET FORMATION: NONE
ESTIMATED DEPTH: ____

COUNTY NAME
PERMIT

WELL OPERATOR: CONSOLIDATION COAL COMPANY DESIGNATED AGENT: RONNIE HARSH
ADDRESS: 6126 ENERGY DRIVE, MOUNDSVILLE WV 26041 ADDRESS: 6126 ENERGY DRIVE, MOUNDSVILLE WV 26041