west virginia department of environmental protection

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

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

January 26, 2015

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-8101422, issued to ARP MOUNTAINEER PRODUCTION, LLC, 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 all 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. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalities being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: CO-1-5A
Farm Name: CRAB ORCHARD COAL & LAND
API Well Number: 47-8101422
Permit Type: Plugging
Date Issued: 01/26/2015

01/30/2015

8101422P

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.

01/30/2015

8101422 cp

WW-4B
Rev. 2/01

1) Date December 10, 2014
2) Operator's
Well No. CO-1-5A
3) API Well No. 47- 81 - 01422

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil ____/ Gas X / Liquid injection ____/ Waste disposal ____/
(If "Gas, Production X or Underground storage ____) Deep ____/ Shallow X

5) Location: Elevation 2,307.50' Watershed Jehu Branch of Millers Camp Branch
District Trap Hill County Raleigh Quadrangle Eccles

6) Well Operator ARP Mountaineer Production, LLC
Address Park Place Corporate Center One
1000 Commerce Drive 4th Floor, Pittsburg, PA 15275

7) Designated Agent CT Corporation System
Address 5400 D Big Tyler Road
Charleston, WV 25313

8) Oil and Gas Inspector to be notified
Name Gary Kennedy
Address P.O. Box 268
Nimitz, WV 25978

9) Plugging Contractor
Name Universal Well Services
Address 5252 RT 1428
Allen, KY 41601

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

See attachment

MSHA APPROVED BENTONITE GEL
PINNATE PLUGGING METHOD.

RECEIVED
Office of Oil and Gas
JAN 02 2015
WV Department of
Environmental Protection

OL JNM

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

Work order approved by inspector _____ Date _____

01/30/2015

8101422CP

U.S. Department of Labor

Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, WV 25880-1000

NOV 2 0 2014

Mr. Steve Toler
Safety Director
ICG Beckley LLC
P. O. Box 49
Eccles, WV 25836

Dear Mine Operator:

Subject: Mine Ventilation Plan, 30 CFR, Section 75.370, Beckley Pocahontas Mine, I.D. No. 46-05252, ICG Beckley LLC, Eccles, Raleigh County, West Virginia

This will acknowledge receipt of a revision to the **consolidated ventilation base plan,** submitted to this office on April 7, 2014, for the subject mine. The revision request is to add pages 43 through 84. This revision is requesting to mine through abandoned coal bed methane wells. Included with this submittal are safety precautions, material safety data sheets, and a detailed map showing the location of the abandoned methane well.

This revision is approved and will be made part of the approved plan for this mine. This approval is limited to the requested changes as described in the submittal letter and attached pages.

You are reminded that all ventilation changes need made during a mine-wide evacuation as required in 30 CFR, Section 75.324.

Should you have any questions concerning this matter, please contact the Ventilation Department at (304) 877-3900/Ext. 142.

Sincerely,

David S. Mandeville
District Manager
Coal Mine Safety and Health, District 4

Received
12/01/2014

01/30/2015

8101422CP

Coal Bed Methane Well Abandonment Plan for CO-1-5A and CO-1-5B and Ventilation Plan Supplement

Well Description: Cut-Through Plan for SDD-CMB Well API -47-081-01422C Articulated (Access) Well - (CO-1-5A) & API -47-081-1423C Cavity –CO-1-5B (Production) Wells.

Specifics of the wells are as follows:

1. Date Drilled : 3/21/2007
2. Diameter: See attached CO-1-5A and CO-1-5B schematics drawing
3. Casing: See attached CO-1-5A and CO-1-5B schematics drawing
4. Coal Seams Developed: Pocahontas # 3
5. Maximum Depth: 904.5 to bottom of coal seam, 1004 to bottom of production hole.
6. Abandonment Pressure: To be determined - see item 9 for interim measurement.
7. Probable error of location: is shown on attached map Attachment A. CO-1-5 as the line shown on each side of the well bore. It is based on a one degree probable error of location as outlined in the petition. The one degree is measured from the development well out.
8. Minimum working barrier around the well: The greatest total length of the hole from the bottom of the vertical well CO-1-5B to the end of leg #4 is 4190.60 feet. Multiplying this by the sine of 1 degree equals 73.14 feet plus an additional 50 feet equals a maximum barrier of 123.14 feet. Working barriers differ for the individual legs of the well(s) but will all be calculated the same using the above method.
    a. The greatest distance from the collar would include +314 feet from CO-1-5A to CO-1-5B and the vertical distance of 941 feet from the CO-1-5A collar for a total distance of 5445.60 feet. Multiplying this by the sine of 1 degree equals 95.04 feet plus an additional 50 feet equals a maximum barrier of 145.04 feet.
9. The 72 hour shut-in pressure of the well reached a maximum of 10 psi before dropping down to 5 psi and was taken in early October of 2013.
10. The total volume of the SDD Laterals/legs is approximately 2,445 Cu. Ft. /435bbl or 18,270 gallons.
11. The anticipated initial intersection from this well is approximately mid-November of 2014.
12. Initial consistent production from this well was reported to be from 5/24/2007 and production will continue until the date of plugging.

Methane Recovery Data

Well	Estimated OGIP	Cumulative 1st Year	Cumulative 2nd Year
CO-1-5B	684	132	58

Well Preparation:

2221 Old Eccles Road PO Box 49 Eccles, WV 25836 (304) 929-4280

8101422CP

ICG Beckley LLC –Beckley Pocahontas mine proposes to complete a 2-6% bentonite squeeze performed with a redundant pumping system. The following procedures will be used for plugging:

Well Preparation for the CO 1-5A (PLUGGING PROCEDURE FOR CO 1-5A)

ICG Beckley, LLC – Beckley Pocahontas Mine proposes to plug the CO 1-5A with expanding cement and bentonite gel.

1. The downhole "sucker-rod" dewatering pump will be operated until plugging operations commence on the CO 1-5A, but will be removed at that time.
2. A 6" inflatable bridge plug will be run on tubing and placed in the curve of this articulate well at 925', or as deep as reasonable achievable into the curve.
3. An expandable cement plug will be set from the inflatable bridge plug to at least 100' above that point
4. After a minimum of 4 hours, the cement plug will be tagged with tubing to verify that it is at least 100' above the inflatable bridge plug. If necessary, additional cement will be added.
5. A 2%-6% bentonite gel slurry will be placed through tubing from the top of cement to 100' from surface
6. Expanding cement will be placed through tubing from 100' to surface and a permanent marker will be installed.

Well Preparation for the CO 1-5B

ICG Beckley, LLC – Beckley Pocahontas Mine proposes to perform a 2 – 6% bentonite squeeze performed with a redundant pumping system. The following procedures will be used for plugging.

1. The downhole "sucker-rod" dewatering pump will be operated until plugging operations commence on the CO-1-5B, but will be removed at that time.
2. Five hundred and forty five barrels (1 barrel = 42 gallons) of water will be pumped in to the well. This is 125% of the capacity of laterals drilled in the Poca 3.
3. Six Hundred and Fifty Two barrels (1 barrel = 42 gallons) of 2% - 6% bentonite gel will then be pumped. This is 150% of the volume of the laterals in the Poca 3. Gel formulation will be a simple mixture of 2% to 6% bentonite and fresh water with no other additives.
4. The bentonite will be displaced with 472 bb of water. This is 100% of the capacity of the laterals and borehole.
5. Before mine through, the fluid elevation will be lowered to approximately the level of the coal. Water will be pumped or bailed down to acceptable levels with the drill rig as necessary.
6. The vertical well will be left open until that time it is released to be plugged with cement. After mining has been completed in the area of the wells, a packer will be set prior to grouting the hole with cement.
7. Prior to mixing either bentonite or cement, a water analysis will be run to verify compatibility. Well plugging records of H2O quality and mix volume will be recorded and maintained as part of the drill plugging record. Records will be maintained until mining activities have been completed within the original minimum working barrier.
8. Densities of all fluids will be continuously monitored and recorded. Grab samples of the bentonite slurry will also be taken every 15 minutes and weighed with a mud balance.

9. Flow rates will be continuously monitored and recorded.
10. Pressures will be continuously monitored and recorded.
11. The MSDS sheet for the bentonite is attached.

OPERATIONAL PRECAUTIONS

When mining is within the minimum working barrier distance from a well branch, the Beckley Pocahontas Mine will comply with the following procedures:

1. 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 reasonable time prior to the conference to provide opportunity for participation.
2. The mine operator must notify the District Manager, the State and miners' representative at least 72 hours prior to the intended intersection of any coalbed methane well.
3. A minimum working barrier of 300 feet in diameter (150 foot radius) shall be maintained around all SDD wells until approval to proceed with mining has been obtained from the MSHA District Manager.
4. Prior to mining within the minimum barrier distance the water will be swabbed down to the coal bottom elevation level - approximate elevation 1368 (Approximately 904 feet in depth). The remainder of the SDD well legs will be down dip. The water level will be approximately 40 feet above the end of the pinnate/leg. Thus the horizontal legs will contain water (approximate maximum of 4,150 gallons) when they are intersected thus reducing the possibility or amount of methane liberation into the mine.
5. The initial cut through of a well or branch will adhere to the following procedures:
    a. 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 will be posted with a readily visible marking. Marks will 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.
    b. 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 the minimum barrier distance from well.
    c. The operator shall ensure that fire-fighting equipment, including at least two 10 lbs or greater fire extinguishers, rock dust (240 lbs), and sufficient fire hose to reach the working face of the mine-through is available and operable during all well mine-throughs. These supplies are in addition to the supplies required by 30 C.F.R. 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. All fire hoses shall be connected and ready for use, but do not have to be charged with water, during the cut-through. Fire hoses are to be capable of delivering at least 50 gallons per minute of water at a minimum pressure of 50 psi.
    d. The operator shall ensure that sufficient supplies of roof support and ventilation materials are available and located at the last open crosscut. 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.

e. All equipment will be serviced and checked for permissibility no greater than 24 hours prior to entering the working barrier. 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.

f. 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 continuous mining machine at least once daily. Daily methane monitor calibration must continue until mining exits the minimum working barrier around the well or branch.

g. 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 is within the minimum working barrier around the well or branch. Tests for methane will continue at least every 10 minutes until mining has progressed at least 20 feet beyond the intersection hole. 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 by a certified person and declared safe. All workplace examinations shall be conducted on the return side of the continuous miner while continuous miner is idle.

h. When using continuous mining methods, the working place shall be free from accumulations of coal dust and coal spillage, 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. Rock dust will be placed on the floor an average of 2" deep until the well or branch is intersected or until mining exits the minimum working barrier.

i. After the well or branch is intersected, the operator shall immediately de-energize all equipment, and the certified person shall thoroughly examine and determine the working place safe before mining is resumed. Any casing, tubing, or stuck tools will be removed using methods approved in the ventilation plan.

j. After a well or branch has been intersected and the working place determined safe (Methane concentration under 1%), mining shall continue inby the well a sufficient distance to permit adequate ventilation around the area of the well or branch and access to the branch line. A legal methane check will be made at least 12 inches from the roof, face, rib and floor at the intersection point.

k. If the methane concentration is 1% or greater (from a legal check) a packer will be inserted and water injected in the void. This may involve setting temporary roof support to access the well. If the well or branch is intersected and it is determined that the methane concentration (from a legal check) is under 1% then the branch line maybe left as it was found upon the intersection of it. In other words, the line may not require grouting, water injection or the installation of packers especially where the same branch is intersected at various points across the section (between entries if the airways are to be in common). If for any reason it is determined that methane liberation presents a problem from an intersected branch a packer will be installed and water injected to seal it off. If a packer was used to seal off a branch line until the adjacent entry intersects it the packer maybe removed for future reuse unless the two adjacent entry airways are not in common and then it will be left intact or the branch line grouted.

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l. No open flame shall be permitted in the area until the area has been determined safe and adequate ventilation has been established around the well bore or branch.
m. If any casing, tubing or stuck tools are encountered they will be removed using hydraulically, pneumatically, or manually powered hand tools. This may include the use of cut-off-saws, ropes and or cables if the casing tubing or stuck tools are not removed directly with the mining equipment.
n. 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 State agency.
o. The operator shall warn all personnel in the mine to 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 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. 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.
r. 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.
s. A copy of the 101 (c) petition/order shall be maintained at the mine and be available to the miners.

The Beckley Pocahontas Mine has submitted and received approval for revisions to its approved mine emergency evacuation and firefighting program of instruction as required by 30 C.F.R. 75.1501. The revisions include the hazards and evacuation procedures to be used for well intersections. All underground miners have been trained in this revised program within 30 days of the approval of the revised mine emergency evacuation and firefighting program of instruction.

Prior to mining within 150 feet of a CBM well or within the minimum working barrier, whichever is greater, the following information shall be submitted to MSHA for review and approval.

a. Statement that well was plugged in accordance with 101 (c)
b. Affidavit of Plugging and Filling Well (WVDEP Office of Oil and Gas Form), if applicable
c. Amount of casing removed, if any
d. Monument erected on surface
e. Drillers logs
f. Record of hole preparation, pump pressures, and flow rates

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g. Well abandonment pressure
h. Methane production data to include average production data, peak well pressure, and the life of the well(s)
i. Coal seams above or below the CBM network
j. Calculated borehole volume
k. Volume of material pumped into borehole(s)
l. Map of CBM well network
m. PE Certification that the methods used to prepare and plug the CBM well and branches were appropriate
n. Statement that a revision to the ventilation plan has been approved by MSHA for the mine through
o. OF-45 (WVMHS&T Form), if applicable
p. OG-16 (WVMHS&T Form, if applicable

Additional Specifics

a. Over drilling into the bottom - If the methane concentration is 1% or greater (from a legal check) a packer will be inserted and water injected in the void. This may involve setting temporary roof support to access the well. If the well or branch is intersected and it is determined that the methane concentration (from a legal check) is under 1% then the branch line maybe left as it was found upon the intersection of it. In other words, the line may not require grouting, water injection or the installation of packers especially where the same branch is intersected at various points across the section (between entries if the airways are to be in common). If for any reason it is determined that methane liberation presents a problem from an intersected branch a packer will be installed and water injected to seal it off.
b. Separation of airways (connected by horizontal holes) - If a packer was used to seal off a branch line until the adjacent entry intersects it the packer maybe removed for future reuse unless the two adjacent entry airways are not in common and then it will be left intact or the branch line grouted.
c. Intersection map on section – When mining progresses within the minimum working barrier distance from a well or branch, a map showing the minimum working barrier and the estimated well branch location will be maintained on the section and updated daily.

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d. Preparation – The minimum working barrier will not be entered prior to the delivery of all necessary supplies mentioned under operational precautions.
e. Minimum Air – A minimum of 20,000 CFM will be maintained at each LOB.

Mandatory Procedures after SDD Intersections

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. Intersection locations will be identified to the specific hole or branch. Record of examinations will be maintained at the mine site. Intersecting intake holes entirely within the mining boundaries/entries shall be plugged as necessary but shall not require to be examined as part of the pre-shift or weekly examinations.
b. All other intersections with SDD wells and branches shall be examined as part of the weekly examination required under 30 C.F.R. §75.364.

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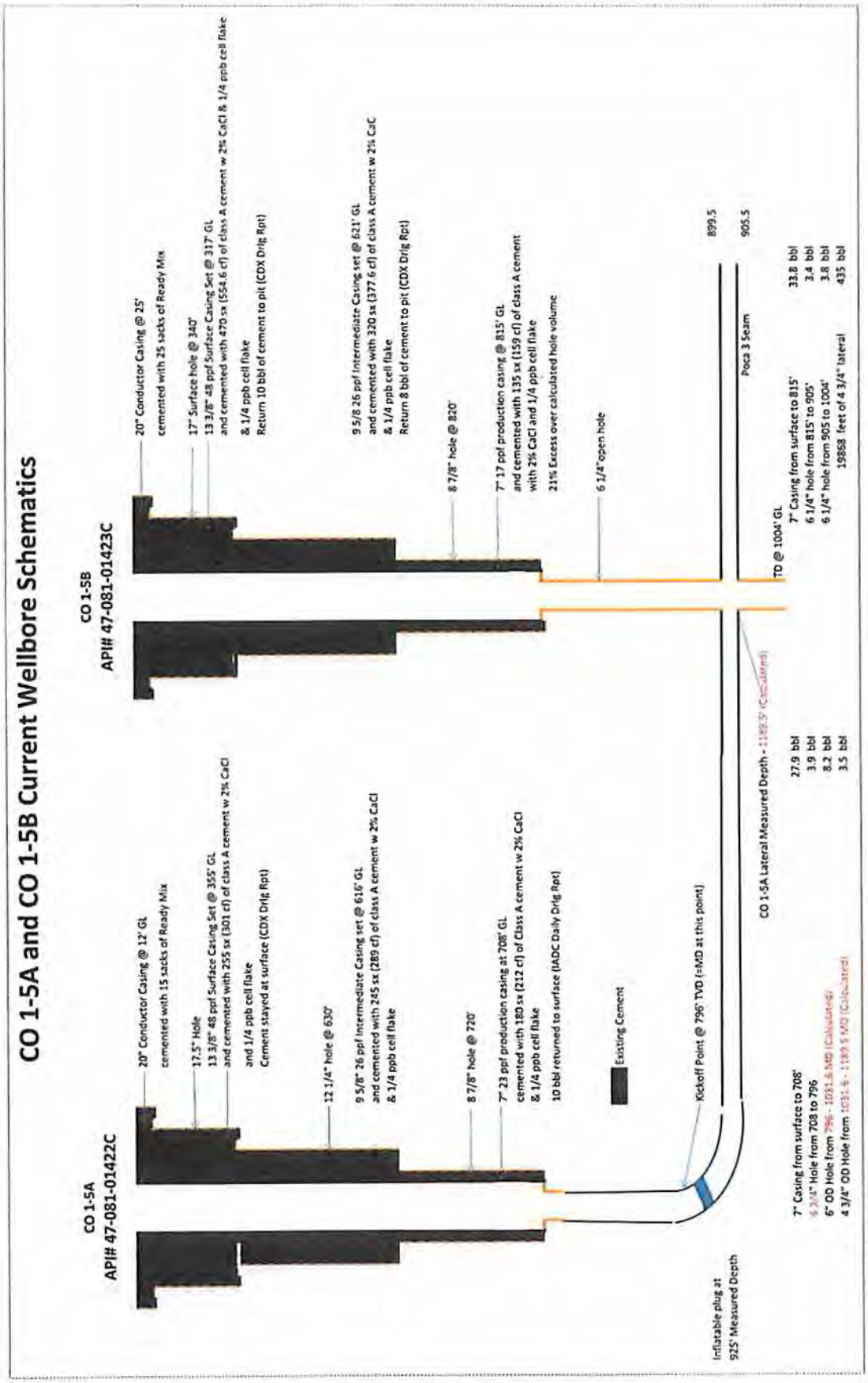
f.



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WELL CUT THROUGH RECORD FOR MSHA

RECORD OF WELL CUT-THROUGH FOR WELL #_____

MINE _____

DATE _____

SECTION _____ ENTRY #_____

WELL NO. _____

CONTINUOUS MINER_____

EVACUATION TIME (if applicable) _____

REASON FOR EVACUATION (if applicable) _____

BEGIN MINING TIME _____

WELL INTERSECTION TIME _____ CH4 READING_____%

MINE CLEAR TIME _____ CH4 (ROOF) _____% (FLOOR) _____%

AIR QUANTITY-LAST OPEN CROSSCUT _____ (CONT. MINER)

MSHA REPRESENTATIVES: UNDERGROUND _____

WVOMHS&T REPRESENTATIVES: UNDERGROUND _____

MINE OFFICIAL _____ TITLE _____

_____ _____

ANYTHING UNUSUAL ENCOUNTERED AT WELL BORE DURING INTERSECTION:

_____

_____

_____

_____

_____

OTHER COMMENTS:

_____

_____

_____

2221 Old Eccles Road PO Box 49 Eccles, WV 25836 (304) 929-4280

8101422CP

ARCH COAL, INC.
ICG Beckley , LLC

Stephen Hatfield
Manager of Engineering
2221 Old Eccles Road ,P.O. Box 49
Eccles, WV 25836
Phone 304 929 4260
SHatfield@archcoal.com

March 20, 2014

Mr. David Mandeville.
District Manager
Mine Safety and Health Administration
100 Bluestone Road.
Mount Hope, WV 25880

Mr. Kennis Browning
WVMHS&T
Region IV- Inspector –at- Large
142 Industrial Park Dr.
Oak Hill, WV 25901-9714

RE: ICG Beckley Pocahontas Mine – MSHA ID 46-05252
WVMSHT Permit # U-3011-95A- Certification of Applicability of the well plugging method for abandonment and mine through: API 47-081-01422C and API 47-081-1423C and associated laterals.

Dear Sir,

Based upon a review of the SDD/CBM well and related details regarding applicable methods for plugging and abandonment, the Bentonite Gel method has been chosen as the suitable method for plugging the laterals of CMB wells CO-1-5 A & CO-1-5B. The vertical portions of the wells will be plugged with Cement upon completion of the mine through. The well has been producing for over 7 years with a declining production life and has a low shut in pressure when tested. Discussions with Gas well owner (Geomet) confirmed this selection as the preferred method for plugging this well for minethrough and abandonment.

Sincerely,
ICG Beckley LLC

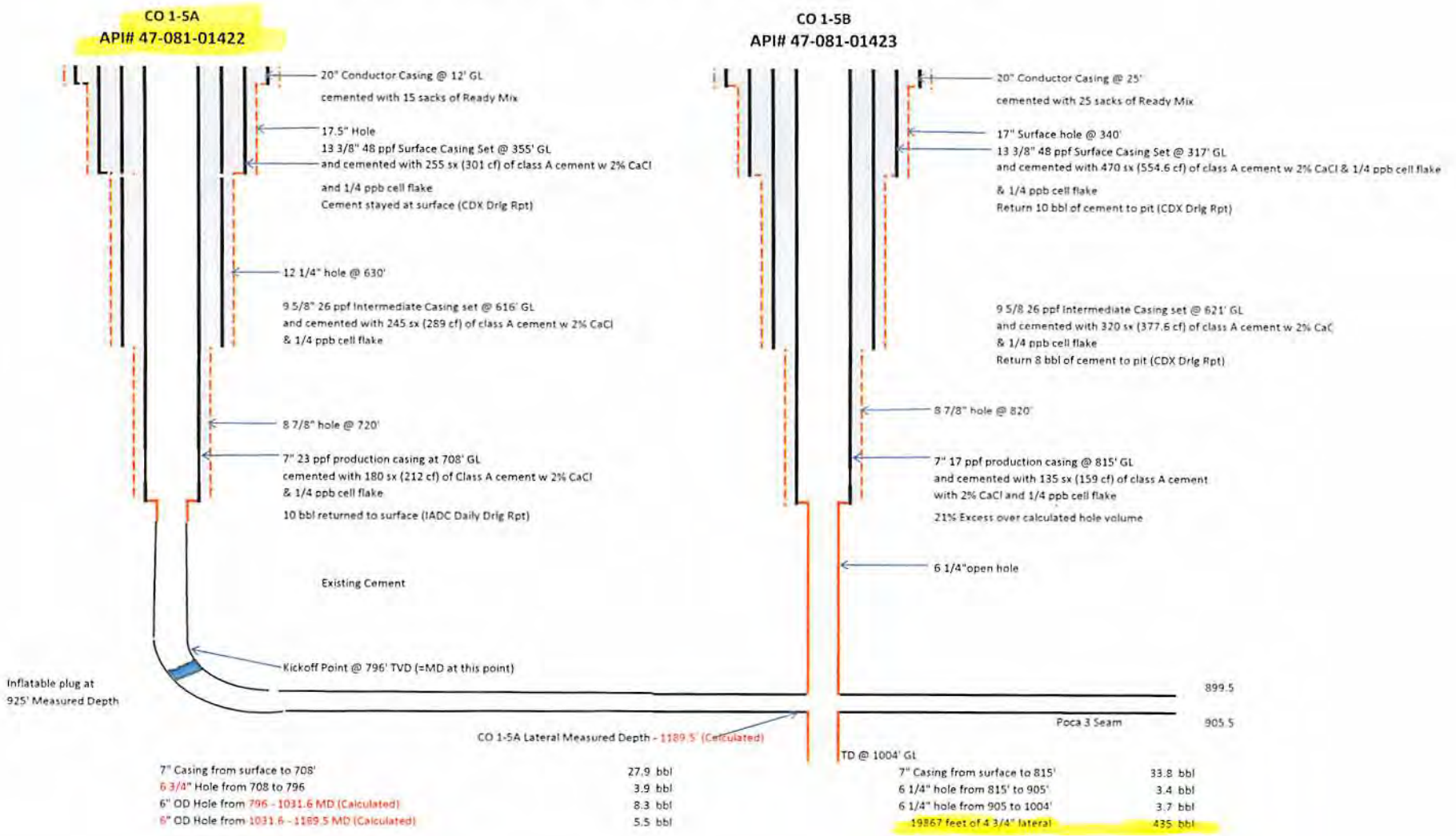
Stephen Hatfield P.E.
Manager of Engineering

STEPHEN HATFIELD REGISTERED 14229 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

Beckley Mining Complex
PO Box 49 2221 Old Eccles Road Eccles, West Virginia 25836 (304) 929-4280

01/30/2015

CO 1-5A and CO 1-5B Current Wellbore Schematics



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GeoMet
"A Coalbed Methane Exploration & Development Company"
5336 Stadium Trace Parkway, Suite 206 • Birmingham, Alabama 35244 • Main: (205) 425 - 3855 • Fax: (205) 425 - 4711 • www.geometinc.com

Stephen Hatfield
Arch Coal
ACI Beckley Complex
2221 Old Eccles Road
Eccles, WV 25836

Steve,

I have prepared responses to the MSHA questions No's 3, 5, 6, 7, 10, and 11 as you requested. Please contact me if you have any questions.

3. I have included the equipment specifications with this letter.

5. The Crab Orchard 1-5B well is currently producing about 80 MCFD. The peak production rates for this well occurred about six and a half years ago and were in the low to mid 500's. Its ability to produce has greatly diminished. The current shut in pressure as tested in October of 2013 was less than 10 psi. This is a low shut in pressure reflecting the effects of almost 7 years of production. Recharge potential is limited by the other CBM wells to the north producing in the Poca 3 and by the mine to the south. The combination of the production from the area and the low bottom hole pressure makes bentonite infusion the preferable method to prepare the laterals for mining. This method has been used with success multiple times under similar conditions in the Road Fork No. 51 mine operated by Alpha Natural Resources.

6 & 7. MSDS sheets are included with this letter. The recommended PPE is given on the MSDS sheets.

10. Volume calculations used the formula for the areal of a cylinder $V = pi * (d/2)^2 * L$
d = diameter of cylinder
L = Length of cylinder

Section	Length (ft)	Diamter (in)	Volume (cu.ft)	Volume (bbl)
CO 1-5A Casing	708	6.366	156.5	27.87
CO 1-5A Casing to KOP	88	6.75	21.9	3.89
Curve	236	6	46.3	8.25
Curve to Cavity	157	4.75	19.3	3.44
Lateral Length	19867	4.75	2444.8	435.41
CO 1-5B Casing	815	6.538	190.0	33.84
CO 1-5B Casing to Base of Coal	90.5	6.25	19.3	3.43
Base of Coal to TD	98.5	6.25	21.0	3.74

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11. The procedure is designed with a 100% flush so the entire gel volume (652 bbls) should infiltrate the coal. The gel and water will be pumped at a rate of 5 to 10 barrels per minute. Surface pressure will not be allowed to exceed 320 psi but may be much lower during the early stages of the job. If necessary, pump rates may be slowed to less than 5 bbls per minute in order not to exceed the 320 psi limit. Based on the pump rates of 5 to 10 barrels per minute, the time to infuse or infiltrate the bentonite into the coal should be approximately 45 to 90 minutes (displacement time).

12. MSDS sheets are included with this letter.

13. Schematic with plug location included with this letter.

Best regards,

Scott Myers
Project Engineer
GeoMet Operating Company, Inc.

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8101422CP

PINPOINT

ELECTROMAGNETIC MWD SYSTEM

Electromagnetic (EM) transmission is continuous, survey data can be transmitted during connections resulting in considerable savings in rig time. EM systems are the preferred MWD strategy in many applications, including:

- Under-balanced drilling
- Horizontal drilling
- Lost circulation
- Directional drilling
- Under-pressured formations
- Contaminated mud systems
- Coal Bed Methane (CBM)
- Re-entry wells
- Vertical control drilling

Features / Benefits

As a result of many years of field tests and design applications, the EM MWD offers many key advantages over more traditional MWD systems. Some of these include:

- Programmable to meet local field conditions
- Variable data transmission speeds
- Separate steering and survey frames
- Compact and battery powered
- Key data points including:
  - Magnetic / gravity tool faces
  - Inclination
  - Azimuth
  - Gamma (Directional & 360°) and annulus pressure
- Electronic design eliminates mechanical parts
- Does not require pump pressure
- Data output in standard WITS format
- Can be used with a variety of tubular sizes
- EM MWD will work in a variety of fluid conditions such as
  - Aerated mud
  - While pumping lost circulation material
  - High volumes of lost circulation material

Sensor Specifications

Parameter	Range	Resolution	Accuracy
Inclination	0-180°	0.05°	+/- 0.2°
Azimuth	0-360°	0.18°	+/-1.0°
Tool Face	0-360°	0.18°	+/-1.5°
Dip Angle	0- +/-90°	0.1°	+/0.2°
Mag Field	0-70,000 gamma	100	+/-200
Gamma Ray	2000 cps	1 cps	+/-1
Annular Pressure	0-15,000 psi	1 to 8 psi depending upon selected full-scale range (6.89 to 55.15 kPa)	1% Selected FSR
Temperature	-20 -150°C (-4-302°F)	0.07°C (1°F)	+/-1.0°
Total Vibration	0-50 grms	0.01 grms	+/-0.5 grms

www.pinpointdrill.com

2221 Old Eccles Road PO Box 49 Eccles, WV 25836 (304) 929-4288

U.S Department of Labor

Mine Safety and Health Administration
100 Bluestone Road
Mount Hope, WV 25880-1000

Official Business
Penalty for private Use, $300

$0.48 0
US POSTAGE
FIRST-CLASS
062S0008326989
25880

Mr Steve Toler, Safety Director
ICG Beckley LLC
PO Box 49
Eccles WV 25836

Received
12/1/2014

25880$0049 B001

RECEIVED
Office of Oil and Gas
JAN 01 2015
WV Department of
Environmental Protection

01/30/2015

8101422CP

8101422 C P

CO 1-5A
API 47-081-01422
Plugging Procedure

ARP Mountaineer Production, LLC proposes to plug the CO 1-5A with expanding cement and bentonite gel. The procedure is as follows:

- The rods, pump, and tubing will be removed from the well.
- A 6" inflatable bridge plug will be run on tubing and placed in the curve of this articulate well at 925', or as deep as reasonably achievable into the curve.
- An expandable cement plug will be set from the inflatable bridge plug to at least 100' above that point
- After a minimum of 4 hours, the cement plug will be tagged with tubing to verify that it is at least 100' above the inflatable bridge plug. If necessary, additional cement will be added.
- A 6% bentonite gel slurry will be placed through tubing from the top of cement to 100' from surface.
- Expanding cement will be placed through tubing from 100' to surface and a permanent marker will be installed

OK
gww

01/30/2015

WR-35

I # 47-081-01422 C P

State of West Virginia
Division of Environmental Protection
Section of Oil & Gas

Well Operator's Report of Well Work

Farm name: Crab Orchard Coal and Land Company Operator Well No: CO-1-5A

Location: Elevation: 2306.03 Quadrangle: Eccles

District: Trap Hill County: Raleigh

Latitude: 7823 Feet South of 37 Deg. 47 Min. 30 Sec.
Longitude: 2122 Feet West of 81 Deg. 15 Min. 00 Sec.

Company: CDX Gas, LLC
P.O. Box 609
Pineville, WV 24874

Agent: Michael McCown

Inspector: Terry Urban
Permit Issued: 1/10/07
Well Work commenced: 2/15/07
Well Work completed: 3/21/07
Verbal plugging
Permission granted on:
Rotary x Cable _____ Rig
Total depth (ft) 942'
Fresh water depths (ft) N/A
Salt water depths (ft) N/A
Is coal being mined in the area (Y/N)? Y
Coal depths (ft): 405', 496', 938'

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill up
20"	12'	12'	15 Sks
13 3/8"	355'	355'	255 Sks
9 5/8"	616'	616'	245 Sks
7"	708'	708'	180 Sks

OPEN FLOW DATA

Producing formation Non Producer Pay zone depth (ft)
Gas: Initial open flow N/A Mcf/d Oil: Initial open flow ____ Bbl/d
Final open flow N/A 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 SYSTEMATICK DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Steven Pauley
For: CDX Gas, LLC
By: _____
Date: 8-20-07

HLK

01/30/2015

Op. .or: CO-1-5A
API No. 47- 081-1422 C P
Location: Raleigh County

Details of Perforated Intervals, Fracturing or Stimulation, Physical Change, Etc.

N/A

Well Log & Geologic Record - Depths from G.L.

Formation	Top	Bottom
Shale	0	148
Sandstone	148	208
Shale	208	373
Sandstone	373	405
Coal	405	406
Sandstone	406	428
Shale	428	496
Coal	496	497
Shale	497	566
Sandstone	566	618
Shale	618	878
Sandstone	878	928
Shale	928	938
Coal	938	942

01/30/2015

OO&G

81 01422 P

2-18-07 Set 355' GL 13 3/8 Void at 293 Basket Set at 220 Ft
1255k on Bottom 26 BBL Grouted 6 BBL Waited 1 hr Fill to Surface
with 22 BBL cmt

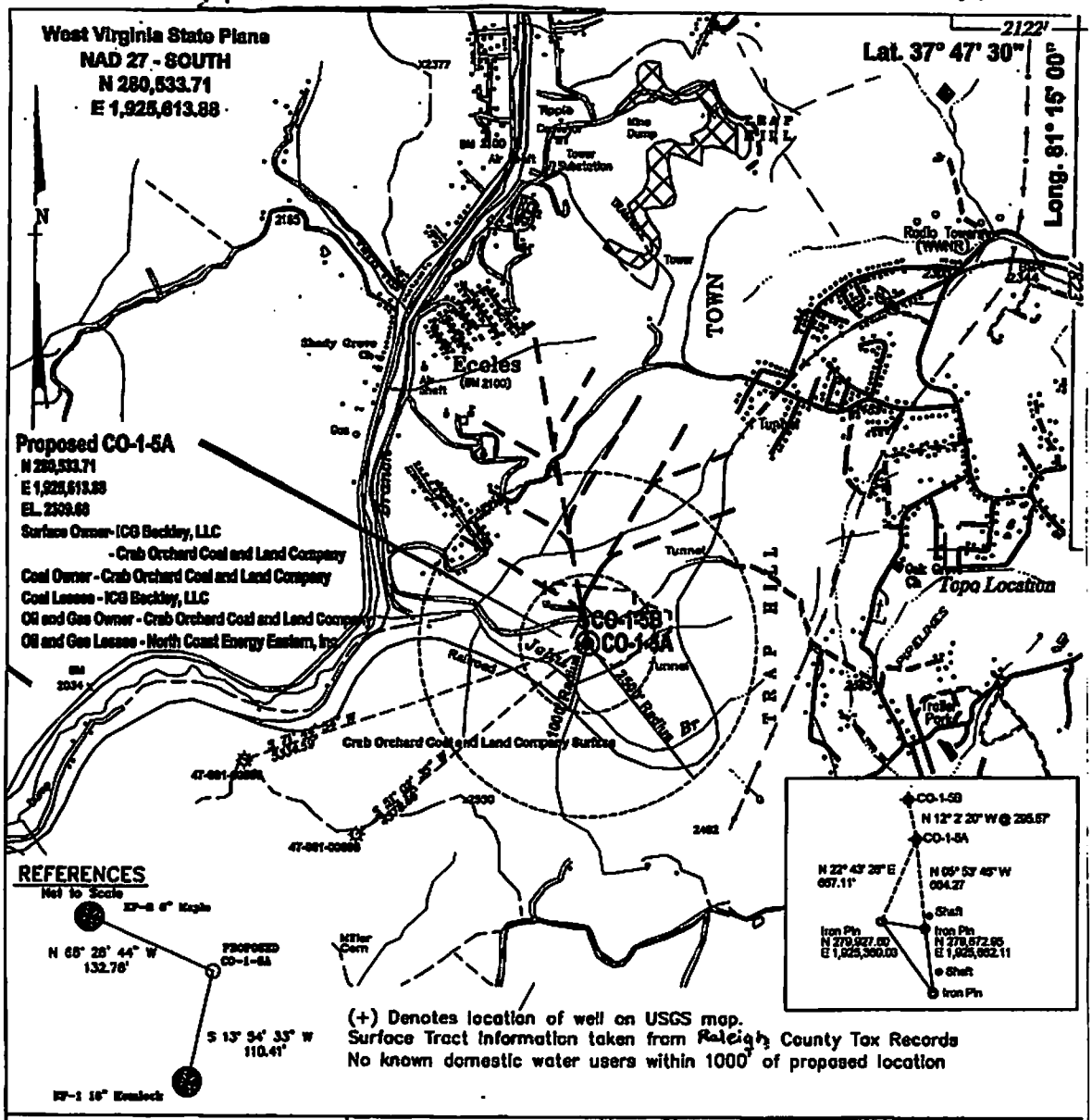
2-21-07 Set 9 5/8 Csg mine String 8 BBL on Bottom
Basket at 1961 Ft pumped 5 BBL on Basket waited 2 hr then pumped
35 BBL to surface & Staged --- good text book job

2-22-07 Set

4-10-07 Treating Pit Today

PINNATE CBM PATTERN

8101422 C P



(+) Denotes location of well on USGS map.
Surface Tract Information taken from Raleigh County Tax Records
No known domestic water users within 1000' of proposed location

FILE No. CDX Gas
DIRECTORY C:\Data\Plats\ICG
DRAWING NAME CO-1-5A.dwg
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1 : 2500
PROVEN SOURCE OF ELEVATION GPS GLOBAL POSITIONING SYSTEM (Sub meter accuracy)

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 MINES.

(SIGNED) _____

R.P.E. _____ R.L.S. 1065

JOHN E. CAFFREY LICENSED No. 1065 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
CHARLESTON, WV

DATE DECEMBER 20 2008
OPERATOR'S WELL No. CO-1-5A

API WELL No. 47 - 081 - 1422-C
STATE COUNTY PERMIT

WELL TYPE: OIL__ GAS X LIQUID INJECTION__ WASTE DISPOSAL__
(IF "GAS") PRODUCTION__ X STORAGE__ DEEP__ SHALLOW__ CBM X
LOCATION: ELEVATION 2309.69 WATER SHED JEHU BRANCH OF MILLERS CAMP BRANCH
DISTRICT TRAP HILL COUNTY RALEIGH
QUADRANGLE ECCLES, WV
SURFACE OWNER ICG BECKLEY, LLC ACREAGE 18.80 (Tax Map 16 Parcel 5.2)
ROYALTY OWNER CRAB ORCHARD COAL AND LAND COMPANY LEASE ACREAGE
LEASE No.
PROPOSED WORK: DRILL X CONVERT__ DRILL DEEPER__ REDRILL__ FRACTURE OR STIMULATE__ PLUG OFF OLD FORMATION__ PERFORATE NEW FORMATION __ OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
PLUG AND ABANDON __ CLEAN OUT AND REPLUG __
TARGET FORMATION POCA NO. 2 & 3 AND PENN COALS ESTIMATED DEPTH 1050'
WELL OPERATOR CDX Gas, LLC DESIGNATED AGENT MICHEAL McCOWN
ADDRESS 101 N. KANAWHA ST. ADDRESS 503 QUARRIER ST. SUITE 400
BECKLEY, WV 25801 CHARLESTON, WV 25301

01/30/2015

8101422C P

COORDINATES FOR PINNATE BOTTOM HOLES.

LEG #	NORTHING	EASTING		
1	280,951	1,925,521	*STATE PLANE COORDINATE SYSTEM	
1	282,087	1,923,817	NAD 27 - WV SOUTH ZONE	
2	281,869	1,925,334		
2	282,766	1,924,106		
3	282,936	1,925,144		
3	283,727	1,924,028		
4	283,179	1,925,073		
4	284,930	1,924,696		
5	283,179	1,925,073		
5	284,297	1,925,489		
6	281,816	1,925,342		
6	284,119	1,926,323		
7	281,755	1,925,819		
7	283,741	1,926,996		
8	281,075	1,925,498		
8	282,418	1,927,590		
9	281,026	1,925,506		
9	281,941	1,926,254		
TRUNK	280,528	1,925,612		
TRUNK	283,179	1,925,073		

01/30/2015

8101422C P

WW-4A
Revised 6-07

1) Date: December 10, 2014
2) Operator's Well Number
CO-1-5A

3) API Well No.: 47 - 81 - 01422

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: Crab Orchard Coal & Land
Address: P.O. Box 443
Charleston, WV 25322
(b) Name:
Address:
(c) Name:
Address:

6) Inspector: Gary Kennedy
Address: P.O. Box 268
Nimitz, WV 25978
Telephone: 304-382-8402

5) (a) Coal Operator
Name: ICG Beckley, LLC (Attn: Steve Hatfield)
Address: P.O. Box 49
Eccles, WV 25836
(b) Coal Owner(s) with Declaration
Name: Crab Orchard Coal & Land
Address: P.O. Box 443
Charleston, WV 25322
Name:
Address:
(c) Coal Lessee with Declaration
Name: ICG Beckley, LLC (Attn: Steve Hatfield)
Address: P.O. Box 49
Eccles, WV 25836

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.

RECEIVED
Office of Oil and Gas
JAN 02 2015
WV Department of
Environmental Protection

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: ARP Mountaineer Production, LLC
By: Carla L. Suszkowski Carla Suszkowski
Its: Director of Environmental and Regulatory Affairs
Address:
Telephone:

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Jacqueline D. Zarnich, Notary Public
Findlay Twp., Allegheny County
My Commission Expires June 2, 2015
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Subscribed and sworn before me this 29th day of December 2014
Jacqueline D. Zarnich Jacqueline D. Zarnich Notary Public
My Commission Expires June 2, 2015

Oil and Gas Privacy Notice

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

01/30/2015

8101422CP

Atlas Energy, Inc.

7011 2000 0000 8484 2953

CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®
CHARLESTON WV 25322

OFFICIAL USE

Postage	$ $1.61	0716
Certified Fee	$3.30	12
Return Receipt Fee (Endorsement Required)	$2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $7.61	12/30/2014

Sent To: Crab Orchard Coal + Land
Street, Apt. No.; or PO Box No.: P.O. Box 443
City, State, ZIP+4: Charleston WV 25322

PS Form 3800, August 2006 — See Reverse for Instructions

December 29, 2014

Crab Orchard Coal and Land
P.O. Box 443,
Charleston, WV 25322

RE: Plug and Abandon Crab Orchard 1-5B & 1-5A Wells
Raleigh County, West Virginia

To whom it may concern:

In preparation for plugging the Crab Orchard 1-5B (API # 47-081-01423) and Crab Orchard 1-5A (API # 41-081-01422) vertical coalbed methane wells, you are receiving this notice because you have been identified as a land owner and/or coal owner/lessee/operator, within the notification radius of the above mentioned well. Details of the plugging plan may be found in the enclosed plugging permit application.

If you should have any questions or concerns regarding this matter, please feel free to contact me at (865) 457-6844, ext. 106, or by email at kwishoun@atlasenergy.com.

Sincerely,

Keith Wishoun
Land Manager
Atlas Energy

RECEIVED
Office of Oil and Gas
JAN 02 2015
WV Department of
Environmental Protection

encl.

01/30/2015

8101422cP

Atlas Energy, Inc.

U.S. Postal Service
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ $1.61	0716
Certified Fee	$3.30	12
Return Receipt Fee (Endorsement Required)	$2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $7.61	12/30/2014

Sent To: ICG Beckley, LLC / Steve Hatfield
Street, Apt. No.; or PO Box No.: P.O. Box 49
City, State, ZIP+4: Eccles WV 25836

PS Form 3800, August 2006 — See Reverse for Instructions

7011 2000 0000 8484 2946

December 29, 2014

ICG Beckley, LLC
Attn: Steve Hatfield
2221 Old Eccles Road
P.O. Box 49,
Eccles WV, 25836

RE: Plug and Abandon Crab Orchard 1-5B & 1-5A Wells
Raleigh County, West Virginia

Mr. Hatfield:

In preparation for plugging the Crab Orchard 1-5B (API # 47-081-01423) and Crab Orchard 1-5A (API # 41-081-01422) vertical coalbed methane wells, you are receiving this notice because you have been identified as a land owner and/or coal owner/lessee/operator, within the notification radius of the above mentioned well. Details of the plugging plan may be found in the enclosed plugging permit application.

If you should have any questions or concerns regarding this matter, please feel free to contact me at (865) 457-6844, ext. 106, or by email at kwishoun@atlasenergy.com.

Sincerely,

Keith Wishoun
Land Manager
Atlas Energy

RECEIVED
Office of Oil and Gas
JAN 02 2015
WV Department of
Environmental Protection

encl.

01/30/2015

WW-9
Rev. 5/08

Page _____ of _____
API Number 47 - 81 - 01422
Operator's Well No. CO-1-5A

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 ARP Mountaineer Production, LLC OP Code _____

Watershed Jehu Branch of Millers Camp Branch Quadrangle Eccles

Elevation 2,307.50' County Raleigh District Trap Hill

Description of anticipated Pit Waste: Fresh Water, Produced Water, Bentonite, Cement

Will a synthetic liner be used in the pit? Open Top Tank. HK

ANY WELL EFFLUENT MUST BE DISPOSED OF PROPERLY. JMM

Proposed Disposal Method For Treated Pit Wastes:

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

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 Carla L Suszkowski

Company Official (Typed Name) Carla L. Suszkowski

Company Official Title Director of Environmental and Regulatory Affairs

Subscribed and sworn before me this 29th day of December, 2014

Jacqueline D. Zarnich Notory Public

My commission expires June 2, 2014

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Jacqueline D. Zarnich, Notary Public
Findlay Twp., Allegheny County
My Commission Expires June 2, 2015
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

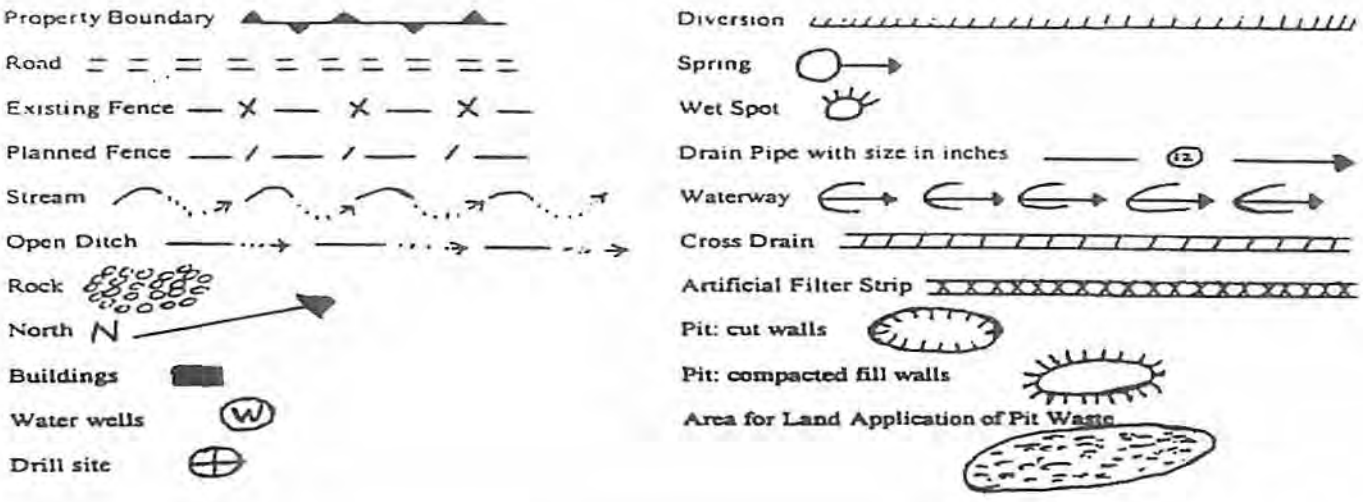
01/30/2015

8101422C P

Form WW-9

Operator's Well No. CO-1-5A

LEGEND



Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation pH 5-6.5

Lime 2 Tons/acre or to correct to pH 6

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

Mulch Hay / Straw Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue or Orchard Grass	40		
Annual Ryegrass	5		

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jimmy Kennedy

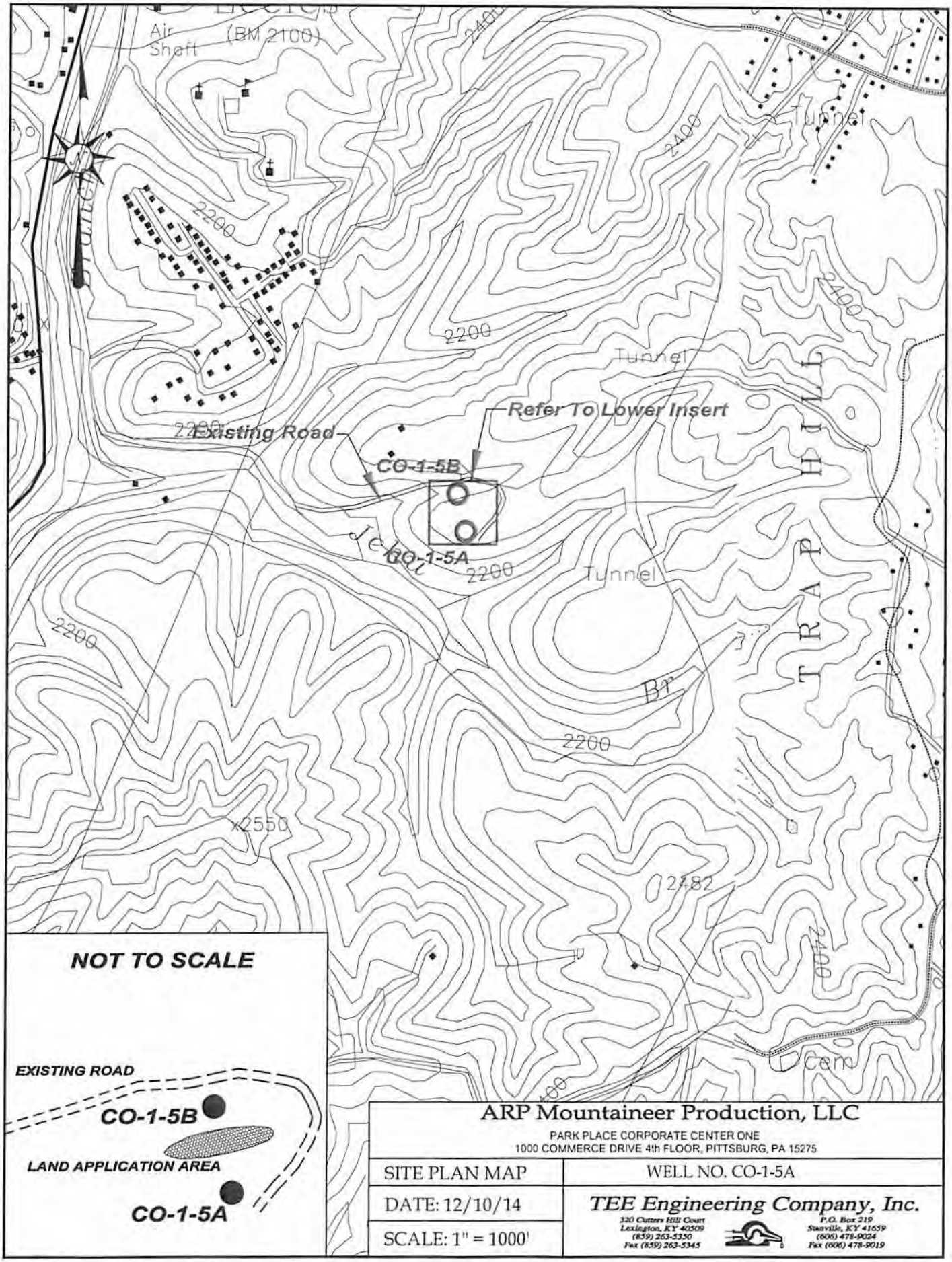
Comments:

Title: Inspector Date: 11/5/14

Field Reviewed? (_____) Yes (_____) No

01/30/2015

8101422C P

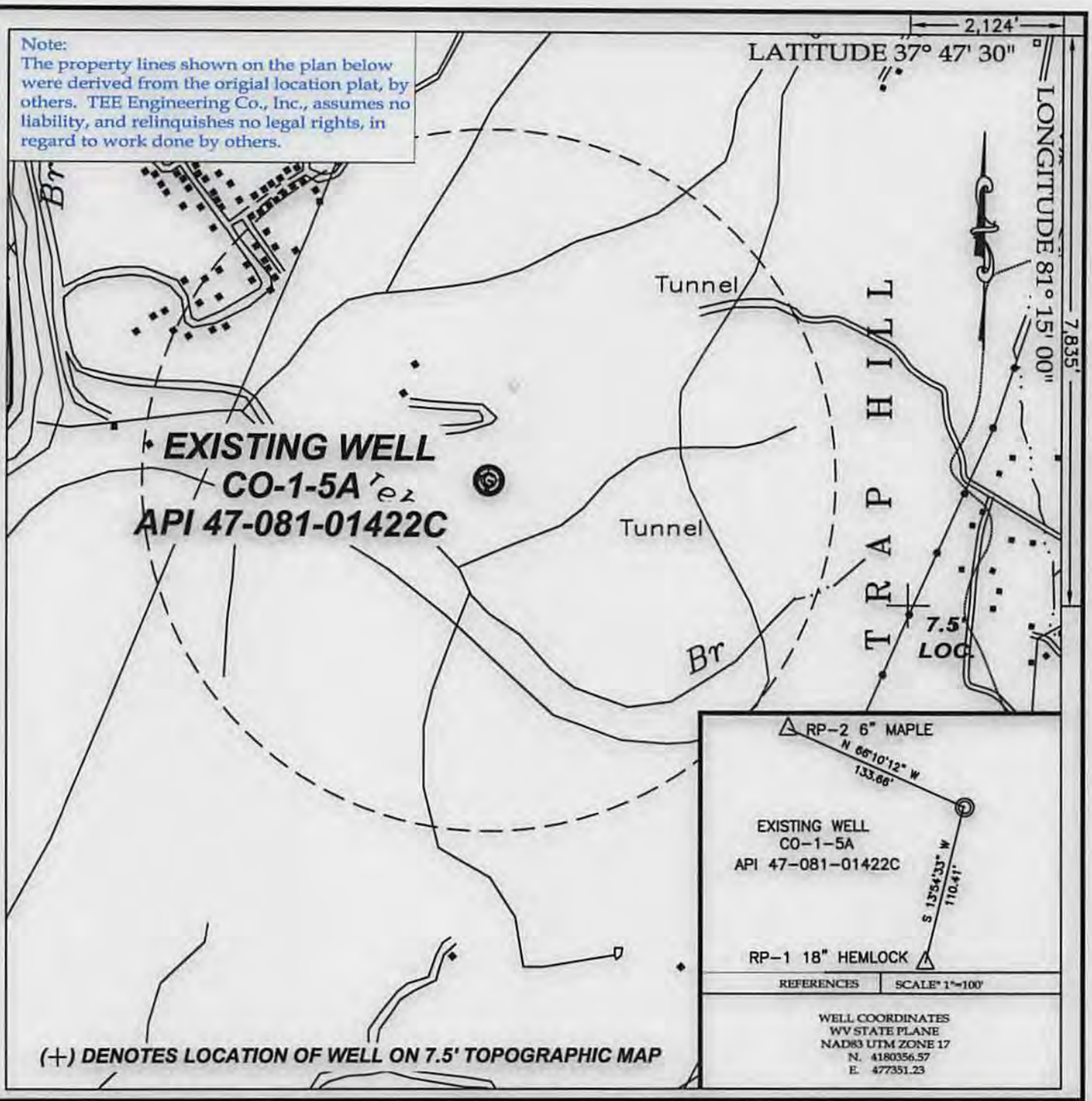


ARP Mountaineer Production, LLC

PARK PLACE CORPORATE CENTER ONE
1000 COMMERCE DRIVE 4th FLOOR, PITTSBURG, PA 15275

SITE PLAN MAP	WELL NO. CO-1-5A
DATE: 12/10/14	TEE Engineering Company, Inc.
SCALE: 1" = 1000'	320 Cutters Hill Court, Lexington, KY 40509, (859) 263-5250, Fax (859) 263-5345 / P.O. Box 219, Stanville, KY 41659, (606) 478-9024, Fax (606) 478-9019

01/30/2015



TEE Engineering Company, Inc.
P.O. BOX 219, STANVILLE, KY. 41659 PHONE: (606)478-9024
320 CUTTERS HILL COURT, LEXINGTON, KY. 40509 PHONE: (859)263-5350

ARP Mountaineer Production, LLC
Well No. CO-1-5A

FILE NO. 1883-00
DRAWING NO. CO-1-5A PLUGGING PLAT
SCALE: 1" = 1,000'
MIN. DEGREE OF ACCURACY 1 : 2,500
PROVEN SOURCE OF ELEVATION
GPS STATION TEC-1 (ELEV. 2406.60)

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 MINES.

(SIGNATURE)

R.P.E. _____ R.P.S. 1008

DON F. BLACKBURN LICENSED No. 1008 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(SEAL)

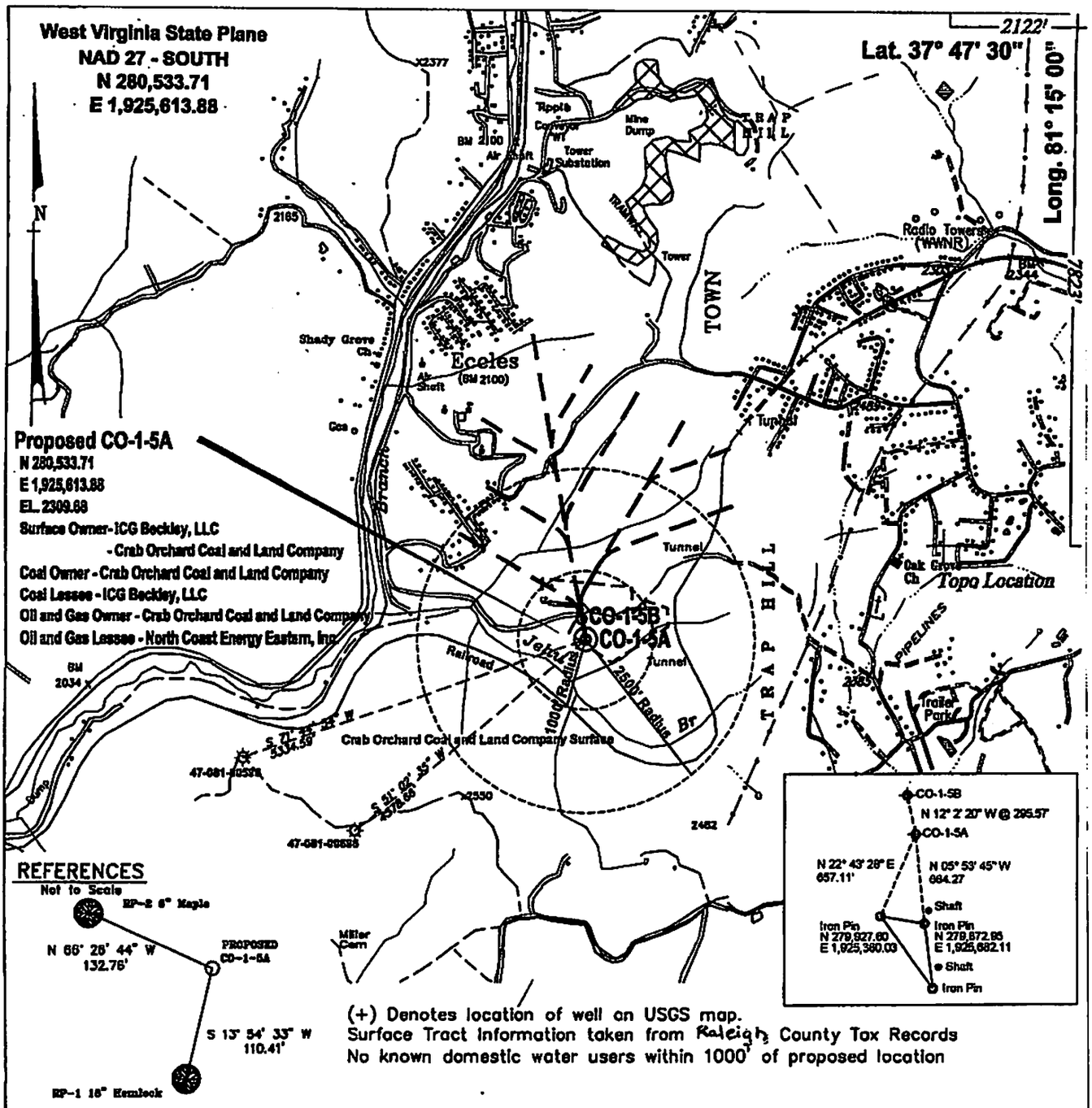
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

DATE DECEMBER 26, 2014
OPERATOR'S WELL NO. CO-1-5A
API WELL NO. 47 – 081 – 01422C P
STATE – COUNTY – PERMIT

WELL TYPE: OIL _____ GAS X CBM LIQUID INJECTION _____ WASTE DISPOSAL _____
(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___
LOCATION: ELEVATION 2,307.50' NORTHING 4180356.57 EASTING 477351.23 ZONE 17 NAD83 UTM
DISTRICT TRAP HILL WATER SHED JEHU BRANCH OF MILLERS CAMP BRANCH
QUADRANGLE ECCLES COUNTY RALEIGH
SURFACE OWNER CRAB ORCHARD COAL & LAND COMPANY ACREAGE 18.80
CBM ROYALTY OWNER CRAB ORCHARD COAL & LAND COMPANY LEASE ACREAGE _____
LEASE NO. _____
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PEFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
PLUG AND ABANDON X CLEAN OUT AND REPLUG ___
TARGET FORMATION POCAHONTAS 2,3 & PENN COALS ESTIMATED DEPTH 1,050'
WELL OPERATOR ARP MOUNTAINEER PRODUCTION, LLC DESIGNATED AGENT CT CORPORATION SYSTEM
ADDRESS PARK PLACE CORPORATE CENTER ONE ADDRESS 5400 D BIG TYLER ROAD
1000 COMMERCE DRIVE 4th FLOOR, PITTSBURG, PA 15275 CHARLESTON, WV 25313

01/30/2015

8101422C P



(+) Denotes location of well on USGS map.
Surface Tract Information taken from Raleigh County Tax Records
No known domestic water users within 1000' of proposed location

FILE No. CDX Gas
DIRECTORY C:\Data\Plats\ICG
DRAWING NAME CO-1-5A.dwg
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1 : 2500
PROVEN SOURCE OF ELEVATION GPS GLOBAL POSITIONING SYSTEM (Sub meter accuracy)

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 MINES.

(SIGNED) _____ R.P.E. _____ R.P.L. 1065

JOHN E. CAFFREY LICENSED No. 1065 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
CHARLESTON, WV

DATE DECEMBER 20 2006
OPERATOR'S WELL No. CO-1-5A

API WELL No. 47 - 081 - 1422-CP
STATE COUNTY PERMIT

WELL TYPE: OIL__ GAS X LIQUID INJECTION__ WASTE DISPOSAL__
(IF "GAS") PRODUCTION__ X STORAGE__ DEEP__ SHALLOW__ CBM__ X
LOCATION: ELEVATION 2309.68 WATER SHED JEHU BRANCH OF MILLERS CAMP BRANCH
DISTRICT TRAP HILL COUNTY RALEIGH
QUADRANGLE ECCLES, WV
SURFACE OWNER ICG BECKLEY, LLC ACREAGE 18.80 (Tax Map 16 Parcel 5.2)
ROYALTY OWNER CRAB ORCHARD COAL AND LAND COMPANY LEASE ACREAGE
LEASE No.
PROPOSED WORK: DRILL X CONVERT__ DRILL DEEPER__ REDRILL__ FRACTURE OR STIMULATE__ PLUG OFF OLD FORMATION__ PERFORATE NEW FORMATION __ OTHER PHYSICAL CHANGE IN WELL (SPECIFY)

01/30/2015

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION POCA NO. 2 & 3 AND PENN COALS ESTIMATED DEPTH 1050'
WELL OPERATOR CDX Gas, LLC DESIGNATED AGENT MICHEAL McCOWN
ADDRESS 101 N. KANAWHA ST. ADDRESS 803 QUARRIER ST. SUITE 400
BECKLEY, WV 25801 CHARLESTON, WV 25301

F:\Data\CO-1-5A_1.dwg, 12/21/2006 8:23:37 AM, USER