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**west virginia** department of environmental protection

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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

July 17, 2015

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-4104758, issued to DOMINION TRANSMISSION INC, 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 penalties 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: F-5891-A  
Farm Name: HITT, DAVID & MARY  
**API Well Number: 47-4104758**  
**Permit Type: Plugging**  
Date Issued: 07/17/2015

**Promoting a healthy environment.**

**07/17/2015**

## 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

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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.

4104758P



**Dominion**<sup>SM</sup>

Dominion Transmission, Inc.  
445 West Main Street, Clarksburg, WV 26301  
Mailing Address: P.O. Box 2450  
Clarksburg, WV 26302-2450  
May 21, 2015

**By U.S. Mail, Certified Delivery**

7160 3901 9846 3216 4891

WV DEP - Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304-2345

To the Office of Oil & Gas,

Enclosed is a plugging permit application for Dominion Transmission, Inc. (DTI) well number F-5891-A (API #: 47-041-04758). F-5891-A is a production well which was originally drilled and completed in 1905, by South Penn Oil Company. The well was plugged & abandoned in 1936, by South Penn Oil Company.

Through a series of acquisitions and mergers, the lease on which this well is located was acquired by DTI. A form WW-2A1 has been included with this permit application. Although not required for a plugging permit application, due to the nature of the well, it has been included to provide evidence of chain of title and, therefore, DTI's ownership of this well.

The lease on which the well sets is currently utilized by DTI for natural gas storage. This well is located in an active section of DTI's Fink storage reservoir. While the area is being used for natural gas storage, the well was only utilized for production purposes and was plugged & abandoned years prior to natural gas storage operations commencing.

Regardless of the history of this well, the fact remains that the wellbore still penetrates the active gas storage horizon (Gantz sandstone). This, coupled with the limited records available for this well and the nature of plugging practices utilized in the early part of the 20<sup>th</sup> century, has led DTI to identify this well as an area of concern for storage reservoir integrity. As such, this well has been selected as a candidate for remediation. To summarize DTI's plan, the intent is to clean out this well and plug & abandon it to modern standards. At the completion of the planned remedial work, the well will retain its plugged & abandoned status. The work procedures are included in the enclosed permit application filing.

Should you have any questions or comments, please contact me by means of the information listed below.

Sincerely,

Jason E. Bach, PG  
(E): [jason.e.bach@dom.com](mailto:jason.e.bach@dom.com)  
(M): 304.669.4850

Received  
Office of Oil & Gas  
JUN 11 2015

07/17/2015

410 4758A

WW-4B  
Rev. 2/01

1) Date March 23, 2015  
2) Operator's  
Well No. F-5891-A  
3) API Well No. 47-041 - 04758

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 1075.4 Watershed Smoke Camp Run of Right Fork of Freemans CK  
District Freeman's Creek County Lewis Quadrangle Camden

6) Well Operator Dominion Transmission, Inc. 7) Designated Agent John M. Love  
Address 445 West Main Street Address 445 West Main Street  
Clarksburg, WV 26301 Clarksburg, WV 26301

8) Oil and Gas Inspector to be notified Name Barry Stollings  
Address 28 Conifer Drive  
Bridgeport, WV 26330  
9) Plugging Contractor Name TO BE DETERMINED AT LATER DATE  
Address \_\_\_\_\_

10) Work Order: The work order for the manner of plugging this well is as follows:  
Prepare the site, in anticipation of plugging operations. Set cellar. Set 16" conductor at a point below offset creek depth. Clean out well to approximately 335'. Set 10-3/4" surface casing at approximately 320' and cement to surface with Class A cement blends. Clean well out to a point below the Gantz. Plug the well to surface with Class A cement blends. Erect well monument. Reclaim location.

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

Work order approved by inspector Barry Stollings Date 5-4-15

07/17/2015

**F-5891-A**

2015

**Redrill and Plug & Abandon**

1. File for and receive all necessary regulatory permits.
2. Build road and location for plugging rig. Build and line earth pit, if an earth pit is necessary.
3. Previous excavation showed 7" casing setting in well at surface. Further excavation and exploration of this casing will be necessary.
4. Set 16" conductor with excavator (attempt to get below creek level) and grout with cement slurry.
5. Dig in steel cellar. Line cellar bottom with dry bentonite gel and cement slurry.
6. MIRU service rig and auxiliary equipment.
7. N/U XO flange and/or air bowl/flow nipple.
8. Clean out the existing wellbore to approximately 320' with a bentonite gel mud system. Hole size required is 14-3/4".
9. Run 10-3/4" casing and attempt to cement to surface w/ Class A cement blend(s).
10. WOC a minimum of 8 hours.
11. N/U XO flange, 11", 5M double rams and/or annular preventer. Pressure test the well control equipment to maximum anticipated surface pressure, based on current storage field pressure.
12. Clean out wellbore to below the Gantz storage horizon, using a gel or polymer fluid system.
13. Open hole logging will depend on hole stability and wellbore conditions. At a minimum, a caliper log is desired.
14. TIH with drill string, open ended, to as near the deepest achieved depth as possible.
15. Plug the well with Class A cement blend(s), in  $\pm 500'$  lifts, to surface.
16. Top off the well with Portland cement.
17. RDMO service rig and auxiliary equipment.
18. Erect well monument as prescribed by state law.
19. Reclaim location.
20. File all necessary paperwork with regulatory agencies.

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4104758P

Well # F-5891-A

Old Permit # LEW-106

Original Elev 1079.5'

Plugging record from the WVDEP archive on microfilm (Jim Harry 05/02/2003).

Casing	Depth Set	Depth Cut/Pulled
10"	290	290
8 1/4"	1144	632
6 5/8"	1912	1685

Plug Type	Top	Bottom
Non Porous Material	Surface	263
Cement	263	327
Bridge	327	502
Cement	502	512
Wood	512	515
Clay	515	815
Bridge	815	1079
Cement	1079	1089
Wood	1089	1092
Clay	1092	1560
Bridge	1560	1677
Cement	1677	1687
Wood	1687	1690
Non Porous Material	1690	1917
Cement	1917	1927
Wood	1927	1930
Fill	1930	2130
Bridge	2130	2325
Cement	2325	2335
Wood	2335	2338
Clay	2338	2420
Bridge	2420	2557
Cement	2557	2567
Wood	2567	2570
Non Porous Material	2570	2613

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Well No.	FORMATION	TOP	BOTTOM	GAS	OIL	REMARKS
F-5891-A						
	High Coal	283	287			
	L. Dunkard Sand					
	B. Dunkard Sand					
	C. Sand	1000	1110			W 1112
	Cow Run Sand					
	1st Silt Sand					
	2nd Silt Sand					
	3rd Silt Sand					
	Maxon Sand					
	Lingo lime					
	Bite Monday					
	Big Pine	1740	1802			
	B. Ingham Sand	1802	1973			
	Squaw Sand					
	Wear Sand					
	Berens Sand					
	Quartz Sand			2100		
	50' Sand					
	30' Sand	2275	2295			
	Gray Stray Sand	2338	2390			
	Green Sand	2395	2443	Sh Gas		
	4th Sand					
	5th Sand	2600				
	Hayward Sand					
	Horribath Sand					
	Superior Sand					
	Blue Sand					
	Beason Sand					
	T.D.		2613			

Elev. 1079.35 **OUTSIDE WELLS** Well No. F-5891-A  
**COMPLETION REPORT** F-5891-A  
 Quad \_\_\_\_\_ Sand Map No. \_\_\_\_\_  
 Dist. \_\_\_\_\_ Map \_\_\_\_\_ N \_\_\_\_\_ S \_\_\_\_\_ E \_\_\_\_\_ W \_\_\_\_\_  
 Farm C. A. Straley #1  
 Operator South Penn Oil Co.  
 Dist. Freemans Creek County Lewis State W. Va.  
 Commenced \_\_\_\_\_ Completed 1-20-05 Depth 2613

OPEN FLOW TEST

DATE	ROCK PRESS	VOLUME	SAND

ADD. TO 7-36 CASING AND TUBING

Good Record	SIZE	AMOUNT	SIZE	AMOUNT
	10	290	6 5/8	1912
	8 1/11	1111		

Form 1146 AM 5-55

WW-4A  
Revised 6-07

Money Order  
177 1886 742  
100.00

4104758P

1) Date: March 23, 2015  
2) Operator's Well Number  
F-5891-A  
3) API Well No.: 47 - 041 - 04758

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

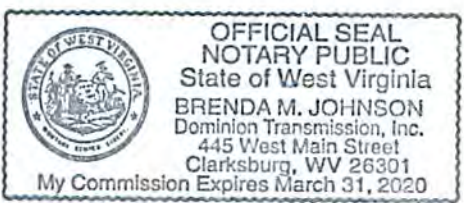
4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>David Neil &amp; Mary Jo Hitt</u>	Name <u>Western Pocahontas Properties</u>
Address <u>471 Smoke Camp Road</u>	Address <u>5260 Irwin Road</u>
<u>Weston, WV 26452</u>	<u>Huntington, WV 25705-3247</u>
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name _____
(c) Name _____	Address _____
Address _____	Name _____
(6) Inspector _____	(c) Coal Lessee with Declaration
Address _____	Name _____
Telephone _____	Address _____

**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.



Well Operator Dominion Transmission, Inc.

By: John M. Love

Its: Designated Agent

Address 445 West Main Street  
Clarksburg, WV 26301

Telephone 304.476.2156 (Chris Barclay) christopher.d.barclay@dom

*[Handwritten Signature]*

Received  
Office of Oil & Gas

Subscribed and sworn before me this 20th day of May, 2015  
Brenda M. Johnson Notary Public  
My Commission Expires March 31, 2020

JUN 11 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 [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

07/17/2015



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 Dominion Transmission, Inc. OP Code 307048

Watershed Smoke Camp Run of Right Fork of Freeman's Creek Quadrangle Camden, WV 7.5'

Elevation 1075.4' County Lewis District Freeman's Creek

Description of anticipated Pit Waste: Cement returns and plug material removed from well

Will a synthetic liner be used in the pit? Yes ZOMIL

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)
- Other (Explain \_\_\_\_\_ )

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain Cement returns and plug material removed from well during cleanout operations)
- Swabbing
- Plugging

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

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

Company Official Signature [Handwritten Signature]

Company Official (Typed Name) John M. Love

Company Official Title Designated Agent & Director - Gas Storage & Land Services

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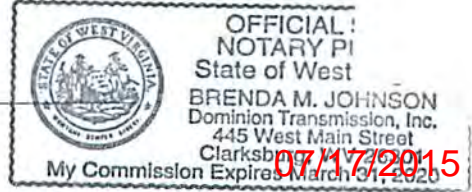
Subscribed and sworn before me this 20th day of May, 2015

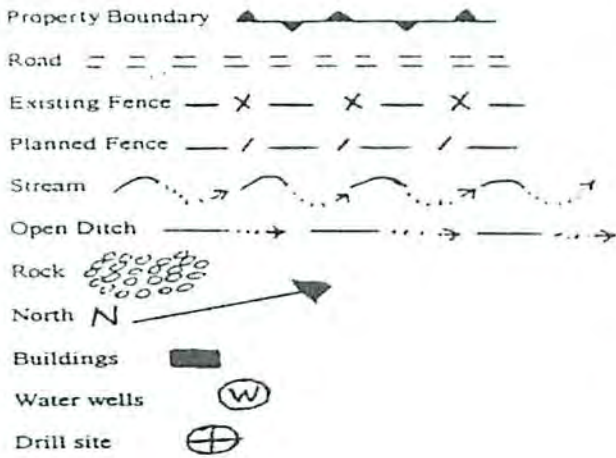
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Brenda M. Johnson

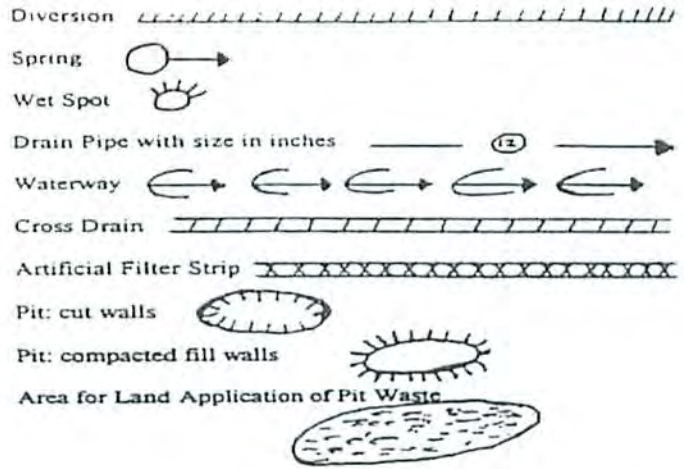
Notary Public

My commission expires March 31, 2020





LEGEND



Proposed Revegetation Treatment: Acres Disturbed 1.75 Prevegetation pH \_\_\_\_\_

Lime 300 Tons/acre or to correct to pH 6.5

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

Mulch Hay or straw @ 2.5 Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Meadow Mix	50	Meadow Mix	50

Note - Reclamation area listed is 1.75 acres. This differs from the planned disturbed area listed on the site plan, of 0.85 acres. This is due to the reclamation plan showing a combination of total acreages planned to be seeded and mulched, both during construction, well work, and reclamation activities.

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

Photocopied section of involved 7.5' topographic sheet.

Site plan (including road, location, and pit) & USGS quad section (Camden, WV 7.5') attached

Plan Approved by: Barry Seltzer

Comments: \_\_\_\_\_

Title: inspector

Date: 5-4-15

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Field Reviewed? (  ) Yes (  ) No

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# Dominion Transmission, Inc.

Project: *F-5891-A*

## Coal Evaluation Report

### BACKGROUND

The West Virginia Geological and Economic Survey Coal Bed Map Program (WVGES CBMP) was utilized to determine the presence, depth, and thicknesses of coal seams within the immediate vicinity of Dominion Transmission, Inc. (DTI) well F-5891-A (47-041-04758), in Lewis County, WV. The following is a report on the findings of this review.

Due to the location of the well, in north central West Virginia, four coal groups were selected for review: Conemaugh, Allegheny, Monongahela, and Dunkard Groups.

### COAL GROUPS

#### *CONEMAUGH & ALLEGHENY GROUPS*

All mapping indicates that the Conemaugh and Allegheny not found in this part of Lewis County. Both groups either terminate several miles to the east or several counties to the south of the well location. Therefore, all members of the Conemaugh and Allegheny Groups were eliminated as zones of concern for the planned well work.

#### *MONOGAHELA GROUP*

With the two lower groups eliminated, the next group reviewed was the Monongahela Group. The lowest member is the Pittsburgh coal. Mapping indicates that the coal elevation is approximately 800' ASL. Given the elevation of the well location is 1075.4' ASL, this would place the coal at an approximate depth of 275' below GL. The well records indicate that a coal seam was encountered when the well was drilled, at a depth of 283' below GL. Allowing for a slight depth discrepancy between well records and map data, most likely due to zeroing point variances and map estimation tolerances, the coal listed in the well record is the Pittsburgh coal.

The map records also indicated that the Pittsburgh coal, in the vicinity of the well, had a thickness of at least 30", but no more than 42". The well records indicate the coal thickness encounter during drilling was 48". This is slightly thicker than what is indicated on the mapping data, which may be due to thickness estimation made during drilling or map estimation

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tolerances. Whatever the reason for the discrepancy, the coal thickness indicated on the map is similar to the thickness indicated in the drilling records. This further indicates that the coal recorded during drilling was the Pittsburgh coal.

The next member of the Monongahela Group reviewed was the Redstone coal. Mapping indicates that the coal elevation is approximately 860' ASL. Given the elevation of the well is 1075.4' ASL, this would place the coal at an approximate depth of 215' below GL. The map data also indicates that the Redstone coal has an approximate thickness of 0" - 6" at this location. The well records do not indicate any coal having been drilled at the mapped depth. For these reasons, it is most likely that the Redstone coal is either nonexistent or very poorly developed at this location.

The next member of the Monongahela Group reviewed was the Sewickley coal. Mapping indicates that the coal elevation is approximately 910' ASL. Given the elevation of the well is 1075.4' ASL, this would place the coal at an approximate depth of 165' below GL. The map data also indicates that the Redstone coal has an approximate thickness of 0" at this location. The well records do not indicate any coal having been drilled at the mapped depth. For these reasons, it is most likely that the Redstone coal is either nonexistent or very poorly developed at this location.

The next member of the Monongahela Group reviewed was the Uniontown coal. Mapping indicates that the coal elevation is approximately 1090' ASL. Given the elevation of the well is 1075.4' ASL, this would place the coal at an approximate depth of 15' above GL. Although the map data indicates that the Uniontown coal has an approximate thickness of 18" - 24" at this location, the thickness is irrelevant to this project. Given the height of the coal seam above GL, this coal is not of concern to the well work operations planned for this well.

#### ***DUNKARD GROUP***

The two members of the Dunkard Group are the Waynesburg A and Washington coals. Mapping indicates that these coals extend into the area in which this well is located. The lower member, the Waynesburg A, has an elevation of approximately 1180' ASL. Given the elevation of the well is 1075.4' ASL, this would place the coal at an approximate depth of 105' above GL. The map data also indicates that the Waynesburg A coal has an approximate thickness 0" at this location, the thickness is irrelevant to this project. Given the height of the coal seam above GL, this coal is not of concern to the well work operations planned for this well.

With the Washington coal is located stratigraphically above the Waynesburg A coal. With the bedding of the formations exposed at this location being normal and essentially horizontal, the Washington coal has been eliminated as a zone of concern for the planned well work.

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**CONCLUSION**

Based on the findings of this report, the only coal seam of concern, related to this well work, is a single member of the Monongahela Group: the Pittsburgh coal. No other developed coals, within the vicinity of the well and in the subsurface area of the planned well work, have been determined to exist. Therefore, surface casing for this well is planned to be set in accordance with state regulations and in regards to the depth of the Pittsburgh coal seam. Furthermore, plugging activities will also take into consideration the depth of the Pittsburgh coal seam, with plugging operations being planned to be done in accordance with state regulation.

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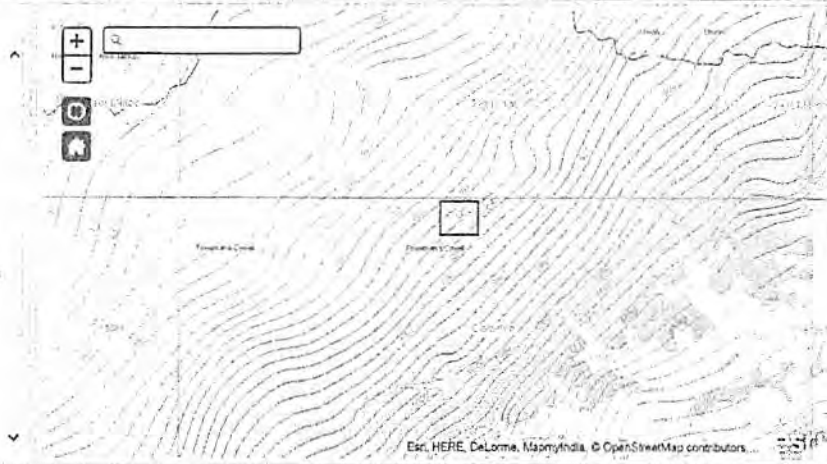
# Pittsburgh Coal

Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

- Layer/Legend Tools Info
- State Boundary
  - Pittsburgh Coal
    - Coal Bed Boundaries
      - Acoustic Data Contour
      - Coal Outcrop
      - Coal Outcrop
      - Coal Outcrop
      - Coal Outcrop
      - Final Map Extent
      - Stratigraphic Termination
      - Temporary Map Extent
    - Underground Mine Labels/Outlines
    - Mined and Remaining Coal
    - Coal Elevation
      - Coal Elevation Measures
      - Structural Contours
      - Coal Elevation
    - Total Bed Thickness
    - Net Coal Thickness
    - Percent Parting
    - Overburden



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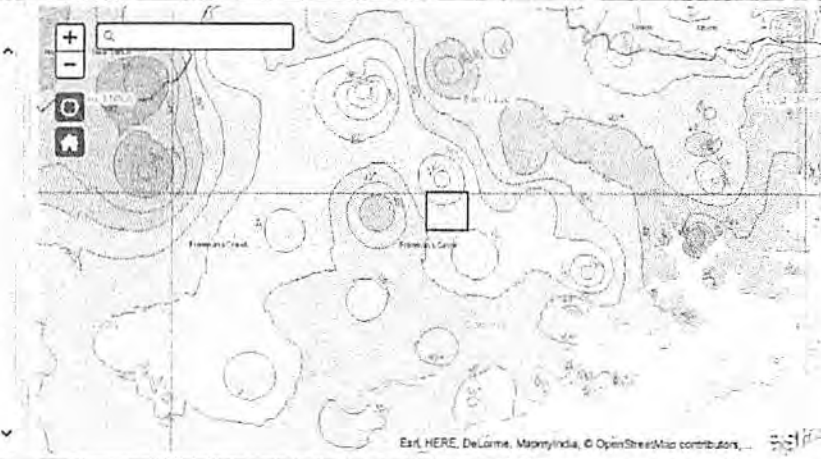
# Pittsburgh Coal

## Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

- Layer/Legend Tools Info
- Counties
  - County Labels
  - Planning & Development Regions
  - State Boundary
  - Pittsburgh Coal
    - Coal Bed Boundaries
      - Acquire Data Control
      - Coal Outcrop
      - Coal Outcrop
      - Coal Outcrop
      - Final Map Extent
      - Stratigraphic Termination
      - Temporary Map Extent
    - Underground Mine Labels/Outlines
    - Mined and Remaining Coal
    - Coal Elevation
    - Total Bed Thickness
    - Net Coal Thickness
      - Coal Thickness Measure
      - Coal Thickness Isopach



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# Redstone Coal

Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layer/Legend Tools Info

- Redstone Coal
  - Coal Bed Boundaries
    - Adhesive Data Contour
    - Coal Outcrop
    - Coal Outcrop
    - Coal Outcrop
    - Final Map Extent
    - Stratigraphic Termination
    - Temporary Map Extent
  - Underground Mine Labels/Outlines
  - Mined and Remaining Coal
  - Coal Elevation
    - Coal Elevation Measures
    - Structural Contours
    - Coal Elevation
  - Total Bed Thickness
  - Net Coal Thickness
  - Percent Parting
  - Overburden



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# Redstone Coal

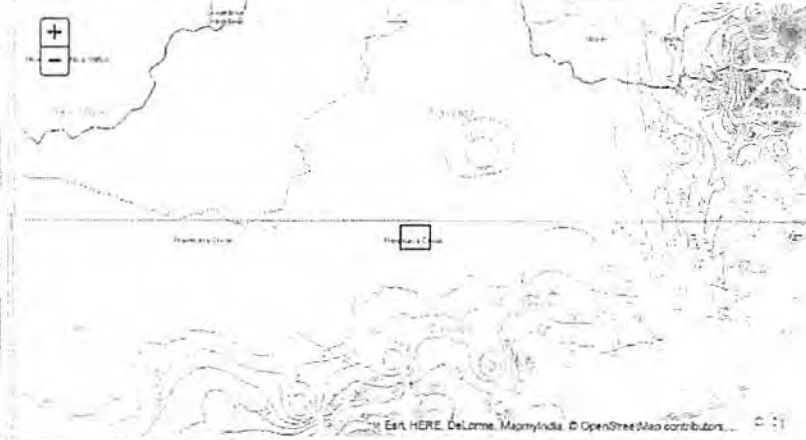
Monongahela Group

Coal Bed Mapping Project  
Coverage, Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layer/Legend Tools Info

- County Labels
- Planning & Development Regions
- State Boundary
- Redstone Coal
  - Coal Bed Boundaries
    - Adequate Data Control
    - Coal Outcrop
    - Coal Outcrop
    - Coal Outcrop
    - Coal Outcrop
    - Coal Map Extent
    - Structural Termination
    - Temporary Map Extent
  - Underground Mine Labels/Outlines
  - Mined and Remaining Coal
  - Coal Elevation
  - Total Bed Thickness
  - Net Coal Thickness
    - Coal Thickness Measure
    - Coal Thickness Interach



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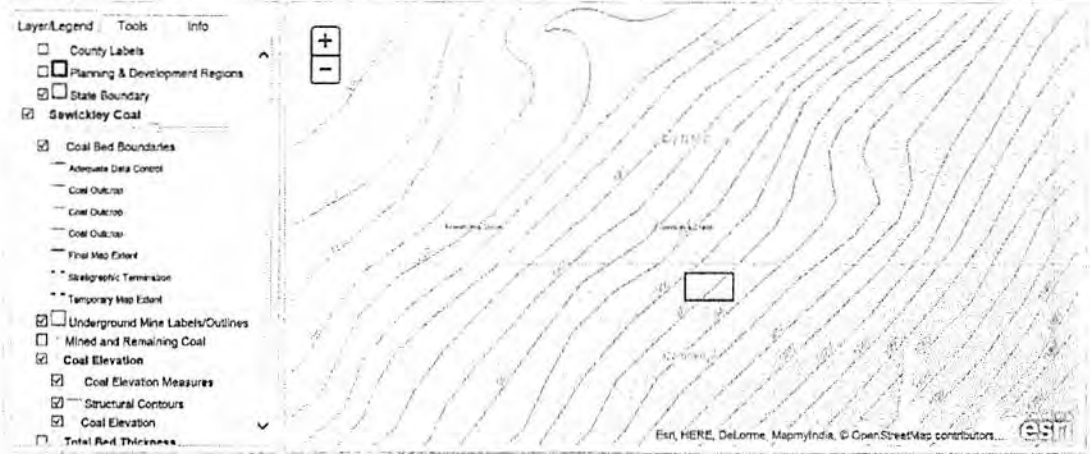


# Sewickley Coal

Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.



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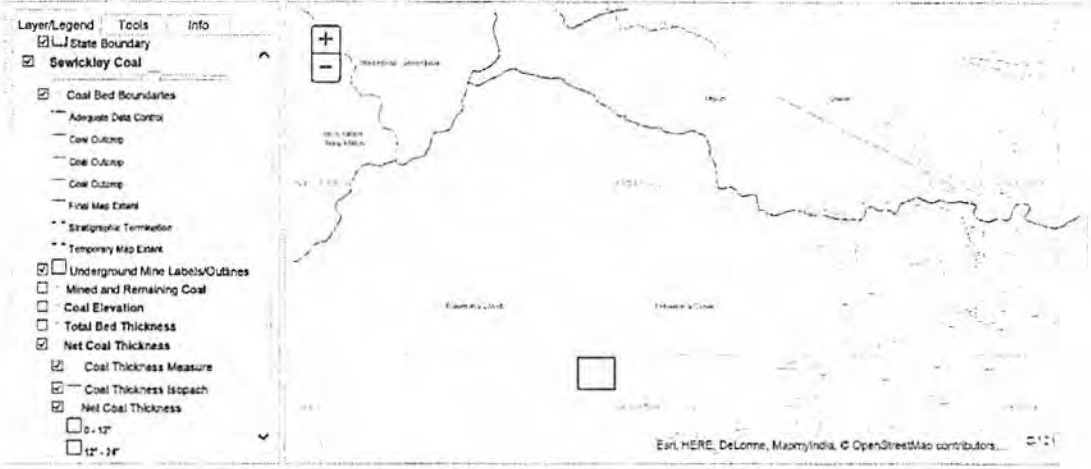


# Sewickley Coal

Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.



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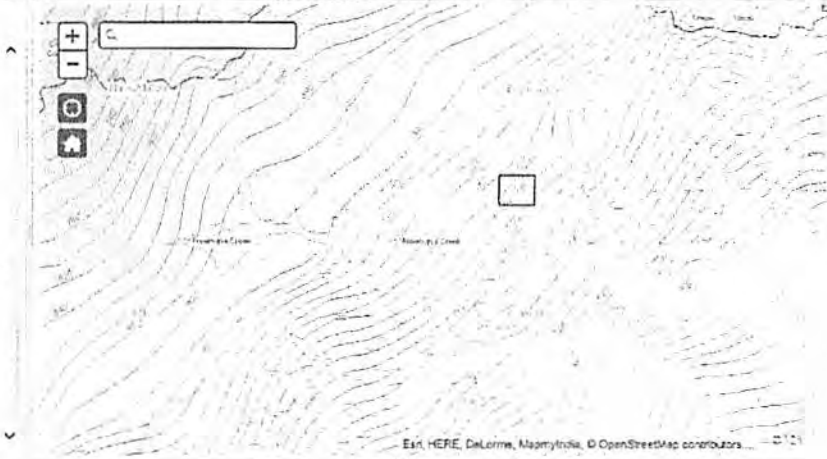
# Uniontown Coal Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tools

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layers/Legend Tools Info

- State Boundary
- Uniontown Coal
  - Coal Bed Boundaries
    - Adequate Data Control
    - Coal Outcrop
    - Coal Outcrop
    - Coal Outcrop
    - Fine Map Extent
    - Stratigraphic Termination
    - Temporary Map Extent
  - Underground Mine Labels/Outlines
  - Mined and Remaining Coal
  - Coal Elevation
    - Coal Elevation Measures
    - Structural Contours
    - Coal Elevation
  - Total Bed Thickness
  - Net Coal Thickness
  - Percent Parting
  - Overburden



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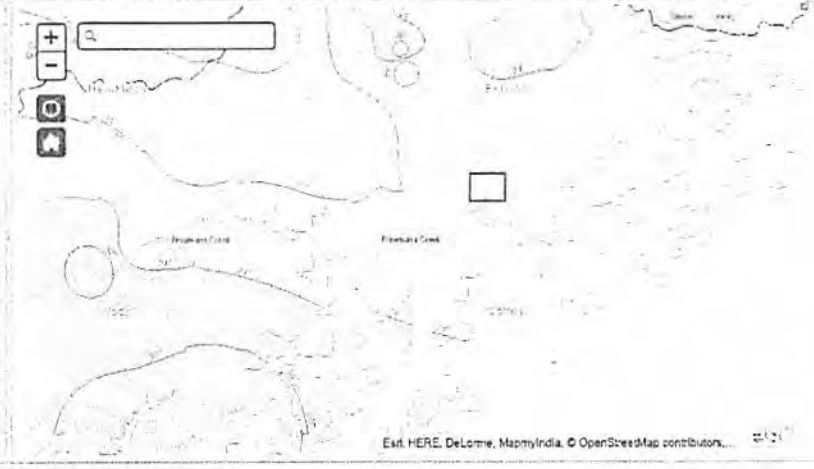


# Unlontown Coal Monongahela Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

- Layers/Legend Tools Info
- State Boundary
  - Unlontown Coal
    - Coal Bed Boundaries
      - Adequate Data Control
      - Coal Outcrop
      - Coal Outcrop
      - Coal Outcrop
      - Final Map Extent
      - Stratigraphic Termination
      - Temporary Map Extent
    - Underground Mine Labels/Outlines
    - Mined and Remaining Coal
    - Coal Elevation
    - Total Bed Thickness
    - Net Coal Thickness
      - Coal Thickness Measure
      - Coal Thickness Isopach
      - Net Coal Thickness
    - Percent Parting
    - Overburden



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# Washington Coal

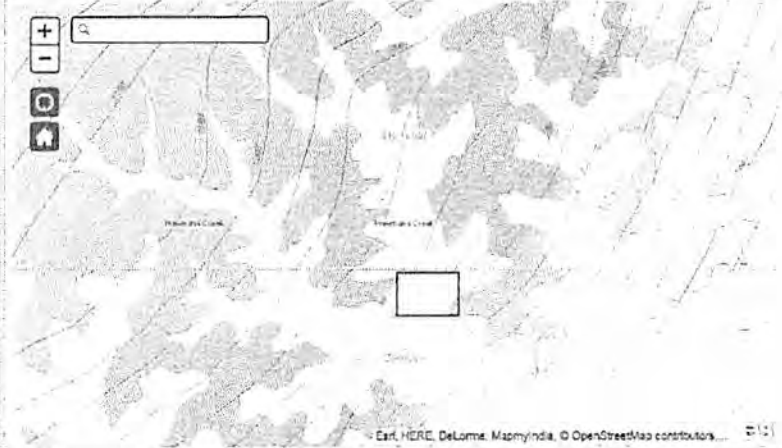
Dunkard Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layer/Legend Tools Info

- State Boundary
- Washington Coal
- Coal Bed Boundaries
  - Adequate Data Control
  - Coal Outcrop
  - Coal Outcrop
  - Coal Outcrop
  - Final Map Extent
  - Stratigraphic Termination
  - Temporary Map Extent
- Underground Mine Labels/Outlines
- Mined and Remaining Coal
- Coal Elevation
  - Coal Elevation Measures
  - Structural Contours
  - Coal Elevation
- Total Bed Thickness
- Net Coal Thickness
- Percent Parting
- Overburden



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# Washington Coal

Dunkard Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layer/Legend Tools Info

- State Boundary
- Washington Coal
  - Coal Bed Boundaries
    - Adequate Data Control
    - Coal Outcrop
    - Coal Outcrop
    - Coal Outcrop
    - Fine Map Extent
    - Stratigraphic Termination
    - Temporary Map Extent
  - Underground Mine Labels/Outlines
  - Mined and Remaining Coal
  - Coal Elevation
  - Total Bed Thickness
  - Net Coal Thickness
    - Coal Thickness Measure
    - Coal Thickness Isopach
    - Net Coal Thickness
  - Percent Parting
  - Overburden

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# Waynesburg A Coal

Dunkard Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

Layer/Legend Tools Info

- Counties
- County Labels
- Planning & Development Regions
- State Boundary
- Waynesburg A Coal
  - Coal Bed Boundaries
    - Adequate Gas Control
    - Coal Outline
    - Coal Outline
    - Coal Outline
    - Coal Outline
    - Final Map Extent
    - Strategic Termination
    - Temporary Map Extent
  - Underground Mine Labels/Outlines
  - Mined and Remaining Coal
  - Coal Elevation
  - Total Bed Thickness
    - Seam Thickness Measure
    - Total Bed Isopach
    - Total Bed Thickness

Map interface showing a search bar, zoom controls, and a map of the Waynesburg A Coal field. The map displays various coal bed boundaries and outlines. Labels on the map include "Waynesburg A Coal", "Dunkard Group", and "Coal Outline". A search bar is located at the top left of the map area, and zoom controls are to its left. The map is overlaid on a street map background.

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4104758P



# Waynesburg A Coal

## Dunkard Group

Coal Bed Mapping Project  
Coverage Explanations  
Map Help & Tips

Zoom in and click on coal mining, boundaries, structural contours to get further information.

- Layer/Legend Tools Info
- Mine Planning & Leasehold Regions
  - State Boundary
  - Waynesburg A Coal
    - Coal Bed Boundaries
      - Aqueous Data Control
      - Coal Outcrop
      - Coal Outcrop
      - Coal Outcrop
      - Final Map Extent
      - Stratigraphic Termination
      - Temporary Map Extent
    - Underground Mine Labels/Outlines
    - Mined and Remaining Coal
    - Coal Elevation
      - Coal Elevation Measures
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    - Total Bed Thickness
    - Net Coal Thickness
    - Percent Parting



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**NOTES**

ACCESS TO WELL SITE IS TO BE GAINED USING AN EXISTING APPROACH  
 OFF LEWIS COUNTY ROUTE 2 FROM POINT APPROXIMATELY 70' OF  
 EXISTING ACCESS ROAD TO DOMINION WELL F-5891A IS TO BE UTILIZED  
 & UPGRADED AS NEEDED

DRAINAGE IS TO BE MAINTAINED. SILT FENCE OR COMPOSITE FILTER SOCKS  
 ARE TO BE PLACED AT ALL DRAINAGE OUTLETS

ANY TOPSOIL IS TO BE STOCKPILED DURING CONSTRUCTION

**DOMINION TRANSMISSION, INC.**

**WELL #F-5891A**

**EROSION & SEDIMENT CONTROL**

**WELL LOCATION & ACCESS ROAD**

Scale 1" = 40'

Drawn by JFL 2/15  
 Checked by OTT 2/15  
 Date 2/15

Prepared by **MSES consultants, inc.**

1 OF 1

Version: 3/30/2015 8:53 AM  
 Created: 2/17/15

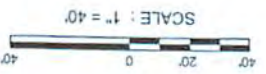
Freemans Creek District  
 Lewis County  
 West Virginia

TOTAL DISTURBED AREA 0.85 ACRES

**ACCESS ROAD**

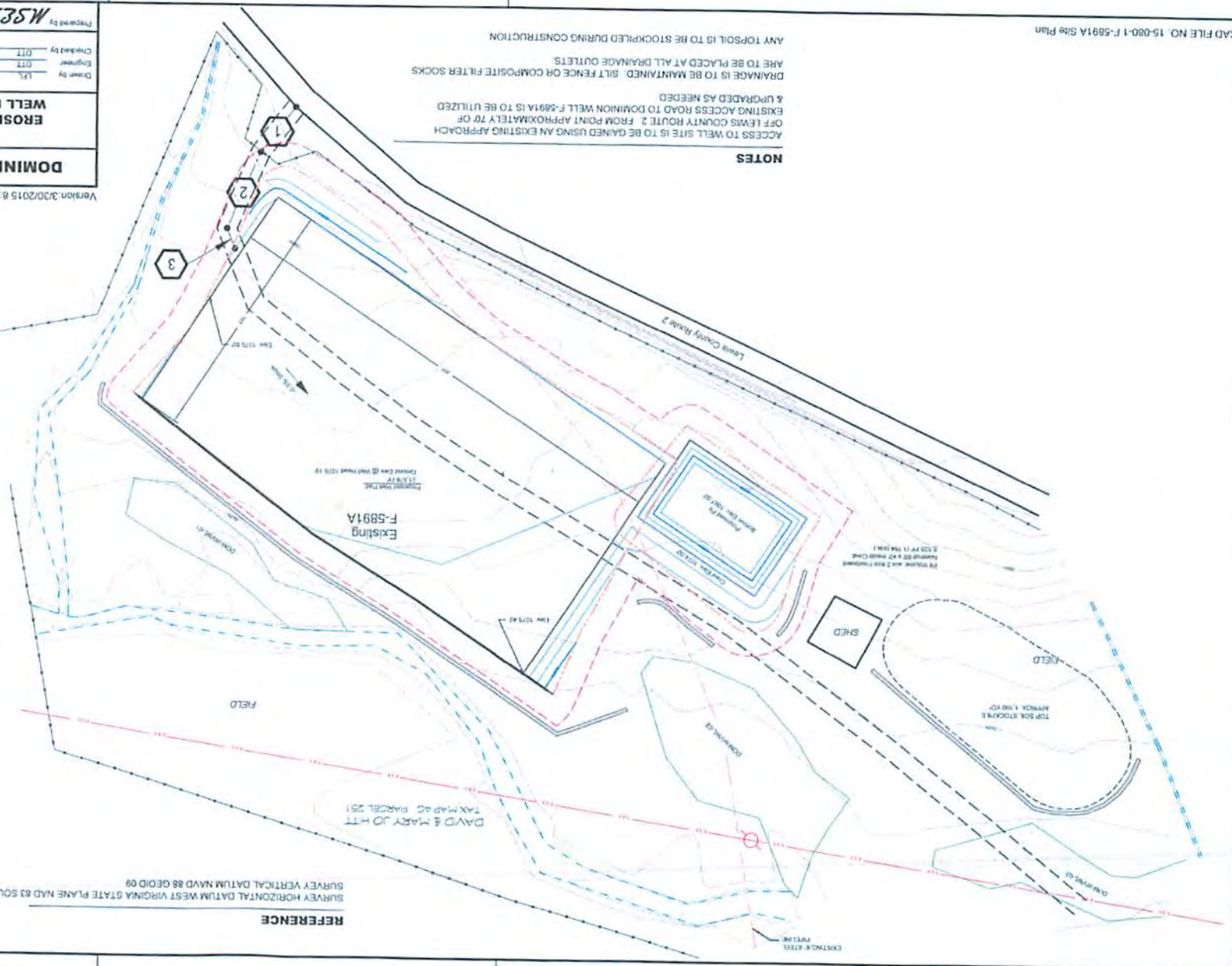
CROSS DRAIN SPACING	SLOPE	DIST.	TOTAL LENGTH ACCESS ROAD
1	1.0%	24'	as needed
2	1.1%	36'	as needed
3	1.2%	10'	as needed

- LEGEND**
- EXISTING FENCE
  - EXISTING STREAM
  - EXISTING CONTOUR 1170
  - PROPOSED CONTOUR 1150
  - SILT FENCE / COMPOSITE FILTER SOCK
  - PROPOSED

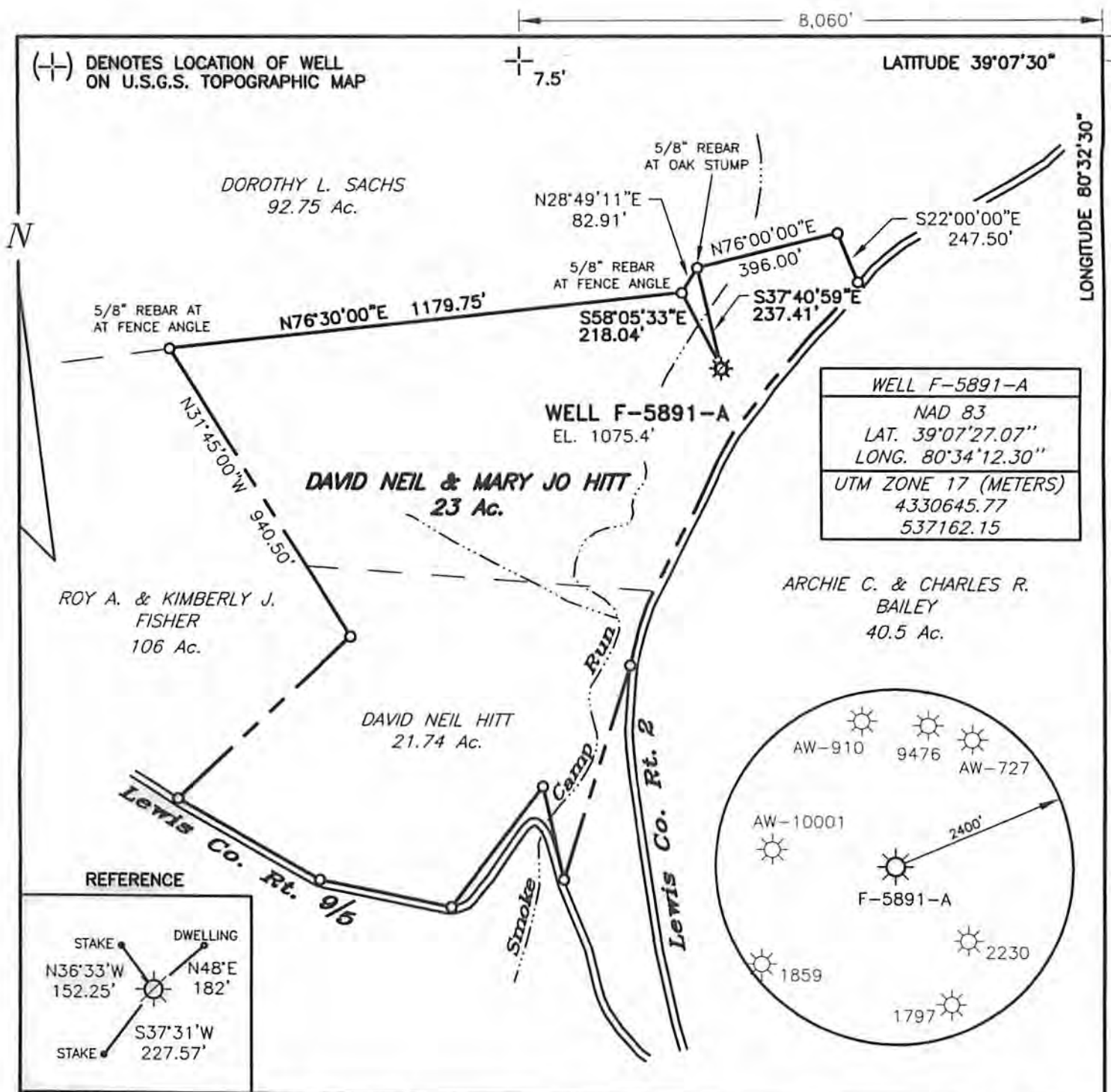


**REFERENCE**

SURVEY HORIZONTAL DATUM WEST VIRGINIA STATE PLANE NAD 83 SOUTH  
 SURVEY VERTICAL DATUM NAVD 88 GEOID 08



4104292



(+ ) DENOTES LOCATION OF WELL ON U.S.G.S. TOPOGRAPHIC MAP

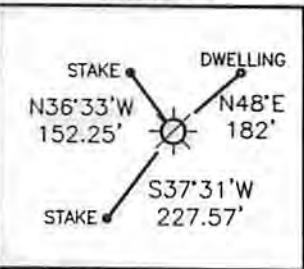
LATITUDE 39°07'30"

7.5'

8,060'

LONGITUDE 80°32'30"

WELL F-5891-A
NAD 83
LAT. 39°07'27.07"
LONG. 80°34'12.30"
UTM ZONE 17 (METERS)
4330645.77
537162.15



**MSES consultants, inc.**  
 FILE NO. 15-080-3 Well Plat F-5891-A  
 DRAWN BY KLA  
 SCALE 1" = 400'  
 MIN. DEGREE OF ACCURACY 1 IN 2500'  
 PROVEN SOURCE OF ELEVATION:  
 SURVEY GRADE GPS

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

(SIGNED) *[Signature]*  
 R.P.E. \_\_\_\_\_ P.S. 2029



**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF MINES  
**OIL AND GAS DIVISION**

DATE FEBRUARY 3, 2015  
 OPERATOR'S WELL NO. F-5891-A  
 API WELL NO. 47 41 04758  
 STATE COUNTY PERMIT NO.

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
 IF "GAS", PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1075.4' WATERSHED SMOKE CAMP RUN OF RIGHT FORK FREEMANS CK  
 DISTRICT FREEMANS CREEK COUNTY LEWIS  
 QUADRANGLE CAMDEN, WV 7.5' NEAREST TOWN CHURCHVILLE

SURFACE OWNER DAVID NEIL & MARY JO HITT ACREAGE 23  
 OIL & GAS ROYALTY OWNER DAVID NEIL & MARY JO HITT (J.W. WOOFER) LEASE ACREAGE 49  
 LEASE NO. FK051237 & FK051238

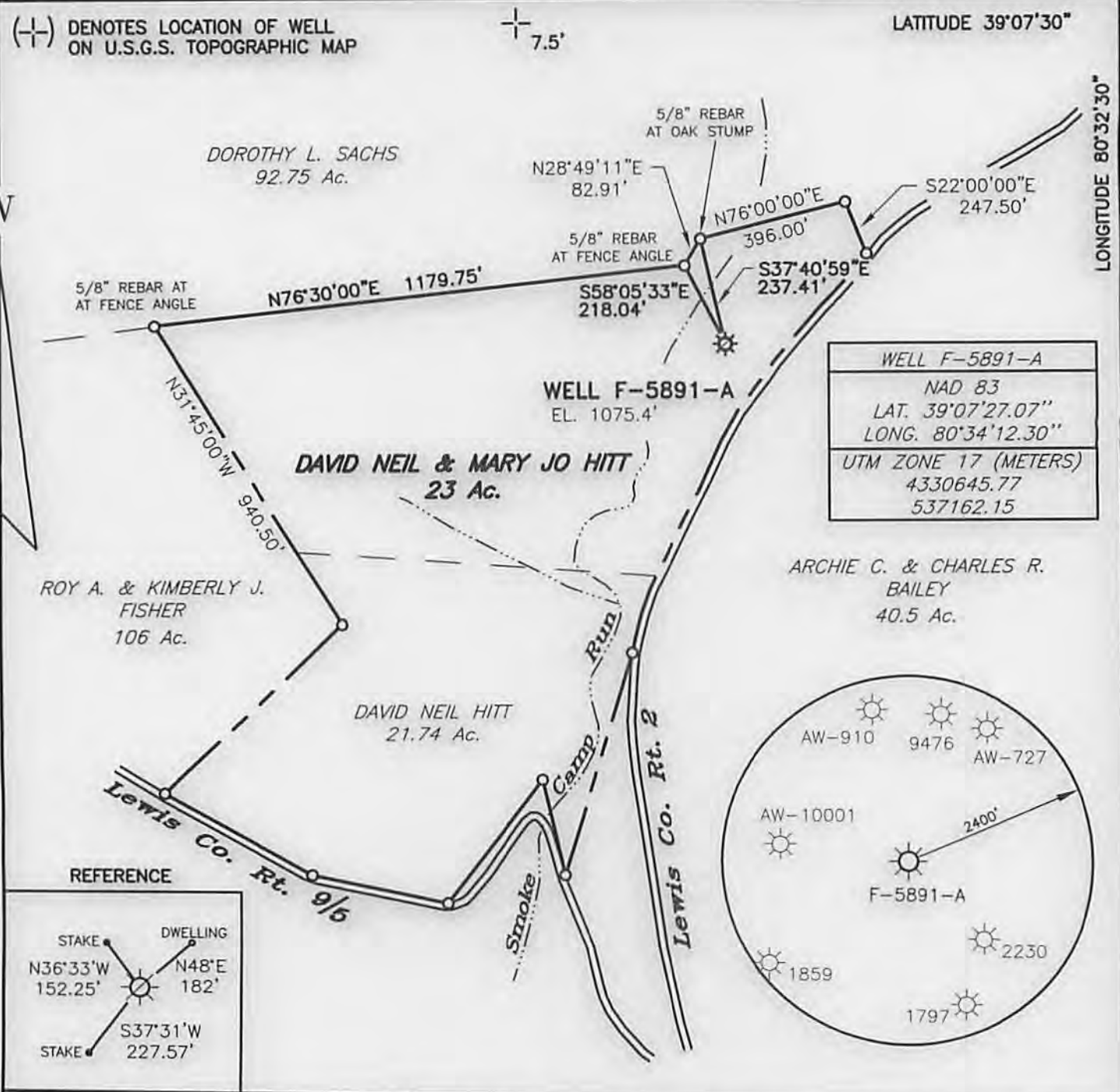
PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION   
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG

TARGET FORMATION GANTZ ESTIMATED DEPTH 2613'  
 WELL OPERATOR DOMINION TRANSMISSION, INC. DESIGNATED AGENT JOHN M. LOVE  
 ADDRESS 445 WEST MAIN STREET ADDRESS 445 WEST MAIN STREET  
CLARKSBURG, WEST VIRGINIA 26301 CLARKSBURG, WEST VIRGINIA 26301

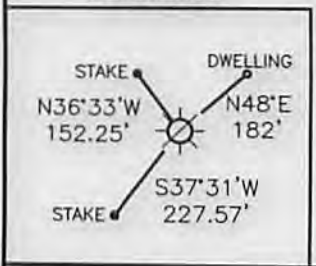
07/17/2015

FORM IV-6

COUNTY 041 PERMIT NO. 04758



WELL F-5891-A
NAD 83
LAT. 39°07'27.07"
LONG. 80°34'12.30"
UTM ZONE 17 (METERS)
4330645.77
537162.15



**MSES consultants, inc.**  
 FILE NO. 15-080-3 Well Plat F-5891-A  
 DRAWN BY KLA  
 SCALE 1" = 400'  
 MIN. DEGREE OF ACCURACY 1 IN 2500'  
 PROVEN SOURCE OF ELEVATION:  
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(SIGNED) *[Signature]*  
 R.P.E. \_\_\_\_\_ P.S. 2029 \_\_\_\_\_



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 ADDRESS 445 WEST MAIN STREET ADDRESS 445 WEST MAIN STREET  
CLARKSBURG, WEST VIRGINIA 26301 CLARKSBURG, WEST VIRGINIA 26301

07/17/2015

COUNTY **041**  
 PERMIT NO. **04758**