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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

June 27, 2014

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-4901520, issued to XTO ENERGY, 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: CONSOL 1621  
Farm Name: CONSOLIDATION COAL CO.  
**API Well Number: 47-4901520**  
**Permit Type: Plugging**  
Date Issued: 06/27/2014

**Promoting a healthy environment.**

## 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.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

1) Date 4/11, 2014  
2) Operator's  
Well No. Consol 1621  
3) API Well No. 47-049 - 01520

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 1445' Watershed Bingamon Creek  
District Mannington County Marion Quadrangle Wallace 7.5'
- 6) Well Operator XTO Energy Inc 7) Designated Agent Gary Beall  
Address PO Box 1008 Address PO Box 1008  
Jane Lew, WV 26378 Jane Lew, WV 26378
- 8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Bill Hendershot Name \_\_\_\_\_  
Address 403 James Street Address \_\_\_\_\_  
Mannington, WV 26582

OK  
9/22/14  
6/22/14

10) Work Order: The work order for the manner of plugging this well is as follows:  
 MORU and pull 2" tubing out, take off BHA, RIH and check TD at 3225', run tubing down to 3225' and circulate 6% gel back to surface, then pump cement up to 2650', perms are 3182' - 3174', 3012' - 2998' and 2815' - 2800', pull tubing up to 2600' and wait on cement to set up, RIH with small tools and tag T.O.C., then break circulation and pump cement from 2300' up to 2125'; perms are 2242' - 2238', pull tubing out of well and RIH with CBL to find free pipe, cut casing and circulate 6% gel back to surface, estimate cut at 1800', pump cement from 1800' up to 1600', bottom of 7" at 1696', pull casing up to 250' and cement to surface. Install monument.  
 Cement 3225' - 2650' = 575' in 4 1/2" casing - 9.5#, Cement 2300' - 2125' = 175' in 4 1/2"  
 Cement 1800' - 1600' = 200' in 7" casing, Cement 250' - 0' = 250' in 7" casing

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

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Work order approved by inspector Bill Hendershot

Date 4-22-14  
Department of Environmental Protection

APR 28 2014  
Department of Environmental Protection

WR-35

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JUN 15 2009

Date June 11, 2009  
API # 47-049-01520-F

4961520P

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas  
Well Operator's Report of Well Work

Farm Name: Consolidation Coal Co. Operator Well No.: Consol 1621 Frac

LOCATION: Elevation: 1,435' Quadrangle: Wallace  
District: Mannington County: Marion  
Latitude: 10,880' feet South of 39 DEG. 30 MIN. 00 SEC.  
Longitude: 3'650' feet West of 80 DEG. 22 MIN. 30 SEC.

Company: Linn Operating, LLC  
PO Box 1008  
Jane Lew, WV 26378

Casing & Tubing Size	Used in Drilling	Left In Well	Cement Fill Up Cu. Ft.
13 3/8"	42'	42'	
9 5/8"	845'	845'	280 sks CTS
7"	1,696'	1,696'	256 sks CTS
4 1/2"	3,233'	3,233'	
	<i>Free Point to Pull All</i>		
	<i>FREE CASING</i>		

Agent: Gary Beall  
Inspector: Bill Hatfield  
Permit Issued: August 17, 2006  
Well Work Commenced: September 5, 2006  
Well Work Completed: September 5, 2006  
Verbal Plugging: \_\_\_\_\_  
Permission granted on:  
Rotary X Cable \_\_\_\_\_  
Total Depth (feet) 3395'  
Fresh Water Depths (ft) N/A- Frac  
Salt Water Depths (ft) N/A- Frac  
Is coal being mined in area (Y/N)? N  
Coal Depths (ft) N/A-Frac

OPEN FLOW DATA

Producing Formation 5th Sand, Gordon, 30' Sand, Big Injun

Gas: Initial Open Flow Show MCF/d  
Final Open Flow Show MCF/d

Time of open flow between initial and final tests N/A Hours

Static rock pressure N/A psig surface pressure after 24 Hours

Pay Zone

Depth (ft) 2,238' - 3,182'

Oil: Initial Open Flow N/A Bbl/d  
Final Open Flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock pressure N/A psig surface pressure after 24 Hours

Second Producing Formation \_\_\_\_\_

Pay Zone

Depth (ft) \_\_\_\_\_

Gas: Initial Open Flow \_\_\_\_\_ MCF/d  
Final Open Flow \_\_\_\_\_ MCF/d

Oil: Initial Open Flow \_\_\_\_\_ Bbl/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 SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE

For: Linn Operating, LLC

By: [Signature]

Date: 6-12-09

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Office of Oil and Gas  
Drilling Superintendent  
APR 28 2014

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Environmental Protection

4901520P

Stage	Formation	Depth & No. of Shots	Treatment Detail
	No fracture, natural production		

FORMATION	TOP	BOTTOM	REMARKS
Clay	0	7	
Fill Dirt	7	12	
Sand/Shale	12	24	
Sand	24	55	
Sand/Shale	55	75	
Sand	75	90	
Sand/Shale	90	110	
Red Rock	110	120	
Sand/Shale	120	180	
Sand	180	225	Dampness @ 190'
Sand/Shale	225	250	
Coal	250	255	
Sand/Shale	255	370	
Sand	370	420	
Sand/Shale	420	1050	Dampness @ 931'
Red Rock	1050	1065	
Sand/Shale	1065	1105	
Red Rock	1105	1115	
Sand/Shale	1115	1530	
Shale	1530	1740	
Sand/Shale	1740	2060	Gas 2043'
Little Lime	2060	2085	
Big Lime	2085	2260	
Injun	2260	2280	
Sand/Shale	2280	2740	Gas 2313', 2353'
50ft	2740	2750	
Sand/Shale	2750	2880	Gas 2851'
Gordon	2880	2885	
Sand/Shale	2885	3200	Gas 3152'
5th Sand	3200	3230	
Sand/Shale	3230	3395 TD	Gas 3302'

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Stage	Formation	Depth & No. of Shots	Treatment Detail
1	5th Sand	3,174' - 3,182' 24 Shots	X-Link w/N2 Assist: Breakdown 2,961 psi; Avg Treating 2,537 psi @ 27.6 bpm; 200 sacks 20/40 sand; 278 bbbls slurry- 10%N2; ISIP 2,002; 5min; 1,847; 10 min 1,823 psi
2	Gordon	2,998' - 3,012' 24 Shots	Attempt to break, would not- X-Link w/N2 Assist: Breakdown 4,000 psi; Avg Treating 3,425 psi @ 20 bpm; 67 sacks 20/40 sand; 187 bbbls slurry- 10%N2 (Screen Well Off); ISIP 4,000; Flow well back - re-spot acid for next stage.
3	30' Sand	2,800' - 2,815' 24 Shots	X-Link w/N2 Assist: Breakdown 4,280 psi; Avg Treating 3,217 psi @ 21.7 bpm; 71 sacks 20/40 sand; 385 bbbls slurry- 10%N2; ISIP 2,240; 5min; 1,950; 10 min 1,910 psi
4	Base of Big Injun	2,238' - 2,242' 16 Shots	X-Link w/N2 Assist: Breakdown 3,908 psi; Avg Treating 2,621 psi @ 14 bpm; 108 sacks 20/40 sand; 283 bbbls slurry- 10%N2; ISIP 1,774; 5min; 1,596 psi

FORMATION	TOP	BOTTOM	REMARKS
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Fracture/Stimulation Only

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WV Department of  
Environmental Protection

4901320P

WW-4A  
Revised 6-07

1) Date: \_\_\_\_\_  
2) Operator's Well Number  
Consol 1621

3) API Well No.: 47 - 049 - 01520

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

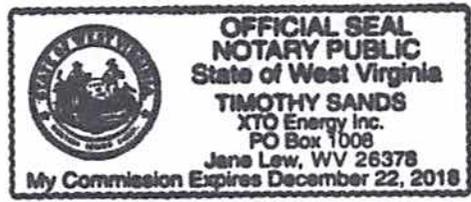
4) Surface Owner(s) to be served:	✓	5) (a) Coal Operator	✓
(a) Name	Consolidated Coal Company	Name	Consolidated Coal Company
Address	1000 CONSOL Energy Drive Canonsburg, PA 15317-6506	Address	1000 CONSOL Energy Drive Canonsburg, PA 15317-6506
(b) Name	_____	(b) Coal Owner(s) with Declaration	✓
Address	_____	Name	Consolidated Coal Company
(c) Name	_____	Address	1000 CONSOL Energy Drive Canonsburg, PA 15317-6506
Address	_____	Name	The Jim C Hamer Co. ✓
6) Inspector	Bill Hendershot	Address	PO Box 418 Kenova, WV 25530
Address	403 James Street Mannington, WV 26582	(c) Coal Lessee with Declaration	_____
Telephone	304-206-7750	Name	_____
		Address	_____

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

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

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

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

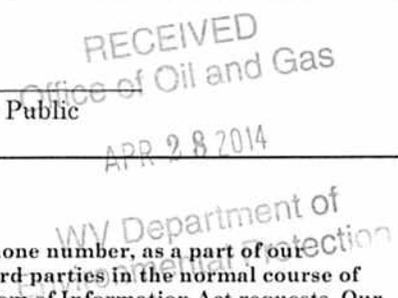


Well Operator XTO Energy Inc.  
 By: [Signature]  
 Its: Production Superintendent  
 Address PO Box 1008  
Jane Lew, WV 26378  
 Telephone 304-884-6000

Subscribed and sworn before me this 8<sup>th</sup> day of April 2014  
[Signature] Notary Public  
 My Commission Expires 12/22/18

**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 [depprivacyoffier@wv.gov](mailto:depprivacyoffier@wv.gov).



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7012 1010 0002 5911 6482

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The Jim C Hamer Co.  
PO Box 418  
Kenova, WV 25530

Conso  
1621  
Plugging  
Application

or Instructions

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$



Consolidated Coal Company  
1000 Conso Energy Drive  
Canonsburg, PA 15317-6506

Conso  
1621  
Plugging  
Application

or Instruction

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4901520P CK1170  
10000

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 XTO Energy Inc. OP Code 494487940

Watershed Bingamon Creek Quadrangle Wallace 7.5'

Elevation 1445' County Marion District Mannington

Description of anticipated Pit Waste: Fluids from plugging operations.

Will a synthetic liner be used in the pit? Yes 20 MIL.

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 4707302523, 4708505151, 4708509721 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Meadowbrook Landfill SWF#1032, RES Water Recycling -WMGR123SW005 (PA))

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain \_\_\_\_\_)
- 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 [Signature]

Company Official (Typed Name) Gary Beall

Company Official Title Production Superintendent

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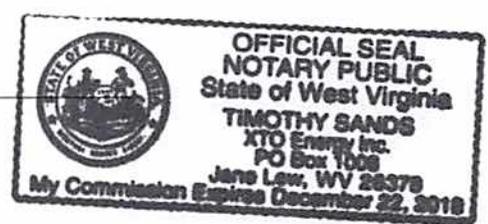
Subscribed and sworn before me this 8<sup>th</sup> day of April, 2014

APR 28 2014

[Signature] Notary Public

WV Department of Environmental Protection

My commission expires 12/22/18



LEGEND

- Property Boundary
- Road
- Existing Fence
- Planned Fence
- Stream
- Open Ditch
- Rock
- North
- Buildings
- Water wells
- Drill site

- Diversion
- Spring
- Wet Spot
- Drain Pipe with size in inches
- Waterway
- Cross Drain
- Artificial Filter Strip
- Pit: cut walls
- Pit: compacted fill walls
- Area for Land Application of Pit Waste

Proposed Revegetation Treatment: Acres Disturbed .30 +/- Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer (10-20-20 or equivalent) 1000 lbs/acre (500 lbs minimum)

Mulch 3 Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre
Kentucky Bluegrass		20
Redtop		3
Birdsfoot Trefoil		10

Seed Type	Area II	lbs/acre
Kentucky Bluegrass		20
Redtop		3
Birdsfoot Trefoil		10

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Bill Newkirk

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

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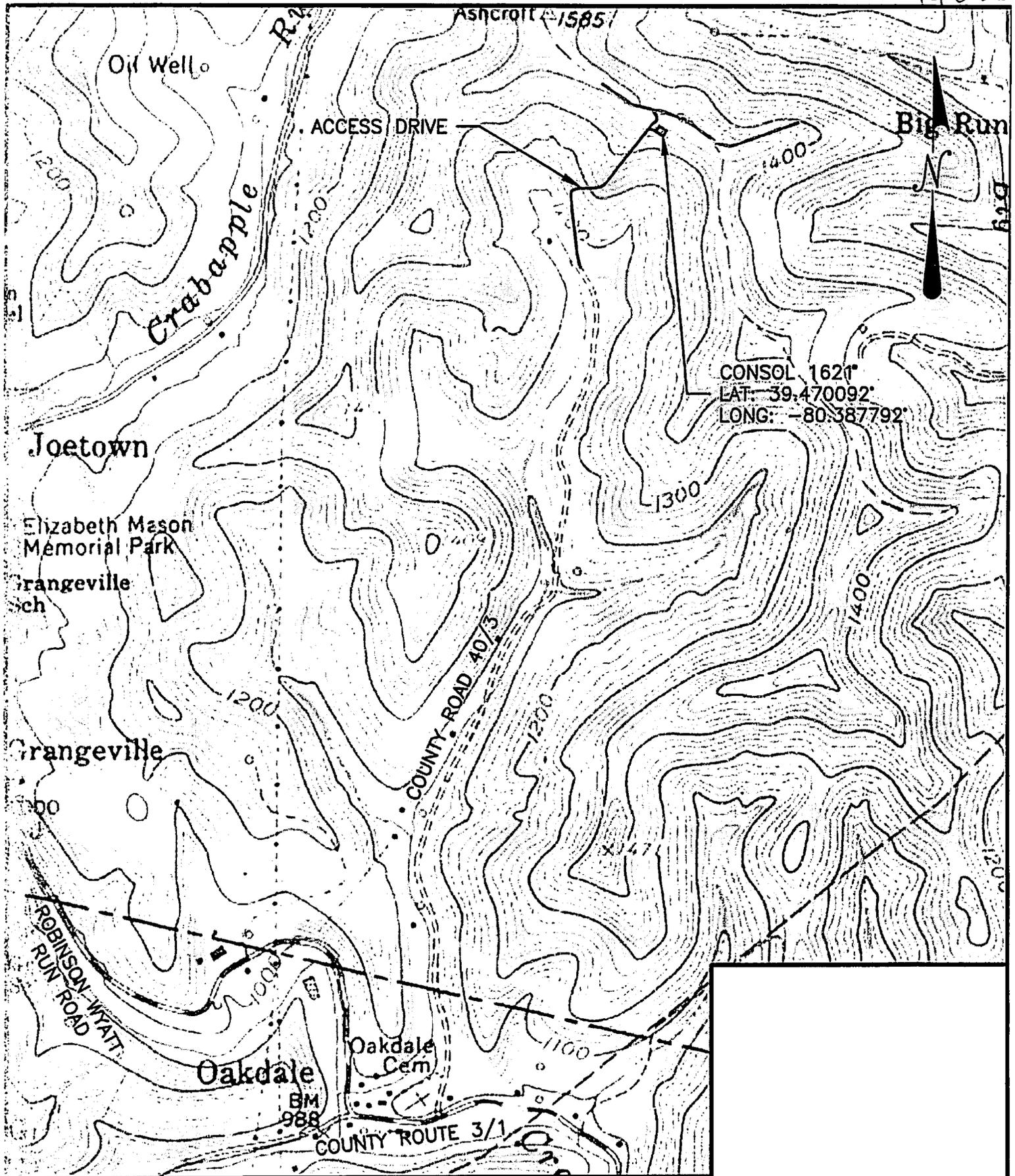
APR 28 2014

Title: Environmental Inspector

Date: 4-22-14

WV Department of  
Environmental Protection

Field Reviewed?  Yes  No



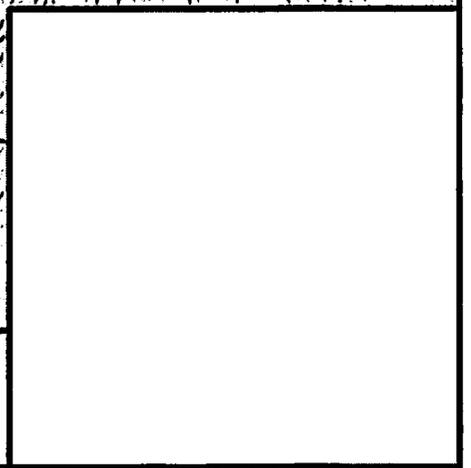
Scale: 1:1000

DESIGNED BY: JMH  
 REVIEWED BY: JMV  
 DRAWN BY: JMH  
 DATE: 4/23/14  
 PROJ. NO.:  
 DRAWING NO.:

REVISION BY:	DATE:	DESCRIPTION:

Sheet No. 1

CONSOL 1621  
 prepared for  
**XTO ENERGY, INC.**  
 situated  
**WISEMAS RUN ROAD, MARION COUNTY, WEST VIRGINIA**  
**UBGS MAP - WALLACE QUADRANGLE**



**MKA Morris Knowles**  
 & Associates, Inc.  
 Consulting Engineers and Surveyors  
 443 Alton Drive  
 Delmar, DE 19721  
 Telephone: (302) 486-1422  
 Fax: (302) 486-8029





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

Re: Application to Plug and Abandon  
Consol 1621  
Mannington District  
Marion County, WV

To Whom It May Concern:

In accordance with Article 22-6-23 of the West Virginia State Code regarding oil and gas operations, please find the attached application for the plugging and abandonment of the subject well. Notices of our intention to plug this wellbore have been sent to the surface owner, coal owners with declarations recorded, and coal operators associated with this well. Copies of the certified mail receipts are attached for your records. If you have any questions or need additional information, please feel free to contact me at 304-884-6000.

Sincerely,

Gary Beall  
PO Box 1008  
Jane Lew, WV 26378

GB/tps

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APR 28 2014  
WV Department of  
Environmental Protection

4901520P

# EROSION AND SEDIMENT CONTROL PLAN CONSOL 1621

WISEMAS RUN ROAD, MARION COUNTY, WEST VIRGINIA

JANUARY, 2014

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Office of Oil and Gas  
APR 2 8 10 2014  
WV Department of Environmental Protection

### EROSION AND SEDIMENTATION CONTROL PLAN NOTES

1. ALL SOIL TO DEPTH OF 2". REMOVE ALL OBJECTS 2" OR LARGER.
2. BULKY ORGANICAL FERTILIZER INTO THE SOIL TO A DEPTH OF 2". FERTILIZER MAY BE ELUCIDATED DURING TILLAGE.
3. SOIL REQUIRED TO BE UNIFORM ON THE PROPOSED AREA BY MECHANICAL MEANS. FERTILIZER, HYDRO SEEDING, OR ANY OTHER APPROVED METHOD.
4. AFTER SEEDING SHALL BE COMPLETED, THE AREA SHALL BE MOVED. USE A ROLLER TO COMPACT THE SOIL TO A DEPTH OF 2".
5. FOR PERMANENT EROSION CONTROL, APPLY CLOSURE THROUGH FERTILIZER TO THE SURFACE OF SEEDING AREA.
6. PLACE MULCH IMMEDIATELY AFTER SEEDING OR WITHIN 48 HOURS AFTER SEEDING IS COMPLETED. PLACE MULCH IN A CONTINUOUS STRIP AT THE BROADER END OF THE SEEDING AREA. AN ACCEPTABLE ECONOMIC COVER MAY BE USED TO APPLY MULCH. MULCHES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED.
7. MAINTENANCE - STRUCTURELY WEAR DOWN AREAS WITHIN SEEDING LINES. UNTIL THE EROSION PROBLEM HAS BEEN COMPLETED. MULCH AS REQUIRED AND UNDER EXISTING EROSION PROBLEMS AND WEAR DOWN GROWTH BY MEANS OF SEEDING OR CUTTING. AFTER THE SEEDING AND SOIL SUPPLEMENTING ON A SLOPE HAS BEEN SUFFICIENTLY COMPLETED, IF A SLOPE FAILURE OCCURS, ONE MUST RE-EVALUATE EROSION CONTROL OR DEVELOPMENT OF A NEW SLOPE, REPAIR SOIL SUPPLEMENT, THEN RE-EVALUATE AS SPECIFIED FOR THE ORIGINAL DESIGN.
8. A SITE SHALL BE CONSIDERED TO BE PERMANENTLY ESTABLISHED WHEN ALL PERMANENT CONTROL MEASURES AND FACILITIES HAVE BEEN COMPLETED AND ARE OPERATIONAL. TEMPORARY CONTROL MEASURES AND FACILITIES REMOVED, AND CLOSURE AND FERTILIZER APPLICATION IS COMPLETED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RAINFALL EVENTS. THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE DISTURBED AREA.
9. THE CONTRACTOR SHALL MAINTAIN THE SITE FOR THE PROVISIONS OF THIS PLAN UNTIL PERMANENT ESTABLISHMENT IS COMPLETED.

### PERMANENT ESTABLISHMENT

EROSION RESISTANT BLENDED/ HYDRO/ BROADCAST METHOD  
 3 PLS LIME SEED: 500  
 APPLICATION RATE: 30 LBS/ACRE, 3 LBS/ACRE, AND 10 LBS/ACRE, RESPECTIVELY  
 FERTILIZER TYPE: COMMERICAL FERTILIZER 10-20-20  
 FERTILIZER APPL. RATE: 1000 LBS/ACRE  
 LIME TYPE: 3 TONS/ACRE  
 MULCH TYPE: HY & STW  
 MULCHING RATE: 3 TONS/ACRE  
 SEEDING METHOD: HYDRO SEEDING  
 SEEDING RATE: 30 LBS/ACRE  
 SEEDING METHOD: HYDRO SEEDING  
 SEEDING RATE: 30 LBS/ACRE  
 SEEDING METHOD: HYDRO SEEDING  
 SEEDING RATE: 30 LBS/ACRE

### TEMPORARY ESTABLISHMENT

EROSION RESISTANT BLENDED/ HYDRO/ BROADCAST METHOD  
 3 PLS LIME SEED: 500  
 APPLICATION RATE: 30 LBS/ACRE, 3 LBS/ACRE, AND 10 LBS/ACRE, RESPECTIVELY  
 FERTILIZER TYPE: COMMERICAL FERTILIZER 10-20-20  
 FERTILIZER APPL. RATE: 1000 LBS/ACRE  
 LIME TYPE: 3 TONS/ACRE  
 MULCH TYPE: HY & STW  
 MULCHING RATE: 3 TONS/ACRE

### PERMANENT-STEEP SLOPE

EROSION RESISTANT BLENDED/ HYDRO/ BROADCAST METHOD  
 3 PLS LIME SEED: 500  
 APPLICATION RATE: 30 LBS/ACRE, 3 LBS/ACRE, AND 10 LBS/ACRE, RESPECTIVELY  
 FERTILIZER TYPE: COMMERICAL FERTILIZER 10-20-20  
 FERTILIZER APPL. RATE: 1000 LBS/ACRE  
 LIME TYPE: 3 TONS/ACRE  
 MULCH TYPE: HY & STW  
 MULCHING RATE: 3 TONS/ACRE  
 SEEDING METHOD: HYDRO SEEDING  
 SEEDING RATE: 30 LBS/ACRE  
 SEEDING METHOD: HYDRO SEEDING  
 SEEDING RATE: 30 LBS/ACRE

### GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE AND HAVE THEM LOCATED AND MARKED WITHIN 48 HOURS IN ADVANCE OF CONSTRUCTION. EXCEPT FOR STATE, COUNTY, AND FEDERAL OR STATE HIGHWAY (BY CHAPTER 24C-1-9, UNDERGROUND FACILITY MARKING PREVENTION ACT).
2. TRAFFIC SHALL BE MAINTAINED ON ALL ADJOINING STREETS AND DRIVES AT ALL TIMES. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH LOCAL REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES WITH PRELIMINARY CONNECTIONS PRIOR TO CONSTRUCTION AND GRADING OF THE SITE.

### EROSION AND SEDIMENTATION CONTROL PLAN NOTES

1. ONLY LIMITED DISTURBANCE SHALL BE PERMITTED TO PROVIDE ACCESS TO CHANNELS OF EXISTING OR APPROXIMATE FOR DRIVING AND ACCESSING NEARBY TO CONSTRUCT THESE CONTROLS.
2. EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, INSTALLED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS THE TRIBUTARY AREAS OF THESE CONTROLS.
3. AFTER SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED AND RESTORED BEING REMOVAL OF THE CONTROLS MUST BE COMPLETED.
4. STORMWATER MULCH WHICH DO NOT DISCHARGE TO EROSION TRAPS OR DRAINS, MUST BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE STABILIZED.
5. SEDIMENT MUST BE REMOVED FROM INLET PROTECTION AFTER EACH STORM EVENT.
6. STOCKPILE HEIGHTS MUST NOT EXCEED 30 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
7. ANY DISTURBED AREA OR SOIL ACTIVITY HAS OCCURRED AND WHICH WILL REMAIN EXPOSED FOR MORE THAN 72 HOURS MUST BE STABILIZED IMMEDIATELY. DURING NON-CONSTRUCTION PERIODS, MULCH MUST BE APPLIED TO THE EXPOSED AREAS. EXPOSED AREAS WHICH ARE NOT STABILIZED WITHIN ONE YEAR MUST BE RE-EVALUATED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. EXPOSED AREAS WHICH ARE EXPOSED AT PROPOSED SITES WILL NOT BE RE-EVALUATED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.
8. STOCKPILES MUST BE STABILIZED IMMEDIATELY.
9. MULCH OR STORM MULCH MUST BE APPLIED AT RATES OF AT LEAST 3.0 TONS PER ACRE.
10. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PERFORMING AND MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REPAIRS, REPAIRS, REPAIRS, AND REPAIRS.
11. THE CONTRACTOR SHALL REMOVE MATERIALS IMMEDIATELY AND WHEN IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REQUIREMENTS. ALL MATERIALS REMOVED FROM THE SITE SHALL BE DEPOSITED PROPERLY IN A DIRT LUMP OR CLEAN FILL MATERIAL IS REMOVED FROM THE SITE. IT SHALL BE TAKEN TO AN APPROVED LAND FILL OR IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AN APPROVED LMS PLAN IF OVER 1000 SQUARE FEET OF AREA IS DISTURBED.

### GRADING NOTES

1. THE CONTRACTOR SHALL REMOVE ALL EXISTING ASPHALT PAVEMENT AND CONCRETE SLABS FROM THE SITE.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES FROM THE SITE TO THE SATISFACTION OF THE ENGINEER AND REMOVE ANY SOFT SOIL PRIOR TO THE SUPPORTING OF ANY FILL MATERIALS.
3. THE CONTRACTOR SHALL REPLACE ALL EXISTING STRUCTURES, INCLUDING AND INCLUDING, WHICH HAS BEEN CUT AND DESTROYED WITHIN THE 300'-OF-100' WITH WEST VIRGINIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS.
4. THE CONTRACTOR SHALL ADJUST TO GRACE ALL WATER AND GAS VALVES.
5. THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS TO NOT LESS THAN 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557 TO PROVIDE STABILITY AND PREVENT SETTLEMENT.
6. THE CONTRACTOR SHALL USE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL.

### EROSION AND SEDIMENT CONTROL FACILITIES MAINTENANCE SCHEDULES

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED UNTIL A UNIFORM VEGETATIVE COVER IS ESTABLISHED.
- STONE CONSTRUCTION EXCHANGES
1. THE STONE CONSTRUCTION EXCHANGES ARE TO BE INSPECTED AT THE END OF EACH MORNING OF AND REPAIRED IMMEDIATELY.
  2. THE THICKNESS OF THE STONE CONSTRUCTION EXCHANGE SHALL BE CONSISTENTLY MAINTAINED AT 6".
  3. A STONE EXCHANGE IS TO BE READILY AVAILABLE ON THE SITE AT ALL TIMES FOR IMMEDIATE REPAIR.
  4. SEDIMENT TRAPS SHALL BE PLACED OVER DRAINAGE AREAS PRIOR TO PLACEMENT OF STONE.
- COMPOST FILTER SOCK
1. COMPOST FILTER SOCK MUST BE INSTALLED AT LEVEL GROUND, BOTH ENDS OF EACH COMPOST FILTER SOCK SECTION MUST EXTEND AT LEAST 12 FEET UPWARD AT 45 DEGREES TO THE MAIN COMPOST FILTER SOCK CLEARANCE.
  2. THE CONTRACTOR SHALL MAINTAIN ONE COMPOST FILTER SOCK IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE REPAIRED IMMEDIATELY.
  3. WHERE THE SOCK REQUIRES REPAIR, IT WILL BE IMMEDIATELY REPAIRED.
  4. THE CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SOCK WHEN IT REACHES 1/2 OF THE EXPOSED HEIGHT OF THE SOCK OR AS DIRECTED BY THE ENGINEER.
  5. THE COMPOST FROM THE FILTER SOCK WILL BE APPLIED ON THE SITE WHEN SITE REACHED 70% VEGETATIVE COVER.

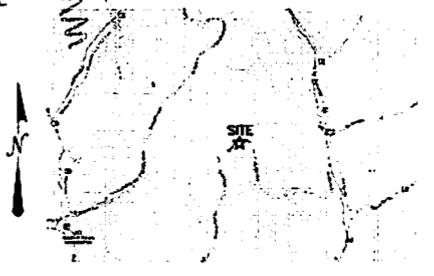
### VEGETATION

1. THE CONTRACTOR SHALL INSPECT VEGETATED AREAS WEEKLY AND AFTER EACH STORM (QUANTITY) EVENT.
2. THE CONTRACTOR SHALL INSPECT THE SITE FOR HILLS OR GRASSES ON CUT OR FILL SLOPES. THE CONTRACTOR SHALL FILL HILLS AND GRASSES, REMOVE EXISTING WEEDS TO PROVIDE A UNIFORM SLOPE, THEN REPAIR/MULCH AND REPAIR/REPLACE SOIL TO ORIGINAL SPECIFICATIONS.
3. THE REPAIRS SHALL BE MADE WITHIN 3 DAYS OF DISCOVERING PROBLEM.

### SOIL PILES

1. THE PILE SHALL BE CONSTRUCTED AND MAINTAINED AS TO PREVENT SEepage, LEAKAGE, AND OVERFLOW.
2. PILES SHOULD BE CONSTRUCTED BELOW SURFACE GROUND LEVEL, WHEN POSSIBLE. ANY ABOVEGROUND PILE SHALL AS IS THE CASE WITH PILES CONSTRUCTED IN THE LOWER SLOPE AREAS OF THE WALLETS, SHALL BE CONSTRUCTED WITH A SOLE CLOVE BOND MAINTAINED THAT WILL PREVENT THE STRUCTURE'S SECURITY. THE FILL MATERIAL SHOULD COVER THE PROPER AMOUNT OF MATERIAL TO ENSURE THE PROPER CONSTRUCTION IS ACHIEVED.
3. ALL PILES SHALL BE BUILT, CONSTRUCTED, LOCATED, MAINTAINED, AND USED IN ACCORDANCE WITH WEST VIRGINIA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS AND AS SUCH A NUMBER AS TO MAINTAIN ADEQUATE DRAINAGE SERVICES AND TO ASSURE SAFETY TO THE PUBLIC.

BID QUANTITIES ESTIMATE				
	UNITS	ESTIM. QUANTITY	BID QUANTITY	TOTAL COST
EROSION & SEDIMENT CONTROL				
STONE CONSTRUCTION EXCHANGE	EA	1		
24" COMPOST FILTER SOCK	LF	162		
PERMANENT SEEDING	SY	1,420		



### NOTES

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- 3. THE LOCATION OF EXISTING UTILITIES MUST BE DETERMINED AND MARKED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

SHEET NO.	TITLE
ES-1	EROSION AND SEDIMENT CONTROL TITLE SHEET
ES-2	EROSION AND SEDIMENT CONTROL PLAN
ES-3	EROSION AND SEDIMENT CONTROL DETAILS

PREPARED FOR:  
**XTO ENERGY, INC.**  
 480 INDUSTRIAL PARK ROAD  
 JAME LEM, WV 26378  
 TELEPHONE: (304) 884-6042

PREPARED BY:  
**Morris Knowles & Associates, Inc.**  
 Consulting Engineers & Land Surveyors  
 443 ATHENA DRIVE DELMONT, PA 15626  
 TELEPHONE: (724) 468-4622 FAX: (724) 468-8940

*Charles F. Hamantree*  
 CHARLES F. HAMANTREE, REGISTERED PROFESSIONAL ENGINEER  
 4-7-2014 DATE



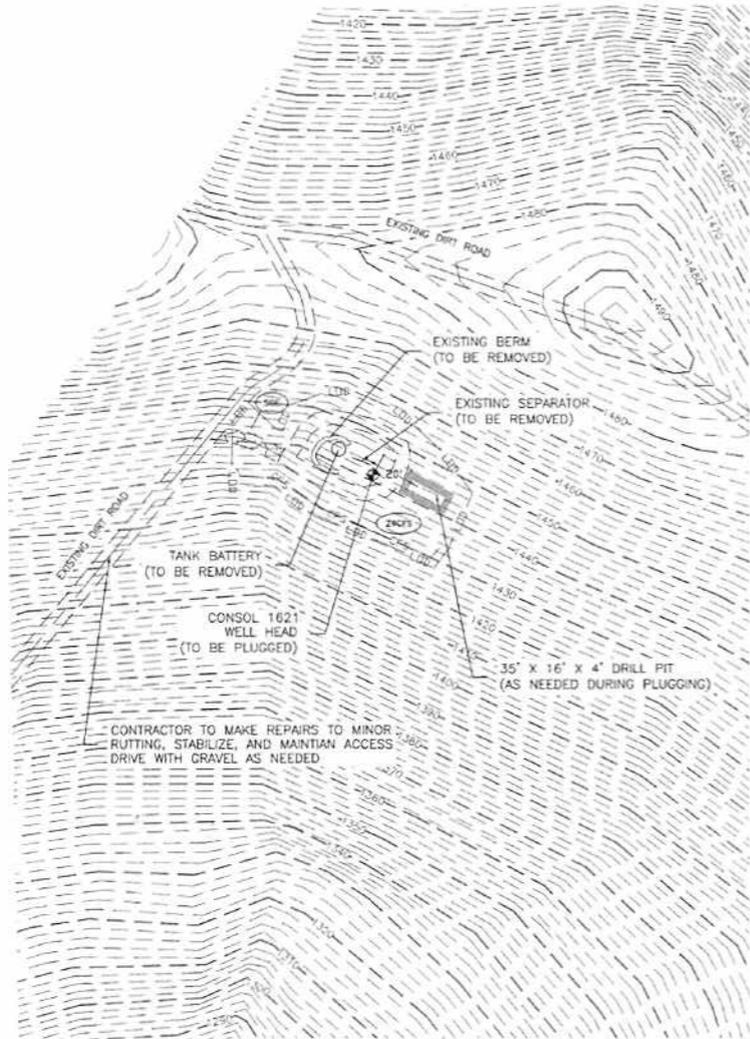
DESIGNED BY: JAH  
 REVISION BY: JAH  
 CHECKED BY: JAH  
 DATE: JAN. 2014  
 PROJECT NO.:  
 DRAWING NO.:  
 SHEET NO.: ES-1

**Morris Knowles & Associates, Inc.**  
 443 Athena Drive Delmont, PA 15626  
 Phone: (724) 468-4622 Fax: (724) 468-8940

CONSOL 1621  
 Prepared for:  
 XTO ENERGY, INC.  
 WISEMAS RUN ROAD, MARION COUNTY, WEST VIRGINIA  
 EROSION AND SEDIMENT CONTROL TITLE SHEET

WSP H  
 4-28-14

4901520F



WPH  
4-22-14



**LEGEND:**

- IP INLET PROTECTION
- CF2 12CFS 12" COMPOST FILTER SOCK
- CF3 18CFS 18" COMPOST FILTER SOCK
- CF4 24CFS 24" COMPOST FILTER SOCK
- CF5 32CFS 32" COMPOST FILTER SOCK
- CFSP (2) 24" (1) 18" COMPOST FILTER SOCK PYRAMID
- SCX STONE CONSTRUCTION ENTRANCE
- RF ROOF FILTER
- RO ROOF CHANNEL OUTLET PROTECTION
- PC PERMANENT CHANNEL
- TC TEMPORARY CHANNEL
- EXISTING CONTOUR LINES
- PROPOSED CONTOUR LINES
- EXISTING PROPERTY LINES

**NOTES:**

1. ASSUME UNIFORM 4" OF TOPSOIL
2. EROSION CONTROL BLANKETS TO BE INSTALLED ON ALL CUT AND FILL SLOPES OF 3:1 OR STEEPER.

**FLOOD ZONE:**

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, MAP NUMBER 540600060, EFFECTIVE DATE: JUNE 15, 2012, THE SUBJECT PROPERTIES LIES WITHIN ZONE X WHICH IS DEFINED ON SAID MAP AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN".

- CONSTRUCTION SEQUENCE, CONSOL 1621:**
- STAGE 1: INSTALL ROCK CONSTRUCTION ENTRANCE AT COUNTY ROUTE 40/3.
    - A. EXCAVATE FOR, AND FORM ENTRANCE.
    - B. IMMEDIATELY STABILIZE ENTRANCE WITH ROCK.
  - STAGE 2: INSTALL 24" COMPOST FILTER SOCK.
  - STAGE 3: INSTALL DRILL PIT (AS NEEDED)
  - STAGE 4: STABILIZE, REPAIR, AND MAINTAIN ACCESS DRIVE WITH GRAVEL AS NEEDED.
  - STAGE 5: EXISTING DRIVE AND DRILL PIT TO BE RECLAIMED WHEN DONE.
  - STAGE 6: SEED AND MULCH
    - A. SEED/MULCH EXISTING ACCESS DRIVE AREA WITH SPECIFIED SEEDING MIXTURE. ALL E & S CONTROL FACILITIES SHALL BE MAINTAINED AND KEPT FUNCTIONAL UNTIL SITE STABILIZATION IS COMPLETE.



CALL BEFORE YOU DIG  
IN WEST VIRGINIA  
1-800-245-4548

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN 48 HOURS IN ADVANCE OF EXCAVATION (WV CHAPTER 24C-1-5, UNDERGROUND FACILITY DAMAGE PREVENTION ACT)

WV STATE LAW REQUIRES  
2 WORKING DAYS NOTICE

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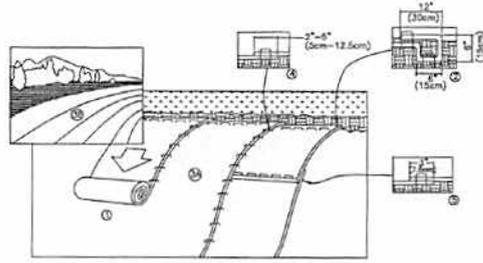
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THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.



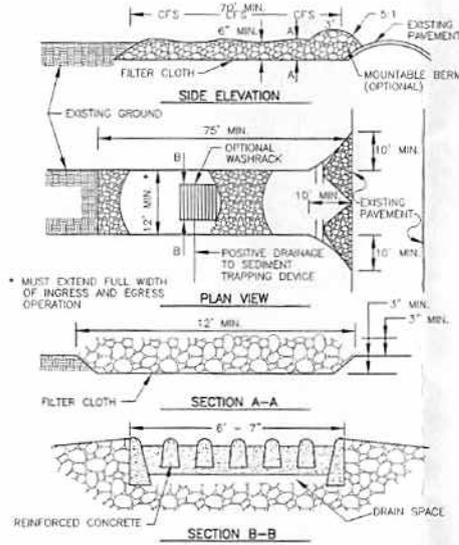
DESIGNED BY: JMH	DATE: _____	DESCRIPTION: _____
REVIEWED BY: JMH	DATE: _____	DESCRIPTION: _____
DRAWN BY: JMH	DATE: JAN 2014	DESCRIPTION: _____
PROJ. NO.:		DESCRIPTION: _____
DRAWING NO.:		DESCRIPTION: _____
SCALE:	SEE DWG	
<p><b>Morris Knowles &amp; Associates, Inc.</b> Erosion Control and Sedimentation 1000 1/2 West Virginia Ave. Martinsburg, WV 26151 (304) 263-1111</p>		
<p><b>CONSOL 1621</b> prepared for <b>XTO ENERGY, INC.</b> situated at WISEMA'S RUN ROAD, MARION COUNTY, WEST VIRGINIA <b>EROSION AND SEDIMENT CONTROL PLAN</b></p>		
DRAWING NO.		
SHEET NO.	ES-2	

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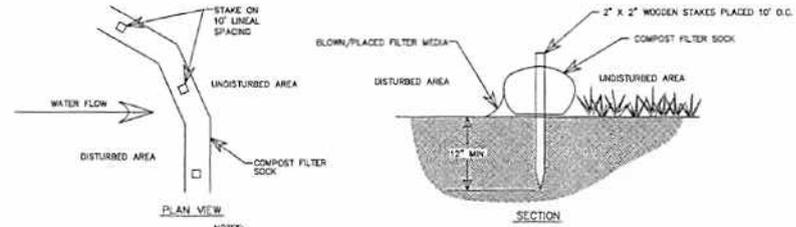


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-TO-CELL DO NOT SEED PREPARED AREA. CELL-TO-CELL MUST BE INSTALLED WITH PAPER SIDE DOWN.
  2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL, AND FELD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
  3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STRIP ON THE PREVIOUSLY INSTALLED BLANKET.
  5. CONSECUTIVE BLANKETS UNROLLED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 2" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
- \* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

STANDARD CONSTRUCTION DETAIL  
EROSION CONTROL BLANKET  
NOT TO SCALE



STANDARD CONSTRUCTION DETAIL  
STONE CONSTRUCTION ENTRANCE  
NOT TO SCALE



- NOTES:
1. ALL MATERIAL TO MEET DEP SPECIFICATIONS.
  2. FILTER SOCK/COMPOST/SOIL/ROCK/SEED FILL TO MEET DEP REQUIREMENTS.
  3. FILTER SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
  4. COMPOST MATERIAL TO BE DISPENSED ON SITE, AS DETERMINED BY ENGINEER.

COMPOST FILTER SOCK  
NO SCALE

**MKA** Morris Knowles & Associates, Inc.  
Erosion Control, Stormwater Management, and Land Development  
4435 Arroyo Vista Drive  
Tempe, AZ 85281  
(480) 838-8822  
(602) 838-8822

CONSOL 1621  
prepared for  
XTO ENERGY, INC.  
situated  
WISEMAS RUN ROAD, MARION COUNTY, WEST VIRGINIA  
EROSION AND SEDIMENT CONTROL DETAILS



DRAWING NO.  
SHEET NO.  
ES-3

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REVISION BY:	DATE:	DESCRIPTION:

DESIGNED BY: JMH  
REVIEWED BY: JMH  
DRAWN BY: JMH  
DATE: JAN, 2014  
PROJ. NO.:  
DRAWING NO.:

SCALE:  
N/A