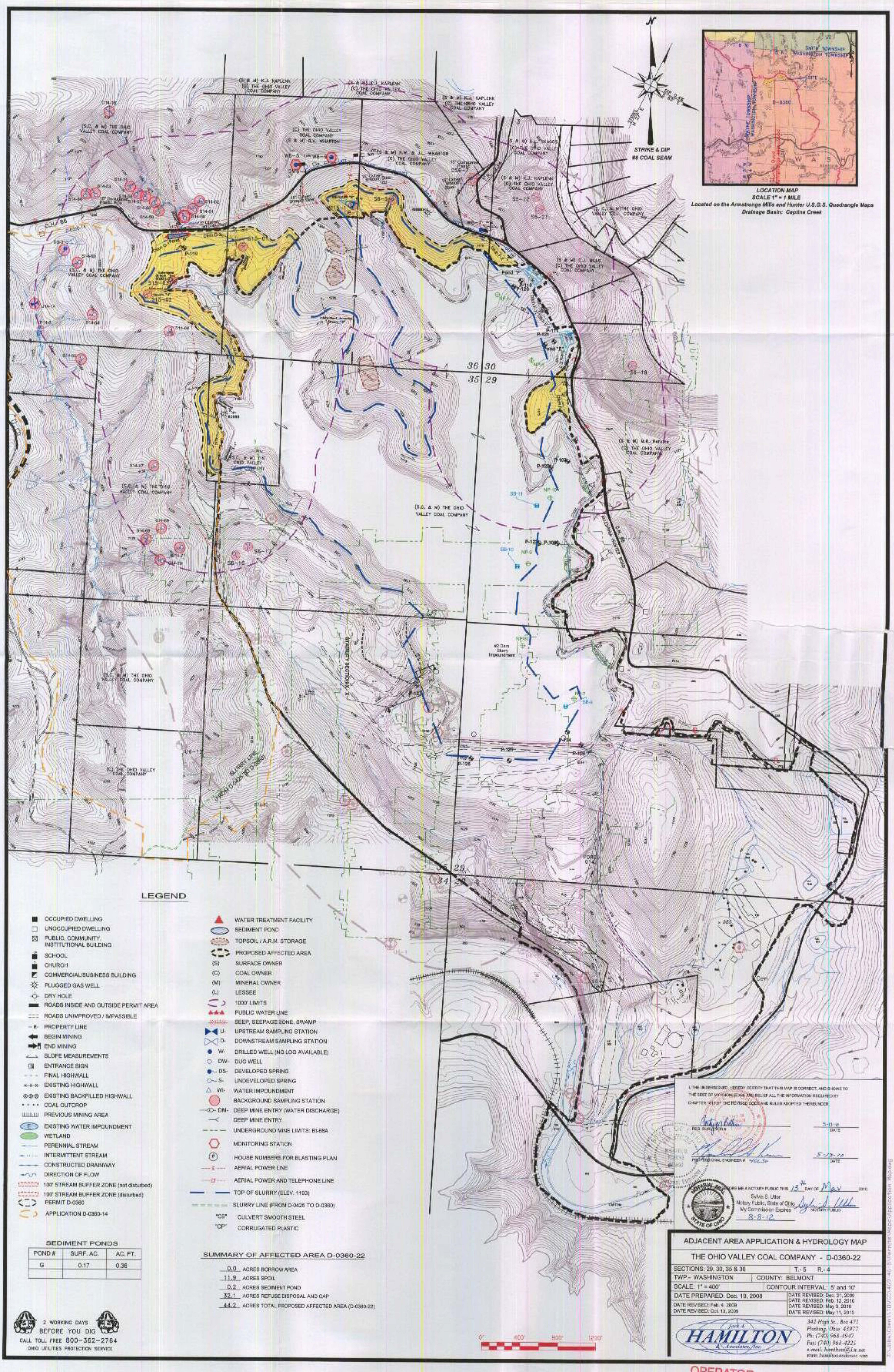
D-0360-22

1 of 3

TOVCC 23205


STRIKE & DIP
#8 COAL SEAM
LOCATION MAP
SCALE 1" = 1 MILE
Located on the Armstrongs Mills and Hunter U.S.G.S. Quadrangle Maps
Drainage Basin: Captina Creek
(S.C. & M) THE OHIO VALLEY COAL COMPANY
(C) THE OHIO VALLEY COAL COMPANY
(S & M) K.J. KAPLENK
(C) THE OHIO VALLEY COAL COMPANY
(S & M) R.W. & J.C. WHARTON
(C) THE OHIO VALLEY COAL COMPANY
(S & M) C.J. MILLS
(C) THE OHIO VALLEY COAL COMPANY
(S & M) U.R. Peraska
(C) THE OHIO VALLEY COAL COMPANY
SLURRY LINE
(FROM D-0425 TO D-0390)
#2 Dam Slurry Impoundment
Pond "F"
Pond "E"
Pond "G"
36 30
35 29
34 28
LEGEND
OCCUPIED DWELLING
UNOCCUPIED DWELLING
PUBLIC, COMMUNITY, INSTITUTIONAL BUILDING
SCHOOL
CHURCH
COMMERCIAL/BUSINESS BUILDING
PLUGGED GAS WELL
DRY HOLE
ROADS INSIDE AND OUTSIDE PERMIT AREA
ROADS UNIMPROVED / IMPASSIBLE
PROPERTY LINE
BEGIN MINING
END MINING
SLOPE MEASUREMENTS
ENTRANCE SIGN
FINAL HIGHWALL
EXISTING HIGHWALL
EXISTING BACKFILLED HIGHWALL
COAL OUTCROP
PREVIOUS MINING AREA
EXISTING WATER IMPOUNDMENT
WETLAND
PERENNIAL STREAM
INTERMITTENT STREAM
CONSTRUCTED DRAINWAY
DIRECTION OF FLOW
100' STREAM BUFFER ZONE (not disturbed)
100' STREAM BUFFER ZONE (disturbed)
PERMIT D-0360
APPLICATION D-0360-14
WATER TREATMENT FACILITY
SEDIMENT POND
TOPSOIL / A.R.M. STORAGE
PROPOSED AFFECTED AREA
(S) SURFACE OWNER
(C) COAL OWNER
(M) MINERAL OWNER
(L) LESSEE
1000' LIMITS
PUBLIC WATER LINE
SEEP, SEEPAGE ZONE, SWAMP
U- UPSTREAM SAMPLING STATION
D- DOWNSTREAM SAMPLING STATION
W- DRILLED WELL (NO LOG AVAILABLE)
DW- DUG WELL
DS- DEVELOPED SPRING
S- UNDEVELOPED SPRING
WI- WATER IMPOUNDMENT
BACKGROUND SAMPLING STATION
DM- DEEP MINE ENTRY (WATER DISCHARGE)
DEEP MINE ENTRY
UNDERGROUND MINE LIMITS: BI-68A
MONITORING STATION
HOUSE NUMBERS FOR BLASTING PLAN
AERIAL POWER LINE
AERIAL POWER AND TELEPHONE LINE
TOP OF SLURRY (ELEV. 1193)
SLURRY LINE (FROM D-0425 TO D-0390)
"CS" CULVERT SMOOTH STEEL
"CP" CORRUGATED PLASTIC
SEDIMENT PONDS
POND # | SURF. AC. | AC. FT.
G | 0.17 | 0.36
SUMMARY OF AFFECTED AREA D-0360-22
0.0 ACRES BORROW AREA
11.9 ACRES SPOIL
0.2 ACRES SEDIMENT POND
32.1 ACRES REFUSE DISPOSAL AND CAP
44.2 ACRES TOTAL PROPOSED AFFECTED AREA (D-0360-22)
2 WORKING DAYS BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE
0' 400' 800' 1200'
I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS MAP IS CORRECT, AND SHOWS TO THE BEST OF MY KNOWLEDGE AND BELIEF ALL THE INFORMATION REQUIRED BY CHAPTER 1513 OF THE REVISED CODE AND RULES ADOPTED THEREUNDER.
REG. SURVEYOR #
5-11-10
DATE
PROFESSIONAL ENGINEER #
5-10-10
DATE
SUBSCRIBED AND SWORN TO BEFORE ME A NOTARY PUBLIC THIS 13th DAY OF May 2010
Sylas S. Utter
Notary Public, State of Ohio
My Commission Expires 8-8-12
NOTARY PUBLIC
NOTARIAL SEAL
STATE OF OHIO
ADJACENT AREA APPLICATION & HYDROLOGY MAP
THE OHIO VALLEY COAL COMPANY - D-0360-22
SECTIONS: 29, 30, 35 & 36
T.- 5 R.- 4
TWP.- WASHINGTON
COUNTY: BELMONT
SCALE: 1" = 400'
CONTOUR INTERVAL: 5' and 10'
DATE PREPARED: Dec. 19, 2008
DATE REVISED: Feb. 4, 2009
DATE REVISED: Oct. 13, 2009
DATE REVISED: Dec. 21, 2009
DATE REVISED: Feb. 12, 2010
DATE REVISED: May 3, 2010
DATE REVISED: May 11, 2010
Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com
OPERATOR
D-0360-22

COAL MINING AND RECLAMATION PERMIT

Issued To: THE OHIO VALLEY COAL CO
56854 PLEASANT RIDGE ROAD
ALLEDONIA, OH 43902

Telephone: (740) 926-1351

Permit Number: D-360
Application Number: D-360-22
Acreage: 44.2

Effective: 05/25/2010
Expires: 06/19/2014

Type of Operation: Slurry, Surface, Refuse

CONDITIONS

CONDITION TYPE	DESCRIPTION
Offsite Mitigation	This permit is conditionally issued upon the submittal and issuance of an Incidental Boundary Revision or an Adjacent Area Application for the proposed offsite stream/wetland mitigation area. No work shall begin in the mitigation area until one of the above permits is obtained from the Division.
Other	Prior to beginning final capping at the #2 dam slurry impoundment site, submit, and obtain issuance of, an ARP addressing the amount of alkaline material that must be incorporated into the upper thirty inches of the coal waste across the site (embankments, fills, and slurry impondment area).

LOCATION OF PERMIT AREA

NAME OF LANDOWNERS	T	R	SECTION	LOTS	TOWNSHIP	COUNTY
The Ohio Valley Coal Company	5	4	36		WASHINGTON	BELMONT
	5	4	35		WASHINGTON	BELMONT
	5	4	30		WASHINGTON	BELMONT
	5	4	29		WASHINGTON	BELMONT

The issuance of this permit means only that the application to conduct a coal mining operation meets the requirements of Chapter 1513 of the Revised Code, and as such DOES NOT RELIEVE the operator of any obligation to meet other federal, state or local requirements.

This permit is issued in accordance with and subject to the provisions, conditions, and limitations of Chapter 1513 of the Revised Code and Chapters 1501:13-1, 1501:13-3 through 1501:13-14 of the Administrative Code.

The water monitoring plan for this permit shall be:

Quality: S14-60
Quantity: S14-60

Note: These monitoring requirements are separate from NPDES monitoring requirements.

Signature: [signature] BH
Chief, Mineral Resources Management

Date: 05/25/2010

OPERATOR

F46 Rev: 07/01/2001

D-0360-22

TOVCC 23207

APPROVED SURFACE COAL MINING PERMIT APPLICATION

Applicant:

Name: THE OHIO VALLEY COAL CO
Address: 56854 PLEASANT RIDGE ROAD
ALLEDONIA, OH 43902
Telephone: (740) 926-1351

Application Number: D-360-22

Number of acres to be permitted: 44.2

Number of acres to be affected first mining year: 44.2

The quarterly water monitoring plan for this permit shall be:

Quality: S14-60
Quantity: S14-60

Note: These monitoring requirements are separate from NPDES monitoring requirements.

This application is APPROVED since it demonstrates and the Division has found that the criteria in paragraph (E) of rule 1501: 13-5-01 of the Administrative Code have been met.

Signature: John F Hunter BH Date: 5-25-10

OPERATOR

F51 Rev: 07/01/2001

D-0360-22

TOVCC 23208

PERMIT SUMMARY SHEET
Division of Mineral Resources Management

Permit Number: D-360

Application Number: D-360-22

See permit cover sheet for specific conditions and hydrologic monitoring requirements.

Inspector's Note:
This summary is designed only to advise you of important provisions of a permit that require your attention and monitoring. Your familiarity with requirements and permitted activities will insure that mining and reclamation occurs as was intended and approved at the time of permit issuance. Please take the time to review relevant provisions of the permit carefully and thoroughly. Should you have questions about this or any permit, please do not hesitate to contact the application manager within the Permitting Section.

Items marked are applicable to this permit:

- ☐ Auger Mining/Highwall Mining
- ☐ Alternate Resoiling Material
- ☐ Blasting Plans
- ☑ Buffer Zone Variance Request (BZVR)
- ☐ Coal Waste Disposal
- ☐ Delay in Contemporaneous Reclamation
- ☐ Excess Spoil Disposal
- ☐ Experimental Mining Practices
- ☐ Federal Lands
- ☐ Mountain Top Removal
- ☑ MSHA Impoundment
- ☐ AML No-Cost Area
- ☐ Prime Farmlands
- ☐ Remining (Reduced Maintenance)
- ☐ Remining (Modified effluent)
- ☐ Remining BMP only Permit
- ☐ Special handling of acid-forming/toxic materials.
- ☐ Beneficial Use of CCB's
- ☐ Public Road Permit VER for CR-86
- ☐ Small Area Drainage Exemption (SADE)
- ☐ Steep Slope Mining
- ☑ Slurry Impoundment
- ☐ Test Hole Variance
- ☐ Variance from AOC
- ☑ Wetlands Affectment/Avoidance
- ☐ Within 500' of active UG mine
- ☐ Within 500' of abandoned UG mine
- ☐ Within 100' of a cemetery
- ☐ Within 300' of occupied dwelling VER for Wharton & Stagg dwellings
- ☐ Within 300' of public building, church, school, community or institutional building or public
- ☐ Within 1000' of wild, scenic or recreational river
- ☑ ~~OEPA 401~~/COE 404 permits ~~needed for~~ received wetlands or stream affectment and/or reconstruction (NWP 50)
- ☐ Tree Planting in Reclamation Plans

Application Manager: Scott Stiteler, Environmental Specialist **Date:** 5-25-10

F103 Rev: 07/01/2001

OPERATOR

D-0360-22

TOVCC 23209

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

UNDERGROUND COAL MINING AND RECLAMATION PERMIT APPLICATION
(INCLUDING SURFACE OPERATIONS)

A. Applicant's Name The Ohio Valley Coal Company

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Telephone 740-926-1351

Employer Identification No. (EIN) 34-1041310, or

Social Security No. (last 4 digits) XXX-XX-

B. Type of Application (check appropriate space(s)):

☐ New ☒ Additional Surface and Underground Workings

C. Type of Operation (check appropriate space(s)):

☐ Room and Pillar, ☐ Pillar Extraction, ☐ Longwall, ☒ Other Additional Surface Area for Coal Refuse Disposal

D. Type of Mine Entry:

☐ Shaft, ☐ Slope, ☐ Drift, ☒ Other No additional Underground workings

E. Name of mine Powhatan No. 6

F. List below the MSHA identification numbers for the mine and for all mine-associated structures requiring MSHA approval on this application area.

33-01159
1210-OH08-0025-0003
1210-OH08-0025-0004
1210-OH08-0025-0005
1211-OH03-00025-03

G. Indicate the exploration permit number(s) or notice of intent (NOI) number(s) that were obtained for this application area.

None

OPERATOR

H. Did a person other than an employee of the applicant prepare this application?

Yes ☒ No ☐ If "yes," provide:

Preparer's Name Jack A. Hamilton and Associates, Inc.
Address 342 High Street, P.O. Box 471
City Flushing State Ohio Zip 43977 Telephone 740-968-4947

I. I, the undersigned, a responsible official of the applicant, do hereby verify the information in the complete permit application as true and correct to the best of my information and belief.

Printed Name David L. Bartsch Title Environmental Coordinator
Signature David L. Bartsch Date 12/22/08
Sworn before me and subscribed in my presence this 22nd day of December 2008.

Denise R. Jackson
Notary Public

STATE OF OHIO
NOTARY PUBLIC
DENISE R. JACKSON
My Commission Expires April 22, 2010

J. **FOR REVISION REVIEW ONLY:** This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned, a responsible official of the applicant, do hereby verify and acknowledge the revisions made during the permit review process as true and correct to the best of my information and belief.

Printed Name Farley R. Wood Title Dir. of Enviro. Compliance & Permitting

Signature _____ Date 12-21-09

Sworn before me and subscribed in my presence this 21 day of Dec., 2009.

NOTARIAL SEAL STATE OF OHIO

GREG S. WILLIAMS
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES FEBRUARY 19, 2011

_____ Notary Public

J. **FOR REVISION REVIEW ONLY:** This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned, a responsible official of the applicant, do hereby verify and acknowledge the revisions made during the permit review process as true and correct to the best of my information and belief.

Printed Name Farley R. Wood Title Dir. of Enviro. Compliance & Permitting

Signature _____ Date 4-30-10

Sworn before me and subscribed in my presence this 30th day of April, 2010.

_____
Notary Public

NOTARY PUBLIC STATE OF OHIO

PENNY J. ELLIOTT
Notary Public
State of Ohio
My Commission Exp. Feb. 11, 2013

J. FOR REVISION REVIEW ONLY: This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned, a responsible official of the applicant, do hereby verify and acknowledge the revisions made during the permit review process as true and correct to the best of my information and belief.

Printed Name Farley R. Wood Title Dir. of Enviro. Compliance & Permitting

Signature _____ Date 5-12-10

Sworn before me and subscribed in my presence this 12th day of May, 2010.

Ellen M. Greer
Notary Public

ELLEN M. GREER, Notary Public
State of Ohio
My Commission Expires September 23, 2011

NOTARIAL SEAL
STATE OF OHIO

H. **FOR REVISION REVIEW ONLY:** This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned, a responsible official of the applicant, do hereby verify and acknowledge the revisions made during the permit review process as true and correct to the best of my information and belief.

Printed Name Farley R. Wood Title Permitting Manager

Signature _____ Date 5-24-10

Sworn before me and subscribed in my presence this 24th day of May, 20 10

Denise R. Jackson
Notary Public

STATE OF OHIO
NOTARY PUBLIC
DENISE R. JACKSON
My Commission Expires Sept. 28, 2010

MAY 24 2010

PART 1: LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

A. IDENTIFICATION OF INTERESTS

(1) Is the applicant a single proprietorship? Yes ☐ No ☒ If "yes," provide the following:

Owner's Name

Address

City State Zip Telephone

EIN , or SSN (last 4 digits) XXX-XX-

Beginning date of ownership

If "no," indicate business structure of applicant.

☐ Partnership (registration no. and date obtained)
☒ Corporation (charter no. and date incorporated) 384971, May 28, 1988
☐ Association
☐ Other, specify

Provide the following for the applicant's statutory agent and submit Owners and Controllers

Agent's Name A & H Statutory

Address 1100 Huntington Building

City Cleveland State Ohio Zip 44115 Telephone 216-696-1100

EIN 34-104130, or SSN (last 4 digits) XXX-XX-

(2) Will there be a mine operator other than the applicant?

Yes ☐ No ☒ If "yes" provide the operator's name and submit Operator Ownership and Control (Note: if more than one operator, indicate operator's name and submit a separate form for each).

Operator's Name

(3) Provide the following for the person or entity who will pay the abandoned mine land reclamation fee for the applicant.

Name Robert E. Murray

Address 29525 Chagrin Blvd., Suite 300

City Pepper Pike State Ohio Zip 44122 Telephone 216-765-1240

EIN 34-1041310, or SSN (last 4 digits - optional) XXX-XX-

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Company**

Name **Robert D. Moore**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**9703**

Title of position within entity **President**

Date position assumed/ended (if applicable) **04/23/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**8852**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **06/30/03/N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael D. Loiacono**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**6784**

Title of position within entity **Treasurer**

Date position assumed/ended (if applicable) **1/10/05/N/A**

Percent of ownership **0** Date of ownership **N/A**

MAY 1 2 2010

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 05/08
DNR-744-9010

OPERATOR

TOVCC 23217

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

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Name of business entity **Murray Energy Holdings Company**

Name **Michael McKown**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**4552**

Title of position within entity **Secretary**

Date position assumed/ended (if applicable) **06/30/03/ N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert Edward Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**1320**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **06/30/03/N/A**

Percent of ownership **20 - Class B** Date of ownership **06/30/03**

Name **Ryan Michael Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **Oh** Zip **44122**

EIN , or SSN (last 4 digits) xxx-xx-**0815**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **06/30/03/N/A**

Percent of ownership **20 - Class B** Date of ownership **06/30/03**

MAY 1 2 2010

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 05/08
DNR-744-9010

TOVCC 23218

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

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Name of business entity **Murray Energy Holdings Company**

Name **Jonathan Robert Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **0811**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **06/30/03/ N/A**

Percent of ownership **20 - Class B** Date of ownership **06/30/03**

Name **Robert E Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **8852**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **07/09/03/ N/A**

Percent of ownership **20 - Class B** Date of ownership **07/09/03**

Name **Robert D Moore**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **9703**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **4/23/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

MAY 1 2 2010

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 02/06
DNR-744-9010

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Company**

Name **Michael O. McKown**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **4552**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **06/30/03/ N/A**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **8852**

Title of position within entity **Chairman of the Board**

Date position assumed/ended (if applicable) **6/30/03/ 11/29/05**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert D. Moore**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **9703**

Title of position within entity **Chief Executive Officer**

MAY 1 2 2010

Date position assumed/ended (if applicable) **4/23/07/N/A**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 02/06
DNR-744-9010

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Company**

Name **Robert E. Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **8852**

Title of position within entity **President**

Date position assumed/ended (if applicable) **06/30/03/ 11/29/05**

Percent of ownership **0** Date of ownership **N/A**

Name **Robert E. Murray**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **8852**

Title of position within entity **Chief Executive Officer**

Date position assumed/ended (if applicable) **6/30/03/ 11/29/05**

Percent of ownership **0** Date of ownership **N/A**

Name **Scott A. Boyle**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

MAY 1 2 2010

EIN **20-0100463**, or SSN **Decline**

Title of position within entity **Chief Executive Officer**

Date position assumed/ended (if applicable) **11/29/05/12/20/05**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 02/06
DNR-744-9010

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

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Name of business entity **Murray Energy Holdings Company**

Name **Michael D. Loiacono**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **6784**

Title of position within entity **President**

Date position assumed/ended (if applicable) **1/10/05/ 4/23/07**

Percent of ownership **0** Date of ownership **N/A**

Name **Michael D. Loiacono**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **6784**

Title of position within entity **Chief Executive Officer**

Date position assumed/ended (if applicable) **1/10/05/ 4/23/07**

Percent of ownership **0** Date of ownership **N/A**

Name **Scott A. Boyle**

Street address **29325 Chargrin Boulevard, Suite 300**

MAY 1 2 2010

City **Pepper Pike** State **OH** Zip **44122**

EIN **20-0100463**, or SSN **Decline**

Title of position within entity **President**

Date position assumed/ended (if applicable) **11/29/05/12/20/05**

Percent of ownership **0** Date of ownership **N/A**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 02/06
DNR-744-9010

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name **The Ohio Valley Coal Company**

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity **Murray Energy Holdings Company**

Name **Michael D. Loiacono**

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **6784**

Title of position within entity **Director**

Date position assumed/ended (if applicable) **6/30/03/ 4/23/07**

Percent of ownership **0** Date of ownership **N/A**

Name **Fifth Third Bank Of Northeast Ohio Trustee, (Murray 2003 Trust)**

Street address **24261 Cedar Rd.**

City **Cleveland** State **OH** Zip **44124**

EIN **20-0100463**, or SSN **N/A**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A/**

Percent of ownership **20 - Class B** Date of ownership **10/13/2003**

Name **Robert E. Murray**

MAY 1 2 2010

Street address **29325 Chargrin Boulevard, Suite 300**

City **Pepper Pike** State **OH** Zip **44122**

EIN , or SSN **8852**

Title of position within entity **Shareholder**

Date position assumed/ended (if applicable) **N/A/**

Percent of ownership **100 - Class A** Date of ownership **6/27/2003**

Submit and identify additional pages necessary to complete response.

Part 1: Section A

Revised 02/06
DNR-744-9010

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity The Fifth Third Bank of Northeast Ohio*

Name *Note: No Equity Owners Greater Than 10%

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

MAY 03 2010

Revised 02/06
DNR-744-9010

TOVCC 23224

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OWNERS AND CONTROLLERS

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the applicant is other than a single proprietorship. Provide the following for all partners, officers, directors, and stockholders owning ten percent or more of any class of voting stock or other instruments of ownership, and any other person performing a function similar to a director. Persons holding or who have held multiple positions must be listed separately for each position. If any owner or controller listed is a business entity and not an individual, also complete an Owners and Controllers for that business entity.

Name of business entity The Fifth Third Bank of Northeast Ohio*

Name *Note: No Equity Owners Greater Than 10%

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Name

Street address

City State Zip

EIN , or SSN

Title of position within entity

Date position assumed/ended (if applicable) /

Percent of ownership Date of ownership

Submit and identify additional pages necessary to complete response.

Part 1: Section A

OPERATOR

Revised 02/06
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D-0360-22

TOVCC 23225

(4) Provide the following for all persons having the authority or ability to commit the financial, real property assets, or working resources of the applicant who are not otherwise identified as officers, directors or owners of the applicant. If none, check box: ☒. If any person listed is a business entity and not an individual, also complete Owners and Controllers for that person.

Name

Address

City State Zip Telephone

EIN , or SSN (last 4 digits) XXX-XX-

O & C relationship to entity

Date O & C relationship began/ended (if applicable) /

If necessary, submit additional pages to complete response.

(5) Provide the following for all persons owning or controlling the coal to be mined by another person under a lease, sublease, or other contract and (a) having the right to receive the coal after mining, or (b) having the authority to determine the manner in which another person conducts coal mining operations. If none, check box: ☒. If any person listed is a business entity and not an individual, also complete Owners and Controllers for that person.

Name

Address

City State Zip Telephone

EIN , or SSN (last 4 digits) XXX-XX-

O & C relationship to entity

Date O & C relationship began/ended (if applicable) /

If necessary, submit additional pages to complete response.

(6) List below the person or persons primarily responsible for ensuring that the applicant will comply with Chapter 1513 of the Revised Code and the rules adopted pursuant thereto while mining and reclaiming the area for which this permit is requested.

Robert E. Murray

(7) Has the applicant, any person or entity listed under items A (4) and (5), or any person or entity listed on the Owners and Controllers who "owned or controlled" or "owns or controls" held a coal mining permit in the United States within the five years preceding the date of this application?

Yes ☒ No ☐ If "yes," submit Permit List.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entitv The Ohio Valley Coal Company
Address 56854 Pleasant Ridge Road
City Alledonia State Ohio Zip 43902
Telephone 740-926-1351
EIN 34-1041610 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0360	Oh	DMRM	33-01159/5-27-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Energy Resources, Inc.
Address P.O. Box 259
City Brockway State PA Zip 15824
Telephone 814-865-8021
EIN 31-1044044 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
17823071	PA	DEP	36-02695 / 05-25-1988
17841607	PA	DEP	36-02695 / 05-25-1988
17930120	PA	DEP	36-02695 / 05-25-1988
24010101	PA	DEP	36-02695 / 05-25-1988
24030102	PA	DEP	36-02695 / 05-25-1988
24880101	PA	DEP	36-02695 / 05-25-1988
24880103	PA	DEP	36-02695 / 05-25-1988
24890101	PA	DEP	36-02695 / 05-25-1988
24890102	PA	DEP	36-02695 / 05-25-1988
24900103	PA	DEP	36-02695 / 05-25-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Energy Resources, Inc.
Address P.O. Box 259
City Brockway State PA Zip 15824
Telephone 814-865-8021
EIN 31-1044044 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
24900104	PA	DEP	36-02695 / 05-25-1988
24970102	PA	DEP	36-02695 / 05-25-1988
24970103	PA	DEP	36-02695 / 05-25-1988
24980101	PA	DEP	36-02695 / 05-25-1988
24990101	PA	DEP	36-02695 / 05-25-1988
33901602	PA	DEP	36-02695 / 05-25-1988
24960101	PA	DEP	36-02695 / 05-25-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity American Energy Corporation
Address 43521 Mayhugh Hill Road. Township Highway 88
City Beallsville State Ohio Zip 43716
Telephone 740-926-9152
EIN 31-1550443 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0425	Oh	DMRM	33-01070/10-22-84
D-1159	Oh	DMRM	33-02122/01-26-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Belmont Coal, Inc.
Address P.O. Box 146
City Powhattan Point State Ohio Zip 43942
Telephone 714-795-5200
EIN 31-1536602 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0241	Oh	DMRM	33-03048/7-2-1993

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity The Oklahoma Coal Company
Address 29325 Chagrin Blvd.
City Pepper Pike State Ohio Zip 44122
Telephone 216-765-1240
EIN 34-1673480 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-0230	Oh	DMRM	N/A

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity TDK Coal Sales, Inc.
Address P.O. Box 259
City Brockway State PA Zip 15824
Telephone 814-865-8021
EIN 25-1422374 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
03960103	PA	DEP	36-07707 / 1-14-1997
03940101	PA	DEP	36-07707 / 6-6-1995
16910104	PA	DEP	36-07707 / 5-11-1992
33960109	PA	DEP	36-07707 / 3-03-1998
16980102	PA	DEP	36-07707 / 9-10-1998
24970104	PA	DEP	36-08867 / 9-10-1998
17814000	PA	DEP	36-08867 / 9-10-1988
17840126	PA	DEP	36-08867 / 9-10-1988
17900108	PA	DEP	36-08867 / 9-10-1988
17900143	PA	DEP	36-08867 / 9-10-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity TDK Coal Sales, Inc.
Address P.O. Box 259
City Brockway State PA Zip 15824
Telephone 814-865-8021
EIN 25-1422374 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
17910124	PA	DEP	36-08867 / 9-10-1988
17960119	PA	DEP	36-08867 / 9-10-1988
17910124	PA	DEP	36-08867 / 9-10-1988
03950106	PA	DEP	36-08867 / 9-10-1988
10900109	PA	DEP	36-08867 / 9-10-1988
10930105	PA	DEP	36-08867 / 9-10-1988
16900109	PA	DEP	36-08867 / 9-10-1988

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, shareholder 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entitv UtahAmercian Energy, Inc.
Address 375 S. Carbon Ave. Suite 127
City Price State UT Zip 84501
Telephone 435-888-4000
EIN 34-1874726 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
ACT/007/013	UT	DOGM	42-00100/12-24-1978

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Murray Energy Corp., owner 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity The American Coal Company
Address 29325 Chagrin Blvd.
City Pepper Pike State OH Zip 44122
Telephone 216-765-1240
EIN 73-1546124 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
02	IL	Office of Mines and Minerals	11-02752/10-14-1998
255	IL	Office of Mines and Minerals	11-02752/10-14-1998
257	IL	Office of Mines and Minerals	11-02752/10-14-1998
306	IL	Office of Mines and Minerals	11-02752/10-14-1998
352	IL	Office of Mines and Minerals	11-02752/10-14-1998
344	IL	Office of Mines and Minerals	11-02752/10-14-1998

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, President

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity OhioAmerican Energy, Inc.
Address 34 Kelley Wav
City Brilliant State Ohio Zip 43913
Telephone 740-598-4325
EIN 20-3044610 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
D-2180	Oh	ODNR,DMRM	33-04387/10-9-03
D-2291	Oh	ODNR,DMRM	33-04569/3-12-07
D-2304	Oh	ODNR,DMRM	33-04550/10-26-07
D-2312	Oh	ODNR,DMRM	33-04550/2-26-08

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E Murray- Director

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity UMCO Energy Inc.
Address 981 Route 917
City Bentleville State PA Zip 15314
Telephone 724-258-2056
EIN 52-1615668 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
63921301	PA	DEP	36-08375/6-8-1994

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Maple Creek Mining Company
Address 981 Route 917
City Bentleville State PA Zip 15314
Telephone 724-258-2056
EIN 25-1755305 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
63841302	PA	DEP	36-00970/6-30-1995
63733706	PA	DEP	36-00970/6-30-1995
63723707	PA	DEP	36-00970/6-30-1995

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Mon-Valley Transportation Center, Inc.
Address P.O. Box 135, 1060 Ohio Ave.
City Glass Port State Oh Zip 15045
Telephone 412-673-1500
EIN 15-1490495 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
2851602	PA	DEP	36-08678/6-8-1995

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray, Director

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity West Ridge Resources Inc
Address 794 North C Canyon Road
City Price State UT Zip 84501
Telephone (435) 564-4000
EIN 87-0585129 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
ACT007041	UT	DOGM	4202233/ 08/09/06

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray-Director

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Andalex Resources Management, Inc.
Address P.O. Box 902, 6750 N. Airport Road
City Price State UT Zip 84501
Telephone 435-637-5385
EIN 61-0731325 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
C0070019	UT	DOGM	4202028 / 04-01-89 4202028 / 07-01-78
C0070033	UT	DOGM	4201864 / 02-01-84

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Murray Energy Corp., owner 100%

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PERMIT LIST

Applicant's Name The Ohio Valley Coal Company

Submit the following information for each coal mining operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

Name of Business Entity Genwal Resources Inc
Address 375 South Carbon Ave, Suite 127
City Price State Utah Zip 84501
Telephone
EIN 87-0533099 or SSN

Permit Number	State	Regulatory Authority	MSHA Number and Date Issued
C0150032	UT	DOGM	4201715/08-09-06

If not previously provided, indicate the ownership or control relationship of the business entity with the applicant, including percent of ownership and location in organizational structure:

Robert E. Murray-Director

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DEC 2 2 2009

OPERATOR

TOVCC 23243

(8) Does the applicant, any person or entity listed under items A (4) and (5), or any person or entity listed on Owners and Controllers have a pending coal mining application in any state of the United States?

Yes ☒ No ☐ If "yes," submit Pending Application List.

(9) Submit Certificate of Insurance.

B. COMPLIANCE INFORMATION

(1) Has the applicant, any subsidiary, affiliate or persons controlled by or under common control with the applicant:

(a) Had a federal or state coal mining permit suspended or revoked in the five years preceding the data of submission of this application?

Yes ☐ No ☒ If "yes," submit Suspension, Revocation & Forfeiture List.

(b) Forfeited a mining bond or similar security deposited in lieu of bond?

Yes ☐ No ☒ If "yes," submit Suspension, Revocation & Forfeiture List.

(2) Has the applicant been issued notices of violation (NOVs) in connection with any coal mining and reclamation operation during the three years preceding the date of submission of this application for violations of Chapter 1513 of the Revised Code or the Administrative Code, or of any federal or state law, rule, or regulation pertaining to air or water environmental protection?

Yes ☒ No ☐ If "yes," submit NOV List.

(3) Have any unabated federal or state cessation orders (COs) and unabated air and water quality notices of violations (NOVs) been received prior to the submission date of this application by any coal mining and reclamation operation owned or controlled by either the applicant or by any person who owns or controls the applicant?

Yes ☐ No ☒ If "yes," submit Unabated Violations.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed The Ohio Valley Coal Company

Application No.	Name of Regulatory Authority	State
D-0360-14	DMRM	OHIO
D-0360-15	DMRM	OHIO
D-0360-20	DMRM	OHIO
D-0360-21	DMRM	OHIO

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed Belmont Coal, Inc.

Application No.	Name of Regulatory Authority	State
10168	DMRM	OH

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed American Energy Corporation

Application No.	Name of Regulatory Authority	State
D-0425-8	DMRM	OH
D-0425-9 / Issued	DMRM	OH
D-0425-10 / Issued	DMRM	OH
D-0425-11	DMRM	OH
D-0425-12	DMRM	OH

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed Energy Resources, Inc.

Application No.	Name of Regulatory Authority	State
33-02-07	DEP	PA

Part 1: Section A

Revised 02/06
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed OhioAmerican Energy, Inc.

Application No.	Name of Regulatory Authority	State
D-2304-1	ODNR, DMRM	OHIO
D-2180-1	ODNR, DMRM	OHIO

Part 1: Section A

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

PENDING APPLICATION LIST

Applicant's Name The Ohio Valley Coal Company

Provide the following information for each pending coal mining application for either the applicant or any person who owns or controls the applicant.

Indicate the business entity for which this listing has been completed Andalex Resources, Inc.

Application No.	Name of Regulatory Authority	State
POR25002	DOGM	UT

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

CERTIFICATE OF INSURANCE

Name of Insured The Ohio Valley Coal Company

This is to certify that the policy of insurance listed below has been issued to the above named insured and is in force at this time. The policy provides bodily injury and property damage insurance for all coal mining and reclamation operations of the insured in the state of Ohio as required by 1501:13-7-07 of the Administrative Code stated below.

Name of Insurer Federal Insurance Company

Policy Number 37104410

Policy Period 6/1/09-6/1/2010

Name of Underwriting Agent Roschini Agency, Inc.

Address of Underwriting Agent 922 Philadelphia ST.
Indiana, PA 15701

Telephone No. of Underwriting Agent 800 828 5040

In the event of cancellation or non-renewal of this policy, including non-payment of policy premiums, the insurer agrees to promptly notify: The Division of Mineral Resources Management, 2045 Morse Road, Building H-3, Columbus, Ohio 43229-6693.

6/22/09
Date

Signature of Underwriting Agent

This certificate is issued as a matter of information only and confers no rights upon the Division of Mineral Resources Management. This certificate does not amend, extend or alter the coverage afforded by the policy listed above.

1501:13-7-07(B) THE PUBLIC LIABILITY INSURANCE POLICY SHALL:

(1) BE IN EFFECT DURING THE TERM OF THE PERMIT OR ANY RENEWAL, INCLUDING THE LENGTH OF ALL RECLAMATION OPERATIONS;

(2) PROVIDE FOR PERSONAL INJURY AND PROPERTY DAMAGE PROTECTION IN AMOUNTS ADEQUATE TO COMPENSATE ANY PERSONS INJURED OR PROPERTY DAMAGED AS A RESULT OF COAL MINING AND RECLAMATION OPERATIONS, INCLUDING THE USE OF EXPLOSIVES. THE MINIMUM INSURANCE COVERAGE FOR BODILY INJURY AND PROPERTY DAMAGE SHALL BE THREE HUNDRED THOUSAND DOLLARS FOR EACH OCCURRENCE AND FIVE HUNDRED THOUSAND DOLLARS IN THE AGGREGATE; AND

(3) INCLUDE A RIDER REQUIRING THAT THE INSURER NOTIFY THE CHIEF WHENEVER SUBSTANTIVE CHANGES ARE MADE IN THE POLICY, INCLUDING ANY TERMINATION OR FAILURE TO RENEW.

Part 1: Section A

Revised 02/06
DNR-744-8034

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

NOV LIST

Applicant's Name The Ohio Valley Coal Company

Permit Number	Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of NOV	Action Taken to Abate NOV	Current Status of NOV (*)
D-0360	19656	5-23-06	DMRM	OH	Failure to maintain the perimeter of diversion ditch	Restored Ditch	Terminated
D-0360	19662	8-02-04	DMRM	OH	Failure to maintain a sediment control measure	Stopped Flow	Terminated
D-0360	28473	11-30-06	DMRM	OH	Clean coal stock pile overflowed the div. ditch.	Opened ditch	Terminated
D-0360	28474	11-30-06	DMRM	OH	Coal blocking drainage ditch	Opened ditch	Terminated
D-0360	28538	8-17-07	DMRM	OH	Failure to maintain drainage ditch/culvert around the	Moved coal, repaired pump	Terminated
					clean coal stockpile and to maintain pond 0-10 pumping system/discharge		
D-0360	28572	12-15-07	DMRM	OH	Failure to submit quarterly monitoring report	Submitted report	Terminated
D-0360	28599	2-28-08	DMRM	OH	Pond discharge high in iron	Treated pond.	Terminated
D-0360	28598	2-28-08	DMRM	OH	Failure to dispose of refuse in accordance with plan	Stopped flow.	Terminated
D-0360	28505	3-5-08	DMRM	OH	Unpermitted discharge of water.	Stopped flow.	Terminated

(*) If administrative or judicial proceedings have been initiated concerning any of the violations, identify the violation and provide an addendum indicating the date, location, type of proceeding, and current status.

Revised 02/06
DNR-744-9016

TOVCC 23252

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

NOV LIST

Applicant's Name The Ohio Valley Coal Company

Permit Number	Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of NOV	Action Taken to Abate NOV	Current Status of NOV (*)
D-0360	28490	3-05-08	DMRM	OH	Unpermitted discharge of water	Stopped flow	Terminated
D-0360	28520	3-12-08	DMRM	OH	Embankment leaking water	Repaired Embankment	Terminated
D-0360	28283	3-14-08	DMRM	OH	Pond too full of sediment	Cleaned pond.	Terminated
D-0360	28364	4-03-08	DMRM	OH	Failure to replace water within 18 months	Installing water line.	Extended
D-0360	28358	4-04-08	DMRM	OH	Siltation structure not certified.	Certified structure	Terminated
D-0360	28357	4-04-08	DMRM	OH	Erosion on pond face	Repaired	Terminated
D-0360	28360	4-04-08	DMRM	OH	Undirected drainage	Redirected drainage	Terminated
D-0360	28359	4-04-08	DMRM	OH	Toxic material exposed to water	Removed material	Terminated
D-0360	28361	4-04-08	DMRM	OH	Ditch blocked	Removed material	Terminated
D-0360	28356	4-14-08	DMRM	OH	Slip on embankment	Repaired embankment	Terminated

(*) If administrative or judicial proceedings have been initiated concerning any of the violations, identify the violation and provide an addendum indicating the date, location, type of proceeding, and current status.

Revised 02/06
DNR-744-9016

TOVCC 23253

C. RIGHT OF ENTRY INFORMATION

(1) Provide the following information for every legal or equitable owner of record of the property affected by operations within the underground (UG) workings and permit area, indicating whether the ownership is of surface, coal or non-coal mineral.

LAND OWNER INFORMATION	OWNERSHIP INFORMATION	COUNTY	TOWNSHIP	SECTION	LOT	DEED PARCEL NO.	T-	R-
OWNER NAME: ADDRESS: CITY, STATE, ZIP: TELEPHONE:	☒ Surface – permit area ☐ Surface – UG workings area ☒ Coal ☒ Non-coal mineral							
OWNER NAME: ADDRESS: CITY, STATE, ZIP: TELEPHONE:	☐ Surface – permit area ☐ Surface – UG workings area ☐ Coal ☐ Non-coal mineral							
OWNER NAME: ADDRESS: CITY, STATE, ZIP: TELEPHONE:	☐ Surface – permit area ☐ Surface – UG workings area ☐ Coal ☐ Non-coal mineral							
OWNER NAME: ADDRESS: CITY, STATE, ZIP: TELEPHONE:	☐ Surface – permit area ☐ Surface – UG workings area ☐ Coal ☐ Non-coal mineral							

TOVCC 23254

(2) Provide the following information for the holders of record of any leasehold interest in the property to be mined or affected by surface operations or facilities, indicating whether the held interest is of surface, coal or non-coal mineral rights.

Leaseholder Name N/A

Address

City State Zip Telephone

Surface ☐, Coal ☐, Non-Coal Mineral ☐

Leaseholder Name

Address

City State Zip Telephone

Surface ☐, Coal ☐, Non-Coal Mineral ☐

Submit and identify additional pages necessary to complete response.

(3) Are there purchasers of record under a real estate contract of the coal to be mined or property to be affected by surface operations and facilities?

Yes ☐ No ☒ If "yes," submit Purchasers of Record.

(4) Is any owner, holder or purchaser listed in items C (1) or (2), a business entity other than a single proprietorship?

Yes ☒ No ☐ If "yes," submit Other Business Entities.

(5) Is any part of the permit area adjacent (within 100') to any lands that are not owned by those persons identified in item C (1)?

Yes ☒ No ☐ If "yes," submit Adjacent Owners.

(6) Does the applicant hold lands, interests in lands, options or pending bids on interests for lands that are contiguous to this application area?

Yes ☒ No ☐ If "yes," list those that are contiguous to this application area.

See application map

(7) Is it anticipated that mining permits would be sought for any of those lands described in item C (6) above?

Yes ☐ No ☒ If "yes," describe contiguous properties for which permits may be sought, to include the size, sequence and timing of future mining permits.

(8) Identify the right of entry documentation that is being provided that allows for surface operations and facilities on this application area:

☐ A copy of the right-of-entry documents attached as addenda, or
☒ A Right-of-Entry Affidavit

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name The Ohio Valley Coal Company

A separate attachment is to be submitted for each business entity.

Name of business entity The Ohio Valley Coal Company

Statutory agent A. & H. Statutory

Street Address 1300 Huntington Building

City Cleveland State OH Zip 44115

Person's name Ronnie D. Duez Position Treasurer, Asst. Secretary & Corp. Comptroller

Street Address 56854 Pleasant Ridge Road

City Alledonia State OH Zip 43902

Person's name [illegible] Position [illegible]

Street Address [illegible]

City [illegible] State [illegible] Zip [illegible]

Person's name Roberta K. Ke[illegible] Position Asst. Secretary

Street Address 56854 Pleasant Ridge Road

City Alledonia State OH Zip 43902

Person's name Bonnie M. Proehl[illegible] Position Asst. Secretary & Asst. Treasurer

Street Address 56854 Pleasant Ridge Road

City Alledonia State OH Zip 43902

Part 1: Section C
Page 1

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TOVCC 23256

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name The Ohio Valley Coal Company

A separate attachment is to be submitted for each business entity.

Name of business entity The Ohio Valley Coal Company (continued)

Statutory agent See Page 1

Street Address

City State Zip

Person's name Ohio Valley Resources, Inc. Position Shareholder

Street Address Suite 300, 29325 Chagrin Blvd.

City Pepper Pike State OH Zip 44122

Person's name Robert E. Mutra Position Director

Street Address 56854 Pleasant Ridge Road

City Alledonia State OH Zip 43902

Person's name Paul Piccolo Position Vice President

Street Address 56854 Pleasant Ridge Road

City Alledonia State OH Zip 43902

Person's name Position

Street Address

City State Zip

Part 1: Section C
Page 2

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

ADJACENT OWNERS

Applicant's Name The Ohio Valley Coal Company

Name of owner R.W. & J.L. Wharton
Address 58191 Pleasant Ridge Road
City Belmont State OH Zip 43718
☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Name of owner K.L. Skaggs
Address 58121 Pleasant Ridge Road
City Belmont State OH Zip 43718
☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Name of owner C.J. Mills
Address 2714 Adella Ave.
City Akron State OH Zip 44312
☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Name of owner K.J. Kaplenk
Address 9321 Hanson Road
City Minerva State OH Zip 44657
☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Name of owner M. R. Perkins
Address 57611 Pleasant Ridge Road
City Alledonia State OH Zip 43092
☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Revised 02/06
DNR-744-9013

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

ADJACENT OWNERS

Applicant's Name The Ohio Valley Coal Company

Name of owner G.V. Wharton

Address 58231 Pleasant Ridge Road

City Belmont State OH Zip 43718

☒ Surface, ☐ Coal, ☒ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Revised 02/06
DNR-744-9013

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name The Ohio Valley Coal Company

RIGHT-OF-ENTRY AFFIDAVIT

State of Ohio, Belmont County, ss. Farley R. Wood being first duly sworn, says that the following described documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of document Deed- Vol/Pg- 665/885

Execution Date 9-13-90

Expiration Date N/A

Parties: From G.V. Wharton to The Ohio Valley Coal Company

Description of land: Number of Acres 53.472

County Belmont Township Washington

Section 36 Lot N/A

Explanation of legal rights claimed All rights of ownership.

Pending litigation Yes ☐ No ☒

[signature]	12-21-09	Dir. Envir. Compliance + Permitting
Signature of Affiant	Date	Position

Sworn to before me and subscribed in my presence this 21 day of, December, 2009

[signature]

Notary Public

NOTARIAL SEAL STATE OF OHIO

GREG S. WILLIAMS
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES FEBRUARY 19, 2011

Part 1: Section C

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name The Ohio Valley Coal Company

RIGHT-OF-ENTRY AFFIDAVIT

State of Ohio, Belmont County, ss. Farley R. Wood being first duly sworn, says that the following described documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of document Deed- Vol/Pg- 654/595

Execution Date 3-29-89

Expiration Date N/A

Parties: From W. & E. Perkins to The Ohio Valley Coal Company

Description of land: Number of Acres 20.8324

County Belmont Township Washington

Section 29 Lot N/A

Explanation of legal rights claimed All rights of ownership.

Pending litigation Yes ☐ No ☒

[signature]	12-21-09	Dir. Envir. Compliance & Permitting
Signature of Affiant	Date	Position

Sworn to before me and subscribed in my presence this 21 day of, December, 2009

[signature]
Notary Public

NOTARIAL SEAL STATE OF OHIO

GREG S. WILLIAMS
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES FEBRUARY 19, 2011

Part 1: Section C

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name The Ohio Valley Coal Company

RIGHT-OF-ENTRY AFFIDAVIT

State of Ohio, Belmont County, ss. Farley R. Wood being first duly sworn, says that the following described documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of document Deed- Vol/Pg- 648/474
- Vol/Pg- 737/895

Execution Date 4-05-88, 4-27-98

Expiration Date N/A

Parties: From Nacco Mining Company to The Ohio Valley Coal Company

Description of land: Number of Acres 170.4539

County Belmont Township Washington

Section 30, 35, 36 Lot N/A

Explanation of legal rights claimed All rights of ownership.

Pending litigation Yes ☐ No ☒

Farley R. Wood 12-21-09 Dir. of Envil. Compliance + Permitting

Signature of Affiant Date Position

Sworn to before me and subscribed in my presence this 21 day of, December, 2009

Notary Public

NOTARIAL SEAL STATE OF OHIO

GREG S. WILLIAMS
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES FEBRUARY 19, 2011

Part 1: Section C

02/06
DNR-744-9060

TOVCC 23262

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name The Ohio Valley Coal Company

RIGHT-OF-ENTRY AFFIDAVIT

State of Ohio, Belmont County, ss. Farley R. Wood being first duly sworn, says that the following described documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of document Deed - Vol/Pg- 658/248

Execution Date 10-31-89- October 31, 1989

Expiration Date N/A

Parties: From G. & F. Perkins to The Ohio Valley Coal Company

Description of land: Number of Acres 160.00

County Belmont Township Washington

Section 36 Lot N/A

Explanation of legal rights claimed All rights of ownership.

Pending litigation Yes ☐ No ☒

[signature]	12-21-09	Dir. Env. Compliance & Permitting
Signature of Affiant	Date	Position

Sworn to before me and subscribed in my presence this 21 day of, December, 2009

[signature]
Notary Public

NOTARIAL SEAL STATE OF OHIO

GREG S. WILLIAMS
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES FEBRUARY 19, 2001

Part 1: Section C

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Addendum to Right of Entry Affidavit

The Ohio Valley Coal Company

The Ohio Valley Coal Company claims Valid Existing Rights based on deed Volume 648 Page 474, executed April 5, 1988, Volume 654 Page 595, executed March 29, 1989, Volume 665 Page 885, executed September 13, 1990, Volume 658 Page 248, October 31, 1989 and Volume 737 Page 895, executed April 27, 1998 which include surface rights. The Ohio Valley Coal Company further states that the proposed adjacent area is needed for continued mining related activities, and immediately adjacent to the coal mining operation which began in 1967 for which all mine plan approvals and permits were obtained prior to August 3, 1977.

(9) Has the private mineral estate (coal) been severed from the private surface estate?

Yes ☐ No ☒ If "yes," indicate which documentation is provided:

☐ Surface Owners' Consent

☐ A copy of the document of conveyance that expressly grants or reserves the right to extract the coal by surface mining methods

☐ If the document of conveyance does not expressly grant the right to extract the coal by surface mining methods, documentation that under state law, the applicant has the legal authority to extract coal by those methods.

(10) Identify the right of entry documentation that is being provided that allows for coal mining operations within the underground workings:

☐ A copy of the right-of-entry documents attached as addenda, or
☐ A Right-of-Entry Affidavit

D. AREAS WHERE MINING IS PROHIBITED OR LIMITED – Permit Area

(1) Does this application area include any area dedicated as a nature preserve pursuant to Chapter 1517 Ohio Revised Code?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

(2) Does this application area include any area within one thousand feet of the waterlines of any wild, scenic, or recreational river dedicated pursuant to Chapter 1501 Ohio Revised Code?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

(3) Does this application area include any area within the boundaries of the following systems: national park, national wildlife refuge, national trails, national wilderness preservation, national recreational areas or wild and scenic rivers or river corridors including those rivers under study?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

(4) Does this application area include any federally owned lands within the boundaries of any national forest?

Yes ☐ No ☒ If "yes," submit approval of the U.S. Secretary of Interior of proof of valid existing rights.

(5) Will operations conducted during this permit adversely affect any publicly owned park or places included on the National Register of Historic Places?

Yes ☐ No ☒ If "yes," submit joint approval from the chief and the federal, state or local agency with jurisdiction over the park or places or proof of valid existing rights and describe the measures to be used to prevent or minimize these impacts.

(6) Will operations conducted during this permit affect land within one hundred feet of the outside right-of-way of a public road or result in mining through a public road?

Yes ☒ No ☐ If "yes," list the road(s) in the space below and submit Public Road Consent or proof of valid existing rights.

C.R. 86, Pleasant Ridge Road. A Public Road Consent is not needed. See Addendum to Right of Entry Affidavit for V.E.R.

(7) Will operations conducted during this permit affect land within three hundred feet of any occupied dwelling?

Yes ☒ No ☐ If "yes," list the name of the owner(s) in the space below and submit Occupied Dwelling Consent or proof of valid existing rights.

G.V. Wharton, K.L Skaggs.

See Addendum to Right of Entry Affidavit for V.E.R.

(8) Will operations conducted during this permit affect land within three hundred feet of any public building, school, church, community or institutional building or public park?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

(9) Will operations conducted during this permit affect land within one hundred feet of a cemetery?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights or appropriate authorization to relocate the cemetery.

(10) Will operations conducted during this permit result in the extension of any part of the pit within fifty feet of horizontal distance to any adjacent land or water in which the applicant does not own either the surface or mineral rights?

Yes ☐ No ☒ If "yes," list below the name(s) of the adjacent owner(s) and submit 50-foot Consent.

(11) Is this application area within an area designated unsuitable for coal mining operations or under study for designation in an administrative proceeding?

Yes ☐ No ☒

If "yes," did the applicant make substantial legal and financial commitments in this application area prior to January 4, 1977? Yes ☐ No ☐ If "yes," provide documentation supporting the assertion that the commitments were made prior to January 4, 1977.

E. PERMIT TERM AND RELATED INFORMATION

(1) Anticipated/actual date for:

(a) Starting mining operations May 2010

(b) Terminating mining operations June 2014

(2) Does the applicant propose a permit term in excess of five (5) years?

Yes ☐ No ☒ If "yes," submit an addendum with the information required by 1501:13-4-03(E)(3), Ohio Administrative Code.

(3) Indicate the following acreage figures:

(a) Total Acres 44.2 (Permit area)

(4) Horizontal extent of shadow area over life of permit in acres:

(a) Full Coal Recovery/Longwall Mining Acreage N/A

(b) Room and Pillar Acreage N/A

(c) Total Acres N/A (Shadow area)

F. PUBLIC NOTICE

(1) In the space below, provide the name and address of the public office where a complete copy of this permit application is to be filed.

Recorder's Office
Belmont County Courthouse
101 West Main Street
St. Clairsville, Ohio 43950

(2) In the space below, list the name and address of the newspaper and provide the text of the advertisement that is to be published in a newspaper of general circulation in the locality of this application area. Provide proof of publication.

The Times Leader
200 South Fourth Street
Martins Ferry, Ohio 43935
See Addendum to Part 1, Item F(2).

PROOF OF PUBLICATION

The State of Ohio
County of Belmont, ss:

The undersigned, being sworn, says that he or she is an employee of Eastern Ohio Newspapers, Inc., A Corporation, publisher of the Times Leader a newspaper published in Martins Ferry, Belmont County, Ohio, each day of the week and of general circulation in said city and county; that it is a newspaper meeting the requirements of sections 7.12 and 5721.01 Ohio Revised Code as amended effective September 24, 1957; that affiant has custody of the records and files of said newspaper; and that the advertisement of which the annexed is a true copy, was published in said newspaper on each of the days in the month and year stated, as follows:

February 13, 20, 27,
March 6 2009
Candace A Criswell

Subscribed by Affiant and sworn to before me, this 6th day of March, A.D. 2009.

Rebecca L Anderson
Notary Public

NOTARIAL SEAL
STATE OF OHIO

REBECCA L. ANDERSON
Notary Public, State of Ohio
My Commission Expires Nov. 25, 2011

Printer's Fee $ 296.16

Notary's Fee $_____

The Times Leader
Martins Ferry, Ohio

Public Notice

The Ohio Valley Coal Company, Powhatan No. 6 Mine, 56854 Pleasant Ridge Road, Alledonia, Ohio 43902, has submitted an adjacent area coal mining application for Permit D-0360, designated as D-0360-22 to the Ohio Department of Natural Resources, Division of Mineral Resources Management. The proposed additional acreage encompasses 44.2 acres and is located in Sections 29, 30, 35 and 36, Township 5 Range 4, Washington Township, Belmont County, Ohio on the property of The Ohio Valley Coal Company. The proposed adjacent area is located on the Hunter and Armstrongs Mills Ohio 7 ½ minute USGS quadrangle maps, approximately 2.4 miles northwest of Alledonia, Ohio.

This application is on file at the Recorder's Office, Belmont County Court House, 101 West Main Street, St. Clairsville, Ohio for public viewing. Written comments or requests for an informal conference may be sent to the Division of Mineral Resources Management, 2045 Morse Road, Building H-3, Columbus, OH 43229-6693 within thirty days of the last date of publication of this notice.

TL Adv. - 4 Fri. - Feb. 13, 20, 27, Mar. 6

I hereby certify that this is a true copy of the original

Ellen M. Greer

ELLEN M. GREER, Notary Public
State of Ohio
My Commission Expires September 23, 2011

TOVCC 23269

PART 2: ENVIRONMENTAL RESOURCES INFORMATION

A. CULTURAL, HISTORIC, AND ARCHEOLOGICAL INFORMATION

(1) In order to address the nature of cultural, historic and archeological resources in the permit area, submit Archeology – Surface.

(2) In order to address the nature of cultural, historic and archeological resources in planned subsidence operations, submit Archeology - Underground.

(3) Submit an addendum indicating the method to be used to identify historic properties on planned subsidence areas as mining progresses.

B. GEOLOGY DESCRIPTION

(1) Submit an addendum describing the geology within the proposed permit, shadow and adjacent areas and down to and including the deeper of either the first stratum below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely affected by mining. The description shall also include information on the areal and structural geology of the permit, shadow and adjacent areas and any other geologic parameters, which may influence the probable hydrologic consequences and protection of the hydrologic balance from material damage outside of the permit area, and which may influence the required reclamation.

(2) Submit an addendum describing how the areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially affected surface and ground waters.

(3) For those areas to be affected by underground mining surface operations where removal of the overburden down to the level of the coal seam will occur, submit Drilling Report – Surface. Submit approved test hole variance request, if applicable.

(4) For those areas within the shadow area where the stratum above the coal seam to be mined will not be removed, submit Drilling Report - Underground. Submit approved test hole variance request, if applicable.

C. GROUND WATER INFORMATION

(1) Submit Ground Water Description that describes the ground water hydrology of the proposed permit area, shadow area and adjacent area. The Ground Water Description is to include information on each water bearing stratum or zone, including the first water bearing stratum below the coal to be mined.

(2) Are there any wells on the proposed permit area, shadow area and adjacent area? Yes ☒ No ☐ If "yes," submit Ground Water Inventory.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

ARCHEOLOGY - SURFACE

1. Applicant's Name The Ohio Valley Coal Company

   Address 56854 Pleasant Ridge Road

   City Alledonia State Ohio Zip 43902

2. Contact Person David L. Bartsch Phone 740-926-1351

3. Location and Acreage Information

   County Belmont Township Washington

   Section 29, 30, 35, 36 Lot(s) ☐ T-5, R-4

   USGS Quadrangle Hunter & Armstrongs Mills Acreage 44.2

4. Application Map Attached: (area described in 3 above is to be outlined on the map)

5. Previous Disturbance:

   ☐ present; ☒ absent within application area only (Note: previous disturbance is any type of natural or human made disturbance to the topsoil and subsoil in the application area prior to submittal. Examples include, but are not limited to, slides, severe erosion, previous mining activities, clear cut logging, recreational activities, etc., but not agricultural plowing and discing.)

   If previous disturbance is present, list below and clearly delineate the extent of each type of disturbance on the application map to be sent to the SHPO by the division. Attach addendum, if necessary.

Type of Disturbance	Date Occurred	Percent of Application	Map Symbol

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DNR-744-9039

TOVCC 23271

6. Current Land Use: (describe land use and percent of land in that use)

Agricultural:

Residential:

Mining:

Pasture: 81%

Secondary Forest Growth:

Has area been clear cut logged? Yes ☐, No ☒
If "yes," indicate approximate date(s) of logging.

Other: Undeveloped Land: 19%

7. Historic and Prehistoric Structures:

Definitions

A historic or prehistoric structure is a work made up of interdependent and interrelated parts in a definite pattern of organization. Constructed by humans, and 50 years or older, it is usually an engineering project.

Types

Historic structures include, but are not limited to dwellings, buildings, barns, farmstead outbuildings, bridges, culverts, churches, schools, halls, iron furnaces (and associated buildings), canals, forts, abandoned coal mine buildings, mine entrances, tipples and related structures, etc.

Prehistoric structures include, but are not limited to, earthworks, mounds, rockshelters, etc.

List all known historic and prehistoric structures below and locate each one on the application map to be sent to the SHPO including corresponding labeled black and white, front and rear photographs of each structure. Attach addendum, if necessary.

Structure Type	Construction Date	Map Reference	Photo # Front	Photo # Rear
None				

8. Previous Historic and/or Archeological Surveys: (describe any surveys known to applicant on the application area or adjacent areas)

Application area: None

Adjacent areas: None

9. SHPO please send this form to:
Division of Mineral Resources Management
Attn: Division Archeologist
2045 Morse Road, Building H-3
Columbus, Ohio 43229-6693

FOR USE BY THE STATE HISTORIC PRESERVATION OFFICE ONLY

(check appropriate space)

A. ☐ This is a recommendation for an archeological survey of the application based on the following reasons (attach addendum, if necessary):

A SHPO review of the area shown on the application map has provided a listing below of all known historic and prehistoric properties listed and eligible for listing on the "National Register of Historic Places" and known historic and prehistoric sites on the application area and adjacent areas (in a 1.5 mile radius). The listing includes, when appropriate, those historic and prehistoric structures identified by the applicant in items 7 and 8 above.

Listed and Eligible National Register Sites

Site Name (#)	Type	Application Area	Adjacent Area

Known Historic and Prehistoric Sites

Site Name (#)	Type	Application Area	Adjacent Area

B. ☐ A SHPO review of the area shown on the application map and information contained in this form finds that the proposed mining does not have a reasonable probability of affecting any properties listed or eligible for listing on the "National Register of Historic Places." Therefore, no further coordination will be necessary with this office unless the scope of the application area changes.

State Historic Preservation Officer _____

SHPO # _____

Date _____

Addendum to Part 2, Section B (1, 2, 3, & 4)
The Ohio Valley Coal Company
D-0360-22

(1) The geology of this area is generally described in the Proposed Modification Crest El. 1200 For Slurry Dam No. 2, Volume 1 of 2, Pages 29 and 30. The extension in height of the slurry impoundment will have no hydrologic consequences, affect the prevailing hydrologic balance, or cause material damage outside the permit area. The proposed adjacent area activities will not influence reclamation.

(2) The occurrence, availability, movement, quantity, and quality of surface of ground waters will not be affected. Only small portions of the heads of hollows remain unaffected by slurry disposal. These heads of hollows discharge no water during long periods in the dry season of the year. When discharging, all drain to the existing No. 2 Dam impoundment.

(3) No overburden removal will occur within the proposed adjacent area. See Proposed Modification Crest El. 1200 For Slurry Dam No. 2, Volume 1 of 2, Pages 64 to 85 for proposed surface activities.

(4) There will be no coal removal within the proposed adjacent area.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

GROUND WATER DESCRIPTION

Applicant's Name The Ohio Valley Coal Company D-0360-22

Aquifer/Zone Identification	Aquifer/Zone Lithology	Aquifer/Zone Thickness	Aquifer/Zone Elev. (msl)	Aquifer/Zone Horizontal Extent	Aquifer/Zone Known Uses	Approximate Rate of Discharge of Aquifer/Zone (gpm or cps)
A	Sandstone, Washington "A" Coal	45'	1245 to 1200	Uppermost Ridge, outcrop to outcrop	Livestock	<1 to 1.07 gpm
B	Shale	35'	1190 to 1155	Upper Ridge outcrop to outcrop	Domestic Livestock	<1 to 8 gpm
C	Sandstone, Shale, Trace of Coal, Limestone	35'	1144 to 1109	Upper Ridge outcrop to outcrop	Domestic Livestock	<1 to 5.9 gpm
D	Washington #12 coal, Shale	15'	1093 to 1078	Mid Ridge outcrop to outcrop	None	7 gpm
E	Siltstone/shale, sandstone, Waynesburg "A" coal	37'	1060 to 1024	Lower Ridge outcrop to outcrop	None	5 gpm
F	Waynesburg #11 coal, siltstone/Sandstone	32'	985 to 953	Base of Ridge	None	<1 to 8.2 gpm

Revised 02/06
DNR-744-9025

TOVCC 23276

(3) Are there any springs on the proposed permit area, or developed springs on the shadow area and adjacent area? Yes ☒ No ☐ If "yes," submit Ground Water Inventory.

(4) Are there any public water supply sources on the proposed permit area, shadow area, and adjacent area? Yes ☐ No ☒ If "yes," submit Ground Water Inventroy, and show location on the hydrology map.

(5) Submit required analyses on the Hydrologic Analyses for representative wells and developed springs. Based on this data identify the seasonal variations of ground water quality and quantity.

(6) Submit Analysis of Existing Ground Water File Data from the Division of Water. See attached Analysis of Existing Ground Water File Data from the Division of Water.

D. SURFACE WATER INFORMATION

(1) List the name of the watershed that will receive water discharges from the proposed permit, shadow, and adjacent areas as listed in the "Gazetteer of Ohio Streams" published by the Ohio Department of Natural Resources.

Captina Creek

(2) Are there any perennial or intermittent streams or other surface water bodies, including public water supply sources, on the proposed permit, shadow area and adjacent area?

Yes ☒ No ☐ If "yes," submit Surface Water Inventory.

(3) Based on the quality and quantity measurements listed on Hydrologic Analyses, and from other information available to the applicant and submitted with this application, identify the seasonal variations in water quality and quantity for the surface water sources on this application area and adjacent areas.

See Hydrologic Analyses for surface water information and addendum to this item.

E. CLIMATOLOGICAL INFORMATION

If requested by the chief, subsequent to the filing of the permit application, provide the climatological information.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

GROUND WATER INVENTORY

Applicant's Name: The Ohio Valley Coal Company #2 Dam 1200 Crest D-0360-22

ID No. Of Sampling Site from Hydrology Map	State Plane X-Y Coordinates	Surface Elevation (ft msl)	Depth of Well Below Land Surface (feet)*	SWL of Well Below Land Surface (ft)*	Discharge for Spring, Under-ground Mine, etc. (gpm or cfs)*	Date Measured	Aquifer/ Water-bearing Zone ID*	Known Uses, including public water	Name of Owner
DW6-4	X 2,389,259 Y 708,377	1270'	Sealed	--	--	10/09	Unknown	None	G. V. Wharton
W6-5	X 2,389,152 Y 708,403	1277'	Sealed	--	--	2,3,4/98, 10/09	Unknown	Domestic	G. V. Wharton
W6-6	X 2,389,521 Y 708,486	1256'	72'	--	--	2,3,4/98, 10/09	B	Domestic	G. V. Wharton
W6-7	X 2,390,887 Y 707,723	1202'	No Access	--	--	10/09	Unknown	None	K. Skaggs
W6-7A	Unknown	Unknown	Unknown	--	--	10/09	Unknown	None	K. Skaggs
DS6-7	X 2,390,997 Y 708,303	1115'	--	--	--	6-mo. 1998 10/09	C	Domestic	K. Skaggs
DS-310	X 2,386,717 Y 707,434	1185'	--	--	0.5 to 0.75 gpm	4/03,6/03, 9/03, 10/09	B	None	TOVCC
S6-5	X 2,390,174 Y 708,067	1185	--	--	0 to <1 gpm	5-mo. 1998, 10/09	B	None	TOVCC
S6-16	X 2,387,688 Y 704,313	1185	--	--	8.0 gpm	6-mo. 1998	B	None	TOVCC
S6-17	X 2,387,833 Y 704,402	1185	--	--	4.0 gpm	6-mo. 1998	B	None	TOVCC
S6-19	X 2,391,827 Y 706,373	970	--	--	3 gpm	6-mo. 1998	F	None	C. J. Mills

*NOTE: If well depth, static water level,or aquifer/water-bearing zone information is unobtainable, submit as an addendum to **GROUND WATER INVENTORY** a statement giving the reasons why the information is unobtainable. Do not include SWL and discharge values if they are reported on the Hydrologic Analyses.

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DNR-744-xxxx

TOVCC 23278

GROUND WATER INVENTORY

Applicant's Name: The Ohio Valley Coal Company #2 Dam 1200 Crest D-0360-22

ID No. Of Sampling Site from Hydrology Map	State Plane X-Y Coordinates	Surface Elevation (ft msl)	Depth of Well Below Land Surface (feet)*	SWL of Well Below Land Surface (ft)*	Discharge for Spring, Under-ground Mine, etc. (gpm or cfs)*	Date Measured	Aquifer/ Water-bearing Zone ID*	Known Uses, including public water	Name of Owner
S6-21	X 2,391,687 Y 708,138	980'	--	--	--	6-mo. 1998	F	None	K.J. Kaplenk
S6-22	X 2,391,727 Y 708,108	985'	--	--	--	6-mo. 1998	F	None	K.J. Kaplenk
S14-53	X 2,387,025 Y 708,038	1167'	--	--	--	4/03, 10/09	B	None	TOVCC
S14-54	X 2,386,942 Y 708,033	1165'	--	--	--	4/03, 10/09	B	None	TOVCC
S14-55	X 2,387,426 Y 708,138	1118'	--	--	--	4/03, 6/03, 9/03, 10/09	C	None	TOVCC
S14-56	X 2,387,484 Y 708,083	1118'	--	--	--	4/03, 10/09	C	None	TOVCC
S14-57	X 2,387,547 Y 708,046	1118'	--	--	--	4/03, 10/09	C	None	TOVCC
S14-58	X 2,387,682 Y 707,973	1118'	--	--	--	4/03, 10/09	C	None	TOVCC
S14-59	X 2,387,710 Y 707,864	1144'	--	--	--	4/03, 10/09	C	None	TOVCC
S14-60	X 2,387,964 Y 707,778	1160'	--	--	--	4/03, 10/09	B	None	TOVCC

*NOTE: If well depth, static water level, or aquifer/water-bearing zone information is unobtainable, submit as an addendum to **GROUND WATER INVENTORY** a statement giving the reasons why the information is unobtainable. Do not include SWL and discharge values if they are reported on the Hydrologic Analyses.

GROUND WATER INVENTORY

Applicant's Name: The Ohio Valley Coal Company #2 Dam 1200 Crest D-0360-22

ID No. Of Sampling Site from Hydrology Map	State Plane X-Y Coordinates	Surface Elevation (ft msl)	Depth of Well Below Land Surface (feet)*	SWL of Well Below Land Surface (ft)*	Discharge for Spring, Under-ground Mine, etc. (gpm or cfs)*	Date Measured	Aquifer/ Water-bearing Zone ID*	Known Uses, including public water	Name of Owner
S14-61	X 2388072 Y 707861	1160'	--	--	--	4/03, 10/09	B	None	TOVCC
S14-62	X 2388154 Y 707979	1167'	--	--	--	4/03, 10/09	B	None	TOVCC
S14-63	X 2386409 Y 707284	1207'	--	--	--	4/03, 6/03, 9/03, 10/09	A	Livestock	TOVCC
S14-64	X 2387074 Y 706796	1218'	--	--	--	4/03, 10/09	A	Livestock	TOVCC
S14-65	X 2386903 Y 706292	1170'	--	--	--	4/03, 10/09	B	None	TOVCC
S14-66	X 2387870 Y 706664	1225'	--	--	--	4/03, 6/03, 9/03, 10/09	A	Livestock	TOVCC
S14-67	X 2387742 Y 705258	1185'	--	--	--	4/03, 6/03, 9/03, 10/09	B	Livestock	TOVCC
S14-68	X 2387661 Y 704504	1118'	--	--	--	4/03, 10/09	C	Livestock	TOVCC
S14-69	X 2387836 Y 704859	1167'	--	--	--	4/03, 10/09	B	Livestock	TOVCC
S14-70	X 2387833 Y 704261	1130'	--	--	--	4/03, 10/09	C	Livestock	TOVCC

*NOTE: If well depth, static water level,or aquifer/water-bearing zone information is unobtainable, submit as an addendum to **GROUND WATER INVENTORY** a statement giving the reasons why the information is unobtainable. Do not include SWL and discharge values if they are reported on the Hydrologic Analyses.

GROUND WATER INVENTORY

Applicant's Name: The Ohio Valley Coal Company #2 Dam 1200 Crest D-0360-22

ID No. Of Sampling Site from Hydrology Map	State Plane X-Y Coordinates	Surface Elevation (ft msl)	Depth of Well Below Land Surface (feet)*	SWL of Well Below Land Surface (ft)*	Discharge for Spring, Under-ground Mine, etc. (gpm or cfs)*	Date Measured	Aquifer/ Water-bearing Zone ID*	Known Uses, including public water	Name of Owner
S14-71	X 2388037 Y 704409	1187'	--	--	--	4/03, 10/09	B	Livestock	TOVCC
S15-01	X 2386160 Y 707556	1180'	--	--	--	02/07	B	None	TOVCC
S15-02	X 2387610 Y 707002	1185'	--	--	--	02/07	B	None	TOVCC
S15-03	X 2387868 Y 707178	1170'	--	--	--	02/07	B	None	TOVCC

*NOTE: If well depth, static water level,or aquifer/water-bearing zone information is unobtainable, submit as an addendum to **GROUND WATER INVENTORY** a statement giving the reasons why the information is unobtainable. Do not include SWL and discharge values if they are reported on the Hydrologic Analyses.

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Addendum to Groundwater Inventory
The Ohio Valley Coal Company
#2 Dam 1200 Crest
D-0360-22

The following developed supplies could not be sampled and/or measured for the reason stated.

DW6-4	The well is sealed, there was no access for sample or measurement.
W6-5	Well has a sanitary seal in place, no access for measurements.
W6-7	Hand pump on well broken, no access for measurements.
W6-7A	Well reported to be located at house, resident does not know location, could not locate.

The following unused springs were dry when observed for updated sample collection during the month of October, 2009;

S6-5, S14-53 through S14-71, S15-01, S15-02, S15-03, and DS-310.

Please note that very dry conditions were experienced during late August, September, and October of 2009 in the local watershed, the reason for the dry conditions at these springs. Two attempts were made to collect supplemental samples. With the exception of the #2 Dam slurry impoundment, no unusual conditions, new industry, new building construction or any other land disturbance activities have occurred within this local watershed since 2003, the date of many of the sample analyses submitted with this application. Six-month sampling was conducted on six (6) of the sites, whose sampling dates cover low flow, intermediate flow, and a transitional high flow. Five (5) additional ground water sites were sampled during low, intermediate and high flow.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

HYDROLOGIC ANALYSES

Applicant's Name: The Ohio Valley Coal Company #2 Dam 1200 Crest D-0360-22

1	ID No. Of Sampling Site From Hydrology Map	DS6-7	W6-5	W6-6			
2	Lab ID No.	0910215	0910213	0910214			
3	Date Measured/Sampled	10/07/09	10/07/09	10/07/09			
4	High (H), Low (L), Intermediate (I) (if applicable)	SUPPLEMENTAL					
5	Date Last Precipitation Event (if applicable)	10/06/09	10/06/09	10/06/09			
6	Static Water Level of Well below Land Surface (feet)*	--	No Access	29.6'			
7	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	0.2 GPM	--	--			
8	pH (Standard Units)	7.63	7.35	7.56			
9	Total Acidity (mg/l $CaCO_3$)	5.6	10	9.0			
	Total Alkalinity (mg/l $CaCO_3$)	260	280	260			
11	Total Iron (mg/l)	<0.1	<0.1	<0.1			
12	Total Manganese (mg/l)	<0.02	<0.02	<0.02			
13	Total Aluminum (mg/l)	<0.1	<0.1	<0.1			
14	Total Suspended Solids (mg/l)	<10	<10	<10			
15	Total Hardness (mg/l as $CaCO_3$)	250	480	340			
16	Total Sulfates (mg/l)	37	160	57			
17	Specific Conductivity (umhos/cm at 25°C)**	603	867	659			
18	Total Dissolved Solids (mg/l)**	--	--	--			

Laboratory Name: Tra-Det Inc.

Address: 8 Industrial Park Drive

City: Wheeling State: WV Zip: 26003

* NOTE: If information required by item 6 is unobtainable, submit as an addendum to Hydrologic Analyses a statement giving the reasons why the information is unobtainable.

** NOTE: For each sample provide data for either item 17 or item 18.

05/08
DNR-744-9024

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	W6-5	W6-5	W6-6	W6-6	W6-5	W6-6
2.	Lab Identification Number 98-	02-120		02-121			
3.	High (H) / Low (L) Designation (if applicable)	H	RESIDENT REFUSED	H	RESIDENT REFUSED	RESIDENT REFUSED	RESIDENT REFUSED
4.	Surface Elevation for Sampling Station (msl)	1277	1277	1256	1256	1277	1256
5.	Depth of Well Below Land Surface (feet)	UNOB-TAINABLE	--	UNOB-TAINABLE	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	46.0	RESIDENT REFUSED	21.0	RESIDENT REFUSED	RESIDENT REFUSED	RESIDENT REFUSED
7.	Flow for Spring and Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/20/98	3/10/98	2/20/98	3/10/98	4-14-98	4-14-98
9.	Aquifer/Zone Identification for Well/Spring	UNKNOWN	UNKNOWN	B	B	UNKNOWN	B
10.	pH (Standard Units)	7.30	REFUSED	7.30	REFUSED	REFUSED	REFUSED
11.	Total Acidity (mg/1 CaCO3)	34.0	--	36.0	--	--	--
12.	Total Alkalinity (mg/1 CaCO3)	290.0	--	290.0	--	--	--
13.	Specific Conductivity (umhos/cm at 25 C)	720	--	520	--	--	--
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	<0.02	--	<0.02	--	--	--
16.	Total Sulfates (mg/1)	180.0	--	40.0	--	--	--
17.	Total Iron (mg/1)	0.08	--	0.05	--	--	--
18.	Total Suspended Solids (mg/1)	<1.0	--	<1.0	--	--	--
19.	Total Hardness (mg/1 as CaCO3)	420.0	--	310.0	--	--	--
20.	Date Sampled for Analysis	2/20/98	3/10/98	2/20/98	3/10/98	4-14-98	4-14-98
21.	Date Last Precipitation Event Occurred	2/20/98	3/9/98	2/20/98	3/9/98	4-14-98	4-14-98

Laboratory Name TraDet, Inc.
Address Battle Run Road, RD#2, Box 227A City Triadelphia
State West Virginia Zip 26059

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.

NOTE: For each sample provide data for either item 13 or item 14

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	DS6-7	DS6-7	DS6-7	DS6-7	DS6-7	DS6-7
2.	Lab Identification Number 98-	02-119	03-130	04-141	05-208	06-238	07-207
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	1115	1115	1115	1115	1115	1115
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	2.3 GPM	5.9 GPM	3.3 GPM	1.9 GPM	2.16 GPM	1.55 gpm
8.	Date Above Measurements Made	2-20-98	3-10-98	4-14-98	5-22-88	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	C	C	C	C	C	C
10.	pH (Standard Units)	7.30	7.70	7.90	7.10	7.00	7.20
11.	Total Acidity (mg/1 CaCO3)	30.0	6.40	4.80	20.0	37.0	22.0
12.	Total Alkalinity (mg/1 CaCO3)	150.00	140.00	190.0	220.0	220.0	230.0
13.	Specific Conductivity (umhos/cm at 25 C)	400	310	450	340	400	490
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	<0.02	0.04	0.02	0.02	<0.02	<0.02
16.	Total Sulfates (mg/1)	34.0	32.0	33.0	34.0	32.0	40.0
17.	Total Iron (mg/1)	0.08	0.96	0.18	0.05	0.06	0.15
18.	Total Suspended Solids (mg/1)	<1.0	21.0	<1.0	<1.0	<1.0	<1.0
19.	Total Hardness (mg/1 as CaCO3)	170.0	180.00	190.0	210.0	220.0	220.0
20.	Date Sampled for Analysis	2-20-98	3-10-98	4-14-98	5-22-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-20-98	3-9-98	4-14-98	5-19-98	6-18-98	7-15-98

Laboratory Name TraDet, Inc.
Address Battle Run Road, RD. #2, Box 227A City Triadelphia
State West Virginia Zip 26059

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.

NOTE: For each sample provide data for either item 13 or item 14

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-22)

1	Identification No. of Sampling Station from Hydrology Map	DS-310					
2	Identification Number	0304402	0303016	0309130			
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	H	I	L			
4	Surface Elevation for Sampling Station (msl)	1185	1185	1185			
5	Depth of Well Below Land Surface (feet)	04/22/03	05/31/03	09/03/03			
6	Static Water Level of Well Below Land Surface (feet)	--	--	--			
7	Flow for Spring and Stream (gpm or cfs)	0.75 gpm	0.58 gpm	0.5 gpm			
8	Date Above Measurements Made	04/23/03	06/02/03	09/08/03			
9	Aquifer/Zone Identification For Well/Spring	B	B	B			
10	pH (Standard Units)	7.4	8.3	7.8			
11	Total Acidity (mg/l CaCO3)	4.6	2.0	3.4			
12	Total Alkalinity (mg/l CaCO3)	180	170	190			
13	Specific Conductivity (umhos/cm at 25° C)	380	440	300			
14	Total Dissolved Solids (mg/l)	<1	100	7.3			
15	Total Manganese (mg/l)	<0.01	0.12	0.11			
16	Total Sulfates (mg/l)	30	27	28			
17	Total Iron (mg/l)	0.04	3.2	0.43			
18	Total Suspended Solids (mg/l)	--	--	--			
19	Total Hardness (mg/l as CaCO3)	190	200	200			
20	Date Sampled for Analysis	04/23/03	06/02/03	09/08/03			
21	Date Last Precipitation Event Occurred	04/22/03	05/31/03	09/03/03			

Laboratory Name Tra-Det, Inc.
Address 8 Industrial Park Drive City Wheeling
State West Virginia Zip 26003

NOTE: *If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.*
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-5	S6-5	S6-5	S6-5	S6-5	
2.	Lab Identification Number 98-	03-129	04-143	05-228	06-244	07-213	
3.	High (H) / Low (L) Designation (if applicable)		SUPPLEMENTAL				
4.	Surface Elevation for Sampling Station (msl)	1185	1185	1185	1185	1185	
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	
7.	Flow for Spring and Stream (gpm or cfs)	<1 GPM	<1 GPM	<1 GPM	<1 GPM	.70 GPM	
8.	Date Above Measurements Made	3-10-98	4-14-98	5-22-98	6-23-98	7-17-98	
9.	Aquifer/Zone Identification for Well/Spring	B	B	B	B	B	
10.	pH (Standard Units)	6.90	7.60	7.50	7.50	7.70	
11.	Total Acidity (mg/1 CaCO3)	6.40	10.0	7.70	10.0	13.0	
12.	Total Alkalinity (mg/1 CaCO3)	70.0	160.0	180.0	170.0	200.0	
13.	Specific Conductivity (umhos/cm at 25 C)	220	320	310	380	400	
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	0.07	0.06	0.06	0.11	0.16	
16.	Total Sulfates (mg/1)	34.0	28.0	22.0	31.0	26.0	
17.	Total Iron (mg/1)	2.40	0.29	0.17	0.18	0.58	
18.	Total Suspended Solids (mg/1)	49.0	5.30	4.7	1.3	12.0	
19.	Total Hardness (mg/1 as CaCO3)	110.0	190.0	190.0	180.0	210.0	
20.	Date Sampled for Analysis	3-10-98	4-14-98	5-22-98	6-23-98	7-17-98	
21.	Date Last Precipitation Event Occurred	3-9-98	4-14-98	5-19-98	6-18-98	7-15-98	

Laboratory Name TraDet, Inc.
Address Battle Run Road, RD. #2, Box 227A City Triadelphia
State West Virginia Zip 26059

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-16	S6-16	S6-16	S6-16	S6-16	S6-16
2.	Lab Identification Number 98-	02-168	03-093	04-151	05-224	06-253	07-224
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	1185	1185	1185	1185	1185	1185
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	8.0 GPM	1.9 GPM	.75 GPM	.25 GPM	1 GPM	.14 GPM
8.	Date Above Measurements Made	2-25-98	3-6-98	4-14-98	5-22-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	B	B	B	B	B	B
10.	pH (Standard Units)	7.50	7.60	7.80	7.70	7.60	7.60
11.	Total Acidity (mg/1 $CaCO_3$)	42.0	3.20	4.20	3.50	5.90	10.0
12.	Total Alkalinity (mg/1 $CaCO_3$)	94.00	98.00	140.0	150.0	150.0	180.0
13.	Specific Conductivity (umhos/cm at 25 C)	210	200	260	250	310	440
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	0.02	<0.02	0.05	0.03	0.10	0.14
16.	Total Sulfates (mg/1)	33.0	30.0	28.0	28.0	27.0	20.0
17.	Total Iron (mg/1)	0.08	0.08	0.12	0.13	0.38	0.24
18.	Total Suspended Solids (mg/1)	<1.0	<1.0	4.0	2.0	<1.0	<1.0
19.	Total Hardness (mg/1 as $CaCO_3$)	110.0	110.00	160.0	150.0	170.0	210.0
20.	Date Sampled for Analysis	2-25-98	3-6-98	4-14-98	5-22-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-24-98	3-3-98	4-14-98	5-19-98	6-18-98	7-15-98

Laboratory Name TraDet, Inc.
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-17	S6-17	S6-17	S6-17	S6-17	S6-17
2.	Lab Identification Number 98-	02-169	03-094	04-152	05-225	06-252	07-223
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	1185	1185	1185	1185	1185	1185
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	4.0 GPM	2.8 GPM	.83 GPM	.32 GPM	2.2 GPM	1.49 GPM
8.	Date Above Measurements Made	2-25-98	3-6-98	4-14-98	5-22-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	B	B	B	B	B	B
10.	pH (Standard Units)	7.70	7.90	7.90	7.90	7.90	8.40
11.	Total Acidity (mg/1 CaCO3)	17.0	5.70	6.70	5.90	5.10	5.40
12.	Total Alkalinity (mg/1 CaCO3)	180.00	180.00	220.0	230.0	230.0	240.0
13.	Specific Conductivity (umhos/cm at 25 C)	330	330	350	380	410	370
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	<0.02	<0.02	0.06	0.05	0.04	0.02
16.	Total Sulfates (mg/1)	44.0	42.0	36.0	53.0	36.0	35.0
17.	Total Iron (mg/1)	<0.05	0.06	0.52	0.23	0.54	0.25
18.	Total Suspended Solids (mg/1)	<1.0	<1.0	36.0	7.3	22.0	<1.0
19.	Total Hardness (mg/1 as CaCO3)	200.0	190.00	220.0	250.0	250.0	250.0
20.	Date Sampled for Analysis	2-25-98	3-6-98	4-14-98	5-22-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-24-98	3-3-98	4-14-98	5-19-98	6-18-98	7-15-98

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-19	S6-19	S6-19	S6-19	S6-19	S6-19
2.	Lab Identification Number 98-	02-176	03-032	04-137	05-233	06-239	07-211
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	970	970	970	970	970	970
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	1.6 GPM	3.0 GPM	.96 GPM	<1 GPM	.75 GPM	.78 GPM
8.	Date Above Measurements Made	2-25-98	3-6-98	4-14-98	5-23-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	F	F	F	F	F	F
10.	pH (Standard Units)	8.10	8.10	8.00	8.10	7.90	8.00
11.	Total Acidity (mg/1 CaCO3)	9.50	4.80	3.70	1.60	24.00	5.60
12.	Total Alkalinity (mg/1 CaCO3)	210.00	190.00	240.0	240.0	260.0	260.0
13.	Specific Conductivity (umhos/cm at 25 C)	420	400	420	460	540	520
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	<0.02	0.14	0.07	0.09	0.10	0.25
16.	Total Sulfates (mg/1)	69.0	51.0	53.0	79.0	50.0	61.0
17.	Total Iron (mg/1)	0.76	2.80	3.20	4.50	3.70	11.0
18.	Total Suspended Solids (mg/1)	16.0	2.70	91.0	120.0	180.0	530.0
19.	Total Hardness (mg/1 as CaCO3)	240.0	230.00	280.0	310.0	290.0	350.0
20.	Date Sampled for Analysis	2-25-98	3-6-98	4-14-98	5-23-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-24-98	3-3-98	4-14-98	5-19-98	6-18-98	7-15-98

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-21	S6-21	S6-21	S6-21	S6-21	S6-21
2.	Lab Identification Number 98-	02-178	03-134	04-139	05-231	06-241	07-209
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	980	980	980	980	980	980
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	<1.0 GPM	<1.0 GPM	<1.0 GPM	<1.0 GPM	<1.0 GPM	0.3 GPM
8.	Date Above Measurements Made	2-25-98	3-10-98	4-14-98	5-23-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	F	F	F	F	F	F
10.	pH (Standard Units)	8.10	8.20	8.30	7.70	7.90	7.20
11.	Total Acidity (mg/1 CaCO3)	8.20	4.00	1.40	9.40	35.0	7.20
12.	Total Alkalinity (mg/1 CaCO3)	240.00	230.00	260.0	280.0	280.0	270.0
13.	Specific Conductivity (umhos/cm at 25 C)	470	480	480	530	560	600
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	0.03	0.02	0.05	0.11	0.60	0.12
16.	Total Sulfates (mg/1)	80.0	60.0	65.0	66.0	68.0	77.0
17.	Total Iron (mg/1)	0.50	0.68	1.50	5.80	19.0	4.50
18.	Total Suspended Solids (mg/1)	15.0	25.0	45.0	120.0	110.0	170.0
19.	Total Hardness (mg/1 as CaCO3)	290.0	240.00	290.0	340.0	400.0	350.0
20.	Date Sampled for Analysis	2-25-98	3-10-98	4-14-98	5-23-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-24-98	3-9-98	4-14-98	5-19-98	6-18-98	7-15-98

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	S6-22	S6-22	S6-22	S6-22	S6-22	S6-22
2.	Lab Identification Number 98-	02-179	03-135	04-140	05-230	06-242	07-205
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	985	985	985	985	985	985
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	4.5 GPM	8.2 GPM	2.0 GPM	1.2 GPM	1.25 GPM	1.50 GPM
8.	Date Above Measurements Made	2-25-98	3-10-98	4-14-98	5-23-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	F	F	F	F	F	F
10.	pH (Standard Units)	8.20	8.20	8.30	8.10	8.00	8.10
11.	Total Acidity (mg/1 $CaCO_3$)	10.0	3.00	2.50	6.30	9.4	6.60
12.	Total Alkalinity (mg/1 $CaCO_3$)	240.00	240.00	240.0	230.0	250.0	240.0
13.	Specific Conductivity (umhos/cm at 25 C)	470	510	480	440	520	560
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	<0.02	0.02	0.25	0.06	0.06	0.05
16.	Total Sulfates (mg/1)	86.0	66.0	74.0	64.0	66.0	70.0
17.	Total Iron (mg/1)	0.40	0.33	4.30	3.20	1.80	2.0
18.	Total Suspended Solids (mg/1)	17.0	<1.0	48.0	110.0	75.0	120.0
19.	Total Hardness (mg/1 as $CaCO_3$)	290.0	280.00	340.0	280.0	290.0	290.0
20.	Date Sampled for Analysis	2-25-98	3-10-98	4-14-98	5-23-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-24-98	3-9-98	4-14-98	5-19-98	6-18-98	7-15-98

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	S14-47	S14-49	S14-50	S14-51	S14-52	S14-53
2	Identification Number	0304216	0304213	0304369	0304370	0304371	0304372
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	Supplemental					
4	Surface Elevation for Sampling Station (msl)	1025	940	1165	1175	1160	1167
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	.31 gpm	.21 gpm	3.75 gpm	.12 gpm	.11 gpm	.07 gpm
8	Date Above Measurements Made	4-12-03	4-12-03	4-22-03	4-22-03	4-22-03	4-22-03
9	Aquifer/Zone Identification For Well/Spring	D	E	A	A	A	B
10	pH (Standard Units)	8.22	6.52	7.1	7.7	8.2	7.6
11	Total Acidity (mg/l CaCO3)	3.3	25	11	2.5	<1	2.8
12	Total Alkalinity (mg/l CaCO3)	130	73	300	200	180	200
13	Specific Conductivity (umhos/cm at 25° C)	360	610	790	570	570	610
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.09	0.43	0.04	0.31	0.37	<0.01
16	Total Sulfates (mg/l)	76	40	48	52	52	47
17	Total Iron (mg/l)	3.60	0.14	0.65	3.5	2.4	0.54
18	Total Suspended Solids (mg/l)	120	2	23	92	240	170
19	Total Hardness (mg/l as CaCO3)	220	240	310	250	240	250
20	Date Sampled for Analysis	4-12-03	4-12-03	4-22-03	4-22-03	4-22-03	4-22-03
21	Date Last Precipitation Event Occurred	4-11-03	4-11-03	4-22-03	4-22-03	4-22-03	4-22-03

Laboratory Name Tra-Det, Inc.
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	S14-54	S14-55	S14-55	S14-55	S14-56	S14-57
2	Identification Number	0304373	0304374	0306015	0309133	0304375	0304376
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	Sup.	H	I	L	Supplemental	
4	Surface Elevation for Sampling Station (msl)	1165	1118	1118	1118	1118	1118
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	.5 gpm	1.25 gpm	.12 gpm	.04 gpm	.62 gpm	.3 gpm
8	Date Above Measurements Made	4-22-03	4-22-03	6-2-03	9-8-03	4-22-03	4-22-03
9	Aquifer/Zone Identification For Well/Spring	B	C	C	C	C	C
10	pH (Standard Units)	7.5	7.3	7.7	7.6	7.8	7.3
11	Total Acidity (mg/l CaCO3)	4.1	6.8	14	<1	3.6	8.0
12	Total Alkalinity (mg/l CaCO3)	220	270	280	220	270	270
13	Specific Conductivity (umhos/cm at 25° C)	570	690	710	430	730	730
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.15	<0.01	<0.01	0.01	0.06	0.04
16	Total Sulfates (mg/l)	33	45	48	42	56	58
17	Total Iron (mg/l)	3.10	0.33	0.07	0.18	1.7	3.2
18	Total Suspended Solids (mg/l)	23	12	<1	<1	91	77
19	Total Hardness (mg/l as CaCO3)	250	320	300	290	350	360
20	Date Sampled for Analysis	4-22-03	4-22-03	6-2-03	9-8-03	4-22-03	4-22-03
21	Date Last Precipitation Event Occurred	4-22-03	4-22-03	5-31-03	9-3-03	4-22-03	4-22-03

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-22)

1	Identification No. of Sampling Station from Hydrology Map	S14-58	S14-59	S14-60	S14-61	S14-62	S14-65
2	Identification Number	0304377	0304378	0304379	0304380	0304381	0304405
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	Supplemental					
4	Surface Elevation for Sampling Station (msl)	1118	1144	1160	1160	1167	1170
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	.3 gpm	.27 gpm	1.1 gpm	.18 gpm	.6 gpm	.02 gpm
8	Date Above Measurements Made	4-22-03	4-22-03	4-22-03	4-22-03	4-22-03	4-23-03
9	Aquifer/Zone Identification For Well/Spring	C	C	B	B	B	A
10	pH (Standard Units)	7.9	7.4	7.0	7.4	7.7	7.2
11	Total Acidity (mg/l CaCO3)	<1	5.8	14	5.7	2.5	3.1
12	Total Alkalinity (mg/l CaCO3)	230	250	230	240	210	48
13	Specific Conductivity (umhos/cm at 25° C)	610	690	710	670	484	130
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.14	0.02	<0.01	0.12	0.14	0.20
16	Total Sulfates (mg/l)	46	43	44	42	26	47
17	Total Iron (mg/l)	2.1	1.4	0.05	2.6	0.99	6.6
18	Total Suspended Solids (mg/l)	69	58	<1	83	30	150
19	Total Hardness (mg/l as CaCO3)	270	290	270	330	190	120
20	Date Sampled for Analysis	4-22-03	4-22-03	4-22-03	4-22-03	4-22-03	4-23-03
21	Date Last Precipitation Event Occurred	4-22-03	4-22-03	4-22-03	4-22-03	4-22-03	4-22-03

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	S14-63	S14-63	S14-63	S14-64	S14-68	S14-69
2	Identification Number	0304403	0306017	0309131	0304404	0304408	0304409
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	H	I	L	Supplemental		
4	Surface Elevation for Sampling Station (msl)	1207	1207	1207	1218	1118	1167
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	1.07 gpm	.07 gpm	.04 gpm	.21 gpm	.14 gpm	.04 gpm
8	Date Above Measurements Made	4-23-03	6-2-03	9-8-03	4-23-03	4-23-03	4-23-03
9	Aquifer/Zone Identification For Well/Spring	A	A	A	A	C	B
10	pH (Standard Units)	7.3	7.3	7.6	7.7	7.3	7.4
11	Total Acidity (mg/l CaCO3)	4.9	4.6	2.0	2.5	2.7	5.7
12	Total Alkalinity (mg/l CaCO3)	170	94	96	210	280	210
13	Specific Conductivity (umhos/cm at 25° C)	390	250	110	484	530	430
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.02	0.14	0.12	0.14	0.02	0.12
16	Total Sulfates (mg/l)	26	24	17	26	41	40
17	Total Iron (mg/l)	0.68	3.4	0.63	0.99	0.52	5.5
18	Total Suspended Solids (mg/l)	27	78	23	30	11	190
19	Total Hardness (mg/l as CaCO3)	190	100	140	190	300	290
20	Date Sampled for Analysis	4-23-03	6-2-03	9-8-03	4-23-03	4-23-03	4-23-03
21	Date Last Precipitation Event Occurred	4-22-03	5-31-03	9-3-03	4-22-03	4-22-03	4-22-03

Laboratory Name Tra-Det, Inc.
Address 8 Industrial Park Drive City Wheeling
State West Virginia Zip 26003

NOTE: *If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.*
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	S14-66	S14-66	S14-66	S14-67	S14-67	S14-67
2	Identification Number	0304406	0306129	0309136	0304407	0306130	0309138
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	H	I	L	H	I	L
4	Surface Elevation for Sampling Station (msl)	1225	1225	1225	1185	1185	1185
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	.45 gpm	.26 gpm	.16 gpm	1.97 gpm	1.53 gpm	1.34 gpm
8	Date Above Measurements Made	4-23-03	6-4-03	9-8-03	4-23-03	6-4-03	9-8-03
9	Aquifer/Zone Identification For Well/Spring	A	A	A	B	B	B
10	pH (Standard Units)	7.1	7.1	7.7	7.7	8.2	7.4
11	Total Acidity (mg/l CaCO3)	13	17	<1	1.1	6.0	3.7
12	Total Alkalinity (mg/l CaCO3)	190	160	240	250	250	250
13	Specific Conductivity (umhos/cm at 25° C)	400	390	450	510	570	460
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	<0.01	<0.01	0.08	<0.01	0.01	0.02
16	Total Sulfates (mg/l)	28	22	28	44	43	47
17	Total Iron (mg/l)	0.34	0.19	0.08	0.40	0.75	0.53
18	Total Suspended Solids (mg/l)	30	12	<1	14	13	22
19	Total Hardness (mg/l as CaCO3)	210	160	290	290	270	300
20	Date Sampled for Analysis	4-23-03	6-4-03	9-8-03	4-23-03	6-4-03	9-8-03
21	Date Last Precipitation Event Occurred	4-22-03	6-4-03	9-3-03	4-22-03	6-4-03	9-3-03

Laboratory Name Tra-Det, Inc.
Address 8 Industrial Park Drive City Wheeling
State West Virginia Zip 26003

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	S14-70	S14-71				
2	Identification Number	0304410	0304411				
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	Supplemental					
4	Surface Elevation for Sampling Station (msl)	1130	1187				
5	Depth of Well Below Land Surface (feet)	---	---				
6	Static Water Level of Well Below Land Surface (feet)	---	---				
7	Flow for Spring and Stream (gpm or cfs)	.52 gpm	.20 gpm				
8	Date Above Measurements Made	4-23-03	4-23-03				
9	Aquifer/Zone Identification For Well/Spring	C	B				
10	pH (Standard Units)	7.64	7.35				
11	Total Acidity (mg/l CaCO3)	15.8	4.37				
12	Total Alkalinity (mg/l CaCO3)	160	160				
13	Specific Conductivity (umhos/cm at 25° C)	360	410				
14	Total Dissolved Solids (mg/l)	---	---				
15	Total Manganese (mg/l)	<0.01	<0.01				
16	Total Sulfates (mg/l)	37	47				
17	Total Iron (mg/l)	0.49	0.13				
18	Total Suspended Solids (mg/l)	13	1.3				
19	Total Hardness (mg/l as CaCO3)	200	230				
20	Date Sampled for Analysis	4-23-03	4-23-03				
21	Date Last Precipitation Event Occurred	4-22-03	4-22-03				

Laboratory Name Tra-Det, Inc.
Address 8 Industrial Park Drive City Wheeling
State West Virginia Zip 26003

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

HYDROLOGIC INVENTORY

Applicant's Name The Ohio Valley Coal Company D-0360-15

1	I.D. No. of Sampling Site from Hydrology Map						S15-01
2	State Plane X-Y Coordinates						X 2,386,160 Y 707,556
3	Surface Elevation (ft msl)						1180'
4	Depth of Well Below Land Surface (feet)*						--
5	SWL of Well Below Land Surface (ft) *						--
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)						<1 gpm
7	Date Measured/Sampled**						02-21-07
8	pH (Standard Units)						6.95
9	Total Acidity (mg/l $CaCO_3$)						2.7
10	Total Alkalinity (mg/l $CaCO_3$)						140
11	Total Iron (mg/l)						0.72
12	Total Manganese (mg/l)						0.037
13	Total Aluminum (mg/l)						not analyzed
	Total Suspended Solids (mg/l)						17
15	Total Hardness (mg/l as $CaCO_3$)						160
16	Total Sulfates (mg/l)						29
17	Specific Conductivity (umhos/cm at 25° C)***						360
18	Total Dissolved Solids (mg/l)***						--
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)				--		
20	High (H), Low (L), or Intermediate (I)				SUPPLEMENTAL		
21	Date of Last Precipitation						02-18-07
22	Aquifer/Zone I.D. for Ground Water *						B
23	Known Uses				NONE		
24	Lab ID Number						0702141
25	Name of Owner	THE OHIO VALLEY COAL COMPANY					

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

Revised 11/05
DNR-744-9024

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

HYDROLOGIC INVENTORY

Applicant's Name The Ohio Valley Coal Company D-0360-15

1	I.D. No. of Sampling Site from Hydrology Map	S15-02	S15-03				
2	State Plane X-Y Coordinates	X 2,387,610 Y 707,002	X 2,387,868 Y 707,178				
3	Surface Elevation (ft msl)	1185'	1170'				
4	Depth of Well Below Land Surface (feet)*	--	--				
5	SWL of Well Below Land Surface (ft) *	--	--				
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)	<1 gpm	<1 gpm				
7	Date Measured/Sampled**	02-21-07	02-21-07				
8	pH (Standard Units)	6.71	6.86				
9	Total Acidity (mg/l $CaCO_3$)	2.6	2				
10	Total Alkalinity (mg/l $CaCO_3$)	110	69				
11	Total Iron (mg/l)	1.5	0.81				
12	Total Manganese (mg/l)	0.23	0.12				
13	Total Aluminum (mg/l)	not analyzed					
	Total Suspended Solids (mg/l)	42	12				
15	Total Hardness (mg/l as $CaCO_3$)	120	80				
16	Total Sulfates (mg/l)	23	20				
17	Specific Conductivity (umhos/cm at 25° C)***	260	180				
18	Total Dissolved Solids (mg/l)***	--	--				
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)	--	--				
20	High (H), Low (L), or Intermediate (I)	SUPPLEMENTAL					
21	Date of Last Precipitation	02-18-07	02-18-07				
22	Aquifer/Zone I.D. for Ground Water *	B	B				
23	Known Uses	NONE					
24	Lab ID Number	0702142	0702143				
25	Name of Owner	THE OHIO VALLEY COAL COMPANY					

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

Revised 11/05
DNR-744-9024

ADDENDUM TO PAGE 17, ITEM C( ), THE OHIO VALLEY COAL COMPANY

George V. Voinovich • *Governor*
Donald C. Anderson • *Director*

DATE December 3, 1998

ANALYSIS OF EXISTING GROUND WATER FILE DATA

PREPARED BY: Bill Haiker BH, HYDROGEOLOGIST

OPERATOR: Ohio Valley Coal Company

COUNTY: Belmont

TOWNSHIP: Washington

SECTION (S): 28, 29, 30, 34, 35 and 36

NUMBER OF WATER WELL LOGS WITHIN 2,000 FOOT RADIUS OF SITE (COPIES ATTACHED) 0 : FIELD LOCATED: 0

GENERAL DESCRIPTION OF LOCAL HYDROLOGY:
(Use additional sheet if necessary)

Although there are no water well logs on file within the permit boundary, ground water is obtained from interbedded shale, limestone and sandstone bedrock. Wells range from 60 to 150 feet deep with sustainable yields of less than 2 gallons per minute.

AREAS OF PARTICULAR CONCERN:
(Use additional sheet if necessary)

Any wells that may exist within the permit boundary should be located and monitored for quality changes.

RECYCLED PAPER
SOY-BASED INK
DNR 0001

WE' LOG AND DRILLING RE'ORT

ORIGINAL

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

504859

COUNTY Belmont TOWNSHIP Washington SECTION OF TOWNSHIP _____

OWNER Rex Goddard ADDRESS Rt. 1 Alledonia, O.

LOCATION OF PROPERTY 1/4 mi. off St. Rt 145 on Twp Rd 109

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 26'

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1/2 gpm Duration of test 24 hrs

Drawdown _____ ft Date _____

Static level (depth to water) _____ ft

Quality (clear, cloudy, taste, odor) Clear no odor

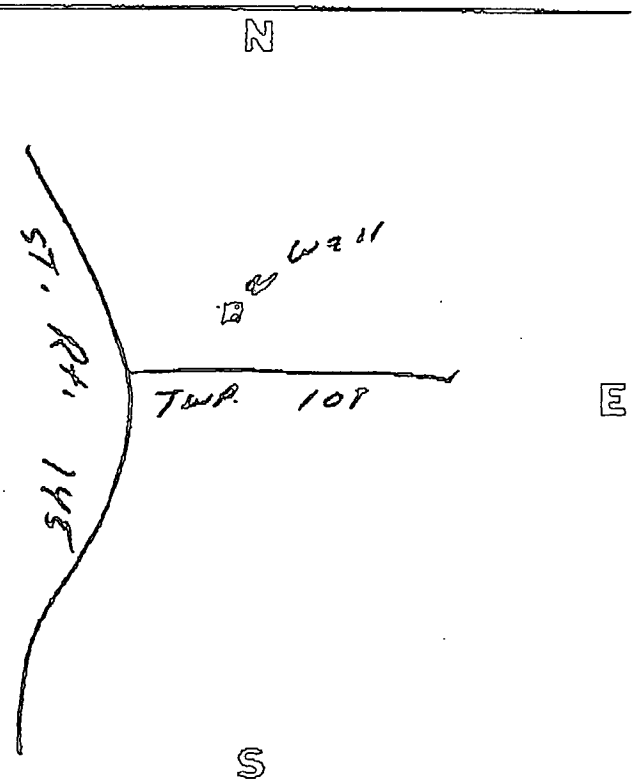
Pump installed by _____

WELL LOG°

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top	0 ft	6 ft
Limestone	6	15
Sandstone	15	16
Limestone (Hard)	16	18
Sandstone	18	30
Yellow Clay	30	36
Sandstone	36	42
Red Clay	42	46
Limestone	46	54
Red Clay	54	68
Limestone	68	72
Vein @ 54'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Mann Drilling DATE 8-10-76

ADDRESS 213 Woodfield O SIGNED Rick Mann

°If additional space is needed to complete well log, use next consecutive numbered form.

10

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

504855

COUNTY BELMONT TOWNSHIP WASHINGTON SECTION OF TOWNSHIP

OWNER REX GODDARD ADDRESS Rt 1 ALLEDONIA, O.

LOCATION OF PROPERTY 1/4 mi off ST RT 145 on Twp Rd. 109

CONSTRUCTION DETAILS

Casing diameter _____ Length of casing NONE

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate _____ gpm Duration of test _____ hrs

Drawdown NO WATER ft Date _____

Static level (depth to water) _____ ft

Quality (clear, cloudy, taste, odor) PLUGGED

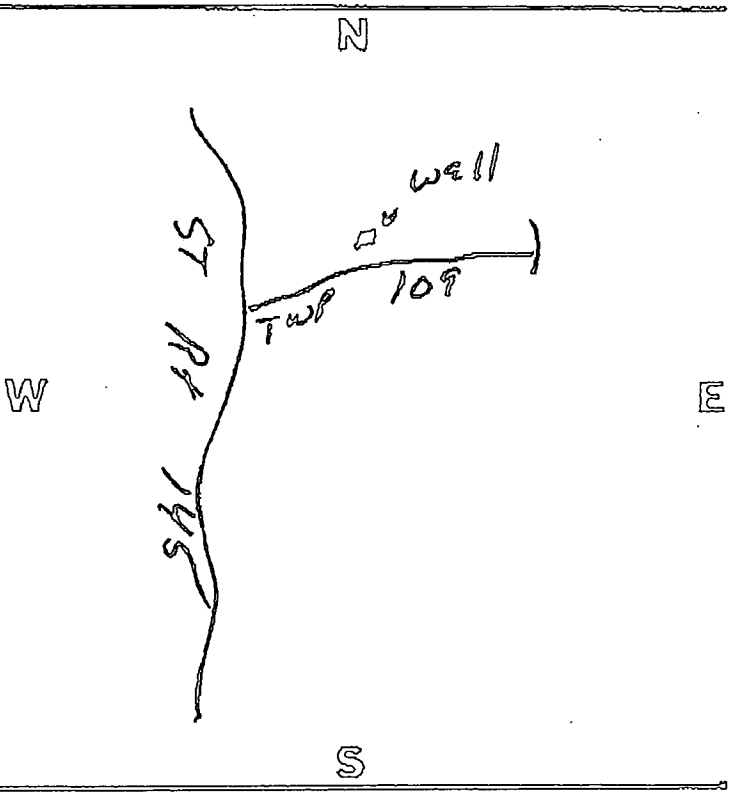
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top	0 ft	2 ft
Lime Clay & Mud	2	18
Red Clay	18	25
Sandstone	25	30
Limestone	30	42
Red Clay	42	48
Limestone	48	54
Red Clay	54	68
Limestone	68	86
Limestone Clay	86	90
Limestone	90	102
Limestone Clay	102	107
Limestone	107	114
Gray Sandstone	114	130
No Water		
Plugged		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Mann Drilling DATE 8-5-76

ADDRESS Rt 3 Woodsfield O SIGNED Rick Mann

*If additional space is needed to complete well log, use next consecutive numbered form.

(11)

ADDENDUM TO PART 2, ITEM C( ), THE OHIO VALLEY COAL COMPANY

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

№ 356318

County Belmont Township Washington Section of Township 28

Owner Roger Saffel Address Aladonia Oh

Location of property Hwy 148 above Aladonia

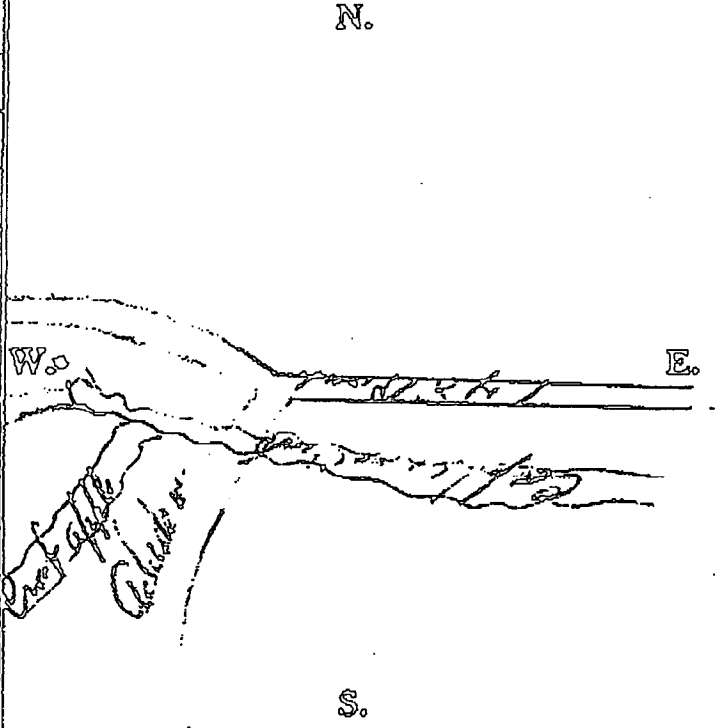
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 8 Length of casing 20	Pumping Rate ____ G.P.M. Duration of test ____ hrs.
Type of screen ____ Length of screen ____	Drawdown ____ ft. Date ____
Type of pump ____	Static level-depth to water ____ ft.
Capacity of pump ____	Quality (clear, cloudy, taste, odor) Clear
Depth of pump setting ____	3-4 gal [illegible]
Date of completion Sept 12/67	Pump installed by ____

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Loam & Gravel	0 Feet	20 Ft.
Limestone & Clay	20	34
Water at 24 ft		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [illegible] Date Sept 12/67

Address [illegible] Signed [illegible]

*If additional space is needed to complete well log, use next consecutive numbered form.

TOVCC 23304

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

No. 265757

County [illegible] Township [illegible] Section of Township [illegible]

Owner [illegible] Address [illegible]

Location of property [illegible]

CONSTRUCTION DETAILS

Casing diameter [illegible] Length of casing [illegible]

Type of screen ..... Length of screen ..... [illegible]

Type of pump .....

Capacity of pump .....

Depth of pump setting .....

Date of completion .....

BAILING OR PUMPING TEST

Pumping rate ..... G.P.M. Duration of test ..... hrs.

Drawdown ..... ft. Date .....

Developed capacity [illegible]

Static level—depth to water ..... ft.

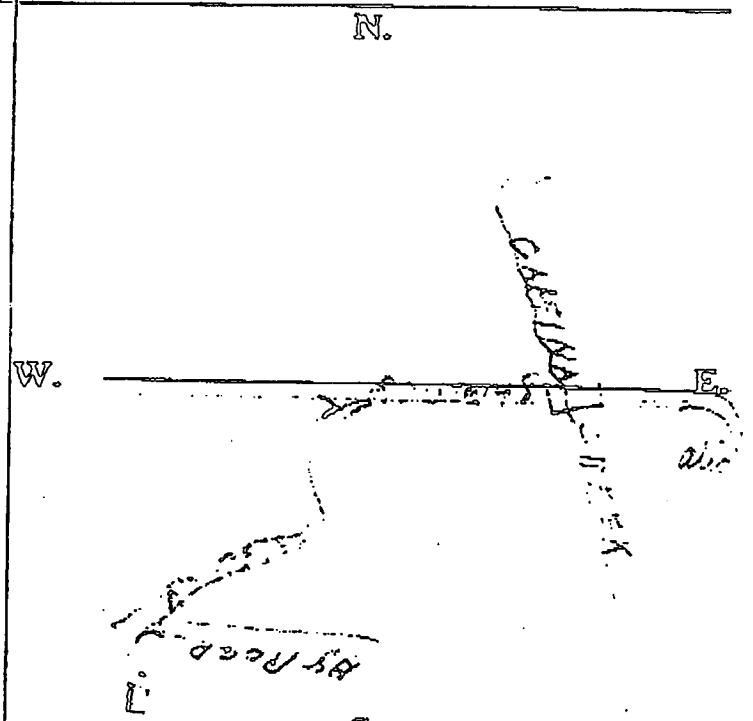
Pump installed by .....

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
[illegible]	0 Feet	[illegible] Ft.

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [illegible] Date [illegible]

Address [illegible] Signed [illegible]

[illegible]

ADDENDUM TO PART 2, ITEM C( ), THE OHIO VALLEY COAL COMPANY

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

No. 272557

County Belmont Township Washington Section of Township

Owner [illegible] Kirby Address Beallsville R.R. 1

Location of property 1 1/4 [illegible] of 145 [illegible]

CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 6 Length of casing 29	Pumping rate ..... G.P.M. Duration of test ..... hrs.
Type of screen ..... Length of screen	Drawdown ..... ft. Date .....
Type of pump	Developed capacity 3 gal
Capacity of pump	Static level—depth to water ..... ft.
Depth of pump setting	Pump installed by .....
Date of completion Nov 6/62	

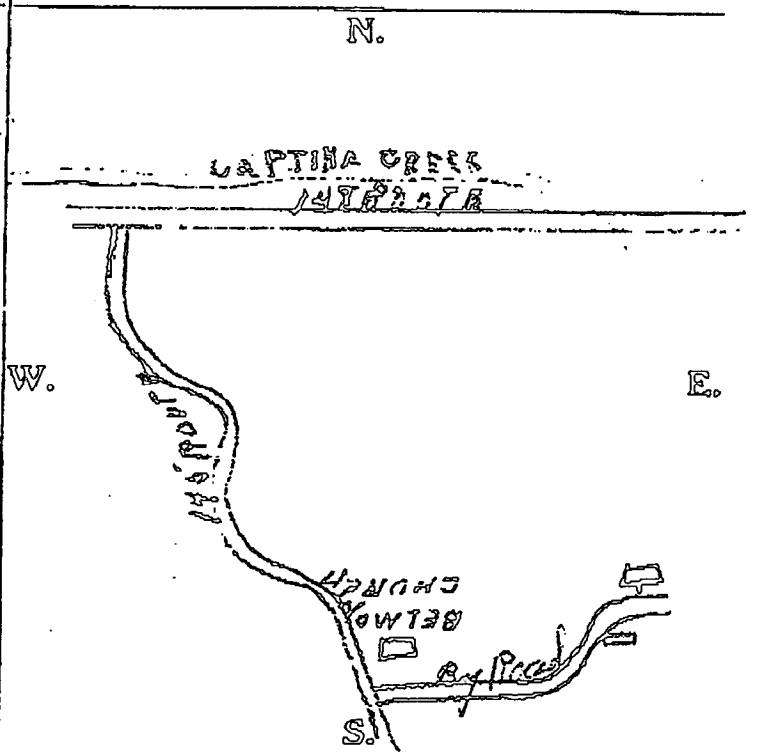
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Loam & shale	0 Feet	28 Ft.
Shale & clay	28	60
Clay & [illegible]	63	11[illegible]

[illegible]

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [illegible] Date Nov 6/62

Address [illegible] Signed [illegible]

TR 104

TOVCC 23306

ADDENDUM TO PART 2, ITEM C( ), THE OHIO VALLEY COAL COMPANY

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 272568

County Belmont Township Washington Section of Township 32

Owner Earl Snively Address Alledonia Ohio

Location of property 2½ South of Alledonia 145 ROUTE

CONSTRUCTION DETAILS

Casing diameter 10 Length of casing 29

Type of screen ____ Length of screen ____

Type of pump Jet

Capacity of pump 1

Depth of pump setting ____

Date of completion Nov 25/63

BAILING OR PUMPING TEST

Pumping rate ____ G.P.M. Duration of test ____ hrs.

Drawdown ____ ft. Date ____

Developed capacity 5 gal/min

Static level—depth to water ____ ft.

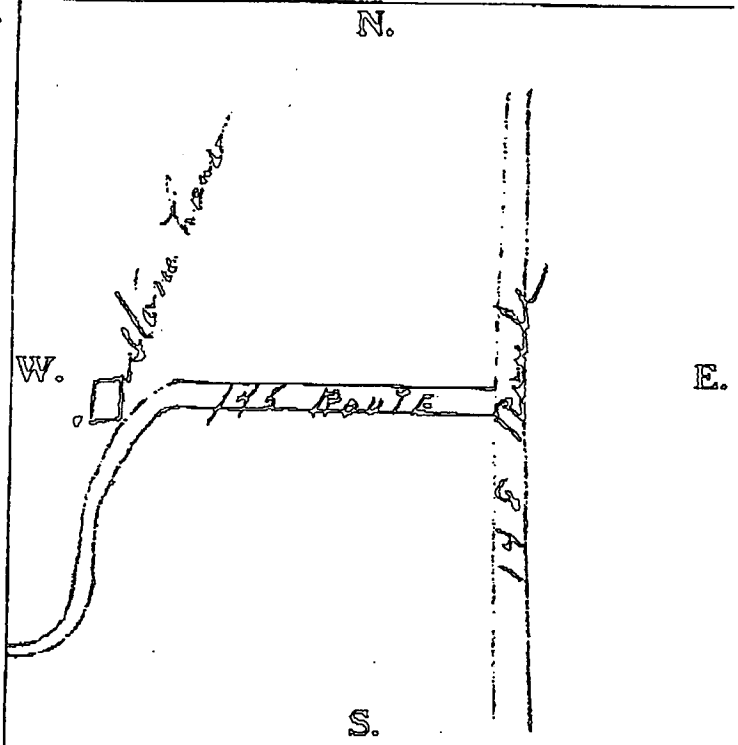
Pump installed by [illegible]

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay & Loam	0 Feet	28 Ft.
	28	31
Rock	31	90
Clay Shale	90	100
Clay		
Water at 64		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [illegible]

Address [illegible]

Date Nov 25/63

Signed [illegible]

SR 145

ADDENDUM TO PART 2, ITEM C( ), THE OHIO VALLEY COAL COMPANY

APR-28-98 13:37 FROM:OVCC FRONT DESK ID:6149289112 PAGE 10/10

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179416

County Belmont Township Washington Section of Township 32

Owner Ray Brooks Address Albedonia Ohio

Location of property 2½ Miles South Albedonia

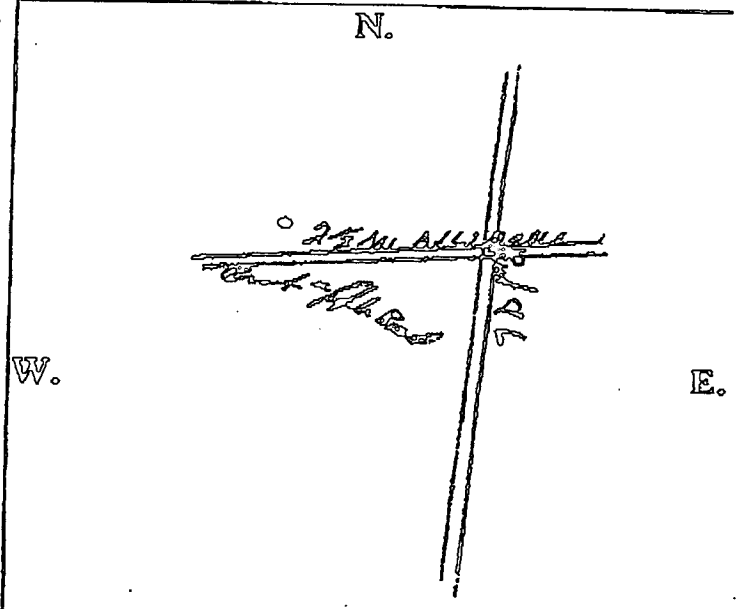
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 7" Length of casing 16	Pumping rate ..... G.P.M. Duration of test ..... hrs.
Type of screen ..... Length of screen	Drawdown ..... ft. Date .....
Type of pump	Developed capacity 1½ PR
Capacity of pump	Static level—depth to water ..... ft.
Depth of pump setting	Pump installed by .....
Date of completion June 56	

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	16 Ft.
Loam	16	24
Stone	24	34
Clay	34	52
Limestone	52	65
Clay	65	75
Limestone	75	80
Clay		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm [signature]

Address Powhatan P/O

Date 1956

Signed [signature]

TR 103

TOVCC 23308

OHIO DEPARTMENT NATURAL RESOURCES
DIVISION OF MINERAL SOURCES MANAGEMENT

SURFACE WATER INVENTORY

Applicant's Name: The Ohio Valley Coal Company D-0360-22

ID No. Of Sampling Site from Hydrology Map	State Plane X-Y Coordinates	Surface Elevation (ft msl)	Discharge* (gpm or cfs)	Date Measured	Known Uses, including public water	Type of Supply (pond, perennial or intermittent stream, etc.)	Name of Owner
U6-7	X 2,388,917 Y 707,969	1175	--	6-mo. 1998	None	Intermittent	See Map
U14-1A	X 2,368,449 Y 706,849	1123	--	4/03, 6/03, 9/03	None	Intermittent	See Map
D14-1B	X 2,387,094 Y 708,919	950	--	4/03, 6/03, 9/03	None	Intermittent	See Map
P14-6	X 2,386,486 Y 706,598	1115	--	4/03	None	Pond	See Map
WI15-1	X 2,388,917 Y 707,969	1173.5	--	2/07	None	Pond	See Map
	X Y						
	X Y						
	X Y						
	X Y						

* Do not include discharge values if such measurements are reported on the Hydrologic Analyses.

05/08
DNR-744-9084

TOVCC 23309

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT THE OHIO VALLEY COAL COMPANY D-0360-8

1.	Identification No. of sampling Station from Hydrology Map	U6-7	U6-7	U6-7	U6-7	U6-7	U6-7
2.	Lab Identification Number 98-	02-085	03-128	04-144	05-227	06-245	07-214
3.	High (H) / Low (L) Designation (if applicable)			SIX MONTH SAMPLING			
4.	Surface Elevation for Sampling Station (msl)	1175	1175	1175	1175	1175	1175
5.	Depth of Well Below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well Below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring and Stream (gpm or cfs)	.03 CFS	.03 CFS	.008 CFS	.0007 CFS	.02 CFS	.0003 CFS
8.	Date Above Measurements Made	2-11-98	3-10-98	4-14-98	5-22-98	6-23-98	7-17-98
9.	Aquifer/Zone Identification for Well/Spring	--	--	--	--	--	--
10.	pH (Standard Units)	7.80	7.20	8.50	7.30	7.40	7.20
11.	Total Acidity (mg/1 $CaCO_3$)	6.40	4.60	<1.0	10.0	12.0	18.0
12.	Total Alkalinity (mg/1 $CaCO_3$)	73.00	62.00	68.0	82.0	79.0	87.0
13.	Specific Conductivity (umhos/cm at 25 C)	210	180	150	160	210	200
14.	Total Dissolved Solids mg/1)	--	--	--	--	--	--
15.	Total Manganese (mg/1)	0.20	0.23	0.22	0.38	0.30	0.41
16.	Total Sulfates (mg/1)	25.0	13.0	22.0	21.0	18.0	16.0
17.	Total Iron (mg/1)	0.37	2.70	1.10	1.10	1.10	1.60
18.	Total Suspended Solids (mg/1)	5.0	56.0	13.0	19.0	7.3	16.0
19.	Total Hardness (mg/1 as $CaCO_3$)	120.0	80.00	70.0	70.0	80.0	80.0
20.	Date Sampled for Analysis	2-11-98	3-10-98	4-14-98	5-22-98	6-23-98	7-17-98
21.	Date Last Precipitation Event Occurred	2-11-98	3-9-98	4-14-98	5-19-98	6-18-98	7-15-98

Laboratory Name TraDet, Inc.
Address Battle Run Road, RD. #2, Box 227A City Triadelphia
State West Virginia Zip 26059

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.

NOTE: For each sample provide data for either item 13 or item 14

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	U14-1	U14-1	U14-1	U14-1A	U14-1A	U14-1A
2	Identification Number	0304187	0306155	0309123	0304215	0306156	0309132
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	H	I	L	H	I	L
4	Surface Elevation for Sampling Station (msl)	1114	1114	1114	1123	1123	1123
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	536 gpm	360 gpm	155 gpm	23.8 gpm	13.5 gpm	12 gpm
8	Date Above Measurements Made	4-12-03	6-6-03	9-8-03	4-12-03	6-6-03	9-8-03
9	Aquifer/Zone Identification For Well/Spring	---	---	---	---	---	---
10	pH (Standard Units)	7.9	8.2	7.8	8.29	8.2	7.4
	Total Acidity (mg/l CaCO3)	4.3	<1	8.7	1.5	<1	4.6
12	Total Alkalinity (mg/l CaCO3)	140	190	200	160	190	200
13	Specific Conductivity (umhos/cm at 25° C)	320	510	440	360	480	300
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.04	0.05	0.13	0.05	0.07	0.11
16	Total Sulfates (mg/l)	39	36	36	30	34	28
17	Total Iron (mg/l)	0.43	0.25	0.18	0.41	0.21	0.20
18	Total Suspended Solids (mg/l)	11	6.4	<1.0	17	8.8	<1.0
19	Total Hardness (mg/l as CaCO3)	150	230	230	190	210	220
20	Date Sampled for Analysis	4-12-03	6-6-03	9-8-03	4-12-03	6-6-03	9-8-03
21	Date Last Precipitation Event Occurred	4-11-03	6-6-03	9-3-03	4-11-03	6-6-03	9-3-03

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019, / RD. #2 Box 227A, Battle Run Road City Wheeling / Triadelphia
State West Virginia Zip 26003 / 26059

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	D14-1A	D14-1A	D14-1A	D14-1B	D14-1B	D14-1B
2	Identification Number	0304214	0306150	0309142	0304382	0306154	0309134
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	H	I	L	H	I	L
4	Surface Elevation for Sampling Station (msl)	880	880	880	950	950	950
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	2.07 cfs	1.24 cfs	0.7 cfs	292 gpm	256 gpm	163 gpm
8	Date Above Measurements Made	4-12-03	6-6-03	9-8-03	4-22-03	6-6-03	9-8-03
9	Aquifer/Zone Identification For Well/Spring	---	—	---	---	---	---
10	pH (Standard Units)	8.47	8.3	7.0	7.9	8.4	7.9
11	Total Acidity (mg/l CaCO3)	0	0	<1	<1	0	<1
12	Total Alkalinity (mg/l CaCO3)	120	160	190	140	160	230
13	Specific Conductivity (umhos/cm at 25° C)	290	610	340	410	440	430
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.01	0.01	0.01	<0.01	0.02	0.02
16	Total Sulfates (mg/l)	35	37	36	36	35	41
17	Total Iron (mg/l)	0.30	0.47	0.07	0.36	0.79	0.24
18	Total Suspended Solids (mg/l)	<1	11	<1	5.3	27	3.3
19	Total Hardness (mg/l as CaCO3)	140	180	230	160	170	270
20	Date Sampled for Analysis	4-12-03	6-6-03	9-8-03	4-22-03	6-6-03	9-8-03
21	Date Last Precipitation Event Occurred	4-11-03	6-6-03	9-3-03	4-22-03	6-6-03	9-3-03

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019, / RD. #2 Box 227A, Battle Run Road City Wheeling / Triadelphia
State West Virginia Zip 26003 / 26059

NOTE: *If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.*
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT The Ohio Valley Coal Company (D-0360-14)

1	Identification No. of Sampling Station from Hydrology Map	P14-6	P14-7				
2	Identification Number	0304199	0304458				
3	High (H)/Low (L) /Intermediate (I) Designation (if applicable)	SUPPLEMENTAL					
4	Surface Elevation for Sampling Station (msl)	1115	955				
5	Depth of Well Below Land Surface (feet)	---	---				
6	Static Water Level of Well Below Land Surface (feet)	---	---				
7	Flow for Spring and Stream (gpm or cfs)	28.6 gpm	.36 gpm				
8	Date Above Measurements Made	4-12-03	4-24-03				
9	Aquifer/Zone Identification For Well/Spring	---	---				
10	pH (Standard Units)	7.76	7.8				
11	Total Acidity (mg/l CaCO3)	4.6	12				
12	Total Alkalinity (mg/l CaCO3)	140	180				
13	Specific Conductivity (umhos/cm at 25° C)	300	490				
14	Total Dissolved Solids (mg/l)	---	---				
15	Total Manganese (mg/l)	0.09	0.15				
16	Total Sulfates (mg/l)	28	38				
17	Total Iron (mg/l)	1.10	0.86				
18	Total Suspended Solids (mg/l)	9.3	3				
19	Total Hardness (mg/l as CaCO3)	150	210				
20	Date Sampled for Analysis	4-12-03	4-24-03				
21	Date Last Precipitation Event Occurred	4-11-03	4-22-03				

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019, / RD. #2 Box 227A, Battle Run Road City Wheeling / Triadelphia
State West Virginia Zip 26003 / 26059

NOTE: *If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.*
NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

HYDROLOGIC INVENTORY

Applicant's Name The Ohio Valley Coal Company D-0360-15

1	I.D. No. of Sampling Site from Hydrology Map			WI15-1			
2	State Plane X-Y Coordinates			X 2,388,917 Y 707,969			
3	Surface Elevation (ft msl)			1173.5'			
4	Depth of Well Below Land Surface (feet)*			--			
5	SWL of Well Below Land Surface (ft) *			--			
6	Discharge for Spring, Stream, Pond, Mine, etc. (gpm or cfs)			0			
7	Date Measured/Sampled**			02-21-07			
8	pH (Standard Units)			6.33			
9	Total Acidity (mg/l $CaCO_3$)			3.5			
10	Total Alkalinity (mg/l $CaCO_3$)			33			
11	Total Iron (mg/l)			1.3			
12	Total Manganese (mg/l)			0.23			
13	Total Aluminum (mg/l)			--			
	Total Suspended Solids (mg/l)			21			
15	Total Hardness (mg/l as $CaCO_3$)			40			
16	Total Sulfates (mg/l)			16			
17	Specific Conductivity (umhos/cm at 25° C)***			150			
18	Total Dissolved Solids (mg/l)***			--			
19	Type of Supply For Surface and Public Water (pond, perennial/intermittent stream, etc.)			Pond			
20	High (H), Low (L), or Intermediate (I)	SUPPLEMENTAL					
21	Date of Last Precipitation			02-18-07			
22	Aquifer/Zone I.D. for Ground Water *			--			
23	Known Uses	NONE					
24	Lab ID Number			0702140			
25	Name of Owner	THE OHIO VALLEY COAL COMPANY					

Note: If information required by items 4, 5, or 21 is unobtainable, submit as an addendum to Hydrologic Inventory a statement giving the reasons why the information is unobtainable.

** Note: All sites must be measured, unless unobtainable. For all sites that are not sampled, indicate "NS" (No Sample) in the appropriate space.

*** Note: For each sample, provide data for either item 16 or item 17.

Revised 11/05
DNR-744-9024

F. LAND USE INFORMATION

(1) Describe the uses of the land existing at the time of the filing of this permit application and provide a map delineating the area and acreage of each land use.

The proposed permit area is composed of 8.2 acres of undeveloped land, and 36.0 acres of pastureland. See Addendum to Part 2, Item F(1), Land Use Exhibit Map.

(2) Was the land use described in item F (1) above changed within five years before the anticipated date of beginning this proposed mining operation?

Yes ☐ No ☒ If "yes," describe the historic use of the land.

(3) Analyze the capability of the land within this application area before any mining to support a variety of uses, giving consideration to soil and foundation characteristics, topography, vegetative cover and hydrology.

Giving consideration to soil and foundation characteristics of the proposed permit area, the land could support uses such as grazing land, pastureland used for livestock, undeveloped recreational uses and wildlife habitat uses. The land is capable of supporting any of the uses listed above as a single use or a combination of uses. The topography, vegetative cover and hydrology of the proposed permit area would limit more intensive use of the area.

(4) Analyze the productivity of the land within this application area before any mining to include average yield data obtained under high level of management.

See Addendum to Part 2, Item F(4), Soil Survey for Belmont County. There is no productivity yield data for this site.

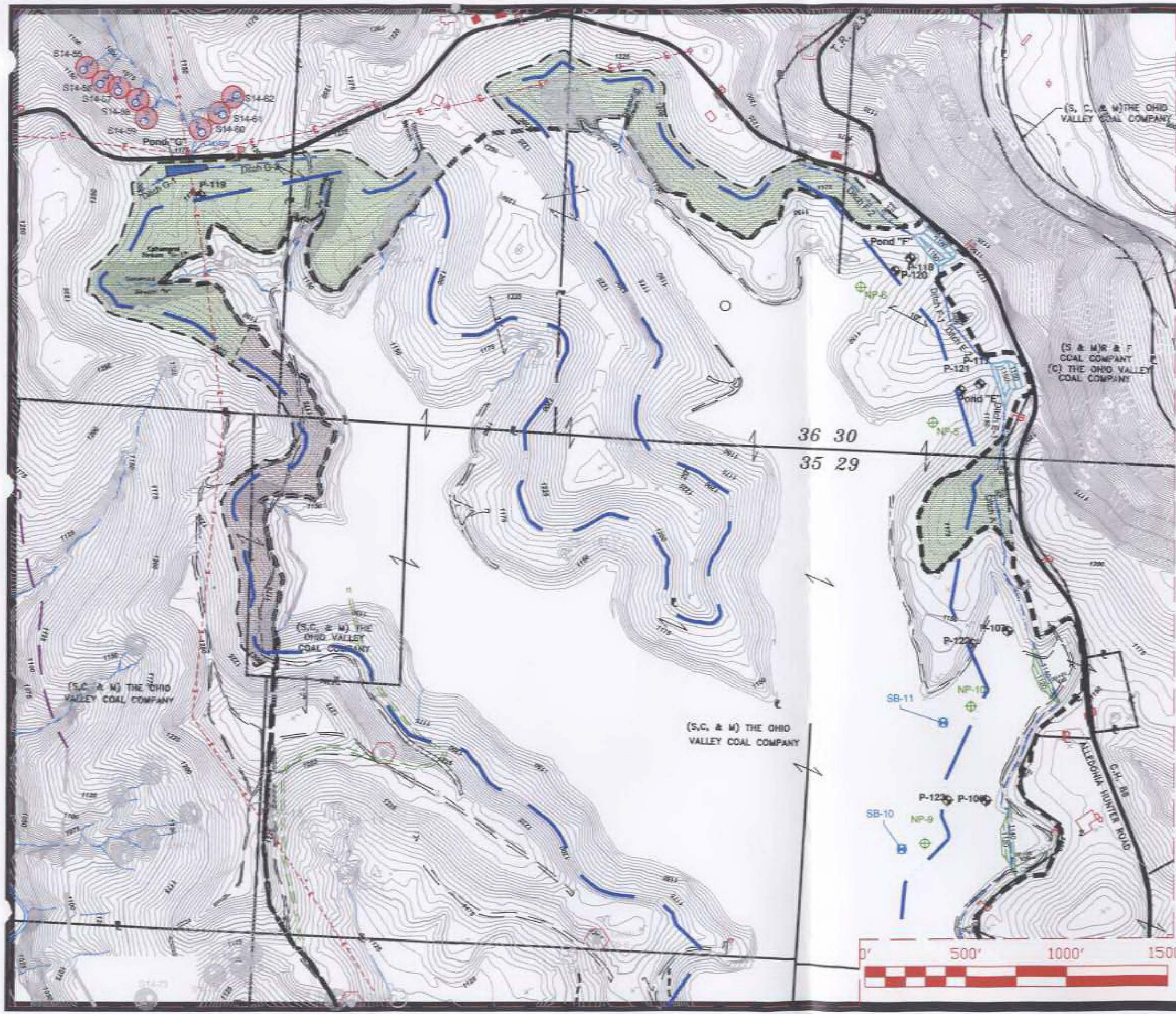
(5) Describe the use of the land following reclamation, including the creation of permanent impoundments. Include information regarding the utility and capacity of the reclaimed land to support a variety of alternative uses. Provide a map that delineates the area and acreage of each proposed land use, and submit assurance of maintenance for each permanent impoundment.

The use of the land following reclamation will be pastureland.

The post-mining land use for this area will be aesthetically appropriate and corresponds with the adjacent land uses. Grasses and legumes will be used as a cover crop. Following reclamation, the capability and productivity of the land will be greater than that at the present time. The premining landuse will remain on all areas in which the surface has not been disturbed. The reclaimed land could sustain other agricultural uses and recreational uses.

See Addendum to Part 2, Item F(1) for the Land Use Exhibit Map.

(6) Are there existing land use policies and plans adopted by any governmental agency for this application area and adjacent areas?



N

36.0 ACRES - PRE-MINING LAND USE: PASTURELAND
POST-MINING LAND USE: PASTURELAND

8.2 ACRES - PRE-MINING LAND USE: UNDEVELOPED
POST-MINING LAND USE: PASTURELAND

THE PRE-MINING LAND USE WILL REMAIN ON ALL AREAS WHERE THE SURFACE IS NOT DISTURBED.

CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THIS MAP IS TRUE AND CORRECT.

Cathy M Bihl Mazur 12-21-09
PROFESSIONAL SURVEYOR # 7199 DATE

STATE OF OHIO CATHY M. BIHL MAZUR REGISTERED PROFESSIONAL SURVEYOR

ACKNOWLEDGED BEFORE ME A NOTARY PUBLIC THIS 21st DAY OF December, 2009.

Sylvia S. Utter NOTARY PUBLIC
Sylvia S. Utter
Notary Public, State of Ohio
My Commission Expires 5-8-12

ADDENDUM TO PART 2, ITEM F(1)		
LAND USE EXHIBIT MAP		
THE OHIO VALLEY COAL COMPANY		
SECTION: 29, 30, 35, 36	TWP. - WASHINGTON	T.- 5 R.- 4
COUNTY: BELMONT	SCALE: 1" = 500'	CONTOUR INTERVAL: 5' & 10'
DATE PREPARED: DEC. 17, 2008		DATE REVISED: OCTOBER 9, 2009

HAMILTON & Associates, Inc.
342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@ix.net
www.hamiltonandassoc.com

DRAWN BY: SSU COMM: 9408-46-5

DRAWING: LandUse Map.dwg

TOWCC 233316

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Winter wheat	Oats	Grass-legume hay	Alfalfa hay	Pasture
	Bu	Bu	Bu	Ton	Ton	AUM[4]
AeC---------- Allegheny Variant	105	40	65	3.5	---	5.5
As---------- Ashton	125	50	70	4.5	5.0	7.0
BaB, BaD, BaF---------- Barkcamp	---	---	---	---	---	---
BcB---------- Barkcamp	---	---	---	---	---	3.0
BcD---------- Barkcamp	---	---	---	---	---	2.0
BeB---------- Bethesda	---	20	40	2.0	---	3.3
BeD---------- Bethesda	---	15	35	1.5	---	3.0
BhB, BhD---------- Bethesda	---	---	---	---	---	2.0
BhE, BhF---------- Bethesda	---	---	---	---	---	---
---------- Brookside	100	40	60	4.5	---	7.0
BsD---------- Brookside	90	35	55	4.0	---	7.0
BsE---------- Brookside	---	---	---	---	---	---
BuB---------- Brookside-Urban land	---	---	---	---	---	---
BuD---------- Brookside-Urban land	---	---	---	---	---	---
Cg---------- Chagrin	125	45	65	4.5	5.0	7.0
ChB---------- Chili	85	34	70	4.2	---	6.6
CmB---------- Chili-Urban land	---	---	---	---	---	---
CuB---------- Culleoka	100	32	65	4.0	---	6.0
CuC---------- Culleoka	90	28	60	3.5	---	5.5
DkB---------- Dekalb	80	30	55	3.5	---	5.5
DkC---------- Dekalb	70	25	50	3.3	---	5.0
[illegible]D---------- [illegible]kalb	70	25	50	3.0	---	4.5

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Winter wheat	Oats	Grass-legume hay	Alfalfa hay	Pasture
	Bu	Bu	Bu	Ton	Ton	AUM*
DkE---------- Dekalb	---	---	---	---	---	4.0
DmF---------- Dekalb	---	---	---	---	---	---
Dp, Ds. Dumps						
DuB---------- Duncannon-Urban land	---	---	---	---	---	---
EbB---------- Elba	100	45	60	4.5	4.7	7.0
EbC---------- Elba	95	40	55	4.0	4.5	6.0
EbD---------- Elba	85	35	50	3.8	4.2	5.8
EbE---------- Elba	---	---	---	---	---	4.0
ElB---------- Elkinsville	120	48	70	4.0	4.5	6.0
ElC---------- Elkinsville	110	44	65	3.6	4.3	5.8
ElD---------- Elkinsville	90	36	60	3.0	4.0	4.5
FbB, FbD---------- Fairpoint	---	---	---	---	---	3.0
FcB---------- Fairpoint	---	25	45	2.5	---	4.0
FcD---------- Fairpoint	---	20	40	2.0	---	3.0
FtA---------- Fitchville	110	38	60	4.3	---	6.5
He---------- Hartshorn	100	40	60	4.0	---	6.0
LeB---------- Lowell	110	40	65	4.0	5.0	6.0
LeC---------- Lowell	100	35	60	3.7	4.8	5.8
LeD---------- Lowell	90	30	55	3.5	4.5	5.5
LeE---------- Lowell	---	---	---	---	---	4.0
LeF---------- Lowell	---	---	---	---	---	---
LoB---------- Lowell-Westmoreland	110	38	70	3.8	4.8	5.8
LoC---------- Lowell-Westmoreland	100	35	63	3.4	4.4	5.5
LoD---------- Lowell-Westmoreland	90	30	58	3.3	4.3	5.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Winter wheat	Oats	Grass-legume hay	Alfalfa hay	Pasture
	Bu	Bu	Bu	Ton	Ton	AUM[8]
LoE---------- Lowell-Westmoreland	---	---	---	---	---	4.0
LoF, LpF---------- Lowell-Westmoreland	---	---	---	---	---	---
MnB---------- Morristown	---	30	50	3.0	---	4.5
MnD---------- Morristown	---	25	45	2.5	---	4.0
MnE---------- Morristown	---	---	---	---	---	2.0
MoB, MoD---------- Morristown	---	---	---	---	---	3.0
MoE, MoF---------- Morristown	---	---	---	---	---	---
Ne---------- Newark	100	---	---	4.5	---	7.0
Nm---------- Newark	---	---	---	---	---	---
Nn---------- Newark Variant	90	---	---	4.0	---	6.0
No---------- Nolin Variant	135	45	65	4.5	4.5	7.0
Nu---------- Nolin Variant-Urban land	---	---	---	---	---	---
OtB---------- Otwell	105	47	65	3.6	---	5.8
OtC---------- Otwell	75	38	60	3.2	---	5.0
RcC---------- Richland	120	40	70	3.5	---	5.8
RcD---------- Richland	110	35	60	3.0	---	4.5
RcE---------- Richland	---	---	---	---	---	4.0
RhB---------- Richland	125	45	75	4.0	---	6.0
Uc---------- Udorthents-Pits	---	---	---	---	---	---
Ud---------- Udorthents-Urban land	---	---	---	---	---	---
WhB---------- Wellston	105	40	70	4.0	4.5	6.0
WhC---------- Wellston	100	35	65	4.0	4.5	6.0
[illegible]B---------- [illegible]estmore	110	40	70	4.5	5.0	7.0

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Winter wheat	Oats	Grass-legume hay	Alfalfa hay	Pasture
	Bu	Bu	Bu	Ton	Ton	AUM*
WkC---------- Westmore	105	35	70	4.3	5.8	6.6
WkD---------- Westmore	100	32	65	4.0	4.5	6.0
WmB---------- Westmoreland	110	35	70	3.5	4.5	5.8
WmC---------- Westmoreland	100	35	65	3.0	4.0	4.5
WmD---------- Westmoreland	70	30	60	3.0	4.0	4.5
WmE---------- Westmoreland	---	---	---	---	---	4.0
WmF---------- Westmoreland	---	---	---	---	---	---
WoC---------- Westmoreland-Upshur	96	30	65	3.0	4.0	4.5
WoD---------- Westmoreland-Upshur	85	30	60	2.8	3.5	4.2
ZnB---------- Zanesville	95	35	60	3.5	---	5.8
ZnC---------- Zanesville	85	35	55	3.5	---	5.8

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Yes ☐ No ☒. If "yes," describe the land use policy or plan and provide the comments of the governmental agency that administers the land use policy or plan. If "no," describe the sources of information on which the determination was made.

Belmont County Commissioners

(7) Submit Surface Owner Comments from the legal or equitable owner(s) of record of the surface of this application area concerning the proposed land use.

(8) Describe how the proposed land use is to be achieved and the support activities needed to achieve the proposed land use.

The proposed land use will be achieved by following the proposed reclamation plan described in Part 3 of this permit application. No additional support activities are needed or proposed.

(9) Describe the consideration that has been given to making all of the proposed coal mining activities consistent with surface owner plans and applicable state and local land use plans and programs.

No state or local land use plans exists for this area. All the proposed coal mining activities explained in this application are consistent with the surface owners plans.

(10) Is the post-mining land use to be different from the premining land use?

Yes ☒ No ☐ If "yes," submit an addendum describing the plans and findings.

(11) Has this application area been previously mined?

Yes ☐ No ☒ If "yes," provide the following information, if available.

(a) Type of mining method
(b) Coal seam mined
(c) Non-coal mineral mined
(d) Extent of mining (acres)
(e) Approximate dates
(f) Land use preceding mining

G. PRIME FARMLAND INVESTIGATION

Submit Negative PFL Determination for areas within this application area that are not prime farmland. **See Negative PFL Determination, Item 1, which includes the areas that contain prime farmland, this site has been permitted as a coal refuse facility since the Powhatan No. 6 Mine opened in the early 1970's.**

Having considered the negative determinations, does this application area include any land that is prime farmland? Yes ☒ No ☐

If "yes," submit PFL Restoration Plan or describe how this area will be avoided.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

SURFACE OWNER COMMENTS

TO: The Ohio Valley Coal Company

FROM: The Ohio Valley Coal Company

Location of Proposed Permit Area:

County/Twp: Belmont/Washington	Lot/Section: 29, 30, 35, 36

The proposed postmining land use(s) for your property is/are checked below:

- [ ] Cropland
- [X] Pasture Land
- [ ] Grazing Land
- [ ] Industrial Land Use
- [ ] Commercial Land Use
- [ ] Developed Water Resources
- [ ] Residential Land Use
- [ ] Forest
- [ ] Undeveloped Land Use
- [ ] Fish & Wildlife
- [ ] Recreation Land Use

Pursuant to 1501:13-4-05(G)(2) of the Ohio Administrative Code, surface owner comments concerning the proposed postmining land use(s) for the proposed permit area are required. Please check the appropriate box below.

- [X] *I concur with the proposed postmining land uses identified by the mine operator.*
- [ ] *I DO NOT concur with the proposed postmining land uses.*

COMMENTS:

SIGNATURE OF SURFACE OWNER — DATE: 12-21-05

Please check each (if any) of the following listed wildlife enhancements that you would be interested in having on your property. **PLEASE NOTE:** Checking a box does not require the operator to provide any or all of selected enhancements. This form is a tool to help landowners better understand options that may be available through the coal company.

- [ ] Tree/Shrub Plantings
- [ ] Ponds/Wetlands
- [ ] Brushpiles
- [ ] Rockpiles
- [ ] Small Depressions
- [ ] Perching/Nesting Structures
- [ ] Other:
- [ ] Other:

WAIVER STATEMENT (Optional for Surface Owner): I, the above named surface owner, waive my right to comment on any revision to the permit application during the application review process that results in a change in the postmining land use(s) from those shown above. (NOTE: I DO NOT WAIVE MY RIGHT TO COMMENT ON ANY PROPOSED POSTMING LAND USE CHANGE AFTER PERMIT ISSUANCE.)

SIGNATURE OF SURFACE OWNER — DATE: 12-21-05

Part 2: Section F

Revised 02/06
DNR-744-9048

Addendum to Part 2, Item F(10), The Ohio Valley Coal Company

Pre-mining Land Use: Undeveloped Land

Post Mining Land Use: Pasture Land

Rule: 1501:13-9-17(D) (1-6)

1. This proposed land use consists primarily of pasture land, cropland and undeveloped land. There are no existing local, state or federal land use policies or plans for the area. No zoning or other changes will be required for this land use change.

2. Based on soil types in the area, this plan is feasible. For a schedule showing how this proposed land use will be developed and achieved within a reasonable time, see the planting schedule in Part 3 of this permit application.

3. There are no public facilities required for this land use.

4. This proposed land use will neither present actual or probable hazard to public health or safety, nor will it pose any actual or probable threat of water flow diminution or pollution.

5. This proposed land use will not change the reclamation schedule for this permit application.

6. This proposed land use should not have any adverse effects on Fish and Wildlife. An opportunity to comment has been provided to the appropriate State and Federal Fish and Wildlife Management Agencies.

Note: The pre-mining land use will remain on all areas in which the surface has not been disturbed.

The applicant claims V.E.R. for the area containing prime farmland. See Addendum to Right of Entry Affidavit in Part 1 of this application.

H. FISH AND WILDLIFE RESOURCES

Describe the fish and wildlife resources for this application area and adjacent area.

The proposed area emcompasses approximately 44.2 acres and is contiguous to the existing permit. The western portion of the proposed permit area is also a portion of proposed permit D-0360-14, which has had an approved mist net survey. The northerly and easterly portions of the proposed permit area contain mostly open areas and is classified as pastureland. There are upper reaches of small streams located within the area which have very little cover for flight corridors, and there are no wetlands. These areas have been clear cut and logged. There are no caves, crevices, or other suitable hibernacula are located on this site. Also, please refer to the approved request letter dated January 17, 2007 which referenced additional areas contiguous to this proposed permit area (D-0360-15).

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

NEGATIVE PFL DETERMINATION

Applicant's Name The Ohio Valley Coal Company

Check (X) the appropriate item numbers and attach the documents used to make the demonstration.

☐ 1. Lands within the application area have not been historically used for cropland.

☐ 2. The slope of the land within the application area is greater than eight percent.

☐ 3. The total prime farmland soil unit (inside and outside of the application area) is less than three acres.

☐ 4. On the basis of a second order soil survey meeting the standards of the National Cooperative Soil Survey, there are no soil map units within the application area that have been designated prime farmland by the U.S. Natural Resource Conservation Service.

☐ 5. On the basis of a first order soil survey commissioned by the applicant and meeting the standard of the National Cooperative Soil Survey, there were found to be no prime farmland map units as designated by the NRCS within the application area (see PFL Restoration Plan, item 2 for 1st order survey criteria).

Prime farmland was found to be within the application area of which the applicant is exempt pursuant to rule 1501:13-4-12(F)(1). The proposed adjacent area is needed for continued mining related activities and is immediately adjacent to, and will be part of, the existing coal mining operation which began in 1967 for which the coal mining permit was obtained prior to August 3, 1977.

Revised 02/06
DNR-744-9029

U. S. Department of Agriculture
Natural Resources Conservation Service

OH-CPA-65
Rev. 9/94

Certification of Prime/Nonprime Farmland

Name of Mine Operator Ohio Valley Coal Company

Location of Permit Application Area Belmont Co., T-5 R-4 Washington Twp, Sect 29, 30, 35, 36.

Size of Permit Area (Acres) 50 AC +-

Check Appropriate Block:

1. ☐ I have determined that this permit application DOES NOT contain prime farmland in accordance with the edition of the current county Prime Farmland Map Unit List found in the county Field Office Technical Guide.

2. ☑ I have found that this permit application CONTAINS prime farmland in accordance with the edition of the Prime Farmland Map Units for Ohio and for the current county Prime Farmland Map Unit List, whichever is more current.

A soil map has been attached and prime unit(s) are as follows:

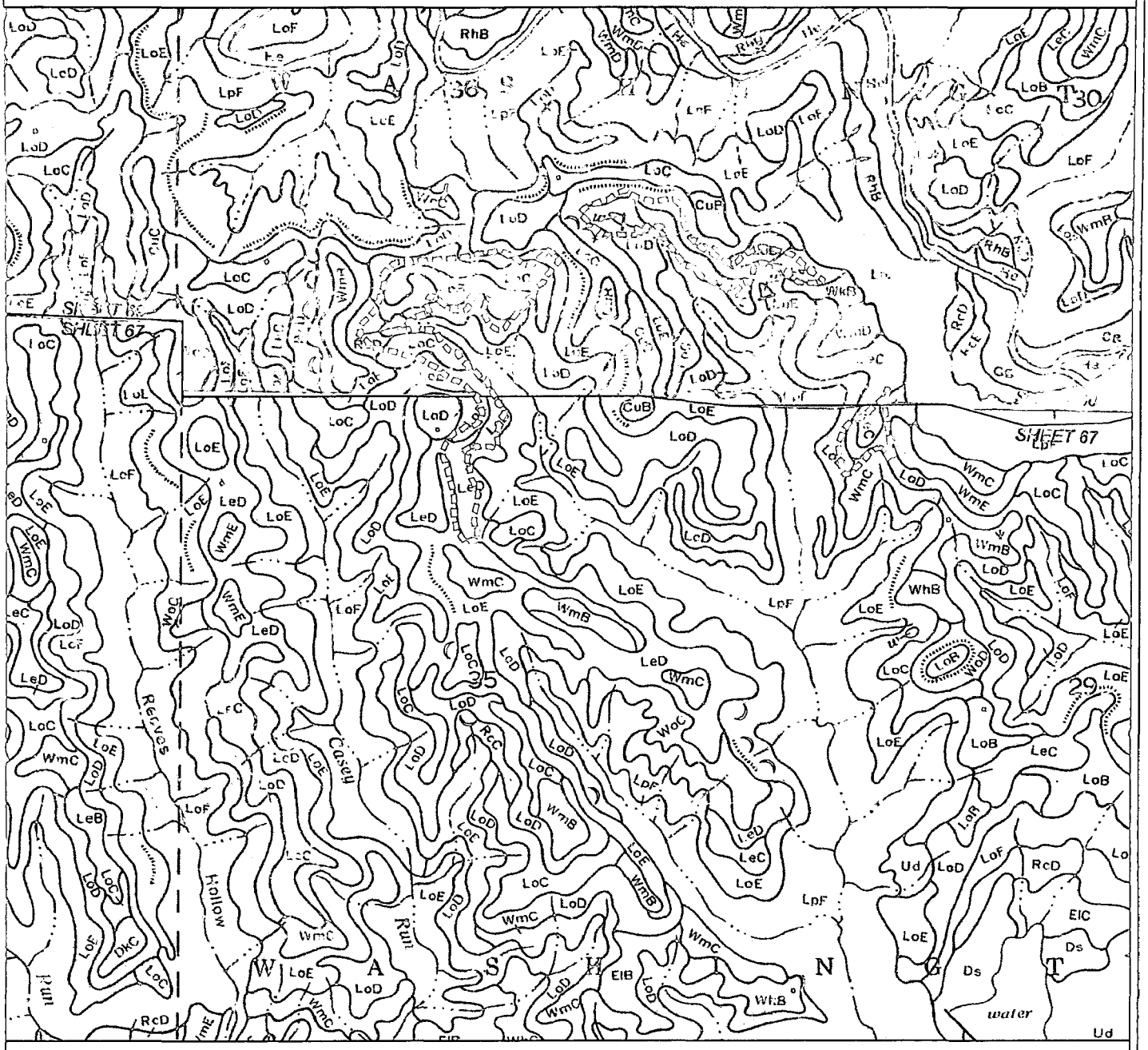
Soil Map Symbol	Map Unit Name
LoB	Lowell-Westmoreland Silt Loam 3 To 8 % Slopes

Signature: [signature] 12/23/08

Jeff Bettinger, Natural Resources Conservation Service
1119 East Main St., Barnesville, OH 43713 (740) 425-1100 Ext. 112

TOVCC 23326

The Ohio Valley Coal Company
D-0360-22
Addendum to Negative PFL Determination
50 Acres ±



0′ 1320′ 2640′ 3960′

SCS map.dwg

Ellen Greer

From: Jeromy_Applegate@fws.gov
Sent: Wednesday, June 10, 2009 8:56 AM
To: egreer@hamiltonandassoc.com
Cc: christina.l.schroeder@usace.army.mil; Scott.Stiteler@dnr.state.oh.us
Subject: Coal Mine Application No. D-0360-22, Ohio Valley Coal Company, #2 Dam Expansion

Ellen,

I've reviewed your May 1, 2009 letter and accompanying materials documenting suitable Indiana bat habitat at the subject application area. Approximately 3.8 acres of the 44.2-acre area are wooded. Some suitable Indiana bat roost trees may be present. A mist net survey was conducted for the adjacent D-360-14 area in 2007 and did not result in the capture of Indiana bats. Because Indiana bat suitable habitat on application area D0360-22 is limited and a recent survey on an adjoining area did not detect any Indiana bats, it is my opinion that the activities proposed in application D-360-22 will not result in significant impacts to this species. Therefore, I do not believe a mist net survey or an Indiana bat protection and enhancement plan are warranted for this site.

Please submit this email, along with your entire May 1, 2009 package, to ODNR, DMRM in your revisions to the coal mine application.

Feel free to contact me with any questions.

Sincerely,

Jeromy Applegate
Fish and Wildlife Biologist
U S Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Rd., Suite 104
Columbus, OH 43230
Phone: 614-416-8993 ext. 21
FAX: 614-416-8994

342 High St., Box 471
Flushing, OH 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
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www.hamiltonandassoc.com

Jack A. HAMILTON & Associates, Inc.

Civil Engineering
Land Surveying
Mine Permitting
GIS Data Services
Land Development
Global Positioning Systems

January 16, 2007

Mr. Jeromy Applegate
U.S. Fish and Wildlife Service
6950 Suite H, Americana Parkway
Reynoldsburg, Ohio 43068

Re: Coal Mine Application No. D-360-15, The Ohio Valley Coal Company

In reference to your letter to Mr. Brent Heavilin dated December 27, 2006, requesting that the applicant provide an Indiana bat habitat description, the following accurately addresses existing conditions at the proposed site.

The applicant reported that no trees were present on the proposed permit area, this observation was made by company personnel prior to staking of the proposed permit boundary. Mr. Heavilin observed the proposed permit area following staking of the actual boundary, which revealed a small area of trees within the limits of the proposed adjacent area. The statement that "no caves or mine openings are located within the proposed permit limits" is accurate.

The wooded areas/tree lines shown on the application/permit map do not reflect existing conditions. Additional clearing of trees has occurred during previous development within the impoundment area. The attached map accurately reflects the wooded area/tree line within the proposed permit area, (shown in green near photo numbers 4 and 5). Attached photos numbered 1 thru 19 reflect existing conditions within the proposed permit area. Photo locations are numbered and highlighted in yellow on the attached map, with directional arrows for photo reference.

A field review of trees within the proposed permit limits was conducted by Jack A. Hamilton and Assoc., Inc. on January 10, 2007. As a result of this review, a small area of trees is located within the limits of the proposed permit area, as shown in Photos number 4 and 5. The tree cover is sparse, and does not provide high value habitat suitable for Indiana bats. Obvious dead and dying trees are not prevalent. Please note that a permit limit marker is shown near the right (center) side of photo 4, as a slight reddish ribbon line, just outside the existing tree line. The permit limits follow the 1160 contour elevation through the trees to the center of the ephemeral channel, and down the other side, above the trees located at the left edge of photo 4. (Do not mistake the prominent red tipped metal fence post in the forefront of photo 4 for a permit limit marker).

The applicant does not feel that a mist net survey is necessary at this site. Please review the attached map and photographs at your earliest convenience. Your comments and/or guidance is appreciated.

Sincerely,

Jack A. Hamilton & Assoc., Inc.
Consulting for The Ohio Valley Coal Company

Ellen M. Greer

Ellen M. Greer, Permitting

ADDENDUM TO PART 2, PAGE 19, item I., The Ohio Valley Coal Company

Ellen Greer

From: <Jeromy_Applegate@fws.gov>
To: "Ellen Greer" <egreer@hamiltonandassoc.com>
Cc: <brent.heavilin@dnr.state.oh.us>; <christina.l.schroeder@lrp02.usace.army.mil>
Sent: Wednesday, February 07, 2007 10:39 AM
Subject: Re: The Ohio Valley Coal Company, No. 2 Dam Adjacent Area, D-360-15

Ellen,

I have reviewed the materials sent to our office in a letter dated January 16, 2007 regarding the subject application. These materials include a written description of the potential for Indiana bat habitat to exist on the D-360-15 adjacent area, along with photos and a map of the site.

A small area of trees (approximately 0.5 acre) is located within the application area. You have stated that no obvious dead or dying trees are prevalent, that tree-cover is sparse, and that this wooded area does not provide high value habitat suitable for the Indiana bat. The pictures and map provided support these statements. The map provided with your letter also appears to accurately reflect the wooded area/tree line in the application area.

The Service concurs with your statement that the D-360-15 application area does not contain high-value habitat for the Indiana bat. Therefore, we do not request a mist-net survey or protection and enhancement measures specific to the Indiana bat.

Please include a copy of your January 16, 2007 letter and accompanying map and photographs, as well as this e-mail, with subsequent revisions to the coal mine application submitted to ODNR, DMRM.

Feel free to contact me with any questions.

Jeromy Applegate
Fish and Wildlife Biologist
U S Fish and Wildlife Service
6950 Americana Parkway, Suite H
Reynoldsburg, OH 43068
614-469-6923 ext. 21
614-469-6919 (FAX)

"Ellen Greer"
<egreer@hamiltona
ndassoc.com>
02/05/2007 11:18
AM

To
<jeromy_applegate@fws.gov>
cc
Subject

02/07/2007

PART 3: RECLAMATION AND OPERATIONS PLAN

A. GENERAL REQUIREMENTS

(1) Describe the type and method of coal mining procedures.

The proposed adjacent area will be an expansion of the existing coal refuse disposal facility. Since the majority of the coal must be cleaned prior to burning by an electric power plant facility, this procedure will mazimize the use of coal resources by providing disposal area for refuse from the preparation plant. This operation does not apply to conservation of the coal resources.

(2) Describe the proposed engineering techniques to be used in this mining operation.

Reclamation will consist of all steps, procedures and engineering techniques as listed in this permit application. See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2.

(3) Anticipated annual production of coal: N/A tons
Anticipated total production of coal: N/A tons

(4) List the major pieces of equipment to be used for all aspects of the operation.

Trucks, dozers, grader & compactor

(5) Will access to the underground workings be gained through a drift entry?

Yes ☐ No ☐ If "yes," describe the location of the entry relative to the highest elevation of the coal reserve.

N/A

(6) For entries to underground workings other than drift entries, describe the location of the entry relative to the coal reserve.

N/A

(7) Are the entries in (6) located so as to eliminate the potential for a gravity discharge? Yes ☐ No ☐ If "no," the applicant must demonstrate the following:

(a) The coal seam is not acid or iron producing. Provide an analysis of the strata immediately above and below the coal, and the coal seam itself, sufficient to demonstrate that the water quality from the entry will meet effluent limitations without treatment.

Or,

(b) How the water will be treated to meet effluent limitations and provisions will be made for consistent maintenance of the treatment facility throughout the anticipated period of gravity discharge

(8) Will the permanent entry seals be designed to withstand the maximum anticipated hydraulic head when the operations are abandoned?

Yes ☐ No ☐ If "yes," submit the appropriate information demonstrating that this will be accomplished. If "no," provide a typical plan for the seals to be used to close the mine entries pursuant to applicable state and federal regulations.

(9) Describe the construction, modification, maintenance and removal (unless to be retained for post-mining land use) of the following facilities:

(a) Dams, embankments and other impoundments.

See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2.

Do any of the plans for water, sediment or slurry impoundments meet the requirements of 30 CFR 77.216?

Yes ☐ No ☒ If "yes," provide a plan that addresses each of the requirements in 30 CFR 77.216-2.

(b) Overburden and topsoil handling and storage areas and structures

Will be in accordance with the currently approved plan.

(c) Coal removal, handling, storage, cleaning and transportation areas and structures; including, but not limited to, preparation plants, beltlines, tipples, rail sidings and primary roads.

See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2.

(d) Spoil removal, handling, storage, transportation and disposal areas and structures, including underground development waste or excess spoil disposal sites. For underground development, submit a Coal Waste Plan, if necessary.

See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2. See Coal Waste Plan.

(e) Mine facilities such as portal/shaft development, boreholes, de-gas holes, vents, office or shop buildings and maintenance facilities

N/A

(f) Air pollution control facilities

Haul roads will be watered as necessary for dust control.

(10) Submit Performance Security Estimate providing an estimate of the reclamation cost on the proposed operation.

(11) Will the proposed operation include any of the following:

(a) Storage or disposal of coal mine waste from a wash plant, tipple or other source, including underground development waste?

Yes ☒ No ☐ If "yes," submit Coal Waste Plan and, if applicable, Pond/Impoundment Plan.

(b) Storage or disposal of fly ash or other non-coal mine waste?

Yes ☐ No ☒ If "yes," identify the waste material and provide a detailed storage and/or disposal plan.

N/A

(c) Return of slurry or other mine waste or material into the abandoned underground workings?

Yes ☐ No ☒ If "yes," comply with provisions contained in paragraph (N) of rule 1501:13-4-14 and paragraph (Q) of 1501:13-9-04 of the Administrative Code, and submit copies of the required MSHA approvals as an addendum.

(12) Will the proposed operation include beneficial use of coal combustion by-products (CCBs) pursuant to Section 1513.02 of the Ohio Revised Code?

Yes ☐ No ☒ If "yes," submit CCB Plan.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

Mine Plan (Performance Security) Summary

Permittee Name: THE OHIO VALLEY COAL COMPANY Permit Number: D-0360

1. Permit Acreages:

a.	Total Area for Permit/IMU:	600.6 acres
b.	Area of Slurry/Refuse:	399.2 acres
c.	Area required for Prep Plant Facilities:	44.3 acres
d.	Area for Permanent Primary Roads:	0 acres
e.	Area Revegetation Not Required:	51.3 acres
f.	Maximum Operational Area (MOA):	acres
g.	Area Proposed Not to be Affected:	acres

2. Maximum Pit Dimensions:

a. Pit Sizes: (measured from bottom of pit)

Pit #	Length (ft)	Width (ft)	Depth (ft)	Type (1 or 2)[a]	WT[b] (ft)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

[a] *Enter 1 for contour mining or 2 for area mining.*

[b] *Enter a depth of the water table for area mining.*

b. Maximum unreclaimed length of augered highwall: feet

3. **Channel Construction/Rock Required:** N/A ☒

a.	Total of rock larger than D50 of 18 inches:	CYD
b.	Total of rock between D50 of 18 to 6 inches:	CYD
c.	Total of rock smaller than D50 of 6 inches:	CYD
d.	Total length of grass lined channels and stone centered waterways	feet

4. **Resoiling Parameters:**

a.	Average depth of resoiling material needed:	48 inches
b.	Enter area of resoiling with close on site materials: (Condition 1) *(<500')*	600.6 acres
c.	Enter area of resoiling with distant on site materials: (Condition 2) *(>500')*	acres
d.	Average depth of PRIME FARMLAND resoiling material needed:	inches
e.	Enter area of resoiling for PRIME FARMLAND: (Condition 1)	acres
f.	Enter area of resoiling for PRIME FARMLAND: (Condition 2)	acres

5. **Utilities:** N/A ☒

a.	Length of any active utility line (gas, water, etc.) to be affected:	feet
b.	Number of active oil or gas wells in mining area:	#

6. **Phase Releases:** N/A ☐

Attach an addendum and list the various Phase Releases and their respective acreages.

7. **Impoundments/Wetlands:**

a. Impoundments:

Impoundment ID	Volume Below Principle Spillway *(Acre-Feet)*	Impoundment ID	Volume Below Principle Spillway *(Acre-Feet)*
2	2.02		
5	1.17		
7	0.02		
8	0.11		
10	58.87		
11	2.30		
13	3.53		
FRESH WATER	18.31		
14	18.77		
DAM 2	967.85		

b. Area of wetlands within the permit limits to be affected: acres

8. **Haulroad or Miscellaneous Earthwork:** N/A ☐

Structure ID	Avg. Height *(feet)*	Top Width *(feet)*	Bot. Length *(feet)*	U/S Slope *(H:1 V)*	D/S Slope *(H:1 V)*	R. Abut Slope *(H:1 V)*	L. Abut Slope *(H:1 V)*	Available for Refuse Cap? [1]	Misc.[2] Earthwork *(CYD)*	Volume *(CYD)*

[1] *If applicable.*

[2] *Provide an addendum with a detailed calculation.*

TOVCC 23337

9. **Slurry/Refuse:** N/A ☐

a. Depth of resoiling and topsoil for cap: 2 feet

b. Depth of clay material for cap: 2 feet

c. Onsite resoiling material available: 800000 CYD

d. Onsite clay material available: 100000 CYD

e. Tons per acre of lime for neutralization: tons/acre
(assumed 30 tons per acre if left blank)

f. List Phases or Cells for refuse :

Identification	Slurry or Coarse Refuse (S or C)	Surface Area to cover (SQFT)
NO. 2 DAM	S	10541520
NO. 1 REFUSE PILE	C	3247422
PERKINS RUN REFUSE PILE	C	4598370

10. **Substantial Known Events:** N/A ☒

Attach an addendum describing any other information that will impact the cost of reclamation. (Items include, but are not limited to road reconstruction, underground mine seals, landowner agreements, unrepaired slips, slides, etc.)

11. **Prep Plant Facilities:**

Does mine site have facilities for the purpose of processing coal? Y ☒, N ☐
If yes, fill out Item 12.

12. **Prep Plant/Buildings Data:**

a. Environmental Assessment and Remediation Estimate Supplied: Y ☒, N ☐
(If no Assessment, the state will assume lead, asbestos and hazardous materials are present at the facility. If the Assessment shows lead, asbestos, or hazardous materials are present and no Estimate is supplied, the state will estimate the cost of removal based on the information supplied.)

b. Nearest EPA approved hazardous waste receiving facility: miles

c. Distance to steel scrap facility: miles

d. Distance to appropriate disposal site: miles

e. Buildings:

Building Name or Number	Structure Type (Steel, Concrete Masonry, Mix)	Dimensions (feet)			Floor Material	Footer		Foundation Wall		
		Length	Width	Height	Estimate thickness and type of steel reinforcement[1]	Type Estimate thickness, width[2]	Reinforcing Heavy or Average[1]	Wall Type Block or Concrete	Reinforcing Vertical or horizontal and Heavy or Average[1]	Wall Height (ft)
Example	*Steel*	*150*	*20*	*10*	*6" w/RWM*	*1' T, 2'W*	*H*	*Block*	*V, AR*	*2*
PLANT	STEEL/CONCRETE	210	92	150	6" W/STL REINFORC, EACH LEVEL - 5 LEVELS	4'T, 4'W	H	CONCRETE BLOCK		4
PLANT OFFICE	CONCRETE	52	30	20	6" W/STL REINFORC.	1'T, 2'W	H	CONCRETE BLOCK		15
SAMPLING BUILDING	CONCRETE	35	29	20	6" W/STL REINFORC.	1'T, 2'W	H	CONCRETE BLOCK		15
PLANT SHOP	CONCRETE	65	55	20	12" W/STL REINFORC.	1'T, 2'W	H	CONCRETE BLOCK		5
PORTAL BATH HSE	CONC/STEEL	419	70	25	6" W/STL REINF.	1'T, 2'W	H	CONCRETE BLOCK		4

1 RWM = Reinforced Wire Mesh, RR = Reinforced Rods, HR = Heavy Reinforcing, AR = Average Reinforcing, V = Vertical Reinforcing, H = Horizontal Reinforcing

TOVCC 23339

2 T = Thickness, W = Width

f. Storage Bins: N/A ☐

		ID	Structure Type	Dimensions *(feet)*			Floor Material	Footer	
				Length	Width	Height	*Estimate thickness and type of steel reinforcement*[1]	Type *Estimate thickness, width*[2]	Reinforcing *Heavy or Average*[1]
SB1	*Back Wall*								
	Sides								
	Floor								
SB2	*Back Wall*								
	Sides								
	Floor								
SB3	*Back Wall*								
	Sides								
	Floor								

1 RWM = Reinforced Wire Mesh, RR = Reinforced Rods, HR = Heavy Reinforcing, AR = Average Reinforcing, V = Vertical Reinforcing, H = Horizontal Reinforcing
2 T = Thickness, W = Width

TOVCC 23340

g. Concrete Silos: N/A ☐

	ID	Avg. Diameter (ft)	Wall Thickness (ft)	Height (ft)
CS #1				
CS #2				
CS #3				
CS #4				
CS #5				

h. Conveyors: N/A ☐

	ID	Length (ft)
Conveyor #1	SLOPE REFUSE	360 2600
Conveyor #2	RAW STACKER	200
Conveyor #3	RAW PLANT FEED	550
Conveyor #4	CLEAN BELT	1600
Conveyor #5	LOADOUT BELT	800

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i. Concrete Pavement: N/A ☐

	ID	Concrete Reinforcement *(Plain or Reinforced)*	Length *(ft)*	Width *(ft)*	Thickness *(ft)*
CP Area #1	BATH HOUSE	REINFORCED	250	4	.5
CP Area #2					
CP Area #3					
CP Area #4					
CP Area #5					

j. Asphalt Pavement: N/A ☐

	ID	Length *(ft)*	Width *(ft)*	Thickness *(ft)*
AP Area #1	PORTAL PARKING LOT	375	150	.5
AP Area #2				
AP Area #3				
CP Area #4				
CP Area #5				

TOVCC 23342

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

COAL WASTE PLAN

Applicant's Name The Ohio Valley Coal Company

1. Identify the source of coal mine waste to be disposed of on the coal mining operation: (check appropriate response(s))

   ☒ Wash plant facility
   ☐ Tipple facility
   ☐ Other (Specify)

2. Identify the type of coal mine waste to be disposed of on the coal mining operation: (check appropriate response(s))

   ☒ Course – dry
   ☐ Medium – dry
   ☐ Fine – dry
   ☒ Slurry - wet
   ☐ Other (Specify)

3. Submit Drilling Report - Surface for the material to include at a minimum: pH, percent of total or pyritic sulfur, neutralization potential, potential acidity and calcium carbonate deficiency. See attached Drilling Report - Surface. Also see addendum to this item.

4. Submit a laboratory analysis of the coal waste material identifying the size fraction percentages of the waste material. See attached grain size analysis report.

5. Submit as an addendum a stability analysis to address how placement of the waste material will not cause instability within the backfilled area. Include all necessary calculations and analyses. See Engineering Report, Pgs. 30 thru 39, Proposed Modification Crest El. 1200 for Slurry Dam No. 2.

6. State the estimated amount of refuse material in tons to be disposed on the proposed permit area: 5,879,642 Tons of coarse refuse and 14,563,826 tons of fine refuse slurry. These amounts are only the additional coarse and fine refuse (slurry) volumes. the coarse refuse volume shown in the Engineering Report is the volume of material required to continue to build the embankments to crest elevation 1200.

7. Submit a laboratory analysis of the coal waste material identifying the moisture percentages and density of the refuse material, if the coal waste is from a wash plant. Optimum Moisture Content = 7.2%, Maximum Density = 126.2 pcf. The coarse refuse density (133 pcf) and fine coal refuse density (89.14 pcf) shown on page 11 of the Engineering Report were used to make the life calculations. the values shown on the Coal Waste Plan (Opt. Moisture Content = 7.2%, Maximum Dry Density = 126.2 pcf) are foer the coarse coal refuse material. These values were determined from a laboratory standard

Revised 02/06
DNR-744-9041

TOVCC 23343

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
APPLICATION D-0360-22
ADDENDUM TO COAL WASTE PLAN

Table 1 shows the acid-base accounting information that may be found in the refuse from the Powhatan No. 6 Mine.

Table 1
Acid-Base Accounting for Roof and Floor Rock

STRATA	FROM	TO	pH	CACO3 DEF	NEUT POT	POT ACID	TOT SULF
ROOF	266.2	276.2	9.38	-314.0	355	40.6	1.30
	339.1	348.1	9.26	-179.0	241	61.9	1.96
	236.3	246.3	9.34	-160.0	204	44.1	1.41
	332.4	342.4	9.34	-173.0	210	36.6	1.17
	311.4	321.4	9.37	-256.0	296	40.0	1.28
	281.1	291.1	9.48	-247.0	286	38.7	1.24
	AVG			-221.5	265	43.7	1.39
FLOOR	358.7	368.7	9.23	-167.0	269	102.0	3.26
	284.3	294.3	9.37	21.0	44.9	65.9	2.11
	353.0	363.0	9.39	-75.8	167	91.2	2.92
	308.7	318.7	9.38	-282.0	319	37.1	1.19
	251.3	264.3	8.96	-44.8	107	62.2	1.99
	328.6	338.6	9.03	-54.0	178	124.0	3.96
	328.1	338.1	9.18	-140.0	199	59.0	1.89
	299	309	9.27	-119.0	214	95.0	3.04
	AVG			-107.7	187	79.6	2.55

It has been noted that there is a high calcium carbonate deficiency associated with the roof rock at the Powhatan No. 6 Mine. There are large quantities of limestone present in the strata both above and below the seam. However, the floor rock is very hard, and is left in place virtually everywhere. Since it is difficult to mine and forms a good floor for equipment to traverse, most out-of-seam dilution that would be found in the refuse generally would be roof rock. The only time that roof rock is mined is when additional height is needed for the equipment or when one ventilating current of air must pass over another for safety reasons. Ohio Valley takes all measures necessary to minimize the amount of out-of-seam dilution but some finds its way into the raw coal. It appears that the primary difference between the roof and floor samples' Calcium Carbonate Deficiency values may be in part explained by the increased percentage of sulfur in the floor compared to the roof. This difference also becomes evident in examining the slurry samples.

During mining, the main bench and the parting above the main bench is taken. Much of the roof coal above the parting is left to form a good, "weatherable" roof. It is believed that the parting contains a significant amount of calcareous material.

Table 2 shows how the calcium carbonate deficiency was calculated for the slurry samples. The same calculation was made for the roof and floor rock. The Potential Acidity value is directly related to the percent sulfur by a factor of 31.25. The Neutralization Potential does not vary, making the Calcium Carbonate Deficiency the only other value that will change if the sulfur value changes.

Table 2
Acid-Base Accounting for Slurry

SULFUR %	POTENTIAL ACIDITY*		NEUTRALIZATION POTENTIAL		CACO3 DEFICIENCY
TOTAL 2.5	78.1	-	55.3	=	22.8
PYRITIC 1.61	50.3	-	55.3	=	-5.0

* POT ACIDITY = % SULFUR X 31.25

In the data presented previously, the Potential Acidity was incorrectly shown as 90.6, but as shown in Table 2, that value should have been 78.1, making the Calcium Carbonate Deficiency 22.8 rather than 35.3. Regardless of this change, there appears to be a significant difference between the Calcium Carbonate Deficiency for total sulfur compared to pyritic sulfur. In this instance, the Calcium Carbonate Deficiency is negative when Pyritic Sulfur is used. Since total sulfur is comprised of a combination of pyritic and organic sulfur, it makes sense that this difference would appear to be significant. However, this comparison is an apples-to-oranges comparison.

A better comparison would be to examine the total sulfur Calcium Carbonate Deficiency values for the first and second slurry samples. There is less calcium carbonate deficiency in the second sample compared to the first. This difference may be attributed to mining in a location where the chemical makeup of the refuse is different, as evidenced by the difference in the total percent sulfur. Percent sulfur varies throughout the mine, and variations in the Calcium Carbonate Deficiency may be expected.

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
APPLICATION D-0360-22

Floor Stability

The floor at the Powhatan No. 6 Mine primarily consists of shale or calcareous shale, with an occasional thin bed of claystone. In compressive strength tests for application D-0360-12 and -13, the compressive strength of the shale was found to be 5,034 to 9,453 psi and for the calcareous shale, 9,444 to 12,590 psi. These shale units frequently contain limestone nodules. This strong bottom material is not conducive to pillar punching and no known instances of floor failure have occurred at the Powhatan No. 6 Mine.

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PILLAR SYSTEM SAFETY FACTORS
PILLARS UNDER NO. 2 IMPOUNDMENT

Safety factors are based on the required longevity of openings. The value of a safety factor considered acceptable for a design is usually established from previous experience with successful designs. A safety factor of 1.3 would generally be considered adeuate for a temporary mine opening while a value of 1.5 to 2.0 may be required for a "permanent" excavation - Hoek, Kaiser, and Bawden, 1997 [1]

PILLAR STRENGTH - MARK-BIENAWSKI FORMULA
Pillar groups shown on drawing DWG.07076-M2

GROUP 1

Sl	900 psi		
w	40 ft	average width pillars	
l	51 ft	average length pillars	
h	6.5 ft		
Sp = Sl x (.64+.54x(w/h)-.18(w^2/hl))			
Sp	2784.87 PSI		
PILLAR LOAD			
DENSITY ROCK	Dr	163.5 PCF	WEIGHTS
HEIGHT ROCK	Hr	335 FT	54772.5 LB/CU FT
DENSITY SOIL	DS	120 PCF	
HEIGHT SOIL	Hs	10 FT	1200 LB/CU FT
DENSITY COARSE	Dc	135.3 PCF	
HEIGHT COARSE	Hc	92 FT	12447.6 LB/CU FT
DENSITY FINE	Df	80 PCF	
HEIGHT FINE	Hf	131 FT	10480 LB/CU FT
COMBINED			78900.1 LB/CU FT
O/B WEIGHT	Sv	=	547.9 PSI
ENTRY WIDTH	b	20 FT	
PILLAR LOAD	Lp	Sv(w+b)(l+b)/wl)	
		1144.1804 PSI	
SAFETY FACTOR	Sp/Lp	**2.43**	

GROUP 2

Sl	900 psi		
w	27 ft	average width pillars	
l	42 ft	average length pillars	
h	6.5 ft		
Sp = Sl x (.64+.54x(w/h)-.18(w^2/hl))			
Sp	2162.2 PSI		
PILLAR LOAD			
DENSITY ROCK	Dr	163.5 PCF	WEIGHTS
HEIGHT ROCK	Hr	350 FT	57225 LB/CU FT
DENSITY SOIL	DS	120 PCF	
HEIGHT SOIL	Hs	10 FT	1200 LB/CU FT
DENSITY COARSE	Dc	135.3 PCF	
HEIGHT COARSE	Hc	95 FT	12853.5 LB/CU FT
DENSITY FINE	Df	80 PCF	
HEIGHT FINE	Hf	43 FT	3440 LB/CU FT
COMBINED			74718.5 LB/CU FT
O/B WEIGHT	Sv	=	518.9 PSI
ENTRY WIDTH	b	20 FT	
PILLAR LOAD	Lp	Sv(w+b)(l+b)/wl)	
		1333.34 PSI	
SAFETY FACTOR	Sp/Lp	**1.62**	

Note: Loads were determined from the greatest amounts of material over single pillar in group, accounting for maximum load over any pillar in group.

GROUP 3

Sl	900 psi		
w	28 ft	average width pillars	
l	46 ft	average length pillars	
h	6.5 ft		
Sp = Sl x (.64+.54x(w/h)-.18(w^2/hl))			
Sp	2244.76 PSI		
PILLAR LOAD			
DENSITY ROCK	Dr	163.5 PCF	WEIGHTS
HEIGHT ROCK	Hr	354 FT	57879 LB/CU FT
DENSITY SOIL	DS	120 PCF	
HEIGHT SOIL	Hs	10 FT	1200 LB/CU FT
DENSITY COARSE	Dc	135.3 PCF	
HEIGHT COARSE	Hc	88 FT	11906.4 LB/CU FT
DENSITY FINE	Df	80 PCF	
HEIGHT FINE	Hf	33 FT	2640 LB/CU FT
COMBINED			73625.4 LB/CU FT
O/B WEIGHT	Sv	=	511.3 PSI
ENTRY WIDTH	b	20 FT	
PILLAR LOAD	Lp	Sv(w+b)(l+b)/wl)	
		1257.58 PSI	
SAFETY FACTOR	Sp/Lp	**1.78**	

GROUP 4

Sl	900 psi		
w	32 ft	average width pillars	
l	58 ft	average length pillars	
h	6.5 ft		
Sp = Sl x (.64+.54x(w/h)-.18(w^2/hl))			
Sp	2528.6 PSI		
PILLAR LOAD			
DENSITY ROCK	Dr	163.5 PCF	WEIGHTS
HEIGHT ROCK	Hr	270 FT	44145.0 LB/CU FT
DENSITY SOIL	DS	120 PCF	
HEIGHT SOIL	Hs	10 FT	1200.0 LB/CU FT
DENSITY COARSE	Dc	135.3 PCF	
HEIGHT COARSE	Hc	19 FT	2570.7 LB/CU FT
DENSITY FINE	Df	80 PCF	
HEIGHT FINE	Hf	193 FT	15440.0 LB/CU FT
COMBINED			63355.7 LB/CU FT
O/B WEIGHT	Sv	=	440.0 PSI
ENTRY WIDTH	b	20 FT	
PILLAR LOAD	Lp	Sv(w+b)(l+b)/wl)	
		961.49 PSI	
SAFETY FACTOR	Sp/Lp	**2.63**	

STATE OF OHIO
DAVID L. BARTSCH
E-50396
REGISTERED PROFESSIONAL ENGINEER

Ohio Registered Professional Engineer

[1] SME Mining Reference Handbook, Raymond L. Lowrie, P.E., Editor, Society for Mining, Metallurgy, and Exploration, Inc., 2002, p. 246

Proctor compaction test on a sample of coarse refuse from the preparation plant, see page 354 of the Engineering Report for the Standard Proctor compaction test results. Based on field wet density measurements at the site, the approximate average wet density equals 133 pcf. The in-place density of fine coal refuse (slurry) material samples obtained by undisturbed (Shelby Tube) sampling at the site had an average density of 92.21 pcf. Attached is a copy of the densities for the fine refuse (slurry) material. Therefore, the densities shown on page 11 of the Engineers Report that were used to make the life calculations are conservative.

8. Describe how infiltration of water into the disposal area will be minimized, and specifically describe how the disposal plan will comply with paragraph (J) of rule 1501:13-9-14 and paragraph (J) of rule 1501:13-9-04 of the Administrative Code.

Coarse coal refuse material placed at the site will be compacted daily to increase the density and reduce the permeability. Coarse coal refuse will be placed in near horizontal lifts, one foot thick maximum. Each lift will be compacted to a minimum of 95% of the material maximum dry density, within plus or minus 2 percentage points of the materials optimum moisture content. The refuse will be covered with 18 inches of compacted clay having a permeability of E-06 (max.), then covered with 24 inches of inert material. Perimeter ditches will be installed to convey surface runoff from the site. The surface will be graded to promote positive drainage. Also see response to Item 10.

Upon reaching the final elevation, the refuse embankments will be graded to promote positive drainage and soil covered in accordance with the reclamation plan currently approved by ODNR. Also, see response to Item 10.

9. Does the disposal plan propose to neutralize wash plant waste with spoil material? ☐ Yes, ☒ No. If "yes," submit as an addendum an acid/base account of the refuse and spoil materials.

10. Does the disposal plan propose to seal the disposal area? ☒ Yes, ☐ No. If "yes," submit Drilling Report - Surface for the sealant material that includes pH, percent of total or pyritic sulfur, neutralization potential, potential acidity, calcium carbonate deficiency and lithology. See Drilling Report - Surface. During placement of the final 30 inches of coal refuse material at the site, sufficient alkaline material will be added to neutralize the surface of the refuse. The rate of alkaline material required to neutralize the coal refuse shall be formulated from test results of the final 30 inches of coal refuse material placed, as approved by ODNR. The alkaline treated coal refuse will be covered with non-toxic, non-combustable earthen and/or rock material having the minimum thickness required by ODNR, and revegetated. An ARP will be submitted to present testing results, and neutralization of the coal refuse and final reclamation will take place following the approval of the ARP. Also see addendum to this item.

11. If a sealant material is to be used, submit a permeability analysis of the material to be used as a sealant. Also, address below how the sealant material will be compacted and the anticipated permeability coefficient to be achieved following

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

DRILLING REPORT - SURFACE

Applicant's Name The Ohio Valley Coal Company
(Check one: ☐ core drilled ☒ rotary air, ☐ other (describe))

Surface Owner The Ohio Valley Coal Company
Test Hole # TYPICAL COARSE COAL REFUSE Page 1 of 2
State Plane Coordinates X:
Y:

Lithologic Unit (1)	Thickness	pH	$CaCO_3$ Deficiency (1000 Tons)	Neutralization Potential (1000 Tons)	Potential Acidity	Total or Pyritic Sulfur %	Physical Properties (2)			
Topsoil										
Subsoil							Compactible	Erodible	Color	Grain Size
Roof Rock	266.20-276.20	9.38	-314	355	40.6	1.30				
Floor Rock	358.70-368.70	9.23	-167	269	102	3.26				
Roof Rock	339.10-349.10	9.26	-179	241	61.9	1.98				
Floor Rock	284.30-294.30	9.37	21.0	44.9	65.9	2.11				
Roof Rock	236.30-246.30	9.34	-160	204	44.1	1.41				
Floor Rock	353.00-363.00	9.39	-75.8	167	91.2	2.92				
Roof Rock	332.40-342.40	9.34	-173	210	36.6	1.17				
Floor Rock	308.70-318.70	9.38	-282	319	37.1	1.19				
Floor Rock	251.30-261.30	8.96	-44.8	107	62.2	1.99				

Total Thickness Surface elevation of test hole

Coal Seam Information

NAME	NUMBER	TOTAL SULFUR %	PYRITE/MARCASITE SULFUR %

(1) If subsurface water was encountered, identify the stratum in which it was encountered by an asterisk (*)
(2) Describe any observable physical properties of each stratum (e.g. color, grain size, compactibility, erodibility, etc.)

Part 2: Section B

TOVCC 23349

Revised 02/06
DNR 744-0022

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

DRILLING REPORT - SURFACE

Applicant's Name The Ohio Valley Coal Company
(Check one: ☒ core drilled ☐ rotary air, ☐ other (describe))

Surface Owner The Ohio Valley Coal Company
Test Hole # TYPICAL COARSE COAL REFUSE Page 2 of 2
State Plane Coordinates X:
Y:

Lithologic Unit (1)	Thickness	pH	$CaCO_3$ Deficiency (1000 Tons)	Neutralization Potential (1000 Tons)	Potential Acidity	Total or Pyritic Sulfur %	Physical Properties (2)			
Topsoil										
Subsoil							Compactible	Erodible	Color	Grain Size
Floor Rock	328.60-338.60	9.03	-54.0	178	124	3.96				
Floor Rock	328.10-338.10	9.18	-140	199	59.0	1.89				
Roof Rock	311.40-321.40	9.37	-256	296	40.0	1.28				
Floor Rock	299-309	9.27	-119	214	95.0	3.04				
Roof Rock	281.10-291.10	9.48	-247	286	38.7	1.24				

Total Thickness Surface elevation of test hole

Coal Seam Information

NAME	NUMBER	TOTAL SULFUR %	PYRITE/MARCASITE SULFUR %

(1) If subsurface water was encountered, identify the stratum in which it was encountered by an asterisk (*)
(2) Describe any observable physical properties of each stratum (e.g. color, grain size, compactibility, erodibility, etc.)

Part 2: Section B

TOVCC 23350

Revised 02/06
DNR 744-9022

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

DRILLING REPORT - SURFACE

Applicant's Name **The Ohio Valley Coal Company**
(Check one: ☐ core drilled ☐ rotary air, ☐ other (describe))

Surface Owner **The Ohio Valley Coal Company**
Test Hole # **SLURRY MATERIAL Page 1 of 2**
State Plane Coordinates X:
Y:

Lithologic Unit (1)	Thickness	pH	$CaCO_3$ Deficiency (1000 Tons)	Neutralization Potential (1000 Tons)	Potential Acidity	Total or Pyritic Sulfur %	Physical Properties (2)			
Topsoil										
Subsoil							Compactible	Erodible	Color	Grain Size
Slurry	N/A	6.8 SU	7.4	32.0	39.4	1.26				
Slurry 2nd Sample		7.59	22.8	55.3	78.1	2.50				

Total Thickness Surface elevation of test hole

Coal Seam Information

NAME	NUMBER	TOTAL SULFUR %	PYRITE/MARCASITE SULFUR %
Pittsburgh	8 Coal Slurry	1.26	

(1) If subsurface water was encountered, identify the stratum in which it was encountered by an asterisk (*)
(2) Describe any observable physical properties of each stratum (e.g. color, grain size, compactibility, erodibility, etc.)

Part 2: Section B

TOVCC 23351

Revised 02/06
DNR-744-9022

OHIO DEPARTMENT ATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

DRILLING REPORT - SURFACE

Applicant's Name The Ohio Valley Coal Company
(Check one: ☐ core drilled ☐ rotary air, ☐ other (describe))

Surface Owner The Ohio Valley Coal Company
Test Hole # SLURRY MATERIA Page 2 of 2
State Plane Coordinates X:
Y:

Lithologic Unit (1)	Thickness	pH	$CaCO_3$ Deficiency (1000 Tons)	Neutralization Potential (1000 Tons)	Potential Acidity	Total or Pyritic Sulfur %	Physical Properties (2)			
Topsoil										
Subsoil							Compactible	Erodible	Color	Grain Size
Slurry	N/A	7.13 SU	12.6	39.6	52.2	Total 1.67				

Total Thickness Surface elevation of test hole

Coal Seam Information

NAME	NUMBER	TOTAL SULFUR %	PYRITE/MARCASITE SULFUR %
Pittsburgh	8 Coal Slurry	1.67	

(1) If subsurface water was encountered, identify the stratum in which it was encountered by an asterisk (*)
(2) Describe any observable physical properties of each stratum (e.g. color, grain size, compactibility, erodibility, etc.)

Part 2: Section B

Revised 02/06
DNR 744 0022

TOVCC 23352

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

DRILLING REPORT - SURFACE

Applicant's Name The Ohio Valley Coal Company
(Check one: ☐ core drilled ☐ rotary air, ☐ other (describe))

Surface Owner The Ohio Valley Coal Company
Test Hole # CLAY CAP AND CLAY LINER MATERIAL Page 1 of 1
State Plane Coordinates X:
Y:

Lithologic Unit (1)	Thickness	pH	$CaCO_3$ Deficiency (1000 Tons)	Neutralization Potential (1000 Tons)	Potential Acidity	Total or Pyritic Sulfur %	Physical Properties (2)			
Topsoil										
Subsoil							Compactible	Erodible	Color	Grain Size
Clay #1		4.73	0.31	0.0	0.31	0.01				
Clay #2		5.45	0.31	0.0	0.31	0.01				

Total Thickness Surface elevation of test hole

Coal Seam Information

NAME	NUMBER	TOTAL SULFUR %	PYRITE/MARCASITE SULFUR %

(1) If subsurface water was encountered, identify the stratum in which it was encountered by an asterisk (*)
(2) Describe any observable physical properties of each stratum (e.g. color, grain size, compactibility, erodibility, etc.)

Part 2: Section B

TOVCC 23353

Revised 02/06
DNR 744-0022

ESMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. Box 426 Boomer, West Virginia 25031

JOB NUMBER: 05034 DATE: 6/15/2005
CLIENT: OHIO VALLEY COAL CO
PROJECT: SLURRY DAM 2 PERKINS RUN REFUSE FACILITY
LOCATION: BELMONT COUNTY,OHIO
DESCRIPTION OF SOIL: COARSE COAL REFUSE
ORIGINAL SAMPLE
BORING NO.: SAMPLE NO.: OS-1 DEPTH: BAG SAMPLE
TESTED BY: AF

GRAIN SIZE ANALYSIS:

SIEVE SIZE	DIAMETER (mm)	WEIGHT RETAINED (g)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
4"	101.600	0.00	0.00	0.00	100.00
2"	50.800	493.20	3.82	3.82	96.18
1-1/2"	38.100	357.30	2.76	6.58	93.42
3/4"	19.100	2695.40	20.85	27.43	72.57
1/2"	12.700	2035.80	15.75	43.18	56.82
3/8"	9.520	1791.70	13.86	57.04	42.96
#4	4.760	2576.60	19.93	76.98	23.02
#10	2.000	999.40	7.73	84.71	15.29
#20	0.840	786.36	6.08	90.79	9.21
#40	0.420	310.40	2.40	93.19	6.81
#100	0.149	245.16	1.90	95.09	4.91
#200	0.074	94.24	0.73	95.82	4.18
PAN		540.24	4.18	100.00	0.00
	TOTAL =	12925.80			

ESMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. Box 426 Boomer, West Virginia 25031

JOB NUMBER: 05034 DATE: 6/9/2005
CLIENT: OHIO VALLEY COAL CO.
PROJECT: SLURRY DAM 2 PERKINS RUN REFUSE FACILITY
LOCATION: BELMONT CO., OHIO
DESCRIPTION OF SOIL: COARSE COAL REFUSE

BORING NO.: SAMPLE NO.: BS-2 DEPTH: BAG SAMPLE
TESTED BY: AF

COMPACTION TEST

MOISTURE CONTENT DETERMINATION

SAMPLE NO.	CONTAINER NO.	WT of CUP + WET SOIL	WT of CUP + DRY SOIL	WT of CUP	MOISTURE CONTENT
1	711	327.74 g	317.85 g	15.68 g	3.27%
2	6	352.36 g	336.79 g	18.13 g	4.89%
3	22	371.59 g	349.77 g	17.48 g	6.57%
4	25	449.23 g	415.55 g	19.41 g	8.50%
5	302	451.32 g	405.93 g	17.28 g	11.68%

MAXIMUM DRY DENSITY-OPTIMUM MOISTURE CONTENT DETERMINATION

BLOWS/LAYER: 56 NO. of LAYERS: 3 WT of HAMMER: 5.5 lb
WT of MOLD: 6718 g VOL of MOLD: .075 ft^3

TRIAL NO.	WT of SOIL + MOLD (g)	WET DENSITY (pcf)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)
1	10806	120.17	3.27	116.36
2	10983	125.37	4.89	119.53
3	11273	133.89	6.57	125.64
4	11347	136.07	8.50	125.41
5	11358	136.39	11.68	122.13

OPTIMUM MOISTURE CONTENT: 7.2 % MAXIMUM DRY DENSITY: 126.2 pcf

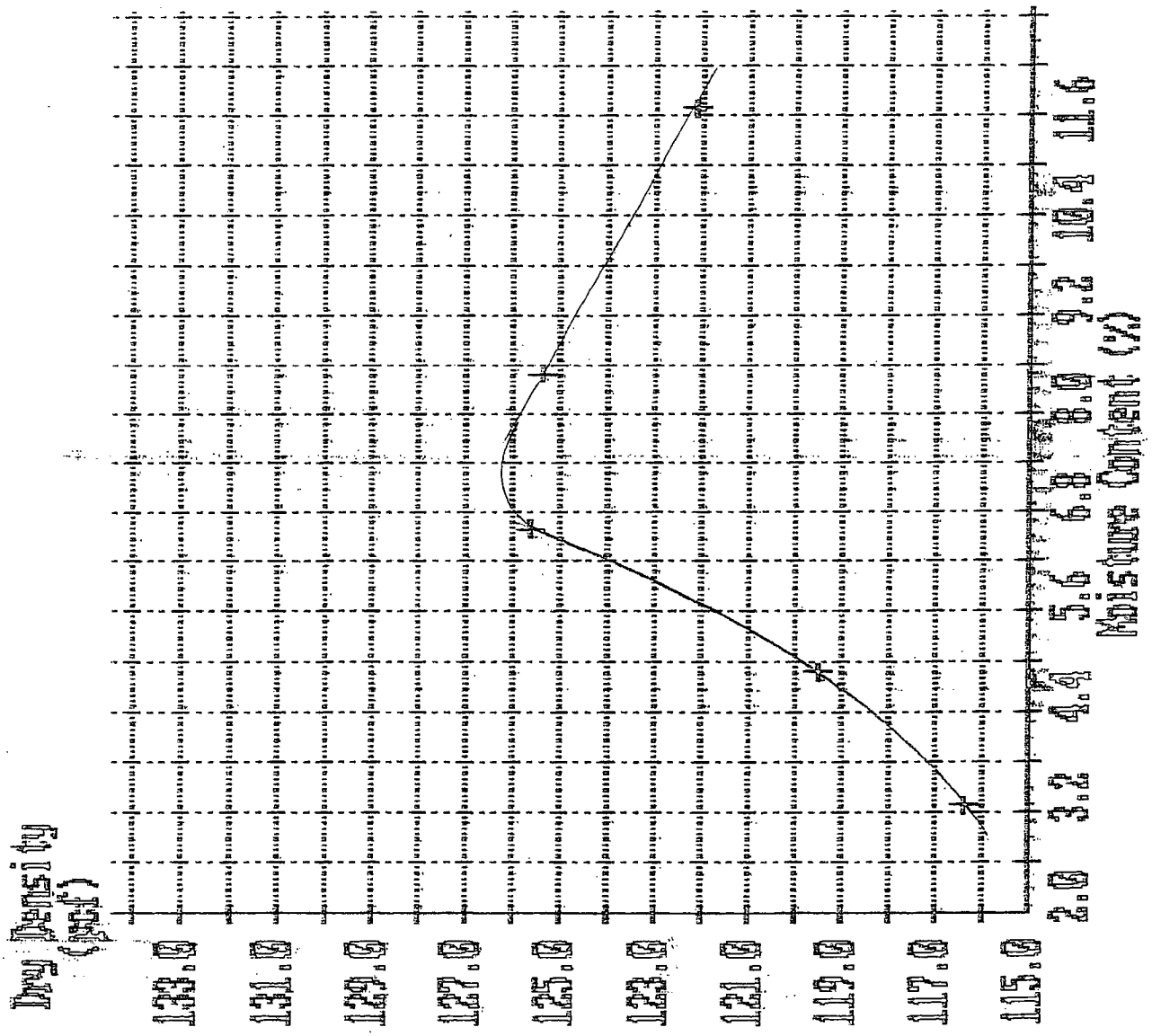
SEE ACCOMPANYING GRAPH

Attachment

ESMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. Box 426 Boomer, West Virginia 25031

JOB NUMBER: 05034 DATE: 6/9/2005
CLIENT: OHIO VALLEY COAL CO.
PROJECT: SLURRY DAM 2 PERKINS RUN REFUSE FACILITY
LOCATION: BELMONT CO.,OHIO
DESCRIPTION OF SOIL: COARSE COAL REFUSE

BORING NO.: SAMPLE NO.: BS-2 DEPTH: BAG SAMPLE
TESTED BY: AF



R&R INTERNATIONAL, INC.

1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383,
AKRON, OHIO 44321
(216) 666-2200

PERMEABILITY TEST DATA
ASTM PROCEDURE PENDING

DATE: 11/28/88 PROJECT NO.: 881014

CLIENT: Ohio Valley Coal PROJECT: Test Pits for Clay Liner

LOCATION: Alledonia, Ohio TESTED BY: S. Patel

Boring No.: TP-2 Sample No.: 1 Depth: 24 inches

Chamber No.: 1 Sample Condition : Reconstituted

PHYSICAL CONDITIONS

Initial		Final		Test Pressures (psi)	
Ht. (ins.)=	3.92	Ht. (ins.)=	3.975	Chamber=	60
Di. (ins.)=	2.85	Di. (ins.)=	2.895	Lower=	50
				Upper=	40

Duration of Test (min)= 105.0

PERMEABILITY (CM/S) = 3.21E-08

R&R INTERNATIONAL, INC.

Attachment 12
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383,
AKRON, OHIO 44321
(216) 666-2200

PERMEABILITY TEST DATA
ASTM PROCEDURE PENDING

DATE: 12/12/88 PROJECT NO.: 881014

CLIENT: Ohio Valley Coal PROJECT: Test Pits for Clay Liner

LOCATION: Alledonia, Ohio TESTED BY: Joe Hess

Boring No.: TP-4 Sample No.: 3 Depth: 29 inches

Chamber No.: 1 Sample Condition : Reconstituted

PHYSICAL CONDITIONS

Initial		Final		Test Pressures (psi)	
Ht. (ins.)=	3.355	Ht. (ins.)=	3.38	Chamber=	60
Di. (ins.)=	2.865	Di. (ins.)=	2.901	Lower=	40
				Upper=	35

Duration of Test (min)= 480.0

PERMEABILITY (CM/S) = 6.22E-09

Esmer & Associates, Inc.
Consulting Engineers

Job No.: 07092 **Date:** 1/21/2008
Client: Ohio Vally Coal Co.
Project: Dam # 2 Inplace Densitiies
Location: Belmont County, Ohio
Description of Soil: (Fine Coal Waste-Slurry)

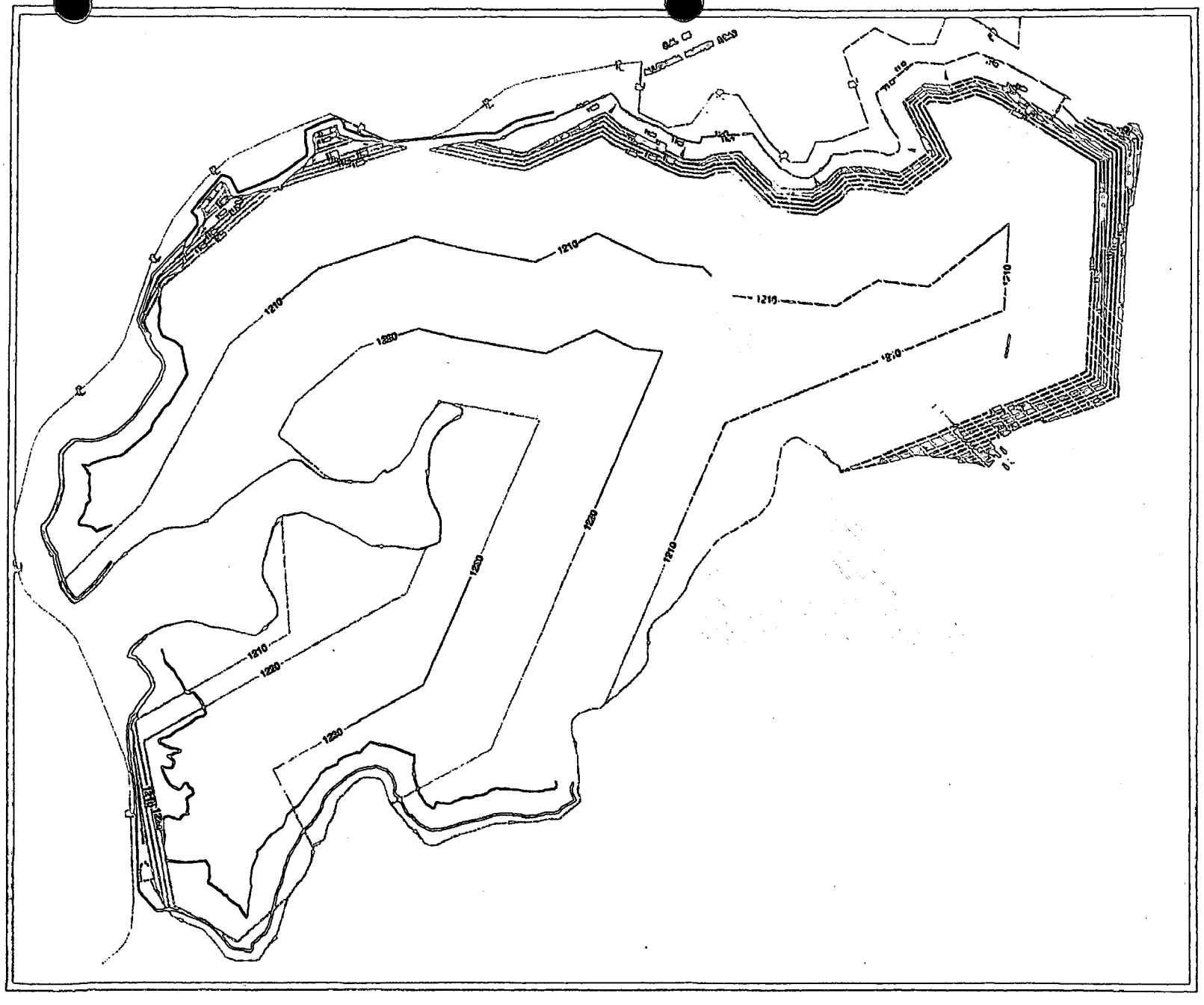
Boring No.: **Sample No.:**
Tested By: AF

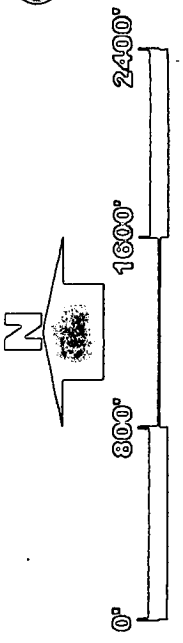
Sample Number	Wet Density (pcf)	Moisture Content (%)	Dry Density (pcf)	
ST-7(1)	107.48	33.11	80.75	
ST-8(1)	90.21	36.30	66.18	
ST-8(2)	87.31	35.75	64.32	
ST-8(3)	88.22	32.51	66.58	
ST-8(4)	87.43	32.53	65.97	
ST-9(1)	91.52	39.25	65.73	TB-B
ST-9(2)	90.63	36.37	66.46	
ST-9(3)	94.76	34.94	70.23	
ST-9(4)	89.46	37.80	64.92	
ST-10(1)	96.38	38.62	69.53	
ST-10(2)	94.57	36.48	69.29	
ST-10(3)	91.16	37.13	66.47	
ST-10(4)	88.56	35.18	65.51	
ST-5(1)	94.17	33.21	70.69	
ST-5(2)	101.68	21.22	83.88	
ST-6(1)	89.19	36.29	65.44	
ST-6(2)	93.40	33.88	69.76	
ST-6(3)	94.16	33.48	70.54	TB-C1
ST-6(4)	96.84	34.28	72.11	
ST-7(1)	87.72	31.63	66.64	
ST-7(2)	88.79	33.65	66.43	
ST-7(3)	89.51	33.14	67.27	
ST-7(4)	89.90	30.91	68.67	
ST-8(1)	92.05	34.69	68.34	
ST-8(2)	91.45	34.22	68.13	TB-D
ST-8(3)	91.02	33.48	68.19	
AVERAGE	**92.21**	**34.23**	**68.77**	

Addendum to Coal Waste Plan, Item 10.
The Ohio Valley Coal Company

ABANDONMENT PHASE

The abandonment phase consists of capping the eliminated pool area with coarse refuse or combined refuse at a minimum two (2) percent grade to develop positive drainage to the perimeter ditches. The abandonment cap shall be covered with 1.5 foot of compacted clay. The compacted clay will be covered with a minimum of two (2) feet of non-toxic earthen and /or rock material. Then a minimum of six (6) inches of topsoil shall be placed over the earthen and/or rock material to support vegetative growth. The Plan View of the Abandonment Phase is presented in Drawing No. 08101-1, originally submitted and approved with adjacent area D-0360-15, which addressed the abandonment cap for the 1200 Crest elevation of the No. 2 Dam. This plan has always shown placing coarse coal refuse over the slurry to establish positive drainage from the site. The ultimate elevation of the material (slurry, coarse refuse, and cap) will be 1230 ft msl. Slurry will extend to elevation 1193 ft msl. Coarse refuse will extend from elevation 1193 to elevation 1226, with the clay, non-toxic earthen material, and topsoil over the coarse refuse extending to elevation 1230. Ohio Valley has re-examined the pillars under the impoundment, which are located as shown on Figure 1. These pillars are stable for the proposed load up to elevation 1230. However, the area of the impoundment where the refuse will be over elevation 1215 (approximately) is to the north of the underground workings and stability is not a question in this area.





AREA OF WORKINGS

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
NO. 2 SLURRY IMPOUNDMENT
SHOWING LOCATION OF WORKINGS
SCALE: 1" = 800'

FIGURE 1

TOVCC 23361

compaction.

See attached permeability test data. Refuse will be soil covered in accordance with the approved reclamation plan. Soil cover material will be compacted to a minimum 95% compaction as determined by ASTM D-689. Also see response to item 10 above.

12. Submit a detailed plan for the disposal area. Ensure that Part 3, Item E of the permit application addresses the probable hydrologic consequences of the disposal area on the hydrologic regime of the area. Part 3, Item E must also identify the extent to which the disposal operation may result in contamination, diminution or interruption of a legitimately-used underground or surface supply of water and identifies acceptable alternative sources. **Please refer to Addendum to Part 2, Item E and Addendum to coal waste Plan, Page 2, Item 12. Also see Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2.**

13. If the material to be disposed is slurry, submit data characterizing soil materials to be utilized in construction.

See Drilling Report - Surface: Typical Slurry Coal Refuse.

14. In Part 3, Item F, identify surface and ground water monitoring sites that will specifically determine hydrologic impact that may proximately occur as a result of the disposal plan. Describe in detail the monitoring plan and analytical procedures to be followed for this disposal plan. If monitoring wells are to be constructed as part of this plan, submit information as to well construction, development and design. **Surface and ground water monitoring sites currently being sampled for the existing Slurry Dam No. 2 will continue to be sampled for this adjacent area coal mining application.**

15. In Part 3, Item F, address the NPDES/NSPS parameter limits and sampling frequencies to be met for the disposal area. **The current monitoring plan and analyses being conducted for Slurry Dam no. 2 will continue to be followed.**

16. Submit cross section(s) showing the elevation, final profile, saturated zones (existing and proposed), and reclaimed surface profile of the disposal area. **See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2, Sheet 07076-5.**

17. Show the location of the coal mine waste storage and disposal areas and the location of cross sections on the application map.

ADDENDUM TO COAL WASTE PLAN, PAGE 2, ITEM 12
THE OHIO VALLEY COAL COMPANY

Generalized Hydrogeologic setting

In the Captina Creek basin the geologic formations that yield groundwater comprise two general classes:

1. Consolidated beds: Sandstone, shale, limestone, claystone and coal.
2. Unconsolidated sediments: Sand, gravel and clay.

The Captina Creek flood plain consists of thin erratic deposits of clay, silt, sand and gravel. It is generally a poor source of groundwater. The yield of some large diameter wells has been as much as 25 gallons per minute.

In Perkins Run the potential yield of groundwater decreases. From previous test pits and soil borings, the area is generally found to contain up to 50 inches of silty clay loam (Lowell -Westmoreland soil group) overlying stratified deposits, primarily limestone, shale and sandstone. The occurrence of groundwater or seepage is frequently found from 1 to 10 feet below the surface.

Presently there is no significant usage of groundwater in or down-gradient of Slurry Dam No. 2.

The characteristic hydrogeologic setting for The Ohio Valley Coal Company's Powhatan No. 6 Mine, according to Moody and Associates, Meadville, Pennsylvania is as follows:

Groundwater Use

1. Municipal - No public water supplies within the mine area (ODNR).
2. Industrial - No known industrial supplies in the mine area.
3. Domestic - Many domestic well logs have been obtained during the permitting of the No. 2 Dam Slurry Impoundment for Smith and Washington Townships to review general groundwater use and characteristics of rock supplying water to wells. The following trends were noted:
   A. Average well depth is 80 feet.
   B. Average yield is 3 gallons per minute.
   C. Seventy percent of the well had yields of 2 gpm or less.
   D. Shale was the aquifer in 29% of the wells.
   E. Limestone was the aquifer in 44% of the wells.
   F. Sandstone was the aquifer in 27% of the wells.
   G. There was no single widespread aquifer supplying those wells.
   H. Average transmissivity is expected to be less than 1,000 gals./day/ft for area rock wells.

This is a hydrogeologic characterizations of the Ohio Valley Coal Company's Powhatan No.6 Mine setting. This characterization is consistent with other published reports for Belmont County, such as, USGS Report 380- Geology and Coal Resource of Belmont County, and SCS-Soil Survey of Belmont County.

ABANDONMENT PHASE

The abandonment phase consists of capping the eliminated pool area with coarse refuse or combined refuse at a minimum two (2) percent grade to develop positive drainage to perimeter ditches. The abandonment cap shall be covered with one (1) foot of compacted clay. The compacted clay will be covered with a minimum of 2.5 feet of non-toxic earthen and/or rock material. Then a minimum of six (6) inches of topsoil shall be placed over the earthen and/or rock material to support vegetative growth.

(13) Will the proposed operation result in discharges into abandoned underground workings?

Yes ☐ No ☒ If "yes," submit an addendum providing the information required by 1501:13-9-04 of the Administrative Code.

B. EXISTING STRUCTURES

(1) Are any existing structures proposed to be used in connection with or to facilitate the coal mining and reclamation operation?

Yes ☐ No ☒ If "yes," provide a description of each such structure.

(2) Are any existing structures proposed to be modified or reconstructed?

Yes ☐ No ☒ If "yes," provide a description of each such structure.

C. BLASTING

Will blasting operations be conducted during this operation?

Yes ☐ No ☒ If "yes," submit Blasting - Underground Operations.

D. RECLAMATION PLAN - GENERAL REQUIREMENTS

(1) Indicate the timetable for backfilling and grading.

☐ Contour Mining - Backfilling and rough grading will be completed within 60 days or 1500 linear feet, whichever occurs first, following coal removal.

☐ Area Mining - Backfilling and rough grading will be completed within 180 days following coal removal, and not more than four spoil ridges behind the pit being worked, the spoil from the active pit constituting the first spoil ridge.

☐ Other Mining Methods - Describe how backfilling and rough grading will be completed in180 days or less or the minimum distance required to continue the mining operation following coal removal.

☒ If requesting a variance from the backfilling and rough grading requirements listed above, provide a demonstration that additional time is needed, and describe how backfilling and rough grading will be completed within the alternate time period and distances specified.

This proposed adjacent permit application is to provide additional coarse and fine coal refuse disposal volume at the existing Slurry Dam No. 2. This proposed adjacent permit application will provide additional storage for 3,274,654 cubic yards of coarse coal refuse material and 12,102,333 cubic yards of fine refuse slurry material. Grading of the embankments will be done contemporaneously as the elevations of the embankments are raised.

(2) Indicate the timetable for resoiling.

☒ Resoiling will commence and be completed on graded areas during the first appropriate planting/growing season following completion of grading unless precluded by climatic conditions. Resoiling should normally occur between April 1 and October 1.

☐ Describe in detail the alternate timetable.

Resoiling will begin as soon as possible, or within 60 days after embankments are filled to final design elevations. Resoiling will be completed prior to the next approprate planting season or within 180 days, for embankments filled to final design elevation.

(3) Indicate the timetable(s) for planting.

(a) Grasses and legumes

☒ Permanent seeding will follow resoiling operations within 30 days and in accordance with the approved planting plan unless precluded by climatic conditions.

☐ Describe in detail the alternate timetable.

Planting will be completed on each embankment filled to final design elevation, during the first favorable planting period after final preparation. Planting on each embankment will be completed in a timely manner after resoiling is completed.

(b) Trees, shrubs or temporary vegetation (provide written description)

See Item D(7)(a) & (b).

(4) Describe the plan for backfilling, soil stabilization, grading and the restoration of the approximate recharge capacity of the proposed permit area.

Coarse coal refuse material will be placed in near horizontal lifts, one foot thick maximum. Each lift will be compacted to minimum of 95% of th ematerials maximum dry density within plus or minus 2 percentage points of the materials optimum moisture content as determined by the Standard Proctor Compaction Test, ASTM-D-698. The embankments will be constructed to the elevations and grades shown on the Design Drawings presented in the Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2. Soil stabilization will be accomplished by prompt revegetation or other soil stabilizing practices, if necessary. All final grading and placement of topsoil shall be done along the contour to minimize erosion and instability. The restoration of the recharge capacity of the refuse site is not applicable in this situation, as the site will be sealed to prevent water from infiltrating into the refuse site. See Engineering Report, Proposed Modification Crest El. 1200 for Slurry Dam No. 2. See Coal Waste Plan.

(5) Describe the plan for the removal, storage, redistribution and stabilization of topsoil, subsoil, or approved alternative resoiling material. This description must include the average topsoil and subsoil depths on any portions of the application area that have not previously been affected by mining. It must also include a description of the sampling plan that was used to determine that depth.

Topsoil in the proposed pool area will be removed, stockpiled, seeded and mulched. Soil stockpile areas will be located within the permit area. Soil stockpiles will not be affected by excessive rainfall, wind, compaction, or contamination. Wind and water erosion will be prevented by use of a quick growing annual or perennial vegetation.

All topsoil will be redistributed. Redistribution will be achieved by loading and hauling or pushing topsoil from the stockpile areas. Excessive compaction will be prevented by not redistributing excessively wet topsoil, and limiting equipment tracking. The required material for the D-0360-8 cap, cap subgrade, and topsoil totaled 645,026 cu. yds. for reclamation of 99.97 acres. The D-0360-22 area is 44.2 acres and will require 285,166 cu. yds for the equivalent reclamation. Available borrow material in the D-0360-8 permit totaled 1,847,900 cu. yds., which amounts to an excess of 1,202,874 cu. yds. in the D-0360-8 area. After substracting the material required for D-0360-22, there is still an excess of 917,708 cu. yds. of borrow material. Some borrow material has been removed from and utilized for reclamation in the -8 area, as well as portions on the outer limits of the #2 impoundment. A recalculation of the remaining -8 borrow areas revealed that more than 56 acres of borrow material area exist above the 1200 foot contour. Ample borrow material is available.

(6) Is an alternative resoiling material proposed? Yes ☐ No ☒ If "yes," submit ARM Plan.

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
ADDENDUM TO RECLAMATION PLAN

VOLUME OF MATERIAL ABOVE ELEVATION 1193

At the No. 2 Slurry Impoundment, slurry will occupy the space to elevation 1193 ft msl. To allow the site to drain properly following reclamation, coarse refuse will be placed from elevation 1193 to 1226 ft msl. The tonnage of coarse refuse required is 18,604,424 or 10,185,554 cubic yards for the entire impoundment. Above the coarse refuse, a total of 938,960 cubic yards of sub-grade (non-toxic fill) material will be placed, and above the sub-grade material, a total of 1,251,9445 cubic yards of clay will be placed, and above the clay, a total of 312,987 cubic yards of soil will be placed. The totals for the material above the slurry are:

Material	Volume	Source
Coarse Refuse	10,185,554 yd^3	No. 6 Prep Plant
Sub-Grade	938,960 yd^3	Borrow Areas 1 and 2
Clay	1,251,945 yd^3	Borrow Areas 1 and 2
Soil	312,987 yd^3	Borrow Areas 1 and 2
Total	2,503,892 yd^3	

The Borrow Areas Map shows the borrow areas and the volumes.

The Ohio Valley Coal Company

Soil Required for 300 AC

8 foot clay cap = 1,051,045 yds
18" Subgrade Material = 988,000 yds
6" top soil = 312,987 yds
TOTAL YDS REQUIRED = 2,000,032 yds

Borrow Area 1,2

Out of a combined total volume of 2,507,091 cubic yards from borrow sites 1,2 we will place 312,987 yds of topsoil 988,000 yds of subbase material and 1,051,045 yds of clay which includes the cap for No. 2 dam

D-0360-22

CONTOUR INTERVAL 6'
UNITED TOWN
HUBER, DAYTON, OHIO
VERO-DAYTON, OHIO

STATE OF OHIO
CHARLES R. KALUGER
S 7109
REGISTERED
PROFESSIONAL SURVEYOR

I, the undersigned, hereby certify that this map is correct, and shows to the best of my knowledge and belief all the information required by Chapter 1513 of the Revised Code and the rules adopted thereunder.

Charles R. Kaluger 7109
Ohio Surveyor

Acknowledged before me, a Notary Public, this 24th day of May, 2010.

Denise R. Jackson
Notary Public

STATE OF OHIO
NOTARY PUBLIC
DENISE R. JACKSON
My Commission Expires Sept. 28, 2010

LEGEND

- Building
- Utility Pole
- Index Contour
- Intermittent Contour
- Borrow Area Contour

OPERATOR

No.	Revision/Draftsman	Date
	1st Draft/RCC	5/21/10

Project: Ohio Valley Coal Company

Date: May 21, 2010

Scale: 1" = 500'

THE OHIO VALLEY COAL COMPANY

56854 Pleasant Ridge Rd.
Alledonia, OH 43902

Phone: 740.926.1351 Fax: 740.926.1618

Borrow Areas Map
for
Application No. D-0360-22

(7) Provide the following information for the revegetation plan:

(a) A list of the species and amounts of seeds to be planted per acre for temporary vegetation

Temporary vegetation will be planted immediately after resoiling and permanent vegetation will be planted no later than the next appropriate planting season following resoiling.

(b) A list of the species and amounts of seeds and tree/shrub seedlings to be used per acre for permanent vegetation

Temporary cover will consist of a combination mixture of rye/oats and/or wheat at an application rate of two bushels per acre.

Permanent Vegetation will consist of the following:

8 pounds/acre Orchard Grass
7 pounds/acre Alfalfa
10 pounds/acre Timothy
10 pounds/acre Red Clover

(c) A description of the methods to be used in planting and seeding

Upon resoiling, the area will be disced, swept, rocks removed, redisced and grain drilled.

(d) A description of the mulching techniques

Areas will be mulched with hay or straw at the rate of 2 tons per acre with a mulching maching or manually.

(e) Does the revegetation plan include any introduced species?

Yes ☐ No ☒ If "yes," identify the species and demonstrate that the species meets the requirements of applicable state and federal seed, poisonous and noxious plant and introduced species laws or regulations.

(f) A description of the methods or techniques to be used for irrigation, disease, pest and vermin control, if any is proposed

None proposed.

(8) Describe the soil-testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation.

The soil testing plan will consist of collecting representative samples by probing the resoiled area to achieve composite samples and thicknesses. Soil

samples will be tested by an approved lab to determine lime and fertilizer recommendations for grass-legume establishment.

(9) Describe the measures to be used to maximize the use and conservation of the coal resources.

N/A

(10) Describe the measures, including appropriate cross sections and maps, to be used to seal or manage underground mine openings within this application area.

N/A

(11) Will any proposed mine opening be within 300 feet of any well that produces oil or gas?

☐ Yes ☒ No If yes, submit a variance request as an addendum to this item.

(12) Will the proposed mining operations be within 25 feet of any known oil or gas well?

☒ Yes ☐ No If yes, submit a variance request as an addendum to this item.

(13) Describe the steps to be taken to comply with the Clean Air Act (42 U.S.C. 7401 et seq.).

Water will be sprayed on roads during mining operations to prevent dust and minimize air pollution. This site is covered under Title V permit number 06-07-00-089.

(14) Describe the steps to be taken to comply with the Clean Water Act (33 U.S.C. 1251 et seq.).

Appropriate steps have been taken to comply with the Mine Safety and Health Act, Chapter 1521 O.R.C., and State and Federal EPA Regulations. The ACOE 404 permit was issued October 15th, 2009 and is attached as an addendum to this item. Per ACOE, an OEPA 401 Water Quality Certification is not necessary for this activity. Per OEPA, SEDO, Abbot Stevenson, NPDES coverage for Pond G is not necessary due to the drainage area being less than 1 acre, and it receives no refuse impacted drainage. The embankment in the area of Pond G will be constructed solely of earthen and clay materials.

(15) Describe the measures to be used to stabilize and protect all surface areas, including spoil piles, affected by the mining activities.

Drainage controls, resoiling and revegetation are designed to insure maximum consistence with physical, environmental and climatological conditions.

Addendum to Part 3, Item D(12)
The Ohio Valley Coal Company

The Ohio Valley Coal Company is proposing mining operations within 25' of one known well (#60881) located within the proposed Surface Permit. This gas/oil well is shown on the application map in the record location per information obtained from the Division of Mineral Resources Management.

No later than three days prior to the mining being within 25 feet of a well, pursuant to O.R.C. 1563.111 The Ohio Valley Coal Company will notify ODNR's Mine Safety Division to request permission from the Chief to mine within 25' and through this well. As mining approaches the gas/oil well at its recorded location, an honest effort will be made to locate the well. If the well is found, microfilm at the Division of Mineral Resources Management will be reviewed to determine if the well was appropriately plugged. If it is found that the well was not appropriately plugged, the operator will verify the owner of the well, apply for a plugged permit, appropriately plug the well with neat cement, and mining will proceed. If the well cannot be located at its record location, and is inadvertently intercepted by mining, an honest effort will be made immediately to plug the well with on-site compacted clay material.

The proposed mining operation will maintain safe operating practices in any work involving areas near encountered gas/oil wells. Work shall be done in order to ensure the safety of people, livestock, fish and wildlife and machinery in the mine.

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

October 15, 2009

Operations Division
Regulatory Branch
2003-853

Mr. Fred Blumling
Ohio Valley Coal
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

Dear Mr. Blumling:

I refer to your application, received in this office December 24, 2008, regarding your proposal to impact 2,954 linear feet of stream channel, three small wetlands totaling 0.19-acre, and two open water features totaling 0.19-acres in order to raise the elevation of the #2 Refuse Impoundment at the Powhatan #6 Mine (DMRM File No. R-0360-22) to the 1,200 feet elevation in Washington Township, Belmont County, Ohio.

Activities associated with projects of this type are authorized by Nationwide Permit No. 50 (see enclosure), previously issued by the Corps of Engineers, for purposes of Section 404 of the Clean Water Act as published in the March 12, 2007 issue of the Federal Register.

Enclosed is a list of conditions which must be followed for the Nationwide Permit to be valid. Adherence to these conditions will permit you to proceed with the proposed project. I have attached a Compliance Certification Form that must be signed and returned to this office upon completion of the proposed work.

Please Note, in addition to the enclosed conditions, you are required to submit a final compensatory mitigation plan (CMP) to this office for approval prior to initiating the authorized activities. The final CMP must include detailed baseline biological and morphological information and details of the work plan. At a minimum, the work plan must consist of the following six components: wetland creation, stream bank stabilization, stream channel stabilization and in-stream habitat enhancement, stream riparian enhancement, livestock exclusion, and site protection. Upon final approval of the CMP, the mitigation proposal must commence concurrently with the authorized impacts or within the same construction season. The CMP indicates approximately 0.30 acres of wetlands will be created and approximately 1,900 linear feet of Louise Run will be enhanced utilizing natural stream channel design techniques.

The verification of this Nationwide Permit is valid until October 8, 2011 unless the Nationwide Permits are modified, suspended, or revoked. If project specifications are changed or work has not been initiated before October 8, 2011, please contact this office for further approval.

The issuance of this Nationwide Permit will not relieve you of the responsibility to obtain any other required state, local, or Federal authorizations. If you have any questions, please contact Allen R. Edris at (412) 395-7158 or via email at allen.r.edris@usace.army.mil. Please reference file number 2003-853 in all future correspondence concerning this site.

Sincerely,

Nancy Mullen
Northern Area Section Chief
Regulatory Branch

Enclosure (NWP 50)
CF: USEPA (Melgin)
OEPA (Queen)
USFWS (Applegate)
DNRM (Heavilin)

Compliance Certification Form

PERMIT NO: 2003-853

NAME OF PERMITTEE: Ohio Valley Coal

DATE OF ISSUANCE: October 8, 2009

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Pittsburgh District
Regulatory Branch, Room 2200
William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222-4186

Please note that your permitted activity is subject to compliance inspection by a U.S. Army Corps of Engineers Representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____
Signature of Permittee

(16) Describe the measures to be employed to ensure that all debris, acid- or toxic-forming materials and materials constituting a fire hazard are disposed of properly, and describe the contingency plans that have been developed to preclude sustained combustion of these materials.

Handling and placement of acid or toxic forming materials will take place within the proposed refuse disposal site.

(17) Describe the measures, including appropriate cross-sections and maps, to be used to plug, case or manage exploration holes, other bore holes, wells and other openings other than those entries utilized to gain access to the underground workings within this application area.

No additional bore holes were drilled for this adjacent area.

(18) Describe the degree to which the reclamation plan is consistent with local physical, environmental, and climatological conditions?

Drainage controls, resoiling and revegetation are designed to insure maximum consistence with physical, environmental and climatological conditions.

(19) Identify any other applicable air and water quality laws and regulations and health and safety standards and describe the steps to be taken to comply with each.

Appropriate steps are taken to comply with the Mine Safety and Health Act, Chapter 1521 O.R.C. and state and federal E.P.A. regulations.

(20) Describe the plan for minimizing to the extent possible and using the best technology currently available disturbances and adverse impacts of the operation on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, and achieving enhancement of such resources where practical.

The adverse impacts from the proposed modification to the existing refuse disposal operation on fish, wildlife and related environmental values should be minimized by disturbing the smallest area practical in advance of fill placement, and by minimizing the time between removal of vegetative cover and replanting of the reclaimed area. The construction of the sediment pond and creation of temporary brush piles thoughout the refuse disposal process will provide temporary habitat for wildlife and aquatic life. The streams surrounding this site will provide a natural habitat for wildlife while the refuse impoundment is operational. Tree lines along the undisturbed portions of the permit area will provide travel lares and cover for wildlife. Upon final reclamation, the seeded areas will provide a suitable mixture of open areas for food and the natural undisturbed woods and brushlands for cover to promote the successful return of wildlife to the area. TOVCC will promptly report to the Chief the presence in the permit area of any critical habitat of a threatened or endangered species listed by the United States Secretary of the Interior, any plant or animal listed by the State as threatened or endangered, or any bald or golden eagle nest of which they become aware and which was not previously reported to the Chief by TOVCC.

See attached 404 permit approval letter dated October 15th, 2009, labeled as an addendum to Part 3, Item D(14), the Delineation of Waters Report following this item, and the Verification of Delineation of Waters Report dated June 6, 2008, labeled as an addenddum to this item.

(21) Describe the plan for leaving an undisturbed natural barrier at the elevation of the lowest coal seam to be mined or, if no barrier is to be left, describe the methods to be used to prevent slides and erosion.

N/A

(22) Does this application area contain lands eligible for remining (reduced maintenance liability period)?

Yes ☐ No ☒ If "yes," submit Remining.

(23) Is an abandoned mined land direct negotiated contract associated with this application?

Yes ☐ No ☒ If "yes," submit a No Cost Reclamation Proposal.

E. RECLAMATION PLAN-PROTECTION OF HYDROLOGIC BALANCE

(1) Based on the baseline data submitted in response to Part 2, items B, C, D and other submitted information in this application, describe the probable hydrologic consequences of this proposed underground mining operation on the hydrologic regime of the proposed permit area, shadow area and adjacent areas. The description shall include findings on each of the following items:

(a) The consequences of the proposed operation on the contents of dissolved and total suspended solids, total iron, total manganese and pH;
(b) Whether adverse impacts may occur to the hydrologic balance;
(c) The impact the proposed operation will have on:
  i) Sediment yield from the disturbed area,
  ii) Acidity, total suspended and dissolved solids and other important water quality parameters of local impact,
  iii) Flooding or stream-flow alteration, ground water and surface water availability.

Since this proposed adjacent area permit application is within the confines of the watershed of the existing Slurry Dam No. 2, and its associated embankment, there will be no change in the hydrologic regime of the proposed permit area. This proposed adjacent area permit application will not change the total suspended solids, dissolved solids, total iron, total manganese, acidity, or pH of the surface water or ground water at the site. Changes in the parameters will be within expected ranges due to seasonal changes and precipitation.

There will be no adverse impacts to the hydrologic balance due to this proposed adjacent area permit.

DELINEATION OF WATERS OF THE UNITED STATES
No. 2 SLURRY IMPOUNDMENT EXPANSION AREA
WASHINGTON TOWNSHIP, BELMONT COUNTY, OHIO

PREPARED FOR:

Ohio Valley Coal Company
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

April 2006

Revised May, 2006

R.D. Zande & Associates, Inc.
CONSULTING ENGINEERS

DELINEATION OF WATERS OF THE UNITED STATES No. 2 SLURRY IMPOUNDMENT EXPANSION AREA WASHINGTON TOWNSHIP, BELMONT COUNTY, OHIO

PREPARED FOR:

Ohio Valley Coal Company
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

PREPARED BY:

R.D. ZANDE AND ASSOCIATES, INC.
1500 Lake Shore Drive
Suite 100
Columbus, Ohio 43204

April 2006

Revised May, 2006

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APPENDIX C: Stream and Wetland Photographs

EXECUTIVE SUMMARY

A delineation of Waters of the United States was conducted by R.D. Zande and Associates, Inc. (R.D. Zande) on April 4th, 2006 to determine the presence of wetlands and other Waters of the United States. A portion of the 331-acre study area in Washington Township, Belmont County, Ohio is proposed to be impacted by the expansion of the existing no. 2 slurry impoundment.

All areas were investigated for the presence of Waters of the United States. Wetland boundaries were delineated using the "Routine On-site Determination Method", as described in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987). Two palustrine emergent wetlands (0.13 acre) were found on the property. Twelve streams (3,889 total linear feet) and two existing water impoundments (0.19 acre) were also identified within the study area.

INTRODUCTION

PURPOSE

Ohio Valley Coal Company is planning to impact pasture and undeveloped lands immediately adjacent to the existing no. 2 slurry impoundment in Washington Township, Belmont County, Ohio (Appendix A). The proposed activity is to increase the elevation of the existing no. 2 slurry impoundment. Completion of the project requires compliance with Section 404 of the Clean Water Act, as amended, including the delineation of wetlands and other Waters of the United States.

This report represents the professional opinion of R.D. Zande regarding the presence/absence of wetland habitats and other Waters of the United States and their boundaries within the project area. Final determination of regulatory jurisdiction and verification of report findings is under the purview of the Corps. This report was prepared as a supporting document for the purpose of obtaining a Section 404 permit from the Corps. This delineation will allow the Ohio Valley Coal Company to avoid or minimize impacts to wetlands and other waters where practicable and feasible.

LOCATION OF PROPOSED PROJECT

The project area is located in Washington Township in Belmont County, Ohio and can be found on the Hunter and Armstrong Mills, Ohio 7.5 Minute USGS Quadrangles. The study site is located along the northern portion of the existing No. 2 slurry impoundment (See Appendix A). The Captina Creek watershed is the nearest named designated water of the U.S. which is part of the Central Ohio Tributaries Drainage Basin. Captina Creek is designated exceptional warm water habitat based on OEPA biological sampling.

STUDY METHODS

WETLAND DEFINITION/CLASSIFICATION

WETLAND DEFINITION

Wetland habitat for the purpose of this study was defined as per the publication entitled "Corps of Engineers Wetlands Delineation Manual" (1987). The definition of wetlands in this manual reads as follows:

"Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

This definition identifies three essential characteristics of wetlands: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology, the driving force creating all wetlands.

WETLAND CLASSIFICATION

Wetland habitats within the study area were classified according to "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979). In this classification system, wetland habitats are divided into five major systems including: (1) Marine, (2) Estuarine, (3) Lacustrine, (4) Palustrine, and (5) Riverine. Each of these systems are further divided into subsystems, classes, and subclasses, with the level of discrimination including modifiers of dominant vegetation, water regime, water chemistry and soils. Of the five major wetland systems, palustrine wetlands were identified on-site.

IDENTIFICATION AND DELINEATION OF WATERS

The Hunter and Armstrong Mills, Ohio 7.5 minute series U.S.G.S. topographic maps, Soil Survey of Belmont County, Ohio (USDA 1970) and National Wetlands Inventory (NWI) maps were reviewed to determine the likelihood of occurrence and probable location of wetland habitats within the project area. These maps are provided in Appendix A. Following the background review, a field visit was conducted on April 4th, 2006 to: (1) characterize the vegetation, (2) examine the soils, (3) inspect surface and groundwater hydrology, and (4) based on this information, determine whether wetlands or other Waters of the United States were present in the project area. Routine determination forms are provided in Appendix B.

WETLAND DELINEATION

Wetland boundaries and suspect areas were investigated using the "Routine On-site Determination Method" as described in the U.S. Army Corps of Engineers Wetland Delineation Manual (1987). As of August 17, 1991 the Corps was directed to utilize the 1987 Wetlands Manual to identify and delineate wetlands potentially subject to regulation under Section 404 of the Clean Water Act. Vegetative communities were investigated to determine the dominant plant species in each of four vegetative layers: trees, saplings/shrubs, herbs, and woody vines. The wetland indicator status for each of the dominant species is obtained using the manual "National List of Plant Species that Occur in Wetlands" (Reed 1988).

STREAM DELINEATION

Streams that demonstrate a defined channel (bed and bank), ordinary high-water mark (OHWM), and the disturbance of terrestrial vegetation were delineated. Streams were classified as ephemeral, intermittent, and perennial per definition in the Federal Register/Vol. 67, No. 10. Functional assessment of streams is based on completion of

Ohio EPA's Qualitative Habitat Evaluation Index (QHEI) along with a rapid bioassessment of aquatic life through the presence/absence of taxa from Ephemeroptera, Plecoptera, and Trichoptera (EPT).

OVERVIEW OF PROJECT AREA

GEOLOGY

Most of Belmont County is on the unglaciated, dissected Allegheny Plateau Region. Underlying bedrock consists mainly of shale, sandstone, siltstone, limestone, and coal laid down during the Pennsylvanian and Permian periods (USDA 1978).

SOILS

The Soil Survey of Belmont County, Ohio (USDA 1978) was consulted to determine soil types within the study area. A copy of the soil map is included in Appendix A. The following table provides taxonomy and classification for each map unit that exists at the study area.

Table 1. Soil Types Known to Occur on the Proposed No. 2 Slurry Impoundment Expansion Area, Belmont County, Ohio.

Map Unit Symbol	Map Unit Name	Classification	Hydric	Hydric Inclusions
CuB	Culleoka silt loam, 3-8% slopes	Ultic Hapludalfs	-	-
LeC	Lowell silt loam, 8-15% slopes	Typic Hapludalfs	-	-
LeD	Lowell silt loam, 8-15% slopes	Typic Hapludalfs	-	-
LoB	Lowell-Westmoreland silt loam, 3-8% slopes	Typic Hapludalfs-Ultic Hapludalfs	-	-
LoC	Lowell-Westmoreland silt loams, 8-15% slopes	Typic Hapludalfs-Ultic Hapludalfs	-	-
LoD	Lowell-Westmoreland silt loams, 15-25% slopes	Typic Hapludalfs-Ultic Hapludalfs	-	-
LoE	Lowell-Westmoreland silt loams, 25-40% slopes	Typic Hapludalfs-Ultic Hapludalfs	-	-

Map Unit Symbol	Map Unit Name	Classification	Hydric	Hydric Inclusions
LpF	Lowell-Westmoreland silt loams, benched, 30-70% slopes	Typic Hapludalfs-Ultic Hapludalfs	-	-
WhB	Wellston silt loam, 3-8% slopes	Ultic Hapludalfs	-	-
WkB	Westmore silt loam, 3-8% slopes	Typic Hapludalfs	-	-
WmB	Westmoreland silt loam, 3-8% slopes	Ultic Hapludalfs	-	-
WmC	Westmoreland silt loam, 8-15% slopes	Ultic Hapludalfs	-	-
WmD	Westmoreland silt loam, 15-25% slopes	Ultic Hapludalfs	-	-
WoC	Westmoreland-Upshur complex, 8-15% slopes	Ultic Hapludalfs-Typic Hapludalfs	-	-
WoD	Westmoreland-Upshur complex, 15-25% slopes	Ultic Hapludalfs-Typic Hapludalfs	-	-

CLIMATE

Belmont County has a continental climate. This indicates wide ranges in daily and annual rainfall and temperature. The average winter temperature in Belmont is 28°F, with an average daily minimum temperature of 18°F. In summer, the average temperature is 68°F, with an average daily maximum temperature of 81°F. The mean annual precipitation is 41 inches however variations are considerable from year to year (USDA 1978).

UPLAND HABITAT

The upland habitat within the subject site consists of active pastureland and recently timber harvested second growth forest. Small riparian areas of scrub/shrub and old field vegetation also exist within the study area.

WETLAND HABITAT

Wetland habitat comprising a total of 0.13 acre was identified within the project area (Appendix A). The wetland is palustrine emergent and is described below and summarized in the Conclusions and Recommendations section. Wetland data sheets are provided in Appendix B and wetland photographs are located in Appendix C.

WETLAND A

Wetland A is located in the northeastern portion of the study area. This palustrine emergent fringe wetland is approximately 0.045 acre in size and is associated with EWI-1. Soil colors were 10YR 4/1. Wetland hydrology indicators include inundation and saturation in the upper 12 inches. Hydric soil indicators include gleyed or low-chroma soil colors. Vegetative species within the wetland include narrow-leaf cattail (*Typha angustifolia*, OBL), soft rush (*Juncus effusus*, FACW+), and common boneset (*Eupatorium perfoliatum*, FACW+).

WETLAND B

Wetland B is located in the northern portion of the study area. This palustrine emergent fringe wetland is approximately 0.081 acre in size and is associated with EWI-2. Soil colors were 10YR 4/1. Wetland hydrology indicators include inundation and saturation in the upper 12 inches. Hydric soil indicators include gleyed or low-chroma soil colors. Vegetative species within the wetland include narrow-leaf cattail, and soft rush.

STREAM HABITAT

Approximately 2,954 linear feet (0.21 acre) of stream were observed within the proposed site. All stream segments on the proposed site are intermittent (1,885 linear feet), or ephemeral (1,069 linear feet). Descriptions of individual streams are provided below.

STREAM C

Stream C is located in the north central portion of the study area, and drains into the no. 2 slurry impoundment. This stream is intermittent and the total length is 346 linear feet. Substrates include silt and sand. Instream habitat for aquatic invertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes sugar maple (*Acer saccharum*), slippery elm (*Ulmus rubra*) and red oak (*Quercus rubra*). The riparian vegetation has recently been impacted by timber harvesting. No macroinvertebrates were observed within this stream.

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STREAM EE

Stream EE is located in the southwestern portion of the study area and drains into the no. 2 slurry impoundment. This stream is ephemeral and the total length is 205 linear feet. Substrates include cobble and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes red oak and multiflora rose (*Rosa multiflora*). Macroinvertebrates observed in this stream include leeches (Hirudinea). An adult northern dusky salamander (*Desmognathus fuscus*) was observed in this stream.

STREAM E-1

Stream E-1 is located in the southwestern portion of the study area and drains into the no. 2 slurry impoundment. This stream is ephemeral and the total length is 175 linear feet. Substrates include gravel and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes sugar maple, red oak, multiflora rose, and black raspberry (*Rubus occidentalis*). No macroinvertebrates were observed in this stream.

STREAM E-2

Stream E-2 is located in the southwestern portion of the study area and drains into the no. 2 slurry impoundment. This stream is ephemeral and the total length is 94 linear feet. Substrates include detritus and gravel. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes American beech (*Fagus grandifolia*) and red oak. This stream has been culverted below an access road just before it joins the no. 2 slurry impoundment. Macroinvertebrates observed in this stream include mayflies (*Centroptilum* sp), stoneflies (Plecoptera), leeches, and black flies (Simuliidae).

STREAM E-6

Stream E-6 is located in the eastern portion of the study area and drains into the no. 2 slurry impoundment. This stream is ephemeral and the total length is 222 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation included pasture dominated by fescue. No macroinvertebrates were observed in this stream.

STREAM F

Stream F is located in the north central portion of the study area and drains into the no. 2 slurry impoundment. This stream is intermittent and the total length is 703 linear feet. Substrates include silt, cobble, and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the

time of the survey. Timber harvesting has recently impacted the lower portion of this stream and the immediate riparian area is exposed soil. Riparian vegetation of the upper portion of this stream includes sugar maple, multiflora rose, black raspberry, and red oak. Macroinvertebrates observed in this stream include beetles (Gyrinidae), leeches, and dextral snails (Gastropoda). A green frog (*Rana clamitans melanota*) was observed in this stream.

STREAM F-1

Stream F-1 is located in the north central portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 329 linear feet. Substrates include gravel and sand and silt. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation of this stream is limited to honeysuckle and fescue. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM H

Stream H is located in the northwestern portion of the study area and drains into the no. 2 slurry impoundment. This stream is intermittent and the total length is 654 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited moderate flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation of this stream includes black walnut (*Juglans nigra*), multiflora rose, honeysuckle and upland grasses. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM H-1

Stream H-1 is located in the northwestern portion of the study area and drains into Stream H. This stream is ephemeral and the total length is 112 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited limited flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation includes black walnut, honeysuckle and multiflora rose. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM I

Stream I is located in the northwestern portion of the study area and drains to the no. 2 slurry impoundment. This stream is intermittent and the total length is 481 linear feet. Substrates include gravel and sand. Instream habitat for macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian

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vegetation includes multiflora rose, American beech, and sugar maple. No macroinvertebrates were observed in this stream at the time of the survey. An adult male northern dusky salamander was observed in this stream.

STREAM E

Stream E is located in the northwestern portion of the study area and drains to the no. 2 slurry impoundment. This stream is intermittent and the total length is 452 linear feet. Substrates include bedrock, cobble, and gravel. Instream habitat for macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Timber harvesting has recently impacted the lower portion of this stream and the immediate riparian area is woody debris and exposed soil. Riparian vegetation of the lower portion includes American beech, red oak, and sugar maple. Macroinvertebrates observed in the stream include beetle larvae (Gyrinidae), black flies, and caddisflies (Trichoptera). One adult male southern 2-lined salamander (*Eurycea cirrigera*) was observed in this stream.

STREAM E-TRIB

Stream E-trib is located in the northwestern portion of the study area and drains to Stream E. This stream is ephemeral and the total length is 116 linear feet. Substrates include cobble, gravel and detritus. Instream habitat for macroinvertebrates includes woody debris and cobble. This stream exhibited limited flow at the time of the survey. Riparian vegetation includes American beech and sugar maple. No macroinvertebrates were observed in this stream at the time of the survey.

IMPOUNDMENT/POND HABITAT

Two impoundments (0.19 acre) are present on the study area. These impoundments are minimally maintained livestock ponds that have developed fringe wetlands described above.

CONCLUSIONS AND RECOMMENDATIONS

The subject site was analyzed for the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Results of our investigation indicate the three criteria for jurisdictional wetlands were met in two areas. Additionally, 12 streams and 2 existing water impoundments were observed onsite. The extent of jurisdictional Waters of the United States located on-site is summarized in Table 2.

Table 2. Delineated Waters on the No. 2 Slurry Impoundment Expansion Area, Belmont County, Ohio.

Delineated Water	Classification of Water	Total Linear Footage	Total Acreage	Watershed Area (acres)	Isolated Yes	Isolated No
Wetland A	Palustrine Emergent	-	0.045	-	-	√
Wetland B	Palustrine Emergent	-	0.081	-	-	√
Stream C	Intermittent	346	0.008	7.39	-	√
Stream E	Intermittent	452	0.04	9.58	-	√
Stream E-trib	Ephemeral	116	0.007	1.00	-	√
Stream EE	Ephemeral	205	0.007	3.71	-	√
Stream E-1	Ephemeral	175	0.006	5.99	-	√
Stream E-2	Ephemeral	94	0.008	5.33	-	√
Stream E-6	Ephemeral	222	0.02	4.48	-	√
Stream F	Intermittent	703	0.07	14.95	-	√
Stream F-1	Ephemeral	329	0.02	5.01	-	√
Stream H	Intermittent	654	0.03	12.47	-	√
Stream H-1	Ephemeral	112	0.003	2.81	-	√
Stream I	Intermittent	481	0.05	9.37	-	√
EWI 1	Open Water	-	0.09	-	-	√
EWI 2	Open Water	-	0.10	-	-	√

Total Ephemeral Stream Channel	1,253 linear feet (0.071 acres)
Total Intermittent Stream Channel	2,636 linear feet (0.198 acres)
Total Perennial Stream Channel	0 linear (0 acres)
Total Wetland Area	0.13 acres
Total Watershed Area	82 acres

Section 404 of the Clean Water Act requires authorization from the U.S. Army Corps of Engineers for the discharge of dredged or fill material into Waters of the United States, including all types of wetlands. This authority applies to all activities involving a discharge, including permanent or temporary stream and wetland crossings, road construction, placement of fill for buildings or parking lots, utility line crossings, erosion and sediment control devices, and creation of ponds.

The State of Ohio Environmental Protection Agency (Ohio EPA) regulates activities that impact wetlands and other Waters of the State via the 401 Water Quality Certification program. If a Section 404 permit is required by the Corps, Ohio EPA will review the project to determine if the project will significantly impact water quality. A Section 401 water quality certification or waiver is granted if Ohio EPA determines that the proposed project will not significantly impact water quality. Ohio EPA has jurisdiction over isolated wetlands under the Ohio isolated wetlands law.

The Corps of Engineers district with jurisdiction over this site is located in Pittsburgh, Pennsylvania. It should be noted that the rules and regulations on wetlands have recently

been reviewed. It is the responsibility of the owner of the site to satisfy all current regulations. For this reason, it is recommended that a copy of this report be submitted to the Pittsburgh District of the Army Corps of Engineers for written verification of the conclusions and recommendations. This report should be sent to:

U.S. Army Corps of Engineers -Pittsburgh District
William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222

CONTRIBUTORS

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Robert Madej, Project Manager, Environmental Studies Division
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3 years – 3D Environmental, Biologist
2 years – Indiana DNR, Biologist

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APPENDIX A

Figures and Maps

Figure 1

Location Map
Proposed No. 2 Slurry Impoundment Expansion Area
Belmont County, Ohio

SITE:	*Proposed No. 2 Slurry Impoundment Expansion*	DATE:	*April 2006*
JOB:	*Ohio Valley Coal Company*		
MAP:	*Mapquest*		

N

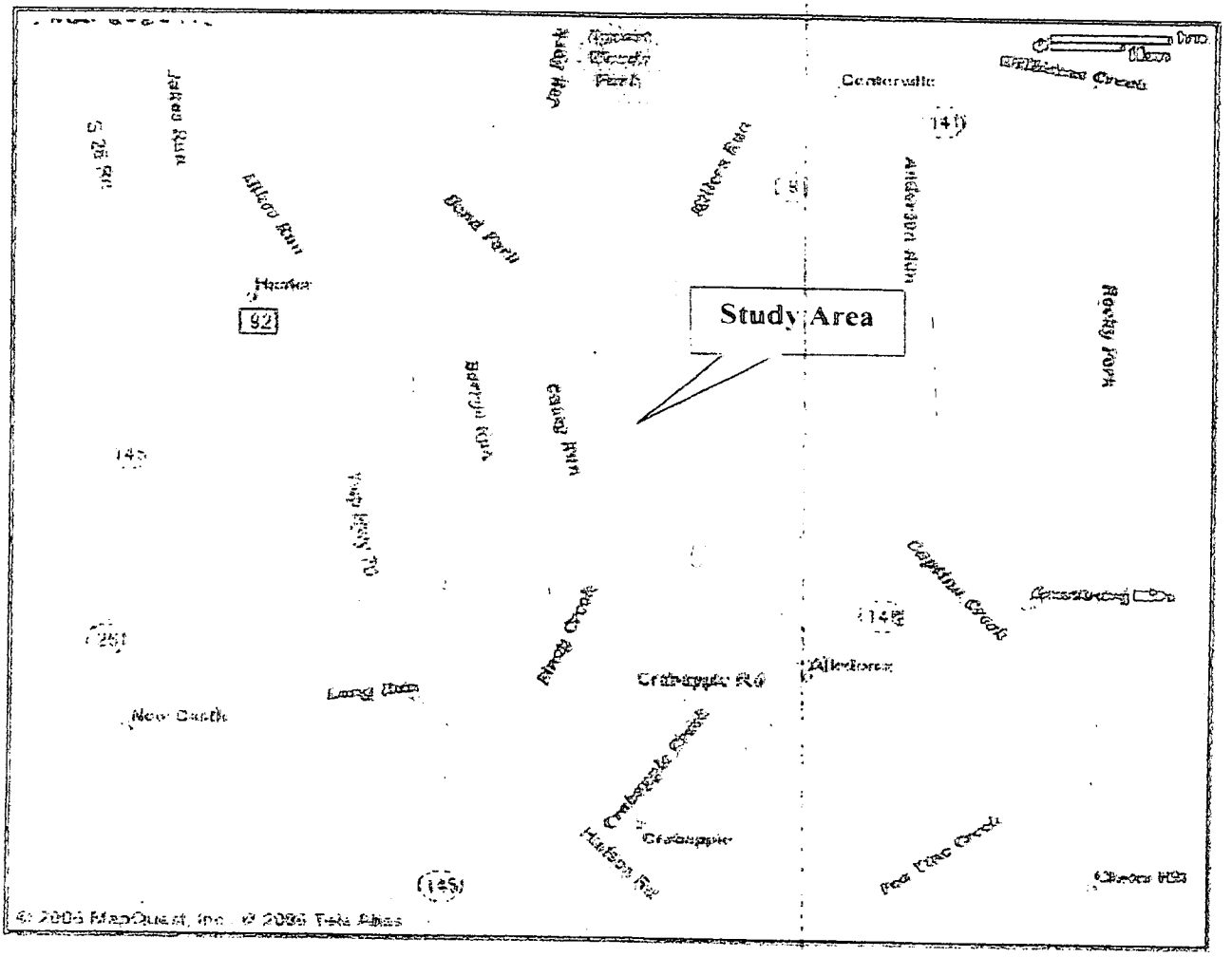

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Figure 2
Topography Map
Proposed No. 2 Slurry Impoundment Expansion Area
Belmont County, Ohio

SITE:	*Proposed No. 2 Slurry Impoundment Expansion*	DATE:	*April 2006*	N
JOB:	*Ohio Valley Coal*			
MAP:	*USGS 7.5 Minute Topo Map TerraServer*	QUAD:	*[illegible]*	

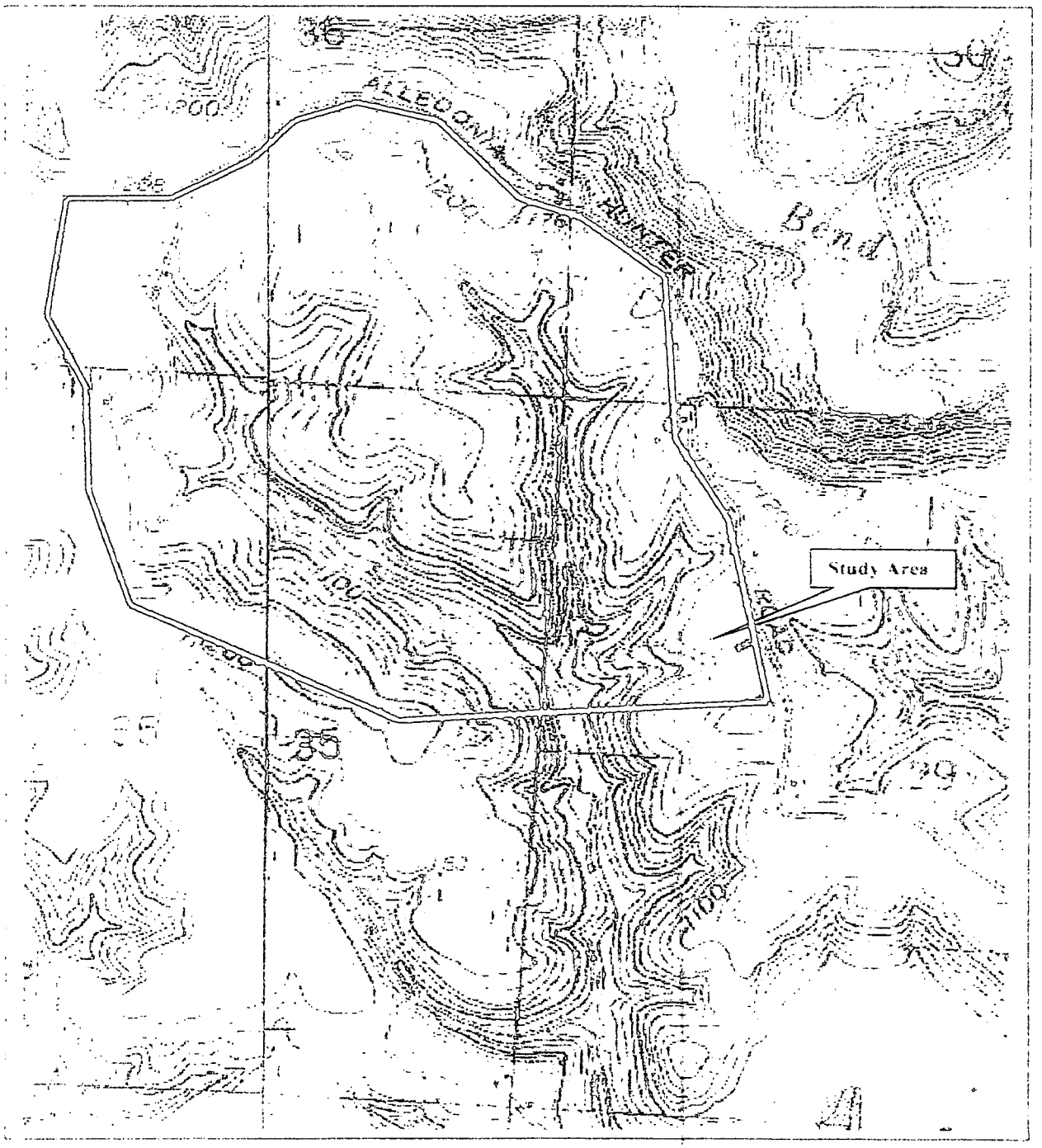

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Figure 3

National Wetland Inventory Map
Proposed No. 2 Slurry Impoundment Expansion Area
Belmont County, Ohio

SITE:	*Proposed No. 2 Slurry Impoundment Expansion*	DATE:	*April 2006*	N
JOB:	*Ohio Valley Coal Company*			
MAP:	*USGS 7.5-Minute Topo 1:24,000*	QUAD:	*Armstrong Mills Hunter*	

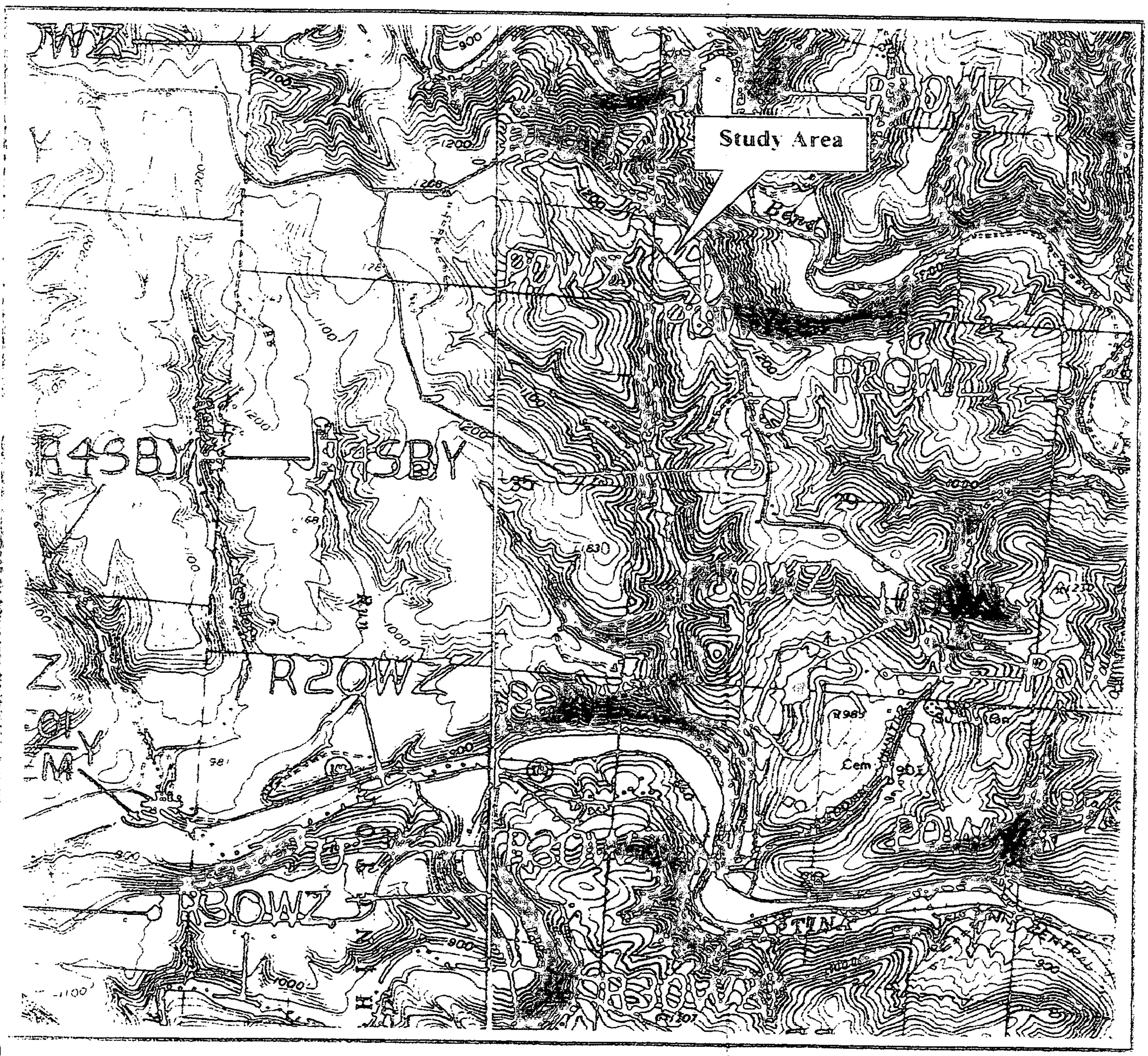

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Figure 4

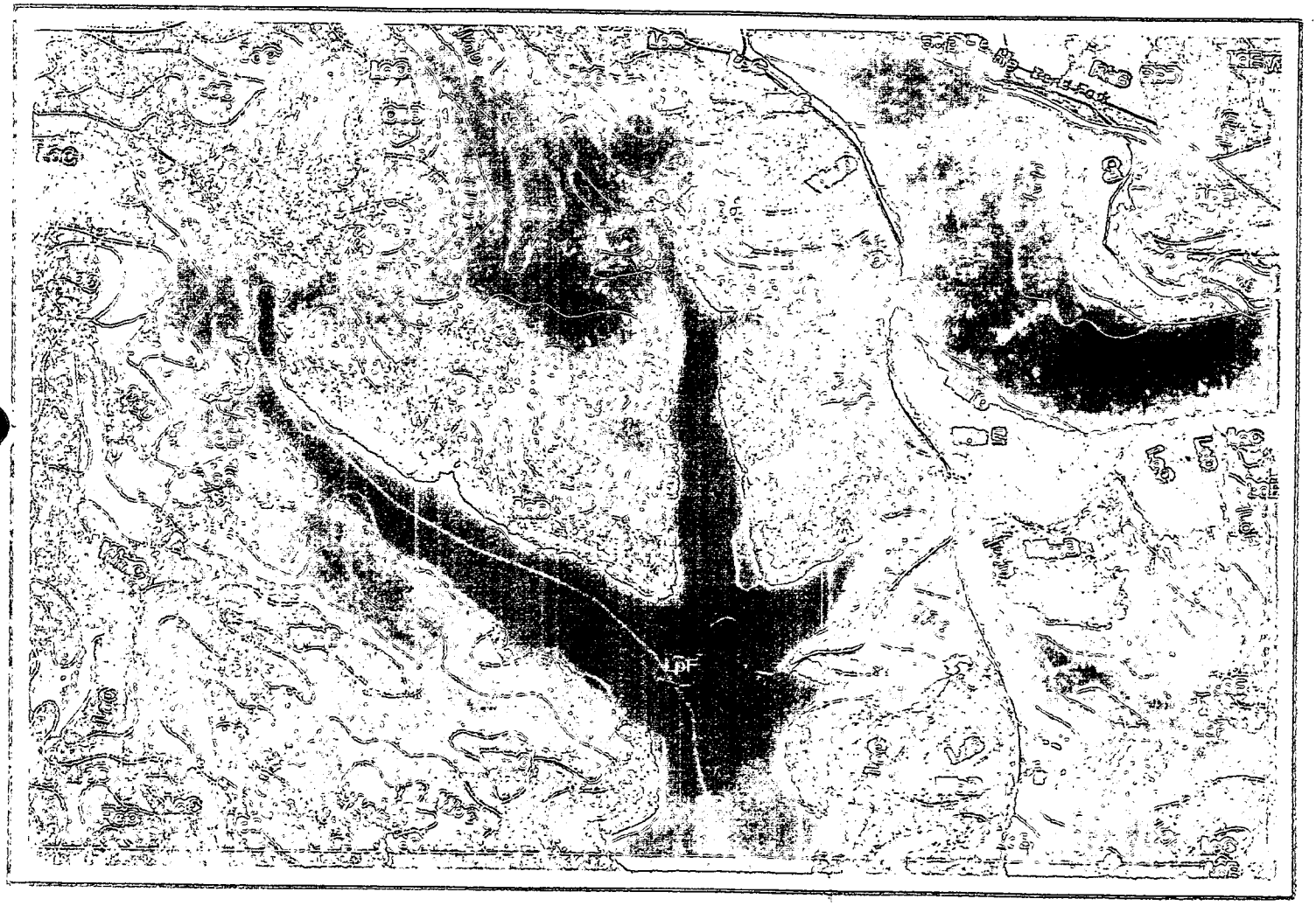
Soil Survey Map

Proposed No. 2 Slurry Impoundment Expansion Area

Belmont County, Ohio

SITE:	*Proposed No. 2 Slurry Impoundment Expansion*	DATE:	*April 2006*
JOB:	*Ohio Valley Coal Company*		
MAP:	*NRCS Soil Survey, Belmont Co., 1:15,840*	SHEET:	*no. 1*

N



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APPENDIX B

Routine Determination Forms

Narrative Rating Questions

Name:	Matthew Perlik	Date:	April 4th, 2006
Wetlands Name	A		

1: Critical Habitat	☑ NO	☐ YES
2: Threatened or Endangered Species	☑ NO	☐ YES
3: Documented High Quality Wetland	☑ NO	☐ YES
4: Significant Breeding or Concentration Area (waterfowl)	☑ NO	☐ YES
5: Category 1 Wetlands (hydrologically isolated)	☑ NO	☐ YES
6: Bogs	☑ NO	☐ YES
7: Fens	☑ NO	☐ YES
8a: "Old Growth Forest"	☑ NO	☐ YES
8b: Mature Forested Wetlands	☑ NO	☐ YES
9a: Lake Erie Coastal and Tributary Wetlands	☑ NO	☐ YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	☑ NO	☐ YES
9c: Hydrology unrestricted	☑ NO	☐ YES
9d: Native Species Predominate	☑ NO	☐ YES
9e: Non-native Species Predominate	☐ NO	☑ YES
Oak Openings	☑ NO	☐ YES
: Relict Wet Prairies	☑ NO	☐ YES

te:	No. 2 Slurry Impoundment Expansion Area	Date:	April 4th, 2006
e d:	A	Rater:	M. Perlik

total Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0.1 acres (0.04ha) (0 pts) 0.040

1 total Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [X] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13 total Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [X] Other groundwater (3)
- [X] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. (select one or double check & average)

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [X] Seasonally inundated (2)
- [X] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. (select one or double check & average)

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] dike
- [ ] tile
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other- list

17 total Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

Cattle have impacted this wetland

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [X] Recent or no recovery (1)

4b. Habitat development. Select one.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [X] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [X] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [✓] sedimentation
- [ ] dredging
- [ ] farming
- [✓] nutrient emrichment

total this page

M v. 5.0 Field Form Quantitative Rating

te: No. 2 Slurry Impoundment Expansion Area		Date:	April 4th, 2006
nd:	A	Rater:	M. Perlik

btotal first page

17 Subtotal Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- [ ] Bog (10 pts)
- [ ] Fen (10 pts)
- [ ] Old Growth Forest (10 pts)
- [ ] Mature forested wetland (5 pts)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10 pts)
- [ ] Relict Wet Prairies (10 pts)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migatory songbird/waterfowl habitat or usage (10 pts)
- [ ] Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

21 Subtotal Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
2	Emergent
	Shrub
	Forest
	Mudflats
1	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
X	Moderately low (2)
	Low (1)
	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

	Extensive >75 % cover (-5)
X	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
	Coarse woody debris >15 cm (6")
	Standing dead > 25 cm (10") dbh
1	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

GRAND TOTAL (max 100 pts) Provisional Wetland Category: Category 1

able 2. Interim scoring breakpoints for wetland egulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone	30-34.9
modified 2	35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

21	Category 1

Table based on FEB 2001 OEPA Standards

Background Information Form

Name:	Matthew Perlik	Date:	April 4th, 2006
Affiliation:	R. D. Zande & Associates, Inc.		
Mailing Address:	1500 Lake Shore Drive, Columbus, OH 43204		
Phone:	1-800-340-2743		
e-mail address	NA		
Wetlands Name	B		
Location of Wetlands including address if available			

		Sources of information used (check all that apply)	
UTM		Site Visit	☑
USGS Quad	Armstrong Mills/Hunter	USGS Topo	☑
Hydrologic Unit Code	5030106	NWI Map	☑
Wetland Size (acres)	0.08	OWI Map	☐
How was size estimated?		Aerial Photo	☑
		Soil Survey	☑
GPS Survey		ODNR - DNAP	☐
		Delineation Report/Map	☐

Photograph

See delineation document

final score:	27	Provisional Wetland Category:	Category 1

Narrative Rating Questions

Name:	Matthew Perlik	Date:	April 4th, 2006
etlands Name	B		

1: Critical Habitat	☑ NO	☐ YES
2: Threatened or Endangered Species	☑ NO	☐ YES
3: Documented High Quality Wetland	☑ NO	☐ YES
4: Significant Breeding or Concentration Area (waterfowl)	☑ NO	☐ YES
5: Category 1 Wetlands (hydrologically isolated)	☑ NO	☐ YES
6: Bogs	☑ NO	☐ YES
7: Fens	☑ NO	☐ YES
8a: "Old Growth Forest"	☑ NO	☐ YES
8b: Mature Forested Wetlands	☑ NO	☐ YES
9a: Lake Erie Coastal and Tributary Wetlands	☑ NO	☐ YES
9b: Hydrology result of Erosion Control Measures (Lake Erie)	☑ NO	☐ YES
9c: Hydrology unrestricted	☑ NO	☐ YES
9d: Native Species Predominate	☑ NO	☐ YES
9e: Non-native Species Predominate	☐ NO	☑ YES
Oak Openings	☑ NO	☐ YES
: Relict Wet Prairies	☑ NO	☐ YES

M v. 5.0 Field Form Quantitative Rating

ite:	No. 2 Slurry Impoundment Expansion Area	Date:	April 4th, 2006
'e'land:	B	Rater:	M. Perlik

ototal Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0.1 acres (0.04ha) (0 pts)

0.080

1 ototal Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

*2a. Calculate average buffer width (select one, **do not** double check)*

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [X] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

15 ototal Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [X] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

- [ ] Semi- to permanently inundated/saturated (4)
- [X] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] dike
- [ ] tile
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other- list

23 8 ototal Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

cattle impacts

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [X] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select one.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [X] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [x] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [x] nutrient emrichment

23 ototal this page

TOVCC 23406

te: No. 2 Slurry Impoundment Expansion Area		Date:	April 4th, 2006
etland:	B	Rater:	M. Perlik

total first page

3 total Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

- [ ] Bog (10 pts)
- [ ] Fen (10 pts)
- [ ] Old Growth Forest (10 pts)
- [ ] Mature forested wetland (5 pts)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10 pts)
- [ ] Relict Wet Prairies (10 pts)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migatory songbird/waterfowl habitat or usage (10 pts)
- [ ] Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

7 total Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
2	Emergent
	Shrub
	Forest
	Mudflats
1	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
X	Moderately low (2)
	Low (1)
	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.

Add or deduct points for coverage

	Extensive >75 % cover (-5)
X	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
1	Coarse woody debris >15 cm (6")
	Standing dead > 25 cm (10") dbh
	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

RAND TOTAL (max 100 pts) Provisional Wetland Category: Category 1

Table 2. Interim scoring breakpoints for wetland regulatory categories for ORAM 5.0 scores

Category	ORAM 5.0 Score
1	0-29.9
1 or 2 gray zone	30-34.9
modified 2	35-44.9
2	45-59.9
2 or 3	60-64.9
3	65-100

27	Category 1

Table based on FEB 2001 OEPA Standards

Wetland A.JPG

Wetland B.JPG

HYDROLOGY

RECORDED DATA (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☐ None Available

FIELD OBSERVATIONS:
Depth of Surface Water: 4 in - 30 feet (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Present?
Yes No

PRIMARY Indicators:
- ☑ Inundated
- ☑ Saturated in Upper 12"
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

SECONDARY Indicators
- ☐ Oxidized Root Channels in UPPER 12"
- ☐ Water Stained leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

REMARKS:
Fringe wetland very on small impoundment adjacent to slurry pond
Spring fed

SOILS

LOE

Map Unit Name (Series and Phase): Lowell-Westmoreland silt loams 35-40% Drainage Class: Well Drained

Taxonomy (Subgroup): Typic hapludalfs / Ultic hapludalfs Field Observations Confirm Mapped Type: (Yes) No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
14	B	10YR 4/1	—	—	—

HYDRIC SOIL INDICATORS
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Streaking in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List

Hydric Soil Present? (Yes) No
REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this sampling point a Wetland? (Yes) No

REMARKS:

ROUTINE WETLAND DETERMINATION-DATA FORM 1987 MANUAL

Project/Site: No. 2 Slurry Impoundment Expansion
Applicant/Owner: Ohio Valley Coal
Investigator(s): RFM, MKP
Date: 4/4/06 Community ID: Wetland A
County: Belmont Transect ID: -
State: Ohio Plot ID: SP 1

Do Normal Circumstances exist on the site? (YES) NO
Is the site significantly & recently disturbed? (Atypical Situation) (YES) NO
Is the area a potential Problem Area? (Explain in final remarks) YES (NO)

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. N. L. Cattail Typha angustifolia	H	OBL
2. Soft Rush Juncus effusus	H	FACW+
3. Eupatorium perfoliatum	H	FACW+
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 90 %

Hydrophytic Vegetation Present? (Yes) No
REMARKS:

Photo 4
~~[illegible]~~
Cattle inputs
Stock pond w/ fringe wetland

TOYCC 233410

HYD[illegible] Y

RECORDED DATA (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☐ None Availabl[illegible]

FIELD OBSERVATIONS:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Present?
Yes (No)

REMARKS:

PRIMARY Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12"
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

SECONDARY Indicators
- ☐ Oxidized Root Channels in UPPER 12"
- ☐ Water Stained leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Lowell-Westmoreland
Drainage Class: Moderately well
Taxonomy (Subgroup): Typic Hapludalfs, Ultic Hapludalfs
Field Observations Confirm Mapped Type: Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
14	B	10YR 4/4	—		

HYDRIC SOIL INDICATORS
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Streaking in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List

Hydric Soil Present? Yes No
REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
REMARKS:

Is this sampling point a Wetland? Yes No

ROUTINE WETLAND DETERMINATION DATA FORM 1987 MANU[illegible]

Project/Site: No. 2 Slurry Impoundment Expansion Area
Applicant/Owner: Ohio Valley Coal Company
Investigator(s): RFH, MKP
Date: 4/4/06 Community ID: upland of wetland A
County: Belmont Transect ID:
State: Ohio Plot ID: SP1A

Do Normal Circumstances exist on the site? YES NO
Is the site significantly disturbed? (Atypical Situation) YES NO
Is the area a potential Problem Area? (Explain in final remarks) YES NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Fescue, Tall Schedonorus phoenix	H	FACU
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90 %

Hydrophytic Vegetation Present? Yes No
REMARKS:
Pasture

TOVCC 23411

HYDROLOGY

RECORDED DATA (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☐ None Available

FIELD OBSERVATIONS:
Depth of Surface Water: 12 (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Present?
(Yes) No

REMARKS:

PRIMARY Indicators:
- ☑ Inundated
- ☑ Saturated in Upper 12"
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

SECONDARY Indicators
- ☐ Oxidized Root Channels in UPPER 12"
- ☐ Water Stained leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

SOILS LoD

Map Unit Name (Series and Phase) Lowell-Westmoreland silt loams 15-25% slopes
Drainage Class: Moderately well drained
Taxonomy (Subgroup): Typic hapludalfs / Ultic hapludalfs
Field Observations Confirm Mapped Type: (Yes) No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
14	B	10YR 4/1	—	—	

HYDRIC SOIL INDICATORS
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☑ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Streaking in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List

Hydric Soil Present? (Yes) No
REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No
Is this sampling point a Wetland? Yes No
REMARKS:

ROUTINE WETLAND DETERMINATION-DATA FORM 1987 MANUAL

Project/Site: No. 2 Slurry Impoundment Expansion
Applicant/Owner: Ohio Valley Coal
Investigator(s): RFM, MKP
Date: 4/4/06 Community ID: Wetland B
County: Belmont Transect ID: ✓
State: Ohio Plot ID: SP2

Do Normal Circumstances exist on the site? (YES) NO
Is the site significantly & recently disturbed? (Atypical Situation) YES (NO)
Is the area a potential Problem Area? (Explain in final remarks) YES (NO)

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Narrowleaf Cattail Typha angustifolia	H	OBL
2. Soft Rush, Juncus effusus	H	FACW+
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 90 %

Hydrophytic Vegetation Present? (Yes) No
REMARKS:
Cattle have access to the wetland.

Photo
old stock pond w/ fringe wetland

TOVCC 23412

HYDR

RECORDED DATA (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☐ None Available

FIELD OBSERVATIONS:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Present?
Yes (No)

REMARKS:

PRIMARY Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12"
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

SECONDARY Indicators
- ☐ Oxidized Root Channels in UPPER 12"
- ☐ Water Stained leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name, (Series and Phase): Lowell-Westmoreland
Drainage Class: Moderately WD

Taxonomy (Subgroup): Typic Hapludalfs / Ultic Hapludalfs
Field Observations Confirm Mapped Type: Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
12	B	10YR 4/3	–		

HYDRIC SOIL INDICATORS
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Streaking in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List

Hydric Soil Present? Yes No
REMARKS:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes [No]
REMARKS:

Is this sampling point a Wetland? Yes (No)

ROUTINE WETLAND DETERMINATION-DATA FORM 1987 MANUA

Project/Site: No 2 Slurry Impoundment Expansion Area
Applicant/Owner: Ohio Valley Coal Company
Investigator(s): RFM, MKP
Date: 4/4/06 Community ID: Upland wetland B
County: Belmont Transect ID: –
State: Ohio Plot ID: SP2A

Do Normal Circumstances exist on the site? (YES) NO
Is the site significantly & recently disturbed? (Atypical Situation) YES (NO)
Is the area a potential Problem Area? (Explain in final remarks) YES (NO)

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Festuca rubra	H	FACU
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90 %

Hydrophytic Vegetation Present? Yes No
REMARKS:
Pasture

TOVCC 234113

APPENDIX C

Stream and Wetland Photographs

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 25

River Code: _____ RM: _____ Stream: C

Date: 4.4.06 Location: No. 2. Slurry Impoundment Belmont County Ohio

Scorers Full Name: Matt Perlik Affiliation: R.D. Zande and Associates

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☑☐ SILT [2]			NOTE: Ignore Sludge Originating From Point Sources		

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTRINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)):
SILT: ☐ SILT HEAVY [-2] ☑ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1]
EMBEDDEDNESS: ☑ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

Substrate: 5 Max 20

COMMENTS Detritus comes from timber harvest

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1] OVERHANGING VEGETATION [1] SHALLOWS (SLOW WATER) [1] ROOTMATS [1] POOLS > 70 cm [2] ROOTWADS [1] BOULDERS [1] COMMENTS Cutthroat Depth 4-20 cm OXBOWS BACKWATERS [1] AQUATIC MACROPHYTES [1] LOGS OR WOODY DEBRIS [1]

AMOUNT: (Check ONLY One or check 2 and AVERAGE) ☐ EXTENSIVE 75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]	☐ - SNAGGING ☐ - IMPOUND.
☐ MODERATE [3]	☐ GOOD [5]	☑ RECOVERED [4]	☐ MODERATE [2]	☐ - RELOCATION ☐ - ISLANDS
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☑ LOW [1]	☑ - CANOPY REMOVAL ☐ - LEVEED
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]		☐ - DREDGING ☐ - BANK SHAPING
				☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 10 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank)): ☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10 m [2] ☐☐ VERY NARROW < 5 m [1] ☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank)): ☐☐ FOREST, SWAMP [3] ☑☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☐☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank)): ☐☐ NONE/LITTLE [3] ☐☐ MODERATE [2] ☑☑ HEAVY/SEVERE [1]

Riparian: 6 Max 10

COMMENTS: Recently impacted by timber harvest activities

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☐ >1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☐ <0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [1] ☐ INTERSTITIAL [1] ☐ INTERMITTENT [-2] ☐ VERY FAST [1]

COMMENTS: _____

Pool/Current: 0 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
☐ Best Areas > 10 cm [2]	☐ MAX > 50 [2]	☐ STABLE (e.g. Cobble, Boulder) [2]	☐ NONE [2]
☐ Best Areas 5-10 cm [1]	☐ MAX < 50 [1]	☐ MOD. STABLE (e.g. Large Gravel) [1]	☐ LOW [1]
☑ Best Areas < 5 cm [0]		☐ UNSTABLE (Fine Gravel, Sand) [0]	☐ MODERATE [0]
☐ NO RIFFLE [0]			☐ EXTENSIVE [-1]

Riffle/Run: 0 Max 8

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

6] GRADIENT (ft/mi): 393.7 DRAINAGE AREA (sq.mi.): 0.012

%POOL: 5 %GLIDE: 5
%RIFFLE: 40 %RUN: 50

Gradient: 7 Max 10

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23415

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 31.5

River Code: _____ **RM:** _____ **Stream:** E

Date: 4.4.06 **Location:** No. 2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: M. Perlik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS[10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND[6]		
☑☐ COBBLE [8]			☑☐ BEDROCK[5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS[3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL[0]		
☐☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS[0]
☐ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [-1]
☐ COAL FINES [-2]

SILT:
☑ SILT HEAVY [-2]
☐ SILT MODERATE [-1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]

EMBEDDEDNESS:
☑ EXTENSIVE [-2]
☐ MODERATE [-1]
☐ NORMAL [0]
☐ NONE [1]

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)

Substrate: 9 Max 20

COMMENTS _____

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) **TYPE:** Score All That Occur

☐ UNDERCUT BANKS [1]
☐ OVERHANGING VEGETATION [1]
☐ SHALLOWS (IN SLOW WATER) [1]
☐ ROOTMATS [1]
☐ ROOTS > 70 cm [2]
☐ ROOTWADS [1]
☐ BOULDERS [1]
☐ OXBOWS, BACKWATERS [1]
☐ AQUATIC MACROPHYTES [1]
☐ LOGS OR WOODY DEBRIS [1]

COMMENTS: Sate a 7 L 20 cm

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING ☐ - IMPOUND.
☐ - RELOCATION ☐ - ISLANDS
☑ - CANOPY REMOVAL ☐ - LEVEED
☐ - DREDGING ☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 12 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH L R (Per Bank)
☐☐ WIDE > 50m [4]
☑☐ MODERATE 10-50m [3]
☐☐ NARROW 5-10 m [2]
☐☐ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Most Predominant Per Bank)
☑☑ FOREST, SWAMP [3]
☑☑ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☐☐ FENCED PASTURE [1]
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☐☐ OPEN PASTURE, ROWCROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION L R (Per Bank)
☐☐ NONE/LITTLE [3]
☐☐ MODERATE [2]
☑☑ HEAVY/SEVERE [1]

Riparian: 5.5 Max 10

COMMENTS: Impacted by timber harvesting activities

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [1]
☐ INTERSTITIAL [1]
☐ INTERMITTENT [-2]
☐ VERY FAST [1]

COMMENTS: _____

Pool/Current: 0 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☑ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

☐ NO RIFFLE [Metric=0]

Riffle/Run: 0 Max 8

COMMENTS: _____

6] GRADIENT (ft/mi): 512.6 DRAINAGE AREA (sq.mi.): 0.015

%POOL: 96 %GLIDE: 4
%RIFFLE: 0 %RUN: 0

Gradient: 12 Max 10

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23416

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 35

River Code: _____ **RM:** _____ **Stream:** ~~E~~ E-Trib

Date: 4.4.06 **Location:** No.2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: Matt Petrik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☑☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

COMMENTS Cobble present

SUBSTRATE ORIGIN — Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☐ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [-1]
☐ COAL FINES [-2]

SILT:

EMBEDDEDNESS:

SUBSTRATE QUALITY — Check ONE (OR 2 & AVERAGE)
☐ SILT HEAVY [-2]
☑ SILT MODERATE [-1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]
☐ EXTENSIVE [-2]
☑ MODERATE [-1]
☐ NORMAL [0]
☐ NONE [1]

Substrate: 17 — Max 20

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) **TYPE:** Score All That Occur

UNDERCUT BANKS [1]
OVERHANGING VEGETATION [1]
SHALLOWS (IN SLOW WATER) [1]
ROOTMATS [1]
POOLS > 70 cm [2]
ROOTWADS [1]
BOULDERS [1]
OXBOWS, BACKWATERS [1]
AQUATIC MACROPHYTES [1]
LOGS OR WOODY DEBRIS [1]

COMMENTS Lots depth Screen

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 — Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING
☐ - RELOCATION
☑ - CANOPY REMOVAL
☐ - DREDGING
☐ - IMPOUND.
☐ - ISLANDS
☐ - LEVEED
☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

COMMENTS:

Channel: 13 — Max 20

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH — L R (Per Bank)
☐☐ WIDE > 50m [4]
☑☐ MODERATE 10-50m [3]
☐☐ NARROW 5-10 m [2]
☐☐ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) — L R (Most Predominant Per Bank)
☑☑ FOREST, SWAMP [3]
☐☐ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☐☐ FENCED PASTURE [1]
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☐☐ OPEN PASTURE, ROWCROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION — L R (Per Bank)
☑☑ NONE/LITTLE [3]
☐☐ MODERATE [2]
☐☐ HEAVY/SEVERE [1]

COMMENTS:

Riparian: 7 — Max 10

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [4]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [-1]
☐ INTERSTITIAL [-1]
☐ INTERMITTENT [-2]
☐ VERY FAST [1]

COMMENTS:

Pool/Current: 0 — Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☐ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

☐ NO RIFFLE [Metric=0]

COMMENTS:

Riffle/Run: 8 — Max 8

Gradient: 5 — Max 10

6] GRADIENT (ft/mi): 1167.2 DRAINAGE AREA (sq.mi.) : 0.004

%POOL: 5 %GLIDE: 5
%RIFFLE: 40 %RUN: 50

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23417

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 18.5

Ver Code: _____ RM: _____ Stream: F lower portion

Date: 4.4.06 Location: No. 2 Slurry Impoundment, Belmont County, Ohio

Scorers Full Name: Matt Perlik Affiliation: R. D. Zande

1) SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]			NOTE: Ignore Sludge Originating From Point Sources		

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIPRAP [0] ☐ LACUSTRINE [0] ☐ SHALE [1] ☐ COAL FINES [-2]

SILT: _____

EMBEDDEDNESS: _____

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)): ☑ SIL. HEAVY [-2] ☐ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1] ☑ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

COMMENTS Severely impacted by tailings

Substrate: 1 Max 20

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

☐ UNDERCUT BANKS [1] ☐ POOLS > 70 cm [2] ☐ OXBOWS, BACKWATERS [1]
☐ OVERHANGING VEGETATION [1] ☐ ROOTWADS [1] ☐ AQUATIC MACROPHYTES [1]
☐ SHALLOWS (NSLOW WATER) [1] ☐ BOULDERS [1] ☐ LOGS OR WOODY DEBRIS [1]
☐ ROOTMAT [1]

COMMENTS Water level < 20cm

AMOUNT: (Check ONLY One or check 2 and AVERAGE) ☐ EXTENSIVE 75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☑ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☑ LOW [1]
☐ NONE [1]	☑ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER: ☐ - SNAGGING ☐ - RELOCATION ☑ - CANOPY REMOVAL ☐ - DREDGING ☐ - IMPOUND. ☐ - ISLANDS ☐ - LEVEED ☐ - BANK SHAPING ☐ - ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: _____

Channel: 10 Max 20

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank)): ☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☐☐ VERY NARROW < 5m [1] ☑☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank)): ☑☑ FOREST, SWAMP [3] ☐☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☑☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank)): ☐☐ NONE/LITTLE [3] ☑☑ MODERATE [2] ☐☐ HEAVY/SEVERE [1]

COMMENTS: _____

Riparian: 6 Max 10

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☐ > 1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☑ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [1] ☐ INTERSTITIAL [1] ☐ INTERMITTENT [2] ☐ VERY FAST [1]

COMMENTS: _____

Pool/Current: 6 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
☐ Best Areas > 10 cm [2]	☐ MAX > 50 [2]	☐ STABLE (e.g. Cobble, Boulder) [2]	☐ NONE [2]
☐ Best Areas 5-10cm [1]	☐ MAX < 50 [1]	☐ MOD. STABLE (e.g. Large Gravel) [1]	☐ LOW [1]
☑ Best Areas < 5 cm [0]		☐ UNSTABLE (Fine Gravel, Sand) [0]	☐ MODERATE [0]
☐ NO RIFFLE [0]			☐ EXTENSIVE [-1]

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

Riffle/Run: 6 Max 8

Gradient: 4 Max 10

6] GRADIENT (ft/mi): 4.04.1 DRAINAGE AREA (sq.mi.) : 0.023 %POOL: [illegible] %GLIDE: [illegible] %RIFFLE: [illegible] %RUN: [illegible]

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23418

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 26.5

River Code: _____ **RM:** _____ **Stream:** F upper reach
Date: 4/4/06 **Location:** No 2 Slurry Impoundment, Belmont County Ohio
Scorers Full Name: Matt Perlik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☑☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☑☐ SILT [2]			NOTE: Ignore Sludge Originating From Point Sources		

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

COMMENTS _____

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTRINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

SILT: _____

EMBEDDEDNESS: _____

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)): ☑ SILT HEAVY [-2] ☑ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1] ☐ EXTENSIVE [-2] ☑ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

Substrate 7.5 Max 20

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1]	POOLS > 70 cm [2]	OXBOWS, BACKWATERS [1]
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]
SHALLOWS (IN SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]
ROOTMATS [1]	COMMENTS	

AMOUNT: (Check ONLY One or check 2 and AVERAGE) ☐ EXTENSIVE > 75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT < 5% [1]

Cover 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☑ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT, OR NO RECOVERY [1]	

MODIFICATIONS/OTHER: ☐ - SNAGGING ☐ - RELOCATION ☐ - CANOPY REMOVAL ☐ - DREDGING ☐ - ONE SIDE CHANNEL MODIFICATIONS ☐ - IMPOUND. ☐ - ISLANDS ☐ - LEVEED ☐ - BANK SHAPING

COMMENTS: Cattle have access to stream

Channel 10 Max 20

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank)): ☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☐☐ VERY NARROW < 5m [1] ☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank)): ☐☐ FOREST, SWAMP [3] ☐☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☐☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank)): ☐☐ NONE/LITTLE [3] ☑☑ MODERATE [2] ☐☐ HEAVY/SEVERE [1]

Riparian Max 10

COMMENTS: stream F upper portion passes through wetland B and ewi 2

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☐ > 1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [1] ☐ INTERSTITIAL [1] ☐ INTERMITTENT [-2] ☐ VERY FAST [1]

COMMENTS: _____

Pool/Current Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH: ☐ Best Areas > 10 cm [2] ☐ Best Areas 5-10 cm [1] ☐ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH: ☐ MAX > 50 [2] ☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE: ☐ STABLE (e.g. Cobble, Boulder) [2] ☐ MOD. STABLE (e.g. Large Gravel) [1] ☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS: ☐ NONE [2] ☐ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

Riffle/Run Max 8

Gradient Max 10

6] GRADIENT (ft/mi): 404.1 DRAINAGE AREA (sq.mi.) : 0.023 %POOL: _____ %GLIDE: _____ %RIFFLE: _____ %RUN: _____

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23419

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 23.5

River Code: _____ **RM:** _____ **Stream:** F1

Date: 4/4/06 **Location:** No. 2 Slurry Impoundment, Belmont County, Ohio

Scorers Full Name: Matt Perlik **Affiliation:** R.D. Zande and Associates

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☑☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]					

NOTE: Ignore Silage Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

COMMENTS silt dominates as well

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTRINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

SILT: ☑ SILT HEAVY [-2] ☐ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1]

EMBEDDEDNESS: ☑ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)

Substrate: 9 Max 20

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1]	POOLS > 70 cm [2]	OXBOWS, BACKWATERS [1]	☐ EXTENSIVE > 75% [11]
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]	☐ MODERATE 25-75% [7]
SHALLOWS (in SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]	☐ SPARSE 5-25% [3]
ROOTMATS [1]	COMMENTS water depth < 20 cm		☐ NEARLY ABSENT < 5% [1]

AMOUNT: (Check ONLY One or check 2 and AVERAGE)

Cover: 6 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☐ LOW [2]	☑ FAIR [3]	☑ RECOVERING [3]	☐ LOW [1]
☑ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER: ☐ - SNAGGING ☐ - IMPOUND. ☐ - RELOCATION ☐ - ISLANDS ☐ - CANOPY REMOVAL ☐ - LEVEED ☐ - DREDGING ☐ - BANK SHAPING ☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 8.5 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) ℙ River Right Looking Downstream ℙ

RIPARIAN WIDTH L R (Per Bank)	FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Most Predominant Per Bank)	FLOOD PLAIN QUALITY L R	BANK EROSION L R (Per Bank)
☐☐ WIDE > 50m [4]	☐☐ FOREST, SWAMP [3]	☐☐ CONSERVATION TILLAGE [1]	☐☐ NONE/LITTLE [3]
☐☐ MODERATE 10-50m [3]	☐☐ SHRUB OR OLD FIELD [2]	☐☐ URBAN OR INDUSTRIAL [0]	☐☐ MODERATE [2]
☐☐ NARROW 5-10 m [2]	☐☐ RESIDENTIAL, PARK, NEW FIELD [1]	☑☐ OPEN PASTURE, ROW CROP [0]	☐☐ HEAVY/SEVERE [1]
☑☑ VERY NARROW < 5 m [1]	☐☐ FENCED PASTURE [1]	☐☐ MINING/CONSTRUCTION [0]	
☐☐ NONE [0]			

Riparian: 2 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)	MORPHOLOGY (Check 1 or 2 & AVERAGE)	CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)	
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ EDDIES [1]	☐ TORRENTIAL [-1]
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ FAST [1]	☐ INTERSTITIAL [0]
☐ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE W. [0]	☐ MODERATE [1]	☐ INTERMITTENT [-2]
☐ 0.2-0.4m [1]		☐ SLOW [1]	☐ VERY FAST [1]
☐ < 0.2m [POOL=0]			

Pool/Current: 6 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
☐ Best Areas > 10 cm [2]	☐ MAX > 50 [2]	☐ STABLE (e.g. Cobble, Boulder) [2]	☐ NONE [2]
☐ Best Areas 5-10 cm [1]	☐ MAX < 50 [1]	☐ MOD. STABLE (e.g. Large Gravel) [1]	☐ LOW [1]
☑ Best Areas < 5 cm [0]		☐ UNSTABLE (Fine Gravel, Sand) [0]	☐ MODERATE [0]
☐ RIFFLE [0]			☐ EXTENSIVE [-1]

Riffle/Run: 8 Max 8

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

Gradient: 10 Max 10

6] GRADIENT (ft/mi): 541 DRAINAGE AREA (sq.mi.): 0.008 %POOL: ____ %GLIDE: ____ %RIFFLE: ____ %RUN: ____

* Best areas must be large enough to support a population of riffle-obligate species

TOVCC 23420

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 26

River Code: _____ RM: _____ Stream: H

Date: 4.4.06 Location: No 2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: Matt Pulik Affiliation: R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☑☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

SUBSTRATE ORIGIN — Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIPRAP [0] ☐ LACUSTRINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

SILT: _____

SUBSTRATE QUALITY — Check ONE (OR 2 & AVERAGE)
☑ SILT HEAVY [-2] ☐ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1]

EMBEDDEDNESS: ☑ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

Substrate: 4 Max 20

COMMENTS: Cattle impacted stream → silt

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1]	POOLS >70 cm [2]	OXBOWS, BACKWATERS [1]
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]
SHALLOWS (IN SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]
ROOTMATS [1]	COMMENTS: Lots of [illegible] <20 cm	

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE >75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT <5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☑ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING ☐ - IMPOUND. ☐ - RELOCATION ☐ - ISLANDS ☐ - CANOPY REMOVAL ☐ - LEVEED ☐ - DREDGING ☐ - BANK SHAPING ☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 16 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH — L R (Per Bank)
☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☑☐ VERY NARROW < 5m [1] ☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) — L R (Most Predominant Per Bank)
☐☐ FOREST, SWAMP [3] ☐☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1]

L R
☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☑☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION — L R (Per Bank)
☐☐ NONE/LITTLE [1] ☐☐ MODERATE [2] ☐☐ HEAVY/SEVERE [0]

Riparian: 2 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ > 1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☐ < 0.2m [POOL 0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH < RIFFLE W [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [-1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ VERY FAST [1]

Pool/Current: 0 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2] ☐ Best Areas 5-10 cm [1] ☑ Best Areas < 5 cm [RIFFLE 0]

RUN DEPTH
☐ MAX > 50 [2] ☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2] ☐ MOD. STABLE (e.g. Large Gravel) [1] ☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2] ☐ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

☐ NO RIFFLE [Metric=0]

Riffle/Run: 8 Max 8

Gradient: Max 10

COMMENTS: _____

6] GRADIENT (ft/mi): 38.60 DRAINAGE AREA (sq.mi.): 0.018

%POOL: 26 %GLIDE: 74
%RIFFLE: 0 %RUN: 0

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23421

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 23.5

Ver Code: _____ RM: _____ Stream: H-1

Date: 4.4.06 Location: No. 2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: Matt Pedik Affiliation: R.D. Zande

1) SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☑☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

COMMENTS Some gravel

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE))
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☐ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [1]
☐ COAL FINES [2]

SILT: _____

EMBEDDEDNESS: _____

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE))
☑ SILT HEAVY [2]
☐ SILT MODERATE [1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]
☑ EXTENSIVE [2]
☐ MODERATE [1]
☐ NORMAL [0]
☐ NONE [1]

Substrate: 7 Max 20

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

☐ UNDERCUT BANKS [1]
☐ OVERHANGING VEGETATION [1]
☐ SHALLOWS (IN SLOW WATER) [1]
☐ ROOT MATS [1]
☐ POOLS > 70 cm [2]
☐ ROOTWADS [1]
☐ BOULDERS [1]
☐ OXBOWS, BACKWATERS [1]
☐ AQUATIC MACROPHYTES [1]
☐ LOGS OR WOODY DEBRIS [1]

COMMENTS: Cattle, Bank, Zone

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY
☐ HIGH [4]
☐ MODERATE [3]
☑ LOW [2]
☐ NONE [1]

DEVELOPMENT
☐ EXCELLENT [7]
☐ GOOD [5]
☑ FAIR [3]
☐ POOR [1]

CHANNELIZATION
☑ NONE [6]
☐ RECOVERED [4]
☐ RECOVERING [3]
☐ RECENT OR NO RECOVERY [1]

STABILITY
☐ HIGH [3]
☐ MODERATE [2]
☑ LOW [1]

MODIFICATIONS/OTHER
☐ - SNAGGING
☐ - RELOCATION
☐ - CANOPY REMOVAL
☐ - DREDGING
☐ - IMPOUND.
☐ - ISLANDS
☐ - LEVEED
☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 12 Max 20

COMMENTS: cattle impact

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank))
☐☐ WIDE > 50m [4]
☐☐ MODERATE 10-50m [3]
☑☑ NARROW 5-10 m [2]
☑☑ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank))
☐☐ FOREST, SWAMP [3]
☐☐ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☐☐ FENCED PASTURE [1]
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☑☑ OPEN PASTURE, ROWCROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank))
☐☐ NONE/LITTLE [3]
☑☑ MODERATE [2]
☐☐ HEAVY/SEVERE [1]

Riparian: 3.5 Max 10

COMMENTS:

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [1]
☐ INTERSTITIAL [1]
☐ INTERMITTENT [2]
☐ VERY FAST [1]

Pool/Current: 0 Max 12

COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☐ Best Areas < 5 cm [0]
☐ RIFFLE [0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

Riffle/Run: 0 Max 8

COMMENTS:

☐ NO RIFFLE [Metric=0]

Gradient: 4 Max 10

6] GRADIENT (ft/mi): 708.3 DRAINAGE AREA (sq.mi.): 0.004

%POOL: 5 %GLIDE: 5
%RIFFLE: 70 %RUN: 5

*Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23422

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 25.5

River Code: _____ RM: _____ Stream: I

Date: 4-4-06 Location: No. 2 Slurry Impoundment, Belmont Co. Ohio

Scorers Full Name: Matt Perlik Affiliation: R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE		POOL	RIFFLE
☐☐ BLDR/SLBS[10]			☑☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK[5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS[3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL[0]		
☐☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS[0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTRINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

SILT: _____

EMBEDDEDNESS: _____

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)): ☐ SILT HEAVY [-2] ☑ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1] ☐ EXTENSIVE [-2] ☑ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

Substrate: 11 Max 20

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >) ☐ 4 or More [2] ☑ 3 or Less [0]

COMMENTS Detritus from timber harvest common

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1] ___ POOLS > 70 cm [2] ___ OXBOWS BACKWATERS [1] ___
OVERHANGING VEGETATION [1] ___ ROOTWADS [1] ___ AQUATIC MACROPHYTES [1] ___
SHALLOWS (IN SLOW WATER) [1] ___ BOULDERS [1] ___ LOGS OR WOODY DEBRIS [1] ___
ROOTMATS [1] ___ COMMENTS (Woody Debris) < 10 cm

AMOUNT: (Check ONLY One or check 2 and AVERAGE) ☐ EXTENSIVE > 75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-25% [3] ☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]	☐ SNAGGING	☐ IMPOUND.
☐ MODERATE [3]	☐ GOOD [5]	☑ RECOVERED [4]	☐ MODERATE [2]	☐ RELOCATION	☐ ISLANDS
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☑ LOW [1]	☐ CANOPY REMOVAL	☐ LEVEED
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]		☐ DREDGING	☐ BANK SHAPING
				☐ ONE SIDE CHANNEL MODIFICATIONS	

Channel: 8 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank)): ☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☐☐ VERY NARROW < 5m [1] ☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank)): ☐☐ FOREST, SWAMP [3] ☑☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☐☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank)): ☐☐ NONE/LITTLE [1] ☐☐ MODERATE [2] ☑☑ HEAVY/SEVERE [1]

Riparian: 6.5 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☐ > 1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☑ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [-1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ VERY FAST [-1]

Pool/Current: 0 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH: ☐ Best Areas > 10 cm [2] ☐ Best Areas 5-10 cm [1] ☑ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH: ☐ MAX > 50 [2] ☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE: ☐ STABLE (e.g. Cobble, Boulder) [2] ☐ MOD. STABLE (e.g. Large Gravel) [1] ☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS: ☐ NONE [2] ☐ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

☐ NO RIFFLE [Metric=0]

Riffle/Run: 0 Max 8

COMMENTS: _____

6] GRADIENT (ft/mi): 435.7 DRAINAGE AREA (sq.mi.) : 0.015

%POOL: 5 %GLIDE: 45
%RIFFLE: 20 %RUN: 30

Gradient: 7 Max 10

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23423

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 55

River Code: _____ **RM:** _____ **Stream:** EE

Date: 4-4-06 **Location:** No. 2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: Matt Pelik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☑☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☑☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☑ 4 or More [2]
☐ 3 or Less [0]

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)): ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIPRAP [0] ☐ LACUSTRINE [0] ☐ SHALE [1] ☐ COAL FINES [2]

SILT: _____

EMBEDDEDNESS: _____

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)): ☐ SILT HEAVY [-2] ☑ SILT MODERATE [-1] ☐ SILT NORMAL [0] ☐ SILT FREE [1] ☐ EXTENSIVE [2] ☐ MODERATE [1] ☐ NORMAL [0] ☐ NONE [1]

Substrate: 17 Max 20

COMMENTS_____

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1]	POOLS > 70 cm [2]	OXBOWS, BACKWATERS [1]
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]
SHALLOWS (IN SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]
ROOTMATS [1]	COMMENTS: [illegible]	

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]	☐ - SNAGGING	☐ - IMPOUND.
☐ MODERATE [3]	☑ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]	☐ - RELOCATION	☐ - ISLANDS
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]	☑ - CANOPY REMOVAL	☐ - LEVEED
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]		☐ - DREDGING	☐ - BANK SHAPING
				☐ - ONE SIDE CHANNEL MODIFICATIONS	

Channel: 15 Max 20

COMMENTS:_____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH (L R (Per Bank)): ☐☐ WIDE > 50m [4] ☐☐ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☐☐ VERY NARROW < 5m [1] ☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) (L R (Most Predominant Per Bank)): ☐☐ FOREST, SWAMP [3] ☑☐ SHRUB OR OLD FIELD [2] ☐☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☐☐ OPEN PASTURE, ROWCROP [0] ☐☐ MINING/CONSTRUCTION [0]

BANK EROSION (L R (Per Bank)): ☐☐ NONE/LITTLE [1] ☐☐ MODERATE [2] ☑☐ HEAVY/SEVERE [1]

Riparian: 5.5 Max 10

COMMENTS:_____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!): ☐ 1m [6] ☐ 0.7-1m [4] ☐ 0.4-0.7m [2] ☐ 0.2-0.4m [1] ☑ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply): ☐ EDDIES [1] ☐ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ TORRENTIAL [-1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ VERY FAST [1]

Pool/Current: 0 Max 12

COMMENTS:_____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH: ☐ Best Areas > 10 cm [2] ☐ Best Areas 5-10 cm [1] ☑ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH: ☐ MAX > 50 [2] ☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE: ☐ STABLE (e.g. Cobble, Boulder) [2] ☐ MOD. STABLE (e.g. Large Gravel) [1] ☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS: ☐ NONE [2] ☐ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

COMMENTS:_____ ☐ NO RIFFLE [Metric=0]

Riffle/Run: 0 Max 8

Gradient: 4 Max 10

6] GRADIENT (ft/mi): 1057.3 DRAINAGE AREA (sq.mi.) : 0.006

%POOL: [illegible] %GLIDE: [illegible]
%RIFFLE: [illegible] %RUN: [illegible]

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23424

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 33

River Code: _____ **RM:** _____ **Stream:** E1

Date: 4-4-06 **Location:** No. 2 Slurry Impoundment, Belmont Co. Ohio

Scorers Full Name: Matt Perlik **Affiliation:** R.D. Zande and Associates

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☑☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☑☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]			NOTE: Ignore Sludge Originating From Point Sources		

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☐ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [1]
☐ COAL FINES [2]

SILT:

EMBEDDEDNESS:

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)
☐ SILT HEAVY [-2]
☑ SILT MODERATE [-1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]
☐ EXTENSIVE [-2]
☑ MODERATE [-1]
☐ NORMAL [0]
☐ NONE [1]

Substrate: 8 Max 20

COMMENTS _____

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

- UNDERCUT BANKS [1]
- OVERHANGING VEGETATION [1]
- SHALLOWS (IN SLOW WATER) [1]
- ROOTMATS [1]
- POOLS > 70 cm [2]
- ROOTWADS [1]
- BOULDERS [1]
- OXBOWS, BACKWATERS [1]
- AQUATIC MACROPHYTES [1]
- LOGS OR WOODY DEBRIS [1]

COMMENTS: Cover 10 x 12 [illegible]

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING ☐ - IMPOUND.
☐ - RELOCATION ☐ - ISLANDS
☐ - CANOPY REMOVAL ☐ - LEVEED
☐ - DREDGING ☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 13 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH — L R (Per Bank)
☐☐ WIDE > 50m [4]
☑☑ MODERATE 10-50m [3]
☐☐ NARROW 5-10 m [2]
☐☐ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) — L R (Most Predominant Per Bank)
☑☑ FOREST, SWAMP [3]
☐☐ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☐☐ FENCED PASTURE [1]
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☐☐ OPEN PASTURE, ROWCROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION — L R (Per Bank)
☐☐ NONE/HEALED [3]
☑☐ MODERATE [2]
☐☐ HEAVY/SEVERE [1]

Riparian: 8 Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [-1]
☐ INTERSTITIAL [-1]
☐ INTERMITTENT [-2]
☐ VERY FAST [1]

COMMENTS: _____

Pool/Current: 0 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☑ Best Areas < 5 cm* [1]
☐ RIFFLE [0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

☐ NO RIFFLE [Metric=0]

COMMENTS: _____

Riffle/Run: 0 Max 8

Gradient: 0 Max 10

6] GRADIENT (ft/mi): 1070 DRAINAGE AREA (sq.mi.): 0.009

%POOL: 5 %GLIDE: 75
%RIFFLE: 20 %RUN: 5

*: Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23425

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 33

River Code: _____ **RM:** _____ **Stream:** E2

Date: 4.4.06 **Location:** No 2 Slurry Impoundment Belmont Co. Ohio

Scorers Full Name: Matt Peclik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☑☐ GRAVEL [7]		
☐☐ BOULDER [9]			☐☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☑☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☐☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☐ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [-1]
☐ COAL FINES [-2]

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)

SILT:
☐ SILT HEAVY [-2]
☑ SILT MODERATE [-1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]

EMBEDDEDNESS:
☐ EXTENSIVE [-2]
☑ MODERATE [-1]
☐ NORMAL [0]
☐ NONE [1]

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

COMMENTS _____

Substrate: 8 — Max 20

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) **TYPE:** Score All That Occur

UNDERCUT BANKS [1]	POOLS > 70 cm [2]	OXBOWS BACKWATERS [1]
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]
SHALLOWS (IN SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]
ROOTMATS [1]	COMMENTS: Water level < 70cm	

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 — Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☑ RECOVERED [4]	☑ MODERATE [2]
☐ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☑ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING ☐ - IMPOUND.
☐ - RELOCATION ☐ - ISLANDS
☑ - CANOPY REMOVAL ☐ - LEVEED
☐ - DREDGING ☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 11 — Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH L R (Per Bank)
☐☐ WIDE > 50m [4]
☐☐ MODERATE 10-50m [3]
☐☐ NARROW 5-10 m [2]
☐☐ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Most Predominant Per Bank)
☑☐ FOREST, SWAMP [3]
☐☐ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☐☐ FENCED PASTURE [1]
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☐☐ OPEN PASTURE, ROW CROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION L R (Per Bank)
☑☐ NONE/LITTLE [3]
☐☐ MODERATE [2]
☐☐ HEAVY/SEVERE [1]

Riparian: 10 — Max 10

COMMENTS: _____

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ > 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [1]
☐ INTERMITTENT [1]
☐ INTERMITTENT [-1]
☐ VERY FAST [1]

COMMENTS: _____

Pool/Current: 0 — Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☐ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. cobble, boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

Riffle/Run: 0 — Max 8

Gradient: 2 — Max 10

6] GRADIENT (ft/mi): 996.1 DRAINAGE AREA (sq.mi.) : 0.008 %POOL: 25 %GLIDE: 25 %RIFFLE: 25 %RUN: 25

* Best areas must be large enough to support a population of riffle-obligate species

EPA 4520 06/24/01

TOVCC 23426

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: [illegible]

River Code: _____ **RM:** _____ **Stream:** E6

Date: 4-4-06 **Location:** No. 2 Slurry Impoundment Belmont County Ohio

Scorers Full Name: Matt Perik **Affiliation:** R.D. Zande

1] SUBSTRATE (Check ONLY Two SubstrateTYPE BOXES; Estimate % present

TYPE	POOL	RIFFLE	TYPE	POOL	RIFFLE
☐☐ BLDR/SLBS [10]			☐☐ GRAVEL [7]		
☐☐ BOULDER [9]			☑☐ SAND [6]		
☐☐ COBBLE [8]			☐☐ BEDROCK [5]		
☐☐ HARDPAN [4]			☐☐ DETRITUS [3]		
☐☐ MUCK [2]			☐☐ ARTIFICIAL [0]		
☑☐ SILT [2]					

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)
☐ 4 or More [2]
☑ 3 or Less [0]

SUBSTRATE ORIGIN (Check ONE (OR 2 & AVERAGE)
☐ LIMESTONE [1]
☐ TILLS [1]
☐ WETLANDS [0]
☑ HARDPAN [0]
☑ SANDSTONE [0]
☐ RIP/RAP [0]
☐ LACUSTRINE [0]
☐ SHALE [-1]
☐ COAL FINES [-2]

SILT:

EMBEDDEDNESS:

SUBSTRATE QUALITY (Check ONE (OR 2 & AVERAGE)
☑ SILT HEAVY [-2]
☐ SILT MODERATE [-1]
☐ SILT NORMAL [0]
☐ SILT FREE [1]
☐ EXTENSIVE [-2]
☐ MODERATE [-1]
☑ NORMAL [0]
☐ NONE [1]

Substrate: 6 Max 20

COMMENTS _____

2] INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

(Structure) TYPE: Score All That Occur

UNDERCUT BANKS [1]	POOLS > 70 cm [2]	OXBOWS, BACKWATERS [1]	
OVERHANGING VEGETATION [1]	ROOTWADS [1]	AQUATIC MACROPHYTES [1]	
SHALLOWS (IN SLOW WATER) [1]	BOULDERS [1]	LOGS OR WOODY DEBRIS [1]	
ROOTMATS [1]	COMMENTS		

AMOUNT: (Check ONLY One or check 2 and AVERAGE)
☐ EXTENSIVE > 75% [11]
☐ MODERATE 25-75% [7]
☐ SPARSE 5-25% [3]
☐ NEARLY ABSENT < 5% [1]

Cover: 0 Max 20

3] CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☑ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☑ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☑ LOW [1]
☐ NONE [1]	☑ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

MODIFICATIONS/OTHER
☐ - SNAGGING ☐ - IMPOUND.
☐ - RELOCATION ☐ - ISLANDS
☐ - CANOPY REMOVAL ☐ - LEVEED
☐ - DREDGING ☐ - BANK SHAPING
☐ - ONE SIDE CHANNEL MODIFICATIONS

Channel: 10 Max 20

COMMENTS: _____

4]. RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) River Right Looking Downstream

RIPARIAN WIDTH L R (Per Bank)
☐☐ WIDE > 50m [4]
☐☐ MODERATE 10-50m [3]
☐☐ NARROW 5-10 m [2]
☐☐ VERY NARROW < 5 m [1]
☐☐ NONE [0]

FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN) L R (Most Predominant Per Bank)
☐☐ FOREST, SWAMP [3]
☐☐ SHRUB OR OLD FIELD [2]
☐☐ RESIDENTIAL, PARK, NEW FIELD [1]
☑☑ FENCED PASTURE [1]

L R
☐☐ CONSERVATION TILLAGE [1]
☐☐ URBAN OR INDUSTRIAL [0]
☐☐ OPEN PASTURE, ROWCROP [0]
☐☐ MINING/CONSTRUCTION [0]

BANK EROSION L R (Per Bank)
☐☐ NONE/LITTLE [1]
☑☐ MODERATE [2]
☑☑ HEAVY/SEVERE [1]

Riparian: 14 Max 10

COMMENTS: Pasture on both sides of stream.

5.]POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)
☐ 1m [6]
☐ 0.7-1m [4]
☐ 0.4-0.7m [2]
☐ 0.2-0.4m [1]
☐ < 0.2m [POOL=0]

MORPHOLOGY (Check 1 or 2 & AVERAGE)
☐ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE W. [0]

CURRENT VELOCITY [POOLS & RIFFLES!] (Check All That Apply)
☐ EDDIES [1]
☐ FAST [1]
☐ MODERATE [1]
☐ SLOW [1]
☐ TORRENTIAL [1]
☐ INTERSTITIAL [1]
☐ INTERMITTENT [2]
☐ VERY FAST [1]

Pool/Current: 0 Max 12

COMMENTS: _____

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH
☐ Best Areas > 10 cm [2]
☐ Best Areas 5-10 cm [1]
☑ Best Areas < 5 cm [RIFFLE=0]

RUN DEPTH
☐ MAX > 50 [2]
☐ MAX < 50 [1]

RIFFLE/RUN SUBSTRATE
☐ STABLE (e.g. Cobble, Boulder) [2]
☐ MOD. STABLE (e.g. Large Gravel) [1]
☐ UNSTABLE (Fine Gravel, Sand) [0]

RIFFLE/RUN EMBEDDEDNESS
☐ NONE [2]
☐ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

Riffle/Run: 0 Max 8

COMMENTS: _____ ☐ NO RIFFLE [Metric=0]

Gradient: 4 Max 10

6] GRADIENT (ft/mi): 440 DRAINAGE AREA (sq.mi.) : 0.007

%POOL: [illegible] %GLIDE: [illegible]
%RIFFLE: [illegible] %RUN: [illegible]

* Best areas must be large enough to support a population of riffle-obligate species

TOVCC 23427

Stream C JPG

Stream E JPG

Stream E1 JPG

Stream E2 JPG

Stream E6.JPG

Stream EE.JPG

Stream E1-b.JPG

Stream F-1.JPG

Stream F.JPG

Stream H-1.JPG

Stream H.JPG

Stream I.JPG

Wetland A.JPG

Wetland B.JPG

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

June 6, 2008

Operations Division
Regulatory Branch
2003-853

Mr. Matthew Perlik
R.D. Zande and Associates, Inc.
1500 Lake Shore Drive
Columbus, Ohio 43204

Mr. Perlik:

Reference is made to a Delineation of Waters dated May 2006, prepared by R.D. Zande and Associates, Incorporated, for the 331 acre site adjacent to the existing Number 2 Slurry Impoundment, in Washington Township, Belmont County, Ohio.

The Corps of Engineers authority to regulate waters of the United States (U.S.) is based on the definitions and limits of jurisdiction contained in 33 CFR 328. Navigable waters, their tributaries and adjacent wetlands are waters of the U.S. subject to the provisions of Section 404 of the Clean Water Act (CWA). Based on the information submitted, we have determined that the wetland and stream delineation mapping dated May 2006 accurately depicts the aquatic resources within the 331 acre parcel. The site contains 12 streams with approximately 2954 feet of unnamed tributaries to Captina Creek which were found to be jurisdictional. Additionally, there is a 0.09 acre impoundment, a 0.10 acre impoundment, a .045 acre wetland, and a .081 acre wetland on site. These resources are hydrologically connected to Captina Creek, a named tributary to the Ohio River, a Section 10 navigable waterway. Therefore these resources are part of a surface tributary system and are jurisdictional waters of the United States.

At this time we agree with this wetland delineation and mapping dated May 15, 2006. This jurisdictional determination is valid for a period of five years from the date of this letter, unless new information warrants revision of the delineation.

In regards to the proposed development of this property, every effort should be made to avoid and minimize the stream and wetland impacts to the fullest extent practicable.

If you have any questions, please contact Allen R. Edris, Regulatory Project Manager, at 412-395-7158 or by email at allen.r.edris@usace.army.mil.

Sincerely,

Michael P. Crall
Colonel, Corps of Engineers
District Engineer

The disturbed area will be upstream of the existing Slurry Dam No. 2 embankment. Sediment yield from disturbed areas will be controlled by the existing impoundment and existing and the proposed sediment control structures. There will be no adverse impacts on the hydrologic regime due to sediment yield from the disturbed area of the proposed adjacent permit. Additional stream lengths to be impacted are minimal, and have been isolated from Captina Creek for many years by the No. 2 Dam impoundment area. The loss of stream length and wetlands proposed to be impacted will be mitigated off-site by stream enhancement and wetland construction to be protected in perpituity. Captina Creek should experience no change or impacts from the proposed adjacent area, as the streams proposed to be affected flow directly to the No. 2 Dam impoundment, and have done so for many years.

This proposed adjacent area will not alter normal stream flow. Flooding downstream will be reduced due to retention of surface water runoff in the impoundments during a storm event.

Quarterly monitoring at ground and surface water sites in the vicinity of the #2 Dam shows some instances of elevated iron, hardness and specific conductance, however, iron and all other monitored parameters remian within NPDES effluent limitations.

The activities proposed under this application mirror those previously approved for Slurry Dam No. 2, involving increase in the crest elevation of the No. 2 Dam and additional embankments necessary to protect adjacent landowners and public roads, as well as provide additional refuse disposal space.

The three oil/gas wells previously located within the vicinity of the proposed adjacent area are plugged (2), and the third was a dry hole. The proposed refuse disposal operation will have no impact on these wells.

(2) Identify the extent to which the proposed underground mining operations, including subsidence impacts, may proximately result in contamination, diminution or interruption of an underground or surface supply of water within the proposed permit area, shadow area, and adjacent areas which is used for domestic, agricultural, industrial or other legitimate use. If contamination, diminution or interruption may result, provide a description of alternative sources of water which could be developed to replace existing sources including information on water availability and suitability of alternative water sources for existing pre-mining uses and approved post-mining land uses. Furthermore, address the protection of the rights of present users of surface and ground water.

The proposed activities do not include mining or subsidence issues. The No. 2 Dam impoundment has been in existence since the early 1970's and has not impacted quantity or quality in adjacent developed sources. This proposed adjacent permit application will not affect ground water supplies. Ground water flow dips southeast away from the developed water supplies, therefore the quality should not be affected. There is no evidence that the long-term presence of the slurry impoundment has changed, or will change, the direction of ground water flow. Two additional wells, W6-7A (not found) and W6-7 (found), were identified in the field, however neither were accessible for measurement or sampling and are not in use. Rights of present ground and surface water users will be protected by excepted disposal techniques. Should an alternate source be necessary, wells could be extended to Zone C which currently has known domestic uses. Zone C has an undisturbed recharge area.

The proposed refuse disposal area is not with 1000 feet of an Ohio Source Water Protection Area.

(3) Describe the measures to be taken during and after the proposed underground mining operations to minimize disturbance to the hydrologic balance, including quality and quantity, within the permit and adjacent areas, to avoid acid or toxic drainage, and to prevent material damage outside the permit area.

The proposed activities will not disturb the quality or quantity of the hydrologic balance. Acid or toxic drainage is captured and treated, if necessary, in existing sediment ponds, prior to release to the stream system. Material damage outside the permit area will not occur.

(4) Are any of the variances listed below being requested?

Yes ☒ No ☐ If "yes," identify the variances and submit the applicable request(s).

☒ Stream Buffer Zone Variance Request ☐ Small area drainage exemption

Applicant's Name: The Ohio Valley Coal Company Name of Mine: Powhatan No. 6

Address: 56854 Pleasant Ridge Road, Alledonia, Ohio 43902

Phone: 740-926-1351

John F. Husted, Chief
Ohio Department of Natural Resources
Division of Mineral Resources Management
2045 Morse Road, Building H-3
Columbus, Ohio 43229-6693

RE: Request for Stream Buffer Zone Variance

Dear Mr. Husted:

We are requesting permission to affect land within the buffer zone of streams "C", "E", "F", "H", "I", and "G" that are proposed to be affected by refuse disposal when mining and reclaiming the proposed permit area, located in Section(s) 29, 30, 35, and 36 of Washington Township, Belmont County.

The applicant has given special consideration regarding the proposed activities to minimize the impact that mining has on each stream and buffer zone. The applicant has determined that the proposed activities would allow mining and reclamation of the proposed permit area while minimizing the impact to each stream.

Therefore, it is our belief that the proposed affectment within these buffer zones will not cause or contribute to the violation of applicable state or federal water quality standards, and will not adversely affect the water quantity and quality or other environmental resources of the stream and request acceptance of the submitted Stream Buffer Zone Variance Request(s).

Sincerely,

FOR DIVISION USE ONLY

This request for stream buffer zone variance is:

☒ Approved ☐ Disapproved

John F. Husted, Chief
Division of Mineral Resources Management

05/08
DNR-744-xxxx

TOVCC 23436

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "C"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "C" is generally fair. Acceptable levels of manganese, sulfates and iron are indicated by the six monthly samples at these locations. In six months sampling, average flows in stream "C" (U6-17) range from 0.02 cfs to 0.002 cfs.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing conditions in Stream "C" consists of a substrate of sand and bedrock of sandstone and shale origin. Silt cover is moderate with moderate embeddedness. Instream cover is generally sparse and consists of shallows and boulders. Channel morphology exhibits low sinuosity, poor development, no channelization, and high stability. Riparian width is none, with a forested floodplain and no bank erosion. Pool/glide and riffle/run quality have a maximum depth of less than 0.2 meters. Pool width is more than riffle width with slow velocity. Riffle/run substrate is stable with low embeddedness.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "C" has been previously affected downstream by coal refuse disposal.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable for this project.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   No wetlands exist within the buffer zone of Stream "C".

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "C" located within Permit D-0360 consists of raising the water elevation within the existing coal refuse disposal area. All topsoil will be removed within the area of the buffer zone of this stream. The stream channel will be disturbed and eliminated in its entirety. The remaining portion, additional uppermost 53 feet of this stream, will be eliminated by raising the slurry to a maximum elevation of 1193. (Original linear feet = 346' - 293' impacted to date = 53' remaining).

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

The slurry impoundment will be capped upon reaching its maximum storage capacity. See Engineers Report.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment control between affected areas and ponds during pond construction, stream diversion and/or relocation*).

   Mitigation of the environmental impacts of stream loss will occur off-site. See Conceptual Compensatory Mitigation Plan labeled as an Addendum to Part 3, Item E(4).

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are applicable for this project.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   No stream reconstructions or relocations are applicable for this project.

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation in the buffer zone area described herein is not applicable due to the circumstances of the proposed adjacent area.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "E"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "E" is generally fair. Acceptable levels of all parameters are indicated by the six monthly samples at this location. In six months sampling, average flows in Stream "E" (U6-15) range from 0.09 cfs to 0.008 cfs.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing conditions in Stream "E" consists of a substrate of sand and bedrock of sandstone and shale origin. Silt cover is moderate with moderate embeddedness. Instream cover is generally sparse and consists of shallows and boulders. Channel morphology exhibits low sinuosity, poor development, no channelization, and high stability. Riparian width is none, with a Forested flood plain and no bank erosion. Pool/glide and riffle/run quality have a maximum depth of less than 0.2 meters. Pool width is more than riffle width with slow velocity. Riffle/run substrate is stable with low embeddedness.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "E" has been previously affected downstream by coal refuse disposal.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable for this project.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   No wetlands exist within the buffer zone of Stream "E".

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "E" located within the proposed adjacent area consists of raising the water elevation within the existing coal refuse disposal area. All topsoil will be removed within the area of the buffer zone of this stream. The stream channel will be disturbed and eliminated in its entirety. The remaining portion, additional uppermost 198 feet of this stream, will be eliminated by raising the slurry to a maximum elevation of 1193. (Original linear feet = 452' - 254' impacted to date = 198' remaining).

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

   The slurry impoundment will be capped. See Engineer's report.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment*

control between affected areas and ponds during pond construction, stream diversion and/or relocation).

Mitigation of the environmental impacts of stream loss will occur off-site. See Conceptual Compensatory Mitigation Plan labeled as an Addendum to Part 3, Item E(4).

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are applicable for this project.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   No stream reconstructions or relocations are applicable for this project.

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation in the buffer zone area described herein is not applicable due to the circumstances of the proposed adjacent area.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "F"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "F" is generally fair. Acceptable levels of all parameters are indicated by the six monthly samples at this location. In six months sampling, average flows in Stream "F" (U6-7) range from 0.03 cfs to 0.0003 cfs.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing conditions in Stream "F" consists of a substrate of sand and bedrock of sandstone and shale origin. Silt cover is moderate with moderate embeddedness. Instream cover is generally sparse and consists of shallows and boulders. Channel morphology exhibits low sinuosity, poor development, no channelization, and high stability. Riparian width is none, with a flood plain of forested pasture and no bank erosion. Pool/glide and riffle/run quality have a maximum depth of less than 0.2 meters. Pool width is more than riffle width with slow velocity. Riffle/run substrate is stable with low embeddedness.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "F" has been previously affected downstream by coal refuse disposal.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable for this project.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   Wetland B (0.081 acres) will be mitigated within the buffer zone of the off-site mitigative stream. See attached 404 Permit and Conceptual Compensatory Mitigation Plan to occur off-site.

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "F" located within the proposed adjacent area consists of raising the water elevation within the existing coal refuse disposal area. All topsoil will be removed within the area of the buffer zone of this stream. The stream channel will be disturbed and eliminated in its entirety. The remaining portion, additional uppermost 343 feet of this stream, will be eliminated by raising the slurry to a maximum elevation of 1193. (Original linear feet = 703' - 360' impacted to date = 343' remaining).

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

   The slurry impoundment will be capped upon reaching its maximum storage capacity. See Engineer's Report.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment control between affected areas and ponds during pond construction, stream diversion and/or relocation*).

   Mitigation of the environmental impacts of stream loss will occur off-site. See Conceptual Compensatory Mitigation Plan labeled as an Addendum to Part 3, Item E(4).

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are applicable for this project.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   No stream reconstructions or relocations are applicable for this project.

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation in the buffer zone area described herein is not applicable due to the circumstances of the proposed adjacent area.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "G"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "G" is most likely to be comparable to water qualities shown in undeveloped springs in close proximity, such as S14-60, S14-61, and S14-62. These spings show fairly good water quality, with slightly elevated specific conductance, however, all other parameters well within effluent limitations. Total suspended solids is slightly above effluent limitations, but this is due to the inability to collect a "clean" sample during low flow conditions.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing environmental conditions in Stream "G" were not evaluated due to its location outside of the permit area.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "G" has not been previously affected by mining, however, the stream channel receives runoff from Co. Rd. 86 during rainfall events.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable in this instance, the stream channel will not be affected.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   No wetlands exist within the buffer zone of Stream "G".

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "G" located within the proposed adjacent area consists of the construction of Pond "G", for drainage control from the upper soil embankment above the existing coal refuse disposal area. All topsoil will be removed within the southernmost area of the buffer zone of this stream. The stream channel will not be disturbed.

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

   Construction of Pond "G" and its associated embankment will take approximately one week. Pond "G" will remain for the life of the associated coal refuse disposal site, possibly six to eight years.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment*

control between affected areas and ponds during pond construction, stream diversion and/or relocation).

Silt fencing, hay bales, and possibly sumps will be used during pond construction to trap sediment. When construction on the pond is complete, all affected areas will be revegated during the first growing season.

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are necessary, the Stream "G" channel will not be affected.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   Environmental resources will not be impacted by the proposed activities within the buffer zone of Stream "G".

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation within the affected area of the Stream "G" buffer zone will occur during reclamation of the entire refuse disposal area, when Pond "G" is no longer necessary for drainage control. The following species and amounts of vegetation will be planted as described below, a minimum of two and ½ times the channel bottom width, or 50 feet on each side, whichever is greater, where disturbance within the buffer zone has occurred.

Species	Amount/Rate (lbs./Ac.)
Grasses and Legumes	
Perennial Ryegrass	5 lbs./Ac.
Red Top	3 lbs./Ac.
Birdsfoot Trefoil	5 lbs./Ac.
Appalow Lespedeza	15 lbs./Ac.

Woody species plantings will be in rows spaced four feet apart, with staggered 8 feet spacings between seedlings/cuttings. No more than 25% of any individual species will be included in the planting mixture.

White and Black Willow, Sycamore, Shagbark Hickory

Trees and shrubs will be planted by hand or machine as described above. Areas planted with riparian vegetation will not be cut or mowed in order to encourage volunteer vegetation growth. Species of trees, shrubs, grasses and legumes that appear naturally will not be removed, but will remain in order to enhance the wildlife environment along the streams.

Areas planted with riparian vegetation will not be cut or mowed in order to encourage the development of volunteer vegetation. Species of trees, shrubs, grasses and legumes which appear naturally will not be removed, but will remain in order to enhance the wildlife environment along the streams.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "H"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "H" is generally fair, as shown by water quality at its source, S15-02. Acceptable levels of all parameters are indicated by the sample analysis. The flow rate measured <1 gpm.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing conditions in Stream "H" consists of a substrate of sand and bedrock of sandstone and shale origin. Silt cover is moderate with moderate embeddedness. Instream cover is generally sparse and consists of shallows and boulders. Channel morphology exhibits low sinuosity, poor development, no channelization, and high stability. Riparian width is none, with a flood plain of forested pasture and no bank erosion. Pool/glide and riffle/run quality have a maximum depth of less than 0.2 meters. Pool width is more than riffle width with slow velocity. Riffle/run substrate is stable with low embeddedness.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "H" has been previously affected downstream by coal refuse disposal.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable for this project.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   No wetlands exist within the buffer zone of Stream "H".

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "H" located within the proposed adjacent area consists of raising the water elevation within the existing coal refuse disposal area. All topsoil will be removed within the area of the buffer zone of this stream. The stream channel will be disturbed and eliminated in its entirety. The remaining portion, additional uppermost 384 feet of this stream, will be eliminated by raising the slurry to a maximum elevation of 1193. (Original linear feet = 654' - 270' impacted to date = 384' remaining).

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

The slurry impoundment will be capped upon reaching its maximum storage capacity. See Engineer's report.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment control between affected areas and ponds during pond construction, stream diversion and/or relocation*).

   Mitigation of the environmental impacts of stream loss will occur off-site. See Conceptual Compensatory Mitigation Plan labeled as an Addendum to Part 3, Item E(4).

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are applicable for this project.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   No stream reconstructions or relocations are applicable for this project.

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation in the buffer zone area described herein is not applicable due to the circumstances of the proposed adjacent area.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

STREAM BUFFER ZONE VARIANCE REQUEST

Applicant's Name The Ohio Valley Coal Company

Name of Mine: Powhatan No. 6 Mine, No. 2 Slurry Impoundment

Stream Identification: "I"

Type: ☒ Intermittent ☐ Perennial

ENVIRONMENTAL CONDITIONS:

1. Provide a description of the stream's pre-mining water quality/quantity.

   Water quality in Stream "I" is generally fair, as shown by water quality at its source, S15-01. All parameters were within effluent limitations. the flow rate measured less than 1 gpm.

2. Provide a description of the existing environmental conditions, including riparian vegetation and physical habitat conditions. (*Habitat conditions such as headwater streams, meanders, pools, unique habitat/vegetation must be described even if stream channel is not to be affected.)*

   Existing conditions in Stream "I" consists of a substrate of sand and bedrock of sandstone and shale origin. Silt cover is moderate with moderate embeddedness. Instream cover is generally sparse and consists of shallows and boulders. Channel morphology exhibits low sinuosity, poor development, no channelization, and high stability. Riparian width is none, with a flood plain of forested pasture and no bank erosion. Pool/glide and riffle/run quality have a maximum depth of less than 0.2 meters. Pool width is more than riffle width with slow velocity. Riffle/run substrate is stable with low embeddedness.

3. Describe factors influencing existing stream conditions, such as previous mining, commercial or agricultural development, recent logging activity, etc.

   Stream "I" has been previously affected downstream by coal refuse disposal.

4. Identify measures to protect, restore and/or reclaim water and other environmental resources. (*Include sequencing of restoration activities, engineering designs/plans, erosion control measures and restoration of habitat qualities.*)

   No stream reconstructions or relocations are applicable for this project.

5. Has a 401/404 permit application been submitted? ☒ Yes ☐ No If "no," please provide an explanation of why a permit is not required pursuant to the Clean Water Act, Sections 401/404.

6. If wetlands exist within the buffer zone, provide a description of mitigation of the wetland area.

   No wetlands exist within the buffer zone of Stream "I".

BUFFER ZONE DISTURBANCE JUSTIFICATION

1. Briefly describe the reasons planned activities in each buffer zone are needed.

   The existing #2 Dam refuse disposal area is nearly filled to currently approved capacity. Additional slurry refuse disposal area is necessary while permitting of a new area for this purpose is completed and approved by the appropriate regulatory agencies.

2. What other less intrusive measures were considered prior to requesting a variance? Include options that were considered to prevent, minimize or mitigate adverse impacts to the buffer zone.

   Other disposal sites were considered on areas owned by The Ohio Valley Coal Company remote from the existing disposal area. These sites were eliminated from consideration for several reasons. They would require haulage of refuse along township or county roads. This would create the potential for pollution of streams away from the permit as well as refuse dropping from the haulage vehicles onto the public roads. The construction of the disposal area would require an entirely new and separate system of pollution controls whereas the main pollution controls for the proposed site are in existence.

BUFFER ZONE ACTIVITIES

1. Describe each proposed activity that will impact the buffer zone, including specific locations (using linear stream measurements). Identify any areas of the stream channel or buffer zone that will be avoided.

   Activities to be conducted within the 100 foot buffer zone of Stream "I" located within the proposed adjacent area consists of raising the water elevation within the existing coal refuse disposal area. All topsoil will be removed within the area of the buffer zone of this stream. The stream channel will be disturbed and eliminated in its entirety. The remaining portion, additional uppermost 178 feet of this stream, will be eliminated by raising the slurry to a maximum elevation of 1193. (Original linear feet = 481' - 303' impacted to date = 178' remaining).

2. Describe the duration (in relative timing and/or sequencing) that each activity will be occurring within the buffer zone.

The slurry impoundment will be capped upon reaching maximum design capacity. See Engineer's report.

3. Describe mitigation and/or special considerations that will minimize impact on the buffer zone while each activity is being conducted (*i.e., sumps, silt fencing, sediment control between affected areas and ponds during pond construction, stream diversion and/or relocation*).

   Mitigation of the environmental impacts of stream loss will occur off-site. See Conceptual Compensatory Mitigation Plan labeled as an Addendum to Part 3, Item E(4).

STREAM RECONSTRUCTION, DIVERSION OR RELOCATION PLANS

1. Describe in detail the measures to be taken to address issues of channel stability, flooding and sediment control, including a detailed description of sequencing and/or general timing of events.

   No stream reconstructions or relocations are applicable for this project.

2. Identify specific engineering plan elements for restoration of environmental resources. Also identify important design elements such as reconstruction of pools and riffles, rock sizes, etc.

   No stream reconstructions or relocations are applicable for this project.

REVEGETATION PLANS

1. Describe plans to revegetate affected buffer zone (*generally, revegetation should be with same type (herbaceous/woody) of plants, utilizing appropriate species*).

   Revegetation in the buffer zone area described herein is not applicable due to the circumstances of the proposed adjacent area.

J. TRANSPORTATION FACILITIES

(1) Are any roads to be constructed, used or maintained within this application area?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

(2) Are there any conveyor or rail systems to be constructed, used or maintained within this application area?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

K. DISPOSAL OF EXCESS SPOIL

Will the proposed mining operations result in the placing of spoil in excess spoil disposal sites?

Yes ☒ No ☐ If "yes," provide the required description and engineering designs.

N/A

DEC 2 2 2008

ADDENDUM TO PART 3, ITEM E(4)
THE OHIO VALLEY COAL COMPANY

Conceptual Compensatory Mitigation Plan
No. 2 Slurry Impoundment Expansion
WASHINGTON TOWNSHIP
BELMONT COUNTY, OHIO

PREPARED FOR:

Ohio Valley Coal Company
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

PREPARED BY:

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July 2009

Stantec

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TOVCC 23459

INTRODUCTION

This conceptual compensatory mitigation plan for the proposed expansion of the No. 2 slurry impoundment addresses federal Clean Water Act Section 404, Section 401 and Ohio's antidegradation requirements. The elevation of the dam of the existing No.2 Impoundment will be raised to an elevation of 1200 feet, inundating headwaters of existing drainageways and wetlands with coal slurry. The final mitigation plan will contain detailed baseline biological and morphological information and details of the work plan. The existing *Limited Resource Water use* of Perkins Run, its tributary drainageways, and affected wetlands will be maintained during construction and the lowering of water quality will be compensated through this proposed compensatory mitigation plan. Compensatory mitigation is required for the proposed impacts to streams and wetlands with the goals of replacing the surface acreage of wetlands, streams and drainageways, and the affected stream and wetlands functions and values.

Existing stream functions were assessed by using information from the qualitative habitat evaluation index (QHEI) as well as the report on surface waters (R.D. Zande 2006). Stream functions are limited by hydrologic regime and watershed size. Open pasture, the only identified anthropogenic factor, may have caused minimal nutrient enrichment in portions of the Perkins Run watershed. Minimal to moderate stream functions include wildlife and aquatic species habitats, peak storm flow attenuation, groundwater recharge, and nutrient cycling. Limited by private ownership, minimal to moderate values provided by the affected streams are recreational (e.g., watching wetland bird species, waterfowl hunting), aesthetic, and flood reduction. Appendix A, Table 1 describes qualitative functions and values of existing wetlands and streams and compares them with proposed mitigation measures.

BASELINE CONDITIONS

R.D. Zande (2006) conducted an investigation for jurisdictional waters within the proposed project site (Table 1). These investigations identified a total of 0.189 acres of wetland proposed for impacts by the No. 2 slurry impoundment. Additionally, the proposed construction of the No. 2 slurry impoundment will impact 2,954 linear feet of unnamed, undesignated intermittent and ephemeral drainageways to Perkins Run.

TOVCC 23460

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Table 1. Delineated Waters on the No. 2 Slurry Impoundment Expansion Area, Belmont County, Ohio.

Delineated Water	Classification of Water	Total Linear Footage	Total Acreage	Watershed Area (acres)	Isolated Yes	Isolated No
Wetland A	Palustrine Emergent	-	0.045	-	-	√
Wetland B	Palustrine Emergent	-	0.081	-	-	√
Wetland C	Palustrine Emergent	-	0.059	-	-	√
Stream C	Intermittent	201	0.005	7.39	-	√
Stream E	Intermittent	361	0.03	9.58	-	√
Stream E-trib	Ephemeral	116	0.007	2.27	-	√
Stream EE	Ephemeral	180	0.006	3.71	-	√
Stream E-1	Ephemeral	156	0.005	5.99	-	√
Stream E-2	Ephemeral	91	0.008	5.33	-	√
Stream E-6	Ephemeral	124	0.01	4.48	-	√
Stream F	Intermittent	468	0.05	14.95	-	√
Stream F-1	Ephemeral	290	0.02	5.01	-	√
Stream H	Intermittent	491	0.02	12.47	-	√
Stream H-1	Ephemeral	112	0.003	2.81	-	√
Stream I	Intermittent	364	0.04	9.37	-	√
EWI 1	Open Water	-	0.09	-	-	√
EWI 2	Open Water	-	0.10	-	-	√

Total Ephemeral Stream Channel:	1,069 linear feet (0.061 acres)
Total Intermittent Stream Channel:	1,885 linear feet (0.15 acres)
Total Perennial Stream Channel:	0 linear feet (0 acres)
Total Wetland Area:	0.189 acres
Total Watershed Area:	335 acres

Impacted Wetlands

Wetlands impacted by the proposed No.2 slurry impoundment expansion include two Category 1 wetlands totaling 0.13 acres (R.D. Zande 2006) and an additional 0.059 wetland acres totaling 0.189 acres. These wetlands are palustrine emergent wetlands. The largest single wetland area was 0.08 acres (Wetland B) and was a palustrine emergent wetland. Because of their small size, the wetlands proposed to be affected provide minimal wetlands functions and values (Appendix A, Table 1). These wetlands provide minimal functions in wildlife and aquatic species habitat (e.g., amphibian and aquatic invertebrate breeding habitat), peak storm flow attenuation, groundwater recharge (during long-term storage), water quality, and nutrient cycling (e.g., breakdown of wetland plants and storage of nutrient rich sediments). Minimal values provided by these wetlands are recreational (e.g., wetland bird watching, waterfowl hunting), aesthetic (e.g., habitat diversity, flowering plants), and reduced flooding.

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WETLAND A

Wetland A is located in the northeastern portion of the study area. This palustrine emergent fringe wetland is approximately 0.045 acre in size and is associated with EWI-1. Soil colors were 10YR 4/1. Wetland hydrology indicators include inundation and saturation in the upper 12 inches. Hydric soil indicators include gleyed or low-chroma soil colors. Vegetative species within the wetland include narrow-leaf cattail (*Typha angustifolia*, OBL), soft rush (*Juncus effusus*, FACW+), and common boneset (*Eupatorium perfoliatum*, FACW+).

WETLAND B

Wetland B is located in the northern portion of the study area. This palustrine emergent fringe wetland is approximately 0.081 acre in size and is associated with EWI-2. Soil colors were 10YR 4/1. Wetland hydrology indicators include inundation and saturation in the upper 12 inches. Hydric soil indicators include gleyed or low-chroma soil colors. Vegetative species within the wetland include narrow-leaf cattail, and soft rush.

Impacted Drainageways

The proposed expansion of the No.2 slurry impoundment will impact 2,954 linear feet of unnamed, undesignated intermittent and ephemeral drainageways to Perkins Run. All affected drainages in the project area are within the watershed of Captina Creek. Limitations on the aquatic life uses were determined to be natural (i.e., inadequate flow, lack of habitat diversity, and barriers (waterfalls) to upstream migration, and shallow pool and riffle depths). Therefore, observations support the Limited Resource Water use as defined in OAC 3745-1-07(B)(1)(g) as the appropriate designation for the drainageways to Perkins Run that would be affected by the No.2 impoundment.

All stream segments on the proposed site are intermittent (1,885 linear feet), or ephemeral (1,069 linear feet). Descriptions of individual streams are provided below.

STREAM C

Stream C is located in the north central portion of the study area, and drains into the No. 2 slurry impoundment. This stream is intermittent and the total length is 201 linear feet. Substrates include silt and sand. Instream habitat for aquatic invertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes sugar maple (*Acer saccharum*), slippery elm (*Ulmus rubra*) and red oak (*Quercus rubra*). The riparian vegetation has recently been impacted by timber harvesting. No macroinvertebrates were observed within this stream.

STREAM EE

Stream EE is located in the southwestern portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 180 linear feet. Substrates include cobble and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes red oak and multiflora rose (*Rosa multiflora*). Macroinvertebrates observed in this stream include leeches (Hirudinea). An adult northern dusky salamander (*Desmognathus fuscus*) was observed in this stream.

STREAM E-1

Stream E-1 is located in the southwestern portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 156 linear feet. Substrates include gravel and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes sugar maple, red oak, multiflora rose, and black raspberry (*Rubus occidentalis*). No macroinvertebrates were observed in this stream.

STREAM E-2

Stream E-2 is located in the southwestern portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 91 linear feet. Substrates include detritus and gravel. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes American beech (*Fagus grandifolia*) and red oak. This stream has been culverted below an access road just before it joins the no. 2 slurry impoundment. Macroinvertebrates observed in this stream include mayflies (*Centroptilum* sp), stoneflies (Plecoptera), leeches, and black flies (Simuliidae).

STREAM E-6

Stream E-6 is located in the eastern portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 124 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation included pasture dominated by fescue. No macroinvertebrates were observed in this stream.

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STREAM F

Stream F is located in the north central portion of the study area and drains into the No. 2 slurry impoundment. This stream is intermittent and the total length is 468 linear feet. Substrates include silt, cobble, and detritus. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Timber harvesting has recently impacted the lower portion of this stream and the immediate riparian area is exposed soil. Riparian vegetation of the upper portion of this stream includes sugar maple, multiflora rose, black raspberry, and red oak. Macroinvertebrates observed in this stream include beetles (Gyrinidae), leeches, and dextral snails (Gastropoda). A green frog (*Rana clamitans melanota*) was observed in this stream.

STREAM F-1

Stream F-1 is located in the north central portion of the study area and drains into the No. 2 slurry impoundment. This stream is ephemeral and the total length is 290 linear feet. Substrates include gravel and sand and silt. Instream habitat for aquatic macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation of this stream is limited to honeysuckle and fescue. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM H

Stream H is located in the northwestern portion of the study area and drains into the No. 2 slurry impoundment. This stream is intermittent and the total length is 491 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited moderate flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation of this stream includes black walnut (*Juglans nigra*), multiflora rose, honeysuckle and upland grasses. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM H-1

Stream H-1 is located in the northwestern portion of the study area and drains into Stream H. This stream is ephemeral and the total length is 112 linear feet. Substrates include sand and silt. Instream habitat for aquatic macroinvertebrates includes limited woody debris. This stream exhibited limited flow during the time of the survey. Cattle have access to this stream resulting in increased siltation, bank destabilization and nutrient enrichment. Riparian vegetation includes black walnut, honeysuckle and

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multiflora rose. No macroinvertebrates were observed in this stream at the time of the survey.

STREAM I

Stream I is located in the northwestern portion of the study area and drains to the No. 2 slurry impoundment. This stream is intermittent and the total length is 364 linear feet. Substrates include gravel and sand. Instream habitat for macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Riparian vegetation includes multiflora rose, American beech, and sugar maple. No macroinvertebrates were observed in this stream at the time of the survey. An adult male northern dusky salamander was observed in this stream.

STREAM E

Stream E is located in the northwestern portion of the study area and drains to the No. 2 slurry impoundment. This stream is intermittent and the total length is 361 linear feet. Substrates include bedrock, cobble, and gravel. Instream habitat for macroinvertebrates includes woody debris. This stream exhibited limited flow during the time of the survey. Timber harvesting has recently impacted the lower portion of this stream and the immediate riparian area is woody debris and exposed soil. Riparian vegetation of the lower portion includes American beech, red oak, and sugar maple. Macroinvertebrates observed in the stream include beetle larvae (Gyrinidae), black flies, and caddisflies (Trichoptera). One adult male southern 2-lined salamander (*Eurycea cirrigera*) was observed in this stream.

STREAM E-TRIB

Stream E-trib is located in the northwestern portion of the study area and drains to Stream E. This stream is ephemeral and the total length is 116 linear feet. Substrates include cobble, gravel and detritus. Instream habitat for macroinvertebrates includes woody debris and cobble. This stream exhibited limited flow at the time of the survey. Riparian vegetation includes American beech and sugar maple. No macroinvertebrates were observed in this stream at the time of the survey.

Impoundment/Pond Habitat

Two impoundments (0.19 acre) are present on the study area. These impoundments are minimally maintained livestock ponds that have developed fringe wetlands described above.

Existing Conditions in Louise Run

Louise Run is an undesignated, unmonitored, perennial stream not identified in the Ohio Water Quality Standards. Preliminary investigation of Louise Run by Stantec Consulting Services Inc. indicates that it could attain more extensive, diverse, and

higher quality habitat for fish and aquatic macroinvertebrates than the existing tributary drainageways to Perkins Run. Nevertheless, Louise Run has been impacted and provides an opportunity for mitigation through physical and biological enhancement (see photographs in Appendix B).

The reach of Louise Run proposed for mitigation (Figure 1) was divided into two segments: the buffalo enclosure and the cattle enclosure. Existing conditions in the two segments were evaluated to determine the Rosgen (1996) stream classification, existing physical habitat, existing stream channel stability, basic water quality parameters, and the existing biological community.

The buffalo enclosure segment was determined to be a Rosgen Type A6 channel (Table 2). This segment is 950 linear feet and is within a fenced area where buffalo (2-4) are currently pastured. The buffalo have free access to the stream. The cattle enclosure area was determined to be a Rosgen Type A4 channel. The segment is 950 linear feet and is within a fenced cow pasture (approximately 40 head) where the cattle have free access to the stream.

The buffalo enclosure segment of Louise Run exhibits multiple impacts that limit its current function.
1) Riparian vegetation: The existing riparian vegetation is composed primarily of grasses and forbs that provide no shading or bank stability.
2) Livestock access: Buffalo are currently pastured in this reach and they have unlimited access to the stream. Some bank erosion was noted due to buffalo activity.
3) Bank erosion: Significant bank erosion was noted that was likely due to lack of woody riparian vegetation.
4) Channel incision: The channel in some areas has become deeply incised because of a lack of grade controlling substrates and or woody riparian vegetation whose roots would maintain vertical stability. Exposed water line crossings indicate the channel profile has been lowered by as much as 3-4 feet in places.
5) Biological communities: While caddis flies were common, pollution tolerant black fly larvae dominated the aquatic macroinvertebrate community. Physid snails, another pollution tolerant invertebrate were also common.

The cattle enclosure segment of Louise Run also exhibits multiple impacts that limit its current function.
1) Riparian vegetation: The existing riparian vegetation is composed primarily of grasses and forbs that provide no shading or bank stability.
2) Livestock access: Cattle are currently pastured in this reach and they have unlimited access to the stream. Severe bank erosion and water quality impacts were noted due to cattle activity.
3) Bank erosion: Severe bank erosion was noted from cattle activity.

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4) Channel incision: Some channel incision was noted because of a lack of grade controlling substrates and or woody riparian vegetation whose roots would maintain vertical stability.
5) Biological communities: While caddis flies and stone flies were common, pollution tolerant black fly larvae dominated the aquatic macroinvertebrate community. Damselflies and riffle beetles were also present indicating more diverse instream habitats in this segment and potential for a higher quality invertebrate community.

The biological communities at the proposed Louise Run Stream Mitigation Area will be evaluated to more fully demonstrate the ability of the resources on the mitigation site to provide compensation for affected stream habitats, functions and values on the project site. These data will be included in the final compensatory mitigation plan.

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Table 2. Parameters evaluated for the proposed stream mitigation on Louise Run, Belmont County, Ohio.

Parameter	Buffalo Enclosure Segment	Cattle Enclosure Segment
Length (linear ft)	950	950
Rosgen Stream Classification Avg. Bankfull Width (ft) Avg. Bankfull Depth (ft) Avg. Floodprone Area Width (ft)	A6 9.0 2.7 12.0	A4 9.6 1.6 25.0
pH	10.09	8.87
Temperature	22.7	24.2
Specific Conductivity	810	890
Dissolved Oxygen	7.13	7.35
Stability	Down cutting (incised), bank erosion[1,2]	Bank erosion[1]
Biological Community	Blackflies dominant, but also common were stoneflies, caddisflies, snails, midges	Blackflies dominant, but also common were caddisflies, stoneflies, mosquitoes, damselflies, fish
Riparian Condition	Pasture grasses, few trees	Pasture grasses, few trees, lower segment with more trees and shrubs

1 bank erosion induced by livestock disturbance
2 bank erosion from hydrologic stress

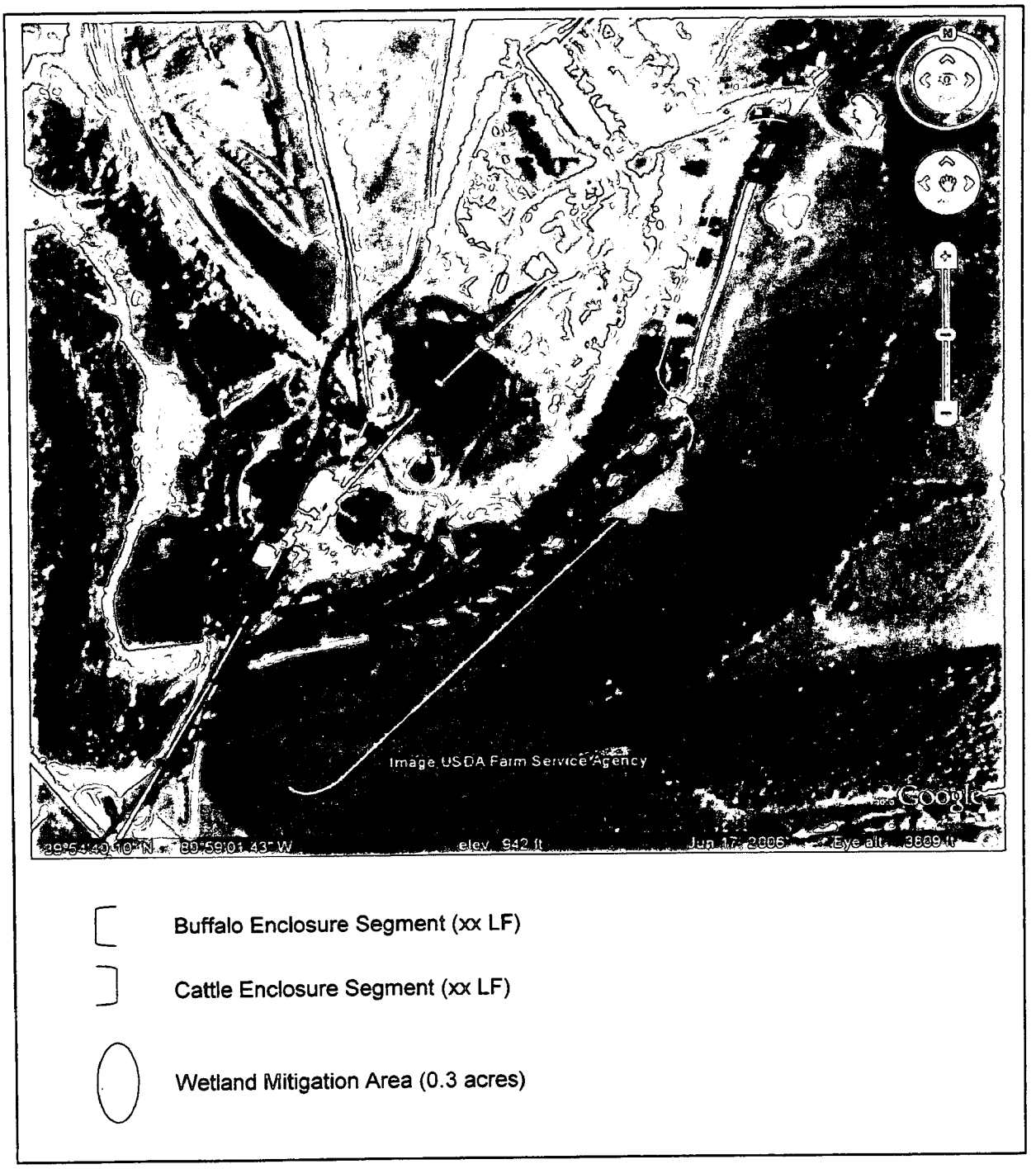

Figure 1. Proposed Louise Run Stream and Wetland Mitigation Site.

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MITIGATION GOALS AND OBJECTIVES

FUNCTIONS AND VALUES AT IMPACT SITE

The goal of mitigation for impacts to drainageways and wetlands at the project site is replacement of affected functions and values by creation of emergent (in-kind) wetlands and the enhancement and protection of stream habitat within the Captina Creek watershed. These functions are described in Appendix A, Table 1. Enhancement and protection of riparian and creation of wetland habitats is expected to function to increase wildlife habitat, increase abundance and biodiversity of organisms specific to riparian zones and wetlands, and improve the filtering role of riparian and wetland vegetation within the watershed area. The receiving water for all of the proposed impacted waters is the existing No.2 Coal Slurry Impoundment. Because enhanced functions are expected at the stream mitigation site, a 0.64:1 linear footage ratio is proposed for stream impacts and a 1.5:1 acreage ratio is proposed for wetland impacts.

FUNCTIONS AND VALUES AT MITIGATION SITE

The proposed Louise Run mitigation site is a perennial stream with a watershed of approximately 0.5 square miles. In the lower segment, the stream supports a limited fish community. Very small areas of wetlands are also present in the lower segment floodplain. While a relatively diverse aquatic macroinvertebrate community is present, the community is reflective of impacts from contamination of the water by livestock (i.e., dominated by pollution tolerant organisms rather than being a balanced and integrated community). In addition, physical habitats have been impacted by the lack of woody riparian vegetation and soil disturbance from livestock. The objectives of the proposed mitigation are to reestablish a woody riparian zone, create a functional floodplain appropriate for the stream type, increase floodplain wetlands functions, reestablish physical stability, and reestablish integrated and balanced headwater macroinvertebrate and fish communities.

MITIGATION SITE SELECTION AND JUSTIFICATION

On-site mitigation for all affected resources is practicable. Wetlands creation is proposed within the watershed at the Louise Run mitigation site (within the Captina Creek watershed) because it was determined that wetlands creation at that site was the best alternative to replace wetlands area, functions, and values. Increasing wetlands quality and quantity at the Louise Run mitigation site will compensate for wetlands functions and values affected by the proposed impoundment expansion.

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The most proximal potential mitigation area to Perkins Run is the adjacent valley to the east: Louise Run (Figure 1). This area was considered as a mitigation area because it contains enhancement opportunities and has identifiable threats.

Louise Run was considered and selected as the primary area to conduct compensatory mitigation (Figure 1). This stream is presently under control of The Ohio Valley Coal Company and comprises a drainage area of approximately 0.5 square miles, providing sufficient potential stream length to meet compensatory mitigation needs. Existing and potential threats to Louise Run include grazing and illegal dumping of household refuse.

MITIGATION WORK PLAN

This mitigation work plan consists of six mitigation components: wetlands creation, stream bank stabilization, stream channel stabilization and instream habitat enhancement, stream riparian enhancement, livestock exclusion, and stream preservation.

1) A 0.3 acre wetland will be constructed (Figure 1) to compensate for all proposed wetlands impacts prior to wetlands impacts. This larger wetland is likely to provide aquatic functions superior to the small existing wetlands (Appendix A, Table 1). No temporal wetlands impacts will occur. The seed bed salvaged from the existing wetland areas will serve as the source for planting of the created wetlands. The soils will be transported and placed within the designed wetland areas in a moist condition so that the seed bed will be preserved. A 25 foot wide buffer strip will also be maintained or planted around the perimeter of the created wetland area. If buffer area planting is deemed necessary to maintain water quality, native vegetation shall be used.

2) Additional assessment of the sources of bank instability in will be performed in both segments and appropriate engineering measures will be developed so that the stream banks will be stabilized. Anticipated methods include rock, regrading side slopes and revegetating with woody and herbaceous vegetation, and bioengineering methods (e.g., live stakes).

3) The buffalo enclosure segment of Louise Run is presently downcutting into hardpan substrates. The stream channel will be stabilized by a combination of raising the channel profile and establishing grade controls. Because these activities will involve the placement of appropriate will result in instream habitat enhancement

4) Riparian areas will be enhanced by the planting of native trees and shrubs at a density of no less than 400 seedling stems per acre within the fenced area described below. Where woody native vegetation is already established, the areas will not be disturbed. Some larger trees or shrubs may be used, if available, and in these areas the planting density may be appropriately reduced.

5) Livestock will be excluded from the stream segments by construction of a new fence. The fence will be a minimum of 50 feet from the stream except where otherwise constrained.

6) Mitigation stream segments and created wetlands (and buffer) will be protected in perpetuity via a conservation easement. It is anticipated that Belmont County Soil and Water will hold the easement.

The Ohio Valley Coal Company will provide a notarized letter to the Corps of Engineers, Pittsburgh District signed by an officer of the company certifying that the mitigation plan described in this document will be undertaken, that the necessary follow-up monitoring will be conducted and that the deed restrictions will be recorded to encumber the property in the event it is ever sold or transferred. The deed restriction will be filed with the Corps of Engineers, Pittsburgh District within 60 days of the completion of the mitigation construction.

PERFORMANCE STANDARDS

Documentation that a wetlands area of at least 0.3 acres was created will be provided. The performance of the created wetland area (i.e., the replacement of existing wetlands functions and values) will be measured using the Ohio Rapid Assessment Method (ORAM v.5). Wetland mitigation goals will be considered to be met when, at the end of the 5 year monitoring period, the ORAM score is equal to or greater than 27 (the highest score of the impacted wetlands).

A drawing of the stream enhancements will be provided at the end of the first and third construction years. The performance of the relocated streams will be evaluated annually by using an appropriated habitat evaluation procedure (e.g., QHEI) and an assessment of the biological communities by the Rapid Bioassessment Protocol (RBP) (Barbour et al. 1999). Restored segmants will be considered successful if they exhibit improved habitat characteristics to the affected areas of Perkins Run and their previous condition. Stream protection measures will be considered successful when documentation is provided of the restrictions on the property deed and the physical demarcation of these waters and land occurs. Photographs from annual monitoring points will also document the condition of the mitigation site.

SITE PROTECTION AND MAINTENANCE

The Ohio Valley Coal Company will be responsible for site protection and maintenance. The proximity of the mitigation site to the active mine office is beneficial and will increase the likelihood of success. Protection and maintenance activities will be overseen by the easement holder, Belmont County Soil and Water.

MITIGATION MONITORING PLAN

Mitigation area monitoring will be conducted annually for a period of 5 years. Certified As-built Drawings will be prepared for the stream relocation and stream preservation areas. A Certified As-Built Drawing will also be prepared for the created wetland area. The drawing will show water level elevations, water areas and buffer zone areas. Actual vegetation present in the buffer zone will also be shown. These drawings will be submitted at the end of the first annual monitoring year and the fifth annual monitoring year.

Monitoring Data as defined by the Ohio EPA will be collected and reported in accordance with schedules set forth in the water quality permits The results will be reported annually to the Corps of Engineers, Pittsburgh District and the Ohio EPA.

The format for reporting will be by letter of transmittal to the Ohio EPA and to the Corps of Engineers, Pittsburgh District, with appropriate documentation. This documentation will include As-built Drawings (with the first transmittal only); habitat evaluations, photographs and commentary regarding findings of the field review.

ADAPTIVE MANAGEMENT PLAN

The Ohio Valley Coal Company will be the party responsible for implementing the adaptive management plan. It is anticipated that this mining operation will be active for at least 30 years. If surface rights are transferred at any time, then restrictions previously described will be incorporated into the transfer documents.

If the vegetated buffers in the stream or wetland mitigation areas deteriorate, a plan for revegetation will be coordinated with the Army Corps of Engineers and the Ohio EPA.

It is not anticipated that the proposed mitigation areas will not meet the desired performance standards; however, if this occurs, the conditions will be noted in the periodic observation notes and corrective actions will be coordinated with the Army Corps of Engineers and the Ohio EPA. Possible corrective actions include purchase of wetland mitigation credits at a wetlands mitigation bank, revegetation of constructed areas, additional monitoring, or additional off-site mitigation.

The Ohio Valley Coal Company will be responsible for maintenance of the mitigation areas for as long as they own the properties. If the properties are ever sold, then the continuance of the protection will be assured by incorporation of the following restriction into the deed or other instrument of transfer:

> The stream reaches and wetland area described on the attached plats are mitigation areas that were developed to meet requirements of the U.S. Army Corps of Engineers, Pittsburgh District (412-395-7155). They are to be

preserved in perpetuity. They are never to be disturbed, under any circumstances, unless and until the disturbance is authorized by that organization and the Ohio Environmental Protection Agency.

If invasive species such as reed canary grass, purple loosestrife or giant reed develop in the mitigation wetland area to a coverage exceeding 10% of the total mitigation area, corrective measures will be taken. These measures may include either spraying or physical removal or both depending upon the extent of the contamination and the season of discovery.

FINANCIAL ASSURANCES

The Ohio Valley Coal Company will be responsible for the providing and managing financial assurances necessary to undertake and complete the mitigation plan. Financial assurances will be through the performance bond required for the mining permit. A bond of $2,500/acre has been paid to ensure that all aspects of the mining permit have been addressed. These bonds are released in increments following approved completion of reclamation phases. Upon approved completion of backfilling and grading, 50% of the bond amount is released. When growth is established and approved, an additional 35% of the bond amount is released. The remaining 15% is held for 5 years from the date of seeding.

APPENDIX A

APPENDIX B

Appendix A. Table 1. Comparison of Qualitative Functions, Values, and Performance Levels[1] of Wetlands and Streams Affected by the Proposed Ohio Valley Coal Company No.2 Slurry Impoundment Expansion, Belmont County, Ohio and Proposed Mitigation Areas.

Wetlands/ Impoundments	Qualitative Function and Performance Level						Qualitative Value and Performance Level		
	Size (acres)	Habitat For Wetland Fauna And Flora	Floodwater Storage	Groundwater Recharge	Nutrient Cycling	Water Quality[2]	Reduced Flooding	Aesthetic[3]	Recreational[3]
A	0.045	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
B	0.081	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
C	0.059	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal

Proposed Mitigation Wetlands Functions and Values

Wetlands/ Impoundments	Qualitative Function and Performance Level						Qualitative Value and Performance Level		
	Size (acres)	Habitat For Wetland Fauna And Flora	Floodwater Storage	Groundwater Recharge	Nutrient Cycling	Water Quality[2]	Reduced Flooding	Aesthetic[3]	Recreational[3]
A	0.19	Moderate	Low	Low	Low	Moderate	Low	Moderate	Moderate

Existing Stream Functions and Values

Stream	Qualitative Function and Performance Level					Qualitative Value and Performance Level		
	Aquatic Life Habitat	Stormwater Attenuation	Groundwater Recharge	Wildlife Habitat	Nutrient Cycling	Reduced Flooding	Aesthetic[3]	Recreational[3]
All Drainageways to Perkins Run	Minimal to Moderate	Minimal	Minimal	Low	Low	Minimal	Minimal	Minimal

Proposed Mitigation Stream Functions and Values

Stream	Qualitative Function and Performance Level					Qualitative Value and Performance Level		
	Aquatic Life Habitat	Stormwater Attenuation	Groundwater Recharge	Wildlife Habitat	Nutrient Cycling	Reduced Flooding	Aesthetic[3]	Recreational[3]
Louise Run Buffalo Enclosure Segment	Moderate	Low	Minimal	Low	Minimal	Low	Minimal	Minimal
Louise Run Cattle Enclosure Segment	Moderate	Low	Minimal	Low	Minimal	Low	Minimal	Minimal

1 Functions and values not measured, but estimated by R.D. Zande and Associates, Inc. from ORAMS, QHEIs, and investigation of waters report (R.D. Zande 2006). Qualitative performance levels: none, minimal, low, moderate, high, very high.
2 Water quality functions include retention and removal of dissolved substances and accumulation of inorganic sediments.
3 Wetlands and streams are on private property and not accessible by the public. Mitigation areas would be accessible.

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Rationale for Stream and Wetland Functional Assessments (Appendix A, Table 1), Proposed Coarse Coal Refuse Area and No. 3 Slurry Impoundment, The Ohio Valley Coal Company, Belmont County, Ohio

FUNCTIONS

Existing Wetlands

Wetlands A, B and C were determined to be Category 1 wetlands. Category 1 wetlands are defined as "limited quality waters" (OAC 3745-1-05(12)). One palustrine unconsolidated bottom constructed pond is also considered limited quality waters.

OAC 3745-1-54(3)(C)

(1) Wetlands assigned to category 1.

(a) Wetlands assigned to category 1 support minimal wildlife habitat, and minimal hydrological and recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director. Wetlands assigned to category 1 do not provide critical habitat for threatened or endangered species or contain rare, threatened or endangered species.

(b) Wetlands assigned to category 1 may be typified by some or all of the following characteristics: hydrologic isolation, low species diversity, a predominance of nonnative species (greater than fifty per cent areal cover for vegetative species), no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions.

(c) Wetlands assigned to category 1 may include, but are not limited to, wetlands that are acidic ponds created or excavated on mined lands without a connection to other surface waters throughout the year and that have little or no vegetation and wetlands that are hydrologically isolated and comprised of vegetation that is dominated (greater than eighty per cent areal cover) by species including, but not limited to: Lythrum salicaria; Phalaris arundinacea; and Phragmites australis.

Habitat for wetland flora and fauna

This function was determined to be minimal for each of these wetlands because the wetland areas were very small, some wetlands contained invasive non-native plants, all lacked structural diversity and interspersion, did not provide unique substrates to support endangered, threatened, or rare species, and the wetlands had been and/or are subject to disturbance.

Floodwater storage and groundwater recharge

This function was determined to be minimal because the very small wetland areas have minimal storage capacity. A total of 0.189 acres of wetlands was identified in the project area. These wetlands would store an estimated maximum of 8,233 cubic feet of water. Likewise, the quantity of groundwater infiltration is minimal.

Nutrient cycling

Wetlands within the project area function in nutrient cycling primarily by decomposing plant residues, animal remains, and soil microorganisms, and by serving as repositories for nutrient

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rich sediment from erosion and flooding. The extent to which nutrient cycling functions are provided by these wetlands is primarily a function of wetland size and vegetative structure. Forested wetlands (none on site) are generally considered to have higher nutrient cycling functions than scrub-shrub (none on site) and emergent (wetlands A, B, C). Therefore, all wetlands were considered to provide minimal nutrient cycling functions.

Water quality

These wetlands were determined to have minimal water quality functions because their very small size limits their ability to process and filter contaminants. Water quality function is related to nutrient cycling which was also determined to minimally provided by the wetlands. The wetlands are shallow and retain water for a relatively short time. As there is a direct relationship between retention time and water quality, there is limited ability for wetland vegetation to sequester contaminants. Shorter retention times also result in reduced removal of dissolved solids.

Proposed Wetlands

Habitat for wetland flora and fauna

The proposed mitigation wetland was determined to provide low habitat for wetland flora and fauna because the wetland areas will be consolidated into a single larger wetland (0.3 acres), but will still be small. The mitigation wetland will provide more diversity in microclimate that will likely result in increased plant diversity. Increased plant diversity provides increased variety of host plants, food sources and nutrients, and structural diversity. All will contribute to wildlife utilization.

Floodwater storage and groundwater recharge

Floodwater storage and ground water recharge were rated low because the mitigation wetland area has a greater capacity than existing wetlands for both functions.

Nutrient cycling

Nutrient cycling was rate low because the mitigation wetland will have a greater capacity for nutrient processing. A more diverse plant community provides a greater diversity of physiological processes that breakdown and convert nutrients to biologically usable forms.

Water quality

The proposed mitigation wetland will provide greater surface area than the existing wetlands and is expected to provide moderate water quality functions related to longer surface water residence time and increased plant diversity (and physiological processes to sequester contaminants).

Existing Streams

Streams in the project area all represent headwaters to Perkins Run, the main drainageway from the project area. Perkins Run is a designated limited resource waters (OAC 3745-1-07(B)(1)(g)).

> "Limited resource water" - these are waters that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any other aquatic life habitat as determined by the biological criteria in table 7-15 of this rule. The use attainability analysis must demonstrate that the extant fauna is substantially degraded and that the potential for recovery of the fauna to the level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human-induced conditions. [emphasis added]

Aquatic life habitat

Perkins Run was determined to provide only poor aquatic life functions as much of it is the existing No. 2 impoundment. Tributaries to Perkins Run provide moderate to minimal aquatic life functions.

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Tributaries to Perkins Run are similar in their characteristics. However, all tributaries have limited drainage areas and are relatively high to very high gradient. Gradient affects the ability of these channels to support aquatic life because significant pools and sustained riffles tend to be absent from these stream types. Often described as "step-pool" systems, these streams have very shallow (or dry during baseflow conditions) riffles and small pools. Gradient tends to prevent significant upstream fish migration and these systems often entirely lack a fish community. Instream habitats are frequently dominated by woody debris and leaf packs, but communities of aquatic invertebrates tend to be specialized to process these materials and are limited in diversity relative to those found in larger stream systems.

Stormwater attenuation

Stormwater attenuation was determined to be minimal for all of the tributaries because all of the channels have steep gradients, small channel dimensions (i.e., limited channel storage) and narrow floodprone areas (i.e., entrenched channels with limited floodplain storage).

Groundwater recharge

Groundwater recharge was determined to be of minimal function because steep channel gradients reduce the residence time of water and the opportunity for infiltration. Infiltration is also limited by bedrock bottom substrates. Groundwater recharge, in this system, occurs much higher in the watershed.

Wildlife habitat

Wildlife habitat was determined to be moderate for the tributaries because the mostly intact riparian zones provide a refuge and travel corridors for wildlife in the project area. The drainageways also provide a source of water and food (e.g., aquatic invertebrates, frogs, salamanders) for area wildlife.

Nutrient cycling

Nutrient cycling functions were determined to be low for the drainageways because, as stated earlier, steep channel gradients create a self-cleaning condition. Limited watershed sizes, lack of diverse detritivore communities, and limited solar exposure prevent these streams from providing higher nutrient cycling function.

<u>Proposed Streams</u>

Aquatic life habitat

The proposed Louise Run mitigation area will provide long-term protection of recoverable perennial aquatic resource that will contain a diversity of aquatic life habitats. Therefore, this resource was considered to have moderately high aquatic life habitat function. Exclusion of livestock will reduce sedimentation and improve habitat quality. Restoration of the channel profile will also restore appropriate stream substrates and provide a greater diversity of instream habitat. Exclusion of livestock will also reduce instream fecal coliform that has impacted the existing aquatic invertebrate and fish community. A shift in the community from a dominance of pollution tolerant organisms to a sensitive headwater stream community is expected as biological oxygen demand improves and temperatures decrease from shading resulting from riparian enhancement.

Stormwater attenuation

Stormwater attenuation was determined to be low because of the relatively steep gradient but this function would be higher than the impacted drainageways because of the greater floodplain capacity and mitigation wetland area.

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Groundwater recharge

The proposed Louise Run mitigation area is estimated to have low groundwater recharge function, although channel gradient modification and establishment of deeper pools will slightly increase the groundwater recharge function.

Wildlife habitat

The Louise Run mitigation area is anticipated to provide high wildlife habitat functions related to its perennial nature, improved water quality, and restored riparian zone.

Nutrient cycling

The restored Louise Run will retain more woody debris and leaf packs and therefore provide low to moderate nutrient cycling functions. The proposed restoration activities will provide for more diverse detritivore communities. A more diverse and woody riparian zone will result in the availability of organic nutrients typical of the watershed.

VALUES

Existing Wetlands

Reduced flooding

The effective flood reductions provided by these wetlands is minimal because of their very small size. Peak storm events quickly surpass the storage volume of the wetlands and no longer provide significant benefits to flood reduction.

Aesthetic

Aesthetic values of the wetlands were minimal because of a lack of "attractive" flowering plants (e.g., cardinal flower) and the presence of nonnative invasive plants. The fact that all wetlands are within private property was also considered in determining aesthetic value.

Recreational

These wetlands provide minimal recreational value because they are on private lands not accessible to the general public, they provide minimal habitats for passerine bird species, and provide minimal habitat for game species (e.g., woodcock) that could be hunted.

Proposed Wetlands

Reduced flooding

The proposed 0.3 acre wetland mitigation area is estimated to provide low to moderate flood reduction value because of its size and vegetative diversity.

Aesthetic

The proposed wetland mitigation area is expected to have a greater diversity of plants and flowering plants as well as interspersion of wetland communities that will result in moderate aesthetic value.

Recreational

The mitigation wetland is expected to provide moderate recreational value. The publicly accessible mitigation site will provide moderate habitats for passerine bird species, and provide minimal habitat for game species (e.g., woodcock).

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Existing Streams

Reduced flooding

The effective flood reductions provided by streams in the project area is minimal because of their very small size. Peak storm events quickly surpass the storage volume of the streams and they no longer provide significant benefits to flood reduction.

Aesthetic

Aesthetic values of the streams were minimal because all streams are within private property and are not generally accessible to the public.

Recreational

These streams provide minimal recreational value because they are on private lands not accessible to the general public, they provide minimal habitats for passerine bird species, and provide minimal habitat for game species (e.g., woodcock) that could be hunted.

Proposed Stream Mitigation

Reduced flooding

The proposed Louise Run mitigation area will also provide low flood reduction value as a result of restoration of its functional floodplain. Mature trees in this area will also draw on flood waters as the floodplain is saturated. Restoration and protection of the riparian zone will aid in the vegetative draw on storm waters.

Aesthetic

The Louise Run mitigation area is expected to have high aesthetic value. This area will be publicly accessible and the perennial stream with a mature riparian zone and cobble laden riffles, low waterfalls, and deep pools is considered very aesthetic. Removal of existing livestock will also improve aesthetic value.

Recreational

The Louise Run mitigation area will provide minimal recreational value. These lands will remain under private ownership after abandonment and reclamation. While the land owner may utilize the property for hunting, horseback riding, or birding, these recreational activities would be limited to the owner and their friends and family.

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(5) Describe the plan for the treatment and control of surface and ground water drainage from the area to be disturbed by the proposed coal mining activities.

All surface runoff from the permit area will either flow naturally, be directed by diversion ditches, or be pumped to a sediment control structure prior to leaving the permit. All surface and groundwater encountered will be diverted or pumped to a sediment control facility where it will be treated, if necessary, with lime or soda ash briquettes to a pH ranging between 6.5 and 9.0 before being released. All water discharged from the permit area will meet accepted effluent limitations. See Addendum to Part 3, Item E(5), for other water effluent limitation parameters.

(6) Is the application within 1,000 feet of an Ohio Source Water Protection Area?
Yes ☐ No ☒ If "yes," indicate the name of the protection area. Describe activities that are potentially harmful to public water supplies and address mitigation of, and alternatives, to such activities. Identify the protection area on the Hydrology Map.

(7) Will this operation include coal mining on pollution abatement areas in accordance with 1501:13-4-15 of the Administrative Code?

Yes ☐ No ☒ If "yes," submit the remining NPDES permit application as an addendum to this item.

F. GROUND WATER AND SURFACE WATER MONITORING PLAN

Based upon the probable hydrologic consequences determination and analysis of all baseline hydrologic, geologic and other information submitted in this application, describe the plan for collection, recording and reporting of all surface and ground water quality and quantity monitoring data, including data collected for the NPDES program.

Ground and surface water will be monitored prior to mining and, where necessary, after mining commences. Additional quarterly quality and quantity information will be obtained from S14-60 and reported quarterly to the Division of Mineral Resources Management. Surface water discharge will be monitored in accordance with NPDES requirements. The ponds will be monitored weekly for pH and flow, all other factors monthly. The analytical results and flow data will be reported monthly to the Ohio EPA. The Ohio EPA will receive the white copy and all other copies will be sent to ODNR, Division of Mineral Resources, appropriate District Office. The quarterly monitoring report sheet will be submitted for approved monitoring sites (copy attached) to the Division of Mineral Resources Mgt., appropriate District Office. Ohio EPA reports will be submitted for monthly pond monitoring (Copy attached) to the Division of Mineral resources Mgt., appropriate District Office. Surface and ground water monitoring sites currently being sampled for the existing Slurry Dam No. 2 will continue to be sampled.

ADDENDUM TO PAGE 27, PART 3, ITEM E(5)
N.S.P.S.
(NEW SOURCE PERFORMANCE STANDARDS)

FINAL EFFLUENT LIMITATIONS
EFFECTIVE AFTER JUNE 3, 1997

	pH	T.S.S. in mg/l 30 Day/Daily	Fe in mg/l 30 Day/Daily	Mn in mg/l 30 Day/Daily	S.S. in ml/l
1. Discharge from underground workings of underground mines - not commingled	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
2. Discharge from underground workings of underground mines - not commingled					
a) less than or equal to 10 Yr/24 Hr	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) greater than 10 Yr/24 Hr	6.5-9.0				
3. Controlled surface mine drainage					
a) less than or equal to 10 Yr/24 Hr	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) greater than 10 Yr/24 Hr	6.5-9.0				
4. Non-controlled surface mine drainage (except steep slope and mountaintop removal)					
a) no precipitation 24 Hr.	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) less than 2 Yr/24 Hr	6.5-9.0		1.4 / 7.0		0.5
c) greater than 2 Yr/24 Hr less than or equal to 10 Yr/24 Hr	6.5-9.0		1.4 /		0.5
d) greater than 10 Yr/24 Hr	6.5-9.0				
5. Discharge from coal refuse disposal piles					
a) less than or equal to 1 Yr/24 Hr	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) greater than 1 Yr/24 Hr less than or equal to 10 Yr/24 Hr	6.5-9.0				0.5
c) greater than 10 Yr/24 Hr	6.5-9.0				
6. Discharge from steep slope and mountaintop removal area					
a) no precipitation 24 Hr	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) less than 10 Yr/24 Hr	6.5-9.0		1.4 /		0.5
c) greater than 10 Yr/24 Hr	6.5-9.0				
7. Discharge from preparation plant associated areas (excluding coal refuse piles) and preparation plants					
a) no precipitation 24 Hr	6.5-9.0	35.0 / 70.0	1.4 / 6.0	2.0 / 4.0	
b) less than 10 Yr/24 Hr	6.5-9.0				0.5
c) greater than 10 Yr/24 Hr	6.5-9.0				
8. Discharges from reclamation areas					
a) less than 10 Yr/24 Hr	6.5-9.0				0.5
b) greater than 10 Yr/24Hr	6.5-9.0				

G. COAL MINING NEAR UNDERGROUND MINES

(1) Will mining operations within this application area be conducted within five hundred feet of an active underground mine or known abandoned underground mine?
Yes ☐ No ☒ If "yes", MSHA approval is required.

(2) If "yes" to item G (1), will the mining operations result in improved resource recovery, abatement of water pollution or elimination of hazards to the health and safety of the public?
Yes ☐ No ☐ If "yes," check appropriate blank.

☐ Resource recovery
☐ Abatement of water pollution
☐ Elimination of hazards

(3) Provide documentation that the remaining barrier will be sufficient to prevent failure with respect to the level of flooding in the adjacent underground mine.

N/A

H. DRAINAGE CONTROLS

(1) Will the proposed coal mining activities result in diversions of overland flow away from the disturbed areas?

Yes ☐ No ☒ If "yes," provide the required engineering designs.

(2) Will the proposed coal mining activities result in the diversion of intermittent or perennial streams within the proposed permit area?

Yes ☐ No ☒ If "yes," provide the required engineering designs

(3) Will the proposed coal mining activities result in construction of diversions to direct runoff through a sediment pond or a series of sediment ponds?

Yes ☒ No ☒ If "yes," provide the required engineering designs.

(4) Indicate which of the following are proposed to be constructed within the proposed permit area and submit as an addendum the detailed design plans for each structure in accordance with paragraph (H) of rule 1501:13-4-14 and 1501:13-9-04 of the Administrative Code.

☒ Sedimentation pond(s) (submit Pond-Impoundment Plan)

☐ Water impoundment(s), including wetlands that impound water (submit Pond-Impoundment Plan)

☐ Sumps

☐ Streams

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

POND/IMPOUNDMENT PLAN

Applicant's Name The Ohio Valley Coal Company Pond/Impoundment # G

Type of pond/impoundment Excavated Sediment Permanent ☐ Temporary ☒

1. DRAINAGE AREA DATA:

a) Drainage area 8 acres
b) Disturbed area 8 acres
c) Ave. land slope 50 %
d) Hydrologic soil group C
e) Hydraulic length 5.5 ft.
f) Cover/condition of the undisturbed area Woods & Grass

2. DESIGN STORM CRITERIA:

a) Method:

1) Design method(s) including computer programs: SCS, NOVV

2) NRCS curve number 87.0

b) Rainfall Amount/Peak Flow

		Rainfall, in.	Peak flow, cfs.
1)	10 year, 24 hour =	3.91	3.9
2)	25 year, 6 hour =		
3)	50 year, 6 hour = (if permanent)		
4)	100 year, 6 hour = (if 20/20 size)		

3. SIZE:

a) Dimensions:

1)	Dam height	8 ft.	4)	Dam downstream slope	50	%
2)	Dam width	50 ft.	5)	Dam upstream slope	32	%
3)	Dam length	200 ft.	6)	Core length	N/A ft.	ft. ft.

b) Sediment storage volume 3.5 ac. ft. is provided below the 1183 foot elevation.

c) Stage/Area Data:

		Elevation ft.	Surface Area ac.	Volume ac.ft.
1)	Bottom of pond/impoundment	1180	.09	0
2)	Streambed at upstream toe:	1180	.09	0
3)	Principal spillway inlet:	See Comments		
4)	Emergency spillway crest:	See Comments		
5)	Top of embankment:	1183	.11	3

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PRINCIPAL SPILLWAY:

a) Pipe length N/A ft.
b) Pipe diameter N/A in.
c) Pipe slope N/A %
d) Riser diameter N/A in.
e) Riser height N/A ft.
f) Type of pipe N/A
g) Number of anti-seep collars N/A; spacing along pipe N/A ft.
h) Does the design include a trash rack? ☐ Yes, ☐No.
i) Does the design include an anti-vortex device? ☐ Yes, ☐ No.

5. EMERGENCY SPILLWAY/EXIT CHANNEL:

a) Base width N/A ft.
b) Design flow depth N/A ft.
c) Exit slope N/A%
d) Exist velocity N/A fps
e) Channel lining N/A
f) Side slopes N/A
g) Freeboard N/A ft.
h) Entrance slope N/A %
i) Length of level control section N/A ft.

The minimum static factor of safety for this impoundment is N/A

7. Provide as an addendum to this attachment a detailed plan view or 2 cross sections of the impoundment.

8. COMMENTS:

Pond "G" will not have a discharge. Accumulated water will be pumped into the adjacent impoundment.

9. Is this an MSHA structure? ☐ Yes ☒ No. If "yes," provide the MSHA ID number if one has been assigned

10. If this is to be retained as a permanent impoundment, submit an addendum to this attachment demonstrating compliance with 1501:13-9-04 of the Administrative Code. N/A

11. I hereby certify that this impoundment is designed to comply with the applicable requirements of 1501:13-9-04 of the Administrative Code using current, prudent engineering practices.

Signature

Date

STATE OF OHIO
P.E. SEAL
ERKAN ESMER
E-69563
REGISTERED PROFESSIONAL ENGINEER

Part 3: Section A/H

Revised 02/06
DNR-744-9033

Esmer & Associates, Inc.
Consulting Engineers

Exhibit 2-7

SURFACE RUNOFF AND PEAK DISCHARGE COMPUTATION SHEET

Type of Structure: Ohio Valley Coal Co. - Proposed Ditch G-1 (0+00 to 5+48)
Drainage Area: No. _____ **Acres** 0.8
County: Belmont Co., Ohio **Date** 12/07/07
Rainfall Frequency: 100yr / 6hr **Rainfall** 3.91 **Inches**
Average Watershed Slope: 28 **Percent**

Hydraulic Soil Group 1	Land Use 2	Treatment or Practice 3	Runoff Curve Number 4	Acres (AC) 5	Col. 4 x Col. 5 6
C	Woods	Fair	73	0.0	0.0
C	Disturbed		87	0.8	69.6
			Totals =	0.8	69.6

Weighted Runoff Curve No. $= \frac{\text{Total Col. 6}}{\text{Total Col. 5}} = \frac{69.6}{0.8} = 87.0$ Use 87

Slope Interpolation

q( ) For ( ) RCN( ) = q(Exhibit 2-4 or 2-4A For Steep Slopes) x Slope Correction Factor

q(1) For 85 RCN(1) = 3.4 x 1.10 = 3.74 cfs

q(2) For 90 RCN(2) = 3.8 x 1.10 = 4.18 cfs

q(2)-q(1) = 4.18 - 3.74 = 0.44 cfs

Curve Number Interpolation

Watershed RCN Minus RCN (1)	C
1	0.2
2	0.4
3	0.6
4	0.8

q(') = q(2) - q(1) x c = 0.44 x 0.40 = 0.18 cfs

Peak Discharge = q(1) + q(') = 3.74 + 0.18 = 3.9 cfs

Runoff = 2.55 Inches/Acre

Esmer & Associates, Inc.
Consulting Engineers

Job No.: 07076
Project: Ohio Valley Coal Company - 1200 Design **Made By** PSM **Date** 12/7/2007
Subject: Proposed Ditch - G-1

Drainage Area:
Wooded Area = 0.0 acres
Disturbed Area = 0.8 acres

Design Storm Event: 100yr - 6hr

Solve for Flow:
Flow Formula:
Roughness Coefficient = 0.035

$$Q = \frac{1.486}{n} * A * R^{2/3} * S^{1/2}$$

Computation Results:

Station From	Station to	Bottom Slope (%)	Bottom Width (ft)	Side Slopes Z_1	Side Slopes Z_2	Required Flow (cfs)	Flow Depth (ft)	Free-Board (ft)	Total Depth (ft)	Flow Velocity (fps)	Design Flow (cfs)	Froude Number	Channel Lining
00+00	3+62	2.8	0	2.5	2.0	3.9	0.72	1.1	1.8	3.4	3.9	1.0	Vegetated
3+62	5+22	3.1	0	2.5	2.0	3.9	0.70	1.1	1.8	3.5	3.9	1.0	Vegetated
5+22	5+48	7.7	0	2.5	2.0	3.9	0.60	1.1	1.7	5.0	4.0	1.6	Vegetated

Outlets to Ditch 'A'

Esmer & Associates, Inc.
Consulting Engineers

Exhibit 2-7

SURFACE RUNOFF AND PEAK DISCHARGE COMPUTATION SHEET

Type of Structure: Ohio Valley Coal Co. - Proposed Ditch G-2 (0+00 to 1+57)
Drainage Area: No. _____ **Acres** 0.6
County: Belmont Co., Ohio **Date** 12/07/07
Rainfall Frequency: 100yr / 6hr **Rainfall** 3.91 **Inches**
Average Watershed Slope: 28 **Percent**

Hydraulic Soil Group 1	Land Use 2	Treatment or Practice 3	Runoff Curve Number 4	Acres (AC) 5	Col. 4 x Col. 5 6
C	Woods	Fair	73	0.0	0.0
C	Disturbed	-	87	0.6	52.2
			Totals =	0.6	52.2

Weighted Runoff Curve No. $= \frac{\text{Total Col. 6}}{\text{Total Col. 5}} = \frac{52.2}{0.6} = 87.0$ Use 87

Slope Interpolation

q( ) For ( ) RCN( ) = q(Exhibit 2-4 or 2-4A For Steep Slopes) x Slope Correction Factor

q(1) For 85 RCN(1) = 3.4 x 1.10 = 3.74 cfs

q(2) For 90 RCN(2) = 3.8 x 1.10 = 4.18 cfs

q(2)-q(1) = 4.18 - 3.74 = 0.44 cfs

Curve Number Interpolation

Watershed RCN Minus RCN (1)	C
1	0.2
2	0.4
3	0.6
4	0.8

q(') = q(2) - q(1) x c = 0.44 x 0.40 = 0.18 cfs

Peak Discharge = q(1) + q(') = 3.74 + 0.18 = 3.9 cfs

Runoff = 2.55 Inches/Acre

Esmer & Associates, Inc.
Consulting Engineers

Job No.: 07076
Project: Ohio Valley Coal Company - 1200 Design **Made By** PSM **Date** 12/7/2007
Subject: Proposed Ditch - G-2

Drainage Area:_
Wooded Area = 0.0 acres
Disturbed Area = 0.6 acres

Design Storm Event:_ 100yr - 6hr

Solve for Flow:_
Flow Formula:_
Roughness Coefficient = 0.035

$$Q = \frac{1.486}{n} * A * R^{2/3} * S^{1/2}$$

Computation Results:_

Station From	Station to	Bottom Slope (%)	Bottom Width (ft)	Side Slopes Z_1	Side Slopes Z_2	Required Flow (cfs)	Flow Depth (ft)	Free-Board (ft)	Total Depth (ft)	Flow Velocity (fps)	Design Flow (cfs)	Froude Number	Channel Lining
0+00	0+99	10.1	0	2.5	2.0	3.9	0.57	1.1	1.7	5.5	4.0	1.8	Rock R.
0+99	1+57	12.1	0	2.5	2.0	3.9	0.55	1.1	1.7	5.9	4.0	2.0	Rock R.

Outlets to Ditch 'A'

G. COAL MINING NEAR UNDERGROUND MINES

(1) Will mining operations within this application area be conducted within five hundred feet of an active underground mine or known abandoned underground mine?
Yes ☐ No ☒ If "yes", MSHA approval is required.

(2) If "yes" to item G (1), will the mining operations result in improved resource recovery, abatement of water pollution or elimination of hazards to the health and safety of the public?
Yes ☐ No ☒ If "yes," check appropriate blank.

☐ Resource recovery
☐ Abatement of water pollution
☐ Elimination of hazards

(3) Provide documentation that the remaining barrier will be sufficient to prevent failure with respect to the level of flooding in the adjacent underground mine.

N/A

H. DRAINAGE CONTROLS

(1) Will the proposed coal mining activities result in diversions of overland flow away from the disturbed areas?

Yes ☐ No ☒ If "yes," provide the required engineering designs.

(2) Will the proposed coal mining activities result in the diversion of intermittent or perennial streams within the proposed permit area?

Yes ☐ No ☒ If "yes," provide the required engineering designs

(3) Will the proposed coal mining activities result in construction of diversions to direct runoff through a sediment pond or a series of sediment ponds?

Yes ☒ No ☒ If "yes," provide the required engineering designs.

(4) Indicate which of the following are proposed to be constructed within the proposed permit area and submit as an addendum the detailed design plans for each structure in accordance with paragraph (H) of rule 1501:13-4-14 and 1501:13-9-04 of the Administrative Code.

☒ Sedimentation pond(s) (submit Pond-Impoundment Plan)

☒ Water impoundment(s), including wetlands that impound water (submit Pond-Impoundment Plan)

☒ Sumps

☒ Streams

☒ Other (specify) Please refer to Engineers Report, Proposed Modification Cres. El. 1200 For Slurry Dam No. 2, Volume II of II, Sheet 07076-15 for sediment Pond G. Pond G is an excavated sediment pond. The normal pool elevation is 1182, which provides sediment storage volume of 0.24 Ac. Ft. The existing 15 inch culvert flows north. When the pond is reclaimed, there will be an additional 2.5 acres of 6 cfs flowing through the pipe. The pipe will need to be replaced at this time. See Drawing No. 07076-15.

I. AIR POLLUTION CONTROL PLAN

Will the proposed mining operations cause fugitive dust resulting from erosion?

Yes ☐ No ☒ If "yes," describe the plan for controlling fugitive dust and, if required by the chief, provide an air quality monitoring plan.

J. TRANSPORTATION FACILITIES

(1) Are any roads to be constructed, used or maintained within this application area?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

(2) Are there any conveyor or rail systems to be constructed, used or maintained within this application area?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

K. DISPOSAL OF EXCESS SPOIL

Will the proposed mining operations result in the placing of spoil in excess spoil disposal sites?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

N/A

PART 4: SPECIAL CATEGORIES OF MINING

(1) Will this operation be combined with surface coal mining activities to the extent that contemporaneous reclamation of areas disturbed by surface mining will be delayed or such that the underground workings will be within 500 feet of the surface mining activities?

Yes ☐ No ☒ If "yes," submit Variance for Delay in Contemporaneous Reclamation.

(2) Are experimental mining practices to be employed in the proposed surface mining operations?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

N/A

(3) Are mountaintop removal mining practices to be employed in the proposed mining operations?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

N/A

(4) Are steep slope mining and reclamation practices to be employed in the proposed mining operations?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

N/A

(5) Are variances from approximate original contour to be employed in the proposed mining operations?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

N/A

(6) Are auger-mining operations (including highwall mining) to be conducted in the proposed mining operation?

Yes ☐ No ☐ If "yes," submit Auger/Highwall Mining. N/A

PART 5: UNDERGROUND MINING PLAN

A. SUBSIDENCE CONTROL SURVEY

(1) Is this a full coal recovery operation?

Yes ☐ No ☒ If "yes," complete Pre-Subsidence Inventory and items B (2) and (3).

(2) Does the shadow area contain any of the structures or facilities listed in 1501:13-12-03(J)(1-3)?

Yes ☐ No ☒ If "yes," complete Subsidence Control - Protection of Specific Structures, and specifically identify the structures or facilities on the application map.

(3) Are any aquifers or bodies of water that serve as a significant water source for any public water supply system present in the shadow area?

Yes ☐ No ☒ If "yes," complete Subsidence Control - Protection of Specific Structures, and specifically identify the areas on the application map.

B. SUBSIDENCE CONTROL PLAN

(1) Describe the method of coal removal, and indicates the size, sequence, and timing of the development of the underground workings.

N/A

(2) Utilizing the application map, specifically indicate areas where planned subsidence mining methods (i.e. longwall or pillar extraction) will be used.

(3) Utilizing the application map, specifically indicate room-and-pillar mining areas where subsidence will be prevented or minimized.

(4) For those areas mapped as room-and-pillar mining, provide the following information:

(a) The maximum and average overburden thickness.

N/A

(b) The projected maximum extraction ratios for mains, submains, and butt sections, as well as the existing ranges of values for the same areas.

N/A

(c) Projected maximum width of entries and cross cuts throughout the mine, as well as the existing ranges of values for the same areas.

N/A

(d) The center spacing for entries and cross cuts.

N/A

(e) Minimum pillar dimensions for mains, submains, and butt sections, as well as the existing ranges of values for these areas.

N/A

(f) The barrier pillar width between butt sections, as well as the existing ranges of values for the same areas.

N/A

(g) The engineering properties of the clay/shale, or other soft rock material in the roof and floor of the mine under both saturated and natural moisture conditions.

N/A

(h) Measures to be taken on the surface to prevent damage or lessening of the value or reasonably foreseeable use of the surface, if any.

N/A

(i) The minimum pillar safety factor, for protected structures, based upon coal strength and load.

N/A

(j) Methods and calculations used to determine the long-term safety factor.

N/A

(k) Provide the minimum long-term subsidence control safety factor recommended by the method's author or the literature supporting this method.

N/A

(l) Indicate how coal strength was determined if the assumed coal compressive strength exceeds 900 psi.

N/A

(m) Describe any prior unplanned subsidence events, pillar or floor failure experienced by the applicant. Indicate the seam mined and relevant facts.

N/A

(5) For those areas mapped as full coal recovery mining, provide the following information:

(a) For each method to be employed (i.e. longwall or pillar extraction), provide the following:

i) Rate and direction of dip for the coal seam.

N/A

ii) Dimensions of panels or butt sections.

N/A

iii) Thickness of coal to be extracted (mining height).

N/A

iv) Maximum angle of draw.

N/A

v) Maximum anticipated subsidence.

N/A

vi) Width of barrier pillars or chain pillars between sections or panels.

N/A

vii) The maximum extraction ratio within a pillaring section.

N/A

(b) The anticipated effects of planned subsidence upon the land and water resources identified in the subsidence control survey and survey of ground and surface water resources.

N/A

(c) The measures to be taken to mitigate the anticipated effects of planned subsidence to the land and water resources.

N/A

(d) The anticipated effects of planned subsidence upon the structures identified in the subsidence control survey.

N/A

(e) The proposed measures to be taken to mitigate anticipated effects to structures.

N/A

(f) The proposed measures to determine the extent of mining related damages including a pre-subsidence survey with an indication of the timing of the survey.

N/A

(g) The provisions for repair and/or compensation for damages to structures.

N/A

(h) Describe the monitoring, if any, needed to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage in accordance with rule 1501:13-12-03 of the Administrative Code.

N/A

(6) Will planned subsidence operations be conducted within the angle of draw of urbanized areas, cities, towns, communities, industrial or commercial buildings, major impoundments, or perennial streams?

Yes ☐ No ☒ If "yes," describe any measures or activities that will prevent a condition or practice that could result in an imminent danger to the health or safety of the public.

N/A

(7) Will planned subsidence operations be conducted within the angle of draw of transmission pipelines?

Yes ☐ No ☒ If "yes," describe the procedural plan to avoid the creation of a situation of imminent danger to the health and safety of the public.

N/A

PART 6: FORMAT AND CONTENT

A. FILING OF ADDENDA

If an addendum is needed to present the information required by the items in the permit application, the addendum is to be submitted with the permit application and each page, map, plan or other document in the addendum should include the applicant's name and indicate to what item the addendum applies. For example, "Addendum to Part 3, item A (11)(c)Zebco Coal Company."

B. Provide the information requested below for all technical data submitted in the application.

Identification of Technical Data *	Person/Organization that Collected Data and Date	Methodology for Collecting Data	Person/Organization that Collected Data and Date	Methodology Used to Analyze Data
Hydrologic Analyses	D. Rucker, Quality Environmental Services, Inc. 4/03, 5/03, 9/03	Grab samples	R. Whitt, TraDet Labs, Inc.	Analyze as necessary for parameters

* The technical data is to be identified by referencing the particular item in the application for which the data was used in preparing the response (e.g. Part 2, B (1); Hydrologic Analyses; Part 4, A.

TOVCC 23499

C. Provide the following information for each private or academic research organization or governmental agency contacted in the preparation of the application for information on land uses, soils, geology, vegetation, fish and wildlife, water quantity and quality, air quality, and archeological, cultural, and historic features.

Name and Address of Agency/Organization	Name, Position and Phone Number of Contact Person	Type of Information (e.g. Geology)
Division of Water, 2045 Morse Rd., Bldg. B-2, Columbus, OH 43229	Bill Haiker, Hydrogeologist 614-265-6717	Hydrology
Natural Resources Conservation Service, 1119 East Main Street, Barnesville, OH 43713	J. Bittinger, Conservationist 740-425-1100	Soils/PFL
Tra-Det, Inc., RD #2 Box 227A, Industrial Park, Wheeling, WV 26003	R. Whitt, Chemist 304-233-9060	Hydrology
FD Zande & Assoc., Inc., 1500 Lake Shore Drive, Suite 100, Columbus, OH 43204	Robert Madel, Biologist 614-486-4383	Streams and Wetlands
Stantec Consulting Services, Inc 1500 Lake Shore Drive, Suite 100 Columbus, OH 43204	Robert Madel, Biologist 614-486-4383	Mitigation Plan