WRITTEN FINDINGS

TOVCC
Permits - Mining
Clerk & All

WLB

OHIO DEPARTMENT OF
NATURAL RESOURCES

Fountain Square
Columbus, Ohio 43224

September 17, 1991

RECEIVED
SEP 19
THE OHIO VALLEY COAL CO

Mr. Robert Murray
The Ohio Valley Coal Co.
56854 Pleasant Ridge Rd.
Alledonia Ohio 43902

Dear Mr. Murray:

This is to inform you that the Ohio Valley Coal Company's Underground Coal Mining and Reclamation Permit Application #D-0360-2 has been approved. The Division has performed a thorough review of the application, taking into consideration the concerns raised at the informal conference held on August 8, 1991, and has found that the revised application meets all the requirements of Chapter 1513. of the Ohio Revised Code.

Enclosed is a copy of the written findings resulting from concerns raised at the informal conference. These written findings address the general and specific comments made relative to application #D-0360-2.

If you are a person having an interest that is or may be adversely affected by the Chief's decision of approval, and if you want to appeal the Chief's decision, you may do so by filing a notice of appeal with the Reclamation Board of Review, Ohio Department of Natural Resources, 1855 Fountain Square Court, Suite 124, Columbus, Ohio 43224, (614) 262-1269 within thirty days after the applicant is notified of this decision. Also, it would be necessary to file a copy of this notice of appeal with the Chief of the Division of Reclamation, Ohio Department of Natural Resources, 1855 Fountain Square Court, Columbus, Ohio 43224, within three days after filing the notice of appeal with the Board. Further essential provisions governing appeals to the Board, including request for temporary relief, are found in Section 1513.07 (I)(3) and 1513.13 of the Ohio Revised Code.

Sincerely,

Glen G. Kiser
Chief
Division of Reclamation

GGK:KR:sm
cc: St. Clairsville Dist. office
Certified Receipt #P521 231 799

SEP 17 1991

WRITTEN FINDINGS - INFORMAL CONFERENCE - AUGUST 8, 1991
Ohio Valley Coal Company
Underground Coal Mining and Reclamation Permit Application
#D-0360-2

1. **CONCERN**: Since East Ohio's pipelines are public facilities within the meaning of Ohio Administrative Code (OAC) Section 1501:13-12-03(J), by what authority can the Ohio Valley Coal Company (OVCC) mine under such public facilities without any plan of subsidence control?

   RESPONSE: The Division of Reclamation (DOR) does not consider that the East Ohio Gas pipelines in questions are public facilities within the meaning of 1501:13-12-03(J).

2. **CONCERN**: Since East Ohio's pipelines are utility installations within the meaning of OAC Section 1501:13-11-02(B), and since OVCC's permit application contains no plan to prevent or minimize damage or disruption of the utility service, and since OVCC has refused to discuss or negotiate in good faith a pre-mining agreement, on what basis can this incomplete application be granted?

   RESPONSE: OAC Section 1501:13-11-02(B) requires that mining operations minimize damage, destruction of disruption of services provided by gas pipelines which pass over, under or through the permit area. OAC Section 1501:13-1-02 (AAAA) defines permit area to exclude specifically the area overlying underground workings. Therefore, the Division does not consider that the provisions of OAC Section 1501:13-11-02(B) apply to the gas pipelines in question.

3. **CONCERN**: Since OVCC's permit application makes no reference to a subsidence control plan to prevent damage or disruption to East Ohio's pipelines, why should the permit be granted until such application is amended to reflect what affirmative steps will be taken?

   RESPONSE: In the normal course of review and revision, OVCC revised its subsidence control plan to address what measures will be undertaken to prevent damage to East Ohio's pipelines. OVCC's subsidence control plan states:

   "OVCC will contact the appropriate persons responsible for each pipeline at least six months prior to undermining to communicate the timing and location of our mining activities in order to allow them to coordinate their monitoring plans, if needed. In addition, OVCC will notify gas pipeline companies by phone prior to the time when the longwall mining will pass beneath the gas lines. OVCC has provided and will continue to provide information and assistance as necessary to allow the gas companies to formulate and initiate their monitoring or mitigation program, as they deem necessary, to maintain the integrity of their

transmission lines. Methods East Ohio could use to mitigate damage to their gas transmission lines within the full coal recovery areas may include but not necessarily be limited to: simply excavating the lines and monitoring the lines; if necessary, excavating the lines and providing flexible connections during the time the lines and adjacent areas are being subsided; burying the lines in a bed of sand; providing temporary lines above ground or other appropriate mitigatory measures. Other gas companies have simply chosen to uncover the lines, as is currently the case at a line near OVCC's mine which is being undermined by a longwall. Gas companies monitored these lines for leaks and structural abnormalities during the period of active subsidence. After the effects of subsidence were deemed negligible the lines were reburied and the right-of-ways reclaimed by the gas company. OVCC expects the same or similar measures may be utilized for these pipelines as was done by other gas companies."

4. **CONCERN:** Since OVCC's permit application makes no reference to OVCC being responsible for any damage caused to East Ohio's pipelines by subsidence, why should the permit application be acted upon unless and until such acknowledgement is obtained?

   RESPONSE: OVCC's application, as well as OAC Section 1501:13-12-03 require OVCC to be responsible for subsidence related damage which diminishes the value or use of structures. The Division interprets this to include East Ohio Gas pipelines.

5. **CONCERN:** Since damage to East Ohio's pipelines may place individuals in the area of the pipelines in imminent danger, why should the permit be granted until such application is amended to reflect what affirmative steps will be taken to prevent or minimize disruption of any services provided by East Ohio's pipelines?

   RESPONSE: See the response to Concern #3. The Division specifically requested that OVCC's application address the potential for imminent danger to the health and safety of the public as defined in OAC Section 1501:13-1-02(DDD).

6. **CONCERN:** Since disruption to East Ohio's pipelines may place East Ohio's customers in imminent danger, why should the permit application be granted until such application is amended to reflect what affirmative steps will be taken to prevent or minimize disruption of any services provided by East Ohio's pipelines?

   RESPONSE: See the responses to Concerns #3 and #5 above. The Division considers that the measures that will be taken to prevent damage to the gas pipelines will also prevent a disruption of service to East Ohio's customers.

7. **CONCERN:** Since OVCC's permit application contains a material misrepresentation regarding OVCC's willingness to reach agreement with utility, should the permit be denied pursuant to Ohio Revised Code (ORC) Section 1513.07(E)(5)?

RESPONSE: The Division does not consider the willingness of an underground applicant to negotiate with a utility to be a material fact of an application upon which the Division would base a decision to approve or deny a permit.

8. **CONCERN:** Since the permit application is not accurate or complete, how can a permit be granted in light of ORC Section 1513.07(E)(1) and (2)?

RESPONSE: Prior to the approval of any application, the Chief must make a specific written finding that the application is complete and acccurate. The reivew process for this application found the application to be complete and accurate.

9. **CONCERN:** Since a declaratory judgment action has been commenced in Case No. 91-CIV-210 in the Court of Common Pleas of Belmont County, Ohio, and since other litigation as described in the application might affect mining, why should a permit be acted upon until such litigation has concluded?

RESPONSE: The Division is aware of the private action between OVCC and East Ohio in which OVCC seeks a declaratory judgement in Belmont County, Ohio in Case No. 91-VIC-210. The Division is without authority to adjudicate any property rights dispute and the Division has determined that OVCC has submitted adequate right of entry documentation upon which it bases its right to enter and commence coal mining. Please refer to the response to Concern #10 below.

10. **CONCERN:** Since OVCC has no record interest in some of the coal to be mined, why should the permit be granted?

RESPONSE: In the normal course of review and revision, OVCC submitted an affidavit of coal rights indicating execution of a lease agreement on May 8, 1991 for all of the mineable coal reserves included in the application area.

11. **CONCERN:** Assuming arguendo that OVCC has an unrecorded and unexercised option for the right to mine some of the coal in question, why should a permit be granted where the public record reflects that OVCC does not have a right to mine all the coal as contained in the application?

RESPONSE: See the response to Concern #10 above.

12. **CONCERN:** Since certain of OVCC's alleged rights to mine have a cloud on the title, by that authority can a permit be granted until an obsolute right to mine be demonstrated?

RESPONSE: The application does not indicate that any of the rights to mine as required by ORC Chapter 1513. are pending litigation such that the ownership or control of the coal to be mined is in question.

13. **CONCERN**: Since East Ohio's common-law rights to subjacent and sublateral support are at least equal to if not greater than the rights of OVCC with respect to all of East Ohio's rights-of-way whether or not such rights-of-way predate OVCC's alleged right to mine, why should a permit be granted that might affect these rights?

    RESPONSE: For purpose of rights of entry to mine, the Division does not require information on interests pertaining to subjacent or lateral support for underground mining applications. The Division has no authority to adjudicate property rights disputes.

14. **CONCERN**: Since disruption of service will affect East Ohio's and others with respect to the Natural Gas Act, Natural Gas Policy Act, and the Natural Gas Pipeline Safety Act, why should the permit be granted unless and until provisions are made to insure that no disruption of services occurs?

    RESPONSE: Although the Division believes that the proposed mitigatory measures contained in the OVCC application will preclude any disruption of services, the Division has no authority to require compliance with any of the Acts referenced.

15. **CONCERN**: Since OVCC's prospective mining operations will violate 49 U.S.C. Section 1671, et seq., why should OVCC's permit application be granted unless and until preventive measures are assured which will protect the integrity of East Ohio's pipelines are protected by OVCC?

    RESPONSE: See response to Concern #14 above.

16. **CONCERN**: Pursuant to the powers granted to the Chief under Ohio law and regulations, why should the Chief not either (i) request in a letter of revision that OVCC commit to take affirmative steps to protect against disruption to East Ohio's pipelines; and/or (ii) condition any permit granted in such a manner as to require affirmative steps to be taken by OVCC to avoid disruption to East Ohio's pipelines?

    RESPONSE: See response to Concern #6 above.

17. **CONCERN**: Other mineral resources lost (upper coal seams and oil/gas) in longwall mining areas.

RESPONSE: ORC Chapter 1513. regulates surface impacts incident to underground coal mining and reclamation operations. Such surface impacts do not generally include alleged impacts on other coal seams. Based on a literature search of published research relative to multiple seam underground mining, full coal extraction on a lower seam does not appear to preclude the extraction of an upper seam by subsequent underground mining methodologies. Several of the papers reviewed recommended full coal extraction to facilitate multiple seam mining; the intent being to eliminate some of the difficulties evident when pillars are left in place. None of the research reviewed appeared to suggest that, in general, the upper seam of coal was no longer recoverable or marketable. When this data is applied to subsequent surface coal mining operations above full coal extraction aras, the conclusion appears to be that no serious degradation of the strippable reserve occurs.

After consultation with the Ohio Department of Natural Resources, Division of Oil and Gas, the Division's research has indicated that actual oil and gas reserves would not be affected since these reserves lie below the coal seam to be mined. There could, however, be some increase in the costs of drilling to these reserves, but this would not differ significantly from drilling through a room and pillar mine.

18. **CONCERN**: Loss of property value (real estate), loss of jobs, effect on the community, and decreased tax base/revenue for local governmental agencies due to longwall mining techniques and subsidence damage.

RESPONSE: ORC Chapter 1513. does not address the question of market based property values, local tax base/revenue, community development, or local employment. The Division has no authority to address these concerns.

19. **CONCERN**: Landowners and families affected by longwall subsidence suffer mental strain and stress.

RESPONSE: ORC Chapter 1513. does not address the mental health effects of mining. DOR has no authority to address this concern.

20. **CONCERN**: Longwall mining will cause damages to soils (loss of water holding capacity), forest and crops (reduction of long-term productivity).

RESPONSE: The amount of soil water in a soil is determined by many factors, one of the primary being the rate of infiltration of rainfall into a soil. In order for water from rainfall to become available for plant utilization, it must move rapidly into the soil as rainfall occurs. Precipitation that does not infiltrate into soils will move over the surface as runoff, and will not be available for plant growth. The rate of infiltration of water into soils

is most likely enhanced by subsidence, as a result of the fracturing of the ground surface as the subsidence wave advances with the face of a longwall panel.

Water that does infiltrate into soil is held there by tension, known as the soil moisture tension. The factors affecting soil moisture tension should not be altered as a result of subsidence. Thus, the amount of water available for the growth of plants is not likely to be adversely impacted by subsidence and may, in fact, be enhanced.

DOR has not been presented with any evidence of long-term damage to timber or crop lands from the timber industry or other source which documents an impeded use of the land for silviculture or agriculture purposes as a result of longwall or full coal extraction operations.

Finally, OVCC is obligated to restore the land surface to a condition capable of maintaining the value and foreseeable use(s) that the land was capable of supporting prior to subsidence, in accordance with current Ohio law.

21. **CONCERN:** Landowners need better information on longwall mining and subsidence impacts. Does the DOR have any educational function so as to provide a manual or such for landowners?

    RESPONSE: DOR is currently working with interested citizens on developing a publication that will inform the public of the specific rights and protections afforded them under current Ohio law.

22. **CONCERN:** There should be more objective research and study on the short- and long-term impacts of longwall mining, such as release of radon gas and effects on other coal seams and water supplies.

    RESPONSE: It is the Division's policy to pursue funding to develop and implement studies framed to obtain a better understanding of the ecological and hydrological effects of underground mining. Currently, the Division is committed in association with the Unites States Geological Survey for a five year study of full coal recovery impacts on surface water. Further, the DOR makes an effort to obtain and review additional published research studies as they become available.

23. **CONCERN:** Longwall mining impacts on the long range stability of the land and causes damage to structures, fences, and land surface.

RESPONSE: OAC 1501:13-12-03 provides, in part, that the underground mine operator shall correct any material damage caused to surface lands, to the extent technologically and economically feasible, by restoring the land surface to a condition capable of maintaining the value and reasonably foreseeable use(s) which it was capable of supporting before subsidence. The operator is required to repair material damage to surface lands.

The Division interprets the law to state that underground mine operators shall be responsible for all subsidence damage. OAC 1501:13-12-03 requires repair or compensation for damage to structures caused by an underground mine operation. Division policy further states "that all water supplies will be replaced, all structures repaired or compensated for, and all damages to the surface land repaired..."

In addition, pre-mining surveys of all structures to be undermined are required; the surveys will establish the pre-mining conditions of structures to provide the baseline data necessary to identify damages and resolve the question of whether or not subsidence damage has occurred.

Also refer to the response to Concern #24.

24. **CONCERN:** Subsidence damage to farmland, dwellings, and other structures cause safety hazards to farmers and landowners during longwall mining.

RESPONSE: OVCC's subsidence control plan states: "OVCC will employ a program to monitor surface cracking and settling resulting from subsidence. Areas being mined will be inspected at various intervals, ranging from daily to weekly. These areas will be visually inspected for any subsidence related problems. If a problem is found, the landowner will be notified immediately."

"... If the surface cracks are in an area that is commonly traveled by man or livestock, the cracks will be repaired immediately."

"Prior to the introduction of farm equipment into fields that have been undermined, OVCC will inspect the field for cracks or slips. Repairs needed (to maintain access into the fields) will be made at appropriate times. Crop lands damaged by subsidence will be repaired at appropriate times to permit harvest or cultivation without damage to personnel or equipment. Lost or damaged crops will be replaced in kind by OVCC at OVCC's expense. Note: "appropriate times" indicates that the repairs will be made 1) at a time when access is needed and 2) when damage to adjacent plants will be minimized. In any case, crop production will be maintained during and after mining."

Finally, OVCC is obligated to restore the land surface to a condition capable of maintaining the value and forseeable use(s) that the land was capable of supporting prior to subsidence, in accordance with current Ohio law. Also refer to the response to Concern #28.

25. **CONCERN**: Longwall mining will causes loss of agricultural and domestic water supplies. Spring water, well water and streams can't be replaced with the county water system; can the county system meet the damand?

RESPONSE: Refer to the enclosed Cumulative Hydrologic Impact Assessment (CHIA).

26. **CONCERN**: Radon gas emmission from the earth is increased due to subsidence cracks to the surface.

RESPONSE: Radon gas has not been noted as a problem associated with past underground mining operations. The mine ventilation system removes the majority of gases associated with undergound mining operations. Research data DOR is aware of thus far is insufficient and has not resulted in any definitive conclusion to this concern. DOR will maintain contact with research sources and will request the sources provide conclusive research studies if and when they become available.

27. **CONCERN**: The coal company has the right to mine the coal, but they don't have the right to destroy homes, property and other resources just because they use the longwall mining method.

RESPONSE: The application documents submitted demonstrate proof of ownership or leasehold interest in the coal to be mined and fulfill current regulatory requirements of ORC Section 1513.07(B)(2)(i) and OAC 1501:13-4-03((A)(3). An issue of disputed subjacent support rights is not within the scope of the Division's authority to resolve; ORC Chapter 1513. specifically states "...this chapter does not authorize the chief to adjudicate property rights disputes."

28. **CONCERN**: Some landowners to be undermined have not received notification about the mining from the coal company.

RESPONSE: Landowner's are to be notified at least six (6) months in advance of mining as required by OAC 1501:13-12-03(O). If an owner belives they are in an area to be undermined, they can contact the inspector in the DOR's St. Clairsville district office, 70245 Bannock-Uniontown Road, St. Clairsville, Ohio 43950, (614) 968-3555, and review the mine maps to determine where they are in the mining sequence and approximately when they'll be undermined.

SEP 17 1991

Ohio Valley Coal Company Application #D-0360-2
Cumulative Hydrologic Impact Assessment (CHIA)

Application #D-0360-2 is located within Belmont County, Smith Township, Sections 2, 7, 8, 13, 14, 19, and 20 and within Belmont County, Washington Township, Sections 12 and 18. Surface waters overlying the proposed mining area are Anderson Run and it's tributaries, Rocky Fork and Williams Creek. The application and adjacent areas are located within the Captina Creek drainage basin. The 3,300 acre application is proposed to be mined for the Pittsburgh number 8 coal seam by the longwall mining method. Approximately 2.85% of the 115,712 acre Captina Creek drainage basin is proposed to be undermined by this application.

The original permit D-0360, was issued in June of 1984 and consisted of 350 acres. Since the issuance of D-0360, four revisions to the permit have been approved for the purpose of mining coal. Application to Revise a Permit (A.R.P.) R-0360-1 was approved to mine by the room and pillar method of mining 4,159 coal acres. A.R.P. R-0360-2 was approved to mine by the longwall method of mining 470 coal acres. A.R.P. R-0360-5 was approved to mine by the room and pillar method of mining 679 coal acres. Adjacent Area Permit D-0360-1 was approved to mine by the longwall method of mining 691 acres on January 18, 1991. Application #D-0360-2 proposes to mine 3,300 acres by the longwall method of mining. The total acreage which has been permitted under the surface effects of underground mining and the coal removal areas, including both room and pillar and longwall methods, consists of approximately 9,649 acres. Approximately 8.34% of the Captina Creek drainage basin has been authorized to be mined under permit D-0360.

The Pittsburgh coal seam has an elevation of between 720 and 750 feet m.s.l. (mean sea level). Within the application area the coal seam is reported to have a strike of N 27 E and a dip of S 63 E at a rate of 19 feet per mile. The topographic relief ranges from less than 1,000 feet m.s.l. in the southern section of the application within the valleys of Anderson and Rocky Runs to more than 1360 feet m.s.l. on the ridges in the northeastern portion of the application. Developed ground water supplies have surface elevations ranging from 1135 feet m.s.l. to 1365 feet m.s.l. Reported well depths range from 24 feet to 208 feet, averaging 77 feet in depth. Those wells in which the depths are known have reported bottom elevations ranging from 1289 feet

m.s.l. to 1076 feet m.s.l. Developed springs range in elevation from 1135 feet m.s.l. to 1270 feet m.s.l. The Pittsburgh coal seam is located approximately 400 feet below the lowest saturated zone, 1135 - 1160 feet m.s.l., identified within the hydrologic boundary of the application area.

The geology of the application area is similar to the geology of the area permitted under D-0360-1. As stated within previous CHIAs, the sedimentary cycle in Belmont County includes coals, clays, shales, sandstones, siltstones, mudstones, and limestones. Ground water supplies within the hydrologic boundary of the application area are all developed on the ridge tops above the Washington #12 coal seam. Twenty test borings were drilled within the application area. The test borings consisted primarily of shales, clays, limestones, sandstones, and coal. The percentage of shales and clays (soft rock) within the overburden ranges from approximately 55.50% to 93.42%, averaging approximately 66.71%.

The geologic formations which yield underground water in the Captina Creek basin comprise two general classes: (1) consolidated layers of sandstones, shale, coal and limestone, and (2) the unconsolidated deposits of sand, gravel and clay. Less than 5% of the area encompassed by the Captina Creek basin is suitable for the development of large industrial or municipal underground water supplies. The larger industrial or municipal supplies are generally developed within the unconsolidated deposits adjacent to the Ohio River. The potential yield of wells developed beyond the influence of recharge from the Ohio River is 25-100 gallons per minute (g.p.m.) Although the unconsolidated deposits encountered in these wells are similar to the materials adjacent to the Ohio River, the location with respect to recharge, proximity to the bedrock valley wall, and the regional extent above drainage, limits the potential of these wells. More than 90% of the area is underlain with bedrock formations considered to yield little or no ground water. Yields of less than 2 g.p.m. are developed in various layers of sandstone, shale, limestone and coal. The variation in the physical characteristics of the bedrock and the topography govern the yield of wells developed in this area. The best bedrock wells are developed in the valleys adjacent to the streams. The rapid runoff of precipitation from the rugged hillsides deter the seepage of recharge to the more permeable bedrock formations.

The application area is developed within a portion of the Captina Creek drainage basin in which wells seldom yield as much as 5 g.p.m. Ground water supplies are developed within undifferentiated layers of thin to massive sandstone interbedded with shale, fireclay, limestone and coal. Yields average less than 2 g.p.m. However, wells drilled or dug within the flood plain of Captina Creek may yield as much as 25 g.p.m. A salt/fresh water interface occurs approximately 200 feet below

the valley floors within the general vicinity of the application area. Any water derived from an elevation 200 feet below the valley floor may contain over 10,000 parts per million of total dissolved solids and render ground water at this elevation unpotable.

The applicant identified seven saturated zones within the application and adjacent areas which are developed for use for either agricultural or domestic purposes. The seven saturated zones range from 1135 feet m.s.l. to 1320 feet m.s.l. All of the developed ground water supplies are reported to be developed in either shales, limestone or limey shale.

It is not anticipated that the quality of water will be permanently degraded as a result of the proposed operation. Water quality data, as a result of various monitoring plans on file with the Division of Reclamation as well as the review of literature pertaining to the impacts of longwall mining operations upon the hydrologic balance of the permit and adjacent areas, has shown insignificant impacts to the quality of ground water.

Based upon the data on file with the application and monitoring data submitted for permit D-0360 it is anticipated that all ground water supplies, springs and wells, located over panels will be impacted as a result of the proposed mining operation. A large percentage of the rock units above the application area consist of shales and clays. The applicant has stated that, "the soft rocks tend to deform in a more plastic manner with limited fracturing. Many of those fractures that do form in soft rocks tend to 'heal' by fracture clogging or clay swelling. This process limits the amount of water that would tend to migrate downward." A combination of the high percentage of soft rock within the overburden in conjuction with the elevation of the water supply in relation to the coal seam to be mined will minimize the permanence of the impacts of the proposed mining operations upon the hydrologic balance of the application and the adjacent area.

A large percentage of Anderson Run will be undermined as a result of the proposed and existing mining operations under D-0360. It is anticipated that partial or complete recovery of surface waters will occur based upon the lithologic characteristics of the overburden and previous monitoring data submitted from permit D-0360.

Recent monitoring data submitted for the spring of 1991, from permit D-0360 displays a lowering trend of water levels within all ground water supplies. Data submitted by the Ohio Valley Coal Company indicates that areas that have not been mined are displaying a lowering of water levels. Based upon the fact that the ground water levels are decreasing regardless of the area being mined or unmined indicates that the lowering of the

water levels within the saturated zones is a natural phenomenon and not mining related. The drought conditions of 1991 have impacted the shallow aquifers that the ground water supplies are developed within.

It is anticipated that those ground water supplies located over proposed panels will be the ones most likely to be impacted by the proposed mining operations. Those ground water supplies located over gates and outside the angle of influence of the mining operations will be less likely to be impacted by the proposed mining operations.

It is not anticipated that any supplies located off of the panels, approximately 500 feet away from the panels, will be impacted by mining operations.

The proposed operation will not result in material damage to the hydrologic balance outside the permit area, though impacts precipitated by subsidence may cause diminution or interruption of individual supplies. The degree of diminution or interruption of supplies will vary depending upon parameters such as location of the supply in relation to the longwall panel, and vertical proximity of the supply to the mine itself. Recovery and/or degree of recovery of various supplies may also be dependent on the above parameters.

The application has been revised to guarantee that the agricultural and domestically developed ground water users will experience minimal interruption as a result of the proposed mining operation. The Belmont County Water Authority has been contacted by the Ohio Valley Coal Company to determine the feasibility of adding onto the county water services those homes and farms located above the full coal recovery areas. The Belmont County Water Authority has indicated that there is no problem with providing the additional homes and farm businesses with water, if necessary.

This CHIA is intended to compliment the previous CHIAs and written findings within permit D-0360. Please refer to the CHIAs for R-0360-2 and D-0360-1 for the cumulative hydrologic impact assessments of D-0360 upon the hydrologic balance of Captina Creek.

PERMIT

R-2-P
5-83

STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

Permit No. D -0360-2

Coal Mining & Reclamation Permit

Issued to: Ohio Valley Coal Company
56854 Pleasant Ridge Rd.
Alledonia, Ohio 43902

Phone Number (614) 926-1351
AREA CODE

Application No. D-0360-2
Acreage 3300
Effective September 17, 1991
Expires June 18, 1994

Type of Operation: _____ Surface X Underground _____ Other _____

LOCATION OF PERMIT AREA

Names of Landowners	T-___ ,R-___	Sec.	Lot	Township	County
Not applicable since this is an underground mining operation and involves no permit area.					

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 approved water monitoring plan for this permit is:

Monitor for quality at: See page 29, (F) of permit for sites.

Monitor for quantity at: See page 29, (F) of permit for sites.

September 17, 1991
Date

Chief, Division of Reclamation

DNR 6808 Distribution: White - Operator Blue - Inspector Green - Division of Mines Canary - OSM Pink - Columbus Office Goldenrod - EPA

TOVCC 15393

5/91

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

APPROVAL OF UNDERGROUND COAL MINING PERMIT APPLICATION

1. Name of Applicant Ohio Valley Coal Company

2. Address of Applicant 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

3. Application Number D-0360-2

4. Number of acres in underground workings 3300

5. Number of surface acres to be affected 0

6. The water monitoring plan for this permit shall be:

Monitoring will be in compliance with

Part 3, Page 29, F of this permit.

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

7. This application is Approved since it (demonstrates) (~~does not demonstrate~~) and the Division (has) (~~has not~~) found that the criteria in paragraph (E) of rule 1501: 13-5-01 of the Administrative Code have been met.

Date September 17, 1991 Signed Glen G. Kyger / mjn

OPERATOR

TOVCC 15394

11/89

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

UNDERGROUND COAL MINING AND RECLAMATION
PERMIT APPLICATION

RECEIVED
SEP 13 1991
DIVISION OF RECLAMATION

Applicant The Ohio Valley Coal Company

A. Type of Operation (check appropriate space(s)):
____ Shaft, ____ Slope, ____ Drift,
____ Room and Pillar, ____ Pillar Extraction,
_X_ Longwall, ____ Combined Surface and Underground

B. Type of Application (check appropriate space(s)):
(1) New ____
(2) Initial Underground Workings to Existing Permit ____
(3) Additional Underground Workings _X_

C. Address the following if applicable:
(1) Permit Number D-0360
(2) Date Issued 6/20/84

D. Did a person other than an employee of the applicant prepare this application? ____ Yes, _X_ No. If "yes," provide:

Preparer's Name _____

Address _____

City _____ State _____ Zip _____

Telephone ____-____-____

E. 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 Robert E. Murray Date _____

Signature Robert E. Murray Title President & CEO

Sworn before me and subscribed in my presence this 8th day of April, 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires August 20, 1991

Robert E. Murray
President & Chief Executive Officer

April 15, 1991

Mr. Michael Nishimura
Division of Reclamation
Ohio Department of Natural Resources
Fountain Square
Columbus, Ohio 43224

Dear Mr. Nishimura:

This letter authorizes Mr. David L. Bartsch, Project Engineer with The Ohio Valley Coal Company, to sign permit applications for Ohio Valley. If you have any questions, please contact me.

Sincerely,

THE OHIO VALLEY COAL COMPANY

Robert E. Murray

Robert E. Murray
President and
Chief Executive Officer

cc: David L. Bartsch
John R. Forrelli
Maynard R. St. John
File

APR 2 0 1991

DO 366-2

56854 PLEASANT RIDGE ROAD • ALLEDONIA OHIO 43902
(614) 926-1351 • FAX (614) 926-1615

F. For Revision Review Only. This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned 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 David L. Bartsch Date 8-15-91

Signature David L. Bartsch Title Project Engineer

Sworn before me and subscribed in my presence this 15th day of August, 19 91.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires

Claude Louis Luke
Notary Public
MY COMMISSION EXPIRES AUG. 20, 1991

PART 1 LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

A. IDENTIFICATION OF INTERESTS

(1) Applicant's Name The Ohio Valley Coal Company

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Telephone 614 - 926 - 1351

Tax I.D. 34-1041310 or,
Social Security No. _____

(2) Is the operator of the mine to be a person different from the applicant? ____ Yes, X No. If "yes," provide the following:

Operator's Name _____

Address _____

City _____ State _____ Zip _____

Telephone ____-____-____

(3) Indicate the business structure of the applicant:

____ Single Proprietorship, ____ Partnership,

X Corporation, ____ Association,

____ Other - Specify _____

TOVCC 15397

F. For Revision Review Only. This item is to be completed after revisions, if any, have been made to the permit application.

I, the undersigned 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 David L. Bartsch Date 9-11-91

Signature David L. Bartsch Title Project Engineer

Sworn before me and subscribed in my presence this 11th day of Sept, 19 91.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires August 20, 1996

Claude Louis Luke
Notary Public

PART 1 LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

A. IDENTIFICATION OF INTERESTS

(1) Applicant's Name The Ohio Valley Coal Company

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Telephone 614 - 926 - 1351

Tax I.D. 34-1041310 or,
Social Security No. _____

(2) Is the operator of the mine to be a person different from the applicant? ____ Yes, X No. If "yes," provide the following:

Operator's Name _____

Address _____

City _____ State _____ Zip _____

Telephone ____-____-____

(3) Indicate the business structure of the applicant:

____ Single Proprietorship, ____ Partnership,

X Corporation, ____ Association,

____ Other - Specify _____

A. (4) If the applicant is a business entity other than a single proprietorship, provide the following for the applicant's statutory agent for service of process:

Agent's Name A&H Statutory

Address 1100 Huntington Bldg.

City Cleveland State Ohio Zip 44115

Telephone 216 - 696 - 1100

(5) If the applicant is a business entity other than a single proprietorship, provide the following for each officer, partner, director, or person performing a function similar to a director. If the business entity is a single proprietorship, provide the following information for the single proprietor:

Name Robert E. Murray Position President & CEO, Treasur

Street Address Suite 111, 29525 Chagrin Blvd.

City Cleveland State Ohio Zip 44122

Name Stephen C. Ellis Position Secretary

Street Address Suite 111, 29525 Chagrin Blvd.

City Cleveland State OH Zip 44122

Name _____ Position _____

Street Address _____

City _____ State _____ Zip _____

Name _____ Position _____

Street Address _____

City _____ State _____ Zip _____

(6) If the applicant is a business entity other than a single proprietorship, does any person own of record ten percent or more of any class of voting stock of the applicant? X Yes, ____ No. If "yes," submit Attachment I.

TOVCC 15399

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 1
(OWNERS OF STOCK)

Applicant's Name THE OHIO VALLEY COAL COMPANY

This attachment is to be completed and submitted with the permit application if the response to item A. (6) in Part I of the permit application is "yes".

Name of person Robert E. Murray

Address Suite 111, 29525 Chagrin Blvd.

City Pepper Pike State Ohio Zip 44122

Name of person

Address

City State Zip

Name of person

Address

City State Zip

Name of person

Address

City State Zip

Name of person

Address

City State Zip

Name of person

Address

City State Zip

A. (7) If the applicant is a business entity other than a single proprietorship, has the applicant, any partner, or principal shareholder previously operated a coal mining operation in the United States within the five year period preceding the date of this application under a name other than that in which this application is filed? X Yes, _____ No. If "yes," list the names below:

Company Name:

The North American Coal Corporation

The Falkirk Mining Company

The Coteau Properties Company

The NACCO Mining Company (Now The Ohio Valley Coal Company)

The Sabine Mining Company

Quarto Mining Company

Doan Mining Company (Now Energy Resources, Inc.)

The Hocking Valley Resources Company

TOVCC 15401

A.(8)(a) Provide the following information for every legal or equitable owner of record, surface and mineral, of the property to be mined on the permit area (i.e. areas affected by surface operations and facilities), indicating whether the ownership is of surface, coal, or noncoal mineral.

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Not Applicable - No Permit Area

TOVCC 15402

A. (8) (b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name David W. Trigg

Address 48394 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 139-3

Name Joseph Gorshe

Address 48362 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 142-1, 138

Name Charles G. & Leah May Monahan

Address 1257 Maple Avenue

City Bellaire State Ohio Zip 43906

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 143

Name Donald W. Watt

Address 60288 Watt Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 143, 123-1, 147-1

TOVCC 15403

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Esther Conway

Address Route 1

City Barnesville State Ohio Zip 43713

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 14

Name Roger & Janet Toothman

Address 5885 Ogilbee Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 13, 45-1, 45-2

Name Carl R. Britton

Address Route 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 12-2

Name Carl & Rodney Britton

Address Route 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 12-1, 12-2

TOVCC 15404

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Esther May Sims

Address Rt. 2, Box 217

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-1

Name John L. & Faye Riddle

Address 60540 Watt Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-5, 99-8

Name Nada Trigg

Address 48394 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 139-3

Name Carl E. & Helen Beck

Address 48495 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 139-3, 143

TOVCC 15405

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Joy Kincade

Address 59722 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 3-1, 3-2, 3-3

Name Charles & Carolyn Hoffman

Address 59569 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 3-6

Name Stanley & Helen Knollinger

Address 59419 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 9, 3-3, 3-4, 3-5, 4, 3-6

Name Nell M. Liston

Address 316 Whiteley Street

City Bridgeport State Ohio Zip 43912

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 136

TOVCC 15406

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Gary Fankhauser

Address 59535 Shepherd Hill Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 152, 1, 2

Name Harrison Leasing Co.

Address 40580 Cadiz-Piedmont Road

City Cadiz State Ohio Zip 43907

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 151, 116, 117, 114

Name Elwood & Lois Fankhauser

Address RR 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 1, 150-1

Name Edna Maude Beckett

Address 49660 Walnut Lane, Box 84

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 7-A

TOVCC 15407

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Enrico Perticarini

Address Rt. 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 21

Name Betty L. Dunfee

Address 49001 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 53-1

Name Delmas W. & Mary L. Caretti

Address 46100 Belmont-Centerville Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 47-1, 47-4

Name Belmont County National Bank (Trustee)*

Address Main & Marietta Streets

City St. Clairsville State Ohio Zip 43950

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 6-3, 6-2, 6-1, 140-1, 140-3

*Property held in trust for Lowell C. Gladden.

TOVCC 15408

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name James L. & R. K. Roy Dunfee

Address 46554 Main Street

City Centerville State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-1, 134-4

Name Inez Dornon

Address Route 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 4 , 40

Name Guy Blaney

Address 61860 Hunter Road

City Bethesda State Ohio Zip 43719

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 114

Name Harold R. & Floy J. Scatterday

Address 48061 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 15, 16

TOVCC 15409

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Cale Norris

Address 59901 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 3-1

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

Name _____

Address _____

City _____ State _____ Zip _____

Surface _____, Coal _____, Noncoal _____

Deed Parcel No. _____

TOVCC 15410

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name A. E. Mobley (C/O Wm. Bobick)

Address 59560 Armstrong-Centerville Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 45-2

Name F. Yonak

Address 47686 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 45-3

Name The Ohio Valley Coal Company

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Surface X, Coal X, Noncoal _____

Deed Parcel No. 49,48-3,53-2,48-1,48-2,47-1,47-4,10

Name The Natural Gas Company of WV (Columbia Gas of Ohio, Inc.)

Address P. O. Box 117

City Columbus State Ohio Zip 43215

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 4

TOVCC 15411

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Carl & Emma P. Sanders

Address 3495 Clinton Road

City Bellaire State Ohio Zip 43906

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 149-1

Name James & Helen Camsky

Address 110 Wagner Avenue

City Bellaire State Ohio Zip 43906

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 152

Name C. & B. Maloney

Address 59950 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 12-1

Name Joseph Green

Address 4395 Central Avenue

City Shadyside State Ohio Zip 43947

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 5, 145-3, 145-1

TOVCC 15412

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Lowell C. Gladden

Address Rt. 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 7

Name Joseph W. Phillips

Address 48154 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 8-1, 8-2

Name Pietro & Nellie Perticarini

Address RR 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 12-2

Name Rodney & Denise Britton

Address 60377 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 12-2

TOVCC 15413

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Linda J. Nagy & George Tice

Address 60455 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 13

Name Brett A. & Wayne Walters

Address 60657 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 13

Name Brett A. Walters

Address 60657 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 17, 20-2

Name Harold R. Scatterday

Address 48061 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 137, 138

TOVCC 15414

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Francis E. & Jane D. Moore

Address 2181 Picket Post Lane

City Columbus State Ohio Zip 43220

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 20-2

Name John A. & Doris W. McBride

Address 47244 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 20-2

Name Warner & Duane Moore

Address 47495 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 19-2, 16

Name Gregory K. & Pamela J. Moore

Address 47686 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 19-2, 16

TOVCC 15415

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Duane Myers

Address 3963 Fairway Drive

City Canfield State Ohio Zip 44406

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 139-3

Name James L. & Roy K. Dunfee

Address 46554 Main Street

City Centerville State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-1, 143

Name Donald L. & Ruth I. Kittle

Address 61301 Glencoe Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-1, 134-4

Name James & Ray Dunfee

Address 46554 Main Street

City Centerville State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-1, 99-8, 134-5

TOVCC 15416

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Rex & Carla Hall

Address 60191 Wolf Den Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 141-1, 144, 142-1

Name Arthur E. & Ethel M. Brown

Address 51027 ORW Street

City Key State Ohio Zip _____

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 143

Name Nora & Ross M. Brown

Address 60060 Watt Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 143

Name Marion R. & Ardell Masters

Address 646980 Vine Court

City Littleton State CO Zip 80121

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 144

TOVCC 15417

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name James & Addie Coleman (C/O Wilbert Coleman)

Address 503 14th Street, N.E.

City Canton State Ohio Zip 44714

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 146

Name Elbert & Beulah Miller

Address 55499 Trough Run Road

City Bellaire State Ohio Zip 43906

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 147-1

Name Paul & Iris J. Wetzel

Address 8 Lenox Avenue

City Wheeling State WV Zip 26003

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 148

Name Sharon M. Cole

Address 57900 Armstrong-Centerville Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 148

TOVCC 15418

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name James L. & R. D. Roy Dunfee

Address 46554 Main Street

City Centerville State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 134-3, 99-8

Name George & Irene L. Tozzi

Address 198 Milrose Drive

City St. Clairsville State Ohio Zip 43950

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 99-8

Name Stanley & Margaret Juzwiak

Address 63080 Ramsay Ridge Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 99-8

Name John N. & Patricia F. Phillips

Address 49359 OR&W

City Station State Ohio Zip _____

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 99-8

TOVCC 15419

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Sarah L. & Leroy Carpenter

Address 46840 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 53-1

Name Robert L. & Nora J. Wharton

Address 60980 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 22-3

Name Joseph F. Perticarini

Address 60760 Rt. 2

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 21

Name Deborah K. Schroeder

Address 60619 Walters Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 18

TOVCC 15420

A.(8)(b) Provide the following information for every legal or equitable owner of the property to be mined covered by the underground workings indicating whether the ownership is of surface, coal, or noncoal minerals.

Name Roger & Sue Wolfe

Address Rt. 1

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 137, 138

Name Frank Reisberger

Address 59946 Shepherds Hill Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 144

Name William E. Cole

Address 59934 W. Pipe Creek Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 148

Name Frank Yonak

Address 47686 Centerville-Jacobsburg Road

City Jacobsburg State Ohio Zip 43933

Surface X, Coal _____, Noncoal _____

Deed Parcel No. 11-1, 11-2

TOVCC 15421

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 3
(IDENTIFICATION OF OTHER BUSINESS ENTITIES)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A. (11) in Part 1 of the permit application is "yes". 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

Address 1100 Huntington Building

City Cleveland State Ohio Zip 44115

Person's Name Robert E. Murray Position President & C.E.O.

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Person's Name Stephen C. Ellis Position Secretary

Address 56854 Pleasant Ridge Road

City Alledonia State Ohio Zip 43902

Person's Name Position

Address

City State Zip

Person's Name Position

Address

City State Zip

5-89

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 3
(IDENTIFICATION OF OTHER BUSINESS ENTITIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

This attachment is to be completed and submitted with the permit application if the response to item A.(11) in Part 1 of the permit application is "yes." A separate attachment is to be submitted for each business entity.

Name of business entity HARRISON LEASING COMPANY

Statutory agent Paul Benson

Street Address P. O. Box 197

City Holloway State Ohio Zip 43985

Person's Name ANTHONY PUSKARICH Position PRESIDENT

Street Address 40580 CADIZ-PIEDMONT ROAD

City CADIZ State OHIO Zip 43907

Person's Name FRANK PUSKARICH, JR. Position TREASURER

Street Address 40580 CADIZ-PIEDMONT ROAD

City CADIZ State OHIO Zip 43907

Person's Name FRANK PUSKARICH, JR. Position SECRETARY

Street Address 40580 CADIZ-PIEDMONT ROAD

City CADIZ State OHIO Zip 43907

Person's Name MICHAEL J. PUSKARICH Position ASSISTANT SECRETARY/ GENERAL MANAGER

Street Address 40580 CADIZ-PIEDMONT ROAD

City CADIZ State OHIO Zip 43907

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 3
(IDENTIFICATION OF OTHER BUSINESS ENTITIES)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A. (11) in Part 1 of the permit application is "yes". A separate attachment is to be submitted for each business entity.

Name of business entity Oglebay Norton Company

Statutory Agent David A. Khun

Address 1100 Superior

City Cleveland State Ohio Zip 44114

Person's Name Renold D. Thopson Position President & C.E.O.

Address 1100 Superior

City Cleveland State Ohio Zip 44114

Person's Name August F. Bradfish Position V.P., Coal & Non-Ferrus

Address 1100 Superior

City Cleveland State Ohio Zip 44114

Person's Name David A. Khun Position Corporate Secretary

Address 1100 Superior

City Cleveland State Ohio Zip 44114

Person's Name Richard J. Kessler Position V.P. Trea. & Finance

Address 1100 Superior

City Cleveland State Ohio Zip 44114

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 3
(IDENTIFICATION OF OTHER BUSINESS ENTITIES)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A. (11) in Part 1 of the permit application is "yes". A separate attachment is to be submitted for each business entity.

Name of business entity Consolidated Rail Corporation

Statutory Agent C.T. Corporation

Address 1578 Union Commerce Building

City Cleveland State Ohio Zip 44115

Person's Name L. S. Cranz Position Chairman

Address Penn Center Plaza

City Philadelphia State PA Zip 19104

Person's Name R. D. Sanborn Position President & C.O.D.

Address Penn Center Plaza

City Philadelphia State PA Zip 19104

Person's Name H. W. Brown Position Sr. V.P. Finance

Address Penn Center Plaza

City Philadelphia State PA Zip 19104

Person's Name B. B. Wilson Position Sr. V.P., Law

Address Penn Center Plaza

City Philadelphia State PA Zip 19104

9-88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 23
(PENDING PERMIT APPLICATIONS)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(14) in Part 1 of the permit application is "yes."

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

Application No.	Name of Regulatory Agency	State
24890108	Dept. of Environmental Resources	PA
24900102	Dept. of Environmental Resources	PA
24900103	Dept. of Environmental Resources	PA
24900104	Dept. of Environmental Resources	PA

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 23
(PENDING PERMIT APPLICATION)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(14) in Part 1 of the permit application is "yes".

Indicate the business entity for which this listing has been completed The Sabine Mining Co.

Application No.	Name of Regulatory Agency	State
None		

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 23
(PENDING PERMIT APPLICATION)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(14) in Part 1 of the permit application is "yes".

Indicate the business entity for which this listing has been completed The Falkirk Mining Co.

Application No.	Name of Regulatory Agency	State
None		

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 23
(PENDING PERMIT APPLICATION)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(14) in Part 1 of the permit application is "yes".

Indicate the business entity for which this listing has been completed The Coteau Properties Co.

Application No.	Name of Regulatory Agency	State
NACT 9001	North Dakota Public Service Com.	North Dakota

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 23
(PENDING PERMIT APPLICATION)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(14) in Part 1 of the permit application is "yes".

Indicate the business entity for which this listing has been completed The North American Coal Corporation

Application No.	Name of Regulatory Agency	State
None		

A. (12) Is any part of the proposed permit area adjacent to any lands which are not owned by those persons identified in item A(8)(a)? _____ Yes, _____ No. If "yes," submit Attachment 4. Not Applicable - No permit area.

(13) Has the applicant or any person listed in item A(7) held a coal mining permit in the five year period prior to the date of this application?
__X__ Yes, _____ No. If "yes," submit Attachment 5.

(14) Does the applicant or any person listed in item A(7) have any coal mining permit applications pending in the United States? __X__ Yes, _____ No. If "yes," submit Attachment 23.

(15) Name of this mine Powhatan No.6 Mine

(16) List below the MSHA identification numbers for the mine and for all mine-associated structures requiring MSHA approval on the proposed permit area.

33-01159 (No. 6 Mine)
12110H80025-03 (No. 2 Slurry Impoundment)
12110H80025-05 (No. 10 Pond)

(17) Does the applicant hold lands, interests in lands, options, or pending bids on interests for lands which are contiguous to the property to be mined?
__X__ Yes, _____ No. If "yes," submit as an addendum to the permit application, a description of the lands.
See Proposed Future Permit Sequencing Map.

(18) Is it anticipated that individual mining permits will be sought for any of those lands described in item (17) above? __X__ Yes, _____ No. If "yes," identify those lands to include the size, sequence, and timing of future mining permits, utilizing a map pursuant to 1501:13-4-13(J)(29).
See Proposed Future Permit Sequencing Map

(19) 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

(20) Submit Attachment 22, Certificate of Liability Insurance.

11-89

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 22
(CERTIFICATE OF LIABILITY 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 paragraph (B) of rule 1501:13-7-07 of the Administrative Code stated below.

Name of Insurer Federal Insurance Company
Policy Number GLP(92)7371-08-88
Policy Period 6-1-91 to 6-1-92
Name of Underwriting Agent Daniel R. Jack
Address of Underwriting Agent Reschini Agency, Inc., P.O.Box 449, Indiana, PA 15701
Telephone No. of Underwriting Agent (412)349-1300

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 Reclamation, Fountain Square, Columbus, Ohio 43224.

April 22, 1991
Date

Signature of Underwriting Agent

This certificate is issued as a matter of information only and confers no rights upon the Division of Reclamation. 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.

B. Compliance Information

(1) Has the applicant, any subsidiary, affiliate, or persons controlled by or under common control with the applicant, any partner if the applicant is a partnership, any officer, principal shareholder, or director if the applicant is a corporation, or any other person who has a right to control or in fact controls the management of the applicant or the selection of officers, directors, or managers of the applicant:

(a) Ever held a federal or state coal mining permit that in the five-year period prior to the date of submission of this application has been suspended or revoked or had a coal mining bond or similar security deposited in lieu of bond forfeited?
_____ Yes, __X__ No. If "yes," submit Attachment 6.

(b) Been an officer, partner, director, principal shareholder, or person having the right to control or has in fact controlled the management of the selection of officers, directors, or managers of a business entity that has had a federal or state mining permit which:

i) in the five-year period prior to the date of submission of this application has been suspended or revoked?
_____ Yes, __X__ No.

ii) ever had a mining bond or similar security deposited in lieu of bond forfeited?
_____ Yes, __X__ No.

If "yes" to either i) or ii), submit Attachment 6.

(2) Has the applicant, or any subsidiary, affiliate, or persons controlled by or under common control with the applicant, incurred notices of violation of any law, rule or regulation of the United States or of any department or agency thereof or of any state pertaining to air or water environmental protection in connection with any coal mining operation during the three year period prior to the date of this application?
__X__ Yes, _____ No. If "yes," submit Attachment 7.

TOVCC 15433

THE FALKIRK MINING COMPANY - FALKIRK MINE

Mining Permit:	Date Approved:
40	July 17, 1978
NAFK 8005	October 5, 1981
NAFK 8010	April 28, 1981
NAFK 8104	October 24, 1982
NAFK 8305	May 10, 1984
NAFK 8402	April 10, 1985
NAFK 8405	April 15, 1986

Issued by: The North Dakota Public Service Commission
Reclamation and Siting Division
Bismarck, North Dakota

THE COTEAU PROPERTIES COMPANY - FREEDOM MINE

Mining Permit:	Date Approved:
46	April 12, 1978
NACT 8102	October 5, 1981
NACT 8203	July 7, 1983
NACT 8401	July 3, 1984
NACT 8503	August 7, 1986
NACT 8601	July 28, 1987

Issued by: The North Dakota Public Service Commission
Reclamation and Siting Division
Bismarck, North Dakota

Western Division Update - 8/10/87

THE NORTH AMERICAN COAL CORPORATION - CENTRAL DIVISION
THE NACCO MINING COMPANY - POWHATAN NO. 6 MINE

Currently being mined by The Ohio Valley Coal Company

Mining Permit:	Date Approved:
D-0360	June 20, 1984

Issued by: The Ohio Department of Natural Resources
Division of Reclamation
Columbus, Ohio

Central Division Update - 8/10/87

THE NORTH AMERICAN COAL CORPORATION - SOUTHWESTERN DIVISION
THE SABINE MINING COMPANY - SOUTH HALLSVILLE NO. 1 MINE

Mining Permit:	Date Approved:
13	May 9, 1986
24 (pending)	

Issued by: Railroad Commission of Texas, Surface
Mining and Reclamation Division
Fortworth, Texas

A LIST OF CURRENT OR PREVIOUS SURFACE COAL MINING PERMITS HELD IN U.S. SINCE 1970 BY APPLICANT AND BY PRINCIPAL SHAREHOLDERS AND AUTHORITY ISSUING THE PERMIT

THE NORTH AMERICAN COAL CORPORATION - EASTERN DIVISION

Mining Permit:	Date Approved:
101857-39A-78BC4-01-1	September 4, 1981
101857-39A-78BC4-01-2	March 26, 1982
101857-328-101-04-01-0C	December 9, 1981
101857-328-00119-01-0C	June 16, 1981
101857-328-00119-09-1	October 16, 1981
101857-328-10115-01-0	August 13, 1982
101857-328-10115-02-0	August 13, 1982
101851-328-10106-01-0	November 1, 1982
32813021	April 9, 1984
32783-62	May 9, 1985
32830103	June 27, 1986

Issued by: The Department of Environmental Resources
Division of Reclamation
Harrisburg, Pennsylvania

Eastern Division update 8/10/87

THE NORTH AMERICAN COAL CORPORATION - WESTERN DIVISION
INDIAN HEAD MINE

Mining Permit:	Date Approved:
10	December 31, 1969
18	December 8, 1972
21	August 22, 1973
25	April 19, 1974
31	February 26, 1976
42	April 5, 1977
NAIH 7905	April 16, 1980
NAIH 8001 (Section 35)	April 11, 1980
NAIH 8103	June 1, 1982
NAIH 8201	June 1, 1982
NAIH 8306	July 11, 1984
NAIH 8504	February 3, 1987

Issued by: The North Dakota Public Service Commission
Reclamation and Siting Division
Bismarck, North Dakota

Mining Permit:	Date Approved:
NAIH 7905	April 16, 1980
	September 18, 1980
	September 19, 1980
NAIH 8504	May 1, 1987

Issued by: The Office of Surface Mining
Reclamation and Enforcement
U.S. Department of the Interior
Region V, Denver, Colorado

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 5
PERMIT LISTING

Applicant's Name The Ohio Valley Coal Company Date August, 1988

This attachment is to be completed and submitted with the permit application if the response to item A (13) in Part 1 of the permit application is "yes".

See Sheets Attached

License/Permit #	Name of Regulatory Agency	State
D-0360	Division of Reclamation	Ohio

9-88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 5
(PERMIT LISTING)

Applicant's Name THE OHIO VALLEY COAL COMPANY

This attachment is to be completed and submitted with the permit application if the response to item A.(13) in Part 1 of the permit application is "yes."

Indicate the business entity for which this listing has been completed THE HOCKING VALLEY RESOURCES COMPANY

License/Permit #	Name of Regulatory Agency	State
D-0924	Ohio Department of Natural Resources Division of Reclamation	Ohio

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 5
(PERMIT LISTING)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(13) in Part 1 of the permit application is "yes."

Indicate the business entity for which this listing has been completed THE QUARTO MINING COMPANY

License/Permit #	Name of Regulatory Agency	State
D-433	The Ohio Department of Natural Resources	Ohio
D-422	The Ohio Department of Natural Resources	Ohio

9-88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 5
(PERMIT LISTING)

Applicant's Name The Ohio Valley Coal Company

This attachment is to be completed and submitted with the permit application if the response to item A.(13) in Part 1 of the permit application is "yes."

Indicate the business entity for which this listing has been completed The Hocking Valley Resources Company

License/Permit #	Name of Regulatory Agency	State
D-0924	ODNR/DOR	OH

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company
This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
87-K-191S	8/20/87	DER	PA	Failure to maintain adequate erosion and sedimentation controls	Erosion and sedimentation controls repaired	Abated
87-K-209S	9/21/87	DER	PA	Discharge of water with manganese concentration of 6.92 mg/l	Pond being treated to meet discharge requirements	Abated
87-K-233S	10/15/87	DER	PA	Failure to maintain and construct haul road to prevent erosion and steepness as an unsafe condition; failure to construct and maintain treatment ponds capable of treating run-off from 10 year, 24 hour precipitation event; failure to remove, segregate and protect topsoil; failure to construct and maintain adequate erosion and sedimentation controls.	Haul road repaired and realigned, treatment ponds reworked, topsoil segregated, erosion and sedimentation controls corrected	Abated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company
This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
87-K-234S	10/15/87	DER	PA	Failure to place topsoil on stable area; conducting surface mining within 100 feet of stream; failure to construct and maintain adequate erosion and sedimentation controls; failure to construct erosion and sedimentation pond.	Topsoil placed on stable area; area regraded and stabilized; collection ditch regraded; erosion and sedimentation pond installed	Abated
87-K-055S	4/18/88	DER	PA	Ponds discharging water with manganese of 16.0 mg/L and 6.5 mg/L	Ponds being treated to meet discharge requirements	Abated
88-K-091S	6/8/88	DER	PA	Ponds discharging water with manganese of 6.19 mg/L and 10.3 mg/L.	Ponds being treated to meet discharge requirements	Abated
88-K-117S	8/11/88	DER	PA	Failure to backfill concurrent with mining, inadequate backfill equipment	Backfill in satisfactory progress	Abated
88-K-116S	8/11/88	DER	PA	Failure to backfill concurrent with mining	Backfill in satisfactory progress	Abated

(1) 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.

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
89-K-097S	5/26/89	DER	PA	Pond discharge with a pH of 5.10 and Manganese of 19.6 mg/L	Pond water was not allowed to discharge and was treated until discharge limitations were met	Abated
89-K-101S	5/23/89	DER	PA	Pond discharge with manganese of 7.5 mg/L	Pond water was not allowed to discharge and was treated until discharge effluent limitations were met	Abated
89-K-143S	7/18/89	DER	PA	Failure to construct proper E & S controls prior to disturbing an area	Proper E & S controls were established	Abated
89-K-178S	8/08/89	DER	PA	Discharge of water with iron of 16.6 mg/l and manganese of 17.2 mg/l	Bonded area was extended to encompass natural treatment of non-compliance discharge	Abated
89-K-223S	10/03/89	DER	PA	Discharge of water with iron of 9.9 mg/l	Seep water was pumped to an approved facility	Abated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company
This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
88-K-160S	11/9/88	DER	PA	Failure to properly handle acid and toxic forming material	Pit cleanings properly buried	Abated
88-K-170S	11/22/88	DER	PA	Failure to barricade and guard public highways and all entrances to the operation within 1000' of the blast	Barricade and guarded public highways and all entrances to the operation within 1000' of the blast	Abated
89-K-034S	3/16/89	DER	PA	Failure to maintain adequate erosion and sedimentation control measures	Erosion and sedimentation controls repaired	Abated
89-K-050S	3/28/89	DER	PA	Failure to maintain adequate treatment	Pond being treated to meet discharge requirements and discharge flow being controlled to meet required dilution ratio	Abated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
90-K-008S	01/18/90	DER	PA	Failure to maintain adequate E & S control	Water was diverted to an approved facility	Abated
90-K-027S	02/12/90	DER	PA	Failure to pump pit water to an approved facility (Hose broke)	Pump was shut down, hose was repaired, and pumping was resumed to an approved facility	Abated
90-K-032S	02/15/90	DER	PA	Failure to backfill and regrade concurrent with mining	Backfilling resumed according to reclamation schedule approved by the Department	Abated
90-K-035S	02/20/90	DER	PA	Allowing water to accumulate in pit area	Water was pumped to an approved facility	Abated
90-K-037S	02/23/90	DER	PA	Cessation Order, failure to comply to compliance order 90-K-035S	Water was pumped to an approved facility	Abated
90-K-039S	03/01/90	DER	PA	Failure to backfill and regrade concurrent with mining	Backfilling resumed according to reclamation schedule approved by the Dept.	Abated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company
This report filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
90-K-054S	04/24/90	DER	PA	Pond discharge in excess of 70 mg/l suspended solids	Treatment was upgraded	Abated
90-K-076S	05/16/90	DER	PA	Pond discharges below effluent standards	Treatment was upgraded	Abated
90-K-084S	05/23/90	DER	PA	Failure to maintain adequate E & S controls	E & S controls were repaired	Abated
90-K-136S	07/20/90	DER	PA	Pond discharge below effluent standards	Treatment was upgraded	Abated
90-K-138S	07/23/90	DER	PA	Failure to seal drill holes, failure to save topsoil, failure to maintain E & S controls, failure to backfill concurrently, encroachment on stream barrier	Drill holes were sealed, topsoil was saved, E & S controls were repaired, backfilling started, stream barrier was backfilled and seeded	Abated
90-K-139S	7/23/90	DER	PA	Failure to maintain E & S controls; failure to backfill concurrently	E & S controls were repaired, backfilling started	Abated

(1) 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.

TOVCC 15445

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company
Report Filed for Energy Resources, Inc.

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
90-K-143S	7/26/90	DER	PA	Failure to maintain E & S controls, failure to mulch regraded area	E & S controls were repaired, mulch was applied	Abated
90-K-145S	8/1/90	DER	PA	Extension for portion of Order No. 90-K-138S	E & S pond was completed, backfilling was started	Abated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report filed for The Quarto Mining Company

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
22076	9-13-88	ODNR	Ohio	Slide-off Permit Limits	Permitted Area	Terminated
22079	10-03-88	ODNR	Ohio	Failure to Submit Ground Water Monitoring	Non Remedial	
12952	12-23-88	ODNR	Ohio	Acid Water Discharge From Pond 008	Treated Water	Terminated
22607	5-26-89	ODNR	Ohio	Acid Water Discharge From Pond 008	Treated Water	Terminated
22104	11-02-89	ODNR	Ohio	Exceeded Permit Limits	Add Area to Permit	Terminated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
18811	3-25-85	ODNR	OH	Improper Bond Amount	--	Vacated
12681	11-14-85	ODNR	OH	Disch. of Water 4.5 pH	Drainage Corrected	Terminated
12787	3-12-86	ODNR	OH	Insp. Reports not available	Reporting Initiated	Terminated
12990	11-12-87	ODNR	OH	Ground Water Monitoring Report not received	Non-Remedial	
12991	11-12-87	ODNR	OH	Surf. Water Reports not received	Non-Remedial	
22522	3-29-90	ODNR	OH	Wrong Mining Method	Submit ARP	Terminated
22942	7-24-91	ODNR	OH	6 Month Notification	Non-Remedial	

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report field for The Falkirk Mining Company

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
87-469	06-22-87	NDSDH	North Dakota	Failure to meet effluent quaility standards for discharges at two NPDES discharge points.	Required to operate under consent agreement from 08-10-87 through 08-10-88.	Terminated

(1) 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.

TOVCC 15449

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report field for The Sabine Mining Company

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
V1-87-087	02-27-87	USEPA	Texas	Effluent exceedances	Treatment implemented	Terminated

(1) 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.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 7
(NOTICES OF VIOLATION)

Applicant's Name The Ohio Valley Coal Company

This report field for The North American Coal Corporation

Violation Number	Date of Issuance	Issuing Agency	State	Brief Description of N.O.V.	Action Taken to Abate N.O.V.	Current Status of N.O.V. (1)
8703	4-03-87	NDPSC	North Dakota	Uncontrolled discharge	Embankment repaired	Terminated
8801	07-13-88	NDPSC	North Dakota	Failure to retain sediment within disturbed area, contamination at SPGM	Cleaned sump constructed two diversions	Terminated

(1) 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.

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 13 Lots _____

Parcel # 1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 1

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13 Lots

Parcel # 2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 2

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15453

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13 Lots

Parcel #3-1,3-2,3-3,3-4,3-5,3-6

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 3

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D-0360-2 AUG 20 1991

TOVCC 15454

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 7

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 7

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15455

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 13 Lots _____

Parcel # 4

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 4

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15456

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 13 Lots _____

Parcel # 5

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 5

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15457

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 14,13 Lots _____

Parcel #6-1,6-2,6-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 6

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13, 14 Lots

Parcel # 8-1, 8-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 8

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15459

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13 Lots

Parcel # 9

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 9

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15460

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 19 & 20 Lots

Parcel # 10

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 10

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15461

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13 Lots

Parcel # 11-1,11-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 11

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15462

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13,14 Lots

Parcel # 12-1,12-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 12

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15463

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 14 Lots _____

Parcel # 13

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 13

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

Claude Louis Luke
Notary Public

DO 360-2

TOVCC 15464

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 14

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 14

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 17

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 17

Pending litigation ___ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-0360-2

TOVCC 15466

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 16

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 16

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991
D-0360-2

TOVCC 15467

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 19-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 19

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-0360-2

TOVCC 15468

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 18

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 18

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

Claude Louis Luke
Notary Public

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 14 Lots _____

Parcel # 20-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 20

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-0380-2

TOVCC 15470

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 14 Lots _____

Parcel # 21

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 21

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 22-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 22

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-03

TOVCC 15472

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 19 Lots

Parcel # 40

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 23

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15473

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the **shadow area**.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 20 & 19 Lots _____

Parcel # 45-1, 45-2, 45-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 24

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15474

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 19, 20 Lots

Parcel # 47-1,47-4

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 26

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-0360-2

TOVCC 15475

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 19 Lots

Parcel # 46

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 25

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D-0360 AUG 20 1991

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 20 Lots _____

Parcel # 48-1,48-2,48-3, 48-4

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 27

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date _____

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 20 Lots _____

Parcel # 49

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 28

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 20 Lots

Parcel # 53-1, 53-2

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 29

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D-0360-2

AUG 20 1991

TOVCC 15479

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 14 Lots

Parcel # 15

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 15

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

AUG 20 1991

D-0360-2

TOVCC 15480

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township ~~Smith~~/Washington

Sections 18 Lots

Parcel # 114

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 30

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15481

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December 29, 1970

Expiration Date

Parties: From The North American Coal Corporation To The NACCO Mining Co.

Description of land: No. Acres

County Belmont Township ~~Smith~~/Washington

Sections 18 Lots

Parcel # 116

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 31

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b): North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 7A

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 33

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b): North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American* Coal Corp.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 2,8 Lots

Parcel # 99-8

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 34

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15484

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 11, C(1)(b):North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 2 Lots

Parcel # 123-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 35

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15485

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*See Addendum to Page 1,C(1)(b): North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 2,8 Lots

Parcel # 134-1,134-3,134-4,134-5

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 36

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 1,C(1)(b):North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 8 Lots

Parcel # 136

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 37

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~xxxxxxxx~~

Sections 8 Lots

Parcel # 137

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 38

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15488

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the **shadow area**.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 8 Lots

Parcel # 138

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 39

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15489

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C (1)(b): North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 8 Lots

Parcel # 139-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 40

Pending litigation ____ Yes, X No.

David L Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b): North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7,8 Lots

Parcel # 140-1,140-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 41

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15491

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American * Coal Corp.

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 8 Lots

Parcel # 141-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 42

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

TOVCC 15492

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/Washington

Sections 8 Lots

Parcel # 142-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 43

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 8 Lots

Parcel # 143

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 44

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 144

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 45

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

See Addendum to Page 11, C(1)(b): North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 13 Lots

Parcel # 145-3

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 46

Pending litigation _____ Yes, X No.

David L Bartsch 4-8-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 8th day of April, 1991.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires August 20, 1991

Claude Louis Luke
Notary Public

D-0360-2
AUG 20 1991

TOVCC 15496

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 11,C(1)(b):North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 146

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 47

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of FEB., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15497

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 1,C(1)(b):North American Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 147-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 48

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO360-2

TOVCC 15498

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 11, (1)(b):North American oal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 148

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 49

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15499

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

*=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township Smith/~~Washington~~

Sections 7 Lots

Parcel # 149-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 50

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

TOVCC 15500

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date _____ *

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp.

Description of land: No. Acres _____

County Belmont Township Smith/~~Washington~~

Sections 7 Lots _____

Parcel # 150-1

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 51

Pending litigation _____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 19 91.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

D0360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township ~~Smith~~/Washington

Sections 12 Lots

Parcel # 151

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 52

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO360-2

RIGHT OF ENTRY INFORMATION

C. (1)(b) Provide either of the following to allow for coal mining operations on the shadow area.

(i) A copy of the documents, or
(ii) An affidavit wherein the documents are described. For all documents or affidavits provided for the shadow area, the specific parcels are to be identified on the application map.

AFFIDAVIT

State of Ohio, Belmont County, ss. David L. Bartsch 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 Warranty Deed

Execution Date December, 1951

Expiration Date

=See Addendum to Page 1,C(1)(b):North merican Coal Reserves.

Parties: From Rail and River Coal Corp. To The North American Coal Corp. *

Description of land: No. Acres

County Belmont Township ~~Smith~~/Washington

Sections 12 Lots

Parcel # 152

Explanation of legal rights claimed See Addendum to Page 11, C(1)(b), Item 53

Pending litigation ____ Yes, X No.

David L. Bartsch 2-13-91
Signature of Affiant Date

Project Engineer
Position

Sworn before me and subscribed in my presence this 13th day of Feb., 1991.

Claude Louis Luke
Notary Public

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires Aug. 20, 1991

DO 360-2

ADDENDUM TO PAGE 11, PART 1, C(1)(b)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

The following items describe the deed rights claimed by The Ohio Valley Coal Company for the Pittsburgh (No. 8) Coal Seam:

Item 1: Deed Rights to Tract 1

Mining Rights: Party of Second part are to have the free and uninterrupted right of way under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilation, and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 2: Deed Rights to Tract 2

Mining Rights: Party of the second part to have the free and uninterrupted right of way into, upon and under said land at such points, and in such manner as may be proper and necessary for such purposes of digging, mining, draining, and ventilating and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom, except that $75.00 an acre to be paid for all surface land occupied, or from the removal of all of said coal), together with the privileges of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 3: Deed Rights to Tracts 3-1, 3-2, 3-3, 3-4, 3-5, and 3-6

Mining Rights: Party of second part to have the free and uninterrupted right of way into and under said land at such points an in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing, through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be required.

Item 4: Deed Rights to Tract 4

Mining Rights: And the present Grantor gives and grants to Grantee the same additional rights and privileges in said Parcel, and imposes on Grantee the same restrictions therein, as were given granted and restricted in the aforesaid deed to Henry James, and no more, namely:

"With the right to enter, mine and carry away the same from under the following described tract of land "_____" with the right of passage through and under the above described lands, by means of main entries, passages and tunnels for the purpose of transporting coal that may be mined from the lands of other parties".

Item 5: Deed Rights to Tract 5

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the Second part, its successors and assigns, or which may hereafter be acquired.

Item 6: Deed Rights to Tracts 6-1, 6-2, and 6-3

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the Second part, its successors and assigns, or which may hereafter be required.

Item 7: Deed Rights to Tract 7

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of Second part, its successors and assigns, or which may hereafter be acquired.

Item 8: Deed Rights to Tracts 8-1 and 8-2

Mining Rights: Party of Second Part are to have the free and uninterrupted right of way into upon and under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of second part, its successors and assigns or which may hereafter be acquired.

Item 9: Deed Rights to Tract 9

Together with all mining rights and privileges necessary and useful in mining and removing of said coal, including the right of mining the same without leaving any support for the overlying strata and without liability for any injury which may result from the breaking of said strata, the right of ventilation and drainage and access to the mines for men and material.

Item 10: Deed Rights to Tract 10

Together with all mining rights and privileges necessary and useful in mining and removing of said coal, including the right of mining the same without leaving any support for the overlying strata nd without liability for any injury which may result from the breaking of said strata, the right of ventilation and drainage and access to the mines for men and material.

Item 11: Deed Rights to Tracts 11-1 and 11-2

Mining Rights: Party of the Second part to have the free and uninterrupted right of way into, and under, said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns of which may hereafter be acquired.

Item 12: Deed Rights to Tracts 12-1 and 12-2

"Together with the free and uninterrupted right of way into, upon and under said lands at such points and in such manner as may be proper and necessary for the purpose of digging and mining and carrying away said coal, hereby waiving all damages arising therefrom; or from the removal of all said coal; together with the privilege of mining through said lands, other coals belonging to said Grantee his heirs or assigns, or which hereafter may be acquired.

Item 13: Deed Rights to Tract 13

Mining Rights: Party of Second part to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the Second part, its successors and assigns or which may hereafter be acquired.

Item 14: Deed Rights to Tract 14

"Together with all mining rights and privileges necessary and useful in mining and removing of said coal, including the right of mining the same without leaving any support for the overlying strata and without liability for any injury which may result from the braking of said strata, the right of ventilation, and drainage, and access to the mines for men and material.

Item 15: Deed Rights to Tract 15

Mining Rights: Party of Second part are to have the free and uninterrupted right of way, into, upon and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired."

Item 16: Deed Rights to Tract 16

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part its successors, and assigns, or which may hereafter be acquired.

Item 17: Deed Rights to Tract 17

Mining Rights: Party of Second part to have the free and uninterrupted right of way into, and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating, and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 18: Deed Rights to Tract 18

Mining Rights: Party of Second part are to have the free and uninterrupted right of way under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part or its successors and assigns, or which may hereafter be acquired.

Item 19: Deed Rights to Tract 19-2

Mining Rights: Together with the right of way into and under said premises for the purposes of mining and removing said coal, together with the right to mine and remove other coal through said seam underlying said premises, and free from all liability of damages which may arise to the surface by reason of the mining and removing of all said coal.

Item 20: Deed Rights to Tract 20-2

Mining Rights: Party of Second part to have the free and uninterrupted right of way, into, and under said land at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns or which may hereafter be acquired.

Item 21: Deed Rights to Tract 21

Mining Rights: Party of Second part to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating, and carrying away said coal, (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns or which may hereafter be acquired.

Item 22: Deed Rights to Tract 22-3

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 23: Deed Rights to Tract 40

"Together with the right to enter, mine and carry away said coal by means of main entries, passages and tunnels, and the right to transport coal through said main entries, passages and tunnels that may be mined from the lands of other parties."

Item 24: Deed Rights to Tracts 45-1, 45-2, and 45-3

Mining Rights: Party of Second part to have the free and uninterrupted right of way into and under said land at such points and in such manner as may be proper and necessary for the purpose of digging mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privileges of mining and removing through said described premises and other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 25: Deed Rights to Tract 46

Mining Rights: Party of second part to have the free and uninterrupted right of way into and under said land, at such points and in such manner as may be proper and necessary, for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 26: Deed Rights to Tracts 47-1 and 47-4

Mining Rights: Party of Second part to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 27: Deed Rights to Tracts 48-1, 48-2, 48-3 and 48-4

Mining Rights: Party of second part to have the free and uninterrupted right of way into and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 28: Deed Rights to Tract 49

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, and under said land, at such points and in such manner as may be proper and necessary for the purposes of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 29: Deed Rights to Tracts 53-1 and 53-2

Mining Rights: Party of Second part to have the free and uninterrupted right of way into, and under said land at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 30: Deed Rights to Tract 114

Mining Rights: And the present Grantor gives and grants to Grantee the same additional rights and privileges and imposes on Grantee the same restrictions therein, as were given, granted and restricted in the aforestated deed to Henry James, and no more, namely: - "With the right to enter, mine and carry away the same, under the following described tracts of land"---"with the right of passage through and under the above described lands by means of main entries, passages and tunnels for the purpose of transporting coal that may be mined from the lands of other parties."

Item 31: Deed Rights to Tract 116

Mining Rights: And the present Grantor gives and grants to Grantee the same additional rights and privileges and imposes on Grantee the same restrictions therein, as were given, granted and restricted in the aforestated deed to Henry James, and no more, namely:-"With the right to enter, mine and carry away the same, under the following described tracts of land, viz: "---" with the right of passage through and under said lands by means of main entries, passage or tunnels, for transporting coal that may be mined from the lands of other parties."

Item 32: Deed Rights to Tract 117

Mining Rights: Party of second part are to have the free and uninterrupted right of way under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating, and carrying away coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the Second part its successors and assigns, or which may hereafter be acquired.

Item 33: Deed Rights to Tract 7A

Together with the free, uninterrupted use and enjoyment of right of way into, upon and under all three tracts of land at such points and in such manner as may be considered proper and necessary for the advantageous and economical operation thereof, and in the digging and mining of said coal and draining and ventilating of the mines, and without liability therefor, and hereby waiving any and all damages that might or could arise therefrom by reason of such digging, mining, draining and ventilating and carrying away of all of said coal or manufacture of said coal or other coal into coke or other products, together with the privilege of varying or transferring and removing through the described premises this and other coal and mine supplies now owned or hereafter acquired by said grantees, their heirs and assigns, generally free, clear and discharged of any servitude whatever to the overlying land or anything therein or thereon.

Item 34: Deed Rights to Tract 99-8

Mining Rights: Together with the free and uninterrupted right of way into and under said described land at such points and in such manner as may be proper and necessary for the purpose of digging, draining, ventilating, mining and removing said coal, and with the privilege of mining and removing through said described premises other coal belonging to the purchaser of said coal, his, her or its heirs, successors or assigns, or which may be hereafter acquired; together with the right to mine and remove said coal without being subjected to any damage for failure to support the overlying surface, or for the sinking or falling in of said surface.

Item 35: Deed Rights to Tract 123-1

Mining Rights: Party of Second part are to have the free and uninterrupted right of way, into, upon and under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 36: Deed Rights to Tracts 134-1, 134-3, 134-4, and 134-5

Mining Rights: Party of Second Part to have the free and uninterrupted right of way into, upon and under said lands, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, their successors and assigns, or which may hereafter be acquired.

Item 37: Deed Rights to Tract 136

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said Party of the Second part, its successors and assigns, or which may hereafter be acquired.

Item 38: Deed Rights to Tract 137

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second parts its successors, and assigns, or which may hereafter be acquired.

Item 39: Deed Rights to Tract 138

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating, and carrying away said coal, (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 40: Deed Rights to Tract 139-3

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into upon and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of second part, its successors and assigns, or which may hereafter be acquired.

Item 41: Deed Rights to Tracts 140-1 and 140-3

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal) together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 42: Deed Rights to Tract 141-1

Mining Rights: Party of Second Part are to have the free and uninterrupted right of way into upon and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 43: Deed Rights to Tract 142-1

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 44: Deed Rights to Tract 143

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land, at such points, and in such manner as may be proper and necessary for the purposes of digging, mining, draining and ventilating and carrying away said coal hereby waiving all surface damages, or damages of any sort, arising therefrom or from the removal of all of said coal, together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, their heirs and assigns, or which may hereafter be acquired.

Item 45: Deed Rights to Tract 144

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns or which may hereafter be acquired.

Item 46: Deed Rights to Tract 145-1 and 145-3

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the Second part its successors and assigns, or which may hereafter be acquired.

Item 47: Deed Rights to Tract 146

Mining Rights: Party of Second part are to have the free and uninterrupted right of way, into, upon and under said land, at such points, and in such manner, as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal) together with the privilege of mining and removing through the said described premises, other coal belonging to said party of the Second part, its successors and assigns, or which may hereafter be acquired.

Item 48: Deed Rights to Tract 147-1

Mining Rights: Party of the second part are to have the free and uninterrupted right of way into, upon and under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, which may hereafter be acquired.

Item 49: Deed Rights to Tract 148

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, upon and under said land, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal, (hereby waiving all surface damages or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privileges of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 50: Deed Rights to Tract 149-1

Mining Rights: Party of second part are to have the free and uninterrupted right of way into, upon and under said land at such points and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal, (hereby waiving all surface damages, or damages of any sort, arising therefrom or from the removal of all of said coal) together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 51: Deed Rights to Tract 150-1

Mining Rights: Party of second part are to have the free and uninterrupted right of way under said land, at such points an din such manner as may be proper and necessary for the purpose of digging, mining, draining, and ventilating, and carrying away said coal (hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 52: Deed Rights to Tract 151

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating and carrying away said coal (hereby waiving all surface damages or damages of any sort arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises, other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

Item 53: Deed Rights to Tract 152

Mining Rights: Party of Second part are to have the free and uninterrupted right of way into, and under said land, at such points, and in such manner as may be proper and necessary for the purpose of digging, mining, draining and ventilating, and carrying away said coal (hereby waiving all surface damages, or damages of any sort, arising therefrom, or from the removal of all of said coal), together with the privilege of mining and removing through said described premises other coal belonging to said party of the second part, its successors and assigns, or which may hereafter be acquired.

AFFIDAVIT

State of Ohio, Belmont County, SS. David L. Bartsch being first duly sworn, says that the following documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of Document Lease Agreement

Execution Date May 8, 1991

Expiration Date Until all mineable reserve is depleted

Parties: From: North American Coal Royalty Company

To: The Ohio Valley Coal Company

Description: See Schedule 1

County Belmont Township Washington (Section 12) Smith

Sections 1,2,3,4,7,8,9,10

Explanation of Legal Rights Claimed: See Addendum to Page 11, Part 1, C(1)(b)

Pending Litigation ___ Yes X No.

David L. Bartsch 8-14-91

Signature of Affiant Date

Project Engineer

Position

Sworn before me and subscribed in my presence this 14th day of Aug., 19 91.

STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
My Commission Expires August 20, 1991

Claude Louis Luke
Notary Public

D-0360-2

AUG 20 1991

TOVCC 15518

SCHEDULE 1
TO
LEASE AGREEMENT

LANDS COMPRISING THE LEASED PREMISES

PARCEL NO.	TRACT	GRANTEE	GRANTOR	REMARKS	VOL.	PAGE
1		North American Coal Royalty Company	Bellaire Corp.	7.956 Ac.	668	307
2				39.430 Ac.	668	308
3				1.555 Ac.	668	309
4				105.00 Ac.	668	311
5				137.00 Ac.	668	311
6	1			40.00 Ac.	668	313
	2			18.00 Ac.	668	313
7				19.979 Ac.	668	313
8				41.344 Ac.	668	315
9	1			29.672 Ac.	668	316
	2			10.712 Ac.	668	317
	3			1.500 Ac.	668	317
	4			61.00 Ac.	668	317
	5			55.00 Ac.	668	318
10				9.304 Ac.	668	319
11				0.080 Ac.	668	320
12				25.00 Ac.	668	322
13	1			40.00 Ac.	668	322
	2			101.00 Ac.	668	322
14	1			80.00 Ac.	668	323
	2			80.24 Ac.	668	323
15				15.916 Ac.	668	324

TOVCC 15519

C. (2)(a) List below the following information for each surface owner of land within the proposed permit area.

OWNER NAME	COUNTY	TOWNSHIP	SEC./LOT	T- ,R-

NOT APPLICABLE - NO PERMIT AREA

TOVCC 15520

C. (2)(b) List below the following information for each surface owner of land within the proposed shadow area.

OWNER NAME	COUNTY	TOWNSHIP	SEC./LOT	T- ,R-
Sarah L. & Leroy Carpenter	Belmont	Smith	20	T-6, R-4
Robert L. & Nora J. Wharton	Belmont	Smith	14	T-6, R-4
Joseph F. Perticarini	Belmont	Smith	14	T-6, R-4
Deborah K. Schroeder	Belmont	Smith	14	T-6, R-4
Ester Conway	Belmont	Smith	14	T-6, R-4
R. L. & Lois Devault	Belmont	Smith	14	T-6, R-4
Carl R. Britton	Belmont	Smith	14	T-6, R-4
Carl & Rodney Britton	Belmont	Smith	13, 14	T-6, R-4
A. E. Mobley	Belmont	Smith	19	T-6, R-4
F. Yonak	Belmont	Smith	19	T-6, R-4
The Ohio Valley Coal Company	Belmont	Smith	19,20	T-6, R-4
The Natural Gas Co. of W.Va.	Belmont	Smith	13	T-6, R-4
Joy Kincade	Belmont	Smith	13	T-6, R-4
Charles & Carolyn Hoffman	Belmont	Smith	13	T-6, R-4
Cale Norris	Belmont	Smith	13	T-6, R-4
Stanley & Helen Knollinger	Belmont	Smith	13	T-6, R-4
Gary Fankhauser	Belmont	Washington	12	T-5, R-4
Harrison Leasing Co.	Belmont	Washington	18, 12	T-5, R-4
Elwood & Lois Fankhauser	Belmont	Smith	7, 13	T-6, R-4
Edna Maude Beckett	Belmont	Smith	7	T-6, R-4
Carl & Emma P. Sanders	Belmont	Smith	7	T-6, R-4
James & Helen Camsky	Belmont	Washington	12	T-5, R-4
C. & B. Maloney	Belmont	Smith	13	T-6, R-4

TOVCC 15521

C. (2)(b) List below the following information for each surface owner of land within the proposed shadow area.

OWNER NAME	COUNTY	TOWNSHIP	SEC./LOT	T- ,R-
Joseph Green	Belmont	Smith	7	T-6, R-4
Charles G. & Leah May Monahan	Belmont	Smith	8	T-6, R-4
Donald W. Watt	Belmont	Smith	2, 8	T-6, R-4
Rex & Carla Hall	Belmont	Smith	8	T-6, R-4
Arthur E. & Ethel M. Brown	Belmont	Smith	8	T-6, R-4
Nora & Ross M. Brown	Belmont	Smith	8	T-6, R-4
Marion R. & Ardell Masters	Belmont	Smith	7	T-6, R-4
James & Addie Coleman	Belmont	Smith	7	T-6, R-4
Elbert & Beulah Miller	Belmont	Smith	7	T-6, R-4
Paul & Iris Wetzel	Belmont	Smith	7	T-6, R-4
Sharon M. Cole	Belmont	Smith	7	T-6, R-4
James L. & R.D. Roy Dunfee	Belmont	Smith	2	T-6, R-4
George & Irene L. Tozzi	Belmont	Smith	2	T-6, R-4
Stanley & Margaret Juzwick	Belmont	Smith	2	T-6, R-4
John N. & Patricia F. Phillips	Belmont	Smith	2	T-6, R-4
Enrico Perticarini	Belmont	Smith	14	T-6, R-4
Inez Dornon	Belmont	Smith	13	T-6, R-4
Guy Blaney	Belmont	Washington	18	T-5, R-4
Harold R. & Floyd J. Scatterday	Belmont	Washington	14	T-6, R-4
Betty L. Dunfee	Belmont	Smith	20	T-6, R-4
Delmas W. & Mary L. Caretti	Belmont	Smith	19, 20	T-6, R-4
Belmont County Nat'l Bank * (Trustee)	Belmont	Smith	7,8,13,14	T-6, R-4
Roger & Sue Wolfe	Belmont	Washington	8	T-6, R-4

*Property held in trust for Lowell C. Gladden.

TOVCC 15522

C. (2)(b) List below the following information for each surface owner of land within the proposed shadow area.

OWNER NAME	COUNTY	TOWNSHIP	SEC./LOT	T- ,R-
Lowell C. Gladden	Belmont	Smith	13	T-6, R-4
Joseph W. Phillips	Belmont	Smith	14	T-6, R-4
Pietro & Nellie Perticarini	Belmont	Smith	14	T-6, R-4
Rodney & Denise Britton	Belmont	Smith	14	T-6, R-4
Linda J. Nagy George Tice	Belmont	Smith	14	T-6, R-4
Brett A. & Wayne Walters	Belmont	Smith	14	T-6, R-4
Brett A. Walters	Belmont	Smith	14	T-6, R-4
Harold R. Scatterday	Belmont	Smith	8, 14	T-6, R-4
Francis E. & Jane D. Moore	Belmont	Smith	14	T-6, R-4
John A. & Doris W. McBride	Belmont	Smith	14	T-6, R-4
Warner & Duane Moore	Belmont	Smith	14	T-6, R-4
Gregory K. & Pamela J. Moore	Belmont	Smith	14	T-6, R-4
Nell M. Liston	Belmont	Smith	8	T-6, R-4
Duane Myers	Belmont	Smith	8	T-6, R-4
James L. & Roy K. Dunfee	Belmont	Smith	8	T-6, R-4
Donald L. & Ruth I. Kittle	Belmont	Smith	8	T-6, R-4
James & Roy Dunfee	Belmont	Smith	8	T-6, R-4
Esther May Sims	Belmont	Smith	8	T-6, R-4
John L. & Fay Riddle	Belmont	Smith	2, 8	T-6, R-4
Carl E. & Helen Beck	Belmont	Smith	8	T-6, R-4
David W. Trigg	Belmont	Smith	8	T-6, R-4
Joseph Gorshe	Belmont	Smith	8	T-6, R-4

TOVCC 15523

C. (2)(b) List below the following information for each surface owner of land within the proposed shadow area.

OWNER NAME	COUNTY	TOWNSHIP	SEC./LOT	T- ,R-
Frank Reisberger	Belmont	Smith	7	T-6, R-4
William E. Cole	Belmont	Smith	7	T-6, R-4
Frank Yonak	Belmont	Smith	13	T-6, R-4
Betty Underwood	Belmont	Smith	14	T-6, R-4
James L. & R. K. Roy Dunfee	Belmont	Smith	8	T-6, R-4
Nada Trigg	Belmont	Smith	8	T-6, R-4

TOVCC 15524

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

(1) Does the permit area included in this permit application include any area dedicated as a nature preserve pursuant to Chapter 1517., Ohio Revised Code? _____ Yes, _____ No. If "yes," submit proof of valid existing right.

Not Applicable - No Permit Area

(2) Does the permit area included in this permit application 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 right.

Not Applicable - No Permit Area

(3) Does the permit area included in this permit application 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 right.

Not Applicable - No Permit Area

(4) Does the permit area included in this permit application include any federal 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 right.

Not Applicable - No Permit Area

(5) Will operations in the permit area conducted under this permit adversely affected any publicly owned park or places listed 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 jurisdication over the park or historic property or proof of valid existing right.

Not Applicable - No Permit Area

(6) Will operations in the permit area conducted under this permit affect land within one hundred feet of the outside right-of-way of a public highway? _____ Yes, _____ No. If "yes," list the highways in the space below and submit Attachment 9 or proof of valid existing right.

Not Applicable - No Permit Area

TOVCC 15525

D. (7) Will operations in the permit area conducted under 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 Attachment 10 or proof of valid existing right.

Not Applicable - No Permit Area

(8) Will operations in the permit area conducted under 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 right.

Not Applicable - No Permit Area

(9) Will operations in the permit area conducted under this permit, affect land within one hundred feet of a cemetery? _____ Yes, _____ No. If "yes," submit proof of valid existing right or appropriate authorization to relocate the cemetery.

Not Applicable - No Permit Area

(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 names of the adjacent owners and submit Attachment 11.

Not Applicable - No Permit Area

E. <u>Areas Where Mining is Prohibited or Limited-Permit and Shadow Area</u>

Are there areas within the proposed permit area, shadow area, or adjacent areas designated unsuitable for coal mining operations under rule 1501:13-3-07 of the Administrative Code or under study for designation in an administrative proceeding under this rule?

_____ Yes, __X__ No.

(1) If "yes" to the item above, did the applicant make substantial legal and financial commitments in the proposed areas prior to January 4, 1977?

_____ Yes, _____ No.

(2) If "yes" to item (1) above, submit as an addendum to the permit application information supporting the assertions that the commitments were made prior to January 4, 1977.

TOVCC 15526

F. **PERMIT TERM AND EXTENT-Permit and Shadow Area**

(1) Anticipated/actual date for:

(a) Starting mining operations 1992
(b) Terminating mining operations 1998

(2) Does the applicant propose a permit term in excess of five (5) years? X Yes, ____ No. If "yes," submit an addendum with the information required by 1501:13-4-03(E)(3). See Addendum

(3) Indicate the following acreage figures:

(a) Total Acres ____ (Permit area)
(b) Total Acres 3,300 (Shadow)

(4) Horizontal extent of underground workings over life of permit in acres:

(a) Full Coal Recovery 3,300
(b) Room and Pillar ____

G. **PUBLIC NOTICE-Permit and Shadow Area**

(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.

Division of Reclamation
70245 Bannock-Uniontown Road
St. Clairsville, OH 43950

(2) In the space below, list the name and address of the newspaper and submit an addendum providing the text of the advertisement that is to be published in a newspaper of general circulation in the locality of the proposed operation. Note: The advertisement is to provide the information required by paragraph (A) of rule 1501:13-5-01 of the Administrative Code.

The Times Leader
200 S. 4th Street
Martins Ferry, Ohio 43935

TOVCC 15527

ADDENDUM TO PAGE 16(G)(2)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

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 except Saturday 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 14, 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:

May 24, 28 June 3 & 10 19 91

Nancy McSwords

Subscribed by Affiant and sworn to before me, this 10 day of June A.D. 19 91

Donna Jean Landers
Notary Public

DONNA JEAN LANDERS, Notary Public
State of Ohio
My Commission Expires February 7, 1995

Printer's Fees $ 47.85
Notary's Fees $ _____

THE TIMES LEADER
Martins Ferry, Ohio
Bellaire, Ohio

PUBLIC NOTICE

The Ohio Valley Coal Company, 56854 Pleasant Ridge Road, Alledonia, Ohio 43902, has submitted an underground coal mining application designated as D-0360-2 to the Ohio Department of Natural Resources, Division of Reclamation. The proposed additional underground acreage for Permit D-0360 is located in Belmont County, Smith Township, Sections 2, 7, 8, 13, 14, 19, and 20, and Washington Township, Sections 12 and 18. The area is located on the Armstrong Mills 7-½ minute USGS quadrangle map, approximately ¼ mile south of Centerville, Ohio. The proposed underground workings encompass 3,200 acres. Coal in this underground area will be removed using full coal recovery methods.

This application is on file at the Division of Reclamation Office at 70246 Barnock-Uniontown Road, St. Clairsville, Ohio 43950, for public viewing. Written comments or requests for an informal conference may be sent to the Division of Reclamation, Fountain Square, Building H-3, Columbus, Ohio 43224, within thirty days of the last date of publication of this notice.

T-Adv. May 24, 28, June 3, 10

PART 2 ENVIRONMENTAL RESOURCES INFORMATION

A. CULTURAL, HISTORIC, AND ARCHEOLOGICAL INFORMATION-**Permit and Planned Subsidence Area**

(1) Are there any cultural or historic resources or structures listed or eligible for listing on the National Register of Historic Places within the proposed permit or planned subsidence area?
__X__ Yes, _____ No. If "yes," describe the resources and structures including the location. In addition, submit Attachment 27A.

See Addendum to Attachment 27A.

(2) Are there any known archeological sites within the proposed permit or planned subsidence area?
_____ Yes, __X__ No. If "yes," describe the site including the location. In addition, submit Attachment 27A.

(3) If applicable, based upon the review of the proposed planned subsidence areas and the completed Attachment 27A for the initial six months of projected mining, have any properties listed or eligible for listing on the National Register of Historic Places been identified? _____ Yes, __X__ No. If "yes," list each property identified.

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

See Addendum to Page 17, Part 2, A(4)

B. GEOLOGY DESCRIPTION-**Permit and Shadow Area**

(1) Submit an addendum describing the geology within the proposed permit area and shadow area down to and including 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 and shadow area 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.

See Addendum to Page 17, Part 2, B

TOVCC 15529

ADDENDUM TO PAGE 17, PART 2, A(4)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

IDENTIFICATION OF HISTORIC PROPERTIES

Included in this permit revision is Attachment 27A which identifies the properties/structures which may be eligible for listing on the National Register for Historic Places. As mining progresses, the required report and photographs of each structure will be submitted no less than 6 months prior to the undermining of the structures with full recovery mining. The identification of these properties/structures will comply with PPD Underground 89-3.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
Planned Subsidence Areas - Underground Mining Operations

ATTACHMENT 27A
(HISTORIC AND PREHISTORIC PROPERTIES)

1. Applicant's Name The Ohio Valley Coal Co. Permit # D-0360

   Address 56854 Pleasant Ridge Road

   City Alledonia State Ohio Zip 43902

2. Contact Person David Bartsch Phone 614-926-1351

3. Location and Acreage Information

   County Belmont Township Smith, Washington

   Section(s)/Lots Smith 2,7,8,13,14,19,20 / Washington 12, 18 T- 6 / 5, R- 4 / 4

   USGS Quadrangle Armstrongs Mills Acreage 3,300 Ac.

4. Full Coal Recovery Area Map Attached: (USGS Quadrangle with full coal recovery area delineated)

5. Historic and Prehistoric Structures:

   Definitions

   A historic or prehistoric structure is a work made up on 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 and mounds.

List all known historic and prehistoric structures below and locate each one on the 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
See Addendum to Attachment 27A.				

6. Previous Historic and/or Archeological Surveys: (describe any surveys known to applicant on the planned subsidence areas)

7. **SHPO please send this form to:**

Dr. Jeffrey C. Reichwein
Division of Reclamation
Fountain Square, Building B-3
Columbus, Ohio 43224

FOR USE BY THE STATE HISTORIC PRESERVATION OFFICE ONLY

(check appropriate spaces)

A. _____ This is a recommendation for an archeological survey of the proposed full coal recovery area based on the following reasons (attached addendum, if necessary):

ADDENDUM TO ATTACHMENT 27A
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

STRUCTURE TYPE	CONSTRUCTION DATE	MAP REFERENCE	PHOTO # FRONT	PHOTO # REAR
RUINS	PRE-1941	11		
RUINS	PRE-1941	12		
RUINS	PRE-1941	13		
FARMSTEAD	PRE-1941	14		
HOMESTEAD	1910	15		
HOMESTEAD	1856	16		
HOMESTEAD	C.1840	17		
HOUSE	C.1825	18		
FARMHOUSE	C.1840	19		
DWELLING	PRE-1941	20		
FARMSTEAD	C.1825	21		
HOUSE	PRE-1941	22		
SCHOOLHOUSE	C.1870	23		
FARMHOUSE	1937	24		
FARMHOUSE	C.1890	25		
FARMSTEAD	C.1930	26		
FARMHOUSE	PRE-1941	27		
RUINS	PRE-1941	28		
FARMHOUSE	PRE-1941	29		
RUINS	PRE-1941	30		
FARMHOUSE	PRE-1941	31		
RUINS	PRE-1941	32		
RUINS	PRE-1941	33		
FARMHOUSE	PRE-1941	34		
HOUSE	PRE-1941	35		
RUINS	PRE-1941	36		
FARMHOUSE	1870	37		
HOUSE	C.1890	38		
FARMHOUSE	C.1870	39		
FARMHOUSE	C.1910	40		
FARMHOUSE	C.1890	41		
FARMHOUSE	C.1926	42		
RR STATION	PRE-1941	43		
FARMSTEAD	1907	44		
FARMSTEAD	PRE-1941	45, 46, 47		
BARN	PRE-1941	48		
RUINS	PRE-1941	49		

A SHPO review of the area shown on the 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 permit 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 5. and 6. above.

Listed and Eligible National Register Sites

Site Name	(#)	Type	Proposed Area	Adjacent Area

Known Historic and Prehistoric Sites

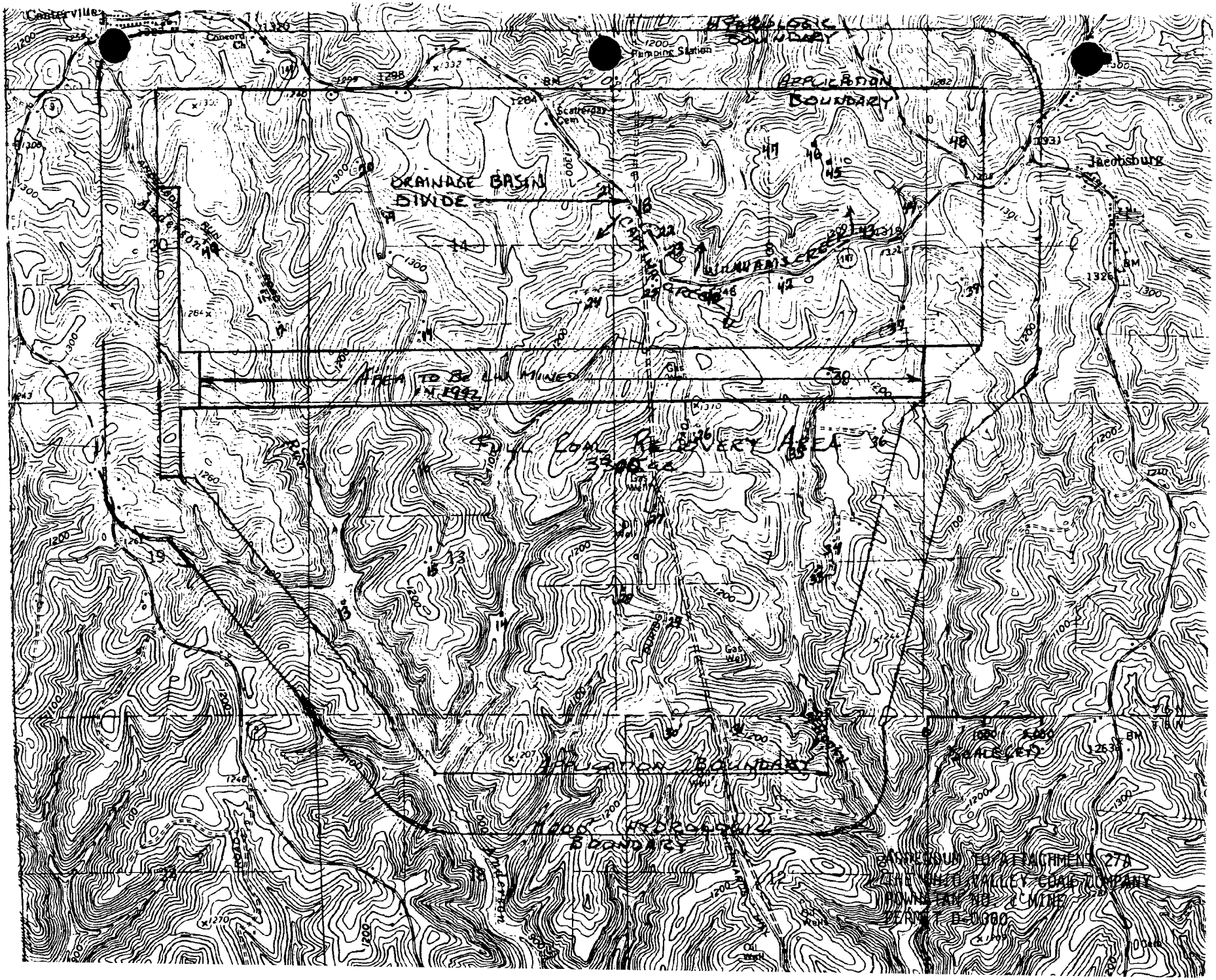
Site Name	(#)	Type	Proposed Area	Adjacent Area

B. _____ A SHPO review of the area shown on the application map and information contained in this attachment 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 proposed application area changes.

State Historic Preservation Officer _____

SHPO # _____

Date _____



TOVCC 115535

GEOLOGY

TOVCC 15536

GEOLOGY DESCRIPTION

Stratigraphy of the proposed permit area is formed by the Monongahela formation of the Pennsylvania period, and the Dunkard group of Permian time. The primary strata of both sections consists of an alternating sequence of limestone, sandstone, siltstone, shale, claystone, and coal.

The Monongahela formation is approximately 245 feet thick. In ascending order, it occupies the interval from the Pittsburgh No. 8 to the Waynesburg No. 11 Coalbed. The primary rock units are limestone, shale, and claystone. Limestone forms 44 to 68 percent of this stratigraphic interval. As a result of longwall mining, the immediate strata overlying the Pittsburgh No. 8 coalbed will cave to a height of 3 to 6 times the mining height, depending on the bulking factor of roof strata. The beds above this caved zone are provided some support by the caved rock but may sag and give rise to bed separation and may be subject to fracturing, to heights 24 to 54 times the mining height (120 to 270 feet above the mine).

The Dunkard group is 250 to 300 feet thick, occupying the interval from the Waynesburg No. 11 Coalbed to the ground surface. The primary rock units here are shale and claystone. These soft units form about 85 percent of this stratigraphic interval. This strata is primarily located within the constrained zone of disturbance resulting from longwall mining. The constrained zone is defined as that interval above 24 to 54 times the mining height and below 50 feet from the ground surface. This strata is expected to be sufficiently confined to prevent development of any fractures. Rock beds here will tend to absorb most of the strain energy without fracturing.

Strata close to the surface, however, are not sufficiently confined and may move in any direction. Surface cracks may be produced from tensile strains resulting from longwall mining. The depth of these cracks is generally estimated to be less than 50 feet.

The main safety against inflow of groundwater into the Powhatan No. 6 Mine is afforded by the constrained zone. The nature and thickness of the individual beds found here are of particular importance. Through extensive core drilling, multiple beds of claystone, with total thicknesses of 79 to 108 feet, have been identified. These claystone beds are relatively impermeable and generally capable of absorbing large amounts of strain energy before fracture. In the application area, it is our opinion that sufficient claystones are in-place to provide an adequate barrier

against inflow from surface water and shallow groundwater disruptions caused by longwall mining. Where stream valleys are encountered, longwall operations will not be conducted under less than 240 feet of cover to further protect the mine and overlying groundwater resources.

The rocks in Belmont County typically form a gentle monocline that dip southeasterly at grades less than one percent (Figure 2).

Geology and Coal Resources of Belmont County, Ohio, Geological Survey Professional Paper 380, reports that a small dome-shaped anticline lies in eastern Belmont County, primarily in Mead Township. This structure is located over three miles east of the Powhatan No. 6 Mine application area and, therefore, is expected to have no impact on ground water flow in the application area.

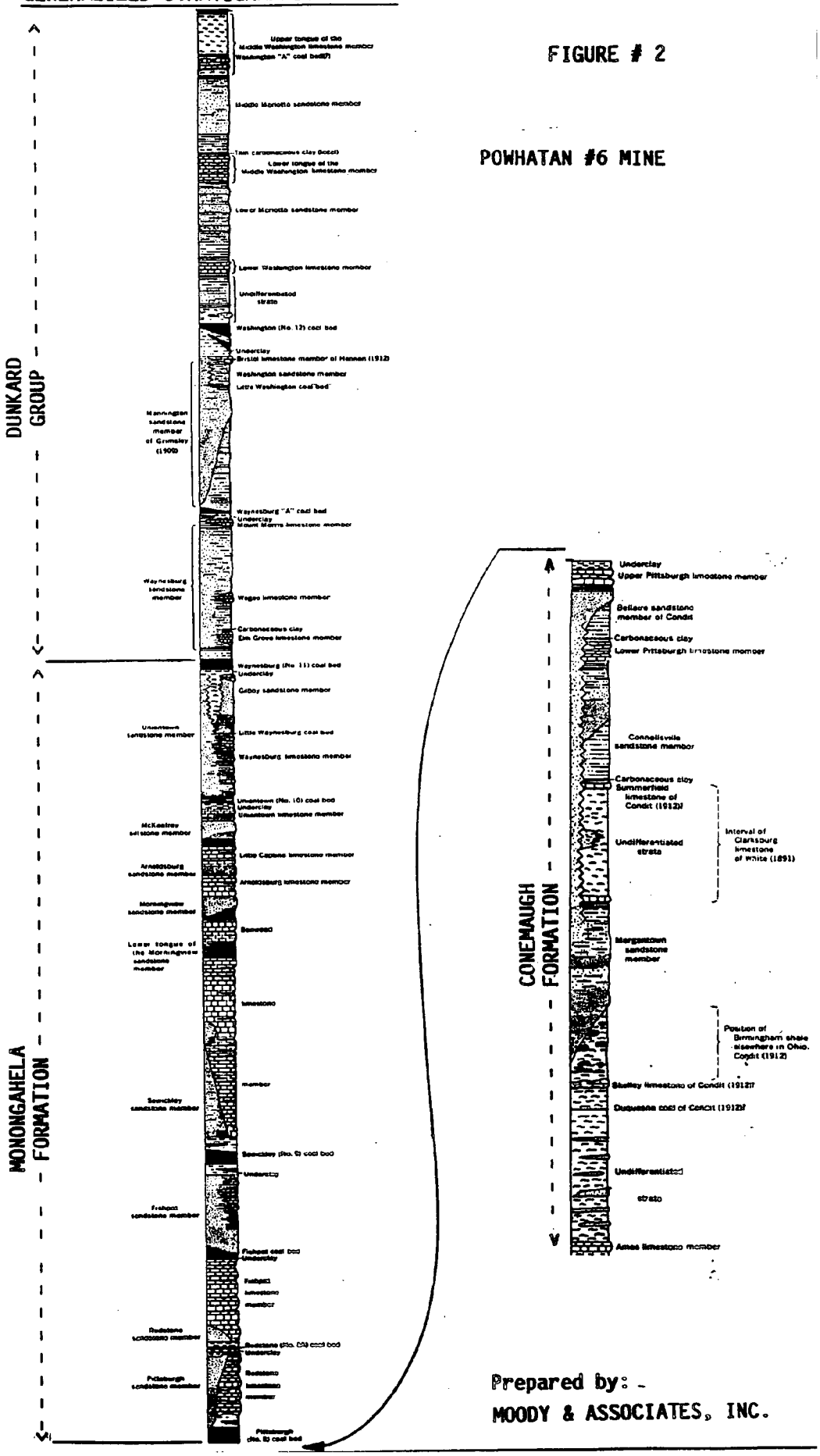
A graben-type fault has been identified in the application area from core hole drilling. This fault, which was present in the adjacent Powhatan No. 3 Mine (closed in 1983), was found to extend into the No. 6 Mine reserve approximately 12,600 feet at a bearing of S 57° W. In the southern half of Section 13, Smith Township, the fault appears to turn northwest at a bearing of N 65-70° W. Recently, two gravity faults were intersected in this projected northwest fault zone in the North Mains entries of the No. 6 Mine. This area has been drilled and the fault proceeds in a westerly direction after it crosses the main entries.

The main bench of Pittsburgh Seam is typically thicker in the faulted zone, often reaching 84 to 94 inches. This suggests that the graben fault (trough structure) may have been present during early stages of coal swamp formation. The fault zone is expected to be largely confined to strata immediate to the Pittsburgh coalbed. There is no expression of the fault on the ground surface. The fault is not expected to have any impact on ground water movement. Subsidence within the fault will be of a larger magnitude (up to 60 in.) than is normally experienced.

GENERALIZED STRATIGRAPHIC COLUMN

FIGURE # 2

POWHATAN #6 MINE



From:
U. S. Dept. of Interior
Geological Survey
Professional Paper 380

Prepared by:
MOODY & ASSOCIATES, INC.

TOVCC 15539

bcc: M. R. St. John
J. R. Forrelli
R. F. Matthias
File

THE OHIO VALLEY COAL COMPANY

October 23, 1990

Mr. Tim Dieringer, Chief
Division of Reclamation
Department of Natural Resources
Fountain Square
Columbus, Ohio 43224

Dear Mr. Dieringer:

The Ohio Valley Coal Company, in accordance with OAC 1501:13-4-13(c)(3), respectfully requests a waiver of the requirements of OAC 1501:13-4-13(c)(2)(d)(ii) to (iii) and OAC 1501:13-4-13(c)(2)(e)(ii). We enclose a map that shows the next shadow area to be added to Permit D-0360. The application area will encompass 3,300 acres and would normally require 21 test holes. Drilling programs in 1984, 1986, and 1990 provided 20 test holes, primarily used to delineate the location of a Graben Fault on the eastern and southern edges of the application area. Although the fault is included within the application area, we do not expect it to greatly alter subsidence or affect the ability of the underground coal mining operation to be conducted in accordance with the rules of OAC 1501.

When the 1984 and 1986 holes were drilled, the coal was removed from the cores and analyzed for sulfur, ash, BTU and moisture. At that time, there were no analyses made for the pyritic or marcasite content, potential acidity, neutralization potential, or calcium carbonate deficiency. The total sulfur content was determined. The N90-3 test hole was analyzed. We anticipate that the entire application area will be within the range of the N90-3 test hole for chemical composition.

I am also enclosing the core logs from the 20 test holes and the structural contour map of the mine. If you have any questions or need additional information, please contact me.

Sincerely,

THE OHIO VALLEY COAL COMPANY

David L. Bartsch

David L. Bartsch, P.E.
Project Engineer

DLB:pm

Enclosures

56854 PLEASANT RIDGE ROAD • ALLEDONIA OHIO 43902 • (614) 926-1351

ODNR
OHIO DEPARTMENT OF
NATURAL RESOURCES

Fountain Square
Columbus, Ohio 43224

April 12, 1991

David L. Bartsch
Ohio Valley Coal Company
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

RE: Drill Hole Variance Request for the Proposed 3,300 Acres
Application to permit D-0360

Dear Mr. Bartsch:

The drill hole variance request for the proposed 3,300 acre application area has been reviewed. The variance request for Rules 1501:13-4-13 C(2)(d)(ii), (d)(iii) and 13-4-13 C(2)(e)(ii) has been approved.

Please enclose the original request along with the approved variance letter when the application is submitted.

Sincerely,

Glen G. Kizer, Chief
Division of Reclamation

D0360-2

enclosure:

TOVCC 15541

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-6

*Coordinates: X. S-23,701.88 Y. W-57,441.87 Surface Elevation 1224.94'
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		24.0	
Subsoil			
Shale		3.6	CM, EM
Claystone		31.4	CV, EV
Sandy Shale		17.6	CM, EM
Shale		4.0	CM, EM
Limestone		3.3	CS, ES, AK
Shale		0.4	CM, EM
Limestone		11.3	CS, ES, AK
Sandy Shale		9.9	CM, EM
Shale		4.9	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-6

*Coordinates: X._____ Y._____ Surface Elevation 1224.94'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		4.6	CV, EV
Claystone		3.1	CV, EV
Shale		9.1	CM, EM
Coal		0.9	CS, ES, AC
Claystone		1.9	CV, EV
Shale		2.4	CM, EM
Shale		2.9	CM, EM
Coal		1.0	CS, ES, AC
Shale		2.0	CM, EM
Shale		2.2	CM, EM
Coal		0.1	CS, ES, AC
Shale		8.4	CM, EM
Shale		0.1	CM, EM
Claystone		12.5	CV, EV
Sandy Shale		4.6	CM, EM
Sandstone		6.5	CS, ES
Shale		14.7	CM, EM
Claystone		2.0	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-6

*Coordinates: X. _____ Y. _____ Surface Elevation 1224.94'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		6.3	CM, EM
Claystone		2.7	CV, EV
Claystone		11.0	CV, EV
Sandy Shale		1.5	CM, EM
Sandstone		1.5	CS, ES
Shale		5.0	CM, EM
Shale		3.0	CM, EM
Sandy Shale		6.4	CM, EM
Claystone		2.4	CV, EV
Sandstone		14.0	CS, ES
Shale		1.1	CM, EM
Coal		3.0	CS, ES, AC
Sandy Shale		2.3	CM, EM
Sandstone		3.6	CS, ES
Shale		6.5	CM, EM
Shale		0.3	CM, EM
Coal		0.2	CS, ES, AC
Shale		0.6	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-6

*Coordinates: X._____ Y._____ Surface Elevation 1224.94'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		7.8	CS, ES, AK
Sandy Shale		12.8	CM, EM
Shale		2.0	CM, EM
Coal		4.1	CS, ES, AC
Claystone		1.5	CV, EV
Shale		2.8	CM, EM
Sandstone		2.4	CS, ES
Shale		4.3	CM, EM
Limestone		31.0	CS, ES, AK
Sandy Shale		16.0	CM, EM
Limestone		54.5	CS, ES, AK
Claystone		3.4	CV, EV
Coal		3.9	CS, ES, AC
Claystone		0.5	CV, EV
Limestone		22.2	CS, ES, AK
Claystone		0.9	CV, EV
Limestone		30.6	CS, ES, AK
Claystone		2.3	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #84-6

*Coordinates: X._____ Y._____ Surface Elevation 1224.94'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		0.2	CV, EV
Shale		0.5	CM, EM
Claystone		1.4	CV, EV
Limestone		14.7	CS, ES, AK
Claystone		1.9	CV, EV
Limestone		0.9	CS, ES, AK
Claystone		2.1	CV, EV
Limestone		0.4	CS, ES, AK
Claystone		2.2	CV, EV
Claystone		0.5	CV, EV
Coal		7.5	CS, ES, AC
Limestone		3.8	CS, ES, AK
Claystone		1.6	CV, EV
Limestone		6.0	CS, ES, AK
Sandstone		2.5	CS, ES

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-7

*Coordinates: X. S-29,342.24 Y. W-56,674.01 Surface Elevation 1160.20'
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		25.0	
Subsoil			
Shale		4.0	CM, EM
Sandstone		9.2	CS, ES
Claystone		8.8	CV, EV
Shale		4.7	CM, EM
Coal		0.1	CS, ES, AC
Claystone		1.4	CV, EV
Sandstone		1.1	CS, ES
Shale		2.6	CM, EM
Coal		0.1	CS, ES, AC

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-7

*Coordinates: X. _____ Y. _____ Surface Elevation 1160.20'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		10.7	CV, EV
Sandstone		17.1	CS, ES
Claystone		4.2	CV, EV
Shale		18.8	CM, EM
Claystone		6.9	CV, EV
Shale		17.7	CM, EM
Sandstone		15.2	CS, ES
Calystone		0.3	CV, EV
Limestone		2.1	CS, ES, AK
Shale		8.1	CM, EM
Claystone		6.2	CV, EV
Sandstone		1.6	CS, ES
Claystone		0.3	CV, EV
Shale		0.2	CM, EM
Coal		1.8	CS, ES, AC
Shale		9.7	CM, EM
Coal		0.3	CS, ES, AC
Claystone		2.1	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-7

*Coordinates: X. _____ Y. _____ Surface Elevation 1160.20'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		3.0	CS, ES, AK
Claystone		26.1	CV, EV
Sandstone		7.4	CS, ES
Claystone		18.3	CV, EV
Limestone		10.3	CS, ES, AC
Claystone		17.4	CV, EV
Limestone		5.2	CS, ES, AC
Claystone		3.5	CV, EV
Limestone		28.2	CS, ES, AC
Claystone		2.2	CV, EV
Limestone		7.6	CS, ES, AC
Clay		4.1	CV, EV
Shale		8.2	CM, EM
Limestone		6.9	CS, ES, AC
Shale		4.4	CM, EM
Claystone		1.2	CV, EV
Coal		3.31	CS, ES, AC
Claystone		1.29	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # M84-7

*Coordinates: X. _____ Y. _____ Surface Elevation 1160.20'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		19.1	CM, EM
Limestone		2.5	CS, ES, AK
Shale		2.6	CM, EM
Limestone		26.5	CS, ES, AK
Claystone		3.4	CV, EV
Limestone		3.8	CS, ES, AK
Claystone		2.6	CV, EV
Shale		0.5	CM, EM
Shale		5.5	CM, EM
Limestone		15.5	CS, ES, AK
Claystone		2.4	CV, EV
Limestone		0.8	CS, ES, AK
Claystone		3.3	CV, EV
Shale		1.8	CM, EM
Coal		10.27	CS, ES, AC
Shale		1.57	CM, EM
Coal		0.56	CS, ES, AC
Shale		1.3	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-7

*Coordinates: X. _____ Y. _____ Surface Elevation 1160.20'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		3.2	CV, EV
Shale		1.7	CM, EM
Claystone		1.4	CV, EV
Shale		7.8	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-8

*Coordinates: X. S-26,774.93 Y. W-58,044.46 Surface Elevation 1183.00'
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		24.0	
Subsoil			
Sandy Shale		4.0	CM, EM
Claystone		2.6	CV, EV
Limestone		14.3	CS, ES, AK
Claystone		2.8	CV, EV
Sandy Shale		9.6	CM, EM
Shale		0.8	CM, EM
Claystone		11.0	CV, EV
Sandstone		11.6	CS, ES
Shale		8.3	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-8

*Coordinates: X. _____ Y. _____ Surface Elevation 1183.00'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		2.3	CS, ES, AC
Coal		1.6	CS, ES, AC
Shale		9.4	CM, EM
Sandy Shale		6.4	CM, EM
Claystone		3.8	CV, EV
Sandy Shale		7.7	CM, EM
Limestone		1.0	CS, ES, AK
Shale		5.0	CM, EM
Claystone		5.2	CV, EV
Sandy Shale		13.6	CM, EM
Sandstone		16.9	CS, ES
Sandy Shale		6.6	CM, EM
Shale		2.0	CM, EM
Limestone		0.6	CS, ES, AK
Claystone		2.3	CV, EV
Sandy Shale		5.8	CM, EM
Sandstone		10.1	CS, ES
Claystone		0.3	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-8

*Coordinates: X. _____ Y. _____ Surface Elevation 1183.00'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		1.4	CS, ES, AC
Sandstone		7.0	CS, ES
Shale		6.1	CM, EM
Coal		0.3	CS, ES, AC
Shale		0.6	CM, EM
Limestone		13.5	CS, ES, AK
Claystone		16.8	CV, EV
Claystone		0.8	CV, EV
Claystone		3.0	CV, EV
Shale		8.0	CM, EM
Claystone		2.9	CV, EV
Limestone		1.5	CS, ES, AK
Claystone		6.0	CV, EV
Shale		4.1	CM, EM
Limestone		8.4	CS, ES, AK
Claystone		5.0	CV, EV
Shale		12.9	CM, EM
Limestone		2.1	CS, ES, AK

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-8

*Coordinates: X. _____ Y. _____ Surface Elevation 1183.00'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		12.8	CM, EM
Limestone		2.2	CS, ES, AK
Shale		2.6	CM, EM
Limestone		12.4	CS, ES, AK
Shale		3.6	CM, EM
Limestone		8.0	CS, ES, AK
Shale		10.8	CM, EM
Limestone		5.3	CS, ES, AK
Shale		4.8	CM, EM
Coal		2.94	CS, ES, AC
Shale		5.86	CM, EM
Limestone		1.7	CS, ES, AK
Shale		10.6	CM, EM
Limestone		4.3	CS, ES, AK
Claystone		2.4	CV, EV
Limestone		20.2	CS, ES, AK
Claystone		3.3	CV, EV
Limestone		4.0	CS, ES, AK
Claystone		5.8	CV, EV

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-8

*Coordinates: X. _____ Y. _____ Surface Elevation 1183.00'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		4.22	CM, EM
Limestone		12.71	CS, ES, AK
Claystone		0.9	CV, EV
Limestone		0.7	CS, ES, AK
Claystone		2.8	CV, EV
Limestone		0.25	CS, ES, AK
Claystone		1.9	CV, EV
Coal		6.8	CS, ES, AC
Shale		16.12	CM, EM

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-1

*Coordinates: X. S-28,294.06 Y. W-59,207.28 Surface Elevation 948.06
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		5.0	
Subsoil			
Shale		7.0	CM, EM
Sandy Shale		15.0	CM, EM
Clay		9.0	CV, EV
Sandy Shale		9.0	CM, EM
Clay		6.0	CV, EV
Sandy Shale		2.0	CM, EM
Limestone		2.0	CS, ES, AK
Sandy Shale		3.0	CM, EM
Clay		8.0	CV, EV

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-1

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandy Shale		6.0	CM, EM
Clay		2.0	CV, EV
Sandy Shale		20.0	CM, EM
Limestone		4.0	CS, ES, AK
Clay		4.0	CV, EV
Sandy Shale		16.0	CM, EM
Shale		4.0	CM, EM
Sandy Shale		5.0	CM, EM
Shale		4.0	CM, EM
Coal		4.0	CS, ES, AC
Clay		4.0	CV, EV
Sandy Shale		6.0	CM, EM
Clay		9.0	CV, EV
Limestone		1.0	CS, ES, AK
Sandy Shale		2.0	CM, EM
Limestone		2.0	CS, ES, AK
Clay		2.0	CV, EV
Sandy Shale		3.0	CM, EM

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-1

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		6.0	CS, ES, AK
Sandy Shale		7.0	CM, EM
Limestone		2.0	CS, ES, AK
Sandy Shale		1.6	CM, EM
Limestone		1.6	CS, ES, AK
Sandy Shale		5.0	CM, EM
Shale		5.0	CM, EM
Sandy Shale		3.0	CM, EM
Coal		7.0	CS, ES, AC
Limestone		1.0	CS, ES, AK
Sandy Shale		1.0	CM, EM
Limestone		11.0	CS, ES, AK
Shale		0.6	CM, EM
Limestone		2.6	CS, ES, AK
Clay		7.0	CV, EV
Shale		0.6	CM, EM
Clay		0.11	CV, EV
Coal		0.9	CS, ES, AC

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-1

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Clay		0.9½	CV, EV
Coal		1.2½	CS, ES, AC
Clay		0.9	CV, EV
Coal		6.6½	CS, ES, AC
Clay		1.6½	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-2

*Coordinates: X. S-26,398.48 Y. W-59,800.38 Surface Elevation 980.05
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		3.0	
Subsoil			
Clay		3.0	CV, EV
Shale		1.0	CM, EM
Shale		33.0	CM, EM
Shale		0.6	CM, EM
Clay		6.6	CV, EV
Shale		15.0	CM, EM
Limestone		2.0	CS, ES, AK
Clay		7.0	CM, EM
Sandy Shale		21.0	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-2

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Clay		14.0	CV, EV
Sandy Shale		16.6	CM, EM
Shale		4.6	CM, EM
Sandy Shale		4.6	CM, EM
Clay		2.6	CV, EV
Sandy Shale		8.0	CM, EM
Clay		10.0	CV, EV
Sandy Shale		7.0	CM, EM
Shale		3.0	CM, EM
Coal		3.6	CS, ES, AC
Clay		1.6	CV, EV
Shale		5.0	CM, EM
Sandy Shale		4.0	CM, EM
Clay		9.0	CV, EV
Sandy Shale		6.0	CM, EM
Clay		2.0	CV, EV
Sandy Shale		22.0	CM, EM
Shale		4.0	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-2

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandy Shale		5.0	CM, EM
Shale		1.0	CM, EM
Shale		3.0	CM, EM
Limestone		15.0	CS, ES, AK
Clay		6.10	CV, EV
Shale		0.2	CM, EM
Clay		0.4	CV, EV
Shale		0.2	CM, EM
Clay		0.6	CV, EV
Shale		0.2	CM, EM
Coal		0.9½	CS, ES, AC
Clay		0.9½	CM, EM
Shale		0.1	CM, EM
Coal		4.7½	CS, ES, AC
Clay		1.6½	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-3

*Coordinates: X. S-29,778.94 Y. W-55,212.06 Surface Elevation 1214.34
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		15.0	
Subsoil			
Sandy Shale		15.0	CM, EM
Shale		20.0	CM, EM
Shale		13.8	CM, EM
Sandy Shale		1.20	CM, EM
Sandstone		14.45	CS, ES
Shale		11.15	CM, EM
Shale		13.10	CM, EM
Sandy Shale		5.40	CM, EM
Shale		0.9	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-3

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandy Shale		15.00	CM, EM
Shale		13.90	CM, EM
Sandy Shale		1.10	CM, EM
Shale		7.70	CM, EM
Sandy Shale		14.3	CM, EM
Sandstone		11.6	CS, ES
Limy Shale		11.4	CM, EM
Limy Shale		9.1	CM, EM
Coal		0.85	CS, ES, AC
Coal		0.25	CS, ES, AC
Shale		2.7	CM, EM
Sandstone		7.6	CS, ES
Shale		3.9	CM, EM
Coal		0.5	CS, ES, AC
Shale		1.3	CM, EM
Limestone		3.2	CS, ES, AK
Shale		0.6	CM, EM
Limy Shale		23.5	CM, EM

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-3

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandstone		6.5	CS, ES
Shale		1.4	CM, EM
Sandstone		0.45	CS, ES
Shale		2.2	CM, EM
Limy Shale		10.95	CM, EM
Shale		3.0	CM, EM
Limestone		87.0	CS, ES, AK
Limy Shale		3.1	CM, EM
Shale		0.1	CM, EM
Coal		3.15	CS, ES, AC
Shale		0.2	CM, EM
Limy Shale		19.65	CM, EM
Limestone		35.0	CS, ES, AK
Shale		3.0	CM, EM
Limy Shale		20.45	CM, EM
Limy Shale		2.4	CM, EM
Limy Shale		2.50	CM, EM
Shale		0.45	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-3

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.1	CM, EM
Shale		0.3	CM, EM
Coal		5.4	CS, ES, AC
Sandy Shale		9.2	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. S-27,363.42 Y. W-55,642.41 Surface Elevation 1215.56
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		17.0	
Subsoil			
Claystone		0.2	CV, EV
Claystone		1.80	CV, EV
Sandy Shale		1.6	CM, EM
Claystone		1.3	CV, EV
Sandy Shale		2.6	CM, EM
Sandstone		7.7	CS, ES
Sandy Shale		2.8	CM, EM
Claystone		1.4	CV, EV
Limy Shale		3.3	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		0.7	CS, ES, AK
Claystone		2.4	CV, EV
Limestone		2.00	CS, ES, AK
Limestone		0.4	CS, ES, AK
Limy Shale		2.4	CM, EM
Clayshale		12.0	CV, EV
Claystone		4.3	CV, EV
Coal		0.4	CS, ES, AC
Claystone		12.3	CV, EV
Claystone		5.2	CV, EV
Shale		0.1	CM, EM
Coal		0.2	CS, ES, AC
Shale		0.3	CM, EM
Claystone		3.3	CV, EV
Shale		1.45	CM, EM
Coal		0.2	CS, ES, AC
Shale		0.2	CM, EM
Coal		3.45	CS, ES, AC

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		2.70	CM, EM
Limy Shale		15.4	CM, EM
Sandstone		15.1	CS, ES
Sandstone		1.7	CS, ES
Limy Shale		1.4	CM, EM
Claystone		6.5	CV, EV
Shale		0.6	CM, EM
Claystone		1.2	CV, EV
Sandy Shale		4.6	CM, EM
Sandy Shale		6.00	CM, EM
Sandstone		7.8	CS, ES
Sandstone		15.2	CS, ES
Sandstone		10.8	CS, ES
Limy Shale		3.0	CM, EM
Limestone		0.9	CS, ES, AK
Limy Shale		0.3	CM, EM
Limestone		0.6	CS, ES, AK
Shale		0.1	CM, EM

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		2.3	CM, EM
Sandy Shale		1.0	CM, EM
Sandstone		0.4	CS, ES
Shale		2.1	CM, EM
Coal		0.33	CS, ES, AC
Coal		0.65	CS, ES, AC
Shale		0.16	CM, EM
Shale		0.16	CM, EM
Sandstone		7.8	CS, ES
Shale		5.9	CM, EM
Sandy Shale		3.8	CM, EM
Shale		0.5	CM, EM
Coal		0.10	CS, ES, AC
Limestone		4.10	CS, ES, AK
Limy Shale		8.5	CM, EM
Limy Shale		0.40	CM, EM
Limy Shale		16.4	CM, EM
Sandy Shale		2.4	CM, EM

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		2.3	CM, EM
Sandy Shale		2.8	CM, EM
Shale		1.7	CM, EM
Claystone		1.1	CV, EV
Claystone		0.30	CV, EV
Limestone		2.0	CS, ES, AK
Shale		3.1	CM, EM
Limy Shale		3.4	CM, EM
Sandy Shale		2.1	CM, EM
Limestone		2.2	CS, ES, AK
Limy Shale		1.9	CM, EM
Limestone		10.3	CS, ES, AK
Limy Shale		1.6	CM, EM
Limy Shale		5.9	CM, EM
Shale		2.9	CM, EM
Limy Shale		4.0	CM, EM
Limestone		6.8	CS, ES, AK
Limy Shale		2.2	CM, EM

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.9	CM, EM
Limestone		4.0	CS, ES, AK
Shale		0.7	CM, EM
Limestone		19.8	CS, ES, AK
Limy Shale		2.6	CM, EM
Limestone		8.0	CS, ES, AK
Limy Shale		9.6	CM, EM
Limestone		7.3	CS, ES, AK
Claystone		3.15	CV, EV
Coal		0.27	CS, ES, AC
Shale		0.04	CM, EM
Coal		1.55	CS, ES, AC
Shale		0.03	CM, EM
Coal		1.58	CS, ES, AC
Shale		0.21	CM, EM
Shale		0.57	CM, EM
Limy Shale		20.15	CM, EM
Limestone		1.50	CS, ES, AC

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-4

*Coordinates: X._____ Y._____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		1.7	CV, EV
Limy Shale		0.45	CM, EM
Coal		0.15	CS, ES, AC
Limy Shale		0.2	CM, EM
Limestone		24.3	CS, ES, AK
Limy Shale		2.55	CM, EM
Limestone		2.95	CS, ES, AK
Claystone		0.50	CV, EV
Claystone		1.55	CV, EV
Shale		0.15	CM, EM
Coal		0.28	CS, ES, AC
Shale		0.52	CM, EM
Sandstone		0.7	CS, ES
Shale		0.65	CM, EM
Limy Shale		0.75	CM, EM
Limestone		12.7	CS, ES, AK
Claystone		3.6	CV, EV
Claystone		1.3	CV, EV

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-4

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		1.2	CV, EV
Shale		0.66	CM, EM
Coal		0.7	CS, ES, AC
Shale		1.00	CM, EM
Coal		3.91	CS, ES, AC
Coal		0.92	CS, ES, AC
Shale		0.77	CM, EM
Sandy Shale		8.24	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-9

*Coordinates: X. S-23,360.29 Y. W-50,118.70 Surface Elevation 1278.37
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		15.00	
Subsoil			
Shale		30.0	CM, EM
Shale		15.5	CM, EM
Coal		0.50	CS, ES, AC
Limy Shale		14.0	CM, EM
Sandy Shale		10.00	CM, EM
Limy Shale		5.00	CM, EM
Sandy Shale		4.30	CM, EM
Shale		0.85	CM, EM
Shale		2.20	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-9

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.85	CM, EM
Sandy Shale		0.85	CM, EM
Limy Shale		18.95	CM, EM
Shale		2.00	CM, EM
Shale		15.00	CM, EM
Shale		3.00	CM, EM
Coal		0.40	CS, ES, AC
Shale		0.75	CM, EM
Limestone		3.30	CS, ES, AK
Limy Shale		14.95	CM, EM
Coal		2.75	CS, ES, AC
Shale		4.60	CM, EM
Sandy Shale		4.85	CM, EM
Shale		5.00	CM, EM
Limy Shale		60.00	CM, EM
Sandstone		14.40	CS, ES
Shale		6.00	CM, EM
Limestone		1.80	CS, ES, AK

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-9

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		17.45	CM, EM
Sandy Shale		0.90	CM, EM
Coal		0.70	CS, ES, AC
Shale		0.95	CM, EM
Sandstone		10.40	CS, ES
Sandy Shale		1.50	CM, EM
Shale		1.80	CM, EM
Coal		0.30	CS, ES, AC
Shale		0.50	CM, EM
Limestone		8.70	CS, ES, AK
Limy Shale		15.0	CM, EM
Shale		18.0	CM, EM
Shale		23.0	CM, EM
Shale		5.4	CM, EM
Limy Shale		13.6	CM, EM
Limestone		67.7	CS, ES, AK
Limy Shale		1.87	CM, EM
Coal		4.36	CS, ES, AC

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-9

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		1.10	CM, EM
Limestone		7.97	CS, ES, AK
Limy Shale		10.0	CM, EM
Limestone		39.0	CS, ES, AK
Shale		5.4	CM, EM
Coal		0.20	CS, ES, AC
Shale		2.4	CM, EM
Limestone		21.6	CS, ES, AK
Shale		3.4	CM, EM
Shale		0.40	CM, EM
Coal		1.93	CS, ES, AC
Shale		0.06	CM, EM
Coal		0.08	CS, ES, AC
Shale		0.84	CM, EM
Shale		0.25	CM, EM
Coal		6.45	CS, ES, AC
Shale		0.91	CM, EM
Shale		0.77	CM, EM

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-9

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		0.20	CS, ES, AC
Limy Shale		8.11	CM, EM

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. S-28,203.76 Y. W-54,128.55 Surface Elevation 1227.76
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		17.0	
Subsoil			
Shale		2.7	CM, EM
Claystone		1.2	CV, EV
Limestone		3.5	CS, ES, AK
Limy Shale		1.3	CM, EM
Sandy Shale		6.1	CM, EM
Claystone		2.8	CV, EV
Sandy Shale		6.1	CM, EM
Claystone		7.3	CV, EV
Limestone		0.8	CS, ES, AK

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		6.3	CM, EM
Limestone		2.6	CS, ES, AK
Limy Shale		5.0	CM, EM
Claystone		2.7	CV, EV
Claystone		2.2	CV, EV
Claystone		8.0	CV, EV
Claystone		0.8	CV, EV
Claystone		5.4	CV, EV
Limy Shale		3.4	CM, EM
Claystone		3.0	CV, EV
Limestone		0.4	CS, ES, AK
Clayshale		2.4	CV, EV
Shale		0.4	CM, EM
Coal		0.2	CS, ES, AC
Claystone		5.0	CV, EV
Shale		0.1	CM, EM
Coal		1.2	CS, ES, Ac
Shale		0.2	CM, EM
Coal		0.1	CS, ES, AC

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Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		2.2	CS, ES, AC
Shale		2.0	CM, EM
Shale		1.3	CM, EM
Claystone		2.10	CV, EV
Coal		0.20	CS, ES, AC
Shale		9.7	CM, EM
Sandy Shale		14.10	CM, EM
Limy Shale		1.5	CM, EM
Claystone		5.2	CV, EV
Sandstone		9.1	CS, ES
Shale		11.5	CM, EM
Clayshale		0.8	CV, EV
Claystone		1.6	CV, EV
Sandy Shale		3.6	CM, EM
Sandstone		40.9	CM, EM
Shale		3.0	CM, EM
Limy Shale		4.9	CM, EM
Limestone		0.8	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		2.2	CV, EV
Sandy Shale		2.0	CM, EM
Shale		0.35	CM, EM
Coal		0.30	CS, ES, AC
Shale		0.10	CM, EM
Coal		0.35	CS, ES, AC
Shale		0.3	CM, EM
Sandy Shale		1.8	CM, EM
Sandstone		8.7	CS, ES
Sandy Shale		3.0	CM, EM
Shale		6.5	CM, EM
Limy Shale		1.4	CM, EM
Limestone		3.7	CS, ES, AK
Clayshale		3.6	CV, EV
Limestone		0.9	CS, ES, AK
Clayshale		2.0	CV, EV
Limestone		2.4	CS, ES, AK
Clayshale		10.2	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		1.00	CS, ES, AK
Claystone		1.2	CV, EV
Limestone		0.8	CS, ES, AK
Clayshale		1.6	CV, EV
Sandy Shale		9.2	CM, EM
Shale		1.5	CM, EM
Shale		1.4	CM, EM
Limy Shale		0.4	CM, EM
Limestone		1.8	CS, ES, AK
Limy Shale		5.5	CM, EM
Sandstone		1.2	CS, ES
Limestone		1.10	CS, ES, AK
Claystone		2.0	CV, EV
Claystone		1.0	CV, EV
Liemstone		12.4	CS, ES, AK
Limy Shale		2.6	CM, EM
Limestone		3.6	CS, ES, AK
Limy Shale		5.5	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		10.7	CS, ES, AK
Limy Shale		3.6	CM, EM
Limestone		4.4	CS, ES, AK
Limy Shale		2.2	CM, EM
Limestone		20.6	CS, ES, AK
Shale		3.1	CM, EM
Limestone		10.2	CS, ES, AK
Limy Shale		1.3	CM, EM
Limestone		6.0	CS, ES, AK
Limy Shale		1.7	CM, EM
Limestone		6.3	CS, ES, AK
Limy Shale		1.8	CM, EM
Claystone		1.8	CV, EV
Shale		0.15	CM, EM
Coal		1.17	CS, ES, AC
Shale		0.07	CM, EM
Coal		0.90	CS, ES, AC
Shale		0.06	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		1.44	CS, ES, AC
Coal		0.17	CS, ES, AC
Shale		1.74	CM, EM
Limestone		7.00	CS, ES, AK
Shale		11.90	CM, EM
Limestone		3.2	CS, ES, AK
Claystone		1.4	CV, EV
Shale		1.0	CM, EM
Limestone		28.4	CS, ES, AK
Limy Shale		3.0	CM, EM
Limestone		3.3	CS, ES, AK
Claystone		2.4	CV, EV
Shale		0.4	CM, EM
Coal		0.85	CS, ES, AC
SHale		0.25	CM, EM
Claystone		2.2	CV, EV
Shale		1.0	CM, EM
Limestone		9.0	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X._____ Y._____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		12.9	CM, EM
Limestone		2.5	CS, ES, AK
Claystone		2.0	CV, EV
Shale		2.05	CM, EM
Shale		0.05	CM, EM
Coal		0.57	CS, ES, AC
Shale		0.45	CM, EM
Coal		0.19	CS, ES, AC
Shale		0.02	CM, EM
Coal		0.07	CS, ES, AC
Shale		0.03	CM, EM
Coal		1.15	CS, ES, AC
Shale		0.13	CM, EM
Coal		0.08	CS, ES, AC
Shale		0.41	CM, EM
Claystone		0.35	CV, EV
Shale		0.53	CM, EM
Coal		7.22	CS, ES, AC

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-5

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		0.32	CS, ES, AC
Shale		0.17	CM, EM
Shale		0.35	CM, EM
Limy Shale		0.41	CM, EM
Shale		0.41	CM, EM
Coal		0.12	CS, ES, AC
Shale		1.06	CM, EM
Shale		0.91	CM, EM
Sandy Shale		1.62	CM, EM
Coal		2.25	CS, ES, AC
Coal		1.16	CS, ES, AC
Shale		0.85	CM, EM
Sandstone		0.40	CS, ES
Sandy Shale		3.27	CM, EM
Shale		2.20	CM, EM
Sandstone		1.80	CS, ES
Sandstone		6.8	CS, ES

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-6

*Coordinates: X. S-26,237.91 Y. W-53,491.12 Surface Elevation 1207.53
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		15.00	
Subsoil			
Sandy Shale		15.0	CM, EM
Limy Shale		10.0	CM, EM
Shale		15.0	CM, EM
Limy Shale		15.0	CM, EM
Sandy Shale		4.0	CM, EM
Sandstone		11.0	CS, ES
Sandy Shale		6.9	CM, EM
Shale		3.10	CM, EM
Sandstone		2.6	CS, ES

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-6

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		6.4	CM, EM
Limy Shale		11.0	CM, EM
Shale		22.5	CM, EM
Shale		8.9	CM, EM
Limy Shale		25.0	CM, EM
Sandstone		17.6	CS, ES
Shale		4.3	CM, EM
Shale		3.3	CM, EM
Limy Shale		6.2	CM, EM
Sandy Shale		1.4	CM, EM
Shale		0.4	CM, EM
Coal		0.65	CS, ES, AC
Shale		2.3	CM, EM
Sandstone		2.55	CS, ES
Shale		9.00	CM, EM
Coal		0.35	CS, ES, AC
Shale		1.55	CM, EM
Limestone		14.0	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-6

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		15.0	CM, EM
Sandy Shale		9.7	CM, EM
Limestone		80.3	CS, ES, AK
Limy Shale		12.00	CM, EM
Limestone		9.10	CS, ES, AK
Shale		3.65	CM, EM
Coal		3.85	CS, ES, AC
Shale		19.3	CM, EM
Limestone		53.2	CS, ES, AK
Limy Shale		6.7	CM, EM
Shale		3.0	CM, EM
Coal		0.25	CS, ES, AC
Shale		1.0	CM, EM
Coal		5.26	CS, ES, AC
Shale		1.0	CM, EM
Limestone		1.2	CS, ES, AC
Limy Shale		10.49	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-7

*Coordinates: X. S-24,682.45 Y. W-52,488.84 Surface Elevation 1206.62
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		30.00	
Subsoil			
Shale		49.7	CM, EM
Coal		2.9	CS, ES, AC
Shale		12.4	CM, EM
Limy Shale		23.0	CM, EM
Sandstone		17.0	CS, ES
Limy Shale		14.0	CM, EM
Sandy Shale		9.00	CM, EM
Shale		12.00	CM, EM
Sandy Shale		15.0	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-7

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		11.4	CM, EM
Coal		0.90	CS, ES, AC
Shale		1.4	CM, EM
Sandstone		4.5	CS, ES
Shale		7.4	CM, EM
Coal		0.30	CS, ES, AC
Shale		1.2	CM, EM
Limestone		2.9	CS, ES, AK
Limy Shale		28.0	CM, EM
Sandstone		3.0	CS, ES
Shale		6.2	CM, EM
Limestone		24.8	CS, ES, AK
Limy Shale		13.0	CM, EM
Limestone		62.0	CS, ES, AK
Shale		2.15	CM, EM
Coal		4.0	CS, ES, AC
Shale		1.7	CM, EM
Limestone		6.15	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-7

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		11.0	CM, EM
Limestone		3.0	CS, ES, AK
Shale		2.0	CM, EM
Limestone		47.3	CS, ES, AK
Limy Shale		5.5	CM, EM
Shale		4.9	CM, EM
Coal		0.25	CS, ES, AC
Shale		0.83	CM, EM
Coal		5.4	CS, ES, AC
Limy Shale		9.82	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. S-25,024.41 Y. W-51,285.65 Surface Elevation 1224.50
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		16.50	
Subsoil			
Claystone		4.10	CV, EV
Clayshale		1.60	CV, EV
Sandy Shale		3.2	CM, EM
Sandstone		2.00	CS, ES
Claystone		2.6	CV, EV
Sandstone		0.20	CS, ES
Claystone		0.9	CV, EV
Sandstone		1.6	CS, ES
Claystone		5.7	CV, EV

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #____

*Coordinates: X.____ Y.____ Surface Elevation ____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandstone		4.1	CS, ES
Claystone		4.8	CV, EV
Shale		3.2	CM, EM
Limestone		1.0	CS, ES, AK
Clayshale		2.6	CV, EV
Limestone		0.20	CS, ES, AK
Limy Shale		2.3	CM, EM
Limestone		0.10	CS, ES, AK
Limy Shale		3.4	CM, EM
Limestone		0.50	CS, ES, AK
Claystone		4.9	CV, EV
Limestone		0.6	CS, ES, AK
Clayshale		5.4	CV, EV
Sandy Shale		0.4	CM, EM
Claystone		4.3	CV, EV
Claystone		0.50	CV, EV
Clayshale		0.40	CV, EV
Limestone		0.8	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		7.10	CV, EV
Claystone		10.0	CV, EV
Shale		0.4	CM, EM
Coal		0.30	CS, ES, AC
Shale		0.60	CM, EM
Coal		0.40	CS, ES, AC
Shale		0.20	CM, EM
Coal		1.10	CS, ES, AC
Clayshale		2.0	CV, EV
Shale		1.3	CM, EM
Coal		0.10	CS, ES, AC
Sandy Shale		0.30	CM, EM
Clayshale		8.6	CV, EV
Limestone		0.5	CS, ES, AK
Claystone		4.3	CV, EV
Claystone		3.2	CV, EV
Limestone		1.4	CS, ES, AK
Sandy Shale		7.1	CM, EM

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandstone		2.4	CS, ES
Sandy Shale		1.4	CM, EM
Claystone		6.7	CV, EV
Sandy Shale		2.3	CM, EM
Shale		0.40	CM, EM
Sandy Shale		8.8	CM, EM
Limestone		1.3	CS, ES, AK
Claystone		4.9	CV, EV
Claystone		4.5	CV, EV
Limy Claystone		11.5	CV, EV
Claystone		18.6	CV, EV
Limestone		1.6	CS, ES, AK
Claystone		9.3	CV, EV
Limestone		3.4	CS, ES, AK
Limy Shale		1.3	CM, EM
Limestone		0.6	CS, ES, AK
Claystone		2.4	CV, EV
Limestone		0.2	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		0.50	CV, EV
Claystone		1.20	CV, EV
Shale		0.70	CM, EM
Sandstone		0.50	CS, ES
Claystone		0.50	CV, EV
Coal		0.20	CS, ES, AC
Sandy Shale		2.90	CM, EM
Claystone		1.10	CV, EV
Sandstone		2.0	CS, ES
Claystone		1.3	CV, EV
Sandstone		0.7	CS, ES
Shale		2.80	CM, EM
Sandy Shale		0.50	CM, EM
Clayshale		4.00	CV, EV
Coal		0.30	CS, ES, AC
Claystone		1.50	CV, EV
Limestone		2.7	CS, ES, AK
Claystone		1.90	CV, EV

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		1.4	CS, ES, AK
Clayshale		2.1	CV, EV
Limestone		2.0	CS, ES, AK
Claystone		10.8	CV, EV
Clayshale		5.8	CV, EV
Shale		0.60	CM, EM
Sandy Shale		1.5	CM, EM
Limestone		0.3	CS, ES, AK
Clayshale		2.5	CV, EV
Sandstone		4.3	CS, ES
Shale		3.7	CM, EM
Claystone		0.80	CV, EV
Clayshale		0.4	CV, EV
Limestone		5.8	CS, ES, AK
Clayshale		1.50	CV, EV
Limestone		2.0	CS, ES, AK
Claystone		1.0	CV, EV
Claystone		3.0	CV, EV

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-8

*Coordinates: X._____ Y._____ Surface Elevation ____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		1.3	CM, EM
Limestone		9.4	CS, ES, AK
Limy Shale		4.6	CM, EM
Limestone		5.3	CS, ES, AK
Limy Shale		2.7	CM, EM
Limestone		0.6	CS, ES, AK
Limy Shale		3.0	CM, EM
Limestone		15.0	CS, ES, AK
Claystone		2.0	CV, EV
Limestone		18.10	CS, ES, AK
Clayshale		2.3	CV, EV
Limestone		26.3	CS, ES, AK
Claystone		0.80	CV, EV
Limestone		0.3	CS, ES, AK
Claystone		3.0	CV, EV
Coal		1.21	CS, ES, AC
Limy Shale		0.04	CM, EM
Coal		0.14	CS, ES, AC

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.03	CM, EM
Coal		0.76	CS, ES, AC
Coal		1.75	CS, ES, AC
Claystone		1.10	CV, EV
Limy Shale		1.6	CM, EM
Limestone		1.6	CS, ES, AK
Claystone		1.7	CV, EV
Limestone		2.5	CS, ES, AK
Claystone		9.2	CV, EV
Claystone		1.9	CV, EV
Limestone		2.6	CS, ES, AK
Claystone		1.9	CV, EV
Claystone		0.7	CV, EV
Limestone		14.6	CS, ES, AK
Claystone		0.7	CV, EV
Limestone		4.5	CS, ES, AK
Clay		0.5	CV, EV
Limestone		3.1	CS, ES, AK

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		3.2	CV, EV
Limestone		3.8	CS, ES, AK
Claystone		1.4	CV, EV
Claystone		4.1	CV, EV
Claystone		3.4	CV, EV
Limestone		11.2	CS, ES, AK
Shale		0.50	CM, EM
Limestone		2.6	CS, ES, AK
Limy Shale		0.30	CM, EM
Limestone		2.20	CS, ES, AK
Limy Shale		1.10	CM, EM
Limestone		0.40	CS, ES, AK
Limy Shale		0.40	CM, EM
Limestone		0.60	CS, ES, AK
Limy Shale		3.40	CM, EM
Claystone		0.25	CV, EV
Claystone		0.13	CV, EV
Claystone		0.25	CV, EV
Shale		0.50	CM, EM

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-8

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		0.82	CS, ES, AC
Shale		0.02	CM, EM
Shale		0.10	CM, EM
Coal		0.05	CS, ES, AC
Shale		0.08	CM, EM
Claystone		0.82	CV, EV
Shale		0.10	CM, EM
Coal		2.49	CS, ES, AC
Coal		4.14	CS, ES, AC
Shale		0.16	CM, EM
Clayshale		9.05	CV, EV
Sandy Shale		0.50	CM, EM
Claystone		2.70	CV, EV

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-10

*Coordinates: X. S-23,859.87 Y. W-54,513.62 Surface Elevation 1273.10
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		15.00	
Subsoil			
Shale		15.00	CM, EM
Shale		15.00	CM, EM
Limy Shale		10.00	CM, EM
Sandy Shale		6.60	CM, EM
Shale		8.40	CM, EM
Shale		8.00	CM, EM
Limy Shale		14.00	CM, EM
Shale		9.40	CM, EM
Sandstone		11.00	CS, ES

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-10

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		2.60	CM, EM
Sandy Shale		13.40	CM, EM
Limy Shale		34.10	CM, EM
Shale		8.80	CM, EM
Shale		0.50	CM, EM
Coal		3.05	CS, ES, AC
Sandy Shale		2.40	CM, EM
Shale		2.10	CM, EM
Limy Shale		25.65	CM, EM
Limy Shale		21.00	CM, EM
Shale		9.00	CM, EM
Limy Shale		15.70	CM, EM
Sandstone		5.80	CS, ES
Shale		6.60	CM, EM
Limestone		1.90	CS, ES, AK
Limy Shale		14.00	CM, EM
Sandstone		3.30	CS, ES
Shale		2.20	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-10

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		2.18	CS, ES, AC
Sandy Shale		9.22	CM, EM
Shale		2.70	CM, EM
Coal		0.33	CS, ES, AC
Shale		1.40	CM, EM
Limestone		9.67	CS, ES, AK
Limy Shale		11.60	CM, EM
Sandy Shale		8.40	CM, EM
Shale		3.20	CM, EM
Sandy Shale		6.80	CM, EM
Shale		4.20	CM, EM
Limestone		9.20	CS, ES, AK
Shale		3.40	CM, EM
Limestone		7.25	CS, ES, AK
Shale		5.95	CM, EM
Shale		30.00	CM, EM
Limestone		49.20	CS, ES, AK
Shale		2.25	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-10

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		3.40	CS, ES, AC
Shale		3.00	CM, EM
Limy Shale		17.15	CM, EM
Limestone		52.90	CS, ES, AK
Limy Shale		7.10	CM, EM
Shale		0.80	CM, EM
Shale		0.30	CM, EM
Coal		1.43	CS, ES, AC
Shale		0.97	CM, EM
Coal		2.05	CS, ES, AC
Coal		3.35	CS, ES, AC
Shale		5.85	CM, EM
Limy Shale		5.16	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-11

*Coordinates: X. S-25,787.25 Y. W-51,276.36 Surface Elevation 1204.35
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		30.00	
Subsoil			
Limy Shale		10.00	CM, EM
Shale		35.20	CM, EM
Coal		3.25	CS, ES, AC
Shale		11.55	CM, EM
Limy Shale		10.00	CM, EM
Sandy Shale		7.30	CM, EM
Limy Shale		13.10	CM, EM
Sandstone		7.30	CS, ES
Shale		1.90	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-11

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		1.40	CS, ES, AK
Shale		12.00	CM, EM
Limy Shale		13.30	CM, EM
Sandy Shale		3.70	CM, EM
Shale		7.70	CM, EM
Sandy Shale		5.50	CM, EM
Shale		13.80	CM, EM
Sandstone		3.00	CS, ES
Shale		0.75	CM, EM
Sandstone		8.20	CS, ES
Shale		7.65	CM, EM
Coal		0.30	CS, ES, AC
Limestone		13.10	CS, ES, AK
Limy Shale		17.80	CM, EM
Sandstone		5.30	CS, ES
Limy Shale		5.30	CM, EM
Limestone		105.00	CS, ES, AK
Shale		2.70	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-11

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		3.45	CS, ES, AC
Shale		0.95	CM, EM
Limy Shale		17.90	CM, EM
Limestone		57.90	CS, ES, AK
Shale		4.30	CM, EM
Coal		0.35	CS, ES, AC
Shale		0.95	CM, EM
Shale		0.10	CM, EM
Coal		5.13	CS, ES, AC
Shale		7.87	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-12

*Coordinates: X. S-21,427.36 Y. W-58,712.02 Surface Elevation 1278.90
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		15.00	
Subsoil			
Shale		10.00	CM, EM
Limy Shale		22.00	CM, EM
Sandstone		8.00	CS, ES
Limy Shale		15.00	CM, EM
Shale		5.50	CM, EM
Sandy Shale		5.70	CM, EM
Shale		6.80	CM, EM
Shale		34.50	CM, EM
Sandy Shale		17.50	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-12

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		5.00	CM, EM
Limy Shale		17.80	CM, EM
Sandstone		6.10	CS, ES
Shale		6.10	CM, EM
Limy Shale		18.60	CM, EM
Shale		4.70	CM, EM
Shale		0.60	CM, EM
Coal		1.80	CS, ES, AC
Shale		0.55	CM, EM
Sandstone		2.60	CS, ES
Shale		3.35	CM, EM
Sandstone		5.40	CS, ES
Shale		22.40	CM, EM
Sandstone		10.00	CS, ES
Shale		29.00	CM, EM
Sandy Shale		18.20	CM, EM
Shale		17.40	CM, EM
Coal		1.80	CS, ES, AC

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(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-12

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		8.20	CM, EM
Coal		0.30	CS, ES, AC
Limy Shale		12.10	CM, EM
Sandy Shale		13.40	CM, EM
Shale		4.10	CM, EM
Coal		2.10	CS, ES, AC
Coal		0.50	CS, ES, AC
Shale		11.38	CM, EM
Limy Shale		6.40	CM, EM
Limestone		22.30	CS, ES, AK
Limy Shale		7.70	CM, EM
Limestone		63.85	CS, ES, AK
Shale		1.35	CM, EM
Coal		3.70	CS, ES, AC
Limy Shale		19.10	CM, EM
Limestone		52.50	CS, ES, AK
Limy Shale		7.80	CM, EM
Shale		0.60	CM, EM
Coal		1.15	CS, ES, AC

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-12

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.93	CM, EM
Coal		5.58	CS, ES, AC
Limy Shale		11.44	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. S-22,613.29 Y. W-60,685.81 Surface Elevation 1042.84
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		17.00	
Subsoil			
Claystone		2.00	CV, EV
Claystone		2.10	CV, EV
Claystone		7.40	CV, EV
Sandstone		3.70	CS, ES
Shale		4.40	CM, EM
Claystone		1.60	CV, EV
Shale		0.20	CM, EM
Sandy Shale		3.60	CM, EM
Shale		3.10	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		1.10	CV, EV
Shale		0.30	CM, EM
Limy Shale		1.20	CM, EM
Sandy Shale		2.90	CM, EM
Limestone		0.70	CS, ES, AK
Shale		2.40	CM, EM
Limy Shale		1.30	CM, EM
Shale		5.00	CM, EM
Sandstone		0.70	CS, ES
Shale		1.30	CM, EM
Shale		0.65	CM, EM
Coal		1.45	CS, ES, AC
Shale		0.10	CM, EM
Claystone		0.60	CV, EV
Sandy Shale		2.00	CM, EM
Sandstone		0.30	CS, ES
Sandy Shale		0.70	CM, EM
Shale		6.40	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.85	CM, EM
Coal		0.25	CS, ES, AC
Limy Shale		7.70	CM, EM
Shale		5.10	CM, EM
Shale		14.40	CM, EM
Shale		3.00	CM, EM
Coal		1.80	CS, ES, AC
Shale		0.3	CM, EM
Shale		0.20	CM, EM
Shale		3.40	CM, EM
Sandy Shale		1.20	CM, EM
Sandstone		2.00	CS, ES
Shale		2.40	CM, EM
Limy Shale		7.8	CM, EM
Limestone		2.30	CS, ES, AK
Limy Shale		5.50	CM, EM
Limestone		4.80	CS, ES, AK
Limy Shale		1.20	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		4.0	CS, ES, AK
Limy Shale		7.10	CM, EM
Sandstone		8.2	CS, ES
Sandstone		1.10	CS, ES
Limy Shale		0.50	CM, EM
Limestone		2.40	CS, ES, AK
Limy Shale		0.70	CM, EM
Limestone		1.90	CS, ES, AK
Shale		3.30	CM, EM
Limestone		9.00	CS, ES, AK
Limy Shale		0.30	CM, EM
Limestone		4.70	CS, ES, AK
Limy Shale		0.60	CM, EM
Limestone		6.90	CS, ES, AK
Limy Shale		0.70	CM, EM
Limestone		0.90	CS, ES, AK
Limy Shale		2.90	CM, EM
Limestone		8.20	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		4.90	CM, EM
Limy Shale		10.30	CM, EM
Shale		3.80	CM, EM
Shale		0.35	CM, EM
Coal		2.10	CS, ES, AC
Shale		0.05	CM, EM
Coal		0.20	CS, ES, AC
Shale		0.10	CM, EM
Coal		1.30	CS, ES, AC
Shale		0.20	CM, EM
Limy Shale		1.20	CM, EM
Limestone		3.60	CS, ES, AK
Limy Shale		1.30	CM, EM
Limestone		1.70	CS, ES, AK
Limy Shale		12.00	CM, EM
Limestone		2.70	CS, ES, AK
Limy Shale		4.30	CM, EM
Limestone		11.60	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limy Shale		0.40	CM, EM
Limestone		10.10	CS, ES, AK
Limy Shale		2.00	CM, EM
Limestone		3.30	CS, ES, AK
Limy Shale		2.40	CM, EM
Limy Shale		3.50	CM, EM
Limestone		10.00	CS, ES, AK
Clay		4.80	CV, EV
Limy Shale		7.20	CM, EM
Shale		0.30	CM, EM
Shale		0.10	CM, EM
Coal		0.05	CS, ES, AC
Shale		0.85	CM, EM
Coal		0.20	CS, ES, AC
Coal		0.20	CS, ES, AC
Coal		4.90	CS, ES, AC
Shale		0.70	CM, EM
Clay		1.20	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-13

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.90	CM, EM
Sandy Shale		7.60	CM, EM
Sandstone		2.60	CS, ES

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-15

*Coordinates: X. S-24,686.95 Y. W-62,406.70 Surface Elevation 1271.52
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		17.00	
Subsoil			
Clay		12.00	CV, EV
Limestone		0.30	CS, ES, AK
Clay		0.70	CV, EV
Clayshale		1.40	CV, EV
Clayshale		3.00	CV, EV
Clayshale		3.00	CV, EV
Sandstone		1.00	CS, ES
Sandy Shale		3.30	CM, EM
Shale		9.00	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.70	CM, EM
Clay		1.20	CV, EV
Limestone		0.70	CS, ES, AK
Shale		2.60	CM, EM
Shale		5.30	CM, EM
Clayshale		3.00	CV, EV
Shale		6.7	CM, EM
Shale		2.8	CM, EM
Shale		2.3	CM, EM
Shale		2.00	CM, EM
Shale		1.20	CM, EM
Limy Shale		0.40	CM, EM
Limestone		0.50	CS, ES, AK
Limy Shale		3.50	CM, EM
Limy Shale		10.60	CM, EM
Limy Shale		2.30	CM, EM
Claystone		1.40	CV, EV
Limy Shale		7.50	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-15

*Coordinates: X._____ Y._____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Clayshale		4.00	CV, EV
Claystone		1.50	CV, EV
Sandstone		5.10	CS, ES
Sandy Shale		8.40	CM, EM
Sandy Shale		6.00	CM, EM
Clayshale		4.10	CV, EV
Limestone		0.70	CS, ES, AK
Shale		2.40	CM, EM
Limestone		0.50	CS, ES, AK
Shale		2.50	CM, EM
Limy Shale		2.40	CM, EM
Limestone		7.20	CS, ES, AK
Limy Shale		4.30	CM, EM
Shale		8.70	CM, EM
Shale		1.60	CM, EM
Limy Shale		2.00	CM, EM
Limestone		1.20	CS, ES, AK
Limy Shale		6.50	CM, EM
Claystone		6.60	CV, EV

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.60	CM, EM
Claystone		3.70	CV, EV
Shale		0.30	CM, EM
Coal		0.77	CS, ES, AC
Shale		0.09	CM, EM
Coal		0.20	CS, ES, AC
Shale		0.61	CM, EM
Coal		0.25	CS, ES, AC
Shale		0.18	CM, EM
Coal		0.70	CS, ES, AC
Shale		0.20	CM, EM
Shale		1.20	CM, EM
Sandstone		0.20	CS, ES
Shale		1.20	CM, EM
Sandy Shale		8.00	CM, EM
Shale		1.90	CM, EM
Sandy Shale		4.00	CM, EM
Shale		11.2	CM, EM

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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Sandy Shale		5.20	CM, EM
Shale		4.70	CM, EM
Shale		1.40	CM, EM
Shale		0.60	CM, EM
Coal		0.35	CS, ES, AC
Limy Shale		0.15	CM, EM
Limestone		0.60	CS, ES, AK
Limy Shale		0.60	CM, EM
Claystone		23.4	CV, EV
Sandy Shale		2.90	CM, EM
Shale		11.00	CM, EM
Sandy Shale		1.4	CM, EM
Shale		5.90	CM, EM
Shale		0.30	CM, EM
Coal		1.10	CS, ES, AC
Sandy Shale		1.60	CM, EM
Sandstone		11.50	CS, ES
Shale		1.20	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.25	CM, EM
Coal		0.35	CS, ES, AC
Limy Shale		0.40	CM, EM
Claystone		10.00	CV, EV
Shale		15.85	CM, EM
Shale		0.11	CM, EM
Coal		0.22	CS, ES, AC
Shale		0.05	CM, EM
Coal		0.27	CS, ES, AC
Shale		0.09	CM, EM
Coal		1.62	CS, ES, AC
Limy Shale		0.11	CM, EM
Coal		0.18	CS, ES, AC
Limy Shale		0.17	CM, EM
Coal		0.40	CS, ES, AC
Claystone		2.60	CV, EV
Sandy Shale		5.10	CM, EM
Shale		1.40	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		1.63	CV, EV
Limestone		1.40	CS, ES, AK
Limy Shale		1.70	CM, EM
Limestone		2.50	CS, ES, AK
Limy Shale		1.70	CM, EM
Limestone		2.30	CS, ES, AK
Claystone		3.30	CV, EV
Limestone		15.50	CS, ES, AK
Shale		2.20	CM, EM
Sandstone		9.20	CS, ES
Limestone		5.40	CS, ES, AK
Shale		2.30	CM, EM
Limestone		3.70	CS, ES, AK
Limy Shale		2.70	CM, EM
Limestone		14.00	CS, ES, AK
Limy Shale		0.70	CM, EM
Limestone		0.80	CS, ES, AK
Limy Shale		3.20	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		8.10	CS, ES, AK
Limy Shale		1.10	CM, EM
Limestone		1.50	CS, ES, AK
Limy Shale		1.00	CM, EM
Limy Shale		3.80	CM, EM
Limestone		7.00	CS, ES, AK
Limy Shale		0.60	CM, EM
Limy Shale		3.30	CM, EM
Shale		1.95	CM, EM
Coal		0.10	CS, ES, AC
Coal		0.43	CS, ES, AC
Shale		0.05	CM, EM
Coal		1.89	CS, ES, AC
Shale		0.04	CM, EM
Coal		0.84	CS, ES, AC
Shale		0.10	CM, EM
Shale		0.80	CM, EM
Limy Shale		1.70	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		6.4	CS, ES, AK
Limy Shale		7.00	CM, EM
Shale		3.00	CM, EM
Limestone		3.20	CS, ES, AK
Claystone		1.50	CV, EV
Shale		0.70	CM, EM
Limy Shale		0.30	CM, EM
Limestone		12.2	CS, ES, AK
Limy Shale		1.3	CM, EM
Limestone		9.3	CS, ES, AK
Limy Shale		3.10	CM, EM
Limestone		3.50	CS, ES, AK
Claystone		3.00	CV, EV
Shale		0.70	CM, EM
Limy Shale		2.20	CM, EM
Limestone		13.20	CS, ES, AK
Limy Shale		2.70	CM, EM
Claystone		1.6	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-15

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		2.9	CV, EV
Clay		0.25	CV, EV
Shale		0.53	CM, EM
Clay		0.76	CV, EV
Coal		4.95	CS, ES, AC
Shale		0.26	CM, EM
Shale		0.15	CM, EM
Shale		0.60	CM, EM
Limy Shale		12.80	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-16

*Coordinates: X. S-24,621.25 Y. W-60,534.98 Surface Elevation 1010.63
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		16.00	
Subsoil			
Shale		7.7	CM, EM
Shale		3.6	CM, EM
Claystone		1.0	CV, EV
Sandy Shale		3.70	CM, EM
Shale		7.00	CM, EM
Sandstone		0.60	CS, ES
Sandy Shale		2.20	CM, EM
Shale		0.40	CM, EM
Shale		0.35	CM, EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-16

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		2.75	CS, ES, AC
Shale		0.50	CM, EM
Claystone		2.20	CV, EV
Sandy Shale		4.00	CM, EM
Clay		0.30	CV, EV
Shale		4.90	CM, EM
Coal		0.30	CS, ES, AC
Claystone		2.50	CV, EV
Sandy Shale		21.40	CM, EM
Shale		4.00	CM, EM
Coal		1.95	CS, ES, AC
Shale		0.15	CM, EM
Coal		0.35	CS, ES, AC
Shale		0.35	CM, EM
Coal		0.35	CS, ES, AC
Claystone		1.45	CV, EV
Sandy Shale		4.90	CM, EM
Shale		3.60	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N86-16

*Coordinates: X._____ Y._____ Surface Elevation ____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.20	CM, EM
Shale		0.40	CM, EM
Limestone		6.10	CS, ES, AK
Limy Shale		0.90	CM, EM
Limestone		1.40	CS, ES, AK
Limy Shale		6.20	CM, EM
Limestone		10.20	CS, ES, AK
Claystone		1.70	CV, EV
Limestone		4.40	CS, ES, AK
Limy Shale		7.30	CM, EM
Limestone		3.40	CS, ES, AK
Claystone		1.20	CV, EV
Limestone		2.80	CS, ES, AK
Shale		2.40	CM, EM
Limestone		3.90	CS, ES, AK
Limy Shale		1.10	CM, EM
Limestone		19.00	CS, ES, AK
Limy Shale		2.30	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-16

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		6.3	CS, ES, AK
Limy Shale		0.30	CM, EM
Limestone		16.60	CS, ES, AK
Limy Shale		1.90	CM, EM
Clayshale		2.30	CV, EV
Coal		3.60	CS, ES, AC
Shale		0.15	CM, EM
Shale		1.70	CM, EM
Limestone		3.75	CS, ES, AK
Limy Shale		1.10	CM, EM
Limestone		2.10	CS, ES, AK
Limy Shale		8.20	CM, EM
Shale		2.70	CM, EM
Limestone		2.90	CS, ES, AK
Claystone		1.30	CV, EV
Limy Shale		0.40	CM, EM
Limestone		18.50	CS, ES, AK
Limy Shale		0.40	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-16

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		3.90	CS, ES, AK
Clayshale		3.00	CV, EV
Limestone		4.20	CS, ES, AK
Claystone		1.50	CV, EV
Shale		0.60	CM, EM
Claystone		1.20	CV, EV
Sandy Shale		3.30	CM, EM
Limestone		3.00	CS, ES, AK
Limy Shale		1.40	CM, EM
Limestone		9.10	CS, ES, AK
Claystone		0.20	CM, EM
Limestone		0.70	CS, ES, AK
Limy Shale		2.00	CM, EM
Limestone		1.70	CS, ES, AK
Claystone		3.40	CV, EV
Clayshale		0.80	CV, EV
Clay		1.25	CV, EV
Coal		0.15	CS, ES, AC
Shale		0.56	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N86-16

*Coordinates: X. _____ Y. _____ Surface Elevation _____

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Coal		5.32	CS, ES, AC
Shale		0.25	CM, EM
Sandy Shale		9.87	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-5

*Coordinates: X. S-20,456.22 Y. W-61,489.79 Surface Elevation 1285.13'
Exchange Coordinate System

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		20.0	
Subsoil			
Sandy Shale		17.8	CM, EM
Shale		1.4	CM, EM
Limestone		10.8	CS, ES, AK
Claystone		7.0	CV, EV
Sandstone		5.2	CS, ES
Shale		2.3	CM, EM
Sandy Shale		10.5	CM, EM
Shale		4.5	CM, EM
Claystone		9.0	CV, EV

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

***If other than State Plane, indicate coordinate system.**

****Indicate water bearing stratum with an asterisk (*) under column labelled H_2O**

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-5

*Coordinates: X. _____ Y. _____ Surface Elevation 1285.13'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		7.5	CV, EV
Limestone		8.5	CS, ES, AK
Claystone		6.0	CV, EV
Shale		8.5	CM, EM
Sandy Shale		6.3	CM, EM
Claystone		3.0	CV, EV
Limestone		14.2	CS, ES, AK
Claystone		5.5	CV, EV
Sandy Shale		8.5	CM, EM
Shale		3.0	CM, EM
Claystone		12.0	CV, EV
Shale		8.7	CM, EM
Shale		8.3	CM, EM
Shale		1.4	CM, EM
Sandstone		11.0	CS, ES
Claystone		13.6	CV, EV
Sandy Shale		10.0	CM, EM
Shale		6.0	CM, EM

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-5

*Coordinates: X. _____ Y. _____ Surface Elevation 1285.13'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		4.5	CV, EV
Shale		7.2	CM, EM
Shale		0.7	CM, EM
Limestone		2.6	CS, ES, AK
Claystone		6.5	CV, EV
Sandy Shale		7.5	CM, EM
Shale		4.7	CM, EM
Sandy Shale		4.8	CM, EM
Shale		5.5	CM, EM
Claystone		6.0	CV, EV
Shale		9.0	CM, EM
Coal		2.1	CS, ES, AC
Shale		8.0	CM, EM
Coal		0.3	CS, ES, AC
Claystone		17.3	CV, EV
Sandstone		26.0	CS, ES
Claystone		2.7	CV, EV
Coal		0.2	CS, ES, AC
Claystone		3.4	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N84-5

*Coordinates: X. _____ Y. _____ Surface Elevation 1285.13'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		5.0	CM, EM
Limestone		29.4	CS, ES, AK
Shale		10.6	CM, EM
Limestone		59.0	CS, ES, AK
Claystone		2.0	CV, EV
Coal		3.5	CS, ES, AC
Sandy Shale		1.2	CM, EM
Limestone		9.3	CS, ES, AK
Sandy Shale		6.0	CM, EM
Shale		4.0	CM, EM
Limestone		34.0	CS, ES, AK
Claystone		1.0	CV, EV
Claystone		0.8	CV, EV
Shale		4.2	CM, EM
Limestone		11.6	CS, ES, AK
Claystone		3.6	CV, EV
Limestone		1.1	CS, ES, AK
Claystone		3.0	CV, EV
Claystone		0.7	CV, EV

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N84-5

*Coordinates: X. _____ Y. _____ Surface Elevation 1285.13'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Shale		0.3	CM, EM
Coal		7.0	CS, ES, AC
Limestone		2.4	CS, ES, AK
Limestone		8.3	CS, ES, AK

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N-90-3

*Coordinates: X. 2423210 Y. 717730 Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil		4.0	
Subsoil		1.0	
Siltstone		13.0	CM,EM
Clay		3.0	CV,EM
Shale	X	20.0	CS,EM
Siltstone	X	29.0	CM,EM
Clay		3.0	CV,EM
Siltstone	X	9.0	CM,EM
Limestone		1.0	CS,ES,AK
Shale		13.0	CS,EM
Limestone		2.0	CS,ES,AK

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency
Roof	1.84%	1.83%	57.48	13.1 T/1000T	45.3T/1000T
Coal	4.26%	2.10%	133.08	5.02 T/1000T	129 T/1000T
Floor	2.05%	1.85%	89.03	413 T/1000T	-324 T/1000T

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N-90-3

*Coordinates: X. _____ Y. _____ Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Siltstone		5.0	CM,EM
Clay		3.0	CV,EM
Sandstone		2.0	CS,ES
Siltstone		6.0	CM,EM
Limestone		1.0	CS,ES,AK
Shale		4.0	CS,EM
Silt		9.0	CM,EM
Coal		2.5	CS,EM,AC
Siltstone		7.5	CM,EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N-90-3

*Coordinates: X._____ Y._____ Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Siltstone		39.0	CM,EM
Coal		2.0	CS,EM,AC
Silt		8.0	CM,EM
Limestone		8.0	CS,ES,AK
Siltstone		5.0	CM,EM
Limestone		11.0	CS,ES,AK
Silt		12.0	CM,EM
Limestone		7.0	CS,ES,AK
Shale		2.0	CS,EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N-90-3

*Coordinates: X._____ Y._____ Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Limestone		5.0	CS,ES,AK
Siltstone		4.0	CM,EM
Siltstone		8.0	CM,EM
Limestone		4.0	CS,ES,AK
Shale		1.0	CS,EM
Limestone		1.0	CS,ES,AK
Siltstone		2.0	CM,EM
Limestone		23.0	CS,ES,AK
Coal		4.0	CS,EM,AC

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutral-ization Potential	$CaCO_3$ Deficiency

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole #N-90-3

*Coordinates: X._____ Y._____ Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Claystone		9.00	CV,EM
Limestone		2.00	CS,ES,AK
Lime		7.0	CS,ES,AK
Siltstone		7.0	CM,EM
Limestone		27.0	CS,ES,AK
Shale		3.0	CS,EM
Limestone		4.0	CS,ES,AK
Clay		6.0	CV,EM,AC
Limestone		11.0	CS,ES,AK

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutralization Potential	$CaCO_3$ Deficiency

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 13
(GEOLOGY REPORT - Underground Workings)

Applicant THE OHIO VALLEY COAL COMPANY Drill Hole # N-90-3

*Coordinates: X. _____ Y. _____ Surface Elevation 1104.5'

Lithology	H_2O**	Thickness	Physical Properties
Topsoil			
Subsoil			
Siltstone		11.0	CM,EM
Coal		1.0	CS,EM,AC
Silt		1.0	CM,EM
Coal		5.0	CS,EM,AC
Clay		6.0	CV,EM

Submit the following information for the stratum above the coal seam, the coal seam, and the stratum below the coal seam.

Stratum	Total Sulfur	Pyrite Marcasite Sulfur	Potential Acidity	Neutral-ization Potential	$CaCO_3$ Deficiency

*If other than State Plane, indicate coordinate system.

**Indicate water bearing stratum with an asterisk (*) under column labelled H_2O

Physical Property Legend
AC = Acid Producing
AK = Alkaline Producing
C = Compactible (V=Very, M=Moderate, S=Slight)
E = Erodible (V=Very, M=Moderate, S=Slight)

TEST HOLE NO. N-90-3
SURFACE ELEVATION 1104.5'

FROM	TO	TYPE OF FORMATION
0	4	Topsoil
4	5	Limestone
5	18	Gray siltstone
18	21	Gray clay
21	41	Black sandy shale/damp at 21'
41	72	Gray siltstone/damp at 68'
72	75	Clay
75	84	Gray siltstone/water at 81'
84	85	Limestone
85	98	Dark gray shale
98	100	Limestone
100	105	Gray siltstone
105	108	Gray shaley clay
108	110	Gray sandstone
110	116	Gray siltstone
116	117	Limestone
117	121	Gray shale w/clay streaks
121	130	Gray silt
130	132.5	Coal 2-1/2' (No. 11)
132.5	140	Gray siltstone
140	179	Dark siltstone
179	181	Coal 2' (No. 10)
181	189	Gray silt
189	197	Limestone
197	202	Gray siltstone
202	213	Limestone w/siltstone bands
213	225	Dark gray silt w/lime bands
225	232	Limestone w/shale bands
232	234	Gray shale
234	239	Limestone
239	243	Dark gray siltstone
243	251	Light gray siltstone
251	255	Limestone
255	256	Dark gray shale
256	257	Limestone
257	259	Gray siltstone
259	282	Limestone
282	286	Coal (No. 9)
286	295	Claystone
295	297	Limestone
297	304	Limey shale
304	311	Siltstone
311	338	Limestone/shale bands
338	341	Dark gray shale
341	345	Limestone
345	351	Trace of coal/clay (Redstone)
351	362	Limestone
362	373	Siltstone w/limestone
373		

TEST HOLE NO. N-90-3 (CONTINUED)
SURFACE ELEVATION 1104.5'

FROM	TO	TYPE OF FORMATION
374	375	Gray clay silt
378	383	Coal (No. 8)
383	389	Clay

Set 22' of 6" Casing

TOVCC 15653

B. (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 per paragraph (C) of rule 1501:13-4-13 of the Administrative Code.

See Addendum to Page 17, Part 2, B

(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 Attachment 12(s) as required by paragraphs (C)(2)(a) and (c) of rule 1501:13-4-13 of the Administrative Code.

(4) For those areas within the shadow area where the stratum above the coal seam to be mined will not be removed, submit Attachment 13(s) as required by paragraphs (C)(2)(d) and (e) of rule 1501:13-4-13 of the Administrative Code.

See Attachment 13

C. **GROUND WATER INFORMATION-Permit, Shadow Area, and Adjacent Area**

(1) Submit an Attachment 14B which describes the ground water hydrology of the proposed permit area, shadow area, and adjacent area. The Attachment 14B is to include information on each waterbearing stratum or zone as required by paragraph (D) of rule 1501:13-4-13 of the Administrative Code, including the first waterbearing stratum below the coal to be mined.

See Attachment 14B

(2) Are there any wells on the proposed permit area, shadow area, and adjacent area? __X__ Yes, _____ No. If "yes," submit Attachment 14C.

See Attachment 14C

(3) Are there any springs on the proposed permit area, or developed springs on the shadow area and adjacent area? __X__ Yes, _____ No. If "yes," submit Attachment 14C.

See Attachment 14C

(4) Are there any public water supply sources on the proposed permit area, shadow area, and adjacent area? _____ Yes, __X__ No. If "yes," submit Attachment 14A, Attachment 14D, and show location on the hydrology map.

See Attachment 14D and Hydrology Map

(5) Submit Attachment 14A for representative wells and developed springs as required by paragraph (D)(4) of rule 1501:13-4-13. Based on this data identify the seasonal variations of ground water quality and quantity.

See Attachment 14A

TOVCC 15654

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

licant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-19	W-19	W-19	W-19	W-19	W-19
2.	Lab Identification Number	8902241	8903401	8904243	8905402	8906382	8907066
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1273	1273	1273	1273	1273	1273
☆ 5.	Depth of Well below Land Surface (feet)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
☆ 6.	Static Water Level of Well below Land Surface (feet)	30	Note 1	Note 1	Note 1	Note 1	Note 1
7.	Flow for Spring/Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/20/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
☆ 9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.70	7.45	7.47	7.32	7.45	7.23
11.	Total Acidity (mg/l $CaCO_3$)	4.8	8.47	7.70	8.4	16.0	8.0
12.	Total Alkalinity (mg/l $CaCO_3$)	117	133	123	155	140	138
13.	Specific Conductivity (umhos/cm at 25°C)	370	325	232	368	380	372
☆☆ 14.	Total Dissolved Solids (mg/l)	193	147	194	190	206	189
15.	Total Manganese (mg/l)	0.04	<0.02	0.02	0.02	<0.02	<0.02
16.	Total Sulfates (mg/l)	54.0	41.6	38.4	38.4	37.6	36.0
17.	Total Iron (mg/l)	0.13	0.09	0.42	0.44	0.06	0.30
18.	Total Suspended Solids (mg/l)	3.1	<1.0	6.0	<1.0	1.3	3.8
19.	Total Hardness (mg/l as $CaCO_3$)	176	149	30.0	82.0	70	80.0
20.	Date Sampled for Analysis	2/20/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
21.	Date Last Precipitation Event Occurred	2/20/89	3/28/89	4/18/89	5/25/89	6/19/89	7/4/89

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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

NOTE 1: See Addendum to Attachment 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

icant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-28	W-28	W-28	W-28	W-28	W-28
2.	Lab Identification Number	8902370	8903415	8905126	8905445	8906373	
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1299	1299	1299	1299	1299	1299
☆ 5.	Depth of Well below Land Surface (feet)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
☆ 6.	Static Water Level of Well below Land Surface (feet)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
7.	Flow for Spring/Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/27/89	3/29/89	4/20/89	5/24/89	6/19/89	
☆ 9.	Aquifer/Zone Identification for Well/Spring	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
10.	pH (Standard Units)	7.45	7.36	7.22	7.08	7.27	Note 2
11.	Total Acidity (mg/l $CaCO_3$)	28.8	13.4	24.2	17.2	27.2	
12.	Total Alkalinity (mg/l $CaCO_3$)	266	267	257	272	275	
13.	Specific Conductivity (umhos/cm at 25°C)	720	770	740	840	790	
☆☆ 14.	Total Dissolved Solids (mg/l)	432	464	441	<10	462	
15.	Total Manganese (mg/l)	<0.02	<0.02	<0.02	0.03	<0.02	
16.	Total Sulfates (mg/l)	74.0	76.0	92.0	70.4	66.7	
17.	Total Iron (mg/l)	0.08	0.11	0.26	0.27	0.10	
18.	Total Suspended Solids (mg/l)	<1.0	2.0	<1.0	4.8	2.1	
19.	Total Hardness (mg/l as $CaCO_3$)	376	432	345	336	395	
20.	Date Sampled for Analysis	2/27/89	3/29/89	4/20/89	5/24/89	6/19/89	
21.	Date Last Precipitation Event Occurred	2/26/89	3/19/89	4/18/89	5/23/89	6/19/89	

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-29	W-29	W-29	W-29	W-29	W-29
2.	Lab Identification Number	8902237	8903396	8904249	8905406	8906386	8907069
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1282	1282	1282	1282	1282	1282
☆ 5.	Depth of Well below Land Surface (feet)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
☆ 6.	Static Water Level of Well below Land Surface (feet)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
7.	Flow for Spring/Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/20/89	3/28/89	4/20/89	5/24/89	6/19/89	7/6/89
☆ 9.	Aquifer/Zone Identification for Well/Spring	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
10.	pH (Standard Units)	7.11	7.31	7.12	7.16	7.30	7.05
11.	Total Acidity (mg/l $CaCO_3$)	18.4	13.7	34.0	25.8	39.6	30.0
12.	Total Alkalinity (mg/l $CaCO_3$)	261	246	247	257	258	247
13.	Specific Conductivity (umhos/cm at 25°C)	800	750	585	773	880	861
☆☆ 14.	Total Dissolved Solids (mg/l)	475	475	511	445	513	467
15.	Total Manganese (mg/l)	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
16.	Total Sulfates (mg/l)	91.0	110	92.8	88.0	98.7	108
17.	Total Iron (mg/l)	0.07	0.07	0.11	0.6	0.06	0.03
18.	Total Suspended Solids (mg/l)	1.1	<1.0	1.0	<1.0	3.3	<1.0
19.	Total Hardness (mg/l as $CaCO_3$)	408	407	342	331	380	370
20.	Date Sampled for Analysis	2/20/89	3/28/89	4/20/89	5/24/89	6/19/89	7/6/89
21.	Date Last Precipitation Event Occurred	2/20/89	3/28/89	4/18/89	5/23/89	6/19/89	7/4/89

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-30	W-30	W-30	W-30	W-30	W-30
2.	Lab Identification Number	8902253	8903395	8904252	8905413	8906371	8907071
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1269	1269	1269	1269	1269	1269
☆ 5.	Depth of Well below Land Surface (feet)	70	70	70	70	70	70
☆ 6.	Static Water Level of Well below Land Surface (feet)	26	26	27	27	30	29
7.	Flow for Spring/Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/21/89	3/28/89	4/20/89	5/24/89	6/19/89	7/6/89
☆ 9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.36	7.49	7.52	7.28	7.37	7.25
11.	Total Acidity (mg/l $CaCO_3$)	10.2	8.61	13.2	14.8	10.2	14.0
12.	Total Alkalinity (mg/l $CaCO_3$)	207	218	242	206	205	197
13.	Specific Conductivity (umhos/cm at 25°C)	560	520	418	589	630	615
☆☆ 14.	Total Dissolved Solids (mg/l)	322	283	270	328	331	299
15.	Total Manganese (mg/l)	0.03	<0.02	<0.02	<0.02	<0.02	<0.02
16.	Total Sulfates (mg/l)	45.0	50.0	46.4	51.2	48	43.0
17.	Total Iron (mg/l)	0.05	0.04	0.02	<0.02	0.05	<0.02
18.	Total Suspended Solids (mg/l)	<1.0	<1.0	2.0	<1.0	<1.0	3.1
19.	Total Hardness (mg/l as $CaCO_3$)	146	298	198	187	220	220
20.	Date Sampled for Analysis	2/21/89	3/28/89	4/20/89	5/24/89	6/19/89	7/6/89
21.	Date Last Precipitation Event Occurred	2/21/89	3/28/89	4/18/89	5/23/89	6/19/89	7/4/89

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-32	W-32	W-32	W-32	W-32	W-32
2.	Lab Identification Number	8902251	8903405	8904250	8905408	8906383	8907072
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1265	1265	1265	1265	1265	1265
☆ 5.	Depth of Well below Land Surface (feet)	98	98	98	98	98	98
☆ 6.	Static Water Level of Well below Land Surface (feet)	30	28	30	27	35	32
7.	Flow for Spring/Stream (gpm or cfs)	--	--	--	--	--	--
8.	Date Above Measurements Made	2/21/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
☆ 9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	L-5
10.	pH (Standard Units)	7.27	7.47	7.35	7.45	7.14	6.93
11.	Total Acidity (mg/l $CaCO_3$)	11.2	8.91	20.8	10.8	25.0	27.0
12.	Total Alkalinity (mg/l $CaCO_3$)	222	209	209	217	109	190
13.	Specific Conductivity (umhos/cm at 25°C)	500	440	348	512	328	553
☆☆ 14.	Total Dissolved Solids (mg/l)	258	225	297	242	187	230
15.	Total Manganese (mg/l)	0.04	<0.02	<0.02	<0.02	0.02	0.06
16.	Total Sulfates (mg/l)	40.0	40.0	37.6	36.8	41.6	54.0
17.	Total Iron (mg/l)	0.02	0.03	0.04	0.03	0.72	0.18
18.	Total Suspended Solids (mg/l)	1.6	<1.0	6.0	<1.0	13.3	1.3
19.	Total Hardness (mg/l as $CaCO_3$)	268	238	169	149	46.1	145
20.	Date Sampled for Analysis	2/21/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
21.	Date Last Precipitation Event Occurred	2/21/89	3/28/89	4/18/89	5/25/89	6/19/89	7/4/89

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	W-39					
2.	Lab Identification Number	See Notes					
3.	High (H)/Low (L) Designation (if applicable)	1 & 2					
4.	Surface Elevation for Sampling Station (msl)						
5.	Depth of Well below Land Surface (feet)						
6.	Static Water Level of Well below Land Surface (feet)						
7.	Flow for Spring/Stream (gpm or cfs)						
8.	Date Above Measurements Made						
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis						
22.	Date Last Precipitaiton Event Occurred						

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-49	W-49	W-49	W-49	W-49	W-49
2.	Lab Identification Number	W-A	W-A	W-A	W-A	W-A	W-A
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1300	1300	1300	1300	1300	1300
5.	Depth of Well below Land Surface (feet)	114	114	114	114	114	114
6.	Static Water Level of Well below Land Surface (feet)	65	65	55	56	52	56
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-15-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-15-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-15-90	6-17-90	7-15-90	8-5-90	9-16-90	10-3-90

See Note 2

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-50	W-50	W-50	W-50	W-50	W-50
2.	Lab Identification Number	W-V	W-V	W-V	W-V	W-V	W-V
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1321	1321	1321	1321	1321	1321
5.	Depth of Well below Land Surface (feet)	44	44	44	44	44	44
6.	Static Water Level of Well below Land Surface (feet)	40	42	40	41	39	41
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-25-90	6-21-90	7-19-90	8-8-90	9-13-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-8	L-8	L-8	L-8	L-8	L-8
10.	pH (Standard Units)	7.6	7.2	7.4	7.6	6.8	7.6
11.	Total Acidity (mg/l CAC03)	8.7	10.3	11.6	8.4	9.0	9.3
12.	Total Alkalinity (mg/l CAC03)	119	103	128	136	119	111
13.	Specific Conductivity (μmhos/cm at 25°C)	500	471	492	487	436	486
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.11	0.14	0.11	0.10	0.09	0.12
16.	Total Sulfates (mg/l)	48	62	41	37	40	46
17.	Total Iron (mg/l)	3.62	3.08	3.94	3.61	3.60	3.85
18.	Total Suspended Solids (mg/l)	1	1	2	1	1	1
19.	Total Hardness (mg/l CAC03)	319	307	328	361	330	321
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-25-90	6-21-90	7-19-90	8-8-90	9-13-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-21-90	7-13-90	8-5-90	9-9-90	10-4-90

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Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-51	W-51	W-51	W-51	W-51	W-51
2.	Lab Identification Number	W-W	W-W	W-W	W-W	W-W	W-W
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1281	1281	1281	1281	1281	1281
5.	Depth of Well below Land Surface (feet)	109	109	109	109	109	109
6.	Static Water Level of Well below Land Surface (feet)	26	21	19	29	20	24
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-25-90	6-21-90	7-23-90	8-23-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.6	7.5	7.9	7.4	7.6	7.8
11.	Total Acidity (mg/l CAC03)	14.2	16.3	14.8	17.9	18.3	13.2
12.	Total Alkalinity (mg/l CAC03)	198	184	176	201	184	194
13.	Specific Conductivity (μmhos/cm at 25°C)	386	394	401	390	389	397
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.03	0.02	0.02	0.03	0.03
16.	Total Sulfates (mg/l)	46	47	48	49	48	43
17.	Total Iron (mg/l)	0.51	0.54	0.51	0.56	0.49	0.53
18.	Total Suspended Solids (mg/l)	11	10	12	11	11	12
19.	Total Hardness (mg/l CAC03)	281	277	268	281	277	277
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-25-90	6-21-90	7-23-90	8-23-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-21-90	7-23-90	8-23-90	9-16-90	10-4-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-52	W-52	W-52	W-52	W-52	W-52
2.	Lab Identification Number	W-PP	W-PP	W-PP	W-PP	W-PP	W-PP
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1282	1282	1282	1282	1282	1282
5.	Depth of Well below Land Surface (feet)	79	79	79	79	79	79
6.	Static Water Level of Well below Land Surface (feet)	23	26	23	25	25	27
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.8	7.4	7.4	7.4	7.7	7.7
11.	Total Acidity (mg/l CAC03)	14.2	16.3	15.8	14.2	15.6	12.6
12.	Total Alkalinity (mg/l CAC03)	150	148	156	149	156	141
13.	Specific Conductivity (μmhos/cm at 25°C)	407	405	410	415	410	409
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.06	0.10	0.06	0.02
16.	Total Sulfates (mg/l)	41	39	38	36	39	36
17.	Total Iron (mg/l)	0.02	0.01	0.03	0.02	0.03	0.03
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	179	186	184	176	175	175
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-23-90	10-11-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-53	W-53	W-53	W-53	W-53	W-53
2.	Lab Identification Number	W-MM	W-MM	W-MM	W-MM	W-MM	W-MM
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1292	1292	1292	1292	1292	1292
5.	Depth of Well below Land Surface (feet)	85	85	85	85	85	85
6.	Static Water Level of Well below Land Surface (feet)	47	43	42	54	48	53
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.6	7.5	7.5	7.7	7.5	7.5
11.	Total Acidity (mg/l CAC03)	18.9	16.3	15.4	13.2	16.2	17.6
12.	Total Alkalinity (mg/l CAC03)	200	201	196	213	201	212
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	300	310	315	357
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	41	31	37	39	46	36
17.	Total Iron (mg/l)	0.04	0.05	0.07	0.06	0.05	0.06
18.	Total Suspended Solids (mg/l)	1	0	1	0	1	1
19.	Total Hardness (mg/l CAC03)	191	186	194	186	184	189
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-23-90	10-11-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-54	W-54	W-54	W-54	W-54	W-54
2.	Lab Identification Number	W-EEE	W-EEE	W-EEE	W-EEE	W-EEE	W-EEE
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	H	L	L
4.	Surface Elevation for Sampling Station (msl)	1245	1245	1245	1245	1245	1245
5.	Depth of Well below Land Surface (feet)	75	75	75	75	75	75
6.	Static Water Level of Well below Land Surface (feet)	41	41	38	39	38	42
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	10/8/90	11/28/90	12/31/90	1/24/91	2/25/91	3/22/91
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.5	7.8	7.3	7.3	7.5	7.4
11.	Total Acidity (mg/l CAC03)	8.2	6.2	0	0	11.21	11.02
12.	Total Alkalinity (mg/l CAC03)	94	87	158	97	157.32	187.15
13.	Specific Conductivity (μmhos/cm at 25°C)	400	425	380	200	388	367
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.03	0.02	0.10	0.01	0.02	<0.02
16.	Total Sulfates (mg/l)	86	78	42	36	24	31
17.	Total Iron (mg/l)	1.08	0.98	0.28	0.08	0.07	<0.04
18.	Total Suspended Solids (mg/l)	4	1	5.7	4	2	2
19.	Total Hardness (mg/l CAC03)	212	210	74	76	168	180
20.	Nitrates (mg/l)	1.50	1.50	6.16	51.6	<1.0	2.69
21.	Date Sampled for Analysis	10/8/90	11/28/90	12/31/90	1/24/91	2/25/91	3/22/91
22.	Date Last Precipitaiton Event Occurred	10/4/90	11/27/90	12/30/90	1/24/91	2/19/91	3/22/91

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-55	W-55	W-55	W-55	W-55	W-55	
2.	Lab Identification Number	W-NN	W-NN	W-NN	W-NN	W-NN	W-NN	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1290	1290	1290	1290	1290	1290	
5.	Depth of Well below Land Surface (feet)	79	79	79	79	79	79	
6.	Static Water Level of Well below Land Surface (feet)	25	27	25	29	24	28	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-30-90	6-21-90	7-23-90	8-15-90	9-17-90	10-8-90	
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7	
10.	pH (Standard Units)	7.7	7.6	7.9	7.3	7.5	7.5	
11.	Total Acidity (mg/l CAC03)	16.3	18.6	17.4	16.3	15.2	18.2	↓
12.	Total Alkalinity (mg/l CAC03)	191	194	183	179	181	186	
13.	Specific Conductivity (μmhos/cm at 25°C)	360	375	361	350	375	351	↑
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01	↑—
16.	Total Sulfates (mg/l)	37	36	42	31	36	41	↑
17.	Total Iron (mg/l)	0.07	0.06	0.08	0.06	0.05	0.07	↑—
18.	Total Suspended Solids (mg/l)	12	10	8	9	10	11	—
19.	Total Hardness (mg/l CAC03)	189	186	194	186	185	191	—
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1	↑↓
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-23-90	8-15-90	9-17-90	10-8-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-13-90	9-16-90	10-4-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-56	W-56	W-56	W-56	W-56	W-56	
2.	Lab Identification Number	W-OO	W-OO	W-OO	W-OO	W-OO	W-OO	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1290	1290	1290	1290	1290	1290	
5.	Depth of Well below Land Surface (feet)	32	32	32	32	32	32	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-	See Note 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-30-90	6-26-90	7-23-90	8-15-90	9-17-90	10-8-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-	
10.	pH (Standard Units)	8.0	7.2	7.5	7.0	7.4	7.2	—
11.	Total Acidity (mg/l CAC03)	16.4	17.8	15.3	14.3	16.2	19.3	—
12.	Total Alkalinity (mg/l CAC03)	161	175	186	174	163	156	↑
13.	Specific Conductivity (μmhos/cm at 25°C)	570	575	560	550	580	569	—
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00	0.00	0.00	—
16.	Total Sulfates (mg/l)	39	38	36	31	35	31	↑
17.	Total Iron (mg/l)	0.12	0.16	0.14	0.17	0.16	0.15	—
18.	Total Suspended Solids (mg/l)	21	16	18	19	21	18	↓
19.	Total Hardness (mg/l CAC03)	186	181	193	194	186	194	↑
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1	—
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-23-90	8-15-90	9-17-90	10-8-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-13-90	9-16-90	10-4-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-57	W-57	W-57	W-57	W-57	W-57
2.	Lab Identification Number	W-QQ	W-QQ	W-QQ	W-QQ	W-QQ	W-QQ
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1307	1307	1307	1307	1307	1307
5.	Depth of Well below Land Surface (feet)	138	138	138	138	138	138
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-21-90	7-19-90	8-15-90	9-18-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.4	7.5	7.5	7.1	7.0	6.9
11.	Total Acidity (mg/l CAC03)	7.8	8.1	6.3	7.5	7.9	6.2
12.	Total Alkalinity (mg/l CAC03)	99	88	86	84	76	87
13.	Specific Conductivity (μmhos/cm at 25°C)	275	280	270	275	280	278
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.00	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	63	70	64	66	71	61
17.	Total Iron (mg/l)	0.04	0.05	0.06	0.05	0.06	0.05
18.	Total Suspended Solids (mg/l)	9	8	7	9	10	10
19.	Total Hardness (mg/l CAC03)	91	78	88	76	89	89
20.	Nitrates (mg/l)	1.20	1.18	1.21	1.18	1.18	1.16
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-19-90	8-15-90	9-18-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-13-90	9-18-90	10-4-90

See Note 1

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-58	W-58	W-58	W-58	W-58	W-58
2.	Lab Identification Number	W-FF	W-FF	W-FF	W-FF	W-FF	W-FF
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1249	1249	1249	1249	1249	1249
5.	Depth of Well below Land Surface (feet)	100	100	100	100	100	100
6.	Static Water Level of Well below Land Surface (feet)	23	22	23	26	24	27
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-29-90	6-21-90	7-24-90	8-6-90	9-26-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.8	7.8	7.7	7.5	7.9	7.2
11.	Total Acidity (mg/l CAC03)	18.6	17.6	16.3	17.6	17.5	17.3
12.	Total Alkalinity (mg/l CAC03)	186	191	196	194	181	191
13.	Specific Conductivity (μmhos/cm at 25°C)	330	331	336	300	325	331
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.02	0.03	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	59	60	61	58	60	61
17.	Total Iron (mg/l)	0.07	0.08	0.08	0.09	0.08	0.07
18.	Total Suspended Solids (mg/l)	5	4	3	6	8	6
19.	Total Hardness (mg/l CAC03)	189	163	186	189	191	191
20.	Nitrates (mg/l)	<.01	<.01	<.01	<.01	<.01	<.01
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-24-90	8-6-90	9-26-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-5-90	9-23-90	10-4-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-59	W-59	W-59	W-59	W-59	W-59	
2.	Lab Identification Number	W-AAA	W-AAA	W-AAA	W-AAA	W-AAA	W-AAA	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1260	1260	1260	1260	1260	1260	
5.	Depth of Well below Land Surface (feet)	55	55	55	55	55	55	
6.	Static Water Level of Well below Land Surface (feet)	25	-	-	-	-	-	See Note 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-29-90		-		-		
9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	L-5	
10.	pH (Standard Units)							See Note 2
11.	Total Acidity (mg/l CAC03)							
12.	Total Alkalinity (mg/l CAC03)							
13.	Specific Conductivity (μmhos/cm at 25°C)							
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)							
16.	Total Sulfates (mg/l)							
17.	Total Iron (mg/l)							
18.	Total Suspended Solids (mg/l)							
19.	Total Hardness (mg/l CAC03)							
20.	Nitrates (mg/l)							
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-24-90	8-6-90	9-26-90	10-8-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-5-90	9-23-90	10-4-90	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-60	W-60	W-60	W-60	W-60	W-60
2.	Lab Identification Number	W-EE	W-EE	W-EE	W-EE	W-EE	W-EE
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1272	1272	1272	1272	1272	1272
5.	Depth of Well below Land Surface (feet)	134	134	134	134	134	134
6.	Static Water Level of Well below Land Surface (feet)	80	69	45	89	44	86
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-29-90	6-21-90	7-23-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	L-5
10.	pH (Standard Units)	8.2	7.3	7.8	7.6	7.6	7.8
11.	Total Acidity (mg/l CAC03)	17.6	18.9	19.3	16.2	18.4	16.4
12.	Total Alkalinity (mg/l CAC03)	200	207	200	198	197	201
13.	Specific Conductivity (μmhos/cm at 25°C)	475	450	468	491	486	471
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	61	75	76	71	69	62
17.	Total Iron (mg/l)	0.12	0.13	0.14	0.16	0.18	0.14
18.	Total Suspended Solids (mg/l)	6	5	4	3	2	5
19.	Total Hardness (mg/l CAC03)	119	120	118	121	126	118
20.	Nitrates (mg/l)	0.02	0.02	0.02	0.02	0.02	0.02
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-23-90	8-8-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-5-90	9-16-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-61	W-61	W-61	W-61	W-61	W-61
2.	Lab Identification Number	W-DD	W-DD	W-DD	W-DD	W-DD	W-DD
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1260	1260	1260	1260	1260	1260
5.	Depth of Well below Land Surface (feet)	117	117	117	117	117	117
6.	Static Water Level of Well below Land Surface (feet)	61	63	63	67	67	66
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-29-90	6-21-90	7-25-90	8-6-90	9-25-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.6	7.4	7.3	6.9	7.7	7.3
11.	Total Acidity (mg/l CAC03)	18.6	19.3	16.3	16.4	17.4	17.1
12.	Total Alkalinity (mg/l CAC03)	200	208	206	206	207	212
13.	Specific Conductivity (μmhos/cm at 25°C)	300	316	310	310	300	315
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	61	56	59	60	61	54
17.	Total Iron (mg/l)	0.02	0.01	0.02	0.03	0.02	0.03
18.	Total Suspended Solids (mg/l)	3	6	5	3	2	4
19.	Total Hardness (mg/l CAC03)	207	210	206	208	206	208
20.	Nitrates (mg/l)	0.80	0.90	0.85	0.91	0.86	0.91
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-25-90	8-6-90	9-25-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-5-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-62	W-62	W-62	W-62	W-62	W-62
2.	Lab Identification Number	W-DDD	W-DDD	W-DDD	W-DDD	W-DDD	W-DDD
3.	High (H)/Low (L) Designation (if applicable)	L	H	H	H	H	H
4.	Surface Elevation for Sampling Station (msl)	1262	1262	1262	1262	1262	1262
5.	Depth of Well below Land Surface (feet)	60	60	60	60	60	60
6.	Static Water Level of Well below Land Surface (feet)	42	39	41	38	36	39
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	8-15-90	9-18-90	10-8-90	11-28-90	12-31-90	1-24-91
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.3	7.5	8.0	7.4	7.5	7.5
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	111	99	105	101	168	134
13.	Specific Conductivity (μmhos/cm at 25°C)	350	325	350	325	380	400
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.06	0.12
16.	Total Sulfates (mg/l)	48	51	55	61	31	71
17.	Total Iron (mg/l)	0.12	0.16	0.13	0.18	0.07	0.26
18.	Total Suspended Solids (mg/l)	2	2	2	36	0.3	4
19.	Total Hardness (mg/l CAC03)	150	150	150	150	97	64
20.	Nitrates (mg/l)	<1.0	<1.0	<1.0	<1.0	7.48	48.3
21.	Date Sampled for Analysis	8-15-90	9-18-90	10-8-90	11-28-90	12-31-90	1-24-91
22.	Date Last Precipitaiton Event Occurred	8-13-90	9-17-90	10-4-90	11-27-90	12-30-90	1-24-91

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-63	W-63	W-63	W-63	W-63	W-63
2.	Lab Identification Number	W-BB	W-BB	W-BB	W-BB	W-BB	W-BB
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1251	1251	1251	1251	1251	1251
5.	Depth of Well below Land Surface (feet)	24	24	24	24	24	24
6.	Static Water Level of Well below Land Surface (feet)	14	20	18	19	17	19
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-29-90	6-21-90	7-19-90	8-6-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	L-5
10.	pH (Standard Units)	7.3	7.4	7.4	7.1	7.3	7.0
11.	Total Acidity (mg/l CAC03)	12.6	13.8	14.2	16.2	15.8	11.9
12.	Total Alkalinity (mg/l CAC03)	171	186	174	186	191	167
13.	Specific Conductivity (μmhos/cm at 25°C)	400	375	375	400	375	400
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	61	59	63	61	59	63
17.	Total Iron (mg/l)	0.19	0.20	0.20	0.19	0.18	0.21
18.	Total Suspended Solids (mg/l)	7	6	5	6	7	8
19.	Total Hardness (mg/l CAC03)	161	157	163	159	157	159
20.	Nitrates (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-19-90	8-6-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-15-90	8-5-90	9-16-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-64	W-64	W-64	W-64	W-64	
2.	Lab Identification Number	W-ZZ	W-ZZ	W-ZZ	W-ZZ	W-ZZ	
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1264	1264	1264	1264	1264	
5.	Depth of Well below Land Surface (feet)	62	62	62	62	62	
6.	Static Water Level of Well below Land Surface (feet)	32	29	30	28	29	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	
8.	Date Above Measurements Made	6-21-90	7-19-90	8-6-90	9-17-90	10-8-90	
9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	
10.	pH (Standard Units)	7.3	7.5	7.1	7.4	7.5	
11.	Total Acidity (mg/l CAC03)	1.8	1.1	1.4	1.6	1.3	
12.	Total Alkalinity (mg/l CAC03)	89	91	94	86	96	
13.	Specific Conductivity (μmhos/cm at 25°C)	250	225	230	250	250	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	
16.	Total Sulfates (mg/l)	40	41	37	36	39	
17.	Total Iron (mg/l)	0.09	0.10	0.09	0.10	0.10	
18.	Total Suspended Solids (mg/l)	20	18	19	20	17	
19.	Total Hardness (mg/l CAC03)	148	147	151	146	150	
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	
21.	Date Sampled for Analysis	6-21-90	7-19-90	8-6-90	9-17-90	10-8-90	
22.	Date Last Precipitaiton Event Occurred	6-21-90	7-15-90	8-5-90	9-16-90	10-4-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-65	W-65	W-65	W-65	W-65	W-65
2.	Lab Identification Number	W-CC	W-CC	W-CC	W-CC	W-CC	W-CC
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1250	1250	1250	1250	1250	1250
5.	Depth of Well below Land Surface (feet)	114	114	114	114	114	114
6.	Static Water Level of Well below Land Surface (feet)	82	83	82	89	83	87
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-29-90	6-27-90	7-19-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.5	7.8	7.3	7.1	7.8	6.9
11.	Total Acidity (mg/l CAC03)	7.9	6.3	6.4	6.9	6.8	8.2
12.	Total Alkalinity (mg/l CAC03)	101	102	103	104	106	103
13.	Specific Conductivity (μmhos/cm at 25°C)	375	376	380	375	375	371
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.06	0.01	0.01
16.	Total Sulfates (mg/l)	39	36	31	39	37	38
17.	Total Iron (mg/l)	0.08	0.09	0.06	0.08	0.07	0.09
18.	Total Suspended Solids (mg/l)	5	4	3	6	5	6
19.	Total Hardness (mg/l CAC03)	181	186	191	186	181	181
20.	Nitrates (mg/l)	<.01	<.01	<.01	<.01	<.01	<.01
21.	Date Sampled for Analysis	5-29-90	6-27-90	7-19-90	8-8-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-15-90	8-5-90	9-16-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-66	W-66	W-66	W-66	W-66	W-66
2.	Lab Identification Number	W-X	W-X	W-X	W-X	W-X	W-X
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1193	1193	1193	1193	1193	1193
5.	Depth of Well below Land Surface (feet)	38	38	38	38	38	38
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-26-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.1	7.1	7.3	7.5	7.3	7.1
11.	Total Acidity (mg/l CAC03)	12.3	11.8	12.3	12.6	12.3	11.8
12.	Total Alkalinity (mg/l CAC03)	189	167	198	191	168	193
13.	Specific Conductivity (μmhos/cm at 25°C)	463	418	432	421	431	427
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	61	69	72	69	71	63
17.	Total Iron (mg/l)	0.39	0.38	0.42	0.39	0.46	0.41
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	261	276	282	269	280	289
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-19-90	8-8-90	9-14-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-24-90	6-21-90	7-15-90	8-5-90	9-14-90	10-4-90

See Note 1

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-67	W-67	W-67	W-67	W-67	W-67
2.	Lab Identification Number	W-Y	W-Y	W-Y	W-Y	W-Y	W-Y
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1193	1193	1193	1193	1193	1193
5.	Depth of Well below Land Surface (feet)	59	59	59	59	59	59
6.	Static Water Level of Well below Land Surface (feet)	23	25	28	33	27	27
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-26-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.4	7.3	7.3	7.7	7.4	7.0
11.	Total Acidity (mg/l CAC03)	13.8	14.2	16.3	17.3	16.2	12.3
12.	Total Alkalinity (mg/l CAC03)	191	178	164	192	187	189
13.	Specific Conductivity (μmhos/cm at 25°C)	300	201	276	281	295	298
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.03	0.02	0.03	0.02	0.03
16.	Total Sulfates (mg/l)	48	47	46	46	48	41
17.	Total Iron (mg/l)	0.98	1.01	1.00	1.03	1.01	1.07
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	217	232	220	226	231	222
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-24-90	6-21-90	7-15-90	8-5-90	9-16-90	10-4-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-68	W-68	W-68	W-68	W-68	W-68
2.	Lab Identification Number	W-Z	W-Z	W-Z	W-Z	W-Z	W-Z
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1202	1202	1202	1202	1202	1202
5.	Depth of Well below Land Surface (feet)	38	38	38	38	38	38
6.	Static Water Level of Well below Land Surface (feet)	15	15	16	18	16	22
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-26-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-19-90	8-8-90	9-17-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-24-90	6-21-90	7-15-90	8-5-90	9-16-90	10-4-90

See Note 2

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-69	W-69	W-69	W-69	W-69	W-69
2.	Lab Identification Number	W-LL	W-LL	W-LL	W-LL	W-LL	W-LL
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1281	1281	1281	1281	1281	1281
5.	Depth of Well below Land Surface (feet)	34	34	34	34	34	34
6.	Static Water Level of Well below Land Surface (feet)	22	22	21	24	16	23
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-20-90	7-23-90	8-8-90	9-11-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	7.8	6.5	7.0	7.4	7.3	6.8
11.	Total Acidity (mg/l CAC03)	14.2	18.6	13.2	17.6	16.2	12.2
12.	Total Alkalinity (mg/l CAC03)	126	114	151	148	136	134
13.	Specific Conductivity (μmhos/cm at 25°C)	430	435	445	430	435	440
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.01
16.	Total Sulfates (mg/l)	81	79	86	89	70	74
17.	Total Iron (mg/l)	0.18	0.20	0.21	0.26	0.18	0.17
18.	Total Suspended Solids (mg/l)	14	21	22	19	18	28
19.	Total Hardness (mg/l CAC03)	201	200	206	212	201	208
20.	Nitrates (mg/l)	1.50	1.45	1.40	1.65	1.55	1.60
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-23-90	8-8-90	9-11-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-5-90	9-9-90	10-4-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-70	W-70	W-70	W-70	W-70	
2.	Lab Identification Number	W-VV	W-VV	W-VV	W-VV	W-VV	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1296	1296	1296	1296	1296	
5.	Depth of Well below Land Surface (feet)	41	41	41	41	41	
6.	Static Water Level of Well below Land Surface (feet)	32	33	33	35	32	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	
10.	pH (Standard Units)	7.6	7.2	7.6	7.3	6.9	
11.	Total Acidity (mg/l CAC03)	12.3	12.6	13.8	14.2	14.0	
12.	Total Alkalinity (mg/l CAC03)	161	186	175	184	156	
13.	Specific Conductivity (μmhos/cm at 25°C)	325	350	350	350	350	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.07	0.06	0.08	0.08	
16.	Total Sulfates (mg/l)	57	60	63	59	61	
17.	Total Iron (mg/l)	0.90	0.96	0.88	0.99	0.98	
18.	Total Suspended Solids (mg/l)	37	41	38	36	36	
19.	Total Hardness (mg/l CAC03)	191	181	186	184	186	
20.	Nitrates (mg/l)	1.5	1.5	1.5	1.5	1.5	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	6-30-90	

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-71	W-71	W-71	W-71	W-71	
2.	Lab Identification Number	W-UU	W-UU	W-UU	W-UU	W-UU	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1299	1299	1299	1299	1299	
5.	Depth of Well below Land Surface (feet)	59	59	59	59	59	
6.	Static Water Level of Well below Land Surface (feet)	22	28	25	40	28	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	
10.	pH (Standard Units)	7.4	7.4	7.6	7.4	7.4	
11.	Total Acidity (mg/l CAC03)	1.9	1.7	1.6	1.4	1.8	
12.	Total Alkalinity (mg/l CAC03)	161	163	174	181	158	
13.	Specific Conductivity (μmhos/cm at 25°C)	585	580	575	580	580	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.12	0.10	0.11	0.12	0.13	
16.	Total Sulfates (mg/l)	57	59	61	58	54	
17.	Total Iron (mg/l)	1.31	1.28	1.26	1.18	1.29	
18.	Total Suspended Solids (mg/l)	36	34	39	38	31	
19.	Total Hardness (mg/l CAC03)	151	146	151	156	145	
20.	Nitrates (mg/l)	2.20	2.30	2.20	2.20	2.20	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-73	W-73	W-73	W-73	W-73	W-73
2.	Lab Identification Number	W-F	W-F	W-F	W-F	W-F	W-F
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1264	1264	1264	1264	1264	1264
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-22-90	6-27-90	7-19-90	8-8-90	9-14-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.6	7.3	7.3	7.8	7.2	7.3
11.	Total Acidity (mg/l CAC03)	27.3	36.2	40.0	31.7	30.3	21.3
12.	Total Alkalinity (mg/l CAC03)	161	173	181	176	153	148
13.	Specific Conductivity (μmhos/cm at 25°C)	308	326	317	311	301	302
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.05	0.04	0.05	0.05	0.05
16.	Total Sulfates (mg/l)	71	76	57	61	60	68
17.	Total Iron (mg/l)	1.86	1.93	1.90	1.86	1.83	1.91
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	271	205	210	223	210	206
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-22-90	6-27-90	7-17-90	8-8-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-5-90	9-23-90	10-11-90

See Note 1

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-74	W-74	W-74	W-74	W-74	W-74
2.	Lab Identification Number	W-G	W-G	W-G	W-G	W-G	W-G
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1264	1264	1264	1264	1264	1264
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-22-90	6-27-90	7-19-90	8-8-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.6	7.4	7.4	7.7	7.4	7.3
11.	Total Acidity (mg/l CAC03)	6.8	7.3	7.9	6.1	5.9	5.3
12.	Total Alkalinity (mg/l CAC03)	81.9	80.0	81.3	84.6	86.9	88.7
13.	Specific Conductivity (μmhos/cm at 25°C)	541	549	537	530	531	538
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.05	0.04	0.05	0.05	0.06	0.05
16.	Total Sulfates (mg/l)	56.1	54.2	50.0	56.1	54.2	55.2
17.	Total Iron (mg/l)	1.88	1.69	1.84	1.89	1.76	1.91
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	361	352	354	361	356	347
20.	Nitrates (mg/l)	2.09	2.00	2.01	2.03	2.67	2.07
21.	Date Sampled for Analysis	5-22-90	6-27-90	7-19-90	8-8-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-5-90	9-23-90	10-11-90

See Note 1

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-75	W-75	W-75	W-75	W-75	W-75
2.	Lab Identification Number	W-E	W-E	W-E	W-E	W-E	W-E
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1262	1262	1262	1262	1262	1262
5.	Depth of Well below Land Surface (feet)	74	74	74	74	74	74
6.	Static Water Level of Well below Land Surface (feet)	34	36	43	39	31	37
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-22-90	6-20-90	7-9-90	8-8-90	9-14-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.7	7.5	7.4	7.6	7.2	7.6
11.	Total Acidity (mg/l CAC03)	14.2	13.6	16.2	11.4	11.6	12.6
12.	Total Alkalinity (mg/l CAC03)	281	207	236	261	253	222
13.	Specific Conductivity (μmhos/cm at 25°C)	461	437	408	491	483	424
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	37	38	41	52	27	36
17.	Total Iron (mg/l)	0.29	0.31	0.26	0.28	0.31	0.26
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	271	263	291	206	284	290
20.	Nitrates (mg/l)	0.61	0.47	0.53	0.57	0.48	0.50
21.	Date Sampled for Analysis	5-22-90	6-20-90	7-9-90	8-8-90	9-14-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-9-90	8-5-90	9-14-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-76	W-76	W-76	W-76	W-76	W-76	
2.	Lab Identification Number	W-O	W-O	W-O	W-O	W-O	W-O	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1262	1262	1262	1262	1262	1262	
5.	Depth of Well below Land Surface (feet)	90	90	90	90	90	90	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-	See Note 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-22-90	6-21-90	7-10-90	8-8-90	9-17-90	10-19-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-	
10.	pH (Standard Units)	7.6	7.3	7.0	7.6	7.6	7.1	
11.	Total Acidity (mg/l CAC03)	12.3	16.2	17.3	18.2	15.3	14.1	
12.	Total Alkalinity (mg/l CAC03)	169	168	174	181	163	163	
13.	Specific Conductivity (μmhos/cm at 25°C)	408	496	432	418	462	421	
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.00	0.01	
16.	Total Sulfates (mg/l)	71	76	86	71	72	68	
17.	Total Iron (mg/l)	0.08	0.09	0.14	0.12	0.09	0.10	
18.	Total Suspended Solids (mg/l)	0	0	1	0	0	0	
19.	Total Hardness (mg/l CAC03)	226	213	216	211	211	211	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	5-23-90	6-21-90	7-9-90	8-8-90	9-26-90	10-19-90	
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-9-90	8-5-90	9-23-90	10-19-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-77	W-77	W-77	W-77	W-77	W-77
2.	Lab Identification Number	W-RR	W-RR	W-RR	W-RR	W-RR	W-RR
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1255	1255	1255	1255	1255	1255
5.	Depth of Well below Land Surface (feet)	40	40	40	40	40	40
6.	Static Water Level of Well below Land Surface (feet)	29	30	31	29	27	29
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-23-90	6-21-90	7-9-90	8-8-90	9-14-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	6.6	7.2	7.3	7.6	7.5	7.2
11.	Total Acidity (mg/l CAC03)	1.9	1.8	1.4	1.6	1.3	1.7
12.	Total Alkalinity (mg/l CAC03)	121	118	116	131	120	115
13.	Specific Conductivity (μmhos/cm at 25°C)	525	530	510	525	530	544
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.05	0.06	0.05	0.05	0.06	0.06
16.	Total Sulfates (mg/l)	71	79	69	76	81	63
17.	Total Iron (mg/l)	0.39	0.41	0.39	0.41	0.41	0.45
18.	Total Suspended Solids (mg/l)	63	51	59	61	55	51
19.	Total Hardness (mg/l CAC03)	200	215	200	210	200	210
20.	Nitrates (mg/l)	1.2	1.3	1.2	1.3	1.2	1.3
21.	Date Sampled for Analysis	5-23-90	6-21-90	7-9-90	8-8-90	9-14-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-9-90	8-5-90	9-14-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-78	W-78	W-78	W-78	W-78	W-78
2.	Lab Identification Number	W-KK	W-KK	W-KK	W-KK	W-KK	W-KK
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1261	1261	1261	1261	1261	1261
5.	Depth of Well below Land Surface (feet)	18.5	18.5	18.5	18.5	18.5	18.5
6.	Static Water Level of Well below Land Surface (feet)	14	15	18	15	9	15
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-23-90	6-21-90	7-9-90	8-8-90	9-14-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	8.0	7.1	7.1	7.6	7.5	6.5
11.	Total Acidity (mg/l CAC03)	39.0	43.1	28.6	31.4	36.2	38.0
12.	Total Alkalinity (mg/l CAC03)	81	96	86	94	88	79
13.	Specific Conductivity (μmhos/cm at 25°C)	250	260	265	255	260	249
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.10	0.15	0.20	0.25	0.10
16.	Total Sulfates (mg/l)	96	91	88	87	88	89
17.	Total Iron (mg/l)	2.20	2.10	2.01	2.08	2.14	2.12
18.	Total Suspended Solids (mg/l)	57	51	46	38	48	54
19.	Total Hardness (mg/l CAC03)	260	263	258	259	260	263
20.	Nitrates (mg/l)	11.20	11.30	11.20	11.20	11.30	11.20
21.	Date Sampled for Analysis	5-23-90	6-21-90	7-9-90	8-8-90	9-14-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-9-90	8-5-90	9-14-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-79	W-79	W-79	W-79	W-79	W-79
2.	Lab Identification Number	W-U	W-U	W-U	W-U	W-U	W-U
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1279	1279	1279	1279	1279	1279
5.	Depth of Well below Land Surface (feet)	50	50	50	50	50	50
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-25-90	6-27-90	7-23-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.7	7.3	7.8	7.5	7.5	7.1
11.	Total Acidity (mg/l CAC03)	19.3	20.1	22.1	17.0	19.8	18.6
12.	Total Alkalinity (mg/l CAC03)	301	217	236	214	219	201
13.	Specific Conductivity (μmhos/cm at 25°C)	481	493	478	483	491	476
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.03	0.02	0.01	0.01
16.	Total Sulfates (mg/l)	61	57	68	74	69	63
17.	Total Iron (mg/l)	0.49	0.53	0.68	0.74	0.68	0.41
18.	Total Suspended Solids (mg/l)	1	1	2	1	1	1
19.	Total Hardness (mg/l CAC03)	293	264	297	273	261	281
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-26-90	6-27-90	7-23-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-24-90	7-23-90	8-23-90	9-23-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-80	W-80	W-80	W-80	W-80	W-80
2.	Lab Identification Number	W-AA	W-AA	W-AA	W-AA	W-AA	W-AA
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1226	1226	1226	1226	1226	1226
5.	Depth of Well below Land Surface (feet)	35	35	35	35	35	35
6.	Static Water Level of Well below Land Surface (feet)	18	19	18	19	18	19
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-26-90	6-27-90	7-19-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring		L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-26-90	6-27-90	7-19-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-24-90	7-15-90	8-23-90	9-23-90	10-9-90

See Note 2

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-81	W-81	W-81	W-81	W-81	W-81
2.	Lab Identification Number	W-P	W-P	W-P	W-P	W-P	W-P
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1314	1314	1314	1314	1314	1314
5.	Depth of Well below Land Surface (feet)	66	66	66	66	66	66
6.	Static Water Level of Well below Land Surface (feet)	27	25	26	30	27	28
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-25-90	6-20-90	7-19-90	8-23-90	9-24-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-8	L-8	L-8	L-8	L-8	L-8
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-25-90	6-20-90	7-19-90	8-23-90	9-24-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-17-90	7-15-90	8-23-90	9-23-90	10-9-90

See Note 2

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-82	W-82	W-82	W-82	W-82	W-82	
2.	Lab Identification Number	W-N	W-N	W-N	W-N	W-N	W-N	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1238	1238	1238	1238	1238	1238	
5.	Depth of Well below Land Surface (feet)	80	80	80	80	80	80	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-	See Note 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-25-90	6-25-90	7-19-90	8-15-90	9-18-90	10-4-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-	
10.	pH (Standard Units)	7.5	7.2	7.8	7.1	7.4	7.0	
11.	Total Acidity (mg/l CAC03)	7.4	6.2	6.9	6.7	7.0	6.3	
12.	Total Alkalinity (mg/l CAC03)	111	116	118	113	110	114	
13.	Specific Conductivity (μmhos/cm at 25°C)	421	416	418	419	428	419	
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.02	0.02	0.01	0.03	0.02	0.03	
16.	Total Sulfates (mg/l)	63	69	71	60	68	61	
17.	Total Iron (mg/l)	0.63	0.88	0.93	0.84	0.91	0.98	
18.	Total Suspended Solids (mg/l)	3	2	3	3	3	3	
19.	Total Hardness (mg/l CAC03)	281	263	248	238	282	278	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	5-23-90	6-26-90	7-19-90	8-15-90	9-18-90	10-4-90	
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-13-90	9-18-90	10-4-90	

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-83	W-83	W-83	W-83	W-83	W-83
2.	Lab Identification Number	W-H	W-H	W-H	W-H	W-H	W-H
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1293	1293	1293	1293	1293	1293
5.	Depth of Well below Land Surface (feet)	208	208	208	208	208	208
6.	Static Water Level of Well below Land Surface (feet)	144	146	139	136	135	143
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-23-90	6-28-90	7-19-90	8-27-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-1	L-1	L-1	L-1	L-1	L-1
10.	pH (Standard Units)	7.7	7.2	7.7	7.3	7.4	7.5
11.	Total Acidity (mg/l CAC03)	17.3	16.8	19.3	16.3	16.3	16.4
12.	Total Alkalinity (mg/l CAC03)	194	186	187	193	198	189
13.	Specific Conductivity (μmhos/cm at 25°C)	451	462	463	449	456	443
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.03	0.02	0.02	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	71	69	73	68	67	61
17.	Total Iron (mg/l)	0.88	0.89	0.91	0.81	0.84	0.90
18.	Total Suspended Solids (mg/l)	20	14	11	12	14	19
19.	Total Hardness (mg/l CAC03)	131	126	127	118	120	127
20.	Nitrates (mg/l)	0.17	0.18	0.19	0.18	0.16	0.16
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-19-90	8-27-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-15-90	8-23-90	9-23-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-84	W-84	W-84	W-84	W-84	W-84
2.	Lab Identification Number	W-I	W-I	W-I	W-I	W-I	W-I
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1287	1287	1287	1287	1287	1287
5.	Depth of Well below Land Surface (feet)	90	90	90	90	90	90
6.	Static Water Level of Well below Land Surface (feet)	17	18	15	67	17	20
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-24-90	6-28-90	7-19-90	8-15-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.7	7.3	7.7	7.3	7.4	7.5
11.	Total Acidity (mg/l CAC03)	17.8	15.3	14.2	16.0	17.9	16.4
12.	Total Alkalinity (mg/l CAC03)	241	207	201	227	236	231
13.	Specific Conductivity (μmhos/cm at 25°C)	361	378	363	362	360	358
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	72	63	65	57	69	61
17.	Total Iron (mg/l)	0.49	0.63	0.37	0.41	0.42	0.48
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	263	256	261	263	264	254
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-19-90	8-15-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-15-90	8-13-90	9-23-90	10-11-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-85	W-85	W-85	W-85	W-85	W-85
2.	Lab Identification Number	W-J	W-J	W-J	W-J	W-J	W-J
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1293	1293	1293	1293	1293	1293
5.	Depth of Well below Land Surface (feet)	53	53	53	53	53	53
6.	Static Water Level of Well below Land Surface (feet)	21	21	18	24	21	22
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-24-90	6-28-90	7-19-90	8-15-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-19-90	8-15-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-15-90	8-13-90	9-23-90	10-11-90

See Note 2

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-86	W-86	W-86	W-86	W-86	W-86
2.	Lab Identification Number	W-T	W-T	W-T	W-T	W-T	W-T
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1315	1315	1315	1315	1315	1315
5.	Depth of Well below Land Surface (feet)	50	50	50	50	50	50
6.	Static Water Level of Well below Land Surface (feet)	38	36	37	38	50	34
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-24-90	6-20-90	7-9-90	8-28-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-8	L-8	L-8	L-8	L-8	L-8
10.	pH (Standard Units)	7.7	7.7	7.2	7.6	7.8	7.3
11.	Total Acidity (mg/l CAC03)	14.2	15.8	16.3	17.2	16.8	16.3
12.	Total Alkalinity (mg/l CAC03)	217	283	219	221	236	219
13.	Specific Conductivity (μmhos/cm at 25°C)	462	481	472	498	481	489
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.03	0.02	0.04	0.02	0.04	0.04
16.	Total Sulfates (mg/l)	47	36	51	41	42	45
17.	Total Iron (mg/l)	0.48	0.46	0.38	0.24	0.41	0.48
18.	Total Suspended Solids (mg/l)	8	8	7	6	5	9
19.	Total Hardness (mg/l CAC03)	216	241	217	241	253	238
20.	Nitrates (mg/l)	0.18	0.19	0.21	0.17	0.14	0.17
21.	Date Sampled for Analysis	5-24-90	6-20-90	7-9-90	8-28-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-9-90	8-23-90	9-18-90	10-11-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-87	W-87	W-87	W-87	W-87	W-87
2.	Lab Identification Number	W-CCC	W-CCC	W-CCC	W-CCC	W-CCC	W-CCC
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1231	1231	1231	1231	1231	1231
5.	Depth of Well below Land Surface (feet)	36	36	36	36	36	36
6.	Static Water Level of Well below Land Surface (feet)	-	-	16	19	14	17
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	7/19/90	8/24/90	9/18/90	10/10/90	11/28/90	12/29/90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.7	7.4	7.2	7.6	7.3	7.5
11.	Total Acidity (mg/l CAC03)	0	7.6	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	91	91	84	86	81	148
13.	Specific Conductivity (μmhos/cm at 25°C)	325	425	325	325	325	405
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.00	0.03	0.00	0.00	0.00	0.07
16.	Total Sulfates (mg/l)	56	81	59	62	61	39
17.	Total Iron (mg/l)	0.18	1.01	0.19	0.24	0.16	0.33
18.	Total Suspended Solids (mg/l)	61	3	59	58	36	3.7
19.	Total Hardness (mg/l CAC03)	150	210	161	155	150	80
20.	Nitrates (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0	32.12
21.	Date Sampled for Analysis	7/19/90	8/24/90	9/18/90	10/10/90	11/28/90	12/29/90
22.	Date Last Precipitaiton Event Occurred	7/15/90	8/23/90	9/18/90	10/9/90	11/27/90	12/29/90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-88	W-88	W-88	W-88	W-88	W-88	
2.	Lab Identification Number	W-R	W-R	W-R	W-R	W-R	W-R	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1231	1231	1231	1231	1231	1231	
5.	Depth of Well below Land Surface (feet)	82	82	82	82	82	82	
6.	Static Water Level of Well below Land Surface (feet)	23	19	17	24	18	18	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-	
8.	Date Above Measurements Made	5-24-90	6-27-90	7-19-90	8-24-90	9-18-90	10-10-90	
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4	
10.	pH (Standard Units)	8.3						See Note 2
11.	Total Acidity (mg/l CAC03)	7.9						
12.	Total Alkalinity (mg/l CAC03)	89.9						
13.	Specific Conductivity (μmhos/cm at 25°C)	930						
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.43						
16.	Total Sulfates (mg/l)	81						
17.	Total Iron (mg/l)	3.85						
18.	Total Suspended Solids (mg/l)	80						
19.	Total Hardness (mg/l CAC03)	319						
20.	Nitrates (mg/l)	2.61						
21.	Date Sampled for Analysis	5-24-90	6-27-90	7-19-90	8-24-90	9-18-90	10-10-90	
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-23-90	9-18-90	10-9-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-89	W-89	W-89	W-89	W-89	W-89
2.	Lab Identification Number	W-S	W-S	W-S	W-S	W-S	W-S
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1231	1231	1231	1231	1231	1231
5.	Depth of Well below Land Surface (feet)	85	85	85	85	85	85
6.	Static Water Level of Well below Land Surface (feet)	37	36	39	39	37	39
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-24-90	6-27-90	7-19-90	8-24-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-24-90	6-27-90	7-19-90	8-24-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-23-90	9-18-90	10-9-90

See Note 2

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-90	W-90	W-90	W-90	W-90	W-90
2.	Lab Identification Number	W-L	W-L	W-L	W-L	W-L	W-L
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1211	1211	1211	1211	1211	1211
5.	Depth of Well below Land Surface (feet)	63	63	63	63	63	63
6.	Static Water Level of Well below Land Surface (feet)	46	46	45	-	-	48
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-23-90	6-26-90	7-19-90	8-31-90	9-18-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.6	7.3	7.3	7.2	7.3	7.0
11.	Total Acidity (mg/l CAC03)	9.4	10.0	7.9	8.2	8.4	7.3
12.	Total Alkalinity (mg/l CAC03)	109	111	116	121	109	105
13.	Specific Conductivity (μmhos/cm at 25°C)	472	461	478	432	491	468
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.02	0.03	0.03
16.	Total Sulfates (mg/l)	39	41	46	42	40	37
17.	Total Iron (mg/l)	0.56	0.61	0.62	0.62	0.63	0.55
18.	Total Suspended Solids (mg/l)	4	3	4	2	2	4
19.	Total Hardness (mg/l CAC03)	361	328	332	331	361	338
20.	Nitrates (mg/l)	0.78	0.66	0.78	0.81	0.71	0.76
21.	Date Sampled for Analysis	5-23-90	6-26-90	7-19-90	8-15-90	9-18-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-15-90	8-13-90	9-18-90	10-4-90

See Note 1

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-91	W-91	W-91	W-91	W-91	W-91
2.	Lab Identification Number	W-K	W-K	W-K	W-K	W-K	W-K
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1280	1280	1280	1280	1280	1280
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-24-90	6-28-90	7-19-90	8-24-90	9-18-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.4	7.2	7.1	7.2	7.5	6.8
11.	Total Acidity (mg/l CAC03)	19.4	21.2	22.3	26.4	19.3	18.3
12.	Total Alkalinity (mg/l CAC03)	226	210	236	281	218	221
13.	Specific Conductivity (μmhos/cm at 25°C)	493	481	473	438	461	487
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.02	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	63	56	51	62	61	54
17.	Total Iron (mg/l)	0.32	0.36	0.38	0.38	0.36	0.32
18.	Total Suspended Solids (mg/l)	3	2	3	2	2	3
19.	Total Hardness (mg/l CAC03)	363	381	372	361	361	344
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-23-90	6-27-90	7-9-90	8-24-90	9-18-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-9-90	8-23-90	9-18-90	10-4-90

See Note 1

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-92	W-92	W-92	W-92	W-92	W-92
2.	Lab Identification Number	W-JJ	W-JJ	W-JJ	W-JJ	W-JJ	W-JJ
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1231	1231	1231	1231	1231	1231
5.	Depth of Well below Land Surface (feet)	42	42	42	42	42	42
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-20-90	7-19-90	8-29-90	9-18-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.5	6.5	7.0	7.0	7.6	7.0
11.	Total Acidity (mg/l CAC03)	16.3	17.4	15.6	14.2	18.2	18.6
12.	Total Alkalinity (mg/l CAC03)	118	126	120	121	119	123
13.	Specific Conductivity (μmhos/cm at 25°C)	750	775	780	775	780	789
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.98	1.00	1.03	1.01	1.00	1.01
16.	Total Sulfates (mg/l)	79	86	78	78	79	81
17.	Total Iron (mg/l)	1.86	1.91	1.63	1.76	1.81	1.56
18.	Total Suspended Solids (mg/l)	7	6	5	6	8	8
19.	Total Hardness (mg/l CAC03)	250	250	225	250	250	225
20.	Nitrates (mg/l)	2.1	2.1	2.1	2.1	2.1	2.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-19-90	8-23-90	9-18-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-15-90	8-23-90	9-18-90	10-4-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-93	W-93	W-93	W-93	W-93	W-93
2.	Lab Identification Number	W-WW	W-WW	W-WW	W-WW	W-WW	W-WW
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1262	1262	1262	1262	1262	1262
5.	Depth of Well below Land Surface (feet)	109	109	109	109	109	109
6.	Static Water Level of Well below Land Surface (feet)	48	49	51	54	53	54
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-31-90	6-20-90	7-23-90	8-23-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.5	7.3	7.0	7.4	7.8	6.9
11.	Total Acidity (mg/l CAC03)	3.8	2.9	3.9	4.0	3.1	3.2
12.	Total Alkalinity (mg/l CAC03)	110	109	112	106	101	114
13.	Specific Conductivity (μmhos/cm at 25°C)	600	610	615	610	600	620
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.04	0.03	0.03	0.02	0.05
16.	Total Sulfates (mg/l)	37	36	38	37	39	39
17.	Total Iron (mg/l)	2.86	2.75	2.81	2.63	2.80	2.97
18.	Total Suspended Solids (mg/l)	18	17	10	16	18	21
19.	Total Hardness (mg/l CAC03)	158	163	171	164	163	158
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-31-90	6-20-90	7-23-90	8-23-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-18-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-94	W-94	W-94	W-94	W-94	See Note 1
2.	Lab Identification Number	W-SS	W-SS	W-SS	W-SS	W-SS	
3.	High (H)/Low (L) Designation (if applicable)	H	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1274	1274	1274	1274	1274	
5.	Depth of Well below Land Surface (feet)	69	69	69	69	69	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	
8.	Date Above Measurements Made	5-31-90	7-2-90	8-29-90	9-28-90	10-19-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.1	7.2	8.6	8.8	9.0	
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	
12.	Total Alkalinity (mg/l CAC03)	71	63	76	81	68	
13.	Specific Conductivity (μmhos/cm at 25°C)	250	250	255	250	249	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.01	0.02	
16.	Total Sulfates (mg/l)	37	38	36	35	39	
17.	Total Iron (mg/l)	0.05	0.03	0.01	0.04	0.06	
18.	Total Suspended Solids (mg/l)	12	9	10	16	18	
19.	Total Hardness (mg/l CAC03)	115	101	112	107	100	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	5-31-90	7-23-90	8-29-90	9-28-90	10-19-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	7-23-90	8-29-90	9-23-90	10-19-90	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-95	W-95	W-95	W-95	W-95	
2.	Lab Identification Number	W-BBB	W-BBB	W-BBB	W-BBB	W-BBB	
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1276	1276	1276	1276	1276	
5.	Depth of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	
6.	Static Water Level of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	
7.	Flow for Spring/Stream (gpm or cfs)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	
8.	Date Above Measurements Made	6/28/90	7/24/90	8/23/90	9/18/90	10/4/90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.6	7.5	7.3	7.4	7.3	
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	
12.	Total Alkalinity (mg/l CAC03)	86	91	84	98	93	
13.	Specific Conductivity (μmhos/cm at 25°C)	250	250	225	250	225	
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	
16.	Total Sulfates (mg/l)	58	56	57	58	56	
17.	Total Iron (mg/l)	0.06	0.05	0.04	0.06	0.06	
18.	Total Suspended Solids (mg/l)	0	0	0	0	0	
19.	Total Hardness (mg/l CAC03)	185	191	186	184	190	
20.	Nitrates (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0	
21.	Date Sampled for Analysis	6/28/90	7/24/90	8/23/90	9/18/90	10/4/90	
22.	Date Last Precipitaiton Event Occurred	6/28/90	7/23/90	8/23/90	9/18/90	10/4/90	

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-96	W-96	W-96	W-96	W-96	W-96
2.	Lab Identification Number	W-B	W-B	W-B	W-B	W-B	W-B
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1228	1228	1228	1228	1228	1228
5.	Depth of Well below Land Surface (feet)	27	27	27	27	27	27
6.	Static Water Level of Well below Land Surface (feet)	19	21	18	24	23	21
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-18-90	6-27-90	7-23-90	8-28-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.4	8.0	7.2	7.4	7.5	7.5
11.	Total Acidity (mg/l CAC03)	14.6	11.8	12.6	13.2	10.7	12.3
12.	Total Alkalinity (mg/l CAC03)	196	181	173	194	180	186
13.	Specific Conductivity (μmhos/cm at 25°C)	480	464	476	487	479	471
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.03	0.02	0.01	0.03	0.02	0.03
16.	Total Sulfates (mg/l)	61	51	50	56	67	57
17.	Total Iron (mg/l)	0.41	0.28	0.17	0.31	0.34	0.39
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	261	256	251	253	241	243
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-18-90	6-27-90	7-23-90	8-28-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-23-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-97	W-97	W-97	W-97	W-97	W-97
2.	Lab Identification Number	W-C	W-C	W-C	W-C	W-C	W-C
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1332	1332	1332	1332	1332	1332
5.	Depth of Well below Land Surface (feet)	100	100	100	100	100	100
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-22-90	6-21-90	7-10-90	8-8-90	9-14-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.4	7.2	7.4	7.8	7.4	7.7
11.	Total Acidity (mg/l CAC03)	12.6	12.1	10.9	11.0	11.1	11.8
12.	Total Alkalinity (mg/l CAC03)	171	156	188	177	163	168
13.	Specific Conductivity (μmhos/cm at 25°C)	486	491	476	496	481	480
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.02	0.02	0.01	0.02	0.02
16.	Total Sulfates (mg/l)	76	56	81	73	61	69
17.	Total Iron (mg/l)	0.39	0.40	0.42	0.41	0.40	0.41
18.	Total Suspended Solids (mg/l)	1	2	1	1	1	2
19.	Total Hardness (mg/l CAC03)	261	283	289	273	275	284
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-22-90	6-21-90	7-9-90	8-8-90	9-14-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-9-90	8-5-90	9-14-90	10-4-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-98	W-98	W-98	W-98	W-98	W-98
2.	Lab Identification Number	W-TT	W-TT	W-TT	W-TT	W-TT	W-TT
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1346	1346	1346	1346	1346	1346
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-31-90	6-21-90	7-10-90	8-8-90	9-14-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.4	7.7	7.3	7.5	7.0	7.0
11.	Total Acidity (mg/l CAC03)	3.8	3.0	3.7	3.6	3.4	3.4
12.	Total Alkalinity (mg/l CAC03)	91	86	94	98	91	96
13.	Specific Conductivity (μmhos/cm at 25°C)	790	785	780	795	790	791
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.03	0.04	0.03	0.04	0.04
16.	Total Sulfates (mg/l)	51	48	46	51	46	49
17.	Total Iron (mg/l)	0.28	0.31	0.26	0.36	0.28	0.30
18.	Total Suspended Solids (mg/l)	31	36	29	36	31	28
19.	Total Hardness (mg/l CAC03)	161	151	146	156	149	150
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-31-90	6-21-90	7-9-90	8-8-90	9-14-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-9-90	8-5-90	9-14-90	10-4-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-99	W-99	W-99	W-99	W-99	W-99
2.	Lab Identification Number	W-D	W-D	W-D	W-D	W-D	W-D
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1185	1185	1185	1185	1185	1185
5.	Depth of Well below Land Surface (feet)	107	107	107	107	107	107
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-22-90	6-21-90	7-10-90	8-28-90	9-12-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	7.7	7.4	7.8	7.5	7.9
11.	Total Acidity (mg/l CAC03)	171	163	175	168	173	168
12.	Total Alkalinity (mg/l CAC03)	217	236	219	227	231	223
13.	Specific Conductivity (μmhos/cm at 25°C)	553	561	574	555	561	564
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00	0.00	0.00
16.	Total Sulfates (mg/l)	71	74	69	83	61	68
17.	Total Iron (mg/l)	0.31	0.19	0.26	0.23	0.34	0.27
18.	Total Suspended Solids (mg/l)	1	2	2	2	1	2
19.	Total Hardness (mg/l CAC03)	106	109	109	101	107	105
20.	Nitrates (mg/l)	0.17	0.11	0.14	0.16	0.15	0.14
21.	Date Sampled for Analysis	5-22-90	6-21-90	7-9-90	8-28-90	9-12-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-9-90	8-23-90	9-9-90	10-9-90

See Note 1

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-100	W-100	W-100	W-100	W-100	
2.	Lab Identification Number	W-M	W-M	W-M	W-M	W-M	
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	
5.	Depth of Well below Land Surface (feet)	77	77	77	77	77	
6.	Static Water Level of Well below Land Surface (feet)	19	19	26	19.5	24	
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	
8.	Date Above Measurements Made	6-21-90	7-9-90	8-8-90	9-18-90	10-11-90	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	
10.	pH (Standard Units)	7.4	7.2	7.8	7.5	6.8	
11.	Total Acidity (mg/l CAC03)	18.3	19.2	16.3	17.2	16.3	
12.	Total Alkalinity (mg/l CAC03)	206	208	200	198	201	
13.	Specific Conductivity (μmhos/cm at 25°C)	461	408	428	421	437	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.18	0.16	0.11	0.16	0.17	
16.	Total Sulfates (mg/l)	71	63	69	71	68	
17.	Total Iron (mg/l)	1.16	1.18	1.19	1.16	1.12	
18.	Total Suspended Solids (mg/l)	18	16	15	16	19	
19.	Total Hardness (mg/l CAC03)	320	318	321	316	319	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	6-21-90	7-9-90	8-8-90	9-18-90	10-11-90	
22.	Date Last Precipitaiton Event Occurred	6-21-90	7-9-90	8-5-90	9-18-90	10-9-90	

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-101	W-101	W-101	W-101	W-101	W-101
2.	Lab Identification Number	W-GG	W-GG	W-GG	W-GG	W-GG	W-GG
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1231	1231	1231	1231	1231	1231
5.	Depth of Well below Land Surface (feet)	24	24	24	24	24	24
6.	Static Water Level of Well below Land Surface (feet)	17	17	18	18	15	19
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-21-90	7-23-90	8-24-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.5	7.5	8.0	7.3	7.8	7.3
11.	Total Acidity (mg/l CAC03)	1.8	1.9	1.8	1.7	1.6	1.6
12.	Total Alkalinity (mg/l CAC03)	110	106	101	111	106	108
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	315	315	319	307
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.02	0.01	0.02
16.	Total Sulfates (mg/l)	59	62	58	61	60	61
17.	Total Iron (mg/l)	0.14	0.16	0.14	0.16	0.18	0.12
18.	Total Suspended Solids (mg/l)	10	11	12	14	10	12
19.	Total Hardness (mg/l CAC03)	191	186	191	187	186	189
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-23-90	8-24-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-23-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-102	W-102	W-102	W-102	W-102	W-102
2.	Lab Identification Number	W-II	W-II	W-II	W-II	W-II	W-II
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1228	1228	1228	1228	1228	1228
5.	Depth of Well below Land Surface (feet)	70	70	70	70	70	70
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-21-90	7-23-90	8-23-90	9-14-90	10-4-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.5	7.5	7.8	7.3	7.4	7.3
11.	Total Acidity (mg/l CAC03)	1.8	1.0	1.9	1.6	1.7	1.3
12.	Total Alkalinity (mg/l CAC03)	86	91	98	84	96	96
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	330	335	340	343
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.01
16.	Total Sulfates (mg/l)	61	63	64	65	68	63
17.	Total Iron (mg/l)	0.06	0.05	0.08	0.08	0.05	0.05
18.	Total Suspended Solids (mg/l)	10	12	14	10	10	11
19.	Total Hardness (mg/l CAC03)	191	186	184	188	189	189
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-23-90	8-23-90	9-18-90	10-4-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-15-90	10-4-90

See Note 1

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-103	W-103	W-103	W-103	W-103	W-103
2.	Lab Identification Number	W-HH	W-HH	W-HH	W-HH	W-HH	W-HH
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1190	1190	1190	1190	1190	1190
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-30-90	6-28-90	7-23-90	8-8-90	9-18-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.5	7.6	7.8	7.3	7.4	7.3
11.	Total Acidity (mg/l CAC03)	2.1	2.8	2.7	2.8	2.6	2.6
12.	Total Alkalinity (mg/l CAC03)	116	118	119	110	111	115
13.	Specific Conductivity (μmhos/cm at 25°C)	325	340	345	347	339	338
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.03	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	61	51	58	59	61	58
17.	Total Iron (mg/l)	0.48	0.51	0.56	0.51	0.49	0.56
18.	Total Suspended Solids (mg/l)	9	8	7	6	9	8
19.	Total Hardness (mg/l CAC03)	116	117	119	120	117	118
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-23-90	8-8-90	9-18-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-5-90	9-15-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-104	W-104	W-104	W-104	W-104	W-104
2.	Lab Identification Number	W-YY	W-YY	W-YY	W-YY	W-YY	W-YY
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1224	1224	1224	1224	1224	1224
5.	Depth of Well below Land Surface (feet)	42	42	42	42	42	42
6.	Static Water Level of Well below Land Surface (feet)	33	32	35	35	33	35
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-31-90	6-26-90	7-19-90	8-24-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-31-90	6-26-90	7-19-90	8-24-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-15-90	8-23-90	9-18-90	10-9-90

See Note 2

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-105	W-105	W-105	W-105	W-105	W-105
2.	Lab Identification Number	W-XX	W-XX	W-XX	W-XX	W-XX	W-XX
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1230	1230	1230	1230	1230	1230
5.	Depth of Well below Land Surface (feet)	73	73	73	73	73	73
6.	Static Water Level of Well below Land Surface (feet)	63	63	66	65	64	64
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	5-31-90	6-26-90	7-19-90	8-24-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)						
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	5-31-90	6-26-90	7-19-90	8-24-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-15-90	8-23-90	9-18-90	10-9-90

See Note 2

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-109	W-109	W-109	W-109	W-109	W-109
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1281	1281	1281	1281	1281	1281
5.	Depth of Well below Land Surface (feet)	99	99	99	99	99	99
6.	Static Water Level of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	2/8/91	3/8/91	NOTE 5	NOTE 5	NOTE 5	NOTE 5
9.	Aquifer/Zone Identification for Well/Spring	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
10.	pH (Standard Units)	7.3	7.5				
11.	Total Acidity (mg/l CAC03)	40.85	34.01				
12.	Total Alkalinity (mg/l CAC03)	241.11	255.91				
13.	Specific Conductivity (μmhos/cm at 25°C)	798	756				
14.	Total Dissolved Solids (mg/l)	-	-				
15.	Total Manganese (mg/l)	0.02	0.06				
16.	Total Sulfates (mg/l)	57	49				
17.	Total Iron (mg/l)	0.19	0.34				
18.	Total Suspended Solids (mg/l)	2	1				
19.	Total Hardness (mg/l CAC03)	360	336				
20.	Nitrates (mg/l)	2.96	3.53				
21.	Date Sampled for Analysis	2/8/91	3/8/91				
22.	Date Last Precipitaiton Event Occurred	2/7/91	3/6/91				

Laboratory Name_____ ERI Labs _____
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State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-231	W-231	W-231	W-231	W-231	W-231
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1345	1345	1345	1345	1345	1345
5.	Depth of Well below Land Surface (feet)	99	99	99	99	99	99
6.	Static Water Level of Well below Land Surface (feet)	35	35	35			
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	1/26/91	2/19/91	3/8/91			
9.	Aquifer/Zone Identification for Well/Spring	L-9	L-9	L-9	L-9	L-9	L-9
10.	pH (Standard Units)	7.0	7.0	6.9			
11.	Total Acidity (mg/l CAC03)	0	9.88	6.46			
12.	Total Alkalinity (mg/l CAC03)	101	60.80	64.98			
13.	Specific Conductivity (μmhos/cm at 25°C)	200	60.80	431			
14.	Total Dissolved Solids (mg/l)	-	-	-			
15.	Total Manganese (mg/l)	0.02	0.13	0.09			
16.	Total Sulfates (mg/l)	56	86	87			
17.	Total Iron (mg/l)	0.10	6.00	2.74			
18.	Total Suspended Solids (mg/l)	20	15	18			
19.	Total Hardness (mg/l CAC03)	22.6	181	142			
20.	Nitrates (mg/l)	36.2	<1.0	1.80			
21.	Date Sampled for Analysis	1/26/91	2/19/91	3/8/91			
22.	Date Last Precipitaiton Event Occurred	1/24/91	2/19/91	3/6/91			

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-232	W-232	W-232	W-232	W-232	W-232
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1332	1332	1332	1332	1332	1332
5.	Depth of Well below Land Surface (feet)	90	90	90	90	90	90
6.	Static Water Level of Well below Land Surface (feet)	63	64	64			
7.	Flow for Spring/Stream (gpm or gfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	1/26/91	2/20/91	3/19/91	4/23/91	5/22/91	6/20/91
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	7.2	7.4	7.3	7.0	7.0	6.9
11.	Total Acidity (mg/l CAC03)	0	32.87	5.51	2.85	10.26	15.77
12.	Total Alkalinity (mg/l CAC03)	79	172.52	218.31	201.78	200.07	210.40
13.	Specific Conductivity (μmhos/cm at 25°C)	900	1260	1155	1155	1155	1365
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	.09	0.25	<0.02	<0.02	<0.02	0.04
16.	Total Sulfates (mg/l)	31	68	58	56.0	68.0	70.0
17.	Total Iron (mg/l)	.30	1.33	0.06	0.12	0.09	<0.04
18.	Total Suspended Solids (mg/l)	6	8	1	<1.0	2.0	<1.0
19.	Total Hardness (mg/l CAC03)	40	500	<10	20.0	56.0	64.0
20.	Nitrates (mg/l)	46.1	1.14	3.69	6.80	6.16	1.36
21.	Date Sampled for Analysis	1/26/91	2/20/91	3/19/91	4/23/91	5/22/91	6/20/91
22.	Date Last Precipitaiton Event Occurred	1/24/91	2/19/91	3/18/91	4/22/91	5/17/91	6/16/91

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-233A	W-233A	W-233A	W-233A	W-233A	W-233A
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1332	1332	1332	1332	1332	1332
5.	Depth of Well below Land Surface (feet)	85	85	85	85	85	85
6.	Static Water Level of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-				
8.	Date Above Measurements Made	2/19/91	3/19/91				
9.	Aquifer/Zone Identification for Well/Spring	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
10.	pH (Standard Units)	7.3	7.3				
11.	Total Acidity (mg/l CAC03)	34.58	42.75				
12.	Total Alkalinity (mg/l CAC03)	181.83	190.38				
13.	Specific Conductivity (μmhos/cm at 25°C)	2442	1995				
14.	Total Dissolved Solids (mg/l)	-	-				
15.	Total Manganese (mg/l)	<0.02	<0.02				
16.	Total Sulfates (mg/l)	76	68				
17.	Total Iron (mg/l)	0.44	0.24				
18.	Total Suspended Solids (mg/l)	6	6				
19.	Total Hardness (mg/l CAC03)	946	900				
20.	Nitrates (mg/l)	2.66	6.11				
21.	Date Sampled for Analysis	2/19/91	3/19/91				
22.	Date Last Precipitaiton Event Occurred	2/19/91	3/18/91				

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-234	W-234	W-234	W-234	W-234	W-234
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1351	1351	1351	1351	1351	1351
5.	Depth of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
6.	Static Water Level of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	1/25/91	2/20/91	3/19/91			
9.	Aquifer/Zone Identification for Well/Spring	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
10.	pH (Standard Units)	7.3	7.3	7.3	NOTE 5	NOTE 5	NOTE 5
11.	Total Acidity (mg/l CAC03)	0	18.24	22.9			
12.	Total Alkalinity (mg/l CAC03)	165	184.87	227.05			
13.	Specific Conductivity (μmhos/cm at 25°C)	300	588	567			
14.	Total Dissolved Solids (mg/l)	-	-	-			
15.	Total Manganese (mg/l)	0.06	<0.02	<0.02			
16.	Total Sulfates (mg/l)	39	68	65			
17.	Total Iron (mg/l)	0.24	0.11	0.10			
18.	Total Suspended Solids (mg/l)	3	3	2			
19.	Total Hardness (mg/l CAC03)	57	254	276			
20.	Nitrates (mg/l)	9.9	1.25	4.05			
21.	Date Sampled for Analysis	1/25/91	2/20/91	3/19/91			
22.	Date Last Precipitaiton Event Occurred	1/24/91	2/19/91	3/18/91			

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-236	W-236	W-236	W-236	W-236	W-236
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1341	1341	1341	1341	1341	1341
5.	Depth of Well below Land Surface (feet)	150	150	150	150	150	150
6.	Static Water Level of Well below Land Surface (feet)	67	72	71			
7.	Flow for Spring/Stream (gpm or cfs)	–	–	–			
8.	Date Above Measurements Made	1/25/91	2/20/91	3/19/91			
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	7.8	7.4	7.9			
11.	Total Acidity (mg/l CAC03)	0	15.96	15.01			
12.	Total Alkalinity (mg/l CAC03)	117	208.24	226.29			
13.	Specific Conductivity (μmhos/cm at 25°C)	250	525	567			
14.	Total Dissolved Solids (mg/l)	–	–	–			
15.	Total Manganese (mg/l)	0.01	<0.02	<0.02			
16.	Total Sulfates (mg/l)	47	64	63			
17.	Total Iron (mg/l)	0.37	0.08	0.09			
18.	Total Suspended Solids (mg/l)	4	5	1.0			
19.	Total Hardness (mg/l CAC03)	62	200	200			
20.	Nitrates (mg/l)	12.7	<1.0	2.73			
21.	Date Sampled for Analysis	1/25/91	2/20/91	3/19/91			
22.	Date Last Precipitaiton Event Occurred	1/24/91	2/19/91	3/18/91			

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-259	W-259	W-259	W-259	W-259	W-259
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1328	1328	1328	1328	1328	1328
5.	Depth of Well below Land Surface (feet)	110	110	110	110	110	110
6.	Static Water Level of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
7.	Flow for Spring/Stream (gpm or cfs)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
8.	Date Above Measurements Made	1/29/91	2/20/91	3/14/91			
9.	Aquifer/Zone Identification for Well/Spring	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
10.	pH (Standard Units)	7.3	7.5	7.6	NOTE 5	NOTE 5	NOTE 5
11.	Total Acidity (mg/l CAC03)	0	18.81	15.96			
12.	Total Alkalinity (mg/l CAC03)	110	192.47	201.02			
13.	Specific Conductivity (μmhos/cm at 25°C)	450	557	525			
14.	Total Dissolved Solids (mg/l)	--	-	-			
15.	Total Manganese (mg/l)	0.11	<0.02	<0.02			
16.	Total Sulfates (mg/l)	96	78	73			
17.	Total Iron (mg/l)	0.36	0.16	0.17			
18.	Total Suspended Solids (mg/l)	2	2	4			
19.	Total Hardness (mg/l CAC03)	362	283	244			
20.	Nitrates (mg/l)	21.6	<1.0	2.54			
21.	Date Sampled for Analysis	1/29/91	2/20/91	3/14/91			
22.	Date Last Precipitaiton Event Occurred	1/29/91	2/19/91	3/13/91			

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-107	W-108	W-230	W-233	W-235	W-261
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1302	1303	1355	1332	1365	1301
5.	Depth of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	138	NOTE 1
6.	Static Water Level of Well below Land Surface (feet)					NOTE 4	
7.	Flow for Spring/Stream (gpm or cfs)						
8.	Date Above Measurements Made						
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis						
22.	Date Last Precipitaiton Event Occurred						

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES

DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-262	W-263	W-264	W-265	W-270	W-272
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1290	1263	1263	1265	1339	1349
5.	Depth of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
6.	Static Water Level of Well below Land Surface (feet)						
7.	Flow for Spring/Stream (gpm or cfs)						
8.	Date Above Measurements Made						
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3	NOTE 3
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis						
22.	Date Last Precipitaiton Event Occurred						

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824_____ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-271	W-271	W-271	W-271	W-271	W-271
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1351	1351	1351	1351	1351	1351
5.	Depth of Well below Land Surface (feet)	60	60	60	60	60	60
6.	Static Water Level of Well below Land Surface (feet)	18	19	NOTE 5	NOTE 5	NOTE 5	NOTE 5
7.	Flow for Spring/Stream (gpm or cfs)	-	-	-	-	-	-
8.	Date Above Measurements Made	2/20/91	3/8/91	NOTE 5	NOTE 5	NOTE 5	NOTE 5
9.	Aquifer/Zone Identification for Well/Spring	L-9	L-9	L-9	L-9	L-9	L-9
10.	pH (Standard Units)	7.1	7.0				
11.	Total Acidity (mg/l CAC03)	36.10	28.88				
12.	Total Alkalinity (mg/l CAC03)	256.69	268.85				
13.	Specific Conductivity (μmhos/cm at 25°C)	945	945				
14.	Total Dissolved Solids (mg/l)	-	-				
15.	Total Manganese (mg/l)	<0.02	<0.02				
16.	Total Sulfates (mg/l)	147	145				
17.	Total Iron (mg/l)	0.28	0.10				
18.	Total Suspended Solids (mg/l)	10	7				
19.	Total Hardness (mg/l CAC03)	533	459				
20.	Nitrates (mg/l)	5.35	9.16				
21.	Date Sampled for Analysis	2/20/91	3/8/91				
22.	Date Last Precipitaiton Event Occurred	2/19/91	3/6/91				

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	W-273	W-274	W-275	W-276	W-277	
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1270	1301	1301	1301	1306	
5.	Depth of Well below Land Surface (feet)	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	
6.	Static Water Level of Well below Land Surface (feet)						
7.	Flow for Spring/Stream (gpm or cfs)						
8.	Date Above Measurements Made						
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	NOTE 2	NOTE 2	NOTE 2	NOTE 2	NOTE 2	
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis						
22.	Date Last Precipitaiton Event Occurred						

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

icant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	SP-22	SP-22	SP-22	SP-22	SP-22	
2.	Lab Identification Number	8903403	8904242	8905403	8906381	8907065	
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	H	L	
4.	Surface Elevation for Sampling Station (msl)	1250	1250	1250	1250	1250	
☆ 5.	Depth of Well below Land Surface (feet)	--	--	--	--	--	
☆ 6.	Static Water Level of Well below Land Surface (feet)	--	--	--	--	--	
7.	Flow for Spring/Stream (gpm or cfs)	1	1	1	1	1	
8.	Date Above Measurements Made	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89	
☆ 9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	
10.	pH (Standard Units)	8.08	7.88	7.70	7.61	7.45	
11.	Total Acidity (mg/l $CaCO_3$)	3.07	3.6	3.6	11.6	10.0	
12.	Total Alkalinity (mg/l $CaCO_3$)	88.8	86.4	116	104	132	
13.	Specific Conductivity (umhos/cm at 25°C)	410	294	420	450	429	
☆☆ 14.	Total Dissolved Solids (mg/l)	156	235	227	258	241	
15.	Total Manganese (mg/l)	0.06	0.11	0.16	1.03	0.74	
16.	Total Sulfates (mg/l)	53.0	53.6	52.0	31.2	34.0	
17.	Total Iron (mg/l)	1.06	1.19	0.62	0.51	2.18	
18.	Total Suspended Solids (mg/l)	39.6	85.0	17.0	14.1	66.4	
19.	Total Hardness (mg/l as $CaCO_3$)	134	30.0	48.0	55	70.0	
20.	Date Sampled for Analysis	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89	
21.	Date Last Precipitation Event Occurred	3/28/89	4/18/89	5/25/89	6/19/89	7/4/89	

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-29	SP-29	SP-30	SP-30	W-38	W-38
2.	Lab Identification Number	9009716	-	9009717	-	8907064	-
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	L	H
4.	Surface Elevation for Sampling Station (msl)	1260	1260	1261	1261	1270	1270
5.	Depth of Well below Land Surface (feet)	-	-	-	-	88	88
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	38	20
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	1.25	2.22	1.0	3.49	-	-
8.	Date Above Measurements Made	9/10/90	12/7/90	9/10/90	12/5/90	10/13/89	12/5/90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-7	L-7
10.	pH (Standard Units)	6.40	6.90	6.74	6.90	7.33	7.50
11.	Total Acidity (mg/l CAC03)	36.4	8.2	61.4	0	17.9	43.2
12.	Total Alkalinity (mg/l CAC03)	89.7	96.0	100.5	136.0	236.0	191.0
13.	Specific Conductivity (μmhos/cm at 25°C)	864	800	855	570	640	500
14.	Total Dissolved Solids (mg/l)	-	-	-	-	328	-
15.	Total Manganese (mg/l)	0.14	0.03	0.18	0.08	0.05	0.20
16.	Total Sulfates (mg/l)	71	67	97	61	36	46
17.	Total Iron (mg/l)	1.30	0.86	0.85	0.11	2.80	5.62
18.	Total Suspended Solids (mg/l)	18	2	12	2	41.3	10
19.	Total Hardness (mg/l CAC03)	224	201	217	166	278	198
20.	Nitrates (mg/l)	1.98	1.86	2.24	43.6	-	2.0
21.	Date Sampled for Analysis	9/10/90	12/7/90	9/10/90	12/5/90	10/13/89	12/5/90
22.	Date Last Precipitaiton Event Occurred	9/9/90	12/3/90	9/9/90	12/3/90	10/10/89	12/3/90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-32	SP-32	SP-32	SP-32	SP-32	SP-32
2.	Lab Identification Number	SP-B	SP-B	SP-B	SP-B	SP-B	SP-B
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1270	1270	1270	1270	1270	1270
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3	.96	1.87	.75	2.5	1.5
8.	Date Above Measurements Made	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	6.3	7.0	6.9	7.3	6.3	6.8
11.	Total Acidity (mg/l CAC03)	12.4	10.3	14.2	16.0	15.2	10.3
12.	Total Alkalinity (mg/l CAC03)	103	108	112	115	101	107
13.	Specific Conductivity (μmhos/cm at 25°C)	900	903	918	916	910	913
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.03	0.02	0.02	0.03	0.02
16.	Total Sulfates (mg/l)	77.3	76.3	77.3	79.0	76.3	77.3
17.	Total Iron (mg/l)	0.21	0.16	0.17	0.18	0.18	0.17
18.	Total Suspended Solids (mg/l)	10	13	16	17	18	15
19.	Total Hardness (mg/l CAC03)	51.0	51.8	49.3	48.6	49.6	46.3
20.	Nitrates (mg/l)	4.51	4.68	4.70	4.67	4.63	4.65
21.	Date Sampled for Analysis	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-9-90	10-9-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-33	SP-33	SP-33	SP-33	SP-33	SP-33
2.	Lab Identification Number	SP-C	SP-C	SP-C	SP-C	SP-C	SP-C
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1264	1264	1264	1264	1264	1264
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1	1.03	1.93	.62	2.5	1.57
8.	Date Above Measurements Made	5-17-90	6-27-90	7-24-90	8-28-90	9-10-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.3	7.0	7.2	7.5	6.9	7.4
11.	Total Acidity (mg/l CAC03)	21.0	19.3	16.4	19.8	21.0	17.0
12.	Total Alkalinity (mg/l CAC03)	191.0	186.3	194.3	181.0	184.0	180.0
13.	Specific Conductivity (μmhos/cm at 25°C)	317	326	318	314	328	310
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.01	0.01	0.00
16.	Total Sulfates (mg/l)	74.3	71.3	70.2	71.8	70.8	69.0
17.	Total Iron (mg/l)	0.20	0.18	0.17	0.17	0.18	0.16
18.	Total Suspended Solids (mg/l)	4	3	2	1	2	2
19.	Total Hardness (mg/l CAC03)	198	189	196	194	191	190
20.	Nitrates (mg/l)	3.56	3.62	3.51	3.74	3.61	3.48
21.	Date Sampled for Analysis	5-17-90	6-27-90	7-24-90	8-28-90	9-10-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-9-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-34	SP-34	SP-34	SP-34	SP-34	SP-34
2.	Lab Identification Number	SP-D	SP-D	SP-D	SP-D	SP-D	SP-D
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1260	1260	1260	1260	1260	1260
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	7	4.2	3.5	3	3.6	1.2
8.	Date Above Measurements Made	5-17-90	6-27-90	7-24-90	8-28-90	9-10-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	6.1	8.1	7.4	7.1	7.3	7.3
11.	Total Acidity (mg/l CAC03)	36.0	31.4	33.0	29.8	30.6	28.0
12.	Total Alkalinity (mg/l CAC03)	174	161.3	169.6	158.4	160.3	159.0
13.	Specific Conductivity (μmhos/cm at 25°C)	263	271	248	256	265	251
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.08	0.06	0.05	0.09	0.07
16.	Total Sulfates (mg/l)	91.4	89.3	91.5	92.6	89.3	86.3
17.	Total Iron (mg/l)	0.41	0.36	0.38	0.32	0.36	0.31
18.	Total Suspended Solids (mg/l)	11	14	20	18	10	22
19.	Total Hardness (mg/l CAC03)	31.6	30.8	26.4	38.2	26.2	20.1
20.	Nitrates (mg/l)	3.54	3.86	3.71	3.94	3.86	3.61
21.	Date Sampled for Analysis	5-17-90	6-27-90	7-24-90	8-28-90	9-10-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-9-90	10-9-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-35	SP-35	SP-35	SP-35	SP-35	SP-35	
2.	Lab Identification Number	SP-A	SP-A	SP-A	SP-A	SP-A	SP-A	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1200	1200	1200	1200	1200	1200	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	.5	2	1.5	.62	2.3	1.01	
8.	Date Above Measurements Made	5-15-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3	
10.	pH (Standard Units)	7.6	7.4	7.6	7.6	7.2	7.3	—
11.	Total Acidity (mg/l CAC03)	23	36	21	27	31	24	↓
12.	Total Alkalinity (mg/l CAC03)	198	200	176	184	186	181	↑
13.	Specific Conductivity (μmhos/cm at 25°C)	513	536	521	507	518	521	—
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.02	0.03	0.02	0.02	0.03	0.02	—
16.	Total Sulfates (mg/l)	38	41	36	39	44	36	—
17.	Total Iron (mg/l)	0.14	0.16	0.20	0.15	0.17	0.15	↑
18.	Total Suspended Solids (mg/l)	10	9	8	11	10	6	—
19.	Total Hardness (mg/l CAC03)	201	206	198	208	200	206	↑
20.	Nitrates (mg/l)	3.86	3.91	3.74	3.91	3.98	3.80	↓
21.	Date Sampled for Analysis	5-15-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90	
22.	Date Last Precipitaiton Event Occurred	5-15-90	6-21-90	7-23-90	8-23-90	9-9-90	10-9-90	

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-36	SP-36	SP-36	SP-36	SP-36	SP-36	
2.	Lab Identification Number	SP-V	SP-V	SP-V	SP-V	SP-V	SP-V	
3.	High (H)/Low (L) Designation (if applicable)							
4.	Surface Elevation for Sampling Station (msl)	1265	1265	1265	1265	1265	1265	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	.15	2	1	.18	.46	.75	
8.	Date Above Measurements Made	5-25-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90	
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7	
10.	pH (Standard Units)	7.7	7.3	7.4	7.5	7.0	7.0	
11.	Total Acidity (mg/l CAC03)	3.7	3.6	3.9	3.2	3.1	3.1	↑
12.	Total Alkalinity (mg/l CAC03)	51.8	55.2	60.0	58.2	58.2	54.7	↓
13.	Specific Conductivity (μmhos/cm at 25°C)	523	531	520	526	518	517	↓
14.	Total Dissolved Solids (mg/l)							
15.	Total Manganese (mg/l)	0.03	0.02	0.01	0.02	0.02	0.04	↑
16.	Total Sulfates (mg/l)	77.2	73.5	74.8	75.2	77.2	73.6	↓
17.	Total Iron (mg/l)	0.51	0.56	0.47	0.48	0.46	0.46	↓
18.	Total Suspended Solids (mg/l)	0	1	1	1	1	1	↑
19.	Total Hardness (mg/l CAC03)	22.3	22.4	23.6	27.4	26.2	22.3	↑
20.	Nitrates (mg/l)	0.03	0.02	0.03	0.06	0.04	0.04	↑
21.	Date Sampled for Analysis	5-25-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90	
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-21-90	7-23-90	8-23-90	9-9-90	10-9-90	

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-37	SP-37	SP-37	SP-37	SP-37	SP-37
2.	Lab Identification Number	SP-DD	SP-DD	SP-DD	SP-DD	SP-DD	SP-DD
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1241	1241	1241	1241	1241	1241
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~ mgd)	6	3	2.5	.68	1.2	1.87
8.	Date Above Measurements Made	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.7	7.5	7.2	6.7	6.4	6.3
11.	Total Acidity (mg/l CAC03)	14.2	13.6	12.6	12.8	14.2	12.6
12.	Total Alkalinity (mg/l CAC03)	181	194	167	183	171	176
13.	Specific Conductivity (μmhos/cm at 25°C)	200	208	213	219	220	207
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.12	0.11	0.11	0.14	0.10	0.11
16.	Total Sulfates (mg/l)	71	82	60	58	61	68
17.	Total Iron (mg/l)	0.81	0.76	0.78	0.80	0.71	0.74
18.	Total Suspended Solids (mg/l)	1	1	1	2	1	2
19.	Total Hardness (mg/l CAC03)	148	151	161	181	160	142
20.	Nitrates (mg/l)	0.61	0.72	0.83	0.80	0.76	0.56
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-38	SP-38	SP-38	SP-38	SP-38	SP-38
2.	Lab Identification Number	SP-GG	SP-GG	SP-GG	SP-GG	SP-GG	SP-GG
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1210	1210	1210	1210	1210	1210
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	2.5	1.57	1.5	.046	.046	.35
8.	Date Above Measurements Made	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.6	7.4	7.2	7.5	7.4	7.3
11.	Total Acidity (mg/l CAC03)	27.2	28.3	31.2	27.2	31.6	21.2
12.	Total Alkalinity (mg/l CAC03)	222	216	231	238	214	212
13.	Specific Conductivity (μmhos/cm at 25°C)	341	333	319	329	314	327
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.01	0.03	0.03	0.06	0.05
16.	Total Sulfates (mg/l)	74	81	56	39	69	61
17.	Total Iron (mg/l)	0.51	0.47	0.39	0.48	0.39	0.64
18.	Total Suspended Solids (mg/l)	17	11	28	31	19	41
19.	Total Hardness (mg/l CAC03)	201	213	227	216	208	215
20.	Nitrates (mg/l)	0.81	0.93	0.81	0.75	0.86	0.76
21.	Date Sampled for Analysis	5-30-90	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-39	SP-39	SP-39	SP-39	SP-39	
2.	Lab Identification Number	SP-HH	SP-HH	SP-HH	SP-HH	SP-HH	
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1135	1135	1135	1135	1135	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	.23	.12	.037	.083	.039	
8.	Date Above Measurements Made	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90	
9.	Aquifer/Zone Identification for Well/Spring	L-1	L-1	L-1	L-1	L-1	
10.	pH (Standard Units)	7.6	7.3	7.3	7.3	7.7	
11.	Total Acidity (mg/l CAC03)	12.2	16.8	14.3	15.8	16.0	
12.	Total Alkalinity (mg/l CAC03)	184	163	191	171	178	
13.	Specific Conductivity (μmhos/cm at 25°C)	341	317	324	309	326	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.05	0.07	0.08	0.08	0.06	
16.	Total Sulfates (mg/l)	41	39	61	42	36	
17.	Total Iron (mg/l)	0.31	0.28	0.20	0.38	0.33	
18.	Total Suspended Solids (mg/l)	1	1	1	1	2	
19.	Total Hardness (mg/l CAC03)	217	231	222	216	225	
20.	Nitrates (mg/l)	0.81	0.91	0.86	0.61	0.76	
21.	Date Sampled for Analysis	6-21-90	7-25-90	8-28-90	9-26-90	10-11-90	
22.	Date Last Precipitaiton Event Occurred	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-40	SP-40	SP-40	SP-40	SP-40	SP-40
2.	Lab Identification Number	SP-Y	SP-Y	SP-Y	SP-Y	SP-Y	SP-Y
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1150	1150	1150	1150	1150	1150
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	6	4.2	5.2	1.33	2	1.3
8.	Date Above Measurements Made	5-26-90	6-20-90	7-19-90	8-8-90	9-14-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	L-1	L-1	L-1	L-1	L-1	L-1
10.	pH (Standard Units)	7.2	7.5	7.2	7.6	7.6	7.0
11.	Total Acidity (mg/l CAC03)	3.2	3.0	3.3	3.1	3.6	3.1
12.	Total Alkalinity (mg/l CAC03)	61.2	54.2	58.6	57.3	56.2	59.1
13.	Specific Conductivity (μmhos/cm at 25°C)	403	406	408	405	406	407
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.06	0.04	0.06	0.07	0.05
16.	Total Sulfates (mg/l)	41.3	48.2	40.8	46.2	51.0	47.2
17.	Total Iron (mg/l)	0.48	0.41	0.31	0.51	0.41	0.46
18.	Total Suspended Solids (mg/l)	1	2	2	1	1	2
19.	Total Hardness (mg/l CAC03)	26.3	27.3	26.2	27.3	25.2	24.2
20.	Nitrates (mg/l)	0.11	0.09	0.10	0.11	0.12	0.11
21.	Date Sampled for Analysis	5-26-90	6-20-90	7-19-90	8-8-90	9-14-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-17-90	7-15-90	8-5-90	9-14-90	10-4-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-41	SP-41	SP-41	SP-41		
2.	Lab Identification Number	SP-EE	SP-EE	SP-EE	SP-EE		
3.	High (H)/Low (L) Designation (if applicable)	H	L	L	H		
4.	Surface Elevation for Sampling Station (msl)	1195	1195	1195	1195		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	.92	.66	.05	.75		
8.	Date Above Measurements Made	5-31-90	6-27-90	8-31-90	10-1-90		
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3		
10.	pH (Standard Units)	7.4	6.7	7.1	6.8		
11.	Total Acidity (mg/l CAC03)	23.6	18.9	19.2	17.0		
12.	Total Alkalinity (mg/l CAC03)	240	227	260	231		
13.	Specific Conductivity (μmhos/cm at 25°C)	317	328	318	345		
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00		
16.	Total Sulfates (mg/l)	71	83	63	69		
17.	Total Iron (mg/l)	0.28	0.21	0.38	0.31		
18.	Total Suspended Solids (mg/l)	1	1	1	1		
19.	Total Hardness (mg/l CAC03)	27.3	34.2	28.2	26.0		
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1		
21.	Date Sampled for Analysis	5-31-90	6-27-90	8-31-90	10-1-90		
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	8-29-90	9-30-90		

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-42	SP-42				
2.	Lab Identification Number	SP-FF	SP-FF				
3.	High (H)/Low (L) Designation (if applicable)	L	H				
4.	Surface Elevation for Sampling Station (msl)	1180	1180				
5.	Depth of Well below Land Surface (feet)	-	-				
6.	Static Water Level of Well below Land Surface (feet)	-	-				
7.	Flow for Spring/Stream (gpm or ~~gfs~~ cfs)	.05	.53				
8.	Date Above Measurements Made	8-31-90	10-1-90				
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2				
10.	pH (Standard Units)	7.5	7.7				
11.	Total Acidity (mg/l CAC03)	17.2	16.2				
12.	Total Alkalinity (mg/l CAC03)	263	281				
13.	Specific Conductivity (μmhos/cm at 25°C)	438	444				
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.09				
16.	Total Sulfates (mg/l)	39	36				
17.	Total Iron (mg/l)	1.11	1.20				
18.	Total Suspended Solids (mg/l)	30	47				
19.	Total Hardness (mg/l CAC03)	261	278				
20.	Nitrates (mg/l)	2.69	2.48				
21.	Date Sampled for Analysis	8-31-90	10-1-90				
22.	Date Last Precipitaiton Event Occurred	8-29-90	9-30-90				

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-43	SP-43	SP-43	SP-43	SP-43	SP-43
2.	Lab Identification Number	SP-X	SP-X	SP-X	SP-X	SP-X	SP-X
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1200	1200	1200	1200	1200	1200
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.2	.69	.75	1.25	.93	1.3
8.	Date Above Measurements Made	5-26-90	6-27-90	7-23-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.3	7.4	8.1	7.4	7.5	7.0
11.	Total Acidity (mg/l CAC03)	3.6	3.9	2.8	3.0	3.1	2.8
12.	Total Alkalinity (mg/l CAC03)	106	101	105	109	101	108
13.	Specific Conductivity (μmhos/cm at 25°C)	317	316	317	318	330	323
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.06	0.04	0.06	0.06	0.07
16.	Total Sulfates (mg/l)	736	741	751	751	761	744
17.	Total Iron (mg/l)	0.31	0.21	0.26	0.24	0.26	0.28
18.	Total Suspended Solids (mg/l)	2	2	1	1	2	2
19.	Total Hardness (mg/l CAC03)	180	179	164	182	181	182
20.	Nitrates (mg/l)	2.86	2.81	2.76	2.81	2.81	2.61
21.	Date Sampled for Analysis	5-26-90	6-27-90	7-23-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-24-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-44	SP-44	SP-44	SP-44	SP-44	SP-44
2.	Lab Identification Number	SP-W	SP-W	SP-W	SP-W	SP-W	SP-W
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1234	1234	1234	1234	1234	1234
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.5	1.2	3.5	1.25	1.2	.83
8.	Date Above Measurements Made	5-26-90	6-28-90	7-24-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-5	L-5	L-5	L-5	L-5	L-5
10.	pH (Standard Units)	7.4	7.0	7.7	7.5	7.6	7.2
11.	Total Acidity (mg/l CAC03)	16.3	15.2	14.3	16.2	17.8	17.1
12.	Total Alkalinity (mg/l CAC03)	207	210	200	221	213	212
13.	Specific Conductivity (μmhos/cm at 25°C)	491	461	483	471	462	483
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	51.2	56.2	58.2	59.2	58.6	54.4
17.	Total Iron (mg/l)	0.31	0.28	0.27	0.28	0.28	0.26
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	31.2	27.2	30.1	32.1	31.6	29.0
20.	Nitrates (mg/l)	0.25	0.27	0.31	0.26	0.28	0.28
21.	Date Sampled for Analysis	5-26-90	6-28-90	7-24-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-45	SP-45	SP-45	SP-45	SP-45	SP-45
2.	Lab Identification Number	SP-U	SP-U	SP-U	SP-U	SP-U	SP-U
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1201	1201	1201	1201	1201	1201
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.1	.61	.93	.04	.98	.85
8.	Date Above Measurements Made	5-30-90	6-27-90	7-24-90	8-27-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.2	7.0	7.4	6.8	7.8	6.8
11.	Total Acidity (mg/l CAC03)	20.2	16.3	18.2	19.2	18.3	17.2
12.	Total Alkalinity (mg/l CAC03)	90.1	89.2	77.3	91.6	101.2	88.3
13.	Specific Conductivity (μmhos/cm at 25°C)	423	417	418	421	420	415
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.16	0.21	0.18	0.38	0.31	0.38
16.	Total Sulfates (mg/l)	61.0	51.2	56.3	51.2	56.3	55.2
17.	Total Iron (mg/l)	0.31	0.30	0.38	0.27	0.26	0.28
18.	Total Suspended Solids (mg/l)	1	2	2	2	2	2
19.	Total Hardness (mg/l CAC03)	26.3	23.2	24.2	23.6	22.4	22.3
20.	Nitrates (mg/l)	0.12	0.16	0.12	0.11	0.10	0.11
21.	Date Sampled for Analysis	5-30-90	6-27-90	7-24-90	8-27-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-23-90	8-23-90	9-18-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-46	SP-46	SP-46	SP-46	SP-46	SP-46
2.	Lab Identification Number	SP-O	SP-O	SP-O	SP-O	SP-O	SP-O
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1188	1188	1188	1188	1188	1188
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.75	.3	1.13	.85	1	.85
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.0	7.5	7.7	7.6	6.9	7.3
11.	Total Acidity (mg/l CAC03)	23.2	26.4	22.3	21.4	22.3	21.3
12.	Total Alkalinity (mg/l CAC03)	171.3	169.2	170.2	168.2	168.3	167
13.	Specific Conductivity (μmhos/cm at 25°C)	471	488	492	486	493	498
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.04	0.03	0.05	0.04	0.05
16.	Total Sulfates (mg/l)	36.2	37.3	38.2	39.4	36.2	40.8
17.	Total Iron (mg/l)	0.26	0.28	0.21	0.31	0.26	0.28
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	263	281	269	270	276	274
20.	Nitrates (mg/l)	1.71	1.83	1.68	1.61	1.60	1.69
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-24-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-47	SP-47	SP-47	SP-47	SP-47	SP-47
2.	Lab Identification Number	SP-P	SP-P	SP-P	SP-P	SP-P	SP-P
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	1220
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	4	2.5	5	2.4	4	3.1
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.2	6.7	7.4	6.8	7.2	6.7
11.	Total Acidity (mg/l CAC03)	12.3	10.8	12.3	14.6	12.1	11.8
12.	Total Alkalinity (mg/l CAC03)	171	198	171.3	168	181.3	166
13.	Specific Conductivity (μmhos/cm at 25°C)	702	717	731	681	502	732
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.01	0.00	0.00
16.	Total Sulfates (mg/l)	36	41.5	39.2	50.2	46.3	48
17.	Total Iron (mg/l)	0.12	0.16	0.17	0.18	0.12	0.14
18.	Total Suspended Solids (mg/l)	0	1	1	0	1	1
19.	Total Hardness (mg/l CAC03)	361	354	371	382	351	360
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-24-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-48	SP-48	SP-48	SP-48	SP-48	SP-48
2.	Lab Identification Number	SP-Q	SP-Q	SP-Q	SP-Q	SP-Q	SP-Q
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	1220
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.57	1.71	2.4	1.5	2	2
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.4	7.2	7.5	7.0	7.2	6.6
11.	Total Acidity (mg/l CAC03)	14.2	16.3	12.7	13.8	14.2	12.4
12.	Total Alkalinity (mg/l CAC03)	193	186.4	171.2	141.2	186.1	181.2
13.	Specific Conductivity (μmhos/cm at 25°C)	640	651	663	617	631	624
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00	0.00	0.00
16.	Total Sulfates (mg/l)	53	49	56	60	62	51
17.	Total Iron (mg/l)	0.21	0.18	0.16	0.20	0.18	0.19
18.	Total Suspended Solids (mg/l)	0	0	0	0	0	0
19.	Total Hardness (mg/l CAC03)	324	318	326	314	310	318
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-28-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-24-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-49	SP-49	SP-49	SP-49	SP-49	SP-49
2.	Lab Identification Number	SP-R	SP-R	SP-R	SP-R	SP-R	SP-R
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	1220
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1	1	.75	2	1.27	1.42
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-24-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.4	7.5	7.5	7.4	7.4	7.2
11.	Total Acidity (mg/l CAC03)	12.2	11.3	12.6	14.1	13.5	13.2
12.	Total Alkalinity (mg/l CAC03)	157.3	160.1	159.2	163.0	161.2	164.2
13.	Specific Conductivity (μmhos/cm at 25°C)	870	881	861	877	881	884
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.01	0.02	0.02
16.	Total Sulfates (mg/l)	63.2	66.4	71.2	73.2	75.4	77.0
17.	Total Iron (mg/l)	0.21	0.26	0.28	0.21	0.24	0.26
18.	Total Suspended Solids (mg/l)	1	0	1	1	1	1
19.	Total Hardness (mg/l CAC03)	46.3	51.4	41.2	45.2	46.3	47.1
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-24-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-18-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-50	SP-50	SP-50	SP-50	SP-50	SP-50
2.	Lab Identification Number	SP-S	SP-S	SP-S	SP-S	SP-S	SP-S
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1210	1210	1210	1210	1210	1210
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3	3	.62	.75	1.46	.92
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-24-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	8.2	7.8	7.7	7.7	7.4	7.1
11.	Total Acidity (mg/l CAC03)	13.6	12.4	11.0	11.3	12.4	11.4
12.	Total Alkalinity (mg/l CAC03)	164.8	161.2	163.2	158.2	166.3	156.2
13.	Specific Conductivity (μmhos/cm at 25°C)	871	869	880	881	869	885
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.00	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	74	73.2	68.4	70.6	71.2	69.2
17.	Total Iron (mg/l)	0.24	0.26	0.28	0.31	0.26	0.26
18.	Total Suspended Solids (mg/l)	0	0	1	1	1	1
19.	Total Hardness (mg/l CAC03)	456	463	461	460	481	464
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-24-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-18-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-51	SP-51	SP-51	SP-51	SP-51	SP-51
2.	Lab Identification Number	SP-T	SP-T	SP-T	SP-T	SP-T	SP-T
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1210	1210	1210	1210	1210	1210
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2	1	2	1.5	1.42	2.3
8.	Date Above Measurements Made	5-24-90	6-27-90	7-26-90	8-24-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.3	6.8	6.8	7.2	7.7	7.0
11.	Total Acidity (mg/l CAC03)	10.2	9.1	9.8	10.6	10.4	9.4
12.	Total Alkalinity (mg/l CAC03)	161.0	173.2	151.2	146.2	153.2	148
13.	Specific Conductivity (μmhos/cm at 25°C)	481	466	481	476	451	472
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.01	0.00	0.00
16.	Total Sulfates (mg/l)	38.2	36.3	39.2	38.2	34.2	37.6
17.	Total Iron (mg/l)	0.26	0.20	0.21	0.17	0.26	0.24
18.	Total Suspended Solids (mg/l)	0	1	0	0	1	1
19.	Total Hardness (mg/l CAC03)	27.3	25.0	24.2	23.2	26.2	25.4
20.	Nitrates (mg/l)	0.03	0.02	0.01	0.04	0.05	0.04
21.	Date Sampled for Analysis	5-24-90	6-27-90	7-26-90	8-24-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-18-90	10-9-90

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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-52	SP-52	SP-52	SP-52	SP-52	SP-52
2.	Lab Identification Number	SP-E	SP-E	SP-E	SP-E	SP-E	SP-E
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1211	1211	1211	1211	1211	1211
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or [illegible])	.11	0	1	.31	.37	1.07
8.	Date Above Measurements Made	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.1	7.9	7.5	7.6	7.8	6.5
11.	Total Acidity (mg/l CAC03)	31.6	24.2	31.4	29.3	26.6	28.0
12.	Total Alkalinity (mg/l CAC03)	298.4	301.4	296.5	302.4	300.9	301
13.	Specific Conductivity (μmhos/cm at 25°C)	236	211	294	265	274	218
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.02	0.06	0.06	0.06	0.05
16.	Total Sulfates (mg/l)	296	286	284	291	288	280
17.	Total Iron (mg/l)	0.64	0.73	0.58	0.61	0.80	0.71
18.	Total Suspended Solids (mg/l)	40	38	56	32	48	63
19.	Total Hardness (mg/l CAC03)	206	198	149	186	174	200
20.	Nitrates (mg/l)	4.32	4.56	4.77	4.27	4.51	4.61
21.	Date Sampled for Analysis	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-28-90	7-23-90	8-23-90	9-18-90	10-9-90

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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-53	SP-53	SP-53	SP-53	SP-53	SP-53
2.	Lab Identification Number	SP-II	SP-II	SP-II	SP-II	SP-II	SP-II
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	1220
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	0	1.5	0.75	1.07	0	1.25
8.	Date Above Measurements Made	6/28/90	7/24/90	8/28/90	9/24/90	10/11/90	11/28/90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.5	7.5	7.3	7.6	6.9	7.0
11.	Total Acidity (mg/l CAC03)	18.2	19.3	16.3	17.3	17.6	168
12.	Total Alkalinity (mg/l CAC03)	321	427	316	298	231	261
13.	Specific Conductivity (μmhos/cm at 25°C)	141	151	138	147	132	150
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	1.01	1.20	1.17	1.31	1.47	1.19
16.	Total Sulfates (mg/l)	27	39	42	49	31	36
17.	Total Iron (mg/l)	1.69	1.38	1.05	1.73	1.87	1.64
18.	Total Suspended Solids (mg/l)	48	11	32	49	66	14
19.	Total Hardness (mg/l CAC03)	111	123	168	114	102	150
20.	Nitrates (mg/l)	2.68	2.71	2.56	2.38	2.43	2.31
21.	Date Sampled for Analysis	6/28/90	7/24/90	8/28/90	9/24/90	10/11/90	11/28/90
22.	Date Last Precipitaiton Event Occurred	6/28/90	7/23/90	8/23/90	9/23/90	10/11/90	11/27/90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-54	SP-54	SP-54	SP-54	SP-54	SP-54
2.	Lab Identification Number	SP-F	SP-F	SP-F	SP-F	SP-F	SP-F
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1212	1212	1212	1212	1212	1212
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.75	.75	1.3	.53	.25	2
8.	Date Above Measurements Made	5-18-90	6-28-90	7-23-90	8-28-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	7.0	7.7	7.3	7.6	7.5	6.8
11.	Total Acidity (mg/l CAC03)	21.3	26.4	14.2	19.3	26.8	18.2
12.	Total Alkalinity (mg/l CAC03)	169.3	174.2	177.3	171.2	175.3	174.0
13.	Specific Conductivity (μmhos/cm at 25°C)	736	757	761	704	763	775
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.01	0.02	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	61	74	51	62	66	58
17.	Total Iron (mg/l)	0.16	0.14	0.18	0.16	0.17	0.18
18.	Total Suspended Solids (mg/l)	4	2	1	2	1	3
19.	Total Hardness (mg/l CAC03)	38	41.2	50	47	46.2	40.9
20.	Nitrates (mg/l)	3.21	3.17	3.10	3.02	3.12	3.01
21.	Date Sampled for Analysis	5-18-90	6-28-90	7-23-90	8-28-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-55	SP-55	SP-55	SP-55	SP-55	SP-55
2.	Lab Identification Number	SP-H	SP-H	SP-H	SP-H	SP-H	SP-H
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1270	1270	1270	1270	1270	1270
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3	5.49	2.5	1.25	4.28	4
8.	Date Above Measurements Made	5-22-90	6-19-90	7-26-90	8-27-90	9-14-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	7.4	7.6	6.8	7.0	7.5	6.9
11.	Total Acidity (mg/l CAC03)	11.2	7.6	8.0	9.3	10.2	9.2
12.	Total Alkalinity (mg/l CAC03)	101.0	106.3	104.2	107.3	104.3	103.6
13.	Specific Conductivity (μmhos/cm at 25°C)	517	509	512	510	511	505
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.01	0.02	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	77	81	90	88	74	76.3
17.	Total Iron (mg/l)	0.16	0.21	0.17	0.18	0.21	0.20
18.	Total Suspended Solids (mg/l)	3	6	2	1	3	2
19.	Total Hardness (mg/l CAC03)	28	36	29	31	32	30.7
20.	Nitrates (mg/l)	1.64	1.86	1.34	1.36	1.23	1.21
21.	Date Sampled for Analysis	5-22-90	6-19-90	7-26-90	8-27-90	9-14-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-14-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-56	SP-56	SP-56	SP-56	SP-56	SP-56
2.	Lab Identification Number	SP-I	SP-I	SP-I	SP-I	SP-I	SP-I
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1240	1240	1240	1240	1240	1240
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.5	6	1.5	1.5	1.5	2.8
8.	Date Above Measurements Made	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	7.6	7.6	7.0	7.4	7.5	7.3
11.	Total Acidity (mg/l CAC03)	21.0	21.6	20.3	17.6	19.3	18.2
12.	Total Alkalinity (mg/l CAC03)	174.0	168.	171.3	166.3	167.3	163.2
13.	Specific Conductivity (μmhos/cm at 25°C)	548	531	537	529	538	532
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.04	0.06	0.05	0.06	0.06
16.	Total Sulfates (mg/l)	77	81	63	67	84	68
17.	Total Iron (mg/l)	0.36	0.54	0.61	0.47	0.48	0.59
18.	Total Suspended Solids (mg/l)	31	27	18	20	19	29
19.	Total Hardness (mg/l CAC03)	38.3	42.1	21.4	18.0	27	29.3
20.	Nitrates (mg/l)	3.74	3.81	3.94	3.76	3.89	3.86
21.	Date Sampled for Analysis	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-57	SP-57	SP-57	SP-57	SP-57	SP-57
2.	Lab Identification Number	SP-J	SP-J	SP-J	SP-J	SP-J	SP-J
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1190	1190	1190	1190	1190	1190
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	1.25	1.5	2	1	1.5	2.1
8.	Date Above Measurements Made	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.6	7.8	7.4	7.5	7.4	7.2
11.	Total Acidity (mg/l CAC03)	14.0	16.3	17.3	18.2	12.2	11.2
12.	Total Alkalinity (mg/l CAC03)	186.3	171.2	194.	183.2	191.2	198.
13.	Specific Conductivity (μmhos/cm at 25°C)	386	409	451	427	436	466
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.02	0.01	0.02	0.01
16.	Total Sulfates (mg/l)	61	74	51	63	71	54
17.	Total Iron (mg/l)	0.12	0.16	0.18	0.14	0.13	0.12
18.	Total Suspended Solids (mg/l)	1	2	3	2	1	2
19.	Total Hardness (mg/l CAC03)	36	41	32	27	41	29
20.	Nitrates (mg/l)	1.34	1.35	1.29	1.27	1.31	1.23
21.	Date Sampled for Analysis	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-58	SP-58	SP-58	SP-58	SP-58	SP-58
2.	Lab Identification Number	SP-K	SP-K	SP-K	SP-K	SP-K	SP-K
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1195	1195	1195	1195	1195	1195
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3	6	3	2	2.33	3.14
8.	Date Above Measurements Made	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.4	7.7	6.8	6.8	7.3	6.8
11.	Total Acidity (mg/l CAC03)	14.0	10.3	12.4	11.6	10.8	11.2
12.	Total Alkalinity (mg/l CAC03)	174	181	173	170	175	168
13.	Specific Conductivity (μmhos/cm at 25°C)	430	416	421	417	424	419
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.20	0.18	0.17	0.19	0.18	0.19
16.	Total Sulfates (mg/l)	51	47	57	50	51	48
17.	Total Iron (mg/l)	1.20	1.17	1.14	1.16	1.17	1.16
18.	Total Suspended Solids (mg/l)	1	0	2	1	0	2
19.	Total Hardness (mg/l CAC03)	30	27.3	29.4	29.0	30.3	28.9
20.	Nitrates (mg/l)	0.88	0.64	0.81	0.87	0.90	0.91
21.	Date Sampled for Analysis	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-59	SP-59	SP-59	SP-59	SP-59	SP-59
2.	Lab Identification Number	SP-L	SP-L	SP-L	SP-L	SP-L	SP-L
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1180	1180	1180	1180	1180	1180
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	5	2.6	.75	.5	2.24	2.14
8.	Date Above Measurements Made	5-23-90	6-20-90	7-23-90	8-27-90	9-14-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.8	7.4	7.8	7.2	7.5	7.3
11.	Total Acidity (mg/l CAC03)	11.3	13.6	12.8	10.9	12.4	12.0
12.	Total Alkalinity (mg/l CAC03)	231	207	243	201	219	222
13.	Specific Conductivity (μmhos/cm at 25°C)	450	461	448	470	436	469
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.00	0.01	0.02	0.02	0.01	0.02
16.	Total Sulfates (mg/l)	39.1	40.2	35.8	37.2	36.3	36.0
17.	Total Iron (mg/l)	0.20	0.18	0.17	0.19	0.18	0.19
18.	Total Suspended Solids (mg/l)	0	2	1	1	1	1
19.	Total Hardness (mg/l CAC03)	47.2	49.0	50.3	46.3	36.1	45.2
20.	Nitrates (mg/l)	0.47	0.51	0.53	0.60	0.51	0.50
21.	Date Sampled for Analysis	5-23-90	6-20-90	7-23-90	8-27-90	9-14-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-14-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-60	SP-60	SP-60			
2.	Lab Identification Number	SP-M	SP-M	SP-M			
3.	High (H)/Low (L) Designation (if applicable)	H	L	H			
4.	Surface Elevation for Sampling Station (msl)	1142	1142	1142			
5.	Depth of Well below Land Surface (feet)	-	-	-			
6.	Static Water Level of Well below Land Surface (feet)	-	-	-			
7.	Flow for Spring/Stream (gpm or cfs)						
8.	Date Above Measurements Made	5-23-90	6-28-90	7-26-90			
9.	Aquifer/Zone Identification for Well/Spring	L-1	L-1	L-1			
10.	pH (Standard Units)	7.4	7.1	7.3			
11.	Total Acidity (mg/l CAC03)	19.3	22.8	20.6			
12.	Total Alkalinity (mg/l CAC03)	41.3	30.6	44.0			
13.	Specific Conductivity (μmhos/cm at 25°C)	456	463	480			
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	1.52	1.60	1.63			
16.	Total Sulfates (mg/l)	48.0	50.2	53.2			
17.	Total Iron (mg/l)	3.00	2.71	2.73			
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)	30.2	26.3	25.0			
20.	Nitrates (mg/l)	2.74	2.86	2.90			
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-26-90			
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90			

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-61	SP-61	SP-61	SP-61	SP-61	SP-61
2.	Lab Identification Number	SP-Z	SP-Z	SP-Z	SP-Z	SP-Z	SP-Z
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1160	1160	1160	1160	1160	1160
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.22	2.4	1.5	.5	1.07	1.5
8.	Date Above Measurements Made	5-26-90	6-20-90	7-23-90	8-24-90	9-18-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	L-1	L-1	L-1	L-1	L-1	L-1
10.	pH (Standard Units)	7.0	7.4	7.8	7.3	7.7	7.0
11.	Total Acidity (mg/l CAC03)	7.2	8.4	6.9	5.8	6.2	6.7
12.	Total Alkalinity (mg/l CAC03)	108	110	101	114	109	105
13.	Specific Conductivity (μmhos/cm at 25°C)	321	339	317	341	336	333
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.04	0.03	0.02	0.03	0.04
16.	Total Sulfates (mg/l)	69.2	70.2	68.2	69.3	68.2	73.6
17.	Total Iron (mg/l)	0.81	0.67	0.89	0.71	0.74	0.85
18.	Total Suspended Solids (mg/l)	28	17	11	21	19	33
19.	Total Hardness (mg/l CAC03)	21.2	17.3	12.2	16.3	15.2	20.4
20.	Nitrates (mg/l)	0.31	0.28	0.21	0.31	0.26	0.28
21.	Date Sampled for Analysis	5-26-90	6-20-90	7-23-90	8-24-90	9-18-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-17-90	7-23-90	8-23-90	9-14-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-62	SP-62	SP-62	SP-62	SP-62	SP-62
2.	Lab Identification Number	SP-AA	SP-AA	SP-AA	SP-AA	SP-AA	SP-AA
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1205	1205	1205	1205	1205	1205
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.5	2.14	2.6	2	2.14	1.71
8.	Date Above Measurements Made	5-30-90	6-27-90	7-23-90	8-24-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.5	7.3	7.9	6.8	7.7	6.8
11.	Total Acidity (mg/l CAC03)	15.4	13.2	19.2	17.3	16.8	17.2
12.	Total Alkalinity (mg/l CAC03)	131	142	151	127	131	119
13.	Specific Conductivity (μmhos/cm at 25°C)	461	482	471	493	487	453
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	69.3	71.2	68.3	70.2	68.2	69.2
17.	Total Iron (mg/l)	0.41	0.41	0.48	0.46	0.38	0.39
18.	Total Suspended Solids (mg/l)	1	2	2	1	1	2
19.	Total Hardness (mg/l CAC03)	26.2	27.3	25.2	25.7	26.2	25.8
20.	Nitrates (mg/l)	0.12	0.11	0.12	0.13	0.14	0.14
21.	Date Sampled for Analysis	5-30-90	6-27-90	7-23-90	8-24-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-23-90	8-23-90	9-23-90	10-9-90

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-65	SP-65	SP-65	SP-65	SP-65	SP-65
2.	Lab Identification Number	SP-G	SP-G	SP-G	SP-G	SP-G	SP-G
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1170	1170	1170	1170	1170	1170
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1	3	2.6	6	1.13	1.3
8.	Date Above Measurements Made	5-22-90	6-5-90	7-23-90	8-24-90	9-12-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	8.2	7.6	7.8	7.5	7.5	8.0
11.	Total Acidity (mg/l CAC03)	12.2	16.3	11.2	18.6	16.6	14.2
12.	Total Alkalinity (mg/l CAC03)	184	163	184	188	191	193
13.	Specific Conductivity (μmhos/cm at 25°C)	466	487	491	477	483	485
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.03	0.02	0.03
16.	Total Sulfates (mg/l)	77	74	81	63	69	66
17.	Total Iron (mg/l)	0.61	0.71	0.43	0.73	0.84	0.82
18.	Total Suspended Solids (mg/l)	17	31	26	38	14	41
19.	Total Hardness (mg/l CAC03)	63	38	48	56	41	40
20.	Nitrates (mg/l)	2.77	2.63	3.01	2.87	2.84	2.63
21.	Date Sampled for Analysis	5-22-90	6-5-90	7-23-90	8-24-90	9-12-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-3-90	7-23-90	8-23-90	9-9-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-66	SP-66	SP-66	SP-66	SP-66	SP-66
2.	Lab Identification Number	SP-KK	SP-KK	SP-KK	SP-KK	SP-KK	SP-KK
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	H	L	L
4.	Surface Elevation for Sampling Station (msl)	1201	1201	1201	1201	1201	1201
5.	Depth of Well below Land Surface (feet)						
6.	Static Water Level of Well below Land Surface (feet)						
7.	Flow for Spring/Stream (gpm or cfs)	2.5	2.25	3.15	2.22	1.71	1.71
8.	Date Above Measurements Made	10/27/90	11/28/90	12/29/90	1/24/91	2/27/91	3/14/91
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	6.8	7.0	6.9	7.0	7.1	7.2
11.	Total Acidity (mg/l CAC03)	16.3	14.2	0	0	21.66	19.00
12.	Total Alkalinity (mg/l CAC03)	210	205	208	163	217.17	236.93
13.	Specific Conductivity (μmhos/cm at 25°C)	310	300	520	266	588	493
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.19	0.14	0.22	0.25	0.11	0.12
16.	Total Sulfates (mg/l)	57	61	96	56	72	62
17.	Total Iron (mg/l)	0.75	0.60	0.68	0.97	0.68	0.80
18.	Total Suspended Solids (mg/l)	3	4	2.3	3	6	4
19.	Total Hardness (mg/l CAC03)	200	200	132.3	158	275	299
20.	Nitrates (mg/l)	.79	.81	0.97	9.7	<1.0	<1.0
21.	Date Sampled for Analysis	10/27/90	11/28/90	12/29/90	1/24/91	2/27/91	3/14/91
22.	Date Last Precipitaiton Event Occurred	10/24/90	11/27/90	12/29/90	1/24/91	2/26/91	3/13/91

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-168	SP-168	SP-168	SP-168	SP-168	SP-168
2.	Lab Identification Number	SP-G3	SP-G3	SP-G3	SP-G3	SP-G3	SP-G3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1225	1225	1225	1225	1225	1225
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	0.3	NOTE 3	1.03	.34	.25	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/15/91	2/13/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-4	L-4	L-4	L-4	L-4	L-4
10.	pH (Standard Units)	6.9		6.7	6.7	6.9	
11.	Total Acidity (mg/l CAC03)	0		0	17.67		
12.	Total Alkalinity (mg/l CAC03)	210		136	196.46		
13.	Specific Conductivity (μmhos/cm at 25°C)	550		420	494		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.04	<0.02		
16.	Total Sulfates (mg/l)	58		48	47		
17.	Total Iron (mg/l)	0.11		0.01	<0.04		
18.	Total Suspended Solids (mg/l)	0.3		0.3	3		
19.	Total Hardness (mg/l CAC03)	230		152	276		
20.	Nitrates (mg/l)	16.7		5.28	<1.0		
21.	Date Sampled for Analysis	11/2/91	12/7/91	1/15/91	2/13/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/91	12/3/91	1/15/91	2/13/91	3/27/91	

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Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-169	SP-169	SP-169	SP-169	SP-169	SP-169
2.	Lab Identification Number	SP-H3	SP-H3	SP-H3	SP-H3	SP-H3	SP-H3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1199	1199	1199	1199	1199	1199
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	6.53	NOTE 3	10.8	9.15	7.77	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.1		7.0	6.9	7.0	
11.	Total Acidity (mg/l CAC03)	0		0	13.11		
12.	Total Alkalinity (mg/l CAC03)	210		182	193.99		
13.	Specific Conductivity (μmhos/cm at 25°C)	600		520	462		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.02	<0.02		
16.	Total Sulfates (mg/l)	61		52	41		
17.	Total Iron (mg/l)	0.08		0.01	0.07		
18.	Total Suspended Solids (mg/l)	.3		0.3	8		
19.	Total Hardness (mg/l CAC03)	228		191	282		
20.	Nitrates (mg/l)	18.9		7.04	<1.0		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/13/91	3/27/91	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-170	SP-170	SP-170	SP-170	SP-170	SP-170
2.	Lab Identification Number	SP-F3	SP-F3	SP-F3	SP-F3	SP-F3	SP-F3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1190	1190	1190	1190	1190	1190
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	0.16	NOTE 3	3.0	0.96	1.0	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.6		7.7	6.7	6.8	
11.	Total Acidity (mg/l CAC03)	0		0	14.06		
12.	Total Alkalinity (mg/l CAC03)	152		146	158.08		
13.	Specific Conductivity (μmhos/cm at 25°C)	375		350	320		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.04		0.11	0.12		
16.	Total Sulfates (mg/l)	38		36	31		
17.	Total Iron (mg/l)	0.86		0.91	1.12		
18.	Total Suspended Solids (mg/l)	41		29	25		
19.	Total Hardness (mg/l CAC03)	172		144	185		
20.	Nitrates (mg/l)	6.60		1.50	<1.0		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/13/91	3/27/91	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-171	SP-171	SP-171	SP-171	SP-171	SP-171
2.	Lab Identification Number	SP-E3	SP-E3	SP-E3	SP-E3	SP-E3	SP-E3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
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/Stream (gpm or cfs)	0.07	NOTE 3	0.83	0.35	0.34	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.3		7.7	6.9	7.0	
11.	Total Acidity (mg/l CAC03)	0		0	6.65		
12.	Total Alkalinity (mg/l CAC03)	100		84	90.25		
13.	Specific Conductivity (μmhos/cm at 25°C)	275		230	220		
14.	Total Dissolved Solids (mg/l)	-		-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.03	<0.02		
16.	Total Sulfates (mg/l)	25		27	17		
17.	Total Iron (mg/l)	0.03		0.03	0.05		
18.	Total Suspended Solids (mg/l)	0.3		0.3	3		
19.	Total Hardness (mg/l CAC03)	113		90	135		
20.	Nitrates (mg/l)	5.28		2.1	<1.0		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/13/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/13/91	3/27/91	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-172	SP-172	SP-172	SP-172	SP-172	SP-172
2.	Lab Identification Number	SP-D3	SP-D3	SP-D3	SP-D3	SP-D3	SP-D3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1210	1210	1210	1210	1210	1210
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	4.0	NOTE 3	7.5	8.57	5.45	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/15/91	2/14/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.4		7.2	7.3	7.1	
11.	Total Acidity (mg/l CAC03)	0		0	11.78		
12.	Total Alkalinity (mg/l CAC03)	210		160	152		
13.	Specific Conductivity (μmhos/cm at 25°C)	550		500	389		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.35		0.07	0.03		
16.	Total Sulfates (mg/l)	42		43	32		
17.	Total Iron (mg/l)	2.15		0.09	0.12		
18.	Total Suspended Solids (mg/l)	54		0.3	4		
19.	Total Hardness (mg/l CAC03)	233		176	229		
20.	Nitrates (mg/l)	15.4		9.24	1.15		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/15/91	2/14/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/15/91	2/14/91	3/27/91	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-173	SP-173	SP-173	SP-173	SP-173	SP-173
2.	Lab Identification Number	SP-C3	SP-C3	SP-C3	SP-C3	SP-C3	SP-C3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1250	1250	1250	1250	1250	1250
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	1.22	NOTE 3	3.75	3.53	1.87	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-6	L-6	L-6	L-6	L-6	L-6
10.	pH (Standard Units)	6.5		6.5	6.9	6.8	
11.	Total Acidity (mg/l CAC03)	0		0	7.41		
12.	Total Alkalinity (mg/l CAC03)	100		84	89.11		
13.	Specific Conductivity (μmhos/cm at 25°C)	300		280	280		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.04	0.04		
16.	Total Sulfates (mg/l)	41		47	35		
17.	Total Iron (mg/l)	0.25		0.37	0.72		
18.	Total Suspended Solids (mg/l)	1.7		0.3	12		
19.	Total Hardness (mg/l CAC03)	103		89	144		
20.	Nitrates (mg/l)	12.8		7.92	1.83		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/14/91	3/27/91	

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES

DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-174	SP-174	SP-174	SP-174	SP-174	SP-174
2.	Lab Identification Number	SP-B3	SP-B3	SP-B3	SP-B3	SP-B3	SP-B3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1210	1210	1210	1210	1210	1210
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	4.6	NOTE 3	3.75	6.67	5.45	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.4		7.3	7.3	7.4	
11.	Total Acidity (mg/l CAC03)	0		0		11.97	
12.	Total Alkalinity (mg/l CAC03)	170		188		169.86	
13.	Specific Conductivity (μmhos/cm at 25°C)	375		410		320	
14.	Total Dissolved Solids (mg/l)	-		-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.04		0.10	
16.	Total Sulfates (mg/l)	34		35		26	
17.	Total Iron (mg/l)	0.01		0.04		0.20	
18.	Total Suspended Solids (mg/l)	0.3		0.3		4	
19.	Total Hardness (mg/l CAC03)	174		162		215	
20.	Nitrates (mg/l)	7.04		2.33		<1.0	
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/14/91	3/27/91	

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-175	SP-175	SP-175	SP-175	SP-175	SP-175
2.	Lab Identification Number	SP-H5	SP-H5	SP-H5	SP-H5	SP-H5	SP-H5
3.	High (H)/Low (L) Designation (if applicable)	H	L	L			
4.	Surface Elevation for Sampling Station (msl)	1209	1209	1209	1209	1209	1209
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.31	.6	.202			
8.	Date Above Measurements Made	1/15/91	2/14/91	3/27/91			
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.1	7.4	7.4			
11.	Total Acidity (mg/l CAC03)	0	13.68				
12.	Total Alkalinity (mg/l CAC03)	180	124.45				
13.	Specific Conductivity (μmhos/cm at 25°C)	720	483				
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.10	<0.02				
16.	Total Sulfates (mg/l)	58	35				
17.	Total Iron (mg/l)	0.01	0.04				
18.	Total Suspended Solids (mg/l)	0.3	10				
19.	Total Hardness (mg/l CAC03)	232	247				
20.	Nitrates (mg/l)	4.84	<1.0				
21.	Date Sampled for Analysis	1/15/91	2/14/91	3/27/91			
22.	Date Last Precipitaiton Event Occurred	1/15/91	2/14/91	3/27/91			

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-176	SP-176	SP-176	SP-176	SP-176	SP-176
2.	Lab Identification Number	SP-A3	SP-A3	SP-A3	SP-A3	SP-A3	SP-A3
3.	High (H)/Low (L) Designation (if applicable)	H	H	H	L	L	
4.	Surface Elevation for Sampling Station (msl)	1197	1197	1197	1197	1197	1197
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.34	NOTE 3	1.9	0.6	2.6	
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.3		6.9	6.9	7.1	
11.	Total Acidity (mg/l CAC03)	0		0	12.54		
12.	Total Alkalinity (mg/l CAC03)	170		140	124.45		
13.	Specific Conductivity (μmhos/cm at 25°C)	650		520	441		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01		0.07	<0.02		
16.	Total Sulfates (mg/l)	58		55	37		
17.	Total Iron (mg/l)	0.06		0.13	0.29		
18.	Total Suspended Solids (mg/l)	1		3	8		
19.	Total Hardness (mg/l CAC03)	232		180	245		
20.	Nitrates (mg/l)	11.4		7.04	<1.0		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/14/91	3/27/91	

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-177	SP-177	SP-177	SP-177	SP-177	SP-177
2.	Lab Identification Number	SP-G5	SP-G5	SP-G5	SP-G5	SP-G5	SP-G5
3.	High (H)/Low (L) Designation (if applicable)	H	L	L			
4.	Surface Elevation for Sampling Station (msl)	1198	1198	1198	1198	1198	1198
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2.72	1.88	1.46			
8.	Date Above Measurements Made	1/15/91	2/14/91	3/27/91			
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	7.3	7.3	7.3			
11.	Total Acidity (mg/l CAC03)	0	12.16				
12.	Total Alkalinity (mg/l CAC03)	199	143.26				
13.	Specific Conductivity (μmhos/cm at 25°C)	425	483				
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.10	<0.02				
16.	Total Sulfates (mg/l)	39	39				
17.	Total Iron (mg/l)	0.42	0.15				
18.	Total Suspended Solids (mg/l)	3	6				
19.	Total Hardness (mg/l CAC03)	183	274				
20.	Nitrates (mg/l)	1.45	<1.0				
21.	Date Sampled for Analysis	1/15/91	2/14/91	3/27/91			
22.	Date Last Precipitaiton Event Occurred	1/15/91	2/14/91	3/27/91			

Laboratory Name ERI Labs
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State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-180	SP-180	SP-180	SP-180	SP-180	SP-180
2.	Lab Identification Number	SP-J5	SP-J5	SP-J5	SP-J5	SP-J5	SP-J5
3.	High (H)/Low (L) Designation (if applicable)	H	L	L			
4.	Surface Elevation for Sampling Station (msl)	1180	1180	1180	1180	1180	1180
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	6	12	4.28			
8.	Date Above Measurements Made	1/15/91	2/13/91	3/27/91			
9.	Aquifer/Zone Identification for Well/Spring	L-2	L-2	L-2	L-2	L-2	L-2
10.	pH (Standard Units)	7.6	7.4	7.6			
11.	Total Acidity (mg/l CAC03)	0	6.84				
12.	Total Alkalinity (mg/l CAC03)	122	91.77				
13.	Specific Conductivity (μmhos/cm at 25°C)	440	378				
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.19	0.11				
16.	Total Sulfates (mg/l)	41	27				
17.	Total Iron (mg/l)	0.8	0.68				
18.	Total Suspended Solids (mg/l)	15	11				
19.	Total Hardness (mg/l CAC03)	143	180				
20.	Nitrates (mg/l)	3.48	<1.0				
21.	Date Sampled for Analysis	1/15/91	2/13/91				
22.	Date Last Precipitaiton Event Occurred	1/15/91	2/13/91				

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-183	SP-183	SP-183	SP-183	SP-183	SP-183
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1275	1275	1275	1275	1275	1275
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or ~~cfs~~)	.6	.259	.101			
8.	Date Above Measurements Made	1/25/91	2/25/91	3/25/91			
9.	Aquifer/Zone Identification for Well/Spring	L-7	L-7	L-7	L-7	L-7	L-7
10.	pH (Standard Units)	7.5	6.4	6.8	NOTE 5	NOTE 5	NOTE 5
11.	Total Acidity (mg/l CAC03)	0	11.40				
12.	Total Alkalinity (mg/l CAC03)	156	50.92				
13.	Specific Conductivity (μmhos/cm at 25°C)	300	588				
14.	Total Dissolved Solids (mg/l)	-	-				
15.	Total Manganese (mg/l)	0.02	<0.02				
16.	Total Sulfates (mg/l)	54	54				
17.	Total Iron (mg/l)	0.09	0.05				
18.	Total Suspended Solids (mg/l)	2	2				
19.	Total Hardness (mg/l CAC03)	48	164				
20.	Nitrates (mg/l)	8.3	7.57				
21.	Date Sampled for Analysis	1/25/91	2/25/91	3/25/91			
22.	Date Last Precipitaiton Event Occurred	1/24/91	2/19/91	3/25/91			

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-198	SP-198	SP-198	SP-198	SP-198	SP-198
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)	L	L				
4.	Surface Elevation for Sampling Station (msl)	1195	1195	1195	1195	1195	1195
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2	2	2	2	2	2
8.	Date Above Measurements Made	2/13/91	3/27/91				
9.	Aquifer/Zone Identification for Well/Spring	L-3	L-3	L-3	L-3	L-3	L-3
10.	pH (Standard Units)	6.4	6.6				
11.	Total Acidity (mg/l CAC03)	13.11					
12.	Total Alkalinity (mg/l CAC03)	166.63					
13.	Specific Conductivity (μmhos/cm at 25°C)	410					
14.	Total Dissolved Solids (mg/l)	-					
15.	Total Manganese (mg/l)	<0.02					
16.	Total Sulfates (mg/l)	50					
17.	Total Iron (mg/l)	<0.04					
18.	Total Suspended Solids (mg/l)	4					
19.	Total Hardness (mg/l CAC03)	242					
20.	Nitrates (mg/l)	<1.0					
21.	Date Sampled for Analysis	2/13/91					
22.	Date Last Precipitaiton Event Occurred	2/13/91					

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-214					
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)	L					
4.	Surface Elevation for Sampling Station (msl)	1190					
5.	Depth of Well below Land Surface (feet)	-					
6.	Static Water Level of Well below Land Surface (feet)	-					
7.	Flow for Spring/Stream (gpm or cfs)	3.33					
8.	Date Above Measurements Made	3/27/91					
9.	Aquifer/Zone Identification for Well/Spring	L-3					
10.	pH (Standard Units)	7.1					
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	3/27/91					
22.	Date Last Precipitaiton Event Occurred	3/27/91					

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	SP-215					
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)	L					
4.	Surface Elevation for Sampling Station (msl)	1267					
5.	Depth of Well below Land Surface (feet)	-					
6.	Static Water Level of Well below Land Surface (feet)	-					
7.	Flow for Spring/Stream (gpm or cfs)	.75					
8.	Date Above Measurements Made	3/29/91					
9.	Aquifer/Zone Identification for Well/Spring	L-7					
10.	pH (Standard Units)	7.0					
11.	Total Acidity (mg/l CAC03)						
12.	Total Alkalinity (mg/l CAC03)						
13.	Specific Conductivity (μmhos/cm at 25°C)						
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)						
16.	Total Sulfates (mg/l)						
17.	Total Iron (mg/l)						
18.	Total Suspended Solids (mg/l)						
19.	Total Hardness (mg/l CAC03)						
20.	Nitrates (mg/l)						
21.	Date Sampled for Analysis	3/29/91					
22.	Date Last Precipitaiton Event Occurred	3/27/91					

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name The Ohio Valley Coal Company

1.	Identification No. of Sampling Station from Hydrology Map	M-12	M-12	M-12	M-12	M-12	M-12
2.	Lab Identification Number	8902242	8903402	8904241	8905404	8906380	8907067
3.	High (H)/Low (L) Designation (if applicable)	--	--	--	--	--	--
4.	Surface Elevation for Sampling Station (msl)	1160	1160	1160	1160	1160	1160
☆ 5.	Depth of Well below Land Surface (feet)	--	--	--	--	--	--
☆ 6.	Static Water Level of Well below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring/Stream (gpm or cfs)	2	2	2	2	2	2
8.	Date Above Measurements Made	2/20/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
☆ 9.	Aquifer/Zone Identification for Well/Spring	--	--	--	--	--	--
10.	pH (Standard Units)	7.41	7.32	7.78	7.97	8.22	7.85
11.	Total Acidity (mg/l $CaCO_3$)	10.4	7.74	4.4	1.6	0.2	10.0
12.	Total Alkalinity (mg/l $CaCO_3$)	79.0	80.9	91.2	107	123	119
13.	Specific Conductivity (umhos/cm at 25°C)	480	460	418	491	450	452
☆☆ 14.	Total Dissolved Solids (mg/l)	275	36.0	314	161	220	235
15.	Total Manganese (mg/l)	0.39	0.32	0.51	0.42	0.21	1.34
16.	Total Sulfates (mg/l)	50.0	55.0	46.4	36.8	32.8	25.6
17.	Total Iron (mg/l)	4.0	0.92	0.46	0.54	0.92	0.68
18.	Total Suspended Solids (mg/l)	158	119	11.0	<1.0	39.3	9.8
19.	Total Hardness (mg/l as $CaCO_3$)	180	144	50.0	34.0	80	70.0
20.	Date Sampled for Analysis	2/20/89	3/28/89	4/20/89	5/25/89	6/19/89	7/6/89
21.	Date Last Precipitation Event Occurred	2/20/89	3/28/89	4/18/89	5/25/89	6/19/89	7/4/89

Laboratory Name Tra-Det, Inc.
Address P.O. Box 2019 City Wheeling
State West Virginia Zip 26003

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____

1.	Identification No. of Sampling Station from Hydrology Map	U22-G	U22-G	U22-J	U22-J	U-22K	U22-K
2.	Lab Identification Number	8911031	9007200	8911034	9007201	8911170	UF
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	L	H
4.	Surface Elevation for Sampling Station (msl)	1038	1038	1021	1021	1019	1019
5.	Depth of Well below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring/Stream (gpm or cfs)	0.004	cfs	0.004	cfs	0.004	.56cfs
8.	Date Above Measurements Made	10/31/89	7/16/90	10/31/89	7/6/90	11/10/89	6/20/90
9.	Aquifer/Zone Identification for Well/Spring	--	--	--	--	--	--
10.	pH (Standard Units)	8.58	7.57	8.43	7.63	7.88	8.2
11.	Total Acidity (mg/l CAC03)	0.0	14.6	0.0	4.9	7.1	1.19
12.	Total Alkalinity (mg/l CAC03)	133	130	131	133	158	101
13.	Specific Conductivity (μmhos/cm at 25°C)	280	314	290	314	460	343
14.	Total Dissolved Solids (mg/l)	219	--	214	--	277	--
15.	Total Manganese (mg/l)	<0.02	<0.02	<0.02	<0.02	0.04	<0.02
16.	Total Sulfates (mg/l)	88.0	42.4	88.0	40.0	64.0	41.0
17.	Total Iron (mg/l)	0.07	0.60	0.15	0.50	0.18	0.31
18.	Total Suspended Solids (mg/l)	1.7	16.7	14.9	14.7	13.1	3.0
19.	Total Hardness (mg/l CAC03)	135	163	133	163	189	155
20.	Nitrates (mg/l)	<0.01	0.79	<0.01	0.72	0.15	0.23
21.	Date Sampled for Analysis	10/31/89	7/16/90	10/31/89	7/16/90	11/10/89	6/20/90
22.	Date Last Precipitation Event Occurred	10/21/89	7/15/90	10/21/89	7/15/90	11/8/89	6/17/90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____

1.	Identification No. of Sampling Station from Hydrology Map	U22-Q	U22-Q	U22-C	U22-C	U22-P	U22-P
2.	Lab Identification Number	8911176	9002163	8911028	9002178	8911175	9002162
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	L	H
4.	Surface Elevation for Sampling Station (msl)	1175	1175	1100	1100	1215	1215
5.	Depth of Well below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring/Stream (gpm or cfs)	2.7gpm	5.9gpm	12.6gpm	19.6gpm	2.6gpm	4.7gpm
8.	Date Above Measurements Made	11/10/89	2/6/90	10/31/89	2/6/90	11/10/89	2/6/90
9.	Aquifer/Zone Identification for Well/Spring	--	--	--	--	--	--
10.	pH (Standard Units)	7.87	7.82	8.57	7.69	7.90	7.86
11.	Total Acidity (mg/l CAC03)	4.1	3.0	0.0	1.4	0.0	2.6
12.	Total Alkalinity (mg/l CAC03)	156	85.4	130	84.8	160	89.7
13.	Specific Conductivity (μmhos/cm at 25°C)	440	265	310	245	360	265
14.	Total Dissolved Solids (mg/l)	226	159	230	186	231	193
15.	Total Manganese (mg/l)	0.05	0.04	<0.02	0.05	0.05	0.03
16.	Total Sulfates (mg/l)	66.7	42.4	85.3	44.0	56.0	57.6
17.	Total Iron (mg/l)	0.28	0.13	0.07	0.07	0.42	0.02
18.	Total Suspended Solids (mg/l)	18.7	9.7	1.7	5.9	23.9	<1.0
19.	Total Hardness (mg/l CAC03)	191	82.1	140	79.8	175	100
20.	Nitrates (mg/l)	0.12	1.49	<0.1	0.76	<0.01	1.67
21.	Date Sampled for Analysis	11/10/89	2/6/90	10/31/89	2/6/90	11/10/89	2/6/90
22.	Date Last Precipitaiton Event Occurred	11/9/89	2/4/90	10/31/89	2/4/90	11/9/89	2/4/90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____

1.	Identification No. of Sampling Station from Hydrology Map	U22-O	U22-O	U22-A	U22-A	U22-B	U22-B
2.	Lab Identification Number	8911174	DTTT	8911026	9002176	8911027	9002177
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	L	H
4.	Surface Elevation for Sampling Station (msl)	1009	1009	1135	1135	1109	1109
5.	Depth of Well below Land Surface (feet)	--	--	--	--	--	--
6.	Static Water Level of Well below Land Surface (feet)	--	--	--	--	--	--
7.	Flow for Spring/Stream (gpm or cfs)	0.003	2.29cfs	6.0gpm	4.9gpm	8.7gpm	6.2gpm
8.	Date Above Measurements Made	11/10/89	6/20/90	10/31/89	2/6/90	10/31/89	2/6/90
9.	Aquifer/Zone Identification for Well/Spring	--	--	--	--	--	--
10.	pH (Standard Units)	7.85	8.2	8.57	7.70	8.57	7.74
11.	Total Acidity (mg/l CAC03)	2.2	1.35	0.0	1.8	0.0	3.6
12.	Total Alkalinity (mg/l CAC03)	158	140	127	82.8	131	90.5
13.	Specific Conductivity (μmhos/cm at 25°C)	370	376	270	235	300	235
14.	Total Dissolved Solids (mg/l)	236	--	212	163	220	168
15.	Total Manganese (mg/l)	0.03	6.20	<0.02	0.05	<0.02	0.05
16.	Total Sulfates (mg/l)	53.3	42.0	92.0	42.4	93.3	46.4
17.	Total Iron (mg/l)	0.22	0.37	0.07	0.21	0.05	0.11
18.	Total Suspended Solids (mg/l)	12.7	4.0	9.3	12.7	2.1	7.1
19.	Total Hardness (mg/l CAC03)	168	185	138	68.4	135	75.2
20.	Nitrates (mg/l)	<0.01	0.18	<0.1	0.73	<0.1	0.33
21.	Date Sampled for Analysis	11/10/89	6/20/90	10/31/89	2/6/90	10/31/89	2/6/90
22.	Date Last Precipitaiton Event Occurred	11/8/89	6/17/90	10/31/89	2/4/90	10/31/89	2/4/90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22F	U-22F	U-22F	U-22F		
2.	Lab Identification Number	D-QQQ	D-QQQ	D-QQQ	D-QQQ		
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	H		
4.	Surface Elevation for Sampling Station (msl)	1075	1075	1075	1075		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	.81	.3	.31	.37		
8.	Date Above Measurements Made	7-24-90	8-23-90	9-24-90	10-8-90		
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-		
10.	pH (Standard Units)	7.4	7.9	7.9	8.2		
11.	Total Acidity (mg/l CAC03)	39.2	40.3	36.2	38.2		
12.	Total Alkalinity (mg/l CAC03)	176	180	174	189		
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	325	307		
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.03	0.04	0.04		
16.	Total Sulfates (mg/l)	51	49	56	48		
17.	Total Iron (mg/l)	0.18	0.17	0.18	0.19		
18.	Total Suspended Solids (mg/l)	1	1	1	1		
19.	Total Hardness (mg/l CAC03)	210	200	220	214		
20.	Nitrates (mg/l)	0.20	0.21	0.20	0.21		
21.	Date Sampled for Analysis	7-24-90	8-23-90	9-24-90	10-8-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-23-90	9-23-90	10-4-90		

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22M	U-22M	U-22M	U-22M		
2.	Lab Identification Number	D-1B	D-1B	D-1B	D-1B		
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	H		
4.	Surface Elevation for Sampling Station (msl)	1138	1138	1138	1138		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	.035	.09	.05	.015		
8.	Date Above Measurements Made	7-26-90	8-25-90	9-25-90	10-90-90		
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-		
10.	pH (Standard Units)	8.0	7.9	8.0	8.0		
11.	Total Acidity (mg/l CAC03)	16.3	14.8	15.3	14.9		
12.	Total Alkalinity (mg/l CAC03)	156	149	136	140		
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	300	324		
14.	Total Dissolved Solids (mg/l)	-	-	-	-		
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.03		
16.	Total Sulfates (mg/l)	51	48	47	49		
17.	Total Iron (mg/l)	0.10	0.09	0.09	0.11		
18.	Total Suspended Solids (mg/l)	3	2	3	4		
19.	Total Hardness (mg/l CAC03)	190	189	196	190		
20.	Nitrates (mg/l)	2.1	2.1	2.1	2.1		
21.	Date Sampled for Analysis	7-26-90	8-25-90	9-25-90	10-9-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-23-90	9-23-90	10-9-90		

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22N	U-22N	U-22N	U-22N		
2.	Lab Identification Number	D-UUU	D-UUU	D-UUU	D-UUU		
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	H		
4.	Surface Elevation for Sampling Station (msl)	1015	1015	1015	1015		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	.36	.28	.04	.03		
8.	Date Above Measurements Made	7-24-90	8-23-90	9-29-90	10-8-90		
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-		
10.	pH (Standard Units)	7.6	7.8	7.9	7.9		
11.	Total Acidity (mg/l CAC03)	1.8	1.0	1.6	1.2		
12.	Total Alkalinity (mg/l CAC03)	79	81	93	89		
13.	Specific Conductivity (μmhos/cm at 25°C)	325	381	391	319		
14.	Total Dissolved Solids (mg/l)	-	-	-	-		
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00		
16.	Total Sulfates (mg/l)	63	74	81	51		
17.	Total Iron (mg/l)	0.12	0.08	0.10	0.11		
18.	Total Suspended Solids (mg/l)	1	2	1	2		
19.	Total Hardness (mg/l CAC03)	181	170	176	175		
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1		
21.	Date Sampled for Analysis	7-24-90	8-23-90	9-29-90	10-8-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-23-90	9-29-90	10-4-90		

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22R	U-22R	U-22R	U-22R	U-22R	
2.	Lab Identification Number	U-F	U-F	U-F	U-F	U-F	
3.	High (H)/Low (L) Designation (if applicable)	L	H	L	H	H	
4.	Surface Elevation for Sampling Station (msl)	1027	1027	1027	1027	1027	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	056	.75	.2	.14	.22	
8.	Date Above Measurements Made	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	8.2	7.4	7.9	7.9	7.8	
11.	Total Acidity (mg/l CAC03)	10.1	8.6	9.3	8.7	8.6	
12.	Total Alkalinity (mg/l CAC03)	119	121	116	114	112	
13.	Specific Conductivity (μmhos/cm at 25°C)	343	350	325	340	350	
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	
15.	Total Manganese (mg/l)	O	O	O	O	O	
16.	Total Sulfates (mg/l)	41	47	46	41	45	
17.	Total Iron (mg/l)	309	300	301	302	304	
18.	Total Suspended Solids (mg/l)	3	3	2	0	1	
19.	Total Hardness (mg/l CAC03)	155	155	150	156	150	
20.	Nitrates (mg/l)	2.3	2.3	2.3	2.36	2.3	
21.	Date Sampled for Analysis	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90	
22.	Date Last Precipitaiton Event Occurred	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90	

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22S	U-22S	U-22S	U-22S	U-22S	U-22S
2.	Lab Identification Number	U-C	U-C	U-C	U-C	U-C	U-C
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1200	1200	1200	1200	1200	1200
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (~~gpm~~ or cfs)	.06	.081	.036	.01	.011	.028
8.	Date Above Measurements Made	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.5	8.1	7.3	7.8	7.0	7.8
11.	Total Acidity (mg/l CAC03)	1.8	1.9	1.0	0.9	1.6	1.6
12.	Total Alkalinity (mg/l CAC03)	94	81	84	63	81	87
13.	Specific Conductivity (μmhos/cm at 25°C)	350	355	340	355	360	360
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.06	0.07	0.05	0.06	0.06	0.07
16.	Total Sulfates (mg/l)	36	31	30	29	30	31
17.	Total Iron (mg/l)	0.50	0.49	0.48	0.60	0.48	0.47
18.	Total Suspended Solids (mg/l)	30	29	36	20	24	28
19.	Total Hardness (mg/l CAC03)	126	131	140	136	130	135
20.	Nitrates (mg/l)	1.6	1.6	1.6	1.6	1.5	1.6
21.	Date Sampled for Analysis	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-9-90	10-11-90

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Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22T	U-22T	U-22T	U-22T	U-22T	U-22T
2.	Lab Identification Number	U-D	U-D	U-D	U-D	U-D	U-D
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1169	1169	1169	1169	1169	1169
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.26	.12	.08	.036	.022	.20
8.	Date Above Measurements Made	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.6	8.1	7.3	7.8	7.3	7.6
11.	Total Acidity (mg/l CAC03)	1.1	1.6	1.4	1.6	1.4	1.8
12.	Total Alkalinity (mg/l CAC03)	107	101	103	104	100	106
13.	Specific Conductivity (μmhos/cm at 25°C)	325	340	345	350	345	350
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.09	0.08	0.08	0.07	0.06	0.08
16.	Total Sulfates (mg/l)	41	37	31	36	34	39
17.	Total Iron (mg/l)	0.51	0.48	0.41	0.39	0.54	0.53
18.	Total Suspended Solids (mg/l)	31	26	24	19	20	27
19.	Total Hardness (mg/l CAC03)	180	176	184	186	180	186
20.	Nitrates (mg/l)	1.2	1.3	1.2	1.2	1.3	1.2
21.	Date Sampled for Analysis	5-17-90	6-27-90	7-24-90	8-28-90	9-11-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-9-90	10-4-90

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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22U	U-22U	U-22U	U-22U	U-22U	U-22U
2.	Lab Identification Number	U-A	U-A	U-A	U-A	U-A	U-A
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1188	1188	1188	1188	1188	1188
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.045	.037	.048	.016	.01	.001
8.	Date Above Measurements Made	5-15-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.8	8.0	7.6	7.9	7.4	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	79	81	86	76	74	78
13.	Specific Conductivity (μmhos/cm at 25°C)	300	350	325	330	325	325
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.09	0.10	0.06	0.10	0.10	0.07
16.	Total Sulfates (mg/l)	39	41	36	41	38	37
17.	Total Iron (mg/l)	0.10	0.14	0.10	0.09	0.10	0.14
18.	Total Suspended Solids (mg/l)	18	12	17	15	16	21
19.	Total Hardness (mg/l CAC03)	121	115	110	112	110	105
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-15-90	6-21-90	7-24-90	8-28-90	9-13-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-15-90	6-21-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22V	U-22V	U-22V	U-22V	U-22V	U-22V
2.	Lab Identification Number	U-E	U-E	U-E	U-E	U-E	U-E
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1068	1068	1068	1068	1068	1068
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.89	.45	.64	.78	.38	.20
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	8.2	7.2	7.8	7.8	7.8
11.	Total Acidity (mg/l CAC03)	0	0	0.8	0.9	1.1	1.0
12.	Total Alkalinity (mg/l CAC03)	200	210	214	216	200	212
13.	Specific Conductivity (μmhos/cm at 25°C)	325	330	350	325	340	350
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.06	0.05	0.07	0.08	0.06	0.04
16.	Total Sulfates (mg/l)	39	41	36	41	39	36
17.	Total Iron (mg/l)	0.01	0.06	0.03	0.04	0.06	0.09
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	100	105	108	110	-	106
20.	Nitrates (mg/l)	0.10	0.10	0.10	0.10	0.10	0.10
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

Laboratory Name ERI Labs
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22X	U-22X	U-22X	U-22X	U-22X	U-22X
2.	Lab Identification Number	D-PPP	D-PPP	D-PPP	D-PPP	D-PPP	D-PPP
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1084	1084	1084	1084	1084	1084
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.9	.56	.41	.48	.34	.36
8.	Date Above Measurements Made	5-23-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.1	8.1	7.4	7.8	7.9	8.0
11.	Total Acidity (mg/l CAC03)	20.5	21.6	22.1	23.2	24.8	21.6
12.	Total Alkalinity (mg/l CAC03)	196	189	195	199	200	208
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	317	381	325	311
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.06	0.04	0.05	0.06	0.05	0.06
16.	Total Sulfates (mg/l)	61	57	63	57	51	56
17.	Total Iron (mg/l)	0.21	0.17	0.21	0.23	0.19	0.23
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	176	158	191	181	176	186
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-23-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22Y	U-22Y	U-22Y	U-22Y	U-22Y	U-22Y
2.	Lab Identification Number	P-G	P-G	P-G	P-G	P-G	P-G
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1163	1163	1163	1163	1163	1163
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	14400GP	4320GPD	4400GP	1080GPD	NOFLOW	50GPD
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	7.5	7.3	7.2	7.4	6.9
11.	Total Acidity (mg/l CAC03)	59.2	63.0	64.8	66.2	61.0	63.2
12.	Total Alkalinity (mg/l CAC03)	184	189	169	186	171	174
13.	Specific Conductivity (μmhos/cm at 25°C)	225	250	250	225	250	250
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.61	0.62	0.61	0.48	0.41	0.58
16.	Total Sulfates (mg/l)	51	36	41	39	44	46
17.	Total Iron (mg/l)	0.88	0.91	0.88	0.86	0.91	0.90
18.	Total Suspended Solids (mg/l)	11	16	12	10	14	13
19.	Total Hardness (mg/l CAC03)	191	181	176	184	180	189
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22Z	U-22Z	U-22Z	U-22Z	U-22Z	U-22Z
2.	Lab Identification Number	D-SSS	D-SSS	D-SSS	D-SSS	D-SSS	D-SSS
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1136	1136	1136	1136	1136	1136
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (~~gpm~~ or cfs)	.2	.16	.96	.085	.12	.16
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.0	8.1	7.3	7.9	7.9	7.9
11.	Total Acidity (mg/l CAC03)	19.6	17.3	16.4	14.2	13.2	18.2
12.	Total Alkalinity (mg/l CAC03)	168	175	156	176	181	168
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	386	391	384	299
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	76	74	79	86	71	74
17.	Total Iron (mg/l)	0.14	0.12	0.18	0.14	0.16	0.16
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	210	200	196	214	200	211
20.	Nitrates (mg/l)	0.20	0.21	0.20	0.20	0.20	0.21
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22AA	U-22AA	U-22AA	U-22AA	U-22AA	U-22AA
2.	Lab Identification Number	D-RRR	D-RRR	D-RRR	D-RRR	D-RRR	D-RRR
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1120	1120	1120	1120	1120	1120
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.25	.28	.125	.14	.2	.21
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	8.2	7.3	7.9	7.9	8.0
11.	Total Acidity (mg/l CAC03)	14.2	16.3	18.2	19.2	16.3	12.2
12.	Total Alkalinity (mg/l CAC03)	176	174	186	196	181	184
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	314	326	311	306
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.02	0.01	0.02	0.00	0.03
16.	Total Sulfates (mg/l)	68	59	56	63	51	61
17.	Total Iron (mg/l)	0.12	0.16	0.12	0.16	0.14	0.13
18.	Total Suspended Solids (mg/l)	6	8	5	6	7	4
19.	Total Hardness (mg/l CAC03)	161	156	157	148	151	148
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22BB	U-22BB	U-22BB	U-22BB		
2.	Lab Identification Number	D-TTT	D-TTT	D-TTT	D-TTT		
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	H		
4.	Surface Elevation for Sampling Station (msl)	1015	1015	1015	1015		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	2.09	2.1	1.8	1.96		
8.	Date Above Measurements Made	7-24-90	8-23-90	9-24-90	10-8-90		
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-		
10.	pH (Standard Units)	7.6	7.8	7.8	7.8		
11.	Total Acidity (mg/l CAC03)	16.2	15.8	16.3	14.8		
12.	Total Alkalinity (mg/l CAC03)	168	174	161	159		
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	310	312		
14.	Total Dissolved Solids (mg/l)	-	-	-	-		
15.	Total Manganese	0.01	0.01	0.01	0.01		
16.	Total Sulfates (mg/l)	39	36	41	36		
17.	Total Iron (mg/l)	0.12	0.15	0.10	0.14		
18.	Total Suspended Solids (mg/l)	1	1	1	1		
19.	Total Hardness (mg/l CAC03)	168	181	174	194		
20.	Nitrates (mg/l)	0.10	0.12	0.13	0.14		
21.	Date Sampled for Analysis	7-24-90	8-23-90	9-24-90	10-8-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-23-90	9-23-90	10-4-90		

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22CC	U-22CC	U-22CC	U-22CC	U-22CC	U-22CC
2.	Lab Identification Number	D-WWW	D-WWW	D-WWW	D-WWW	D-WWW	D-WWW
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1040	1040	1040	1040	1040	1040
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.36	.22	.2	.16	.07	.09
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	8.0	7.7	7.9	7.8	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	96	81	78	86	84	79
13.	Specific Conductivity (μmhos/cm at 25°C)	300	275	286	291	294	295
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00	0.00	0.00
16.	Total Sulfates (mg/l)	51	49	56	47	51	48
17.	Total Iron (mg/l)	0.10	0.14	0.16	0.18	0.10	0.12
18.	Total Suspended Solids (mg/l)	2	3	1	2	1	1
19.	Total Hardness (mg/l CAC03)	163	157	148	156	151	151
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22DD	U-22DD	U-22DD	U-22DD		
2.	Lab Identification Number	D-VVV	D-VVV	D-VVV	D-VVV		
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	H		
4.	Surface Elevation for Sampling Station (msl)	988	988	988	988		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	2.8	2.6	2.7	2.1		
8.	Date Above Measurements Made	7-24-90	8-23-90	9-24-90	10-8-90		
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-		
10.	pH (Standard Units)	7.9	7.9	7.8	7.9		
11.	Total Acidity (mg/l CAC03)	1.8	2.0	1.6	1.2		
12.	Total Alkalinity (mg/l CAC03)	81	94	80	76		
13.	Specific Conductivity (μmhos/cm at 25°C)	300	312	310	311		
14.	Total Dissolved Solids (mg/l)	-	-	-	-		
15.	Total Manganese (mg/l)	0.00	0.00	0.00	0.00		
16.	Total Sulfates (mg/l)	56	49	53	49		
17.	Total Iron (mg/l)	0.11	0.10	0.09	0.13		
18.	Total Suspended Solids (mg/l)	6	5	4	7		
19.	Total Hardness (mg/l CAC03)	200	209	207	210		
20.	Nitrates (mg/l)	0.1	0.1	0.1	0.1		
21.	Date Sampled for Analysis	7-24-90	8-23-90	9-24-90	10-8-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-23-90	9-23-90	10-4-90		

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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22EE	U-22EE	U-22EE	U-22EE	U-22EE	U-22EE
2.	Lab Identification Number	D-XXX	D-XXX	D-XXX	D-XXX	D-XXX	D-XXX
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	976	976	976	976	976	976
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3.96	3.77	.2	2.8	3.75	2.46
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	8.3	7.7	7.9	7.8	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	86	74	91	84	81	96
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	315	320	325	308
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.02
16.	Total Sulfates (mg/l)	62	68	71	74	81	61
17.	Total Iron (mg/l)	0.18	0.26	0.21	0.26	0.21	0.24
18.	Total Suspended Solids (mg/l)	8	7	6	9	8	9
19.	Total Hardness (mg/l CAC03)	181	194	176	183	180	175
20.	Nitrates (mg/l)	0.1	0.1	0.1	0.1	0.1	0.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22FF	U-22FF	U-22FF	U-22FF	U-22FF	U-22FF
2.	Lab Identification Number	D-YYY	D-YYY	D-YYY	D-YYY	D-YYY	D-YYY
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	995	995	995	995	995	995
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.36	.25	.024	.075	.07	.06
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.3	8.3	7.6	7.6	7.7	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	79	80	82	80	94	81
13.	Specific Conductivity (μmhos/cm at 25°C)	321	315	320	315	320	312
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.00	0.01	0.00	0.01	0.01
16.	Total Sulfates (mg/l)	57	61	60	69	61	63
17.	Total Iron (mg/l)	0.10	0.16	0.10	0.14	0.13	0.13
18.	Total Suspended Solids (mg/l)	3	4	2	1	2	2
19.	Total Hardness (mg/l CAC03)	220	200	210	200	205	210
20.	Nitrates (mg/l)	.1	.1	.1	.1	.1	.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22GG	U-22GG	U-22GG	U-22GG	U-22GG	U-22GG
2.	Lab Identification Number	U-G	U-G	U-G	U-G	U-G	U-G
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1009	1009	1009	1009	1009	1009
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.39	.72	.91	1.03	1.5	1.25
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.3	8.1	7.8	7.8	8.0	7.8
11.	Total Acidity (mg/l CAC03)	3.6	2.8	4.8	6.2	5.2	4.1
12.	Total Alkalinity (mg/l CAC03)	110	115	112	109	110	115
13.	Specific Conductivity (μmhos/cm at 25°C)	350	325	350	350	325	310
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.01	0.02	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	48	46	41	46	49	47
17.	Total Iron (mg/l)	0.08	0.10	0.08	0.10	0.08	0.10
18.	Total Suspended Solids (mg/l)	8	6	5	8	7	10
19.	Total Hardness (mg/l CAC03)	151	156	157	156	151	156
20.	Nitrates (mg/l)	1.5	1.6	1.5	1.4	1.5	1.5
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-22HH	U-22HH	U-22HH	U-22HH	U-22HH	U-22HH
2.	Lab Identification Number	D-ZZZ	D-ZZZ	D-ZZZ	D-ZZZ	D-ZZZ	D-ZZZ
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	961	961	961	961	961	961
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.07	.006	.016	.0004	.01	.014
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.3	7.9	7.9	8.0	8.0	8.1
11.	Total Acidity (mg/l CAC03)	O	O	O	O	O	O
12.	Total Alkalinity (mg/l CAC03)	74	81	87	91	86	68
13.	Specific Conductivity (μmhos/cm at 25°C)	300	319	363	381	391	312
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.02	0.03	0.04	0.06	0.02
16.	Total Sulfates (mg/l)	81	96	84	83	86	71
17.	Total Iron (mg/l)	0.61	0.58	0.62	0.86	0.61	0.52
18.	Total Suspended Solids (mg/l)	48	36	51	36	39	44
19.	Total Hardness (mg/l CAC03)	200	217	263	281	216	215
20.	Nitrates (mg/l)	1.00	1.15	1.16	1.12	1.13	1.10
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	D-22A	D-22A	D-22A	D-22A	D-22A	D-22A
2.	Lab Identification Number	D-1A	D-1A	D-1A	D-1A	D-1A	D-1A
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	953	953	953	953	953	953
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	6.3	6.0	4.45	4.3	4.05	2.73
8.	Date Above Measurements Made	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.3	8.3	7.9	7.9	7.9	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	121	134	128	146	129	136
13.	Specific Conductivity (μmhos/cm at 25°C)	300	315	317	328	316	326
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.01	0.02	0.03	0.01	0.02
16.	Total Sulfates (mg/l)	71	63	59	76	74	56
17.	Total Iron (mg/l)	0.09	0.08	0.11	0.10	0.12	0.10
18.	Total Suspended Solids (mg/l)	1	0	0	1	1	1
19.	Total Hardness (mg/l CAC03)	191	186	174	186	181	185
20.	Nitrates (mg/l)	2.0	2.0	2.1	2.0	2.1	2.1
21.	Date Sampled for Analysis	5-30-90	6-20-90	7-24-90	8-23-90	9-24-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-22-90	8-23-90	9-23-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23	U-23	U-23	U-23	U-23	U-23
2.	Lab Identification Number	U-B	U-B	U-B	U-B	U-B	U-B
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1224	1224	1224	1224	1224	1224
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.059	.004	.003	.0001	.004	.0005
8.	Date Above Measurements Made	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.2	7.0	7.7	7.3	7.4	7.5
11.	Total Acidity (mg/l CAC03)	1.8	1.9	1.6	1.4	1.8	1.6
12.	Total Alkalinity (mg/l CAC03)	112	116	115	121	130	110
13.	Specific Conductivity (μmhos/cm at 25°C)	350	325	365	380	360	360
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.79	0.81	0.70	0.69	0.79	0.85
16.	Total Sulfates (mg/l)	36	37	31	38	41	41
17.	Total Iron (mg/l)	0.71	0.57	0.80	0.60	0.57	0.63
18.	Total Suspended Solids (mg/l)	10	12	10	12	15	16
19.	Total Hardness (mg/l CAC03)	161	158	163	156	181	156
20.	Nitrates (mg/l)	1.3	1.2	1.3	1.1	1.2	1.2
21.	Date Sampled for Analysis	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-22-90	7-30-90	8-23-90	9-23-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23A	U-23A	U-23A	U-23A	U-23A	
2.	Lab Identification Number	P-I	P-I	P-I	P-I	P-I	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1221	1221	1221	1221	1221	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	4320 GPD	720 GPD	3456 GPD	686 GPD	1454 GPD	
8.	Date Above Measurements Made	5-30-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.5	7.2	7.9	7.4	6.9	
11.	Total Acidity (mg/l CAC03)	1.2	1.6	1.6	1.4	1.2	
12.	Total Alkalinity (mg/l CAC03)	73	81	76	81	80	
13.	Specific Conductivity (μmhos/cm at 25°C)	260	250	240	240	240	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.80	0.63	0.57	0.70	0.79	
16.	Total Sulfates (mg/l)	39	41	37	36	41	
17.	Total Iron (mg/l)	0.58	0.56	0.63	0.51	0.64	
18.	Total Suspended Solids (mg/l)	16	17	12	16	13	
19.	Total Hardness (mg/l CAC03)	83	76	81	74	88	
20.	Nitrates (mg/l)	1.2	1.6	1.4	1.6	1.6	
21.	Date Sampled for Analysis	5-30-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

Laboratory Name_____ ERI Labs _____
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23B	U-23B	U-23B	U-23B	U-23B	
2.	Lab Identification Number	P-J	P-J	P-J	P-J	P-J	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1212	1212	1212	1212	1212	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	6171 GPD	1080 GPD	5082 GPD	686 GPD	1800 GPD	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.4	7.3	7.8	7.5	7.3	
11.	Total Acidity (mg/l CAC03)	1.2	1.3	1.2	1.2	1.2	
12.	Total Alkalinity (mg/l CAC03)	98	94	91	89	96	
13.	Specific Conductivity (μmhos/cm at 25°C)	250	225	250	250	250	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.50	0.61	0.48	0.51	0.54	
16.	Total Sulfates (mg/l)	36	41	38	36	39	
17.	Total Iron (mg/l)	0.28	0.26	0.31	0.38	0.39	
18.	Total Suspended Solids (mg/l)	18	12	16	18	21	
19.	Total Hardness (mg/l CAC03)	173	176	181	170	175	
20.	Nitrates (mg/l)	1.6	1.5	1.4	1.6	1.6	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

Laboratory Name_____ ERI Labs _____
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23C	U-23C	U-23C	U-23C	U-23C	
2.	Lab Identification Number	D-1D	D-1D	D-1D	D-1D	D-1D	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1188	1188	1188	1188	1188	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream	.13	.59	.34	.004	.004	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.8	7.3	7.9	7.6	7.8	
11.	Total Acidity (mg/l CAC03)	2.0	2.1	2.3	2.6	2.6	
12.	Total Alkalinity (mg/l CAC03)	86	91	89	94	94	
13.	Specific Conductivity (μmhos/cm at 25°C)	235	240	245	245	239	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.36	0.39	0.31	0.30	0.35	
16.	Total Sulfates (mg/l)	61	68	69	71	63	
17.	Total Iron (mg/l)	0.38	0.41	0.42	0.48	0.40	
18.	Total Suspended Solids (mg/l)	2	0	1	0	2	
19.	Total Hardness (mg/l CAC03)	210	200	215	211	212	
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23D	U-23D	U-23D	U-23D	U-23D	
2.	Lab Identification Number	D-1C	D-1C	D-1C	D-1C	D-1C	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1190	1190	1190	1190	1190	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	.25	.54	.21	.009	.011	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	
10.	pH (Standard Units)	7.9	7.6	8.0	7.7	7.5	
11.	Total Acidity (mg/l CAC03)	1.8	1.4	1.8	1.9	1.2	
12.	Total Alkalinity (mg/l CAC03)	76	94	81	80	89	
13.	Specific Conductivity (μmhos/cm at 25°C)	250	265	263	281	256	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.13	0.14	0.16	0.18	0.12	
16.	Total Sulfates (mg/l)	74	81	76	93	61	
17.	Total Iron (mg/l)	0.48	0.56	0.41	0.36	0.51	
18.	Total Suspended Solids (mg/l)	28	31	30	29	31	
19.	Total Hardness (mg/l CAC03)	186	191	180	184	189	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

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Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23E	U-23E	U-23E	U-23E	U-23E	
2.	Lab Identification Number	P-K	P-K	P-K	P-K	P-K	
3.	High (H)/Low (L) Designation (if applicable)	H	L	H	L	H	
4.	Surface Elevation for Sampling Station (msl)	1170	1170	1170	1170	1170	
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	
7.	Flow for Spring/Stream (gpm or cfs)	4.400GP	3081GPD	0800GP	3600GPD	3600GPD	
8.	Date Above Measurements Made	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.9	8.5	8.0	7.6	7.4	
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	
12.	Total Alkalinity (mg/l CAC03)	86	84	81	76	79	
13.	Specific Conductivity (μmhos/cm at 25°C)	310	300	325	310	300	
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.24	0.18	0.19	0.21	0.23	
16.	Total Sulfates (mg/l)	39	37	42	39	41	
17.	Total Iron (mg/l)	0.28	0.31	0.36	0.39	0.27	
18.	Total Suspended Solids (mg/l)	8	10	12	14	12	
19.	Total Hardness (mg/l CAC03)	163	148	151	163	151	
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-31-90	8-31-90	10-1-90	
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-30-90	8-29-90	9-30-90	

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23F	U-23F	U-23F	U-23F	U-23F	U-23F
2.	Lab Identification Number	D-C	D-C	D-C	D-C	D-C	D-C
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1143	1143	1143	1143	1143	1143
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.49	.30	.156	.13	.31	.135
8.	Date Above Measurements Made	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	8.0	7.7	7.7	7.8	7.6
11.	Total Acidity (mg/l CAC03)	9.6	11.2	8.6	9.3	10.4	8.3
12.	Total Alkalinity (mg/l CAC03)	171	186	156	171	181	164
13.	Specific Conductivity (μmhos/cm at 25°C)	276	261	257	281	260	264
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.10	0.09	0.08	0.09	0.09
16.	Total Sulfates (mg/l)	41	56	38	39	40	39
17.	Total Iron (mg/l)	0.46	0.57	0.48	0.56	0.56	0.45
18.	Total Suspended Solids (mg/l)	0	0	0	1	0	0
19.	Total Hardness (mg/l CAC03)	212	216	200	201	214	207
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-22-90	7-30-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259____ _____ City____ Brockway _____
State_____ Pennsylvania_____ _____ Zip____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23G	U-23G	U-23G	U-23G	U-23G	U-23G
2.	Lab Identification Number	D-A	D-A	D-A	D-A	D-A	D-A
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
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/Stream (gpm or cfs)	1.4	.33	.23	.16	.36	.145
8.	Date Above Measurements Made	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	8.1	7.8	7.7	7.8	7.7
11.	Total Acidity (mg/l CAC03)	11.6	12.3	12.2	11.8	12.3	10.8
12.	Total Alkalinity (mg/l CAC03)	181	162	174	156	162	169
13.	Specific Conductivity (μmhos/cm at 25°C)	281	276	290	284	267	279
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.03	0.02	0.03	0.02	0.04	0.04
16.	Total Sulfates (mg/l)	71	69	76	74	61	68
17.	Total Iron (mg/l)	0.36	0.31	0.30	0.38	0.41	0.34
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	208	207	201	206	205	205
20.	Nitrates (mg/l)	0.17	0.18	01.9	0.18	0.16	0.16
21.	Date Sampled for Analysis	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-22-90	7-30-90	8-23-90	9-24-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23H	U-23H	U-23H	U-23H	U-23H	U-23H
2.	Lab Identification Number	D-B	D-B	D-B	D-B	D-B	D-B
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
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/Stream (gpm or cfs)	.1	.33	.39	.2	.48	.165
8.	Date Above Measurements Made	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	8.1	7.7	7.8	7.8	7.7
11.	Total Acidity (mg/l CAC03)	19.2	20.3	16.2	17.4	16.3	18.8
12.	Total Alkalinity (mg/l CAC03)	220	214	216	209	210	217
13.	Specific Conductivity (μmhos/cm at 25°C)	281	276	254	263	279	277
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.03	0.04	0.03	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	46	48	49	44	48	44
17.	Total Iron (mg/l)	0.46	0.43	0.37	0.51	0.46	0.41
18.	Total Suspended Solids (mg/l)	3	2	6	2	2	3
19.	Total Hardness (mg/l CAC03)	227	206	198	213	210	202
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled For Analysis	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-22-90	7-30-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23I	U-23I	U-23I	U-23I	U-23I	U-23I
2.	Lab Identification Number	D-D	D-D	D-D	D-D	D-D	D-D
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1158	1158	1158	1158	1158	1158
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (~~gpm~~ or cfs)	.05	.18	.089	.13	.07	.0049
8.	Date Above Measurements Made	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	7.6	7.6	7.6	7.6	7.4
11.	Total Acidity (mg/l CAC03)	18.2	15.6	16.8	17.2	16.1	16.3
12.	Total Alkalinity (mg/l CAC03)	301	267	258	247	256	208
13.	Specific Conductivity (μmhos/cm at 25°C)	265	271	284	256	260	264
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.04	0.03	0.03	0.02	0.05
16.	Total Sulfates (mg/l)	51	49	56	51	50	48
17.	Total Iron (mg/l)	0.30	0.36	0.31	0.38	0.36	0.39
18.	Total Suspended Solids (mg/l)	5	4	6	5	6	6
19.	Total Hardness (mg/l CAC03)	200	198	197	196	196	199
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled For Analysis	5-16-90	6-22-90	7-30-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-22-90	7-30-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23J	U-23J	U-23J	U-23J	U-23J	U-23J
2.	Lab Identification Number	D-XX	D-XX	D-XX	D-XX	D-XX	D-XX
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1098	1098	1098	1098	1098	1098
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.48	.20	.33	.30	.55	.33
8.	Date Above Measurements Made	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	7.8	8.3	7.7	7.8	7.7
11.	Total Acidity (mg/l CAC03)	14.8	15.6	17.8	19.3	16.2	16.3
12.	Total Alkalinity (mg/l CAC03)	194	186	181	169	194	201
13.	Specific Conductivity (μmhos/cm at 25°C)	275	296	281	263	281	277
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.02
16.	Total Sulfates (mg/l)	37	36	31	38	36	39
17.	Total Iron (mg/l)	0.19	0.12	0.11	0.10	0.09	0.10
18.	Total Suspended Solids (mg/l)	1	1	2	1	1	2
19.	Total Hardness (mg/l CAC03)	186	175	195	200	195	198
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.01	<.01	<.01
21.	Date Sampled For Analysis	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
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State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23K	U-23K	U-23K	U-23K	U-23K	U-23K
2.	Lab Identification Number	D-YY	D-YY	D-YY	D-YY	D-YY	D-YY
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1148	1148	1148	1148	1148	1148
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	..2	.128	.12	.082	.21	.015
8.	Date Above Measurements Made	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	7.9	8.1	7.7	7.8	7.6
11.	Total Acidity (mg/l CAC03)	17.5	14.8	17.6	19.3	18.6	16.8
12.	Total Alkalinity (mg/l CAC03)	186	179	191	184	190	194
13.	Specific Conductivity (μmhos/cm at 25°C)	250	246	251	260	275	226
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	59	57	56	54	56	60
17.	Total Iron (mg/l)	0.13	0.11	0.12	0.11	0.16	0.12
18.	Total Suspended Solids (mg/l)	1	2	1	1	1	2
19.	Total Hardness (mg/l CAC03)	200	206	204	206	200	201
20.	Nitrates (mg/l)	0.02	0.01	0.02	0.01	0.01	0.03
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824_____ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23L	U-23L	U-23L	U-23L	U-23L	U-23L
2.	Lab Identification Number	D-WW	D-WW	D-WW	D-WW	D-WW	D-WW
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1144	1144	1144	1144	1144	1144
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.66	.4	.16	.11	.068	.064
8.	Date Above Measurements Made	5-26-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.7	7.9	7.6	7.9	8.1	8.0
11.	Total Acidity (mg/l CAC03)	16.9	14.3	15.6	15.1	14.8	16.3
12.	Total Alkalinity (mg/l CAC03)	199	196	204	186	198	201
13.	Specific Conductivity (μmhos/cm at 25°C)	350	345	348	362	356	347
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.06	0.08	0.06	0.06	0.05
16.	Total Sulfates (mg/l)	31	39	36	39	31	29
17.	Total Iron (mg/l)	0.21	0.28	0.36	0.28	0.36	0.25
18.	Total Suspended Solids (mg/l)	1	3	2	1	1	2
19.	Total Hardness (mg/l CAC03)	171	178	169	168	176	168
20.	Nitrates (mg/l)	0.01	0.03	0.01	0.02	0.03	0.01
21.	Date Sampled for Analysis	5-26-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23M	U-23M	U-23M	U-23M	U-23M	U-23M
2.	Lab Identification Number	D-VV	D-VV	D-VV	D-VV	D-VV	D-VV
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1170	1170	1170	1170	1170	1170
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.21	.2	.9	.15	.038	.048
8.	Date Above Measurements Made	5-26-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.3	8.0	7.6	7.8	8.1	7.7
11.	Total Acidity (mg/l CAC03)	10.9	12.3	14.0	10.6	9.8	11.1
12.	Total Alkalinity (mg/l CAC03)	186	175	196	190	189	199
13.	Specific Conductivity (μmhos/cm at 25°C)	375	380	375	370	375	370
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.06	0.04	0.01	0.01	0.02
16.	Total Sulfates (mg/l)	31	36	29	31	34	28
17.	Total Iron (mg/l)	0.06	0.05	0.06	0.04	0.06	0.09
18.	Total Suspended Solids (mg/l)	0	0	0	1	0	0
19.	Total Hardness (mg/l CAC03)	39	36	31	40	39	36
20.	Nitrates (mg/l)	<.01	<.01	<.01	<.01	<.01	<.01
21.	Date Sampled for Analysis	5-26-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23N	U-23N	U-23N	U-23N	U-23N	U-23N
2.	Lab Identification Number	D-AAA	D-AAA	D-AAA	D-AAA	D-AAA	D-AAA
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1068	1068	1068	1068	1068	1068
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.8	.52	.72	.675	.91	.50
8.	Date Above Measurements Made	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.7	8.0	8.1	7.8	7.8	8.0
11.	Total Acidity (mg/l CAC03)	5.9	6.2	4.1	6.2	7.3	4.6
12.	Total Alkalinity (mg/l CAC03)	98	99	101	96	104	108
13.	Specific Conductivity (μmhos/cm at 25°C)	285	265	276	281	291	287
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.06	0.04	0.04	0.03	0.03
16.	Total Sulfates (mg/l)	41	48	46	47	46	44
17.	Total Iron (mg/l)	0.16	0.15	0.17	0.18	0.16	0.17
18.	Total Suspended Solids (mg/l)	1	2	1	1	1	2
19.	Total Hardness (mg/l CAC03)	<.01	<.01	<.01	<.01	<.01	<.01
20.	Nitrates (mg/l)	141	139	148	151	130	137
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23O	U-23O	U-23O	U-23O	U-23O	U-23O
2.	Lab Identification Number	P-H	P-H	P-H	P-H	P-H	P-H
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1191	1191	1191	1191	1191	1191
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	8640GPD	7280GP	4400GP	6646GPD	2342GP	10800GPD
8.	Date Above Measurements Made	5-31-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.2	8.0	8.1	7.9	7.9	6.9
11.	Total Acidity (mg/l CAC03)	0	0	1.0	1.2	1.6	1.8
12.	Total Alkalinity (mg/l CAC03)	81	76	86	91	76	81
13.	Specific Conductivity (μmhos/cm at 25°C)	250	250	250	250	250	250
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.16	0.14	0.16	0.14	0.16	0.17
16.	Total Sulfates (mg/l)	34	36	35	36	34	36
17.	Total Iron (mg/l)	0.26	0.18	0.20	0.21	0.26	0.21
18.	Total Suspended Solids (mg/l)	20	17	18	16	17	18
19.	Total Hardness (mg/l CAC03)	136	130	130	136	134	135
20.	Nitrates (mg/l)	1.6	1.5	1.4	1.8	1.6	1.6
21.	Date Sampled for Analysis	5-31-90	6-21-90	7-25-90	8-25-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23P	U-23P	U-23P	U-23P	U-23P	U-23P
2.	Lab Identification Number	D-ZZ	D-ZZ	D-ZZ	D-ZZ	D-ZZ	D-ZZ
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1064	1064	1064	1064	1064	1064
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.1	.119	.16	.093	.16	.04
8.	Date Above Measurements Made	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	8.0	8.0	7.9	8.0	7.8
11.	Total Acidity (mg/l CAC03)	24.2	26.2	28.3	27.3	29.2	22.3
12.	Total Alkalinity (mg/l CAC03)	200	196	189	201	194	206
13.	Specific Conductivity (μmhos/cm at 25°C)	300	310	319	321	317	311
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.02
16.	Total Sulfates (mg/l)	36	31	27	31	38	29
17.	Total Iron (mg/l)	0.41	0.39	0.41	0.48	0.51	0.39
18.	Total Suspended Solids (mg/l)	14	10	9	14	15	16
19.	Total Hardness (mg/l CAC03)	191	186	187	185	184	181
20.	Nitrates (mg/l)	1.30	1.20	1.20	1.21	1.20	1.21
21.	Date Sampled for Analysis	5-26-90	6-21-90	7-25-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259____ _____ City____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23Q	U-23Q	U-23Q	U-23Q	U-23Q	U-23Q
2.	Lab Identification Number	D-BBB	D-BBB	D-BBB	D-BBB	D-BBB	D-BBB
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1088	1088	1088	1088	1088	1088
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.18	.127	.060	.008	.14	.028
8.	Date Above Measurements Made	5-27-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	7.7	7.9	7.6	7.7	7.7
11.	Total Acidity (mg/l CAC03)	14.6	15.2	16.3	14.8	15.2	13.2
12.	Total Alkalinity (mg/l CAC03)	171	165	163	181	176	168
13.	Specific Conductivity (μmhos/cm at 25°C)	275	280	261	270	275	271
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.01	0.02	0.01
16.	Total Sulfates (mg/l)	60	63	61	64	65	61
17.	Total Iron (mg/l)	0.12	0.16	0.14	0.16	0.16	0.15
18.	Total Suspended Solids (mg/l)	2	1	2	3	2	2
19.	Total Hardness (mg/l CAC03)	161	151	163	174	161	156
20.	Nitrates (mg/l)	<.01	<.01	<.01	<.01	<.01	<.01
21.	Date Sampled for Analysis	5-27-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-26-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23R	U-23R	U-23R	U-23R	U-23R	U-23R
2.	Lab Identification Number	D-GGG	D-GGG	D-GGG	D-GGG	D-GGG	D-GGG
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1056	1056	1056	1056	1056	1056
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.48	.33	.1	.016	.20	.037
8.	Date Above Measurements Made	5-29-90	6-21-90	7-26-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	7.7	7.9	7.4	7.8	7.9
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	88	86	71	86	75	96
13.	Specific Conductivity (μmhos/cm at 25°C)	261	256	263	281	261	271
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.02	0.01	0.03
16.	Total Sulfates (mg/l)	61	58	56	59	58	54
17.	Total Iron (mg/l)	0.09	0.08	0.10	0.09	0.10	0.11
18.	Total Suspended Solids (mg/l)	8	9	10	11	10	10
19.	Total Hardness (mg/l CAC03)	195	196	186	189	196	200
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-26-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259____ _____ City____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23S	U-23S	U-23S	U-23S	U-23S	U-23S
2.	Lab Identification Number	D-FFF	D-FFF	D-FFF	D-FFF	D-FFF	D-FFF
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1058	1058	1058	1058	1058	1058
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.12	.037	.375	.005	.012	.001
8.	Date Above Measurements Made	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.0	8.0	7.9	8.0	8.0	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	91	87	65	89	81	86
13.	Specific Conductivity (μmhos/cm at 25°C)	260	281	265	267	275	261
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.01	0.02	0.03
16.	Total Sulfates (mg/l)	61	58	59	63	61	56
17.	Total Iron (mg/l)	0.12	0.08	0.12	0.11	0.11	0.11
18.	Total Suspended Solids (mg/l)	11	9	6	10	10	12
19.	Total Hardness (mg/l CAC03)	196	181	175	198	194	200
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23T	U-23T	U-23T	U-23T	U-23T	U-23T
2.	Lab Identification Number	D-EEE	D-EEE	D-EEE	D-EEE	D-EEE	D-EEE
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1055	1055	1055	1055	1055	1055
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2.88	2.1	2.52	1.28	1.7	.80
8.	Date Above Measurements Made	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	7.9	8.0	7.8	7.8	7.9
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	91	96	81	87	84	89
13.	Specific Conductivity (μmhos/cm at 25°C)	290	291	286	294	296	293
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	56	59	61	58	56	56
17.	Total Iron (mg/l)	0.12	0.11	0.12	0.12	0.11	0.13
18.	Total Suspended Solids (mg/l)	6	5	4	6	2	4
19.	Total Hardness (mg/l CAC03)	195	187	191	196	194	200
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23U	U-23U	U-23U	U-23U	U-23U	U-23U
2.	Lab Identification Number	D-MMM	D-MMM	D-MMM	D-MMM	D-MMM	D-MMM
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1152	1152	1152	1152	1152	1152
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.19	.03	.18	.05	.016	.006
8.	Date Above Measurements Made	5-30-90	6-28-90	7-25-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.3	7.4	7.8	7.8	7.8	7.8
11.	Total Acidity (mg/l CAC03)	1.2	1.3	1.8	1.6	1.9	1.6
12.	Total Alkalinity (mg/l CAC03)	101	91	86	105	96	98
13.	Specific Conductivity (μmhos/cm at 25°C)	265	271	283	263	281	286
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	56	59	63	59	61	54
17.	Total Iron (mg/l)	0.11	0.12	0.09	0.10	0.08	0.13
18.	Total Suspended Solids (mg/l)	2	1	1	1	2	3
19.	Total Hardness (mg/l CAC03)	126	153	148	136	121	126
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-28-90	7-25-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23V	U-23V	U-23V	U-23V	U-23V	U-23V
2.	Lab Identification Number	D-DDD	D-DDD	D-DDD	D-DDD	D-DDD	D-DDD
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1155	1155	1155	1155	1155	1155
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.175	.225	.2	.09	.09	.033
8.	Date Above Measurements Made	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	7.9	7.9	7.8	7.9	7.9
11.	Total Acidity (mg/l CAC03)	2.9	3.8	4.8	3.6	3.1	2.0
12.	Total Alkalinity (mg/l CAC03)	176	169	175	168	176	189
13.	Specific Conductivity (μmhos/cm at 25°C)	310	325	310	310	330	311
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.01	0.01	0.01
16.	Total Sulfates (mg/l)	61	68	59	61	59	57
17.	Total Iron (mg/l)	0.12	0.11	0.12	0.16	0.12	0.15
18.	Total Suspended Solids (mg/l)	4	3	2	1	1	3
19.	Total Hardness (mg/l CAC03)	161	168	159	158	161	155
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-29-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259____ _____ City____ Brockway _____
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23W	U-23W	U-23W	U-23W	U-23W	U-23W
2.	Lab Identification Number	D-DD	D-DD	D-DD	D-DD	D-DD	D-DD
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1157	1157	1157	1157	1157	1157
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.03	.078	.072	.075	.02	.014
8.	Date Above Measurements Made	5-24-90	6-29-90	7-25-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.5	7.8	7.3	7.6	7.6	7.7
11.	Total Acidity (mg/l CAC03)	33.2	31.4	32.6	31.4	32.3	31.2
12.	Total Alkalinity (mg/l CAC03)	81	91	93	87	86	89
13.	Specific Conductivity (μmhos/cm at 25°C)	361	374	376	375	376	364
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.81	0.76	0.81	0.71	0.76	0.73
16.	Total Sulfates (mg/l)	61	51	56	54	63	59
17.	Total Iron (mg/l)	0.48	0.51	0.56	0.49	0.51	0.53
18.	Total Suspended Solids (mg/l)	1	0	2	1	1	2
19.	Total Hardness (mg/l CAC03)	227	236	218	221	234	238
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-29-90	7-25-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-17-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23X	U-23X	U-23X	U-23X	U-23X	U-23X
2.	Lab Identification Number	D-HH	D-HH	D-HH	D-HH	D-HH	D-HH
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1110	1110	1110	1110	1110	1110
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.28	.09	.18	.12	.16	.15
8.	Date Above Measurements Made	5-28-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.0	7.9	7.5	7.8	8.0	7.7
11.	Total Acidity (mg/l CAC03)	12.3	13.6	14.6	13.2	10.8	11.6
12.	Total Alkalinity (mg/l CAC03)	117	119	116	115	114	115
13.	Specific Conductivity (μmhos/cm at 25°C)	351	362	348	336	330	339
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.08	0.09	0.08	0.09	0.08
16.	Total Sulfates (mg/l)	41	36	41	51	34	39
17.	Total Iron (mg/l)	0.28	0.36	0.19	0.38	0.31	0.33
18.	Total Suspended Solids (mg/l)	0	1	0	1	1	1
19.	Total Hardness (mg/l CAC03)	196	184	191	194	186	198
20.	Nitrates (mg/l)	0.10	0.08	0.11	0.10	0.08	0.10
21.	Date Sampled for Analysis	5-28-90	6-28-90	7-25-90	8-27-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-28-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23Y	U-23Y	U-23Y	U-23Y	U-23Y	U-23Y
2.	Lab Identification Number	D-II	D-II	D-II	D-II	D-II	D-II
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1058	1058	1058	1058	1058	1058
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.95	.26	.19	7.9	.41	.36
8.	Date Above Measurements Made	5-24-90	6-21-90	7-24-90	8-25-90	9-25-90	10-01-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	8.1	8.0	7.9	8.0	7.9
11.	Total Acidity (mg/l CAC03)	13.2	14.8	15.6	14.8	13.8	14.2
12.	Total Alkalinity (mg/l CAC03)	179	186	184	189	180	183
13.	Specific Conductivity (μmhos/cm at 25°C)	300	325	325	318	317	307
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.07	0.06	0.08	0.06	0.09
16.	Total Sulfates (mg/l)	41	38	39	42	39	39
17.	Total Iron (mg/l)	0.44	0.39	0.37	0.36	0.48	0.41
18.	Total Suspended Solids (mg/l)	6	5	4	3	2	7
19.	Total Hardness (mg/l CAC03)	201	196	227	217	210	213
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-21-90	7-24-90	8-25-90	9-25-90	10-01-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-23-90	8-23-90	9-24-90	9-30-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23Z	U-23Z	U-23Z	U-23Z	U-23Z	U-23Z
2.	Lab Identification Number	D-JJ	D-JJ	D-JJ	D-JJ	D-JJ	D-JJ
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
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/Stream (gpm or cfs)	5.4	4.2	2.17	2.28	2.1	1.10
8.	Date Above Measurements Made	5-24-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.2	7.9	7.9	7.7	7.9	7.7
11.	Total Acidity (mg/l CAC03)	15.8	17.3	16.8	19.3	16.3	16.2
12.	Total Alkalinity (mg/l CAC03)	186	179	156	148	169	193
13.	Specific Conductivity (μmhos/cm at 25°C)	281	279	281	276	266	282
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.06	0.05	0.08	0.05	0.08	0.08
16.	Total Sulfates (mg/l)	31	36	30	34	31	29
17.	Total Iron (mg/l)	0.41	0.39	0.41	0.40	0.36	0.38
18.	Total Suspended Solids (mg/l)	0	0	0	0	1	0
19.	Total Hardness (mg/l CAC03)	151	148	156	148	148	139
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-21-90	7-24-90	8-25-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-21-90	7-23-90	8-23-90	9-24-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-23AA	U-23AA	U-23AA	U-23AA	U-23AA	U-23AA
2.	Lab Identification Number	D-CCC	D-CCC	D-CCC	D-CCC	D-CCC	D-CCC
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1094	1094	1094	1094	1094	1094
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.31	.125	.09	.008	.1	.04
8.	Date Above Measurements Made	5-29-90	6-20-90	7-24-90	8-23-90	9-25-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	8.2	7.8	7.9	7.9	8.0
11.	Total Acidity (mg/l CAC03)	7.8	9.6	8.4	8.6	7.3	6.2
12.	Total Alkalinity (mg/l CAC03)	161	175	163	174	168	154
13.	Specific Conductivity (μmhos/cm at 25°C)	360	345	351	361	351	338
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.03	0.01	0.02
16.	Total Sulfates (mg/l)	57	56	59	59	63	61
17.	Total Iron (mg/l)	0.11	0.10	0.09	0.10	0.11	0.12
18.	Total Suspended Solids (mg/l)	2	1	3	2	1	3
19.	Total Hardness (mg/l CAC03)	181	176	186	175	186	175
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-29-90	6-20-90	7-24-90	8-23-90	9-25-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-17-90	7-23-90	8-23-90	9-24-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	D-23	D-23	D-23	D-23	D-23	D-23
2.	Lab Identification Number	D-KK	D-KK	D-KK	D-KK	D-KK	D-KK
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1028	1028	1028	1028	1028	1028
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.6	3.36	2.88	3.9	2.21	1.27
8.	Date Above Measurements Made	5-24-90	6-20-90	7-24-90	8-23-90	9-25-90	10-8-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.5	8.2	7.8	7.8	7.9	7.8
11.	Total Acidity (mg/l CAC03)	6.3	7.8	8.0	7.9	7.8	8.2
12.	Total Alkalinity (mg/l CAC03)	201	198	210	214	216	216
13.	Specific Conductivity (μmhos/cm at 25°C)	251	248	281	273	278	276
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.08	0.07	0.06	0.04	0.08	0.09
16.	Total Sulfates (mg/l)	41	36	37	42	40	39
17.	Total Iron (mg/l)	0.36	0.31	0.28	0.26	0.28	0.31
18.	Total Suspended Solids (mg/l)	1	2	1	1	1	2
19.	Total Hardness (mg/l CAC03)	260	270	281	290	280	260
20.	Nitrates (mg/l)	1.31	1.36	1.20	1.28	1.21	1.21
21.	Date Sampled for Analysis	5-24-90	6-20-90	7-24-90	8-23-90	9-25-90	10-8-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-24-90	10-4-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24	U-24	U-24	U-24	U-24	U-24
2.	Lab Identification Number	P-B	P-B	P-B	P-B	P-B	P-B
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1214	1214	1214	1214	1214	1214
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3927GPD	2342GPD	1800GPD	2468GPD	2880GPD	3600GPD
8.	Date Above Measurements Made	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.7	7.7	7.4	7.5	7.6	7.8
11.	Total Acidity (mg/l CAC03)	1.1	1.6	1.4	1.6	1.8	1.8
12.	Total Alkalinity (mg/l CAC03)	96	98	93	94	89	96
13.	Specific Conductivity (μmhos/cm at 25°C)	325	355	350	325	350	350
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.10	0.09	0.08	0.10	0.11	0.11
16.	Total Sulfates (mg/l)	59	62	61	66	57	63
17.	Total Iron (mg/l)	0.18	0.20	0.18	0.24	0.26	0.26
18.	Total Suspended Solids (mg/l)	14	14	15	17	16	16
19.	Total Hardness (mg/l CAC03)	215	216	218	210	211	210
20.	Nitrates (mg/l)	1.3	1.2	1.1	1.2	1.2	1.3
21.	Date Sampled for Analysis	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-17-90	6-28-90	7-23-90	8-23-90	9-18-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24A	U-24A	U-24A	U-24A	U-24A	U-24A
2.	Lab Identification Number	D-O	D-O	D-O	D-O	D-O	D-O
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1184	1184	1184	1184	1184	1184
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.06	1.68	.38	.003	9-18-90	.007
8.	Date Above Measurements Made	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.7	8.3	7.6	7.9	8.0	7.8
11.	Total Acidity (mg/l CAC03)	18.1	19.3	18.6	17.4	18.6	17.0
12.	Total Alkalinity (mg/l CAC03)	243	262	281	251	239	231
13.	Specific Conductivity (μmhos/cm at 25°C)	376	384	391	368	391	379
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.09	0.14	0.12	0.08	0.09	0.12
16.	Total Sulfates (mg/l)	38	41	31	37	34	37
17.	Total Iron (mg/l)	0.81	0.79	0.81	0.74	0.76	0.77
18.	Total Suspended Solids (mg/l)	51	36	30	28	36	46
19.	Total Hardness (mg/l CAC03)	548	536	526	532	541	550
20.	Nitrates (mg/l)	.47	.58	.41	.42	.49	.50
21.	Date Sampled for Analysis	5-18-90	6-28-90	7-25-90	8-28-90	9-18-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-17-90	6-28-90	7-23-90	8-23-90	9-18-90	10-11-90

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24B	U-24B	U-24B	U-24B	U-24B	U-24B
2.	Lab Identification Number	D-SS	D-SS	D-SS	D-SS	D-SS	D-SS
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1138	1138	1138	1138	1138	1138
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.18	.60	.064	.27	.12	.075
8.	Date Above Measurements Made	5-25-90	6-27-90	7-25-90	8-29-90	9-25-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.4	8.1	7.6	7.8	7.8	7.5
11.	Total Acidity (mg/l CAC03)	9.3	8.6	10.8	9.6	10.0	10.2
12.	Total Alkalinity (mg/l CAC03)	163	174	176	159	184	181
13.	Specific Conductivity (μmhos/cm at 25°C)	250	255	250	260	265	252
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.19	0.17	0.16	0.18	0.17	0.20
16.	Total Sulfates (mg/l)	61	54	60	57	61	56
17.	Total Iron (mg/l)	0.80	0.81	0.91	0.84	0.77	0.86
18.	Total Suspended Solids (mg/l)	10	6	8	11	10	14
19.	Total Hardness (mg/l CAC03)	230	227	236	240	237	231
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.01
21.	Date Sampled for Analysis	5-25-90	6-27-90	7-25-90	8-29-90	9-25-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-24-90	7-23-90	8-29-90	9-24-90	10-11-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24C	U-24C	U-24C	U-24C	U-24C	U-24C
2.	Lab Identification Number	P-C	P-C	P-C	P-C	P-C	P-C
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1188	1188	1188	1188	1188	1188
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	10800GP	9599GPD	4547GPD	8640GPD	7280GP	30240GPD
8.	Date Above Measurements Made	5-22-90	6-19-90	7-26-90	8-27-90	9-14-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	8.6	7.9	6.9	7.4	7.8
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	78	76	75	74	73	76
13.	Specific Conductivity (μmhos/cm at 25°C)	260	280	225	260	250	250
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.12	0.18	0.14	0.10	0.12	0.15
16.	Total Sulfates (mg/l)	39	41	39	36	35	36
17.	Total Iron (mg/l)	0.28	0.31	0.27	0.26	0.31	0.33
18.	Total Suspended Solids (mg/l)	17	21	19	25	24	28
19.	Total Hardness (mg/l CAC03)	161	186	171	184	176	156
20.	Nitrates (mg/l)	1.2	1.3	1.0	1.6	1.0	1.0
21.	Date Sampled for Analysis	5-22-90	6-19-90	7-26-90	8-27-90	9-14-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-14-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Samplin Station from Hydrology Map	U-24D	U-24D	U-24D	U-24D	U-24D	U24D
2.	Lab Identification Number	D-1G	D-1G	D-1G	D-1G	D-1G	D-1G
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1138	1138	1138	1138	1138	1138
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2.4	.042	.054	.48	.105	.067
8.	Date Above Measurements Made	6-28-90	7-24-90	8-24-90	9-24-90	10-11-90	11-24-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.8	7.5	7.7	7.5	7.6	7.6
11.	Total Acidity (mg/l CAC03)	2.0	1.9	1.8	2.0	2.2	0
12.	Total Alkalinity (mg/l CAC03)	101	100	109	107	106	90
13.	Specific Conductivity (μmhos/cm at 25°C)	265	260	270	260	260	250
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.01	0.01	0.01	0.01	0.06
16.	Total Sulfates (mg/l)	59	56	61	71	63	34
17.	Total Iron (mg/l)	0.18	0.16	0.10	0.12	0.17	0.16
18.	Total Suspended Solids (mg/l)	14	12	14	14	16	2.7
19.	Total Hardness (mg/l CAC03)	200	207	210	207	210	89
20.	Nitrates (mg/l)	1.6	1.5	1.6	1.5	1.6	1.23
21.	Date Sampled for Analysis	6-28-90	7-24-90	8-24-90	9-24-90	10-11-90	11-24-90
22.	Date Last Precipitaiton Event Occurred	6-28-90	7-23-90	8-23-90	9-24-90	10-11-90	-

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24E	U-24E	U-24E	U-24E	U-24E	U-24E
2.	Lab Identification Number	D-TT	D-TT	D-TT	D-TT	D-TT	D-TT
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1136	1136	1136	1136	1136	1136
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.08	.2	.046	.0012	.22	.21
8.	Date Above Measurements Made	5-25-90	6-27-90	7-25-90	8-29-90	9-25-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	8.2	7.4	7.7	7.7	7.8
11.	Total Acidity (mg/l CAC03)	13.0	13.5	13.1	12.8	13.0	12.8
12.	Total Alkalinity (mg/l CAC03)	139	140	131	146	139	146
13.	Specific Conductivity (μmhos/cm at 25°C)	350	376	361	382	371	376
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	.20	.10	0.08	0.12	0.16	0.10
16.	Total Sulfates (mg/l)	40	42	41	39	44	48
17.	Total Iron (mg/l)	3.73	3.65	3.02	2.89	3.16	3.01
18.	Total Suspended Solids (mg/l)	4	4	4	5	4	6
19.	Total Hardness (mg/l CAC03)	183	185	171	179	181	173
20.	Nitrates (mg/l)	0.17	0.18	0.16	0.14	0.16	0.15
21.	Date Sampled for Analysis	5-25-90	6-27-90	7-25-90	8-29-90	9-25-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-24-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24F	U-24F	U-24F	U-24F	U-24F	U-24F
2.	Lab Identification Number	D-X	D-X	D-X	D-X	D-X	D-X
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1107	1107	1107	1107	1107	1107
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.63	2.8	.15	.3	.86	.51
8.	Date Above Measurements Made	5-23-90	6-28-90	7-25-90	8-29-90	9-25-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.2	8.0	7.4	7.7	7.8	7.5
11.	Total Acidity (mg/l CAC03)	8.6	7.3	9.6	10.1	9.8	9.3
12.	Total Alkalinity (mg/l CAC03)	148	156	141	150	159	151
13.	Specific Conductivity (μmhos/cm at 25°C)	250	275	250	257	263	267
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.18	0.12	0.14	0.18	0.10	0.18
16.	Total Sulfates (mg/l)	41	39	42	37	46	38
17.	Total Iron (mg/l)	0.60	0.58	0.61	0.56	0.51	0.64
18.	Total Suspended Solids (mg/l)	9	10	11	7	6	8
19.	Total Hardness (mg/l CAC03)	201	207	196	212	191	201
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-25-90	8-29-90	9-25-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24G	U-24G	U-24G	U-24G	U-24G	U-24G
2.	Lab Identification Number	D-W	D-W	D-W	D-W	D-W	D-W
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1097	1097	1097	1097	1097	1097
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.06	.25	.16	.0075	.001	.025
8.	Date Above Measurements Made	5-23-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	7.7	8.1	7.8	7.8	7.6
11.	Total Acidity (mg/l CAC03)	13.6	14.2	16.3	18.2	17.3	12.4
12.	Total Alkalinity (mg/l CAC03)	140	142	139	127	121	136
13.	Specific Conductivity (μmhos/cm at 25°C)	250	250	225	250	250	253
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.00	0.01	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	79	68	89	84	73	81
17.	Total Iron (mg/l)	0.48	0.38	0.39	0.46	0.51	0.54
18.	Total Suspended Solids (mg/l)	12	11	10	14	15	13
19.	Total Hardness (mg/l CAC03)	120	100	107	115	126	119
20.	Nitrates (mg/l)	0.48	0.31	0.49	0.51	0.60	0.50
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES

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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24H	U-24H	U-24H	U-24H	U-24H	U-24H
2.	Lab Identification Number	D-V	D-V	D-V	D-V	D-V	D-V
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1078	1078	1078	1078	1078	1078
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.73	3.5	1	.36	1.0	.66
8.	Date Above Measurements Made	5-23-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.2	7.7	8.0	7.7	7.9	7.5
11.	Total Acidity (mg/l CAC03)	11.4	11.6	11.3	11.2	12.1	11.2
12.	Total Alkalinity (mg/l CAC03)	181	176	191	184	189	186
13.	Specific Conductivity (μmhos/cm at 25°C)	260	263	261	269	248	259
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.03	0.03	0.04	0.05	0.05
16.	Total Sulfates (mg/l)	51	63	57	56	51	56
17.	Total Iron (mg/l)	0.48	0.49	0.43	0.51	0.52	0.53
18.	Total Suspended Solids (mg/l)	3	2	1	4	4	4
19.	Total Hardness (mg/l CAC03)	191	184	186	171	163	186
20.	Nitrates (mg/l)	0.12	0.14	0.17	0.18	0.20	0.16
21.	Date Sampled for Analysis	5-23-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24I	U-24I	U-24I	U-24I	U-24I	U-24I
2.	Lab Identification Number	D-EE	D-EE	D-EE	D-EE	D-EE	D-EE
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1126	1126	1126	1126	1126	1126
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.12	.09	.071	.0075	.002	.02
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.2	8.0	8.1	7.8	7.9	7.9
11.	Total Acidity (mg/l CAC03)	19.3	18.6	19.3	16.3	17.3	21.2
12.	Total Alkalinity (mg/l CAC03)	179	176	184	173	179	186
13.	Specific Conductivity (μmhos/cm at 25°C)	312	316	327	321	326	342
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.12	0.16	0.09	0.10	0.12	0.11
16.	Total Sulfates (mg/l)	40	39	41	40	39	41
17.	Total Iron (mg/l)	1.26	1.27	1.31	1.19	1.26	1.22
18.	Total Suspended Solids (mg/l)	1	0	1	1	1	1
19.	Total Hardness (mg/l CAC03)	146	139	141	136	131	138
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name ERI Labs
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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24J	U-24J	U-24J	U-24J	U-24J	U-24J
2.	Lab Identification Number	D-GG	D-GG	D-GG	D-GG	D-GG	D-GG
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1053	1053	1053	1053	1053	1053
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.35	3.96	.9	.6	1.03	.74
8.	Date Above Measurements Made	5-30-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.0	7.7	8.0	7.7	7.9	7.8
11.	Total Acidity (mg/l CAC03)	17.6	16.2	16.3	17.3	18.2	18.2
12.	Total Alkalinity (mg/l CAC03)	109	108	110	108	109	111
13.	Specific Conductivity (μmhos/cm at 25°C)	257	263	281	274	281	261
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.07	0.06	0.07	0.08	0.09	0.08
16.	Total Sulfates (mg/l)	48	56	49	51	57	51
17.	Total Iron (mg/l)	0.41	0.56	0.49	0.41	0.48	0.48
18.	Total Suspended Solids (mg/l)	2	1	2	2	1	2
19.	Total Hardness (mg/l CAC03)	186	196	184	189	191	198
20.	Nitrates (mg/l)	0.16	0.16	0.15	0.16	0.17	0.18
21.	Date Sampled for Analysis	5-30-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24K	U-24K	U-24K	U-24K	U-24K	U-24K
2.	Lab Identification Number	D-FF	D-FF	D-FF	D-FF	D-FF	D-FF
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1062	1062	1062	1062	1062	1062
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.22	.12	.168	.075	.01	.183
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	7.5	7.8	7.7	7.7	7.7
11.	Total Acidity (mg/l CAC03)	16.3	17.2	14.3	15.3	16.2	15.2
12.	Total Alkalinity (mg/l CAC03)	189	184	191	201	191	194
13.	Specific Conductivity (μmhos/cm at 25°C)	250	225	225	236	226	220
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.04	0.04	0.06	0.03	0.06	0.06
16.	Total Sulfates (mg/l)	61	59	62	59	61	62
17.	Total Iron (mg/l)	0.48	0.51	0.49	0.51	0.56	0.45
18.	Total Suspended Solids (mg/l)	10	8	9	11	10	8
19.	Total Hardness (mg/l CAC03)	220	217	218	217	220	215
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24L	U-24L	U-24L	U-24L	U-24L	U-24L
2.	Lab Identification Number	D-OO	D-OO	D-OO	D-OO	D-OO	D-OO
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1030	1030	1030	1030	1030	1030
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.2	.45	.45	.27	.33	.28
8.	Date Above Measurements Made	5-16-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	7.8	7.8	7.7	7.8	7.8
11.	Total Acidity (mg/l CAC03)	12.8	13.2	14.2	10.9	11.8	11.2
12.	Total Alkalinity (mg/l CAC03)	168	175	176	175	181	173
13.	Specific Conductivity (μmhos/cm at 25°C)	275	291	263	290	285	282
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.14	0.10	0.13	0.10	0.08	0.12
16.	Total Sulfates (mg/l)	39	36	48	38	36	33
17.	Total Iron (mg/l)	0.58	0.61	0.59	0.60	0.59	0.65
18.	Total Suspended Solids (mg/l)	2	1	2	2	2	3
19.	Total Hardness (mg/l CAC03)	100	125	115	117	112	105
20.	Nitrates (mg/l)	0.10	0.09	0.08	0.12	0.08	0.11
21.	Date Sampled for Analysis	5-16-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-28-90	7-23-90	8-29-90	9-24-90	10-11-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24M	U-24M	U-24M	U-24M	U-24M	U-24M
2.	Lab Identification Number	D-MM	D-MM	D-MM	D-MM	D-MM	D-MM
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1172	1172	1172	1172	1172	1172
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.08	.48	.1	.01	.08	.002
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.5	8.0	7.8	7.3	7.9	8.2
11.	Total Acidity (mg/l CAC03)	2.9	3.1	3.0	3.4	2.8	3.6
12.	Total Alkalinity (mg/l CAC03)	89	96	88	84	91	98
13.	Specific Conductivity (μmhos/cm at 25°C)	400	425	450	430	436	403
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.14	0.18	0.15	0.16	0.15	0.15
16.	Total Sulfates (mg/l)	80	79	76	81	76	71
17.	Total Iron (mg/l)	0.58	0.61	0.58	0.61	0.58	0.57
18.	Total Suspended Solids (mg/l)	5	4	6	3	6	6
19.	Total Hardness (mg/l CAC03)	141	151	136	151	148	137
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24N	U-24N	U-24N	U-24N	U-24N	U-24N
2.	Lab Identification Number	D-NN	D-NN	D-NN	D-NN	D-NN	D-NN
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1135	1135	1135	1135	1135	1135
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.36	.03	.01	.01	.072	.008
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-24-90	9-25-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	8.2	7.9	7.4	7.9	8.2
11.	Total Acidity (mg/l CAC03)	17.3	15.2	14.8	17.3	16.8	16.1
12.	Total Alkalinity (mg/l CAC03)	121	108	136	104	110	119
13.	Specific Conductivity (μmhos/cm at 25°C)	370	350	375	360	350	370
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.16	0.18	0.13	0.12	0.12	0.14
16.	Total Sulfates (mg/l)	36	48	36	39	36	31
17.	Total Iron (mg/l)	0.68	0.68	0.71	0.81	0.62	0.75
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	191	180	167	181	175	186
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-24-90	9-25-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24O	U-24O	U-24O	U-24O		
2.	Lab Identification Number	D-KKK	D-KKK	D-KKK	D-KKK		
3.	High (H)/Low (L) Designation (if applicable)	H	L	L	L		
4.	Surface Elevation for Sampling Station (msl)	1040	1040	1040	1040		
5.	Depth of Well below Land Surface (feet)	-	-	-	-		
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-		
7.	Flow for Spring/Stream (gpm or cfs)	.075	.056	.06	.022		
8.	Date Above Measurements Made	7-26-90	8-29-90	9-26-90	10-11-90		
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.1	7.9	8.1	8.1		
11.	Total Acidity (mg/l CAC03)	0	0	0	0		
12.	Total Alkalinity (mg/l CAC03)	96	81	85	86		
13.	Specific Conductivity (μmhos/cm at 25°C)	325	320	325	319		
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.01	0.02	0.01	0.03		
16.	Total Sulfates (mg/l)	59	58	57	61		
17.	Total Iron (mg/l)	0.59	0.51	0.48	0.49		
18.	Total Suspended Solids (mg/l)	56	61	76	80		
19.	Total Hardness (mg/l CAC03)	96	107	108	101		
20.	Nitrates (mg/l)	27.5	27.0	27.3	27.2		
21.	Date Sampled for Analysis	7-26-90	8-29-90	9-26-90	10-11-90		
22.	Date Last Precipitaiton Event Occurred	7-23-90	8-29-90	9-24-90	10-11-90		

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-24P	U-24P	U-24P	U-24P	U-24P	U-24P
2.	Lab Identification Number	D-LLL	D-LLL	D-LLL	D-LLL	D-LLL	D-LLL
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	994	994	994	994	994	994
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	6.12	4.2	2	1.10	2.16	1.22
8.	Date Above Measurements Made	5-30-90	6-27-90	7-26-90	8-29-90	9-29-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	8.5	8.0	8.0	7.8	7.9	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	75	76	74	73	72	76
13.	Specific Conductivity (μmhos/cm at 25°C)	250	261	267	268	247	257
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	57	59	58	56	57	61
17.	Total Iron (mg/l)	0.16	0.18	0.14	0.16	0.18	0.17
18.	Total Suspended Solids (mg/l)	12	9	8	7	6	11
19.	Total Hardness (mg/l CAC03)	156	148	156	147	151	150
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-27-90	7-26-90	8-29-90	9-29-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-23-90	8-29-90	9-29-90	10-11-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-25	U-25	U-25	U-25	U-25	U-25
2.	Lab Identification Number	P-E	P-E	P-E	P-E	P-E	P-E
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1153	1153	1153	1153	1153	1153
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1440GPD	100GPD	1800GPD	1800GPD	1234GPD	1234GPD
8.	Date Above Measurements Made	5-24-90	6-27-90	7-26-90	8-28-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring						
10.	pH (Standard Units)	7.9	7.9	7.7	7.4	8.3	7.6
11.	Total Acidity (mg/l CAC03)	1.8	1.7	1.6	1.4	1.8	1.6
12.	Total Alkalinity (mg/l CAC03)	91	84	86	81	80	86
13.	Specific Conductivity (μmhos/cm at 25°C)	275	280	285	260	281	286
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.69	0.75	0.81	0.89	0.79	0.80
16.	Total Sulfates (mg/l)	61	59	61	68	73	63
17.	Total Iron (mg/l)	1.12	1.09	1.01	0.90	1.15	1.10
18.	Total Suspended Solids (mg/l)	18	16	12	18	14	22
19.	Total Hardness (mg/l CAC03)	220	218	231	217	218	218
20.	Nitrates (mg/l)	1.4	1.6	1.5	1.6	1.3	1.3
21.	Date Sampled for Analysis	5-24-90	6-27-90	7-26-90	8-28-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-24-90	10-9-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ LLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27	U-27	U-27	U-27	U-27	U-27
2.	Lab Identification Number	D-U	D-U	D-U	D-U	D-U	D-U
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1070	1070	1070	1070	1070	1070
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.51	.31	.30	.02	.02	.062
8.	Date Above Measurements Made	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.8	7.7	7.7	7.6	7.6	7.4
11.	Total Acidity (mg/l CAC03)	16.3	19.4	18.0	18.6	17.4	18.3
12.	Total Alkalinity (mg/l CAC03)	201	196	194	195	200	201
13.	Specific Conductivity (μmhos/cm at 25°C)	260	265	253	261	260	258
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.12	0.13	0.15	0.16	0.14	0.14
16.	Total Sulfates (mg/l)	63	61	68	74	61	61
17.	Total Iron (mg/l)	0.81	0.76	0.81	0.76	0.81	0.79
18.	Total Suspended Solids (mg/l)	36	31	28	34	26	39
19.	Total Hardness (mg/l CAC03)	139	117	127	139	128	131
20.	Nitrates (mg/l)	0.80	0.76	0.81	0.76	0.81	0.76
21.	Date Sampled for Analysis	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE 0HI0 VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27A	U-27A	U-27A	U-27A	U-27A	U-27A
2.	Lab Identification Number	D-T	D-T	D-T	D-T	D-T	D-T
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1066	1066	1066	1066	1066	1066
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.31	.20	.09	.04	.1	.093
8.	Date Above Measurements Made	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	7.7	7.9	7.8	7.8	7.7
11.	Total Acidity (mg/l CAC03)	12.2	11.4	11.3	10.6	10.9	11.2
12.	Total Alkalinity (mg/l CAC03)	154	159	148	153	156	156
13.	Specific Conductivity (μmhos/cm at 25°C)	350	350	340	348	350	342
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.10	0.10	0.09	0.08	0.10	0.10
16.	Total Sulfates (mg/l)	37	36	31	36	35	37
17.	Total Iron (mg/l)	0.63	0.81	0.76	0.74	0.68	0.70
18.	Total Suspended Solids (mg/l)	20	18	21	18	16	19
19.	Total Hardness (mg/l CAC03)	250	251	243	251	243	246
20.	Nitrates (mg/l)	< .1	< .1	< .1	< .1	< .1	< .1
21.	Date Sampled for Analysis	5-22-90	6-15-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE 0HI0 VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27B	U-27B	U-27B	U-27B	U-27B	U-27B
2.	Lab Identification Number	D-Q	D-Q	D-Q	D-Q	D-Q	D-Q
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1120	1120	1120	1120	1120	1120
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.08	.20	.2	.1	.13	.108
8.	Date Above Measurements Made	5-22-90	6-19-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	8.0	7.9	7.9	8.0	7.8
11.	Total Acidity (mg/l CAC03)	6.8	6.0	6.4	6.7	6.0	6.3
12.	Total Alkalinity (mg/l CAC03)	117	98	113	110	108	105
13.	Specific Conductivity (μmhos/cm at 25°C)	261	273	281	293	284	249
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.08	0.07	0.09	0.08	0.10	0.09
16.	Total Sulfates (mg/l)	61	68	71	54	51	59
17.	Total Iron (mg/l)	0.48	0.51	0.46	0.50	0.49	0.54
18.	Total Suspended Solids (mg/l)	2	1	3	3	3	3
19.	Total Hardness (mg/l CAC03)	136	120	119	131	128	125
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	< .1
21.	Date Sampled for Analysis	5-22-90	6-19-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-17-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE 0HI0 VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27C	U-27C	U-27C	U-27C	U-27C	U-27C
2.	Lab Identification Number	D-R	D-R	D-R	D-R	D-R	D-R
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1127	1127	1127	1127	1127	1127
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.18	.06	.075	.008	.03	.011
8.	Date Above Measurements Made	5-22-90	6-19-90	7-27-90	8-27-90	9-27-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	7.9	7.8	7.9	7.9	7.6
11.	Total Acidity (mg/l CAC03)	7.9	8.4	8.0	7.3	8.6	7.1
12.	Total Alkalinity (mg/l CAC03)	109	100	115	118	112	105
13.	Specific Conductivity (μmhos/cm at 25°C)	294	277	281	294	261	281
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.16	0.18	0.14	0.13	0.19	0.14
16.	Total Sulfates (mg/l)	42	38	40	42	41	41
17.	Total Iron (mg/l)	0.84	0.86	0.79	0.81	0.74	0.80
18.	Total Suspended Solids (mg/l)	61	58	50	48	51	56
19.	Total Hardness (mg/l CAC03)	131	128	126	124	120	125
20.	Nitrates (mg/l)	0.18	0.17	0.20	0.18	0.21	0.19
21.	Date Sampled for Analysis	5-22-90	6-19-90	7-27-90	8-27-90	9-27-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-14-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259 _____ City_____ Brockway _____
State_____ Pennsylvania _____ Zip_____ 15824 _____

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27E	U-27E	U-27E	U-27E	U-27E	U-27E
2.	Lab Identification Number	D-HHH	D-HHH	D-HHH	D-HHH	D-HHH	D-HHH
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1108	1108	1108	1108	1108	1108
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.71	3.12	.1	.075	.15	.096
8.	Date Above Measurements Made	5-30-90	6-28-90	7-26-90	8-24-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.0	8.3	7.4	7.5	7.9	7.8
11.	Total Acidity (mg/l CAC03)	7.8	6.8	7.9	8.1	6.3	6.2
12.	Total Alkalinity (mg/l CAC03)	109	98	108	96	106	111
13.	Specific Conductivity (μmhos/cm at 25°C)	281	276	256	281	293	273
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.02	0.02	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	75	69	81	76	81	76
17.	Total Iron (mg/l)	0.09	0.26	0.24	0.31	0.36	0.39
18.	Total Suspended Solids (mg/l)	8	7	6	5	6	8
19.	Total Hardness (mg/l CAC03)	105	114	110	109	108	110
20.	Nitrates (mg/l)	1.0	1.0	1.0	1.0	1.0	1.0
21.	Date Sampled for Analysis	5-30-90	6-28-90	7-26-90	8-24-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-28-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-27F	U-27F	U-27F	U-27F	U-27F	U-27F
2.	Lab Identification Number	D-III	D-III	D-III	D-III	D-III	D-III
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1085	1085	1085	1085	1085	1085
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.825	2.1	.14	.1	.16	.10
8.	Date Above Measurements Made	5-30-90	6-28-90	7-26-90	8-24-90	9-25-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.5	8.3	7.5	7.7	8.0	7.9
11.	Total Acidity (mg/l CAC03)	0.6	0	1.6	0.8	0.9	0
12.	Total Alkalinity (mg/l CAC03)	89	96	87	81	99	94
13.	Specific Conductivity (μmhos/cm at 25°C)	256	281	263	281	275	272
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.06	0.08	0.07	0.06	0.08	0.04
16.	Total Sulfates (mg/l)	72	78	76	74	81	61
17.	Total Iron (mg/l)	0.28	0.31	0.28	0.30	0.30	0.35
18.	Total Suspended Solids (mg/l)	16	18	20	18	19	15
19.	Total Hardness (mg/l CAC03)	200	198	200	298	200	200
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-30-90	6-28-90	7-26-90	8-24-90	9-25-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-28-90	7-23-90	8-23-90	9-23-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28	U-28	U-28	U-28	U-28	U-28
2.	Lab Identification Number	D-UU	D-UU	D-UU	D-UU	D-UU	D-UU
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1118	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/Stream (gpm or cfs)	.10	.78	.038	.022	.022	.28
8.	Date Above Measurements Made	5-25-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.3	7.8	7.5	7.7	7.5	7.5
11.	Total Acidity (mg/l CAC03)	14.6	16.3	10.9	11.6	12.2	13.2
12.	Total Alkalinity (mg/l CAC03)	121	118	121	120	118	117
13.	Specific Conductivity (μmhos/cm at 25°C)	500	475	481	476	490	495
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.01	0.02	0.03	0.02	0.02	0.02
16.	Total Sulfates (mg/l)	39	31	37	36	34	36
17.	Total Iron (mg/l)	.060	0.61	0.59	0.61	0.62	0.66
18.	Total Suspended Solids (mg/l)	36	38	39	30	31	31
19.	Total Hardness (mg/l CAC03)	210	186	194	190	198	201
20.	Nitrates (mg/l)	0.10	0.13	0.10	0.10	0.10	0.11
21.	Date Sampled for Analysis	5-25-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-25-90	6-24-90	7-23-90	8-23-90	9-23-90	10-11-90

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28A	U-28A	U-28A	U-28A	U-28A	U-28A
2.	Lab Identification Number	D-1E	D-1E	D-1E	D-1E	D-1E	D-1E
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1105	1105	1105	1105	1105	1105
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.6	2.72	.13	.01	.09	.32
8.	Date Above Measurements Made	5-31-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.0	8.0	8.0	7.9	7.3	8.0
11.	Total Acidity (mg/l CAC03)	0	0	0	0	0	0
12.	Total Alkalinity (mg/l CAC03)	72	69	81	76	74	71
13.	Specific Conductivity (μmhos/cm at 25°C)	300	301	306	300	308	307
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.34	0.31	0.38	0.39	0.38	0.36
16.	Total Sulfates (mg/l)	74	71	76	75	74	76
17.	Total Iron (mg/l)	0.26	0.28	0.28	0.31	0.28	0.25
18.	Total Suspended Solids (mg/l)	16	15	13	15	14	14
19.	Total Hardness (mg/l CAC03)	250	260	255	251	250	250
20.	Nitrates (mg/l)	2.20	2.15	2.15	2.12	2.16	2.16
21.	Date Sampled for Analysis	5-31-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-29-90	6-24-90	7-23-90	8-23-90	9-23-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28B	U-28B	U-28B	U-28B	U-28B	U-28B
2.	Lab Identification Number	P-A	P-A	P-A	P-A	P-A	P-A
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1250	1250	1250	1250	1250	1250
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	0GPD	0GPD	0GPD	0GPD	0GPD	0GPD
8.	Date Above Measurements Made	5-18-90	6-27-90	7-23-90	8-28-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.4	8.1	7.2	7.3	6.6	7.0
11.	Total Acidity (mg/l CAC03)	1.8	1.6	1.5	1.6	1.7	1.3
12.	Total Alkalinity (mg/l CAC03)	71	83	89	76	84	89
13.	Specific Conductivity (μmhos/cm at 25°C)	263	280	260	275	270	250
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	1.16	1.28	1.30	1.23	1.20	1.32
16.	Total Sulfates (mg/l)	59	61	57	61	68	63
17.	Total Iron (mg/l)	2.91	2.63	2.48	2.61	2.86	2.88
18.	Total Suspended Solids (mg/l)	8	7	6	5	6	8
19.	Total Hardness (mg/l CAC03)	175	186	163	191	184	186
20.	Nitrates (mg/l)	1.2	1.2	1.2	1.2	1.2	1.2
21.	Date Sampled for Analysis	5-18-90	6-27-90	7-23-90	8-28-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-23-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28C	U-28C	U-28C	U-28C	U-28C	U-28C
2.	Lab Identification Number	D-I	D-I	D-I	D-I	D-I	D-I
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1104	1104	1104	1104	1104	1104
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.14	.125	.2	.045	.1	.36
8.	Date Above Measurements Made	5-18-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.7	7.8	7.8	7.8	7.2	7.8
11.	Total Acidity	13.8	12.4	11.6	12.2	14.8	12.6
12.	Total Alkalinity (mg/l CAC03)	212	216	208	214	218	210
13.	Specific Conductivity (μmhos/cm at 25°C)	388	376	396	381	380	392
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.14	0.12	0.19	0.15	0.16	0.17
16.	Total Sulfates (mg/l)	51	41	38	51	56	46
17.	Total Iron (mg/l)	0.68	0.76	0.61	0.62	0.78	0.70
18.	Total Suspended Solids (mg/l)	49	38	41	43	45	41
19.	Total Hardness (mg/l CAC03)	236	251	236	256	243	249
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-18-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-23-90	10-11-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28D	U-28D	U-28D	U-28D	U-28D	U-28D
2.	Lab Identification Number	D-J	D-J	D-J	D-J	D-J	D-J
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1068	1068	1068	1068	1068	1068
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.75	.095	.32	.09	.12	.39
8.	Date Above Measurements Made	5-18-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.7	8.3	7.5	7.8	7.4	7.5
11.	Total Acidity (mg/l CAC03)	26.4	23.8	21.2	23.2	28.4	22.9
12.	Total Alkalinity (mg/l CAC03)	162	171	151	162	154	158
13.	Specific Conductivity (μmhos/cm at 25°C)	309	342	317	326	318	359
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.31	0.26	0.24	0.28	0.31	0.27
16.	Total Sulfates (mg/l)	48	41	56	51	42	47
17.	Total Iron (mg/l)	0.71	0.78	0.64	0.68	0.71	0.67
18.	Total Suspended Solids (mg/l)	6	3	1	4	5	8
19.	Total Hardness (mg/l CAC03)	306	207	276	281	294	299
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-18-90	6-27-90	7-26-90	8-24-90	9-24-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-24-90	7-23-90	8-23-90	9-23-90	10-11-90

Laboratory Name_____ ERI Labs _____
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28E	U-28E	U-28E	U-28E	U-28E	U-28E
2.	Lab Identification Number	D-E	D-E	D-E	D-E	D-E	D-E
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1048	1048	1048	1048	1048	1048
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.45	.42	.8	.12	.43	.4
8.	Date Above Measurements Made	5-16-90	6-5-90	7-19-90	8-24-90	9-11-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	8.1	7.7	7.8	7.3	8.0
11.	Total Acidity (mg/l CAC03)	12.3	10.9	13.8	12.2	11.4	11.8
12.	Total Alkalinity (mg/l CAC03)	186	171	154	189	191	196
13.	Specific Conductivity (μmhos/cm at 25°C)	376	386	384	376	374	382
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.01	0.03	0.02	0.02	0.03
16.	Total Sulfates (mg/l)	39	41	38	31	34	36
17.	Total Iron (mg/l)	0.37	0.51	0.31	0.36	0.29	0.39
18.	Total Suspended Solids (mg/l)	1	1	0	1	1	1
19.	Total Hardness (mg/l CAC03)	257	259	286	275	276	266
20.	Nitrates (mg/l)	0.08	0.07	0.09	0.10	0.09	0.09
21.	Date Sampled for Analysis	5-16-90	6-5-90	7-19-90	8-24-90	9-11-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-5-90	7-15-90	8-23-90	9-9-90	10-9-90

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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28F	U-28F	U-28F	U-28F	U-28F	U-28F
2.	Lab Identification Number	D-F	D-F	D-F	D-F	D-F	D-F
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1010	1010	1010	1010	1010	1010
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.4	.87	1.2	.348	.72	.68
8.	Date Above Measurements Made	5/16/90	6/5/90	7/19/90	8/24/90	9/11/90	10/9/90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	7.8	7.7	7.8	7.4	8.0
11.	Total Acidity (mg/l CAC03)	13.2	14.8	15.1	12.8	14.3	14.1
12.	Total Alkalinity (mg/l CAC03)	206	205	206	207	201	208
13.	Specific Conductivity (μmhos/cm at 25°C)	398	376	381	396	384	390
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.01	0.02	0.03	0.01	0.02
16.	Total Sulfates (mg/l)	36	41	29	36	32	31
17.	Total Iron (mg/l)	0.36	0.31	0.30	0.40	0.36	0.35
18.	Total Suspended Solids (mg/l)	2	2	1	1	2	2
19.	Total Hardness (mg/l CAC03)	286	251	261	286	239	274
20.	Nitrates (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
21.	Date Sampled for Analysis	5/16/90	6/5/90	7/19/90	8/24/90	9/11/90	10/9/90
22.	Date Last Precipitaiton Event Occurred	5/16/90	6/3/90	7/15/90	8/23/90	9/9/90	10/9/90

Laboratory Name ERI Labs
Address P. O. Box 259 City Brockway
State Pennsylvania Zip 15824

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28G	U-28G	U-28G	U-28G	U-28G	U-28G
2.	Lab Identification Number	D-K	D-K	D-K	D-K	D-K	D-K
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1110	1110	1110	1110	1110	1110
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.25	.39	.4	.025	.08	.012
8.	Date Above Measurements Made	5-18-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.8	8.4	7.9	7.9	7.9	8.1
11.	Total Acidity (mg/l CAC03)	12.6	14.2	15.2	16.3	18.2	13.8
12.	Total Alkalinity (mg/l CAC03)	201	306	281	236	218	199
13.	Specific Conductivity (μmhos/cm at 25°C)	386	201	356	364	352	373
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.03	0.06	0.04	0.06	0.04
16.	Total Sulfates (mg/l)	28	36	41	56	28	30
17.	Total Iron (mg/l)	0.38	0.26	0.41	0.38	0.36	0.42
18.	Total Suspended Solids (mg/l)	8	6	5	7	4	9
19.	Total Hardness (mg/l CAC03)	217	223	209	216	214	213
20.	Nitrates (mg/l)	0.07	0.08	0.06	0.05	0.06	0.08
21.	Date Sampled for Analysis	5-18-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-3-90	7-15-90	8-23-90	9-23-90	10-9-90

Laboratory Name ERI Labs
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28H	U-28H	U-28H	U-28H	U-28H	U-28H
2.	Lab Identification Number	D-G	D-G	D-G	D-G	D-G	D-G
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1002	1002	1002	1002	1002	1002
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2.5	2.86	1.9	.54	.92	.9
8.	Date Above Measurements Made	5-16-90	6-5-90	7-19-90	8-24-90	9-11-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	8.4	7.8	7.8	7.5	8.0
11.	Total Acidity (mg/l CAC03)	9.3	9.6	10.2	8.8	7.5	8.2
12.	Total Alkalinity (mg/l CAC03)	191	184	176	154	191	186
13.	Specific Conductivity (μmhos/cm at 25°C)	381	376	361	371	369	364
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.01	0.01	0.02	0.04	0.03
16.	Total Sulfates (mg/l)	39	30	31	28	41	37
17.	Total Iron (mg/l)	0.38	0.31	0.36	0.41	0.40	0.37
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	173	170	179	181	176	175
20.	Nitrates (mg/l)	< .1	< .1	< .1	< .1	< .1	< .1
21.	Date Sampled for Analysis	5-16-90	6-5-90	7-19-90	8-24-90	9-11-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-3-90	7-15-90	8-23-90	9-9-90	10-9-90

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Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28I	U-28I	U-28I	U-28I	U-28I	U-28I
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1191	1191	1191	1191	1191	1191
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	3927 GPD	NOTE 5	12342 GPD	0.033		
8.	Date Above Measurements Made	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.7		8.0	7.8	7.7	
11.	Total Acidity (mg/l CAC03)	0		0	21.28		
12.	Total Alkalinity (mg/l CAC03)	162		212	194.37		
13.	Specific Conductivity (μmhos/cm at 25°C)	425		550	473		
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.17		0.06	0.07		
16.	Total Sulfates (mg/l)	47		74	35		
17.	Total Iron (mg/l)	0.19		0.01	0.33		
18.	Total Suspended Solids (mg/l)	3		4	13		
19.	Total Hardness (mg/l CAC03)	172		143	334		
20.	Nitrates (mg/l)	4.84		7.0	1.44		
21.	Date Sampled for Analysis	11/2/90	12/7/90	1/4/91	2/14/91	3/27/91	
22.	Date Last Precipitaiton Event Occurred	10/24/90	12/3/90	1/4/91	2/14/91	3/27/91	

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-28M	U-28M	U-28M	U-28M	U-28M	U-28M
2.	Lab Identification Number						
3.	High (H)/Low (L) Designation (if applicable)						
4.	Surface Elevation for Sampling Station (msl)	1170	1170	1170	1170	1170	1170
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.324	.068				
8.	Date Above Measurements Made	2/14/91	3/27/91				
9.	Aquifer/Zone Identification for Well/Spring	-	-		-	-	-
10.	pH (Standard Units)	7.3					
11.	Total Acidity (mg/l CAC03)	13.68					
12.	Total Alkalinity (mg/l CAC03)	53.39					
13.	Specific Conductivity (μmhos/cm at 25°C)	240					
14.	Total Dissolved Solids (mg/l)	-					
15.	Total Manganese (mg/l)	0.14					
16.	Total Sulfates (mg/l)	24					
17.	Total Iron (mg/l)	1.58					
18.	Total Suspended Solids (mg/l)	18					
19.	Total Hardness (mg/l CAC03)	79					
20.	Nitrates (mg/l)	1.0					
21.	Date Sampled for Analysis		2/14/91				
22.	Date Last Precipitaiton Event Occurred		2/14/91				

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	D-28	D-28	D-28	D-28	D-28	D-28
2.	Lab Identification Number	D-H	D-H	D-H	D-H	D-H	D-H
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	993	993	993	993	993	993
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	2.95	3.96	2.0	.6	1.0	.99
8.	Date Above Measurements Made	5-16-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	8.4	7.8	7.8	7.6	8.0
11.	Total Acidity (mg/l CAC03)	8.6	9.2	7.6	8.1	7.4	6.4
12.	Total Alkalinity (mg/l CAC03)	91.2	89.3	76.2	99.4	96.3	89.3
13.	Specific Conductivity (μmhos/cm at 25°C)	391	387	364	376	391	361
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.05	0.06	0.04	0.02	0.03	0.04
16.	Total Sulfates (mg/l)	38	41	37	40	39	31
17.	Total Iron (mg/l)	0.38	0.36	0.37	0.41	0.51	0.35
18.	Total Suspended Solids (mg/l)	2	2	1	1	2	2
19.	Total Hardness (mg/l CAC03)	271	263	281	294	276	273
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-16-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-3-90	7-15-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES

DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-29	U-29	U-29	U-29	U-29	U-29
2.	Lab Identification Number	D-N	D-N	D-N	D-N	D-N	D-N
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1170	1170	1170	1170	1170	1170
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.1	.21	.09	.025	.008	.004
8.	Date Above Measurements Made	5-18-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	7.9	8.3	8.0	7.9	7.7	8.1
11.	Total Acidity (mg/l CAC03)	5.7	5.9	6.2	5.0	5.6	5.1
12.	Total Alkalinity (mg/l CAC03)	89.0	81.4	92.3	96.3	92.2	91.6
13.	Specific Conductivity (μmhos/cm at 25°C)	389	374	396	387	394	392
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.04	0.05	0.06	0.07	0.06	0.05
16.	Total Sulfates (mg/l)	61	54	62	57	61	58
17.	Total Iron (mg/l)	0.42	0.48	0.50	0.44	0.43	0.41
18.	Total Suspended Solids (mg/l)	1	1	1	1	1	1
19.	Total Hardness (mg/l CAC03)	127	128	131	126	124	124
20.	Nitrates (mg/l)	0.10	0.11	0.09	0.08	0.09	0.09
21.	Date Sampled for Analysis	5-18-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-3-90	7-15-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-29A	U-29A	U-29A	U-29A	U-29A	U-29A
2.	Lab Identification Number	D-M	D-M	D-M	D-M	D-M	D-M
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1072	1072	1072	1072	1072	1072
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.22	1.18	.7	.096	.016	.064
8.	Date Above Measurements Made	5-18-90	6-5-90	7-19-90	8-24-90	9-12-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	-	-	-	-	-	-
11.	Total Acidity (mg/l CAC03)	7.7	8.4	8.0	7.8	7.5	8.1
12.	Total Alkalinity (mg/l CAC03)	7.9	5.9	4.8	6.3	6.0	5.3
13.	Specific Conductivity (μmhos/cm at 25°C)	91.6	81.0	94.6	89.3	85.0	88.7
14.	Total Dissolved Solids (mg/l)	386	356	369	381	374	379
15.	Total Manganese (mg/l)	-	-	-	-	-	-
16.	Total Sulfates (mg/l)	0.04	0.05	0.06	0.06	0.04	0.05
17.	Total Iron (mg/l)	57	56	54	56	56	55
18.	Total Suspended Solids (mg/l)	0.42	0.46	0.47	0.48	0.49	0.41
19.	Total Hardness (mg/l CAC03)	1	1	1	1	1	1
20.	Nitrates (mg/l)	121	118	110	126	118	119
21.	Date Sampled for Analysis	5-18-90	6-5-90	7-19-90	8-24-90	9-12-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-16-90	6-3-90	7-15-90	8-23-90	9-9-90	10-9-90

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DIVISION OF RECLAMATION
ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	U-30	U-30	U-30	U-30	U-30	U-30
2.	Lab Identification Number	D-P	D-P	D-P	D-P	D-P	D-P
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1164	1164	1164	1164	1164	1164
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	1.3	2.3	.3	.037	.004	.004
8.	Date Above Measurements Made	5-22-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.0	8.2	8.0	7.5	8.0	8.1
11.	Total Acidity (mg/l CAC03)	18.4	16.9	17.4	17.3	16.8	17.0
12.	Total Alkalinity (mg/l CAC03)	112	118	122	105	119	111
13.	Specific Conductivity (μmhos/cm at 25°C)	388	372	348	390	381	397
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.02	0.04	0.03	0.02	0.02	0.04
16.	Total Sulfates (mg/l)	71	68	51	58	56	59
17.	Total Iron (mg/l)	0.61	0.59	0.56	0.54	0.56	0.58
18.	Total Suspended Solids (mg/l)	46	51	32	28	36	49
19.	Total Hardness (mg/l CAC03)	246	239	251	236	256	233
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-22-90	6-5-90	7-19-90	8-24-90	9-24-90	10-9-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-3-90	7-15-90	8-23-90	9-23-90	10-9-90

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OHIO DEPARTMENT OF NATURAL RESOURCES
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(HYDROLOGIC MEASUREMENTS AND ANALYSES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	D-31	D-31	D-31	D-31	D-31	D-31
2.	Lab Identification Number	D-LL	D-LL	D-LL	D-LL	D-LL	D-LL
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1070	1070	1070	1070	1070	1070
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.2	.45	.45	.27	.33	.28
8.	Date Above Measurements Made	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.1	8.2	8.2	8.0	8.0	7.8
11.	Total Acidity (mg/l CAC03)	6.9	7.3	6.8	6.9	7.0	7.2
12.	Total Alkalinity (mg/l CAC03)	106	109	104	100	101	108
13.	Specific Conductivity (μmhos/cm at 25°C)	325	350	336	327	331	321
14.	Total Dissolved Solids (mg/l)						
15.	Total Manganese (mg/l)	0.09	0.08	0.11	0.08	0.10	0.10
16.	Total Sulfates (mg/l)	49	51	48	47	48	47
17.	Total Iron (mg/l)	0.38	0.36	0.39	0.36	0.38	0.36
18.	Total Suspended Solids (mg/l)	5	6	5	6	5	6
19.	Total Hardness (mg/l CAC03)	59	51	56	58	59	58
20.	Nitrates (mg/l)	0.27	0.30	0.36	0.36	0.38	0.28
21.	Date Sampled for Analysis	5-24-90	6-28-90	7-26-90	8-29-90	9-26-90	10-11-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-28-90	7-23-90	8-29-90	9-23-90	10-11-90

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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's Name_____ THE OHIO VALLEY COAL COMPANY

1.	Identification No. of Sampling Station from Hydrology Map	D-32	D-32	D-32	D-32	D-32	D-32
2.	Lab Identification Number	D-Y	D-Y	D-Y	D-Y	D-Y	D-Y
3.	High (H)/Low (L) Designation (if applicable)	-	-	-	-	-	-
4.	Surface Elevation for Sampling Station (msl)	1050	1050	1050	1050	1050	1050
5.	Depth of Well below Land Surface (feet)	-	-	-	-	-	-
6.	Static Water Level of Well below Land Surface (feet)	-	-	-	-	-	-
7.	Flow for Spring/Stream (gpm or cfs)	.47	2.7	.18	.0015	.06	.27
8.	Date Above Measurements Made	5-23-90	6-27-90	7-26-90	8-28-90	9-26-90	10-10-90
9.	Aquifer/Zone Identification for Well/Spring	-	-	-	-	-	-
10.	pH (Standard Units)	8.1	8.0	7.8	7.8	8.1	8.0
11.	Total Acidity (mg/l CAC03)	15.1	14.6	16.3	14.7	13.9	14.8
12.	Total Alkalinity (mg/l CAC03)	196	200	201	195	209	207
13.	Specific Conductivity (μmhos/cm at 25°C)	275	290	261	263	248	267
14.	Total Dissolved Solids (mg/l)	-	-	-	-	-	-
15.	Total Manganese (mg/l)	0.04	0.06	0.08	0.10	0.09	0.05
16.	Total Sulfates (mg/l)	27	36	41	38	29	31
17.	Total Iron (mg/l)	0.48	0.56	0.49	0.56	0.51	0.54
18.	Total Suspended Solids (mg/l)	0	1	1	1	0	1
19.	Total Hardness (mg/l CAC03)	121	136	119	121	127	126
20.	Nitrates (mg/l)	<.1	<.1	<.1	<.1	<.1	<.1
21.	Date Sampled for Analysis	5-23-90	6-27-90	7-26-90	8-28-90	9-26-90	10-10-90
22.	Date Last Precipitaiton Event Occurred	5-20-90	6-24-90	7-23-90	8-23-90	9-23-90	10-9-90

Laboratory Name_____ ERI Labs _____
Address_____ P. O. Box 259_____ _____ City_____ Brockway _____
State_____ Pennsylvania_____ _____ Zip_____ 15824___ _____

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.

PRECIPITATION RECORD FOR USE WITH TOUR

Taylor 11" CLEAR-VU RAIN GAGE

LOCATION TraDet, Inc.

COUNTY Ohio STATE West Virginia

TIME OF OBSERVATION YEAR 1989

ADDENDUM TO PAGE 19, PART 2, D(3)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Remarks
1	0.00	0.00	0.00	Trace	0.58	0.00	0.00	0.00	0.15	0.27	0.00	0.00	s = melted snow
2	0.0	0.30s	0.00	0.22	0.05	0.00	0.00	0.00	0.00	0.00	0.10	0.00	
3	0.18	0.29	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
4	0.01	0.00	0.08	0.26	0.04	0.00	0.98	0.03	0.00	0.00	0.00	0.00	
5	0.19	0.00	1.16	0.00	0.50	0.36	0.00	0.06	0.00	0.00	0.00	0.00	
6	0.12	0.00	1.27	0.05	0.16	1.00	0.00	0.51	0.01	0.06	0.00	0.14	
7	0.18	0.00	0.00	0.00	0.14	1.00	0.00	0.00	0.00	0.00	Trace	0.00	
8	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.10	0.39	0.06s	
9	0.00	0.00	0.00	0.00	0.66	0.42	0.01	0.00	0.00	0.00	0.10	0.00	
10	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	Trace	0.29	0.00	0.12s	
11	0.12	0.00	0.00	0.00	0.14	0.00	0.25	0.00	0.00	0.00	0.00	0.00	
12	0.21	0.00	0.00	0.03	0.30	0.45	0.12	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.35	0.00	Trace	0.12	0.35	0.00	0.00	0.00	0.00	0.00	Trace	
14	0.33	0.37	0.21	0.00	0.00	0.72	0.00	0.00	1.49	0.00	0.19	0.02	
15	0.60	0.92	0.00	0.00	0.00	0.79	0.00	0.00	0.69	0.00	0.56	0.15s	
16	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.22	0.02	0.26	0.00	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.28	0.00	0.00	
18	0.00	0.00	0.26	0.38	0.00	0.00	0.00	0.15	0.00	0.42	0.06	0.00	
19	0.00	0.00	0.16	0.00	0.00	0.35	0.00	0.08	0.00	0.14	0.00	0.00	
20	0.00	0.90	1.06	0.00	0.04	1.48	0.22	0.00	0.00	0.02	0.00	0.01s	
21	0.00	0.18	0.01	0.00	0.23	0.60	0.00	0.00	0.00	0.11	0.00	0.07s	
22	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.03	1.31	0.00	0.00	Trace	
23	0.00	0.00	0.06	0.00	0.65	0.00	0.00	0.26	0.30	0.00	0.00	0.01s	
24	0.0	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Trace	0.01s	
25	0.02	0.05	0.00	0.24	0.21	0.10	0.00	0.00	0.00	0.00	0.02	0.03s	
26	0.33	0.12	0.00	0.00	0.67	0.25	0.22	0.00	0.00	0.00	0.07	0.03	
27	0.00	0.00	0.04	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.07	
28	0.00	0.00	0.68	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.07	–	0.57	0.16	0.03	0.00	0.00	0.56	0.00	0.00	Trace	0.25	
30	0.00	–	0.41	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.27	
31	0.00	–	0.34	–	0.00	–	0.00	0.00	–	0.32	–	0.56	
Total	1.76	3.46	6.39	2.02	5.03	7.42	2.14	1.68	4.13	2.03	1.75	1.83	

SYBRON | Taylor

Total Annual 39.64

TAYLOR INSTRUMENT CONSUMER PRODUCTS DIVISION, SYBRON CORPORATION, ROCKWELL, NORTH CAROLINA 28160

D8910

PRECIPITATION RECORD FOR USE WITH YOUR
Taylor 11" CLEAR-VU RAIN GAGE

LOCATION TraDat, Inc.

COUNTY Ohio STATE West Virginia

TIME OF OBSERVATION 8:30 AM YEAR 1990

ADDENDUM TO PAGE 19, PART 2, D(3)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Remarks
1	0.01	0.16	0.00	0.69	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	s - melted snow
2	Trace	0.10	0.00	0.10	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.54	
3	0.10	0.70	0.00	0.07	0.12	0.13	0.00	0.00	0.00	0.00	0.00	0.15	
4	0.16	0.35	0.00	0.05	0.43	0.00	0.00	0.00	0.00	0.37	0.00	Trace	
5	0.00	0.00	0.00	0.12	0.30	0.00	0.19	0.05	0.20	0.00	0.53	0.00	
6	0.00	Trace	0.00	0.25	0.00	0.43	0.00	0.00	0.23	0.00	0.00	0.00	
7	0.00	0.10	0.00	0.06	0.00	0.00	0.00	0.00	1.25	0.00	Trace	0.00	
8	0.00	0.00	0.07	0.00	0.00	0.[illegible]	0.15	0.00	0.20	0.00	0.00	0.00	
9	Trace	0.60	0.08	Trace	0.04	0.38	0.47	0.70	0.91	0.05	0.28	0.00	
10	0.00	0.00	0.00	0.90	0.22	0.00	0.27	0.00	0.00	0.00	0.00	0.00	
11	0.04	0.15	0.07	0.16	0.00	0.00	2.33	0.00	0.00	0.32	0.00	0.00	
12	Trace	0.00	0.00	0.00	0.25	0.00	0.22	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.04	0.00	0.17	0.21	0.00	0.77	0.20	0.00	0.01	0.00	0.00	
14	0.00	0.54	0.00	0.30	0.00	0.95	0.19	0.00	0.71	0.00	0.00	0.10	
15	0.09	0.41	0.00	0.00	0.05	0.00	0.13	0.00	0.00	0.00	0.00	0.67	
16	0.00	0.06	0.80	0.00	1.12	0.00	0.00	0.00	0.21	0.00	0.40	0.00	
17	0.12	0.00	0.00	0.09	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.79	
18	0.00	0.00	Trace	0.00	0.00	0.00	0.00	Trace	0.02	0.00	0.00	0.93	
19	0.08	0.00	0.25	Trace	0.15	0.00	0.00	1.45	0.40	0.50	0.00	0.00	
20	0.93	0.00	0.00	0.30	0.15	0.00	0.48	0.00	0.00	0.00	0.00	0.00	
21	0.03	0.00	0.00	0.04	0.00	0.02	0.27	0.00	0.18	0.00	0.00	0.00	
22	0.00	0.12	0.00	0.00	0.00	0.18	0.74	0.20	0.00	0.00	0.53	0.15	
23	0.08	0.14s	0.20	0.00	0.00	0.06	0.02	0.40	0.27	0.40	0.00	0.47	
24	0.01	0.06	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.20	0.00	0.02	
25	0.09	0.00	0.00	0.16	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26	0.07	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.09	0.00	
27	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13s	
28	0.40	0.00	0.00	0.00	1.08	0.16	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.74	—	0.02	0.00	0.39	0.00	0.00	0.18	0.53	0.00	0.00	0.07	
30	0.00	—	0.08	0.00	0.00	0.00	0.08	0.00	0.12	0.00	0.00	1.40	
31	0.00	—	0.21	—	0.00	—	0.00	0.00	—	0.00	—	0.00	
Total	2.87	3.63	1.78	3.46	5.84	3.94	6.29	3.18	6.03	1.84	2.45	5.41	

BYBRON Taylor

Total Annual 46.72

PRECIPITATION RECORD FOR USE WITH YOUR
Taylor 11" CLEAR-VU RAIN GAGE

LOCATION TraDet, Inc.

COUNTY Ohio **STATE** West Virginia

TIME OF OBSERVATION **YEAR** 1991

ADDENDUM TO PAGE 19, PART 2, D(3)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Remarks
1	0.00	0.00	0.05 s	0.00	0.11	0.00	0.40						s - melted snow
2	0.00	0.00	0.02 s	0.00	0.00	0.00	0.20						
3	0.00	0.00	0.67	0.00	0.00	0.00	0.00						
4	0.02	0.00	0.00	0.00	0.00	0.00	0.84						
5	0.15	0.31	0.00	0.13	0.93	0.00	0.00						
6	0.00	0.30	0.65	0.00	0.08	0.00	0.00						
7	0.18	0.02	0.00	0.00	0.00	0.00	1.18						
8	0.18	0.00	0.00	0.09	0.00	0.00	0.19						
9	0.02	0.00	0.01	0.55	0.00	0.00	0.00						
10	0.43	0.21	Trace s	0.00	0.00	0.00							
11	Trace	0.00	0.00	0.00	0.00	1.63							
12	0.00	0.00	0.12	Trace	0.00	0.00							
13	Trace	0.22	0.25	0.86	0.00	0.00							
14	Trace	0.29	0.00	0.24	0.00	0.00							
15	0.36	0.04 s	0.00	0.00	0.00	0.00							
16	0.19	0.06 s	0.00	0.00	0.00	0.25							
17	0.01	0.05	0.09	0.10	0.02	0.00							
18	0.00	0.00	0.19	0.00	0.00	0.00							
19	Trace	0.20	0.00	0.05	0.00	0.00							
20	0.28 s	0.00	0.01	0.00	0.00	0.00							
21	0.02 s	0.00	0.00	0.02	0.00	0.00							
22	0.00	0.00	0.03	0.02	0.00	0.00							
23	0.00	0.00	0.02	0.00	0.00	0.00							
24	0.01 s	0.00	0.11	0.02	0.00	0.00							
25	0.00	0.00	0.16	0.00	0.00	0.00							
26	0.01 s	0.31 s	0.14	0.00	Trace	0.00							
27	0.30 s	Trace s	0.02	0.00	0.07	0.00							
28	0.00	0.00	0.00	0.07	0.07	0.00							
29	0.40	-	0.00	0.13	0.00	0.00							
30	0.17	-	0.05 s	0.00	0.65	0.25							
31	0.61 s	-	0.04	-	0.04	-							
Total	2.74	1.51	2.63	2.18	1.97	2.13							

SYBRON Taylor

Total Annual

TOVCC 15874

ADDENDUM TO ATTACHMENT 14A
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

NOTE 1: Well covered, sealed, or buried: static water level or well depth measurements could not be made.

NOTE 2: Well accessible for static water measurements but not for sampling -- physically unable to sample water.

NOTE 3: Well not accessible for sampling or measurement -- well covered, sealed, buried.

NOTE 4: Access to well/spring/stream not immediately available. Monitoring is ongoing and results will be submitted when available.

NOTE 5: Access denied to sample well, spring, or stream.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14B
(GROUND WATER HYDROLOGY DESCRIPTION)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Aquifer/Zone Identification	Aquifer/Zone Lithology	Aquifer/Zone Thickness	Aquifer/Zone Elev. (msl)	Aquifer/Zone Horizontal Extent	Aquifer/Zone Known Uses	Approx. Rate of Discharge/Usage of Aquifer/Zone (gpm or cfs)
L-1	Shale	14'	1135-1160	Varies-but generally out-crop to outcrop.	Domestic Livestock	2-6 gpm
L-2	Limey Shale	9'	1165-1185	Varies-but generally out-crop to outcrop.	Domestic	2-6 gpm
L-3	Shale	11'	1188-1210	Varies-but generally out-crop to outcrop.	Domestic Livestock	2-6 gpm
L-4	Shale	8'	1211-1226	Varies-but generally out-crop to outcrop.	Domestic Livestock	2-6 gpm
L-5	Shale	11'	1228-1237	Varies-but generally out-crop to outcrop.	Domestic Livestock	2-6 gpm
L-6	Shale	8'	1240-1261	Varies-but generally out-crop to outcrop	Domestic Livestock	2-6 gmp

TOVCC 15876

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14B
(GROUND WATER HYDROLOGY DESCRIPTION)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Aquifer/Zone Identification	Aquifer/Zone Lithology	Aquifer/Zone Thickness	Aquifer/Zone Elev. (msl)	Aquifer/Zone Horizontal Extent	Aquifer/Zone Known Uses	Approx. Rate of Discharge/Usage of Aquifer/Zone (gpm or cfs)
L-7	Limey Shale	7'	1263-1271	Varies-but generally out-crop to outcrop.	Domestic Livestock	2-6 gpm
L-8	Limestone	12'	1276-1287	Varies-but generally out-crop to outcrop.	Domestic	2-6 gpm
L-9	Shale	8'-12'	1298-1320	Varies-but generally out-crop to outcrop.	Unused	2-6 gpm

TOVCC 15877

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-19	The Ohio Valley Coal Company	1273	27	26'	L-6	Domestic
W-28	"	1299				Domestic
W-29	Perkins	1282				Domestic
W-30	Caretti	1269	70	26-30	L-6	Domestic
W-32	The Ohio Valley Coal Company	1265	98	27-35	L-5	Domestic
W-38	"	1270	88	20	L-6	Unused
W-39	"	1280	Unknown	Unknown	Unknown	Unused
W-49	Wharton	1300	114'	52'-65'	L-6	Unused
W-50	Perticarini	1321	44'	39'-42'	L-8	Domestic
W-51	Perticarini	1281	109'	19'-29'	L-6	Domestic
W-52	Walters	1282	79'	23'-27'	L-6	Domestic

TOVCC 15878

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-53	Walters	1292	85	42'-54'	L-6	Domestic, Livestock
W-54	Schroeder	1250	75'	38'-41'	L-4	Domestic
W-55	Nagy & Tice	1290	79'	24'-29'	L-7	Domestic
W-56	Nagy & Tice	1290	32'	Unknown	Unknown	Domestic
W-57	Britton	1307	138'	Unknown	Unknown	Domestic
W-58	Britton	1249'	100'	22'-27'	L-4	Domestic
W-59	Britton	1260	55	25	L-5	Unused
W-60	Perticarini	1272	134'	44'-86'	L-5	Domestic
W-61	Maloney	1260'	117	61'-67'	L-3	Domestic
W-62	Norris	1262'	60'	36'-41'	L-4	Domestic
W-63	Kincade	1251	24'	14'-20'	L-5	Unused

TOVCC 15879

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-64	Kincade	1264	62	28-32	L-5	Domestic
W-65	Hoffman	1250	114	82-89	L-2	Domestic
W-66	Knollinger	1193	38	Unknown	Unknown	Domestic
W-67	Knollinger	1193	59	23-33	L-2	Domestic
W-68	Knollinger	1202	38	15-22	L-2	Unused
W-69	Gatten	1281	34	16-24	L-7	Unused
W-70	McBride	1296	41	32-35	L-6	Unused
W-71	McBride	1299	59	22-40	L-7	Unused
W-73	Grant	1264	Unknown	Unknown	Unknown	Domestic
W-74	Grant	1264	Unknown	Unknown	Unknown	Domestic
W-75	Liston	1262	74	31-46	L-4	Domestic

TOVCC 15880

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-76	Liston	1262	90	Unknown	Unknown	Domestic
W-77	Liston	1255	40	27-31	L-4	Unused
W-78	Liston	1261	18.5	9-15	L-6	Unused
W-79	Phillips	1279	50	Unknown	Unknown	Domestic
W-80	Phillips	1226	35	18-19	L-3	Unused
W-81	Belmont County National Bank	1314	66	25-30	L-8	Unused
W-82	Hall	1238	80	Unknown	Unknown	Domestic
W-83	Reisberger	1293	208	136-146	L-1	Domestic
W-84	Reisberger	1287	90	15-67	L-6	Domestic
W-85	Reisberger	1293	53	18-24	L-7	Unused
W-86	Green	1315	50	34-50	L-8	Unused

TOVCC 15881

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-87	Fankhauser	1231	36	14-19	L-4	Domestic
W-88	Fankhauser	1231	82	17-24	L-4	Unused
W-89	Fankhauser	1249	85	36-39	L-3	Unused
W-90	Camsky	1211	63	45-48	L-2	Domestic
W-91	Ruskin	1280	Unknown	Unknown	Unknown	Domestic
W-92	Gorshe	1231	42	Unknown	Unknown	Livestock
W-93	Meyers	1262	109	48-54	L-4	Unused
W-94	Trigg	1274	69	Unknown	Unknown	Domestic
W-95	Monahan	1289	Unknown	Unknown	Unknown	Domestic
W-96	Sims	1228	27	18-24	L-3	Domestic
W-97	Riddle	1332	100	Unknown	Unknown	Domestic

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-98	Dunfee	1346	Unknown	Unknown	Unknown	Livestock
W-99	McEndree	1185	107	Unknown	Unknown	Domestic
W-100	Miller	1220	77	19-26	L-3	Unused
W-101	Cole	1231	24	15-19	L-4	Unused
W-102	Wetzel	1228	70	Unknown	Unknown	Domestic
W-103	Beckett	1190	Unknown	Unknown	Unknown	Domestic
W-104	Sanders	1224	42	32-35	L-3	Unused
W-105	Sanders	1230	73	63-66	L-2	Unused
W-107	Dilly	1302	Unknown	Unknown	Unknown	Unused
W-108	Winzenreid	1303	Unknown	Unknown	Unknown	Unused
W-109	Wells	1281	Unknown	Unknown	Unknown	Domestic

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-230	Tozzi	1355	Unknown	Unknown	Unknown	Unused
W-231	Tozzi	1345	Unknown	35	Unknown	Unused
W-232	Phillips	1332	90	63-64	L-7	Domestic
W-233	Tozzi	1332	90	63-64	Unknown	Unused
W-233A	Tozzi	1330	85	63-64	Unknown	Domestic
W-234	Ramsey	1351	Unknown	63-64	Unknown	Unused
W-235	Schroeder	1365	138	67	L-9	Unused
W-236	Toothman	1341	150	67-72	L-7	Domestic
W-259	Hess	1328	110	67-72	L-7	Domestic
W-261	Scatterday	1301	Unknown	Unknown	Unknown	Unused
W-262	Scatterday	1290	Unknown	Unknown	Unknown	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
W-263	Wolfe	1263	Unknown	Unknown	Unknown	Unused
W-264	Scatterday	1263	Unknown	Unknown	Unknown	Unused
W-265	Scatterday	1265	Unknown	Unknown	Unknown	Unused
W-270	Juzwiak	1339	Unknown	Unknown	Unknown	Unused
W-271	Tozzi	1351	60	18-19	L-9	Unused
W-272	Tozzi	1349	60	18-19	Unknown	Unused
W-273	Beck	1270	Unknown	Unknown	Unknown	Unused
W-274	Caldwell	1301	Unknown	Unknown	Unknown	Unused
W-275	Beltz	1301	Unknown	Unknown	Unknown	Unused
W-276	Maloney	1301	Unknown	Unknown	Unknown	Unused
W-277	Maloney	1306	Unknown	Unknown	Unknown	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
SP-22	OVCC	1250	--	--	L-6	Unused
SP-29	Caretti	1260	--	--	L-6	Livestock
SP-30	Caretti	1261	--	--	L-6	Livestock
SP-32	Carpenter	1270	--	--	L-7	Livestock
SP-33	Carpenter	1264	--	--	L-7	Livestock
SP-34	Wilson	1260	--	--	L-6	Livestock
SP-35	Wharton	1200	--	--	L-3	Livestock
SP-36	Perticarini	1265	--	--	L-7	Unused
SP-37	Walters	1241	--	--	L-6	Unused
SP-38	Walters	1210	--	--	L-3	Livestock
SP-39	Walters	1135	--	--	L-1	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
SP-40	Knollinger	1150	--	--	L-1	Livestock
SP-41	McBride	1195	--	--	L-3	Livestock
SP-42	McBride	1180	--	--	L-2	Unused
SP-43	Belmont County National Bank	1200	--	--	L-3	Livestock
SP-44	Phillips	1234	--	--	L-5	Livestock
SP-45	Gorshe	1201	--	--	L-3	Livestock
SP-46	Green	1188	--	--	L-3	Livestock
SP-47	Green	1220	--	--	L-4	Livestock Domestic
SP-48	Fankhauser	1220	--	--	L-4	Livestock
SP-49	Fankhauser	1220	--	--	L-4	Livestock
SP-50	Fankhauser	1210	--	--	L-3	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
SP-51	G. Fankhauser	1210	--	--	L-3	Domestic/ Livestock
SP-52	Trigg	1211	--	--	L-4	Unused
SP-53	Monahan	1220	--	--	L-4	Livestock
SP-54	Sims	1212	--	--	L-4	Unused
SP-55	Watt	1270	--	--	L-7	Livestock Domestic
SP-56	Watt	1240	--	--	L-6	Unused
SP-57	Watt	1190	--	--	L-3	Livestock
SP-58	Watt	1195	--	--	L-3	Livestock
SP-59	Brown	1180	--	--	L-2	Domestic
SP-60	Coleman	1142	--	--	L-1	Domestic
SP-61	Miller	1160	--	--	L-1	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
SP-62	Cole	1205	--	--	L-3	Domestic/Livestock
SP-65	McEndree	1170	--	--	L-2	Unused
SP-66	Camsky	1201	--	--	L-3	Livestock
SP-168	Scatterday	1225	--	--	L-4	Unused
SP-169	Scatterday	1199	--	--	L-3	Domestic Livestock
SP-170	Scatterday	1190	--	--	L-3	Unused
SP-171	Scatterday	1175	--	--	L-2	Unused
SP-172	Scatterday	1210	--	--	L-3	Livestock
SP-173	Scatterday	1250	--	--	L-6	Livestock
SP-174	Scatterday	1210	--	--	L-3	Livestock
SP-175	Scatterday	1209	--	--	L-3	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14C
(WELL/SPRING INVENTORY)

Applicant's Name The Ohio Valley Coal Company

Well/Spring Identification Number	Name of Owner of Well/Spring	Surface Elevation of Well/Spring	Depth of Well in Feet Below Land Surface	Static Water Level of Well in Feet Below Land Surface	Lithology of Supplying Aquifer/ Waterbearing Zone	Known Uses of Well/Spring (if spring give discharge rate)
SP-176	Scatterday	1197	--	--	L-3	Livestock
SP-177	Scatterday	1198	--	--	L-3	Unused
SP-180	Moore	1180	--	--	L-2	Unused
SP-198	Scatterday	1195	--	--	L-3	Unused
SP-214	Scatterday	1190	--	--	L-3	Unused
SP-215	Wolfe	1267	--	--	L-7	Domestic
SP-215A	Dunfee	1200	--	--	L-3	Livestock
SP-215B	Green	1150	--	--	L-1	Livestock
W-110	Watt	1295	--	--	--	Unused
W-111	Watt	1290	--	--	--	Unused
W-112	Watt	1235	--	--	--	Unused
W-280	Green	1314	--	--	--	Unused
W-281	Dunfee	1355	--	--	--	Unused
W-282	Dunfee	1355	--	--	--	Unused

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ADDENDUM TO PAGE 18, C(3)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

CISTERN INVENTORY

Owner	Number	Uses
Perticarini	1	Domestic
Hoffman	1	Domestic
Knollinger	1	Unused
Monahan	2	Unused
Scatterday	1	Domestic
	1	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
D-28	Stream	Dunfee	Unused
D-22A	Stream	Dornon	Unused
D-23	Stream	Fankhauser	Unused
D-31	Stream	Fankhauser	Unused
D-32	Stream	Fankhauser	Unused
M-12	Pond	O.V.C.C.	Livestock
U-22A	Stream	Dunfee	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-22B	Stream	O.V.C.C.	Unused
U-22C	Stream	O.V.C.C.	Unused
U-22F	Stream	Devault	Livestock
U-22G	Stream	O.V.C.C.	Unused
U-22J	Stream	O.V.C.C.	Unused
U-22K	Stream	Yonak	Unused
U-22M	Stream	Britton	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-22N	Stream	Britton	Unused
U-22O	Stream	Yonak	Unused
U-22P	Stream	Campbell	Livestock
U-22Q	Stream	Caretti	Livestock
U-22R	Stream	O.V.C.C.	Livestock
U-22S	Stream	Carpenter	Livestock
U-22Z	Stream	Carpenter	Livestock

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-22U	Stream	Wharton	Livestock
U-22V	Stream	O.V.C.C.	Unused
U-22X	Stream	Carpenter	Livestock
U-22Y	Pond	Schroeder	Livestock
U-22Z	Stream	Conway	Unused
U-22AA	Stream	Devault	Livestock
U-22BB	Stream	Yonak	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-22CC	Stream	Yonak	Unused
U-22DD	Stream	Knollinger	Unused
U-22EE	Stream	O.V.C.C.	Unused
U-22FF	Stream	Knollinger	Unused
U-22GG	Stream	Dornon	Unused
U-22HH	Stream	Knollinger	Unused
U-23	Pond	Moore	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-23A	Pond	McBride	Livestock
U-23B	Pond	McBride	Livestock
U-23C	Stream	McBride	Livestock
U-23D	Stream	McBride	Livestock
U-23E	Pond	McBride	Livestock
U-23F	Stream	Moore	Unused
U-23G	Stream	Moore	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-23H	Stream	Moore	Unused
U-23I	Stream	Moore	Unused
U-23J	Stream	Phillips	Livestock
U-23K	Stream	Britton	Unused
U-23L	Stream	Phillips	Livestock
U-23M	Stream	Phillips	Livestock
U-23N	Stream	Britton	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-23O	Pond	Britton	Unused
U-23P	Stream	Britton	Unused
U-23Q	Stream	Kincade	Unused
U-23R	Stream	Phillips	Unused
U-23S	Stream	Kincade	Unused
U-23T	Stream	B.C.N.B.	Unused
U-23V	Stream	Kincade	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-23W	Stream	B.C.N.B.	Unused
U-23X	Stream	Gladden	Unused
U-23Y	Stream	B.C.N.B.	Unused
U-23Z	Stream	Fankhauser	Unused
U-23AA	Stream	Knollinger	Livestock
U-24	Pond	Trigg	Livestock
U-24A	Stream	Gorshe	Livestock

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-24B	Stream	Gorshe	Livestock
U-24C	Pond	Watt	Livestock
U-24D	Stream	Monahan	Livestock
U-24E	Stream	Gorshe	Livestock
U-24F	Stream	Coleman	Unused
U-24G	Stream	Green	Unused
U-24H	Stream	Coleman	Unused

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-24I	Stream	Green	Unused
U-24J	Stream	Wetzel	Unused
U-24K	Stream	Green	Unused
U-24L	Stream	Fankhauser	Unused
U-24M	Stream	Fankhauser	Livestock
U-24N	Stream	Fankhauser	Livestock
U-24O	Stream	Camsky	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-24P	Stream	Beckett	Unused
U-25	Pond	Fankhauser	Livestock
U-27	Stream	Watt	Livestock
U-27A	Stream	Watt	Livestock
U-27B	Stream	Watt	Livestock
U-27C	Stream	Watt	Livestock
U-27E	Stream	Cole	Livestock

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-27F	Stream	Cole	Livestock
U-28	Stream	Gorshe	Livestock
U-28A	Stream	Myers	Unused
U-28B	Pond	Dunfee	Livestock
U-28C	Stream	Dunfee	Livestock
U-28D	Stream	Dunfee	Livestock
U-28E	Stream	Meyers	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-28F	Stream	Dunfee	Unused
U-28G	Stream	Dunfee	Unsued
U-28H	Stream	Dunfee	Unused
U-28I	Pond	Scatterday	Livestock
U-29	Stream	Dunfee	Livestock
U-29A	Stream	Dunfee	Livestock
U-30	Stream	Dunfee	Unused

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
U-33	Pond	Harrison Leasing	Livestock
PW 14	Public Water	Wharton	Domestic
PW 15	Public Water	Gatten	Domestic
PW 16	Public Water	Dilly	Domestic
PW 17	Public Water	McBridge	Domestic
PW 18	Public Water	Winzerreid	Domestic
PW 19	Public Water	Moore	Domestic

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
PW 20	Public Water	Moore	Domestic
PW 21	Public Water	McFarland	Domestic
PW 22	Public Water	Dunfee	Domestic
PW 23	Public Water	Wells	Domestic
PW 24	Public Water	McMahon	Domestic
PW 25	Public Water	Wiley	Domestic
PW 26	Public Water	Grant	Domestic

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
PW 27	Public Water	Moore	Domestic
PW 28	Public Water	Wolfe	Domestic
PW 29	Public Water	B.C.N.B.	Domestic
PW 30	Public Water	Gorshe	Domestic
PW 31	Public Water	Trigg	Domestic
PW 32	Public Water	Trigg	Domestic
PW 33	Public Water	Meyers	Domestic

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
PW 34	Public Water	Beck	Domestic
PW 35	Public Water	Monahan	Domestic
PW 36	Public Water	Riddle	Domestic
PW 37	Public Water	Dunfee	Domestic/ Livestock
PW 38	Public Water	Dunfee	Domestic
PW 39	Public Water	Juzwiak	Domestic
PW 40	Public Water	Tozzi	Domestic

OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
PW 41	Public Water	Hess	Domestic
PW 42	Public Water	Toothman	Domestic
PW 43	Public Water	Ramsey	Domestic
PW 44	Public Water	Schroeder	Domestic
PW 45	Public Water	Caldwell	Domestic
PW 46	Public Water	Van Dyne	Domestic
PW 47	Public Water	Beltz	Domestic

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OHIO DEPARTMENT OF NATURAL RESOURCES
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ATTACHMENT 14D
(SURFACE WATER BODIES/PUBLIC WATER SUPPLIES)

Applicant's Name THE OHIO VALLEY COAL COMPANY

Surface Water/ Public Supply Identification #	Type of Surface Water/Public Supply	Name of Owner of Surface Water/ Public Supply	Known Uses of Surface Water/ Public Supply
PW 48	Public Water	Maloney	Domestic
PW 49	Public Water	Maloney	Domestic
PW 50	Public Water	Post Office	Domestic
PW 51	Public Water	Hess	Domestic

ADDENDUM TO PAGE 18, C
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

GROUNDWATER INFORMATION

Naturally occurring groundwater in this area resides primarily in consolidated (rock) aquifers that are partially or wholly confined and lie within the geologic interval above the Pittsburgh No. 8 Coal.

The rock aquifers are primarily sandstones, limestones and coals, but may also include shales and siltstones. All units transmit water primarily by secondary permeability or hydraulic conductivity (joints and other fractures, bedding partings). In general, primary permeabilities are low to very low for these materials. These aquifers are recharged through infiltration and percolation at outcrop zones and in some cases, by vertical flows through discontinuities and locally permeable overlying strata. The stratigraphy identified in the Addendum to Page 17, Part 2, B, Geology Description, shows numerous lithologic units that are probably capable of transmitting water. However, confining pressures tend to keep lower strata rock discontinuities closed or "tight" so that useful aquifers tend to lie close to the ground surface. Wells penetrating near surface rock aquifers typically exhibit yields of less than one half gallon per minute.

Numerous aquicludes comprised of claystones, mudstones, underclays, limestones with clay lenses, and some shales and siltstones are interbedded with the more permeable water bearing units. These less permeable strata strongly influence horizontal and vertical water movements. A portion of the springs flowing from valley walls below the ridgelines probably derive from rock aquifers and many can probably be identified as adjacent to the less permeable strata.

Groundwater quality data obtained from these rock aquifer springs and the wells generally indicate pH ranges from 6.1 to 9.0, alkalinities in excess of acidities, high hardness, and low metals concentrations.

Wells and springs located on the permit area are identified on the Attachment 14 forms included with this application.

EXCERPT FROM R-0360-1
Page 12, C(1)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE

GROUNDWATER INFORMATION

Naturally occurring groundwater in the permit area resides primarily in consolidated (rock) aquifers that are partially or wholly confined and lie within the geologic interval above the Pittsburgh No. 8 Coal.

The rock aquifers are primarily sandstones, limestones and coals, but may also include shales and siltstones. All units transmit water primarily by secondary permeability or hydraulic conductivity (joints and other fractures, bedding partings). In general, primary permeabilities are low to very low for these materials. These aquifers are recharged through infiltration and percolation at outcrop zones and in some cases, by vertical flows through discontinuities and locally permeable overlying strata. The stratigraphy identified on page 12, B(1) Geology Description, shows numerous lithologic units that are probably capable of transmitting water. However, confining pressures tend to keep lower strata rock discontinuities closed or 'tight' so that useful aquifers tend to lie no more than 150 to 200 feet below the ground surface. The Division of Water relates that water below 250 feet below the surface tends to be brackish. Wells penetrating near-surface rock aquifers typically exhibit yields of less than one-half gallon per minute.

Numerous aquicludes comprised of claystones, mudstones, underclays, limestones with clay lenses, and some shales and siltstones are interbedded with the more permeable water bearing units. These less permeable strata strongly influence horizontal and vertical water movement. A portion of the springs flowing from valley walls below the ridgelines probably derive from rock aquifers and many can probably be identified as adjacent to the less permeable strata. The water bearing units and aquicludes occur at various elevations throughout the adjacent area.

D. **SURFACE WATER INFORMATION-Permit and Shadow Area**

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

Captina Creek and Williams Creek

(2) Are there any perennial or intermittent streams or other surface water bodies on the proposed permit, shadow area, and adjacent area? __X__ Yes, _____ No. If "yes," submit Attachment 14A and Attachment 14D and show location on application and hydrology map.

See Attachment 14A, 14D, and Hydrology Map

(3) Based on the data listed on Attachment 14A, and other information submitted with this application, identify the seasonal variations in water quality and quantity for the streams identified in Part 2, D(2) above.

See Attachment 14A

E. **HYDROLOGIC DETERMINATION-Permit, Shadow Area, and Adjacent Area**

Based on the information submitted in response to items B, C, and D in this part of the permit application, submit an addendum describing the probable hydrologic consequences of this proposed underground mining operation on the hydrologic regime of the proposed permit area, shadow area, and adjacent area. The description shall include findings on each of the following items:

(1) The consequences of the proposed operation on the contents of total suspended and dissolved solids, total iron, total manganese, acidity, and pH.

See Addendum to Page 19, Part 2, E

(2) Whether adverse impacts may occur to the hydrologic balance;

See Addendum to Page 19, Part 2, E

(3) The impact the proposed operation will have on:

(a) sediment yield from the disturbed area,
(b) flooding and stream flow alteration or diminution,
(c) ground water and surface water availability.

See Addendum to Page 19, Part 2, E

F. **ALTERNATIVE WATER SUPPLY INFORMATION-Permit and Shadow Area**

(1) Based on the response in Part 2, item E, submit an addendum identifying the extent to which the proposed coal mining activities may proximately result in contamination, diminution, or interruption of an underground or surface source of water within the proposed permit area, shadow area, and adjacent area that is used for domestic, agricultural, industrial, or other legitimate use.

See Addendum to Page 19, Part 2, F

TOVCC 15914

ADDENDUM TO PAGE 19, PART 2, D
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

SEASONAL VARIATIONS OF WATER QUALITY AND QUANTITY

Surface and groundwater data contained in the Attachment 14 forms included with this permit revision, will indicate the seasonal variances of quality and quantity of the water in this area.

The water wells existing in the area give a fairly representative indication of water bearing zones that can be found in this region. The Probable Hydrologic Consequences of mining gives a detailed description of these characteristics.

Precipitation is, obviously, one of the principal factors influencing water systems. Infiltration of precipitation increases soil moisture and influences groundwater chemical composition. The time required for infiltrating precipitation to reach lower water bearing zones increases with increasing depth. Depending on the morphological structure, character of surface vegetation, and intensity of precipitation the amounts of infiltration also vary greatly. Amounts of infiltration subsequently influences the dissolved solids contents of groundwater which, in most cases, become more dilute during periods of prolonged precipitation. Rainfall data collected at or near the Powhatan No. 6 Mine has been charted on the following page. Annual rainfall for the years 1987 through 1990 are graphed. The average monthly rainfall for this period is also shown. The resultant shaded areas indicates which months would be considered those most likely to receive higher or lower than the mean monthly precipitation amount.

Included with the water data collected by OVCC is water quality and quantity documented by the Ohio EPA and the USGS.

All the data will show that an increased water quantity and a decrease in chemical constituent levels is realized during times of increased precipitation and snow melt of winter and spring seasons; while a decrease in water quantity and increase in chemical constituent levels is realized in dry summer and early autumn seasons.

WATER REPLACEMENT

TOVCC 15916

ADDENDUM TO PAGE 19, PART 2, F(2)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ALTERNATIVE WATER SUPPLY INFORMATION

Adjacent Areas Above Full Recovery Mining

The PHC identified herein indicate a potential for diminution and/or interruption of ground water supplies in areas above and contiguous to full recovery mining operations. However, no contamination of such water supplies is expected.

Notwithstanding its mining rights and without waiving any of its mining rights, where such diminution or interruption results from full recovery mining, The Ohio Valley Coal Company will repair and replace such affected water source(s) in the adjacent area at its own expense in a manner mutually satisfactory to OVCC, the surface owner, and the Division of Reclamation,and to a level sufficient to meet the surface owner's pre-mining quantity and quality levels which will be determined by monitoring information gathered in accordance with the Monitoring Plan.

Past experience indicates that the majority of subsidence (that detectable with surveying equipment) is complete within about 45 days after the longwall passes under the area.

The steps which OVCC would take to repair or replace affected water sources in the adjacent area include:

1. Repair damaged cisterns after OVCC has determined that subsidence is complete;

2. On a site specific basis, redrill existing wells, drill new wells, or connect the surface owner to public water supplies (if no public water supply exists, OVCC may install a line of sufficient size to service those affected by OVCC's mining operation);

3. On a site specific basis, developed springs will be replaced by a farm pond built according to accepted engineering practices, drilling of a new well, or development of another spring in close proximity to the original spring;

4. Repair damaged farm ponds so as to be comparable to their pre-mining conditions;

5. Provide interim water supplies until affected water sources are replaced. Interim supplies may include hauled water or a tap to public water supplies. OVCC

will only provide temporary, replacement water with a public water supply if it can be connected within 48 hours. OVCC routinely uses the local fire department to haul county water for temporary replacement supplies. This practice is expected to continue. The local fire department can haul water within a matter of hours after receiving a request. Temporary tanks and water troughs for livestock are kept in stock to facilitate quick installations.

6. Such other proven, cost effective, and reasonable techniques as OVCC may now, or in the future, deem appropriate.

It is OVCC's intention to fully bear the cost of both interim and permanent water replacement. If contamination, diminution, or interruption of a property owner's underground or surface water supply used for domestic, agricultural, industrial, or other legitimate use occurs as a proximate result of the mine's operation, the OVCC will repair or replace such water supply at OVCC's expense.

OVCC will furnish, at OVCC's expense, an alternate water supply (within 48 hours) until repair or replacement is completed or will reimburse the property owner for the reasonable cost of obtaining a water supply from the date of any such contamination, diminution, or interruption until the supply is repaired or replaced. In cases where temporary water cannot be provided within 48 hours due to extraordinary circumstances, OVCC will immediately notify the Chief of the Division of Reclamation who will determine if the circumstances warrant an extension of the 48 hours.

OVCC will provide the affected property owner with no less of an available water supply than the property owner had before mining, based on the pre-mining measurements. OVCC will notify the Division of Reclamation immediately after it has been informed of the loss of developed water (ground or surface water) due to its mining activities.

As previously stated, the elevation of alternative water sources is unpredictable until the water system in the area again attains equilibrium after mining. Therefore, the alternative water supplies to be developed will be identified when the need arises. Those supplies may include but not be limited to redevelopment of an existing well, spring, or pond, or replacement of the source with the County Water System. The County Water System has been contacted by OVCC and has assured us that there is capacity to replace each developed source with county water. A letter to that effect is enclosed.

If a property owner believes that his or her underground or surface water supply which is used for domestic, agricultural, industrial, or other legitimate use has been contaminated, diminished, or interrupted as a proximate result of the mine's operation, he or she should notify OVCC by calling (614) 926-1351. OVCC will make a determination of liability no later than sixty (60) days after notification of the contamination, diminution, or interruption of a water supply as a proximate result of the mine's operation.

Work on furnishing a temporary alternate water supply will be complete within 48 hours (unless an extension of the 48 hour time frame is granted by the Chief) after OVCC learns of the contamination, diminution, or interruption to the domestic, agricultural, industrial, or other legitimate-use water supply proximately caused by the mining operation. OVCC will pay all costs associated with this temporary, alternate water supply. Permanent repair or replacement of an affected water supply shall be completed no later than eighteen (18) months after it has been determined that the supply has been contaminated, diminished, or interrupted as a proximate result of the mine's operation. All costs of repair and/or replacement to provide the affected property owner with no less of an available water supply than the property owner had before mining, based on the pre-mining measurements, shall be paid for by OVCC.

In repairing or replacing a property owner's underground or surface water supply used for domestic, agricultural, industrial, or other legitimate use which is damaged as a proximate result of the mine's operation, OVCC's first preference is to repair the affected supply. If that is not feasible, OVCC's second preference is to replace the affected supply with a like supply. For example, a damaged pond, if not repairable, would be replaced with a new pond. If that is not feasible, OVCC will replace the affected supply with a similar supply. For example, a damaged dug well, if not repairable or replaceable with another dug well, would be replaced by a potable-type cistern, a drilled well or a similar supply.

It should be recognized that property sites differ in such elements as geologic and hydrologic composition. Thus, the determination of whether repair of an affected water supply is feasible or whether replacement by a specific type of water supply is feasible must be made on a case-by-case, site specific basis. OVCC, in the past, has always attempted to consult and negotiate with the affected property owner concerning the selection of the type of water replacement and its site. This is done at the

request of property owners who prefer this procedure to that of OVCC making unilateral decisions about replacement supplies and sites. OVCC, if requested by the Division, will make these decisions unilaterally.

In some cases, OVCC reaches pre-subsidence agreements with landowners, who are normally represented by counsel and in all cases have full opportunity to consult with counsel or anyone else of their choosing. These agreements, which are typically negotiated by OVCC employees, normally cover all potential property damage claims. In situations where such an agreement is reached, OVCC will comply with the water replacement terms contained in the agreement. Such an agreement will satisfy, at a minimum, this permit and ORC 1513.162.

In any situation where OVCC determines that the contamination, diminution, or interruption of a water supply was not proximately caused by the mining operation, based on evidence such as the proximity of the supply to the mining operation, site specific geologic and surface conditions, or climatological conditions, OVCC will provide the Division of Reclamation with notice of its determination and the proof in support of that determination to allow the Division to issue a Chief's Order deciding the issue. This Chief's Order is then appealable in accordance with O.R.C. §1513.13. The landowner's domestic water supply will continue during the time OVCC seeks review of this matter pursuant to O.R.C. §1513.13. If it is determined that contamination, diminution, or interruption of a supply is the proximate result of the mine's operation, OVCC shall bear all costs of furnishing temporary water. OVCC reserves the right to proceed against the landowner to recover costs incurred if it is determined that OVCC is not liable for the contamination, diminution, or interruption of the affected water supply.

December 17, 1990

Ohio Department of Natural Resources
Division of Water - Ground Water Resources Section
Fountain Square
Columbus, Ohio 43224

Hydrologist:

The Ohio Valley Coal Company is planning to submit for an underground mining permit in Smith Township, Belmont County, Ohio. This permit will be for longwall mining, and will cover the area shown on the enclosed map. The coal seam (Pittsburgh or No. 8) in this area is at an average elevation of 730 ft. msl.

Please compile a summary of the ground water inventory for this area. In addition, we will need to know about the existence and use of any deeper aquifers in this area. Specifically, are any deeper aquifers in the vicinity of the No. 8 (Pittsburgh) seam of coal used, or is the water brackish? Would one intercept a brine interface when trying to tap any water sources?

We are planning to submit this information by the end of the year, so your prompt consideration in this matter would be greatly appreciated. If you have any questions, please contact me. Thank you.

Very truly yours,

THE OHIO VALLEY COAL COMPANY

David L. Bartsch

David L. Bartsch, P. E.

Enclosures

56854 PLEASANT RIDGE ROAD • ALLEDONIA OHIO 43902 • (614) 926-1351

Belmont County
COMMISSIONERS
Robert Olexo
J. J. Malik, Jr.
James J. Hepe
DIRECTOR
David Grum

BELMONT COUNTY
SANITARY SEWER DISTRICT

P. O. BOX 457
ST. CLAIRSVILLE, OHIO 43950
Phone: 695-3144

December 24, 1990

David Bartsch, P.E.
Ohio Valley Coal Company
56854 Pleasant Ridge Road
Alledonia, Ohio 43902

Dear Mr. Bartsch:

As per your correspondence of December 19, 1990, concerning the ability of Belmont County Sanitary Sewer District to provide water from the County system for 38 residences and 12 farm businesses in the Centerville area, the District does have the capacity to service these accounts.

The question that you were concerned about would be the removal of customers in periods of extreme droughts. The proceedures that is in affect would be the elimination of auto washing, lawn watering, elimination of irrigation, removal of non essential businesses and industry, then the elimination of livestock water and finally rationing of individual resident supply.

The only way a resident would be removed or their water supply terminated would be because of non-payment of bills or tampering with a public water system.

If you have additional questions or concerns, please give me a call.

Sincerely,

David Grum
Director

DG:jm

ODNR
OHIO DEPARTMENT OF
NATURAL RESOURCES

Fountain Square
Columbus, Ohio 43224

Date December 21, 1990

ANALYSIS OF EXISTING GROUND WATER FILE DATA

Prepared by: Bill Haiker BH, hydrogeologist

Operator: The Ohio Valley Coal Co. Permit No.

County: Belmont

Township: Smith and Washington

Section: 2, 7, 8, 13, 14, 19, and 20; 12 and 18

Number of water well logs within 1,000 foot radius of site (copies attached) 25 : Field located 23

General description of local hydrology:

Ground water in sufficient quantities for domestic use can usually be obtained from the interbedded sandstone, limestone, and shale bedrock. Well depths range from 60 feet deep to 158 feet deep. Reported yields are from 1/6 G.P.M. to 10 G.P.M. No brackish water is reported on any well log on file. The brine interface is approximately 250 feet below the valley floor. (Stout, VerSteeg, and Lamb, 1943, Bulletin 44, pg. 195)

Areas of particular concern:

Mining the #8 coal seam at an average elevation of 730 feet M.S.L. should not dewater wells within the permit area. Wells located near a mine entrance could be affected, however. Therefore, as a precautionary measure, all wells within the 1000 feet boundary should be monitored for any quantity or quality changes before, during, and after mining is completed.

December 17, 1990

Ohio Department of Natural Resources
Division of Water - Ground Water Resources Section
Fountain Square
Columbus, Ohio 43224

Hydrologist:

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We are planning to submit this information by the end of the year, so your prompt consideration in this matter would be greatly appreciated. If you have any questions, please contact me. Thank you.

Very truly yours,

THE OHIO VALLEY COAL COMPANY

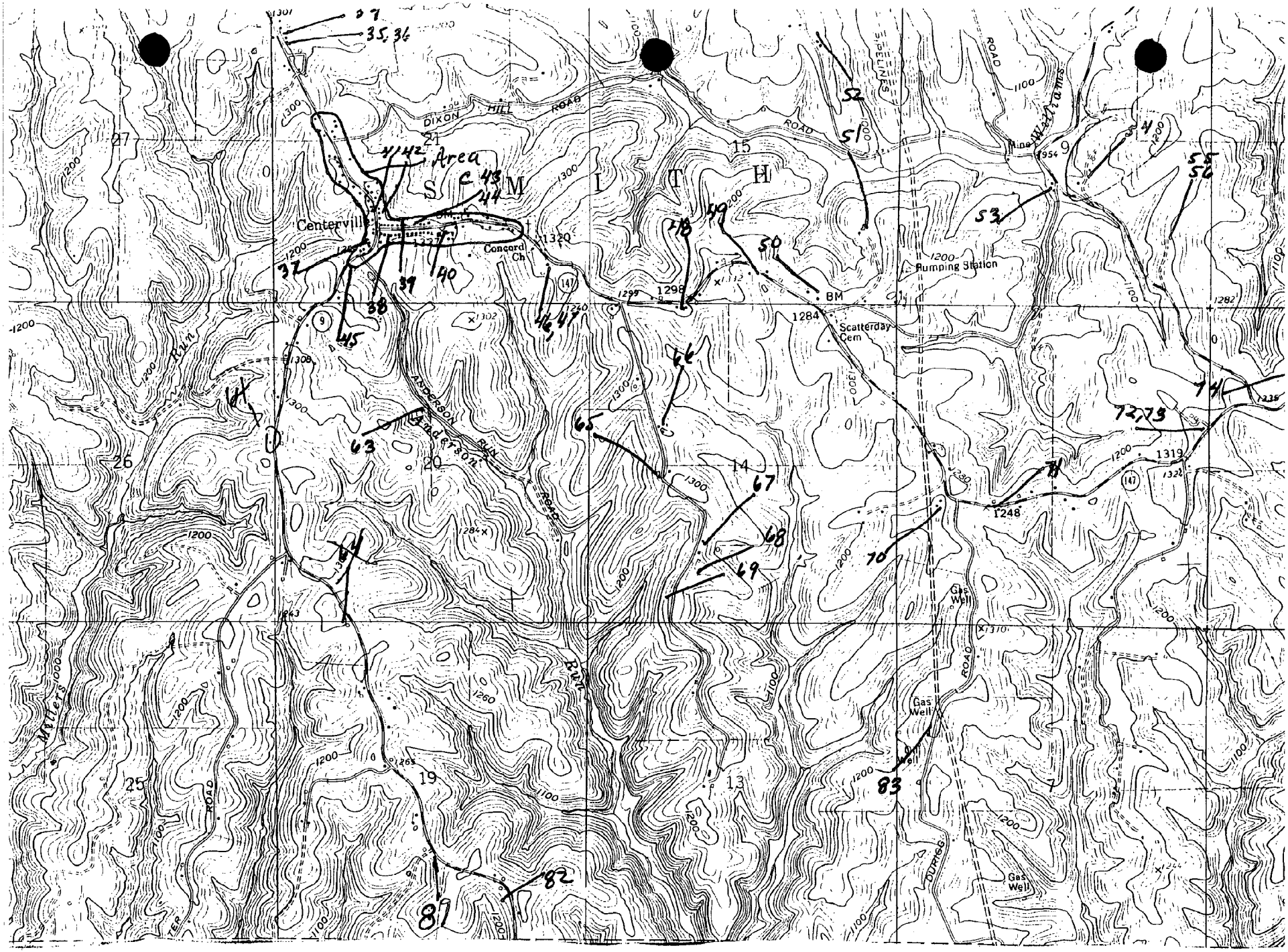
David L. Bartsch

David L. Bartsch, P. E.

RECEIVED
DEC 19 1990
DIVISION OF WATER
GROUND WATER RESOURCES

Enclosures

56854 PLEASANT RIDGE ROAD • ALLEDONIA OHIO 43902 • (614) 926-1351



TOVCC 159255

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402977

County BELMONT Township SMITH Section of Township

Owner JOY KINCADE Address JACOBSBURG OHIO RED 1

Location of property 3 MILES EAST OF CENTERVILLE TWP RD

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 21'

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 5 G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water 28 ft.

Quality (clear, cloudy, taste, odor) CLEAR

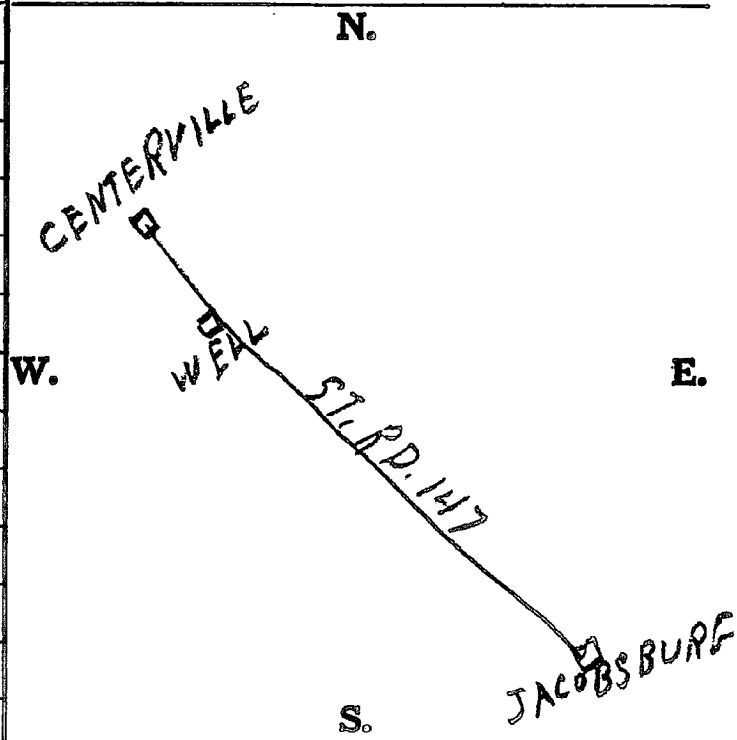
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
SHALE	0 Feet	20 Ft.
SANDSTONE	20	21
RED SHALE	21	40
SANDSTONE	40	42
GREY SHALE	42	48
SANDY SHALE	48	60

SKETCH SHOWING LOCATION

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



Drilling Firm KRIECHBAUM Date 8-3-74

Address JACOBSBURG OHIO Signed Lawrence Kriechbaum

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

TOVCC 15926

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185219

County BELMONT Township SMITH Section of Township

Owner RICHARD RAMSEY Address JACOBSBURG, OHIO

Location of property 1/2 MI EAST OF JACOBSBURG, O. ON STRT 147

CONSTRUCTION DETAILS

Casing diameter 8 1/4" Length of casing 28

Type of screen Length of screen

Type of pump HAND PUMP

Capacity of pump

Depth of pump setting 123 FT

Date of completion OCT 18 1956

BAILING OR PUMPING TEST

Pumping rate 8 G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 80 ft.

Pump installed by PHILLIPS DRILLING CO

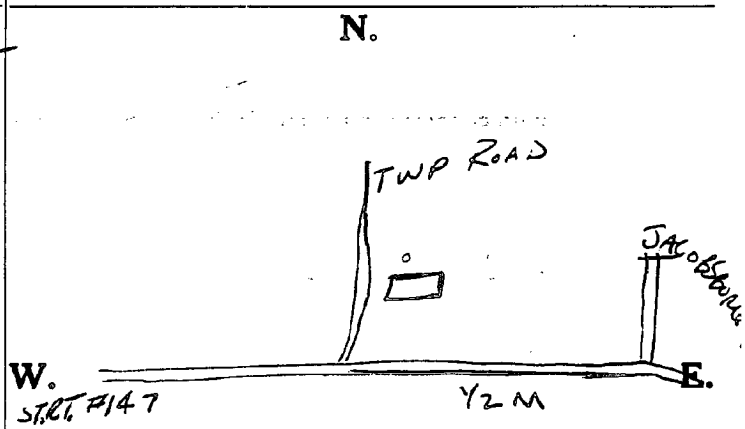
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
REAMED HOLE TO		53 FT
VERY LITTLE WATER.		
RED ROCK	53	58
SANDSTONE	58	67
SLATE	67	75
SANDSTONE	75	82
SLATE	82	95
SHALE	95	116
SLATE	116	128
WATER AT 75 TO 82		

RECEIVED

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO. Date OCT 20 1956

Address JACOBSBURG, O Signed [illegible]

TOVCC 15927

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185203

County BELMONT Township SMITH Section of Township

Owner E. S. McCANN Address ARMSTRONGS MILLS, O

Location of property 3 MI SOUTH OF CENTERVILLE ON STRT 9

CONSTRUCTION DETAILS

Casing diameter 6 1/4 Length of casing 22

Type of screen Length of screen

Type of pump DEEPWELL SET AND HAND PUMP

Capacity of pump

Depth of pump setting 54'

Date of completion

BAILING OR PUMPING TEST

Pumping rate 8 G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 25 ft.

Pump installed by PHILLIPS DRILLING CO

WELL LOG

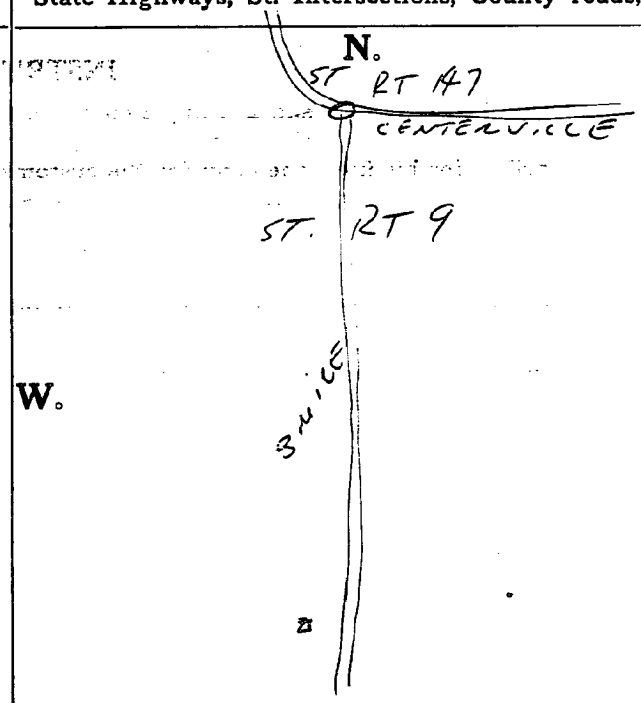
Formations Sandstone, shale, limestone, gravel and clay	From	To
CLAY	0 Feet	22 Ft.
SAND STONE	22	28
SHALE	28	35
SAND STONE	35	41
SHALE	41	48
LIME	48	51
SLATE	51	55
SHALE	55	62

WATER AT 25' AND 45'

6 1/4" CASING CEMENTED IN 8 1/4" HOLE

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO. Date JULY 26 1956

Address JACOBSBURG O Signed Robert N. Phillips

81

TOVCC 15928

WELL LOG AND DRILLING REPORT

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

NO CARBON PAPER NECESSARY – SELF-TRANSCRIBING

591102

COUNTY BELMONT TOWNSHIP SMITH SECTION OF TOWNSHIP

OWNER ALLAN A. PACK ADDRESS TRIDELPHIA W.V.A. ROUTE 2

LOCATION OF PROPERTY 3 MILES FROM ARMSTRONGS ON ST. RD #9

CONSTRUCTION DETAILS

Casing diameter 9" Length of casing 281

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion 9-19-81

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1 gpm Duration of test _____ hrs

Drawdown _____ ft Date _____

Static level (depth to water) _____ ft

Quality (clear, cloudy, taste, odor) _____

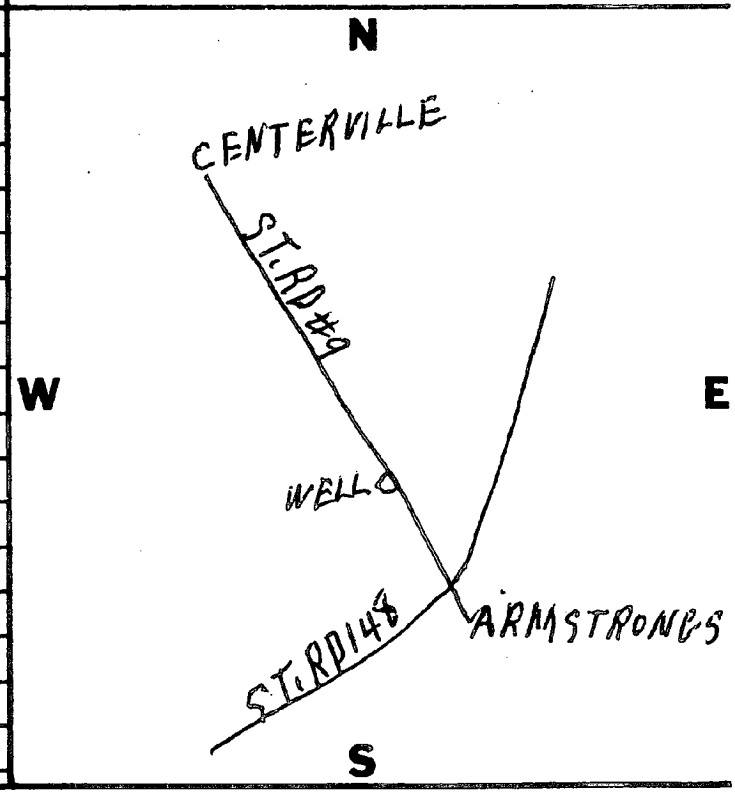
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
SHALE SANDY	0 ft	10 ft
SAND STONE	10	12
SHALE	12	25
SAND STONE	25	27
SHALE	27	38
SAND STONE	38	41
GREY SHALE	41	58
RED SHALE	58	65
GREY SHALE	65	90
WATER AT 50'		

SKETCH SHOWING LOCATION

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



DRILLING FIRM KRIECHBAUM DATE 9-21-81

ADDRESS JACOBSBURG OHIO SIGNED Katherine Kriechbaum

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

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224 82

TOVCC 15929

WE LOG AND DRILLING REF RT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

№ 310403

County Belmont Township Smith Section of Township 7

Owner Phillip Kerr Address

Location of property 1 mi South #RT 147 1½ mi EAST S. RT. #9

CONSTRUCTION DETAILS

Casing diameter 9 Length of casing 27

Type of screen Length of screen

Type of pump JG

Capacity of pump —

Depth of pump setting 125

Date of completion Feb 3 1964

BAILING OR PUMPING TEST

Pumping Rate 10 PER HOUR ~~G.P.M.~~ Duration of test hrs.

Drawdown ft. Date

Static level-depth to water 90' ft.

Quality (clear, cloudy, taste, odor) clear

Pump installed by

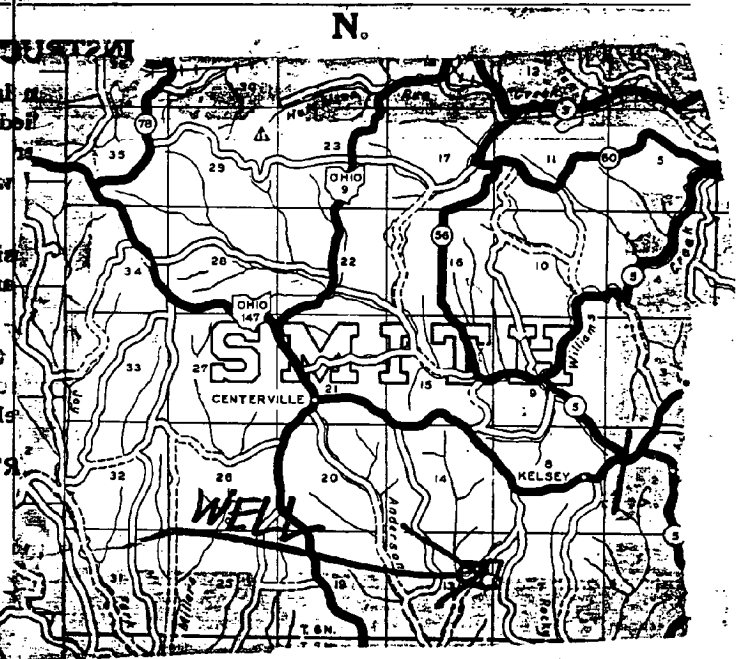
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	
Sand Stone	8	10
Red Rock	10	15
Shale	15	22
Red Rock	22	26
Sand Stone	26	41
Shale	41	65
Sand Stone	65	79
Lime Stone	79	86
Black Shale	86	94
Lime Stone	94	104
Shale	104	114
Sand Stone	114	128
Shale	128	136

SKETCH SHOWING LOCATION

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

N.



S.

See reverse side for instructions

Drilling Firm R.B. Cutt Date Feb 3 1964

Address Bowdine Ohio Signed R B Cutt

83

TOVCC 15930

WELL LOG AND DRILLING REPORT

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

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

618522

COUNTY Belmont TOWNSHIP Smith SECTION OF TOWNSHIP 14

OWNER George H Tice ADDRESS 60455 Walters RD. Jacobsburg

LOCATION OF PROPERTY Township RD. 235

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 21'6"

Type of screen N/A Length of screen

Type of pump N/A

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1 gpm Duration of test 6 hrs

Drawdown 2 ft Date MAY 15, 87

Static level (depth to water) 35 ft

Quality (clear, cloudy, taste, odor)

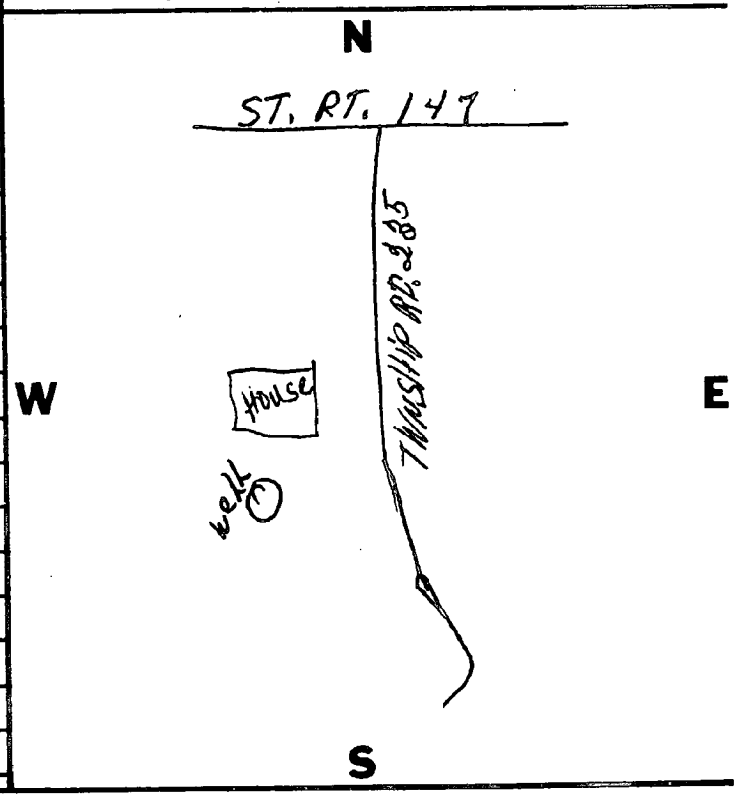
Pump installed by N/A

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top Soil	0 ft	5 ft
SHALE	5'	15'
SANDSTONE	15'	23'
RED CLAY	23'	27'
GRAY SHALE	27'	42'
Lime Stone	42'	70'
RED CLAY	70'	75'
Grey Limestone	75'	80'
WATER 25'		
35'		

SKETCH SHOWING LOCATION

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



DRILLING FIRM Chanier Drilling DATE May 1987

ADDRESS Jacobsburg, Ohio SIGNED Charles Chanier

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

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224

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TOVCC 15931

WELL LOG AND DRILLING REPORT

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

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

618523

COUNTY Belmont TOWNSHIP Smith SECTION OF TOWNSHIP 14

OWNER Floyd Walters ADDRESS Walters Rd Jacobsburg Oh

LOCATION OF PROPERTY Twnship Rd. 235

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 85'

Type of screen _____ Length of screen _____

Type of pump 7EH SUBMERSIBLE

Capacity of pump 76 pm

Depth of pump setting 78'

Date of completion July 87

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1 gpm Duration of test 6 hrs

Drawdown 2 ft Date June 87

Static level (depth to water) 45 ft

Quality (clear, cloudy, taste, odor) Clear

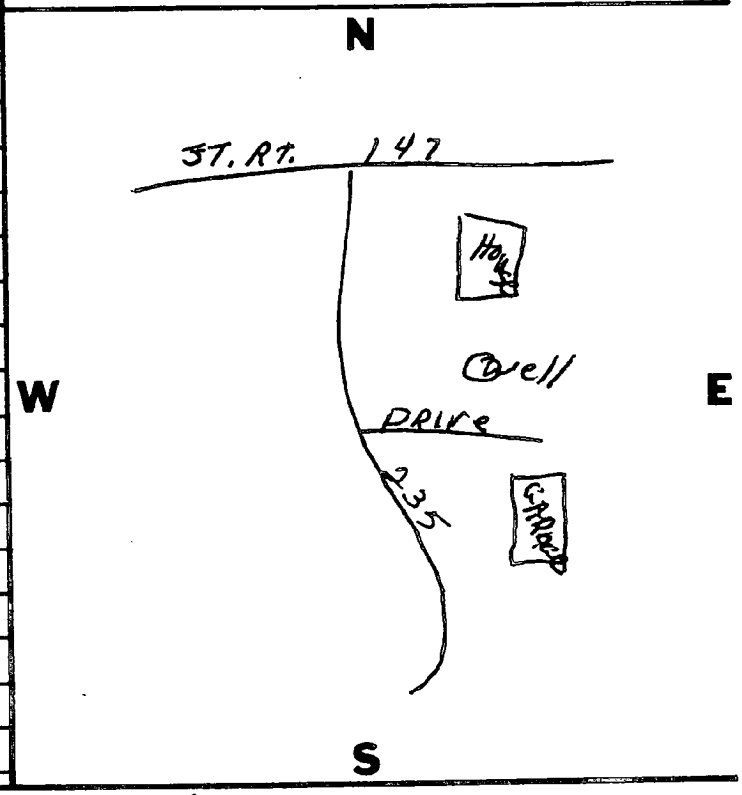
Pump installed by C B Crozier

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top Soil	0 ft	5 ft
Shale	5	15'
Sandstone	15	23'
Red Clay	23'	27'
Gray Clay	27'	42'
Limestone	42'	70'
Red Clay	70'	75
Gray Limestone	75	85'
Water at 40		

SKETCH SHOWING LOCATION

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



DRILLING FIRM C B Crozier DATE Sept. 87

ADDRESS 58820 Hornbo Rd Jacobsburg Oh SIGNED Charles B Crozier

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

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224

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TOVCC 15932

WELL LOG AND DRILLING REPORT

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.

Well No. 2.

No. 256158

County Belmont Township Smith Section of Township 14

Owner Elwood Frankhouser Address Jacobsburg R.D. #1.

Location of property Along township rd. 2½ mi. South of St. Rt. No. 147 Centerville Ohio.

CONSTRUCTION DETAILS

Casing diameter 18 Length of casing 15

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate 40 G.P.H. Duration of test hrs.

Drawdown all ft. Date

Developed capacity

Static level—depth to water 103 ft.

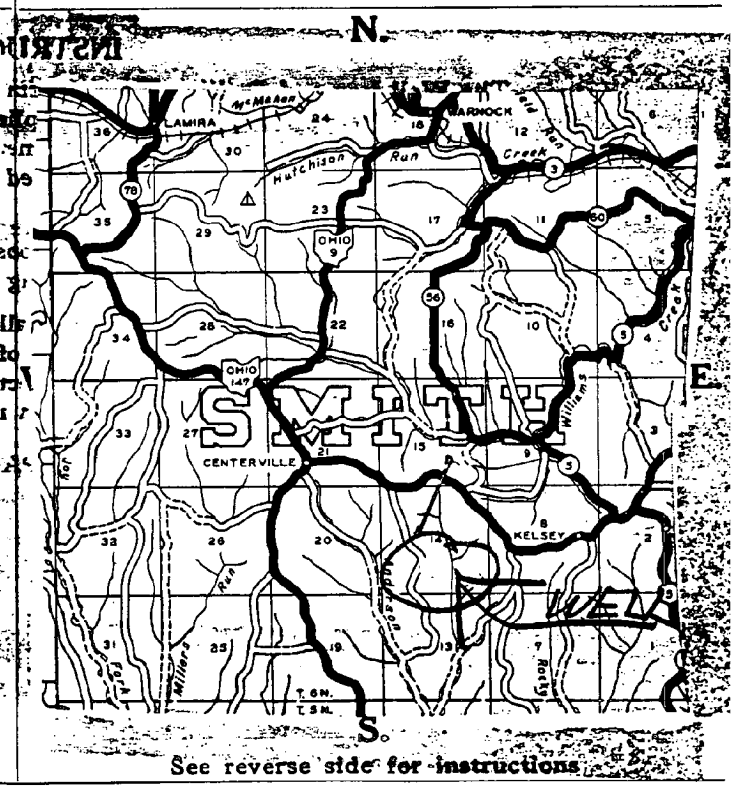
Pump installed by None.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	12
Sandstone	12	46
Shale	46	85
Sandstone	85	104
Coal - Water	104	107
Lime Stone	107	121
Shale	121	131
Slate	131	136

SKETCH SHOWING LOCATION

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



See reverse side for instructions.

Drilling Firm R. B. Ault Date 11-2-60

Address 3101 Clinton St. Bellaire O. Signed R. B. Ault

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TOVCC 15933

WELL LOG AND DRILLING REPORT

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. 1. Well

No. 256159

County Belmont Township Smith Section of Township 14

Owner Elwood Frankhouse Address Jacobsburg O. R-D-#1.

Location of property along township rd. 2½ mi. South of St-Rt No. 147 - Centerville O.

CONSTRUCTION DETAILS

Casing diameter 8 Length of casing

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate 1.0 G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 60 ft.

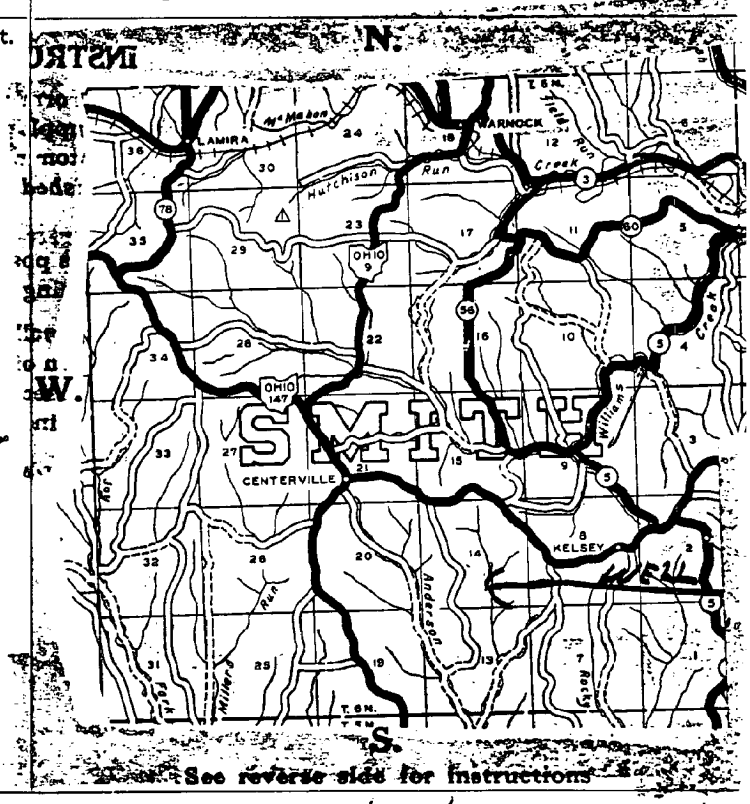
Pump installed by None

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	20
Sandstone	20	31
Shale	31	73
Sandstone	73	90
Coal	90	93
Limestone	93	110
Shale	110	118

SKETCH SHOWING LOCATION

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



Drilling Firm R. B. Ault Date 11-14-60

Address 3101 Clinton St. Signed R. B. Ault

Bellaire O.

68

TOVCC 15934

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

435472

County Belmont Township Smith Section of Township Sec 14

Owner Gary Shila Address Cambridge OR T 1

Location of property 1 mi South St OT 147 Jon TP [illegible] 1 1/4 MI E.A.S. ~~[illegible]~~ STATE RTE

CONSTRUCTION DETAILS

Casing diameter _____ Length of casing 27'

Type of screen _____ Length of screen _____

Type of pump [illegible]

Capacity of pump _____

Depth of pump setting 110

Date of completion 1-30-74

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 1 G.P.M. Duration of test _____ hrs

Drawdown _____ ft. Date _____

Static level-depth to water [illegible] ft.

Quality (clear, cloudy, taste, odor) [illegible]

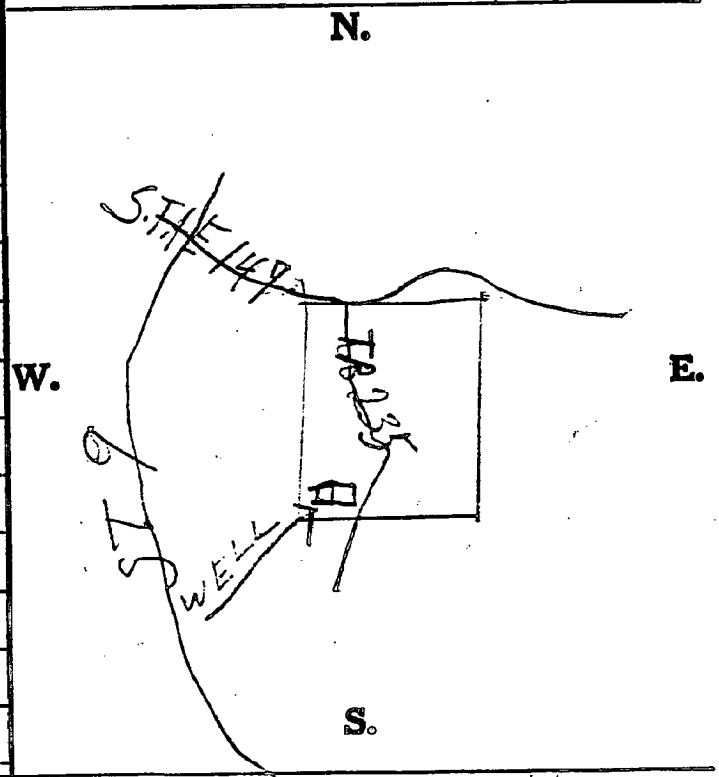
Pump installed by [illegible]

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	18
Sand Stone	18	41
Shale	41	48
Sand Stone	48	61
Shale	61	68
Sand Stone	68	71
Shale	71	84
Sand Stone	84	108
Shale	108	144
WELL BACK FILLED		
to 122'		

SKETCH SHOWING LOCATION

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



Drilling Firm K K Gult Date 1-30-1974

Address 301 [illegible] Signed K K Gult

Kellaire Ohio

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

1.9

TOVCC 15935

ORIGINAL

WELL LOG AND DRILLING REPORT

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. 233528

County BELMONT Township SMITH Section of Township 8

Owner MR. LOWELL GLADDEN Address JACOBSBURG OHIO

Location of property 2 MI E CENTERVILLE ON S.R. 147

CONSTRUCTION DETAILS

Casing diameter 8 1/4 Length of casing 21

Type of screen — Length of screen —

Type of pump JET

Capacity of pump 450 G.P.H.

Depth of pump setting 75'

Date of completion MARCH 1960

BAILING OR PUMPING TEST

Pumping rate 3 G.P.M. Duration of test — hrs.

Drawdown — ft. Date —

Developed capacity —

Static level—depth to water 38 ft.

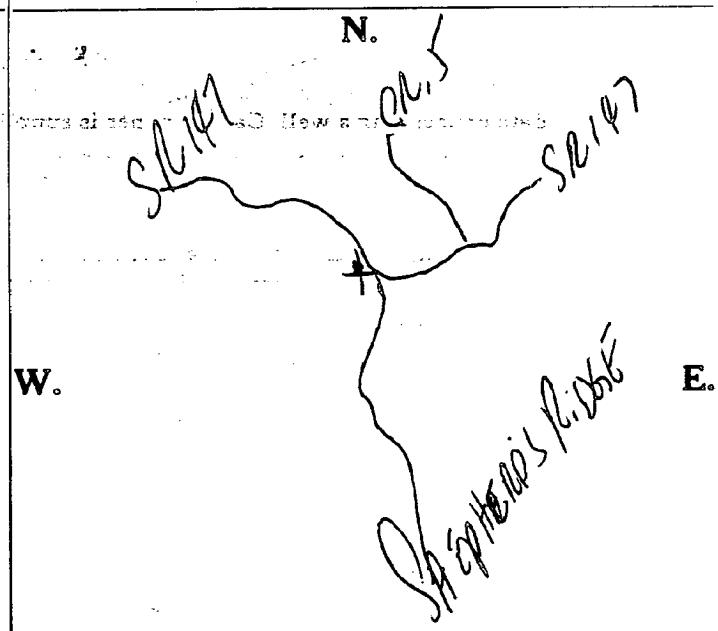
Pump installed by PHILLIPS DRILLING CO.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	15 Ft.
SHALE	15	19
SANDSTONE	19	23
SLATE	23	38
WATER-SANDSTONE	38	43
SLATE	43	70
SANDSTONE	70	75
SLATE	75	85

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO.
JACOBSBURG, OHIO

Address

Date MARCH 1960

Signed Robert N. Phillips

70

TOVCC 15936

WE[illegible]. LOG AND DRILLING REP^RT

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 12, Ohio

№ 310404

County [illegible] Township [illegible] Section of Township 8

Owner [illegible] Address [illegible]

Location of property [illegible]

CONSTRUCTION DETAILS

Casing diameter 3 Length of casing

Type of screen Length of screen

Type of pump [illegible]

Capacity of pump

Depth of pump setting

Date of completion [illegible]

BAILING OR PUMPING TEST

Pumping Rate 15 G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water 45' ft.

Quality (clear, cloudy, taste, odor) [illegible]

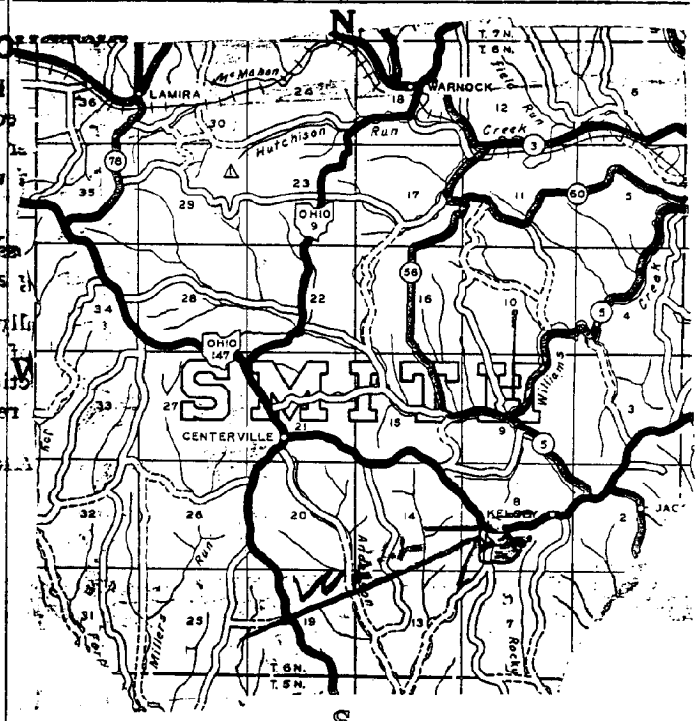
Pump installed by [illegible]

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	8
Limestone	8	19
Limestone Creek	19	21
Shale	21	35
[illegible]	35	49
[illegible]	49	58
[illegible]	58	69

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]

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TOVCC 15937

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185249

County BELMONT Township SMITH Section of Township 2

Owner MR. LAVERNE DUNFEE Address JACOBSBURG, O.

Location of property 1/4 M W OF INT. OF COUNTY 5 ON SR 147

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 21

Type of screen ..... Length of screen .....

Type of pump SUBMENSIBLE

Capacity of pump .....

Depth of pump setting .....

Date of completion AUG 12 1958

BAILING OR PUMPING TEST

Pumping rate 3 G.P.M. Duration of test ..... hrs.

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

Developed capacity .....

Static level—depth ~~to water~~ 50 ft.

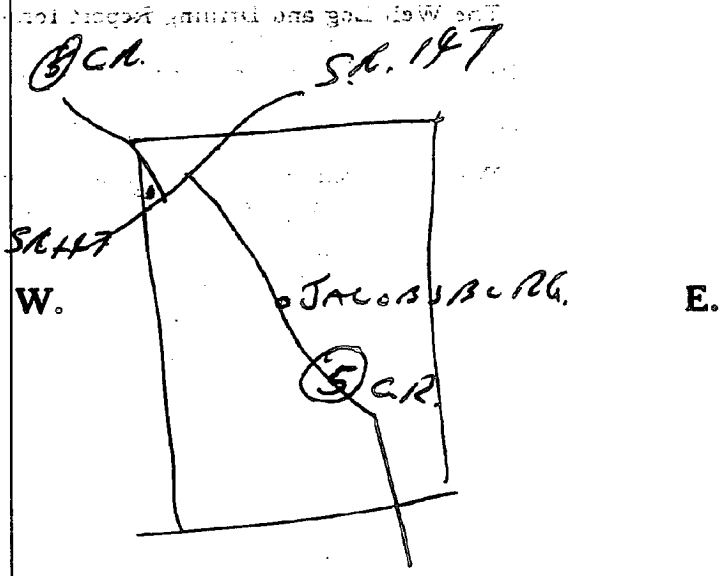
Pump installed by Phillips Drilling Co.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	15 Ft.
SAND STONE	15	21
SHALE	21	40
SANDSTONE	40	45
SHALE	45	60
SANDSTONE	60	66
SLATE	66	80
LIME	80	82
SLATE	82	90
SAND STONE	90	93
SLATE	93	110

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm Phillips Drilling Co. Date AUG 12 1958

Address JACOBSBURG, O. Signed Robert M. Phillips

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TOVCC 15938

WELL LOG AND DRILLING REPORT

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 12, Ohio

№ 298520

County Belmont Township Smith Section of Township 8

Owner Durfee Address Jacobsburg O. R.D.

Location of property State Rt 147 Jacobsburg, Ohio

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 32'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 1½ G.P.M. Duration of test 1½ hrs.

Drawdown 30 ft. Date

Static level-depth to water 68 ft ft.

Quality (clear, cloudy, taste, odor)

Pump installed by owner

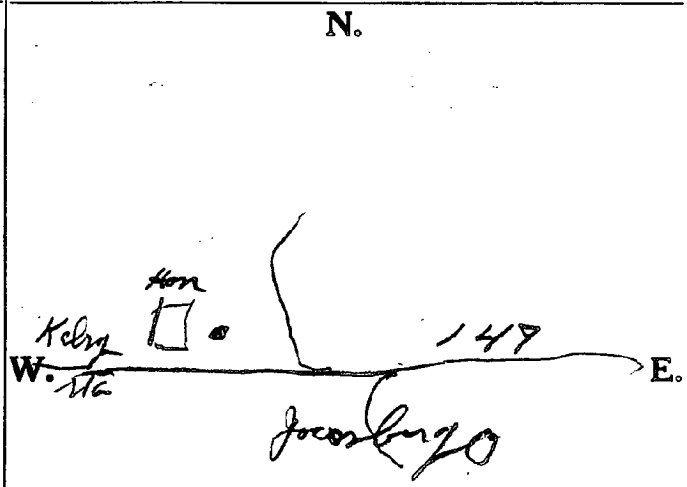
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
yellow Clay	0 Feet	20 Ft.
Rock	20	27
Sand rock	27	36
gray slate	36	60
Dark slate	60	68
Rock	68	102

water 68 ft

SKETCH SHOWING LOCATION

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



S.

See reverse side for instructions

Drilling Firm McDougal & Wilhelm Date 9/26/64

Address St Clairsville, Ohio Signed C. W. McDougal

106 Taylor Lane

43950

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TOVCC 15939

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185227

County BELMONT Township SMITH Section of Township

Owner N.C. PHILLIPS AND ROBERT N. Address BELLAIRE, O RT #2

Location of property INTERSECTION OF COUNTY RD AND STRT 147 AT JACOBSBURG.

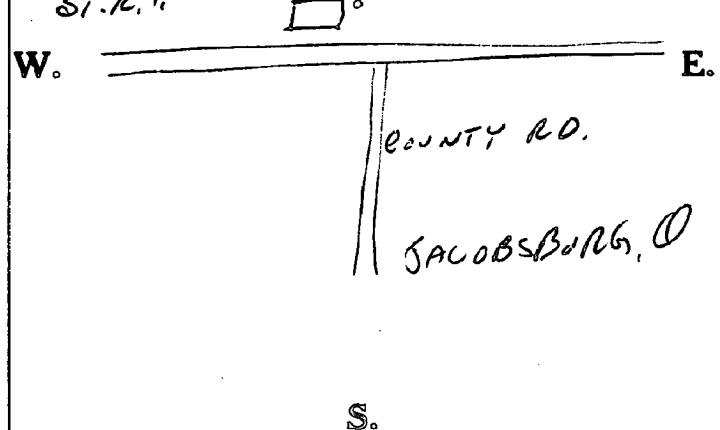
CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter 6 5/8 Length of casing 20	Pumping rate 8 G.P.M. Duration of test hrs.
Type of screen Length of screen	Drawdown ft. Date
Type of pump	Developed capacity
Capacity of pump	Static level—depth to water 20 ft.
Depth of pump setting	Pump installed by NEW HOSE NOT
Date of completion JAN. 15 1957	COMPLETED

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	15 Ft.
SANDSTONE	15	32
CLAY	32	33
SANDSTONE	33	40
SLATE	40	45
SHALE	45	62
SLATE	62	68
SHALE	68	70
SLATE	70	75

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO. Date JAN 17 1957

Address JACOBSBURG, O Signed Robert N. Phillips

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TOVCC 15940

ORIGINAL

WELL LOG AND DRILLING REPORT

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. 233514

County BELMONT Township SMITH Section of Township 20

Owner MR. JACK PATTERSON Address JACOBSBURG, OHIO

Location of property 1 MI S CENTERVILLE ON TWP ROAD

CONSTRUCTION DETAILS

Casing diameter 6 1/4" Length of casing 20'

Type of screen — Length of screen —

Type of pump JET PUMP

Capacity of pump 450 G.P.H.

Depth of pump setting 80'

Date of completion JULY 20 1959

BAILING OR PUMPING TEST

Pumping rate 3 G.P.M. Duration of test — hrs.

Drawdown — ft. Date —

Developed capacity —

Static level—depth to water 40' ft.

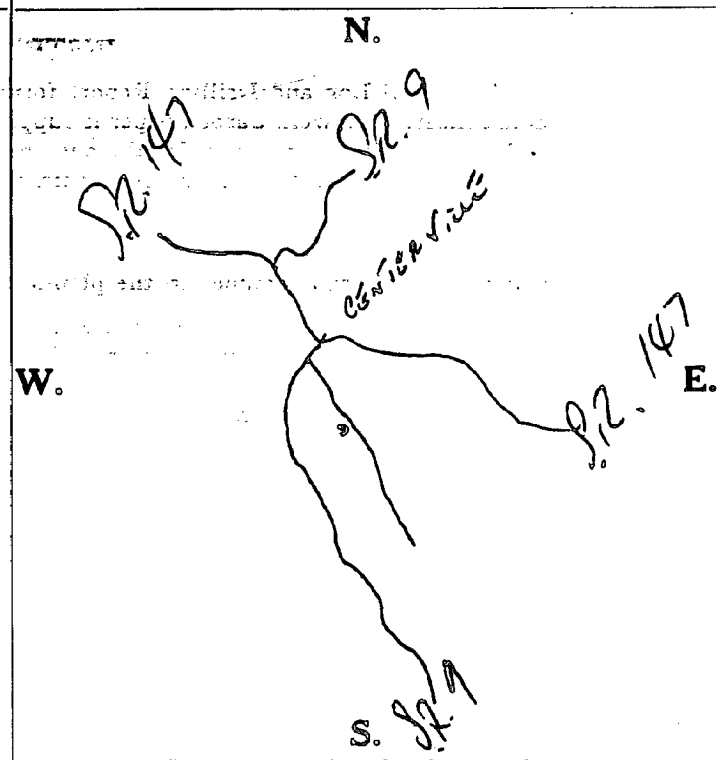
Pump installed by PHILLIPS DRILLING CO.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	15 Ft.
SANDSTONE	15	17
SLATE	17	18
	18	19
SANDSTONE	19	23
SHALE	23	40
SANDSTONE	40	45
SLATE	45	60
SHALE	60	71
~~SANDSTONE~~ LIME	71	72
SLATE	72	84

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO.
JACOBSBURG, OHIO

Address

Date JULY 1959

Signed Robert M. Phillips

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TOVCC 15941

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185239

County BELMONT Township SMITH Section of Township 21

Owner THOMAS STICCION Address JACOBSBURG, OHIO

Location of property 1/4 M. SOUTH CENTERVILLE ON STROUTE 9

CONSTRUCTION DETAILS

Casing diameter 8 1/4 Length of casing 21

Type of screen ..... Length of screen .....

Type of pump .....

Capacity of pump .....

Depth of pump setting .....

Date of completion DEC 10 1957

BAILING OR PUMPING TEST

Pumping rate 8 G.P.M. Duration of test ..... hrs.

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

Developed capacity .....

Static level—depth to water 20 ft.

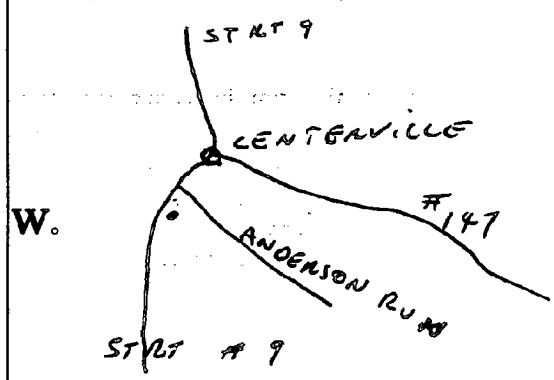
Pump installed by .....

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	18 Ft.
SANDSTONE	18	25
SHALE	25	40
SANDSTONE	40	52
SHALE	52	60
SLATE	60	70

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO. Date DEC 11 1957

Address ~~Robert N. Phillips~~ JACOBSBURG, O. Signed Robert N. Phillips

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TOVCC 15942

ORIGINAL

WELL LOG AND DRILLING REPORT

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. 233520

County BELMONT Township SMITH Section of Township 21

Owner CONCORD CHURCH MANSE Address BELMONT, O RT.

Location of property WEST END OF CENTERVILLE

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing UNKNOWN

Type of screen — Length of screen —

Type of pump JET

Capacity of pump 450 G.P.H.

Depth of pump setting —

Date of completion ~~Sept~~ OCT 1959

BAILING OR PUMPING TEST

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

Drawdown — ft. Date —

Developed capacity —

Static level—depth to water — ft.

Pump installed by —

WELL LOG

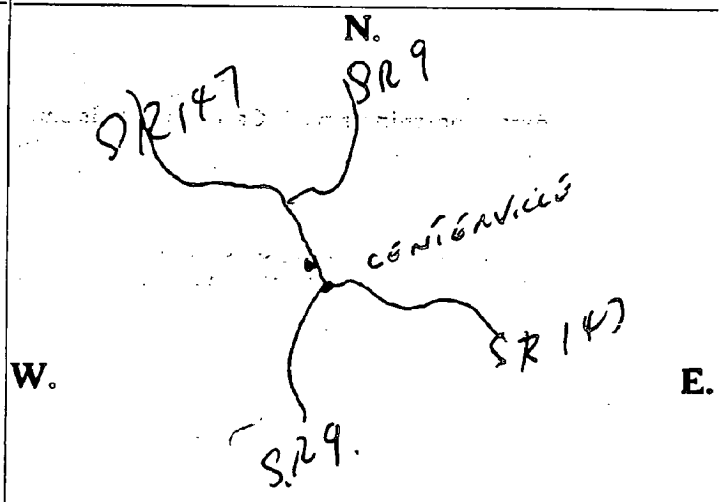
Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.

DRILLED WELL 35 FT. DEEPER FOR MORE RESERVOIR

Approx 50 GAL./HR.

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO.

Address JACOBSBURG, OHIO

Date OCT 1959

Signed [illegible]

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TOVCC 15943

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185238

County BELMONT Township SMITH Section of Township 21

Owner CONCORD CHURCH Address JACOBSBURG OHIO

Location of property 1/2 M EAST CENTERVILLE ON RT # 147

CONSTRUCTION DETAILS

Casing diameter 8 1/4 Length of casing 26'

Type of screen ..... Length of screen .....

Type of pump .....

Capacity of pump .....

Depth of pump setting .....

Date of completion AUG 10 1957

BAILING OR PUMPING TEST

Pumping rate 5 G.P.M. Duration of test ..... hrs.

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

Developed capacity .....

Static level—depth to water 50 ft.

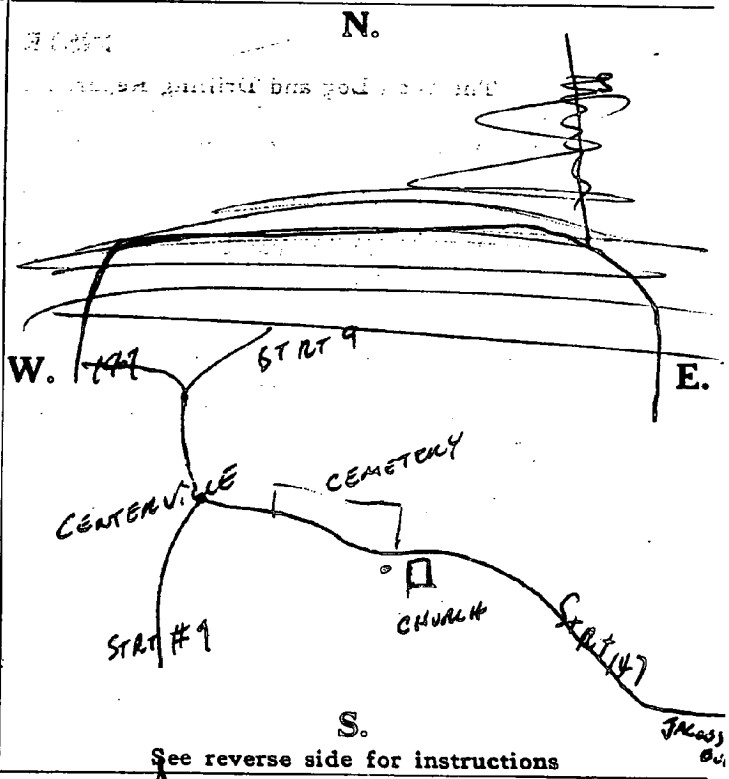
Pump installed by .....

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	18 Ft.
SANDSTONE	18	22
SHALE	22	40
SANDSTONE	40	48
SLATE	48	60
SANDSTONE	60	65
SLATE	65	90

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO. Date AUG 11 1957

Address JACOBSBURG, OHIO Signed Robert M. Phillips

4M

TOVCC 15944

2,435,200
721,700

WELL LOG AND DRILLING REPORT

ORIGINAL

9

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

Nº 126837

County Belmont 7 Township Smith 9 Section of Township or Lot Number Sec. 14.

Owner C. C. McCloud Address Centerville, O.

Location of property along State Rt. 147 - 1½ mi. east of Centerville

CONSTRUCTION DETAILS	PUMPING TEST
Casing diameter 8 in Length of casing 19 ft	Pumping rate 15 G.P.M. Hr. Duration of test ..... hrs.
Type of screen ..... Length of screen	Drawdown ..... ft. Date 5-17-54
Type of pump	Developed capacity .....
Capacity of pump	Static level—depth to ~~water~~ 35 ft Static Water ft.
Depth of pump setting	Pump installed by .....

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	3
Sandstone	3	30
Slate	30	35
Static Water	35	
Sandstone	35	66

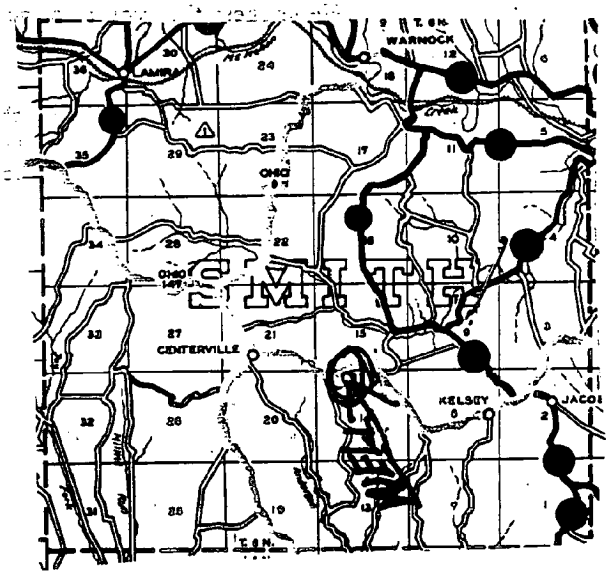
4

SKETCH SHOWING LOCATION

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

N.

W.



S.

See reverse side for instructions

Drilling Firm R. R. Ault. Date 5-17-54

Address 3101 Clinton St. Bellaire O. Signed R. B. Ault

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TOVCC 15945

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185201

County BELMONT Township SMITH Section of Township

Owner WARNER MOORE Address ARMSTRONGS MILLS, O.

Location of property 1 1/2 MILE EAST OF CENTERVILLE O. ON RT. 147

CONSTRUCTION DETAILS

Casing diameter 8 1/4" Length of casing 42'

Type of screen Length of screen

Type of pump SUBMERSIBLE

Capacity of pump

Depth of pump setting 92

Date of completion

BAILING OR PUMPING TEST

~~Pumping~~ BAILING rate 8 G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 71 ft.

Pump installed by

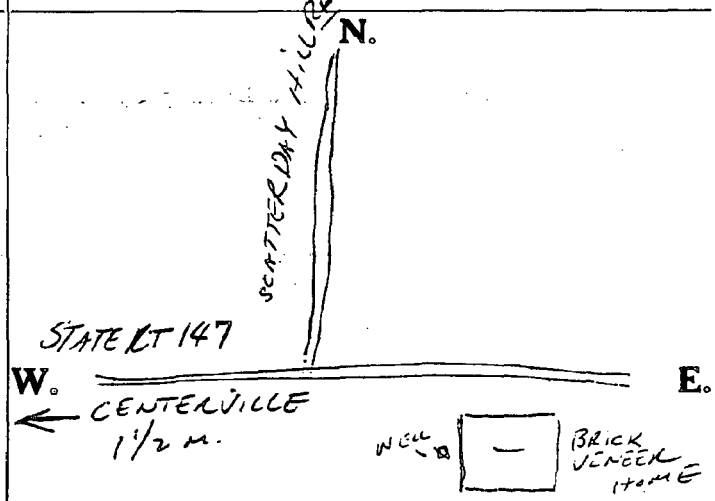
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
CLAY	0 Feet	14 Ft.
SANDSTONE	14	16
RED CLAY	16	25
SHALE	25	28
RED CLAY	28	35
SOFT GRAY SHALE	35	40
SAND STONE	40	43
SLATE	43	52
LIMESTONE	52	54
GRAY SHALE	54	70
LIME	70	76
DARK SHALE	76	80
GRAY SHALE	80	86
LIME	86	90
GRAY SHALE	90	102

WATER AT 75' AND 86'

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO.

Address JACKSBURG, O.

Date JULY 26 1956

Signed Robert N. Phillips

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TOVCC 15946

ORIGINAL

WELL LOG AND DRILLING REPORT

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. 233512

County BELMONT Township SMITH Section of Township 15

Owner CLAUDE WELLS Address JACOBSBURG, OHIO

Location of property 1 3/4 M E. CENTERVILLE ON S.R. 147

CONSTRUCTION DETAILS

Casing diameter 6 1/4 Length of casing 21

Type of screen ..... Length of screen .....

Type of pump MYERS JET

Capacity of pump 450 G.P.H.

Depth of pump setting 78'

Date of completion JUNE 1959

BAILING OR PUMPING TEST

Pumping rate 2 G.P.M. Duration of test ..... hrs.

Drawdown — ft. Date —

Developed capacity —

Static level—depth to water 35' ft.

Pump installed by SELF

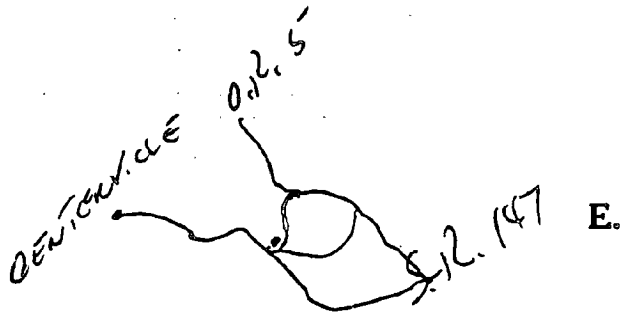
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
SURFACE	0 Feet	16 Ft.
SHALE	16	20
SANDSTONE	20	24
SLATE	24	35
SANSTONE	35	41
SLATE	41	54
SHALE	54	63
SANDSTONE	63	66
SLATE	66	85

6 1/4" Casing CEMENTED IN 8" HOLE

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO.
Address JACOBSBURG, OHIO

Date Robert N. Phillips
Signed JUNE, 1959

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TOVCC 15947

WELL LOG AND DRILLING REPORT

ORIGINAL

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

No. 185205

County BELMONT Township SMITH Section of Township

Owner ROBERT HAUGHT Address ARMSTRONGS MILLS O

Location of property 1 LOT EAST OF JCT OF RT 9 AND RT 147 IN CENTERVILLE

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 27

Type of screen Length of screen

Type of pump DEEP WELL JET

Capacity of pump

Depth of pump setting ~~[illegible]~~ 72

Date of completion

BAILING OR PUMPING TEST

Pumping rate COULD NOT BE LOWERED G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water 55 ft.

Pump installed by PHILLIPS DRILLING CO

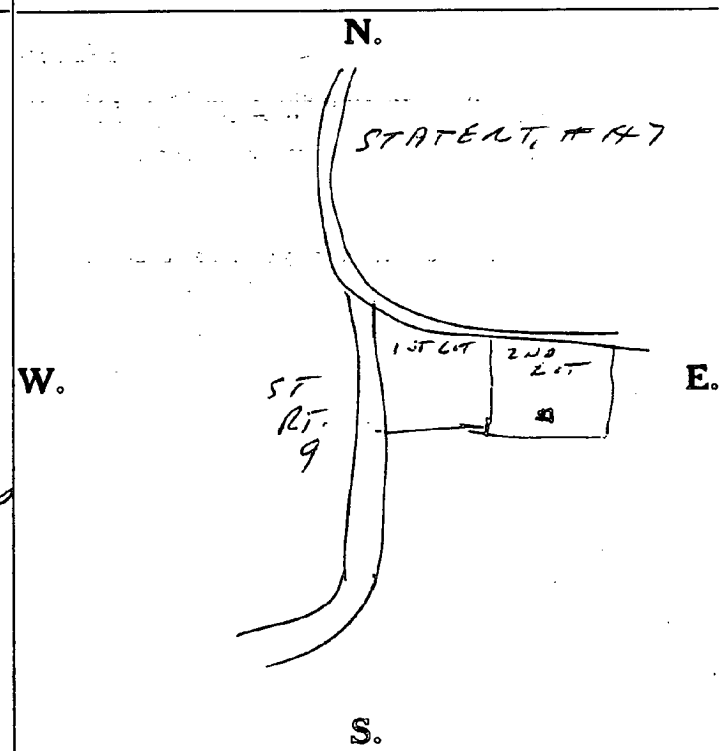
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
CLAY	0 Feet	25 Ft.
SANDSTONE	25	32
SHALE	32	36
LIMESTONE	36	39
SHALE	39	49
SANDSTONE	49	56
SHALE	56	60
SANDSTONE	60	75
SHALE	75	80

WATER AT 65'
27' OF 6" CASING CEMENTED IN 8" HOLE

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm PHILLIPS DRILLING CO Date JULY 26 1956

Address JACOBSBURG, OHIO Signed Robert N. Phillips

38C

TOVCC 15948

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

435456

County BELMONT Township Smith Section of Township 21

Owner John B Rosen Address Belmont RD 1

Location of property 1/4 mi west of intersection of STATE RTS 147 AND RT 9 WEST OF CENTERVILLE

CONSTRUCTION DETAILS

Casing diameter 8 Length of casing 32

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion July 16 72

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 10 G.P.M. Duration of test _____ hrs

Drawdown _____ ft. Date _____

Static level-depth to water 66 ft.

Quality (clear, cloudy, taste, odor) clear

Pump installed by owner

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Clay	1	12
Shale	12	30
Shale & Sandstone	30	56
Lake Stone	56	66
Limestone	66	81
Red Rock	81	85
Lime Stone	85	90
Sandstone	90	104

SKETCH SHOWING LOCATION

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

N.

W.

E.

S.

Drilling Firm R B Gault Date July 12 1972

Address 314 [illegible] Signed [illegible]

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

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WELL LOG AND DRILLING REPORT

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 12, Ohio

№ 298521

County Belmont Township Smith Section of Township 21

Owner Union Local School Bd Address Belmont, O.R.D.

Location of property Centerville, O. School.

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 42'6"

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 50 G.P.M. Duration of test 14 hrs.

Drawdown 80' ft. Date 9/11/64

Static level-depth to water 47+58' ft.

Quality (clear, cloudy, taste, odor)

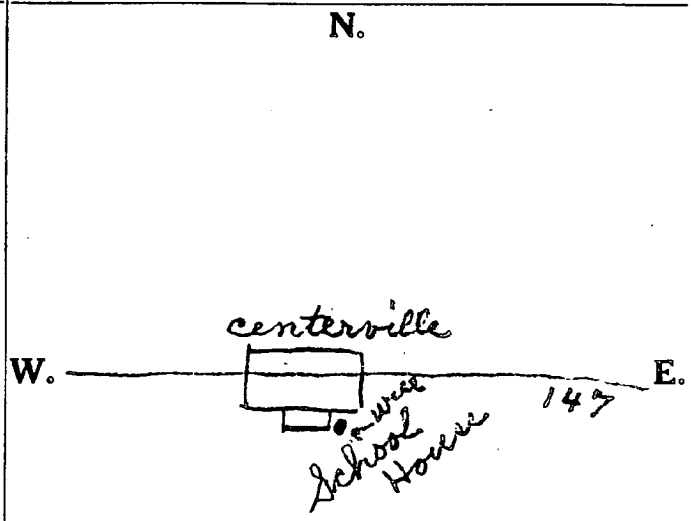
Pump installed by Phillips Drilling Co.

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
yellow clay	0 Feet	20 Ft.
Dark slate	20	30
Light clay	30	38
Red slate	38	40
coal Blossom	40	44
gray slate	44	58
Rock	58	62
coal	62	66
Rock	66	73
gray slate	73	76
Lime	76	88
Brown lime	88	88
gray slate	88	93
Red rock	93	98
Brown shell	98	110
gray shell	110	132
Rock	132	154
Brake	154	158

SKETCH SHOWING LOCATION

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



See reverse side for instructions

Drilling Firm McDougal & Wilhelm Date 9/14/64

Address St Clairsville, O. 43950 Signed R. W. McDougal

40C

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ADDENDUM TO PAGE 19, PART 2, D
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

SEASONAL VARIATIONS OF WATER QUALITY AND QUANTITY

Surface and groundwater data contained in the Attachment 14 forms included with this permit revision, will indicate the seasonal variances of quality and quantity of the water in this area.

The water wells existing in the area give a fairly representative indication of water bearing zones that can be found in this region. The Probable Hydrologic Consequences of mining gives a detailed description of these characteristics.

Precipitation is, obviously, one of the principal factors influencing water systems. Infiltration of precipitation increases soil moisture and influences groundwater chemical composition. The time required for infiltrating precipitation to reach lower water bearing zones increases with increasing depth. Depending on the morphological structure, character of surface vegetation, and intensity of precipitation the amounts of infiltration also vary greatly. Amounts of infiltration subsequently influences the dissolved solids contents of groundwater which, in most cases, become more dilute during periods of prolonged precipitation. Rainfall data collected at or near the Powhatan No. 6 Mine has been charted on the following page. Annual rainfall for the years 1987 through 1990 are graphed. The average monthly rainfall for this period is also shown. The resultant shaded areas indicates which months would be considered those most likely to receive higher or lower than the mean monthly precipitation amount.

Included with the water data collected by OVCC is water quality and quantity documented by the Ohio EPA and the USGS.

All the data will show that an increased water quantity and a decrease in chemical constituent levels is realized during times of increased precipitation and snow melt of winter and spring seasons; while a decrease in water quantity and increase in chemical constituent levels is realized in dry summer and early autumn seasons.

DO 306-2

ADDENDUM TO PAGE 19, PART 2, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

HYDROLOGIC DETERMINATION

Based on the information submitted in this application, the enclosed probable hydrologic consequences may be expected. Although the overall hydrologic regime will not be affected, individual sources of ground and surface water may be temporarily disrupted. That is, individual wells, springs, or streams may suffer significant water loss. However, this effect is expected to be temporary. Sources that are affected permanently will be replaced by OVCC at its own expense. The quality of the surface and ground water in the proposed mining and adjacent area is not expected to be changed in the long term as a result of the proposed mining activities. Specifically, the levels of pH, iron, manganese, total suspended solids, and total dissolved solids are not expected to vary from their original levels.

However, these parameters may temporarily be changed. If these changes are significant enough to cause the sources to be unusable, OVCC will begin to undertake measures to replace the source temporarily within 48 hours and permanently (within 18 months) both at the expense of OVCC.

Some temporary changes to individual ground water and surface water source availability are anticipated. Wells and springs may go dry, streams may flow less, ponds may de-water. However, the effect on sediment yield, acidity, total suspended and dissolved solids, and flooding are expected to be minimal if any.

The effects are expected to stabilize within about two years as the localized water table reaches equilibrium again. On a temporary basis, water will be provided for all developed ground water sources and for surface water sources that are used at OVCC's expense. Ponds and streams with visible cracks that are draining water will be repaired. Permanent replacement supplies will be provided if an individual source is permanently affected. OVCC will bear the entire cost of both temporary and permanent water replacement.

ADDENDUM TO PAGE 19, PART 2, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

The quality of the surface and ground water in the proposed mining area is not expected to be changed in the long term as a result of the mining activities. Specifically, the levels of pH, iron, manganese, total suspended solids, and total dissolved solids are not expected to vary from their original levels.

The Ohio Valley Coal Company (OVCC) fully recognizes the rights of surface and ground water users. However, OVCC also realizes that its mining will probably disrupt individual developed sources of the surface and ground water in the area for a period of time. OVCC is committed to providing both interim and permanent replacement water to users of surface and ground water. OVCC will bear the cost of providing both interim and permanent replacement water.

As a result of the mining in the proposed permit area, individual surface and ground water developed sources are expected to be temporarily disrupted to the extent that shallow wells may be de-watered, streams may become dry, and springs may develop at a lower elevation than before. These movements of the saturated zones are somewhat unpredictable, and as such, OVCC cannot protect the quantity in these locations. However, alternative water supplies will be provided for those supplies used by the landowner in similar quantities to pre-mining conditions. Because it cannot be determined at what elevation the water will return, the alternative sources of water cannot be fully described here. However, alternatives include the list shown in the Addendum to Page 19, Part 2, F.

ADDENDUM TO PAGE 19, PART 2, F(1)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

DEVELOPED SUPPLIES OF GROUND AND SURFACE WATER THAT MAY BE IMPACTED AS A RESULT OF THE PROPOSED OPERATION

Of the supplies listed in Attachment 14C and 14D, the following may have long-term impacts as a result of the proposed operation:

SP-29
SP-30
SP-32
SP-33
SP-34
SP-36
SP-55
W-78
W-83
W-99

According to the PHC, the above mentioned sources may be impacted permanently or may have delayed or long-term recovery. Wells may experience significant declines in static water level. Springs may experience significant flow declines with long-term or no recovery.

PHC

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ADDENDUM TO PAGE 19, PART 2, F(1) and
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PROBABLE HYDROLOGIC CONSEQUENCES
PERMIT D-0360

Prepared For:

THE OHIO VALLEY COAL COMPANY
56854 PLEASANT RIDGE ROAD
ALLEDONIA, OHIO 43902

Prepared By:

MOODY AND ASSOCIATES, INC.
R. D. #4, BOX 412, COTTON ROAD
MEADVILLE, PENNSYLVANIA 16335

March 6, 1991

Prepared By:

Burt A. Waite, C. P. G.
Senior Geologist

David M. Anderson
Project Geologist

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CROSS-SECTIONS, A, B, C AND D	IN POCKET
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ANNOTATED BIBLIOGRAPHY	ATTACHED

OHIO VALLEY COAL COMPANY

POWHATAN NO. 6 MINE

PROBABLE HYDROLOGIC CONSEQUENCES

TOPOGRAPHIC SETTING:

The Powhatan No. 6 Mine is located in Belmont County, Ohio which is within the Appalachian Plateau physiographic province. The topography of the county is typically hilly with narrow rounded ridges and deep v-shaped valleys dissecting the terrain. Topographic relief within the proposal area is approximately 422 feet. The elevation varies between 1,322 feet (maximum) above sea level along the northern boundary of the proposal area to approximately 900 feet in the southwest corner of the proposal area, along Anderson Run. As discussed below, the steep topography, coupled with low permeability rock units, contributes to the occurrence of hillside seeps and springs.

Most of the proposal area drains to the south through Anderson Run and Rocky Fork which are tributaries of Captina Creek. The northeast corner of the proposal area drains to the north through an unnamed tributary of Williams Creek.

GEOLOGIC SETTING:

A detailed discussion of the stratigraphic and structural setting of the longwall panels area is provided in the Geology section of this permit application. However, those properties of the geologic setting essential to ground water occurrence and movement are described here.

Geologic structures in the area are not major controlling factors of ground water flow. The rocks underlying the longwall mining area are nearly horizontal with an average dip of only 20 feet per mile to the southeast. There is a small anticlinal dome approximately one mile to the east of the subject area (Berryhill, 1963) and a graben type structure has been identified in the immediate area (Siplivy, 1990). However, as discussed below, these structural features do not control or significantly influence subsurface water movement.

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The lithologic characteristics of the rocks are important, however, to ground water occurrence. Based on drill hole and core hole logs available for the area, approximately 55 to 93 percent of the rock column consists of "soft rocks". Soft rocks are defined here as shale, mudstone, claystone, sandy shale and fire clay and as discussed below have distinct hydraulic properties. Hard rocks, which represent approximately 7 to 45 percent of the rock column include sandstone, shaly sandstone, and limestone. These rocks which tend to be somewhat more brittle, have hydraulic properties significantly different from the soft rocks.

Cross-Sections A, B, C and D were prepared primarily to illustrate the horizontal and vertical distribution of the soft and hard rocks and were utilized extensively in predicting the hydrologic impacts of mining. The lines of cross-section are shown on FIGURE 1.

The cross-sections also illustrate the great horizontal and vertical variability of the rock units. Rapid facies changes greatly limit the horizontal continuity of rock units. With the exception of the major coal seams, very few individual rock units are continuous across the panel areas and most lithologic units can not be correlated between adjacent drill holes. Horizontal facies changes and corresponding changes in hydrologic properies of the rocks tends to produce localized subsurface flow systems. In addition, laboratory studies of core samples from similar rocks indicate vertical permeability is several orders of magnitude lower than horizontal permeability (Brown R. L., et. al. 1971). This again results in hydrologically localized flow systems that are not continuous across the application area.

HYDROLOGIC SETTING:

The source of all ground and surface water in the mine plan area is precipitation. Upon reaching the land surface, water that is not part of direct surface runoff or evapotranspiration infiltrates into the subsurface to become part of the ground water flow system and for use by plants. While soil moisture is important to agriculture, there are no identified unconsolidated aquifers in the area.

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Ohio Valley Coal Co.
Powhatan No. 6 Mine

Core Log	Surface Elevation	Elevation Base Pittsburgh Coal	Percentage Soft Rocks	Percentage Hard Rocks	Cross Section
84 - 5	1285	717.7	57.2	42.8	A
86 - 13	1055	738	73.6	26.4	A
86 - 16	1020	725.12	57.3	42.2	A ,C
86 - 2	980	722.2	93.3	6.7	A
86 - 1	980	743.5	87.7	12.3	A
84 - 7	1160	722.5	59.5	40.5	A
86 - 3	1213	767.2	61	39	A, B
86 - 9	1260	710	67.5	32.5	B
86 - 7	1230	784	59	41	B , D
86 - 6	1200	743	56.5	43.5	B, C
86 - 5	1170	658.8	55.7	44.3	B
86 - 15	1280	733.81	73.4	26.6	C
84 - 8	1185	741.12	61.6	38.4	C
86 - 4	1220	760	60.7	39.3	C
86 - 11	1200	752.87	51.2	48.8	C
90 - 3	1105	722	72.5	27.5	D
86 -12	1285	728.44	68.5	31.5	D
84 - 6	1225	729	72	28	D
86 - 10	1270	726	71.6	28.4	D
86 - 8	1230	746.41	68.3	31.7	D

Within the bedrock system, ground water occurs in primary and secondary openings. Primary openings are pore spaces between sand, silt and clay grains formed at the time of sediment depositions. Primary permeability is the ability of water to move between pore spaces. In this area, primary permeability is very low and very little ground water movement occurs in hard or soft rocks as a result of primary openings (Stoner 1983, Siplivy 1990).

Secondary porosity and permeability is formed by fractures or partings in the rock mass. Most usable ground water in the subject area occurs in secondary openings and the success of a water well is dependent upon the well penetrating a water filled fracture zone that transmits enough water to the well bore to meet it's intended use (Schmidt, 1985, Moody 1986).

Fractures are not ubiquitous in the area, however, and are not interconnected over large areas. For these reasons, it is very difficult to identify aquifers over large areas and the ground water flow system tends to be made up of small localized fracture controlled entities. While fractures in hard rocks tend to stay open better than fractures in soft rock, the horizontal and vertical variability of even the hard rock units tend to produce hydraulically isolated areas.

In addition, fractures tend to close at increasing depths due to overlying lithostatic pressures, thereby limiting the effective depth of the ground water flow system (Stoner, 1983). This condition is evident throughout the Powhatan No. 6 Mine. The mine, in general, is very dry with even minor amounts of water inflow limited to the low cover areas (generally less than 200 feet).

During full recovery mining, where the roof is allowed to collapse, existing natural fractures are often re-opened and new fractures are created. Typically, a rubble zone developes above the extracted coal seam with a gradually reduced fracture density pattern above the rubble zone. However, the fractures developed by subsidence are normally a poorly interconnected network of cracks and are rarely continuous openings to the mine void (Rauch, 1987). This condition is evidenced by the fact that recent longwall mining has not resulted in water in-flow in the longwall or adjacent areas in the

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Powhatan No. 6 Mine (Bartsch 1991). In fact, no pumping of water from these areas is occurring.

The soft rocks (which account for 55 to 93 percent of the rock column) tend to deform in a more plastic manner with limited fracturing. Many of those fractures that do form in soft rocks tend to "heal" by fracture clogging or clay swelling. This process limits the amount of water that would tend to migrate downward. The mining conditions experienced in the four longwall panels immediately west of this study area substantiates this interpretation of the subsidence affected flow systems. On two separate occasions, in-mine inspections were made to observe water conditions in the analog area. It was noted that no water was accumulating in the longwall panel areas and no water was being pumped from the section. An inspection of the chain pillar areas, including close inspection of the accessible areas of the gob in three completed panels, did not reveal any ground water in-flow. Interviews with several mine foremen, who directed mining operations of the longwall panel areas, verified dry conditions prevailed throughout the mining and post-mining phases of the analog areas.

A re-adjustment of the subsurface flow system, however, does occur with some changes in ground water levels and a re-positioning of some hillside springs. The net hydrologic balance, however, is nearly unchanged. The water that infiltrates from the land surface remains in the flow system and does not, to a major degree, enter the mine. The re-positioning of the static water levels, however, often results in inconvenience (usually temporary) to the ground water users in the area.

Due to the laterally discontinuous nature of the strata, there are no recognized large regional aquifers in the application area. However, for identification purposes, the water producing horizons currently being utilized have been identified as saturated zones, with the designation L-1 through L-8, in the permit application. These zones are represented on Cross-Sections 3LWX Sec. 1, 2 and 3. The saturated zones are located above the regional base water level, occasionally outcrop along the hillsides, and are cut into discontinuous lateral zones by the stream valleys. The saturated zones represent piezometric surface elevations. The saturated zones in the application area and the analog area to the west are comparable, although their elevations may vary somewhat.

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PROBABLE GROUND WATER IMPACTS:

WATER QUANTITY

Ohio Valley Coal Company has established in-house guidelines relative to longwall mining to minimize negative hydrologic impacts. Variables, such as overburden thickness and surface water features, are evaluated and permits are prepared only for these areas that are expected to have minimum impacts.

The specific impacts expected by longwall mining in this section of the Powhatan No. 6 Mine are predicted primarily by use of data generated during longwall mining currently being conducted at the Powhatan No. 6 Mine immediately west of the application area.

There are a total of sixteen wells and nine springs overlying the area currently being longwall mined west of the application area. Seven of the wells and two of the springs have been undermined. Two of these wells were not negatively affected by the mining. One of these two wells currently has a static water level higher than the pre-mining level. Three of the seven wells showed a drop in static water level, but have since recovered to approximately pre-mining levels. Two of the seven wells lost water when undermined and have not recovered to pre-mining levels. One of these wells has begun to recover, but has yet to reach pre-mining levels.

Of the two springs undermined, one of them went dry and the other had a slight reduction in flow, but has begun to recover. The nine wells and seven springs that were not undermined were unaffected by the mine.

Ohio Valley Coal Company personnel reported that the area currently being mined produces little or no water (Bartsch, 1991). This indicates that the water lost from the wells and springs is draining to new fractures opened up above the mine, but not to the mine. Once the flow system re-establishes equilibrium conditions, the water levels should recover to near pre-mining levels (Tieman and Rauch, 1987).

The primary hyrologic variables that appeared to directly influence impacts on ground water supplies in the analog area were cover thickness, relative percentage of soft rocks, and topographic setting. Within the analog area,

TOVCC 15963

the only well that exhibited a high degree of water loss with little or no recovery within six or seven months after mining was a shallow dug well. It appears the local water table at this location has been temporarily or permanently lowered. An adjacent drilled well, which was completed to a greater depth, experienced a very significant water loss with subsequent partial recovery (approximately 21 feet of recovery after seven months).

Other drilled wells in the analog area that were completed to greater depths exhibited no effect or had rapid water level recovery shortly after mining. It was concluded that these wells were not significantly or permanently impacted primarily because they were completed at a depth closer to the regional hydrologic base level and were less susceptable to the water table fluctuations that occurred at the higher elevations. In addition, the relatively high percentage of soft rocks in the area and the overburden thickness prevented direct fracturing, and thus flow paths, to the mine.

Based on a review of the current literature and limited data in the analog area, it is expected that springs high on hillsides, well above the regional base water elevation, may have significantly reduced flows or go dry. Springs closer to the regional base water elevation may show a slight flow reduction, but are predicted to recover to pre-mining flow rates. Some of these springs may show an increase in flow rates. New springs may develop closer to the regional base water elevation to replace those lost at higher elevations. Water sources that are less than 50 feet above the regional base water elevation are not expected to be significantly affected by longwall mining. (Tieman and Rauch, 1987).

TABLE 1 is a summary of all the springs and well water supplies identified in the subject area. This table presents pertinent data relative to potential hydrologic impacts by longwall mining and lists the predicted hydrologic impacts based on the discussion presented here.

WATER QUALITY

A review of the water quality for the wells and springs undermined in the analog area, indicate that the water quality fluctuated slightly from month to month prior to mining. None of the wells and springs show changes in water quality after being undermined outside of the normal pre-mining range.

TOVCC 15964

Temporary increase in iron, sulfate and total dissolved solids may occur following mine subsidence. These increases are attributed to increased weathering rate along subsidence fractures. However, water quality is expected to return to normal as the weathering rate decreases. Ground water quality data from the analog area is presented here in APPENDIX 1.

PROBABLE SURFACE WATER IMPACTS:

The new permit area is drained by three streams. Anderson Run and Rocky Fork, which flows south into Captina Creek, drain the area south of State Route 147. An unnamed tributary of Williams Creek, flows north, draining the area north of State Route 147. After a review of the current literature and the geologic data for the permit area, it is expected that flows in selected stream segments may be temporarily reduced, with some stream sections going dry. Due to the high percentage of soft rocks in the mine overburden, and the resultant dry conditions in the analog area, the water loss from the streams in the new area is not expected to drain into the mine. The water will drain into new fracture systems created by mine subsidence. As these fractures fill and the flow system approaches a new equilibrium, the streams will begin to recover.

The effects on Rocky Fork and the unnamed tributary of Williams Run will be minimal as a relatively small portion of these streams will be undermined. However, almost the entire watershed for Anderson Run will be undermined. In Anderson Run, where a large percentage of the watershed will be undermined, more pronounced but temporary effects are expected. Impacts are predicted to closely resemble those oberved on an unnamed tributary to Bend Fork which was undermined in the analog area. Surface cracks appeared in the stream bed and a temporary reduction of flow occurred. However, within several months, stream flows returned to what appears to be pre-mining or near pre-mining levels. Anderson Run is expected to be impacted in a similar fashion.

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TABLE 1

OHIO VALLEY COAL COMPANY
PREDICTED HYDROLOGIC IMPACTS ON WELLS

WELL	SURFACE ELEVATION	TOTAL OVERBURDEN THICKNESS	WELL DEPTH	WELL BOTTOM ELEVATION	ESTIMATED PERCENT SOFT ROCK	OVERBURDEN THICKNESS (WELL BOTTOM)	PREDICTED PHC*
W - 19	1273	540	27	1246	73	513	B
W - 28	1299	566			73		
W - 29	1282	549			73		
W - 30	1269	536	70	1199	73	466	B
W - 32	1265	532	98	1167	73	434	C
W - 38	1270	537	88	1182	73	449	C
W - 39	1280	547			73		
W - 49	1300	567	114	1186	57	453	B
W - 50	1321	588	44	1277	69	544	C
W - 51	1281	548	109	1172	69	439	C
W - 52	1282	549	79	1203	69	470	B
W - 53	1292	559	85	1207	69	474	B
W - 54	1250	517	75	1175	69	442	C
W - 55	1290	557	79	1211	69	478	B
W - 56	1290	557	32	1258	69	525	B
W - 57	1307	574	138	1169	69	436	C
W - 58	1249	516	100	1149	72	416	C
W - 59	1260	527	55	1205	72	472	B
W - 60	1272	539	134	1138	72	405	C
W - 61	1260	527	117	1143	72	410	C
W - 62	1262	529	60	1202	72	469	B
W - 63	1251	518	24	1227	62	494	B
W - 64	1264	531	62	1202	62	469	B
W - 65	1250	517	114	1136	62	403	C
W - 66	1193	460	38	1155	62	422	C
W - 67	1193	460	59	1134	62	401	C
W - 68	1202	469	38	1164	62	431	C
W - 69	1281	548	34	1247	57	514	B
W - 70	1296	563	41	1255	57	522	B
W - 71	1299	566	59	1240	57	507	B
W - 73	1264	531			66		
W - 74	1264	531			66		
W - 75	1262	529	74	1188	66	455	B
W - 76	1262	529	90	1172	66	439	C
W - 77	1255	522	40	1215	66	482	B
W - 78	1261	528	185	1076	66	343	A
W - 79	1279	546	50	1229	72	496	B
W - 80	1226	493	35	1191	72	458	B
W - 81	1314	581	66	1248	72	515	B
W - 82	1238	505	80	1158	72	425	C
W - 83	1293	560	208	1085	59	352	A
W - 84	1287	554	90	1197	59	464	B
W - 85	1293	560	53	1240	59	507	B
W - 86	1315	582	50	1265	57	532	B
W - 87	1231	498	36	1195	56	462	B
W - 88	1231	498	82	1149	56	416	C
W - 89	1249	516	85	1164	56	431	C
W - 90	1211	478	63	1148	66	415	C

W - 91	1280	547			61		
W - 92	1231	498	42	1189	72	456	B
W - 93	1262	529	109	1153	72	420	C
W - 94	1274	541	69	1205	68	472	B
W - 95	1289	556			68		
W - 96	1228	495	27	1201	68	468	B
W - 97	1332	599	100	1232	68	499	B
W - 98	1346	613			68		
W - 99	1185	452	107	1078	66	345	A
W -100	1220	487	77	1143	68	410	C
W -101	1231	498	24	1207	51	474	B
W -102	1228	495	70	1158	51	425	C
W -103	1190	457			51		
W -104	1224	491	42	1182	51	449	C
W -105	1230	497	73	1157	51	424	C
W -107	1302	569			57		
W -108	1303	570			57		
W -109	1281	548			68		
W -110	1295	562			72		
W -111	1290	557			72		
W -112	1235	502			72		
W -230	1355	622			68		
W -231	1345	612			68		
W -232	1332	599	90	1242	68	509	B
W -233	1332	599	90	1242	68	509	B
W -233A	1330	597	85	1245	68	512	B
W -234	1351	618			68		
W -235	1365	632	138	1227	68	494	B
W -236	1341	608	150	1191	68	458	B
W -259	1328	595	110	1218	68	485	B
W -261	1301	568			72		
W -262	1290	557			72		
W -263	1263	530			72		
W -264	1263	530			72		
W -265	1265	532			72		
W -270	1339	606			68		
W -271	1351	618	60	1291	68	558	B
W -272	1349	616	60	1289	68	556	B
W -273	1270	537			72		
W -274	1301	568			72		
W -275	1301	568			72		
W -276	1301	568			72		
W -277	1306	573			72		
W -280	1314	581					
W -281	1355	622			72		
W -282	1355	622			72		

*PHC (PROBABLE HYDROLOGIC CONSEQUENCES) CRITERIA FOR WELLS:

A - OVERBURDEN THICKNESS BETWEEN COAL SEAM AND WELL BOTTOM <400 FEET
SIGNIFICANT WATER LEVEL DECLINE PREDICTED WITH LONG TERM OR NO RECOVERY

B - OVERBURDEN THICKNESS BETWEEN COAL SEAM AND WELL BOTTOM >451 FEET
VERY LITTLE OR NO WATER LEVEL DECLINE PREDICTED WITH QUICK RECOVERY

C - OVERBURDEN THICKNESS BETWEEN COAL SEAM AND WELL BOTTOM 401 TO 450 FEET
SOME DECLINE IN WATER LEVEL WITH SHORT TERM RECOVERY

TABLE 1
(CONTINUED)

OHIO VALLEY COAL COMPANY
PREDICTED HYDRAULIC IMPACTS ON SPRINGS

SPRING	SURFACE ELEVATION	OVERBURDEN THICKNESS	ESTIMATED PERCENT SOFT ROCK	PREDICTED PHC*
SP - 22	1250	517	73	C
SP - 29	1260	527	73	A
SP - 30	1261	528	73	A
SP - 32	1270	537	57	A
SP - 33	1264	531	57	A
SP - 34	1260	527	57	A
SP - 35	1200	467	57	C
SP - 36	1265	532	57	A
SP - 37	1241	508	69	C
SP - 38	1210	477	69	C
SP - 39	1135	402	69	B
SP - 40	1150	417	62	C
SP - 41	1195	462	69	C
SP - 42	1180	447	69	C
SP - 43	1200	467	72	C
SP - 44	1234	501	72	C
SP - 45	1201	468	72	C
SP - 46	1188	455	56	C
SP - 47	1220	487	56	C
SP - 48	1220	487	61	C
SP - 49	1220	487	56	C
SP - 50	1210	477	56	C
SP - 51	1210	477	61	C
SP - 52	1211	478	59	C
SP - 53	1220	487	68	C
SP - 54	1212	479	68	C
SP - 55	1270	537	68	A
SP - 56	1240	507	68	C
SP - 57	1190	457	68	C
SP - 58	1195	462	68	C
SP - 59	1180	447	68	C
SP - 60	1142	409	68	B
SP - 61	1160	427	51	C
SP - 62	1205	472	51	C
SP - 65	1170	437	66	C
SP - 66	1201	468	66	C
SP -168	1225	492	72	C
SP -169	1199	466	72	C
SP -170	1190	457	72	C
SP -171	1175	442	72	C
SP -172	1210	477	72	C
SP -173	1250	517	72	C
SP -174	1210	477	72	C
SP -175	1209	476	72	C
SP -176	1197	464	72	C
SP -177	1198	465	72	C

SP -180	1180	447	72	C
SP -198	1195	462	72	C
SP -214	1190	457	72	C
SP -215	1267	534	72	B

* PHC (PROBABLE HYDROLOGIC CONSEQUENCES) CRITERIA FOR SPRINGS:

A - SPRING SURFACE ELEVATION >1250 FEET
SIGNIFICANT FLOW DECLINES PREDICTED WITH LONG TERM OR NO RECOVERY

B - SPRING SURFACE ELEVATION <1150 FEET
VERY LITTLE OR NO FLOW DECLINE PREDICTED WITH QUICK RECOVERY
THERE IS SOME POTENTIAL FOR THESE SPRINGS TO HAVE INCREASED FLOWS

C - SPRING SURFACE ELEVATION 1150 TO 1250 FEET
SHORT TERM FLOW DECLINES PREDICTED WITH QUICK RECOVERY

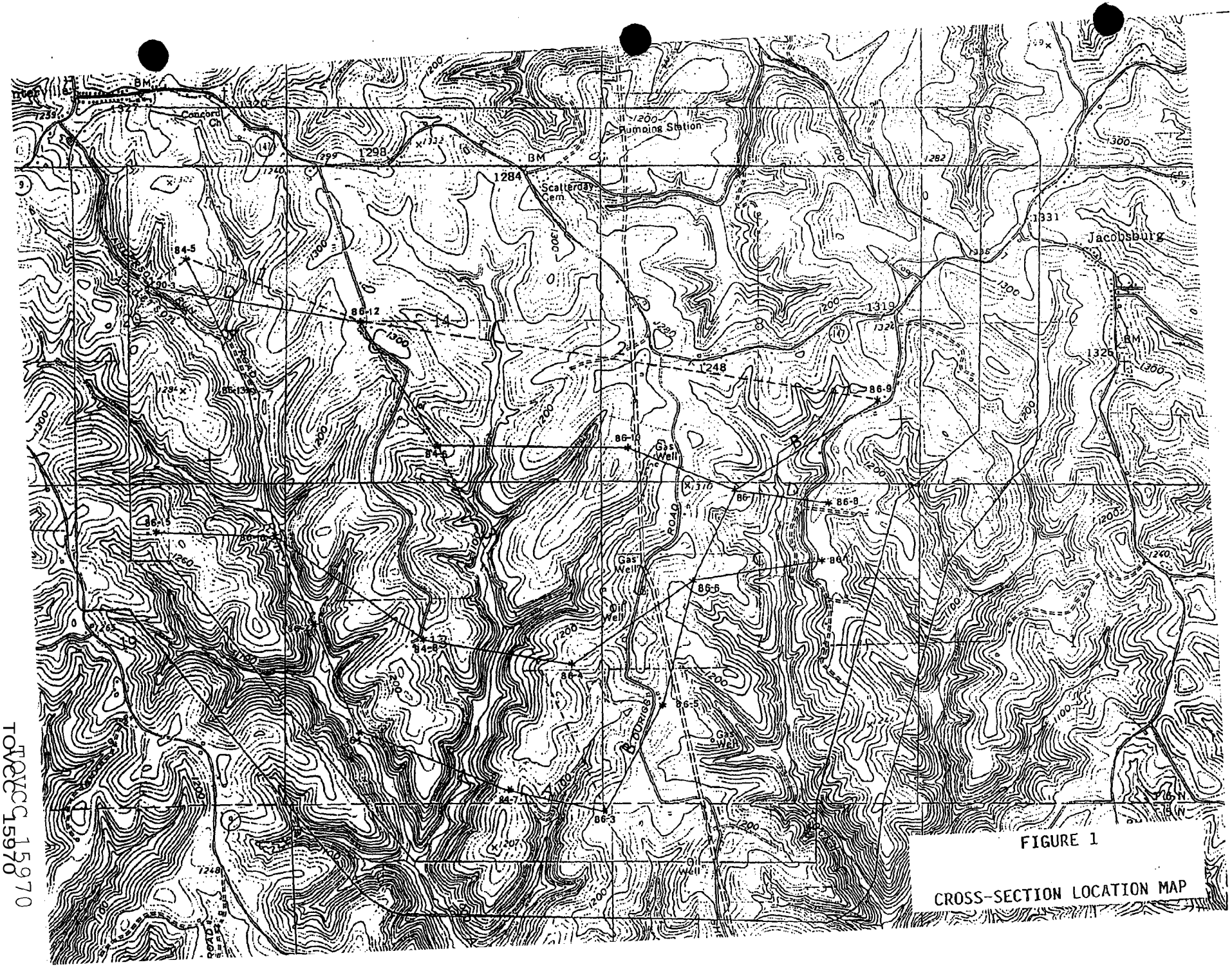


FIGURE 1

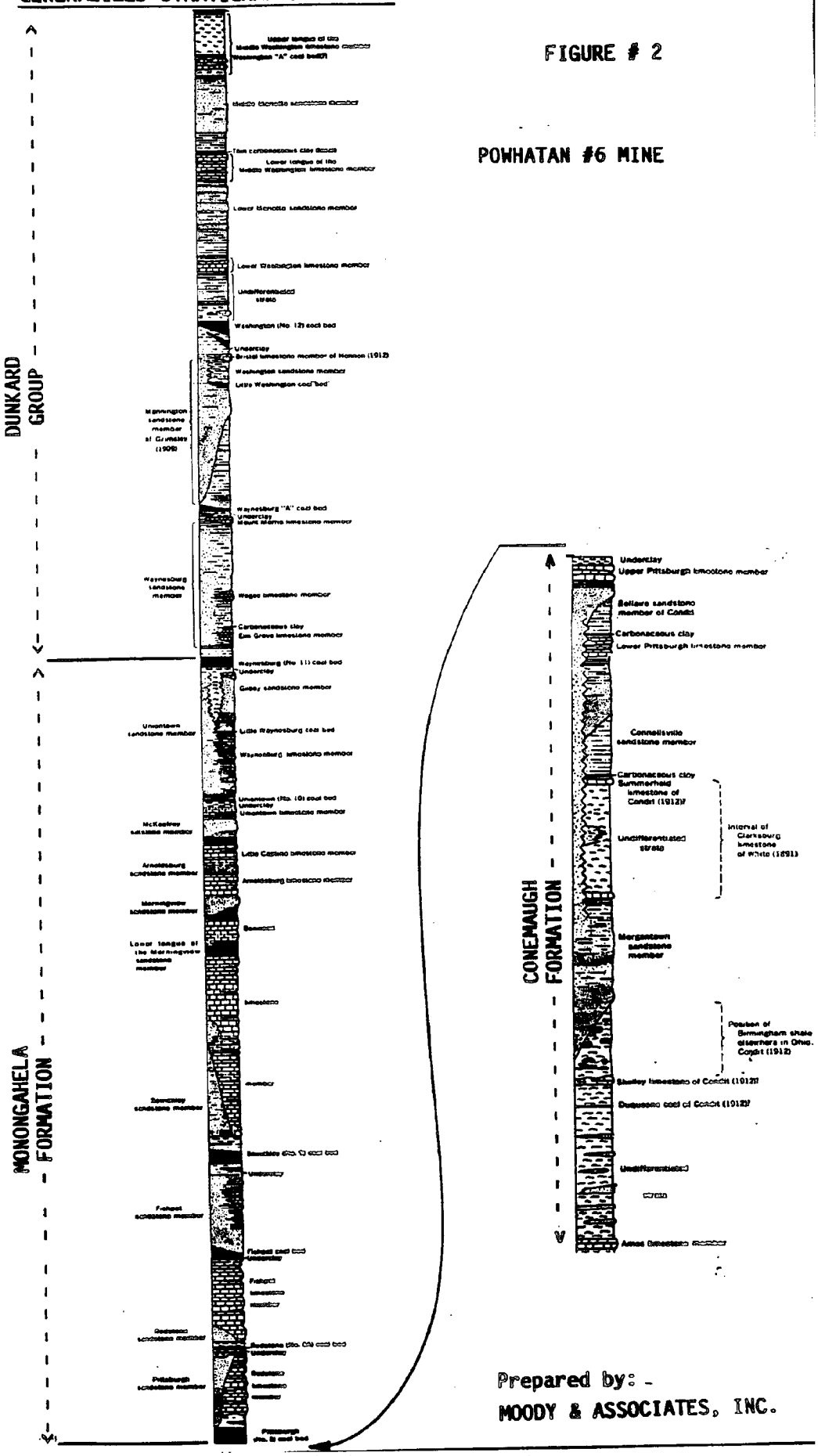
CROSS-SECTION LOCATION MAP

TOXICS 15970

GENERALIZED STRATIGRAPHIC COLUMN

FIGURE # 2

POWHATAN #6 MINE



From:
U. S. Dept. of Interior
Geological Survey
Professional Paper 380

Prepared by: -
MOODY & ASSOCIATES, INC.

TOVCC 15971

APPENDIX 1

ANALOG WELL AND SPRING DATA

The following analog data was used to predict the effects of longwall mining on wells and springs in the application area.

ADENDUM TO PART 2, PAGE 19. E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

MONTHLY MONITORING DATA
1989

SOURCE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
W-13	SWL (FT)		14									23	24
W-19	SWL (FT)		30										
W-21	SWL (FT)			22						21	24		26
W-22	SWL (FT)		42	42	46	44	50	51		60			57
W-25	SWL (FT)		48	47	47	46	46	46					
W-26	SWL (FT)			41	45	42	44	43					
W-27	SWL (FT)		32	32	31	31	30	30					36
W-30	SWL (FT)		26	26	27	27	30	29					36
W-32	SWL (FT)		30	28	30	27	35	32					69
W-33	SWL (FT)					16		16			16		
W-34	SWL (FT)										11		
W-35	SWL (FT)										17	16	17
W-37	SWL (FT)										37	38	37
W-38	SWL (FT)										38		46
SP-11	FLOW (GPM)		2.0	2.0	2.0	2.0	2.0	2.0		0.8	3.5	1.6	1.1
SP-20	FLOW (GPM)		4.0	4.0	4.0	4.0	4.0	4.0					
SP-21	FLOW (GPM)		2.0	2.0	2.0	2.0	2.0	2.0					
SP-22	FLOW (GPM)			2.0	2.0	2.0	2.0	2.0					
SP-23	FLOW (GPM)						2.0	2.0			1.5		
SP-24	FLOW (GPM)						2.0	2.0			1.5		

MONTHLY MONITORING DATA
1990

SOURCE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
W-13	SWL (FT)	20	21	15	20	17		22	23	20.5	19		
W-19	SWL (FT)				22	21	20	21	25	25	26		
W-21	SWL (FT)	20	21	48	55	45	32	31.5	55	29.5	28		
W-25	SWL (FT)	46	46	49	47	46	45	45	48	49	50		
W-26	SWL (FT)	40	40	46	51	39	40	40	45	40.5	40		
W-27	SWL (FT)	30	30	32	32	32	31	31	33	31	33		
W-28	SWL (FT)				50	49	49	49	52	51	50		
W-30	SWL (FT)	28	24	30	35	30	27	28	33	30	30.5		
W-32	SWL (FT)	32	28	39	30	28	26	29	30.5	31	33		
W-33	SWL (FT)	20	21	15	23	18	21	17	21	21	19		
W-34	SWL (FT)				12	9	6	7	10	8	7		
W-35	SWL (FT)				58	55	58	58.3	61	54.5	50.6		
W-36	SWL (FT)				27	25	27			26.8	26.3		
W-37	SWL (FT)				39	33	36	36.7	38	35	36		
W-38	SWL (FT)	21	19	40	37	28	24	27	31	21	24		
W-43	SWL (FT)										5.0		
SP-11	FLOW (GPM)				0.5	1.4	1.5	0.4	0.1	0.4	0.8		
SP-20	FLOW (GPM)				0.0	0.3	0.0	0.0	0.0	0.0	0.0		
SP-21	FLOW (GPM)				0.2	0.5	0.5	0.6	0.3	0.3	1.1		
SP-22	FLOW (GPM)			2.0	0.0	1.3	0.8	0.8	0.1	0.0	0.1		
SP-23	FLOW (GPM)				0.8	1.3	1.3	1.5	1.2	1.3	0.9		
SP-24	FLOW (GPM)				1.5	2.3	1.9	2.4	1.3	1.3	0.8		
SP-29	FLOW (GPM)							2.1	0.6	1.3	1.7		
SP-30	FLOW (GPM)							1.5	0.8	1.0	2.6		
SP-31	FLOW (GPM)								0.8	1.6	1.3		

ADDENDUM TO PART 2, PAGE 19, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

DETAILED MONITORING OF SOURCES THAT HAVE BEEN UNDERMINED

W-21*

DATE	SWL(FT)
MAR89	22
SEPT89	21
OCT89	24
DEC89	26
1-30	20
2-22	21
3-2*	31
3-10	53
3-12	45
3-14	47
3-19	45
3-26	48
APR90	55
MAY90	45
JUN90	32
JUL90	31.5
AUG90	55
SEPT90	29.5
OCT90	28

W-36

DATE	SWL(FT)
1-3	17
2-22	12.5
3-10	16
3-19	19.5
3-26*	D
4-9	D
4-16	26.5
4-23	D
5-2	D
5-14	26.5
5-28	24.75
6-11	26.6
6-14	26.6
JUL90	D
AUG90	D
SEPT90	26.8
OCT90	26.3

W-35

DATE	SWL(FT)
OCT89	17
NOV89	16
DEC89	17
1-3	15
2-22	11
3-10	15
3-19	30
3-26*	72
4-9	72
4-16	70
4-23	70
5-2	71
5-14	68
5-28	55
6-11	58
6-14	57.6
JUL90	58.3
AUG90	61
SEPT90	54.5
OCT90	50.6

W-37**

DATE	SWL(FT)
OCT89	37
NOV89	38
DEC89	37
1-30	32
2-23	30.5
3-12	34
3-19	36
3-26*	38
APR90	39
MAY90	33
JUN90	36
JUL90	36.7
AUG90	38
SEPT90	35
OCT90	36

SP-11

DATE	FLOW(GPM
FEB89	2+
MAR89	2+
APR89	2+
MAY89	2+
JUN89	2+
JUL89	2+
SEPT89	0.8
OCT89	3.5
NOV89	1.6
DEC89	1.1
1-3	3.00
2-22	3.50
3-14	1.30
4-5	1.82
4-6	1.82
4-7	1.72
4-9	1.33
4-10	0.75
4-12*	1.20
4-14	0.66
4-15	1.00
4-16	0.86
4-23	0.51
4-24	0.46
5-28	1.36
6-11	1.46
JUL90	0.36
AUG90	0.11
SEPT90	0.36
OCT90	0.80

SP-20

DATE	FLOW(GPM)
FEB89	4+
MAR89	4+
APR89	4+
MAY89	4+
JUN89	4+
JUL89	4+
4-27	0.02
5-21	0.33
6-14	0.00
6-20	0.73
6-21	0.73
6-26*	0.00
6-27	0.00
6-28	0.00
6-29	0.68
7-5	0.00
7-18	0.00
8-15	0.00
9-19	0.00
10-16	0.00

W-19**

DATE	SWL(FT)
APR90	22
MAY90	21
JUN90	20
7-25*	21
8-8	22
8-13	25
8-20	24
9-10	25
10-8	26

W-32

DATE	SWL(FT)
JAN89	30
FEB89	28
MAR89	30
APR89	27
MAY89	35
JUN89	32
DEC89	69
JAN90	32
FEB90	28
MAR90	39
APR90	30
MAY90	28
JUN90	26
7-25	29
8-8	30
8-13	30.5
8-20*	31
9-20	31
10-8	33

W-38

DATE	SWL(FT)
OCT89	38
DEC89	46
JAN90	21
FEB90	19
MAR90	48
APR90	37
MAY90	28
JUN90	24
7-25	27
8-8	30
8-13	31
8-20*	28
9-20	21
10-8	24

D=DRY +=FLOW ESTIMATED
*=SOURCE UNDERMINED **=SOURCES LOCATED OUTSIDE OF LONGWALL PANELS

ADDENDUM TO PART 2, PAGE 19, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
WATER QUALITY COMPARISON - UNDERMINED SOURCES

		M-21										
		2-27-90	3-29-89	4-20-89	5-24-89	6-30-89	7-6-89	10-5-89	2-28-90	3-12-90	6-11-90	9-20-90
pH	SU	7.14	7.3	6.97	7.1	7.03	7.14	7.25	7.27	7.18	7.5	7.01
TOTAL ACIDITY	mg/l (CaCO3)	50	20	39.4	35.6	48.4	36.8	39.3	30.9	30.2	9.7	31.6
TOTAL ALKALINITY	mg/l (CaCO3)	262	289	674	284	273	269	315	304	295	58	284
TOTAL IRON	mg/l	0.05	0.06	0.05	<.02	<.02	0.03	0.03	0.08	0.07	0.19	0.12
TOTAL MANGANESE	mg/l	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	0.02	0.03
TOTAL SUSPENDED SOLIDS	mg/l	<1.0	<1.0	<1.0	<1.0	6.3	4.4	<1.0	<1.0	<1.0	3	2
TOTAL HARDNESS	mg/l (CaCO3)	400	412	330	264	326	367	295	356	347	117	351
TOTAL SULFATES	mg/l	80	78	96	72	84.8	80	104	82.7	73.6	71	96
SPECIFIC CONDUCTANCE	umho/cm	640	670	720	719	710	795	840	720	680	462	679
NITRATES	mg/l	-	-	-	-	-	-	-	4.24	3.27	0.8	3.19

		M-35				M-37			
		10-8-89	3-12-90	6-14-90	8-29-90	10-8-89	3-12-90	6-14-90	9-10-90
pH	SU	5.94	6.55	7.6	7.41	7.35	7.32	7.5	6.81
TOTAL ACIDITY	mg/l (CaCO3)	33.1	22.1	3	34.1	11.8	17.1	3.7	43.6
TOTAL ALKALINITY	mg/l (CaCO3)	21.6	28.9	21.8	65	176	212	28.5	213.4
TOTAL IRON	mg/l	<.02	2.21	2.07	2.09	0.09	5.12	3.11	3.21
TOTAL MANGANESE	mg/l	<.02	0.06	0.12	0.04	<.02	0.27	0.14	0.18
TOTAL SUSPENDED SOLIDS	mg/l	12.5	14.1	16	11	<1.0	175	41	41
TOTAL HARDNESS	mg/l (CaCO3)	8.9	27.4	35	39	202	212	197	213
TOTAL SULFATES	mg/l	53.6	51.2	80	59	46.4	54.4	59	68
SPECIFIC CONDUCTANCE	umho/cm	190	205	287	231	520	500	473	432
NITRATES	mg/l	-	2.89	3.17	0.16	-	2.86	2.17	2.28

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ADDENDUM TO PART 2, PAGE 19, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
WATER QUALITY COMPARISON - UNDERMINED SOURCES

W-19

		2-20-89	3-28-89	4-20-89	5-25-89	6-19-89	7-6-89	9-15-89	12-22-89	3-12-90	6-11-90
pH	SU	7.7	7.45	7.47	7.32	7.45	7.23	7.3	7.69	7.66	7.5
TOTAL ACIDITY	mg/l (CaCO3)	4.8	8.47	7.7	8.4	16	8	25.7	12.4	6.7	9.7
TOTAL ALKALINITY	mg/l (CaCO3)	117	133	123	155	140	138	209	113	105	58
TOTAL IRON	mg/l	0.13	0.09	0.42	0.44	0.06	0.3	0.07	0.19	0.13	0.19
TOTAL MANGANESE	mg/l	0.04	<.02	0.02	0.02	<.02	<.02	<.02	0.02	0.03	0.02
TOTAL SUSPENDED SOLIDS	mg/l	3.1	<1.0	6	<1.0	1.3	3.8	<1.0	<1.0	<1.0	3
TOTAL HARDNESS	mg/l (CaCO3)	176	149	30	82	70	80	205	94.2	125	117
TOTAL SULFATES	mg/l	54	41.6	38.4	38.4	37.6	36	42.7	36	59.2	71
SPECIFIC CONDUCTANCE	umho/cm	370	325	232	368	380	372	520	310	350	462
NITRATES	mg/l	-	-	-	-	-	-	-	3.99	0.76	0.8

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		2-21-89	3-28-89	4-20-89	5-25-89	6-19-89	7-6-89	3-12-90	6-11-90	9-20-90
pH	SU	7.27	7.47	7.35	7.45	7.14	6.93	7.39	7.6	7.59
TOTAL ACIDITY	mg/l (CaCO3)	11.2	8.91	20.8	10.8	25	27	12.6	27.3	21.4
TOTAL ALKALINITY	mg/l (CaCO3)	222	209	209	217	109	190	222	149	136.1
TOTAL IRON	mg/l	0.02	0.03	0.04	0.03	0.72	0.18	1.42	1.17	1.01
TOTAL MANGANESE	mg/l	0.04	<.02	<.02	<.02	0.02	0.06	0.06	0.09	0.08
TOTAL SUSPENDED SOLIDS	mg/l	1.6	<1.0	6	<1.0	13.3	1.8	<1.0	3	8
TOTAL HARDNESS	mg/l (CaCO3)	268	238	169	149	46.1	145	246	219	216
TOTAL SULFATES	mg/l	40	40	37.6	36.8	41.6	54	36	48	53
SPECIFIC CONDUCTANCE	umho/cm	500	440	348	512	328	553	490	468	487
NITRATES	mg/l	-	-	-	-	-	-	0.5	0.56	0.81

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ADDENDUM TO PART 2, PAGE 19, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
WATER QUALITY COMPARISON - UNDERMINED SOURCES

		W-38			
		10-13-89	3-12-90	6-11-90	9-20-90
pH	SU	7.35	7.39	7.3	7.57
TOTAL ACIDITY	mg/l (CaCO3)	11.8	12.6	9.05	78.3
TOTAL ALKALINITY	mg/l (CaCO3)	176	222	19.4	189.3
TOTAL IRON	mg/l	0.09	1.42	6.2	5.41
TOTAL MANGANESE	mg/l	<.02	0.06	0.17	0.23
TOTAL SUSPENDED SOLIDS	mg/l	<1.0	<1.0	13	3
TOTAL HARDNESS	mg/l (CaCO3)	202	246	203	198
TOTAL SULFATES	mg/l	46.4	36	40	44
SPECIFIC CONDUCTANCE	umho/cm	520	490	497	464
NITRATES	mg/l	-	0.5	2.05	2.13

		Sp-11										
		2-21-89	3-28-89	4-20-89	5-25-89	6-20-89	7-6-89	9-15-89	10-7-89	3-14-90	6-11-90	8-29-90
pH	SU	7	7.14	7.07	7.06	6.95	6.76	6.82	7.02	7.15	7.4	7.29
TOTAL ACIDITY	mg/l (CaCO3)	6.8	13.9	26.2	28	26	35.2	19.8	18.1	22.9	9.9	48.3
TOTAL ALKALINITY	mg/l (CaCO3)	65	130	133	163	162	174	162	171	158	237	178
TOTAL IRON	mg/l	0.5	0.15	0.02	0.02	<.02	0.06	0.04	<.02	0.04	0.06	0.06
TOTAL MANGANESE	mg/l	0.04	<.02	<.02	<.02	<.02	0.04	<.02	<.02	<.02	0.02	0.02
TOTAL SUSPENDED SOLIDS	mg/l	12.8	<1.0	10	<1.0	<1.0	5.1	<1.0	<1.0	<1.0	9	2
TOTAL HARDNESS	mg/l (CaCO3)	128	159	60	91	120	127	163	175	176	184	171
TOTAL SULFATES	mg/l	59	51.2	58.4	50.4	45.3	49	56	52	62.4	69	65
SPECIFIC CONDUCTANCE	umho/cm	250	360	271	420	384	470	410	410	450	472	461
NITRATES	mg/l	-	-	-	-	-	-	-	-	<.1	0.01	0.05

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ADDENDUM TO PART 2, PAGE 19, E
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
WATER QUALITY COMPARISON - UNDERMINED SOURCES

		Sp-20								
		2-21-89	3-29-89	4-20-89	5-24-89	6-19-89	7-6-89	3-12-90	6-14-90	9-19-90
pH	SU	7.16	7.24	7.27	6.9	7.13	7.09	7.28	7.5	7.91
TOTAL ACIDITY	mg/l (CaCO3)	12.6	8.76	21	30	29.8	29	20.5	20.6	34.2
TOTAL ALKALINITY	mg/l (CaCO3)	148	179	208	193	97.6	189	203	197	184.7
TOTAL IRON	mg/l	0.23	0.07	0.04	0.77	0.02	0.11	0.04	0.08	0.12
TOTAL MANGANESE	mg/l	0.02	<.02	<.02	0.03	<.02	<.02	0.03	0.02	0.08
TOTAL SUSPENDED SOLIDS	mg/l	6	<1.0	4	<1.0	<1.0	1.8	.1.0	8	12
TOTAL HARDNESS	mg/l (CaCO3)	236	283	183	192	220	225	308	297	268
TOTAL SULFATES	mg/l	65	65	65.4	67.2	105	64	75.2	78	81
SPECIFIC CONDUCTANCE	umho/cm	470	580	409	654	630	640	615	574	561
NITRATES	mg/l	-	-	-	-	-	-	3.55	3.51	2.87

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ANNOTATED BIBLIOGRAPHY

*Bartsch, D., 1991, Personal Communication. Mr. Bartsch is a professional mining engineer employed by Ohio Valley Coal Company. Mr. Bartsch is personally familiar with mining and water conditions in the mine and directs the water supply inventory and pre and past-mining ground water monitoring programs.

*Berryhill, H. L., 1963, Geology and Coal Resources of Belmont County, Ohio, U. S. Geological Survey Professional Paper 380, 113 p.

Describes the geology and stratigraphy of the rocks and coal seams underlying Belmont County.

*Brown, R. L., Parizek, R. R. 1971, Shallow Ground Water Flow Systems Beneath Strip and Deep Coal Mines at Two Sites, Clearfield, PA, Penn State University, Special Report SR-84, 208 p.

The objective of the study was to describe the ground water flow systems in rock units associated with coals so that acid mine drainage could be more effectively understood and prevented. Flow nets analysis of vertically separated flow systems are described and proved useful in understanding flow systems at the Powhatan Mines.

Cifelli, R. C., and H. W. Rauch, 1986, Dewatering Effects From Selected Underground Coal Mines in North-Central West Virginia, Proceedings: Second Workshop on Surface Subsidence Due to Underground Mining, Morgantown, WV, p. 249-263.

Studied the effects of underground mining on ground water at four mines in West Virginia. Determined that strata were dewatered up to at least 288 feet above the coal seam and partially dewatered up to 400 feet. Amount of stream loss depends upon depth of cover and amount of recharge area that is affected by mining.

Dixon, D. Y. and H. W. Rauch, 1990, The Impacts of Three Longwall Coal Mines on Stream Flow in the Appalachian Coal Field, Proceedings: Ninth International Conference on Ground Control in Mining, West Virginia

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University, Morgantown, WV, p. 169-182.

Continuation of Dixon and Rauch (1988) examines effect of longwall mining on surface water. Determined that the amount of stream loss depends upon depth of cover and presence of surface fractures. Streams where lost water didn't drain to the mine recovered quicker than those that drained to the mine.

Dixon, D. Y., and H. W. Rauch, 1988, Study of Quantitative Impacts to Ground Water Associated With Longwall Coal Mining at Three Mine Sites in the Northern West Virginia Area, Proceedings: Seventh International Conference on Ground Control in Mining, West Virginia University, Morgantown, WV, p. 321-335.

Study of effects of longwall mining on ground water at three mines. Determined that the amount of dewatering and subsequent recovery depends upon; thickness of overburden and proximity to surface stream.

Lovell, H. L., and J. W. Gunnett, 1974, Hydrogeological Influences in Preventive Control of Mine Drainage From Deep Coal Mining; Research Report No. SR-100, Pennsylvania State University, 89 p.

This study evaluated major avenues of ground water infiltration into deep mine environments.

McCurry, G. N. and H. W. Rauch, 1986, Characterization of Ground Water Contamination Associated With Coal Mines in West Virginia, Proceedings of the Sixth National Symposium and Exposition on Aquifer Restoration and Ground Water Monitoring, National Water Well Association, Columbus, OH, p. 669-685.

Used sulfate concentrations to determine the effects of surface and deep coal mining on water supplies. Found that coal mines did not effect the quality of water stratigraphically above the mined coal. Surface mines have a greater impact on water quality than deep mines.

*Moody and Associates, Inc., 1986, An experiment using fracture-sited dewatering wells to control underground mine inflows, Mining Research Contact Report #J0225014, 65p.

A demonstration project was conducted in Central Pennsylvania

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ground water from vertical wells prior to inflow into an active mine section. The concepts of fractured rock flow in a mining environment were useful.

Parizek, R. R., 1971, Prevention of Coal Mine Drainage Formation by Well Dewatering, Pennsylvania State University, Special Report No. SR-82, 73 p.

Ground water flow systems in coal-bearing strata are discussed in relation to the feasibility of dewatering by vertical wells in advance of mining. Minimization of acid water generation by this concept appears possible. The analysis of the subsurface flow concepts before, and during mining, is helpful.

Pennington, D., et. al., 1984, Effects of Longwall Mine Subsidence on Overlying Aquifers in Western Pennsylvania, U. S. Bureau of Mines Open File Report 142-84, 129 p.

Monitor changes in ground water levels above an active longwall panel. Shallow domestic wells encountered no significant impact from longwall mining during the monitoring period. Dewatering of the shallow aquifer zone was minimized by aquitardal layers.

Rauch, H. W., 1989, A Summary of the Ground Water Impacts From Underground Mine Subsidence in the North-Central Appalachians, Proceedings of Special Institute on Coal Mine Subsidence, Eastern Mineral Law Foundation, WVU Law Center, Morgantown, WV, p. 2.01-2.31.

Review article summarizes information from published literature and past research reports concerning the quantitative hydrologic impacts of underground mining. Update of Rauch, 1985.

*Rauch, H. W., 1987, Ground Water Impacts From Surface and Underground Coal Mining, Proceedings, West virginia Water 1987: Status and Future Directions, Morgantown, WV, p. 1-21.

Review article. Discusses factors which control the amount of strata dewatering above longwall mines.

Rauch, H. W., 1985, A Summary of the Effects of Underground Coal Mines on Quantity of Ground Water and Stream Flow in North-Central Appalachians: Proceedings of Special Institute on Coal Mine Subsidence, Eastern Mineral Law

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Foundation, WVU Law Center, Morgantown, WV, p. 2.01-2.33.

Review article summarizes information from published literature and past research report concerning the ground water quantity effects of underground mines.

Rauch, H. W., et. al., 1984, Predictions For Aquifer Dewatering Over Underground Mines in the Pittsburgh, Sewickley, and Upper Freeport Coals of Northern West Virginia, Proceedings: Surface Mining and Water Quality, Fifth Annual West Virginia Surface Mine Drainage Task Force Symposium, Morgantown, WV, 11 p.

Results of site specific studies conducted to determine what variables affect the amount of dewatering above underground mines. Variables studied were: overburden thickness between a well bottom or spring and the underlying coal mine, horizontal distance to mined area, and overburden lithology determine that a high percentage of shale and clay in the overburden can reduce the impacts of mining on overlying ground water supplies.

*Schmidt, R. D., 1985, Fracture zone dewatering to control ground water inflow in underground coal mines, U. S. Bureau of Mines, Report of Investigation, 38 p.

A review of ground water flow into active sections of eight active Appalachian region coal mines is presented. Particular emphasis is given to earth fractures and fractured rock flow.

Schmidt, R. D., and G. A. Hnell, 1983, A Fracture Dewatering Approach to Controlling Ground Water Infiltration in Underground Coal Mines, Interim Report of U. S. Bureau of Mines, 55 p.

Ground water flow conditions are evaluated around deep coal mines for the purpose of controlling acid mine drainage.

Schmidt, R. D. and W. F. Ebaugh, 1985, Some considerations regarding the steady-state response to shallow aquifers to underground mining, preceeding 1985 National Symposium on Surface Mining, Hydrology, Sedimentology and Reclamation, University of Kentucky, Lexington, Kentucky.

A detailed analysis of fractured rock ground water flow in shallow

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aquifers is presented for an active coal mine in Pennsylvania.

Schubert, Jeffrey P., 1980, Fracture Flow of Ground Water in Coal Bearing Strata, Symposium on Surface Mining Hydrology, Sedimentology and Reclamation.

Fracture flow concepts in coal bearing strata is discussed. Core testing of rock permeability and the importance of secondary permeability is discussed.

*Siplivy, W., 1990, Personal Communication

Mr. Siplivy is a professional geologist employed by Ohio Valley Coal Company. Mr. Siplivy has directed major portions of the core hole exploration program for the Powhatan No. 6 Mine and has reviewed the geologic setting of the area in detail. Mr. Siplivy provided assistance on geologic structural interpretations.

*Stoner, T. D., 1983, Probable Hydrologic Effects of Subsurface Mining, Ground Water Monitoring Review, V3, #1., p. 128-137.

Determined factors controlling the hydrology of Green County, PA. Used this information to develop model for predicting hydrologic impacts of underground mining.

*Tieman, G. E. and H. W. Rauch, 1987, Study of Dewatering Effects at an Underground Longwall Mine Site in the Pittsburgh Seam of the Northern Appalachian Coal Field, U. S. Bureau of Mines Information Circular 9137, p. 72-89.

Monitor the changes in ground water levels and stream flow above a longwall mine. Wells and springs located within 50 feet (vertical) of regional base level were not dewatered. Most affected water supplies recovered partially, and all streams recovered fully within one to three years following longwall mining.

Wahler, W. A. and Associates, 1979, Dewatering Active Underground Coal Mines. U. S. EPA Report No. 60017-79-124, 123 p.

A dewatering pilot study was conducted on a coal mine in Pennsylvania. Many of the principles of subsurface flow proved useful in the Powhatan study.

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Walker, J. S., 1988, Case Study of the Effects of Longwall Mining Induced Subsidence on Shallow Ground Water sources in the Northern Appalachian Coal Field, U. S. Bureau of Mines Report of Investigations, 9198, 17 p.

This study attempted to correlate the changes in water levels within observation wells to measured amounts of mine induced ground subsidence. Results indicate that water level fluctuations appear to be a function of the well location relative to the mine layout and the proximinity of the active mine face. Wells closest to the centerline of the longwall panel showed greatest fluctuations and head loss. Wells located outside the angle of draw for a panel were unaffected by mining. Concluded that water levels in shallow wells will generally return to or near pre-mining levels after completion of mining.

* References Cites in PHC

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F. (2) If contamination, diminution, or interruption may result, submit an addendum identifying the alternative sources of water supply that could be developed to replace the existing sources including information on water availability and suitability of alternative sources for existing pre-mining uses and postmining land use.

See Addendum to Page 19, Part 2, F

G. LAND USE INFORMATION-**Permit Area**

(1) Describe the uses of the land within the proposed permit area existing at the time of the filing of this permit application and provide a map which delineates the area of each land use.

Not Applicable - No Permit Area

(2) Was the land use described in item G(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.

Not Applicable - No Permit Area

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

Not Applicable - No Permit Area

(4) Analyze the productivity of the land within the proposed permit area before any mining to include average yields obtained under high level of management.

Not Applicable - No Permit Area

(5) Is any land within the proposed permit area classified as prime farmland? _____ Yes, _____ No.

Not Applicable - No Permit Area

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G. (6) Describe the use of the land within the permit area, including the creation of permanent water impoundments, that is proposed to be made of the land following reclamation, including information regarding the utility and capacity of the reclaimed land to support a variety of alternative uses.

Not Applicable - No Permit Area

(7) Are there existing land use classifications under local law of the proposed permit area?
_____ Yes, _____ No. If "yes," describe the land use classification and submit as an addendum to the permit application, the comments of the governmental agency which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation. If "no," describe the sources of information on which the determination was made.

Not Applicable - No Permit Area

(8) Submit as an addendum a copy of the comments from the legal or equitable owner of record of the surface of the proposed permit area concerning the proposed land use.

Not Applicable - No Permit Area

(9) Describe the consideration which 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.

Not Applicable - No Permit Area

(10) Describe how the proposed land use is to be achieved and the necessary support activities that may be needed to achieve the proposed land use.

Not Applicable - No Permit Area

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G. (11) Is the postmining land use to be different from the premining land use? _____ Yes, _____ No. If "yes," submit as an addendum to the permit application, the plans and findings required by paragraph (D) of rule 1501:13-9-17 of the Administrative Code.
Not Applicable - No Permit Area

(12) Has the proposed permit 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 _____

Not Applicable - No Permit Area

H. PRIME FARMLAND INVESTIGATION-Permit Area

(1) Does the proposed permit area include any land that is prime farmland, taking into consideration the negative determinations listed in paragraph (L)(2) of rule 1501:13-4-13 of the Administrative Code?
_____ Yes, _____ No.
Not Applicable - No Permit Area

(2) If the response to item H.(1) is "yes," submit Attachment 15.

(3) If the response to item H.(1) is "no," submit Attachment 16.

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PART 3 RECLAMATION AND OPERATIONS PLAN

A. GENERAL REQUIREMENTS-Permit Area (Item A.(1) and A.(2)-Permit and Underground Workings)

(1) Describe the type and method of coal mining procedures for this application. Explain how these procedures will maximize the use and conservation of the coal resources. Entry Development will be used to develop for longwall; although recovery for this mining method is limited, recovery for the longwall is high, making maximum use of the reserves.

(2) Indicate the anticipated annual and total production of coal from this proposed operation.

Annual 3.1 million Total 31 million

(3) 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, __X__ No. If "yes," submit Attachment 30.

(4) Are experimental mining practices to be employed in the proposed mining operations? _____ Yes, __X__ No. If "yes," submit as an addendum to the permit application, the description, maps, and plans required by paragraph (B) of rule 1501:13-4-12 of the Administrative Code.

(5) Are mountaintop removal mining practices to be employed in the proposed mining operations? _____ Yes, __X__ No. If "yes," submit as an addendum to the permit application the information required by paragraph (C) of rule 1501:13-4-12 of the Administrative Code.

(6) Are the natural pre-mining slopes within the permit area in excess of twenty (20) degrees? _____ Yes, __X__ No. If "yes," submit an addendum demonstrating compliance with the steep slope mining provisions of paragraph (D) of rule 1501:13-4-12 and 1501:13-13-05 of the Administrative Code.

(7) Is augering proposed within the permit area? _____ Yes, __X__ No. If "yes," submit Attachment 18.

(8) Are variances from approximate original contour to be employed for the proposed underground mining surface operations? _____ Yes, __X__ No. If "yes," submit an addendum to the permit application demonstrating compliance with paragraph (E) and/or (K) of rule 1501:13-4-12 of the Administrative Code.

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A. (9) Will access to the underground workings be gained through a drift entry? _____ Yes, _____ No. If "yes," provide as an addendum sufficient information to determine the location of the entry relative to the highest elevation of the coal reserve. Is the drift entry located so as to eliminate the potential for a gravity discharge? _____ Yes, _____ No. If "no," the applicant must demonstrate that 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.

Not Applicable - No Permit Area

(10) For entries to underground workings other than drift entries, provide as an addendum sufficient information to determine the location of the entry relative to the coal reserve. Are the entries located so as to eliminate the potential for a gravity discharge? _____ Yes, _____ No. If "no," provide the following demonstration:

Not Applicable - No Permit Area

(a) the gravity discharge will meet effluent limitations without treatment, or

(b) 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.

(11) 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.

Not Applicable - No Permit Area

(12) Submit an addendum describing the construction, modification, maintenance, and removal (unless to be retained for postmining land use), including the proposed engineering techniques and major equipment to be used, of the following facilities:

(a) dams, embankments, and other impoundments. Do any of the plans for water, sediment or slurry impoundments meet the requirements of 30 CFR 77.216? _____ Yes, _____ No. If "yes," submit as an addendum a plan that addresses each of the requirements in 30 CFR 77.216-2.

Not Applicable - No Permit Area

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A. (12) (b) overburden and topsoil handling and storage areas and structures.

Not Applicable - No Permit Area

(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. For roads, conveyors and rail systems, submit an addendum describing the information required pursuant to paragraph (L) of rule 1501:13-4-14 and 1501:13-10-01 of the Administrative Code.

Not Applicable - No Permit Area

(d) spoil removal, handling, storage, transportation, and disposal areas and structures, including underground development waste or excess spoil disposal sites. If underground development waste or excess spoil is to be generated, submit an addendum describing the information required by paragraphs (O) and (P) of rule 1501:13-4-14 and 1501:13-9-07 of the Administrative Code.

Not Applicable - No Permit Area

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

Not Applicable - No Permit Area

(f) water and air pollution control facilities.

(13) Provide an estimate of the cost per acre to reclaim the permit area. _____

Not Applicable - No Permit Area

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

Not Applicable - No Permit Area

(a) disposal of coal mine waste from a wash plant, tipple, or other source? _____ Yes, _____ No. If "yes," submit Attachment 28 and, if applicable, the information required by paragraph (H) of rule 1501:13-4-14 of the Administrative Code.

(b) disposal of fly ash or other noncoal wastes? _____ Yes, _____ No. If "yes," submit an addendum which addresses the disposal material and a detailed disposal plan, pursuant to paragraph (E) of rule 1501:13-9-09 of the Administrative Code.

(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.

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B. EXISTING STRUCTURES-**Permit Area**

(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," submit as an addendum to the permit application a description of each such structure. The description shall include the information required by paragraph (B)(1) of rule 1501:13-4-14 of the Administrative Code.

Not Applicable - No Permit Area

(2) Are any existing structures proposed to be modified or reconstructed for use in connection with or to facilitate the coal mining and reclamation operation? _____ Yes, _____ No. If "yes," submit as an addendum to the permit application, a compliance plan for each such structure. The plan shall include the information required by paragraph (B)(2) of rule 1501:13-4-14 of the Administrative Code.

Not Applicable - No Permit Area

C. BLASTING-**Permit Area**

Will blasting occur within 25 feet of the surface during shaft and portal development or other on-site development? _____ Yes, _____ No. If "yes," submit Attachment 29.

Not Applicable - No Permit Area

D. RECLAMATION PLAN - GENERAL REQUIREMENTS-**Permit Area (ITEM D.(12)-Permit, Shadow, and Adjacent Area)**

(1) Provide a detailed timetable for the completion of backfilling and grading for each mining year.

Not Applicable - No Permit Area

(2) Provide a detailed timetable for the completion of resoiling for each mining year.

Not Applicable - No Permit Area

(3) Provide a detailed timetable for the completion of planting for each mining year.

Not Applicable - No Permit Area

(4) Describe the plan for backfilling, compacting and grading of the disturbed permit area, including the disposal of all mine generated debris.

Not Applicable - No Permit Area

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D. (5) Submit an addendum describing the plan for the removal, storage, redistribution and stabilization of topsoil, subsoil, or approved alternative resoiling material to meet the requirements of rule 1501:13-9-03 of the Administrative Code. If alternative resoiling material is to be used, submit Attachment 19.

Not Applicable - No Permit Area

(6) Provide the following information for the revegetation plan:

(a) Schedule for revegetation to include planting of temporary vegetation.

Not Applicable - No Permit Area

(b) List the species and amounts per acre of seeds and seedlings to be used.

Not Applicable - No Permit Area

(c) Describe the methods to be used in planting and seeding.

Not Applicable - No Permit Area

(d) Describe the mulching techniques.

Not Applicable - No Permit ARea

(7) Describe the soil testing plan for evaluation of the results of topsoil handling and reclamation procedures related to revegetation.

Not Applicable - No Permit Area

(8) Describe the measures to be employed to handle and place acid or toxic-forming materials in accordance with paragraph (J) of rule 1501:13-9-04, and paragraph (J) of rule 1501:13-9-14 of the Administrative Code.

Not Applicable - No Permit Area

(9) Describe measures, including appropriate cross-sections and maps, to be used to plug, case or manage mine openings or bore holes other than those entries utilized to gain access to the underground workings, pursuant to rule 1501:13-9-02 of the Administrative Code.

Not Applicable - No Permit Area

TOVCC 15992

D. (10) Is the reclamation plan consistent with local physical, environmental, and climatological conditions?
_____ Yes, _____ No.
Not Applicable - No Permit Area

(11) 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.

Not Applicable - No Permit Area

(12) Submit an addendum describing 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 and achieving enhancement of such resources where practical for the permit, shadow, and adjacent areas.
See Addendum to Page 28, D(12)

E. **RECLAMATION PLAN-PROTECTION OF HYDROLOGIC BALANCE-Permit and Adjacent Area**

Describe the measures to be taken during and after the proposed surface mining operations to:

(1) minimize disturbance to the hydrologic balance, including quality and quantity, within the permit and adjacent areas and to prevent material damage outside the permit area;

See Addendum to Part 3, Page 28E(1-3)

(2) protect the rights of present users of surface and ground water;

See Addendum to Part 3, Page 28E(1-3)

(3) avoid acid or toxic drainage.

See Addendum to Part 3, Page 28E(1-3)

TOVCC 15993

ADDENDUM TO PART 3, PAGE 28, D(12)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

The proposed longwall mining operation is not expected to impact fish, wildlife, and other related environmental values. The longwall will not undermine any streams where fish live. Wildlife has never been shown to be affected by longwall mining. If landslides occur over the mining area, The Ohio Valley Coal Company will restore the land to a condition equal to its original value and reasonably foreseeable use.

RECLAMATION PLAN - PROTECTION OF HYDROLOGIC BALANCE

The hydrologic balance is not expected to change as a result of the proposed longwall mining operation in the long term. Temporarily, the depth below the surface of ground water will increase as a result of increasing the number of cracks in the local rock units. The static level of the ground water will re-establish itself within 18 months to 2 years after mining. At that time, ground water will be available in quantity at least as great as before mining. Because of increased porosity due to the cracking caused by longwall mining, the quantity of ground water that is available to users will probably increase. Minor surface cracking over longwall areas will eventually heal, causing the ground to capture approximately the same percentage of rainfall as before. Surface water drainage and evaporation are not expected to be impacted by longwall mining. The monitoring data obtained for the ground and surface water sources over the longwall areas at the Powhatan No. 6 Mine indicate there will be no deleterious effects of the longwall mining on water quality. Therefore, the hydrologic balance outside the permit area will be protected.

The rights of present users of surface and ground water will be maintained through the water replacement plan found in the Addendum to Part 2, Page 19, F. It is anticipated that within two years, ground water will re-establish itself so that wells and springs can be replaced. Surface water drainage is not expected to be impacted by longwall mining.

Acid or toxic drainage are not expected to be a problem at the Powhatan No. 6 Mine. The No. 8 seam is entirely below drainage, and the openings to the surface are located high enough above the seam that they will not experience hydraulic pressure from the seam. The major watershed of this area, Captina Creek, is at the elevation of the mining for the application area at a distance of over 5 miles from the mine. Acid or toxic drainage is not expected to enter the waters of the State.

The other watershed for this application area is William's Creek. It is at an elevation of the mining for the application area at a distance of over 7 miles from the mine.

F. **GROUND WATER AND SURFACE WATER MONITORING PLAN-Permit and Shadow Area**

Based upon the probable hydrologic consequences determination and analysis of all baseline hydrologic, geologic, and other information submitted in this application, address the following items in accordance with paragraph (F) of rule 1501:13-4-14 and paragraph (N) of rule 1501:13-9-04 of the Administrative Code.

(1) In addition to the quality and quantity parameters required for quarterly monitoring and NPDES monitoring, will any other parameters be monitored? _____ Yes, _____ No. If "yes," indicate the parameter(s) and the site(s) where such monitoring will occur.

See Addendum to Page 29, Part 3, F

(2) Do you propose or anticipate the need for a variation in the required monitoring frequency for ground and surface water sites and monthly monitoring for NPDES? _____ Yes, _____ No. If "yes," describe the variation in frequency and the monitoring sites to be affected.

See Addendum to Page 29, Part 3, F

(3) 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.

See Addendum to Page 29, Part 3, F

G. **DIVERSIONS AND DRAINAGE CONTROLS-Permit Area**

(1) Will the proposed coal mining activities result in diversions of overland flow away from the disturbed areas? _____ Yes, _____ No. If "yes," describe, including maps and cross sections, the diversion to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

Not Applicable -- Not a Permit Area.

TOVCC 15996

WEIGA MONITORING

ADDENDUM TO PART 3, PAGE 29, F
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

GROUND WATER AND SURFACE WATER MONITORING PLANS

1. Ground Water Monitoring Plan

All legitimately used ground water supplies will be monitored quarterly for quality and monthly for quantity for at least one year prior to full recovery mining, and at least one year subsequent to mining. Weekly quantity monitoring will be conducted whenever the longwall face is within three weeks of undermining the supply and no less than three weekly pre-mining and post-mining measurements will be made. Ground water supplies located within 500 feet (measured horizontally) of the perimeter of the active longwall panel will be monitored as if they were located on the panel. Monitoring will be continued for at least one year subsequent to full recovery mining contingent upon review by the Division. Daily precipitation data will be submitted to evaluate spring flow.

2. Surface Water Monitoring Plan

The surface water locations depicted on the application/hydrology map will be sampled monthly for flow and quarterly for quality. The quality requirements of OAC 1501:13-3-14(F)(2) and the other QMR parameters as stated on the QMR report sheets will apply to the surface water analysis. Each surface monitoring station will be monitored for at least one year prior to full coal recovery mining. Monitoring will be continued for at least one year subsequent to fully recovery mining contingent upon review by the Division. Daily precipitation data will be submitted to evaluate stream flow.

With each quarterly monitoring report of ground and surface water, a map depicting the progression of the longwall face will be attached to indicate the sampling points in the full recovery areas. Notes will be submitted indicating the position relative to the longwall face, with "+" indicating station is in advance of the face and a "-" indicating a position behind the face. An attempt will be made to sample as outlined above, however, some sources may not be accessible. These locations, if encountered, will be documented in the quarterly reports. All samples will be taken as outlined to the extent that existing well construction allows. Any samples that are unobtainable will be documented as such in the quarterly report. Quarterly sampling will include analysis for nitrates.

OVCC will monitor all ground and surface locations in accordance with the monitoring plan outlined above regardless of the aquifers and/or saturated zones that they access. All developed supplies have been identified and have been indicated on the application/hydrology map.

G. (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," describe, including maps and cross sections, the diversions to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

Not Applicable - No Permit Area

(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," submit an addendum to describe, including maps and cross sections, the diversions to be constructed to achieve compliance with paragraph (I) of rule 1501:13-4-14 of the Administrative Code.

Not Applicable - No Permit Area

(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 Attachment 20)

_____ water impoundment(s) (submit Attachment 20)

_____ other (specify) _____

Not Applicable - No Permit Area

(5) Describe the plan for the control of water drainage into, through, and out of the proposed permit area. If applicable, submit as an addendum any request for variances pursuant to paragraphs (B) and (E) of rule 1501:13-9-04 of the Administrative Code.

Not Applicable - No Permit Area

(6) Describe the treatment, when required, of ground and surface water drainage from the area to be disturbed by the proposed coal mining activities

Not Applicable - No Permit Area

H. **PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES-Permit and Planned Subsidence Area**

Will the proposed coal mining activities adversely affect any public parks and places listed on the National Register of Historic Places?
_____ Yes, __X__ No. If "yes," describe the measures to minimize or prevent these impacts.

TOVCC 15999

SUBSIDIARIE CONTROL

I. **MINING NEAR OR THROUGH A PUBLIC ROAD-Permit Area**

If the response to Part 1, item D(6) of the permit application is "yes," describe the measures to be used to ensure that the interests of the public and landowners are protected.

J. **SUBSIDENCE CONTROL SURVEY-Shadow Area**

(1) Is this a full coal recovery operation? __X__ Yes, _____ No. If "yes," complete Attachment 31, Subsidence Control Survey, and items J(2) and (3) below.

(2) Does the shadow area contain any of the structures or facilities listed in 1501:13-12-03(J)(1-3)? _____ Yes, __X__ No. If "yes," complete Attachment 32, 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, __X__ No. If "yes," complete Attachment 32, Protection of Specific Structures, and specifically identify the areas on the application map.

K. **SUBSIDENCE CONTROL PLAN-Shadow Area**

(1) Submit an addendum which describes the method of coal removal, and indicates the size, sequence, and timing of the development of the underground workings.
See Addendum to Page 31, Part 3, K(1)

(2) Utilizing the application map, specifically indicate areas where planned subsidence mining methods (i.e. longwall or pillar extraction) will be used.
See Application Map

(3) Utilizing the application map, specifically indicate room-and-pillar mining areas where subsidence will be prevented or minimized.
See Application Map

(4) Submit as an addendum, for those areas mapped as room-and-pillar mining, the following information:

(a) the maximum and average overburden thickness.

(b) the projected maximum extraction ratios for main, submains, and butt sections, as well as the existing ranges of values for the same areas.

(c) projected maximum width of entries and cross cut throughout the mine, as well as the existing ranges of values for the same areas.

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Guy Blaney	Belmont	Washington 18	Woodland	None	1
Harrison Leasing Co.	Belmont	Washington 12,18	Woodland	Unused farm bldgs.	2
			Stream		U-33A
			Pond		U-33
Gary E. Fankhauser	Belmont	Washington 12	Cropland	Mobile Home	3
			Pastureland	Sheds	3
			Woodland	Barn, Old House	3
			Spring		SP-51
			Pond		U-25
James & Helen Camsky	Belmont	Washington 12	Woodland	House, Shed	4
			Well		W-90
			Spring		SP-66
			Stream		U-24 0
Inez Dornon	Belmont	Smith 13, 19	Stream		D-22A
			Woodland		5

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Inez Dornon	Belmont	Smith 13, 19	Pastureland		5
			Stream		U-22GG
Gary E. Fankhauser	Belmont	Smith 13	Woodland	Unused Farm Bldgs.	6
			Stream		D-23, U-23Z
Elwood & Lois Fankhauser	Belmont	Smith 7, 13	1 gas Well		7
			Cropland	House, Trailer	7
			Pastureland	Farm Bldgs.	7
			Woodland	Quonset Hut	7
			Springs		SP-48, SP-49, SP-50
			Wells		W-87, W-88, W-89
			Streams		D-31,D32,U-32, U-24M
			Pond (U-32)		U-24N, U-24L
Carl & Emma P. Sanders	Belmont	Smith 7	Wells	Unused Farm Bldgs.	W-104, W-105
			Woodland		8
The Natural Gas Co. of W.Va.	Belmont	Smith 13	Woodland	None	9
			Stream - Anderson Run		9

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Stanley & Helen Knollinger	Belmont	Smith 13	Pasture	House	10
			Woodland	Farm Buildings	10
			Cropland	Cistern	10
			Wells		W-66,W67,W-68
			Spring		SP-40
			Streams		U-22DD, U-22FF
					U-22HH, U-23AA
Charles & Carolyn Hoffman	Belmont	Smith 13		Cistern, House Outbuilding	11
			Well		W-65
Belmont Co. National Bank	Belmont	Smith 13	Stream		U-23Y, U-23T
			Woodland		12
			Cropland		12
Joseph Green	Belmont	Smith 7, 13	Woodland	House, Sheds	13
			Cropland	Barns	13
			Streams	Active Gas Wells	13

TOVCC 16004

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Joseph Green	Belmont	Smith 7, 13	Pastureland		13
			2 Gas Wells		13
			Wells		W-86, W-280
			Springs		SP-46, SP-47
			Streams		U-24I, U-24K
Edna Maude Beckett	Belmont	Smith 7	Stream		U-24J
			Well		W-103
			Woodland	Unused Farm Bldgs.	14
			Cropland	House	14
			Pastureland	Garage	14
Paul & Iris Wetzel	Belmont	Smith 7	Woodland	House	15
			Well		W-102
			Pastureland	Garage	15
			Cropland		15

TOVCC 16005

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Sharon M. Cole	Belmont	Smith 7		Trailer	16
					16
			Well		W-101
William E. Cole	Belmont	Smith 7	Pastureland	Farm Bldgs.	17
			Woodland		17
			Spring		SP-62
			Stream		U-27F
The Ohio Valley Coal Company	Belmont	Smith 13, 19	Pond		M-12
			Wells		W-32, W-38, W-39
					W-28, W-19
			Spring		SP-22
			Woodland		18
			Cropland		18
			Pastureland		18

TOVCC 16006

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Frank Yonak	Belmont	Smith 13	Woodland	None	19
			Stream		U-22CC
Joy Kincade	Belmont	Smith 13	Woodland	House, Outbldgs.	20
			Cropland	Cemetery	20
			Pastureland	Log House	20
			Wells		W-63, W-64
			Stream		U-23V. U-23S
Lowell C. Gladden	Belmont	Smith 13	Pastureland	None	21
			Stream		U-23X
			Cropland		21
Marion R. & Ardell Masters	Belmont	Smith 13	Woodland	None	22
			Cropland		22
			Pastureland		22
James & Addie Coleman	Belmont	Smith 13	Woodland	House (Unoccupied)	23
			Spring		SP-60
			Stream		U-24F, U-24G, U-24H

TOVCC 16007

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Elbert & Beulah Miller	Belmont	Smith 1, 7	Woodland	Unused Farm Bldgs.	24
			Cropland	Uninhabited House	24
			Pastureland		24
			Well		W-100
			Spring		SP-61
			Stream		U-27E
The Ohio Valley Coal Company	Belmont	Smith 19		House	25
				Garage	25
			Wells		W-32, W-28, W-39
Delmas W. & Mary L. Caretti	Belmont	Smith 19, 20	Pastureland	House Trailer	26
				Farm Buildings	26
			Well		W-30
			Springs		SP-29, SP-30
			Stream		U-22Q

TOVCC 16008

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Frank Yonak	Belmont	Smith 19	Stream	None	U-22BB
			Woodland		27
Carl & Rodney Britton	Belmont	Smith 13, 14	Woodland	House, Barn	28
			Cropland	Sheds, Garage	28
			Pond (U-23Q) Streams		D-22, U-23Q, U-22Q U-23N, U-22N, U-23O, U-23P
			Wells		W-58, W-59
C & B Maloney	Belmont	Smith 13	Well		W-61
				House, Outbuilding	29
Cale Norris	Belmont	Smith 13	Well		W-62
				House	30
Frank Reisberger	Belmont	Smiht 7	Wells		W-83, W-84, W-85
				Barn, Garage, Shed House	31
Daniel Caretti	Belmont	Smith 19	Pastureland		32
A. E. Mobley	Belmont	Smith 19	Woodland		33
R.L. & Lois Devault	Belmont	Smith 14, 20	Pastureland		34

TOVCC 16009

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
R.L. & Lois Devault	Belmont	Smith 14, 20	Cropland	Unused Farm Bldg.	34
			Woodland		34
			Stream		U-22F, U-22AA
Carl R. Britton	Belmont	Smith 14	Cropland Woodland		35
			Stream		U-22M
Pietro & Nellie Perticarini	Belmont	Smith 14	Well		W-60
				Trailer, Outbuilding	36
Joseph W. Phillips	Belmont	Smith 8, 14	Woodland	House	37
			Cropland	Farm Bldgs.	37
			Pastureland		37
			Wells		W-79, W-80
			Spring		SP-44
			Streams		U-23J, U-23L, U-23M
					U-23U, U-23R

TOVCC 16010

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Belmont County National Bank	Belmont	Smith 8,14,7,13	Pastureland	House	38
			Cropland	Farm Bldgs.	38
			Woodland		38
			Well		W-81
			Stream		U-23W
			Spring		SP-43
Rex & Carla Hall	Belmont	Smith 8	Pastureland Woodland	House, Sheds	39
			Well		W-82
Joseph, Jr. & Mary Jane Gorshe	Belmont	Smith 8	Cropland	House	40
			Pastureland	Farm Bldgs.	40
			Woodland	Aban. Oil Well	40
			Well		W-92
			Spring		SP-45
			Streams		U-24A,U-24B,U-24E,U-28
				Old School House	49

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Nora & Ross M. Brown	Belmont	Smith 8	Spring		SP-59
				2 Houses, Shed	41
Arthur E. & Ethel M. Brown	Belmont	Smith 8		House	42
C & I Campbell	Belmont	Smith 20	Woodland		43
			Pastureland		
			Stream		U-22P
The Ohio Valley Coal Company	Belmont	Smith 20	Woodland		44
			Streams		U-22R, U-22K
			Pastureland		44
The Ohio Valley Coal Company	Belmont	Smith 20	Woodland	Foundation Ruins	45
			Pastureland		45
			Pond		U-22G, U-22J
			Streams		U-22V, U-22X
Esther Conway	Belmont	Smith 14	Stream		U-22Z
			Woodland		46

TOVCC 16012

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Linda J. Nagy & George Tice	Belmont	Smith 14	Wells		W-55, W-56
				House, Outbldgs.	47
Rodney & Denise Britton	Belmont	Smith 14	Well		W-57
			Stream		U-23K
			Cropland	Mobile Home, Above Ground Pool	
			Woodland	House, Outbldgs.	48
			Well		W-94
Nada Trigg	Belmont	Smith 8		House	50A
David W. Trigg	Belmont	Smith 8	Pastureland	Mobile Home	50
			Pond		U-24
			Spring		SP-52
Carl E. & Helen Beck	Belmont	Smith 8		House, Outbldgs.	51
			Well		W-273
Charles, Jr. & Leah May Monahan	Belmont	Smith 8	Well		W-95
			Spring		SP-53

TOVCC 16013

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Charles, Jr. & Leah May Monahan	Belmont	Smith 8	Streams		U-24D
			Woodland	3 Bells, 2 Cisterns House	52
			Pastureland	Farm Bldgs.	52
Donald W. Watt	Belmont	Smith 1, 2, 8	Pastureland	House	53
			Cropland	Farm Bldgs.	53
			Woodland		53
			Wells		W-110,W-111,W-112
			Springs		SP-55, SP-56, SP-57,SP-58
			Streams		U-27B,U-27C,U-27,U-27A
			Pond		U-24C
John L. & Fay Riddle	Belmont	Smith 8	Well		W-97
				House , Garage	54
C & J Campbell	Belmont	Smith 20	Pastureland		55
			Woodland		55

TOVCC 16014

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
The Ohio Valley Coal Company	Belmont	Smith 20	Woodland		57, 56
			Streams		U-22B, U-22C
Betty L. Dunfee	Belmont	Smith 20	Woodland		58
			Cropland		58
			Pastureland		58
			Spring Stream		SP-34 U-22A
Sarah L. & Leroy Carpenter	Belmont	Smith 20	Woodland		59
			Cropland		59
			Pastureland		59
			Streams		U-22S, U-22T
			Springs		SP-32, SP-33
			Spring Well		SP-36 W-50
Joseph F. Perticarini	Belmont	Smith 14	Cropland	House, Garage, Sheds, Cistern	60
Enrico Perticarini	Belmont	Smith 14		House, Garage, Sheds	61
			Well		W-51

TOVCC 16015

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Brett A. Walters	Belmont	Smith 14	Well		W-52
				Mobile Home, Outbuilding	62
Brett A. & Wayne Walters	Belmont	Smith 14	Well		W-53
			Springs		SP-37,SP-38,SP-39
			Woodland	House	63
			Pastureland	Barns, Sheds	63
Harold R. & Floy J. Scatterday	Belmont	Smith 14	Pastureland	Barns, Sheds, Silo	64
			Woodland	Uninhabited House	64
			Wells		W-264, W-265
			Stream		U-28M
			Springs		SP-173,SP-174,SP-175
					SP-176, SP-177
Roger & Sue Wolfe	Belmont	Smith 8	Well		W-263
				House	65
Harold R. Scatterday	Belmont	Smith 8	Cropland	House	66
			Woodland	Barn, Sheds	66

TOVCC 16016

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Harold R. Scatterday	Belmont	Smith 8	Pastureland		66
			Springs		SP-172,SP-171,SP-170
			Springs		SP-198,SP-168,SP-169
			Wells		W-261,W-262
			Pond		U-28I
			Stream		U-28A
Duane Meyers	Belmont	Smith 8	Stream		U-28E, U-28F, U-28D
			Well		W-93
			Woodland	House	67
			Pastureland		67
James L. & Roy K. Dunfee	Belmont	Smith 8	Pastureland		68
James L. & Roy K. Dunfee	Belmont	Smith 8	Pastureland		69
			Cropland		69
			Woodland		69
			Stream		U-28H, U-28G

TOVCC 16017

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Esther May Sims	Belmont	Smith 8	Spring		SP-54
			Well		W-96
			Woodland, Pastureland	House, Sheds	70
James & Ray Dunfee	Belmont	Smith 2, 8	Pastureland	House	71
			Cropland	Dairy Farm Bldgs.	71
			Woodland	Sheds	71
			Wells		W-98, W-281, W-282
			Pond		U-28B
			Streams		U-29,U-29A
James L. & R.D. Roy Dunfee	Belmont	Smith 2	Woodland		72
			Stream		U-30
			Pastureland		72
			Cropland		72
George & Irene L. Tozzi	Belmont	Smith 2	Woodland	Trailer Park	73
			Wells		W-230 W-231,W-271,W-272

TOVCC 16018

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Robert L. & Nora Wharton	Belmont	Smith 14	Well		W-49
			Stream Spring		U-22U SP-35
			Cropland	House, Sheds	74
			Pastureland		74
Francis E. & Jane D. Moore	Belmont	Smith 14	Pastureland		75
			Woodland Cropland		75
John A. & Doris W. McBride	Belmont	Smith 14	Pastureland	House	76
			Cropland	Barns,Farm Bldgs.	76
			Streams		U-23C, U 23D
			Ponds		U-23A,U-23B,U23E
			Springs		SP-41, SP-42
			Wells		W-70, W-71

TOVCC 16019

3/90

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

SURFACE OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
Warner & Duane Moore	Belmont	Smith 14	Cropland		77
			Streams		U-23G,U-23H,U-23I, U-23F
Gregory K. & Pamela J. Moore	Belmont	Smith 14		House	78
Warner G. & Velma G. Moore	Belmont	Smith 14	Spring Cropland		SP-180 79
Nell M. Liston	Belmont	Smith 8	Woodland		80
Donald L. & Ruth I. Kittle	Belmont	Smith 8	Pastureland		81
John N. & Patricia F. Phillips	Belmont	Smith 2	Well		W-232
				House	82
Stanley & Margaret Juzwiak	Belmont	Smith 2	Well		W-270
				House	83
Deborah K. Schroeder	Belmont	Smith 14	Well		W-54
			Pond		U-22Y
				House	84
			Pastureland		84
			Woodland		84

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 31
(Subsidence Control Survey)

STRUCTURE * ~~SURFACE~~ OWNER	COUNTY	TOWNSHIP/SECTION	RENEWABLE RESOURCES	STRUCTURES-USE	MAP LOC. KEY (Structures)
East Ohio Gas Co.	Belmont	Washington 12 Smith 7, 8		8 Gas Pipelines	85
Columbia Gas Transmission Co.	Belmont	Smith 7,8		Gas Pipeline	86
Columbia Gas of Ohio	Belmont	Smith 8		Gas Pipelines	87
Belmont County Sanitary Sewer	Belmont	Smith 2, 14, 8		1 Water Pipeline	88
State of Ohio	Belmont	Smith 2, 14, 8		State Route 147	89
Belmont County	Belmont	Smith 2		County Road 5	90
Smith Township	Belmont	Smith 14, 13		Township Road 235	91
Smith Township	Belmont	Smith 7, 8		Township Roads 119, 120	92
Smith Township	Belmont	Smith 13, 19, 20		Township Road 118	93
Washington Township	Belmont	Washington 12		Township Road 119	94
Washington Township	Belmont	Washington 18		Township Road 118	95

*Structure owners maintain right-of-way for structures, but are not surface owners.

TOVCC 16021

ADDENDUM TO PAGE 31, J(1)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

RENEWABLE RESOURCES - GROUND WATER RECHARGE

For the mine plan area, it is generally accepted that most of the land area acts as recharge zones. In local settings, recharge occurs directly to ground water table aquifers and in deeper hydrostatigraphic units recharge occurs through leaky aquitards or by movement from more remote areas closer to the land surface. It is accepted that recharge potential or infiltration rates vary substantially in response to soil or rock type, slope, vegetation cover, and other factors. The only areas that are not viewed as recharge areas to one degree or another are discharge zones such as streams, springs, and seeps.

ADDENDUM TO PAGE 31, PART 2, K(1)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ENGINEERING AND MINING TECHNIQUES

The Powhatan No. 6 Mine is an operation that uses the longwall method of mining. There are two phases to the mining that occurs at the No. 6 Mine: Development and Retreat Mining. These are discussed below.

1. Development mining for the longwall unit is provided through the use of continuous miners. The continuous miners develop main and submain entries that provide both haulage and ventilation for the higher-producing longwall unit. The main and submain entries have limited (less than 50 percent) recovery. No subsidence is anticipated over the main and submain entries. Bleeder entries are also designed for less than 50 percent recovery. Pillar design is done through the use of the Holland-Gaddy formulae and is based on data and upon 20 years of experience at this and adjacent mines.

2. Retreat mining using the longwall method is accomplished in two steps. First, continuous miners develop gate and recovery entries that outline the longwall panels just prior to actual longwall mining. This mining is considered to be an actual part of longwall mining, with subsidence occurring over the gate and recovery entries. The gate entries are part of the full-coal recovery mining technique that requires planned subsidence in a predictable and controlled manner. Second, longwall mining removes the long panels of coal that are outlined by the gate entries. The panels at the No. 6 Mine are 600 to 800 ft. wide and up to 12,000 ft. long. A longwall shearer, a double-drum machine removes the panel by cutting slices of coal along the width of the face. The roof is temporarily supported by double-legged hydraulic supports called shields. The shields are moved forward each time that a slice is cut from the face. The coal is transported from the face by an armored, chain conveyor.

The roof behind the shields is allowed to collapse. The surface subsides in a typical subsidence trough, with the center of the panel experiencing a drop of 64 percent of the extracted height.

The longwall panels at the Powhatan No. 6 Mine are considered to be super-critical in width, where the subsidence trough has a wide bottom area. Subsidence at the No. 6 Mine was predicted using the CISPM computer program package from West Virginia University. Monitoring of subsidence over the first longwall panel at the No. 6 Mine confirmed the results of this predictive model. Since the geology of the mine does not vary substantially across the mine property, similar results are anticipated throughout the application area.

ADDENDUM TO PART 3, PAGE 31(K)(1)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ANNUAL MAP

In accordance with PPD Underground 91-1, a mine map will be submitted every six months to coincide with the permit anniversary date. For ground water monitoring, the face location of the active panel will be provided quarterly with the monitoring data. The maps will contain the following:

1. Scale the same as the Division of Mines submittal, or 1 in. = 500 ft.
2. All base map requirements pursuant to ORC 4153.03..
3. Surface owner names and property lines.
4. Streams and other bodies of water.
5. Section lines and numbers.
6. Buildings and other surface structures.
7. Public roads and railroad tracks.
8. Mine openings and surveyed workings, showing pillar and entry size, configuration and location.
9. Survey extension dates for all workings, including longwall face or pillar recovery lines.
10. Areas of full extraction.
11. Coal elevations and extraction height.
12. Completion dates for individual sections (if sealed, date and location of seal).
13. Maximum extraction ratios for completed sections.
14. Ground water and subsidence monitoring stations.
15. The boundaries of the authorized mining area.
16. The location and extent of any other mine excavation (surface or underground) within the same seam being mined.
17. A map title block and notarized map certification.

K. (4) (d) the center spacing for entries and cross cuts.

(e) minimum pillar dimensions for mains, submains, and butt sections, as well as the existing ranges of values for these areas.

(f) the barrier pillar width between butt sections, as well as the existing ranges of values for the same areas.

(g) the engineering properties of the clay/shale, or other soft rock material in the roof and floor of the mine.

(h) measures to be taken on the surface to prevent damage or lessening of the value or reasonably forseeable use of the surface, if any.

(i) the minimum pillar safety factor, for protected structures, based upon coal strength and load.

(j) methods and calculations used to determine the safety factor.

(5) Submit as an addendum for those areas mapped as full coal recovery mining, the following information:

(a) for each method to be employed (i.e. longwall or pillar extraction), provide the following:
See Addendum to Page 32, Part 3, K(5)(a)

i) rate and direction of dip for the coal seam.

ii) dimensions of panels or butt sections.

iii) thickness of coal to be extracted (mining height).

iv) maximum angle of draw.

v) maximum anticipated subsidence.

vi) width of barrier pillars or chain pillars between sections or panels.

vii) the maximum extraction ratio within a pillaring section.

ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(a)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ANTICIPATED EFFECTS OF PLANNED SUBSIDENCE

General

The anticipated surface effects of subsidence during and following coal extraction by the longwall method at the Powhatan No. 6 Mine are related to the following movements of the ground surface:

1. Vertical subsidence
2. Horizontal movement

The combination of vertical and horizontal movements of points on the ground surface leads to tensile or extension and compression strains from curvature of the ground surface and tilt. Extension and compression of the ground surface, in the direction of the movement of the longwall face, occur as the face moves in the direction of mining. The extension and compression effects develop after passage of the longwall face. The surface curvature, with resulting extension and compression, and the tilt near the ends of a mined panel and along the sides of a mined panel, represent the permanent effects of subsidence.

Background

The dip of the coal is 19 ft per mile at South 63 Degrees East. The strike is North 27 Degrees East. The panel dimensions are approximately 600 to 800 ft wide and up to 12,000 ft long. The gates are approximately 140 to 200 ft wide between panels. The coal thickness to be extracted is approximately 48 to 60 inches throughout most of the application area with up to 94 in. mined in the Graben Fault area. There is approximately 7 to 45 percent of the overburden classified as hard rock according to the test hole data.

Time of Subsidence

The surface effects of mining occur at times generally related to the advance of the longwall face.

1. Movements which develop over a panel being mined with passage of the face: these represent the most significant movements and are generally complete within thirteen (13) days of passage of the face. Approximately 99 percent of the subsidence is complete when the face is located at a distance equal to the depth of cover from the structure.

2. Movements which occur over a previously mined panel as an adjacent panel is mined: such superincumbent movements are relatively insignificant, being in the range of about 0.1 ft.

3. Movements over a long period of time due to consolidation of the gob and time dependent stress readjustment: long-term subsidence of the ground surface is not measurable, and is insufficent to cause surface damage.

Predicted Movements

The surface movements indicated below are derived from measurements made during subsidence over OVCC's first longwall panel. Similar movements are anticipated within the application area.

In February, 1990, the first longwall panel progressed beneath Smith Township Road 116. The Ohio Valley Coal Company placed subsidence monuments at 25 and 50 foot intervals along the road, measured their elevations prior to mining, and on several occasions after the mining was past the road. Figure 1 shows the plan view of the subsidence monuments. The longwall gate section entries are shown on the figure also. Figure 2 shows the subsidence profile that developed. Table 1 shows the monitoring data. The longwall face was 600 ft wide (center-to-center), at a depth of 497 ft, and had a mining height of 5.2 ft (62 in).

The angle of draw (measured to .02 ft of displacement) was approximately 13 degrees. The angle of draw on the headgate side was identical to the angle on the tailgate side. It should be noted that the surface at the headgate showed signs of some horizontal movement that caused the monuments on the surface to move downhill. This situation caused some of the displacement of the monuments to the north of the angle of draw. However, with the surveying instruments that were used, an accuracy of 0.02 ft. was used, and the displacement north of the angle of draw was minimal.

The longwall passed under the road on February 20, 1990. The first subsidence was observed on February 21, with 99 percent of the maximum subsidence occurring by March 5, 1990 (within 13 days).

The second longwall panel was initially instrumented and the pre-mining elevations were determined. Subsequent measurements have not been made, and a search for the monuments revealed that most of the monuments cannot be found. However, measurements of the monuments over the first panel showed that the ground had experienced displacements as far south as the middle of the first panel. Some of this displacement can be attributed to further

consolidation of the rubblized zone and to surface movement in a down hill direction, thus it is not all "subsidence" in the classical sense.

Subsidence monitoring over two adjacent longwall panels in the D-0360-1 shadow area is currently being designed and will begin soon. If, for any reason, the monitoring over two panels in the D-0360-1 shadow area cannot be completed, monitoring of two adjacent panels in the D-0360-2 shadow area will be done. Monitoring will be tied to a control point located off the panel and beyond the angle of draw. Results of this monitoring will be submitted to the Division when monitoring is complete and the results have been analyzed.

The maximum subsidence occurred near the center of the panel being mined and was measured at approximately 64 percent of the extracted seam thickness. Normally, this represents about 40 in. of subsidence. Within the graben fault area, up to 60 in. of subsidence may be expected.

Some horizontal movement occurred in steeply sloping ground where several slips occurred. These slips were mainly in slip-prone soils. Near the center of the panel, the ground moved upwards in several small areas after subsidence as the compressive strain caused the soils to heave upward. Surface cracking up to about six inches wide occurred during the time the areas were put under tension. This surface cracking has been limited to only a few small isolated areas, where they generally closed due to compressive forces and to rainfall. OVCC has not had to repair any cracks that remained open. Most cracks are less than 1 in. wide.

Shear and twisting strains have never been observed on any structure at the Powhatan No. 6 Mine. Twisting and shearing occur when a structure is located immediately adjacent to a corner of a longwall panel within the angle of draw according to Dr. Syd S. Peng, Professor of Mining Engineering at West Virginia University. According to Dr. Peng, "If the structure is inclined to the permanent panel edge, it will be subjected to twisting and shearing resulting in damage."

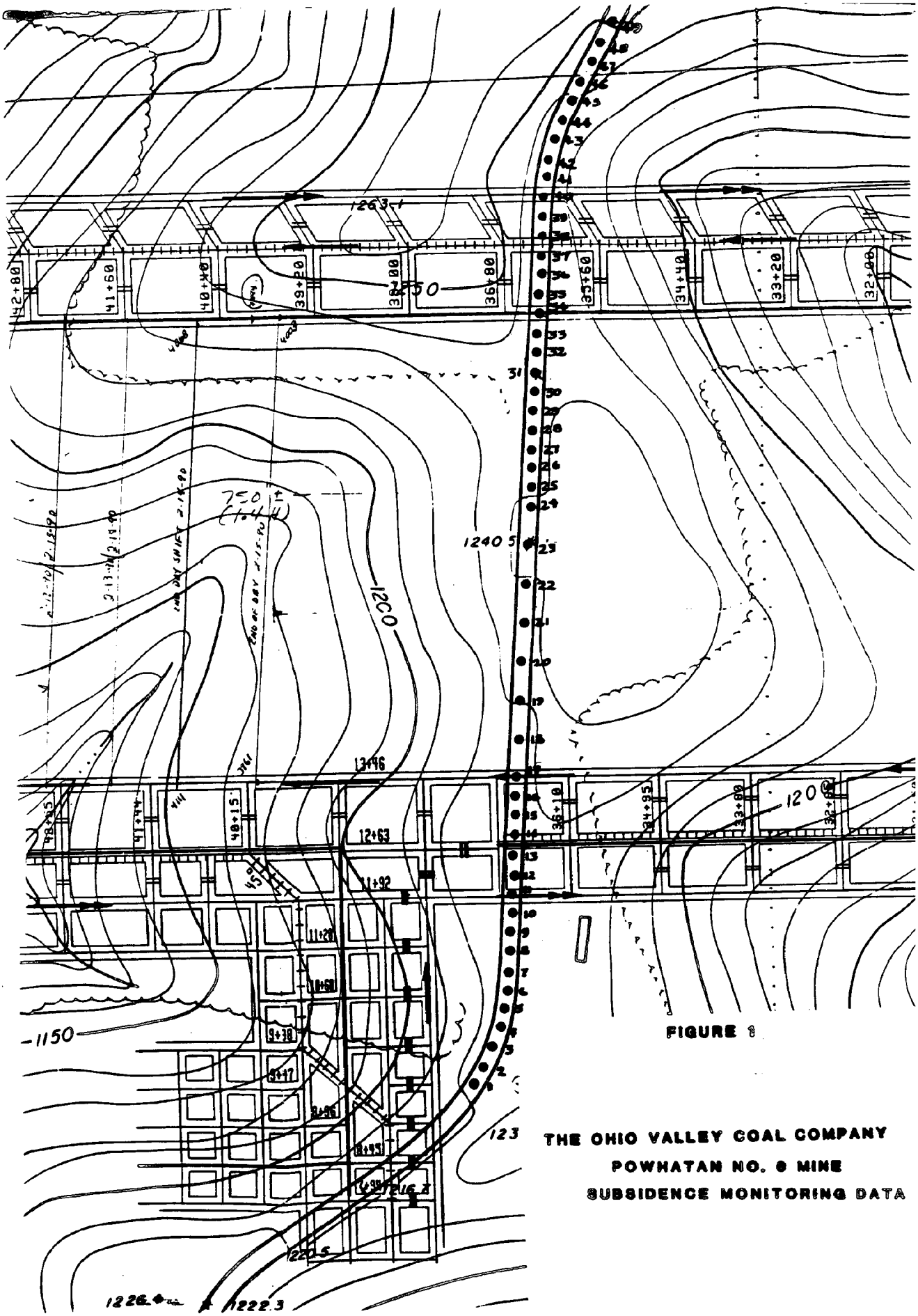

FIGURE 8

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
SUBSIDENCE MONITORING DATA

FIGURE 2

SUBSIDENCE PROFILE

FIRST LONGWALL PANEL

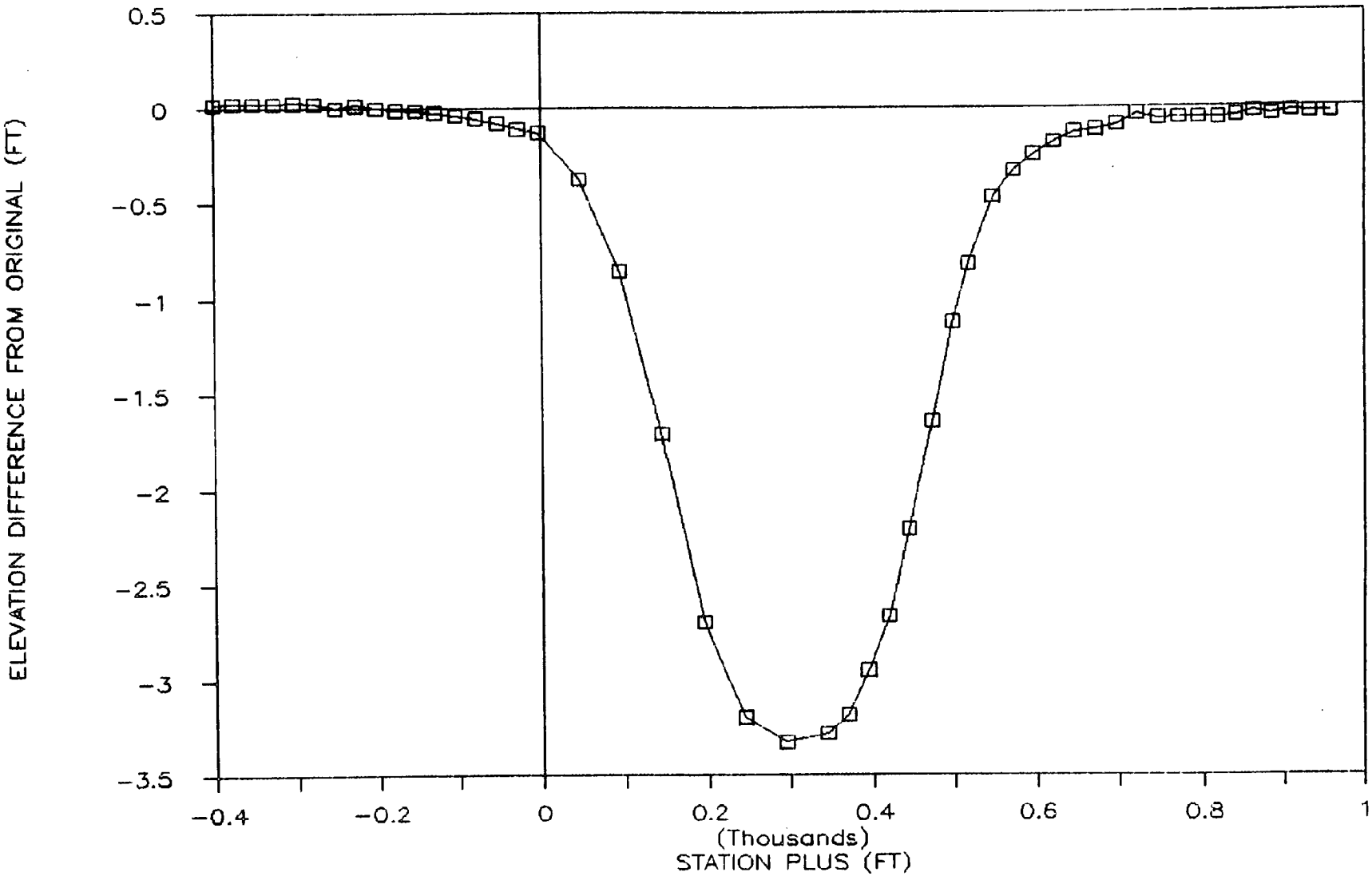

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TABLE 1

SUBSIDENCE DATA COLLECTED OVER "FIRST" PANEL

LOCATION IN PANEL	SUBSIDENCE STATION	STATION PLUS	AVERAGE SINCE 03-05-90
*******	********	********	********
	1	-399.88	0.02
	2	-376.10	0.02
	3	-352.31	0.02
	4	-327.81	0.02
	5	-302.74	0.03
	6	-277.67	0.02
	7	-252.91	0.00
	8	-228.06	0.02
	9	-203.22	0.00
	10	-178.02	-0.01
	11	-152.98	-0.01
	12	-128.17	-0.02
	13	-103.76	-0.04
	14	-79.23	-0.05
	15	-53.91	-0.08
	16	-29.53	-0.11
T. G.	17	-4.67	-0.13
	18	44.98	-0.37
	19	94.67	-0.86
	20	144.40	-1.71
	21	194.26	-2.70
	22	244.94	-3.20
CENTER	23	295.08	-3.33
	24	344.43	-3.28
	25	369.29	-3.19
	26	394.09	-2.95
	27	418.96	-2.67
	28	443.77	-2.21
	29	472.83	-1.64
	30	497.74	-1.12
	31	517.68	-0.81
	32	547.66	-0.47
	33	572.62	-0.33
H. G.	34	597.63	-0.24
	35	622.37	-0.18
	36	647.21	-0.13
	37	672.17	-0.11
	38	697.21	-0.09
	39	722.39	-0.03
	40	747.40	-0.06
	41	771.54	-0.05
	42	794.95	-0.06
	43	818.47	-0.06
	44	841.35	-0.05
	45	864.06	-0.03
	46	886.73	-0.04
	47	909.96	-0.02
	48	933.35	-0.03
	49	960.15	-0.03

Values shown in ft.
Negative value indicates downward movement.

TABLE 2

II. DIFFERENCE IN GROUND ELEVATIONS: First LW Panel

STATION NUMBER	02-14-90	02-16-90	02-21-90	02-23-90	02-26-90	02-28-90	03-02-90	03-05-90	03-12-90	03-19-90	04-12-90	06-11-90	AVERAGE SINCE 03-05-90
	SURVEY DATE												########
1	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.01	0.03	0.05	-0.01	0.00	0.02
2	0.00	0.02	0.01	-0.02	0.00	0.01	0.01	0.02	0.02	0.05	0.01	0.07	0.02
3	0.03	0.03	0.01	0.01	0.01	0.01	0.03	0.02	0.02	0.05	0.01	0.08	0.02
4	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.03	0.05	0.01	0.04	0.02
5	0.03	0.02	0.03	0.02	0.02	0.02	0.04	0.04	0.01	0.06	0.01	0.07	0.03
6	0.02	0.01	0.01	0.01	0.04	0.01	0.03	0.02	0.02	0.05	0.01	0.07	0.02
7	-0.03	-0.01	0.00	-0.02	-0.01	-0.00	0.01	0.00	0.00	0.03	-0.02	0.05	0.00
8	0.01	0.01	0.02	0.00	0.01	0.01	0.02	0.01	0.02	0.04	0.00	0.06	0.02
9	0.01	0.01	0.00	0.00	0.00	-0.00	0.01	-0.01	0.00	0.03	-0.01	-1.96	0.00
10	0.01	0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.02	-0.03	0.00	-0.01
11	0.08	0.01	0.00	-0.01	0.01	-0.01	-0.01	-0.01	-0.03	0.01	-0.02	0.03	-0.01
12	0.08	0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	0.00	-0.03	0.02	-0.02
13	-0.04	0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.04	-0.01	-0.06	0.00	-0.04
14	0.07	0.00	-0.01	-0.04	-0.03	-0.07	-0.05	-0.06	-0.06	-0.02	-0.07	-0.01	-0.05
15	0.08	-0.01	-0.02	-0.05	-0.07	-0.08	-0.08	-0.06	-0.08	-0.06	-0.11	-0.05	-0.08
16	0.07	0.00	-0.03	-0.08	-0.09	-0.10	-0.10	-0.11	-0.11	-0.08	-0.13	-0.07	-0.11
T.G. 17	0.11	0.05	0.01	-0.06	-0.09	-0.11	-0.12	-0.13	-0.13	-0.10	-0.15	-0.09	-0.13
18	0.03	0.01	-0.06	-0.21	-0.29	-0.34	-0.35	-0.36	-0.36	-0.34	-0.43	-0.36	-0.37
19	0.08	0.02	-0.07	-0.49	-0.68	-0.81	-0.83	-0.84	-0.85	-0.83	-0.90	-0.86	-0.86
20	0.09	0.00	-0.13	-1.13	-1.47	-1.65	-1.68	-1.69	-1.71	-1.69	-1.75	-1.73	-1.71
21	0.10	-0.01	-0.18	-1.97	-2.41	-2.60	-2.65	-2.68	-2.70	-2.67	-2.74	-2.71	-2.70
22	0.08	-0.01	-0.22	-2.43	-2.90	-3.09	-3.11	-3.17	-3.22	-3.18	-3.22	-3.21	-3.20
Center 23	0.11	0.01	-0.21	-2.54	-3.01	-3.23	-3.23	-3.31	-3.36	-3.30	-3.34	-3.34	-3.33
24	0.09	0.00	-0.21	-2.48	-2.96	-3.19	-3.20	-3.28	-3.30	-3.25	-3.30	-3.30	-3.28
25	0.08	-0.01	-0.20	-2.37	-2.85	-3.08	-3.09	-3.18	-3.21	-3.15	-3.20	-3.20	-3.19
26	0.09	-0.01	-0.17	-2.13	-2.62	-2.85	-2.87	-2.93	-2.97	-2.92	-2.98	-2.97	-2.95
27	0.06	-0.03	-0.18	-1.84	-2.32	-2.56	-2.57	-2.66	-2.70	-2.63	-2.68	-2.68	-2.67
28	0.07	-0.03	-0.15	-1.41	-1.88	-2.11	-2.13	-2.20	-2.24	-2.17	-2.22	-2.22	-2.21
29	0.08	0.00	-0.06	-0.71	-1.24	-1.52	-1.53	-1.65	-1.66	-1.60	-1.66	-1.64	-1.64
30	0.09	0.00	-0.04	-0.44	-0.79	-1.02	-1.03	-1.12	-1.15	-1.08	-1.14	-1.15	-1.12
31	0.07	-0.01	-0.05	-0.33	-0.55	-0.72	-0.73	-0.81	-0.84	-0.78	-0.83	-0.82	-0.81
32	0.09	0.00	-0.04	-0.21	-0.32	-0.40	-0.38	-0.47	-0.49	-0.42	-0.48	-0.46	-0.47
33	0.08	-0.02	-0.05	-0.16	-0.24	-0.28	-0.25	-0.33	-0.36	-0.28	-0.34	-0.31	-0.33
H.G. 34	0.08	-0.02	-0.03	-0.12	-0.18	-0.19	-0.16	-0.24	-0.30	-0.19	-0.25	-0.23	-0.24
35	0.08	-0.02	-0.02	-0.08	-0.13	-0.14	-0.11	-0.18	-0.21	-0.14	-0.19	-0.16	-0.18
36	0.09	0.00	0.01	-0.06	-0.09	-0.09	-0.06	-0.14	-0.16	-0.08	-0.13	-0.11	-0.13
37	0.07	-0.01	-0.01	-0.06	-0.09	-0.08	-0.05	-0.12	-0.15	-0.07	-0.12	-0.09	-0.11
38	0.06	-0.01	-0.03	-0.05	-0.07	-0.06	-0.03	-0.10	-0.11	-0.05	-0.10	-0.07	-0.09
39	0.10	0.03	0.05	-0.01	-0.02	0.00	0.03	-0.04	-0.06	0.01	-0.04	-0.01	-0.03
40	0.08	0.01	0.03	-0.02	-0.06	-0.03	0.00	-0.07	-0.08	-0.02	-0.07		-0.06
41	0.09	0.00	0.01	-0.03	-0.05	-0.03	0.01	-0.07	-0.08	-0.01	-0.06		-0.05
42	0.10	0.00	0.01	-0.01	-0.03	-0.02	0.01	-0.07	-0.08	-0.01	-0.06	-0.02	-0.06
43	0.06	0.00	0.03	-0.02	-0.04	-0.02	0.01	-0.07	-0.09	-0.01	-0.06	-0.03	-0.06
44	0.08	-0.01	0.03	-0.02	-0.03	-0.01	0.02	-0.08	-0.08	0.01	-0.04	-0.01	-0.05
45	0.07	-0.01	0.03	-0.01	-0.01	-0.00	0.04	-0.04	-0.05	0.02	-0.03		-0.03
46	0.07	-0.01	0.02	-0.01	-0.05	-0.01	0.02	-0.05	-0.07	0.00	-0.05	-0.01	-0.04
47	0.05	0.01	0.05	-0.01	-0.02	0.00	0.03	-0.03	-0.06	0.02	-0.03	0.01	-0.02
48	0.07	-0.01	0.09	0.00	-0.02	-0.00	0.02	-0.04	-0.06	0.01	-0.03	0.01	-0.03
49	0.06	-0.02	0.03	0.00	-0.05	0.00	-2.97	-0.03	-0.07	0.01	-0.03	0.01	-0.03
Distance LW face is from road (in feet):	-430	-248	+99	+253	+340	+516	+678	+809					

- sign means West of road + sign means East of road

Values shown in ft.
Negative value indicates downward movement.

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ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(b)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ANTICIPATED EFFECTS OF PLANNED SUBSIDENCE

Effect on Surface Facilities

1. Tension cracking of the ground surface may occur at the sides and ends of a longwall panel. These cracks in the surface may vary in width from hairline, up to 1-1/2 inches wide. In some instances, cracks have been observed to be 6 in. to over 1 ft wide at other mines.

2. OVCC believes that there will be no effect on the crop production as a result of mining. This fact is supported by a paper written by Dr. Frank L. Himes, Ph.D., entitled "Agronomic Evaluation of the Land in the Southern Ohio Coal Company Area", June, 1983. A copy is included in this addendum.

Slip-Prone Soils

During our pre-subsidence survey, if potential slip-prone areas are discovered that would significantly affect the dwelling or useable land areas, these will be recorded. If subsidence due to mining operations causes material damage or reduces the value or reasonably foreseeable use of the surface land, OVCC will restore the land to a condition capable of supporting uses it was capable of supporting before subsidence. If slips are triggered by mining activities, these areas would be stabilized in accordance with accepted site specific procedures for such work if technologically and economically feasible. If not feasible, OVCC will arrange alternative mitigatory measures.

A search of the Belmont County Soils Maps (specifically Maps No. 52 and 53)* revealed approximately 4 potential slide/slip areas within the following soil types:

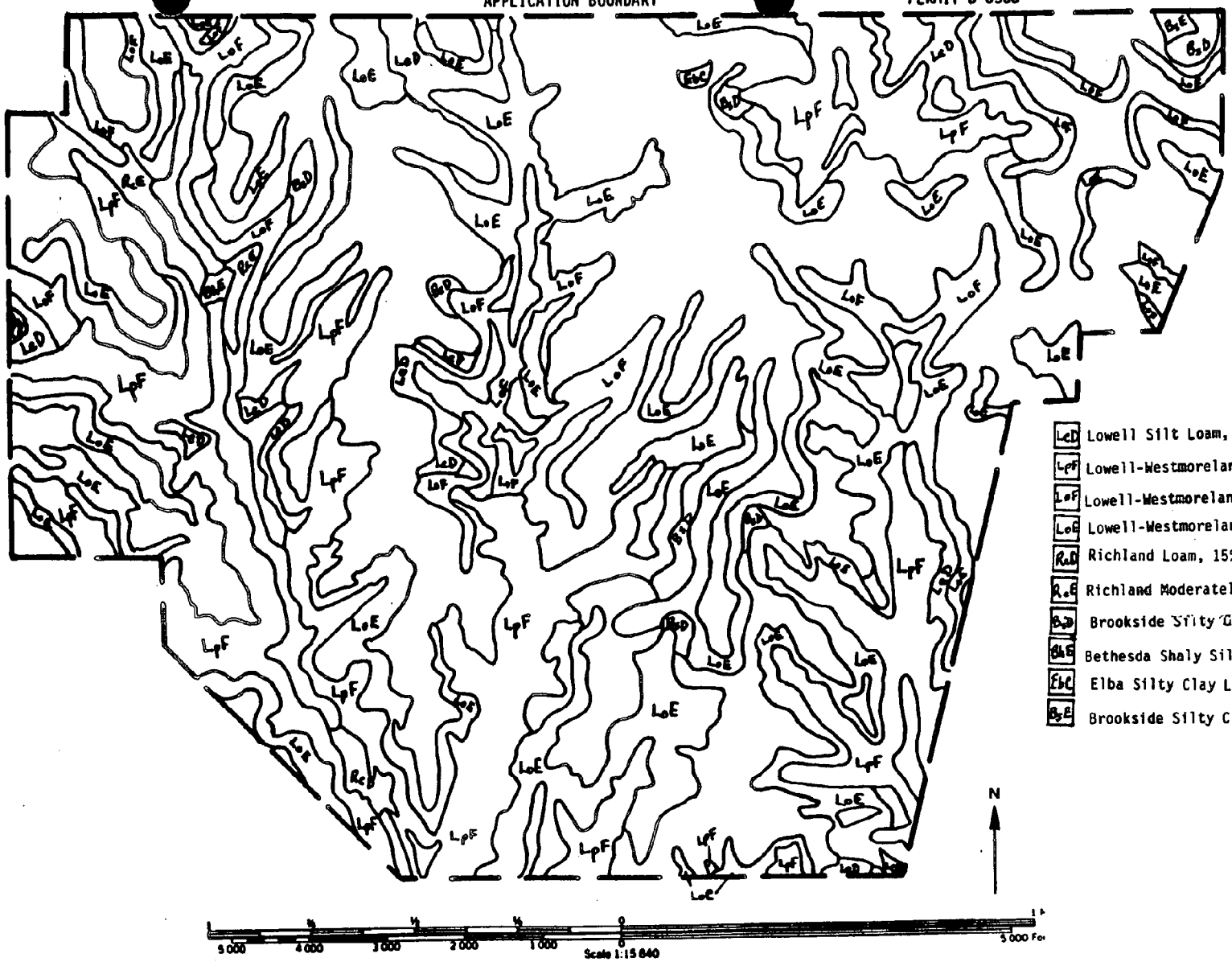
Type	Slope	No. of Potential Slide/Slip Areas
Lowell-Westmoreland Loams (LoE)	25%-40%	1
Lowell-Westmoreland Silt Loan (LoF)	40%-70%	2
Brookside Silty Clay Loam (BsD)	15%-40%	1

During the pre-subsidence survey, these areas, as well as other similar sites that may have a significant impact to existing structures, will be reviewed. Should conditions dictate, site specific measures, not limited to but including installation of cut-off trenches, drainage systems, and retaining walls, may be taken to minimize adverse affects.

*Soil Survey of Belmont County
ODNR, USDA March, 1974

REPRODUCED FROM SOIL SURVEY
OF BELMONT COUNTY, ODNR, USDA
MARCH, 19[illegible] MAPS 52, 53, 60, 61

THE OHIO VALLEY COAL COMPANY
POMMATAN NO. 6 MINE
PERMIT D-0360



LoD Lowell Silt Loam, 15%-25% Slopes
LpF Lowell-Westmoreland Silt Loam, Benched 30%-70% Slopes
LoF Lowell-Westmoreland Silt Loam, 40%-70% Slopes
LoE Lowell-Westmoreland Silt Loam, 25%-40% Slopes
RcD Richland Loam, 15%-25% Slopes
RcE Richland Moderately Stony Loam, 25%-40% Slopes
BsD Brookside Silty Clay Loam, 15%-25% Slopes
BsE Bethesda Shaly Silty Clay Loam, 25%-40% Slopes
EbC Elba Silty Clay Loam, 8%-15% Slopes
BsE Brookside Silty Clay Loam, 25%-40% Slopes

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AGRONOMIC EVALUATION OF LAND

IN THE

SOUTHERN OHIO COAL COMPANY AREA

AMERICAN ELECTRIC POWER
SERVICE CORPORATION

JUNE, 1983

FRANK L. HIMES, Ph.D.
Professor of Agronomy
Ohio State University

TOVCC 16036

INTRODUCTION

Areas considered typical of different surface effects of the Meigs County Mine #2 were observed on May 26, 1983. Mr. Keith Peluchette assisted me in reading the detailed mining map in respect to surface locations and data of mining. The dates of mining varied from three (3) years to present.

OBSERVATIONS

The areas of observation made by walking, included a small corn field (fallow this year) and the adjacent woods, an orchard, and a meadow area near a road. Additional areas were observed by driving around the area.

1. Subsidence with associated cracking did not result in mixing of soil layers except possibly for some sloughing at the cracks.

2. The trees in the subsided areas did not show damage when compared to those in the areas that had not been subsided.

3. After the cracks close in the later stages of subsidence, they are difficult to locate in densely vegetated meadows and woods.

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DISCUSSION

1. No evidence was obtained that the subsidence would alter soil management practices. Since the soil horizons (topsoil, subsoil, and parent material) have the same respective locations, the chemical properties of the soil have not been changed. Therefore, fertilizer and liming recommendations would not change with subsidence. After any cracks have closed, the same equipment could be used on both the subsided and the non-subsided areas. The surface slopes were not altered appreciably in respect to equipment use.

2. Although no sloughing was observed on the cracks, common sense would indicate that plant residues and a little topsoil would enter any such cracks. The extent of sloughing would depend upon the surface conditions and activities. The coating of the surface of the cracks with the surface "debris" would produce a plane of weakness. By this is meant, during very dry periods when the soil contracts, shrinkage cracks would be along these faces. Also, plant roots would grow more extensively in the remnant of the crack than in the adjacent zone because the fertility and aeration are better. Plant roots

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are not drill bits and penetrate the soil only by entering pores (or voids) that are larger than the root.

As indicated on the map included, the Monongahela soils (and likewise for the Latham soils) have a compact layer at 20 to 30 inches that impedes root penetration and percolation of water. The fracturing of this layer and partial filling with debris would increase the rooting depth of and available water to the plants growing within a few inches of the crack. In some areas of Ohio, farmers subsoil their land which is a practice to fracture the dense layers 15 to 24 inches below the surface. The practice called vertical mulching is more effective because plant residues are incorporated. It improves both root penetration and the infiltration and percolation of water. In most instances, the additional infiltration results in less runoff and less erosion.

Erosion is a natural hazard for the Gilpin, Dekalb, Latham, Monongahela, and Upshur soils. These soils usually occur on slopes exceeding six (6) percent. Therefore, practices or occurrences that decrease the amount of water runoff will decrease erosion. Because these soils are rated highly erosive (see map

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and Table 1), farming practices should be selected for erosion control to hold erosion to a minimum. Although no waterways were observed, if subsidence caused a shift in a waterway, the farmer would need to make minor changes in his tillage practices.

3. Tables 2, 3, and 4 summarize other properties of the soils and the type of agriculture in Meigs County. The productivity of these soils is often limited by fairly acid subsoils, low fertility, shallow (less than 36 inches) rooting, low moisture holding capacity, and steep slopes. The soil management practices needed to make these soils productive do not change with subsidence. Although a detailed soil survey of the area is not available, a generalized map and publications containing additional information about these soils are included.

CONCLUSION

The fertility of the soils was not altered by subsidence except within cracks if sloughing occurred. The fracturing of layers that restrict water movement and root penetration should be beneficial to the plants growing near the fractures. The maintenance of the farmer's erosion control waterways may have to be adjusted accordingly if subsidence were to change the flow in them.

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The soils in this area are difficult to maintain on a high state of productivity, and subsidence has little impact on the chemical and physical properties of the soils. Based on practices in other areas of the world, the fracturing of the layers inhibiting root development will be beneficial to plant growth. The agronomic uses of the soils are not influenced by longwalling.

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TABLE 1[1]

Soil Series	K*
Dekalb	0.24
Gilpin	0.32
Latham	0.43
Monongahela	0.43
Upshur	0.43

*K is the soil erodibility factor. The highest value for Ohio soils is 0.49 and most are below 0.40.

[1]"Ohio Erosion Control and Sediment Pollution Abatement Guide." Bulletin 594, Cooperative Extension Service, The Ohio State University.

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TABLE 2

Meigs County - Soil and Water Conservation Needs - 1967

Total Land Area	277,610 A
Non-Inventory Acreage (Urban, etc.)	13,058 A
Inventory Acreage	264,552 A
Cropland[2]	48,263 A
Pasture[2]	41,251 A
Forest[2]	168,100 A
Other Land[2]	6,938 A

IRRIGATED AND NON-IRRIGATED CROPLAND
BY LAND CAPABILITY CLASSES, 1967[3]

LAND CAPABILITY CLASS SUB-CLASS	TILLAGE ROTATION							
	ALL ROW CROPS	FIELD CROPS CLOSE GROWN	ROTATION HAY AND PASTURE	HAY-LAND	CONSER-VATION USE ONLY	TEMPORAR-ILY IDLE CROPLAND	ORCHARDS VINEYARDS AND BUSH FRUITS	TOTAL CROPLAND
1	867	434	2842	908	864	1246	0	7161
2E	1127	217	1516	909	2013	1091	0	6873
3E	1084	651	1326	2181	2589	623	160	8614
4E	2212	217	2463	2181	576	1246	0	8895
6E	1864	217	2652	3635	575	312	0	9255
2W	867	1301	1894	182	290	779	0	5313
3W	434	217	757	0	0	0	0	1408
7S	0	0	380	364	0	0	0	744
TOTAL	8455	3254	13830	10360	6907	5297	160	48263

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PASTURE, FOREST, AND OTHER LAND ACRES BY LAND CAPABILITY CLASSES, 1967[4]

LAND CAPABILITY CLASS SUB-CLASS	PASTURE & RANGE			FOREST			
	PASTURE	COMMERCIAL	NON-COMMERCIAL	COMMERCIAL GRAZED	IN FARMS	NOT IN FARMS	TOTAL LAND IN INVENTORY
1	2633	5433	0	217	867	0	16094
2E	1229	1654	0	0	651	0	10407
3E	4740	5433	0	867	867	0	19654
4E	8601	25042	200	7156	217	0	42955
6E	13692	49612	0	9541	867	0	73426
7E	4213	11341	0	1735	217	0	15771
2W	1404	1181	0	217	0	0	7898
3W	351	945	0	0	0	0	2704
6S	175	277	0	0	0	0	412
7S	4213	66622	200	9107	1084	1301	74164
8S	0	0	200	0	0	867	1067
TOTAL	41251	167500	600	28840	4770	2168	264552

Ohio Soil and Water Conservation Needs Inventory, Sponsored by USDA, 1971.

1. Page 12
2. Page 14
3. Page 29
4. Page 48

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TABLE 3

MEIGS COUNTY - AGRICULTURAL STATISTICS

	1980	1981
Number of Farms[1]	620	610
Average Size of Farm[1]	177 A	182 A
Land in Farms[1]	110,000 A	111,000 A
Corn for Grain[2]	3,700 A	5,200 A
Yield[2]	130 bu./A	85 bu./A
Soybeans[3]	(Less than 1,000 A)	
Wheat[4]	(Less than 1,000 A)	
Oats[5]	(Less than 1,000 A)	
Hay (all)[6]	16,800 A	15,800 A
Yield[6]	2.2 T/A	2.2 T/A
All Cattle and Milk Cows[7]	13,000	14,000
Hogs and Pigs[8]	2,000	1,900
Stock Sheep[8]	(Less than 1,000)	
Hens and Pullets, Laying Age[8]	30,000	30,000

Published by Ohio Co-op Reporting Service, June 1981-1982, Ohio Agricultural Statistics.

1. Page 7
2. Page 9
3. Page 11
4. Page 13
5. Page 15
6. Page 17
7. Page 37
8. Page 43

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TABLE 4

Available Moisture Capacity for the Surface Layer[1]

Dekalb Soil	0.13-0.17 in./in. of soil
Gilpin Soil	0.17-0.22 in./in. of soil
Latham Soil	0.18-0.22 in./in. of soil
Upshur Soil	0.18-0.22 in./in. of soil

[1]Soil Survey of Monroe County, Ohio. Published by USDA, 1974, pp. 39-43.

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Education:

A.B. Wabash College (Chemistry), 1949.
M.Sc. Purdue University (Organic Chemistry), 1951.
Massachusetts Institute of Technology (Westinghouse Science Teacher Institute), Summer 1952.
Ph.D. Purdue University (Soil Fertility and Chemistry), 1956.

Professional and Technical Societies:

American Society of Agronomy, Soil Science Society of America, International Soil Science Society, American Chemical Society, Sigma Xi, Gamma Sigma Delta.

Professional Experience:

1949-1951	Teaching Assistant, Department of Chemistry, Purdue University.
1951-1953	High School Science Teacher, Remington High School, Remington, Indiana.
1953-1955	Fellowship, Department of Agronomy, Purdue University.
1955-1957	Assistant Professor in the Departments of Agriculture and Chemistry, Middle Tennessee State University, Murfreesboro, Tennessee.
1957-present	Assistant Professor, Associate Professor, Professor, Department of Agronomy, Ohio State University.

Publications:

Books written

Himes, F. L. 1969. Audio Tutorial Notes for Soils, 1st ed. Bugess Publishing Co.

Himes, F. L. 1972. ibid, 2nd ed.

Himes, F. L. 1975. ibid, 3rd ed.

Himes, F. L. 1979. ibid, 4th ed.

Chapters of books written:

Himes, F. L. 1974. Inventorying Soil Resources. Chapter 28 of "Man's Finite Earth", R. O. Utgard and C. D. McKenzie, eds.

Mortensen, J. L., and F. L. Himes. 1964. Soil Organic Matter. Chapter 5 of "Chemistry of Soils", F. F. Bear ed.

Technical Papers

Himes, F. L. and S. A. Barber. 1957. Chelating ability of soil organic matter. Soil Sci. Soc. Amer. Proc. 21:368-373.

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Street, J. R., P. R. Henderlong and F. L. Himes. 1974. The Silica Content of Merion Kentucky Bluegrass Under Several Cultural Regimes and Its Relation to Thatch Accumulation. Turf and Landscape Research. OARDC Res. Sum 79. Sept. pp 9-12.

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Lueking, M. A., J. W. Johnson, and F. L. Himes. 1983. Effects of Increasing the Rates of Potassium and Nitrapyrin on Nitrogen Uptake by Corn. Agron. J. 75:247-249.

Non-Technical Papers

Himes, F. L. 1963. Careers in Agronomy. The Ohio Farmer.

Himes, F. L. 1964. Radioactive isotope demonstration for improved teaching of soil chemistry. Agron. J. 56:239.

Himes, F. L. 1972. Inventorying Soil Resources. The Science Teacher. 39:2.

Himes, F. L. 1976. Use of the Overhead Projector to Illustrate Ion Exchange Reactions. J. of Agron. Educ. 5:33-34.

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ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(c)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

Damage Repairs

1. Notwithstanding its mining rights and without waiving nor releasing any of its rights, OVCC will make repairs of damage caused to surface lands by OVCC's mining operations if the damage reduces the foreseeable use or value of the surface lands. If such damage occurs, OVCC will submit to the Chief within thirty days after the damage occurs:

   a. Site specific plans for the repair or mitigation of the damage, including a time schedule for performance of the remedial action.

   b. A request for more time to prepare such plans; or

   c. Written notification that OVCC believes that repair or restoration measures are not technologically feasible. If repair or restoration measures are not desired by the owner of a structure or if repair or restoration measures are not technologically feasible, other mitigatory measures will be described.

2. Damage to surface land will be repaired by local contractors. As surface damage occurs, the landowner will be notified and permission to repair the damage will be requested. Surface cracks will usually be repaired by the following method: After the length of the subsidence crack has been determined, a bulldozer will be used to cut a V-shaped trench. The depth of this trench will be approximately 8-10 feet or down to bedrock. During the excavation topsoil will be segregated from subsoil and rock. Upon completion of the excavation, the material will be compacted using the track of the bulldozer. Once the soil material has been replaced, the area will be reclaimed to ODNR specifications.

   OVCC will employ a program to monitor surface cracking and settling resulting from subsidence. Areas being mined will be inspected at various intervals, ranging from daily to weekly. These areas will be visually inspected for any subsidence related problems. If a problem is found, the landowner will be notified immediately.

In most cases, surface cracks are expected to open and close relatively rapidly, however, some surface cracks may take weeks to close. For this reason, most cracks will not be repaired until OVCC determines that the cracks are not going to close themselves. If the surface cracks are in an area that is commonly traveled by man or livestock, the cracks will be repaired immediately. Surface cracking that is found in areas not commonly traveled, may be marked by brightly colored tape. This tape alerts anyone in the area of the depression or opening. If the cracks do not close within the period of time OVCC determines is adequate, a contractor will repair the cracks.

Monitoring of these areas will continue for up to six months after mining, and if the cracks reopen, they will once again be repaired. Monitoring of panel areas before mining consists of visual inspection or aerial photo review. These areas are being inspected before mining, due to the water monitoring program which starts one year prior to mining.

OVCC's subsidence program will adequately assure that the value and reasonably foreseeable use of the surface land is maintained.

3. Prior to the introduction of farm equipment into fields that have been undermined, OVCC will inspect the field for cracks or slips. Repairs needed (to maintain access into the fields) will be made at appropriate times. Crop lands damaged by subsidence will be repaired at appropriate times to permit harvest or cultivation without damage to personnel or equipment. Lost or damaged crops will be replaced in kind by OVCC at OVCC's expense. Note: "appropriate times" indicates that the repairs will be made 1) at a time when access is needed and 2) when damage to adjacent plants will be minimized. In any case, crop production will be maintained during and after mining.

4. Affected water supplies will be subject to the provisions found in the Addendum to Page 19, Part 2, F. In the long term, permanent water supplies will consist of re-drilled wells, re-developed springs, new or repaired cisterns, re-dug ponds, or with county water. If county water is used, a single, lump sum cash amount may be deposited in the Owner's bank. The sum shall be sufficient to provide enough interest to pay for the cost of county water. The lump sum will belong to the Owner when deposited in the bank. A combination of these provisions may be required. It is the intent of OVCC to offer landowners equitable options as outlined above in order to restore the reasonable foreseeable use of the land and facilities.

ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(d)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

ANTICIPATED EFFECTS

Structures situated over a panel may be damaged due to subsidence. When the longwall passes directly under a structure, the structure experiences first moderate tensile stress, then moderate compressive stress. As the structure subsides, the end that was undermined first subsides first, causing some tilting away from the advancing face. As the surface over the panel subsides, it takes on the shape of a trough, with the edges remaining in tension and the center in compression. Because the Powhatan No. 6 face moves quickly, damage to structure from this type of movement is minimized.

The damage that may be expected may involve cracking of plaster, cracking between concrete block or brick, and separation of existing cracks. Cracks may close partially or completely after subsidence is complete.

Ponds or streams may become partially dry temporarily as a result of subsidence-induced surface cracks. Unprotected underground utility lines (water and gas) are subject to tensile strains and could conceivably break if left unprotected, although this has not happened to date at the Powhatan No. 6 Mine. There are several gas lines traversing the application area. In the case of small diameter (less than 6 in.) pipelines, the expereince at the No. 6 Mine and at other mines is that the pipelines will not be damaged unless they are not well maintained. Some mines report that,with mechanical joint pipe, the subsidence may cause the lines to leak. With large diameter pipelines, there is no experience at the No. 6 Mine. However, large diameter pipelines have been undermined many times by longwall panels throughout the world. It is done routinely in the U.S., and currently nearby in Ohio. If the lines are subsided when fully buried, the friction between the soil and the pipe may not allow the pipe to move freely as the subsidence trough developes. Some areas of the pipe will be placed in tension, others in compression. Because the large diameter pipelines are at near 90 degree angles with the direction of mining, the dynamic subsidence wave is not anticipated to have an effect on the pipelines if the face passes quickly beneath the lines. OVCC's mitigating measures, as stated on page 3 of the Addendum to Page 32 and 33, Part 3, K(5)(e), also should minimize any potential effects on the pipelines.

ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(e)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

MITIGATING MEASURES

Damage to Dairy Operation

1. The Dunfee dairy farm is located directly over a longwall panel. The dairy barn and milk house will experience subsidence. Some surface and structural damage is anticipated. It is the intention of OVCC to remove the coal under all structures, including the dairy barn and milk house on the Dunfee dairy farm as rapidly as possible to minimize damage.

   It is OVCC's experience that dairy farming, and especially milking, will not be interrupted by longwall mining subsidence. Nonetheless, OVCC will maintain, at OVCC's expense, the dairy farm in full operation by taking the following measures. Prior to undermining the dairy structures, most particularly, the barn/milk house, OVCC will prepare the structure at OVCC's expense as follows:

   a. A water supply line from the County water line will be installed prior to mining in order to provide water on a continuous basis. This water line will be installed in such a manner that subsidence will not interrupt the flow of water.

   b. The electrical supply to the barn/milk house will be inspected and, if necessary, changed to permit the downward movement of the structure.

   c. The framework structure of the barn will be inspected to determine its ability to withstand the forces caused by subsidence. Temporary reinforcement measures will be used where practical in order to return the barn to pre-mining conditions after subsidence is complete.

   d. The milking system will be inspected to determine its ability to withstand the forces caused by subsidence. If necessary, rigidly held lines will be fastened with flexible couplings to permit movement of the barn and still permit the normal flow of milk to the bulk tank. All modifications will comply with State and County Health Department guidelines.

   e. If necessary, the bulk milk tank will be placed on a low-profile platform that permits easy, ongoing leveling. The tank will be re-certified after this change is made

at the expense of OVCC. The platform will be arranged to maintain adequate clearance over the tank.

f. If necessary, the compressors and coolant lines for the bulk tank will be inspected and retrofitted with flexible connections to permit the downward movement of the structure.

2. During mining under the barn/milk house, OVCC will provide the following services at OVCC's expense:

a. The barn/milk house will be inspected at least 2 hours prior to milking for damage that may impede normal milking operations. Minor repairs will be made to insure that the milking processes will occur normally. Specifically, the barn and related facilities (e.g., stanchions) will be maintained in a usable condition. Milk lines will be inspected for breakage and flow direction and any repairs will be made prior to milking. Compressors and refrigerant lines will be inspected and repairs will be made if necessary. The bulk tank will be re-leveled and re-certified prior to pick-up of the milk at OVCC's expense. The integrity of both the water and the electrical systems will be inspected and repaired prior to milking. Sufficient numbers of personnel qualified to do the inspection and repair work will be present before the milking begins. During milking, any necessary repairs will be made to allow the milking process to continue.

b. Following the milking, any additional repairs to the facilities not needed for milking will be completed. The requirements of the County and State Health Service Departments for a Grade A dairy farm will be maintained during subsidence at OVCC's expense, including the repair of doors, the barn floor, the barn cleaner, and the water system. If the barn cleaners cannot be maintained in operation, manual labor will be used to keep the barn clean.

Damage to Public Roads

OVCC will notify the appropriate road authority at least six months prior to undermining the road. In the event that roadways are permanently damaged by subsidence, OVCC, at the request of the road authority, will pay to repair the road surface to its pre-mining condition.

Damage to Gas Pipelines

OVCC will contact the appropriate persons responsible for each pipeline at least six months prior to undermining to communicate the timing and location of our mining activities in order to allow them to coordinate their monitoring plans, if needed. In addition, OVCC will notify gas pipeline companies by phone prior to the time when the longwall mining will pass beneath the gas lines. OVCC has provided and will continue to provide information and assistance as necessary to allow the gas companies to formulate and initiate their monitoring or mitigation program, as they deem necessary, to maintain the integrity of their transmission lines. Methods East Ohio could use to mitigate damage to their gas transmission lines within the full coal recovery areas may include but not necessarily be limited to: simply excavating the lines and monitoring the lines; if necessary, excavating the lines and providing flexible connections during the time the lines and adjacent areas are being subsided; burying the lines in a bed of sand; providing temporary lines above ground or other appropriate mitigatory measures. Other gas companies have simply chosen to uncover the lines, as is currently the case at a line near OVCC's mine which is being undermined by a longwall. Gas companies monitored these lines for leaks and structural abnormalities during the period of active subsidence. After the effects of subsidence were deemed negligible the lines were reburied and the right-of-ways reclaimed by the gas company. OVCC expects the same or similar measures may be utilized for these pipelines as was done by other gas companies.

The potential loss of use of agricultural lands crossed by the East Ohio Gas pipelines during the time that such lines may be uncovered is a question of surface owners right-of-way agreements with East Ohio and an issue over which OVCC has no control.

East Ohio is bound by the Pipeline Safety Act of 1979 (49 USC 1671 et seq.) to adopt and have in place plans and procedures to protect the public health and safety in the event of a breach in the integrity of the pipelines. Under the authority of 49 USC 1672(a) the Secretary of Transportation has set federal safety standards by regulation (49 CFR 192.615) which require the pipeline operator to have written procedures in place which are to be followed in the event of a leak or breach in the integrity of their lines in order to protect the health and safety of the public.

Damage to Public Water Lines

OVCC will notify the owner of public water lines at least six months prior to undermining the lines. In the event that the pipelines are damaged by subsidence, OVCC, at the request of the public water line authority, will pay to repair the pipeline to its pre-mining conditions.

ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(f)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

NOTICE OF MINING, PRE-SUBSIDENCE SURVEY, MONITORING OF STRUCTURES

Notice of Mining

OVCC will mail written notice to owners and occupants of surface property or structures of OVCC intent to mine under such property or structures at least six months prior to any mining by OVCC under their property.

Pre-Subsidence Survey

A pre-subsidence survey of all structures to be undermined will be conducted by OVCC personnel and will be used to determine the condition of the structures and facilities prior to the mining unless a private agreement exists between OVCC and the landowner. This survey may include, but not be limited to: still and video photography, land surveying, making various measurements, interviewing landowners, tenants, or other individuals, and making various drawings. Refusal of the landowner to allow a pre-subsidence survey will release OVCC from the requirement to conduct the survey. This survey will be performed in accordance with Underground PPD 90-3.

Monitoring of Structures

After OVCC has completed its pre-subsidence survey, OVCC will notify the Division if a private agreement (pursuant to OAC 1501:13-12-03(E)) between OVCC and the landowner exists. If no agreement exists, the Division, after discussions with OVCC, will decide the need for any monitoring of the structure(s). If monitoring is required, OVCC will submit a plan for the monitoring. If, prior to subsidence, a private agreement is reached, OVCC shall be released from any and all monitoring requirements.

ADDENDUM TO PAGE 32 AND 33, PART 3, K(5)(g)
THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360

REPAIRS TO STRUCTURES

After mining, structures will be repaired or replaced as required by law or the owner will be compensated for the diminution in value to the extent required by law. A private agreement may be used to satisfy the requirements of OAC 1501:13-12-03. If repairs, structures, will be returned to their pre-mining condition. If replaced, structures will be replaced with similar construction, unless the owner is compensated for the diminution in value.

Repair of and compensation for damage under the terms and conditions of OAC 1501:13-12-03(F) and (H) can be determined only after review and analysis of the damage in each particular situation. OVCC will comply with all legal requirements if subsidence damage occurs.

K. (5) (b) describe 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.

See Addendum to Page 33, Part 3, K(5)(b) and Attachment 31

(c) describe the measures to be taken to mitigate the anticipated effects of planned subsidence to the land and water resources.

See Addendum to Page 33, Part 3, K(5)(c)

(d) describe the anticipated effects of planned subsidence upon the structures identified in the subsidence control survey.

See Addendum to Page 33, Part 3, K(5)(d)

(e) describe the proposed measures to be taken to mitigate anticipated effects to structures.

See Addendum to Page 33, Part 3, K(5)(e)

(f) describe the proposed measures to determine the extent of mining related damages including a presubsidence survey with an indication of the timing of the survey.

See Addendum to Page 33, Part 3, K(5)(f)

(g) describe provisions for repair and/or compensation for damages to structures.

See Addendum to Page 33, Part 3, K(5)(g)

TOVCC 16058

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 K(2) Zebco Coal Company."

B. Provide the information requested below for all technical data submitted in the application.

Identification of Technical Data (1)	Name of Person/ Organization that Collected Data	Date Data Collected	Methodology Used Collecting Data	Name of Person/ Organization that Analyzed Data	Date Data Analyzed	Methodology Used to Analyze Data
Addendum to Page 19, Part 2, G Determination of Probable Hydrologic Consequences	Moody and Associates Burt Waite	Dec., 1990	Literature Review and Communications with Mine Personnel	Moody and Associates Burt Waite	Dec., 1990	Reviewed Literature Compiled data into tables and cross-sections.

(1) 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); Attachment 14; Part 4, A).

TOVCC 16059

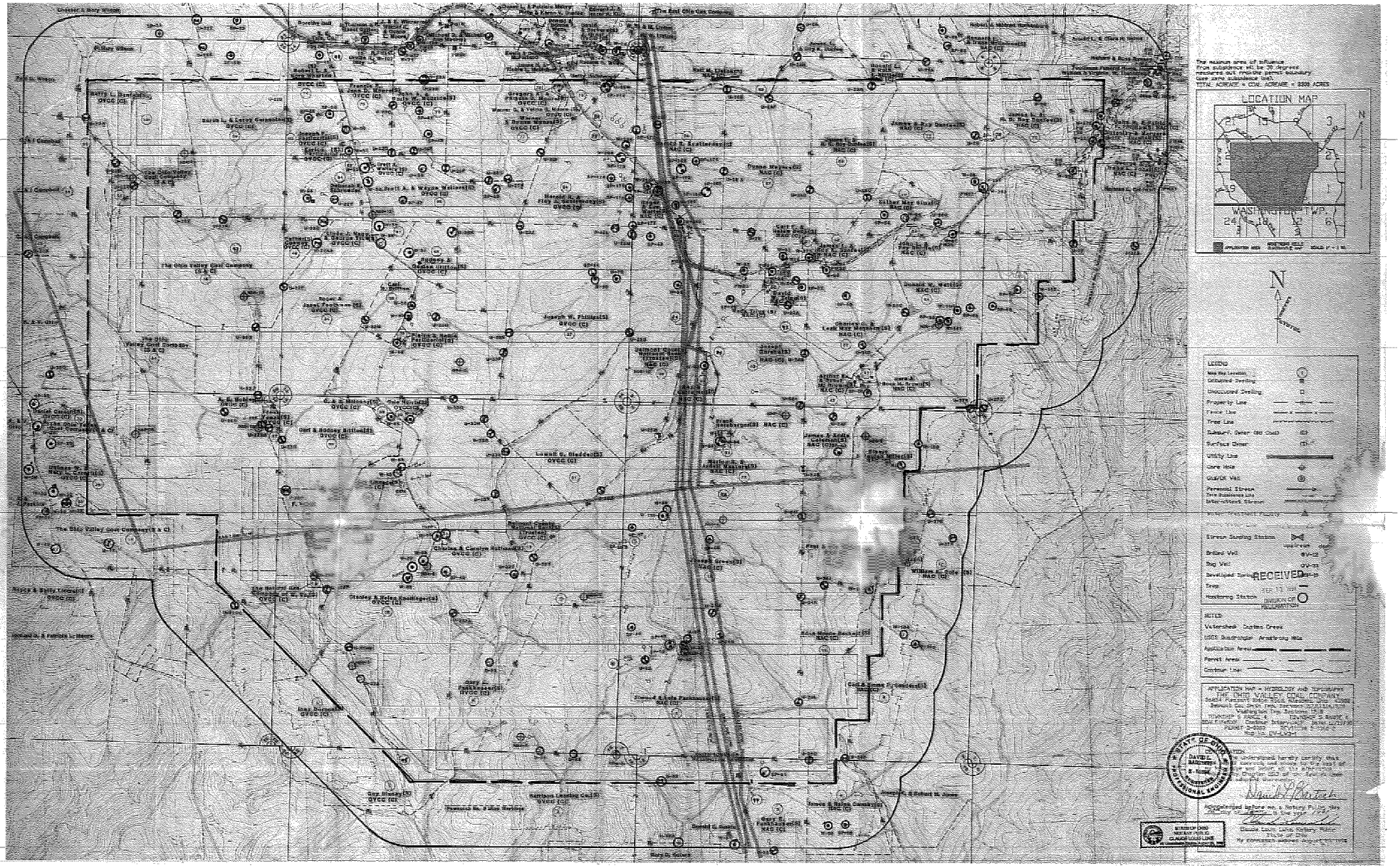
C. Provide the name, address, and position of officials of each private or academic research organization or governmental agency contacted in the preparation of the application for information on land uses, soils, geology, vegetation, fish and wildlife, water quantity and quality, air quality, and archeological, cultural, and historic features.

Name of Official	Address of Official	Position of Official	Name of Agency/ Organization	Type of Information (e.g. Geology)
Bill Haiker	Fountain Square Columbus, Ohio	Hydrologist	ODNR-Division of Water	Ground Water Inventory Reprot
Unknown	Unknown	Unknown	USGS	Water Resources Data

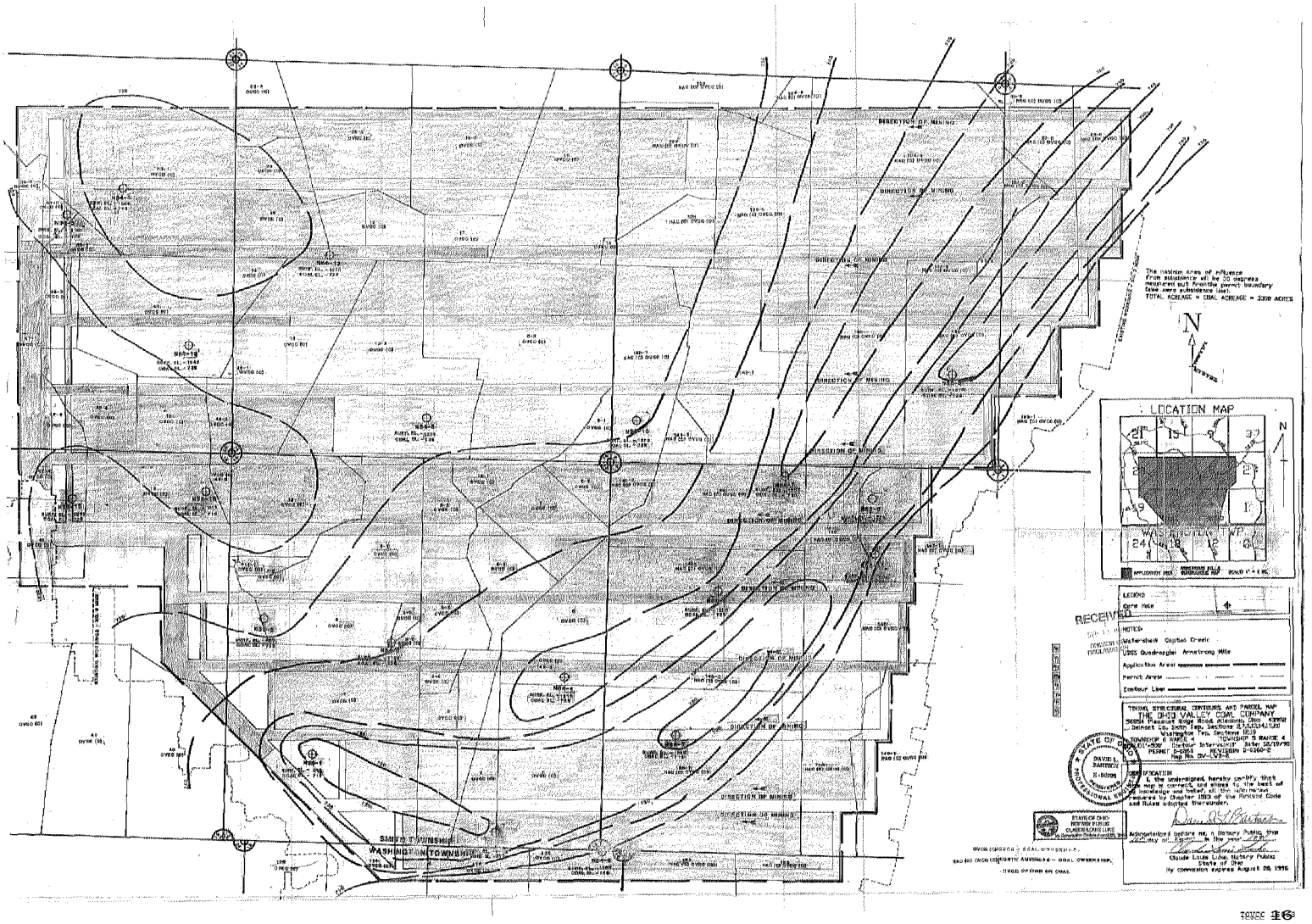
TOVCC 16060

MAPS

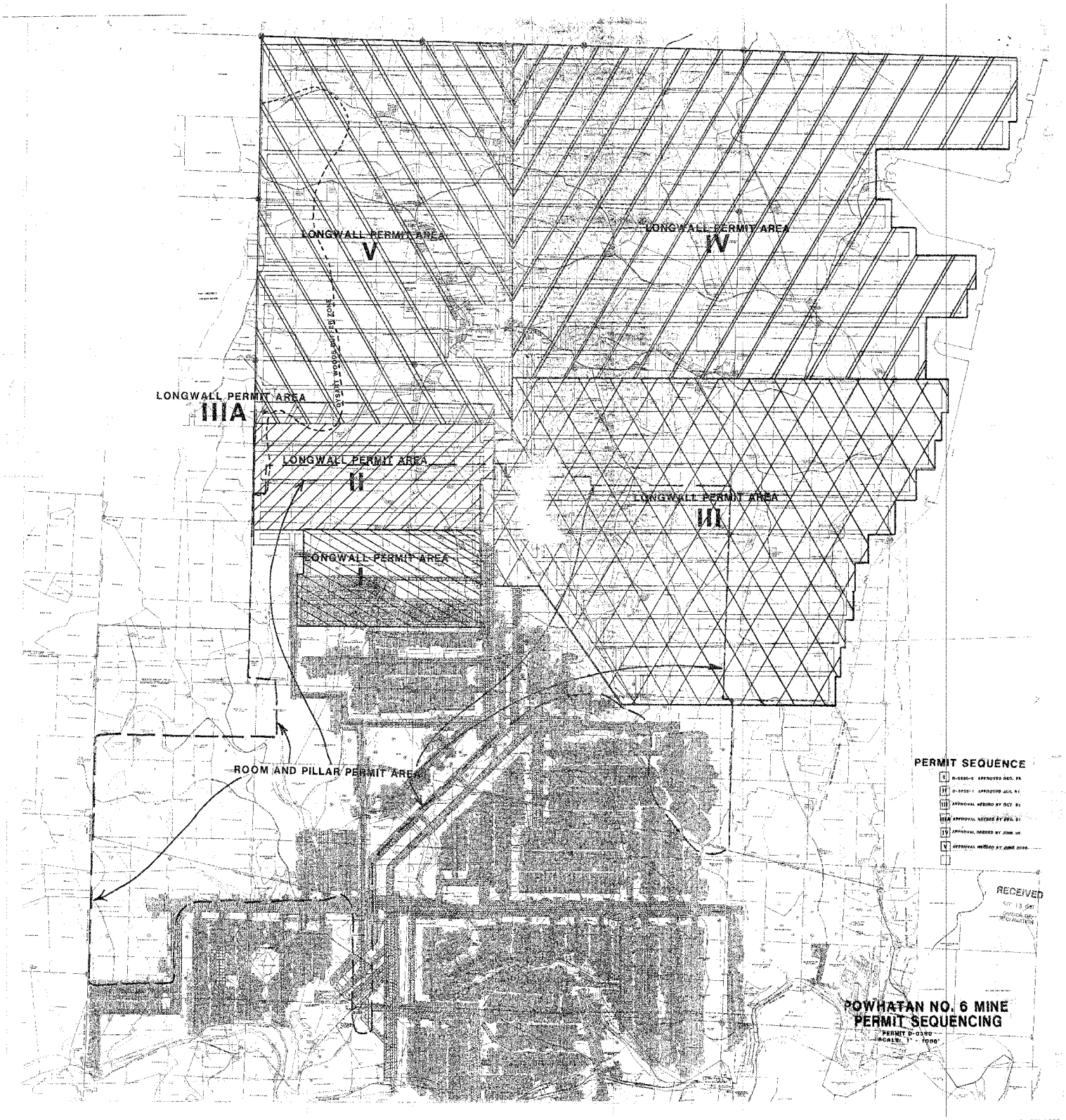
TOVCC 16061

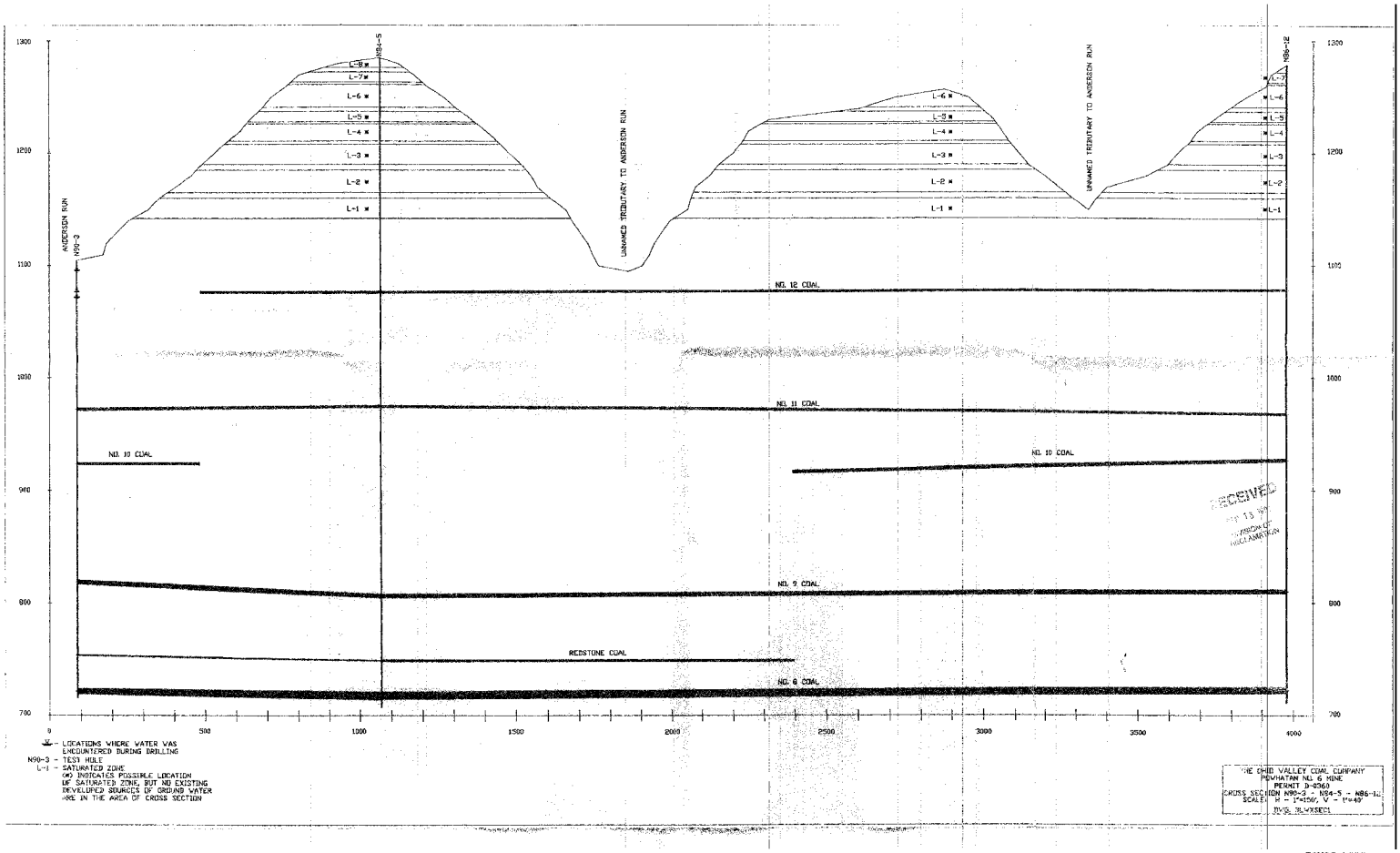


T00TCC 16062



DIRECTION OF MINING
The maximum area of influence from subsidence will be 30 degrees measured out from the permit boundary (see zero subsidence line).
TOTAL ACREAGE = COAL ACREAGE = 2300 ACRES
N
LOCATION MAP
WASHINGTON TWP.
LEGEND
Core Hole
NOTES:
Watershed Captina Creek
USGS Quadrangle: Armstrong Mills
Application Area
Permit Area
Contour Line
TOWNSHIP 5 RANGE 4
TOWNSHIP 5 RANGE 4
PERMIT D-0363
REVISION D-0360-2
Map No. OV-LV3-2
CERTIFICATION
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.
Adjudication Before me, a Notary Public, this day of in the year
Claude Louis Luke, Notary Public
State of Ohio
My commission expires August 28, 1995
RECEIVED
STATE OF OHIO
DAVID L. BARTRON
PROFESSIONAL ENGINEER
STATE OF OHIO
NOTARY PUBLIC
CLAUDE LOUIS LUKE
SMITH TOWNSHIP
WASHINGTON TOWNSHIP

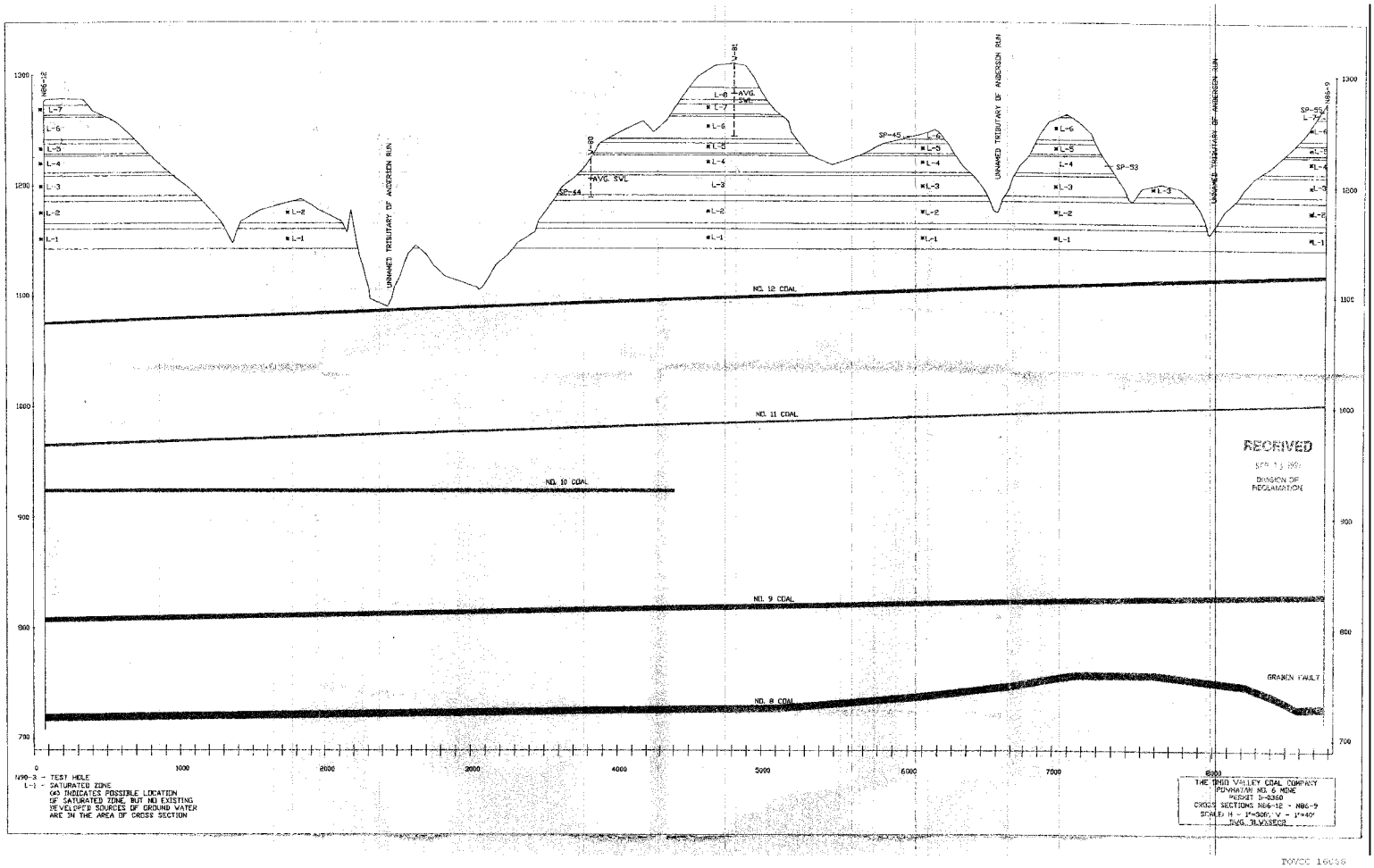

LONGWALL PERMIT AREA
V
LONGWALL PERMIT AREA
IV
LONGWALL PERMIT AREA
IIIA
LONGWALL PERMIT AREA
II
LONGWALL PERMIT AREA
III
LONGWALL PERMIT AREA
I
ROOM AND PILLAR PERMIT AREA
PERMIT SEQUENCE
RECEIVED
POWHATAN NO. 6 MINE
PERMIT SEQUENCING
PERMIT D-0390
SCALE 1" = 1000'



V - LOCATIONS WHERE WATER WAS ENCOUNTERED DURING DRILLING
N90-3 - TEST HOLE
L-1 - SATURATED ZONE
(*) INDICATES POSSIBLE LOCATION OF SATURATED ZONE, BUT NO EXISTING DEVELOPED SOURCES OF GROUND WATER ARE IN THE AREA OF CROSS SECTION

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
CROSS SECTION N90-3 - N84-5 - N86-12
SCALE: H - 1"=150', V - 1"=40'
DWG. BLWXSEC1

TOVCC 16036

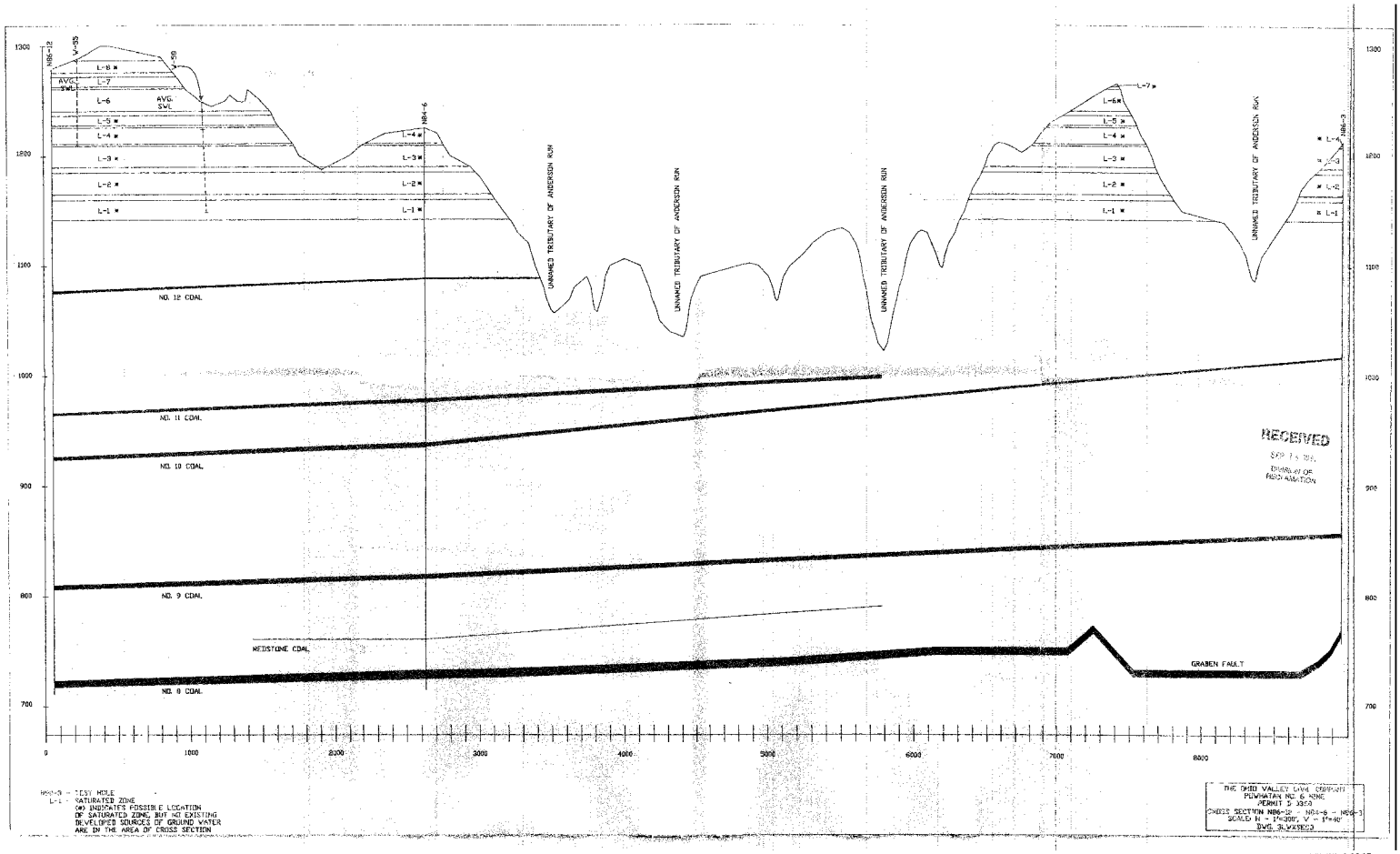


N90-3 - TEST HOLE
L-1 - SATURATED ZONE
(*) INDICATES POSSIBLE LOCATION OF SATURATED ZONE, BUT NO EXISTING DEVELOPED SOURCES OF GROUND WATER ARE IN THE AREA OF CROSS SECTION

THE OHIO VALLEY COAL COMPANY
POWHATAN NO. 6 MINE
PERMIT D-0360
CROSS SECTIONS N86-12 - N86-9
SCALE: H - 1"=300', V - 1"=40'
DWG. BLWXSECR

RECEIVED
SEP 13 1991
DIVISION OF RECLAMATION

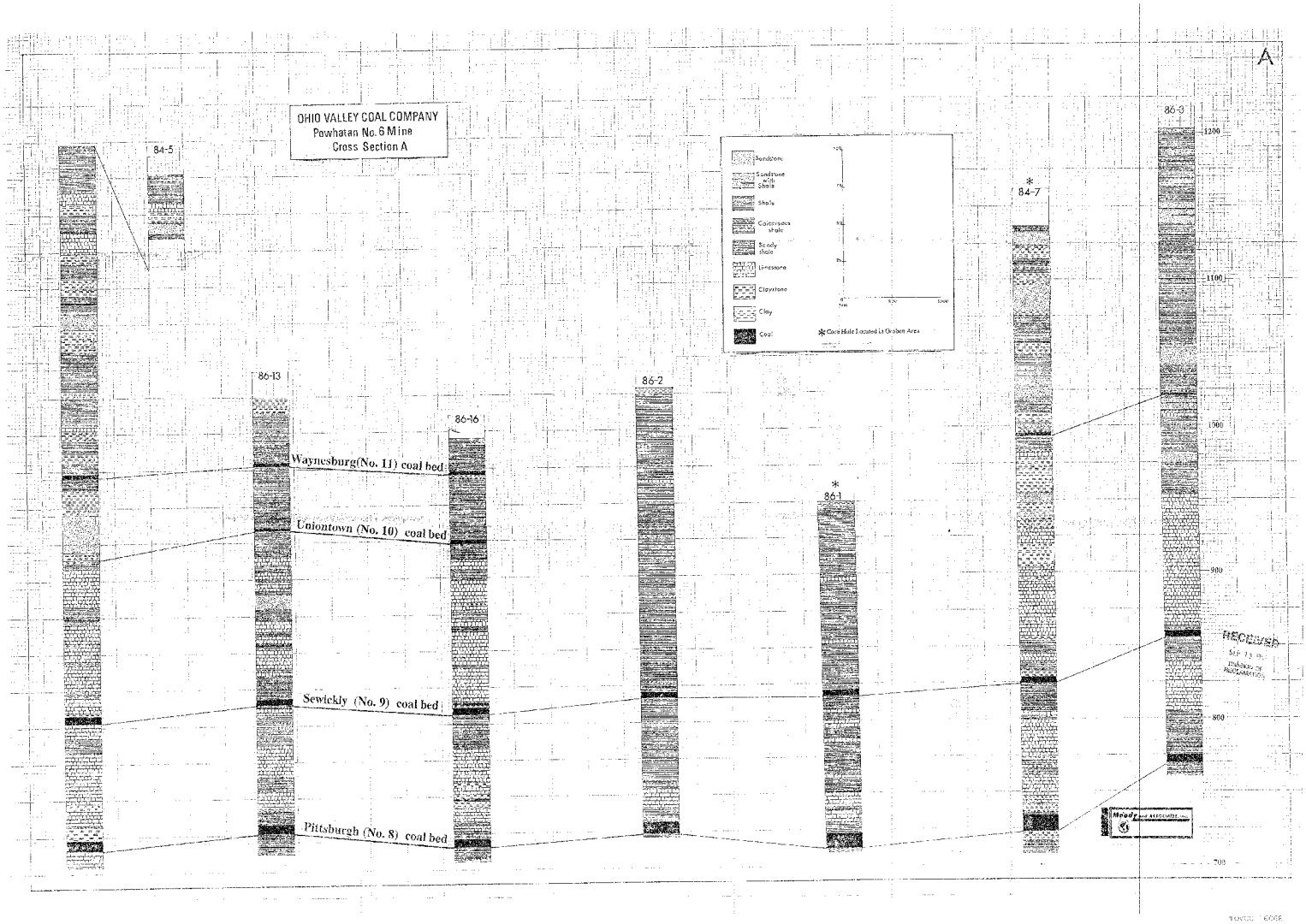
POVCC 16058

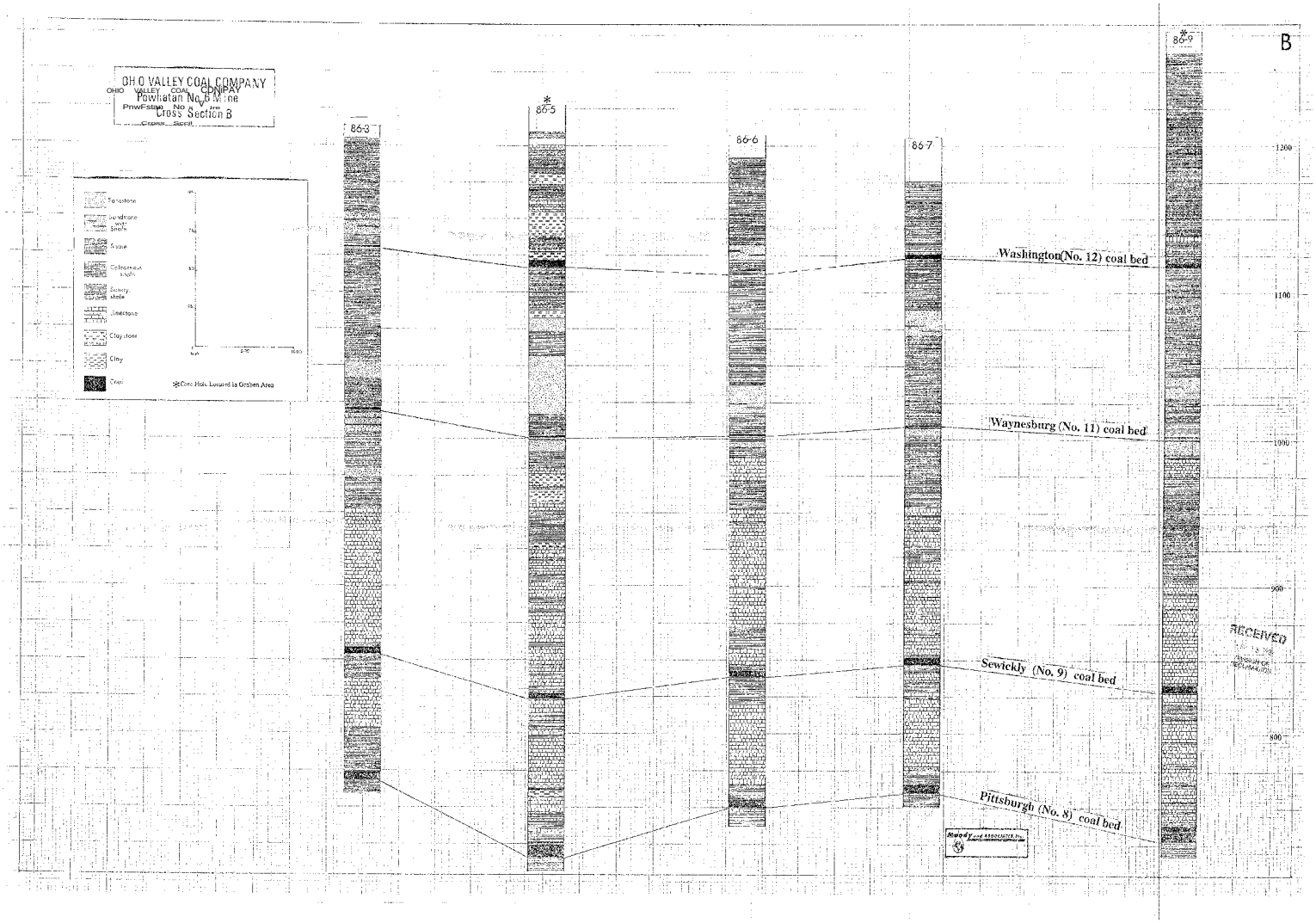


N86-3 - TEST HOLE
L-1 - SATURATED ZONE
(*) INDICATES POSSIBLE LOCATION OF SATURATED ZONE, BUT NO EXISTING DEVELOPED SOURCES OF GROUND WATER ARE IN THE AREA OF CROSS SECTION

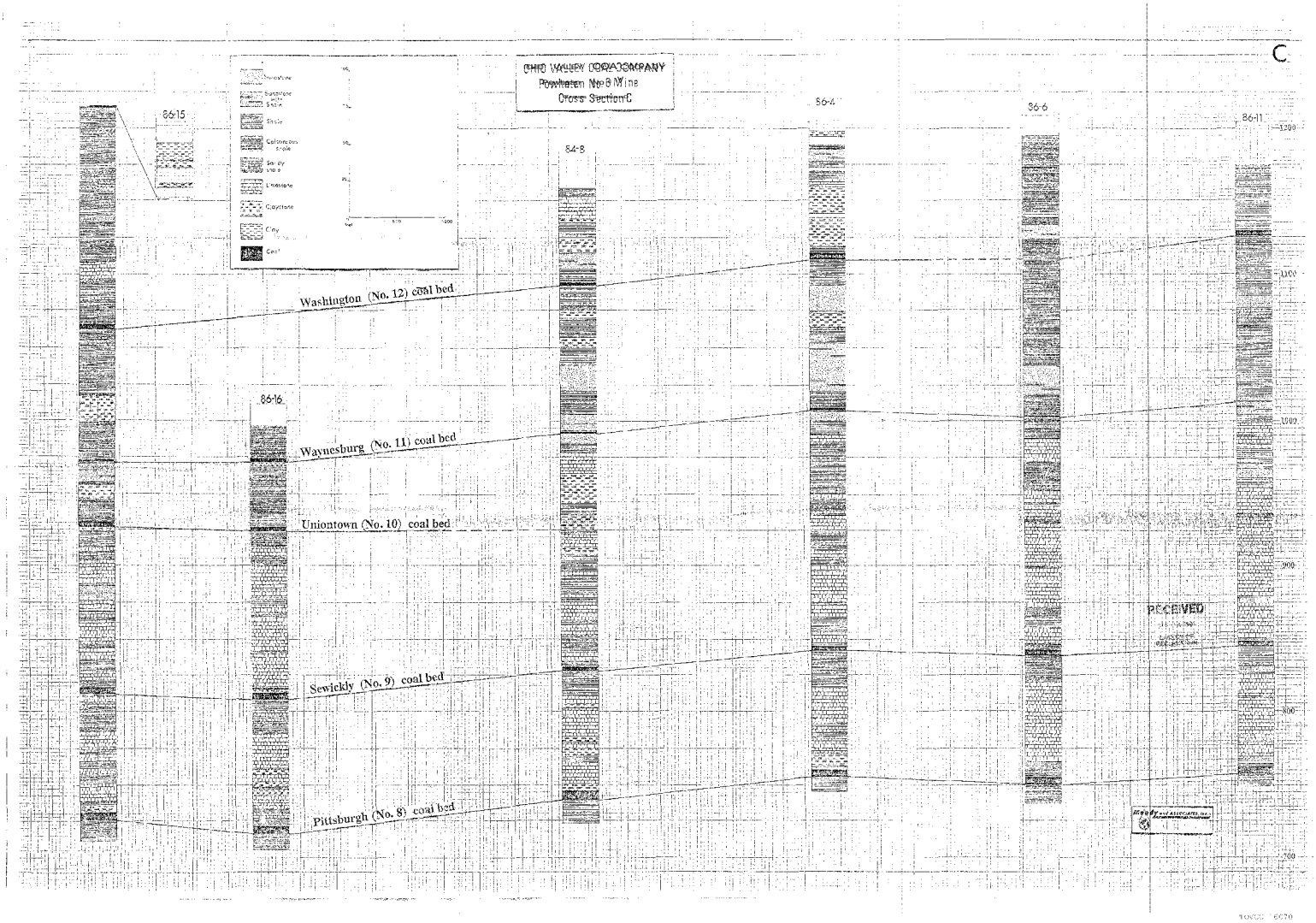
THE OHIO VALLEY LAND COMPANY
POWHATAN NO. 6 MINE
PERMIT S 3350
CROSS SECTION N86-12 - N84-6 - N86-3
SCALE: H - 1"=300', V - 1"=40'
DWG. 3LWXSECD

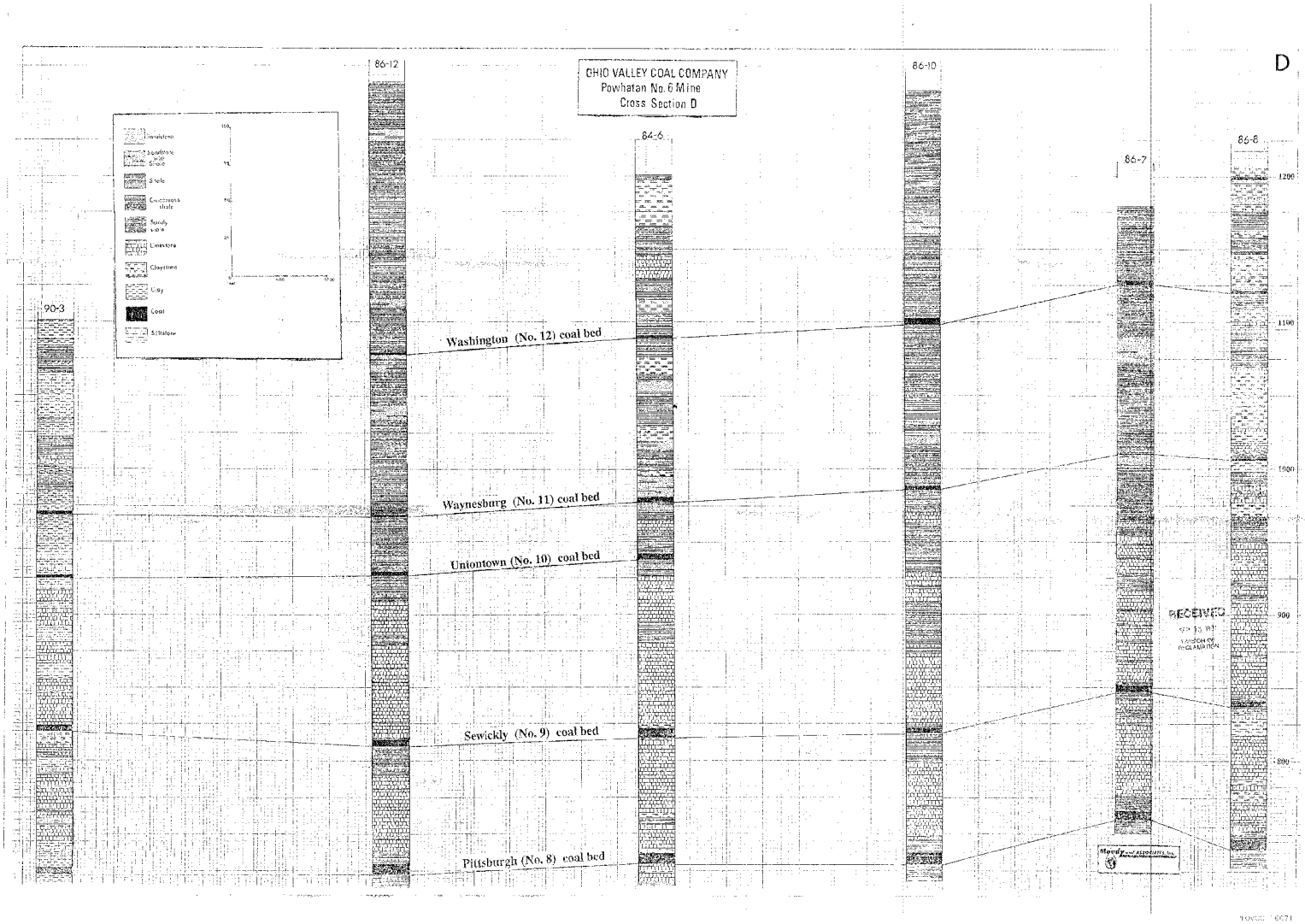
10V00 16067


A
OHIO VALLEY COAL COMPANY
Powhatan No. 6 Mine
Cross Section A
84-5
86-13
86-16
86-2
86-1
84-7
86-3
Waynesburg(No. 11) coal bed
Uniontown (No. 10) coal bed
Sewickly (No. 9) coal bed
Pittsburgh (No. 8) coal bed
Sandstone
Sandstone With Shale
Shale
Calcareous shale
Sandy shale
Limestone
Claystone
Clay
Coal
Core Hole Located In Graben Area
1200
1100
1000
900
800
700
RECEIVED
Moody and Associates, Inc.



OHIO VALLEY COAL COMPANY
Powhatan No. 6 Mine
Cross Section B
B
86-3
86-5
86-6
86-7
86-9
Washington (No. 12) coal bed
Waynesburg (No. 11) coal bed
Sewickly (No. 9) coal bed
Pittsburgh (No. 8) coal bed
1200
1100
1000
900
800
Sandstone
Sandstone with Shale
Shale
Calcareous shale
Sandy shale
Limestone
Claystone
Clay
Coal
Core Hole Located in Graben Area
RECEIVED


C
CHIO VALLEY CORP. COMPANY
Powhatan No. 8 Mine
Cross Section C
86-15
86-16
84-8
86-4
86-6
86-11
Washington (No. 12) coal bed
Waynesburg (No. 11) coal bed
Uniontown (No. 10) coal bed
Sewickly (No. 9) coal bed
Pittsburgh (No. 8) coal bed
RECEIVED


D
OHIO VALLEY COAL COMPANY
Powhatan No. 6 Mine
Cross Section D
90-3
86-12
84-6
86-10
86-7
86-8
Washington (No. 12) coal bed
Waynesburg (No. 11) coal bed
Uniontown (No. 10) coal bed
Sewickly (No. 9) coal bed
Pittsburgh (No. 8) coal bed
1200
1100
1000
900
800
RECEIVED
Moody and Associates, Inc.