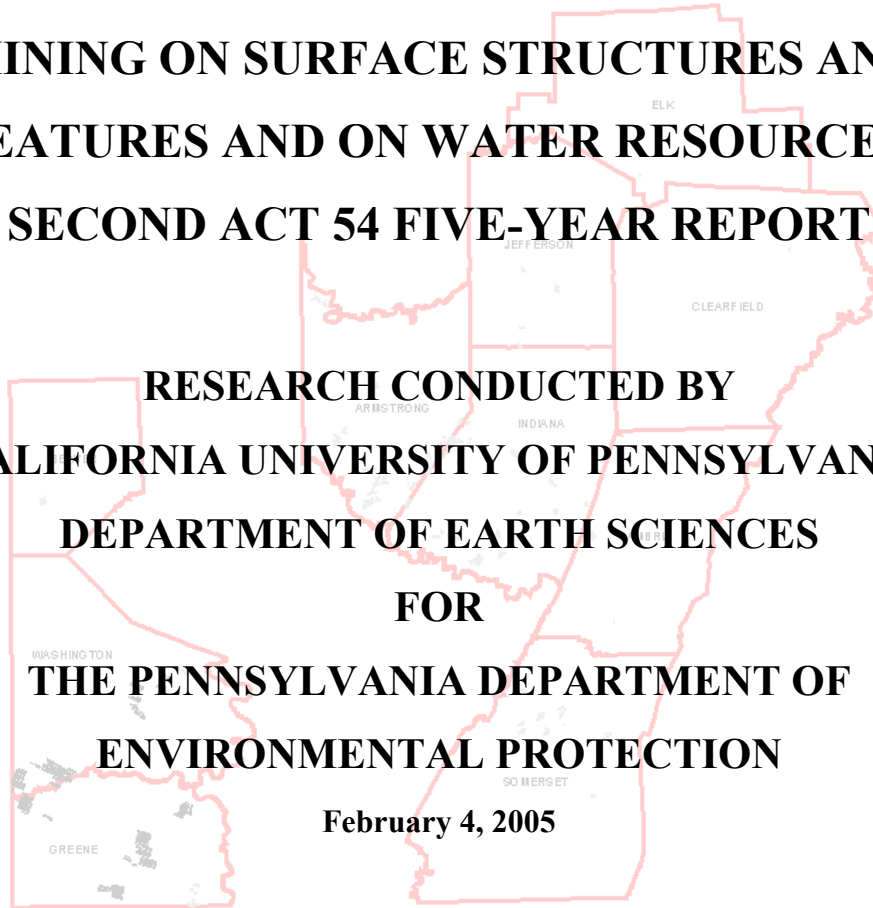


**THE EFFECTS OF SUBSIDENCE RESULTING
FROM UNDERGROUND BITUMINOUS COAL
MINING ON SURFACE STRUCTURES AND
FEATURES AND ON WATER RESOURCES:
SECOND ACT 54 FIVE-YEAR REPORT**

**RESEARCH CONDUCTED BY
CALIFORNIA UNIVERSITY OF PENNSYLVANIA
DEPARTMENT OF EARTH SCIENCES
FOR
THE PENNSYLVANIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

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- Individual plates show wetlands that were undermined as well as wetlands that are in the vicinity of the respective mine.
- Wetlands were shown only for longwall mines. The number of wetlands (over 70 over longwall mines alone) prohibited the examination of all wetlands over all mines during the brief (160-day) study period.
- Plate 1 is a display of wetlands for all of the longwall mines, which span Washington and Greene counties. The wetlands are those listed in the National Wetlands Inventory (NWI), an inventory for which a well-defined set of criteria is used to classify wetlands by type.
- Room-and-Pillar development mining not shown.
- Mining Extent not shown.
- Cumberland mine had an overlying wetland created during the period.
- Emerald mine lost an overlying wetland during the period.
- All labeling is accurate *for the time of collection*.

Section VIII: EFFECT OF MINING ON WETLANDS

VIII.A. Overview

This section presents information on 73 wetlands listed on the National Wetland Inventory (NWI) that were undermined during the assessment period. It presents the types of information available to the researchers, the NWI categories germane to the undermined wetlands, and summaries of those wetlands undermined by longwall mines during the assessment period.

The University's researchers visited 52 (71%) of the wetlands undermined by longwall mines, but were unable to observe the remaining 21 because of postings by property owners. To identify the wetlands, researchers used the mining permit files, the six-month mining maps, and the NWI. All NWI wetlands over the longwall panels active during the assessment period were mapped (see accompanying plates). As explained in section III, not enough time was available during the study period to visit both the wetlands over the longwall panels and the wetlands over room-and-pillar mines.

VIII.B. Choice of NWI Wetlands

The University's researchers chose the NWI as the basis for their study of wetlands because of the NWI's methodology, classification, and mapping. In the limited time of the study period (160 days, see Limitations), the University reasoned that the NWI system and mapped wetlands would facilitate the location and description of undermined wetlands. The University recognizes that some wetlands might not be listed and categorized on the NWI.

VIII.C. Information Sources

Two information sources were used to determine how many wetlands were undermined during the report period:

- a. Mine permit files and six-month mining maps at the California District Mining Office
- b. National Wetland Inventory
(U.S. fish and Wildlife Service, <http://wetlands.fws.gov/>)

VIII.D. Fieldwork and Classification

Field surveys to determine the current condition of these wetlands consisted of visual observations of all wetlands that could be observed from public roads or utility right-of-ways or without trespassing on posted private property. Wetlands that did not exhibit any evidence of change because of mining were categorized as “Unchanged.” Wetlands that were apparently altered by undermining were categorized as “Altered,” and wetlands that could not be observed (21) without trespassing on posted, private property were categorized as “Unknown.”

VIII.E. Wetland Codes Used in the Study

The National Wetland Inventory classification system is hierarchical and progresses through *Systems*, *Subsystems*, and *Classes*. A *System* includes wetlands influenced by similar hydrologic, geomorphologic, chemical, and/or biological factors (e.g., “Palustrine”). All *Systems* except Palustrine are further divided into *Subsystems*. The *Class* of a wetland describes its general appearance according to its dominant vegetation (e.g., “Emergent” or “Forested”) or physiography and composition of its substrate (e.g., “Unconsolidated Bottom”). Inclusion of a *Subclass* provides further detail regarding vegetation or substrate (e.g., “Emergent” or “Broad-leaved Deciduous”). Water Regime Modifiers are included to describe hydrological characteristics, and Special Modifiers are used to describe wetlands that have been modified by human or beaver activity.

(For additional information, see the U.S. Fish & Wildlife Service National Wetlands Inventory website at <http://wetlands.fws.gov/>)

Each System, Class, Subclass, Water Regime, and Special Modifier relevant to the current report is described below.

VIII.E.1 System

[P] Palustrine

The Palustrine System includes all nontidal wetlands dominated ($\geq 30\%$ areal coverage) by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics:

1. are less than 8 hectares (20 acres);
2. do not have an active wave-formed or bedrock shoreline feature;
3. have at low water a depth less than 2 meters (6.6 feet) in the deepest part of the basin;
4. have a salinity due to ocean-derived salts of less than 0.5 ppt.

All water bodies visible on the aerial photography that are less than 8 hectares (20 acres) in size are considered to be in the Palustrine System unless depth information is available, or unless an active wave-formed or bedrock shoreline feature is visible.

Limits: The Palustrine System is bounded by upland or by any of the other four systems.

The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent or intermittent water bodies often called ponds.

Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers.

VIII.E.2. Subsystem

No Subsystems are recognized within Palustrine wetlands.

VIII.E.3. Class

Class describes the general appearance of the habitat in terms of either the dominant life form of the vegetation or the physiography and composition of the substrate. Life forms (e.g. trees, shrubs, emergents) are used to define classes because they are easily recognizable, do not change distribution rapidly, and have traditionally been used to classify wetlands. Other forms of vegetation such as submerged or floating-leaved vascular plants are more difficult to detect. Substrates reflect regional and local variations in geology and the influence of wind, waves, and currents on erosion and deposition of substrate materials.

[UB] Unconsolidated Bottom

Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.

[EM] Emergent

Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed.

Subclass: (1) Persistent

Dominated by species that normally remain standing at least until the beginning of the next growing season. This subclass is found only in the Estuarine and Palustrine systems.

[FO] Forested

Characterized by woody vegetation that is 6 m tall or taller. All water regimes are included except subtidal.

[SS] Scrub-Shrub

Includes areas dominated by woody vegetation less than 6 m (20 feet) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions. All water regimes except subtidal are included.

Subclass: (1) Broad-leaved Deciduous

Woody angiosperms (trees or shrubs) with relatively wide, flat leaves that are shed during the cold or dry season; e.g., black ash (*Fraxinus nigra*).

VIII.E.4. Water Regime

Water regimes are defined in terms of the growing season, which the NWI equates to the frost-free period. The rest of the year is defined as the dormant season, a time when even extended periods of flooding may have little influence on the development of plant communities.

[A] Temporarily Flooded

Surface water is present for brief periods during growing season, but the water table usually lies well below the soil surface. Plants that grow both in uplands and wetlands may be characteristic of this water regime.

[C] Seasonally Flooded

Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

[F] Semipermanently Flooded

Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.

[H] Permanently Flooded

Water covers the land surface throughout the year in all years.

VIII.E.5. Special Modifiers

Special modifiers are used to indicate wetlands and deepwater habitats modified or created by man or beaver. When used in combination, the letters should be listed in alphabetical order (e.g., PUBHhs).

[h] Diked / Impounded

Created or modified by a man-made barrier or dam which obstructs the inflow or outflow of water. Originally, Diked and Impounded are described as separate modifiers (Cowardin et al. 1979). They have been combined here [NWI] due to photointerpretation limitations.

[x] Excavated

Lies within a basin or channel excavated by man.

VIII.E.6. NWI Classifications Included in This Report.

PEM1A: P_EM1_A_

[P] Palustrine, [EM] Emergent, [1] Persistent, [A] Temporarily Flooded

PEM1C: P_EM1_C_
[P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded

PEM1Ch: P_EM1_C_h_
[P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded, [h] Diked/Impounded

PEM1Fh: P_EM1_F_h_
[P] Palustrine, [EM] Emergent, [1] Persistent, [F] Semipermanently Flooded, [h]
Diked/Impounded

PFO1A: P_FO1_A_
[P] Palustrine, [FO] Forested, [1] Broad-Leaved Deciduous, [A] Temporarily Flooded

PFO1C: P_FO1_A_
[P] Palustrine, [FO] Forested, [1] Broad-Leaved Deciduous, [C] Seasonally Flooded

PSS1/EM1C: P_SS1_A_/EM1_C_
[P] Palustrine, [SS] Scrub-Shrub, [1] Broad-Leaved Deciduous/[EM] Emergent, [1] Persistent,
[C] Seasonally Flooded

PSS1A: P_SS1_A_
[P] Palustrine, [SS] Scrub-Shrub, [1] Broad-Leaved Deciduous, [A] Temporarily Flooded

PSS1C: P_SS1_C_
[P] Palustrine, [SS] Scrub-Shrub, [1] Broad-Leaved Deciduous, [C] Seasonally Flooded

PUBF: P_UB_F_
[P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded

PUBFh: P_UB_F_h_
[P] Palustrine, [UB] Unconsolidated Bottom, [F] Semipermanently Flooded, [h]
Diked/Impounded

PUBHh: P_UB_H_h_
[P] Palustrine, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [h] Diked/Impounded

PUBHx: P_UB_H_x_
[P] Palustrine, [UB] Unconsolidated Bottom, [H] Permanently Flooded, [x] Excavated

VIII.F. Wetlands over Longwall Mines

This section presents the status of NWI wetlands over individual longwall mines. Each mine, and each has an accompanying plate that shows the locations of the wetlands undermined during the assessment period. Section VIII.F contains an introductory statement about each longwall

mine and its associated wetlands (when applicable) followed by two tables on separate pages: a table that identifies the wetlands and a table that classifies their condition at the time of observation.

VIII.F.1. Bailey Mine

The following information is based on six-month mining maps and a NWI map overlaid on longwall panels mined during the assessment period. There were no changes in the six-month revisions dating from 2/26/98, Exhibit 19.1 Index map, Revision 63 through 12/8/03, Exhibit 22.3 Index map, Revision 91.

A total of five wetlands were found within the five-year longwall mining section of the Bailey Mine and Prep Plant Area (see table VIII.1). These wetlands include one freshwater emergent wetland, one freshwater forested/shrub wetland and three freshwater ponds. *All five wetlands are recognized by the NWI, and all but the freshwater emergent wetland and one freshwater pond were drawn on the six-month mining maps.*

Additional information is based on Civil and Environmental Consultants, Inc. (CEC) Project 991167 (February 17, 2000) and CEC Project 98786.0032 (December 19, 2000). A jurisdictional wetland delineation was performed in January 2000 within the riparian zone of Enlow Fork and within longwall mining panels 8C, 9C and 10C. Twenty-four jurisdictional wetland areas, totaling 3.318 acres, were identified and delineated within the Enlow Fork riparian study area. All wetlands delineated are located in or adjacent to the stream channel of Enlow Fork, and no “exceptional value” wetlands were identified. Twenty-nine jurisdictional wetland areas, totaling approximately 4.252 acres, were identified and delineated in November 2000 within the 8C, 9C and 10C panels of Enlow Fork. The November delineation was performed under post-mining conditions for the three panels. Seven additional wetland areas were identified since the January 2000 delineation and increases in the previously identified wetlands resulted in a net gain of 0.944 acres of wetlands. *This increase in wetland acreage is most likely attributable to natural changes in stream flow/hydroperiod rather than changes caused by mining or stream restoration activities.*

Table VIII.1 Wetlands located above undermined areas of Bailey Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Forested/Shrub Wetland			2.114		
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Claysville	0.708		*	
PFO1A/Palustrine, Forested, Broad-leaved deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Wind Ridge	1.406		*	*
Permanently Flooded Pond			1.128		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Valley Grove Majorsville	0.233		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Valley Grove	0.332		*	*
PUBHx/Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated (Freshwater Pond)	Wind Ridge	0.563		*	*
All Wetlands Combined			3.242		

Table VIII.2 Condition of wetlands above undermined areas of Bailey Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Forested/Shrub Wetland				
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Claysville	No	Unknown	
PFO1A/Palustrine, Forested, Broad-leaved deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Wind Ridge	No	Unknown	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Valley Grove Majorsville	No	Unknown	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Valley Grove	No	Unknown	
PUBHx/Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated (Freshwater Pond)	Wind Ridge	No	Unknown	

VIII.F.2. Blacksville No. 2 Mine

No information was found regarding wetlands in the Blacksville #2 permit files, but seven wetlands were identified in the natural resource maps.

NWI maps were used to determine where wetland areas coincide with the longwall mining areas of Blacksville #2 mine. The NWI indicated ten possible wetland areas over the longwall mines for the assessment period

Table VIII.2. Wetlands located above undermined areas of Blacksville No. 2 Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Forested/Shrub Wetland			0.434		
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Holbrook	0.335		*	
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Holbrook	0.099		*	
Semi-Permanently Flooded Pond			0.248		
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.248		*	*
Permanently Flooded Pond			2.347		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.239		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.420		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.430		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.217		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Blacksville	0.532		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Blacksville	0.211		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Holbrook	0.297		*	
All Wetlands Combined			3.029		

Table VIII.4. Condition of wetlands above undermined areas of Blacksville No. 2 Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Forested/Shrub Wetland				
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Holbrook	Yes	Unchanged	
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Holbrook	Yes	Unchanged	
Semi-Permanently Flooded Pond				
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	No	Unknown	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Blacksville	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Blacksville	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Holbrook	No	Unknown	

VIII.F.3. Cumberland Mine

Several revision files were found within the Cumberland Mine permit files. Revision No. 30 was made on May 6, 1999 to add underground permit area (764 acres), surface permit area (11.9 acres), and subsidence control plan area (764 acres). Module 8: Hydrology was included within this revision. Within module 8, section 8.4.d requires information on all lakes, ponds, dams, or impoundments over the underground permit area. The permittee filled out this section with the statement: “Not applicable. There are no lakes, ponds, dams, or impoundments located over the additional underground permit area associated with this application.”

A revision from April 2001 included module 15: Streams/Wetlands. Sections 15.3, 15.4, and 15.5 deal with wetland related information. Form 15A is to be completed according to Module 15 to “provide inventory and classification information on all wetlands which occur on or within the permit area of **surface mining activity sites**.” Because this module does not require information about wetlands affected by longwall mining activities, the permittee entered “Not Applicable” in sections 15.3 and 15.4 and did not answer questions in either of these sections. The permittee did include a brief statement that there are a few small wetland areas within the study limits but did not include additional information about these areas. Section 15.5 is the section on wetland mitigation/replacement. In this section the permittee stated that “wetlands within the stream will be monitored and impacts are not anticipated due to longwall mining of panels LW-48 through LW-50. *If it appears wetlands are being impacted, then RAG Cumberland plans to meet wetland replacement/mitigation requirements by participating in the Pennsylvania Wetland Replacement Project.* On-site wetland replacement is not proposed.” *This revision was made in April 2001 but the mining of these panels did not start until after August 2003, excluding them from the five-year period of study.*

National Wetland Inventory Maps were used to determine where wetland areas coincide with the longwall mining areas of Cumberland mine. The NWI indicated five possible wetland areas over the longwall mines for the five-year period.

One “new” freshwater pond (i.e., created as a result of subsidence) was observed in the Oak Forest Quad along Longwoods Road. According to the landowner, the pond formed in March

2003. Images of that pond appear below. The accompanying plate for this wetland shows the location of this pond over Cumberland Mine. The pond developed at the northern edge of Panel LW 46, over the adjacent room-and-pillar section, and continued to the southern boundary of Panel LW 47. During the time of inspection, it was essentially a pond with encroaching algal blooms on the northern side. Because the wetland was observed only once and during a season with higher than normal precipitation (June, 2004), the observers categorize it as either a PUBFh or PUBHh. Further study over multiple seasons would be required for an exact NWI wetlands designation.

Table VIII.5 Wetlands located above undermined areas of Cumberland Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Emergent Wetland			1.393		
PEM1Fh/Palustrine, Emergent, Persistent, Semi-Permanently Flooded, Diked/Impounded (Freshwater Emergent Wetland)	Oak Forest	0.452		*	
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Oak Forest	0.941		*	
Semi-Permanently Flooded Pond			0.195		
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.195		*	
Permanently Flooded Pond			2.930		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	2.389		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.541		*	*
Unknown	Oak Forest				*
All Wetlands Combined			4.519		

Table VIII.6 Condition of wetlands above undermined areas of Cumberland Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Emergent Wetland				
PEM1Fh/Palustrine, Emergent, Persistent, Semi-Permanently Flooded, Diked/Impounded (Freshwater Emergent Wetland)	Oak Forest	Yes	Unchanged	
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Oak Forest	Yes	Unchanged	
Semi-Permanently Flooded Pond				
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	No	Unknown	
Unknown	Oak Forest	Yes	Unchanged	



Figure VIII.1. A view of the pond as seen from the east. The wetland appears to have expanded after a recent rainfall to encroach on plants once located on its periphery.



Figure VIII.2. The northern side of the pond in a view toward the west. This side of the wetland borders the southern boundary of Panel LW 47.



Figure VIII.3. The southern end of the freshwater pond in a view looking to the west. This end of the wetland overlies the northern boundary of Panel LW 46.



Figure VIII.4. The setting of the pond in a view taken from the road on the southern side of the wetland. This view looks from Panel LW 46 toward Panel LW 47.

VIII.F.4. Dilworth Mine

No information regarding wetlands was found within the Dilworth Mine permit files.

NWI maps were used to determine where wetland areas coincide with the longwall mining areas of Dilworth mine. The NWI indicated six possible wetland areas over the longwall mines during the assessment period.

Table VIII.7 Wetlands located above undermined areas of Dilworth Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Emergent Wetland			0.511		
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded(Freshwater Emergent Wetland)	Mather	0.229		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded(Freshwater Emergent Wetland)	Mather	0.282		*	
Freshwater Forested/Shrub Wetland			4.888		
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Mather	4.090		*	
PSS1A/Palustrine, Scrub/Shrub, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Mather	0.799		*	
Semi-Permanently Flooded Pond			0.228		
PUBF/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded(Freshwater Pond)	Mather	0.228		*	
Permanently Flooded Pond			0.682		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Mather	0.682		*	
All Wetlands Combined			6.309		

Table VIII.8. Condition of wetlands above undermined areas of Dilworth Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Emergent Wetland				
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded(Freshwater Emergent Wetland)	Mather	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded(Freshwater Emergent Wetland)	Mather	Yes	Unchanged	
Freshwater Forested/Shrub Wetland				
PFO1A/Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Mather	Yes	Unchanged	
PSS1A/Palustrine, Scrub/Shrub, Broad-Leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Mather	Yes	Unchanged	
Semi-Permanently Flooded Pond				
PUBF/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded(Freshwater Pond)	Mather	Yes	Unchanged	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Mather	No	Unknown	

VIII.F.5 Emerald No. 1 Mine

A revision to add permit and subsidence control plan boundary acreage from March 1998 was found within the permit files. Module 8: Hydrology was found within the revision. Section 8.4.d directs readers to Form 8.4D for data on lakes, ponds, and dams. Form 8.4D includes information on property owner, use of the pond, volume, source of water, and general quality characteristics. In this permit revision, one pond is listed in form 8.4D.

Section 8.6.c.7 requires information on potential draining of dams, ponds, impoundments and wetlands which overlie the underground permit area. According to this revision, "...the large vertical separation should preclude any adverse effects that mining activities may have on private ponds, impoundments and wetlands within the proposed mine plan area."

National Wetlands Inventory Maps were used to determine where wetland areas coincide with the longwall mining areas of Emerald mine. The NWI indicated eleven possible wetland areas over the longwall mines for the five-year period.

One PUBHh wetland was lost above the Emerald No. 1 Mine during the five-year period. The wetland, shown in the accompanying map (see Plate) was situated between Panel 5 North and Panel 4 North and once overlay the room-and-pillar segment between those two panels.

Lost wetland area amounted to 0.908 acre.

Table VIII.9. Wetlands located above undermined areas of Emerald Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Emergent Wetland			0.629		
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Oak Forest	0.629		*	
Freshwater Forested/Shrub Wetland			0.538		
PSS1C/Palustrine, Scrub/Shrub, Broad-Leaved Deciduous, Seasonally Flooded (Freshwater Forested/Shrub Wetland)	Oak Forest	0.538		*	
Semi-Permanently Flooded Pond			0.209		
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.209		*	
Permanently Flooded Pond			4.837		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Waynesburg	0.494		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Waynesburg	0.192		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.566		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.724		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	1.350		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.908		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.276		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	0.328		*	*
All Wetlands Combined			6.212		

Table VIII.10. Condition of wetlands above undermined areas of Emerald Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Emergent Wetland				
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Oak Forest	Yes	Unchanged	
Freshwater Forested/Shrub Wetland				
PSS1C/Palustrine, Scrub/Shrub, Broad-Leaved Deciduous, Seasonally Flooded (Freshwater Forested/Shrub Wetland)	Oak Forest	Yes	Unchanged	
Semi-Permanently Flooded Pond				
PUBFh/Palustrine, Unconsolidated Bottom, Semi-Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	No	Unknown	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Waynesburg	No	Unknown	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Waynesburg	No	Unknown	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Altered	Pond is dry
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Oak Forest	No	Unknown	

VIII.6. Enlow Fork Mine

Information is based on an NWI map overlaid on maps of longwall mining conducted during the assessment period. A total of 21 wetlands were found above longwall mining section of Enlow Fork Mine. These wetlands include eleven freshwater emergent wetlands, two freshwater forested/shrub wetlands and eight freshwater ponds. All wetlands are recognized by the NWI, *but have not yet been confirmed with the six-month mining maps*. All wetlands are located above longwall mining areas with the exception of three freshwater emergent wetlands, one freshwater forested/shrub wetland and four freshwater ponds.

Table VIII.11. Wetlands located above undermined areas of Enlow Fork Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Forested/Shrub Wetland			11.67		
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	1.867		*	
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	3.717		*	
*PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	3.120		*	
*PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	0.573		*	
*PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Rogersville	2.393		*	
Semi-Permanently Flooded Pond/Wetland			8.993		
PSS1/EM1C/Palustrine, Scrub Shrub, Broad-leaved Deciduous/Emergent, Persistent, Seasonally Flooded (Freshwater Forested/Shrub Wetland)	Claysville	2.483		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Claysville Prosperity	0.226		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	0.680		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	0.574		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	0.084		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Wind Ridge	0.913		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Wind Ridge	3.368		*	
*PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	0.665		*	

Table VIII.11. continued

Permanently Flooded Pond		5.671	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Prosperity	0.603	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville Prosperity	0.568	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Prosperity Rogersville	0.294	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Rogersville	0.223	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	0.760	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Wind Ridge	0.410	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	1.666	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	1.147	*
All Wetlands Combined		26.334	

*Found within permit boundary, but not over mined panels.

Table VIII.12. Condition of wetlands above undermined areas of Enlow Fork Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Forested/Shrub Wetland				
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	No	Unknown	
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	No	Unknown	
*PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	Yes	Unchanged	
*PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Claysville	No	Unknown	
*PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Rogersville	Yes	Unchanged	
Semi-Permanently Flooded Pond/Wetland				
PSS1/EM1C/Palustrine, Scrub Shrub, Broad-leaved Deciduous/Emergent, Persistent, Seasonally Flooded (Freshwater Forested/Shrub Wetland)	Claysville	No	Unknown	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Claysville Prosperity	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	No	Unknown	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Wind Ridge	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Wind Ridge	Yes	Unchanged	
*PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Rogersville	Yes	Unchanged	

Table VIII.12 continued

Permanently Flooded Pond			
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Prosperity	Yes	Unchanged
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville Prosperity	Yes	Unchanged
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Prosperity Rogersville	Yes	Unchanged
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Rogersville	No	Unknown
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	No	Unknown
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Wind Ridge	Yes	Unchanged
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	No	Unknown
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Claysville	No	Unknown

*Found within permit boundary, but not over mined panels.

VIII.F.7. High Quality (New Century) Mine

High Quality Mine is a relatively new mining area since the original permit date is 1994. Module 14: Stream Variance/Relocations was found in the original permit application. Section 14.3 deals with wetland related information. An outside contractor performed the wetland investigations and found a total of 1.24 total acres of wetlands within the permit area. *However, none of these wetland areas occurred above areas of longwall mining covered by this ACT 54 study.* In fact, during the assessment period, High Quality Mine was *not* a longwall mining operation.

The National Wetlands Inventory Map overlay did not show any wetland areas over the undermined area. The High Quality Mine maps also did not show any wetland areas overlying areas undermined during the assessment period.

VIII.F.8. Maple Creek Mine

Information is based on a six-month index map, dated 6/26/98, Revision 31/32, and an NWI map overlaid on the five-year longwall mining section. A total of twelve wetlands were found for the assessment period over Maple Creek Mine and include four freshwater emergent wetlands, one freshwater forested/shrub wetland, and seven freshwater ponds. *All wetlands are recognized by the NWI, but only five of the seven freshwater ponds were drawn on the six-month mining maps.* All wetlands are located upon the undermined areas with the exception of the freshwater forested/shrub wetland and two freshwater ponds.

Table VIII.13. Wetlands located above undermined areas of Maple Creek Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Forested/Shrub Wetland			1.937		
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Hackett	1.355		*	
*PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Hackett	0.582		*	
Semi-Permanently Flooded Pond/Wetland			2.593		
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Hackett	0.532		*	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Hackett	0.473		*	
PEM1Ch/Palustrine, Emergent, Persistent, Seasonally Flooded, Diked/Impounded (Freshwater Emergent Wetland)	Hackett	1.381		*	
PUBFh/Palustrine, Unconsolidated Bottom, Semi-permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	0.207		*	*
Permanently Flooded Pond			5.884		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	2.826		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	1.258		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	0.568		*	*
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	0.179		*	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	0.593		*	
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	0.420		*	
All Wetlands Combined			10.414		

*Found within permit boundary, but not over mined panels.

Table VIII.14. Condition of wetlands above undermined areas of Maple Creek Mine.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Forested/Shrub Wetland				
PEM1A/Palustrine, Emergent, Persistent, Temporarily Flooded (Freshwater Emergent Wetland)	Hackett	Yes	Unchanged	
*PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Hackett	Yes	Unchanged	
Semi-Permanently Flooded Pond/Wetland				
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Hackett	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Hackett	Yes	Unchanged	
PEM1Ch/Palustrine, Emergent, Persistent, Seasonally Flooded, Diked/Impounded (Freshwater Emergent Wetland)	Hackett	Yes	Unchanged	
PUBFh/Palustrine, Unconsolidated Bottom, Semi-permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	No	Unknown	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Hackett	Yes	Unchanged	

*Found within permit boundary, but not over mined panels.

VIII.F.9. 84 Mine

The following information is based on six-month mining maps and an NWI map overlay. There were no changes in the six-month revisions dating from 9/1/95, Exhibit 6.2/8.3 Hydrologic Data Map, Revision 30 through 8/25/00, Exhibit 6.2/8.3 Hydrologic Data Map, Revision 42.

A total of 15 wetlands were found above areas of longwall mining conducted during the assessment period, including three freshwater emergent wetlands, three freshwater forested/shrub wetlands, and nine freshwater ponds. *All of these wetlands are recognized by the NWI, but only the three freshwater forested/shrub wetlands, two freshwater emergent wetlands and one freshwater pond are drawn on the six-month mining maps.* All wetlands are located upon the undermined areas with the exception of two freshwater ponds.

Table VIII.15. Wetlands located above undermined areas of Mine 84.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Acreage	Total Acreage	Identified by NWI	Identified by Mine Permit/Map
Freshwater Forested/Shrub Wetland			6.658		
PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)		1.283		*	*
PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)		5.375		*	*
Semi-Permanently Flooded Pond/Wetland			4.446		
PEM1Fh/Palustrine, Emergent, Persistent, Semi-permanently Flooded, Diked/Impounded (Freshwater Emergent Wetland)		0.274		*	
PFO1C/Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded (Freshwater Forested/Shrub Wetland)		1.002		*	*
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)		2.579		*	*
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)		0.591		*	*
Permanently Flooded Pond			5.449		
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		0.579		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		0.534		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		0.178		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		0.412		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		0.299		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		1.206		*	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)		1.287		*	*

Table IX.15 continued

*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	0.473	*
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	0.481	*
All Wetlands Combined	16.553	

*Found within permit boundary, but not over mined panels.

Table VIII.16. Condition of wetlands above undermined areas of Mine 84.

Wetland Code/Specific Wetland Type (General Wetland Type)	USGS Quad Map	Visible from road	Condition	Notes
Freshwater Forested/Shrub Wetland				
PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Washington East	Yes	Unchanged	
PFO1A/Palustrine, Forested, Broad-leaved Deciduous, Temporarily Flooded (Freshwater Forested/Shrub Wetland)	Washington East	Yes	Unchanged	
Semi-Permanently Flooded Pond/Wetland				
PEM1Fh/Palustrine, Emergent, Persistent, Semi-permanently Flooded, Diked/Impounded (Freshwater Emergent Wetland)	Washington East	Yes	Unchanged	
PFO1C/Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded (Freshwater Forested/Shrub Wetland)	Washington East	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Washington East	Yes	Unchanged	
PEM1C/Palustrine, Emergent, Persistent, Seasonally Flooded (Freshwater Emergent Wetland)	Washington East	No	Unknown	
Permanently Flooded Pond				
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	No	Unknown	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	
*PUBHh/Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (Freshwater Pond)	Washington East	Yes	Unchanged	*Within permit boundary but not over any mined panel

VIII.F.10. Shoemaker Mine

Information is based on six-month Hydrologic Data Maps (Exhibit 8.3, revision 1A—4/28/99; Exhibit 8.3 revisions 2/3/4—6/6/01; Exhibit 8.2, revisions 5/6—5/15/03) and an NWI map overlaid assessment period's longwall mining section. There are no wetlands within assessment period's longwall permit boundary.

VIII.G. Findings

Over the course of the assessment period, one freshwater pond was lost. The pond covered 0.908 acre.

Over the course of the assessment period, one freshwater pond was gained. The pond covers approximately 0.18 acre.

During the assessment period neither a large net gain nor a large net loss of National Wetland Inventory wetlands occurred over longwall mines.

No regional base-level studies of wetlands served as a benchmark for evaluating wetlands that were undermined during assessment period.

VIII.H. Recommendations

Mining companies should survey properties to be undermined to identify all NWI wetlands that lie within the permit boundaries plus wetlands not listed in the NWI.

Module 15.4d (prior Module 8 and also, Module 4 in one instance) should require an assessment of wetlands based upon standards set by the NWI.

All six-month mining maps should show the locations and dimensions of wetlands.

All information on wetlands should be electronically stored and mapped through GIS software.

Wetlands should receive more attention than they have been previously given because they provide habitats for a number of organisms, including migratory birds.