CHAPTER 2. LAND RESOURCES

Geology

The Appalachian Plateau Physiographic Province of Pennsylvania is the geological address of the Sewickley Creek watershed. The Appalachian Plateau covers the greatest extent of any physiographic province in Pennsylvania, extending from Greene and Somerset Counties in the southwest, to Erie County in the northwest, and to Wayne and Pike Counties in the northeast. Although the Plateau is a highland area, it has been deeply dissected by stream systems, creating a landscape of deep valleys and rolling hills [Pennsylvania Department of Conservation and Natural Resources (DCNR) 1996].

Two Physiographic sections within the Appalachian Plateau divide the watershed: the Pittsburgh Low Plateau Section and the Allegheny Mountain Section (Figure 2-1). The majority of the watershed is located within the Pittsburgh Low Plateau Section, while the extreme eastern portion of the watershed lies within the Allegheny Mountain Section of the Appalachian Plateau (Figure 2-1). Rounded hills and open valleys characterize the Pittsburgh Low Plateau section, which is underlain by sandstone, siltstone, shale, limestone, and coal. The uplands of the Physiographic section are developed on rocks that contain a significant portion of the bituminous coal in Pennsylvania (DCNR/Geological Survey 1996). This is evidenced by many mining remnants, past and present, which dot the landscape. Elevation in this region ranges from 660 to 2,340 feet (DCNR/Bureau of Forestry 2001).

Chestnut Ridge borders the Allegheny Mountain Section of the watershed in the eastern extreme of the watershed. This physiographic section is made up of broad ridges, separated by broad valleys (DCNR/PA Geologic Survey 1996). Rocks within this section are comprised mainly of shale, siltstone, siltstone, sandstone, and conglomerate, some limestone, and coal with structural features including the Latrobe Syncline, Greensburg Syncline, Irwin (Port Royal) Syncline, and the Fayette Anticline [Pennsylvania Department of Environmental Resources (DER) 1971]. All of the geologic structures associated with the watershed comprise the Monongahela Group, which contains the Pittsburgh Coal Seam (Figure 2-2). Elevations in this region range from 775 to 3,210 feet (DCNR/Bureau of Forestry 2001).

Near the mouth of Sewickley Creek, the Pittsburgh Coal Seam is the lowest coal outcrop of the basin (DER 1971). The coal seam is famous for its rich coal supply and has been the most intensively mined throughout the region, resulting in pronounced mine drainage pollution problems and subsequent decline in water quality within the watershed that persist today.

The Irwin (Port Royal) Syncline is located in the northwestern portion of watershed near Little Sewickley Creek and is comprised primarily of Monongahela Group structural components, with additional portions of the Washington Group scattered throughout the structure. Beginning in the 1860*s*, the Irwin (Port Royal) syncline was the most intensively mined syncline in the region. However, during the decline of the mining industry in the 1970s, all underground mining in the Sewickley Creek watershed ceased, with the exception of the Hutchinson Mine in Hutchinson, PA (DER 1971).

The Greensburg Syncline, which also contains a portion of the Pittsburgh Coal Seam, is located near Jacks Run in the northeastern part of watershed. In the past several decades, water quality has declined in Jacks Run because of a substantial amount of mine drainage discharging from a drift opening in the lowest coal outcrop within the Greensburg Syncline basin.

The Latrobe Syncline is located in the southeastern portion of watershed near Brinker Run and Welty Run. The Pittsburgh Coal Seam within this syncline is seven feet thick near Mammoth and eight feet near Mt. Pleasant. The Redstone Seam, located within the Brinkerton area and partially located within the Latrobe Syncline, has also been extensively strip-mined.

Soil Characteristics

Soil Associations

Soil development relies on several factors, including climate, plant and animal organisms, relief, parent material, and time. The degree of influence of each factor varies spatially, creating a variety of soil associations locally and regionally. Typically, local variations in soil characteristics and types occur as a result of relief, depth to bedrock, slope, and drainage quality. The chemical and physical composition of soils, such as the cation exchange capacity, hydrology, and structure of the soil determines the appropriate land use activity for each soil type. Often, certain land uses that are not suitable for a specific soil type can result in possible damage such as flooding, low crop yields, and increased erosion from land disturbance. Soil associations are comprised of two to three major soils types and a few minor soils types (Figure 2-3). The soil associations located within the Sewickley Creek watershed are listed in Table 2-1.

The Dormont-Guernsey-Culleoka soil association is comprised of soils that are formed in materials weathered from predominantly calcareous shale and limestone. These soils are found dominantly on rolling summits, shoulders, and side slopes. Approximately 70% of this map unit is used for cultivated crops, hay land, and pasture. The remaining areas are wooded or in urban use. Some of the minor soil types in the map unit are Clarksburg, Lowell, Lindside, Library, Matewan, and Lobdell. The main limitations for septic tank absorption fields are slow permeability, sinkholes, cracks in the bedrock, and slope (Knight 2002).

The Gilpin-Wharton-Ernest soil association is formed in materials weathered from acid shale, siltstone residuum, and colluvium. These soils are generally found on undulating ridge tops and hilly to steep slopes, which are dissected by drainage ways and small streams with narrow flood plains. Approximately 60% of this map unit is used for cropland, hay land, and pasture. Much of the steeper sloped areas are used as woodland, with some areas of urban land scattered throughout. Strip mining has affected some areas. Major limitations in this association include slope, water table, and depth to bedrock, while runoff and erosion are the major hazards. The area is not favorable for septic tank absorption fields due to the presence of bedrock and the potential for improperly installed systems to seep into cracks and contaminate water wells (Knight 2002).

The Upshur-Gilpin-Vandergrift soil association is comprised of soils formed in colluvial and residual materials weathered from red clay shale. Some of the minor soils in the map unit are Ernest, Brinkerton, and Wharton. Approximately 60% of this map unit is used for cropland, hay land, pasture, with the steeper areas serving as woodlands. This association is susceptible to land slides, especially in steep areas. There is potential for contamination of groundwater from septic tank absorption fields due to the moderately slow to slow permeability characteristics of this soil association (Knight 2002).

Table 2-1. *Soil associations located within the Sewickley Creek watershed*

Soil Association	Characteristics
Dormont-Guernsey-Culleoka	Nearly level to very steep, very deep to moderately deep, moderately well drained to well drained soils on hills
Gilpin-Wharton-Ernest	Gently sloping to very steep, moderately deep to very deep, moderately well drained and well drained soils; on hills
Upshur-Gilpin-Vandergrift	Nearly level to very steep, deep to very deep, moderately well drained to well drained soils; on ridges and hill slopes in intermountain valleys
Laidig-Buchanan-Hazleton	Gently sloping to very steep, moderately deep and very deep, moderately well drained to well drained soils; on the upper part of mountainsides and ridges
Monongahela-Weinbach	Nearly level to moderately steep, moderately well drained soils; on terraces
Meckesville-Leck Kill	Gently sloping to very steep, deep and very deep, well drained soils; on the upper part of mountainsides and ridges

The soil types in the Laidig-Buchanan-Hazleton association are formed in colluvial and residual materials weathered from sandstone, siltstone, and shale. This association is generally found on ridge tops and on the upper to middle side slopes of mountains. Areas that contain this association are dominantly very steep, while the mountaintop areas are undulating to hilly. The soils of this map unit are too steep and/or stony to be used for cultivated crops and pasture. The soils are well suited for woodland, recreation, and wildlife habitat. Large areas of State Forestland are in this map unit. Due to its stoniness, slope, seasonally high water table, and slow permeability, this association is generally unsuitable for most septic tank absorption fields. Some of the minor soils in the map unit are Cookport, Clymer, Rayne, Craigsville, Nolo, and Macove (Knight 2002).

The soils in the Monongahela-Weinbach association are formed in materials weathered dominantly from old stream and river alluvium. Soils in this association are generally found on smooth to rolling summits, shoulders, and side slopes. Much of this map unit is used for cultivated crops, hay land, some urban use, with a few wooded areas scattered throughout. Soils are productive and desirable for farming. Septic tank absorption fields create the potential for ground and surface contamination. Some of the minor soils in the map unit are Ginat, Ernest, Lobdell, Guernsey, and Lindside (Knight 2002).

The Meckesville-Leck Kill soil association is formed in colluvial and residual material weathered from red shale, siltstone, and sandstone. Soils are steep and well drained. The soils of this map unit are usually too steep or too stony to be used for cultivated crops and pasture, and generally unsuitable for these purposes. Soils in this association are well suited to woodland recreation and wildlife habitat, and are generally unacceptable for most septic tank absorption fields and urban areas due to steep slope. Some of the minor soils in the map unit are Laidig, Hazleton, Buchanan, and Macove (Knight 2002).

Agriculture

Prime Agricultural Soils

Prime agricultural soils (Figure 2-4) are designated per county by the US Department of Agriculture, Natural Resource Conservation Service (NRCS) and meet certain physical, chemical, and slope characteristics that make them extremely well suited for agricultural uses. Prime agricultural soil designation is based upon a predetermined set of criteria, which typically include level to nearly level slopes, a well-drained structure, deep horizons, an acceptable level of alkaline or acid components, along with the capacity for producing food and crops. The characteristics that make prime agricultural soils distinct also make them suitable for development; therefore, concentrated watershed-based planning efforts are often called for to determine the best use of these key soil types and/or to maintain their agricultural use. Within the Sewickley Creek watershed, ten soil-mapping units have been classified as prime agricultural soils (Table 2-2).

Table 2-2. *Prime agricultural soils based on interim, non-certified soil survey 2000.*

Symbol	Name and Slope Character
ChA	Chavies fine sandy loam, 0 to 2 percent slopes
CiB	Clarksburg silt loam, 3 to 8 percent slopes
CuB	Culleoka channery silt loam, 3 to 8 percent slopes
DoB	Dormont silt loam, 3 to 8 percent slopes
GcB	Gilpin channery silt loam, 3 to 8 percent slopes
GuB	Gilpin-upshur complex, 3 to 8 percent slopes
Ln	Lindside silt loam
Lo	Lobdell silt loam
LwB	Lowell silty clay loam, 3 to 8 percent slopes
MoA	Monongahela silt loam, 0 to 2 percent slopes
MoB	Monongahela silt loam, 2 to 6 percent slopes
Ph	Philo loam
UcB	Upshur silty clay loam, 3 to 8 percent slopes
WrB	Wharton silt loam, 3 to 8 percent slopes

Agricultural Security Areas

Agricultural Security Areas (ASAs) are lands enrolled in a statewide designation program established to promote and conserve agricultural land and agricultural community lifestyles. The ASAs are designated by local municipalities in cooperation with landowners to secure agricultural land use and the right to farm by serving as a tool to protect farmland from the urbanization of rural areas. The minimum size of an ASA is 250 collective acres. The farms that comprise the 250 acres must be ten acres each (they do not need to be adjacent). In addition, property established, as an ASA must be viable agriculture land, including pasture, woodland, and cropland. All ASAs must be reviewed every seven years.

Basic landowners' benefits, as a result of ASA designation, include: (1) a municipal agreement to not create "nuisance laws," including odor and noise ordinances, that would limit agricultural practices, (2) limitations on the ability of government to condemn ASA land for roads, parks, and other infrastructure projects, and (3) landowners will be eligible to voluntarily sell the development rights of their farm as a conservation easement to the Commonwealth of Pennsylvania, or the County of Westmoreland. An easement would ensure that the farmland would be available for agricultural use indefinitely. Figure 2-5 shows the ASAs in the watershed.

All Agricultural Lands

Protecting family farms was an issue raised at the public meetings. Trends show that the number of family farms is declining while the size of farms is increasing. With the current economy, markets are down, which poses financial problems for many small farms. Support for animal agriculture is needed. Also, meeting the increasing government regulations seems to be a challenge for many of the small farms (Long, 2003).

Ownership

Public

The main segment of land under public ownership within the watershed is county-owned Mammoth Park. The park area is considered to be managed land. Managed lands are properties that are in some capacity managed for conservation. State Game Lands, State Forests, Federal or State Parks are absent within the watershed's boundaries. Other small areas of public ownership include schools, universities, the State Correctional Institute, municipal parks, and random tracts of municipal properties.

Private

The majority of the watershed is privately owned. These private holdings include residential areas, large and small farms, forested areas, and commercial/industrial properties. Some private holdings have conservation easements associated with the property. Lands protected by conservation easements remain in private ownership, but a government or nonprofit conservation organization holds the easement. A conservation easement is a deed restriction that landowners voluntarily place on their property to protect natural resources. By placing an easement on a property the owner authorizes the easement holder to monitor and enforce restrictions set forth in the agreement.

Critical Areas

Critical areas are considered areas that have constraints that limit development and various activities. Critical natural areas are those that contain rare, threatened, or endangered species, natural communities of special concern, or significant ecological and geological landscapes worthy of protection. Steep slopes, ridge tops, floodplains, streambanks, wetlands, and other natural areas are examples of critical areas.

Landslides

<u>Background</u>

Landslides are most heavily concentrated in the southwest region of Pennsylvania; however, they can occur all over the commonwealth and for a wide range of geomorphologic reasons. Primarily, most landslides occur on steep slopes where loose colluvial (deposited at the edge of a slope) soils exist. Gravity eventually forces this rock and debris down slope in a gradual or sudden, flashy manner. Landslides can also occur as a slump, where a block of weathered rock or soil slides outward because of the force from the rotation of weight from weathered rock or soil above it. Other factors can determine the occurrence of a landslide, such as stream erosion, weakened or fractured rock and soil characteristics, earthwork and earth moving activities, and excess weight on a slope from snow, rain, water, and mining debris.

Existing Conditions

Although landslides are not a salient issue within the watershed and deaths within Pennsylvania due to landslides are rare (DCNR 1996), areas where coal refuse heaps and/or rock debris on slopes hover over roads, etc. are susceptible to hazardous landslide activity.

Future Conditions and Recommendations

Future planning during road repairs and construction, including sound geologic investigations and engineering practices, could prevent some potential landslides from occurring within the watershed. Land use management regulations in areas where development is planned or ongoing near or on steep slopes could also contribute to a decreased potential of landslides in other areas of the watershed. Reclamation of coal slag heaps and/or rock debris on steep slopes would decrease the risk of landslides in the watershed.

Erosion and Sedimentation

Erosion is the transfer of soil particles through air and water. The relocation of these particles is known as sedimentation. Even though erosion and sedimentation are natural earth moving processes, land use plays a vital role to the extent of the movement. Erosion and sedimentation along streambanks are discussed in further detail in the water resources chapter.

Floodplains

A floodplain is the level land along the course of a river or stream formed by the deposition of sediment during periodic floods. Floodplains contain such features as levees, back swamps, delta plains, and oxbow lakes. These areas are considered to be critical areas because frequent flooding limits development and these areas oftentimes contain a unique diversity of species. Floodplains in the watershed are discussed in depth in the water resource chapter.

Wetlands

Wetlands are delineated according to hydrology, soil type, and vegetation. Whether man-made or naturally occurring, wetlands have a variety of appearances ranging from a marsh with cattails to a field without exposed water. More information about the wetlands in the watershed can be found in the water resources chapter.

Fish and Wildlife Habitat

Fish and wildlife habitat involves priority wildlife species and habitats and includes riparian habitats along flowing rivers and creeks. Riparian buffers should be established to reduce erosion and sedimentation as well as filter runoff. Riparian buffers are areas of protective vegetation next to a body of water that serves as a barrier against polluted runoff and provides habitat corridors for all kinds of wildlife. More discussion on fish and wildlife habitat in the watershed can be found in the biological resources chapter.

Critical Areas Management Recommendations

- Establish and protect riparian buffers along streams using smart land use practices.
- Establish greenway corridors and trails along streams.
- Establish land use planning and zoning to limit development in the floodplain and to help control erosion and sedimentation.
- Establish a permit process that all resource extraction industries must abide by to control erosion and sedimentation.
- Establish steep slope ordinances with guidance from the Municipality of Murrysville.

Landfills

Background

Landfill permits are administered and monitored by the Waste Management Program of the Pennsylvania Department of Environmental Protection. There are two different types of landfills within the watershed, residual and municipal waste landfills. Residual waste is non-hazardous industrial waste such as contaminated soil, rubber, fertilizers, and pharmaceutical waste. Municipal waste is from residential areas and businesses that are non-industrial in nature.

Existing Conditions

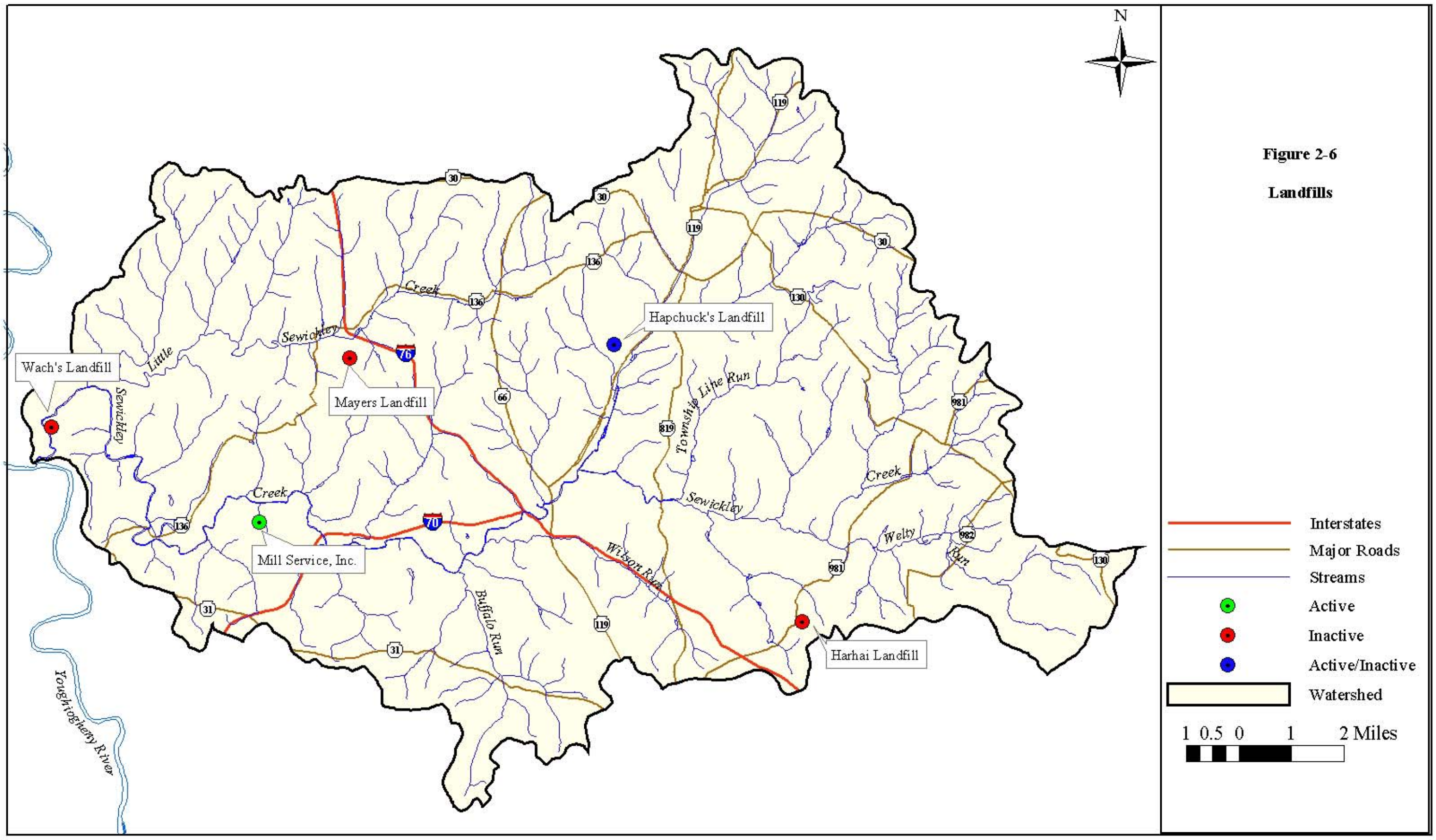
Within the Sewickley Creek watershed there are six landfills (Figure 2-6), of which three are still active. They include Hapchuck's Landfill in Hempfield Township, Mill Service Inc. Yukon Plant in South Huntingdon Township, and Chessie System Vista Landfill in Sewickley Township.

Future Conditions and Recommendations

Establish an area or time where the public can properly dispose of solid waste that would normally end up in illegal dumps or streambeds for free or minimal cost. Encourage reuse and recycling to reduce the amount of waste entering landfills.

Landfills Management Recommendations

- Educate the public on traditional and innovative ways to reduce, reuse, and recycle
- Develop public service announcements to educate for proper disposal of waste.



Hazard Areas

Illegal Dump Sites

Sewickley Creek, along with many watersheds throughout the country, are inundated with illegal dumps. Instead of properly disposing of unwanted items many people will dispose of their trash at old refuse piles, hillsides, or streambeds in remote areas. PA CleanWays of Westmoreland County identified twenty-two dumpsites within the Sewickley Creek watershed during county surveys in 1991 and 1996 (Table 2-3). PA CleanWays works with local businesses and organizations to fight against litter and illegal dumping in PA.

Waste Sites

Background

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) was enacted in 1980 to provide broad federal authority to respond directly to releases of hazardous substances that may endanger public health or the environment. This act is mostly associated with regulating Superfund sites. The Resource Conservation and Recovery Act (RCRA) regulates transportation, handling, storage and disposal of hazardous materials.

Table 2-3. Illegal dumps located in the Sewickley Creek watershed (Source: PA Cleanways Dump Survey 1996).

Municipality	Location
East Huntingdon Township	Love Road
East Huntingdon Township	SR 3089
Greensburg	Mt. Odin Golf Course
Hempfield Township	Beaver Road
Hempfield Township	Beeno Road
Hempfield Township	Glenn Foxx Road
Hempfield Township	Mt. Thor Road
Hempfield Township	Penn Valley Road
Hempfield Township	SR 3071
Hempfield Township	Sweitzer/Fairgrounds Road
South Huntingdon Township	Brickyard Hill
Sewickley Creek Township	Apple's Mill Road
Sewickley Creek Township	Carnegie Road
Sewickley Creek Township	Cool Springs
Sewickley Creek Township	McGrew Road
Sewickley Creek Township	Pierce Road & SR 3012
Sewickley Creek Township	Shaner Road
Sewickley Creek Township	Slaughter Hollow
Sewickley Creek Township	Wallace Turkey Farm
Sewickley Creek Township	Whyel Road
Youngwood Borough	RR Tracks

Existing Conditions

There are no Superfund sites within the watershed but there is an abundance of RCRA sites (Appendix D). Of the approximately 141 sites, the majority are located in the Greensburg area. Most sites are related to the automotive industry, including gas stations, dealerships, and repair shops.

Future Conditions and Recommendations

Encourage industries to comply with current environmental laws and to continue to transport, handle, store, and dispose of hazardous materials in a safe and responsible manner.

Brownfields

Background

Brownfields are sites that were contaminated from past industrial uses. These sites often were vacated, while the contamination remained. Brownfields are important areas because they can often be redeveloped after the contamination is mitigated. This is an important planning issue because the amount of remediation needed at a particular site needs to be measured when the redevelopment of a brownfield site is considered. Brownfield redevelopment is an important concept, because it allows land to be reused, which helps to reduce sprawl development. Even though refuse piles and abandoned mines would fall under the popular definition of brownfields, they do not fall under the commonwealth's policy. Refuse piles and abandoned mines lack the infrastructure needed for redevelopment.

Existing Conditions

A former brownfield, Bell Atlantic PA – Youngwood Material Reclamation Center, underwent remediation for soil and groundwater contamination. Investigations in 1987 found lead in surface soils, which were remediated in 1992 and 1998 by excavation and off-site disposal (DEP 2001). The groundwater was investigated in 1992 and 1998 and it was determined that it had not been impacted (DEP, 2001). Currently there are no brownfield sites in the Sewickley Creek watershed, as identified by the Westmoreland County Department of Planning and Development (WCDPD).

Future Conditions and Recommendations

Encourage companies to restore or redevelop abandoned sites. This could be done by working with the municipal officials to offer incentives to companies or individuals who redevelop these sites.

Refuse Piles

Background

As coal is removed from mines there are portions extracted which have no commercial value. Once the coal is removed and brought to the surface it is separated by quality. The high quality coal was then sent to coke ovens or power plants, leaving the coal of poorer quality to pile up near mines, or to be hauled away forming refuse piles. Refuse piles, also known as gob, bony, slag, or red dog, are composed of coal, shale and other impurities.

Refuse pile located in South Huntingdon Township near Yukon (Source: Western Pennsylvania Coalition of Abandoned Mine Reclamation 2001)

Existing Conditions

Within the boundaries of the Sewickley Creek watershed 43 refuse piles exist (Table 2-4, Figure 2-7). They are scattered through the watershed in eight municipalities including: Mt. Pleasant Township, Hempfield Township, Unity Township, East Huntingdon Township, North Huntingdon Township, South Huntingdon Township, Sewickley Township and the Borough of Southwest Greensburg.

Future Conditions and Recommendations

Reduce the numbers of refuse piles existing within watershed thereby allowing the area to be restored or redeveloped. Refuse piles should also be evaluated for BTU value, and possibly reused by co-generation plants.

***Table 2-4**. Refuse pile location and status within the Sewickley Creek watershed.*

Map ID	Local Name	Township	Pile Status	Nearest Stream
1	Brinkerton	Mount Pleasant	Reclaimed	UNT*-Sewickley Creek
2	Hecla No. 1	Mount Pleasant	Unreclaimed	Boyer Run
3	Southwest	Mount Pleasant	Reclaimed	Boyer Run
4	Hecla No. 3	Mount Pleasant	Reclaimed	NONE
5	United	Mount Pleasant	Reclaimed	Sewickley Creek
6	Calumet	Mount Pleasant	Unreclaimed	Welty Run
7	Trauger	Mount Pleasant	Unreclaimed	Sewickley Creek
8	Trauger	Mount Pleasant	Reclaimed	Sewickley Creek
9	Cambruzzi Pile /Madison Mine	Hempfield	Unreclaimed	UNT*
10	Adamsburg	Hempfield	Unreclaimed	UNT*-Little Sewickley Creek
11	Edna #1	Hempfield	Partially Reclaimed	UNT*-Little Sewickley Creek
12	Adamsburg	Hempfield	Partially Reclaimed	UNT*-Little Sewickley Creek
13	Arona	Hempfield	Active	Little Sewickley Creek
14	Crows Nest	Hempfield	Unreclaimed	UNT*-Jack's Run
15	Three Fingers	Hempfield	Partially Reclaimed	UNT*-Jack's Run
16	Carbon	Hempfield	Unreclaimed	Sewickley Creek
17	Carbon	South Greensburg	Unreclaimed	Sewickley Creek
18	Carbon	Hempfield	Unreclaimed	Sewickley Creek
19	Ocean Mine #2	Hempfield	Partially Reclaimed	Andrew Run
20	Jamison #20	Unity	Reclaimed	Little Sewickley
21	Edna No 1 South	Hempfield	Reclaimed	None adjacent
22	Snydertown	East Huntingdon	Reclaimed	None adjacent
23	Null Hollow/Hunker	East Huntingdon	Unreclaimed	Null Hollow Creek
24	Motordrome	East Huntingdon	Reclaimed	Buffalo Run
25	Hutchinson	Sewickley	Partially Reclaimed	Sewickley Creek
26	Wendel	North Huntingdon	Unreclaimed	UNT*
27	Soberdash Pile	South Huntingdon	Unreclaimed	Sewickley Creek
28	Fitz Henry	South Huntingdon	Unreclaimed	UNT*-Yough River
29	Middle Churches	Mount Pleasant	Partially Reclaimed	UNT*-Upper Boyer Run
30	Yukon/Maggie Mine	South Huntingdon	Unreclaimed	Sewickley Creek
31	Yukon/Maggie Mine	South Huntingdon	Unreclaimed	Sewickley Creek
32	Yukon/Maggie Mine	South Huntingdon	Unreclaimed	Sewickley Creek
33	Yukon/Maggie Mine	South Huntingdon	Partially Reclaimed	Sewickley Creek
34	Upper Whyel	Sewickley	Unknown	UNT*-Sewickley Creek
35	Upper Whyel	Sewickley	Unknown	UNT*-Sewickley Creek
36	Buffalo Run	East Huntingdon	Partially Reclaimed	Buffalo Run
37	Keystone	Sewickley	Partially Reclaimed	Andrews Run
38	Delmont	Hempfield	Unreclaimed	Sewickley Creek
39	Komoroski Pile	Mount Pleasant	Unreclaimed	Boyer Run

Abandoned Mines

Background

The Sewickley Creek Watershed, being situated in southwestern Pennsylvania, has been subject to numerous negative mining activities of the past. A lack of federal rules and regulations prior to 1977 led to many of the mining areas being abandoned without water and land impacts being corrected. Surface mines that were abandoned can be easily distinguished by the lack of vegetation growing on the unreclaimed landscape. When deep mines were abandoned, a much greater health risk was imposed. The underground network of rooms and pillars can be very unstable and cause subsidence to occur (see Subsidence section).

Existing Conditions

Currently, many groups are working to reclaim the abandoned mine lands. Discharges from abandoned mine sites constitute a major source of non-point source pollution within the Sewickley Creek watershed. Abatement of these discharges is expensive and, because of the magnitude of the problem, requires a major funding commitment. Efforts underway to address mining related problems include:

- Requiring abatement or load reduction when sites are remined;
- Evaluation of the use of constructed wetlands, anoxic limestone drains, and diversion wells for treating abandoned mine drainage (AMD) from certain sites;
- Special studies to determine the effectiveness of mine sealing to prevent long-term post-mining impacts on ground and surface water;
- United States Department of Agriculture (USDA) Soil Conservation Service's Rural Abandoned Mines Program which reconstructs abandoned mine sites that are a threat to public safety;
- Office of Surface Mining (OSM) Abandoned Mine Lands (AML) Program; and
- The 10% Set-Aside Program administered by the Bureau of Abandoned Mine Reclamation (BAMR).

The Department of Environmental Protection is also pursuing legislative changes to the Pennsylvania Surface Mining Conservation and Reclamation Act (SMCRA), which would provide greater incentives for remining and reclamation of abandoned mine lands. These incentives not only improve water quality, habitat, and aesthetics, but also increase profitability for the mining company.

Future Conditions and Recommendations

All of the aforementioned efforts and programs underway to address mining related problems need to be continued. Grassroots groups need to be continuously encouraged and supported by state and federal programs to continue reclamation projects throughout the watershed. For more information on abandoned mines in the watershed, refer to the Water Resources chapter.

Active Mines

Background

Mines that are considered active have an active permit for the site they are mining. Even though the permits may be active, mining may not be physically occurring within the permitted area. There are various stages to active permits including: not started, active, inactive, treatment, reclamation, and forfeited. Permits are generally granted for an area larger than where the company is planning on mining.

Existing Conditions

Twenty-eight active mine permits exist within the Sewickley Creek watershed. Three of the permits are for mining cinders (red dog). The remaining 25 sites engage in coal mining activities mostly in the Pittsburgh and Redstone coal seams. Nine of the active permits are currently at an inactive status. This means that mining has been completed but reclamation must be finished before the bonds are released. Table 2-5 lists the active permits and their status within the watershed.

Future Conditions and Recommendations

Partnering with mining companies to educate the public and protect the current resources existing within the watershed is essential. Records show that industries have been reclaiming more abandoned acreage than the reclamation programs. Continued support for industry-based reclamation is needed, as well as expansion of current reclamation programs. Higher quality reclamation must be implemented, including tree plantings to increase carbon sequestration.

Subsidence Areas

Background

Mine subsidence is movements of the ground surface as a result of the collapse or failure of underground mine workings. In active underground mining operations using longwall mining or high extraction pillar recovery methods, subsidence can occur concurrently with the mining operation in a predictable manner.

In abandoned mines where rooms and unmined coal pillars are often left in various sizes and patterns, it may be impossible to predict if and when subsidence will occur. Mine subsidence resulting from abandoned room and pillar mines can generally be classified as either sinkhole subsidence or trough subsidence (Appendix E).

Existing Conditions

As mentioned in other sections of this report, the majority of the Sewickley Creek watershed has been mined in the past. Wells drilled by Department of Energy to see the condition of the deep mines determined that many mining walls have collapsed, thus creating subsidence issues and limiting development.

Future Conditions and Recommendations

Researching areas where mining has occurred in the past to determine the risk of subsidence occurring in the area is needed in the watershed. Homeowners that are at risk of subsidence should look into the Mine Subsidence Insurance Fund. More information can be obtained from US Department of the Interior - Office of Surface Mining.

Table 2-5. *Active mining permits within the watershed (Source: DEP 2002)*

Permit Number	Permit Holder	Township	Status	Operation	Mining Type
65960111	Sosko Coal Company, Inc	East Huntingdon	Reclaimed	Surface Mining	Coal
65840701	Crows Nest Synfuelds LP	East Huntingdon	Active	CRD	Coal
6579119	Holiday Constructors, Inc	Mount Pleasant	Treatment	Surface Mining	Coal
65930106	Amerikohl Mining, Inc	Mount Pleasant	Reclaimed	Surface Mining	Coal
65773019	Amerikohl Mining, Inc	Mount Pleasant	Inactive	Surface Mining	Coal
65872302	Reid J. Cavanaugh	Mount Pleasant	Inactive	Small	Cinders (Reddog)
65880107	Mehalic Brothers	Mount Pleasant	Inactive	Surface Mining	Coal
65892304	R&S Enterprises	Mount Pleasant	Inactive	Small	Cinders (Reddog)
65910302	Norman Thomson	Mount Pleasant	Inactive	Large	Cinders (Reddog)
65920104	Al Stiffler	Mount Pleasant	Active	Surface Mining	Coal
65950105	Mehalic Brothers	Mount Pleasant	Inactive	Surface Mining	Coal
65960107	Amerikohl Mining, Inc	Mount Pleasant	Treatment	Surface Mining	Coal
65970104	Amerikohl Mining, Inc	Mount Pleasant	Inactive	Surface Mining	Coal
65990107	Amerikohl Mining, Inc	Mount Pleasant	Not started	Surface Mining	Coal
3477SM31	Golden Flame Fuel Co	Mount Pleasant	Treatment	Surface Mining	Coal
3475SM29	Holiday Constructors, Inc	Mount Pleasant	Treatment	Surface Mining	Coal
65881701	Consolidation Coal Co	Sewickley	Treatment	Surface Mining	Coal
468M024	Consolidation Coal Co	Sewickley	Treatment	Surface Mining	Coal
65850105	Amer Coal Co	South Huntingdon	Inactive	Surface Mining	Coal
65910103	Calvin W. Hepler	South Huntingdon	Active	Surface Mining	Coal
65920108	Bituminous Proc. Co, Inc	South Huntingdon	Forfeited	Surface Mining	Coal
65960110	LMM, Inc	South Huntingdon	Inactive	Surface Mining	Coal
65980106	Gary Giola Coal Co	South Huntingdon	Active	Surface Mining	Coal
65990101	Gary Giola Coal Co	South Huntingdon	Not started	Surface Mining	Coal
65890104	Gary Giola Coal Co	South Huntingdon	Active	Surface Mining	Coal
65020102	Amerikohl Mining, Inc	South Huntingdon	Not started	Surface Mining	Coal
65831701	East Associates	South Huntingdon	Treatment	Surface Mining	Coal
65000201	Reichard Contracting	Sewickley	Not started	Reprocessor	Coal

Hazard Areas Management Recommendations

- Encourage industry to comply with current environmental laws and to continue to transport, handle, store, and dispose of hazardous materials in a safe and responsible manner.
- Encourage companies to restore or redevelop abandoned sites (brown/gray fields).
- Remove refuse piles, using priority listings from Project Gob Pile.
- Evaluate refuse piles for BTU value and possible reuse in co-generation plants.
- Partner with mining companies to educate the public and protect the current resources existing in the watershed.
- Continue support for industry-based reclamation.
- Expand current reclamation programs as well as implement higher quality reclamation techniques.
- Continue efforts and programs underway to address mining-related problems.
- Continue to encourage grassroots organizations to implement reclamation projects.