

Draft Environmental Assessment ATC Group Services LLC Speedway Sanitary Force Main Installation Project – Westmoreland County

October 2016



**US Army Corps
of Engineers®**

Pittsburgh District
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SUMMARY

Speedway LLC is proposing to install a 2 inch diameter sanitary sewer force main in a 4 inch conduit along S.R. 22 (William Penn Highway) in parts of New Alexandria Borough, Derry Township and Salem Township, in Westmoreland County, PA. The proposed sanitary sewer force main is necessary to provide transportation capacity for sanitary sewage for the proposed Speedway Store located at 107 Operators Way, New Alexandria, in Westmoreland County, PA. The length of the installation is approximately 3,161 linear feet crossing federal lands administered by the United States Army Corps of Engineers (USACE) (the Loyahanna Lake and its Tributary No. 6) in two separate areas.

Under the Preferred Alternative, the installation of the sewer force main would require the use of horizontal direction drill (HDD) methods that would also include crossing the Loyahanna Lake and the box culvert carrying Tributary No. 6. The crossings would be accomplished using the directional boring method. The depth of the bore would be approximately 20' below the river/stream bed to ensure the bore is completely in bedrock. For the sewer force main installed via the HDD method, minimal surface disturbing activities would occur and overall surface disturbance to USACE-managed lands would be minimized to an approximately 100 x 100 square foot area of land to be cleared for use as a construction easement. The Preferred Alternative will allow for properties in the eastern portion of Salem Township and West of the Loyahanna Lake, including the proposed Speedway property, to have access to public sanitary sewer facilities. Given that the proposed sanitary sewer force main would cross federal property managed by USACE, USACE will serve as the Lead Federal Agency (LFA) for the EA.

The Preferred Alternative (Alternative A) is not expected to have a permanent impact on the environmental setting of the area due to construction except for the possible loss of 0.23 acres of surface disturbance to soils and habitat for wildlife species. Although temporary effects to floodplains, prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants may occur they are expected only to last as long as the construction phase of the project. Section 303(d) of the Clean Water Act requires the Pennsylvania Department of Environmental Protection (PADEP) to identify all impaired waters where technology-based treatment requirements for point and non-point sources of pollution are unable to attain and/or maintain applicable water quality standards due to ineffective requirements. The segment of Loyahanna Lake located in the Project Area is not listed as impaired water by the PADEP. Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088, and previously considered in *The Derry Township/Borough of New Alexandria, Westmoreland County, PA, Section 313 Environmental Improvement EA* dated September 2009, and the *New Alexandria Sewage Treatment Plant Outfall Pipe, Derry Township, Westmoreland County PA EA*, dated April 2011.

An Alternative B, Western Sewer Line Extension, was explored which would be oriented in a west to east direction and would span approximately 6 miles west along S.R. 22 from the proposed Speedway site to connect to the next closest public sanitary sewer facility. This option would involve eight (8) stream crossings and would cost over \$4,000,000 to construct making the project cost prohibitive. Alternative B will have a

greater impact on the habitats for floodplains, wildlife species, wetlands and/or cultural resources within the approximate 6-mile route along S.R. 22. Although temporary effects from construction to prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants may occur these temporary effects will only last as long as the construction phase of the project.

An Alternative C, No Action Alternative, was also explored in which the sanitary sewer corridor would not be constructed, and current land uses would continue. The No Action Alternative involves not constructing the sanitary sewer force main; and therefore, no access to public sanitary sewer facilities would be available for the proposed Speedway property, and potential additional users.

This Environmental Assessment (EA) is intended to assist USACE in project planning by evaluating the purpose and need of the project, as well as any potential environmental impacts and their significance. Further, this EA will support the issuance of an easement to cross United States Government property. As defined by the Council on Environmental Quality (CEQ), the significance of a federal action is determined by the context of the action in relation to the overall project setting, as well as the intensity of direct, indirect and cumulative effects resulting from the project. The location and land use, as well as the cumulative impact of the project were evaluated specifically associated with floodplains, wetlands, threatened and endangered species, prime or unique farmland, recreation areas, wild and scenic rivers, timber, physiography, geology and soils, fish and wildlife resources, habitats and vegetation, hydrology, cultural resources, Native American concerns, minority and low income populations, air quality, transportation and traffic, health and safety, noise, aesthetics, regulated hazardous contaminants and socio-economic profile.

Based on the findings of this Environmental Assessment, the Preferred Alternative (Alternative A) will have no significant impact on the Environmental Setting and Project Area except as noted above. This alternative has less environmental impacts than Alternative B.

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ACRONYMS AND ABBREVIATIONS

bgs	Below Ground Surface
BMPs	Best Management Practices
CAA	Clean Air Act of 1963
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
DCNR	Department of Conservation and Natural Resources
DEP	Department of Environmental Protection
DOD	Department of Defense
DTMA	Derry Township Municipal Authority
EA	Environmental Assessment
EIS	Environmental Impact Statement
EDR	Environmental Database Resources
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
gpd	Gallons per Day
HDD	Horizontal Directional Drill
lb/day	Pounds per Day
lb/gal	Pounds per Gallon
LFA	Lead Federal Agency
LUST	Leaking Underground Storage Tank
mgd	Millions of Gallons per Day
mg/l	Milligrams per Liter
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act of 1966
NOI	Notice of Intent
NPL	National Priority Lists
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PHMC	Pennsylvania Historical and Museum Commission
PHMSA	Pipeline and Hazardous Materials Safety Administration
Project	Speedway Sanitary Sewer Main Installation Project
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SSA	Soil Source Aquifer
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
WMU	Wildlife Management Unit
WWF	Warm Water Fishes

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

ATC Group Services LLC (ATC) was retained by Speedway to prepare an Environmental Assessment (EA) for the Proposed Speedway Sanitary Project – Westmoreland County (Project), located in New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, Pennsylvania (PA). A USGS Topographic Map that depicts the Project's general location is included as **Figure 1.1**. The Project is a proposed sanitary sewer line, that will require a 3,161-foot (0.58-mile) long and 20 feet wide (at the widest point) easement from S.R. 22 – Old William Penn Highway at Main Street, extending east along the right-of-way on the north side of S.R. 22 to the proposed Speedway Station at the northwest corner of Operators Way and S.R. 22. The proposed sewer line installation will cross the Loyalhanna Lake and one of its tributaries (along S.R. 22- Old William Penn Hwy). The lake is located on federal land administered by USACE (**Figure 2.1**). This EA assists USACE in project planning by evaluating the purpose and need of the Project, as well as any potential environmental impacts and their significance. As defined by the Council on Environmental Quality (CEQ), the significance of a federal action, which in this instance is minor, is determined by the context of the action in relation to the overall project setting, as well as the intensity of direct, indirect and cumulative effects resulting from the Project. If USACE determines that the selected alternative would not result in a significant impact, a Finding of No Significant Impact (FONSI) would be prepared approving the selected alternative. If the Project is found to result in significant impacts, a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) would be prepared.

1.2 PROJECT BACKGROUND

Speedway LLC is proposing to install a 2 inch diameter sanitary sewer force main in a 4 inch conduit along S.R. 22 (William Penn Highway) in parts of New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. The Project is approximately 3,161 linear foot along the north side of S.R. 22, with one approximate 1,045-foot section and one 470-foot section crossing federal lands administered by the United States Army Corps of Engineers (USACE) (the Loyalhanna Lake and its Tributary No. 6) in two separate areas. Under the Preferred Alternative, the installation of the sewer force main will use horizontal direction drilling (HDD) methods that also include crossing the Loyalhanna Lake, and the installation of a box culvert to carry Tributary No. 6. The crossings would be accomplished using the directional boring method. The depth of the bore would be approximately 20' below the river/stream bed to ensure the bore is completely in bedrock. For the sewer force main installed via the HDD method, minimal surface disturbing activities would occur and overall surface disturbance to USACE-managed lands would be minimized to an approximately 10,000 square foot area of land to be cleared for use as a temporary construction storage easement at the eastern end of the Project. Upon conclusion of construction activities, areas disturbed during the project (with the exception of those on Speedway's property) will be restored to their original state including regrading and seeding where applicable. Should any of the three initial HDD boring attempts off federal land be unsuccessful, the boring will be grouted and additional attempts may be made within the approved right-of-way (ROW) adjacent to the initial attempt.

1.3 PROJECT AUTHORITY

Loyalhanna Lake was authorized by U.S Congress under the Flood Control Acts of 1936 and 1938 as one of USACE's flood control projects.

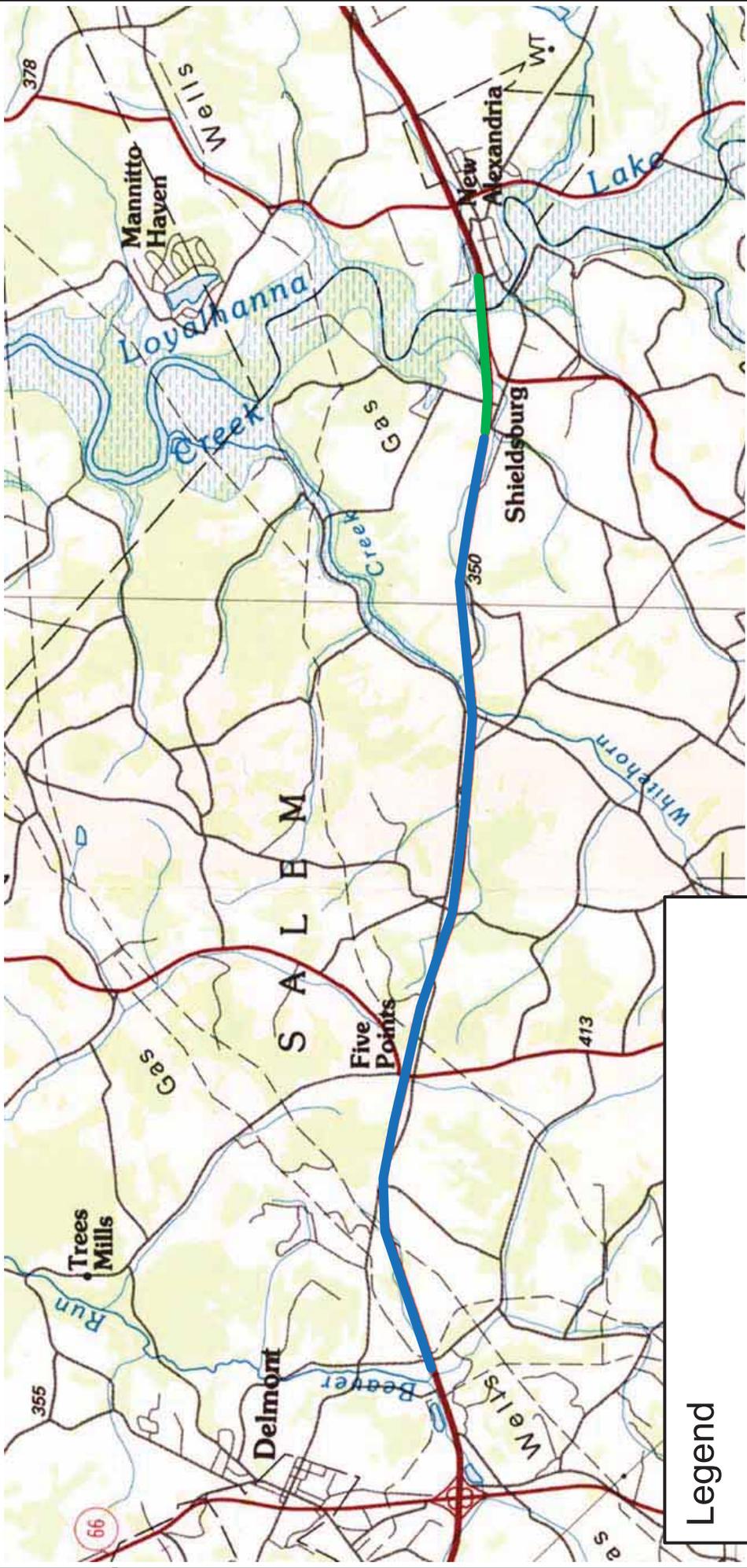
Given that the Project proposes to cross federal property managed by USACE, USACE will serve as the LFA for the EA.

1.4 STATEMENT OF PURPOSE AND NEED

The purpose of the proposed sanitary sewer force main is to provide transportation capacity for sanitary sewage for the proposed Speedway Store located at 107 Operators Way, New Alexandria, in Westmoreland County, PA. The Project would connect the proposed sanitary force main to the existing force main located at the corner of S.R. 22 and Main Street in the city of New Alexandria. The proposed Project will help support the need for sewage transportation/disposal and create infrastructure that will, in the future, provide opportunities for other businesses or residences in the eastern portion of Salem Township and west of the Loyalhanna Lake to connect with the portion of the force main off of USACE-managed lands, and therefore, obtain sewage transportation services along the route. The Project may provide an alternative to much of the discharge associated with current septic systems in the vicinity of Loyalhanna Lake, and support the area as it grows by providing a method of transporting, treating, and disposing of sewage.

1.5 PRIOR NEPA DOCUMENTATION (IF APPLICABLE)

ATC reviewed two FONSI's associated with EAs prepared for the New Alexandria Sewage Treatment Plant, Derry Township Municipal Authority's public wastewater collection and treatment system that would receive sanitary sewage from the proposed Speedway Store. The *Derry Township/Borough of New Alexandria, Westmoreland County, PA, Section 313 Environmental Improvement FONSI*, dated September 8, 2009, was received for the design and construction of a 100,000 gallon-per-day sewage treatment facility serving the Borough of New Alexandria and Derry Township east of the Borough along Route 22. The *New Alexandria Sewage Treatment Plant Outfall Pipe, Derry Township, Westmoreland County PA, FONSI*, dated April 12, 2011, was received for a permanent easement, requested by the Derry Township Municipal Authority, for the placement of a sewage treatment outfall pipe on federal property at Loyalhanna Lake in Derry Township, PA. Copies of the FONSI's are included in **Appendix C**.



Legend

- Sanitary Sewer Force Main (Alternative A)
- Western Sewer Line Extension (Alternative B)



**2523020034- Sanitary Sewer Force Main Project
Project Location Map**

PROJECT NO.: 2523020034

DRAWN BY: DG



Not to Scale

FIGURE

1.1

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

ATC, Speedway and USACE explored reasonable alternatives that meet the underlying purpose and need for the Proposed Action, the Preferred Alternative. Two action alternatives were carried forward for full analysis within this EA: Alternative A – Preferred Alternative and Alternative B – West Sanitary Force Main. In addition, Alternative C – No Action Alternative was considered as required by CEQ Regulations (40 CFR 1502.14). The designation and analysis of alternatives is based on meetings and discussions between Speedway and USACE, agency consultation, field investigations, review of aerial photographs, United States Geological Survey (USGS) topographic maps and other publicly available information. The evaluation criteria for determining potentially preferable alternatives included technical practicality and feasibility, the ability for the project to meet stated objectives and consideration of any significant environmental advantages over the Preferred Alternative. The alternatives considered potential impacts on sensitive environmental resources such as streams, wetlands, wildlife and other resources within the area.

2.2 ALTERNATIVE A - PREFERRED ALTERNATIVE

Under Alternative A, the Preferred Alternative, Speedway LLC would install approximately 3,161 linear foot sanitary force main along S.R. 22 crossing the Loyalhanna Lake and its Tributary No. 6 in parts of New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. Total construction costs are estimated at \$408,150.00. As described in Section 1.1, the Loyalhanna Lake and its tributaries are on federal land administered by USACE. The Preferred Alternative will allow for properties in the eastern portion of Salem Township and West of the Loyalhanna Lake to have access to public sanitary sewer facilities (**Figure 2.1**). Also refer to Proposed Sanitary New Build drawings in **Appendix A**.

Speedway LLC's plan is to install a sanitary sewer force main using generally accepted construction practices. The construction consists of using HDD techniques and installing a sanitary sewer force main in existing Federal property public road right-of-ways and private properties as well. The force main will be placed in a larger PVC conduit to allow the smaller force main to be pulled through the pipe during construction. The larger pipe will also allow for future expansion of the sanitary line if a larger force main becomes required.

All construction will be coordinated with the appropriate local, state, and federal government officials and any necessary permits will be obtained. All construction is required to be accomplished using established industry specifications. The entire length of pipe within USACE lands, including the stream crossing, will be accomplished using the horizontal direction drilling methods. The construction of the force main under the Loyalhanna Lake and its tributary will adhere to an approved Pennsylvania Department of Environmental Protection (PADEP) general permit terms and conditions. There are no other federal permits required for the Project. However, approval is required from USACE for an easement through federal property.

The Speedway project will utilize a newly constructed sanitary force main which will tie into the existing Derry Township Municipal Authority facilities to the east. These facilities will carry the sewer flow to a PA Permitted Wastewater Treatment Plant for proper processing to meet Commonwealth of PA's effluent requirements. In total there will be approximately 3,161 linear feet of new sanitary force main construction as part of this project. The sanitary force main construction will allow Salem Township to expand their tax base utilizing new public sewer facilities and also allow Derry Township Municipal Authority to increase users to their plant and thereby increasing their revenue.

Horizontal directional drilling methods are successfully used for pipelines carrying oil, natural gas, petrochemicals, water, sewerage and electric and fiber optic cable. Besides the successful crossing under highways, railroads, airport runways, shore approaches, traffic islands and areas congested with buildings installations are made under rivers and waterways and protected wetlands with virtually no environmental impacts. The Loyalhanna Lake and its Tributary No. 6 crossing would be done using the directional boring method. The depth of the bore would be approximately 20' below the river/stream bed to ensure provide the bore is completely in bedrock.

Directional borings have the least environmental impact of any alternate method. Horizontal directional drilling technology reduces environmental impacts, in part by eliminating surface disturbance in sensitive areas and reducing areas of potential erosion. It also allows conduit placement under obstacles and provides maximum protection and minimizes maintenance costs. During installation normal business operations are not interrupted. Directional borings have a predictable and short construction schedule and no earth moving of substantial amounts of soil will occur; however, horizontal directional drilling is the costliest installation method with costs often six to ten times the cost of other methods of installation. Upon conclusion of construction activities, areas disturbed during the project (with the exception of those on Speedway's property) will be restored to their original state including regrading and seeding where applicable. Refer to the Proposed Sanitary New Build drawings in **Appendix A**.

The construction equipment required for placement of the sewer main will consist of the following:

- Directional Bore Units
- Rubber Tire Backhoes
- PVC Pulling Machines

During the installation of the sewer force main the project will employ industry standard procedures, follow all state and local entity guidelines for permitting and construction practices. The duration of construction will be approximately 2 – 4 months.

2.3 ALTERNATIVE B – WESTERN SEWER LINE EXTENSION

Under Alternative B, the next closest public sanitary sewer facility is located approximately six (6) miles to the west along S.R. 22 in Salem Township. This option would involve eight (8) stream crossings and would cost over \$4,000,000 to construct making the project cost prohibitive (**Figure 2.2**).

Speedway LLC's plan would be to install a sanitary sewer force main using generally accepted construction practices. The construction consists of using HDD techniques and installing a sanitary sewer force main in existing public road right-of-ways and private properties as well as Federal property. The force main will be placed in a larger PVC conduit to allow the smaller force main to be pulled through the pipe during construction. The larger pipe will also allow for future expansion of the sanitary line if a larger force main becomes required.

All construction will be coordinated with the appropriate local, state, and federal government officials. All construction is required to be accomplished using established industry specifications. The entire length of pipe within USACE lands, including the stream crossings, will be accomplished using the horizontal direction drilling methods. The construction of the force main under the Whitehorn Creek, its tributaries and the tributaries of Beaver Run will adhere to the approved PADEP General Permit 5 terms and conditions (this is a Federal Permit).

The Speedway project will utilize a newly constructed sanitary force main which will tie into the existing Salem Township Municipal Authority facilities to the west. These facilities will carry the sewer flow to a PA Permitted Wastewater Treatment Plant for proper processing to meet state effluent requirements. In

total there will be approximately 6 miles of new sanitary force main construction as part of this project. The sanitary force main construction will allow Salem Township to expand their tax base utilizing new public sewer facilities.

Horizontal directional drilling methods are successfully used for pipelines carrying oil, natural gas, petrochemicals, water, sewerage and electric and fiber optic cable. Besides the successful crossing under highways, railroads, airport runways, shore approaches, traffic islands and areas congested with buildings installations are made under rivers and waterways and protected wetlands with virtually no environmental impacts. The Whitehorn Creek, its tributaries and the tributaries of Beaver Run crossings would be done using the directional boring method. The depth of the bore would be approximately 20' below the river/stream bed to ensure provide the bore is completely in bedrock.

Directional borings have the least environmental impact of any alternate method. Horizontal directional drilling technology also allows conduit placement under obstacles and provides maximum protection and minimizes maintenance costs. During installation normal business operations are not interrupted. Directional borings have a predictable and short construction schedule and no earth moving of substantial amounts of soil will occur; however, horizontal directional drilling is the costliest installation method with costs often six to ten times the cost of other methods of installation. Upon conclusion of construction activities, areas disturbed during the project (with the exception of those on Speedway's property) will be restored to their original state including regrading and seeding where applicable.

The construction equipment required for placement of the sewer main will consist of the following:

- Directional Bore Units
- Rubber Tire Backhoes
- PVC Pulling Machines

During the installation of the sewer force main the project will employ industry standard procedures, follow all state and local entity guidelines for permitting and construction practices.

2.4 ALTERNATIVE C – NO ACTION ALTERNATIVE

Under the No Action Alternative, Speedway LLC would not construct the proposed sanitary sewer force main. There would be no impacts to resources located on USACE managed land associated with the sanitary sewer force main project and current land uses within the Loyalhanna Lake Watershed would continue. The Project would not be constructed and local economic growth and job growth would be expected to continue at its current pace. This area of Salem Township would continue to be undesirable for development and would eliminate a possible large tax base to the local, county, and state governments.

2.5 ALTERNATIVES CONSIDERED BUT DISMISSED

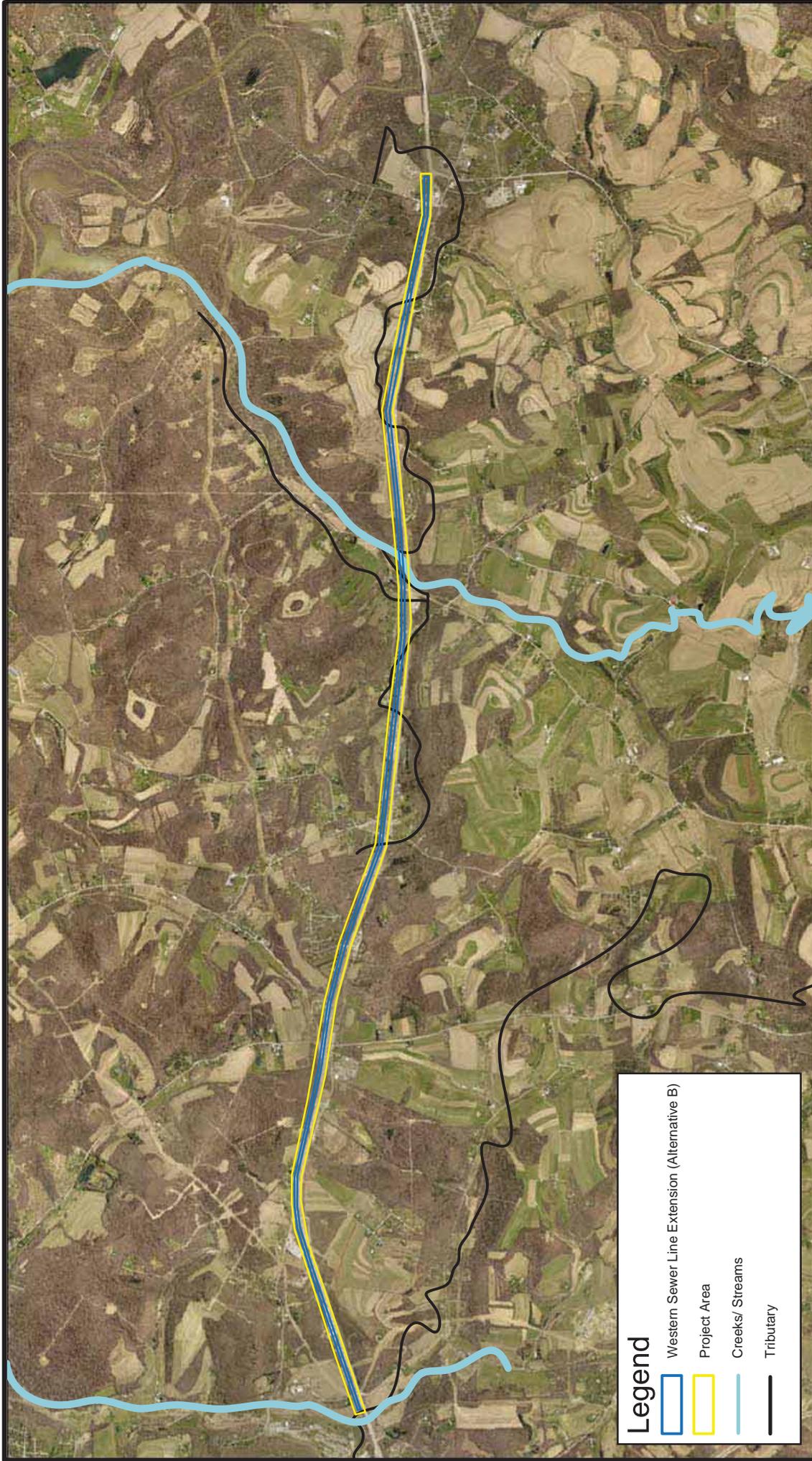
One of the potential alternatives pursued for the proposed Speedway store, at 107 Operators Way in New Alexandria, was an on-lot sewer treatment system. A soil percolation test was completed. The soil was tested in several areas at the site. The percolation test results, per PADEP requirements, did not allow for the use of any on-lot treatment system due to low percolation rates and the previously disturbed soils. Therefore, the permit for an on-lot sewer treatment system was not approved.

Another potential alternative identified during internal scoping was rerouting the sanitary sewer pipeline around USACE Loyalhanna Lake Watershed. This alternative was removed from analysis as it would require a greater amount of surface disturbance as well as a greater number of stream crossings and wetland crossings, which would result in a greater potential for impacts to regionally important resources.



Legend

- Sanitary Sewer Force Main (Alternative A)
- Project Area
- 10' x 10' Bore Pit
- 100' x 100' Work & Storage Easement
- Temporary Construction Easement
- Sanitary Sewer Features Outside of Project Area
- Loyalthanna Creek
- Tributary



Legend

- Western Sewer Line Extension (Alternative B)
- Project Area
- Creeks/ Streams
- Tributary

FATC
 ENVIRONMENTAL • GEOTECHNICAL
 BUILDING SCIENCES • MATERIALS TESTING

2523020034- Sanitary Sewer Force Main Project
 Location Area Alternative B Map

PROJECT NO. 2523020034

DRAWN BY: DG

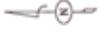


FIGURE
2.2

3.0 ENVIRONMENTAL SETTING

LOCATION AND LAND USE

The proposed sewer system alternatives are located within New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. The nearest municipalities are New Alexandria, PA which is located approximately 0.10 miles south of the eastern portion of the Preferred Alternative Project Area and Saltsburg, PA, which is located approximately 0.2 miles south of the western portion of the Project Area. The proposed sewer system corridor under Alternative A – the Preferred Alternative, is oriented east to west and is approximately 3,161 feet from border to border along William Penn Highway (S.R. 22). The proposed sewer system corridor under Alternative B – Western Sewer Line Extension would be oriented in a west to east direction and would span approximately 6 miles west along S.R. 22 from the proposed Speedway site. Under Alternative C – No Action Alternative, the sanitary sewer corridor would not be constructed, and current land uses would continue. For the purpose of this analysis, the Project Area includes Alternative A and B and is defined as 10 feet on either side of the proposed sewer force main ROWs, for a total of approximately 1.43 acres. For more information about each alternative, including their precise locations, refer to **Section 2.0**.

3.1 FLOODPLAINS

Floodplains are defined as land areas that are susceptible to inundation by waters from any source (44 CFR 59.1). As components of riparian and riverine habitat, floodplains support riparian vegetation and wetlands and are often underlain by alluvial groundwater aquifers. Floodplains typically support rich ecosystems, in both biomass and diversity. Nutrient levels, primary productivity, and macro invertebrate populations are highest in the floodplain depressions following a flood event.

Currently, floodplains are protected by Executive Order 11988, which requires that all federal agencies take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for the Project Area was reviewed to confirm whether the area of review is located within any FEMA regulated 100-year floodplains (FEMA 2010). The 100-year floodplain associated with Loyalhanna Lake and its Tributary No. 6 is present within the Alternative A portion of the Project Area where the area crosses to the east along William Penn Highway (S.R. 22) (**Figure 3.1**). The 100-year floodplain associated with Whitehorn Creek and possibly portions of Beaver Run are present within the Alternative B portion of the Project Area where the area crosses to the west along William Penn Highway (S.R. 22) (**Figure 3.2**).

3.2 WETLANDS

Fill activities within wetlands are regulated by Sections 404 and 401 of the Clean Water Act (CWA) and the Dam Safety and Encroachments Act and Dam Safety and Waterway Management Rules and Regulations (Title 25, PA Code, Chapter 105).

ATC reviewed maps from the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) to determine if any wetland areas are present in the Project Area. The NWI identifies approximately 400 feet along the lake (approximately 8 percent of the Project Area) of the lake and freshwater forested shrub wetlands along the east side of Loyalhanna Lake for Alternative A (NWI 2015). No wetlands were identified along the Alternative B route. **Figure 4.1** depicts the location of

NWI mapped wetlands in Alternative A and **Figure 4.2** depicts the lack of wetlands in Alternative B.

3.3 THREATENED AND ENDANGERED SPECIES

As discussed in **Section 1.2**, the plans for the proposed 3,161 linear feet of new sanitary force main construction as part of this project were reviewed by the PA Department of Conservation and Natural Resources (PA DCNR), the PA Fish and Boat Commission (PFBC), the PA Game Commission (PGC) and the USFWS. Agency correspondence is provided in **Appendix B**, as well as other supporting documentation is provided in **Appendix C**.

According to the U.S. Fish & Wildlife Services website the following species listed in **Table 3.3.1** are believed to or known to occur in PA.

Table 3.3-1. Threatened and Endangered Species in PA

Status	Species/Listing Name
E	Bat, Indiana Entire
T	Bat, Northern long-eared
E	Bean, rayed
E	Clubshell Entire Range
T	Knot, red
E	Mussel, sheepnose
E	Mussel, snuffbox
E	Plover, piping Great Lakes watershed
T	Rabbitsfoot
E	Riffleshell, northern Entire
E	Sturgeon, shortnose Entire
T	Turtle, bog (=Muhlenber) northern
E	Wedgemussel, dwarf Entire
E	Bulrush, Northeastern
T	Pogonia, small whorled

E= Endangered T= Threatened

In a Project Environmental Review Receipt, dated January 26, 2015 and October 13, 2015 the USFWS stated that no impacts to federally listed or proposed species are anticipated for Alternative A or Alternative B. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C 1531 et seq. is required.

The Review Receipt indicated that the results of the review from the (PA) Game Commission, the PA DCNR and the PA Fish and Boat Commission stated that no impact is anticipated to threatened and endangered species and/or special concern species and resources. Agency correspondence is provided in **Appendix B**.

3.4 PRIME OR UNIQUE FARMLAND

The soil types within the Project Area were reviewed to determine the presence or absence of Prime

or Unique Farmlands. Prime Farmland is defined by the Natural Resources Conservation Service (NRCS) as soils best suited for growing food, feed, forage, fiber, and oilseed crops. Farmlands of Statewide Importance are defined as soils that have a favorable combination of physical and chemical characteristics for the production of crops. Approximately 1.1 acres of lands within Alternative A are designated as Prime Farmlands. Additionally, approximately 0.4 acres of Farmlands of Statewide Importance were identified within Alternative A (Map unit MoC) and at least 1.4 acres of Farmlands of Statewide Importance were identified within Alternative B (Map unit MoC) (NRCS 2015). Soil survey reports are included in **Appendix C**.

3.5 RECREATION AREAS

The Project Area occurs partially within Lower Loyalhanna Lake Watershed, within the Loyalhanna Lake management area administered by USACE in New Alexandria, Westmoreland County, PA. The Lower Loyalhanna Lake Watershed is located in the north-central portion of Westmoreland County. It extends from the outskirts of the City of Latrobe and flows north through New Alexandria and on to Shieldsburg, where it meets the Conemaugh River to form the Kiskiminetas River. Recreational uses include swimming, boating, hiking, camping, and fishing (USACE 2015). These recreation features are present within the management area as a whole; however, swimming and camping areas do not exist within the Project Area. There is a possibility of temporary visitation to the Project Area by recreationists boating on the Lake as the Lake crosses the proposed sewer line route. Additionally, there is an existing boating access area in New Alexandria approximately one mile south of the Project Area.

3.6 WILD AND SCENIC RIVERS

There are approximately 83,260 miles of river located within PA. Approximately 409 miles (0.5 percent) of rivers within the state are protected as National Wild and Scenic Rivers for having outstanding natural, cultural, and recreational values in a free-flowing condition. Additionally, 13 rivers and their associated tributaries are protected under the PA Scenic Rivers Act ("PA Scenic Rivers Act" 1972, Dec. 5, P.L. 1277, No. 283, § 1). Loyalhanna Creek and Lake are not classified as a state or federal Wild and Scenic River; the nearest designated river is the Bear Run River located approximately 35 miles southwest of the Project Area. Supporting documentation is provided in **Appendix C**.

3.7 TIMBER

Portions of the Project Area in the vicinity of Loyalhanna Lake are currently forested. The portion of the Project Area is managed by USACE for recreation. No timber management activities are currently occurring within the Project Area in the vicinity of Loyalhanna Lake. Both Alternatives are located in the State Forest Management District.

3.8 PHYSIOGRAPHY, GEOLOGY, AND SOILS

The physiographic province of the Project Area is defined as the Pittsburgh Low Plateau Section of the Appalachian Plateaus Province. Surface characteristics of the Pittsburgh Low Plateau Section are characteristic of a smooth undulating upland surface cut by narrow and relatively shallow valleys (PA DCNR 2013b). Bedrock within the Project Area primarily consists of cyclic sequences of shale, siltstone, sandstone, red beds, thin impure limestone and thin non resistant coal of which were formed during the Pennsylvanian subperiod. A copy of the Physiography map of PA is provided in **Appendix C**.

The development of soils in a given area is dictated by multiple factors, such as climatic conditions (e.g., the amount and timing of precipitation, temperature, and wind), the parent

material that the soil is sourced from, topographic position (e.g., slope, elevation, and aspect), geomorphic processes, and vegetation type and cover. Soil textures in the Project Area are primarily silt loams and belong to the Lobdell, Monongahela, Lindside, Dormont, Ernest, Gilpin, Guernsey, Monongahela and Wharton general soil series. Soil map units may contain one or more of these soil series. **Table 3.8-1 and Table 3.8-2** list the soil map units present within the Project Area. Supporting documentation includes copies of the Natural Resources Conservation Service (NRCS) National Cooperative Soil Survey for project area and is provided in **Appendix C**.

Table 3.8-1. Soil Map Units Present within the Alternative A portion of the Project Area

Map Unit Symbol	Soil Map Unit Name	Acres in Project Area*	Percent of Project Area
Ln	Lindside silt loam, 0 to 2 percent slopes	0.2	6.9
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	1.0	34.4
MoB	Monongahela silt loam, 3 to 8 percent slopes	0.7	24.3
MoC	Monongahela silt loam, 8 to 15 percent slopes	0.4	15.1
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	0.5	15.9
W	Water	0.1	3.5
Total		2.9	100

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Table 3.8-2. Soil Map Units Present within the Alternative B portion of the Project Area

Map Unit Symbol	Soil Map Unit Name	Acres in Project Area*	Percent of Project Area
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	4.6	1.3
CaB	Cavode silt loam, 3 to 8 percent slopes	8.9	2.5
DoC	Dormont silt loam, 8 to 15 percent slopes	16.9	4.8
DrD	Dormont-Culleoka complex, 15 to 25 percent slopes	0.7	0.2
DrE	Dormont- Culleoka complex, 25 to 50 percent slopes	3.8	1.1
ErB	Ernest silt loam, 3 to 8 percent slopes	50.9	14.5
ErC	Ernest silt loam, 8 to 15 percent slopes	0.4	0.1
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	7.7	2.2
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	21.1	6.0
GcD	Gilpin channery silt loam, 15 to 25 percent slopes	27.1	7.7
GuC	Gilpin-Upshur complex, 8 to 15 percent slopes	7.0	2.0
GuD	Gilpin-Upshur complex, 15 to 25 percent slopes	5.6	1.6
GuF	Gilpin-Upshur complex, 25 to 75 percent slopes	5.3	1.5
GwF	Gilpin-Weikert channery silt loams, 25 to 60 percent slopes	1.2	0.3
GyB	Guernsey silt loam, 3 to 8 percent slopes	7.1	2.0
GyC	Guernsey silt loam, 8 to 15 percent slopes	3.7	1.0
Ho	Holly silt loam, 0 to 2 percent slopes	2.5	0.7
ItB	Itmann extremely channery loam, 0 to 8 percent slopes	2.5	0.7
Ln	Lindside silt loam, 0 to 2 percent slopes	8.4	2.4
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	22.8	6.5
LwB	Lowell silty clay loam, 3 to 8 percent slopes	1.5	0.4
MoB	Monongahela silt loam, 3 to 8 percent slopes	5.0	1.4
MoC	Monongahela silt loam, 8 to 15 percent slopes	1.4	0.4
ShF	Shelocta-Gilpin channery silt loams, 25 to 75 percent slopes	2.7	0.8
UgB	Urban land-Gilpin complex, 0 to 8 percent slopes	23.2	6.6
UgD	Urban land-Gilpin complex, 8 to 25 percent slopes	7.5	2.1
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	0.6	0.2
UwB	Urban land-Wharton complex, 0 to 8 percent	56.6	16.1
UwD	Urban land-Wharton complex, 8 to 25 percent slopes	2.3	0.6
W	Water	1.2	0.3

Map Unit Symbol	Soil Map Unit Name	Acres in Project Area*	Percent of Project Area
WrB	Wharton silt loam, 3 to 8 percent slopes	2.0	0.6
WrC	Wharton silt loam, 8 to 15 percent slopes	33.6	9.5
WrD	Wharton silt loam, 15 to 25 percent slopes	6.1	1.7
Total		352.0	100

*Note: Individual acreages may not equal totals due to rounding

3.9 FISH AND WILDLIFE RESOURCES, HABITATS AND VEGETATION

- **Fish**

Fish species likely to occur within Loyalhanna Lake and/or its tributaries include Muskellunge, Tiger Muskellunge, Bluegill, Pumpkinseed, White Crappie, Black Crappie, Yellow Perch, Channel Catfish, Brown Bullhead, Yellow Bullhead, White Catfish and Largemouth Bass (Biologist report 2015). The portion of Loyalhanna Lake within the Project Area is not classified as a Tier 1 or Tier 2 - Restoration watershed; however it is classified as a Tier 1 – Watershed Enhancement Area by the PNHP, indicating that they are likely to be in good condition, but face some threats to water quality that should be addressed (PNHP 2013). Supporting documentation includes the Watershed Restoration Prioritization Study, a Watershed Enhancement Area Study and the 2005 Biologist Report for Loyalhanna Lake that are provided in **Appendix C**.

- **Wildlife Resources and Habitats and Vegetation**

The primary vegetative communities found within the Project Area are northern hardwood forest and forested wetlands. Northern hardwood forests are typically composed of a mixture of hardwoods, red oak, softwood, red/soft maple. Black cherry, yellow poplar, white oak, sugar/hard maple, ash, hemlock, chestnut/rock oak, hickory, black oak and mixed maples typically comprise the canopy (DCNR 2013c).

Wildlife within the Project Area is managed by the PGC. Wildlife species known to occur within Westmoreland County and have a potential to occur within the vegetative communities in the Project Area include the least weasel (*Mustela nivalis*), great blue heron (*Ardea herodias*), wood turtle (*Glyptemys insculpta*), queen snake (*Regina septemvittata*) and the eastern hog-nosed snake (*Heterodon platirhinos*). The Project Area is located in the PGC wildlife management unit (WMU) 2C. Game species found in this WMU include ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), and the white-tailed deer (*Odocoileus virginianus*) (PNHP 2013). Supporting documentation includes a Watershed Restoration Prioritization Study, a Watershed Enhancement Area Study and a 2005 Biologist Report for Loyalhanna Lake that are provided in **Appendix C**.

3.10 HYDROLOGY

Two creeks and several tributaries were identified within the Project Area. Loyalhanna Creek is classified as a perennial stream. In addition to the main stem of Lower Loyalhanna Creek, Tributary No. 6 was identified in Alternative A in the Project Area. Whitehorn Creek and tributaries of Beaver Run cross Alternative B in several areas. Supporting documentation includes a Water Bodies Map that is provided in **Appendix C**.

Standards for water quality in the state of PA were established in Sections 5 and 402 of the Clean Streams Law (35 P. S. § § 691.5 and 691.402) and can be found within Chapter 93 of the PA Code.

Water bodies in PA are assigned a protected use and managed in accordance with the water quality standards set forth in Chapter 96 of the PA Code.

The main stem of Lower Loyalhanna Creek in Westmoreland County is designated as protected for “Warm Water Fishes” (WWF). The primary water quality goal for this segment of Loyalhanna Creek is the maintenance and propagation of fish species and their associated flora and fauna that are indigenous to a warm water habitat (93 Pa. Code 93.9s). As mentioned in Section 3.9.1, the section of Lower Loyalhanna Creek within the Project Area is classified as Tier 1 - Restoration by the PA Natural Heritage Program (PNHP), indicating one or more streams within the system were below the 20th percentile in either fish or macroinvertebrate metric scores and one or more occurrences of poor habitat for fish and/or macroinvertebrate communities was found within the system (PNHP 2015). Therefore, sections of Lower Loyalhanna Creek or its tributaries may not be meeting the standards of their assigned protected use for warm water fishes.

Hydrogeological units within Westmoreland County have been identified by the USGS as belonging to the Pennsylvanian aquifers. Pennsylvanian rocks within the region consist of cyclic sequences of sandstone, shale, conglomerate, clay, coal, and minor limestone (USGS 2015). The PA DCNR identified the geologic Conemaugh Group as a source of groundwater within the Project Area. The Conemaugh Group consists primarily of sandstones and shales with smaller amounts of limestone and coal. The depth of wells within this group generally ranges from 100 to 150 feet (Newport, 1973). Additionally, shallow alluvial aquifers are likely to be present along Loyalhanna Creek. The Sole Source Aquifer Protection Program is authorized by Section 142(e) of the Safe Drinking Water Act of 1974. The United States Environmental Protection Agency (USEPA) defines a sole source aquifer (SSA) as “an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally and economically supply all those who depend on the aquifer for drinking water” (USEPA 2013a). There are no SSAs located within the Project Area (USEPA 2013b). A Designated Sole Source Aquifers in EPA Region III map is provided in **Appendix C**.

- **Water Quality**

Section 303(d) of the Clean Water Act requires the PADEP to identify all impaired waters where technology-based treatment requirements for point and non-point sources of pollution are unable to attain and/or maintain applicable water quality standards due to ineffective requirements. The segment of Loyalhanna Lake located in the Project Area is not listed as impaired water by the PADEP. Current point and non-point sources of pollution within Loyalhanna Lake Watershed as a whole include abandoned mine drainage and sedimentation as a result of erosion and nutrient loading. The combination of historic coal mining, farming, and development threaten the Loyalhanna Lake Watershed and its quality. (Loyalhanna Watershed Association). Loyalhanna Lake within the Project Area is impacted by acid mine drainage and nutrient loading from the New Alexandria Sewage Treatment Plant (NPDES Permit No. PA254088). Nutrients discharged from the treatment plant are not currently treated. While discharges into Loyalhanna Lake are within the capacity of the treatment plant’s permit, limited data provided by Derry Township indicates the Proposed Project will increase, potentially impacting the lake’s water quality. A copy of the *2014 PA Integrated Water Quality Monitoring and Assessment Report – Streams, Category 1 Waterbodies, Attaining All Uses* for the Lower Loyalhanna Lake Watershed is provided in **Appendix C**.

3.11 CULTURAL RESOURCES

It is noted that cultural resource surveys have been conducted in the area of Alternative A. Based on a search using PA’s Cultural Resources Geographic Information System (CRGIS) website, two previous surveys for areas that include portions of the proposed project area were conducted. The

survey titled *A Cultural Resources Survey of Loyalhanna Lake, Westmoreland County, PA* (Davis, 1983) was conducted for USACE as part of a Phase I and included a nonsystematic surface survey and systematic subsurface testing (ER No. 1984-1015-129-A). The second survey titled *Phase I Archaeology Survey of the Proposed Reconstruction of Traffic Route 22 (S.R. 0022, Sect B07)* was conducted for FHWA and included a systematic shovel testing and systematic surface survey over an area of 360 hectares (ER No. 1992-0665-042-C). Abbreviated Archaeological and Historical Survey Report Information is provided in **Appendix C**; however, full copies of the reports can be ordered through resources such as interlibrary loan or online.

An archaeological and historical structures resources survey was conducted by ATC from July through August 2015 in order to identify any cultural resources present along the alignment of Alternative A. A response was received by the State Historic Preservation Office on August 25, 2015 concluding that the proposed project should have no effect on archaeology resources. However, additional information was requested on the location of the proposed Speedway Store #100623 that Alternative A of the project area will serve, as previously evaluated resources were indicated to be located nearby. No archeological or historical structures resources surveys were conducted for the alignment of Alternative B.

During the SHPO review, two previously recorded historic site were identified within the Project Area. USACE Pittsburgh was provided a copy of the response letter. The identified sites are listed as the Torrance Residence and the Watt House. These sites are not listed as eligible under the National Register of Historic Places (NRHP), and are not designated as historic by any local government.

It appears from a search via internet-based mapping tools (e.g., PA's Cultural Resource Geographic Information System [CRGIS] mapping, Google Earth Pro, and Penn Pilot) that the two historic structures cited in the response letter (Watt House and Torrance Residence) are no longer present. Figures comparing CRGIS mapping, a historic aerial, and current aeriels show the current condition of the two properties and the absence of the structures. As depicted in the figures ATC submitted in response to the SHPO inquiry, there are no structures visible on the 2012 Google Earth images when compared to locations of the historical structures marked on the CRGIS images. The approximate locations of the historical structures indicated on the Penn Pilot Historic Aerial Photograph dated 1939 are also no longer visible in the current aerial images. Therefore, based on the results of the comparison of the above-referenced aerial images demonstrating this change in setting (i.e., absence of historic structures) from the dates of the historical surveys to the present, the proximity of the proposed Speedway store and sanitary force main route will have no effect on these resources.

In a response dated October 8, 2015, the PA Historical and Museum Commission State Historic Preservation Office made the following determination: "The project will have no effect on historical properties." Cultural resources within the Alternative B ROW are unknown. If Alternative B is selected, a cultural resources survey will be conducted prior to construction and submitted to the PA State Historic Preservation Office and the Corps for approval. Copies of the SHPO submittal, the SHPO response letters and figures referenced above are included in **Appendix B**.

It should be noted that in the case of an inadvertent archaeological discovery under either Alternative, work would temporarily cease and the site secured until proper authorities are notified and any recommendations from the PA Historical and Museum Commission, and the Corps, are completed.

3.12 TRIBAL COORDINATION

Currently, Native Americans within Westmoreland County compose approximately 0.1 percent of the total population of the county (Census Bureau 2015). A list of Native American archaeological sites on the National Register of Historical Places in PA was reviewed and two places in Westmoreland County were identified. Squirrel Hill site in St. Clair Township, west of New Florence near the banks of the Conemaugh River and Household No. 1 site in Rostraver Township. No significant Native American cultural sites or lands are located within the Project Area. A copy of the Native American archaeological sites on the National Register of Historical Places in PA is provided in **Appendix C**.

Native American Tribes that have historical ties to western PA but reside elsewhere have been notified by USACE and afforded the opportunity to comment on the proposed Project within the 30-day public comment period.

3.13 ENVIRONMENTAL JUSTICE

Environmental Justice (EJ) addresses the issue of disproportionate impacts on minority and economically disadvantaged populations. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations (EO12898)."

The Project Area is located along S.R.22 in parts of New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. The sanitary force main construction will allow Salem Township to expand their tax base utilizing new public sewer facilities and also allow Derry Township Municipal Authority to increase users to their plant and thereby increasing their revenue. The project would have no deleterious effect on minorities or impoverished areas and will provide increased access to new public sewer facilities. The advancement of this project would also provide increased employment opportunities in the area; jobs will be created that are directly related to the project and will include short term employment opportunities associated with the construction of the sewer force main and long term employment opportunities associated with maintaining the sewer line and in the administration of services. Other employment opportunities may be created associated with the increased opportunity for businesses and individuals accessing the sanitary sewer force main along the route.

The nearest community to the Project Area is New Alexandria, PA. Of the 560 residents of New Alexandria, approximately 96 percent of the population is Caucasian, 0.9 percent is African American, 1.6 percent is Asian, and the remainder includes other races (Census Bureau 2015). The United States Census Bureau does not have economic data for New Alexandria; therefore, the economic analysis for low income populations was analyzed within Westmoreland County as a whole. Based on the 2010 census, of a total county population of 365,169, approximately 9,223 households have an annual income lower than 10,000 dollars, while 8,441 households have an annual income between 10,000 and 14,999 dollars (Census Bureau 2015).

While minority and low income populations may access the Project Area, the nearest established community is New Alexandria (Census Bureau 2015). A copy of the New Alexandria Census information is provided in **Appendix C**.

3.14 AIR QUALITY

The Clean Air Act (CAA) of 1963, last amended in 1990, mandates the USEPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. Six “criteria pollutants” including ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particle pollution, and lead are used as indicators of air quality. The USEPA has “primary” standards for criteria pollutants to protect public health, and “secondary” standards to protect public welfare, such as prevention of damage to materials, animals, crops, and vegetation, and assuring visibility.

Westmoreland County is located in the USEPA’s Mid-Atlantic Region (Region 3). Areas that are currently not meeting air quality standards within the region are designated as non-attainment areas. Currently, Westmoreland County is not listed as non-attainment in five criteria pollutant including: 8-hour ozone 1997 (moderate); *PM-2.5 (Nonattainment), *PM-2.5 2006 (Nonattainment), *SO₂ (Primary), and 8-Hr Ozone 2008 (Marginal) (USEPA 2013b). Supporting documentation includes a copy of the EPA’s current attainment for the Project Area that is provided in **Appendix C**.

3.15 TRANSPORTATION AND TRAFFIC

The transportation system surrounding the Project Area comprises county and state roads, which connect into the State highway system. The nearest road to the Project Area is William Penn Highway (US 22), which is oriented in a west to east direction running along the proposed sewer line within the Project Area. Refer to **Figure 2.1**.

3.16 HEALTH AND SAFETY

The Preferred Alternative is located in a rural setting and is surrounded by primarily agricultural development with some commercial and residential land use nearby. While the character of the region is agricultural, the western portion of the Preferred Alternative is located within the borders of the Loyahanna Lake Watershed management area. The Pipeline and Hazardous Materials Safety Administration (PHMSA) regulates the safety and reliability of pipeline facilities. The Loyahanna Lake Watershed management area, which surrounds transportation networks and public services, will be appropriately signed to protect public health and safety. The nearest police station is located in Latrobe approximately 8.6 miles south of the Project Area. The nearest fire department is located in New Alexandria, approximately 1 mile east of the Project Area. The nearest hospital is the Excelsa Latrobe Area Hospital located approximately 9 miles southeast of the Project Area in Latrobe, PA. Westmoreland County operates a 911 call center. Directions to the closest hospital is provided in **Appendix C**.

3.17 NOISE

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is the average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as undesirable sound, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA’s guidelines, and those of many federal agencies, state that outdoor sound levels in excess of 55 dB DNL are: “normally unacceptable” for noise-sensitive land uses such as residences, schools, and hospitals.

Sensitive receptors along the route include residences (single family). The proposed route is along

existing roadways; with the majority of the route along two lane highways with posted speeds of 45 miles per hour. The residential areas that are present are generally not grouped within a cluster. These areas experience noise resulting from vehicular traffic (including use for trucking transportation routes) and agricultural machinery. Noise levels vary with the type of vehicle, travel speed and time of day.

The sewer force main will run parallel to S.R. 22 and will go under the Loyalhanna Lake and Tributary No. 6. The project area will begin in the vicinity of Main Street in the City of New Alexandria and runs west, running parallel to S.R. 22 on the north side of the road for approximately 0.58 miles to the Speedway property on Operators Way.

3.18 AESTHETICS

The Project Area is partially located within the Loyalhanna Lake Watershed, and with the exception of the improved bridge which carries US 22 over Loyalhanna Lake, there are no structures or other development located within Project Area boundaries. The Loyalhanna Lake Watershed is surrounded by a rural landscape with large tracts of agricultural lands. The 2010 census for Westmoreland County estimates a median age within the county is 45.4 years, the median annual household income is 50,736 dollars, and the median household is valued at 133,600 dollars (Census Bureau 2015).

3.19 REGULATED HAZARDOUS CONTAMINANTS

During the August 2015 field study conducted by ATC, no businesses were observed that store and dispenses significant quantities of petroleum products. In addition, no visual evidence of recognized environmental conditions in the vicinity of the proposed project route was observed. In an effort to identify areas of potential contamination. ATC reviewed an environmental database report search conducted by Environmental Database Resources (EDR), dated August 11, 2015. The environmental database search was conducted for 1.25 miles around the proposed project route. No National Priority List (NPL) sites were identified in the USEPA on-line database. Dumping has not been observed within the Project Area or adjacent areas (EPA 2012).

The following site was analyzed for the potential to impact the right of ways associated with the project route and no issues were found.

Site Name	Location	Regulatory Database Listings
Loyalhanna Lake	Loyalhanna Lake (County), PA	DOD

Regulatory database listings are defined as follows:

DOD- Department of Defense

LUST- Leaking Underground Storage Tank; UST- Underground Storage Tank

The following site is an “orphan” site sites listed on environmental databases for which poor, inaccurate or missing address information is available. The following orphan site listing was analyzed for its potential to impact the proposed project in the Phase I ESA conducted for the proposed Speedway site located at 107 Operators Way, New Alexandria, dated October 17, 2014:

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Site Name	Location	Regulatory Database Listings
Best Oil 18	Route 22	LUST

Much of the proposed project involves the installation of an underground sanitary sewer force main. There is a potential for hazardous materials to be encountered through contact with contaminated soils and/or water.

The one orphaned facility, Best Oil #18, was identified as adjacent to the proposed Speedway property and is a former retail petroleum facility. This facility was further identified as a former Toot N Scoot retail petroleum facility (Facility ID 65-16352), with a release date of November 18, 1999. The site is listed as an “Administrative Close Out (ACO)” as of November 3, 2008. The lack of information for this facility and its upgradient, adjacent location with respect to the property is a *recognized environmental condition* to the Speedway property. The owner of this site is responsible to identify any contamination that has migrated off site and report the offsite migration to any effected parties, in this instance, municipal road commissions.

A Phase II ESA was conducted for the proposed Speedway property to characterize subsurface conditions with respect to the adjacent former retail petroleum facility. On November 13, 2014, six soil borings, identified as SB-01 through SB-06, were advanced to twenty (20) feet below ground surface (bgs); however, direct push refusal was encountered in all soil borings at depths ranging from 6 feet bgs to 10 feet bgs. General soil profile consisted of a light-brown to light-gray, very stiff, silty-clay overlying decomposed shale bedrock. Fill was encountered in SB-04 from 0 to 2 feet bgs. Saturated conditions were not encountered in any soil boring. Twelve soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pesticides, herbicides, and polychlorinated biphenyls (PCBs) in accordance with the policy.

It was determined that a second field event, was necessary to collect groundwater samples; therefore, on December 18, 2014, three soil borings identified as TW-01, TW-02, and TW-03, were advanced and converted to 1-inch diameter temporary monitoring wells. The three temporary monitoring wells were installed for the purpose of collecting groundwater samples at the western property boundary to investigate the former retail fueling station *recognized environmental condition* (REC) noted in the Phase I ESA. One soil sample from soil boring TW-03 (10-12 feet bgs) was collected at the interval above decomposed bedrock and submitted for laboratory analysis of VOCs, SVOCs, metals, pesticides, herbicides, and PCBs. Groundwater samples were collected for laboratory analysis of VOCs, polycyclic aromatic hydrocarbons (PAHs), and dissolved lead.

Soil sample laboratory analytical results were compared with the PADEP Non-Residential Direct Contact Numeric Value Medium Specific Concentrations (MSCs), and groundwater laboratory analytical results were compared with the PADEP Residential Used-Aquifer MSCs. Soil laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits are below the PADEP Non-Residential Direct Contact Numeric Value MSCs. However, it should be noted that arsenic, boron, and cobalt were detected above the Clean Fill standards. Therefore, the soil may not qualify as Clean Fill, but there are no reporting requirements. Groundwater laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits are below all applicable PADEP Residential Used-Aquifer MSCs.

Based on the above information, no further investigation was recommended with regard to the Best Oil #18 site. A copy of the Environmental Database Report is provided in **Appendix D** and a copy of the October 2014 Phase I ESA as well as the November 2014 Limited Phase II ESA is provided in **Appendix E**.

4.0 ENVIRONMENTAL IMPACTS OF PREFERRED ALTERNATIVE

LOCATION AND LAND USE

The proposed sewer system alternatives are located within New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. The nearest municipalities are New Alexandria, PA which is located approximately 0.10 miles south of the eastern portion of the Preferred Alternative Project Area and Shieldsburg, PA, which is located approximately 0.2 miles south of the western portion of the Project Area. The proposed sanitary sewer force main corridor under Alternative A – the Preferred Alternative, is oriented east to west and is approximately 3,161 feet from border to border along William Penn Highway (S.R. 22). For more information about each alternative, including their precise locations, refer to Section 2.0.

Current land use trends in the vicinity of the Project Area include commercial, residential, recreational and agricultural. The following summarizes the potential environmental impacts to resources present along S.R. 22 under each alternative. Detailed analysis on potential environmental impacts to each resource and proposed preventative measures, including best management practices (BMPs), for each resource are provided below. Mitigation measures common to all resources include, but are not limited to, the following:

- Construction limits will be clearly marked.
- Barriers (18-inch Fabric Filter Fence or Compost Filter Sock, as per the on-site inspector) will be erected between the bore site and nearby sensitive resources prior to drilling to prevent material from reaching the resources. Barriers would also be erected at entry and exit pits.
- On-site briefings will be conducted for the workers to identify and locate sensitive resources in the Project Area.
- Following construction, areas disturbed during the project will be restored to their original state including regrading and seeding where applicable.

4.1 FLOODPLAINS

4.1.1.1 Alternative A – Preferred Alternative

Under the Preferred Alternative, an easement will be obtained for a 10,000 square foot easement area located on federal land within a FEMA regulated 100-year floodplains (**Figure 3.1**). No other surface disturbance would occur within any FEMA regulated 100-year floodplains as the HDD bore would begin east of the FEMA regulated floodplain and travel underneath the floodplain area through to the other side.

4.1.2 Alternative B – Western Sewer Line Extension

Under Alternative B, the 100-year floodplain associated with Whitehorn Creek and portions of Beaver Run are present within the Alternative B portion of the Project Area where the area crosses to the west along William Penn Highway (S.R. 22). Surface disturbance could occur within part of the FEMA regulated 100-year floodplains (**Figure 3.2**) in association with several staging areas, connection pits and possible open cut trenching that may occur.

4.1.3 Alternative C – No Action Alternative

The No Action Alternative would result in no project related construction activity, and would therefore result in no impacts to floodplains within the Project Area.

4.1.4 Preventative Measures

- Disturbed project easement areas will be restored following construction activities.
- In the event of an accidental release of hazardous material, Speedway would utilize reporting and remediation methods described in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.
- Methods utilized by Speedway to minimize sedimentation and impacts to floodplains will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.

4.2 WETLANDS

4.2.1 Alternative A – Preferred Alternative

The Preferred Alternative would result in no discharge of dredged or fill material to NWI mapped wetlands of the Proposed Sanitary Sewer route (**Figure 4.1**). The proposed sanitary sewer main force would be bored completely under Loyalhanna Lake and its associated wetlands and would not require surface disturbance in these areas. Indirect impacts such as the potential for the introduction of contaminants as a result of a sewer force main rupture or surface runoff, as well as increased erosion and subsequent sedimentation into wetland areas are not anticipated. The presence of increased sediment loads or contaminants within wetlands in the Project Area could reduce the ability of the wetlands to fix nutrients and contaminants, mediate stream flow during periods of high or low water levels, and provide wildlife habitat.

4.2.2 Alternative B – West Sewer Line Extension

Under Alternative B, the potential for direct impacts to NWI mapped wetlands by the western sewer line extension and construction of temporary workspaces (**Figure 4.2**) are unknown. Alternative B would be a 6.1 mile (32,200 feet) sewer extension as opposed to the Preferred Alternative (Alternative A), which is a 0.6 mile (3,161 feet) sewer extension. Alternative B would also include eight (8) stream crossings, as opposed to Alternative A, which includes two (2) stream crossings (Loyalhanna Lake and Tributary No. 6). Due to Speedway's knowledge of the cost-prohibitive nature of Alternative B, project-specific surveys along the western route were not conducted or construction plans developed. As such, there is a potential for direct impacts to wetland areas that have not been identified by either the NWI or ATC. However, it is assumed that directional boring will be used to cross the wetland areas. Indirect impacts such as the potential for the introduction of contaminants as a result of a force main rupture or surface runoff, as well as the direct increase of erosion and subsequent sedimentation into wetland areas, could also occur. Increased sediment loads or contaminants in wetlands could reduce their ability to fix nutrients and contaminants, mediate stream flow during periods of high or low water levels, and provide wildlife habitat.

4.2.3 Alternative C – No Action Alternative

The No Action Alternative would result in no surface disturbance within the Project Area associated with the proposed sewer force main, and no impacts on wetlands would occur.

4.2.4 Preventative Measures

- For bored wetland crossings, existing vegetation would not be cleared in the right-of-way between the boring entry and receiving points.
- There will be no open-cut wetland crossings.
- No excavation or disturbance of wetland soils is planned or anticipated.
- Speedway would utilize storm water management techniques such as silt fences and erosion control blankets to reduce the quantity of erosion resulting from the Preferred Alternative. In

addition, a site-specific storm water management plan would be implemented to minimize the transport of sediment and related contaminants from the ROW.

- Additional methods utilized by Speedway to minimize sedimentation and impacts to wetlands will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- In the event of an accidental release of hazardous material, Speedway would utilize reporting and remediation methods described in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.

4.3 THREATENED AND ENDANGERED SPECIES

4.3.1 Alternative A – Preferred Alternative

Table 3.4-1 lists threatened and endangered species found within the state of PA. The review conducted by the PA DCNR, the PFBC, the PGC and the USFWS for the proposed project areas indicated no impacts to threatened and endangered species within the proposed project area of Alternative A. Therefore, the Preferred Alternative would result in no impacts to threatened and endangered species. Agency correspondence is provided in **Appendix B**, and a list of threatened and endangered species is provided in **Appendix C**.

4.3.2 Alternative B – Western Sewer Line Extension

Table 3.4-1 lists threatened and endangered species found within the state of PA. The review conducted by the PA DCNR, the PFBC, the PGC and the USFWS for the proposed project areas indicated no impacts to threatened and endangered species within the proposed project area of Alternative B. Therefore, the Alternative B would result in no impacts to threatened and endangered species. Agency correspondence is provided in **Appendix B**, and a list of threatened and endangered species is provided in **Appendix C**.

4.3.3 Alternative C – No Action Alternative

Under the No Action Alternative, no impacts to threatened and endangered species are anticipated as no surface disturbing or other project related activities would occur within the Project Area.

4.3.4 Preventative Measures

If tree cutting activities were to commence within the Project Area between April 1 and October 31, Speedway would conduct mist netting surveys to determine if any special status bat species are present. Should any tree cutting activities occur between November 1 and March 31, no surveys for special status bat species would be required as these species will not likely be present within the Project Area. Speedway would avoid cutting hardwood-pines, dead and decaying trees, as well as large- diameter trees (greater than 12 inches diameter at breast height). Methods utilized by Speedway to minimize sedimentation and impacts to wetlands will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.

4.4 PRIME OR UNIQUE FARMLAND

4.4.1 Alternative A – Preferred Alternative

Under Alternative A, approximately 1.1 acres (64 percent) of lands within the Alternative A are designated as Prime Farmlands. Additionally, approximately 0.4 acres (16 percent) of Farmlands of Statewide Importance were identified, for a total of 1.5 acres of disturbance to prime or unique farmland resources. While the loss of these lands would represent a loss of soil types designated

as high quality farmlands, the small size of these areas and lack of contiguousness preclude the feasibility of their development.

4.4.2 Alternative B – Western Sewer Line Extension

Impacts to prime or unique farmland within the Project Area would be similar in scope to those discussed under the Preferred Alternative but greater in magnitude as Alternative B proposes several staging areas, connection pits and possible open cut trenching including at least 1.4 acres (0.4 percent) of Farmlands of Statewide Importance (Map unit MoC). While the loss of these lands would represent a loss of soil types designated as high quality farmlands, the small size of these areas and lack of contiguousness preclude the feasibility of their development.

4.4.3 Alternative C – No Action Alternative

Under the No Action Alternative, no impacts to prime or unique farmland would occur as no surface disturbance or other project related activity would occur within the Project Area.

4.4.4 Preventative Measures

No preventative measures are proposed for prime or unique farmland.

4.5 RECREATION AREAS

4.5.1 Alternative A – Preferred Alternative

While there are no boating, swimming, or camping areas within the Alternative A area, there is a possibility of temporary visitation to the area by recreationists including canoers. The Preferred Alternative could also result in indirect impacts to recreational users within the Project Area. Erosion from surface disturbances and nutrient loads from the waste water treatment plant could impact the quality of fish habitat and impact fishermen who utilize the area. Further, a discharge from sewage into the lake would impact human health and safety for water contact recreation. Impacts such as increased human presence, noise and surface disturbance would be short in duration, primarily during the construction and boring phase of the Proposed Project. These impacts could deter recreational users from the areas adjacent to the proposed project disturbance and construction areas. Increased noise and human disturbance could reduce the amount of bird species present within the Project Area and reduce utilization by bird watchers. These impacts would only occur during construction, would be temporary in nature, and are not expected to reduce the availability of recreation resources within the Project Area.

4.5.2 Alternative B – Western Sewer Line Extension

Impacts to recreational users under Alternative B would be similar to those outlined under Alternative A but of greater magnitude, as Alternative B would result in disturbance of land for staging areas, bore pits and possible open cut trenching. While there are no boating, swimming, or camping areas within the Project Area, there is a possibility of temporary visitation to the Project Area by recreationists including canoers. Erosion is likely to increase in areas of surface disturbance and could result in increased sediment loads into the creeks until vegetation cover returns. Flow alterations and direct disturbance in the creeks would alter the downstream habitat for fisheries and could impact fisherman who may use the Project Area. Additionally, mature trees might be removed under Alternative B, bird species may avoid the area, which may impact bird watchers within the Project Area.

4.5.3 Alternative C – No Action Alternative

No impacts to recreational users as a result of the proposed project as no sanitary force main development would occur within the Loyalhanna Lake Watershed.

4.5.4 Preventative Measures

- Methods utilized by Speedway to minimize sedimentation and erosion will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- In the event of an accidental release of hazardous material, Speedway would utilize reporting and remediation methods described in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.

4.6 WILD AND SCENIC RIVERS

4.6.1 Alternative A – Preferred Alternative

The nearest state or national Wild and Scenic River is approximately 35 miles southwest of the Project Area. Therefore, no direct or indirect impacts are anticipated under the Preferred Alternative.

4.6.2 Alternative B – Western Sewer Line Extension

The nearest state or national Wild and Scenic River is approximately 35 miles southwest of the Project Area. Therefore, no direct or indirect impacts are anticipated under Alternative B.

4.6.3 Alternative C – No Action Alternative

No impacts to state or national Wild and Scenic Rivers would occur as a result of the No Action Alternative as no sanitary sewer force main development would occur.

4.6.4 Preventative Measures

No preventative measures are proposed for Wild and Scenic Rivers.

4.7 TIMBER

4.7.1 Alternative A – Preferred Alternative

Portions of the Project Area in the vicinity of Loyalhanna Lake are currently forested. As the Project Area is managed by USACE for recreation, no timber management activities occur within the Project Area in the vicinity of Loyalhanna Lake.

4.7.2 Alternative B – Western Sewer Line Extension

Portions of the Alternative B of the Project Area in the vicinity of several creeks along the approximately 6 mile of Project Area along S.R. 22 are currently forested. As the Project Area is managed by USACE for recreation, no timber management activities occur within the Project Area in the vicinity of the creeks.

4.7.3 Alternative C – No Action Alternative

No impacts to timber resources would occur as a result of the No Action Alternative as no sanitary force main or septic system development would occur within the Project Area.

4.7.4 Preventative Measures

No preventative measures are proposed for Timber.

4.8 PHYSIOGRAPHY, GEOLOGY, AND SOILS

4.8.1 Alternative A – Preferred Alternative

Alternative A would result in approximately 0.23 acres of surface disturbance to soils present within the area. Ground moving, construction and boring activity would displace soil and cause direct impacts such as mixing of soil horizons, soil compaction, short-term loss of topsoil and reduction of site productivity. The presence of project vehicles would increase the potential for accidental spills of petroleum products into Project Area soils. The introduction of a subsurface sanitary sewer force main within the Project Area would increase the potential for soil contamination resulting from the inadvertent return of drilling fluids or sewer force main rupture. The removal of vegetation from soils within disturbed areas would increase the loss of soil from these areas by wind and water erosion.

Implementation of this Alternative would result in localized alterations to surface and subsurface geology from surface disturbing and boring activities. The bore path could serve as a conduit or preferential path for movement of subsurface materials through the bedrock and could connect previously isolated bedrock feature.

4.8.2 Alternative B – Western Sewer Line Extension

Impacts under Alternative B would be similar to those described under Alternative A but in greater magnitude with several staging areas, connection pits and possible open cut trenching. These impacts include mixing of soil horizons, soil compaction, and short-term loss of topsoil and reduction of site productivity. The presence of project vehicles would increase the potential for accidental spills of petroleum products into Project Area soils. The introduction of a sewer force main within the Project Area would increase the potential for soil contamination resulting from the inadvertent return of drilling fluids or sewer force main rupture. The removal of vegetation from soils within disturbed areas would increase the loss of soil from these areas by wind and water erosion.

Implementation of this Alternative would result in localized alterations to surface and subsurface geology from surface disturbing and boring activities. The bore path could serve as a conduit or preferential path from movement of subsurface materials through the bedrock and could connect previously isolated bedrock feature.

4.8.3 Alternative C – No Action Alternative

No impacts to physiography, geologic, or soil resources would occur as a result of the No Action Alternative as no project-related activities would occur within the Project Area.

4.8.4 Preventative Measures

In the event of an accidental release of hazardous material, Speedway would utilize reporting and remediation methods described in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.

- Prior to grading or other earth disturbance on the ROW, permanent down slope mitigation measures would be installed.
- Site controls would be utilized as necessary to manage slope instability.
- Once boring activities are completed, temporary use areas and the sanitary sewer force main trenching corridor would be returned to its original contours and reseeded and restored to meadow-like conditions.
- All disturbed areas that remain dormant for greater than 4 consecutive days would be temporarily stabilized.

- Additional methods utilized by Speedway to minimize sedimentation and erosion will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- Following construction activities, areas disturbed during the project will be restored to their original state including regrading and seeding where applicable.

4.9 FISH AND WILDLIFE RESOURCES, HABITATS AND VEGETATION

4.9.1 Fish

4.9.1.1 Alternative A – Preferred Alternative

Under the Preferred Alternative, no direct loss of fish species within the Project Area is anticipated as no project activity would occur within Loyalhanna Lake. Indirect impacts such as accidental spills of contaminants, increased sedimentation into Loyalhanna Lake, and potential inadvertent returns from boring activities and clearing of the easements could lower water quality and result in reduced health of fish species within the Project Area as discussed in Section 3.9 above. Coordination under Section 7 of the Endangered Species Act with the U.S. Fish & Wildlife Service was conducted for projects and determined to have no adverse impacts. Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with Permit No. PA0254088, and could possibly reduce the health of fish species within the Project Area.

4.9.1.2 Alternative B – Western Sewer Line Extension

Under Alternative B, no direct loss of fish species within the Project Area is anticipated as directional borings would be used for stream crossings. Therefore, no activities would occur in the eight creek crossings that cross S.R. 22 along the 6 mile stretch. Indirect impacts such as accidental spills of contaminants, increased sedimentation into the creeks, and potential inadvertent returns from boring activities could lower water quality and result in reduced health of fish species within the Project Area.

4.9.1.3 Alternative C – No Action Alternative

Under the No Action alternative, no impacts to aquatic species within the Project Area would be anticipated as no project-related activity would occur.

4.9.1.4 Preventative Measures

- To mitigate thermal impacts to waterbodies, waterbars would be installed to slow down the rate of runoff. Other project designs to reduce thermal impacts include reducing the amount of impervious surfaces created during construction, directing runoff from gravel surfaces to pervious surfaces, reducing the duration of exposed soils, and maintaining existing vegetative cover to the greatest extent practical.
- Methods utilized by Speedway to minimize sedimentation and erosion will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- Methods utilized by Speedway to prevent and clean up accidental spills are addressed in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.

4.9.2 Wildlife and Vegetation

4.9.2.1 Alternative A – Preferred Alternative

Under the Preferred Alternative, approximately 0.23 acres of mature forest and vegetation would be cleared for the installation of the sanitary sewer force main (**Figure 2.1**). This would represent a loss of cover for wildlife species as well as roosting and nesting habitat for bird and bat species. While installation and project activity would only be temporary, the reestablishment of the mature forest in this area would require several years to reach pre-disturbance levels. Therefore, Alternative A would represent a long term possible loss of 0.23 acres of habitat for wildlife species. No direct loss of wildlife is anticipated under Alternative A. The increased level of human presence and project related noise may produce increased environmental stress of individual wildlife using adjacent habitats and result in migration to adjacent habitats. This may increase the interspecific and intraspecific competition for resources in these areas. Additionally, use of the gravel shoulder and staging areas would increase the potential for wildlife mortality resulting from vehicle collisions. As these impacts would only occur during the construction and sewer force main boring phases of the project, they would be short in duration. Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088, but are not expected to result in an impact to vegetation or wildlife within the Project Area.

4.9.2.2 Alternative B – Western Sewer Line Extension

Alternative B would result in the loss of some deciduous forest that would be cleared for temporary use areas (**Figure 2.2**). This would represent a loss of cover for wildlife species as well as roosting and nesting habitat for bird and bat species. While the occurrence of these activities would be short-term, the reestablishment of the forested area would require multiple years. Therefore, Alternative B would represent a long term loss of habitat for wildlife species.

No direct loss of wildlife is anticipated under Alternative B. The increased level of human presence and project related noise may produce increased environmental stress of individual wildlife using adjacent habitats and result in migration to adjacent habitats. This may increase the interspecific and intraspecific competition for resources in these areas. Additionally, if installation in these areas were to occur during spring and summer, the project would represent a loss of nesting habitat as these areas are high value nesting habitat for many bird species. As Alternative B proposes more feet of access road, there would be a larger potential for vehicle collisions with wildlife within the Project Area.

4.9.2.3 Alternative C – No Action Alternative

Under the No Action alternative, no impacts to wildlife within the Project Area would be anticipated from project activity.

4.9.2.4 Preventative Measures

- Methods utilized by Speedway to minimize sedimentation and erosion will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- Methods utilized by Speedway to prevent and clean up accidental spills are addressed in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.
- Speedway would avoid permanent alterations to habitats with high concentrations of birds, maintain habitat corridors, and develop a restoration plan using native plant species in re-vegetation areas.

4.10 HYDROLOGY

4.10.1 Alternative A – Preferred Alternative

Under Alternative A there would be no direct impacts to Loyalhanna Lake or to Tributary No. 6 as the proposed sewer force main would be bored underneath the riparian corridor. Impacts to surface water resources within the Project Area may result from the increased wind and water erosion and subsequent sedimentation. Increased sediment loads into the Loyalhanna Lake Watershed could potentially result in increased salinity and turbidity. The increase in sedimentation would be dependent on water available for overland flow, the texture of the eroded material, the amount and kind of ground cover, the slope shape, gradient, and length, and surface roughness (Barfield et al. 1981). Given that only 0.23 acres of surface disturbance would occur within the Alternative A portion of the Project Area, indirect impacts associated with increased sediment loads to the Loyalhanna Lake watershed from these sources would be minor. Surface water contamination from sewer force main ruptures or inadvertent release of hazardous materials could potentially occur as a result of the Preferred Alternative. No impacts to the Pennsylvanian Aquifers within the Project Area are anticipated under Alternative A.

Under the Preferred Alternative, the New Alexandria Sewage Treatment Plant will receive sanitary sewage from the proposed Speedway Store. The projected flow from the proposed Speedway store is 1,700 gallons per day (gpd). Table 4.10 below presents the incremental additional effluent loading from the plant in pounds per day (lb/d) on the receiving water Loyalhanna Lake, due to the additional Speedway flow. As shown in Table 4.10, the incremental loadings calculated for each parameter (by Permit) from the projected Speedway flow are orders of magnitude below the permit limits for suspended solids and CBOD5 (all other parameters are monitor and report only). Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088, and previously considered in *The Derry Township/Borough of New Alexandria, Westmoreland County, PA, Section 313 Environmental Improvement EA* dated September 2009, and the *New Alexandria Sewage Treatment Plant Outfall Pipe, Derry Township, Westmoreland County PA EA*, dated April 2011.

Table 4.10 Speedway Loading to New Alexandria Sewer Treatment Plant

Parameter	2015 Average Effluent Concentration (mg/l)	Incremental Loading (lb/d)	Plant Allowable Loading (by Permit) (lb/d)
Suspended Solids	6.0	0.0085	25
CBOD5	4.88	0.0069	21
NH4-N	0.62	0.00088	**
Total Nitrogen	44	0.062	**
Total Phosphorus	4.82	0.0068	**
Iron	0.04	0.000057	**
Manganese	0.02	0.000028	**
Aluminum	10	0.00014	**

Source: Derry Township Municipal Authority

Notes:

- mg/l – milligrams per liter
- lb/d – pounds per day
- gpd – gallons per day
- mgd – millions of gallons per day
- lb/gal – pounds per gallon

Based on the plant’s average effluent concentrations in 2015 and the projected Speedway flow of 1,700 gpd, the incremental additional effluent loading on the receiving water from the plant due to the additional Speedway flow would be as follows:

$$\text{Speedway flow} = 1700 \text{ gpd} = 0.00017 \text{ mgd}$$

$$\text{lb/d} = \text{mg/l} \times \text{mgd} \times 8.34 \text{ lb/gal}$$

** Only suspended solids and CBOD5 have numerical permit limits and loadings, the other parameters are all Monitor and Report only.

4.10.2 Alternative B – Western Sewer Line Extension

Under Alternative B, the sewer force main would be trenched under eight creek crossings along S.R. 22 resulting in no impacts to Loyalhanna Lake. Impacts to surface water resources within the Project Area may result from the increased wind and water erosion and subsequent sedimentation. Increased sediment loads into the creeks could potentially result in increased salinity and turbidity. The increase in sedimentation would be dependent on water available for overland flow, the texture of the eroded material, the amount and kind of ground cover, the slope shape, gradient, and length, and surface roughness (Barfield et al. 1981). Given that 6-miles of surface disturbance would occur within the Project Area, indirect impacts associated with increased sediment loads to the creeks would be minor. Surface water contamination from sewer force main ruptures or inadvertent release of hazardous materials could potentially occur as a result of the Alternative B. Impacts to the Pennsylvania Aquifers located under the Project Area are not expected under Alternative B.

4.10.3 Alternative C – No Action Alternative

No direct or indirect impacts to water resources would occur under the No Action Alternative as no surface disturbing activities or boring activities would occur within the Project Area.

4.10.4 Preventative Measures

- Methods utilized by Speedway to minimize sedimentation and erosion will be detailed in the Erosion and Sediment Control Plan currently being prepared by Speedway.
- Methods utilized by Speedway to prevent and clean up accidental spills are addressed in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.
- Water containing mud, silt, drilling fluid, or other pollutants from equipment washing or other activities would not be allowed to enter a water source.
- To minimize the potential extent of impacts from an inadvertent return, HDD operations would be continuously monitored to look for observable inadvertent return conditions or lowered pressure readings on the drilling equipment.
- Implement controls in accordance with the Derry Township Municipal Authority (DTMA) to mitigate impacts to water bodies in the event of nutrient loading beyond the limits of New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088 (as defined by DTMA) from the proposed Speedway Store. Treatment options consist of pre-treatment at the Speedway site per the DTMA rules and regulations. The pre-treatment for a use such as Speedway would be to require Speedway to inspect their on-site grease trap and clean/replace, if necessary. The grease trap is required to be cleaned every six months at a minimum per DTMA regulations.

4.11 CULTURAL RESOURCES

4.11.1 Alternative A – Preferred Alternative

As discussed in **Section 3.12**, no cultural sites eligible for NRHP were identified within the Preferred Alternative ROW. Therefore, no impacts to cultural resources are anticipated.

4.11.2 Alternative B – Western Sewer Line Extension

As no cultural resource surveys have been completed for the Alternative B ROW, selection of this alternative has the potential to impact unknown cultural sites within the Project Area. Therefore, a cultural resource survey, in coordination with USACE and PHMC, would be required prior to ground disturbance.

4.11.3 Alternative C – No Action Alternative

The No Action Alternative would not result in any impacts to cultural resources as no project related activity would occur within the Project Area.

4.11.4 Preventative Measures

In the event that unanticipated cultural resources or human remains were discovered during construction, USACE and PHMC would be contacted immediately to evaluate the find. Work would cease in the area of the find until a preventative plan is put into place.

4.12 TRIBAL COORDINATION

4.12.1 Alternative A – Preferred Alternative

No Native American resources, sacred sites or lands have been identified within the Alternative A area; therefore the Preferred Alternative would not result in direct or indirect impacts to Native American populations within the Project Area. Native American Tribes that have historical ties to western PA but reside elsewhere were provided written notice of the project and will be provided an

opportunity to participate in the 30-day comment period.

4.12.2 Alternative B – Western Sewer Line Extension

No Native American resources, sacred sites or lands have been identified within the Alternative B area; therefore the Western Sewer Line Extension would not result in direct or indirect impacts to Native American populations within the Project Area. However, a cultural resources study has not been conducted for Alternative B. It is possible that there could be impacts to Native American resources, sacred site, or lands. Native American Tribes that have historical ties to western PA but reside elsewhere were provided written notice of the project and will be provided an opportunity to participate in the 30-day comment period.

4.12.3 Alternative C – No Action Alternative

The No Action Alternative would not result in any impacts to Native American resources as no project related activity would occur within the Project Area.

4.12.4 Preventative Measures

In the event that unanticipated cultural resources or human remains were discovered during construction, USACE and PHMC would be contacted immediately to evaluate the find. Work would cease in the area of the find until a preventative plan is put into place.

4.13 ENVIRONMENTAL JUSTICE

4.13.1 Alternative A – Preferred Alternative

No minority and low income residential populations are located within the Project Area; therefore, the Preferred Alternative is not anticipated to impact minority and low income populations. Alternative A will allow for properties in the eastern portion of Salem Township and West of the Loyalhanna Lake to have access to public sanitary sewer facilities and encourage development in the area. As part of the PA Clean Streams Act, this is also the preferred method of sanitary sewer disposal for new residential, commercial, and industrial projects. The sanitary force main construction will allow Salem Township to expand their tax base utilizing new public sewer facilities and also allow Derry Township Municipal Authority to increase users to their plant and thereby increasing their revenue.

4.13.2 Alternative B – Western Sewer Line Extension

No minority and low income residential populations are located within the Alternative B Western Sewer Line Extension area; therefore, Alternative B is not anticipated to impact minority and low income populations. Alternative B will allow Salem Township to expand their tax base utilizing new public sewer facilities. As part of the PA Clean Streams Act, this is also the preferred method of sanitary sewer disposal for new residential, commercial, and industrial projects. The sanitary force main construction will allow Salem Township to expand their tax base utilizing new public sewer facilities.

4.13.3 Alternative C – No Action Alternative

No minority and low income residential populations are located within the Project Areas and no project related activity would occur under the No Action Alternative; therefore, no impacts to low income or minority populations are anticipated.

4.13.4 Preventative Measures

No preventative measures are proposed for minority and low income populations.

4.14 AIR QUALITY

4.14.1 Alternative A – Preferred Alternative

Two primary sources of air pollutants would result from the implementation of Alternative A. The presence of construction and sewer force main boring machinery (i.e. potential internal combustion engines) within Alternative A would be the primary source of emissions associated with the Preferred Alternative. Additionally, the increased presence of project vehicles and other project activity could result in an increase in fugitive dust; however, as the Preferred Alternative would represent a short period of construction and drilling, these increases would be both minor and temporary. No adverse impacts to ambient air quality within the Project Area are anticipated under the Preferred Alternative.

4.14.2 Alternative B – Western Sewer Line Extension

Two primary sources of air pollutants would result from the implementation of Alternative B. The presence of construction and boring machinery (i.e. potential internal combustion engines) within the Project Area would be the primary source of emissions associated with the Preferred Alternative. Additionally, the increased presence of project vehicles and other project activity could result in an increase in fugitive dust; however, as Alternative B would represent a short period of construction and drilling, these increases would be both minor and temporary. No adverse impacts to ambient air quality within the area are anticipated under the Alternative B.

4.14.3 Alternative C – No Action Alternative

No project related activity would commence under the No Action Alternative; therefore, no impacts to air quality are anticipated.

4.14.4 Preventative Measures

- Speedway would avoid clearing and grubbing the entire site at once, but would clear and grub areas where construction is to occur during a particular phase of the Project.
- Disturbed areas subject to heavy construction traffic may have a temporary gravel cover put in place to prevent dust.
- Haul covers would be utilized for trucks transporting soil to or from the site.
- Water trucks would be used to control dust. The contractor would ensure the volume and rate of water application does not create erosion or a non-stormwater discharge from the site.

4.15 TRANSPORTATION AND TRAFFIC

4.15.1 Alternative A – Preferred Alternative

Approximately 3,161 linear feet (0.58-mile) of easement along S.R. 22 (William Penn Highway) will be utilized to connect the proposed Speedway site with the existing sanitary sewer line near the corner of S.R. 22 and Main Street in New Alexandria. Speedway would maintain the road as necessary and restore the road to its preexisting condition upon completion of the Project. No impacts to transportation or traffic would occur within the Project Area. Traffic along S.R. 22 would increase during the construction, installation, and trenching periods. Impacts associated with increased traffic and commute times would likely increase; however, any disruption would be temporary.

4.15.2 Alternative B – Western Sewer Line Extension

Approximately 6 miles of easement along S.R. 22 (William Penn Highway) will be utilized to connect the proposed Speedway site with the existing sanitary sewer line near Main Street in New Alexandria. Speedway would maintain the road as necessary and restore the road to its preexisting condition

upon completion of the Project; therefore, no impacts to transportation or traffic would occur within the Project Area. Traffic along S.R. 22 would increase during the construction, installation, and trenching periods. Impacts associated with increased traffic and commute times would likely increase; however, any disruption would be temporary.

4.15.3 Alternative C – No Action Alternative

Under the No Action Alternative, no project-related construction or activity would occur. Therefore, no impacts to transportation within the Project Area would be anticipated.

4.15.4 Preventative Measures

- A stabilized construction exit would be provided to help reduce vehicle tracking of sediments.
- The paved roads adjacent to the site entrance would be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site.
- Dump trucks hauling material from the construction site would be covered with a tarpaulin as necessary.

4.16 HEALTH AND SAFETY

4.16.1 Alternative A – Preferred Alternative

Impacts to human health from the Preferred Alternative could include the potential release of drilling fluids, and associated contaminants, including air emissions already discussed, to the Project Area. Further, accidental release of sewage would impact human health and safety through contact recreation and fishing through poor fish health.

4.16.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B could result in the potential release of drilling fluids, and associated contaminants into the Alternative B area. Further, accidental release of sewage would impact human health and safety through contact recreation and fishing through poor fish health.

4.16.3 Alternative C – No Action Alternative

Under the No Action alternative, no impacts to human health within the Project Area would be anticipated as no project related activity would occur.

4.16.4 Preventative Measures

- To protect and minimize the possibility of fires during the construction phase, all vehicles, including welding trucks, would be equipped with fire extinguishers.
- Speedway would provide warning signs at the trenching locations and along the alignment to inform the public of the presence of construction.
- Methods utilized by Speedway to prevent and clean up accidental spills are addressed in a Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Speedway Sanitary Sewer Force Main Project which is being prepared and submitted for review to PADEP whose approval is anticipated.

4.17 NOISE

No increases in noise will be ongoing or cause increases in overall noise in the vicinity of the project. The impact on residences in or near the project area as a result of increased traffic over the post-construction phase is considered less than significant.

4.17.1 Alternative A – Preferred Alternative

The installation of the sanitary force main for Alternative A would require the disturbance of intact roadways and right of ways which would necessitate the cutting through paved areas which would temporarily increase noise levels. Temporary noise impacts from construction activities may result from Directional Bore Units and other heavy equipment, and may temporarily increase noise levels.

Noise levels can vary from day to day depending on the level of activity and the weather. To reduce temporary noise impact, the applicant would keep equipment operations to a minimum and limit the project activities that increase noise levels to daylight hours; all local ordinances will be adhered to. No long term effects are anticipated since after installation, activity along the proposed project route will be limited to maintenance and repair visits.

4.17.2 Alternative B – Western Sewer Line Extension

The installation of the western sewer line extension would require the disturbance of intact roadways and right of ways which would necessitate the cutting through paved areas which would temporarily increase noise levels. Temporary noise impacts from construction activities may result from Directional Bore Units and other heavy equipment, and may temporarily increase noise levels.

Noise levels can vary from day to day depending on the level of activity and the weather. To reduce temporary noise impact, the applicant would keep equipment operations to a minimum and limit the project activities that increase noise levels to daylight hours; all local ordinances will be adhered to. No long term effects are anticipated since after installation, activity along the proposed project route will be limited to maintenance and repair visits.

4.17.3 Alternative C – No Action Alternative

The No Action Alternative would have no impact to the noise levels in the project and surrounding area.

4.17.4 Preventive Measures

Residences are located throughout the proposed project area. Scattered residences are located along much of the rural project route; these residences are not located within subdivisions or residential developments. The following best management practices would be instituted to prevent noise disturbances at sensitive receptors:

- Restrict construction within 1,000 feet of residences to daytime hours.
- No construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, on legal holidays or between the hours of 10 p.m. and 7 a.m. on other days.
- All equipment shall have sound control devices no less effective than those provided as original equipment.
- All motorized equipment shall have muffled exhaust.
- Contractors shall implement appropriate additional noise preventative measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activities, or notifying adjacent residents in advance of construction.

4.18 AESTHETICS

4.18.1 Alternative A – Preferred Alternative

The Preferred Alternative is expected to visually and aesthetically impact the entire project area for the short term. The majority of the route is expected to have negative visual and aesthetic impacts on the project area during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected.

4.18.2 Alternative B – Western Sewer Line Extension

Alternative B is expected to visually and aesthetically impact the entire project area for the short term and would be greater in magnitude than the Preferred Alternative. The majority of the route is expected to have negative visual and aesthetic impacts on the project area during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected.

4.18.3 Alternative C – No Action Alternative

The No Action Alternative would have no visual or aesthetic impact in the project and surrounding area.

4.18.4 Preventative Measures

There are no preventative measures for aesthetics.

4.19 REGULATED HAZARDOUS CONTAMINANTS

4.19.1 Alternative A – Preferred Alternative

The Preferred Alternative includes trenching and tree-clearing activities that would require the presence and use of machinery within the Project Area. While the potential to occur is minimal, environmental impacts from the release of small amounts of regulated hazardous contaminants (fuels, lubricants, etc.) from this material could exist. Additionally, waste could be released to the Project Area during drilling (i.e. spilling of drilling fluids or inadvertent return) and installation of the sewer force main. As construction activity would occur under Loyalhanna Lake, wastes could be preferentially transported from the construction site to other areas downstream.

4.19.2 Alternative B – Western Sewer Line Extension

Alternative B would result in trenching and tree-clearing activities that would require the presence and use of machinery within the Project Area in a greater magnitude than the Preferred Alternative. While the potential to occur is minimal, environmental impacts from the release of small amounts of regulated hazardous contaminants (fuels, lubricants, etc.) could exist. Additionally, waste could be released to the area during drilling (i.e. spilling of drilling fluids or inadvertent return) and installation of the sewer force main. As construction activity would occur under eight creeks, wastes could be preferentially transported from the construction site to other areas downstream.

4.19.3 Alternative C – No Action Alternative

Under the No Action Alternative, no impacts to regulated hazardous contaminants within the Project Area would be anticipated as no project related activities would occur.

4.19.4 Preventative Measures

Speedways Preparedness, Prevention, and Contingency Plan and Emergency Action Plan for the Sanitary Sewer Force Main Installation Project will outline preventative and reactive measures to minimize impacts from accidental spills. These measures will include, but are not limited to, the following:

- All equipment and vehicles would be inspected and maintained daily to prevent leaks of hazardous materials.
- Spill kits and spill containment materials would be available on-site at all times and the materials would be kept in good working order. These materials would include straw, fabric filter fence, sand bags, boom and turbidity curtain, or similar.
- Equipment required to contain and clean up an inadvertent return would be available at the

- bore site during drilling activities.
- Construction materials and wastes shall be recycled or disposed of as appropriate.
 - Vacuum trucks or pumps will be maintained on site for use in case of inadvertent return.
 - Only those materials and quantities required for an activity would be stored on site.
 - These materials would be stored in an orderly manner, and chemicals would be stored in watertight containers with appropriate secondary containment to prevent spill or leakage.
 - Drip pans shall be provided under dispensers.
 - Products would be kept in the original containers with the original manufacturers label in legible condition.
 - Substances would not be mixed with one another unless recommended by the manufacturer.
 - All solid and construction waste materials would be collected and stored in a securely lidded metal dumpster. The dumpster would comply with all local and state solid waste management regulations. The dumpster lids would be closed at the end of every business day and during rain events.
 - A portable toilet would be provided during construction.

4.20 POTENTIAL ENVIRONMENTAL IMPACTS SUMMARY BY ALTERNATIVE

Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Floodplains	Under the Preferred Alternative, a 100'x100' easement area is partly located within a FEMA regulated 100-year floodplains. No other surface disturbance would occur within any FEMA regulated 100-year floodplains as the HDD bore would begin east of the FEMA regulated floodplain and travel underneath the floodplain area through to the other side.	Under Alternative B, the 100-year floodplain associated with Whitehorn Creek and possibly portions of Beaver Run are present within the Alternative B portion of the Project Area where the area crosses to the west along S.R. 22. Surface disturbance could occur within part of the FEMA regulated 100-year floodplains in association with temporary easement areas, bore holes or open trench cutting that may occur.	No project-related impacts to 100-year floodplains would occur.

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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Wetlands	No impacts to wetlands would occur as the sanitary sewer force main would be bored underneath the delineated and NWI wetlands within the Project Area.	The potential for direct impacts to NWI mapped wetlands by the western sewer line extension and construction of temporary workspaces are unknown. There is a potential for direct impacts to wetland areas that have not been identified by either the NWI or ATC. However, it is assumed that directional boring will be used to cross the wetland areas. Indirect impacts such as the potential for the introduction of contaminants as a result of a force main rupture or surface runoff, as well as the direct increase of erosion and subsequent sedimentation into wetland areas, could also occur. Increased sediment loads or contaminants in wetlands could reduce their ability to fix nutrients and contaminants, mediate stream flow during periods of high or low water levels, and provide wildlife habitat.	No project-related impacts to wetlands would occur.
Threatened, Endangered and Special Status Species	No impacts to threatened and endangered species would occur as indicated by the review conducted by the PA DCNR, the PFBC, the PGC and the USFWS for the proposed project areas.	No impacts to threatened and endangered species would occur as indicated by the review conducted by the PA DCNR, the PFBC, the PGC and the USFWS for the proposed project areas.	No project-related impacts to special status plant and animal species would occur.

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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Prime or Unique Farmland	Approximately 1.1 acres of lands within the Alternative A are designated as Prime Farmlands. Additionally, approximately 0.4 acres of Farmlands of Statewide Importance were identified, for a total of 1.5 acres of disturbance to prime or unique farmland resources.	Impacts to prime or unique farmland within the Project Area would be similar in scope to those discussed under the Preferred Alternative but greater in magnitude as Alternative B proposes several staging areas, connection pits and possible open cut trenching including at least 1.4 acres (0.4 percent) of Farmlands of Statewide Importance (Map unit MoC).	No project-related impacts to prime or unique farmlands would occur.
Recreation Areas	There is a possibility of temporary impacts on visitation to the area by recreationists including canoers. The Preferred Alternative could also result in impacts to fishermen and water contact recreational users within the Project Area through accidental chemical spills and release of raw sewage	Impacts to recreational users under Alternative B would be similar to those outlined under Alternative A, but of greater magnitude, as Alternative B would result in disturbance of land for staging areas, bore pits and possible open cut trenching.	No project-related impacts to recreation areas would occur.
Wild and Scenic Rivers	Wild and Scenic Rivers are not present within the Project Area.	Wild and Scenic Rivers are not present within the Project Area.	Wild and Scenic Rivers are not present within the Project Area.
Timber Resources	Portions of the Project Area in the vicinity of Loyalhanna Lake are currently forested. As the Project Area is managed by USACE for recreation, no timber management activities occur within the Project Area in the vicinity of Loyalhanna Lake.	Portions of the Alternative B of the Project Area in the vicinity of several creeks along the approximately 6 mile of Project Area along S.R. 22 are currently forested. As the Project Area is managed by USACE for recreation, no timber management activities occur within the Project Area in the vicinity of the creeks.	No project-related impacts to timber resources would occur.

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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
<p>Physiography, Geology, and Soils</p>	<p>Approximately 0.23 acres of surface disturbance to soils present within the area would result.</p> <p>Implementation of this Alternative would result in localized alterations to surface and subsurface geology from surface disturbing and boring activities. The bore path could serve as a conduit or preferential path from movement of subsurface materials through the bedrock and could connect previously isolated bedrock feature.</p>	<p>Impacts under Alternative B would be similar to those described under the Alternative A, but in greater magnitude with several staging areas, connection pits and possible open cut trenching.</p>	<p>No project-related impacts to soil and geological resources would occur.</p>

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<p>Fish and Wildlife Resources, Habitats and Vegetation</p>	<p>No direct loss of fish species within the Project Area is anticipated as no project activity would occur within Loyalhanna Lake or its tributaries.</p> <p>Approximately 0.23 acres of mature forest and vegetation would be cleared for the installation of the sanitary sewer force main. This would represent a loss of cover for wildlife species as well as roosting and nesting habitat for bird and bat species. While installation and project activity would only be temporary, the reestablishment of the mature forest in this area would require several years to reach pre-disturbance levels. Therefore, Alternative A would represent a long term possible loss of 0.23 acres of habitat for wildlife species.</p> <p>No direct loss of wildlife is anticipated under Alternative A.</p> <p>Under the Preferred Alternative, the New Alexandria Sewage Treatment Plant would receive sanitary sewage from the proposed Speedway Store. Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with Permit No. PA0254088, and could reduce the health of fish species within the Project Area.</p>	<p>No direct loss of fish species within the Project Area is anticipated as directional borings would be used for stream crossings.</p> <p>Alternative B would result in the loss of some deciduous forest that would be cleared for temporary use areas. This would represent a loss of cover for wildlife species as well as roosting and nesting habitat for bird and bat species. While the occurrence of these activities would be short-term, the reestablishment of the forested area would require multiple years. Therefore, Alternative B would represent a long term loss of habitat for wildlife species.</p> <p>No direct loss of wildlife is anticipated under Alternative B.</p>	<p>No project-related impacts to fish and wildlife would occur.</p>
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<p>Hydrology</p>	<p>There would be no direct impacts to Loyalhanna Lake as the proposed sewer force main would be bored underneath the riparian corridor. Impacts to surface water resources within the Project Area may result from the increased wind and water erosion and subsequent sedimentation. Increased sediment loads into the Loyalhanna Lake Watershed could potentially result in increased salinity and turbidity. No impacts to the Pennsylvanian Aquifers within the Project Area are anticipated under Alternative A.</p> <p>Under the Preferred Alternative, the New Alexandria Sewage Treatment Plant would receive sanitary sewage from the proposed Speedway Store. Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088, and previously considered in <i>The Derry Township/Borough of New Alexandria, Westmoreland County, PA, Section 313 Environmental Improvement EA</i> dated September 2009, and the <i>New Alexandria Sewage Treatment Plant Outfall Pipe, Derry Township, Westmoreland County PA EA</i>, dated April 2011.</p>	<p>There would be no direct impacts to the eight creek crossing along the six mile easement of S.R. 22 as the proposed sewer force main would be bored underneath the creeks. Impacts to surface water resources within the Project Area may result from the increased wind and water erosion and subsequent sedimentation. Increased sediment loads into the creeks could potentially result in increased salinity and turbidity. No impacts to the Pennsylvanian Aquifers within the Project Area are anticipated under Alternative B.</p>	<p>No direct or indirect impacts to water resources would occur.</p>
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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Cultural Resources	No cultural sites eligible for NRHP were identified within the Preferred Alternative ROW. Therefore, no impacts to cultural resources are anticipated.	As no cultural resource surveys have been completed for the Alternative B ROW, selection of this alternative has the potential to impact unknown cultural sites within the Project Area.	No project-related impacts to cultural resources would occur.
Tribal Coordination	No impacts to Native American populations, cultural resources, sacred sites, or lands are anticipated.	No impacts to Native American populations, cultural resources, sacred sites, or lands are anticipated.	No project-related impacts to Native American populations, cultural resources, sacred sites, or lands would occur.
Minority and Low Income Populations	No impacts to low income or minority populations are anticipated.	No impacts to low income or minority populations are anticipated.	No project-related impacts to low income or minority populations would occur.
Air Quality	The Preferred Alternative would represent a short period of construction and drilling, these increases would be both minor and temporary. No adverse impacts to ambient air quality within the Project Area are anticipated under the Preferred Alternative.	Alternative B would represent a short period of construction and drilling, these increases would be both minor and temporary. No adverse impacts to ambient air quality within the area are anticipated under the Alternative B.	No project-related impacts to air quality would occur.
Transportation	Traffic along S.R. 22 would increase during the construction, installation, and trenching periods. Impacts associated with increased traffic and commute times would likely increase; however, any disruption would be temporary.	Traffic along S.R. 22 would increase during the construction, installation, and trenching periods. Impacts associated with increased traffic and commute times would likely increase; however, any disruption would be temporary.	No project-related impacts to transportation would occur.

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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Health and Safety	Impacts to human health from the Preferred Alternative could include the potential release of drilling fluids, and associated contaminants, including air emissions already discussed, to the Project Area. Accidental release of sewage would impact human health and safety through contact recreation and fishing through poor fish health.	Implementation of Alternative B could result in the potential release of drilling fluids, and associated contaminants into the Alternative B area.	No project-related impacts to human health would occur.
Aesthetics	The Preferred Alternative is expected to visually and aesthetically impact the entire project area for the short term. The majority of the route is expected to have negative visual and aesthetic impacts on the project area during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected.	Alternative B is expected to visually and aesthetically impact the entire project area for the short term and would be greater in magnitude than the Preferred Alternative. The majority of the route is expected to have negative visual and aesthetic impacts on the project area during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected.	No project-related impacts to aesthetics would occur.
Regulated Hazardous Contaminants	Potential accidental releases of hazardous chemicals from project related vehicles, machinery, and sewer force main installation could occur.	Potential accidental releases of hazardous chemicals from project related vehicles, machinery, and sewer force main installation could occur.	No project-related impacts associated with regulated hazardous contaminants could occur.

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Resource	Alternative A – Preferred Alternative	Alternative B – Western Sewer Line Extension	Alternative C – No Action Alternative
Socioeconomic Profile	<p>The Preferred Alternative is not anticipated to have direct or indirect effects on wetlands, wild and scenic rivers, timber resources, fish and wildlife, cultural resources, Native American concerns, minority and low income populations or air quality within the Project Area. Temporary effect may occur to floodplains, threatened and endangered species, prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants. Long term effects may occur to habitats for wildlife species.</p> <p>It is anticipated that the Preferred Alternative will eliminate much of the discharge associated with septic systems in the vicinity of Loyalhanna Lake and support the area as it grows by providing a method of transporting, treating, and disposing of sewage.</p>	<p>Alternative B is not anticipated to have direct or indirect effects on wild and scenic rivers, timber resources, fish and wildlife, Native American concerns, minority and low income populations or air quality within the Project Area. Temporary effect may occur to threatened and endangered species, prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants. Long term effects may occur to floodplains, wetlands, habitats for wildlife species and cultural resources.</p>	<p>No project-related impacts to the socioeconomic profile would occur.</p>

5.0 CUMULATIVE IMPACTS

“Cumulative impacts” are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (CEQ regulations 40 CFR Part 1508.7). The cumulative impact analysis area (CIAA) varies by resource.

LOCATION AND LAND USE

The proposed sewer system alternatives are located within New Alexandria Borough, Derry Township and Salem Township in Westmoreland County, PA. The nearest municipalities are New Alexandria, PA which is located approximately 0.10 miles south of the eastern portion of the Preferred Alternative Project Area and Shieldsburg, PA, which is located approximately 0.2 miles south of the western portion of the Project Area. The proposed sanitary sewer force main corridor under Alternative A – the Preferred Alternative, is oriented east to west and is approximately 3,161 feet from border to border along William Penn Highway (S.R. 22). For more information about each alternative, including their precise locations, refer to Section 2.0.

Current land use trends in the vicinity of the Project Area include commercial, residential, recreational and agricultural.

5.1 FLOODPLAINS

The CIAA for floodplain resources is the 172-square-mile drainage area of Loyalhanna Lake. The Loyalhanna Watershed Association was founded in 1971 to address the various pollution impacts throughout the watershed and to preserve natural areas.

5.1.1 Alternative A – Preferred Alternative

Implementation of Alternative A would not result in cumulative impacts on floodplains within the CIAA due to only a 100'x100' easement area that is partly located within a FEMA regulated 100-year floodplains on the eastern portion of the route. No other surface disturbance would occur within any FEMA regulated 100-year floodplains as the HDD bore would begin east of the FEMA regulated floodplain and travel underneath the floodplain area through to the other side. Current land use trends within the CIAA, such as flood preventative, recreation, natural gas development, agriculture, and residential/infrastructure development would continue.

5.1.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B could result in cumulative impacts on floodplains within the CIAA due to several staging areas, connection pits and possible open cut trenching. By utilizing HDD, the sanitary main would be bored underneath Whitehorn Creek and tributaries of Beaver Run; however, surface disturbance of the 100-year floodplain may still occur. Current land use trends within the CIAA, such as flood risk reduction, recreation, natural gas development, agriculture, and residential/infrastructure development would continue.

5.1.3 Alternative C – No Action Alternative

No impacts to floodplains are expected under the No Action Alternative; current land use trends such as flood risk reduction, recreation, natural gas development, agriculture, and residential/infrastructure development would continue and have potential cumulative impacts to floodplains within the CIAA.

5.2 WETLANDS

The CIAA for wetland resources is the 172-square-mile drainage area of Loyalhanna Lake.

5.2.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in negligible cumulative impacts on wetlands within the CIAA. By utilizing HDD, the sewer force main would be bored underneath Loyalhanna Lake, mapped Wetland ND, and the freshwater forested shrub wetlands present along the riparian corridor; therefore, surface disturbance to these wetlands would not occur.

5.2.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B would result in negligible cumulative impacts on wetlands within the CIAA. By utilizing HDD, the sewer force main would be bored underneath the eight creeks. In addition, no wetlands are present along the six mile sewer line extension; therefore, surface disturbance would not occur.

5.2.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to wetlands is expected under the No Action Alternative; current land use trends within the CIAA, such as flood risk reduction, recreation, natural gas development, agriculture, and residential/infrastructure development would continue.

5.3 THREATENED AND ENDANGERED SPECIES

The CIAA for threatened, endangered and special status species is Westmoreland County, PA, which encompasses approximately 1,036 square miles.

5.3.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in negligible cumulative impacts on threatened, endangered, and special status species as HDD will avoid surface disturbance to habitat of those species that utilize wetland and riparian areas. In addition, no mature forest would be removed as part of the Alternative A.

5.3.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B would result in negligible cumulative impacts on threatened, endangered, and special status species as HDD will avoid surface disturbance to habitat of those species that utilize wetland and riparian areas. A small amount of mature forest might be removed as part of Alternative B; however, the timing and survey requirements for tree removal would reduce these impacts.

5.3.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to threatened, endangered, and special status species is expected under the No Action Alternative; current land use trends within the CIAA, such as flood risk reduction, recreation, natural gas development, agriculture, and residential/infrastructure development would continue.

5.4 PRIME OR UNIQUE FARMLAND

The CIAA for prime or unique farmland is the 6.5-mile easement area along S.R. 22 and construction equipment staging areas.

Under the Preferred Alternative, approximately 1.1 acres (64 percent) of lands within Alternative A are designated as Prime Farmlands. Additionally, approximately 0.4 acres (16 percent) of Farmlands of Statewide Importance were identified, for a total of 1.5 acres of disturbance to

prime or unique farmland resources. While the loss of these lands would represent a loss of soil types designated as high quality farmlands, the small size of these areas and lack of contiguousness preclude the feasibility of their development.

5.4.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in the minute increase in the conversion of prime or unique farmland to uses that preclude farming. Current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue, reducing the extent of soils with ideal conditions for farming. As the primary land use within the CIAA comprises agricultural activities such as crop management and grazing, incremental loss of soils suitable to farming could contribute to the alteration of the agricultural landscape of the CIAA.

5.4.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B would result in cumulative impacts similar to but greater in magnitude than those describe under the Preferred Alternative with several staging areas, connection pits and possible open cut trenching including at least 1.4 acres (0.4 percent) of Farmlands of Statewide Importance (Map unit MoC).

5.4.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to prime or unique farmlands is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.5 RECREATION AREAS

There are no recreational facilities within the project area; however, visitors to nearby Loyalhanna Lake may access it by passing by the project area.

5.5.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in incremental impacts to recreation within the Project Area. Increased traffic within the CIAA from project- related construction activities may alter access for recreationists. These impacts would be temporary in nature and are unlikely to contribute to cumulative effects to recreation over the long term.

5.5.2 Alternative B– Western Sewer Line Extension

Implementation of Alternative B would result in similar impacts as those presented for the Preferred Alternative, though greater in magnitude.

5.5.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to recreation areas is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.6 WILD AND SCENIC RIVERS

The CIAA for Wild and Scenic Rivers is the Bear Run drainage basin. The Bear Run River is a 4.3 mile long tributary of the Youghiogheny River. The Bear Run River is located approximately 35 miles southwest of the Project Area.

5.6.1 Alternative A – Preferred Alternative

Cumulative impacts to the Bear Run River from the implementation of the Preferred Alternative

would be negligible due to the distance of the Project Area from the Bear Run River.

5.6.2 Alternative B – Western Sewer Line Extension

Cumulative impacts to the Bear Run River from the implementation of Alternative B would be negligible due to the distance of the Project Area from the Bear Run River.

5.6.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to the Bear Run River is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.7 TIMBER

Portions of the Project Area in the vicinity of Loyalhanna Lake are currently forested. The CIAA for timber is the 6.5-mile easement area along S.R. 22 and construction equipment staging areas.

5.7.1 Alternative A – Preferred Alternative

While the CIAA is not actively managed for timber resources, USACE would require reimbursement of the value of trees removed. This monetary reimbursement may be used for a variety of management activities that are not limited to reforestation. Cumulative impacts to the CIAA timber resources from the implementation of the Preferred Alternative in addition to other tree-removing activities would result in the reduction of timber within the CIAA, without necessarily replacing this resource.

5.7.2 Alternative B – Western Sewer Line Extension

Similar to the Preferred Alternative - Sanitary Force Main USACE would require reimbursement of the value of trees removed under Alternative B. This monetary reimbursement may be used for a variety of management activities that are not limited to reforestation. Cumulative impacts to the CIAA timber resources from the implementation of Alternative B in addition to other tree-removing activities would result in the reduction of timber within the CIAA, without necessarily replacing this resource.

5.7.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to timber resources is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.8 PHYSIOGRAPHY, GEOLOGY, AND SOILS

The CIAA for physiography, geology, and soils is the 6.5-mile easement area along S.R. 22 and construction equipment staging areas.

5.8.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in minor incremental impacts to physiography, geology, and soils within the CIAA. As the sanitary force main installation would be accomplished through HDD and erosion control measures would be employed, impacts to these resources from the Preferred Alternative are limited to the three temporary work easements totaling 25,600 square feet, two 100 square foot boring pits 100 square feet each and one 100 square foot connection pit. Successful interim and long term reclamation would further reduce the Preferred Alternative's contribution to impacts within the CIAA. Furthermore, disturbed areas will be restored to their original state including regrading and seeding where applicable upon completion of construction activities.

5.8.2 Alternative B –Western Sewer Line Extension

Implementation of Alternative B would result in minor incremental impacts to physiography, geology, and soils within the CIAA due to several staging areas, connection pits and possible open cut trenching. As the sanitary force main crossings would be accomplished through HDD and erosion control measures would be employed, impacts to these resources from the Western Sewer Line Extension Alternative are limited to the 6 mile easement along S.R. 22 and temporary staging areas. Successful interim and long term reclamation would further reduce the Preferred Alternative's contribution to impacts within the CIAA.

5.8.3 Alternative C – No Action Alternative.

No contribution to cumulative impacts to physiography, geology, and soils is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.9 FISH AND WILDLIFE RESOURCES, HABITATS AND VEGETATION

The CIAA for fish and wildlife is the 172-square-mile drainage area of the Loyalhanna Lake and the 6.5 mile easement along S.R. 22.

5.9.1 FISH

5.9.1.1 Alternative A – Preferred Alternative

Implementation of Alternative A would not result in an increase in impacts to fish within the CIAA due to the use of HDD under the water bodies and erosion control measures. Impacts from Speedway's incremental flow are not expected to result in significant negative health impacts to fish or water quality impacts outside of the scope of New Alexandria Sewage Treatment Plant's NPDES Permit within the CIAA. Additionally, the Project may provide an alternative to much of the discharge associated with current septic systems in the vicinity of Loyalhanna Creek, and support the area as it grows by providing a method of transporting, treating, and disposing of sewage.

5.9.1.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B would not result in an increase in impacts to fish within the CIAA due to the use of HDD under the water bodies and erosion control measures.

5.9.1.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to fish is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.9.2 WILDLIFE AND VEGETATION

5.9.2.1 Alternative A – Preferred Alternative

Implementation of Alternative A would result in an increase in impacts to wildlife and vegetation within the CIAA, the surface disturbance associated with the clearing of the staging areas and bore hole areas would add to the loss of vegetation and wildlife habitats in those areas; however, due to the use of HDD, these impacts would be negligible.

Impacts from Speedway's incremental flow are not expected to result in significant negative health impacts to wildlife or vegetation within the CIAA. Additionally, the Project may provide an alternative to much of the discharge associated with current septic systems in the vicinity of

Loyalhanna Lake, and support the area as it grows by providing a method of transporting, treating, and disposing of sewage.

5.9.2.2 Alternative B – Western Sewer Line Extension

The cumulative impacts resulting from Alternative B would include contribution to the long term reduction of wildlife habitats and vegetation within the CIAA along the 6-mile easement due to the clearing of staging areas, bore hole locations and possible open cut trenching. The removal of upland vegetation would result in greater habitat fragmentation, increased edge habitat, and avoidance by native wildlife.

5.9.2.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to wildlife and vegetation is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.10 HYDROLOGY

The CIAA for water bodies and aquifers is the 172-square-mile drainage area of the Loyalhanna Lake and the drainage area for the eight creek crossings along the six mile easement of S.R. 22.

5.10.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would be expected to result in a negligible increase in cumulative impacts to water bodies and aquifers within the CIAA. Execution of erosion control and spill protection measures would reduce the amount of sediment and associated contaminants from entering Loyalhanna Lake. Potential contribution to cumulative impacts is further reduced by boring under Wetland ND, Loyalhanna Lake, and freshwater emergent wetlands present along the Loyalhanna Lake riparian corridor. While a sewer force main rupture is not anticipated to occur and an emergency response plan would be implemented at the time of construction, the release of sanitary sewage may impact the water quality of the CIAA. A rupture is unlikely to occur due to design, inspection, and maintenance protocols required by Speedway.

Under the Preferred Alternative, the New Alexandria Sewage Treatment Plant would receive sanitary sewage from the proposed Speedway Store. The projected flow from the proposed Speedway store is 1,700 gallons per day (gpd). Table 4.10 presents the incremental additional effluent loading in pounds per day (lb/d) on the receiving water (Loyalhanna Lake) from the plant due to the additional Speedway flow. As shown in Table 4.10, the incremental loadings calculated for each parameter (by Permit) from the projected Speedway flow are orders of magnitude below the permit limits for suspended solids and CBOD5 (all other parameters are monitor and report only). Impacts from Speedway's incremental flow are expected to contribute to water quality impacts consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088. Additionally, the Project may provide an alternative to much of the discharge associated with current septic systems in the vicinity of Loyalhanna Lake, and support the area as it grows by providing a method of transporting, treating, and disposing of sewage.

In the event of water quality impacts to Loyalhanna Lake from Speedway's incremental flow beyond those consistent with New Alexandria Sewage Treatment Plant's NPDES Permit No. PA0254088 as determined by the DTMA, controls to mitigate impacts to water bodies would be implemented. Treatment options consist of pre-treatment at the Speedway site per the DTMA rules and regulations. The pre-treatment for a use such as Speedway would be to require Speedway to inspect their on-site grease trap and clean/replace, if necessary. The grease trap is required to be

cleaned every six months at a minimum per DTMA regulations. At this time, future loads with potential growth in the sewershed are unknown.

5.10.2 Alternative B – Western Sewer Line Extension

While erosion control and spill protection measures would be executed, installation of the sewer force main under Alternative B would require trenching under the eight creeks and some loss of soil and construction fluids to the creeks might occur. Cumulative impacts to wildlife from sedimentation and turbidity are discussed in Section 5.10.2. While a sewer force main rupture is not anticipated to occur and an emergency response plan would be implemented at the time of construction, the release of sanitary sewage may impact the water quality of the CIAA. A rupture is unlikely to occur due to design, inspection, and maintenance protocols required by Speedway.

5.10.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to water bodies and aquifers is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.11 CULTURAL RESOURCES

The CIAA for Cultural Resources is the Project Area boundary, as impacts to cultural resources are not additive across a landscape.

5.11.1 Alternative A – Preferred Alternative

Impacts to cultural resources from implementation of the Preferred Alternative would primarily result from activities associated with surface and subsurface disturbance. Since no adverse effects to cultural resources are anticipated under the Preferred Alternative, there would be no incremental loss of cultural resources that would appreciably alter the cumulative impacts cultural resources in the CIAA.

5.11.2 Alternative B – Western Sewer Line Extension

Impacts to cultural resources from implementation of Alternative B would be similar to those described for the Preferred Alternative; however, as a cultural resource survey has not been conducted for the Alternative B easement, it is unknown whether cultural resources are present and it is possible that a loss of cultural resources could occur.

5.11.3 Alternative C – No Action Alternative

Since no adverse effects to cultural resource are anticipated under the No Action Alternative, there would be no loss of cultural resources that would appreciably alter the cumulative impacts to cultural resources in the CIAA. Current land use trends within the CIAA, such as flood risk reduction and recreation, would continue.

5.12 TRIBAL COORDINATION

The CIAA for Native American concerns is the Project Area boundary.

5.12.1 Alternative A – Preferred Alternative

Impacts to Native American Concerns from implementation of the Preferred Alternative would primarily result from activities associated with surface and subsurface disturbance. As no Native American cultural resources, sacred sites or lands have been identified within the Preferred Alternative easement, there would be no incremental loss of Native American resources within the CIAA.

5.12.2 Alternative B – Western Sewer Line Extension

Impacts to Native American concerns from implementation of Alternative B would be similar to those described for Alternative A. However, as no cultural resources survey has been completed for Alternative B, it is unknown whether Native American cultural resources, sacred sites, or lands are present and it is possible that there would be a loss of Native American resources within the CIAA.

5.12.3 Alternative C – No Action Alternative

Since no adverse effects to Native American Concerns are anticipated under the No Action Alternative, there would be no loss that would appreciably alter the cumulative impacts to Native American concerns in the CIAA. Current land use trends within the CIAA, such as flood risk reduction and recreation, would continue.

5.13 MINORITY AND LOW INCOME POPULATIONS

The CIAA for minority and low income populations is Westmoreland County.

5.13.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in incremental impacts to the socioeconomics of Westmoreland County; however, these impacts are anticipated to be positive in nature. Installation of the 3,161-foot sanitary force main would result in an increase of temporary jobs and tax revenues, and increasing the access to the sanitary main along the easement for residences and business owners. Similarly, the infrastructure would require routine maintenance and inspection, resulting in long term jobs in the CIAA. Benefits of the increase in access to sanitary services within Westmoreland County include growth of populations and communities within the areas.

5.13.2 Alternative B – Western Sewer Line Extension

Cumulative impacts resulting from the implementation of Alternative B would be identical to those under the Preferred Alternative but in greater magnitude.

5.13.3 Alternative C – No Action Alternative

While selection of Alternative C would result in zero contribution to the cumulative impacts to socioeconomic resources, current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.14 AIR QUALITY

The CIAA for air quality is the portion of the Pittsburgh Low Plateau physiographic section within PA.

5.14.1 Alternative A – Preferred Alternative

Implementation of Alternative A would result in minor cumulative increases to fugitive dust and emissions associated with combustion engines, as the construction will be temporary and localized in nature. Current land usages (commercial, residential, recreational, etc.) within the CIAA would continue. Air quality impacts from fugitive dust and combustion engines are expected to increase with the expansion of the sanitary force main development within the CIAA.

5.14.2 Alternative B – Western Sewer Line Extension

Cumulative impacts resulting from the implementation of Alternative B would be identical to those under the Preferred Alternative but in greater magnitude.

5.14.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to air quality is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.15 TRANSPORTATION AND TRAFFIC

The CIAA for transportation is Westmoreland County, PA.

5.15.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in incremental but measurable increases in impacts to transportation resources within the CIAA. The development of the sanitary force main within the CIAA would increase the number of construction vehicles on the state and county road network. This increase in traffic would result in increased needs for road maintenance, increased traffic congestion, and increased visitation to fuel stations. In addition to sanitary force main development, current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.15.2 Alternative B – Western Sewer Line Extension

Cumulative impacts resulting from the implementation of Alternative B would be identical to those under the Preferred Alternative but in greater magnitude due to the larger area of easement along S.R. 22.

5.15.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to transportation is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.16 HEALTH AND SAFETY

The CIAA for human health effects is the Loyalhanna Lake Watershed area.

5.16.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would result in minor temporary and long term increases in cumulative impacts to human health within the CIAA. Increased traffic volume and speed could result in an increase in pedestrian and vehicle related traffic accidents when combined with those caused by recreational or flood control activities. These impacts would persist through the lifetime of the sanitary force main and are considered long term. The potential for direct impacts to human health during construction and activation of the sanitary force main are commensurate with the risks of the industry as a whole, and would in most cases be limited to the employees associated with maintenance activities. These impacts would be considered short-term. While a sewer force main rupture is not anticipated to occur and an emergency response plan would be implemented at the time of construction, the release of sanitary products may impact human health within the CIAA. A rupture is unlikely due to design, inspection, and maintenance protocols required by Speedway.

5.16.2 Alternative B – Western Sewer Line Extension

Selection of Alternative B would result in similar cumulative impacts as the Preferred Alternative but in greater magnitude. While a sewer force main rupture is not anticipated to occur and an emergency response plan would be implemented at the time of construction, the release of sanitary products may impact human health within the CIAA. A rupture is unlikely due to design, inspection, and maintenance protocols required by Speedway.

5.16.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to human health is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.17 NOISE

The CIAA for noise is the 6.5-mile easement area along S.R. 22 and construction equipment staging areas.

5.17.1 Alternative A – Preferred Alternative

Implementation of the Preferred Alternative would only result in transient and temporary (short term) increases in noise levels within the CIAA during the construction and installation phases of the project and will end with the completion of the construction process. No contribution to cumulative impacts to noise is expected under the Preferred Alternative.

5.17.2 Alternative B – Western Sewer Line Extension

Selection of Alternative B would result in similar transient and temporary (short term) increases in noise levels within the CIAA during the construction and installation phases of the project and will end with the completion of the construction process. No contribution to cumulative impacts to noise is expected under Alternative B.

5.17.3 Alternative C – No Action Alternative

No contribution to cumulative impacts to noise is expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.18 AESTHETICS

The CIAA for aesthetics is the 6.5-mile easement area along S.R. 22 and construction equipment staging areas.

5.18.1 Alternative A – Preferred Alternative

Implementation of Alternative A is expected to negatively visually and aesthetically impact the 0.58 mile easement area and staging areas for the short term during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected. No contribution to cumulative aesthetic impacts is expected under Alternative A.

5.18.2 Alternative B – Western Sewer Line Extension

Implementation of Alternative B is expected to negatively visually and aesthetically impact the 6-mile long easement area and staging areas for the short term in greater magnitude than Alternative A during construction activities. The presence of construction equipment and vehicles, as well as minor land disturbances is expected. No contribution to cumulative aesthetic impacts is expected under the Alternative B.

5.18.3 Alternative C – No Action Alternative

No contribution to cumulative visual or aesthetical impacts are expected under the No Action Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.19 REGULATED HAZARDOUS CONTAMINANTS

The CIAA for waste management and minimization is Westmoreland County.

5.19.1 Alternative A – Preferred Alternative

No contribution to cumulative impacts from waste management is expected under the Preferred Alternative; current land use trends (commercial, residential, recreational, etc.) within the CIAA would continue.

5.19.2 Alternative B – Western Sewer Line Extension

Cumulative impacts resulting from the implementation of Alternative B would be identical to those under the Preferred Alternative.

5.19.3 Alternative C – No Action Alternative

No impacts involving regulated hazardous contaminants.

6.0 STATUS OF ENVIRONMENTAL COMPLIANCE

Statute / Executive Order	Full	Partial	N/A
National Environmental Policy Act	X		
Floodplains Executive Order 11988	X		
United States Clean Water Act (CWA)	X		
Dam Safety and Encroachments Act	X		
Dam Safety and Waterway Management Rules and Regulations (Title 25, Pennsylvania Code, Chapter 105)	X		
Endangered Species Act	X		
Pennsylvania Scenic Rivers Act	X		
Safe Drinking Water Act of 1974	X		
The Clean Air Act (CAA) of 1963	X		
Noise Control Act of 1972	X		
Pennsylvania Clean Streams Law	X		
Fish and Wildlife Conservation Act of 1980	X		
Wild and Scenic Rivers System	X		
National Historic Preservation Act of 1966	X		

7.0 CONSULTATION AND PUBLIC COORDINATION

7.1 INTRODUCTION

As discussed in **Section 2.1**, the alternatives and resources of concern were identified through coordination with USACE, agency consultation, and field investigations through the NEPA scoping process. USACE will initiate a public comment period by placing legal notices in local and regional newspapers of the availability of the draft FONSI and EA. These documents will also be placed on the Pittsburgh District's website.

7.1.1 PERSONS, GROUPS AND AGENCIES CONTACTED

The table below identifies those persons, groups, and agencies consulted as part of the NEPA scoping process.

Table 7.1-1. Persons, Groups and Agencies Consulted

Name	Purpose & Authorities for Consultation or Coordination	Finds and Conclusions
Barbara Frederick and Doug McLearn of the PA Historical and Museum Commission, State Historic Preservation Office (SHPO)	Consultation for undertakings as required by Section 106 of the NHPA	<p>Submitted Project Review Form to Barbara Frederick of SHPO to initiate archeological and historic structures review of project area on August 14, 2015.</p> <p>SHPO responded on August 25, 2015 clearing the project area from further archeology review but requiring additional information regarding two historic structures located nearby the site of the proposed Speedway Store #100623.</p> <p>Submitted additional information on September 23, 2015 demonstrating that the two historic structures are no longer present and therefore, would not be impacted by the proposed Speedway Store.</p> <p>PHMC issued a response on October 8, 2015 that no further historic structures work for the Preferred Alternative is necessary.</p>
U.S. Fish & Wildlife Service	Consultation with the USFWS as the agency with the expertise on impacts to federally listed, proposed, and candidate plant and wildlife species.	The USFWS issued a response, dated January 26, 2015 and October 13, 2015 stating that no adverse impacts are expected from the proposed project.

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PA Game Commission	Determination of potential presence of state-listed birds and mammals (Game and Wildlife Code 34 Pa. C.S.A. §§ 101 et seq.).	In letters dated January 26, 2015 and October 13, 2015 the PGC did not identify any known state-listed birds and mammals; no further review was required.
PA Fish and Boat Commission	Determination of potential presence of state-listed fish, reptiles, amphibians, and aquatic organisms (Fish and Boat Code 30 Pa. C.S.A. §§ 101 et seq.).	PFBC responded in a letter dated January 26, 2015 and October 13, 2015 that no adverse impacts are expected from the proposed project.
PA Department of Conservation and Natural Resources	Determination of potential presence of state-listed plants, natural communities, terrestrial invertebrates and geological features (Wild Resources Conservation Act 32 P.S. §§ 5301 et seq.).	DCNR did not identify any known impacts and no additional surveys are required.

7.2 DISTRIBUTION MAILING LIST

See Appendix F for the specific recipient list for the Environmental Assessment and Draft FONSI, for the 30-day public review and comment period. The documents will be available online at <http://www.lrp.usace.army.mil/Missions/Planning-Programs-Project-Management/> and by hard copy at the Loyahanna Lake Project Office in Saltsburg, PA, and the New Alexandria Public Library in Masontown, PA.

8.0 PERMITS REQUIRED

8.1 FEDERAL

There are no Federal permits required for the Preferred Alternative. However, approval is required from USACE for an easement through federal property. The State, under Section 404 of the CWA, may issue a Pennsylvania State Programmatic General Permit 5 (PASPGP-5). This is a federal permit.

8.2 STATE

Permits may be required through the PA Department of Transportation for work along the S.R. 22 roadway and placement of a sewer line. Further, the State may require permits for the borings and floodplain impacts. No other state permits have been identified at this time.

8.3 LOCAL

No local permits have been identified at this time.

9.0 CONCLUSION

Speedway LLC is proposing to install a 2 inch diameter sanitary sewer force main in a 4 inch conduit along S.R. 22 (William Penn Highway) in parts of New Alexandria Borough, Derry Township and Salem Township, in Westmoreland County, PA. The proposed sanitary sewer force main is necessary to provide transportation capacity for sanitary sewage for the proposed Speedway Store located at 107 Operators Way, New Alexandria, in Westmoreland County, PA. The length of the installation is approximately 3,161 linear foot along the north side of S.R. 22, with one approximate 1,045-foot section and one 470-foot section crossing federal lands administered by the United States Army Corps of Engineers (USACE) (Loyalhanna Lake and its Tributary No. 6) in two separate areas.

Under the Preferred Alternative, the installation of the sewer force main would require the use of HDD methods that would also include crossing Loyalhanna Lake and the box culvert carrying Tributary No. 6 would be required. The crossings would be accomplished using the directional boring method. The depth of the bore would be approximately 20' below the river/stream bed to ensure the bore is completely in bedrock. For the sewer force main installed via the HDD method, minimal surface disturbing activities would occur and overall surface disturbance to USACE-managed lands would be minimized to an approximately 100 x 100 square foot area of land to be cleared for use as a construction easement. The Preferred Alternative will allow for properties in the eastern portion of Salem Township and West of the Loyalhanna Lake, including the proposed Speedway property, to have access to public sanitary sewer facilities. Given that the proposed sanitary sewer force main would cross federal property managed by USACE, USACE will serve as the LFA for the EA.

This Assessment is intended to assist USACE in project planning by evaluating the purpose and need of the project, as well as any potential environmental impacts and their significance. As defined by the Council on Environmental Quality (CEQ), the significance of a federal action is determined by the context of the action in relation to the overall project setting, as well as the intensity of direct, indirect and cumulative effects resulting from the project. The location and land use, as well as the cumulative impact of the project were evaluated specifically associated with floodplains, wetlands, threatened and endangered species, prime or unique farmland, recreation areas, wild and scenic rivers, timber, physiography, geology and soils, fish and wildlife resources, habitats and vegetation, hydrology, cultural resources, Native American concerns minority and low income populations, air quality, transportation and traffic, health and safety, noise, aesthetics, regulated hazardous contaminants and socio-economic profile.

Based on the findings of this Environmental Assessment, the Preferred Alternative (Alternative A) will have no permanent impact on the Environmental Setting of the area except for the long term possible loss of 0.23 acres of surface disturbance to soils and habitat for wildlife species. Although temporary effects to floodplains, prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants may occur they would only last as long as the construction phase of the project. However, Loyalhanna Lake is impacted by acid mine drainage and nutrient loading from the New Alexandria Sewage Treatment Plant (NPDES Permit No. PA254088). Nutrients discharged from the treatment plant are not currently treated. While discharges into Loyalhanna Lake are within the capacity of the treatment plant's permit, limited data provided by Derry Township indicates the Proposed Project will increase, potentially impacting the lake's water quality.

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Alternative B could have a significant impact on the habitats for floodplains, wildlife species, wetlands and/or cultural resources within the approximate 6-mile route along S.R. 22. Although temporary effects to prime or unique farm lands, recreation areas, soils, hydrology, noise, human health, aesthetics and regulated hazardous contaminants may occur these temporary effects will only last as long as the construction phase of the project.

The No Action Alternative involves not constructing the sanitary sewer force main; and therefore, no access to public sanitary sewer facilities would be available to properties in the eastern portion of Salem Township and West of the Loyalhanna Lake, including the proposed Speedway property.

10.0 LIST OF REFERENCES

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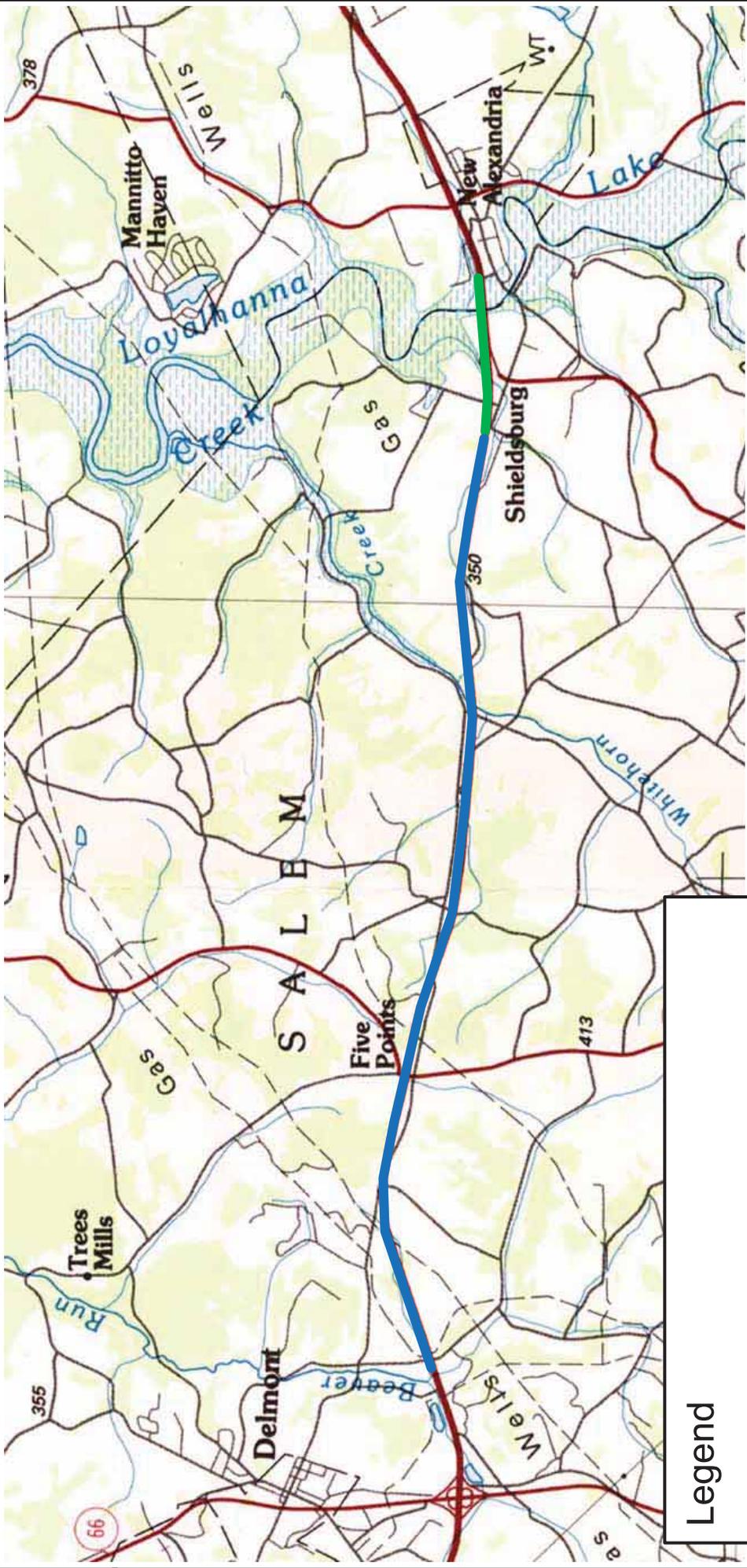
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Westmoreland County, PA

FIGURES



Legend

- Sanitary Sewer Force Main (Alternative A)
- Western Sewer Line Extension (Alternative B)



**2523020034- Sanitary Sewer Force Main Project
Project Location Map**

PROJECT NO.: 2523020034

DRAWN BY: DG



Not to Scale

FIGURE

1.1



Legend

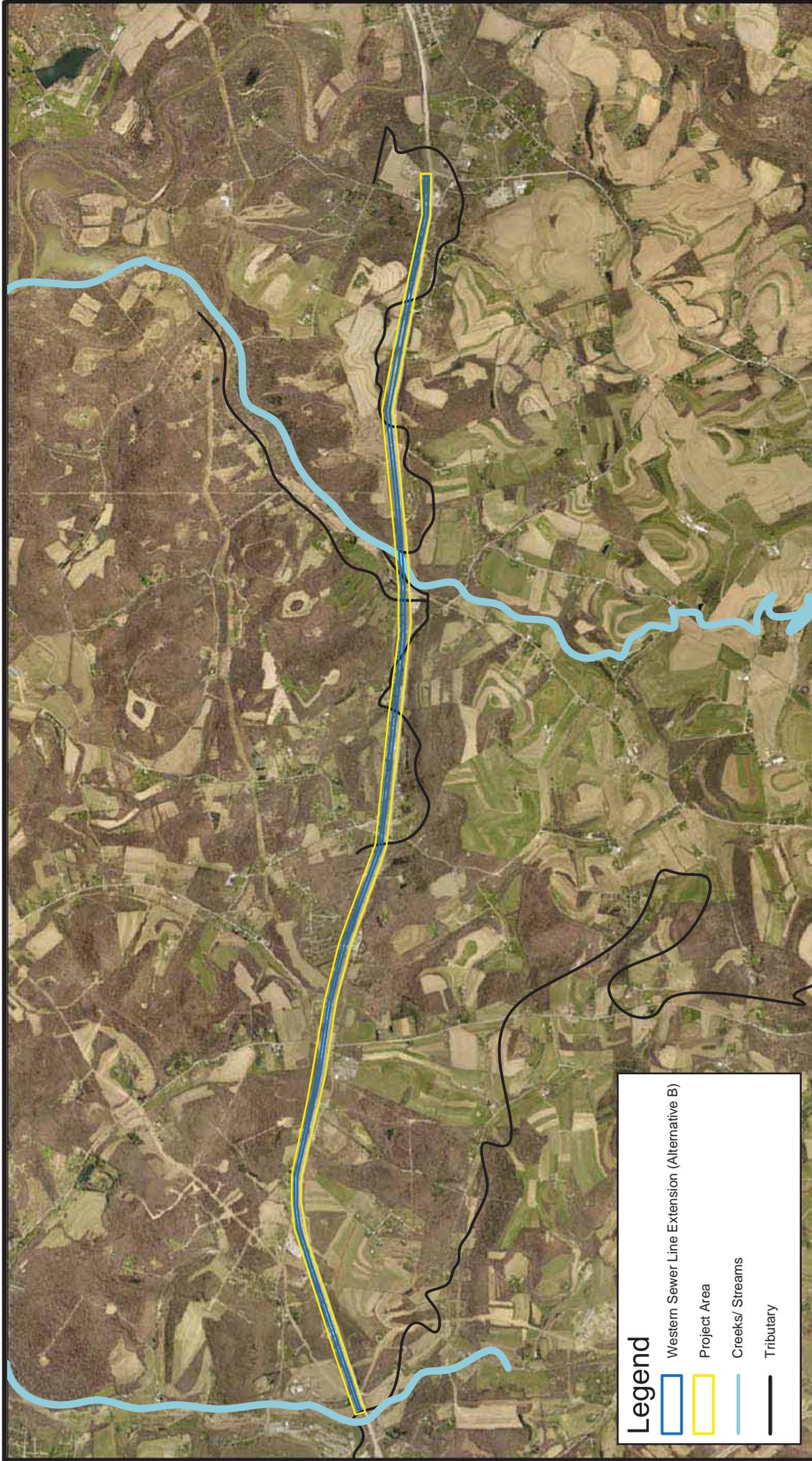
- Sanitary Sewer Force Main (Alternative A)
- Project Area
- 10' x 10' Bore Pit
- 100' x 100' Work & Storage Easement
- Temporary Construction Easement
- Sanitary Sewer Features Outside of Project Area
- Loyalthanna Creek
- Tributary

2523020034- Sanitary Sewer Force Main Project
 Location Area Alternative A Map

PROJECT NO. 2523020034
 DRAWN BY: DG



FIGURE
2.1



Legend

- Western Sewer Line Extension (Alternative B)
- Project Area
- Creeks/ Streams
- Tributary

FATC
 ENVIRONMENTAL • GEOTECHNICAL
 BUILDING SCIENCES • MATERIALS TESTING

2523020034- Sanitary Sewer Force Main Project
 Location Area Alternative B Map

PROJECT NO. 2523020034

DRAWN BY: DG

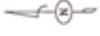
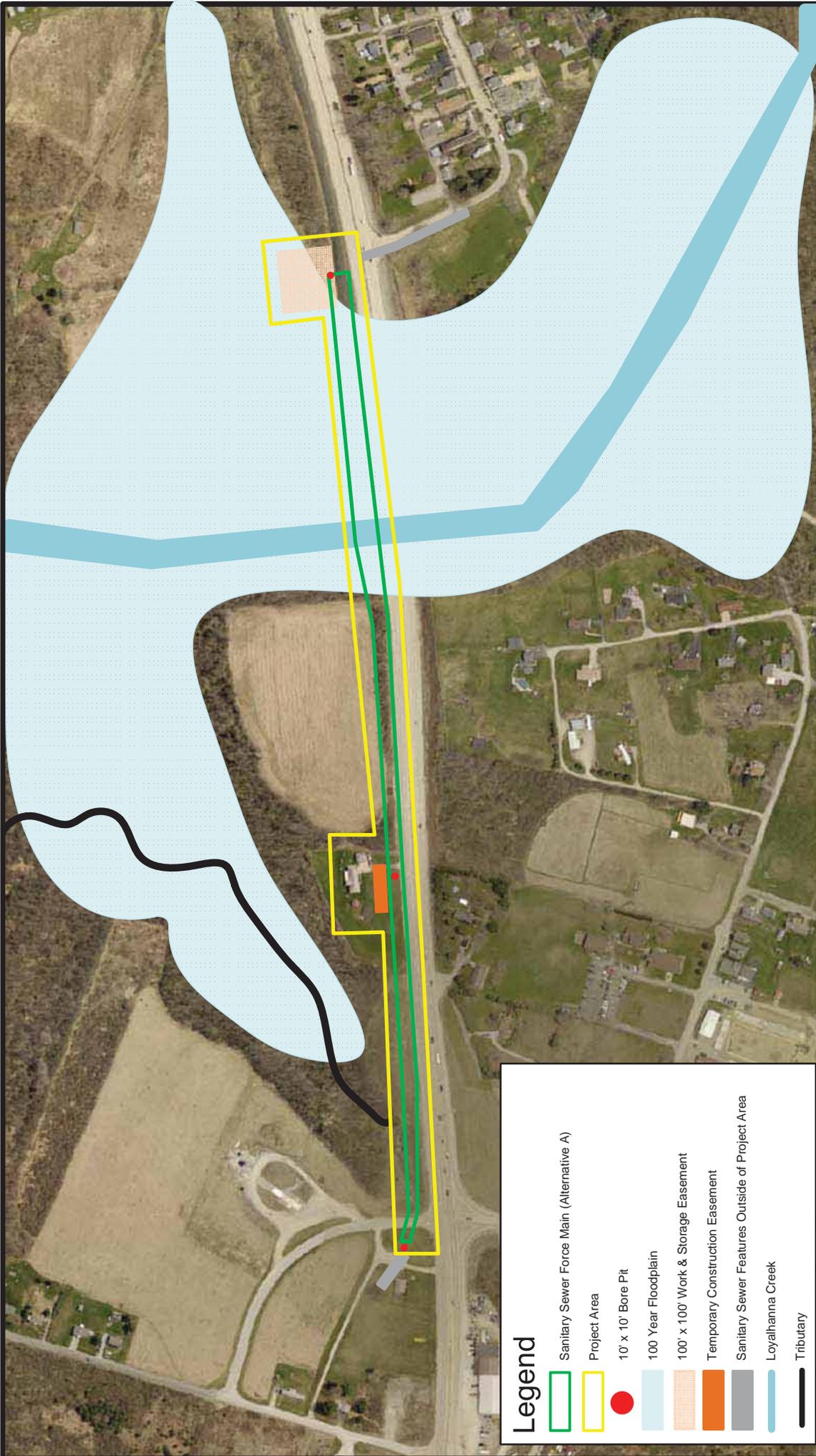
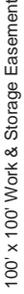


FIGURE
2.2



Legend

-  Sanitary Sewer Force Main (Alternative A)
-  Project Area
-  10' x 10' Bore Pit
-  100 Year Floodplain
-  100' x 100' Work & Storage Easement
-  Temporary Construction Easement
-  Sanitary Sewer Features Outside of Project Area
-  Loyalhanna Creek
-  Tributary

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 BUILDING SCIENCES • MATERIALS TESTING

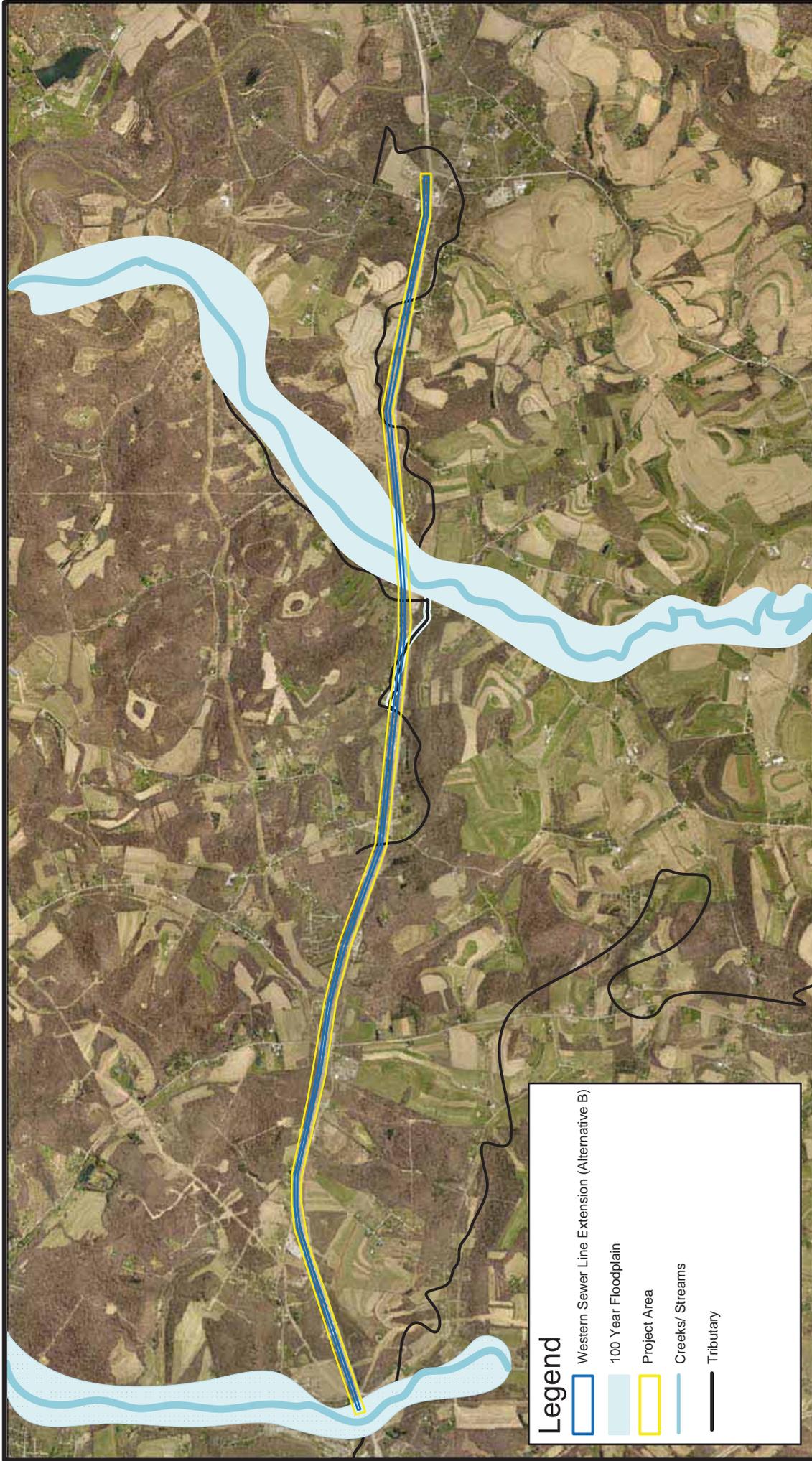
2523020034- Sanitary Sewer Force Main Project
 100 Year Floodplain Alternative A Map

PROJECT NO. 2523020034
 DRAWN BY: DG

1 inch = 376 feet




FIGURE
3.1



Legend

-  Western Sewer Line Extension (Alternative B)
-  100 Year Floodplain
-  Project Area
-  Creeks/ Streams
-  Tributary

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**2523020034- Sanitary Sewer Force Main Project
 100 Year Floodplain Alternative B Map**

PROJECT NO. 2523020034

DRAWN BY: DG

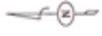


FIGURE
3.2

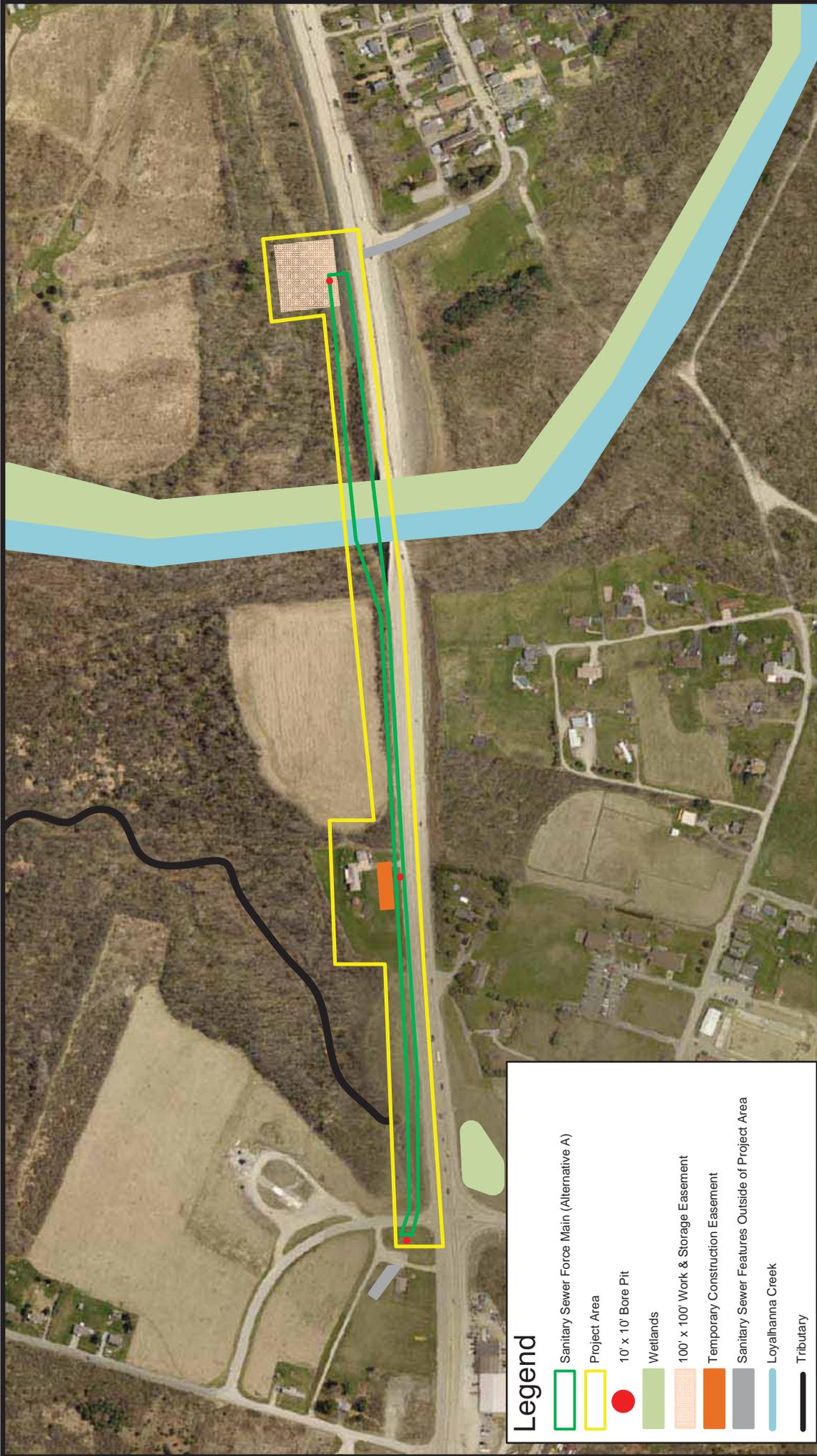
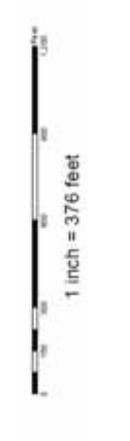


FIGURE 4.1



PROJECT NO. 2523020034
DRAWN BY: DG

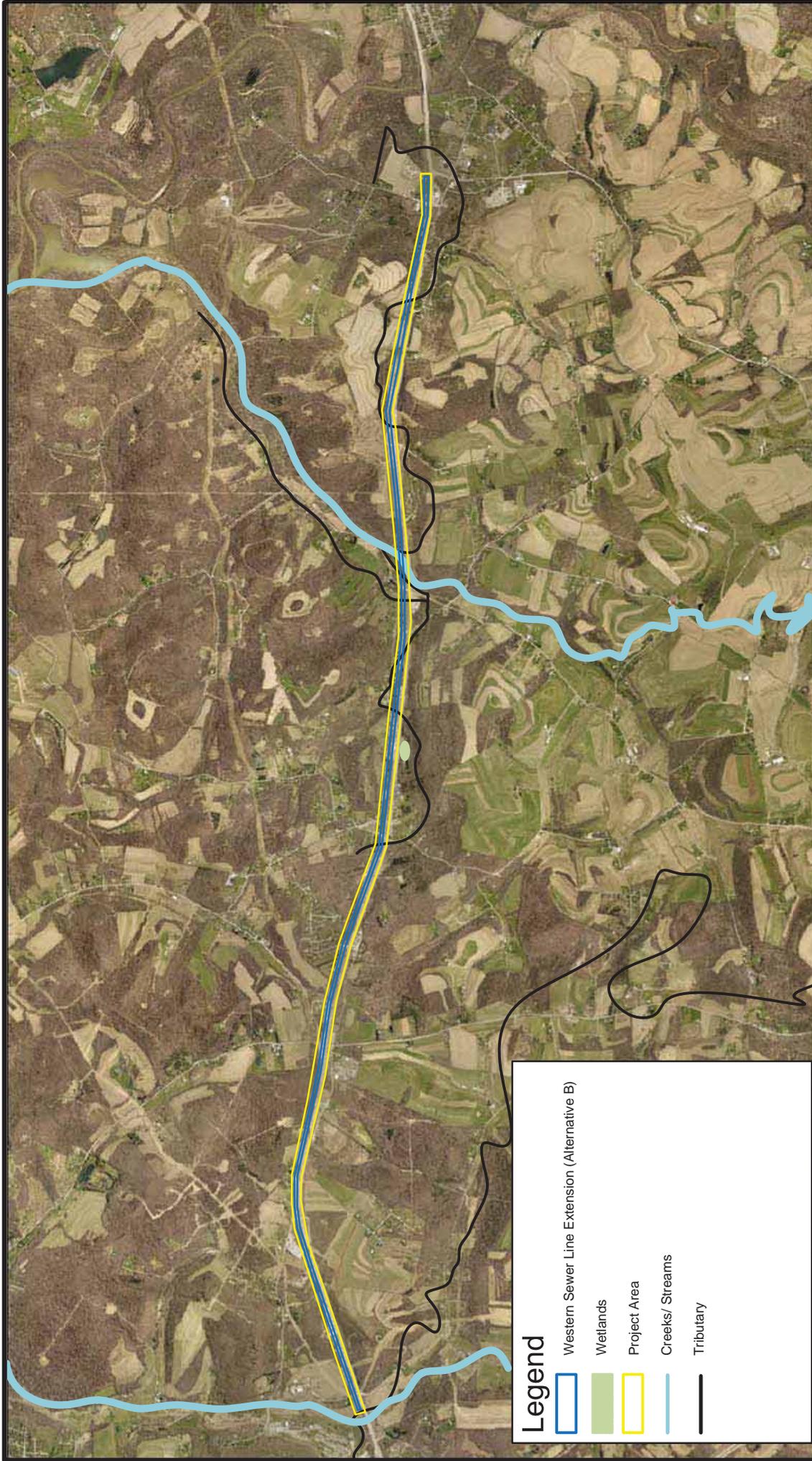
2523020034- Sanitary Sewer Force Main Project
Wetlands Alternative A Map

Legend

-  Sanitary Sewer Force Main (Alternative A)
-  Project Area
-  10' x 10' Bore Pit
-  Wetlands
-  100' x 100' Work & Storage Easement
-  Temporary Construction Easement
-  Sanitary Sewer Features Outside of Project Area
-  Loyalhanna Creek
-  Tributary



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BUILDING SCIENCES • MATERIALS TESTING



- Legend**
- Western Sewer Line Extension (Alternative B)
 - Wetlands
 - Project Area
 - Creeks/ Streams
 - Tributary



2523020034- Sanitary Sewer Force Main Project
 Wetlands Alternative B Map

PROJECT NO. 2523020034
 DRAWN BY: DG

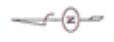


FIGURE 4.2

APPENDIX A – PROPOSED SANITARY NEW BUILD DRAWINGS

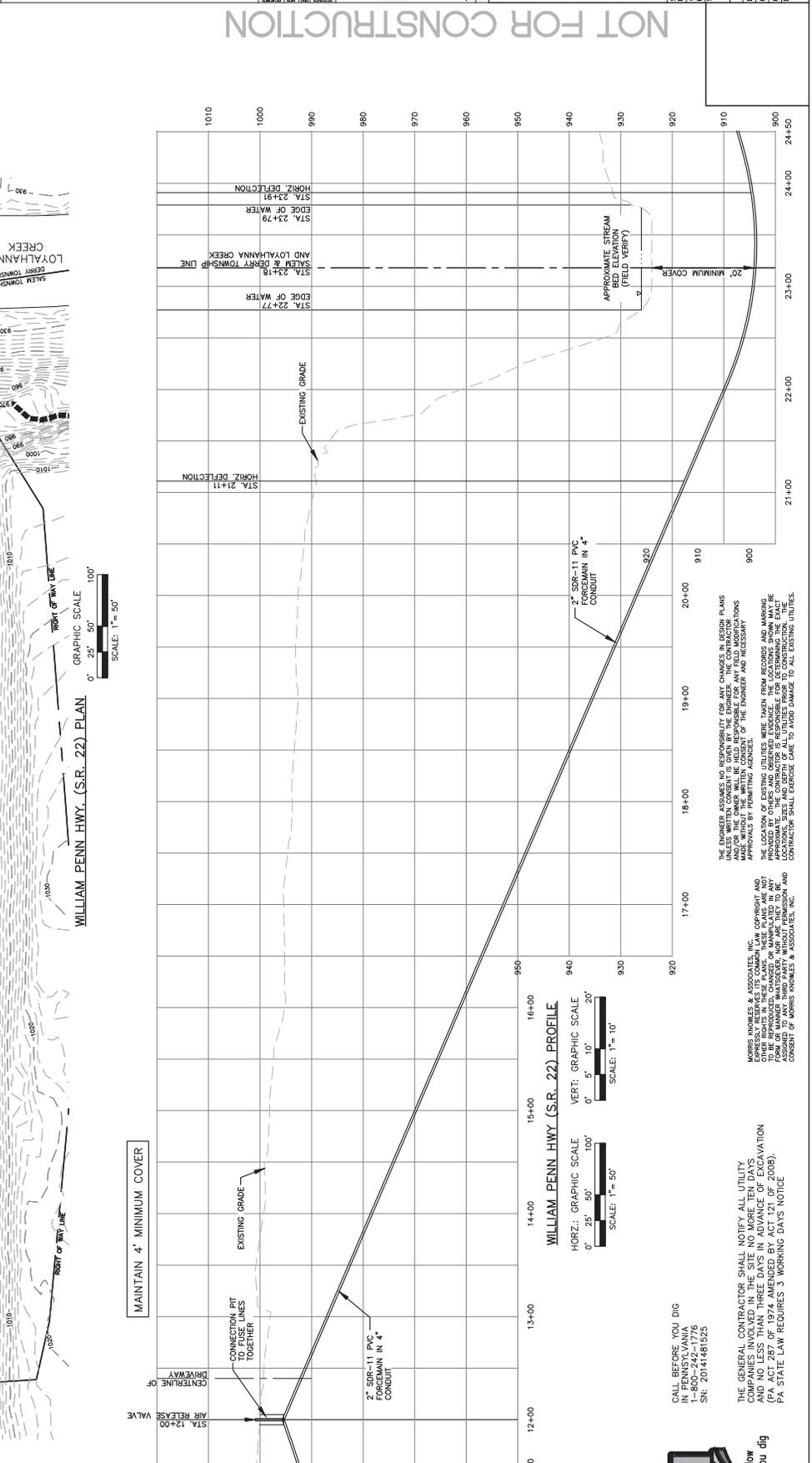
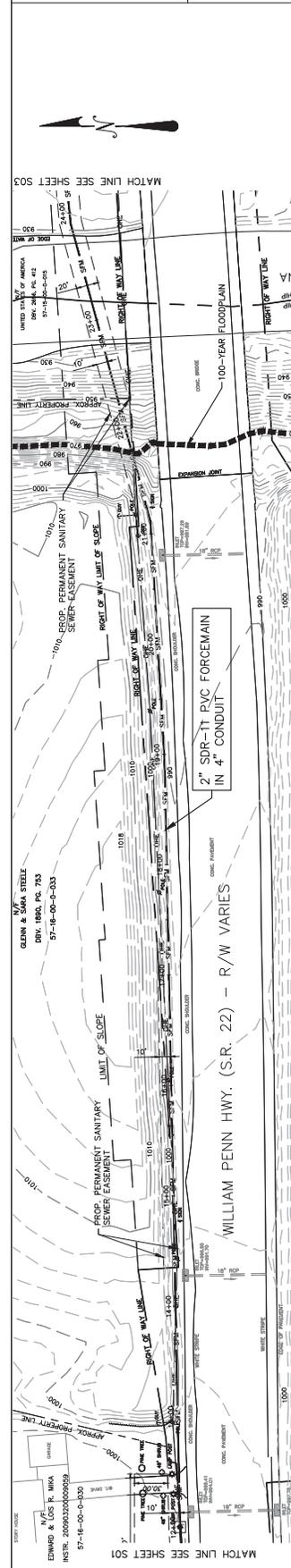
Mr. Morris Knowles
 ENGINEERING & ARCHITECTURE, INC.
 443 Main Street
 P.O. Box 100
 Westford, MA 01581
 Tel: (781) 466-8840
 Fax: (781) 466-8840

Speedway
 ENGINEERING & ARCHITECTURE, INC.
 443 Main Street
 P.O. Box 100
 Westford, MA 01581
 Tel: (781) 466-8840
 Fax: (781) 466-8840

PROPOSED SANITARY
 NEW BUILD
 8065 S.R. 22 & S.R. 119
 WESTMORELAND COUNTY
 NEW ALEXANDRIA, PA

DATE: 01/06/23
 DRAWING NO: 85098
 PROJECT NO: 100623-502

DATE	01/06/23
DESIGN NO	85098
PROJECT NO	100623-502
SCALE	1" = 50'-0"
DATE	
DESIGN NO	
PROJECT NO	
SCALE	



NOT FOR CONSTRUCTION

UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHANGES IN DESIGN PLANS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM AGENCIES AND AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM AGENCIES AND AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM AGENCIES AND AGENCIES.

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS AND AGENCIES AT LEAST THREE DAYS IN ADVANCE OF EXCAVATION AND NOT LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974, AMENDED BY ACT 121 OF 2008). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE.

CALL BEFORE YOU DIG
 1-800-4-A-DIG
 SN: 20141481525

Know what's below
 Call Before you dig

APPENDIX B – AGENCY CORRESPONDANCE

APPENDIX B – LIST OF AGENCIES CONSULTED

Agency	Name(s) (if applicable)
Pennsylvania Historical and Museum Commission, State Historic Preservation Office (SHPO)	Barbara Frederick and Doug McLearn
U.S. Fish & Wildlife Service	
Pennsylvania Game Commission	
Pennsylvania Fish and Boat Commission	
Pennsylvania Department of Conservation and Natural Resources	
United States Army Corps of Engineers (USACE)	

1. PROJECT INFORMATION

Project Name: **Speedway Salem Twp**

Date of review: **1/26/2015 8:12:39 AM**

Project Category: **Development, New commercial/industrial development (store, gas station, factory)**

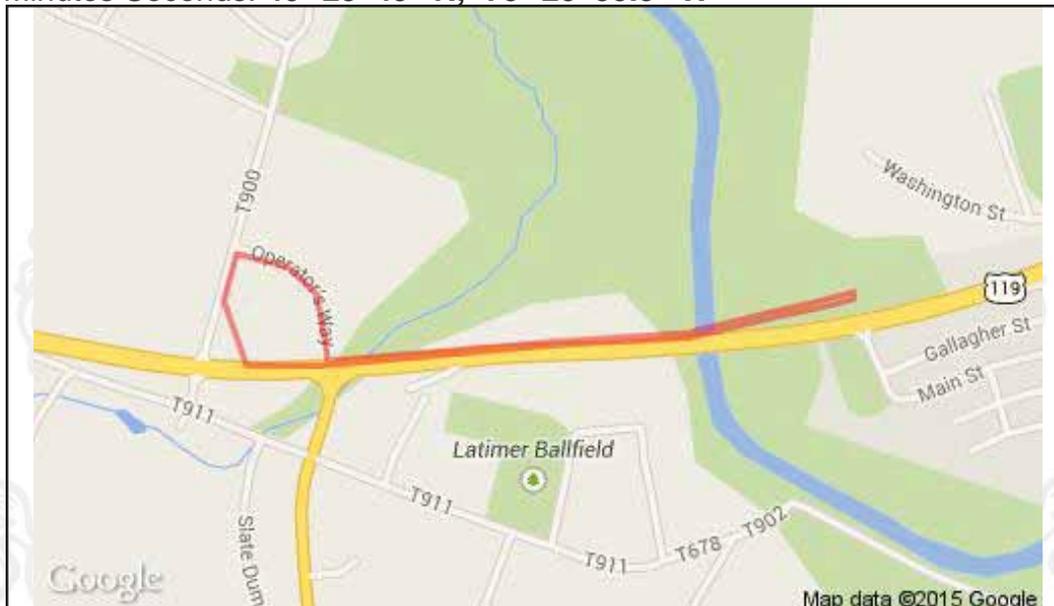
Project Area: **8.9 acres**

County: **Westmoreland** Township/Municipality: **New Alexandria, Salem**

Quadrangle Name: **SALTSBURG** ~ ZIP Code: **15601**

Decimal Degrees: **40.396936 N, -79.432092 W**

Degrees Minutes Seconds: **40° 23' 49" N, -79° 25' 55.5" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Pennsylvania Field Office
110 Radnor Rd; Suite 101, State College, PA 16801
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Mark M. Zimmerman
Company/Business Name: Morris Knowles & Associates
Address: 443 Athena Drive
City, State, Zip: Delmont, PA 15626
Phone: (724) 468-4622 Fax: (724) 468-8940
Email: mmzimmerman@morrisknowles.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

1. PROJECT INFORMATION

Project Name: **100623 Alternative B**

Date of review: **10/13/2015 11:31:27 AM**

Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Other**

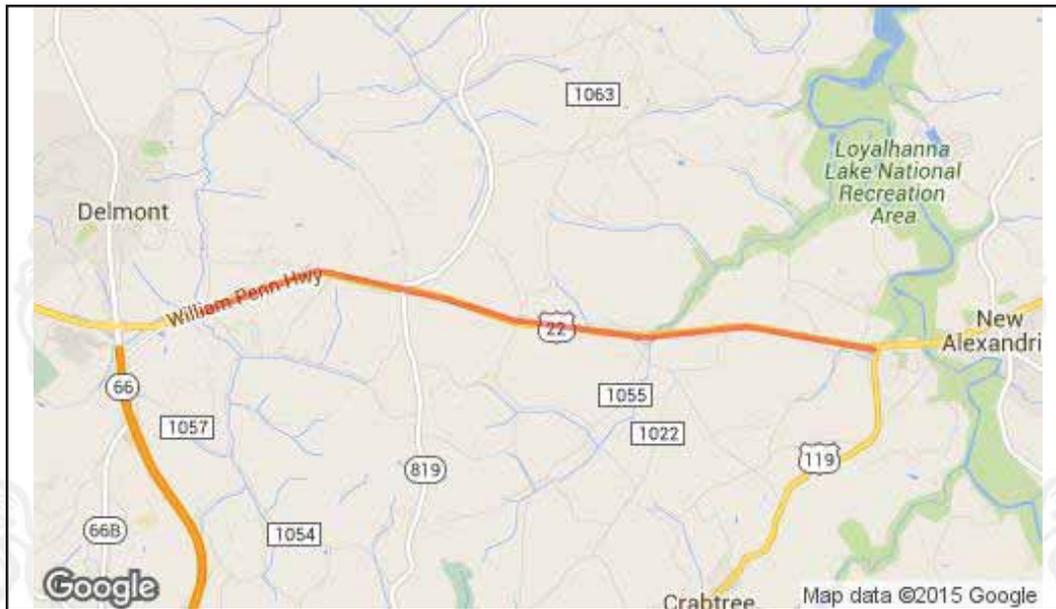
Project Length: **32632.4 feet**

County: **Westmoreland** Township/Municipality: **Salem**

Quadrangle Name: **SLICKVILLE** ~ ZIP Code: **15601, 15626**

Decimal Degrees: **40.388527 N, -79.527435 W**

Degrees Minutes Seconds: **40° 23' 18.7" N, -79° 31' 38.8" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

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PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

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5. ADDITIONAL INFORMATION

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For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

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17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Pennsylvania Field Office
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NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date



August 5, 2015

Ms. Barbara Frederick
Pennsylvania Historical & Museum Commission
State Historic Preservation Office
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093

Cardno

103 North Meadows Drive
Suite 211
Wexford, PA 15090

Phone +1 724 935 4330
Fax +1 724 935 4350

www.cardno.com

**Subject: Project Review Form for Sanitary Sewer Line Installation
to Proposed Speedway Site #100623**

Dear Ms. Frederick:

Cardno, on behalf of Speedway LLC (Speedway), is submitting this Project Review Form for a project involving the proposed installation of a sanitary sewer extension along the eastbound side of U.S. Route 22 (US 22) in New Alexandria, Westmoreland County, Pennsylvania. Cardno is conducting a National Environmental Policy Act (NEPA) Environmental Assessment (EA) because the aforementioned sanitary sewer force main will transect land which is under the jurisdiction of the U.S. Army Corps of Engineers (USACE). A NEPA EA is required by USACE to obtain easements on the proposed impacted property.

Description and Scope of the Project

Speedway plans to build a retail fuel and convenience store on an approximately 4.8-acre parcel of property located at 107 Operators Way, New Alexandria, Salem Township, Westmoreland County, Pennsylvania. The purpose of this project is the construction/installation of sewer lines in conjunction with the development of the new Speedway store. Based on current information, Speedway is proposing to install a sanitary sewer extension within the US 22 roadway right-of-way. At this time, construction methods are planned to consist of horizontal directional boring with minimal ground excavation. The force main sewer extension will run approximately 1 mile from the intersection of US 22 and Operators Way along the eastbound side of US 22. The width of the disturbance is estimated to be between 10 and 20 feet, and will vary in places as per Speedway's preliminary design drawing. At the east end of the undertaking, a 100-foot by 100-foot easement area will be cleared and used for work and temporary storage. An approximate 5,000-square foot area at the south part of the Mika property, at 8113 William Penn Highway (US 22), will be used as a temporary construction easement. The total area of disturbance is estimated to be 1.5 to 3 acres.

A review of available historical information indicates that historical property and surrounding area uses were primarily agricultural, commercial, and residential. Current uses of adjoining properties have remained the same. Other than ground disturbances caused by construction to improve US 22, historical ground disturbances along the proposed sewer extension are unknown. There are three buildings within the project area. One building, a one-story brick ranch house (c. 1960), is

located at 107 Operators Way, the future site of the Speedway store. This house is proposed for demolition. The other buildings are a one-story brick ranch house and a one-story brick garage (c. 1960), located on the Mika property at 8113 William Penn Highway (US 22). A review of the criteria for evaluation for the National Register of Historic Places indicates that the Mika property at 8113 William Penn Highway (US 22) does not appear to be eligible as it does not have the following attributes: association with the lives of significant persons present or past, association with events of significant contribution to history, construction of historically important architectural significance, and/or bearing information important in history or prehistory.

The proposed sewer line will run through rural and agricultural areas. Based on a review of the Pennsylvania State Historic Preservation Office's June 2013 document, *Survey Guidelines for Pipeline Projects, Above Ground Resources*, it is determined that any impacts would be temporary in an historically disturbed right-of-way. Furthermore, there would be no adverse impact to historic agricultural land or landscape features (i.e., woodlots, hedgerows, stone walls, and/or field patterns) that could be affected by the clearing of a sewer line right-of-way. The results of the information obtained during the course of this survey indicated that no historic properties, agricultural land, or landscape features will be affected.

Based on the nature of the project, there may be temporary visual effects during the construction period. However, the disturbances are planned in previously disturbed areas of the roadway right-of-way so there would appear to be a low potential for archeological resources to be present. Therefore, based on Cardno's research, and a search using Pennsylvania's Cultural Resources Geographic Information System (CRGIS) website and the National Park Service Historic Register database, there are no properties within the project area listed in or eligible for the National Register of Historic Places, or designated historic by local government. It is noted that the CRGIS search returned two previous surveys of areas that include portions of the proposed sewer route (ER No. 1984-1015-129-A and ER No. 1992-0665-042-C).

Please find enclosed the following attachments in support of this deliverable:

- Figure 1 – Site Location Map Showing Area of Potential Effect (7.5' USGS quad)
- Figure 2 – NEPA Aerial Photograph Showing Route of Sanitary Sewer
- Proposed Sanitary New Build 12/19/14 Drawings
- Photo Log from Site Walk
- Figures 3 through 5 – NEPA Site Plan Photo Log Location Map

We appreciate your time and assistance on this very important project. If you have any questions regarding the information provided herein, please do not hesitate to contact us at (724) 935-4330.

Sincerely,



Karren T. Wood
Senior Scientist
Cardno
Phone Line +1-724-935-4330
Email: karren.wood@cardno.com

Attachments



PROJECT REVIEW FORM

Request to **Initiate** SHPO Consultation on
State and Federal Undertakings

SHPO USE ONLY
DATE RECEIVED:
ER NUMBER:

REV: 10/2014

SECTION A: PROJECT NAME & LOCATION

Is this a new **submission**? YES NO OR This is **additional information** for ER Number:

Project Name Proposed Speedway Site 100623 County Westmoreland Municipality Salem Township
 Project Address 107 Operators Way City/State/ Zip New Alexandria PA 15601

SECTION B: CONTACT INFORMATION & MAILING ADDRESS

Name Karren T. Wood Phone (724) 935-4330
 Company Cardno Fax (724) 935-4350
 Street/PO Box 103 N. Meadows Drive, Suite 211 Email karren.wood@cardno.com
 City/State/Zip Wexford PA 15090

SECTION C: PROJECT DESCRIPTION

This project is located on: Federal property State property Municipal property Private property
 (check all that apply)

List all federal and state agencies and programs providing funds, permits, licenses.	Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
	Federal	U.S. Army Corps of Engineers	

Proposed Work – **Attach** project description, scope of work, site plans, and/or drawings

Project includes (check all that apply): Construction Demolition Rehabilitation Disposition

Total acres of project area: 1.5 - 3 Total acres of earth disturbance: 1.5 - 3

Are there any buildings or structures within the project area? Yes No Approximate age of buildings: 55 years

Does this project involve properties listed in or eligible for the National Register of Historic Places, or designated as historic by a local government?	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Unsure <input type="radio"/>	Name of historic property or historic districts
---	---------------------------	-------------------------------------	------------------------------	---

Please print and mail completed form and all **attachments** to:

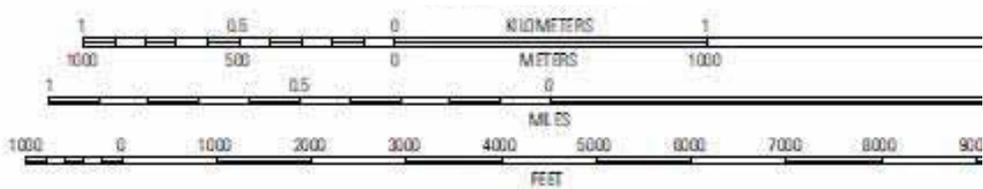
PHMC
 State Historic Preservation Office
 400 North St.
 Commonwealth Keystone Building, 2nd Floor
 Harrisburg, PA 17120-0093

- Attachments** – Please include the following information with this form
- Map – 7.5' USGS quad showing project boundary and Area of Potential Effect
 - Description/Scope – Describe the project, including any ground disturbance and previous land use
 - Site Plans/Drawings – Indicate the location and age, if known, of all buildings in the project area
 - Photographs – Attach prints or digital photographs showing the project site, including images of all buildings and structures keyed to a site plan

SHPO DETERMINATION (SHPO USE ONLY)

- | | |
|---|--|
| <input type="checkbox"/> There are NO HISTORIC PROPERTIES in the Area of Potential Effect | <input type="checkbox"/> The project will have NO ADVERSE EFFECTS WITH CONDITIONS (see attached) |
| <input type="checkbox"/> The project will have NO EFFECT on historic properties | <input type="checkbox"/> SHPO REQUESTS ADDITIONAL INFORMATION (see attached) |
| <input type="checkbox"/> The project will have NO ADVERSE EFFECTS on historic properties: | |

SHPO REVIEWER: _____ DATE: _____



AREA OF POTENTIAL EFFECT 

FIGURE 1 - SITE LOCATION MAP SHOWING AREA OF POTENTIAL EFFECT

Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. Z048000045

SOURCE: U.S.G.S. 7.5-Minute Quadrangle, *Saltsburg, PA* 2013

SCALE:
Use Bar Scale on Map



**NEPA AERIAL PHOTOGRAPH
SHOWING ROUTE OF
SANITARY SEWER**
107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

DATE: 6/24/2015	PROJECT NO.: 100623
DRAWN BY: THS	SCALE: See Bar Scale
REVIEWED BY: KTV	FIGURE 2



LEGEND

--- PROPOSED SANITARY SEWER ROUTE

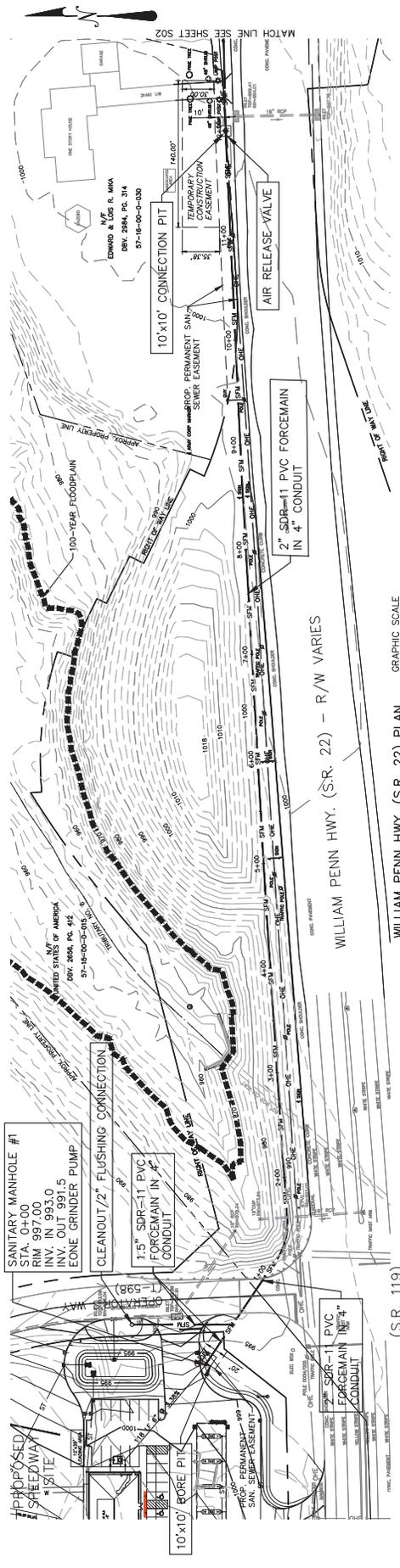
□ TEMPORARY CONSTRUCTION EASEMENTS

Morris Knowles
 Engineering and Construction Dept.
 443 Main Street
 P.O. Box 2884, P.O. 314
 Edinboro, PA 16710
 Phone: (814) 466-8800
 Fax: (814) 466-8800

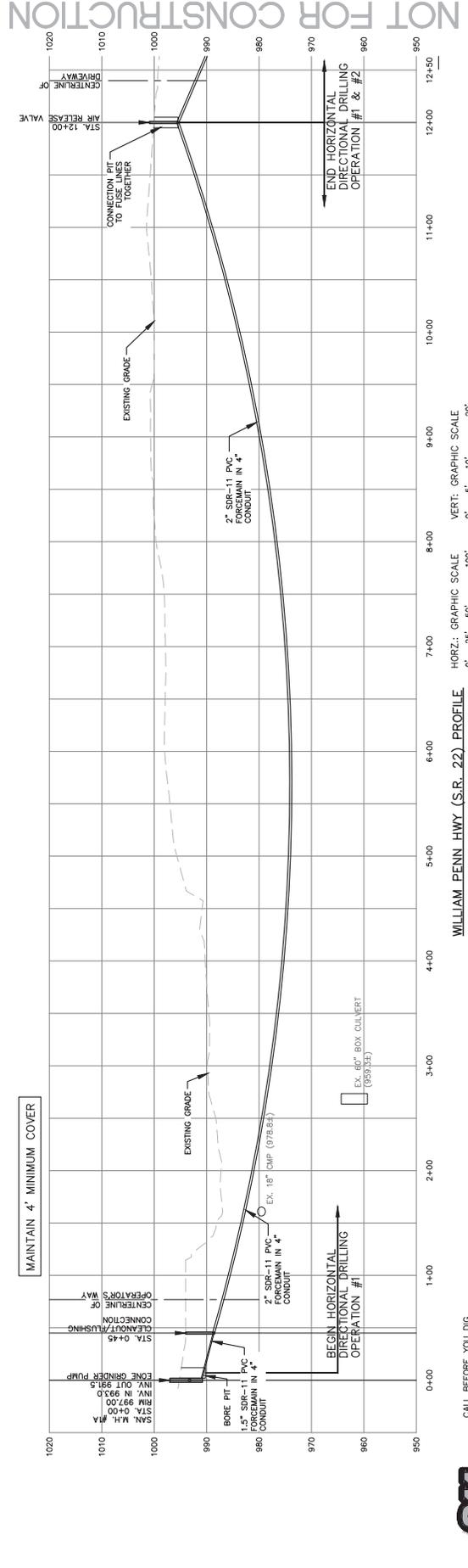
Speedway
 Engineering and Construction Dept.
 443 Main Street
 P.O. Box 2884, P.O. 314
 Edinboro, PA 16710
 Phone: (814) 466-8800
 Fax: (814) 466-8800

PROPOSED SANITARY
 NEW BUILT
 8065 S.R. 22 & S.R. 119
 WESTMORELAND COUNTY
 NEW ALEXANDRIA, PA

PROJECT NO. 01000623
 DRAWING NO. 85698
 SHEET NO. 1 OF 1



GRAPHIC SCALE
 0' 25' 50' 100'
 SCALE: 1" = 50'



GRAPHIC SCALE
 0' 25' 50' 100'
 SCALE: 1" = 50'

GRAPHIC SCALE
 0' 5' 10' 20'
 SCALE: 1" = 10'

HORIZ.: GRAPHIC SCALE
 0' 25' 50' 100'
 SCALE: 1" = 50'

VERT.: GRAPHIC SCALE
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 SCALE: 1" = 10'

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR SHALL MAKE ALL NECESSARY FIELD SURVEYS AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPLICABLE AGENCIES.

MORRIS KNOWLES & ASSOCIATES, INC.
 ENGINEERS AND ARCHITECTS
 443 MAIN STREET
 P.O. BOX 2884, P.O. 314
 EDINBORO, PA 16710
 PHONE: (814) 466-8800
 FAX: (814) 466-8800

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS AND AGENCIES AT LEAST THREE DAYS IN ADVANCE OF EXCAVATION. (PA ACT 287 OF 1974, AMENDED BY ACT 121 OF 2008). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE.



Know what's below
 Call Before you dig

NOT FOR CONSTRUCTION

100623-501

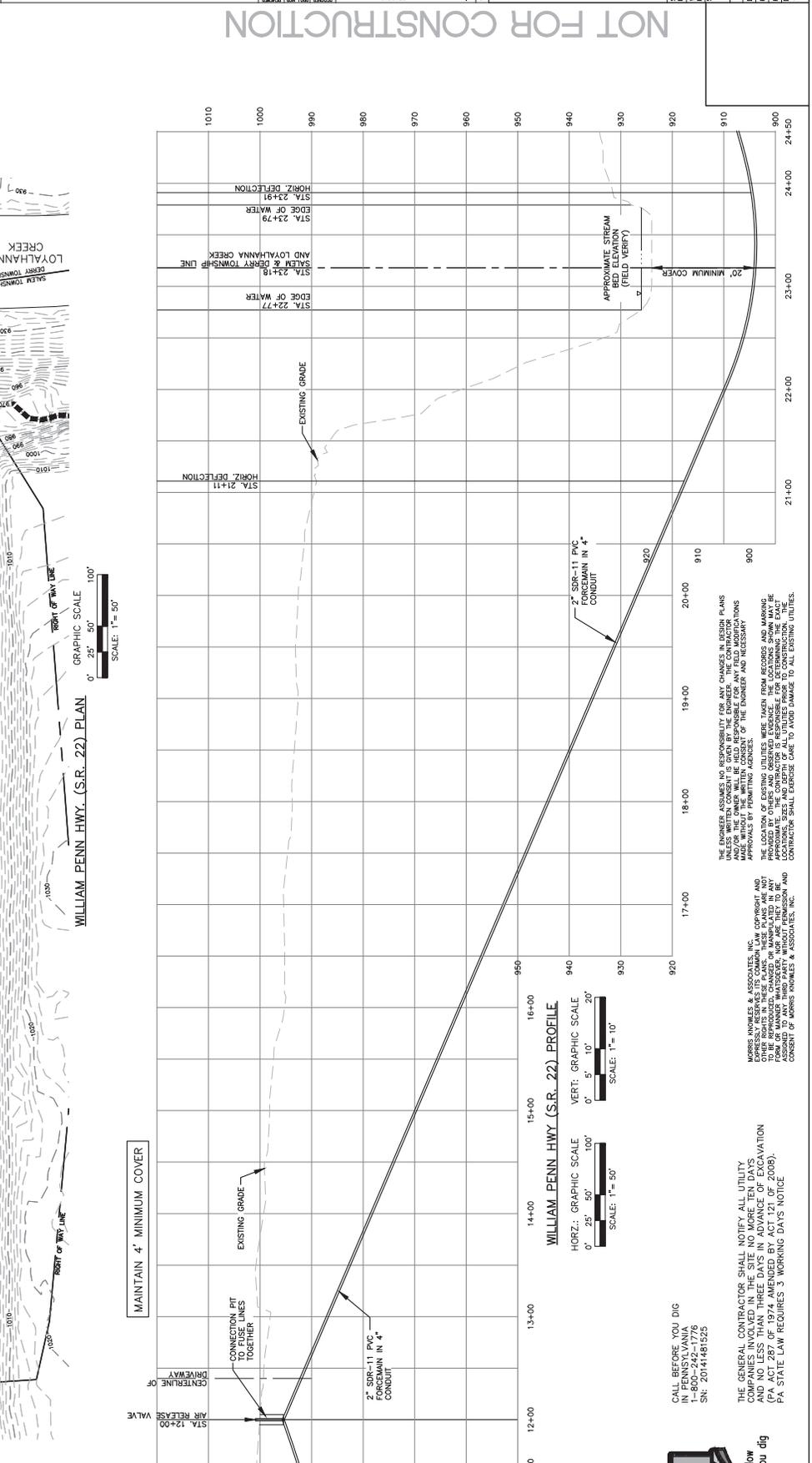
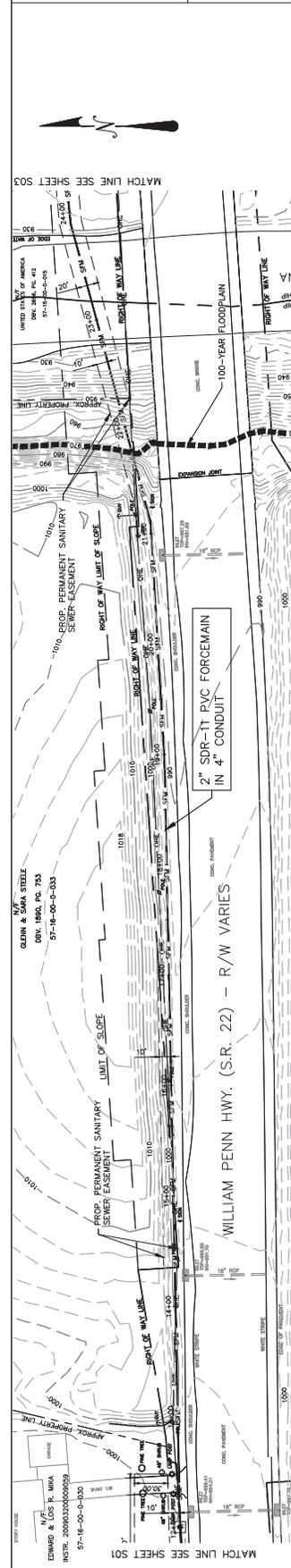
Mr. Morris Knowles
 ENGINEERING & ARCHITECTURE, INC.
 443 Main Street
 P.O. Box 100
 Westford, MA 01581
 Tel: (781) 486-8800
 Fax: (781) 486-8800

Speedway
 ENGINEERING & ARCHITECTURE, INC.
 443 Main Street
 P.O. Box 100
 Westford, MA 01581
 Tel: (781) 486-8800
 Fax: (781) 486-8800

PROPOSED SANITARY
 NEW BUILD
 8065 S.R. 22 & S.R. 119
 WESTMORELAND COUNTY
 NEW ALEXANDRIA, PA

DATE: 01/06/23
 DRAWING NO: 85098
 PROJECT NO: 100623-502

DATE	01/06/23
REVISION	
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NOT FOR CONSTRUCTION

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CALL BEFORE YOU DIG
 1-800-4-A-DIG
 SN: 20141481525

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Know what's below
 Call Before you dig

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 1: View looking north at the one-story brick building (circa 1960) currently on the proposed Speedway site at 107 Operators Way.



Photograph 2: View looking east from Operators Way at box culvert with rip-rap and large mound in background (east side).



Photograph 3: View looking southeast from Operators Way at box culvert.



Photograph 4: View looking north on Operators Way.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 5: Begin site walk (wheel – 0') – southeastern corner of site.

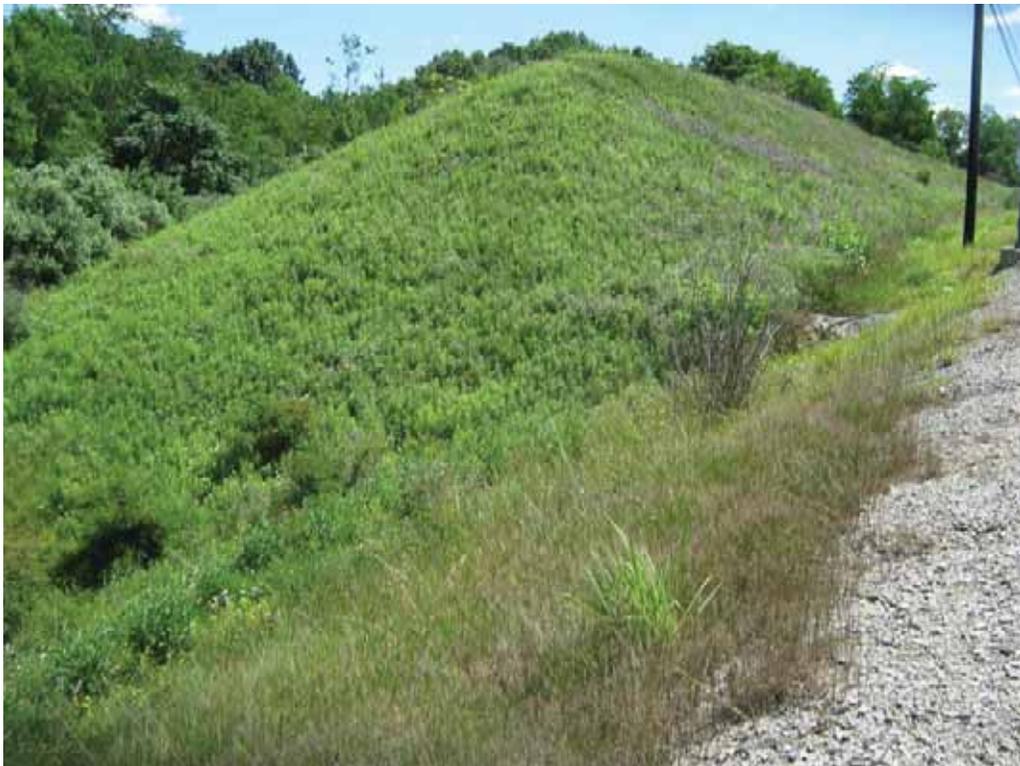


Photograph 6: View from proposed sewer route along US 22 looking northeast (wheel - 216') at Tributary No. 6.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 7: View from proposed sewer route along US 22 looking northeast (wheel - 290°) towards Tributary No. 6. Steep slope beginning approximately 5 ft. from shoulder.



Photograph 8: View from proposed sewer route along US 22 looking east-northeast (wheel-328°) at west side of mound. Uneven terrain.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 9: View from proposed sewer route along US 22 looking east (wheel-379); mound on the left.



Photograph 10: View from proposed sewer route along US 22 looking west (wheel-379).

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 11: View from proposed sewer route along US 22 looking east-northeast (wheel-417') with mound on left. Distance from shoulder to base of mound approximately 17 feet.



Photograph 12: View from proposed sewer route along US 22 looking northwest (wheel-759') at east side of mound. Terrain levels off.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 13: View from proposed sewer route along US 22 looking west (wheel-759').



Photograph 14: View from proposed sewer route along US 22 looking north at gazebo on lawn of private residence (Mika property, 8113 William Penn Hwy) (wheel-1,030').

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 15: View from proposed sewer route along US 22 looking north at landscaping of private residence (Mika property, 8113 William Penn Hwy) (wheel-1,070').



Photograph 16: View from proposed sewer route along US 22 looking north at private residence (Mika Property, 8113 William Penn Hwy) (wheel-1,131'). One story brick ranch (c. 1960). The southern portion of the yard will be included in the temporary construction easement.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 17: View from proposed sewer route along US 22 looking north at driveway and garage of private residence (Mika property, 8113 William Penn Hwy) (wheel-1,149'). One story brick (c. 1960). The southern portion of the driveway will be included in the temporary construction easement.



Photograph 18: View from proposed sewer route along US 22 looking east from driveway of private residence (8113 William Penn Hwy) (wheel-1,149'). Terrain slopes up immediately from concrete shoulder just past manicured lawn.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670

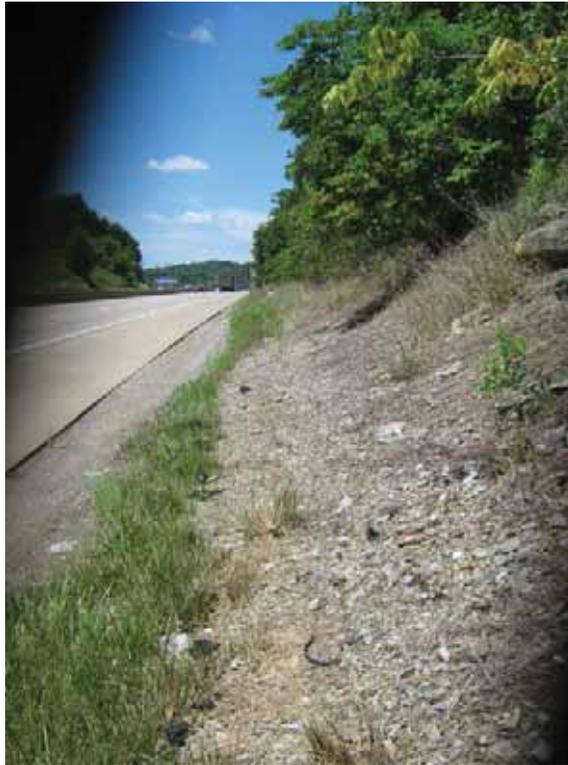


Photograph 19: View from proposed sewer route along US 22 looking north at unpaved gravel road on east side of private residence (8113 William Penn Hwy) (wheel-1,197').



Photograph 20: View from proposed sewer route along US 22 looking east (wheel-1,397'). Terrain beside concrete shoulder begins to level off (approximately 4 feet wide).

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 21: View from proposed sewer route along US 22 looking west (wheel-1,819').



Photograph 22: View from proposed sewer route along US 22 looking east at west side of bridge over Loyalhanna Creek (wheel-2,016').



Photograph 23: View from proposed sewer route along US 22 looking east down under bridge to Loyalhanna Creek (wheel-2,062'). Approximate 60 foot drop in elevation based on Speedway construction drawing.



Photograph 24: View of Loyalhanna Creek looking southeast from underneath west side of bridge.



Photograph 25: View of Loyalhanna Creek looking east-southeast from underneath west side of bridge. Rip-rap and loose rock down to the bank of the creek. Creek was too deep to safely cross.



Photograph 26: View of Loyalhanna Creek looking east-northeast from underneath west side of bridge.



Photograph 27: View from underneath west side of bridge looking at slope up from the east side of Loyalhanna Creek to the bridge.



Photograph 28: View from underneath west side of bridge looking northeast in general direction of proposed sewer route. Note primarily deciduous forest along Loyalhanna Creek.



Photograph 29: View from uphill and south of proposed sewer route along US 22 looking west toward east side of bridge over Loyalhanna Creek (wheel-2,496').



Photograph 30: View from under east side of the bridge looking southwest. Approximately 50 to 60 feet of level rip-rap before steep drop to Loyalhanna Creek. Creek was not visible from this side.



Photograph 31: View from underneath east side of the bridge looking northwest.



Photograph 32: View from uphill and south of proposed sewer route along US 22 looking west down the slope to Loyalhanna Creek (wheel-2,496'). The creek was not visible from this side.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 33: View from uphill and south of proposed sewer route along US 22 looking east (wheel-2,533'). Flat, rocky terrain with some scrub brush approximately 20 feet wide off of concrete shoulder.



Photograph 34: View from uphill and south of proposed sewer route along US 22 looking northeast (wheel-2,707'). Steep downhill slope approximately 15 to 20 feet from concrete shoulder.



Photograph 35: View from uphill and south of proposed sewer route along US 22 looking east (wheel-2,707'). Flat, rocky terrain with some scrub brush approximately 15 feet wide off of concrete shoulder.



Photograph 36: View from uphill and south of proposed sewer route along US 22 looking northeast (wheel-2,829'). Steep slope with rip-rap approximately 15 to 20 feet from concrete shoulder.

NEPA Environmental Assessment Site Walk (from West to East)
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 37: View from uphill and south of proposed sewer route along US 22 looking east (wheel-2,829'). Steep slope and rip-rap continue to the end of the proposed sewer route.



Photograph 38: View from uphill and south of proposed sewer route along US 22 looking northeast (wheel-2,829') at drainage pipe coming out of the rip-rap.

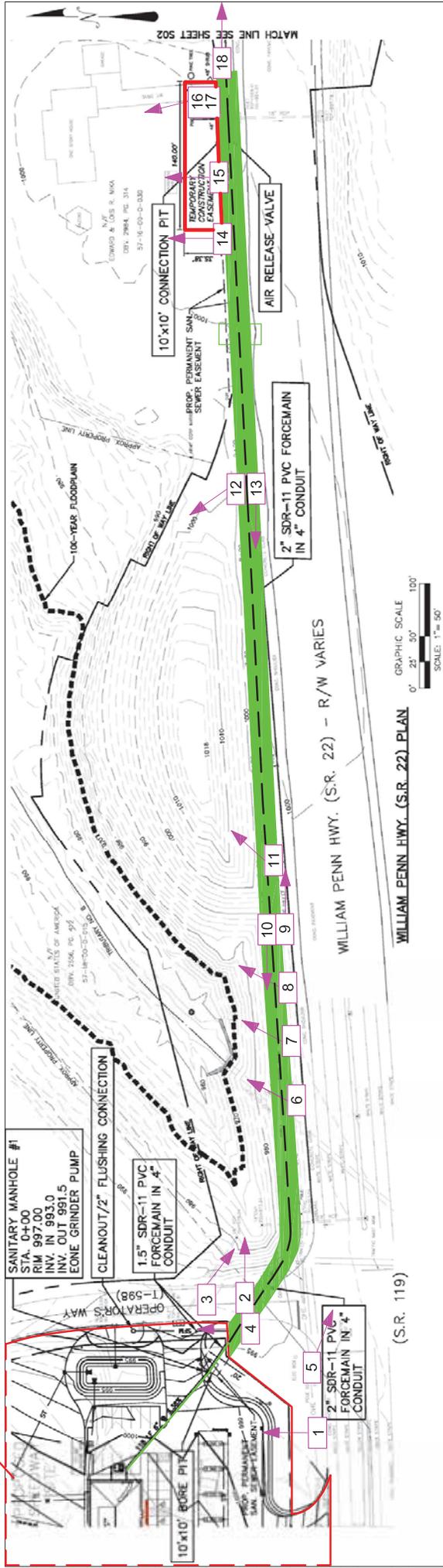


Photograph 39: View from uphill and south of proposed sewer route along US 22 looking north (wheel-3,108'). The level, grassy area at the end of the slope is likely the "100' x 100' proposed easement area for work and storage" referenced on the Speedway construction drawing.



Photograph 40: View from uphill and south of proposed sewer route along US 22 looking west (wheel-3,108') from the end of the site walk.

PROPOSED
SPEEDWAY
SITE



- LEGEND**
- PHOTOGRAPH NUMBER AND DIRECTION OF VIEW
 - PROPOSED SANITARY SEWER ROUTE AREA OF POTENTIAL EFFECT
 - TEMPORARY CONSTRUCTION EASEMENT

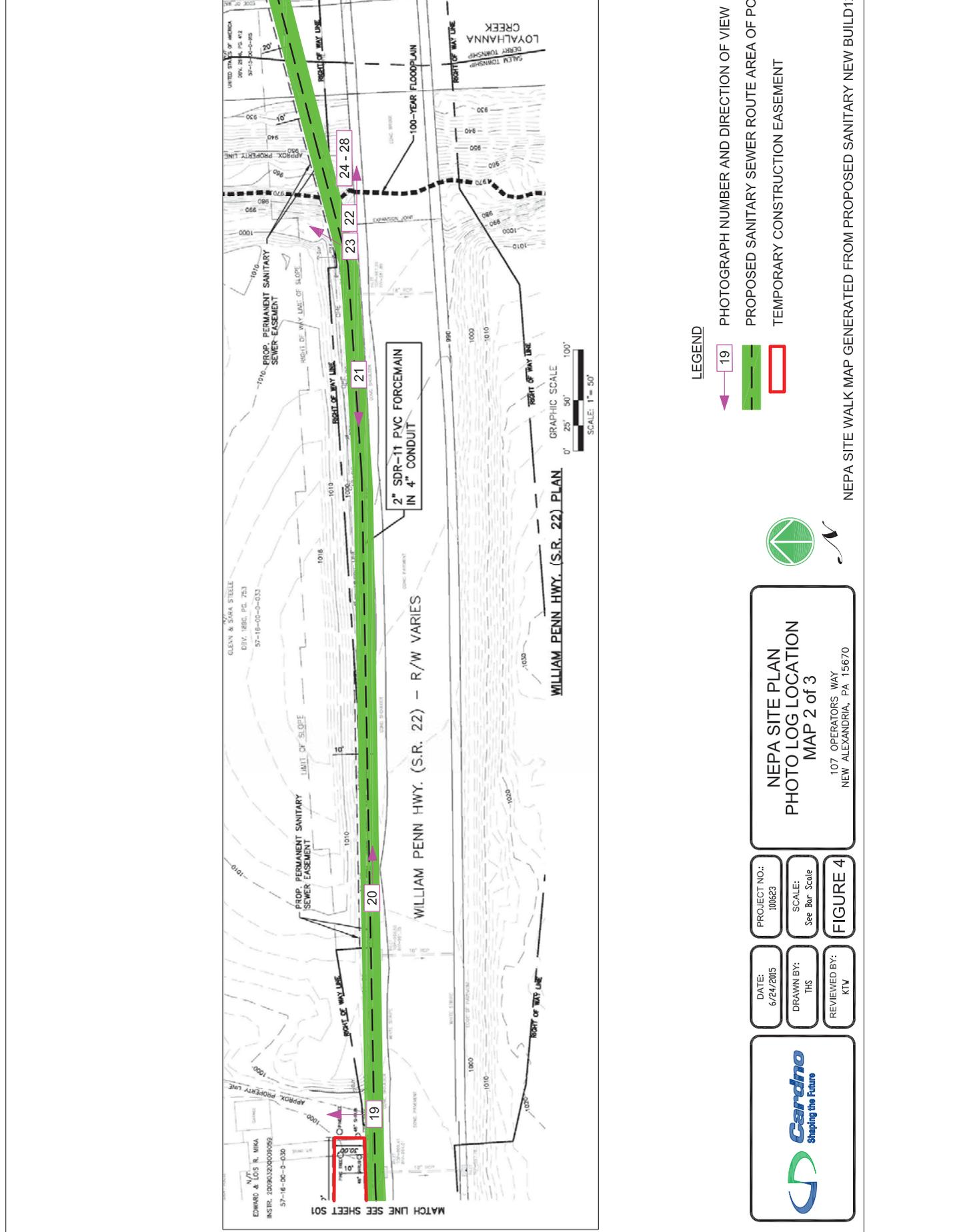


NEPA SITE PLAN
PHOTO LOG LOCATION
MAP 1 of 3
107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

PROJECT NO.: 100623	DATE: 6/24/2015
SCALE: See Bar Scale	DRAWN BY: THS
FIGURE 3	REVIEWED BY: KTV



NEPA SITE WALK MAP GENERATED FROM PROPOSED SANITARY NEW BUILD12/29/14 DRAWING.



- LEGEND**
-  PHOTOGRAPH NUMBER AND DIRECTION OF VIEW
 -  PROPOSED SANITARY SEWER ROUTE AREA OF POTENTIAL EFFECT
 -  TEMPORARY CONSTRUCTION EASEMENT

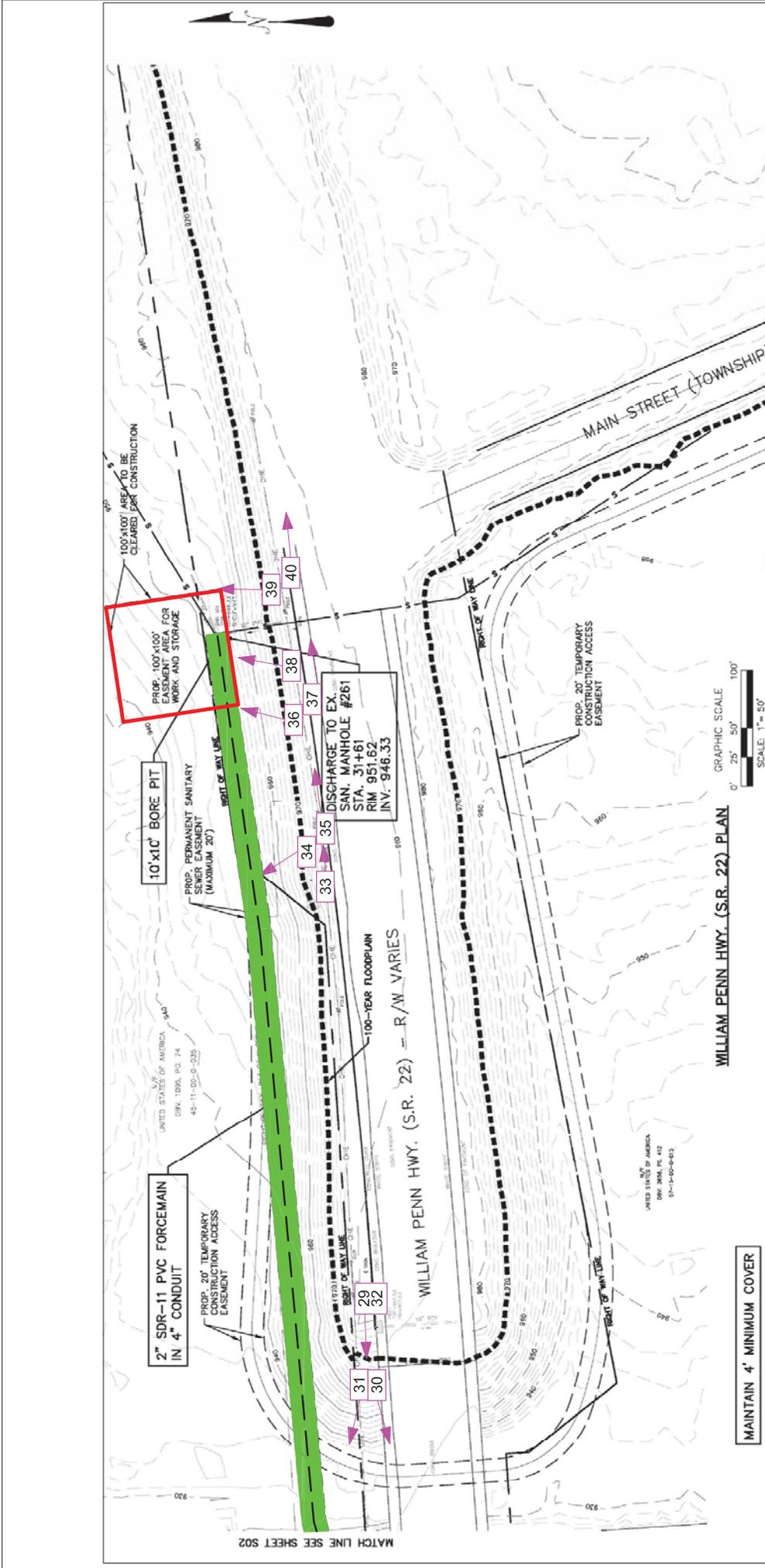


NEPA SITE PLAN
PHOTO LOG LOCATION
MAP 2 of 3
 107 OPERATORS WAY
 NEW ALEXANDRIA, PA 15670

DATE: 6/24/2015	PROJECT NO.: 100623
DRAWN BY: THIS	SCALE: See Bar Scale
REVIEWED BY: KTV	FIGURE 4



NEPA SITE WALK MAP GENERATED FROM PROPOSED SANITARY NEW BUILD12/29/14 DRAWING.



- LEGEND**
- PHOTOGRAPH NUMBER AND DIRECTION OF VIEW
 - PROPOSED SANITARY SEWER ROUTE AREA OF POTENTIAL EFFECT
 - TEMPORARY CONSTRUCTION EASEMENT (100' X 100' FOR WORK & STORAGE)



**NEPA SITE PLAN
PHOTO LOG LOCATION
MAP 3 of 3**

107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

PROJECT NO.:
100623

DATE:
6/24/2015

SCALE:
See Bar Scale

DRAWN BY:
THS

REVIEWED BY:
KTV



NEPA SITE WALK MAP GENERATED FROM PROPOSED SANITARY NEW BUILD12/29/14 DRAWING.



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

August 25, 2015

Karren T. Wood
Cardno
103 N. Meadows Drive, Suite 211
Wexford, PA 15090

TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER

Re: File No. ER 2015-1696-129-A
COE: Proposed Speedway Site No.
100623 Sanitary Sewer Line Installation
Salem Twp., Westmoreland Co.

Dear Ms. Wood:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Historic Structures

Your request does not include sufficient information. We are unable to proceed with our review for historic structures until the information on the attached form is provided.

Archaeology

There is a high probability that archaeological resources are located in this project area. In our opinion, the activity described in your proposal should have no effect on such resources. Should the scope of the project be amended to include additional ground disturbing activity this office should be contacted immediately and a Phase I Archaeological Survey may be necessary to locate all potentially significant archaeological resources.

Page 2
August 25, 2015
Karren T. Wood

If you need further information in this matter, please contact Barbara Frederick at (717) 772-0921.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. McLearn', with a long horizontal flourish extending to the right.

Douglas C. McLearn, Chief
Division of Archaeology &
Protection

cc: COE, Pittsburgh District

Attachment
DCM/tmw

2015-1696/29-A

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
BUREAU FOR HISTORIC PRESERVATION
<http://phmc.info/historicpreservation>

ADDITIONAL INFORMATION REQUEST SHEET

(Revised May 2014)

Please submit checked items for PHMC-BHP to proceed with project review.

- A. FUNDING/PERMITTING/LICENSING/APPROVAL PROGRAM
- 1. Identify the Federal/State Agency and funding program or permit/license
- B. PROJECT DESCRIPTION
- 1. Narrative description of the project and related actions resulting from the project
 - 2. Proposed boundary of the project's Area of Potential Effect (APE). Provide Justification of APE. Remember to consider visual impacts
 - 3. Architectural plans of existing conditions (as-built or as-found)
 - 4. Preliminary architectural drawings or plans (floor plans, elevations, specifications)
 - 5. Work write-ups
 - 6. Site plans of existing conditions
 - 7. Site plans of proposed development
 - 8. For linear project: highlight any portion of the alignment that is located outside of current road/railroad or buried utility Right-of-Way (ROW)
- C. PROJECT LOCATION
- 1. U.S.G.S 7.5 min. series quadrangle with the **PROJECT LOCATION(S) AND LIMITS CLEARLY MARKED** using a colored pen. Please include the name of the quadrangle. Map must include nearest place name.
 - 2. Street map (for properties in densely populated areas)
 - 3. Street map showing location and historic district boundaries (if appropriate)
 - 4. Street address of property
 - 5. Municipality in which project is located (not mailing address location)
- D. PROJECT SIZE (supply as appropriate for project)
- 1. Acreage of project area
 - 2. Miles/feet of project area and Right-of-Way (ROW) width
 - 3. Extent and nature of ground disturbing activities (i.e. grading, trenching, foundation excavation)
- E. PHOTOGRAPHS (No photocopies. Clear, color, high resolution digital images preferred)
- 1. Exterior of all building(s)/structures in project area
 - 2. Interior of building(s) in project area
 - 3. Interior of building(s) illustrating the proposed work areas/features
 - 4. Buildings, streetscape, setting of features in Area of Potential Effect (APE)
 - 5. Views of project area
- F. CULTURAL RESOURCE IDENTIFICATION
- 1. Pennsylvania Historic Resource Survey Form(s) for all properties 50 years or older within the Area of Potential Effect (APE) (see our website at: <http://phmc.info/historicpreservation>, Select "Forms and Guidance")
 - 2. Historical background, context report, information for historic resources identified
Apply this context, available on our website: _____
- G. EFFECTS
- 1. How will the project affect building(s) over 50 years old?
 - 2. National Register listed/eligible property(s) exist in project area. How will the project affect this historic property(s)?

(OVER)

H. OTHER

More information on the exact location of
the proposed subdivision that the sewer line
will serve is needed as previously evaluated
resources are located nearby
Torrence Residence Key No. 102068
Watt House Key No. 047923



September 22, 2015

Ms. Barbara Frederick
Pennsylvania Historical & Museum Commission
State Historic Preservation Office
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093

Cardno

103 North Meadows Drive
Suite 211
Wexford, PA 15090

Phone +1 724 935 4330
Fax +1 724 935 4350

www.cardno.com

**Re: File No. ER 2015-1696-129-A
COE: Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation
Salem Twp., Westmoreland Co.
Request for Additional Information to Complete the Historical Structures Review for
Proposed Speedway Site #100623**

Dear Ms. Frederick:

Cardno, on behalf of Speedway LLC (Speedway), is submitting additional information requested by the State Historic Preservation Office (SHPO) in order to complete the historical structures review for the project involving the proposed installation of a sanitary sewer extension along the east bound side of US 22 in New Alexandria, Westmoreland County, PA. Cardno is conducting a National Environmental Policy Act (NEPA) Environmental Assessment (EA) because the aforementioned sanitary force main will cross land under the jurisdiction of the U.S. Army Corps of Engineers (USACE). A NEPA EA is required by USACE to obtain easements on the impacted property.

In the SHPO response letter dated August 25, 2015, a request was made for more information on the location of the proposed subdivision that the sewer line will serve, as previously evaluated resources are located nearby, specifically the Torrance Residence (Key No. 102068) and the Watt House (Key No. 047923). It appears from a search via internet-based mapping tools (e.g., Pennsylvania's Cultural Resource Geographic Information System [CRGIS] mapping, Google Earth Pro, and Penn Pilot) that the two historic structures cited in the response letter (Watt House and Torrance Residence) are no longer present. The attached figures comparing CRGIS mapping (Figures 1 and 2), a historic aerial (Figure 3), and current aerials (Figures 4, 5, and 6) show the current condition of the two properties and the absence of the structures. Specifically, the figures provided in support of this determination are as follows:

- Figure 1 – Pennsylvania CRGIS Topographic Map of Historical Structures,
- Figure 2 - Pennsylvania CRGIS Aerial Image of Historical Structures,
- Figure 3 – Historic Aerial Image of Approximate Locations of Torrance & Watt Houses (June 6, 1939),

- Figure 4 – Aerial Image of Project Area and Historical Structures,
- Figure 5 – Aerial Image of Approximate Location of Torrance Residence, and
- Figure 6 – Aerial Image of Approximate Location of Watt House.

As depicted in Figures 4, 5, and 6, there are no structures visible on the 2012 Google Earth images when compared to locations of the historical structures marked on the CRGIS images (Figures 1 and 2). The approximate locations of the historical structures indicated on the Penn Pilot Historic Aerial Photograph dated 1939 (Figure 3) are also no longer visible in the current aerial images. Therefore, based on the results of the comparison of the above-referenced aerial images demonstrating this change in setting (i.e., absence of historic structures) from the dates of the historical surveys to the present, the proximity of the proposed Speedway store will have no effect on these resources.

I appreciate your time and assistance on this very important and highly time-sensitive project. If you have any questions regarding the information provided herein, please do not hesitate to contact me at (724) 935-4330.

Sincerely,



Karren T. Wood
Senior Scientist
Cardno
Phone Line +1-724-935-4330
Email: karren.wood@cardno.com

Attachments

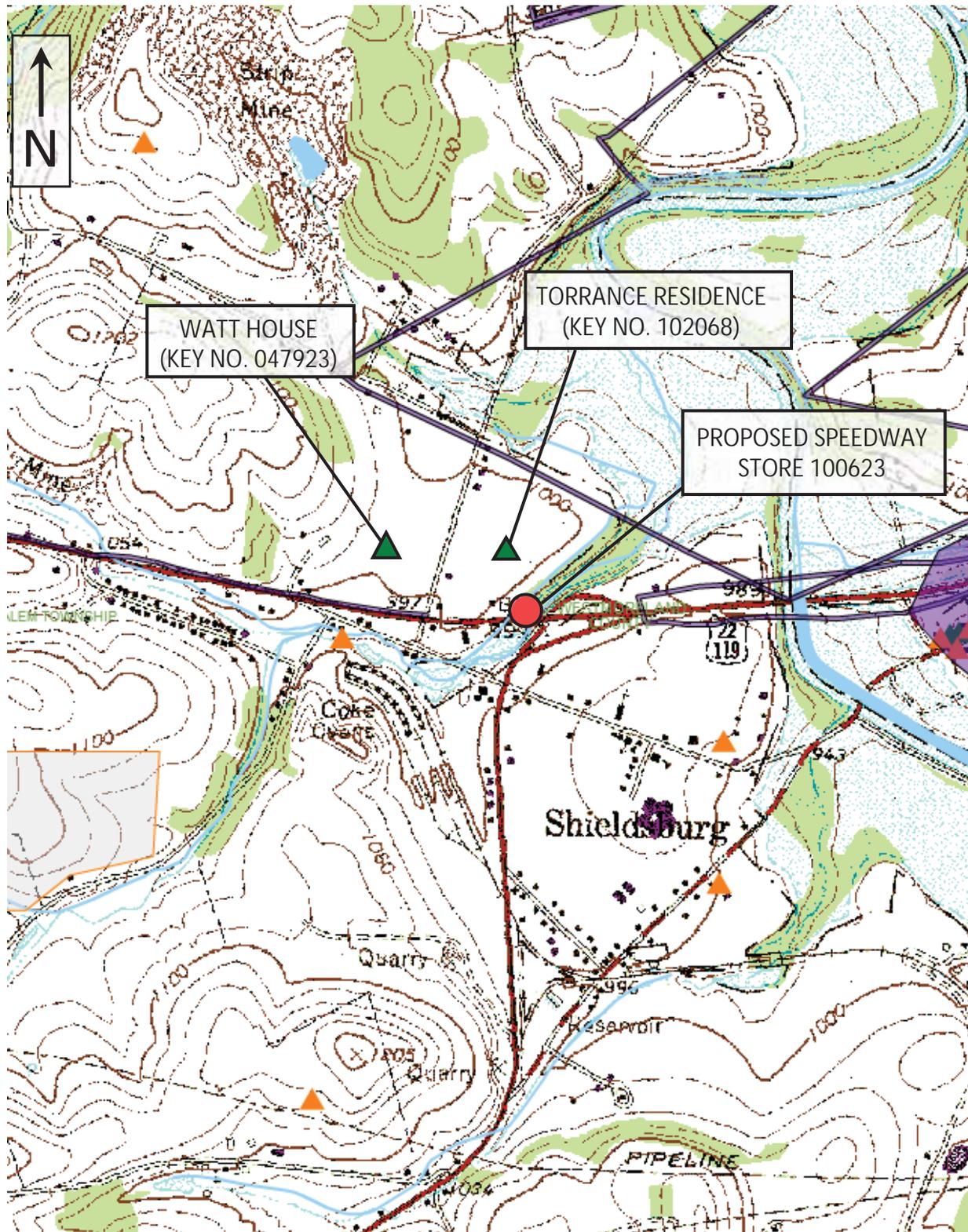


FIGURE 1 – PENNSYLVANIA CRGIS TOPOGRAPHIC MAP OF
 HISTORICAL STRUCTURES
 Speedway LLC
 Proposed Store 100623
 107 Operator's Way
 New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
 Wexford, Pennsylvania 15090
 Cardno Project No. 2523020034

SOURCE: PA Cultural Resources Geographic Information System (CRGIS), 2015





FIGURE 2 – PENNSYLVANIA CRGIS AERIAL IMAGE OF HISTORICAL STRUCTURES
 Speedway LLC
 Proposed Store 100623
 107 Operator's Way
 New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
 Wexford, Pennsylvania 15090
 Cardno Project No. 2523020034

SOURCE: PA Cultural Resources Geographic Information System (CRGIS), 2015





FIGURE 3 – HISTORIC AERIAL IMAGE OF APPROXIMATE LOCATIONS OF TORRANCE & WATT HOUSES

Speedway LLC
Proposed Store 100623
107 Operator's Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. 2523020034



FIGURE 4 – AERIAL IMAGE OF PROJECT AREA AND HISTORICAL STRUCTURES
 Speedway LLC
 Proposed Store 100623
 107 Operator's Way
 New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
 Wexford, Pennsylvania 15090
 Cardno Project No. 2523020034

SOURCE: Google Earth Imagery, 2012

See scale in figure



FIGURE 5 – AERIAL IMAGE OF APPROXIMATE LOCATION OF TORRANCE RESIDENCE
Speedway LLC
Proposed Store 100623
107 Operator's Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. 2523020034

SOURCE: Google Earth Imagery, 2012

See scale in figure



FIGURE 6 – AERIAL IMAGE OF APPROXIMATE LOCATION OF
WATT HOUSE
Speedway LLC
Proposed Store 100623
107 Operator's Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. 2523020034

SOURCE: Google Earth Imagery, 2012

See scale in figure

ER No. 2015-1696-129-B

The project will have
NO EFFECT
on historic properties

Date 10/8/15 Reviewer BST



September 22, 2015

Ms. Barbara Frederick
Pennsylvania Historical & Museum Commission
State Historic Preservation Office
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093



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Re: File No. ER 2015-1696-129-A
COE: Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation
Salem Twp., Westmoreland Co.
Request for Additional Information to Complete the Historical Structures Review for
Proposed Speedway Site #100623

Dear Ms. Frederick:

Cardno, on behalf of Speedway LLC (Speedway), is submitting additional information requested by the State Historic Preservation Office (SHPO) in order to complete the historical structures review for the project involving the proposed installation of a sanitary sewer extension along the east bound side of US 22 in New Alexandria, Westmoreland County, PA. Cardno is conducting a National Environmental Policy Act (NEPA) Environmental Assessment (EA) because the aforementioned sanitary force main will cross land under the jurisdiction of the U.S. Army Corps of Engineers (USACE). A NEPA EA is required by USACE to obtain easements on the impacted property.

In the SHPO response letter dated August 25, 2015, a request was made for more information on the location of the proposed subdivision that the sewer line will serve, as previously evaluated resources are located nearby, specifically the Torrance Residence (Key No. 102068) and the Watt House (Key No. 047923). It appears from a search via internet-based mapping tools (e.g., Pennsylvania's Cultural Resource Geographic Information System [CRGIS] mapping, Google Earth Pro, and Penn Pilot) that the two historic structures cited in the response letter (Watt House and Torrance Residence) are no longer present. The attached figures comparing CRGIS mapping (Figures 1 and 2), a historic aerial (Figure 3), and current aerials (Figures 4, 5, and 6) show the current condition of the two properties and the absence of the structures. Specifically, the figures provided in support of this determination are as follows:

- Figure 1 – Pennsylvania CRGIS Topographic Map of Historical Structures,
- Figure 2 - Pennsylvania CRGIS Aerial Image of Historical Structures,
- Figure 3 – Historic Aerial Image of Approximate Locations of Torrance & Watt Houses (June 6, 1939),

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office for National Statistics 2000).

There is a growing awareness of the need to address the needs of older people, and the need to ensure that the health care system is able to meet the needs of older people. The Department of Health (2000) has set out a strategy for the health care system to meet the needs of older people, and the Health Service Research Unit (2000) has set out a strategy for the health care system to meet the needs of older people.

The Health Service Research Unit (2000) has set out a strategy for the health care system to meet the needs of older people. The strategy is based on the following principles: (1) to ensure that the health care system is able to meet the needs of older people; (2) to ensure that the health care system is able to meet the needs of older people; (3) to ensure that the health care system is able to meet the needs of older people.

The Health Service Research Unit (2000) has set out a strategy for the health care system to meet the needs of older people. The strategy is based on the following principles: (1) to ensure that the health care system is able to meet the needs of older people; (2) to ensure that the health care system is able to meet the needs of older people; (3) to ensure that the health care system is able to meet the needs of older people.

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The Health Service Research Unit (2000) has set out a strategy for the health care system to meet the needs of older people. The strategy is based on the following principles: (1) to ensure that the health care system is able to meet the needs of older people; (2) to ensure that the health care system is able to meet the needs of older people; (3) to ensure that the health care system is able to meet the needs of older people.

The Health Service Research Unit (2000) has set out a strategy for the health care system to meet the needs of older people. The strategy is based on the following principles: (1) to ensure that the health care system is able to meet the needs of older people; (2) to ensure that the health care system is able to meet the needs of older people; (3) to ensure that the health care system is able to meet the needs of older people.

RECORD OF COMMUNICATION

Date: July 6, 2015 **Time:** 2:20 PM
Recorded by: _____

Communication with: Barbara Frederick
of: Pennsylvania State Historic Preservation Office (SHPO)
Phone: (717) 772-0921

Communication via:
Telephone Conversation
Discussions During Site Assessment
Office Visitation/Meeting at:
Other:

Re: Project Review Form Submittal for the Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation, Salem Township, Westmoreland County, Pennsylvania

Summary of Communication: I called to SHPO to inquire about the process to obtain archaeological and historical structures clearance for the NEPA Environmental Assessment. To get their formal review and response for potential impacts to cultural resources in the project area we will need to complete and send in a hard copy of our Project Review Form. They will then conduct a review and determine whether or not an archaeological and/or architectural survey needs to be completed. The review period for federal submissions is 30 days. She stated that photos included in the submittal would only need to include the side of the highway of the proposed sanitary sewer installation.

RECORD OF COMMUNICATION

Date: July 14, 2015 **Time:** 10:00 AM
Recorded by: Karren Wood

Communication with: Doug McLearen
of: Pennsylvania State Historic Preservation Office (SHPO)
Phone: (717) 772-0925

Communication via:

Telephone Conversation

Discussions During Site Assessment

Office Visitation/Meeting at:

Other:

Re: Project Review Form Submittal for the Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation, Salem Township, Westmoreland County, Pennsylvania

Summary of Communication: Contacted Doug McLearen concerning specific requirements for archaeology review of the proposed Speedway project. He stated that the Project Review Form available for download from their website applies to both archeology and historic structures review.

RECORD OF COMMUNICATION

Date: August 10, 2015 **Time:** 10:00 AM
Recorded by: Karren Wood

Communication with: Barbara Frederick
of: Pennsylvania State Historic Preservation Office (SHPO)
Phone: (717) 772-0921

Communication via:
Telephone Conversation
Discussions During Site Assessment
Office Visitation/Meeting at:
Other:

Re: SHPO's Bridge Survey Form for the Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation, Salem Township, Westmoreland County, Pennsylvania

Summary of Communication: I spoke with Barbara Frederick about the Bridge Survey Form, and she said we did not need to complete it because the bridge carries a roadway (US 22) and would most likely have been surveyed, but that it should be documented via maps and photos.

RECORD OF COMMUNICATION

Date: September 1, 2015 **Time:** 9:30 AM
Recorded by: Karren Wood

Communication with: Barbara Frederick
of: Pennsylvania State Historic Preservation Office (SHPO)
Phone: (717) 772-0921

Communication via:

Telephone Conversation

Discussions During Site Assessment

Office Visitation/Meeting at:

Other:

Re: SHPO's August 25, 2015 Response Letter to Project Review Form (dated August 14, 2015) for the Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation, Salem Township, Westmoreland County, Pennsylvania

Summary of Communication: I spoke with Barbara Frederick about the additional information requested in their response letter. She stated that all items on the "Additional Information Request Sheet" were complete with the exception of information concerning two previously surveyed historic structures to the east and northeast of the proposed Speedway Store (Torrance Residence-Key No. 102068 and Watt House-Key No. 047923). She stated that to address this request, the following actions should be taken:

- Clearly demonstrate how the commercial development (Speedway Store) would affect the historic properties.
- Demonstrate whether or not lighting from the store would affect the historic properties.
- Demonstrate how the Speedway Store would affect the setting and landscape of the historic properties.

The properties should be evaluated more closely. A change in setting may determine the structures are not an issue (i.e., no longer there or location). In order to demonstrate, we can take current photographs and provide current Google Earth aerial images.

RECORD OF COMMUNICATION

Date: September 14, 2015 **Time:** 2:24 PM
Recorded by: Karren Wood

Communication with: Barbara Frederick
of: Pennsylvania State Historic Preservation Office (SHPO)
Phone: (717) 772-0921

Communication via:

Telephone Conversation
Discussions During Site Assessment
Office Visitation/Meeting at:
Other:

Re: SHPO's August 25, 2015 Response Letter to Project Review Form (dated August 14, 2015) for the Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation, Salem Township, Westmoreland County, Pennsylvania

Summary of Communication: I spoke with Barbara Frederick about the two previously surveyed historic structures to the east and northeast of the proposed Speedway Store (Torrance Residence-Key No. 102068 and Watt House-Key No. 047923). It appears from my research that the two historic properties cited in the response letter have been removed since they were determined eligible. Also, I was unable to locate addresses or coordinates of the properties. I expressed concern that I would not be able to find the exact locations of the structures in order to take current photographs. She stated that a comparison of historical and current aerial images of the locations would be sufficient to demonstrate that the structures were no longer there.

Karren Wood

From: Heinrich, Kira <kiheinrich@pa.gov>
Sent: Wednesday, July 15, 2015 11:32 AM
To: Karren Wood
Cc: Susan Cook
Subject: RE: Potential Archaeological Review for Project in Westmoreland County

Hi Karren,

Sorry for the delay getting back to you, I have been out of the office. To get our formal review and response for potential impacts to cultural resources in your project area you will need to complete and send in a hard copy of our Project Review Form. The form can be found on our website

http://www.portal.state.pa.us/portal/server.pt/community/historic_preservation/3741/forms_and_guidance/418107

Our review period for federal submissions is 30 days. I encourage you to send as much detail as possible regarding your project alignment, previous disturbance, and photographs of any structures that may be in the immediate vicinity of your project area. Hopefully this will reduce the potential for needing additional information to complete our review.

If you have any questions about filling out the form or anything else please feel free to give me a call at the number below.

Kira M. Heinrich | Historic Preservation Specialist
Bureau for Historic Preservation
Pennsylvania Historical and Museum Commission
400 North Street, 2nd Floor | Harrisburg, PA 17120
Phone: 717.705.0700 | Fax: 717.772.0920
www.PHMC.state.pa.us

From: Karren Wood [mailto:Karren.Wood@cardno.com]
Sent: Tuesday, July 14, 2015 11:07 AM
To: Heinrich, Kira
Cc: Susan Cook
Subject: Potential Archaeological Review for Project in Westmoreland County

Hello Kira,

We are working on a NEPA Environmental Assessment for a client that is proposing to install a sanitary sewer extension along the east bound side of US 22 in New Alexandria, Westmoreland County, PA. The proposed force main will be a horizontal directional bored with very minimal ground excavation and will run approximately 1 mile from the intersection of US 22 and Operators Way to existing sewer line across from Main Street. Please see the attached map generated from CRGIS with the approximate location of the proposed sewer line indicated (not exact). We are conducting an Environmental Assessment because the proposed sanitary force main on this project will cross US Army Corp land and it is required by the Corp to obtain easements on impacted Corp property.

I am contacting you to determine the Bureau's interest from the archaeological perspective. It is important to note that this project will not disturb anything that hasn't been previously disturbed, in particular by US 22 road improvement construction. I spoke with Barbara Fredrick of Historic Preservation, and she forwarded me a Project Review Form to be completed and mailed in. Does your department require something similar or is there just one Project Review Form that is shared between both departments? If you could respond to this email or give me a call to let me know the requirements and how to proceed, I would appreciate it.

Thank you in advance for your time.

Karren Wood

SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO



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Karren Wood

From: Frederick, Barbara <bafrederic@pa.gov>
Sent: Thursday, August 27, 2015 2:58 PM
To: Karren Wood
Subject: RE: Project Review Form for Proposed Speedway Site 100623
Attachments: 20150827104658211.pdf

Here is a copy of the response letter. I think it was scanned double sided so please ignore the blank pages. Feel free to call with questions.

Barbara Frederick | Historic Preservation Supervisor
Bureau for Historic Preservation
Pennsylvania Historical and Museum Commission
400 North Street, 2nd Floor | Harrisburg, PA 17120-0093
Phone: 717.772.0921 | Fax: 717.772.0920
www.phmc.state.pa.us

From: Karren Wood [mailto:Karren.Wood@cardno.com]
Sent: Thursday, August 27, 2015 8:31 AM
To: Frederick, Barbara
Subject: RE: Project Review Form for Proposed Speedway Site 100623

Barbara,

The project is located in New Alexandria, Salem Township, Westmoreland County. The agency we are completing the NEPA Environmental Assessment for is US Army Corps. I hope that answers your questions. Please do not hesitate to contact me if you need any more information.

Thanks,
Karren

Karren Wood
SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO

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email the sender by replying to this message and immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed are the author's own and may not reflect the views or opinions of Cardno.

From: Frederick, Barbara [<mailto:bafrederic@pa.gov>]
Sent: Thursday, August 27, 2015 8:20 AM
To: Karren Wood <Karren.Wood@cardno.com>
Subject: RE: Project Review Form for Proposed Speedway Site 100623

Karren

Can you let me know the county and township in which the project is located? Also what is the agency requiring review by our office. That will enable me to query our database and respond.

Thanks,

Barbara

Barbara Frederick | Historic Preservation Supervisor
Bureau for Historic Preservation
Pennsylvania Historical and Museum Commission
400 North Street, 2nd Floor | Harrisburg, PA 17120-0093
Phone: 717.772.0921 | Fax: 717.772.0920
www.phmc.state.pa.us

From: Karren Wood [<mailto:Karren.Wood@cardno.com>]
Sent: Wednesday, August 26, 2015 2:01 PM
To: Frederick, Barbara
Subject: Project Review Form for Proposed Speedway Site 100623

Hello Barbara,

I am writing to verify that you have received the Project Review Form for the above-referenced project that we mailed to your office on August 14, 2015. The return receipt indicated that it was delivered on August 17, 2015. If you could respond to this email letting me know whether or not you received it, I would appreciate it. Thank you for your time.

Regards,
Karren Wood

Karren Wood
SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO



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Karren Wood

From: Karren Wood
Sent: Monday, August 31, 2015 12:35 PM
To: 'Frederick, Barbara'
Subject: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

I wanted to follow up on the voice mail I left you on Friday, August 28, 2015. First of all, thank you for your quick response on the Project Review Form for the above referenced project. The following are just a couple items I wanted to verify and discuss with you concerning the Response Letter.

- It appears we have archaeology clearance but not historical structures clearance. Is this correct?
- On the Additional Information Request Sheet that was attached to the Response Letter, the only checked item is "H. Other". Does this mean we have satisfied items A through G?
- Item H. Other – I would like to discuss this with you in more detail to make sure we provide you with what you need to complete the review.

If you could let me know when you are available to discuss this project, I would appreciate it. Thank you in advance for your time.

Regards,

Karren Wood

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Karren Wood

From: Karren Wood
Sent: Wednesday, September 02, 2015 11:12 AM
To: 'Frederick, Barbara'
Subject: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

Thanks again for your help yesterday. I was wondering if I could ask for your assistance again. I did a search on the properties cited in the response letter (Torrance residence [key no. 102068] and Watt house [key no.047923]) and am having trouble finding exact addresses/locations. Google Earth (imagery date: 6/14/2014) does not show any buildings or structures in the vicinity of the markers for those historical properties/surveys on the CRGIS map. The address listed under the key no. for the Watt house does not match the location of the marker on the CRGIS map, and there was no address provided under the key no. for the Torrance residence. Do you have access to any information on the locations of those properties (i.e., addresses or coordinates)? If not, can you advise on how to find this information? I want to make sure we photograph the correct locations.

Thank you for your time.

Karren

Karren Wood

SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO



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Karren Wood

From: Frederick, Barbara <bafrederic@pa.gov>
Sent: Friday, September 04, 2015 2:59 PM
To: Karren Wood
Subject: RE: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

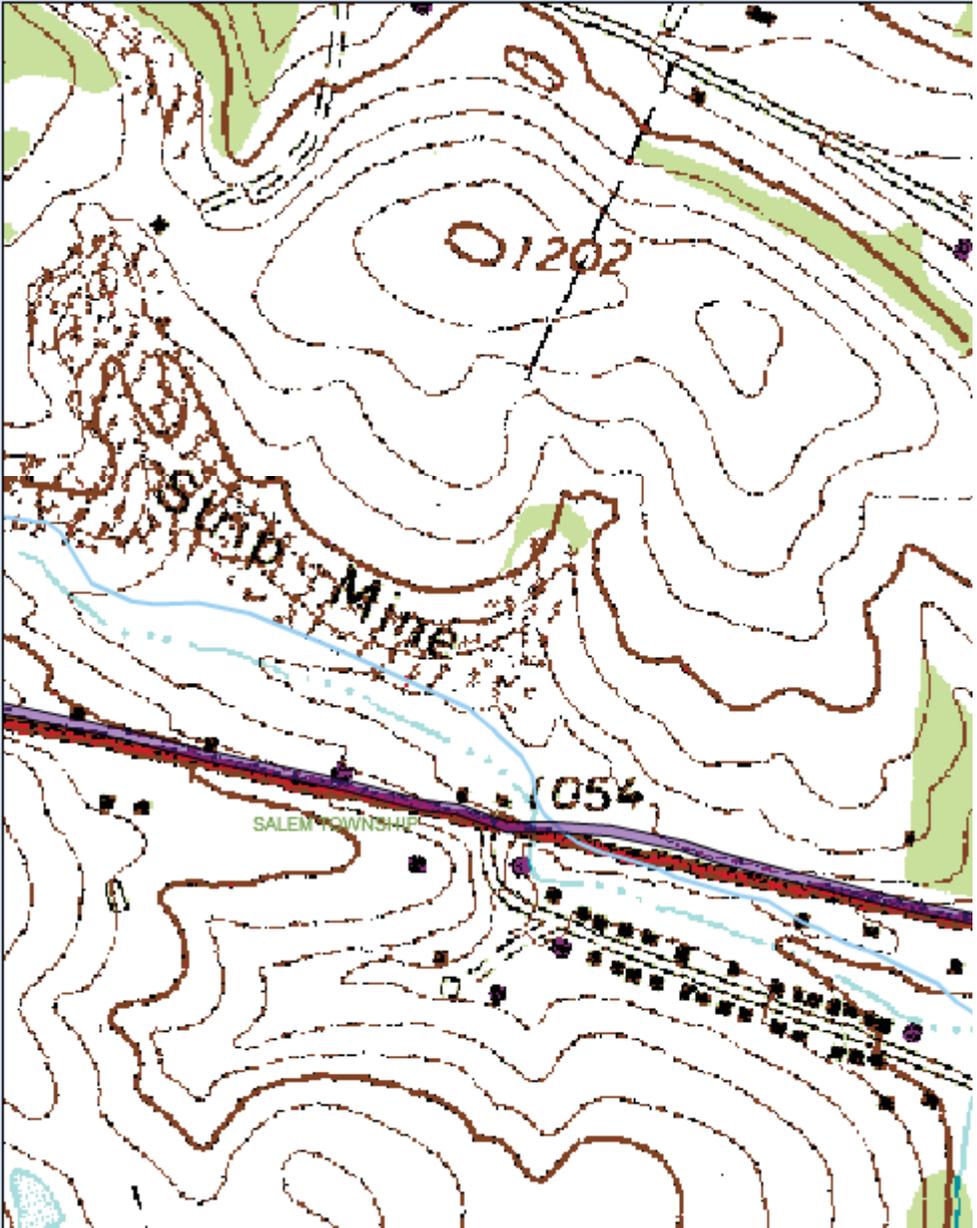
Internet Explorer address bar: Pennsylvania Cultural Resources Geographic Information System - Windows Internet Explorer

Cultural Resources Geographic Information System 

Ask ReGIS

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 - PA House Districts
 - PA Senate Districts
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 - Watersheds
- Local-Gov-Boundaries**
 - All Municipalities
 - METRO_AREAS
 - County Boundaries
- Base-Map-Imagery**
 - USGS Topographic M
 - Aerial
 - Route Shields
 - Ab123 Text Labels
 - Selected

Spatial Search
Pick a shape



In our database, the green triangle with orange dot above the words WESTMORELAND COUNTY and the green triangle to the immediate west are the two resources in question. It may be that these resources were removed since they were determined eligible in 1988 (Watt House, property to the west) and 1995 (Torrance House, property to the east).

From: Karren Wood [mailto:Karren.Wood@cardno.com]
Sent: Friday, September 04, 2015 2:51 PM
To: Frederick, Barbara
Subject: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

This is a follow up to the email I sent you earlier this week (Wednesday, 9/2/2015). I spoke with my supervisor about the two historic properties cited in the response letter and that I was having trouble locating them. She stated that it is often the case that an APE radius is determined for a request like this. If the locations of the historic properties cannot be found, we would like to get an APE radius (or shape) based on the location of the proposed Speedway store that covers the location of the structures so that we can get accurate photographs. Please let me know if this is possible.

Thanks again,
Karren

Karren Wood
SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
CARDNO



Direct +1 724 935 4330
Address 103 North Meadows Drive, Suite 211, Wexford, PA 15090
Email karren.wood@cardno.com Web www.cardno.com

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Karren Wood

From: Frederick, Barbara <bafrederic@pa.gov>
Sent: Thursday, September 17, 2015 7:52 AM
To: Karren Wood
Subject: RE: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

This is correct. The easiest way to show the building losses would be a comparison of CRGIS mapping, historic aerials (available at pennpilot.psu.edu), and current aerials to easily show the loss of the two properties.

From: Karren Wood [mailto:Karren.Wood@cardno.com]
Sent: Wednesday, September 16, 2015 5:04 PM
To: Frederick, Barbara
Subject: RE: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

Thank you again for taking the time to speak with me yesterday. I just wanted to follow up with you to make sure I understand what my next step is. It appears from my research that the two historic properties cited in the response letter (Watts and Torrance Houses) have been removed since they were determined eligible. Based on our conversation yesterday, in order to provide you with the information you need to complete the historical structures review, I will need to submit a letter report and include aerial images showing that there are no longer structures in those areas identified in your database (shown in your email below). If you could verify that my understanding is correct or if not, let me know specifically what I'll need to provide, I would greatly appreciate it.

Thanks,
Karren

Karren Wood
SENIOR SCIENTIST
ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
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From: Frederick, Barbara [<mailto:bafrederic@pa.gov>]

Sent: Friday, September 04, 2015 2:59 PM

To: Karren Wood <Karren.Wood@cardno.com>

Subject: RE: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Cultural Resources Geographic Information System

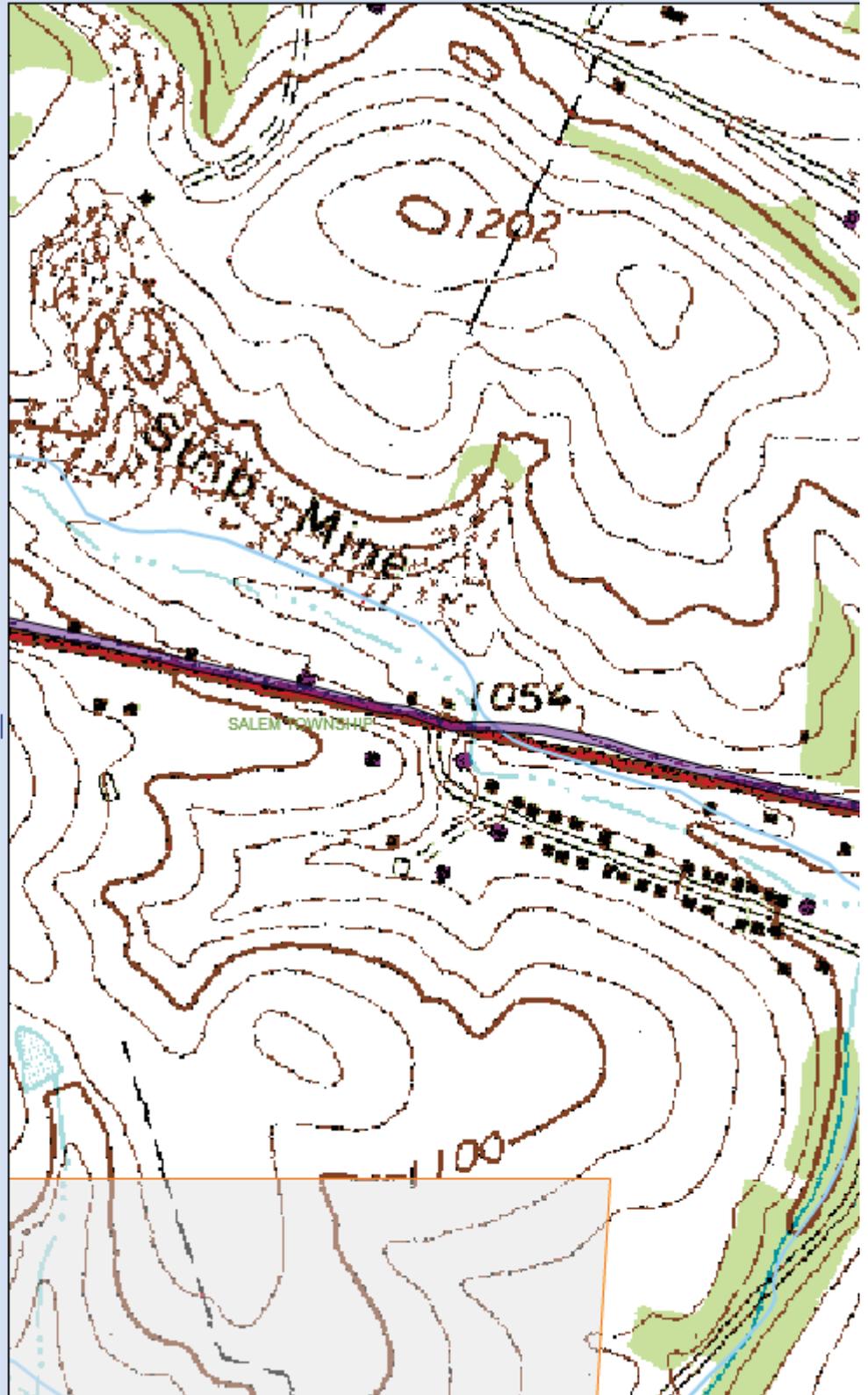


Ask ReGIS

- Local Roads
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- Turnpike
- Planning Org
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 - School Districts
 - PA House Districts
 - PA Senate Districts
 - US Congressional Dis
- Environmental**
 - Water
 - Soils
 - Physiographic Zones
 - Watersheds
- Local-Gov-Boundaries**
 - All Municipalities
 - METRO_AREAS
 - County Boundaries
- Base-Map-Imagery**
 - USGS Topographic M
 - Aerial
 - Route Shields
 - Ab123 Text Labels
 - Selected

Spatial Search

Pick a shape



In our database, the green triangle with orange dot above the words WESTMORELAND COUNTY and the green triangle to the immediate west are the two resources in question. It may be that these resources were removed since they were determined eligible in 1988 (Watt House, property to the west) and 1995 (Torrance House, property to the east).

From: Karren Wood [<mailto:Karren.Wood@cardno.com>]
Sent: Friday, September 04, 2015 2:51 PM
To: Frederick, Barbara
Subject: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

This is a follow up to the email I sent you earlier this week (Wednesday, 9/2/2015). I spoke with my supervisor about the two historic properties cited in the response letter and that I was having trouble locating them. She stated that it is often the case that an APE radius is determined for a request like this. If the locations of the historic properties cannot be found, we would like to get an APE radius (or shape) based on the location of the proposed Speedway store that covers the location of the structures so that we can get accurate photographs. Please let me know if this is possible.

Thanks again,
Karren

Karren Wood
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ENGINEERING & ENVIRONMENTAL SERVICES DIVISION
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Karren Wood

From: Karren Wood
Sent: Wednesday, September 30, 2015 12:43 PM
To: 'Frederick, Barbara'
Subject: Proposed Speedway Site No. 100623 Sanitary Sewer Line, Salem Twp, Westmoreland Co. (File No. ER 2015-1696-129-A)

Barbara,

I was just following up to make sure you've received the letter report I sent you in response to SHPO's request for additional information on the location of the proposed Speedway store in relation to the two previously evaluated resources located nearby (Torrance residence and Watt house). Do you have an idea of your availability to review the response letter? Again, I appreciate your assistance on this time sensitive project.

Thank you,

Karren Wood
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CARDNO



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Karren Wood

From: Frederick, Barbara <bafrederic@pa.gov>
Sent: Thursday, October 08, 2015 8:43 AM
To: Karren Wood
Subject: FW: Message from "RNP002673498023"
Attachments: 20151008083926296.pdf

Response letter attached. Thank you for the additional information.

-----Original Message-----

From: ricoh2852@pa.gov [mailto:ricoh2852@pa.gov]
Sent: Thursday, October 08, 2015 8:39 AM
To: Frederick, Barbara
Subject: Message from "RNP002673498023"

This E-mail was sent from "RNP002673498023" (Aficio MP 2852).

Scan Date: 10.08.2015 08:39:26 (-0400)
Queries to: ricoh2852@pa.gov

ER No. 2015-1696-129-B

The project will have
NO EFFECT
on historic properties

Date 10/8/15 Reviewer BST



September 22, 2015

Ms. Barbara Frederick
Pennsylvania Historical & Museum Commission
State Historic Preservation Office
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093



Cardno

103 North Meadows Drive
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Wexford, PA 15090

Phone +1 724 935 4330
Fax +1 724 935 4350

www.cardno.com

Re: File No. ER 2015-1696-129-A
COE: Proposed Speedway Site No. 100623 Sanitary Sewer Line Installation
Salem Twp., Westmoreland Co.
Request for Additional Information to Complete the Historical Structures Review for
Proposed Speedway Site #100623

Dear Ms. Frederick:

Cardno, on behalf of Speedway LLC (Speedway), is submitting additional information requested by the State Historic Preservation Office (SHPO) in order to complete the historical structures review for the project involving the proposed installation of a sanitary sewer extension along the east bound side of US 22 in New Alexandria, Westmoreland County, PA. Cardno is conducting a National Environmental Policy Act (NEPA) Environmental Assessment (EA) because the aforementioned sanitary force main will cross land under the jurisdiction of the U.S. Army Corps of Engineers (USACE). A NEPA EA is required by USACE to obtain easements on the impacted property.

In the SHPO response letter dated August 25, 2015, a request was made for more information on the location of the proposed subdivision that the sewer line will serve, as previously evaluated resources are located nearby, specifically the Torrance Residence (Key No. 102068) and the Watt House (Key No. 047923). It appears from a search via internet-based mapping tools (e.g., Pennsylvania's Cultural Resource Geographic Information System [CRGIS] mapping, Google Earth Pro, and Penn Pilot) that the two historic structures cited in the response letter (Watt House and Torrance Residence) are no longer present. The attached figures comparing CRGIS mapping (Figures 1 and 2), a historic aerial (Figure 3), and current aerials (Figures 4, 5, and 6) show the current condition of the two properties and the absence of the structures. Specifically, the figures provided in support of this determination are as follows:

- Figure 1 – Pennsylvania CRGIS Topographic Map of Historical Structures,
- Figure 2 - Pennsylvania CRGIS Aerial Image of Historical Structures,
- Figure 3 – Historic Aerial Image of Approximate Locations of Torrance & Watt Houses (June 6, 1939),

Karren Wood

From: Kish, Bruce LRP <Bruce.Kish@usace.army.mil>
Sent: Monday, March 21, 2016 8:01 AM
To: Karren Wood
Subject: RE: NEPA EA Report review

Hi, Karren.

Yes, the Corps will handle the government-to-government consultation with the Tribes. If you could prepare a draft letter describing the project and include mapping, the Corps will do the coordination.

The time the Tribes have to provide comments if they wish, will be concurrent to the ongoing process of finalizing the EA and not necessarily extend the timeline.

Bruce

-----Original Message-----

From: Karren Wood [mailto:Karren.Wood@atcassociates.com]
Sent: Saturday, March 19, 2016 7:03 PM
To: Kish, Bruce LRP <Bruce.Kish@usace.army.mil>
Cc: John Ducar <John.Ducar@atcassociates.com>
Subject: [EXTERNAL] RE: NEPA EA Report review

Bruce,

I would like clarification regarding the following comment:

Review Checklist #1.7.1 Comment - There are still Native American tribes that have historical ties to Western PA if they reside elsewhere. For due diligence, the tribes should be contacted by letter and given the opportunity to comment within a 30-day period. The Corps will handle the government-to-government communication.

Does this mean the Corps will determine what tribes need to be contacted, as well as send the letters to those tribes, or is this the responsibility of Speedway? Specifically, what tasks does Speedway need to complete? Also, how does this 30-day comment period affect the timeline for finalizing the report?

Thanks,
Karren

Karren Wood | SENIOR SCIENTIST | ATC Group Services LLC mobile 412-559-1883 | email
karren.wood@atcassociates.com

address 103 North Meadows Drive, Suite 211 | Wexford, PA 15090
office 724-935-4330 | fax 724-935-4350 | website Blockedwww.atcgroupservices.com

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**APPENDIX C – RESEARCH AND OTHER SUPPORTING
DOCUMENTATION**



U.S. Fish & Wildlife Service

Environmental Conservation Online System

Conserving the Nature of America

Enter Search Term(s):

- [ECOS](#)>
- [Species Reports](#)>
- [Species occurrence by state](#)>
- Listed species believed to or known to occur in Pennsylvania

Listed species believed to or known to occur in Pennsylvania

Notes:

- As of 02/13/2015 the data in this report has been updated to use a different set of information. Results are based on where the species is believed to or known to occur. The FWS feels utilizing this data set is a better representation of species occurrence. Note: there may be other federally listed species that are not currently known or expected to occur in this state but are covered by the ESA wherever they are found; Thus if new surveys detected them in this state they are still covered by the ESA. The FWS is using the best information available on this date to generate this list.
- This report shows listed species or populations believed to or known to occur in Pennsylvania
- This list does not include experimental populations and similarity of appearance listings.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

Listed species -- 15 listings

Animals -- 13 listings

<u>Status</u>	<u>Species/Listing Name</u>
E	Bat, Indiana Entire (Myotis sodalis)
T	Bat, Northern long-eared (Myotis septentrionalis)
E	Bean, rayed (Villosa fabalis)
E	Clubshell Entire Range; Except where listed as Experimental Populations (Pleurobema clava)
T	Knot, red (Calidris canutus rufa)
E	Mussel, sheepnose (Plethobasus cyphus)
E	Mussel, snuffbox (Epioblasma triquetra)

<u>Status</u>	Species/Listing Name
E	Plover, piping Great Lakes watershed (Charadrius melodus)
T	Rabbitsfoot Rabbitsfoot (Quadrula cylindrica cylindrica)
E	Riffleshell, northern Entire (Epioblasma torulosa rangiana)
E	Sturgeon, shortnose Entire (Acipenser brevirostrum)
T	Turtle, bog (=Muhlenberg) northern (Clemmys muhlenbergii)
E	Wedgemussel, dwarf Entire (Alasmidonta heterodon)

Plants -- 2 listings

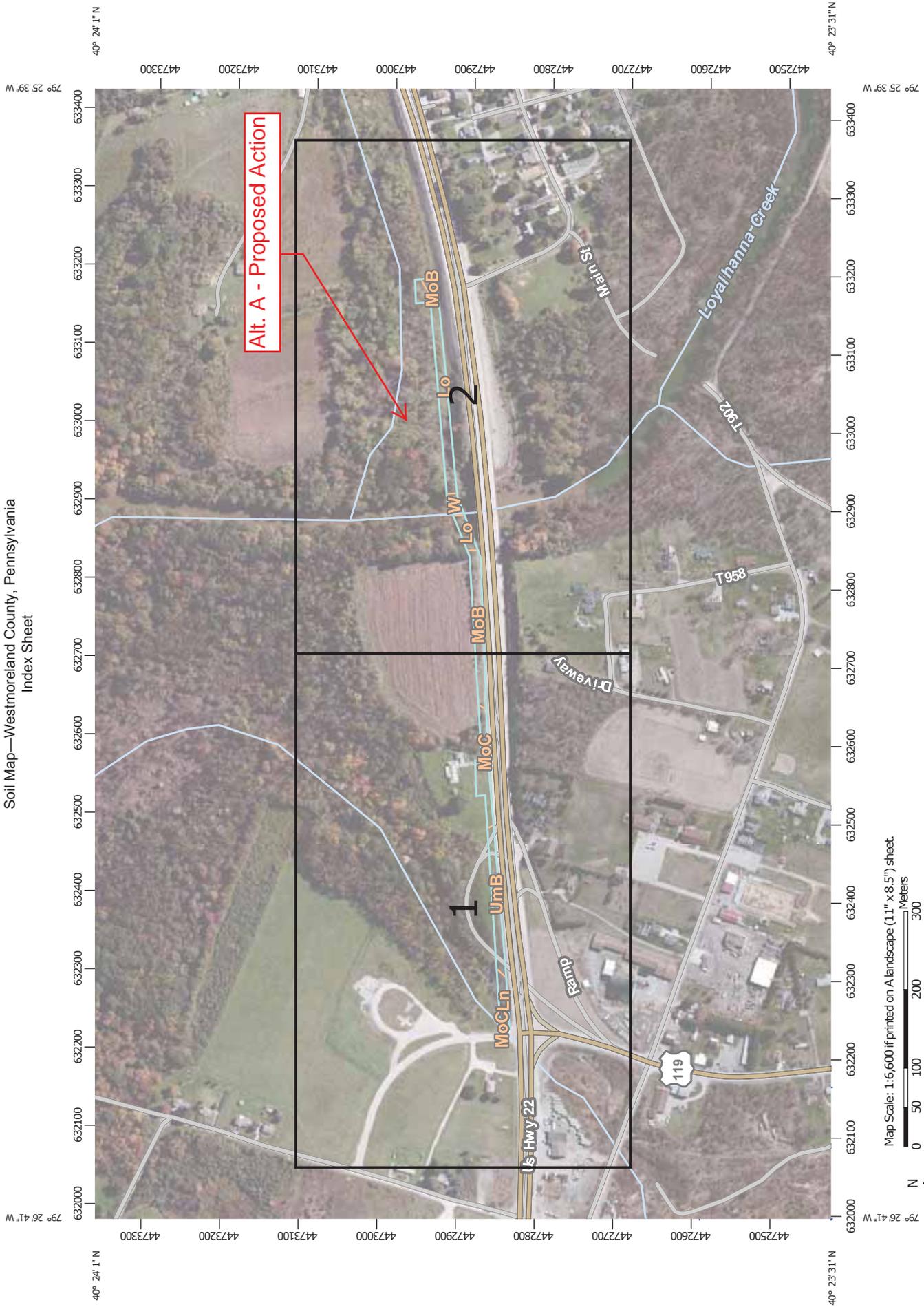
<u>Status</u>	Species/Listing Name
E	Bulrush, Northeastern (Scirpus ancistrochaetus)
T	Pogonia, small whorled (Isotria medeoloides)

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Soil Map—Westmoreland County, Pennsylvania
Index Sheet



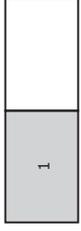
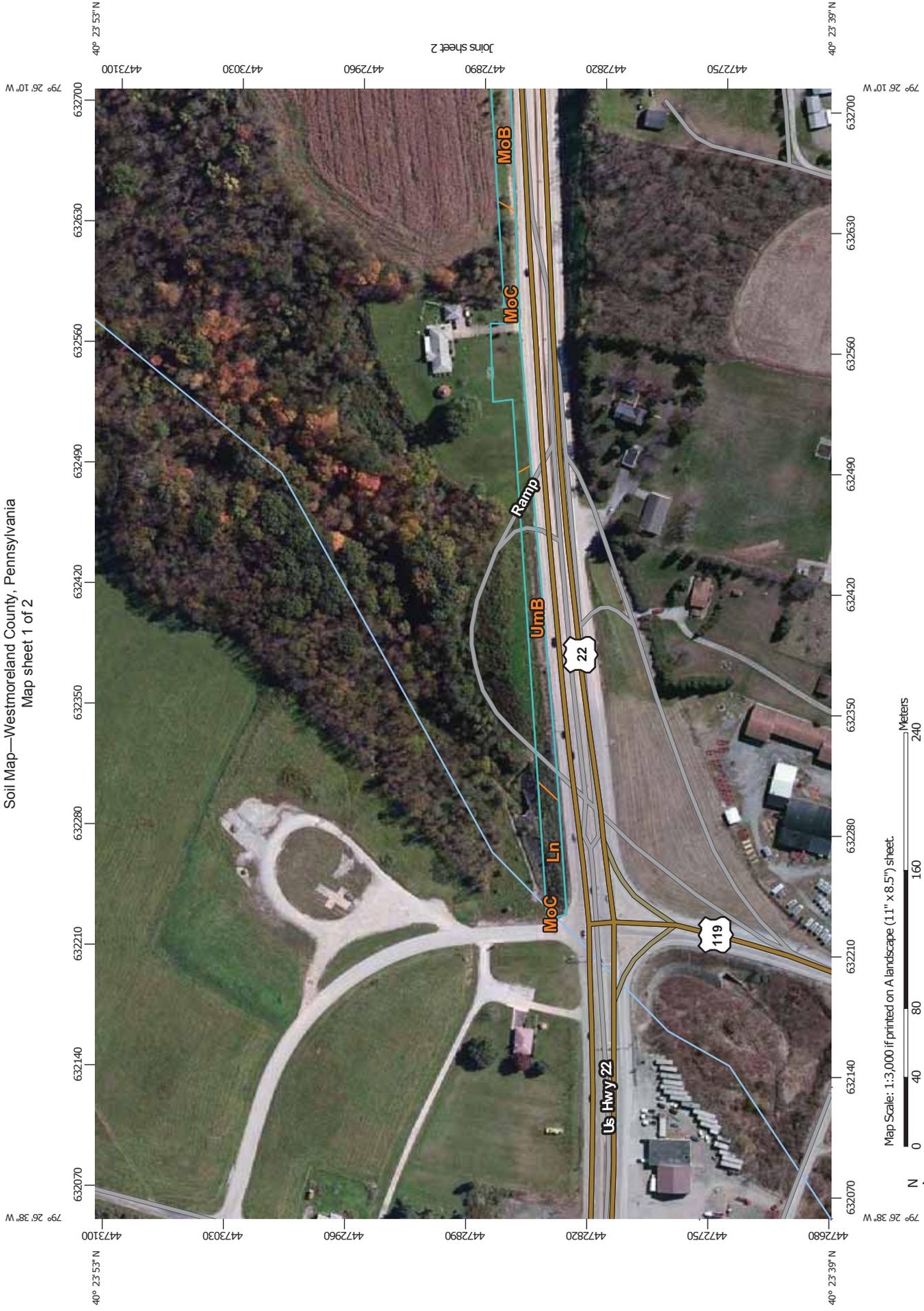
Map Scale: 1:6,600 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



Soil Map—Westmoreland County, Pennsylvania
Map sheet 1 of 2



Soil Map—Westmoreland County, Pennsylvania
Map sheet 2 of 2



Map Scale: 1:3,000 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westmoreland County, Pennsylvania
Survey Area Data: Version 7, Sep 22, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

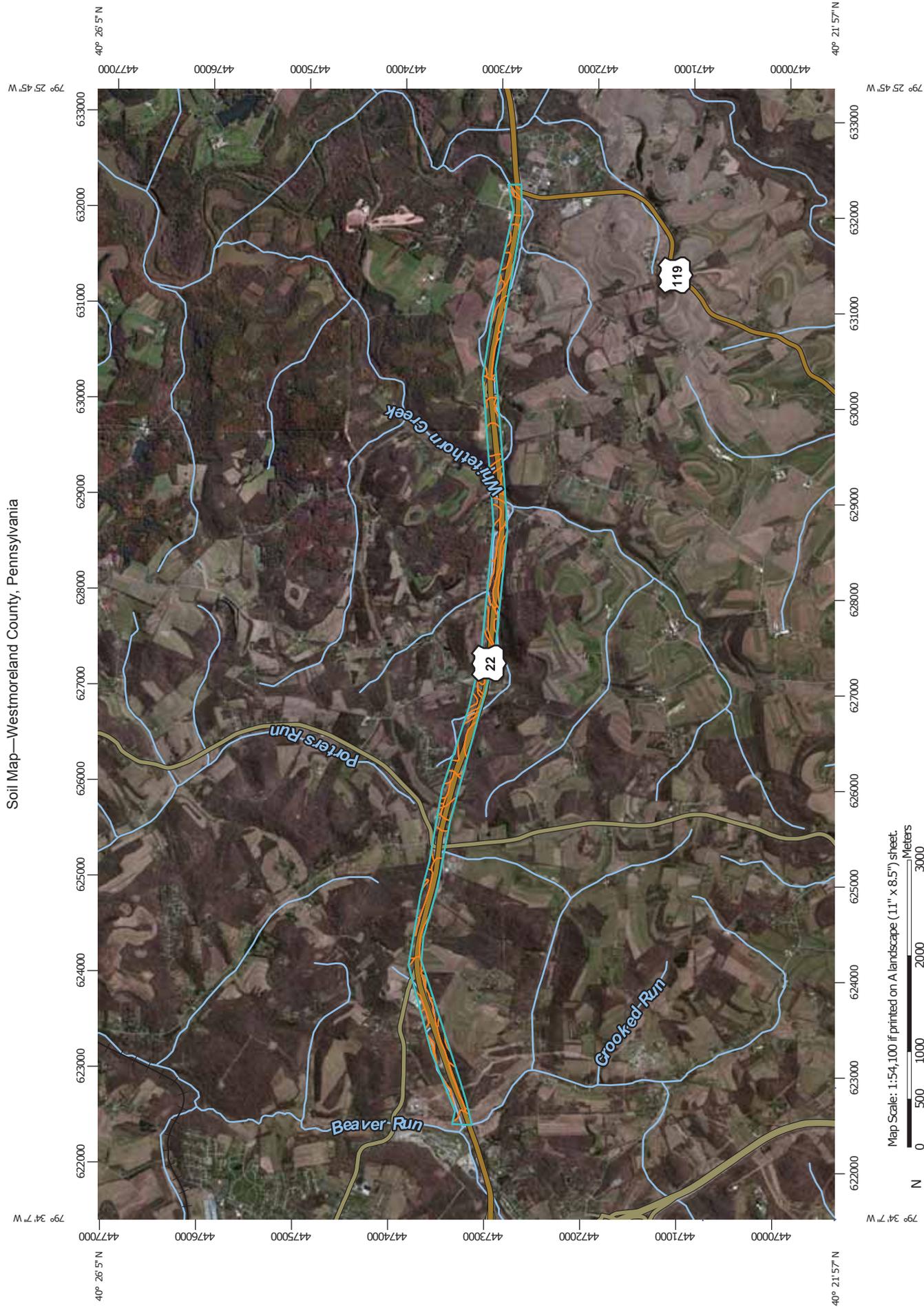
Date(s) aerial images were photographed: Mar 27, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

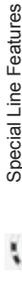
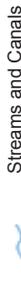
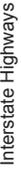
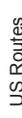
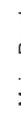
Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ln	Lindside silt loam, 0 to 2 percent slopes	0.2	6.9%
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	1.0	34.4%
MoB	Monongahela silt loam, 3 to 8 percent slopes	0.7	24.3%
MoC	Monongahela silt loam, 8 to 15 percent slopes	0.4	15.1%
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	0.5	15.9%
W	Water	0.1	3.5%
Totals for Area of Interest		2.9	100.0%

Soil Map—Westmoreland County, Pennsylvania



Map Scale: 1:54,100 if printed on A landscape (11" x 8.5") sheet.
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soil Map Unit Polygons	 Stony Spot
 Soil Map Unit Lines	 Very Stony Spot
 Soil Map Unit Points	 Wet Spot
Special Point Features	 Other
 Blowout	 Special Line Features
 Borrow Pit	Water Features
 Clay Spot	 Streams and Canals
 Closed Depression	Transportation
 Gravel Pit	 Rails
 Gravelly Spot	 Interstate Highways
 Landfill	 US Routes
 Lava Flow	 Major Roads
 Marsh or swamp	 Local Roads
 Mine or Quarry	Background
 Miscellaneous Water	 Aerial Photography
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westmoreland County, Pennsylvania
 Survey Area Data: Version 7, Sep 22, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 27, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	4.6	1.3%
CaB	Cavode silt loam, 3 to 8 percent slopes	8.9	2.5%
DoC	Dormont silt loam, 8 to 15 percent slopes	16.9	4.8%
DrD	Dormont-Culleoka complex, 15 to 25 percent slopes	0.7	0.2%
DrE	Dormont-Culleoka complex, 25 to 50 percent slopes	3.8	1.1%
ErB	Ernest silt loam, 3 to 8 percent slopes	50.9	14.5%
ErC	Ernest silt loam, 8 to 15 percent slopes	0.4	0.1%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	7.7	2.2%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	21.1	6.0%
GcD	Gilpin channery silt loam, 15 to 25 percent slopes	27.1	7.7%
GuC	Gilpin-Upshur complex, 8 to 15 percent slopes	7.0	2.0%
GuD	Gilpin-Upshur complex, 15 to 25 percent slopes	5.6	1.6%
GuF	Gilpin-Upshur complex, 25 to 75 percent slopes	5.3	1.5%
GwF	Gilpin-Weikert channery silt loams, 25 to 60 percent slopes	1.2	0.3%
GyB	Guernsey silt loam, 3 to 8 percent slopes	7.1	2.0%
GyC	Guernsey silt loam, 8 to 15 percent slopes	3.7	1.0%
Ho	Holly silt loam, 0 to 2 percent slopes	2.5	0.7%
ItB	Itmann extremely channery loam, 0 to 8 percent slopes	2.5	0.7%
Ln	Lindside silt loam, 0 to 2 percent slopes	8.4	2.4%
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	22.8	6.5%
LwB	Lowell silty clay loam, 3 to 8 percent slopes	1.5	0.4%

Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MoB	Monongahela silt loam, 3 to 8 percent slopes	5.0	1.4%
MoC	Monongahela silt loam, 8 to 15 percent slopes	1.4	0.4%
ShF	Shelocta-Gilpin channery silt loams, 25 to 75 percent slopes	2.7	0.8%
UgB	Urban land-Gilpin complex, 0 to 8 percent slopes	23.2	6.6%
UgD	Urban land-Gilpin complex, 8 to 25 percent slopes	7.5	2.1%
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	0.6	0.2%
UwB	Urban land-Wharton complex, 0 to 8 percent slopes	56.6	16.1%
UwD	Urban land-Wharton complex, 8 to 25 percent slopes	2.3	0.6%
W	Water	1.2	0.3%
WrB	Wharton silt loam, 3 to 8 percent slopes	2.0	0.6%
WrC	Wharton silt loam, 8 to 15 percent slopes	33.6	9.5%
WrD	Wharton silt loam, 15 to 25 percent slopes	6.1	1.7%
Totals for Area of Interest		352.0	100.0%



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Tom Wolf, Governor Cindy Adams Dunn, Secretary

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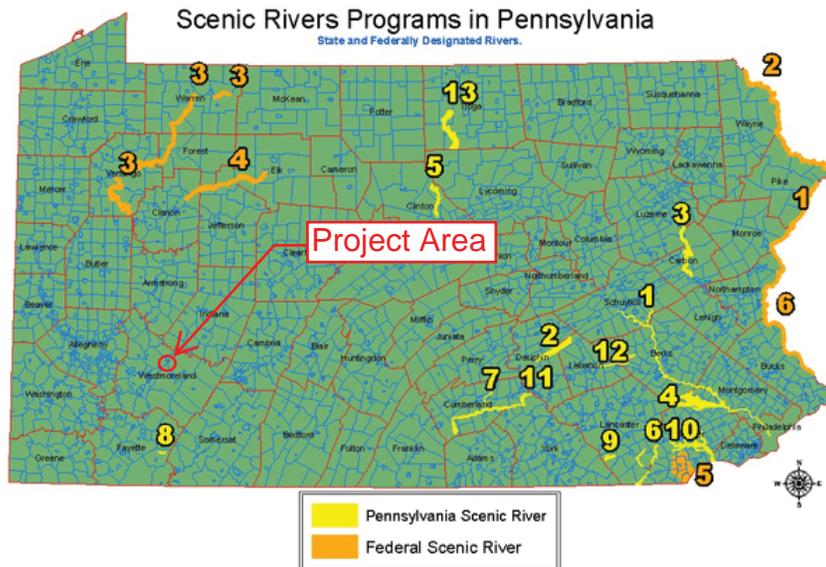
Scenic Rivers

The following map depicts the location of Pennsylvania and Federally designated Scenic Rivers. The Pennsylvania Scenic rivers are depicted in yellow, the Federally designated Scenic Rivers are depicted on this map in orange. Click on the corridor you wish to study or it's name in the list below to get more information on it.



Program Information

Classification, PA Scenic Rivers Act and Managing Organizations



Pennsylvania Designated Rivers

Name	Date Designated	Name	Date Designated
1 Schuylkill River	November 1978	8 Bear Run	December 1988
2 Stony Creek	March 1980	9 Tucquan Creek	December 1988
3 Lehigh River	April 1982	10 Lower Brandywine	June 1989
4 West (Northwest) French Creek	April 1982	11 Yellow Breeches Creek	December 1992
5 Lick Run	December 1982	12 Tulpehocken Creek	December 1992
6 Octoraro Creek	October 1983	13 Pine Creek	December 1992
7 Le Tort Spring Run	March 1988		

Federal Designated Rivers

	Name	Date Designated
1	Middle Delaware River	September 1965
2	Upper Delaware River	November 1978
3	Allegheny River	April 1992
4	Clarion River	October 1996
5	White Clay Creek	October 2000
6	Lower Delaware River	November 2000

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the 1990s, the number of people who have been employed in the public sector has increased in all countries. The increase in public sector employment has been particularly rapid in the United Kingdom, where the public sector has grown from 10.5% of the total labour force in 1970 to 17.5% in 1995 (see Figure 1).

There are a number of reasons for the increase in public sector employment. One reason is that the public sector has become a more important part of the economy. In many countries, the public sector has become a major employer, particularly in the service sector. Another reason is that the public sector has become a more attractive place to work. This is due to a number of factors, including the fact that the public sector is often seen as a more secure and stable place to work, and that it often offers better benefits and working conditions than the private sector.

There are a number of challenges facing the public sector in the 1990s. One challenge is the need to reduce the public sector's share of the total labour force. This is due to the fact that the public sector is often seen as a drain on the economy, and that it is often a major source of government expenditure. Another challenge is the need to improve the public sector's efficiency and productivity. This is due to the fact that the public sector is often seen as a less efficient and less productive place to work than the private sector.

There are a number of ways in which the public sector can be reformed. One way is to reduce the public sector's share of the total labour force. This can be done by a number of means, including the privatization of public enterprises, the reduction of public sector employment, and the improvement of the public sector's efficiency and productivity. Another way is to improve the public sector's efficiency and productivity. This can be done by a number of means, including the introduction of competition, the improvement of the public sector's management, and the improvement of the public sector's working conditions.

There are a number of reasons why the public sector is often seen as a drain on the economy. One reason is that the public sector is often a major source of government expenditure. Another reason is that the public sector is often a less efficient and less productive place to work than the private sector. There are a number of ways in which the public sector can be reformed, and these reforms are essential for the long-term success of the economy.

The public sector is a complex and multi-faceted institution. It is a major employer, a major source of government expenditure, and a major part of the economy. It is also a place where many of the most important public services are provided. The public sector is therefore a vital part of the economy, and it is essential that it be reformed in order to ensure its long-term success.

There are a number of challenges facing the public sector in the 1990s, and these challenges are essential for the long-term success of the economy. The public sector must be reformed in order to reduce its share of the total labour force, to improve its efficiency and productivity, and to ensure that it is a more attractive place to work. These reforms are essential for the long-term success of the economy, and they are essential for the well-being of the people.

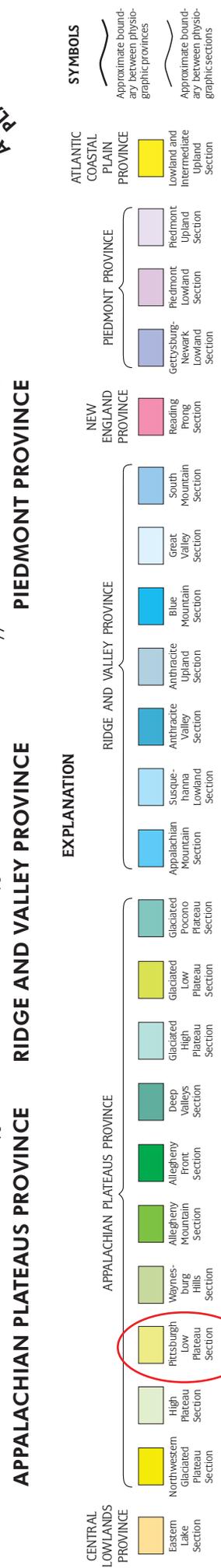
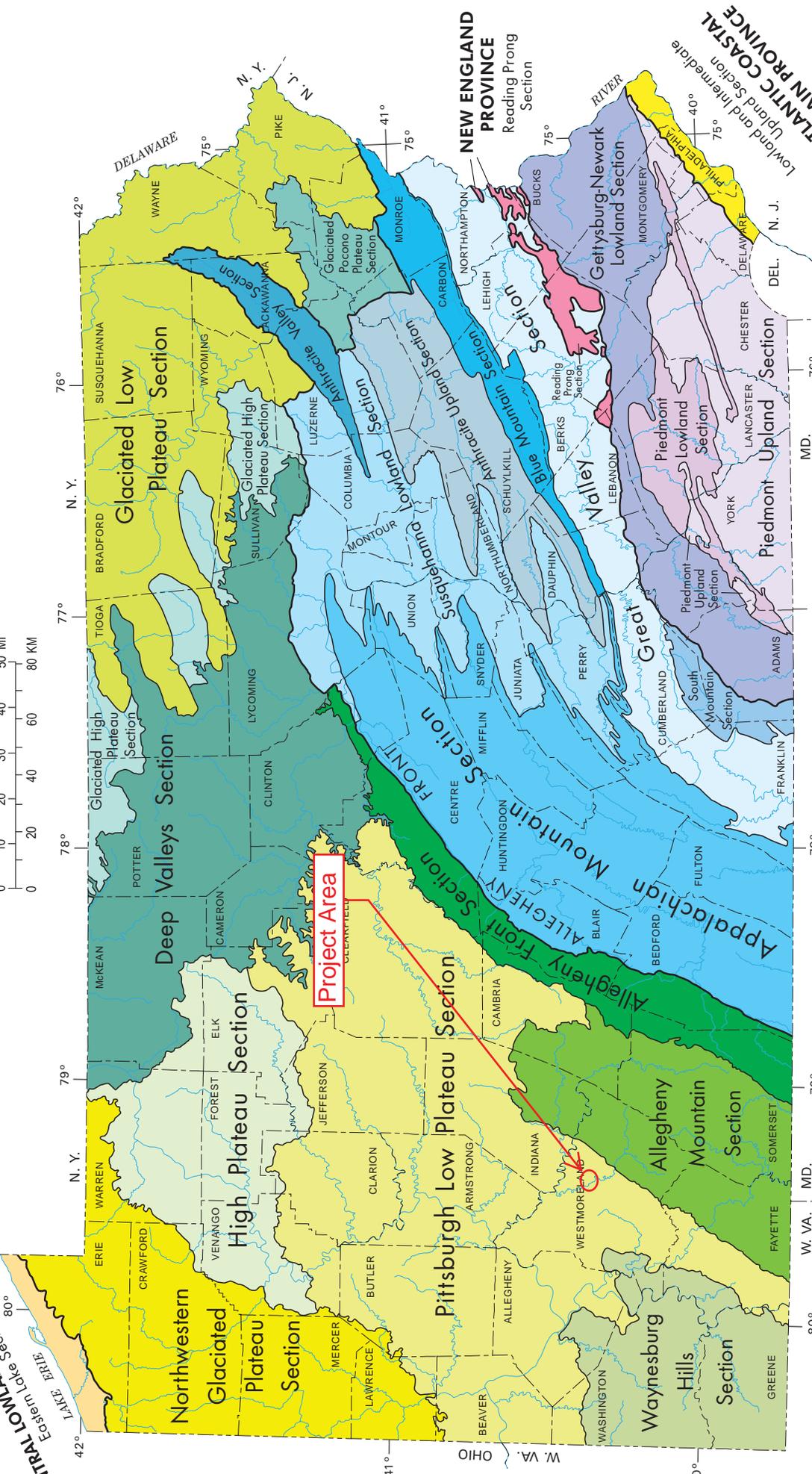
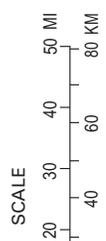
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PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
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CENTRAL LOWLANDS PROVINCE
Eastern Lake Section



Compiled by W. D. Sevon, Fourth Edition, 1900.

PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

PHYSIOGRAPHIC PROVINCE	PHYSIOGRAPHIC SECTION	DOMINANT TOPOGRAPHIC FORM	LOCAL RELIEF ¹	UNDERLYING ROCK TYPE	GEOLOGIC STRUCTURE	APPROXIMATE ELEVATION ² Min. Max.	DRAINAGE PATTERN	BOUNDARIES	ORIGIN
APPALACHIAN PLATEAUS	Eastern Lake	Northwest-sloping, lake-parallel, low-relief ridges.	Very low to low.	Shale and siltstone.	Beds either horizontal or having low south dip.	570 1,000	Parallel.	Northwest: Lake Erie. Southeast: Base of escarpment.	Glacial, lake, and fluvial deposition and erosion.
	Northwestern Glaciated Plateau	Broad, rounded upland and deep, steep-sided, linear valleys partly filled with glacial deposits.	Very low to moderate.	Shale, siltstone, and sandstone.	Subhorizontal beds.	900 2,200	Dendritic.	Northwest: Base of escarpment. Southeast: Glacial border.	Fluvial and glacial erosion; glacial deposition.
	High Plateau	Broad, rounded to flat uplands having deep, angular valleys.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Low-amplitude, open folds.	980 2,360	Dendritic.	Northwest: Glacial border. Northeast: Margins of deep valleys. South: Arbitrary along drainage divides between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
	Pittsburgh Low Plateau	Smooth to irregular, undulating surface; narrow, relatively shallow valleys, strip mines and reclaimed land.	Low to moderate.	Shale, siltstone, sandstone, limestone, and coal.	Moderate- to low-amplitude, open folds, decreasing in occurrence northwestward.	660 2,340	Dendritic.	Northwest: Glacial border. Elsewhere: Arbitrary at topographic changes with adjacent sections.	Fluvial erosion; periglacial mass wasting; strip mining.
	Waynesburg Hills	Very hilly with narrow hilltops and steep-sloped, narrow valleys.	Moderate.	Sandstone, shale, red beds, and limestone.	Horizontal beds.	848 1,638	Dendritic.	Arbitrary at change of topography.	Fluvial erosion and landslides.
	Allegheny Mountain	Wide ridges separated by broad valleys; ridge elevations decrease to north.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some limestone and coal.	Large-amplitude, open folds.	775 3,210	Dendritic.	East: Arbitrary between coal and noncoal areas. West: Base of west flank of Chestnut Ridge. North: Approximates northeast terminus of large-amplitude, open folds.	Fluvial erosion; some periglacial mass wasting.
	Allegheny Front	East: Rounded to linear hills rising by steps to an escarpment; hills cut by narrow valleys. West: Undulating hills sloping away from escarpment.	Moderate to high.	Shale, siltstone, and sandstone.	South: Broad fold. Elsewhere: Beds having low northwest dip, some faults.	540 2,980	Parallel and trellis.	East: Stream at base of hills below escarpment. West: Arbitrary between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
	Deep Valleys	Very deep, angular valleys; some broad to narrow uplands.	Moderate to very high.	Sandstone, siltstone, shale, and conglomerate.	Moderate-amplitude, open folds that control valley orientations.	560 2,560	Angulate and rectangular.	Arbitrary at margins of deep valleys, either at top of valley slope or along drainage divide.	Fluvial erosion; periglacial mass wasting.
	Glaciated High Plateau	Broad to narrow, rounded to flat, elongate uplands and shallow valleys.	Low to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Moderate-amplitude, open folds.	620 2,560	Angulate and dendritic.	East: Base of escarpment. Elsewhere: Arbitrary with margins of deep valleys.	Fluvial and glacial erosion; glacial deposition.
	Glaciated Low Plateau	Rounded hills and valleys.	Low to moderate.	Sandstone, siltstone, and shale.	Low-amplitude folds.	440 2,690	Dendritic.	Base of escarpments of adjacent uplands; base of Pocono escarpment. Elsewhere: Arbitrary.	Fluvial and glacial erosion; glacial deposition.
	Glaciated Pocono Plateau	Broad, undulatory upland surface having dissected margins.	Low to moderate.	Sandstone, siltstone, and shale, some conglomerate.	Beds having low north dip; some small folds.	1,200 2,320	Deranged.	South and east: Base of Pocono escarpment. North: Crest of drainage divide. West: Arbitrary.	Fluvial and glacial erosion; glacial deposition.
	Appalachian Mountain	Long, narrow ridges and broad to narrow valleys; some karst.	Moderate to very high.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs; variety of faults.	440 2,775	Trellis, angulate, and some karst.	Southeast: Base of slope change on southeast side of Blue Mountain. West and northwest: Center of valley bottom west of westernmost linear ridge. Elsewhere: Base of slope change of eastern ridges; arbitrary between ridges.	Fluvial erosion; solution of carbonate rocks; periglacial mass wasting.
	Susquehanna Lowland	Low to moderately high, linear ridges; linear valleys; Susquehanna River valley.	Low to moderate.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs.	260 1,715	Trellis and angulate.	Base of slope change to higher ridges of all surrounding areas; arbitrary in valley areas.	Fluvial erosion; some glacial erosion and deposition in northeast.
	Anthracite Valley	Narrow to wide, canoe-shaped valley having irregular to linear hills; valley enclosed by steep-sloped mountain rim.	Low to moderate.	Sandstone, siltstone, conglomerate, and anthracite.	Broad, doubly-plunging syncline; faults and smaller folds.	500 2,368	Trellis and parallel.	Outer base of surrounding mountain.	Fluvial and glacial erosion; some glacial deposition.
Anthracite Upland	Upland surface having low, linear to rounded hills, strip mines, and waste piles; upland surrounded by an escarpment, a valley, and a mountain rim.	Low to high.	Sandstone, shale, conglomerate, and anthracite.	Many narrow folds having steep limbs; many faults.	320 2,094	Trellis.	Northeast: Arbitrary between coal and noncoal areas. Elsewhere: Outer base of surrounding mountain.	Fluvial erosion; some glacial erosion and periglacial mass wasting.	
Blue Mountain	Linear ridge to south and valley to north; valley widens eastward and includes low linear ridges and shallow valleys.	Moderate to high.	Sandstone, siltstone, and shale; some limestone and conglomerate.	Southeast: South limb of broad fold. Northeast: Small folds north of Blue Mountain.	300 1,680	Trellis.	Southeast: Base of slope change on southeast side of Blue Mountain. Northwest: Base of mountain; base of Pocono escarpment. Northeast: Arbitrary.	Fluvial erosion; some glacial erosion and deposition in northeast.	
Great Valley	Very broad valley. Northwest half: Dissected upland. Southeast half: Low karst terrain.	Low to moderate.	Northwest: Shale and sandstone, slate at east end. Southeast: Limestone and dolomite.	Thrust sheets, nappes, overturned folds, and steep faults; many third- and fourth-order folds.	140 1,100	Dendritic and karst.	North: Base of slope change on southeast side of Blue Mountain. South: Base of slope change to adjacent uplands.	Fluvial erosion; solution of carbonate rocks; some periglacial mass wasting.	
South Mountain	Linear ridges, deep valleys, and flat uplands.	Moderate to high.	Metavolcanic rocks, quartzite, and some dolomite.	Major anticlinorium having many second- and third-order folds.	450 2,080	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion of highly variable rocks; some periglacial mass wasting.	
Reading Prong	Circular to linear, rounded hills and ridges.	Moderate.	Granitic gneiss, granodiorite, and quartzite.	Multiple nappes.	140 1,364	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.	
Gettysburg-Newark Lowland	Rolling lowlands, shallow valleys, and isolated hills.	Low to moderate.	Mainly red shale, siltstone, and sandstone; some conglomerate and diabase.	Half-graben having low, monoclimal, north-west-dipping beds.	20 1,355	Dendritic and trellis.	Base of slope changes with adjacent uplands and lowlands. Elsewhere: Arbitrary.	Fluvial erosion of rocks of variable resistance.	
Piedmont Lowland	Broad, moderately dissected, karst valleys separated by broad, low hills.	Low.	Dominantly limestone and dolomite; some phylitic shale and sandstone.	Complexly folded and faulted.	60 700	Dendritic and karst.	South: Base of slope change to adjacent upland. North: Mesozoic red rocks.	Fluvial erosion; some periglacial mass wasting.	
Piedmont Upland	Broad, rounded to flat-topped hills and shallow valleys.	Low to moderate.	Mainly schist, gneiss, and quartzite; some saprolite.	Extremely complexly folded and faulted.	100 1,220	Dendritic.	East: Base of low to vague Fall Line escarpment. North: Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.	
Lowland and Intermediate Upland	Flat upper terrace surface cut by shallow valleys; Delaware River floodplain.	Very low.	Unconsolidated to poorly consolidated sand and gravel; underlain by schist, gneiss, and other metamorphic rocks.	Unconsolidated deposits underlain by complexly folded and faulted rocks.	0 200	Dendritic.	Northwest: Base of low to vague Fall Line escarpment. East: Arbitrary.	Fluvial erosion and deposition.	

¹Local relief: 0 to 100 feet, very low; 101 to 300 feet, low; 301 to 600 feet, moderate; 601 to 1,000 feet, high; > 1,000 feet, very high.

²Elevations are in feet. (Relief categories listed here for Pennsylvania do not necessarily apply to other states or countries.)

the 1990s, the number of people with a mental health problem has increased in the UK. The prevalence of mental health problems has increased from 10% in 1986 to 13% in 1999 (Mental Health Act 2003). The prevalence of mental health problems has also increased in other countries (Mental Health Act 2003).

The prevalence of mental health problems has increased in the UK because of a number of factors. One of the main factors is the increase in the number of people with a mental health problem who are not receiving treatment. This is because of a number of reasons, including a lack of resources, a lack of awareness of mental health problems, and a lack of support for people with a mental health problem.

The prevalence of mental health problems has also increased because of a number of other factors, including a change in the way that mental health problems are defined, a change in the way that mental health problems are diagnosed, and a change in the way that mental health problems are treated.

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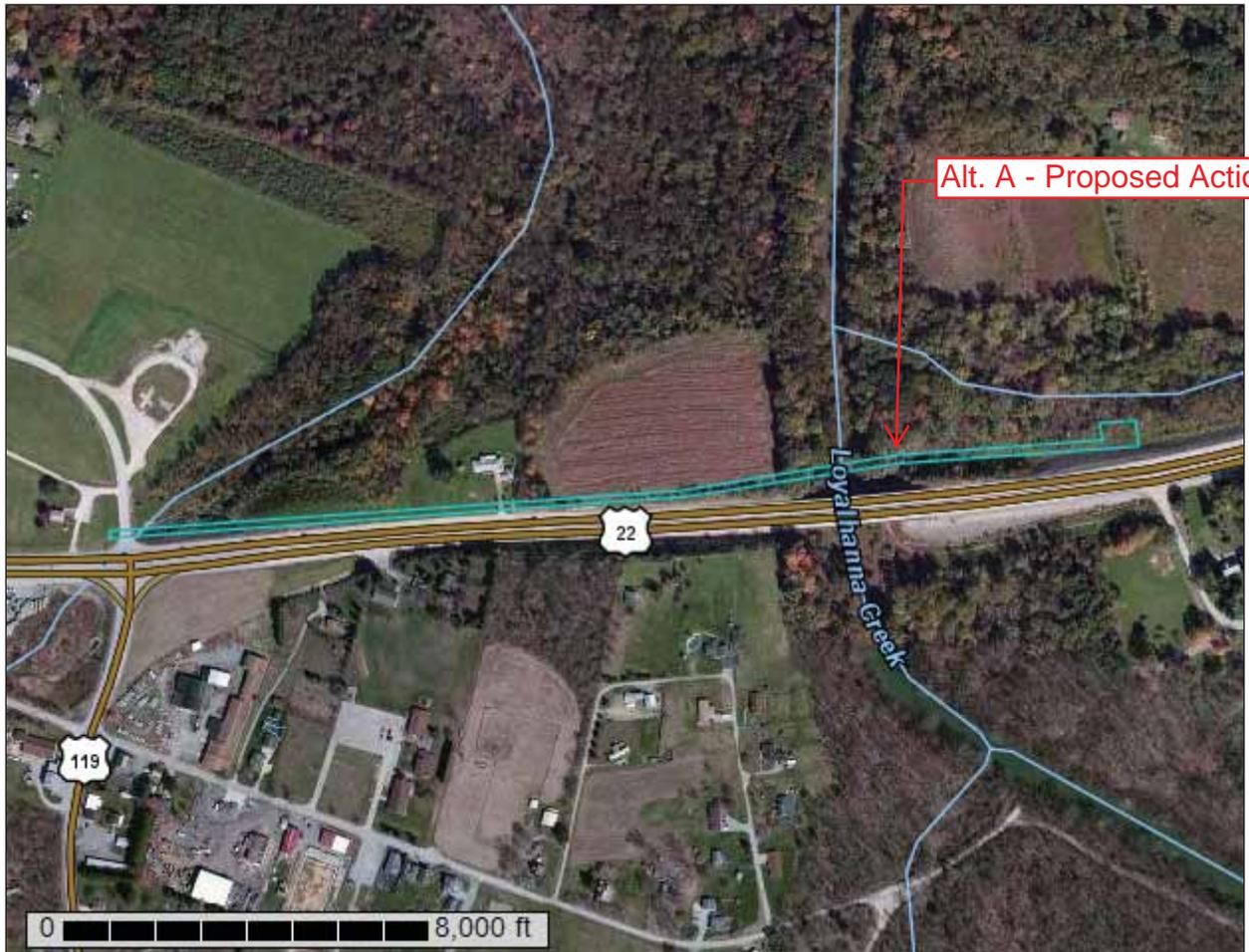
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Westmoreland County, Pennsylvania



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:5,280 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westmoreland County, Pennsylvania
 Survey Area Data: Version 7, Sep 22, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 27, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map-unit boundaries may be evident.

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soil Map Unit Polygons	 Stony Spot
 Soil Map Unit Lines	 Very Stony Spot
 Soil Map Unit Points	 Wet Spot
 Special Point Features	 Other
 Blowout	 Special Line Features
 Borrow Pit	Water Features
 Clay Spot	 Streams and Canals
 Closed Depression	Transportation
 Gravel Pit	 Rails
 Gravelly Spot	 Interstate Highways
 Landfill	 US Routes
 Lava Flow	 Major Roads
 Marsh or swamp	 Local Roads
 Mine or Quarry	Background
 Miscellaneous Water	 Aerial Photography
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

Map Unit Legend

Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ln	Lindside silt loam, 0 to 2 percent slopes	0.1	6.6%
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	0.7	39.0%
MoB	Monongahela silt loam, 3 to 8 percent slopes	0.3	18.6%
MoC	Monongahela silt loam, 8 to 15 percent slopes	0.3	16.6%
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	0.3	16.1%
W	Water	0.1	3.0%
Totals for Area of Interest		1.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

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where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westmoreland County, Pennsylvania

Ln—Lindside silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 18r1
Elevation: 700 to 1,200 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lindside and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lindside

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Recent silty alluvium derived from limestone, sandstone, and shale

Typical profile

A - 0 to 11 inches: silt loam
Bw - 11 to 38 inches: silty clay loam
C - 38 to 65 inches: gravelly silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave

Across-slope shape: Concave

Melvin

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Concave

Lo—Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2t326

Elevation: 520 to 1,430 feet

Mean annual precipitation: 39 to 44 inches

Mean annual air temperature: 49 to 53 degrees F

Frost-free period: 167 to 191 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Lobdell and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lobdell

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-loamy alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 6 inches: silt loam

Bw1 - 6 to 20 inches: loam

Bw2 - 20 to 38 inches: loam

C - 38 to 65 inches: stratified loam to silt loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 16 to 30 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Available water storage in profile: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

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Hydrologic Soil Group: B/D

Minor Components

Holly

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Wetlands (W3)

Orrville

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Moist Loams (ML3)

Melvin

Percent of map unit: 5 percent
Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Wetlands (W3)

MoB—Monongahela silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2rfbg
Elevation: 580 to 1,300 feet
Mean annual precipitation: 36 to 54 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 120 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Monongahela and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy alluvium derived from sandstone and siltstone

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Typical profile

Ap - 0 to 8 inches: silt loam
BA - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 51 inches: clay loam
BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 30 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave

MoC—Monongahela silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2rfbj
Elevation: 580 to 1,700 feet
Mean annual precipitation: 35 to 54 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 115 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Monongahela and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

BA - 8 to 12 inches: silt loam

Bt - 12 to 22 inches: silt loam

Btx - 22 to 51 inches: clay loam

BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 18 to 30 inches to fragipan

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent

Landform: Terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Gilpin

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave

UmB—Urban land-Monongahela complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18rj
Elevation: 700 to 1,200 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Monongahela and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

Description of Monongahela

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Old fine-loamy alluvium derived from sandstone and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 29 inches: loam
Btx - 29 to 63 inches: loam
C - 63 to 80 inches: cobbly sandy loam

Properties and qualities

Slope: 0 to 8 percent

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Depth to restrictive feature: 25 to 35 inches to fragipan
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 17 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Streams

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "[National Soil Survey Handbook](#)."

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3

Low: 3 to 6

Moderate: 6 to 9

High: 9 to 12

Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change

in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter.
As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age,

the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of

streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown.

Custom Soil Resource Report

The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasesers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2

Low: 0.2 to 0.4

Moderately low: 0.4 to 0.75

Moderate: 0.75 to 1.25

Moderately high: 1.25 to 1.75

High: 1.75 to 2.5

Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent

Low: 0.5 to 1.0 percent

Moderately low: 1.0 to 2.0 percent

Moderate: 2.0 to 4.0 percent

High: 4.0 to 8.0 percent

Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5

Extremely acid: 3.5 to 4.4

Very strongly acid: 4.5 to 5.0

Strongly acid: 5.1 to 5.5

Moderately acid: 5.6 to 6.0

Slightly acid: 6.1 to 6.5

Neutral: 6.6 to 7.3

Slightly alkaline: 7.4 to 7.8

Moderately alkaline: 7.9 to 8.4

Strongly alkaline: 8.5 to 9.0

Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they

form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
 - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
 - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
 - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
 - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
 - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletalans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds

and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1

Moderate: 13-30:1

Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Custom Soil Resource Report

Very coarse sand: 2.0 to 1.0

Coarse sand: 1.0 to 0.5

Medium sand: 0.5 to 0.25

Fine sand: 0.25 to 0.10

Very fine sand: 0.10 to 0.05

Silt: 0.05 to 0.002

Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents

the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated

Prismatic: Vertically elongated and having flat tops

Columnar: Vertically elongated and having rounded tops

Angular blocky: Having faces that intersect at sharp angles (planes)

Subangular blocky: Having subrounded and planar faces (no sharp angles)

Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand

Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variiegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.



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Department of
Agriculture

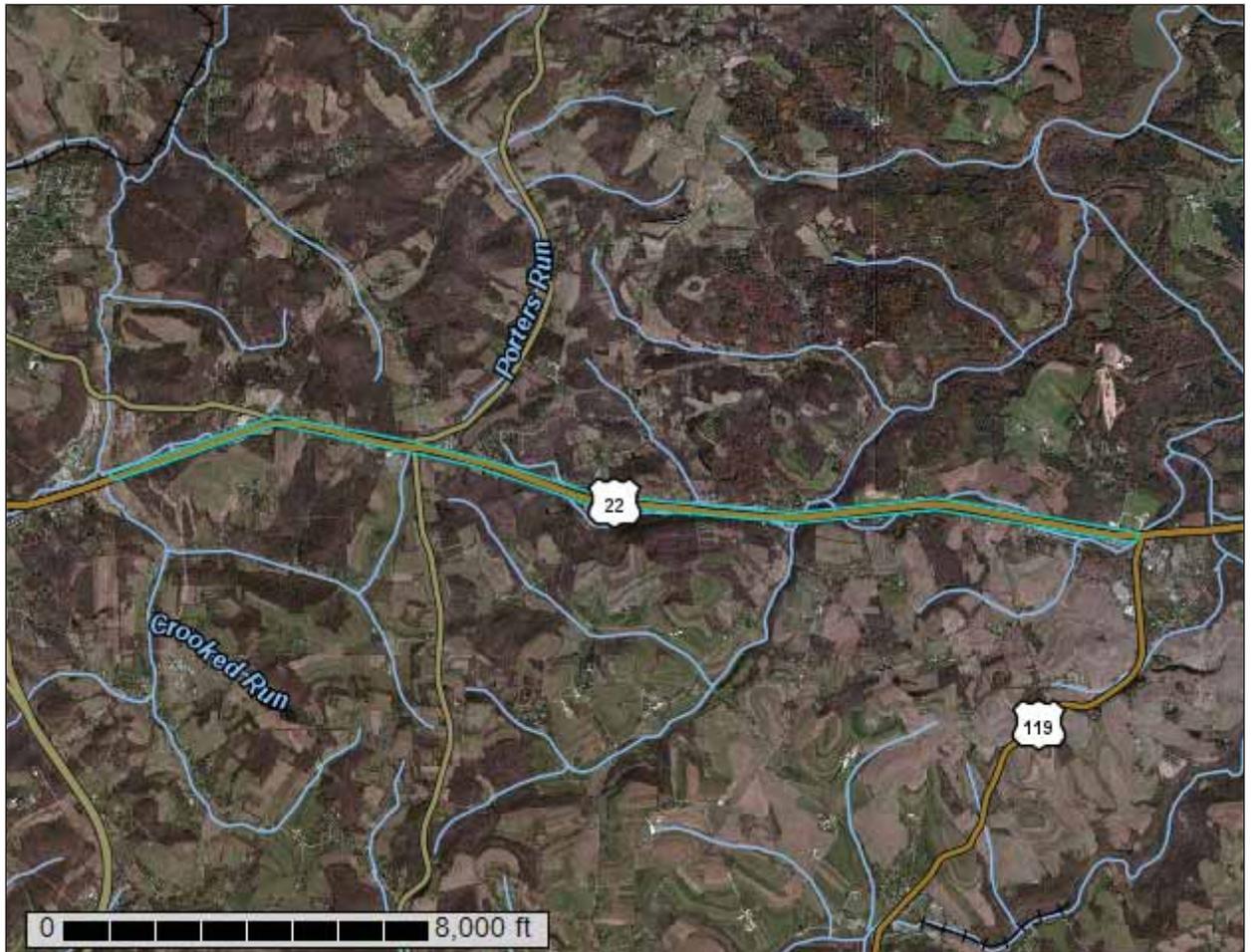
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Westmoreland County, Pennsylvania

100623 Alternate B



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

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individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

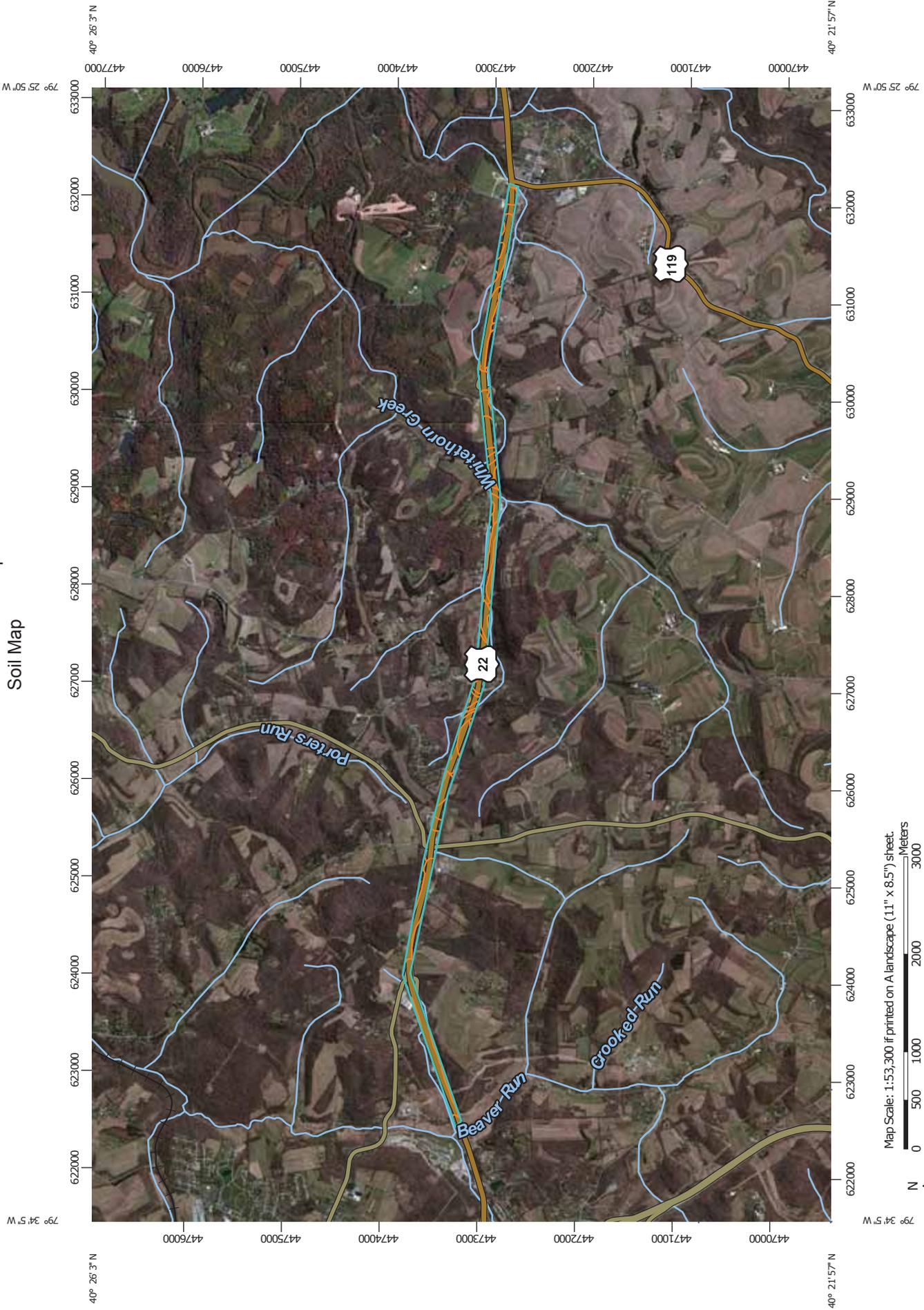
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:53,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westmoreland County, Pennsylvania
 Survey Area Data: Version 7, Sep 22, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 27, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

Map Unit Legend

Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	2.1	0.9%
CaB	Cavode silt loam, 3 to 8 percent slopes	6.6	2.9%
DoC	Dormont silt loam, 8 to 15 percent slopes	13.7	5.9%
DrD	Dormont-Culleoka complex, 15 to 25 percent slopes	0.8	0.4%
DrE	Dormont-Culleoka complex, 25 to 50 percent slopes	4.4	1.9%
ErB	Ernest silt loam, 3 to 8 percent slopes	35.3	15.3%
ErC	Ernest silt loam, 8 to 15 percent slopes	0.2	0.1%
GcB	Gilpin channery silt loam, 3 to 8 percent slopes	4.4	1.9%
GcC	Gilpin channery silt loam, 8 to 15 percent slopes	13.4	5.8%
GcD	Gilpin channery silt loam, 15 to 25 percent slopes	14.0	6.1%
GuC	Gilpin-Upshur complex, 8 to 15 percent slopes	3.4	1.5%
GuD	Gilpin-Upshur complex, 15 to 25 percent slopes	6.1	2.6%
GuF	Gilpin-Upshur complex, 25 to 75 percent slopes	2.8	1.2%
GyB	Guernsey silt loam, 3 to 8 percent slopes	5.4	2.3%
GyC	Guernsey silt loam, 8 to 15 percent slopes	2.2	0.9%
Ho	Holly silt loam, 0 to 2 percent slopes	2.1	0.9%
ItB	Itmann extremely channery loam, 0 to 8 percent slopes	2.4	1.0%
Ln	Lindside silt loam, 0 to 2 percent slopes	5.1	2.2%
Lo	Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded	12.7	5.5%
LwB	Lowell silty clay loam, 3 to 8 percent slopes	1.7	0.8%
MoB	Monongahela silt loam, 3 to 8 percent slopes	4.0	1.7%
MoC	Monongahela silt loam, 8 to 15 percent slopes	0.4	0.2%

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Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ShF	Shelocta-Gilpin channery silt loams, 25 to 75 percent slopes	1.6	0.7%
UgB	Urban land-Gilpin complex, 0 to 8 percent slopes	17.0	7.4%
UgD	Urban land-Gilpin complex, 8 to 25 percent slopes	6.3	2.7%
UwB	Urban land-Wharton complex, 0 to 8 percent slopes	39.1	17.0%
UwD	Urban land-Wharton complex, 8 to 25 percent slopes	0.5	0.2%
W	Water	0.6	0.3%
WrB	Wharton silt loam, 3 to 8 percent slopes	1.1	0.5%
WrC	Wharton silt loam, 8 to 15 percent slopes	19.0	8.3%
WrD	Wharton silt loam, 15 to 25 percent slopes	2.1	0.9%
Totals for Area of Interest		230.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been

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observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westmoreland County, Pennsylvania

BeD—Bethesda very channery silt loam, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 18nf
Elevation: 800 to 2,800 feet
Mean annual precipitation: 36 to 54 inches
Mean annual air temperature: 37 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Bethesda, unstable fill, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bethesda, Unstable Fill

Setting

Landform: Plateaus
Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Acid loamy coal extraction mine spoil derived from interbedded sedimentary rock

Typical profile

A - 0 to 7 inches: very channery silt loam
C - 7 to 65 inches: extremely channery silt loam

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C

Minor Components

Gilpin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex

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Across-slope shape: Convex

Wharton

Percent of map unit: 4 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Concave

Wet spots

Percent of map unit: 1 percent

Landform: Depressions

Down-slope shape: Concave

Across-slope shape: Concave

CaB—Cavode silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18s4

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Cavode and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cavode

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear, concave

Across-slope shape: Concave

Parent material: Acid clayey residuum weathered from clayey shale

Typical profile

Ap - 0 to 10 inches: silt loam

Btg - 10 to 47 inches: silty clay loam

BCg - 47 to 57 inches: channery silt loam

R - 57 to 61 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 40 to 90 inches to lithic bedrock

Natural drainage class: Somewhat poorly drained

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Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Minor Components

Gilpin

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex, linear

Brinkerton

Percent of map unit: 5 percent

Landform: Draws, hills

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

DoC—Dormont silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2s5gh

Elevation: 800 to 1,540 feet

Mean annual precipitation: 37 to 47 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 173 to 197 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Dormont and similar soils: 70 percent

Minor components: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dormont

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, summit, shoulder

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Landform position (three-dimensional): Side slope, interfluvium

Down-slope shape: Linear

Across-slope shape: Concave, linear

Parent material: Fine-loamy residuum weathered from limestone, sandstone, and shale

Typical profile

Ap - 0 to 11 inches: silt loam

Bt1 - 11 to 21 inches: silt loam

Bt2 - 21 to 31 inches: silty clay loam

Bt3 - 31 to 46 inches: channery silty clay loam

Bt4 - 46 to 62 inches: channery silty clay loam

BC - 62 to 75 inches: channery silty clay loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.66 in/hr)

Depth to water table: About 24 to 44 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Minor Components

Culleoka

Percent of map unit: 15 percent

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Convex

Lowell

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Side slope, interfluvium

Down-slope shape: Convex

Across-slope shape: Linear, convex

Guernsey

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

DrD—Dormont-Culleoka complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2s5gy
Elevation: 200 to 1,300 feet
Mean annual precipitation: 32 to 48 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Dormont and similar soils: 45 percent
Culleoka and similar soils: 37 percent
Thorndale and similar soils: 3 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dormont

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Fine-loamy residuum weathered from limestone, sandstone, and shale

Typical profile

Ap - 0 to 11 inches: silt loam
Bt1 - 11 to 21 inches: silt loam
Bt2 - 21 to 31 inches: silty clay loam
Bt3 - 31 to 46 inches: channery silty clay loam
Bt4 - 46 to 62 inches: channery silty clay loam
BC - 62 to 75 inches: channery silty clay loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.66 in/hr)
Depth to water table: About 24 to 44 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Custom Soil Resource Report

Hydrologic Soil Group: D

Description of Culleoka

Setting

Landform: Hills

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, nose slope, head slope

Down-slope shape: Convex

Across-slope shape: Convex, linear

Parent material: Fine-loamy residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 10 inches: channery silt loam

Bt - 10 to 19 inches: channery silt loam

BC - 19 to 26 inches: very channery silt loam

C - 26 to 31 inches: very channery silt loam

R - 31 to 41 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 24 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Description of Thorndale

Setting

Landform: Depressions, drainageways

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Fine-silty colluvium derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam

Btg - 8 to 26 inches: silty clay loam

Bgx - 26 to 41 inches: silty clay loam

C - 41 to 65 inches: silt loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 65 to 99 inches to lithic bedrock

Natural drainage class: Poorly drained

Runoff class: Very high

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: C/D

Minor Components

Lowell

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope, head slope, nose slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Guernsey

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

DrE—Dormont-Culleoka complex, 25 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2s5gz

Elevation: 800 to 1,300 feet

Mean annual precipitation: 36 to 50 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 120 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Dormont and similar soils: 50 percent

Culleoka and similar soils: 35 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dormont

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, head slope, nose slope

Down-slope shape: Linear

Across-slope shape: Linear, concave

Parent material: Fine-loamy residuum weathered from limestone, sandstone, and shale

Typical profile

Ap - 0 to 11 inches: silt loam

Bt1 - 11 to 21 inches: silt loam

Bt2 - 21 to 31 inches: silty clay loam

Bt3 - 31 to 46 inches: channery silty clay loam

Bt4 - 46 to 62 inches: channery silty clay loam

BC - 62 to 75 inches: channery silty clay loam

Properties and qualities

Slope: 25 to 50 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.66 in/hr)

Depth to water table: About 24 to 44 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Description of Culleoka

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, nose slope, head slope

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Fine-loamy residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 10 inches: channery silt loam

Bt - 10 to 19 inches: channery silt loam

BC - 19 to 26 inches: very channery silt loam

C - 26 to 31 inches: very channery silt loam

R - 31 to 41 inches: bedrock

Properties and qualities

Slope: 25 to 50 percent

Depth to restrictive feature: 24 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Minor Components

Lowell

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, head slope, nose slope

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Guernsey

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Fluvaquents

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

ErB—Ernest silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l8ql

Elevation: 900 to 1,800 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Ernest and similar soils: 85 percent

Custom Soil Resource Report

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ernest

Setting

Landform: Hillslopes

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Acid fine-loamy colluvium derived from shale and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

Bt - 8 to 24 inches: silty clay loam

Btx - 24 to 50 inches: channery silt loam

C - 50 to 74 inches: channery silt loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 36 inches to fragipan

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.33 in/hr)

Depth to water table: About 17 to 22 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Minor Components

Brinkerton

Percent of map unit: 5 percent

Landform: Draws, hills

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Head slope, base slope

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Gilpin

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex, linear

Lobdell

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Talf

Custom Soil Resource Report

Down-slope shape: Linear
Across-slope shape: Linear

ErC—Ernest silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 18qm
Elevation: 900 to 1,800 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ernest and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ernest

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Acid fine-loamy colluvium derived from shale and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 24 inches: silty clay loam
Btx - 24 to 50 inches: channery silt loam
C - 50 to 74 inches: channery silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.33 in/hr)
Depth to water table: About 17 to 22 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D

Minor Components

Lobdell

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Brinkerton

Percent of map unit: 5 percent
Landform: Draws, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Gilpin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex

GcB—Gilpin channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t1kt
Elevation: 870 to 2,720 feet
Mean annual precipitation: 40 to 53 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 167 to 179 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Gilpin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Custom Soil Resource Report

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 24 inches: channery silt loam
C - 24 to 30 inches: extremely channery loam
R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 30 to 36 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C

Minor Components

Wharton

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear

Weikert

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex

GcC—Gilpin channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2t1kw
Elevation: 800 to 3,090 feet
Mean annual precipitation: 40 to 62 inches
Mean annual air temperature: 46 to 53 degrees F
Frost-free period: 166 to 181 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gilpin and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Convex, linear

Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bt - 8 to 24 inches: channery silt loam

C - 24 to 30 inches: extremely channery loam

R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 30 to 36 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Minor Components

Wharton

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Weikert

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Nose slope

Down-slope shape: Convex

Across-slope shape: Convex

GcD—Gilpin channery silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2t1kv
Elevation: 790 to 3,120 feet
Mean annual precipitation: 39 to 61 inches
Mean annual air temperature: 46 to 53 degrees F
Frost-free period: 161 to 181 days
Farmland classification: Not prime farmland

Map Unit Composition

Gilpin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 24 inches: channery silt loam
C - 24 to 30 inches: extremely channery loam
R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 30 to 36 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Minor Components

Weikert

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex

Wharton

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear

GuC—Gilpin-Upshur complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2t1lr
Elevation: 760 to 2,270 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free period: 152 to 176 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gilpin and similar soils: 50 percent
Upshur and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 24 inches: channery silt loam
C - 24 to 30 inches: extremely channery loam
R - 30 to 40 inches: bedrock

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 30 to 36 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Description of Upshur

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear, convex

Across-slope shape: Linear

Parent material: Residuum weathered from clayey shale and/or residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: silty clay loam

Bt1 - 6 to 9 inches: silty clay

Bt2 - 9 to 25 inches: silty clay

Bt3 - 25 to 35 inches: silty clay

BCt - 35 to 40 inches: parachannery silty clay loam

C - 40 to 50 inches: very parachannery silty clay loam

Cr - 50 to 60 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 42 to 84 inches to paralithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 2 percent

Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D

Minor Components

Wharton

Percent of map unit: 20 percent

Custom Soil Resource Report

Landform: Ridges

Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear, concave

Across-slope shape: Linear

GuD—Gilpin-Upshur complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2t1ls

Elevation: 740 to 2,270 feet

Mean annual precipitation: 37 to 50 inches

Mean annual air temperature: 47 to 51 degrees F

Frost-free period: 152 to 176 days

Farmland classification: Not prime farmland

Map Unit Composition

Gilpin and similar soils: 50 percent

Upshur and similar soils: 30 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex, linear

Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bt - 8 to 24 inches: channery silt loam

C - 24 to 30 inches: extremely channery loam

R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 30 to 36 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Description of Upshur

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, head slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Residuum weathered from clayey shale and/or residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: silty clay loam
Bt1 - 6 to 9 inches: silty clay
Bt2 - 9 to 25 inches: silty clay
Bt3 - 25 to 35 inches: silty clay
BCt - 35 to 40 inches: parachannery silty clay loam
C - 40 to 50 inches: very parachannery silty clay loam
Cr - 50 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 42 to 84 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D

Minor Components

Wharton

Percent of map unit: 20 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, concave
Across-slope shape: Linear

GuF—Gilpin-Upshur complex, 25 to 75 percent slopes

Map Unit Setting

National map unit symbol: 18rq
Elevation: 800 to 2,500 feet
Mean annual precipitation: 35 to 54 inches
Mean annual air temperature: 37 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Gilpin and similar soils: 45 percent
Upshur and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

O_i - 0 to 0 inches: slightly decomposed plant material
O_e - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: channery silt loam
B_t - 6 to 24 inches: channery silt loam
C - 24 to 30 inches: very channery loam
R - 30 to 35 inches: bedrock

Properties and qualities

Slope: 25 to 75 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Custom Soil Resource Report

Hydrologic Soil Group: C

Description of Upshur

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey residuum weathered from limestone and shale

Typical profile

O_i - 0 to 0 inches: slightly decomposed plant material

O_e - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: silty clay loam

B_t - 8 to 46 inches: clay

C - 46 to 56 inches: channery clay

R - 56 to 68 inches: bedrock

Properties and qualities

Slope: 25 to 75 percent

Depth to restrictive feature: 40 to 70 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (K_{sat}): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Minor Components

Wharton

Percent of map unit: 20 percent

Landform: Hillsides or mountainsides

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

GyB—Guernsey silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18qy
Elevation: 800 to 1,300 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Guernsey and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Guernsey

Setting

Landform: Hills
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Clayey residuum weathered from limestone and shale

Typical profile

Ap - 0 to 7 inches: silt loam
Bt - 7 to 27 inches: silty clay loam
Btg - 27 to 47 inches: clay
Cg - 47 to 56 inches: silty clay
R - 56 to 63 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 50 to 75 inches to lithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 17 to 25 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

Minor Components

Lowell

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex, linear

Culleoka

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

GyC—Guernsey silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 18qz

Elevation: 800 to 1,300 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Guernsey and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Guernsey

Setting

Landform: Hillslopes

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Parent material: Clayey residuum weathered from limestone and shale

Typical profile

Ap - 0 to 7 inches: silt loam

Bt - 7 to 27 inches: silty clay loam

Btg - 27 to 47 inches: clay

Cg - 47 to 56 inches: silty clay

R - 56 to 63 inches: bedrock

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 50 to 75 inches to lithic bedrock

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 17 to 25 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C/D

Minor Components

Lowell

Percent of map unit: 10 percent

Landform: Hillslopes

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Culleoka

Percent of map unit: 10 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Ho—Holly silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1v6tb

Elevation: 480 to 3,000 feet

Mean annual precipitation: 30 to 65 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 120 to 180 days

Farmland classification: Not prime farmland

Map Unit Composition

Holly and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holly

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Recent loamy alluvium derived from sandstone and shale

Typical profile

A - 0 to 9 inches: silt loam
Bg1 - 9 to 13 inches: silt loam
Bg2 - 13 to 35 inches: loam
BCg - 35 to 42 inches: clay loam
C - 42 to 65 inches: gravelly loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D

Minor Components

Lobdell

Percent of map unit: 15 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Ernest

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave

ItB—Itmann extremely channery loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: mhs4
Elevation: 700 to 1,700 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Itmann, unstable fill, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Itmann, Unstable Fill

Setting

Landform: Plateaus
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loamy coal extraction mine spoil derived from shale and siltstone

Typical profile

A - 0 to 14 inches: extremely channery loam
C - 14 to 65 inches: extremely channery loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A

Ln—Lindside silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 18r1
Elevation: 700 to 1,200 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lindside and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lindside

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Recent silty alluvium derived from limestone, sandstone, and shale

Typical profile

A - 0 to 11 inches: silt loam
Bw - 11 to 38 inches: silty clay loam
C - 38 to 65 inches: gravelly silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope

Custom Soil Resource Report

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Melvin

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave

Lo—Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2t326
Elevation: 520 to 1,430 feet
Mean annual precipitation: 39 to 44 inches
Mean annual air temperature: 49 to 53 degrees F
Frost-free period: 167 to 191 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lobdell and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lobdell

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 6 inches: silt loam
Bw1 - 6 to 20 inches: loam
Bw2 - 20 to 38 inches: loam
C - 38 to 65 inches: stratified loam to silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: Very high (about 12.1 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B/D

Minor Components

Holly

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: Wetlands (W3)

Orrville

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Concave

Other vegetative classification: Moist Loams (ML3)

Melvin

Percent of map unit: 5 percent

Landform: Backswamps

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: Wetlands (W3)

LwB—Lowell silty clay loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l8r2

Elevation: 800 to 1,300 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Lowell and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lowell

Setting

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Custom Soil Resource Report

Across-slope shape: Convex, linear

Parent material: Clayey residuum weathered from limestone and shale

Typical profile

Ap - 0 to 10 inches: silty clay loam

Bt - 10 to 46 inches: clay

C - 46 to 59 inches: silty clay

R - 59 to 69 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 30 to 60 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Minor Components

Guernsey

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear, concave

Across-slope shape: Concave

Culleoka

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Interfluvium

Down-slope shape: Convex

Across-slope shape: Convex

MoB—Monongahela silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2rfbg

Elevation: 580 to 1,300 feet

Mean annual precipitation: 36 to 54 inches

Mean annual air temperature: 41 to 62 degrees F

Custom Soil Resource Report

Frost-free period: 120 to 200 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Monongahela and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

BA - 8 to 12 inches: silt loam

Bt - 12 to 22 inches: silt loam

Btx - 22 to 51 inches: clay loam

BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 18 to 30 inches to fragipan

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D

Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent

Landform: Terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent

Landform: Terraces

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Concave

MoC—Monongahela silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2rfbj

Elevation: 580 to 1,700 feet

Mean annual precipitation: 35 to 54 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 115 to 200 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Monongahela and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

BA - 8 to 12 inches: silt loam

Bt - 12 to 22 inches: silt loam

Btx - 22 to 51 inches: clay loam

BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 18 to 30 inches to fragipan

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Gilpin

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave

ShF—Shelocta-Gilpin channery silt loams, 25 to 75 percent slopes

Map Unit Setting

National map unit symbol: 18qt
Elevation: 480 to 3,000 feet
Mean annual precipitation: 30 to 65 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Shelocta and similar soils: 50 percent
Gilpin and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shelocta

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear, convex
Parent material: Acid fine-loamy colluvium derived from sandstone and siltstone

Custom Soil Resource Report

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
O_e - 1 to 2 inches: moderately decomposed plant material
A - 2 to 8 inches: channery silt loam
Bt₁ - 8 to 14 inches: channery silt loam
Bt₂ - 14 to 40 inches: channery silt loam
C - 40 to 80 inches: very channery loam

Properties and qualities

Slope: 25 to 75 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B

Description of Gilpin

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
O_e - 1 to 2 inches: moderately decomposed plant material
A - 2 to 8 inches: channery silt loam
Bt - 8 to 24 inches: channery silt loam
C - 24 to 30 inches: very channery loam
R - 30 to 35 inches: bedrock

Properties and qualities

Slope: 25 to 75 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C

Minor Components

Ernest

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Concave

Rock outcrop

Percent of map unit: 2 percent

UgB—Urban land-Gilpin complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: lpzk
Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Gilpin and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

Description of Gilpin

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex

Custom Soil Resource Report

Across-slope shape: Convex

Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

A - 0 to 8 inches: channery silt loam

Bt - 8 to 24 inches: channery silt loam

C - 24 to 30 inches: very channery loam

R - 30 to 35 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

UgD—Urban land-Gilpin complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: lpzl

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 170 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent

Gilpin and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 8s

Description of Gilpin

Setting

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

A - 0 to 8 inches: channery silt loam

Bt - 8 to 24 inches: channery silt loam

C - 24 to 30 inches: very channery loam

R - 30 to 35 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

UwB—Urban land-Wharton complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18pm

Elevation: 800 to 1,500 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 170 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent

Wharton and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Description of Wharton

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam

Bt - 9 to 46 inches: channery silty clay loam

C - 46 to 69 inches: channery silty clay loam

R - 69 to 75 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 40 to 72 inches to lithic bedrock

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.60 in/hr)

Depth to water table: About 16 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

UwD—Urban land-Wharton complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: lpzh

Elevation: 800 to 1,500 feet

Mean annual precipitation: 36 to 46 inches

Custom Soil Resource Report

Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Wharton and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

Description of Wharton

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Acid fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 46 inches: channery silty clay loam
C - 46 to 69 inches: channery silty clay loam
R - 69 to 75 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 40 to 73 inches to lithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.60 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Streams

WrB—Wharton silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t185

Elevation: 760 to 2,860 feet

Mean annual precipitation: 37 to 57 inches

Mean annual air temperature: 46 to 53 degrees F

Frost-free period: 158 to 205 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Wharton and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wharton

Setting

Landform: Hills

Landform position (two-dimensional): Summit, backslope, shoulder

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam

Bt1 - 9 to 16 inches: silt loam

Bt2 - 16 to 22 inches: silt loam

Bt3 - 22 to 31 inches: silt loam

BC - 31 to 46 inches: silty clay loam

C - 46 to 69 inches: channery silty clay loam

Cr - 69 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: 40 to 71 inches to paralithic bedrock
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 16 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

Minor Components

Cavode

Percent of map unit: 8 percent
Landform: Hills
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear

Gilpin

Percent of map unit: 7 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Brinkerton

Percent of map unit: 5 percent
Landform: Depressions on hillslopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

WrC—Wharton silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2t5mm
Elevation: 620 to 2,160 feet
Mean annual precipitation: 37 to 51 inches
Mean annual air temperature: 47 to 53 degrees F
Frost-free period: 161 to 205 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wharton and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wharton

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam

Bt1 - 9 to 16 inches: silt loam

Bt2 - 16 to 22 inches: silt loam

Bt3 - 22 to 31 inches: silt loam

BC - 31 to 46 inches: silty clay loam

C - 46 to 69 inches: channery silty clay loam

Cr - 69 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 40 to 71 inches to paralithic bedrock

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: About 16 to 28 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C/D

Minor Components

Gilpin

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ernest

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Rarden

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

WrD—Wharton silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2t5mn

Elevation: 520 to 1,890 feet

Mean annual precipitation: 37 to 51 inches

Mean annual air temperature: 47 to 54 degrees F

Frost-free period: 163 to 207 days

Farmland classification: Not prime farmland

Map Unit Composition

Wharton and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wharton

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam

Bt1 - 9 to 16 inches: silt loam

Bt2 - 16 to 22 inches: silt loam

Bt3 - 22 to 31 inches: silt loam

BC - 31 to 46 inches: silty clay loam

C - 46 to 69 inches: channery silty clay loam

Cr - 69 to 79 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 40 to 71 inches to paralithic bedrock

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: About 16 to 28 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C/D

Minor Components

Gilpin

Percent of map unit: 8 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ernest

Percent of map unit: 7 percent

Landform: Hillslopes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Rarden

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Linear

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11. Watershed Restoration Prioritization

The goal of this portion of the study was to use data compiled in the ACC project to determine which watersheds are in the worst condition and are a priority for habitat restoration. To do so, we combined information from our Least-Disturbed Stream (LDS, Chapter 9) reach analysis, biological metric scoring (see Chapter 10) and locations of biological communities indicative of poor-quality stream habitat (Table 11-1). A multi-faceted approach such as this is more useful than simply examining developed land area in a watershed or the occurrence of pollution-tolerant taxa. By combining both biotic and abiotic features of the landscape we are able to highlight the watersheds where the functionality of biological assemblages is being altered by a variety of disturbances.

Table 11-1. Biological communities used in the watershed restoration prioritization analysis. These communities are indicative of poor quality stream habitat and various types of landscape disturbance.

Community Name	Representative Taxa
Macroinvertebrates	
Family-level	
Common Headwater Stream	Lepidostomatidae, Capniidae
Limestone/ Agricultural Stream	Amphipoda, Simuliidae
AMD Stream	Sialidae, Empididae
Genus-level	
Sluggish Headwater Stream	<i>Physidae</i> , <i>Hirudinea</i>
Limestone/ Agricultural Stream	Isopoda, Oligochaeta
Small Urban Stream	<i>Cheumatopsyche</i> , <i>Stenelimis</i>
Large Stream Generalist	Generalist Taxa
Fish	
Atlantic Basin	
Coolwater Community 1	Slimy sculpin, fathead minnow
Coolwater Community 2	Blacknose dace, white sucker
Ohio - Great Lakes Basins	
Coolwater community	Blacknose dace, creek chub

Methodology

A tiering system similar to that used in the watershed Conservation Prioritization analysis (Chapter 10) was used to indicate the state of impairment that each altered watershed is in. The ‘Tier 1’ category here represents the most disturbed watersheds that exist in Pennsylvania.

There is much physical alteration in these watersheds, and the in-stream habitat supports only the most pollution-tolerant organisms. These watersheds are an immediate priority for restoration action. Watersheds that fall into the ‘Tier 2’ category are also impaired, but their need for restoration action may not be as immediate as those with ‘Tier 1’ status.

As in previously discussed sections of this document, HUC12 Watersheds (~30 mi²) were used as sub-units of larger drainage basins. A watershed was categorized as a ‘Tier 1’ restoration priority if it had no LDS reaches, had multiple stream reaches that scored below the 20th percentile for the fish or macroinvertebrate metric scores (Chapter 10), and had multiple occurrences of fish or macroinvertebrate communities (Chapters 4-7) that indicate poor-quality stream habitat (Table 11-1). Watersheds were classified as ‘Tier 2’ if they had no LDS reaches, one or more stream reaches that were below the 20th percentile in either fish or macroinvertebrate metric scores and one or more occurrences of poor habitat fish or macroinvertebrate communities (Table 11-2).

Results & Discussion

In Pennsylvania, 83 watersheds were selected as a ‘Tier 1’ restoration priority and 140 were chosen as ‘Tier 2’. The greatest concentrations of Tier 1 watersheds are found in the areas surrounding Pittsburgh and Philadelphia. The distribution of both types of restoration watersheds are aggregated around larger river systems, although there are some instances of these watersheds scattered across the state.

Interestingly, some of the Tier 1 restoration priority watersheds hold some of the Large-river reaches identified in the conservation priority analysis (Chapter 10). This duality may be because of a variety of habitats present in some of these watersheds. Where sections of the lower Allegheny River support quality biological assemblages and are examples of good large river habitat, in-stream mining of sand and gravel or point source discharges upstream may damage other sections. Furthermore, the Allegheny River receives much of the same insults to water quality as other large river systems, such as effluent from sewer treatment

plants, runoff from urbanized areas and input of waters from many tributaries with water quality issues including AMD. However, the biological composition of the river remains remarkably intact, supporting diverse mussel and fish assemblages in many of its lower reaches (ACC database). It is apparent that the river is able to recover from various degradations to water and habitat quality, but the question remains of what makes rivers such as the Allegheny so resilient to disturbance. Further study and field research on large river systems may clarify some of these issues.

Table 11-2. Biotic and abiotic criteria used in the watershed restoration prioritization analysis. Tier 1 watersheds represent those that are in most immediate need of restoration action. Tier 2 watersheds may not need action as immediately, but should be strongly considered for restoration action. See text for description of variables. MI = Macroinvertebrate.

Variable	Tier 1 Criteria	Tier 2 Criteria
LDS	None of any size	None of any size
Biological Metric Score stream	Multiple stream reaches below 20th percentile of fish or MI scores	One or more stream reaches below 20th percentile of fish or MI scores
Fish & macro-invertebrate communities	Multiple stream reaches with poor quality fish or MI comm.	One or more reaches with poor quality fish or MI comm.

It is important to note that this analysis is meant to suggest which watersheds in the state may be in greatest need of restoration activity. The water quality issues that are affecting these watersheds may differ significantly; therefore the measures necessary to improve water quality will vary as well. Site visits and on-the-ground research by watershed managers and conservation planners will be help to explain the actions necessary in each watershed to fix the problems that are degrading water quality and stream habitat.

Common Water Quality Issues in Pennsylvania

Acidification of streams from abandoned mine drainage (AMD) and acid deposition are the most prominent water quality issues in Pennsylvania. Acidification of water pushes the pH outside the range that is acceptable to aquatic organisms. Additionally, AMD introduces a suite

of toxic metals to ground and surface waters that further degrade aquatic habitat.

Treating AMD can reduce acidity and levels of dissolved metals in the water and greatly improve stream habitat quality. The application of alkaline materials, or “liming”, streams raises the pH of the water to normal levels and decreases the solubility of the dissolved metals associated with AMD. This method can be expensive due to the costs of the materials and maintenance that is required post-liming; the alkaline materials used in liming produce a metal-laden sludge that must be removed from the stream and disposed of. Passive treatment of AMD, as in mitigated AMD wetlands, can offer a lower cost and maintenance alternative to active chemical application. For more information on AMD and its remediation, see the Pennsylvania DEP’s Bureau of Abandoned Mine Reclamation webpage: <http://www.dep.state.pa.us/dep/deputate/minres/bamr/bamr.htm>.



Agricultural streams may be in extremely poor condition if improperly managed. In this example, note the absence of a vegetated riparian buffer, which would help keep livestock out of the stream and slow down the input of nutrients from the row crops in the background of the photo. Streams such as this usually have unsuitable habitat and nutrient levels for most aquatic organisms.

Acid deposition (or “acid rain”) is precipitation that has unnaturally high levels of acidity. This leads to the acidification of soils, streams and lakes and can also cause the decay of buildings, bridges and other structures. Acid deposition can be a natural occurrence, originating from compounds released from volcanoes or decaying vegetation. However, the elevated levels of acid deposition generally are due to the release of compounds like sulfur dioxide (SO₂) and nitrogen oxides (NO_x) that are introduced into the air from the combustion of fossil fuels. In the United States, a large portion of these compounds is introduced into our environment from

electric power plants, especially those that burn coal (EPA, 200). There are many of these plants along the Ohio River downstream of Pittsburgh, and prevailing winds often bring these air pollutants up the river valley and into Pennsylvania.

It is difficult to remedy the effects of acid deposition, since the issue of air quality occurs on such a large scale. Temporary fixes, such as liming, may provide short-term alleviation of the effects of acid deposition but a solution to the greater problem of air pollution is a universal one. Stricter controls on fossil fuel emissions, promoting renewable energy sources or simply using less energy would all help reduce acidic deposition. For more information on acid deposition, its causes and effects, see the EPA's webpage on acid rain: <http://www.epa.gov/airmarkets/acidrain/>.

Other major water quality issues in Pennsylvania relate to non-point source pollution. Non-point source pollution comes from the greater watershed, such as urban areas or poorly buffered agricultural fields. In agricultural fields without adequate vegetative buffers protecting streams, the streams can be inundated with elevated levels of nutrients and sediments. Sedimentation, often related to poorly managed agricultural practices, is a considerable water quality problem in Pennsylvania. Not only does sedimentation introduce pollutants and nutrients to water that were once immobilized in soil, but it also smothers stream bottoms and eliminates important habitat between and under rocks and debris that many aquatic organisms depend on for various stages of their life cycle. Sedimentation and nutrient enrichment in heavily agricultural areas can be controlled by installing riparian buffers of an adequate width along pastures and crop fields and excluding livestock from streams and riparian zones.

In urban environments, runoff carries different pollutants and water quality problems. Stormwater runoff from urbanized areas often contains hydrocarbon compounds from vehicles, road salts and other domestic pollutants. The rate at which stormwater is introduced to streams is sharply elevated in urban settings, since the amount of impervious surface (roads, parking lots, buildings, etc.) in these areas is often great. As a result, rainwater cannot be retained as it

slowly percolates into soils; rather it is often collected in drainage channels and diverted directly into streams. This unnatural high-energy pulse of water is often enough to wash away aquatic organisms and destroy in-stream habitats, displacing organisms and delaying recolonization. Management of stormwater from roads and urban developments and mitigation of any direct stream discharges are recommended to remediate these effects.

Point-source pollution, such as direct stream discharges from sewer treatment plants or waste products from factories, is common near urban centers. Stricter controls on discharge permits and better remediation of discharges would eventually help to restore water quality in these areas. In addition, keeping sewage treatment systems up-to-date would help to improve stream habitats that support aquatic communities.



The Ohio River at Herrill Station, Allegheny County, Pennsylvania. Rivers near urban centers often receive point source discharges associated with populated areas, such as sewer treatment effluent and industrial waste discharges. Combining these issues with non point source pollution from impervious areas, urban areas often exert a suite of habitat and water quality alterations that are unique to populated areas.

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Related Shapefiles:

Restoration HUC12s.shp

Pennsylvania Aquatic Community Classification

Priority Restoration Areas

The goal of this portion of the study was to use all of the data compiled in the ACC project to determine which watersheds are in the worst condition and are a priority for habitat restoration. To do so, we combined information from our Least-Disturbed Stream (LDS) reach analysis, biological metric scoring (see Conservation Prioritization Chapter) and biological community locations indicative of poor quality habitat. The watersheds were assigned Tier rankings as follows:

Variable	Tier 1 Criteria	Tier 2 Criteria
LEDS	None of any size	None of any size
Biological Metric Score	Multiple stream reaches of fish or MI before 50th percentile	One or more stream reaches of fish or MI
Poor quality fish & macroinvertebrate communities	Multiple stream reaches of poor quality fish or MI	One or more stream reaches of poor quality fish or MI




Legend

Restoration Priority HUC12 Watersheds

- Tier 1 (Red)
- Tier 2 (Orange)

Study Area Streams

- 5th Order (Blue line)
- 6th Order (Blue line)
- 7th Order (Blue line)
- 8th Order (Blue line)

ACC Study Area (Red outline)

Pennsylvania & Counties (Yellow)

Bordering States (Light Yellow)

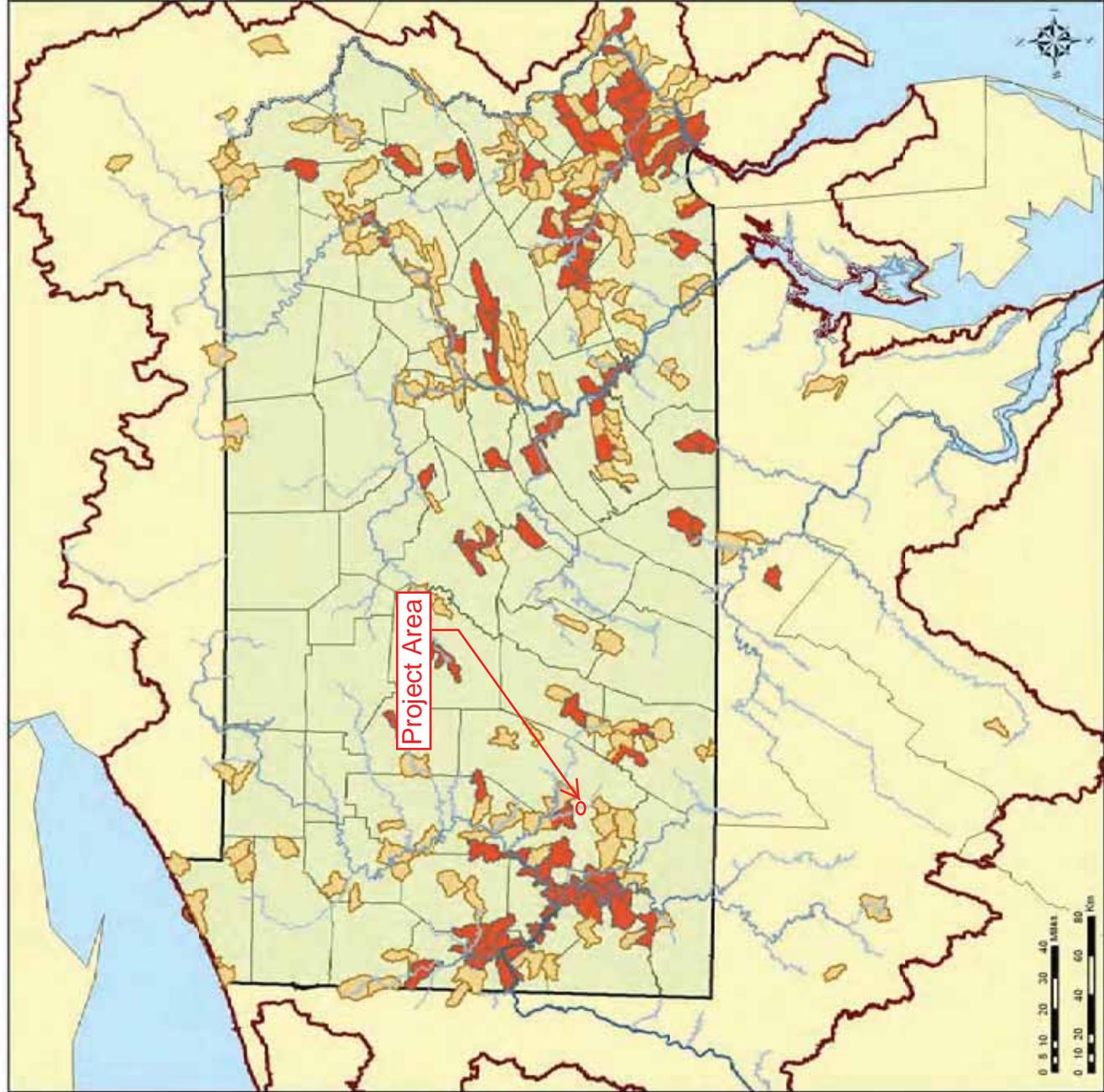


Figure 11-1. HUC12 watersheds that are a priority for restoration efforts. Although the entire study area was included, the analysis is focused on Pennsylvania's watersheds.

12. Watershed Enhancement Areas

The Watershed Conservation Analysis (Chapter 10) selected the top 20% high-quality watersheds in the Pennsylvania region in terms of high water quality and ecological value. The Watershed Restoration Analysis (Chapter 11) set apart the bottom 20% of watersheds in the region. These watersheds were determined to be in the worst condition of all watersheds in the region, and appear to be in need of immediate rehabilitation for a variety of reasons. This portion of the study, termed “Watershed Enhancement Areas,” addresses the middle 60% of watersheds that cover the rest of Pennsylvania. These watersheds reflect conditions that are likely not pristine, and are prime candidates for restoration action because they are not as severely degraded as the Restoration watersheds (Chapter 11). The restoration of these Watershed Enhancement Areas will likely yield the most significant ecological gains for the amount of conservation dollars spent.

Watersheds in the Enhancement category are divided into two tiers (Figure 12-1), like watersheds discussed in the Preservation and Restoration chapters (10 and 11). Tier 1 watersheds represent areas of better water quality and watershed condition than those with Tier 2 status. The methodology for determining the tiers was similar to that applied in selecting the tiers in the Watershed Conservation analysis. Watersheds were selected for Tier 1 restoration status if they met at least two of the three following criteria:

- Have at least one Least-Disturbed Stream (LDS; Chapter 9) reach in the watershed
- Have at least one stream reach with a Biological Metric score above the 80th percentile for macroinvertebrates or fish
- Have at least one occurrence of a high-quality biological community (Table 10-1)

The Tier 1 criteria identified roughly half of these middle-category watersheds. The remaining watersheds in the Enhancement category were designated as Tier 2.

Tier 1 Enhancement watersheds represent areas that are in the top half of this middle category; they are likely in good condition but face some threats to water quality that should be addressed. These watersheds probably do not require immediate action but should be considered in restoration projects because they may only need a relatively small amount of effort to greatly enhance their water quality and biological condition.

Tier 2 Enhancement watersheds represent the bottom half of the Enhancement category. They are likely to have significant water quality and watershed condition issues and could benefit greatly from restoration action. Without restorative action, watersheds in this category will probably fall into the “Restoration” category over time. Because the Tier 2 category represents watersheds that are exceptionally close to the worst conditions found in the region, these catchments are likely in the most immediate need of restoration action.

It is important to note that these Enhancement watersheds, like any of the other watersheds discussed in this report, may be degraded at different levels of severity for a variety of reasons. The watersheds listed as part of this Enhancement category should be used only to guide conservation efforts; on-the-ground site visits and knowledge of specific streams and watersheds will be needed to verify conditions that have been described here. The most common water quality problems in Pennsylvania are discussed in Chapter 11.

Related Shapefiles:

Watershed_Enhancement_Areas.shp



Pennsylvania Aquatic Community Classification

Watershed Enhancement Areas

This portion of the study deals with watersheds that do not qualify as either "Conservation" (Chapter 10) or "Restoration" (Chapter 11) priorities. These "Enhancement" watersheds reflect conditions that are likely not in pristine condition, but are prime candidates for light restoration action because they are not as severely degraded as the Restoration watersheds.

Tier 1 Enhancement watersheds represent areas that are in the top half of this middle category; they are likely to be in good condition, but face some threats to water quality that should be addressed. Tier 2 Enhancement watersheds are in the bottom half of this category, and represent watersheds that have significant water quality issues and could benefit greatly from restoration action.



Legend

Watershed Enhancement Areas

Tier 1



Tier 2



Study Area Streams

3rd Order



4th Order



6th-8th Order



ACC Study Area



Pennsylvania & Counties



Bordering States

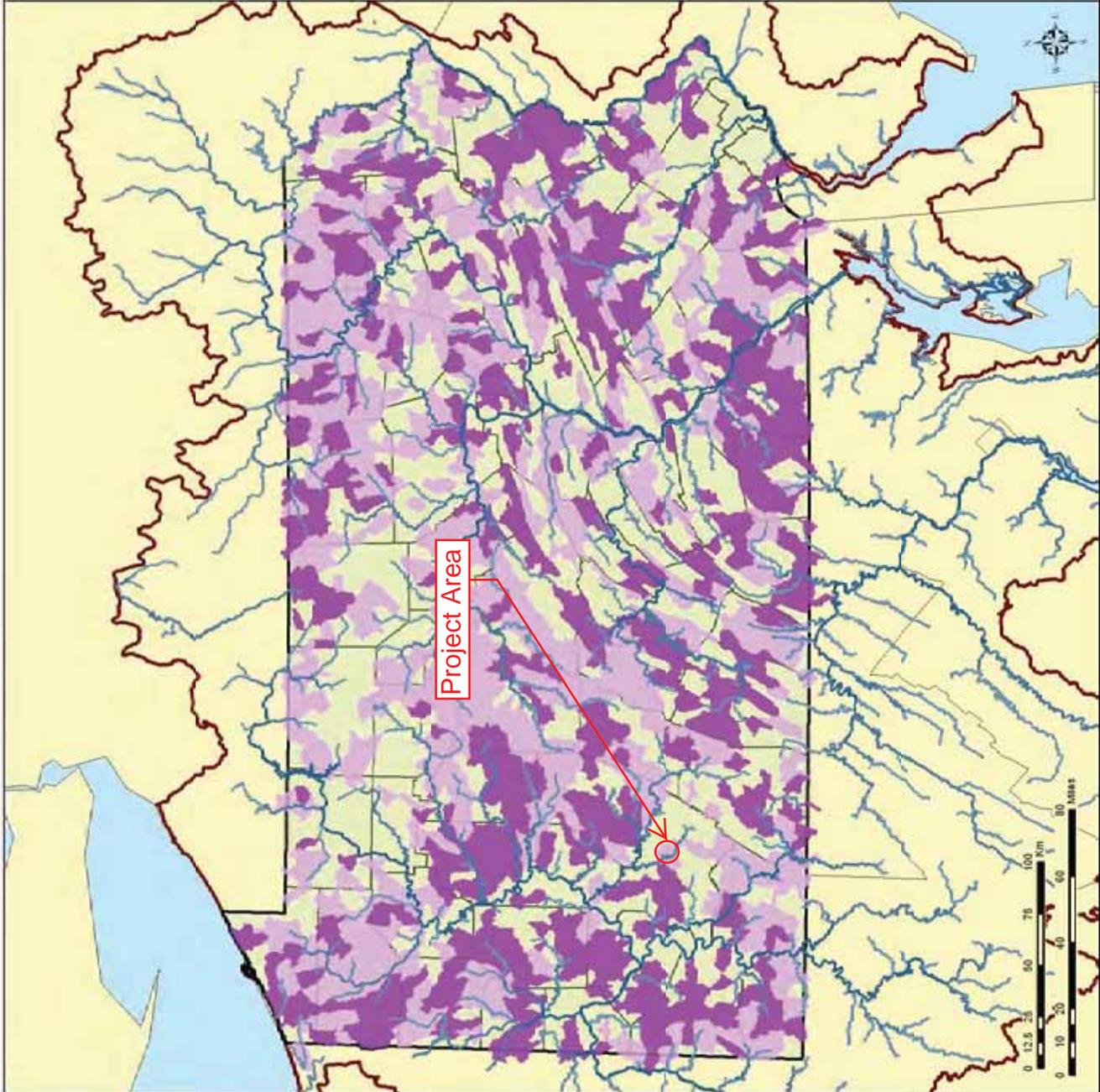


Figure 12-1. Watershed Enhancement Areas for Pennsylvania.



Loyalhanna Lake

Westmoreland County
April 4-7, 2005

Sampling Gear: 12 Trap Net Sets

Loyalhanna Lake is a U.S. Army Corps of Engineers impoundment that is located in Westmoreland County near Saltsburg, PA. At summer pool the impoundment is 480 acres. The fish populations in Loyalhanna Lake are managed under [statewide regulations](#).

The last PFBC survey on the lake occurred in 1999. The 1999 survey indicated that Loyalhanna Lake provided anglers good quality and abundant largemouth bass and catfish populations, improving muskellunge and tiger muskellunge populations, but below average panfish populations. An abundant gizzard shad population in 1999 was probably a major factor for the below average panfish population due to direct competition. One of the management changes following the 1999 survey was to increase the stocking rate of musky, tiger musky, and channel catfish. Currently, muskellunge fingerlings are stocked at 3 per acre on even years and tiger muskellunge fingerlings are stocked at 10 per acre annually. Channel catfish fingerlings are also stocked at 30 per acre annually. The primary purpose of the 2005 survey was to monitor the status of the musky/tiger musky populations in the lake.



Area Fisheries Manager Rick Lorson with a 39 inch, 14 lb. tiger muskellunge

Five muskies and two tiger muskies were captured in the trap nets in 2005 compared to six muskies and 14 tiger muskies in 1999. In 2005, the largest musky was 46 inches, 29 pounds and the largest tiger musky was 39 inches, 14 pounds. Fluctuating water levels during our 2005 survey may have affected our catch. Loyalhanna Lake provides anglers the opportunity to catch a trophy musky.



Volunteer Joe Ferraro from Three Rivers Chapter Muskies, Inc. with a 46 inch 29 lb. muskellunge

Bluegills were the most abundant fish species found in the trap nets with a total of 1,417 collected. Twenty-seven percent of the bluegills were 7 inches or greater. Both higher numbers and larger bluegills were found this year compared to the 1999 survey. A total of 1,364 crappies were collected, but less than 3% were 9 inches or greater. The crappie population in the lake was similar between 1999 and this year, with only a few of quality size. Interestingly, over 1,400 gizzard shad were captured in 1999, but none were collected in 2005. Over-winter mortality of gizzard shad since 1999 has probably reduced their numbers.



Fisheries Technician Gary Smith with a 31 inch, 19 lb. channel catfish

Channel catfish were available in good numbers and sizes at Loyalhanna Lake in 2005. The channel catfish catch in 2005 almost doubled from the catch in 1999. The increased stocking rate of 30 channel catfish per acre (10 per acre prior to the 1999 survey) appears to be working well. Loyalhanna Lake would be an excellent lake to target catfish. White catfish were collected for the first time in Loyalhanna Lake. Loyalhanna Lake and Lake Wilma, Greene County are the only waters in the Ohio River drainage that the PFBC has documented white catfish. The white catfish is native to the Susquehanna and Delaware watersheds in PA.

We wish to thank the Three Rivers Chapter of Muskies, Inc. for their volunteer assistance in the survey.

Fish Species	Number Collected	Size Range (inches)	Additional Comments
Muskellunge	5	20 – 46	Largest fish: 46 in. 29 lbs.
Tiger Muskellunge	2	30 – 39	Largest fish: 39 in. 14 lbs.
Bluegill	1,417	3 – 9	27% greater than 7 in.
Pumpkinseed	16	4 – 8	25% greater than 7 in.
White Crappie	782	3 – 16	2% greater than 9 in.
Black Crappie	582	3 – 11	< 1% greater than 9 in.
Yellow Perch	71	3 – 12	18% greater than 9 in.
Channel Catfish	58	8 – 31	66% greater than 15 in.
Brown Bullhead	55	8 – 17	
Yellow Bullhead	19	8 – 13	
White Catfish	14	10 – 21	
Largemouth Bass	5	11 – 18	
Common Carp	115	Not measured	
White Sucker	4	Not measured	
Green Sunfish	3	Not measured	
Golden Shiner	30	Not measured	
Tiger Trout	1	Not measured	
Golden Redhorse	1	Not measured	

-- Gary Smith, Area 8 Fisheries Technician

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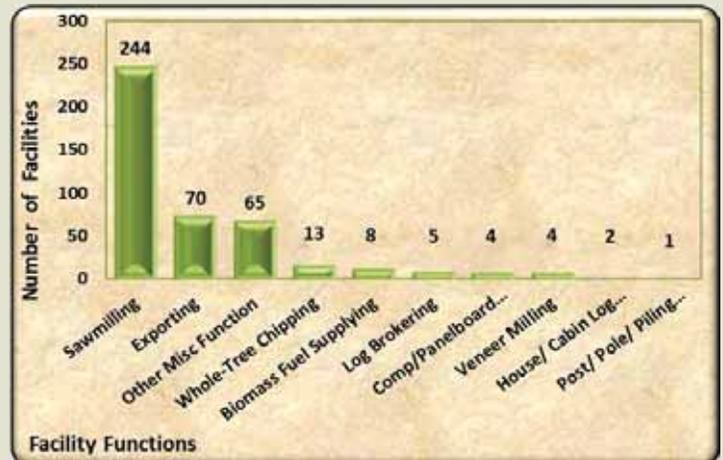
Pennsylvania Timber Product Output Survey Fact Sheet

Introduction

During 2013, the PA DCNR Bureau of Forestry conducted a Timber Product Output Survey, gathering information for the 2012 production year from primary “breakdown” sawmills and wood processors, whole-tree chippers, pulp & paper mills, panelboard mills, and log buyers exporting wood outside the U.S.

Participation & Facility Information

- Over 430 known primary wood processors were contacted across 62 of Pennsylvania’s 67 counties. 312 facilities participated in the survey for a 73% statewide participation rate.
- Half of the facilities had been in business between 11 and 40 years. Almost a quarter had been in business less than 10 years. Four businesses had been in business over 100 years.
- There were 4,394 workers employed at 211 reporting facilities. Most facilities had less than 10 employees.



Distribution of facilities/mills by their functions, based on 312 surveys. Participants could choose more than one function.

Volumes Processed

Total volume processed in 2012 (253 mills reporting)

<u>Product type</u>	<u>Total volume (standard units)</u>	<u>Total volume (million cubic ft)</u>	<u>% of statewide total volume</u>
<u>Lumber/Dimension</u>			
Lumber	425.2 million bd ft	67.2	36.4%
Veneer	13.1 million bd ft	2.1	1.1%
Cants	151.4 million bd ft	23.9	13.0%
Other Lumber	48.3 million bd ft	7.6	4.1%
Total	637.9 million bd ft	100.8	54.6%
<u>Exports</u>			
Exported Logs	14.9 million bd ft	2.4	1.3%
Total	14.9 million bd ft	2.4	1.3%
<u>Pulp/Chips</u>			
Pulp	2.2 Green tons	73.7	39.9%
Composite Chips	0.1 Green tons	2.5	1.3%
Energy Chips	0.1 Green tons	1.8	1.0%
Other	0.1 Green tons	3.6	1.9%
Total	2.5 Green tons	81.5	44.1%
Grand total		184.7	100.0%

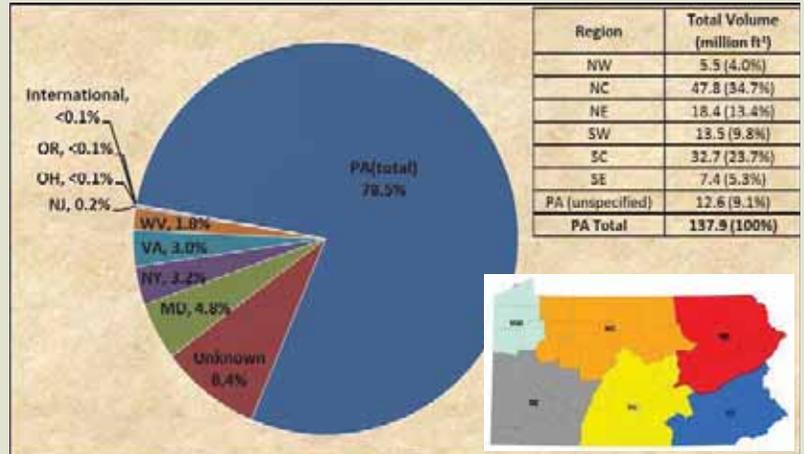
- Total statewide volume processed equals 184.7 million cubic feet which is equivalent to 1.2 billion board feet, based on 253 mills that reported volumes.
- The average annual volume processed per mill was 4.8 million bd ft (median=1.6 million bd ft), ranging from a minimum of 5,000 bd ft to a maximum of 188 million bd ft, based on 243 mills that reported volumes (excludes exported volume).
- Based on knowledge of the industry and other published data, we estimate that non-respondents account for about 25% of the statewide volume. Therefore, these totals represent about 75% of the total volumes statewide.

Species & Origins

- Approximately 58% of the wood volume that was reported as harvested from PA came from forests in north-central and south-central regions. A similar proportion (64%) of the wood processed in Pennsylvania was processed in facilities located in these regions.
- Across the entire state, 33 species groups were reported as harvested in PA and 37 groups were processed at PA mills.

The 15 species groups with the highest reported volumes processed during 2012.

Species	% of total volume
mixed hardwoods	20.1%
red oak	13.3%
misc. softwood	12.5%
other	8.7%
red/soft maple	8.2%
black cherry	6.9%
yellow poplar	6.9%
white oak	6.1%
sugar/hard maple	4.9%
ash	3.6%
hemlock	1.3%
chestnut/rock oak	1.0%
hickory	0.9%
black oak	0.9%
mixed maple	0.7%



Distribution of harvest locations based on reported wood origins (242 mills provided volumes by harvest location). Of the total volume with wood origin reported, 78.5% was harvested from PA forests; the PA volume is shown by region in the inset table.

Residues

- Residues were defined as a by-product of the primary processing of roundwood, but not the target wood product (e.g. chips produced as the primary product are reported in the pulp/chips section, not residues)
- There were 2.0 million green tons (66.3 million cubic feet or the equivalent of 420 million board feet) of residues generated by 192 reporting mills.
- 39% of all residues reported were made into mulch/soil additive and 17% were used as animal bedding.
- Less than 0.1% of residues were unutilized (burned, landfill, etc.).

Residue type	Softwood volume (million cubic ft)	Hardwood volume (million cubic ft)	Total volume	% of total
Bark	3.3	24.2	27.5	41.4%
Coarse	1.9	19.0	20.9	31.5%
Sawdust	1.3	14.2	15.5	23.3%
Shavings	1.1	0.9	2.1	3.1%
Logs/Short Sections	<0.1	0.4	0.4	0.7%
Total	7.6	58.7	66.3	100%

More Information

See the full report: <http://www.dcnr.state.pa.us/forestry/ForestryInformation/index.htm>

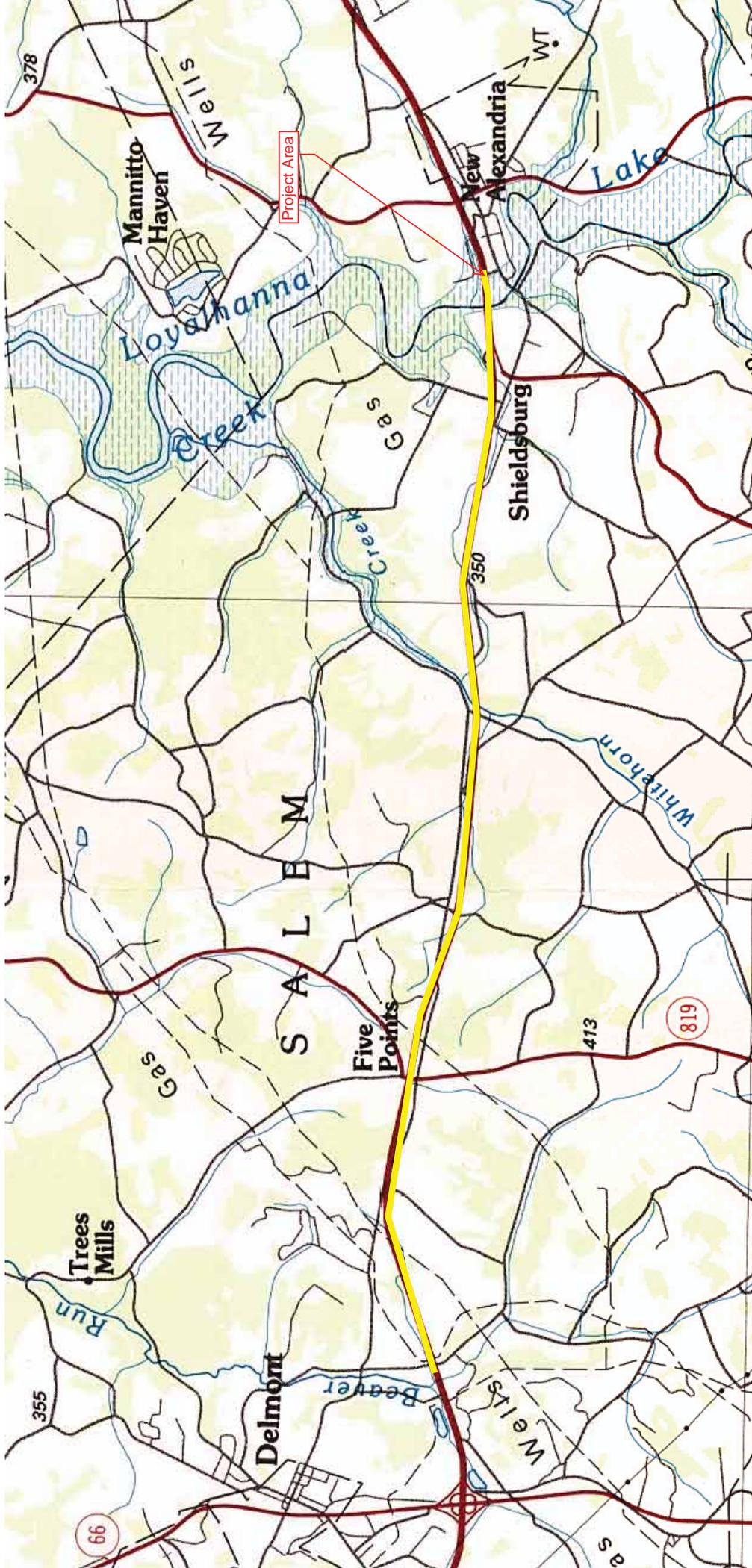
Or contact the Bureau of Forestry, Silviculture Section:

Phone: 717-787-4009

Email: PAForester@pa.gov



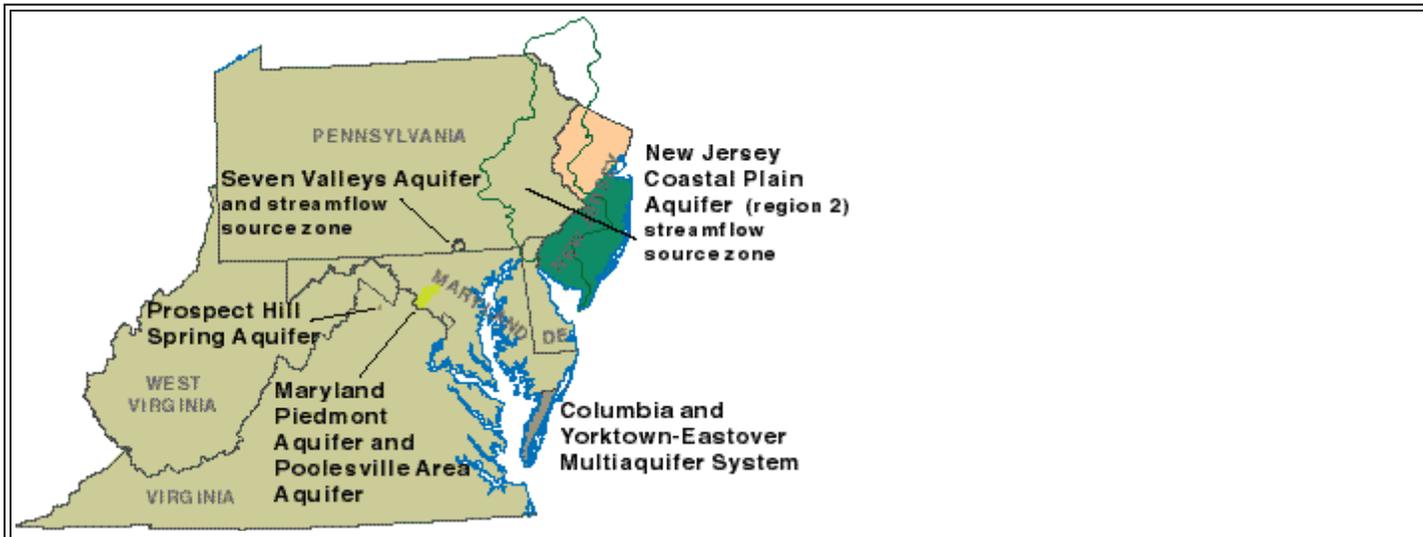
Water Bodies Map



SOURCE: USGS Topographic Map. 7.5 Minute Pittsburgh East, Pennsylvania Quadrangle dated 1986

Designated Sole Source Aquifers in EPA Region III

District of Columbia, Delaware, Maryland, Pennsylvania, Virginia, West Virginia



EPA Region 3
 Dale Long
 Water Protection Division
 1650 Arch Street
 Philadelphia, PA 19103-2029
 phone: (215) 814-5779
 e-mail: long.dale@epa.gov

The 6 Sole Source Aquifer designations in Region III are listed below. Contact the coordinator above for more information. For information on the NJ SSA visit the [Region 2](#) site.

SOLE SOURCE AQUIFERS IN REGION III:

State	Sole Source Aquifer Name	Federal Register Citation	Publication Date
*DE/PA/NJ	New Jersey Coastal Plain Aquifer	53 FR 23791	06/24/88
MD	Maryland Piedmont Aquifer Montgomery, Howard, Carroll Counties	45 FR 57165	08/27/80
MD	Poolesville Area Aquifer Extension of the Maryland Piedmont Aquifer	98 FR 3042	02/06/98
PA	Seven Valleys Aquifer, York County	50 FR 9126	03/06/85
VA	Prospect Hill Aquifer, Clark County	2 FR 21733	06/09/87
VA	Columbia and Yorktown, Eastover Multi-aquifer System Accomack and North Hampton Counties	62 FR 17187	04/09/97

*The New Jersey Coastal Plains Aquifer is jointly managed with Region II.

Return to: [Sole Source Aquifer program home page](#)

the 1990s, the number of people in the UK who are aged 65 and over has increased from 10.5 million to 13.5 million, and the number of people aged 75 and over has increased from 4.5 million to 6.5 million (Office for National Statistics 2000).

There is a growing awareness of the need to address the needs of older people in the UK. The Department of Health (2000) has published a strategy for older people, which sets out a vision for the future of health care for older people. The strategy is based on the following principles: older people should be able to live independently, safely and with dignity; older people should be able to access the services they need; and older people should be able to participate in decisions about their care.

The strategy also sets out a number of key objectives, including: to improve the quality of life of older people; to reduce the number of older people who are in care; to improve the way in which older people are consulted about their care; and to improve the way in which older people are supported to live independently. The strategy is a key document for the development of health care for older people in the UK.

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2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report -
Streams, Category 1 Waterbodies, Attaining All Uses

Stream Name Use Attained	Assessment ID	Miles
Hydrologic Unit Code: 02040101-Upper Delaware		
<i>West Branch Delaware River</i>		
Aquatic Life	7805	13.1
Fish Consumption	15152	13.1
Potable Water Supply	14295	13.1
Recreational	14284	13.1
Hydrologic Unit Code: 02040103-Lackawaxen		
<i>Blooming Grove Creek</i>		
Aquatic Life	5480	1.8
	5494	5.9
Fish Consumption	15129	7.7
Potable Water Supply	14276	7.7
Recreational	14275	7.7
<i>Kintz Creek</i>		
Aquatic Life	4727	2.1
	5142	1
Fish Consumption	15160	3.1
Potable Water Supply	14278	3.1
Recreational	14277	3.1
Hydrologic Unit Code: 02040104-Middle Delaware		
<i>Adams Creek</i>		
Aquatic Life	14852	0.9
Fish Consumption	15197	0.9
Potable Water Supply	11816	0.9
Recreational	14299	0.9
<i>Brodhead Creek</i>		
Aquatic Life	17418	6.5
	17449	4.2
Fish Consumption	3185	0.5
	16004	10.2
Potable Water Supply	14307	1.7
	14308	3.4
	15451	5.6
Recreational	15363	10.7

2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report -
Streams, Category 1 Waterbodies, Attaining All Uses

<i>Stream Name</i>	Assessment ID	Miles
Use Attained		
Hydrologic Unit Code: 02040106-Lehigh		
<i>Lehigh River</i>		
Aquatic Life	16269	4.2
Fish Consumption	16232	4.2
Potable Water Supply	14283	4.2
Recreational	14274	4.2
Hydrologic Unit Code: 02040203-Schuylkill		
<i>Brushy Run</i>		
Aquatic Life	734	1.3
Fish Consumption	3186	1.3
Potable Water Supply	11809	1.3
Recreational	14760	1.3
<i>Northkill Creek</i>		
Aquatic Life	7851	0.2
Fish Consumption	17481	0.2
Potable Water Supply	11804	0.2
Recreational	12832	0.2
Hydrologic Unit Code: 02050106-Upper Susquehanna-Tunkhannock		
<i>Bowman Creek</i>		
Aquatic Life	10693	0.7
Fish Consumption	3183	0.7
Potable Water Supply	11881	0.7
Recreational	14287	0.7
Hydrologic Unit Code: 02050201-Upper West Branch Susquehanna		
<i>Montgomery Creek</i>		
Aquatic Life	10328	0.6
Fish Consumption	15346	0.6
Potable Water Supply	15411	0.6
Recreational	16911	0.6
<i>West Branch Susquehanna River</i>		
Aquatic Life	9934	4.9
Fish Consumption	16342	4.9
Potable Water Supply	14349	4.9
Recreational	14765	4.9

2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - Streams, Category 1 Waterbodies, Attaining All Uses
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<i>Stream Name</i>	Assessment ID	Miles
Use Attained		
Hydrologic Unit Code: 02050203-Middle West Branch Susquehanna		
<i>Young Womans Creek</i>		
Aquatic Life	9480	1.4
Fish Consumption	16848	1.4
Potable Water Supply	12118	1.4
Recreational	14285	1.4
Hydrologic Unit Code: 02050206-Lower West Branch Susquehanna		
<i>Loyalsock Creek</i>		
Aquatic Life	15688	0.9
	15693	4.6
	15696	3.5
Fish Consumption	16854	9
Potable Water Supply	12105	0.9
	14350	8.1
Recreational	17483	9
<i>Lycoming Creek</i>		
Aquatic Life	16591	3.7
Fish Consumption	12756	3.7
Potable Water Supply	14351	3.7
Recreational	16289	3.7
<i>Muncy Creek</i>		
Aquatic Life	14587	0.4
Fish Consumption	16857	0.4
Potable Water Supply	12122	0.4
Recreational	14290	0.4

2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report -
Streams, Category 1 Waterbodies, Attaining All Uses

<i>Stream Name</i>	Assessment ID	Miles
Use Attained		
Hydrologic Unit Code: 02050301-Lower Susquehanna-Penns		
<i>Penns Creek</i>		
Aquatic Life	190	5.8
	193	0.5
Fish Consumption	17486	6.3
Potable Water Supply	11850	0.4
	11863	0.5
	14421	5.4
Recreational	14763	0.5
	16292	5.8
<i>Penns Creek Unnamed To (ID:54962911)</i>		
Aquatic Life	190	0.5
Fish Consumption	17486	0.5
Potable Water Supply	14421	0.5
Recreational	16292	0.5

2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report -
Streams, Category 1 Waterbodies, Attaining All Uses

<i>Stream Name</i>		
Use Attained	Assessment ID	Miles
Hydrologic Unit Code: 02050305-Lower Susquehanna-Swatara		
<hr/>		
<i>Conodoguinet Creek</i>		
Aquatic Life	13058	12.2
	13498	0.3
Fish Consumption	16833	12.5
Potable Water Supply	11852	3.5
	14928	9
Recreational	14761	3.5
	15338	9
<hr/>		
<i>Mountain Creek</i>		
Aquatic Life	11427	1.2
Fish Consumption	3222	1.2
Potable Water Supply	11859	1.2
Recreational	14762	1.2
<hr/>		
<i>Sherman Creek</i>		
Aquatic Life	1758	2.2
	8976	0.1
	13472	0.1
Fish Consumption	15177	2.3
Potable Water Supply	11853	2.2
	14422	0.1
Recreational	14801	2.3
<hr/>		
<i>Swatara Creek</i>		
Aquatic Life	11436	3.9
	11440	15.3
Fish Consumption	15184	7.7
	15185	9.8
	15188	1.7
Potable Water Supply	14245	19.2
Recreational	17492	19.2

2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report - Streams, Category 1 Waterbodies, Attaining All Uses
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<i>Stream Name</i>	Assessment ID	Miles
Use Attained		
Hydrologic Unit Code: 05030101-Upper Ohio		
<i>Raccoon Creek</i>		
Aquatic Life	6038	2.9
Fish Consumption	3230	2.9
Potable Water Supply	14407	2.9
Recreational	15382	2.9
Hydrologic Unit Code: 05030105-Connoquenessing		
<i>Slippery Rock Creek</i>		
Aquatic Life	4264	1.4
Fish Consumption	3236	1.3
Potable Water Supply	14416	1.4
Recreational	15213	1.4

LOWER LOYALHANNA CREEK WATERSHED

- a. Overall Introduction
- b. Lower Loyalhanna Creek Subwatershed
- c. Union Run
- d. McCune Run
- e. Crabtree Creek
- f. Whitehorn Creek
- g. Getty Run

SECTION 3

LOWER LOYALHANNA CREEK WATERSHED

Overall Restoration Priorities for the Lower Loyalhanna Creek Section

- Remediate the Crabtree Creek Discharge located in Crabtree
- Remediate reclaim remine two coal refuse piles located in the Crabree Creek Subwatershed Forbes Road Hannastown
- Assess and determine a course of action for remediation of discharges within the Union Run Subwatershed
- Assess and determine a course of action for remediation of discharges within the Getty Run Subwatershed
- Educate community members about the importance of riparian vegetation
- Address sewage problems in the Crabtree Creek Subwatershed
- Install agricultural BMPs in the Whitehorn Creek and union Run Subwatersheds
- Assess and determine course of action for the remediation of eroding stream banks in the Union Run Subwatershed and along the main stem of the Lower Loyalhanna Creek



81.54
SQUARE MILES

Section 3 – Lower Loyalhanna Creek Watershed

General Description

The lower section of the Loyalhanna Creek Watershed extends from downstream of the main stem confluence with Saxman Run to the mouth of the creek. A majority of the section flows through property owned by the U.S. Army Corps of Engineers for the purpose of flood control. Portions of that property are leased by the PA Game Commission (PAGC) for land management, hunting, and wildlife observation. The flood control property that surrounds the lower section is forested with few areas that include residences. Portions of the Lower Loyalhanna Creek section are impacted by abandoned mine drainage (AMD). Three of the six large named tributaries that enter the Loyalhanna Creek in the lower section contain large abandoned mine discharges that impact the remaining watershed.

The lower section includes the Loyalhanna Lake and Loyalhanna Dam. The lake, in place since 1942, is a recreational area used for fishing, boating, swimming, and camping. The dam is in place to control seasonal floodwaters. The lake and dam act as a trap for sediment carried downstream. Sedimentation is a serious problem within Loyalhanna Lake.

The Lower Loyalhanna Creek section is comprised of six named tributaries and 25 unnamed tributaries. For the purpose of the assessment, each of the named tributaries was assessed separately. The main stem of the Loyalhanna Creek and its unnamed tributaries was assessed as a separate section. Serviceberry Run, a named tributary, was included with the main stem assessment due to its size. Therefore, the following reports are included within Section 3:

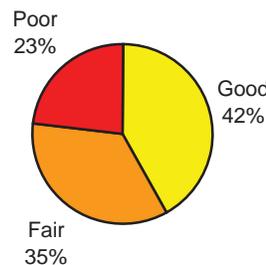
- ➔ Lower Loyalhanna Creek Main Stem and Unnamed Tributaries
- ➔ Union Run
- ➔ McCune Run
- ➔ Crabtree Creek
- ➔ Whitethorn Creek
- ➔ Getty Run

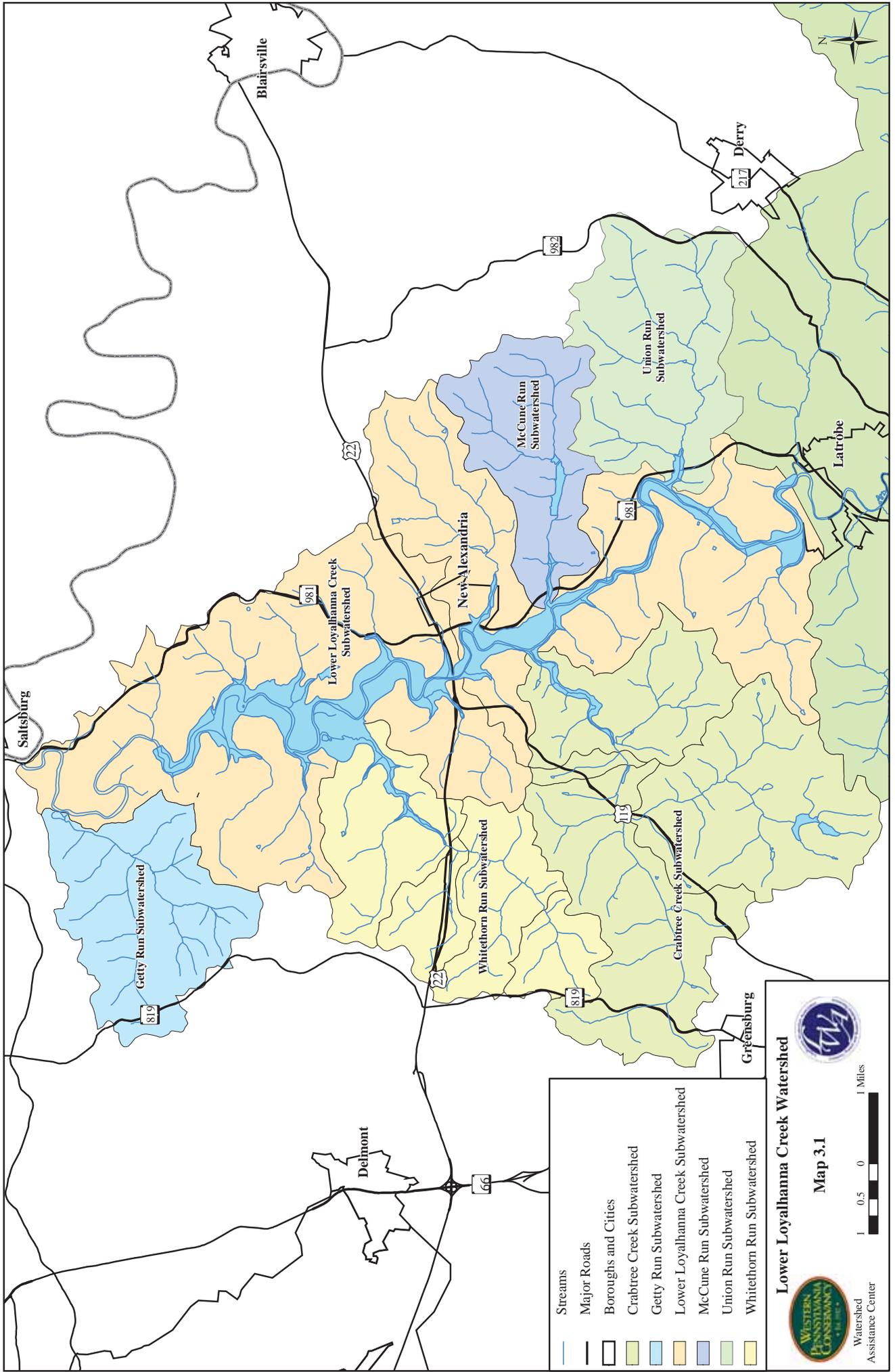
Overall Visual Assessment Summary

The visual assessment of the Lower Loyalhanna Creek section was completed in the summer of 2004. As depicted in Figure 3.1, 42% of the lower section received a good rating, 35% received a fair rating, and 23% received a poor rating. An average score of 6.85 was given to the entire lower section, which is a fair rating overall.

Assessment ratings for the Lower Loyalhanna Creek section reflect the impacts of AMD and riparian zone degradation throughout the entire section. Individual stream ratings are reflected in Map 3.2.

Figure 3.1: Lower Loyalhanna Creek Overall Ratings





- Streams
- Major Roads
- Boroughs and Cities
- Crabtree Creek Subwatershed
- Getty Run Subwatershed
- Lower Loyalhanna Creek Subwatershed
- McCune Run Subwatershed
- Union Run Subwatershed
- Whitethorn Run Subwatershed




Lower Loyalhanna Creek Watershed
Map 3.1
 Watershed Assistance Center
 1 0.5 0 1 Miles

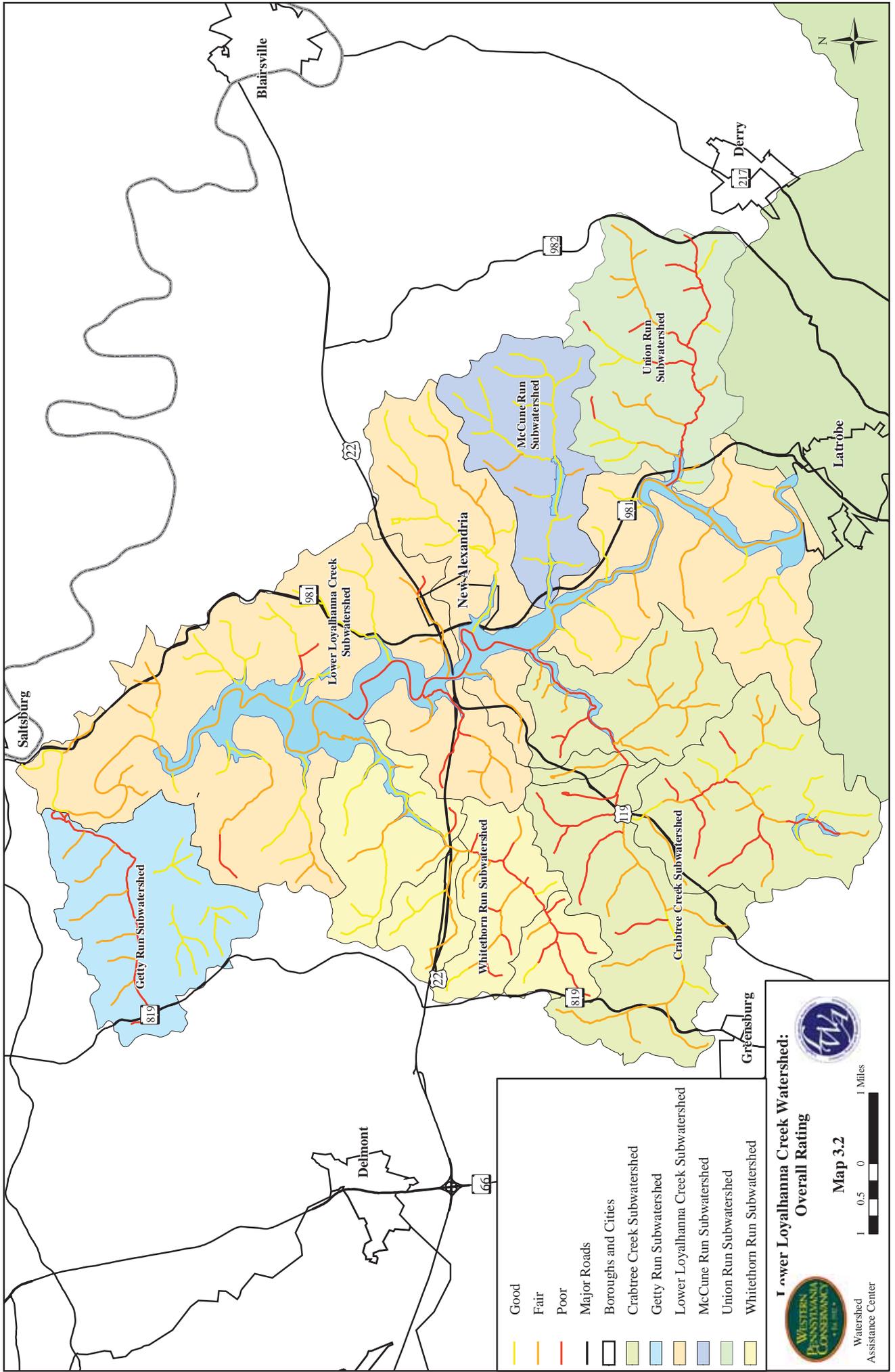
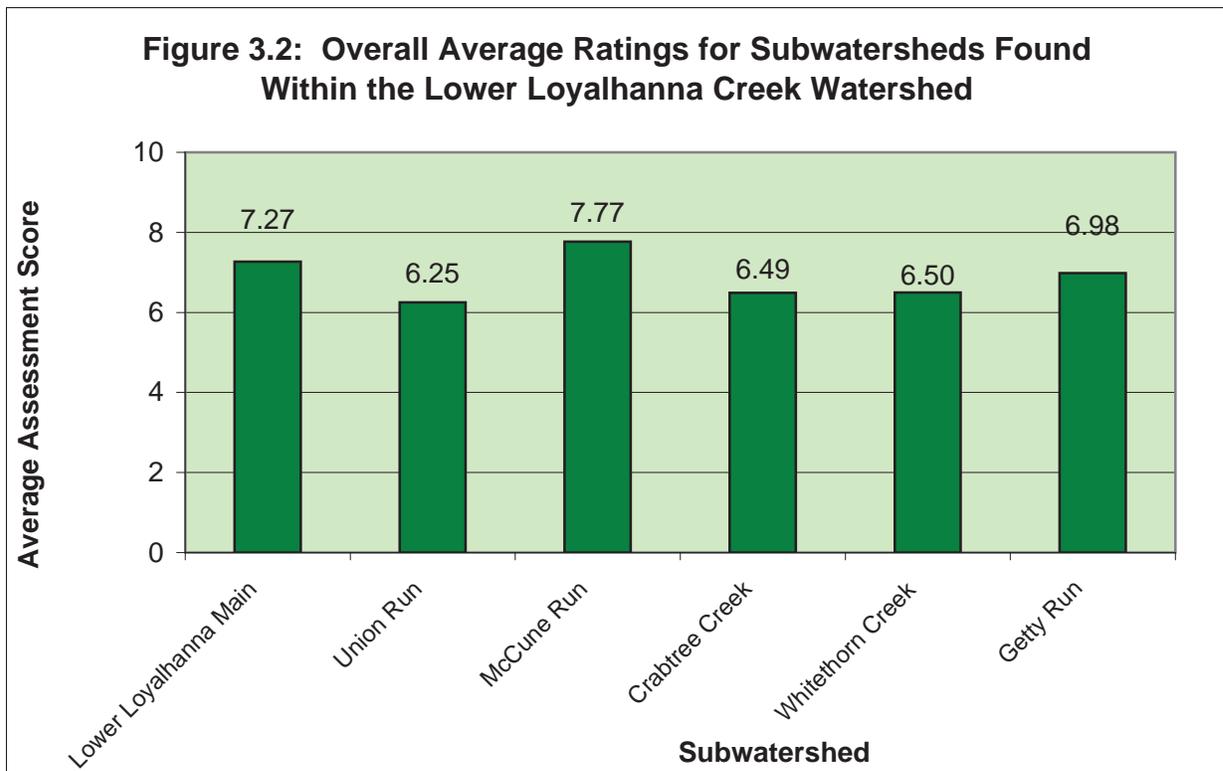


Figure 3.2 exhibits the average overall rating for each subwatershed located within the Lower Loyalhanna Creek Watershed section.



Overall Conclusions

Approximately 50% of the Lower Loyalhanna Creek main stem is impacted by AMD. The Loyalhanna Dam inhibits much of the AMD located upstream from extending beyond the dam and to the mouth of the Loyalhanna Creek. Getty Run, the last tributary to enter the Loyalhanna Creek before its mouth, adds a significant amount of AMD to the creek. It is Getty Run alone that makes the Loyalhanna Creek appear orange and white as it joins with the Conemaugh River to form the Kiskiminetas River.

In addition to impacts from AMD, tributaries throughout the lower section are affected by riparian zone degradation. These impacts are a result of agriculture and individual landowners.

It is critical in the lower section to educate communities and citizens about the watershed. There are portions of the lower section that are beautiful and ideal for recreation. Alternatively, there are portions of the section that are totally devastated and that require remediation.



The Lower Loyalhanna Creek Watershed just below the Loyalhanna Dam

SECTION 3.A
LOWER LOYALHANNA
CREEK SUBWATERSHED

Section 3.A

Lower Loyalhanna Creek Subwatershed

General Description

The Lower Loyalhanna Creek Subwatershed includes the area that drains portions of Unity, Derry, Hempfield, Salem and Loyalhanna townships. This 33.95 square-mile section begins downstream from the Saxman Run confluence outside of Latrobe and it ends at the mouth of the Loyalhanna Creek in Saltsburg. The Lower Loyalhanna Creek Subwatershed is located in the north-central portion of Westmoreland County. It extends from the outskirts of the City of Latrobe and flows north through New Alexandria and on to Saltsburg, where it meets the Conemaugh River to form the Kiskiminetas River.

Land surrounding a large portion of the Lower Loyalhanna Creek main stem is owned by the U.S. Army Corps of Engineers (USACE) for the purpose of flood control. The Loyalhanna Dam, four miles upstream from the mouth of the Loyalhanna Creek, is a dam that has been in place since 1942 in order to protect downstream towns and cities from floodwaters. Currently, the property is leased by the PA Game Commission (PAGC) for wild game hunting and wildlife observation.

The Lower Loyalhanna Creek Subwatershed is intersected by three coal seams that were mined heavily at the turn of the 20th century. Those coal seams are contained within the Latrobe-Connellsville Syncline, Greensburg Syncline, and Elders Ridge Syncline that run southwest by northeast across the subwatershed area. As a result of extensive mining within the three coal seams, the Lower Loyalhanna Creek Subwatershed is significantly impacted by AMD.

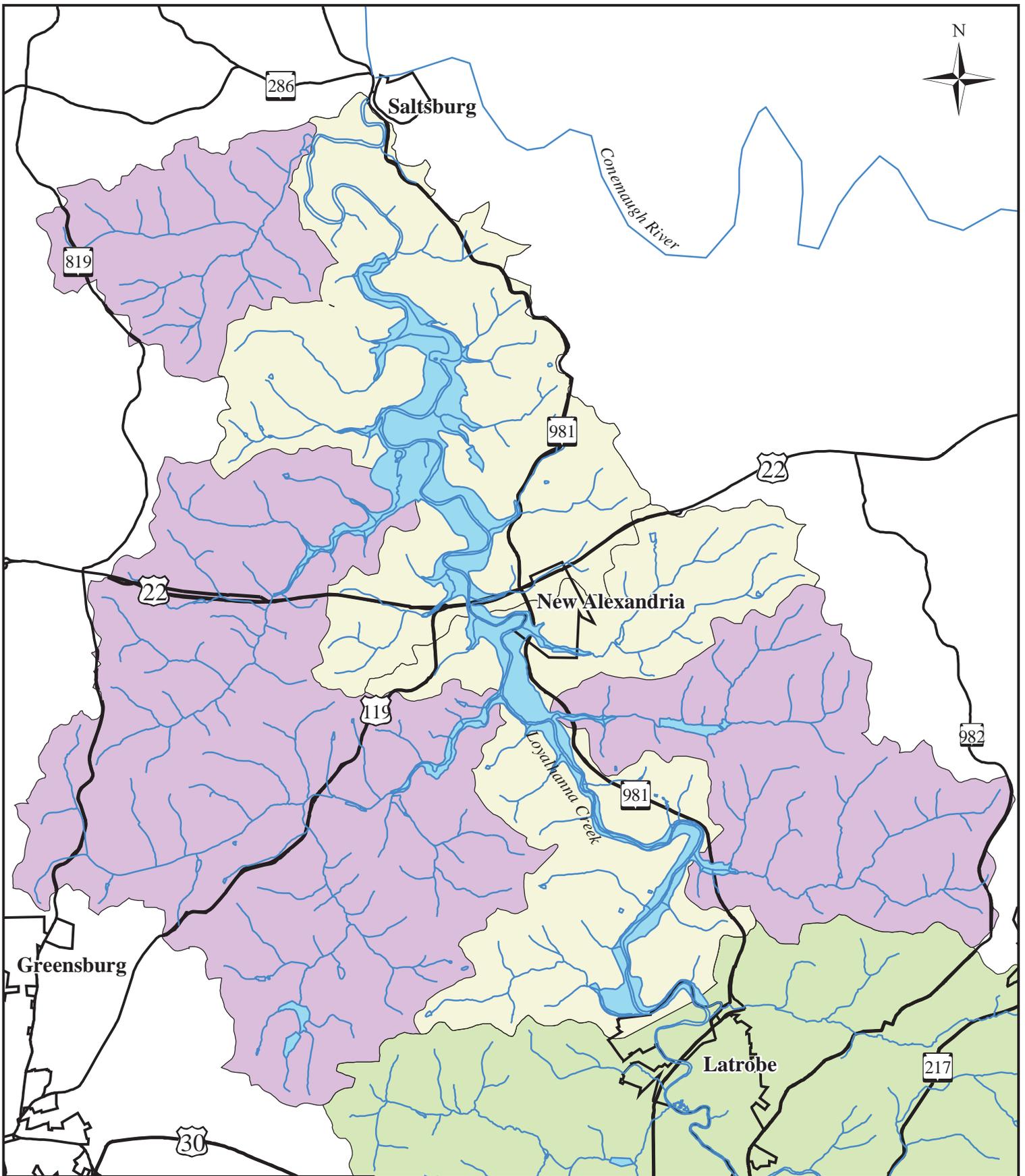
Six named tributaries and 25 unnamed tributaries join the main stem of the Loyalhanna Creek in the lower section. The named tributaries include: Union Run, McCune Run, Crabtree Creek, Whitethorn Creek, Serviceberry Run, and Getty Run. The subwatershed is classified as a Warm Water Fishery (WWF) with the exception of Serviceberry Run, which is a High Quality Cold Water Fishery (HQ-CWF). A majority of the subwatershed is listed as an impaired waterway according to the CWA 303(d) list.

The beginning of the Lower Loyalhanna Creek Subwatershed is located immediately downstream from the confluence of Saxman Run. From that point, the Loyalhanna Creek flows west, skirting the northern boundary of Latrobe. Homes line the south bank, and intermittent fields and forest line the north bank. After passing underneath the Ligonier Street Bridge (2nd Bridge), the Loyalhanna Creek turns north to flow away from Latrobe. The landscape surrounding the stream is comprised of open fields, wetland, sycamore, and Japanese knotweed. It is in this section that the stream channel was altered to eliminate a large oxbow that had formed. The alteration was completed in the 1950s. Surrounding hillsides are a mix of agriculture and reclaimed surface mines.

As the Loyalhanna Creek passes underneath the Derbytown Road Bridge (3rd Bridge), the landscape surrounding the stream becomes more forested. Downstream of the bridge, access to the stream becomes limited and very few residences can be found. Approximately one mile downstream of the Derbytown Road Bridge, **Union Run** enters the Loyalhanna Creek main stem from the east. This subwatershed originates in the coal mining towns of Atlantic and Superior. Union Run contains iron



Loyalhanna Creek main stem upstream from the Derbytown Road Bridge outside of Latrobe



-  Streams
-  Major Roads
-  Boroughs and Cities
-  Lower Loyalhanna Creek Subwatershed
-  Lower Section

**Lower Loyalhanna Creek Subwatershed:
Overall Location**



Watershed
Assistance Center

Map 3.A.1





oxide and aluminum precipitate from numerous upstream discharges. It rated fair overall during the visual assessment.

Following the confluence with Union Run, the Loyalhanna Creek main stem turns a large bend and travels very close to Route 981 North. For a short distance, the creek turns to flow west through an area with steep, rocky banks. After the main stem turns north again, it flows past the old 4th Bridge. Large bridge abutments remain in the stream where a road once crossed. Downstream of the 4th Bridge, the landscape surrounding the Loyalhanna Creek main stem flattens and **McCune Run** enters from the east. McCune Run Subwatershed includes Keystone Lake and its tributaries. It was rated good overall during the visual assessment.

Just downstream of the confluence with McCune Run, the Loyalhanna Creek main stem passes underneath the Oasis Bridge (5th Bridge). A wide, flat riparian area encompasses the stream as it continues north to a confluence with **Crabtree Creek**. At the confluence, a large plume of orange water joins with the main stem. The Crabtree Creek Subwatershed, originating in the community of Forbes Road to the west, is greatly impacted by AMD. The subwatershed was rated fair overall during the visual assessment.

Following its confluence with Crabtree Creek, the Loyalhanna Creek main stem flows west past the community of New Alexandria and underneath the Route 22 Bridge. At this point, the velocity of the water begins to slow significantly due to topography and as a result of the pool formed by the flood-control dam downstream. Below the Route 22 Bridge, sycamore, small trees, and small shrubs dominate the landscape surrounding the main stem. Watermarks on trees and surrounding banks indicate high water levels during periods of heavy rain. The riparian area is not only thick with vegetation, but is extremely muddy, wet, and not accessible.

Approximately one mile downstream from the Route 22 Bridge, **Whitethorn Creek** enters from the west. The mouth of Whitethorn Creek forms a small lake as it encounters the Loyalhanna Creek main stem. Whitethorn Creek originates north of the community of Forbes Road and was rated fair overall during the visual assessment. It is at the confluence of Whitethorn Creek and the Loyalhanna Creek main stem that the boundary of the main stem begins to expand and Loyalhanna Lake forms as a result of the flood-control dam.

The Loyalhanna Lake extends from the mouth of Whitethorn Creek to the dam located at the USACE offices. A mixed hardwood forest surrounds the entire lake. **Serviceberry Run** enters the lake approximately halfway through its length. As the only HQ-CWF within the lower section, it is frequented by anglers.

Below the dam, the Loyalhanna Creek main stem exhibits characteristics similar to main stem sections in the upper portion of the watershed. Surrounded by a hardwood and pine forest, the Loyalhanna Creek winds through an area with steep hillsides. No residences are found close to the stream, which is difficult to access. One mile upstream from the mouth, **Getty Run** enters the main stem from the west. The Getty Run Subwatershed originates in the town of Slickville and was rated fair overall during the visual assessment. Multiple upstream acidic AMD impacts make Getty Run a poor-quality subwatershed.

Following the confluence with Getty Run, the Loyalhanna Creek takes a large turn and flows underneath the old Penn Central railroad, which is now a rail trail. At the point where the main stem passes under Route 981, it flows into the Conemaugh River. The mouth of the Loyalhanna Creek can be seen from downtown Saltsburg. For a geographic location of this subwatershed, refer to Map 3.A.1.



Loyalhanna Creek main stem downstream from the outflow of the Loyalhanna Dam

Review of Historic Information

Overall Summary

Coal mining was a major industry throughout the lower portion of the Loyalhanna Creek Watershed. The communities of Atlantic, Peanut, Superior, Crabtree, Hannastown, Forbes Road, Luxor, New Alexandria, Andrico, Shieldsburg, and Slickville all contained deep coal mines. According to the 1972 Scarlift Report, 61 deep mines and countless surface mines were located throughout the lower section. Of those 61 deep mines, there were approximately 22 major deep and drift mines that were in operation during the early 1900s. Some of those deep mines remained open well into the mid-1900s. The last known operation was in Luxor, Pa. A large refuse pile, coke ovens, and outbuildings are still present at the site. The tippel was removed in 2003.

In addition to coal mining, agriculture was, and still is, a large industry throughout the lower section of the watershed. Beef and dairy operations still blanket the landscape today. The community of Crabtree is a thriving agricultural community despite a regional decline in farmlands and farming operations.

Scarlift Report

Twenty-six discharges were discovered and catalogued within the Lower Loyalhanna Creek Subwatershed during Scarlift fieldwork. Those discharges were found in Union Run, Crabtree Creek, Whitethorn Creek, and Getty Run. Please refer to the respective subwatershed reports for more information regarding the discharges.

Many water quality samples were taken during fieldwork for the Scarlift Report. Those results are significant and some are different in comparison to water quality taken today. For example, the average pH of the Loyalhanna Creek taken at the mouth between 1969 and 1970 was 3.7. This is in contrast to an average pH of 6.9 taken in 2004 and 2005. Scarlift water quality results for Getty Run and Union Run are similar to results from water quality samples taken during the assessment.

Bituminous Coal Mines of Westmoreland County – Website

A website produced by Raymond A. Washlaski, Ryan P. Washlaski, and Peter E. Starry, Jr. lists the coal mines that were once in operation throughout Westmoreland County. Referencing the website, the following deep and drift coal mines were once operational within the Lower Loyalhanna Creek Subwatershed.

Mine	Last Year In Operation	Last Known Operator	Location
Salem No. 2 Mine	1954	Keystone Coal and Coke Company	Keystone State Park. Mine offices now serve as the state park's visitor center.
Jamison No. 1	1950s	Sekora Coal Company	Luxor. Buildings and coke ovens from the mine are still intact at the mine site. Reservoirs from the mines were sold to the county and are now used as recreational sites (Twin Lakes Park).

Jamison No. 2	1949	Jamison Coal and Coke	Hannastown. Large coal waste pile located north of Hannastown was covered and partially reclaimed in 1972. Coke ovens were buried during reclamation.
Jamison No. 3	1950s	Jamison Coal and Coke	Forbes Road. Some buildings remain at the mine site. Large refuse pile still present. This mine was eventually connected to the No. 2 mine.
Jamison No. 4	1950s	Jamison Coal and Coke	Crabtree. Buildings used for mine equipment are still standing and used by the Crabtree Fire Company. Coke ovens are still intact but overgrown along Crabtree Creek. Company store was at the current site of Carbone's restaurant.
Andrico Mines No. 1-9	1940s	Keystone Coal & Coke	New Alexandria. The Andrico mines were located primarily north and east of New Alexandria. They were mostly drift mines. During WWII, open cut strips were done at all of the mine sites. In the 1970s and 1980s, all of the sites were re-mined and reclaimed.
Irwin Gas Coal No. 3 and No.4	1930-1951	Irwin Gas Coal	Slickville.
Slick No. 1 – 3	1930-1951	Cambria Steel Co.	Slickville.

PA Fish and Boat Commission (PAFBC)

There were two PAFBC survey reports that were relevant to the Lower Loyalhanna Creek Subwatershed.

1. In May of 1999, the PAFBC completed a fish survey of the Loyalhanna Lake. Using Pennsylvania-style trap nets and night electro-fishing, a wide variety of fish species were collected. That population of collected fish was evaluated. White and black crappie fish were the most abundant. The report concluded that turbidity, due to suspended flocculants such as iron oxide precipitate and upstream erosion, was impacting the growth of pan fish within the lake. Other conclusions included changes in stocking plans for saugeye.
2. In 1982, the PAFBC surveyed Serviceberry Run. Numerous invertebrates were found during the survey. Caddisflies were dominant, but mayflies achieved good levels. The PAFBC recommended that Serviceberry Run maintain its “special protection.”

U.S. Army Corps of Engineers (USACE)

The USACE completed a water quality assessment of the Loyalhanna Creek main stem in 2002. That assessment included samples taken at the Route 22 Bridge and mouths of tributaries entering the main stem. That data is consistent with other collected data and can be referenced in files held at the Loyalhanna Watershed Association (LWA) office.

PA Department of Environmental Protection (DEP)

Various reports from the DEP highlight water quality samples related to surface mines throughout the entire subwatershed. At the time of the report, there were no known active coal mines within the Lower Loyalhanna Creek Subwatershed. More complete information can be obtained at the DEP District Mining Office in Greensburg.

Loyalhanna Watershed Association

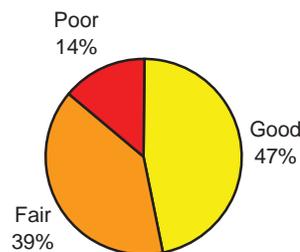
Since the summer of 2001, water quality samples have been collected from discharges located throughout the Lower Loyalhanna Creek Subwatershed. Those discharges are located within the Crabtree Creek and Getty Run subwatersheds.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of the Lower Loyalhanna Creek Subwatershed was completed in the spring of 2004. A total of 51 stream segments were assessed. As depicted in figure 3.A.1, 47% of the subwatershed received a good rating, 39% received a fair rating, and 14% received a poor rating. An average score of 7.28 was given to the entire subwatershed, which is a fair rating overall. This overall rating is a contrast to overall score percentages. This is due to the fact that the good and fair ratings were close to the separating score between the two categories. Individual stream segment ratings are depicted in Map 3.A.2.

Figure 3.A.1: Visual Assessment Ratings for the Lower Loyalhanna Creek Subwatershed



Visual Assessment Description

Lower Loyalhanna Main Stem

The Lower Loyalhanna Creek Subwatershed begins below the confluence of Saxman Run and the Loyalhanna Creek in Latrobe. Saxman Run contributes a large amount of AMD to the main stem at the confluence. Orange-tinted water flows from this point over a substrate dominated by cobble and gravel.

As the main stem winds out of Latrobe, Japanese knotweed, sycamore, and other small



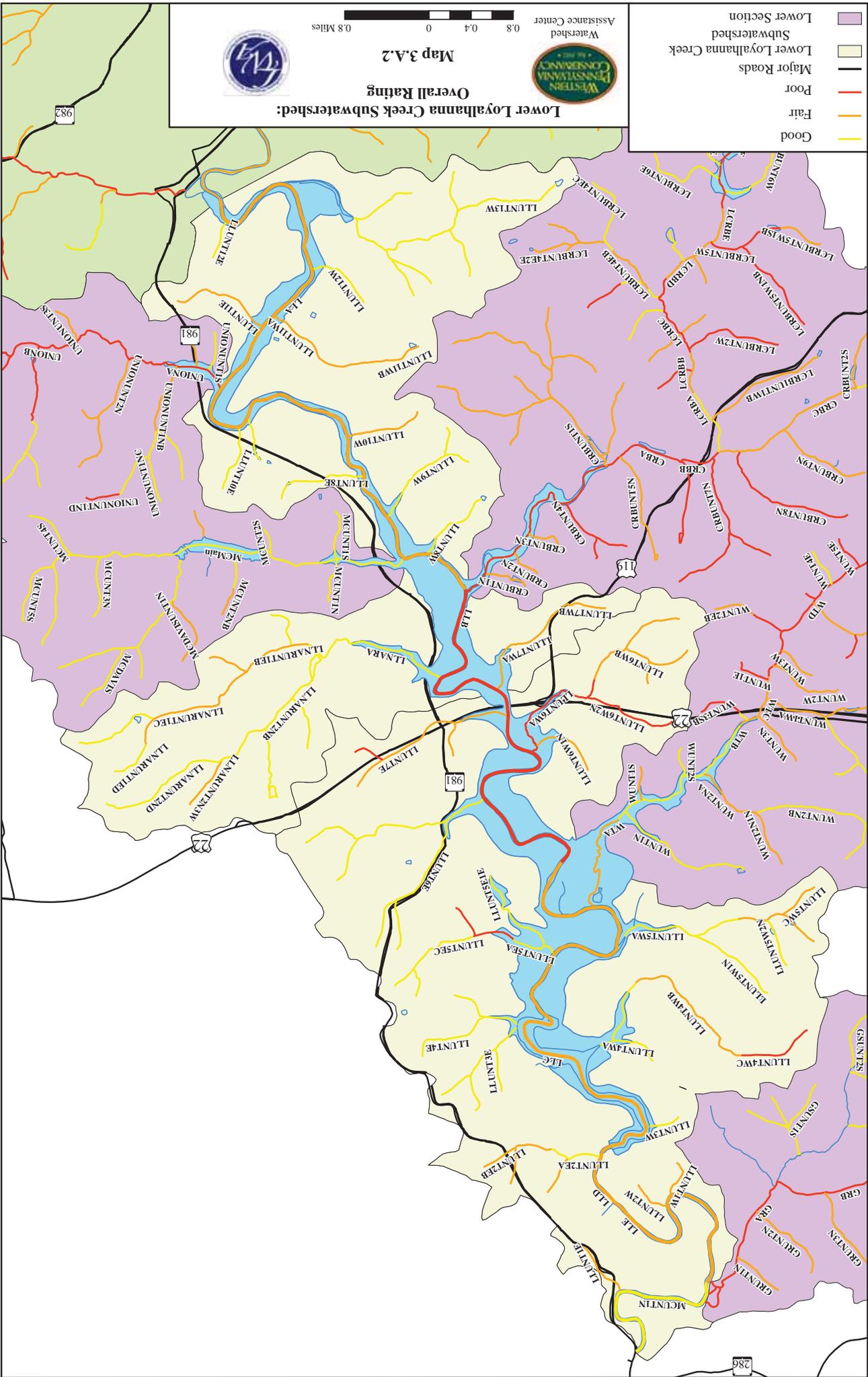
Watershed Assistance Center
0.8 0.4 0 0.8 Miles

Map 3.A.2

Overall Rating
Lower Loyalhanna Creek Subwatershed:



- Lower Section
- Subwatershed
- Lower Loyalhanna Creek
- Major Roads
- Poor
- Fair
- Good



hardwoods are present around the stream. The surrounding landscape is a mix of residences and farmland. Streambanks are stable but show some signs of scouring and erosion due to high water flow.

The appearance of water remains cloudy and orange as the Loyalhanna Creek continues west, passing underneath the Ligonier Street Bridge (2nd Bridge). Open fields and farmland dominate the landscape. The riparian area continues to be comprised of Japanese knotweed and small hardwood trees.

Where the Loyalhanna Creek passes underneath the Derbytown Road Bridge (3rd Bridge), it is apparent that the area beyond the western bank of the stream was at one time surface mined. Multiple acidic mine drainage seeps are present on the hillside and they gather to form a single flow into the Loyalhanna Creek. Upon reaching the stream, there is little or no effect from the drainage.

Continuing to flow west, the streamside thickens with vegetation and canopy cover. The forest contains a mix of sycamore, oak, and other hardwood trees. Through this area the Loyalhanna Creek is still stained orange. The cobble substrate is embedded with sediment and iron oxide precipitate. Swirls of creamy foam float on the surface and the water emits a bad odor. This water appearance and character remains consistent until the Loyalhanna Creek encounters Union Run. This subwatershed adds additional sediment, iron oxide, and aluminum oxide. Following the confluence with Union Run, the Loyalhanna Creek winds around a bend. Velocity of the main stem increases and the stream substrate changes to boulders and large cobble. Steep banks surround the stream, and streamside vegetation includes large amounts of rhododendron and pine. The main stem emerges from this section and immediately is joined by **McCune Run**. The subwatershed contains Keystone Lake and little or no sign of upstream impacts. There is an AMD treatment system on McCune Run that is treating an acidic discharge from an old deep mine at Keystone State Park.

After the confluence with McCune Run, the landscape surrounding the Loyalhanna Creek flattens and is surrounded by large fields and wet areas. Riparian vegetation and canopy cover remain significant and is comprised of sycamore, silver maple, Japanese knotweed, shrubs, and some small hardwood trees. The substrate of the stream is again dominated by cobble and gravel. Where the main stem passes underneath the Oasis Bridge (5th Bridge), the water appearance is slightly cloudy and shows little or no sign of AMD. This appearance is brief however, because 1,000 feet downstream **Crabtree Creek** enters the Loyalhanna Creek. A large discharge in the Crabtree Creek Subwatershed adds 3,000-5,000 gallons of mine drainage to the creek each minute. Where the Loyalhanna Creek and Crabtree Creek meet, a plume of orange water mixes into the Loyalhanna Creek main stem. The discoloration is a result of the Crabtree Creek Discharge that delivers thousands of pounds of iron oxide sediment to the stream each day.

Where Crabtree Creek joins the Loyalhanna Creek, the substrate of the stream is no longer visible. Various tests showed that thick layers of sediment and iron oxide covered gravel and cobble. The streambanks are covered by mud and dirt. Streamside vegetation is primarily sycamore, silver maple, and shrubs. The water emits the odor of rotten eggs.



The confluence of Crabtree Creek and the Loyalhanna Creek main stem

The AMD impact created by the discharge on Crabtree Creek continues to affect the Loyalhanna Creek main stem as it flows west past New Alexandria and underneath Route 22. It is along this reach that the velocity of the stream decreases. Downstream of the Route 22 Bridge, the substrate remains hidden by muddy orange water. The surrounding landscape, similar to other sections, contains a mix of hardwood trees, shrubs, and Japanese knotweed. Ground surrounding the stream is increasingly wet and muddy. In times of high flow, a majority of the section downstream from Route 22 is under water.

Not until reaching a confluence with **Whitethorn Creek** does the characteristic of the Loyalhanna Creek main stem change again. It is at this confluence that the main channel of the creek widens. The stream

substrate is not visible at the mouth of Whitethorn Creek, but farther downstream, shallow water finally reveals a substrate embedded by sand and sediment. Continuing downstream, the Loyalhanna Creek widens further to form the Loyalhanna Lake.

Lake levels vary seasonally with amounts of rainfall and runoff. The summer pool of the lake covers 400 acres and is four miles long. Steep forested banks surround the main portion of Loyalhanna Lake. Vegetation is a mix of shrubs, grasses, and hardwood trees. One small campground, boat access ramp, and swimming area is located prior to the most heavily used portion of the lake. Maintained by the USACE, Loyalhanna Lake is a flood-control project used to protect downstream areas. Sediment deposits are visible in the upper and middle portions of the lake. Small peninsulas are forming where slow-flowing water is able to deposit sediment load on inside bends. Litter is a serious problem in and around Loyalhanna Lake. Styrofoam, bottles, cans, and other random trash items litter the banks, hillsides, and water within the lake. A majority of the trash is washed into the lake from upstream sources.



The Loyalhanna Dam shown from the downstream side in low water

The lake ends at the Loyalhanna Dam, which rises 114 feet from the streambed. The 960-foot long structure holds back water from the 290-square mile drainage area upstream. Four sluice gates at the bottom of the dam normally release water from the dam.

The section of stream below the dam has characteristics that are similar to sections of the upper watershed. The substrate is a mix of gravel, cobble, and boulder. Streambanks are covered with hardwood trees and shrubs. Some algal growth is present on the substrate. A small coal waste pile is located approximately 1,000 feet downstream from the dam. There are no visible signs of runoff near or around the coal waste pile, which is situated near old buildings. A small entryway was discovered at the site, the purpose of which is unknown and yet to be determined.

Approximately one-half mile downstream from the dam, the Loyalhanna Creek passes underneath Loyalhanna Dam Road. Immediately downstream from the bridge, an abandoned mine discharge flows into the creek from the western bank. The discharge is bright orange and had a field pH of 6.9. The flow of the discharge is approximately 80-120 gpm and, where it enters the main stem of the Loyalhanna Creek, iron oxide precipitate is noticeable downstream for 500 to 1,000 feet. It is assumed that the discharge is associated with the mine located upstream near the coal waste pile.

The substrate changes after the small discharge enters the main stem. Sand and gravel replace the cobble that was present upstream. As the main stem continues to flow north, the surrounding landscape remains forested with mixed hardwood and some pine. Throughout this section, several deep pools exist underneath rock cliffs and overhanging pines. In addition, the section contains steep banks making access to the creek extremely difficult. The landscape does not flatten until the Loyalhanna Creek approaches the confluence with Getty Run. Five hundred feet upstream from that confluence, coal waste piles are located on the western bank of the Loyalhanna Creek. Some runoff from the piles seeps into the Loyalhanna Creek main stem and Getty Run. Where **Getty Run** joins the Loyalhanna Creek, white precipitate is immediately visible on the stream substrate. Boulders and cobble are slippery with the aluminum oxide precipitate as the Loyalhanna Creek continues northward toward its mouth. The Getty Run Subwatershed contains numerous acidic discharges and, at its mouth, has an average pH of 2.9.

The AMD impact from Getty Run is apparent throughout the remaining length of the Loyalhanna Creek. Iron oxide precipitate, in addition to the aluminum, becomes visible further downstream. Where the main stem passes underneath the Westmoreland Heritage Trail (the old Penn Central Railroad Line), the Loyalhanna Creek is yellow-green from precipitating and suspended metals.

Where the Loyalhanna Creek joins the Conemaugh River to form the Kiskiminetas River, the Loyalhanna Creek adds considerable precipitates and sediment to the river. Staining on the rocks and

discoloration of water flowing from the Loyalhanna indicate upstream impacts from AMD and sediment.

Unnamed Tributaries to the Lower Loyalhanna Creek

Twenty-five unnamed tributaries enter the lower section of the Loyalhanna Creek main stem. A majority of the tributaries were rated moderate and showed little or no serious impacts. The impact most commonly found in the tributaries was erosion and sedimentation.

A few of the tributaries did contain AMD in small amounts. The first, UNT6W, originates in the old mining community of Shieldsburg. An acidic mine discharge seeps from what appears to be an old surface mine site. Further investigation indicated that at one time there was a deep mine and coke ovens at this location. The AMD has a pH that ranges from 3.0 to 4.7 as it flows east toward Route 22 and the Loyalhanna Creek main stem. At the mouth of the tributary, there is very little sign of the upstream mine drainage. Two small tributaries to the main stem of UNT6W also contained acidic AMD. Both were located on property owned by the Salem Rod and Gun Club. The discharges seem to emanate from areas that were surface mined.

The second tributary containing AMD is UNT10W. The tributary is located north of Latrobe on Carrs Road. The stream flows through an old surface mine site that was partially reclaimed and collects in a pond. Upon trickling out of the pond, the tributary immediately turns orange. The tributary remains orange as it flows down a steep forested hillside over large boulders. Where it meets the Loyalhanna Creek main stem, only a small amount of orange staining is visible.

The final tributary containing AMD is UNT11W. It is also located north of Latrobe close to the Derbytown Road Bridge on Barnhart Road. The tributary originates above a heavily surface-mined area. Half way through its length, an acidic discharge containing aluminum enters the stream. The aluminum dissipates quickly, but further downstream, iron oxide precipitate is visible. Where the tributary meets the Loyalhanna Creek main stem, no signs of AMD are present.

Water Quality

Four main stem samples were taken along the Lower Loyalhanna Creek. The sites were selected utilizing knowledge of the landscape, accessibility, known impacts, and major tributary location. Please refer to Table 3.A.1, Table 3.A.2, Table 3.A.3, and Table 3.A.4 for water quality data. Water quality results for the sampled sites show significant levels of total iron for a stream the size of the Loyalhanna Creek. Samples taken at the mouth in January of 2005, show moderate levels of aluminum as well.

Table 3.A.1: Sample Site LWA-F							
3rd Bridge Latrobe							
Date Sampled	pH	Alk. (mg/L)	TSS (mg/L)	TDS (mg/L)	Total Iron (mg/L)	Total Coliform (per 100ml)	Fecal Coliform (per 100ml)
8/25/04	7.08	226.0	17.0	179.0	<0.06	---	---
10/25/04	7.05	52.0	2.0	291.0	1.64	---	---
1/25/05*	6.9	44.8	<3	---	4.37	---	---

(---) parameter not tested

* Sample analyzed by the DEP Bureau of Laboratories

Sample Location: Sample taken from the Derbytown Road Bridge (3rd Bridge) outside of Latrobe. To access sample site, take Route 981 North from Latrobe and turn left onto Derbytown Road after the Elks. Follow Derbytown Road to stop sign. Turn right and proceed 1,000 feet to bridge.

Table 3.A.2: Sample Site LWA-G							
Oasis Bridge							
Date Sampled	pH	Alk. (mg/L)	TSS (mg/L)	TDS (mg/L)	Total Iron (mg/L)	Total Coliform (per 100ml)	Fecal Coliform (per 100ml)
8/25/04	6.91	43	6	173	<0.06	---	---
10/25/04	7.23	50	2	295	0.86	---	---
1/25/05*	7.1	42.4	<3	---	2.45	---	---

(- - -) parameter not tested

* Sample analyzed by the DEP Bureau of Laboratories

Sample Location: Sample taken from the Oasis Bridge (5th Bridge) in New Alexandria. To access sample site, take Route 981 North from Latrobe and turn left onto Oasis Road after the Oasis Bar and Grill. Proceed 1,500 feet to bridge.

Table 3.A.3: Sample Site LWA-H							
Route 22 Bridge							
Date Sampled	pH	Alk. (mg/L)	TSS (mg/L)	TDS (mg/L)	Total Iron (mg/L)	Total Coliform (per 100ml)	Fecal Coliform (per 100ml)
8/25/2004	6.88	42.0	9.0	209.0	<0.06	---	---
10/25/2004	6.99	55.0	6.0	375.0	2.4	---	---

(- - -) parameter not tested

Sample Location: Sample taken from the Route 22 Bridge in New Alexandria. To access sample site, pull over on the shoulder in the eastbound lane of Route 22. This is an extremely busy road and samples were only taken twice due to safety concerns.

Table 3.A.4: Sample Site LWA-I						
Mouth						
Date Sampled	pH	Alk. (mg/L)	TSS (mg/L)	TDS (mg/L)	Total Iron (mg/L)	Al (mg/L)
8/25/04	6.88	42	2	182	<0.06	---
10/25/04	7.1	43	3	343	12.58	---
1/25/05*	6.8	33	<3	---	3.77	0.916

(- - -) parameter not tested

* Sample analyzed by the DEP Bureau of Laboratories

Sample Location: Sample taken from the Penn Central Rail Trail Bridge. To access sample site, enter rail trail at water treatment facility in Saltsburg and walk across Conemaugh River and continue through tunnel underneath Route 981. Proceed 500 feet to bridge across Loyalhanna Creek.

Conclusions

The Lower Loyalhanna Creek Subwatershed is significantly impacted by AMD. Discharges located on three of the five major tributaries within the section deposit thousands of pounds of iron and aluminum to the creek each day. Despite the impact from AMD, the lower section of the main stem flows through a beautiful natural area. Land surrounding the main stem is protected by the USACE. The land that surrounds the main stem is considered flood-control property. Much of it disappears underwater during flood events or heavy rainfall.

Sediment appears more frequently and in greater amounts throughout the lower section of the watershed as well. This is due in part to the Loyalhanna Dam, which slows the velocity of the creek, allowing sediment to deposit on stream substrate and flood areas. The cumulative effect of upstream erosion and sedimentation problems is also a factor.

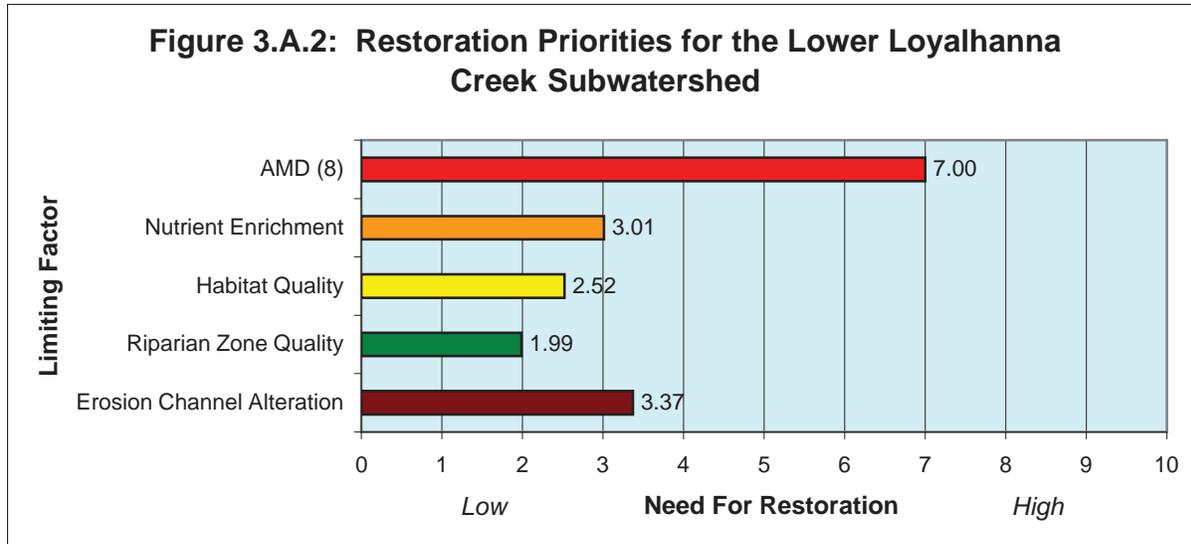
Recommendations

The following recommendations are made for the Lower Loyalhanna Creek Subwatershed:

- Work with the USACE to ensure continued protection and management of the flood-control property.
- Further investigate small abandoned mine discharges entering the main stem including UNT6W, UNT10W, and UNT11W.
- Address upstream erosion and sedimentation problems to reduce overall sediment load entering the lower portion of the watershed.
- Work with the USACE to educate community members about the impact of sediment upon the lake and its ecosystem. This could be accomplished with community outreach, education events, and brochures.
- Continue to assist the USACE in cleanup efforts to remove trash and debris from around the lake.
- Develop hiking/biking and water trail to encourage recreation in and around the lower portion of the watershed. Increased recreation use will help to increase community involvement.
- Monitor water quality along the Lower Loyalhanna Creek main stem. Quarterly monitoring will help to establish base data and assist in illustrating the effects of upstream efforts taking place in the future. The parameters that should be monitored are pH, alkalinity, total iron, aluminum, total dissolved solids, and total suspended solids.

Overall Restoration Priorities

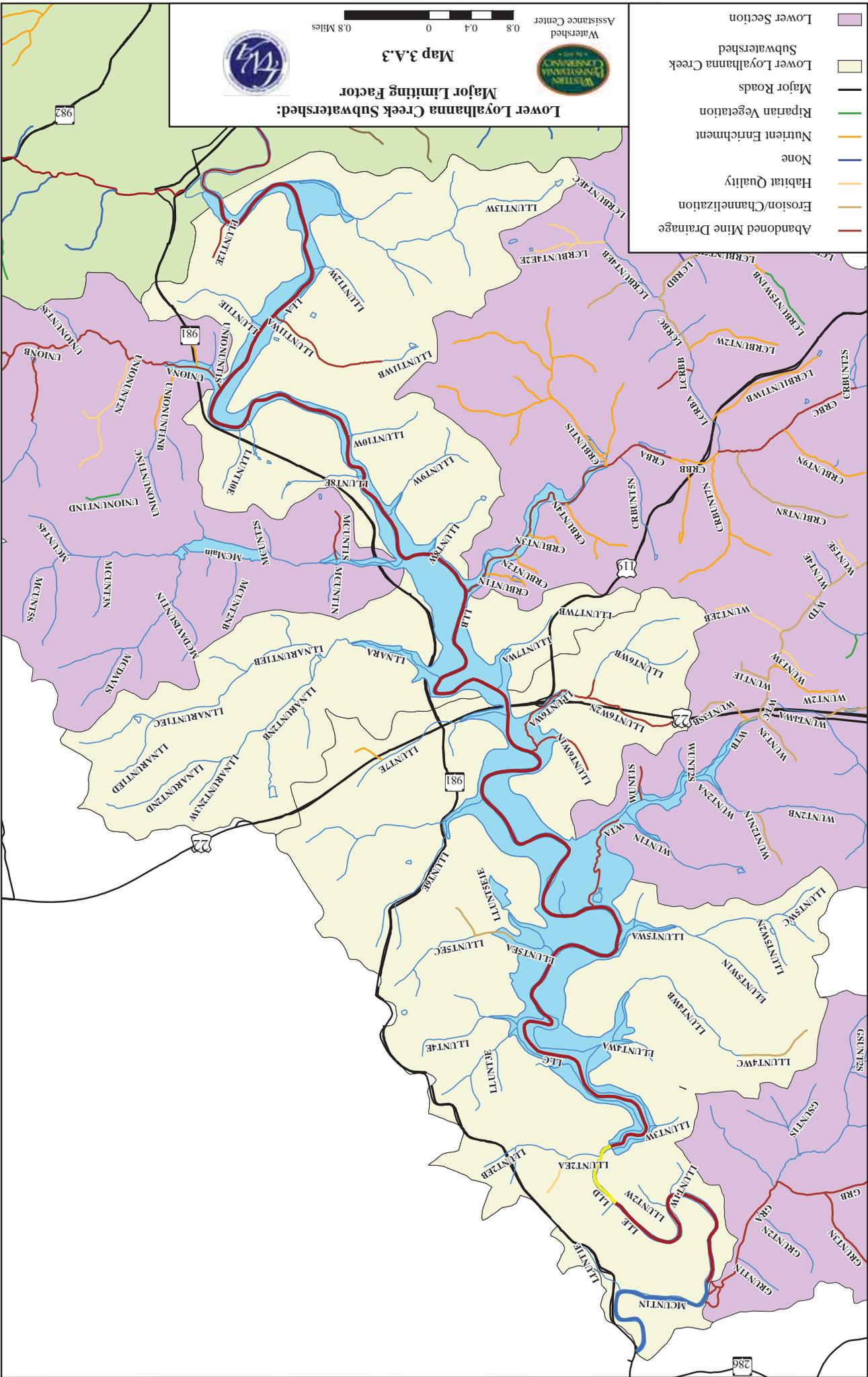
Figure 3.A.2 exhibits overall restoration priorities for the entire subwatershed. As indicated, the limiting factor that received the highest restoration priority rating was AMD. AMD is present throughout 50% of the Lower Loyalhanna Creek main stem. The most seriously impacted main stem segments are downstream of Crabtree Creek and downstream of Getty Run. There are three small tributaries that are impacted by AMD and one discharge that flows directly into the main stem. Erosion and channel alteration also rated high for restoration priority. This rating reflects the presence of sediment throughout the substrate of the Loyalhanna Creek main stem.



Restoration Suggestions for Individual Stream Segments

Thirteen stream segments received scores identifying limiting factors. The limiting factors identified were erosion and channel alteration, compromised fish and macroinvertebrate habitat, riparian vegetation degradation, nutrient loading, and AMD. Please refer to Table 3.A.5 and Map 3.A.3 for impact description and segment location.

Table 3.A.5: Impacted Stream Segments and Restoration Suggestions for the Lower Loyalhanna Creek Subwatershed				
LIMITING FACTOR: Riparian Vegetation Degradation				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
LLUNT4WC <i>Main stem section of Serviceberry Run that flows through a pasture.</i>	Livestock have direct access to the stream. There is no riparian vegetation on more than half of the streambank through the section. There is some canopy cover present.	1. Educate landowner. 2. Work with landowner to install agricultural BMPs in order to eliminate livestock access to the stream. This will allow riparian vegetation to return. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Medium
LLUNT5EB <i>Tributary section that flows through the Mannito Haven Golf Course.</i>	Grass is mowed directly to streambank. Few shrubs and trees are located in the riparian area.	1. Educate landowner. 2. Work with landowner to plant streamside vegetation. Possible Partners: WCD, DEP	Local, State, Private	Low



Map 3.A.3
Lower Loyahanna Creek Subwatershed:
Major Limiting Factor

Watershed Assistance Center
 0.8 0.4 0 0.8 Miles

- Lower Section
- Lower Loyahanna Creek Subwatershed
- Major Roads
- Riparian Vegetation
- Nutrient Enrichment
- None
- Habitat Quality
- Erosion/Channelization
- Abandoned Mine Drainage



LIMITING FACTOR: Compromised Fish and Macroinvertebrate Habitat				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>UNT6W2N <i>Small tributary that flows into UNT6W. It flows adjacent to Route 22 through a field and mowed lawns.</i></p>	<p>The substrate of the stream is embedded with silt that covers habitat and food sources. There is a large culvert that serves as a fish barrier.</p>	<p>1. Identify source of sediment. 2. Educate landowners.</p> <p>Possible Partners: WCD, DEP, Hempfield Township, Salem Township</p>	<p>Local, State</p>	<p>Low</p>
<p>UNT5EB <i>Tributary section that flows through the Mannito Haven Golf Course.</i></p>	<p>There is very little fish cover or invertebrate habitat available due to the substrate being 100% embedded. It is comprised entirely of silt and mud. In addition, multiple culverts serve as fish barriers.</p>	<p>1. Educate landowner. 2. Work with landowner to plant streamside vegetation. The streamside vegetation would serve as a filter for sediment and trap it before it enters the stream.</p> <p>Possible Partners: WCD, DEP</p>	<p>Local, State, Private</p>	<p>Low – Medium</p>
LIMITING FACTOR: Erosion and Channel Alteration				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>LLB <i>Main stem segment of that extends from the confluence with Crabtree to just before the Loyalhanna Lake is formed. This segment flows through mostly forested land, with the exception of when it passes by residences and underneath Route 22 in New Alexandria.</i></p>	<p>Streambanks are comprised of silt, mud, and iron oxide sediment. They are partially eroded and undercut on several occasions. Passing underneath the Route 22 Bridge, the streambanks are stabilized with rip rap.</p>	<p>1. Eliminate upstream sources of sediment that are deposited along the streambanks. 2. Work with partners to determine stabilization methods for the main stem.</p> <p>Possible Partners: USACE, WCD, DEP, PAFBC</p>	<p>Local, State, Federal, Private</p>	<p>Medium</p>

<p>LLC <i>Main stem segment that extends from the beginning of Loyalhanna Lake to the Loyalhanna Dam.</i></p>	<p>Channel alteration has occurred as a result of the lake. Braiding is noticeable. Streambanks are comprised of silt, mud, and iron oxide sediment. They are partially eroded and undercut on several occasions.</p>	<p>1. Eliminate upstream sources of sediment that are deposited along the streambanks. 2. Work with partners to determine stabilization methods for the main stem.</p> <p>Possible Partners: USACE, WCD, DEP, PAFBC</p>	<p>Local, State, Federal, Private</p>	<p>Medium</p>
<p>LLUNT2EB <i>Small tributary that flows through an old field and Christmas tree nursery.</i></p>	<p>The channel has been altered for the road. Substrate of the section is 50% embedded with sediment.</p>	<p>1. Identify source of sediment. 2. Work with landowners to remediate sediment source.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>
<p>LLUNT4WC <i>Main stem section of Serviceberry Run that flows through a pasture.</i></p>	<p>Livestock have direct access to the stream. Livestock have trampled the streambank, which is heavily eroded. The substrate of the stream is 100% embedded.</p>	<p>1. Educate landowner. 2. Work with landowner to install agricultural BMPs in order to eliminate livestock access to the stream. This will allow riparian vegetation to return.</p> <p>Possible Partners: WCD, USDA, WPC</p>	<p>State, Federal, Private</p>	<p>High <i>(Due to HQ-CWF stream designation)</i></p>
<p>LLUNT5EB <i>Tributary section that flows through the Mannito Haven Golf Course.</i></p>	<p>The streambank is eroding and the substrate is 100% embedded.</p>	<p>1. Educate landowner. 2. Work with landowner to plant streamside vegetation. The streamside vegetation would serve as a filter for sediment and trap it before it enters the stream. 3. Install streambank stabilization.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>

<p>LLUNT6W2N <i>Small tributary that flows into UNT6W. It flows adjacent to Route 22 through a field and mowed lawns.</i></p>	<p>The channel of the stream has been straightened and there is rip rap stabilizing the streambank along the road. There is some erosion of the streambanks and the substrate of the stream is very embedded.</p>	<p>1. Determine reason for the channelization and use of rip rap. 2. Determine source of sediment that is gathering in the substrate.</p> <p>Possible Partners: WCD, DEP, Hempfield Township, Salem Township</p>	<p>Local, State</p>	<p>Low</p>
<p>LLUNT6WA <i>Main stem portion of UNT6W that flows through a forest and past a small group of homes. The tributary passes underneath Route 22 west of New Alexandria.</i></p>	<p>The banks are eroding slightly. The substrate of the stream is heavily embedded with silt.</p>	<p>1. Determine source of sediment that is gathering in the substrate.</p> <p>Possible Partners: WCD, DEP, Hempfield Township, Salem Township</p>	<p>Local, State</p>	<p>Low</p>
<p>LLUNT6E1E <i>Small tributary that flows into UNT6E, commonly known as Tubmill Run. The tributary flows through mostly forest and residences.</i></p>	<p>The stream appears to have been channelized in some sections. Rip rap has been utilized to stabilize the streambanks. The substrate of the stream is 40-50% embedded with sediment.</p>	<p>1. Educate landowner. 2. Work with landowner to more effectively manage erosion and stream course. 3. Identify source of sediment.</p> <p>Possible Partners: WCD, DEP, R&L Development</p>	<p>Local, State, Private</p>	<p>Low</p>
<p>LLUNT7E <i>Small tributary that flows adjacent to Route 22. It flows through a field and a group of homes.</i></p>	<p>The stream has been channelized where it runs adjacent to Route 22. The substrate of the stream is 30-40% embedded.</p>	<p>1. Identify source of sediment. 2. Determine method to construct a natural meander in the stream.</p> <p>Possible Partners: WCD, DEP, PennDOT, New Alexandria Borough</p>	<p>Local, State</p>	<p>Low</p>

LIMITING FACTOR: Nutrient Enrichment				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
LLC <i>Main stem segment that extends from the beginning of Loyalhanna Lake to the Loyalhanna Dam.</i>	There was a green tint to the lake and water flowing within the Loyalhanna Creek.	1. Investigate coloration of water. 2. Remediate upstream sources of nutrient enrichment. Possible Partners: WCD, DEP, USACE	Local, State	Low
LLUNT6W1N <i>Small tributary to UNT6W that flows through the Salem Rod & Gun Club.</i>	Stream substrate is covered with algae and green scum. It is suspected the algae is a result of acidic AMD upstream.	1. Remediate upstream source of AMD. Possible Partners: DEP, WCD, OSM	State, Federal, Private	Low
LLUNT6W2N <i>Small tributary that flows into UNT6W. It flows adjacent to Route 22 through a field and mowed lawns.</i>	The water is grayish in color and the substrate contains a large amount of algae. It is suspected the algae is a result of acidic AMD upstream and discharges from failing septic systems.	1. Remediate upstream source of AMD. Possible Partners: DEP, WCD, OSM	State, Federal, Private	Low
LLUNT6E1E <i>Small tributary that flows into UNT6E, commonly known as Tubmill Run. The tributary flows through mostly forest and residences.</i>	The substrate contains a lot of algae and the field pH of the stream was between 8.0 and 9.0. It is suspected that this is caused by failing septic systems upstream.	1. Encourage landowners to utilize BMPs for managing septic systems. Possible Partners: WCD, PSCE, USDA RUS	State, Federal	Low

LIMITING FACTOR: Abandoned Mine Drainage				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
LLA <i>Main stem section that extends from downstream of the confluence with Saxman Run to the confluence with Crabtree Creek.</i>	Water is tinted orange and the substrate is embedded with iron oxide sediment. The orange tint fades flowing downstream.	1. Remediate upstream AMD on Saxman Run and the middle section of the Loyalhanna Creek. 2. Increase community awareness about the challenge that exists due to AMD pollution. Possible Partners: WCD, WPC, DEP, OSM, USACE	Local, State, Federal, Private	High
LLB <i>Main stem segment of that extends from the confluence with Crabtree to just before the Loyalhanna Lake is formed. This segment flows through mostly forested land, with the exception of when it passes by residences and underneath Route 22 in New Alexandria.</i>	Water is orange. The coloration comes from Crabtree Creek which is impacted by a large abandoned mine discharge upstream. The water is extremely turbid and the bottom is not visible. Iron oxide sediment is noticeable along the streambank, as well as on trees.	1. Remediate upstream AMD on Saxman Run and the middle section of the Loyalhanna Creek. 2. Increase community awareness about the challenge that exists due to AMD pollution. Possible Partners: WCD, WPC, DEP, OSM, USACE	Local, State, Federal, Private	High
LLC <i>Main stem segment that extends from the beginning of Loyalhanna Lake to the Loyalhanna Dam.</i>	There is a slight orange tint to the water throughout this section. The coloration fades flowing downstream and dissipates by the lake.	1. Remediate upstream AMD on Saxman Run and the middle section of the Loyalhanna Creek. 2. Increase community awareness about the challenge that exists due to AMD pollution. Possible Partners: WCD, WPC, DEP, OSM, USACE	Local, State, Federal, Private	High

<p>LLE <i>Main stem section that extends from the base of the Loyalhanna Dam to the confluence with Getty Run. It flows through a forested area.</i></p>	<p>One large AMD discharge and several AMD seeps were found within this section. The discharge located just below the dam flows at approximately 80-100 gpm and had a field pH of 7.1. The discharge is visible along one bank of the Loyalhanna Creek for at least 100 yards downstream.</p>	<p>1. Determine source of discharge. 2. Sample discharge on a quarterly basis. 3. Remediate discharge to eliminate impact upon stream.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal, Private</p>	<p>Medium</p>
<p>LLF <i>Main stem section of stream that extends from the confluence with Getty Run to the mouth of the Loyalhanna Creek. It flows through a forested area.</i></p>	<p>Where Getty Run enters the Loyalhanna Creek, white and orange precipitate is visible. The substrate is coated with both iron oxide sediment and aluminum precipitate. The impact from Getty Run is visible all of the way to the mouth of the stream and beyond.</p>	<p>1. Remediate multiple AMD discharges within the Getty Run Subwatershed. 2. Increase community awareness about the challenge that exists due to AMD pollution.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal, Private</p>	<p>High</p>
<p>LLUNT6WA <i>Main stem portion of UNT6W that flows through a forest and past a small group of homes. The tributary passes underneath Route 22 west of New Alexandria.</i></p>	<p>The stream is acidic (pH of 3.0) and orange in color. The substrate is covered with green algae and is littered with trash. There is a slight oily sheen on the surface of the water. The AMD source is the community of Shieldsburg and an abandoned mine area. The origin was both a deep and a surface mine.</p>	<p>1. Remediate origin of the AMD either through re-mining or by passive treatment. 2. Increase community awareness about the challenge that exists due to AMD pollution.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal, Private</p>	<p>Medium</p>

<p>LLUNT6W1N <i>Small tributary to UNT6W that flows through the Salem Rod & Gun Club.</i></p>	<p>The tributary had a field pH of 4.5 and the water was slightly orange in color. Origin of AMD is on the property owned by the Rod & Gun Club.</p>	<p>1. Remediate origin of the AMD either through re-mining or by passive treatment. 2. Increase community awareness about the challenge that exists due to AMD pollution.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal, Private</p>	<p>Medium</p>
<p>LLUNT6W2N <i>Small tributary that flows into UNT6W. It flows adjacent to Route 22 through a field and mowed lawns.</i></p>	<p>AMD discharge enters tributary at the site of an area that was surface mined. The pH of the discharge at the source was 3.9 in the field. Additional seeps enter into the stream. The discharge could be associated with those affecting the main stem of UNT6W, as well as UNT1N.</p>	<p>1. Remediate origin of the AMD either through re-mining or by passive treatment. 2. Increase community awareness about the challenge that exists due to AMD pollution.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal, Private</p>	<p>Medium</p>
<p>LLUNT10W <i>Small tributary that enters the main stem in between Union Run and McCune Run. It flows through a property that was surface mined.</i></p>	<p>The stream is dammed to form a pond. At the base of the pond, water flowing out is bright orange. The stream cascades through a beautiful steep hollow, remaining orange until meeting the Loyalhanna Creek.</p>	<p>1. Remediate the surface mined area and investigate the source of the AMD.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>LLUNT11A <i>Tributary that enters the main stem just downstream of the Derbytown Road Bridge. The tributary originates in an area that was surface mined and is currently forested.</i></p>	<p>The stream has an orange tint and, where a small tributary enters it, white precipitate appears. Land surrounding the stream was surface mined in the 1970s.</p>	<p>1. Reclaim and re-mine the surface mine surrounding the stream.</p> <p>Possible Partners: WCD, WPC, DEP, OSM, USACE</p>	<p>State, Federal</p>	<p>Medium</p>

SECTION 3.B

UNION RUN

Section 3.B

Union Run Subwatershed

General Description

The 7.28 square-mile Union Run Subwatershed is located in the center of Derry Township. Union Run and its tributaries flow west toward the Loyalhanna Creek main stem through the small communities of Peanut, New Derry, Superior, and the outskirts of Latrobe.

Union Run originates from a spring located in the small town of Peanut on Route 982. The stream flows west away from Peanut along the base a forested hillside. The main stem is joined by two small tributaries that enter from the north. Both tributaries are surrounded by multiple farming operations. Union Run continues to flow west through large farms and pastures. At the intersection of Panizzi Road and Androstic Road, a large tributary enters the Union Run main stem from the northeast. The tributary originates in Atlantic and also flows through Superior. Both communities were the sites of deep coal mines in the early 1900s. AMD is present in the tributary and impacts the Union Run main stem for the remainder of its length.

Following the intersection of Panizzi Road and Androstic Road, Union Run continues to flow through a mix of forest, field and farmland. Multiflora rose, greenbriar, and other shrubs increase in concentration around the streambank. This is the case until Union Run reaches Route 981. After passing underneath the Route 981, Union Run retreats into a forested area. This portion of stream is surrounded by property included in the USACE flood-control project. It is comprised primarily of sycamore, oak, and other hardwood trees. Union Run enters the main stem of the Loyalhanna Creek one-half mile downstream from the Route 981 Bridge.

Union Run is classified as a WWF and is currently not meeting its designation. For the geographic location of this subwatershed, please refer to Map 3.B.1.

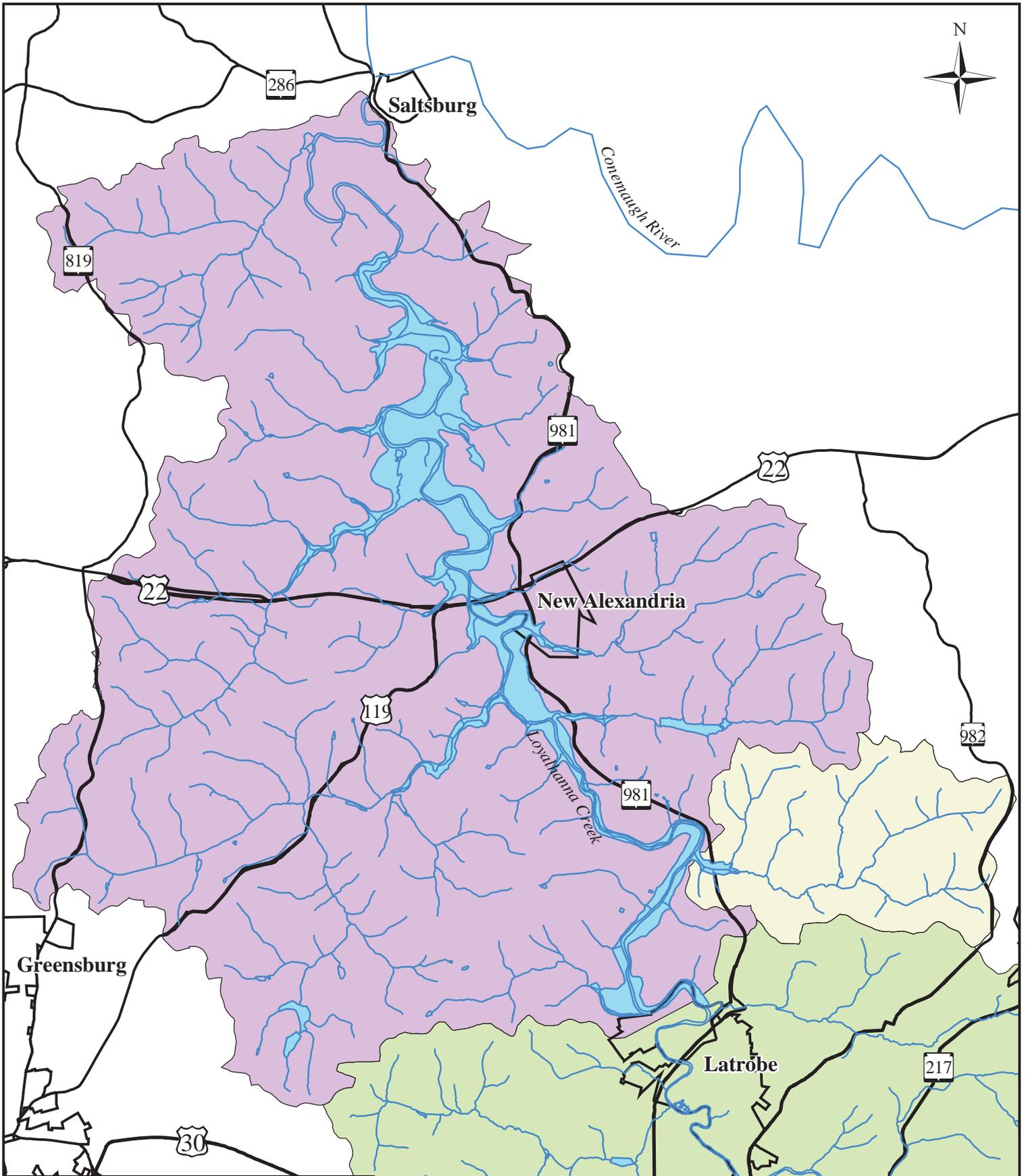


LWA staff member looking downstream at the Loyalhanna Creek from the mouth of Union Run

Review of Historic Information

Overall Summary

The upper portion of the Union Run Subwatershed contains the communities of Superior, Peanut, Atlantic, and New Derry. Each of the communities were built primarily around deep coal mines that operated in the late 1800s and early 1900s. Today, limited evidence of the coal mining exists, with the exception of coal patch homes, a row of coke ovens and the abandoned railroad grade. The deep mines were shut down in the early 1900s, and later most were surface mined to remove large amounts of the remaining coal.



-  Streams
-  Major Roads
-  Boroughs and Cities
-  Union Run Subwatershed
-  Lower Section



Watershed
Assistance Center

**Union Run Subwatershed:
Overall Location**

Map 3.B.1

1 0.5 0 1 Miles




Scarlift Report

Six discharges were identified during fieldwork for the Scarlift Report. Each of those discharges is described in the following table. The Scarlift Report stated that the discharges located throughout the Union Run Subwatershed were possibly connected to those located in the Saxman Run Subwatershed and of the same underground mine pool. It was speculated that those discharges within the Union Run Subwatershed area act as the overflow for the entire mine pool.

Union Run Subwatershed Discharges Catalogued During Scarlift		
Scarlift Discharge Number	Current Discharge Name	Description of Discharge and Location
5301	None	Seeping discharge located along the east bank of Union Run above the intersection of Panizzi Road and Androscopic Road. This is no longer a single discharge point, but rather a series of seeps that run throughout the length of the stream from Superior to Panizzi Road. In addition to the seeps, small coal refuse piles are located along the length of the stream.
5302	None	Two discharge points located at an abandoned mine mouth. The two discharges flowed at approximately 17 gpm and drained into a small pond and then into Union Run. The site is located very close to the intersection of Bonocy Road and Androscopic Road. The pH of the discharges was 2.6 during Scarlift fieldwork. Samples showed high levels of iron, aluminum, and manganese. The discharges are still present today, but have a much lower flow. Field pH taken at the site was 4.5.
5303	None	Discharge coming from a caved-in mine mouth along Bonocy Road. The area had been, or was being, surface mined during the Scarlift fieldwork. The pH taken during Scarlift fieldwork was 2.4. Similar to discharge number 5302, high levels of iron, aluminum, and manganese were detected during sampling. The discharge exists today, although there is no evidence of a mine opening.
6156	None	Seasonal discharge located near the intersection of Androscopic Road and Panizzi Road. The pH of the discharge was 2.8 during the Scarlift fieldwork. High levels of iron, aluminum, and manganese were present in the discharging water. Today, this discharge is a series of seeps that bubble out of a grazed pasture north of the Androscopic and Panizzi roads intersection. It is uncertain whether or not this area is associated with past mining or the coal seam. Field pH taken at the site in 2004 was 3.4.

6157	None	This 3 gpm discharge flowed from a tile drain in the village of Superior. The actual source of the discharge was not determined during Scarlift fieldwork. The pH of the discharge was 2.7. It contained 78mg/L of iron, 36 mg/L of aluminum, and 22 mg/L of manganese. The discharge is still present today and is, at some points, contained within a pipe. Field pH taken at the site in 2004 was 3.8.
6158	None	This 2 gpm discharge flows from an old mine mouth in the town of Atlantic. The site is located in the headwaters of Union Run. The pH of the discharge was 2.8 when sampled during Scarlift fieldwork. It was noted that the site was used as a garbage dump. Today, there is no evidence of mine drainage at the site, but the area is still used for dumping.

U.S. Army Corps of Engineers (USACE)

The USACE completed a water quality assessment of the Loyalhanna Creek main stem in 2002. That assessment included samples taken at the mouth of Union Run. Results of those samples included the following: pH – 4.85, Total Iron – 2.89 mg/L, Aluminum – 6.65 mg/L. This data is consistent with data collected during the assessment.

Kiski-Conemaugh Stream Team

Water quality samples were collected by Stream Team volunteers and analyzed by the DEP Bureau of Laboratories between April 2000 and February 2001. Results from those samples are shown in the table below. This data is consistent with data collected during the assessment.

Sample Date	Total Iron (mg/L)	Aluminum (mg/L)	pH
4/17/2000	3.72	4.10	5.3
7/17/2000	0.636	1.94	6.2
2/12/2001	7.90	4.27	5.4

PA Department of Environmental Protection (DEP)

Various reports from the DEP highlight water quality samples related to surface mines throughout the entire subwatershed. Two of those reports provided important information about the subwatershed and AMD sites.

Fodor Strip: Completed by North Cambria Fuels in 1985, this surface mine project file includes water quality information for waterways surrounding the active project area. Water samples taken at the site, which was located in Superior, are consistent with water samples taken during the Scarlift Report. The surface mine was located behind the Panizzi farm between Panizzi Road and Route 982. Discharge sources found around the surface mine are the same as those listed in the Scarlift Report.

V.P. Smith Strip: Completed by VP Smith in 1986, this surface mine was located very close to the Fodor Strip. Similar to the Fodor Strip, the project file includes water quality information from surrounding waterways. According to project files, the VP Smith Strip extended from Route 982 to Panizzi Road adjacent to the Superior Branch of Union Run. Water samples taken during mining were consistent with Scarlift water quality data and assessment fieldwork completed in 2003.

At the time of this report, there was active re-mining occurring within the subwatershed. The re-mining was occurring in the community of Peanut and will result in the removal of abandoned underground mine workings and remaining coal pillars.

More complete information about surface mine permits and active mining within the subwatershed can be obtained at the DEP District Mining Office in Greensburg.

DEP Union Run TMDL

The Union Run Subwatershed was assessed by the DEP in 2002. The TMDL for Union Run was completed in 2004. According to the TMDL report, 90% of the Union Run Subwatershed is impaired by high concentrations of metals, low pH, and suspended solids. The pollutants come primarily from abandoned mine drainage AMD discharges within the subwatershed. Only the headwaters of Union Run are meeting TMDLs. The remainder of the watershed is exceeding determined TMDLs.

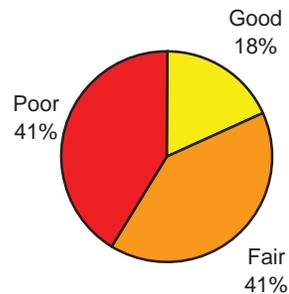
Water sampling completed during the DEP assessment of the Union Run Subwatershed is consistent with assessment fieldwork completed in 2004. In addition, that water quality information is extremely similar to information gathered during the 1972 Scarlift Report. There has been a slight overall improvement.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of Union Run was completed in the spring of 2004. A total of 22 stream segments were assessed. As depicted in Figure 3.B.1, 18% of the subwatershed received a good rating, 41% received a fair rating, and 41% received a poor rating. An average score of 6.25 was given to the entire subwatershed, which is a fair rating overall. The overall fair rating primarily reflects the impact of AMD upon a majority of the subwatershed. Individual stream segment ratings are depicted in Map 3.B.2.

Figure 3.B.1: Visual Assessment Ratings for the Union Run Subwatershed



Visual Assessment Description

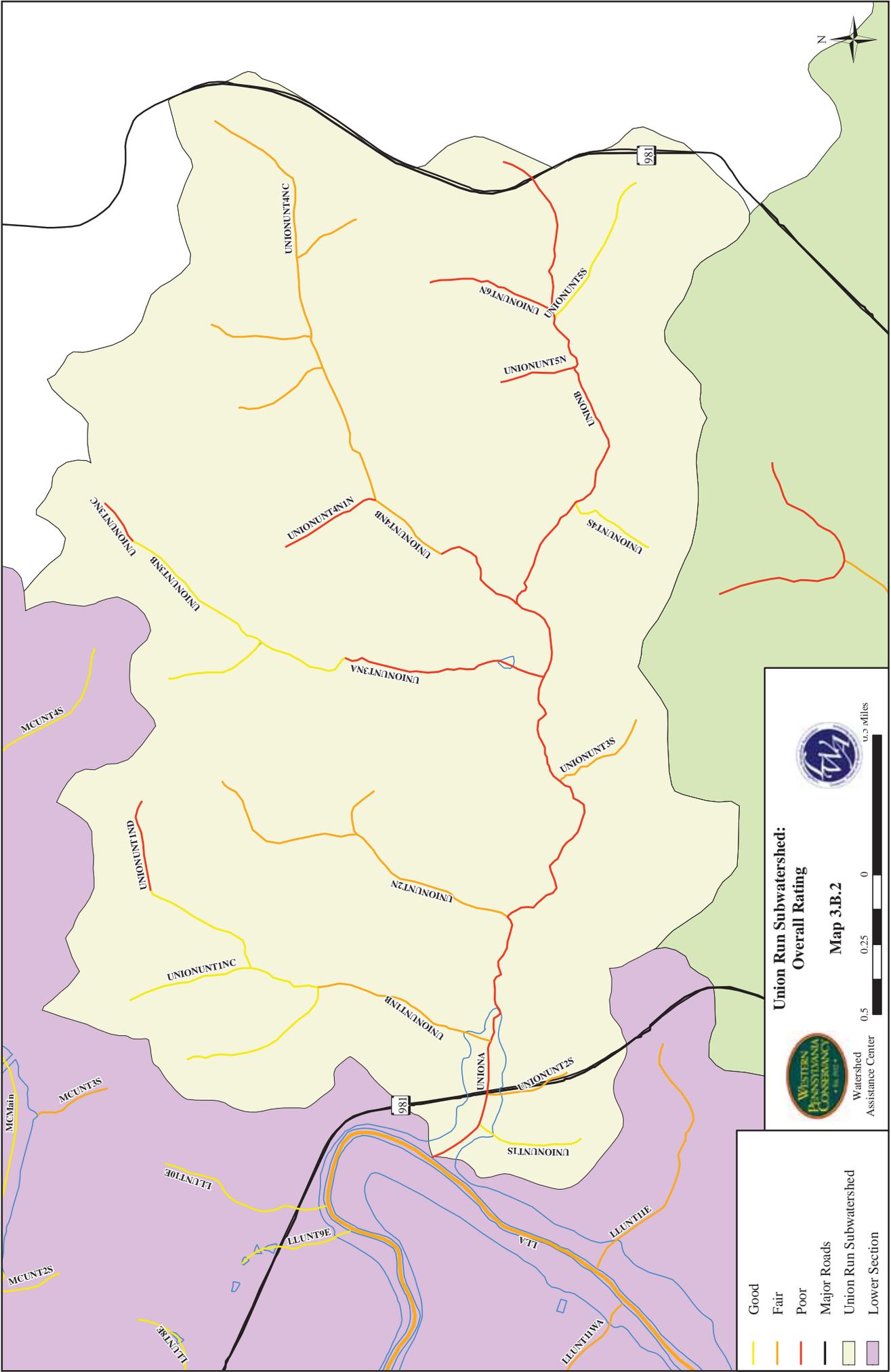
Union Run Main Stem

The headwaters of Union Run are located in the small town of Peanut. They originate in an area that was deep mined in the early 1900s and was being surfaced mined at the time of assessment. The surface mine is a re-mining operation where the old mine workings were being removed. Some evidence of coal waste is present near the headwaters and the main stem.

From the headwaters, Union Run flows west from Peanut. Open fields and a few new homes surround the main



Coke ovens in the Union Run Subwatershed



Union Run Subwatershed:
Overall Rating

Map 3.B.2

0.5 0.25 0 0.25 0.5 miles

Watershed Assistance Center

Good	Yellow line
Fair	Orange line
Poor	Red line
Major Roads	Thick black line
Union Run Subwatershed	Light green area
Lower Section	Purple area

stem and it has a riparian zone comprised primarily of shrubs and small trees. The substrate of the stream contains cobble, gravel, and sediment. Some algal growth is present, indicating possible nutrient loading from the surrounding homes.

Where Union Run passes underneath Pandora Road, the landscape surrounding the main stem becomes dominated by agriculture. Through this section, livestock have direct access to the stream. Very little riparian vegetation is present along the streambank, which is trampled and eroded. The substrate of the stream is embedded and contains mostly silt and sediment. Algal growth is excessive, especially in areas where the water moves slowly through the stream channel.

Farms continue to surround the main stem of Union Run as it travels parallel to Panizzi Road. Livestock have access to the stream throughout this section and the substrate is embedded with silt and sediment.

Streambanks are significantly eroded and streamside vegetation is limited. Algal growth is abundant through the entire section, indicating nutrient loading from surrounding agricultural operations. It is also in this section that Union Run passes a row of well-preserved coke ovens. The coke ovens are located close to the main stem of the stream and close to the railroad bed. At one time, the railroad spur would take coal from the communities of Superior and Atlantic to the coke ovens, and then to Latrobe and Derry. Small piles of waste coal are located near the coke ovens and some coal is present within the stream substrate. There is no visual evidence of impacts from the small coal waste piles.



Holstein cow lounging in Union Run near Panizzi Road

Downstream of the coke ovens, the main stem of Union Run passes underneath the old railroad bed and continues to flow through a pasture grazed by Holsteins. At the intersection of Panizzi Road and Androstic Road, a large tributary referred to as the Superior Branch, enters the main stem from the northwest. Originating from the communities of Atlantic and Superior, the tributary contains significant impacts from AMD. At the confluence of the Superior Branch and Union Run, aluminum and iron precipitate are immediately visible. Upstream of the confluence, the pH of the Union Run main stem was 8.8 and downstream of the confluence, the field pH was 4.0. Following this confluence, the Union Run main stem continues west and flows through a partially forested area parallel to Androstic Road. Some pine trees and shrubs surround the stream. The area shows evidence of past surface mining and pieces of coal are present in the stream substrate along with gravel, sediment, and metal precipitates. The water is orange and white in color.

At the intersection of Androstic Road and Bonocy Road, the main stem flows through a forested area. It is also at this point where two abandoned mine discharges enter Union Run. One originates from a suspected abandoned high wall and the second flows from a drainpipe with an unknown origin. Both discharges are acidic and both were catalogued during Project Scarlift. Continuing west, Union Run emerges from the forested area and into a large pasture. Absolutely no vegetation or canopy cover is present along the streambank. The substrate is comprised entirely of sediment and the water is still orange and white in color. A severely eroded bank is located on the downstream section of the field immediately before Union Run passes underneath Uschak Road. At the Uschak Road Bridge, the pH of Union Run was 4.7 during assessment fieldwork.



Union Run looking upstream from the Uschak Road Bridge

Downstream of the Uschak Road Bridge, the land

surrounding Union Run changes. Open fields and grazed pasture are replaced by forest. Hardwood trees, shrubs, multiflora rose, and greenbriar surround the stream, providing excellent canopy cover. The substrate of the stream remains embedded with iron oxide sediment, aluminum, and silt. As the water flows through this forested section it remains orange and white in color.

Union Run maintains a low pH and is orange and white in color throughout the forested section to where it meets Route 981. Passing underneath Route 981, the pH of Union Run was 5.0 during assessment fieldwork. Aluminum precipitate was especially visible at this point and downstream. Downstream of the Route 981 Bridge, Union Run enters USACE flood-control property. The area is forested and contains sycamore, oak, and maple. At the mouth of Union Run, large amounts of silt and sediment are present in the stream bottom. Iron and aluminum precipitate are still visible. Downstream of the Union Run mouth, the Loyalhanna Creek main stem shows little visual evidence of the Union Run AMD impact. Dilution could be a factor in the minimal appearance of AMD.

Union Run Unnamed Tributaries

Eleven unnamed tributaries enter the main stem of Union Run. Only two of the tributaries, UNT4N (Superior Branch) and UNT3N are impacted by AMD. The remaining tributaries contained impacts related primarily to agriculture. UNT5N flows directly through a barnyard with a large concentration of grazing livestock. It exhibits the most severe impacts from nutrient loading and erosion as a result of agriculture.

UNT3N is the first of the two tributaries impacted by AMD within the Union Run Subwatershed. It is a small tributary that flows parallel to Bonocy Road and enters the Union Run main stem from the north. A small abandoned mine discharge enters UNT3N from the west. The discharge originates from a hillside that is close to the intersection of Bonocy Road and Androscopic Road. The hillside may have been surface mined and was deep mined in the early 1900s. The discharge is referenced in the Scarlift Report and water quality in the Scarlift Report expressed similar characteristics to those encountered during assessment fieldwork. The discharge had a field pH of 2.6 and is orange in color.

The Superior Branch of Union Run, also known as UNT4N, has multiple AMD sources. It originates in the old mining community of Atlantic. Fields and sporadic forest surround the headwaters of the Superior Branch. Coal waste is scattered and partially visible in the headwater area. Once a source of AMD, the headwaters contain a small treatment plant. That treatment plant is treating water from an assumed AMD source and outputting water that had a field pH of 7.8. Downstream of Atlantic, the Superior Branch flows under Route 982 and into the community of Superior. At this point, the stream had a field pH of 7.2.

As the stream flows west from the Route 982 Bridge, it is surrounded by an abandoned surface mine area. Multiple acidic seeps enter the stream from both banks. The seeps immediately turn the stream orange and white. Chunks of coal litter the substrate, which contains significant algal growth. It is suspected that the algae are acid-tolerant species thriving in the low-pH water. The entire streambank continues to seep acidic water for the remaining length of the Superior Branch.

Where the Superior Branch flows into the community of Superior, a small unnamed tributary enters from the north. The tributary, SuperiorUNT1N, originates close to the old mine entry for the Superior No. 2 Mine. Deep mining at the site stopped in 1945, but the area was also surface mined throughout the 1970s and 1980s. At the headwaters of the tributary, AMD seeps up in multiple locations to form the main flow. The field pH of the headwater area was 3.8 and the substrate was



Assessment volunteer taking notes at the seeping bank on the Superior Branch of Union Run

covered with filamentous algae. Small piles of waste coal can be found along the tributary as it flows through a forested area. SuperiorUNT1N passes underneath Route 982 appearing orange and white due to iron and aluminum precipitate. Finally, after flowing through a small open field, the tributary flows under the Superior Road Bridge and into the main stem of the Superior Branch. At this confluence, the field pH of SuperiorUNT1N is 4.4.



The headwaters of the Superior Branch located north of the small town of Superior

Downstream from where SuperiorUNT1N enters the main stem of the Superior Branch, the water becomes cloudy and more orange in color. Seeps continue to enter the stream from the streambanks that remain littered with waste coal. The area surrounding the streambank was surface mined in the 1970s and it appears that little was done to reclaim this section after mining was complete.

After passing by the community of Superior, the Superior Branch flows into an open pasture. Historic information and topographic maps indicate that this area was also surface mined. The pasture is located upstream from the intersection of Panizzi Road and Androstic Road. In the pasture, four acidic discharges flow out of a small hillside on the east bank of the Superior Branch. These four seasonal discharges were flowing between 200 gpm and 300 gpm at the time of the assessment. Subsequent visits in the winter have found less flow. The field pH of the discharges was 3.4 and where they entered the Superior Branch, the field pH was 3.9. With the addition of the four discharges, the Superior Branch becomes more cloudy and orange. The lack of canopy cover and riparian vegetation in the pasture allows the stream to warm. Algae and swirling foam are located along the bank, throughout the substrate of the stream, and in small pools formed by the stream. The Superior Branch enters the main stem of Union Run 20 feet downstream of the Panizzi Road Bridge. This confluence is at the intersection of Panizzi Road and Androstic Road.

Water Quality

Water quality samples were taken close to the mouth of Union Run throughout the visual assessment. Those samples reflect the presence of abandoned mine discharges located upstream. There are significant seasonal fluctuations in pH and it is suspected that, with further sampling, those fluctuations would occur in other parameters as well. Upstream discharges are currently not sampled by the LWA or any other organization. Regular sampling is recommended in the conclusion of this report.

Table 3.B.2: Sample Site LWA-12								
Union Run								
Date Sampled	pH	Alk. (mg/L)	Acid. (mg/L)	TSS (mg/L)	Sulfates (mg/L)	Total Iron (mg/L)	Mn (mg/L)	Al (mg/L)
8/25/04	5.69	7	12	63	205	<0.06	<0.01	<0.04
10/25/04	3.47	<1.0	69	2	497	2.7	6.8	0.5
1/25/05*	3.90	0.0	88.4	<3	326.1	3.46	5.46	8.50
3/31/05*	5.00	9.0	46.0	20.0	255.6	4.47	3.08	3.79

* Sample analyzed by the DEP Bureau of Laboratories

Sample Location: Travel 981 North toward New Alexandria. Turn right onto Liberty Road and take an immediate right onto Nicol Road. At the bend in the road, pull off and follow trail to Union Run. Sample is taken underneath the Route 981 Bridge in the main channel of the stream.

Conclusions

The Union Run Subwatershed is significantly impacted by acidic AMD sources. These discharges, located in the upper portion of the subwatershed, impact the main stem from source to mouth. Currently, none of the discharges are sampled on a regular basis and none of the discharges are being investigated for treatment. It is speculated that the discharges are related to the underlying mine pool associated with the Saxman Run discharges. The Union Run discharges are seasonal and spring flow is much higher than winter and fall flows.

In addition to impacts from AMD, Union Run is affected by nutrient loading as a result of agriculture. A series of farms are present along the length of the main stem, and each has pasture extending to the streambank. In addition, very little streamside vegetation exists, thus enabling nutrients to pass into the stream without first encountering a vegetated buffer.

Union Run Subwatershed is one of the most impacted streams within the Loyalhanna Creek Watershed. Approximately 80% of the Union Run main stem contains mine drainage and sediment associated with precipitating metals.

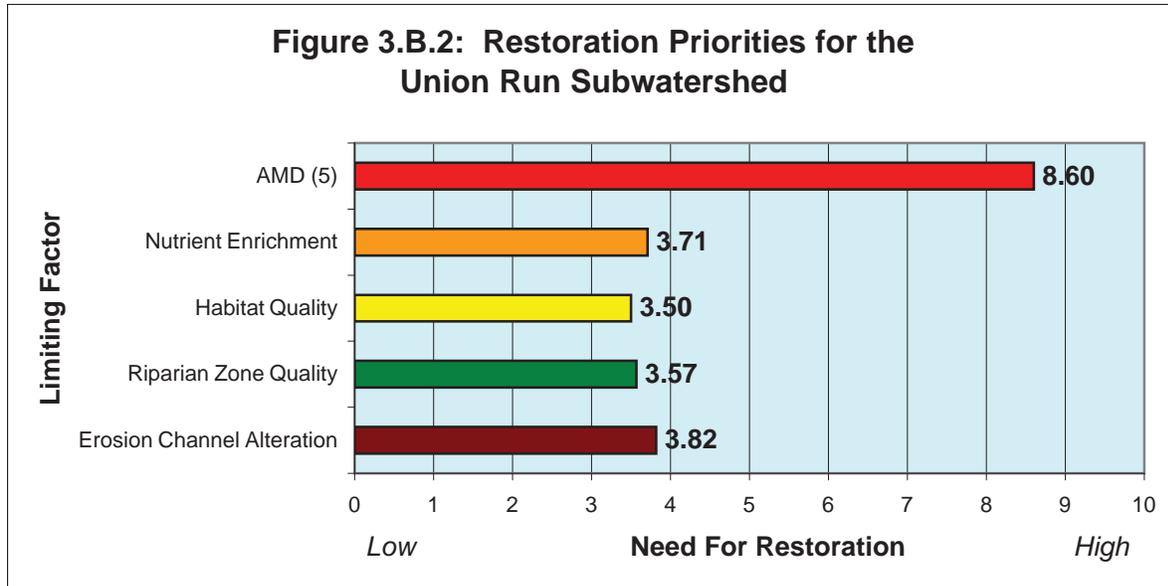
Recommendations

The following recommendations are made for the Union Run Subwatershed:

- Begin sampling known discharges quarterly. Sample sites can be determined according to current information and overall impact of each discharge.
- Educate the Union Run Subwatershed community. Increase awareness regarding the AMD and agriculture impacts.
- Monitor Union Run's overall impact upon the Loyalhanna Creek main stem.
- Determine feasibility of treating discharges within the subwatershed.
- Develop goals and timeline for treatment of AMD impacts.

Overall Restoration Priorities

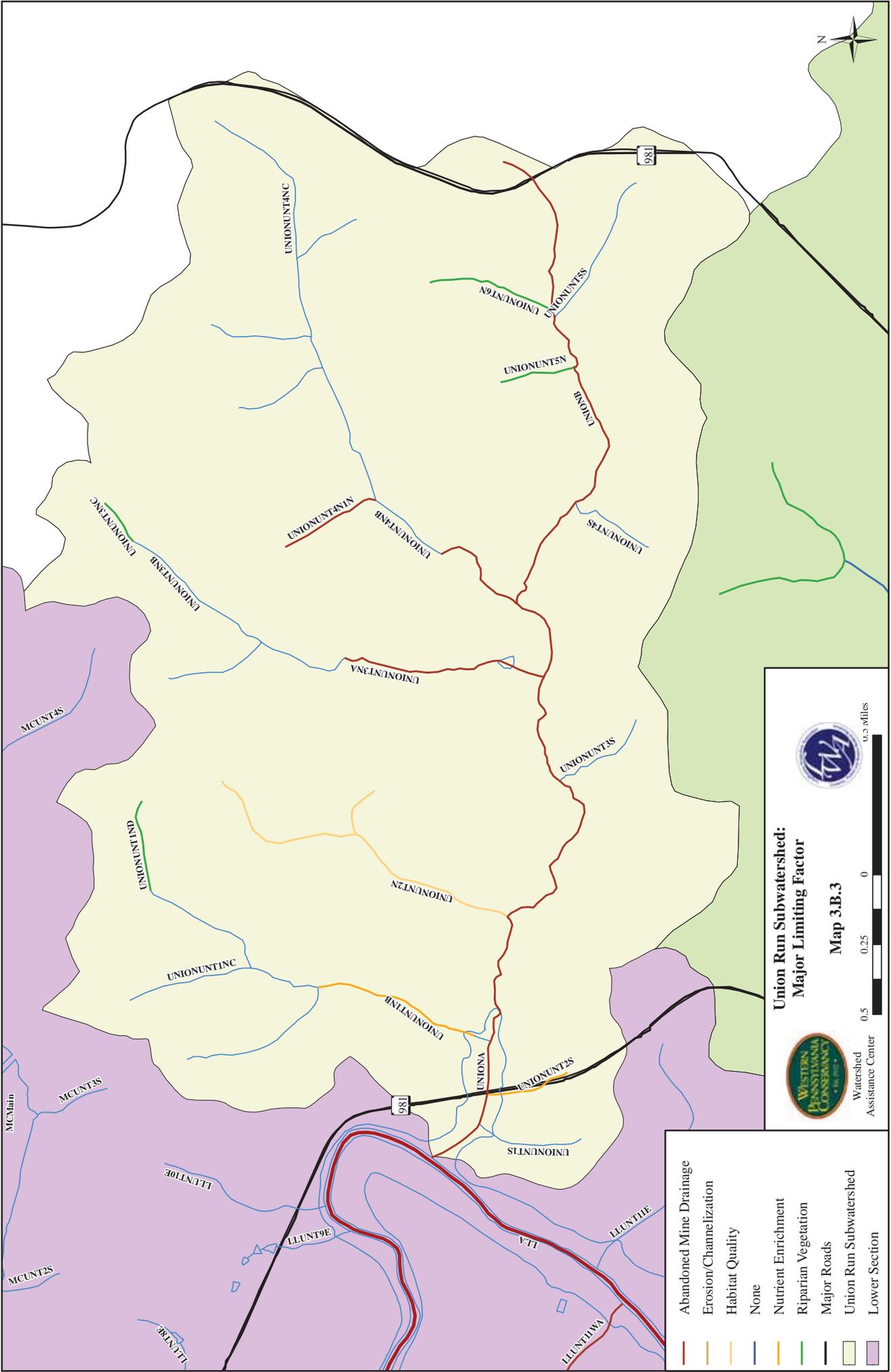
Figure 3.B.2 exhibits overall restoration priorities for the entire subwatershed. As indicated, the limiting factor that received the highest restoration priority rating was AMD. There are five stream segments that are impacted by AMD. Those stream segments include a large portion of the main stem. In addition to AMD, the Union Run Subwatershed received a high priority rating for erosion and channel alteration. This is a result of erosion occurring on sections of stream impacted by grazing livestock and lack of riparian vegetation.



Restoration Suggestions for Individual Stream Segments

Fourteen stream segments received scores identifying limiting factors. The limiting factors identified included erosion and channel alteration, compromised fish and macroinvertebrate habitat, riparian vegetation degradation, nutrient loading, and AMD. Please refer to Table 3.B.3 and Map 3.B.3 for impact description and stream segment location.

Table 3.B.3: Impacted Stream Segments and Restoration Suggestions for the Union Run Subwatershed				
LIMITING FACTOR: Riparian Vegetation Degradation				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
UNIONUNT1ND <i>Headwater section of a tributary that flows through a pasture.</i>	The riparian vegetation along the streambank is minimal. Very few trees surround the stream.	1. Educate landowner. 2. Remediate riparian area by planting trees, shrubs, or tall grasses. Utilize agricultural BMPs. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Low
UNIONUNT3S <i>Small tributary that drains through a grazed pasture.</i>	Livestock has direct access to the stream. Very little riparian vegetation or canopy cover is present.	1. Educate landowner. 2. Remediate riparian area by planting trees, shrubs, or tall grasses. Utilize agricultural BMPs. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Low – Medium



- Abandoned Mine Drainage
- Erosion/Channelization
- Habitat Quality
- None
- Nutrient Enrichment
- Riparian Vegetation
- Major Roads
- Union Run Subwatershed
- Lower Section

**Union Run Subwatershed:
Major Limiting Factor**

Map 3.B.3

0.5 0.25 0 0.5 miles



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UNIONUNT3NA <i>Tributary that flows through pasture.</i>	Livestock have direct access to the stream. No plants, shrubs, or trees are located within the riparian area. The only vegetation surrounding the stream is short grass.	1. Educate landowner. 2. Remediate riparian area by planting trees, shrubs, or tall grasses. Utilize agricultural BMPs. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Low – Medium
UNIONUNT5N <i>Small tributary that flows through a pasture with many cows.</i>	Livestock have direct access to the stream. No plants, shrubs, or trees are located within the riparian area. The only vegetation surrounding the stream is short grass.	1. Educate landowner. 2. Remediate riparian area. Utilize agricultural BMPs. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Low – Medium
UNIONUNT6N <i>Small tributary that flows through a pasture with many cows.</i>	Livestock have direct access to the stream. No plants, shrubs, or trees are located within the riparian area. The only vegetation surrounding the stream is short grass.	1. Educate landowner. 2. Remediate riparian area. Utilize agricultural BMPs. Possible Partners: WCD, USDA, WPC	State, Federal, Private	Low – Medium

LIMITING FACTOR: Compromised Fish and Macroinvertebrate Habitat

Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
UNIONB <i>Main stem section of stream that extends from Uschak Road to Panizzi Road. It flows through a scrubby forest.</i>	Due to AMD impacts upstream, the substrate of the main stem in this section is embedded with iron oxide sediment. Habitat and in-stream fish cover are extremely limited.	1. Remediate upstream AMD impacts through re-mining, reclamation, or passive treatment. Possible Partners: DEP, WCD, OSM, WPC	State, Federal, Private	High
UNIONUNT2N <i>Tributary that flows through a mix of forest, field, pasture, and residences.</i>	There is some fish cover present, but mowed lawns eliminate cover. Stream substrate is 50% embedded and therefore invertebrate habitat is covered.	1. Identify sediment source and remediate appropriately. 2. Work with landowners to plant vegetation along the streambank to filter to sediment entering the stream and to provide fish cover. Possible Partners: WCD, DEP	State	Low

UNIONUNT3NA <i>Tributary that flows through pasture.</i>	The substrate is almost entirely covered with silt and mud. Dams, culverts, and diversions inhibit the movement of fish. Very little in-stream fish cover is present due primarily to lack of riparian vegetation.	1. Educate landowner. 2. Work with landowner to install agricultural BMPs in order to remediate riparian vegetation. Possible Partners: WCD, WPC, USDA	State, Federal	Low
UNIONUNT4N1N <i>Small tributary to UNT4N that flows through a forested area in Superior.</i>	The substrate is partially covered with silt, mud, and iron oxide sediment. Dams, culverts, and diversions inhibit the movement of fish.	1. Educate landowners. 2. Remediate upstream AMD impact. Possible Partners: DEP, WCD	State, Federal	Medium
UNIONUNT5N <i>Small tributary that flows through a pasture with many cows.</i>	Livestock have direct access to the stream. Streambanks are trampled and sediment from the pasture and barnyard has accumulated on the substrate. The stream substrate is 50% embedded and habitat is covered.	1. Educate landowner. 2. Work with landowner to install agricultural BMPs. Possible Partners: WCD, WPC, USDA	State, Federal	Low – Medium
UNIONUNT6N <i>Small tributary that flows through a pasture with many cows.</i>	Livestock have direct access to the stream. Substrate is 50% embedded and habitat is covered.	1. Educate landowner. 2. Work with landowner to install agricultural BMPs in order to remediate riparian vegetation. Possible Partners: WCD, WPC, USDA	State, Federal	Low – Medium

LIMITING FACTOR: Erosion and Channel Alteration

Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
UNIONA <i>Main stem section of stream that extends from the mouth to the Uschak Road Bridge.</i>	Down cutting, lateral cutting, overhanging roots, and high banks are all present throughout this section.	1. Determine strategy to remediate eroding banks in critical areas. Possible Partners: PAFBC, WCD	State, Federal	Low – Medium

<p>UNIONB <i>Main stem section of stream that extends from Uschak Road to Panizzi Road. It flows through a scrubby forest.</i></p>	<p>Eroding banks are common throughout the section, especially evident on outside bends. In the beginning of the section, a large eroding bank occurs in a pasture. The eroding bank is at least six feet high.</p>	<p>1. Determine strategy to remediate eroding banks in critical areas. 2. Identify upstream cause of erosion. 3. Where pertinent, plant riparian vegetation to help stabilize streambanks. 4. In pasture areas, work with landowners to install agricultural BMPs.</p> <p>Possible Partners: PAFBC, WCD, WPC, USDA</p>	<p>State, Federal</p>	<p>Medium</p>
<p>UNIONUNT3NA <i>Tributary that flows through pasture.</i></p>	<p>The channel of the stream has been straightened through the pasture and to direct the stream into a dammed pond. In addition, there is some erosion along the length of the stream.</p>	<p>1. Work with landowner to return natural meander to the stream. 2. Where pertinent, plant riparian vegetation to help stabilize streambanks. 3. In pasture areas, work with landowners to install agricultural BMPs.</p> <p>Possible Partners: PAFBC, WCD, WPC, USDA</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>UNIONUNT4N1N <i>Small tributary to UNT4N that flows through a forested area in Superior.</i></p>	<p>The stream is piped underground for 80 yards.</p>	<p>1. Determine reason for piping the stream underground.</p> <p>Possible Partners: Derry Township</p>	<p>Local, State</p>	<p>Low</p>
<p>UNIONUNT5N <i>Small tributary that flows through a pasture with many cows.</i></p>	<p>Livestock have trampled the streambank in multiple locations.</p>	<p>1. Educate landowner. 2. Work with landowner to install agricultural BMPs.</p> <p>Possible Partners: WCD, WPC, USDA</p>	<p>State, Federal</p>	<p>Low</p>

UNIONUNT6N <i>Small tributary that flows through a pasture with many cows.</i>	Livestock have trampled the streambank in multiple locations.	1. Educate landowner. 2. Work with landowner to install agricultural BMPs. Possible Partners: WCD, WPC, USDA	State, Federal	Low
LIMITING FACTOR: Nutrient Enrichment				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
UNIONC <i>Headwater section of the stream that flows through a mix of agriculture and residences.</i>	Slight presence of algae within the stream substrate. Livestock have direct access to the stream in some portions of the section. In addition, suspected leaking septic systems were discovered.	1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream. 2. Encourage landowners to utilize BMPs for septic systems to decrease failure. Possible Partners: WCD, Derry Township, USDA RUS, DEP	State, Federal, Local	Low
UNIONUNT2S <i>Small tributary that flows adjacent to Route 981 and through a pasture.</i>	Algal growth is visible within the substrate of the stream. Livestock have direct access to the stream.	1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream. Possible Partners: WCD, Derry Township, USDA RUS, DEP	State, Federal	Low
UNIONUNT1NB <i>Tributary that flows through a residential area.</i>	Multiple discharging pipes were located in the residential area surrounding this stream. It is suspected that the pipes were draining failing septic systems.	1. Encourage landowners to utilize BMPs for septic systems to decrease failure. Possible Partners: WCD, Derry Township, USDA RUS, DEP	State, Federal	Low

<p>UNIONUNT1ND <i>Headwater section of a tributary that flows through a pasture.</i></p>	<p>Algal growth is visible within the stream substrate. Cows are fenced from the stream, but the fence is not far from the streambank, so the cow manure still is an impact to the water in the stream.</p>	<p>1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream.</p> <p>Possible Partners: WCD, Derry Township, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>UNIONUNT3NA <i>Tributary that flows through pasture.</i></p>	<p>Livestock have direct access to the stream and were in it at the time of the assessment.</p>	<p>1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream.</p> <p>Possible Partners: WCD, Derry Township, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>UNIONUNT5N <i>Small tributary that flows through a pasture with many cows.</i></p>	<p>Livestock have direct access to the stream and were in it at the time of the assessment.</p>	<p>1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream.</p> <p>Possible Partners: WCD, Derry Township, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>UNIONUNT6N <i>Small tributary that flows through a pasture with many cows.</i></p>	<p>Livestock have direct access to the stream and were in it at the time of the assessment.</p>	<p>1. Encourage landowners to install agricultural BMPs to eliminate nutrient source from the stream.</p> <p>Possible Partners: WCD, Derry Township, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Low</p>

LIMITING FACTOR: Abandoned Mine Drainage				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
UNIONA <i>Main stem section of stream that extends from the mouth to the Uschak Road Bridge.</i>	Water is tea-colored with iron oxide sediment and aluminum precipitate visible. Both have gathered on the substrate. Field pH of the stream in this section ranged from 5.2 to 4.7.	1. Remediate upstream discharges through passive treatment, re-mining, or reclamation. Possible Partners: DEP, OSM, WCD	State, Federal, Private	High
UNIONB <i>Main stem section of stream that extends from Uschak Road to Panizzi Road. It flows through a scrubby forest.</i>	Water is orange and white in color. The substrate of the stream is laden with iron oxide sediment. When tributaries enter, they create a rise in pH and the appearance of aluminum and iron precipitate. Two discharges were identified in this section. They are both located near UNT3N and both are acidic in character.	1. Remediate upstream discharges through passive treatment, re-mining, or reclamation. 2. Sample the discharges near UNT3N on a quarterly basis. Possible Partners: DEP, OSM, WCD	State, Federal, Private	High
UNIONUNT3NA <i>Tributary that flows through pasture.</i>	A small discharge enters this tributary that flows along Bonocy Road. It dissipates within the pasture and pond prior to flowing into the Union Run main stem.	1. Investigate source of discharge. 2. Remediate the discharge through re-mining or passive treatment. 3. Monitor the discharge quarterly. Possible Partners: DEP, OSM, WCD	State, Federal	Medium

<p>UNIONUNT4NA <i>Large tributary to Union Run that enters the main stem at the intersection of Superior Road and Panizzi Road. The tributary originates in Atlantic and flows through Superior.</i></p>	<p>Multiple discharges and seeps enter this stream section throughout its entire length. The most significant is close to where it joins the main stem. The discharge bubbles up out of a pasture at the intersection of Superior Road and Panizzi Road. The stream flows through an area that was surface mined on multiple occasions. Coal refuse is still present and chunks of coal are included in the substrate of the stream.</p>	<p>1. Investigate source of discharges and seeps. 2. Remediate the discharges through re-mining or passive treatment. 3. Monitor the discharges quarterly.</p> <p>Possible Partners: DEP, OSM, WCD</p>	<p>State, Federal</p>	<p>High</p>
<p>UNIONUNT4N1N <i>Small tributary to UNT4N that flows through a forested area in Superior.</i></p>	<p>The stream originates at a discharge. The water is orange and white in color. Iron oxide and aluminum precipitate are visible within the substrate.</p>	<p>1. Investigate source of discharge. 2. Remediate the discharge through re-mining or passive treatment. 3. Monitor the discharge quarterly.</p> <p>Possible Partners: DEP, OSM, WCD</p>	<p>State, Federal</p>	<p>High</p>

SECTION 3.C

MC CUNE RUN

Section 3.C

McCune Run (Keystone) Subwatershed

General Description

The 5.07 square-mile McCune Run Subwatershed is located in the central portion of Derry Township, south of New Alexandria. McCune Run and its tributaries flow west toward the Loyalhanna Creek through Keystone State Park. The state park contains a 78-acre lake that is a popular fishing and recreation area.

McCune Run originates east of Keystone State Park on a forested hillside. McCune Run flows south and parallel to Strawcutter Road and meets a small tributary. At that confluence, the main stem of the McCune Run turns to flow directly west. Very few residences are located near or around the stream in the headwaters.

Continuing through a forested area, McCune Run passes underneath Strawcutter Road and approaches Keystone Lake through a hardwood forest. Approximately 1,000 yards before the lake, the stream flows through a wetland that has formed as a result of the Keystone Lake impoundment. Where the main stem passes underneath Keystone Park Road, the main portion of Keystone Lake begins. The lake is surrounded by Keystone State Park, which includes pavilions, open lawns, cabins, campgrounds, fishing areas, a swimming area, and boat access.

Forest surrounds McCune Run again at the outflow to the lake and the stream remains forested as it approaches Route 981. Downstream of Route 981, McCune Run enters USACE flood-control property. One thousand feet downstream of the Route 981 Bridge, McCune Run meets the main stem of the Loyalhanna Creek.

McCune Run is classified as a WWF. For geographic location of this subwatershed please refer to Map 3.C.1.

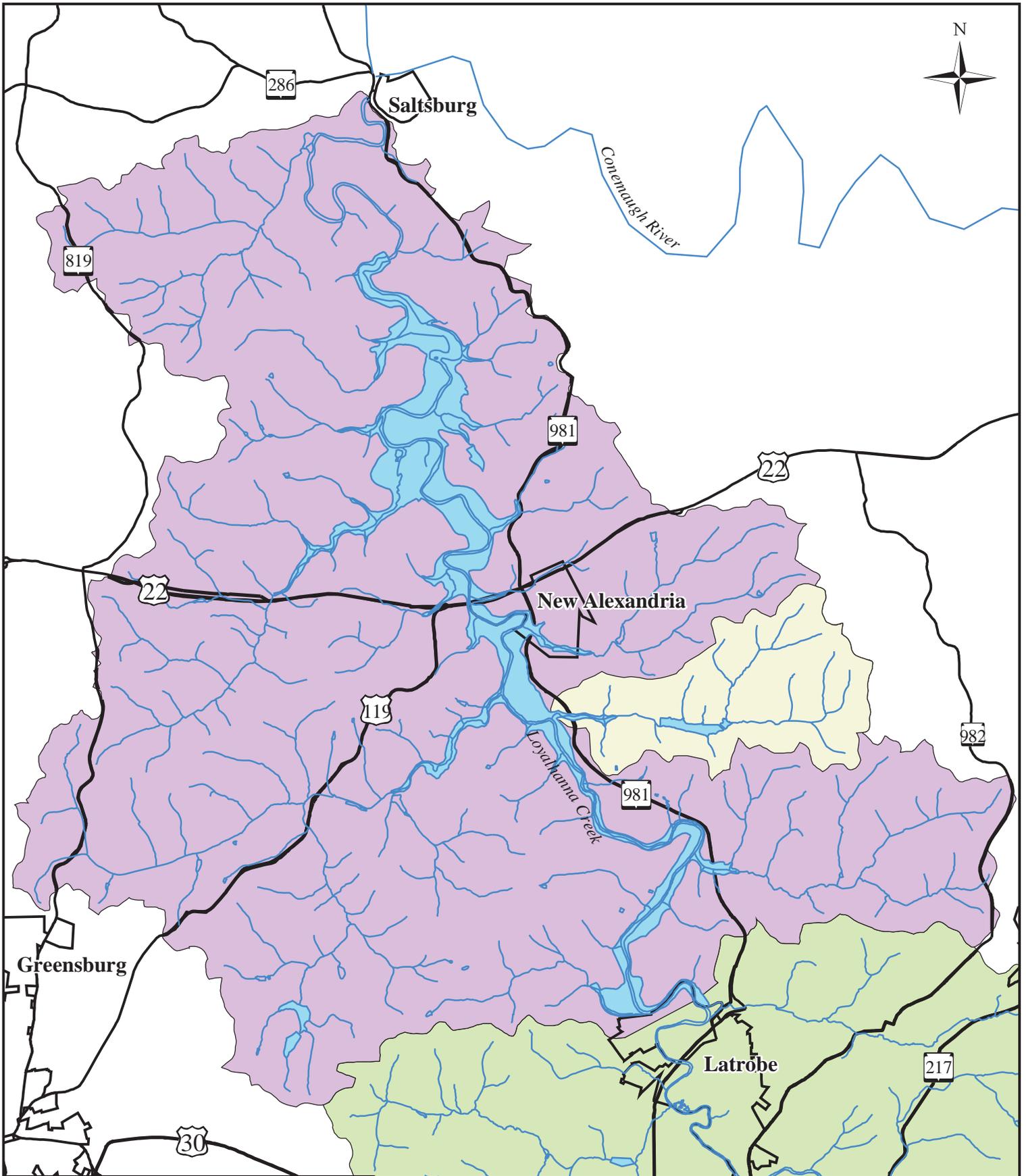


Boaters seen from the southern bank of Keystone Lake in the McCune Run Subwatershed

Review of Historic Information

Overall Summary

The McCune Run Subwatershed includes Keystone Lake and Keystone State Park. The lake was built in 1909 by the Keystone Coal and Coke Company which operated a deep mine, Salem No. 2, at the southeast end of the lake. Water from the lake was used to quench nearby coke ovens and for the coal-washing plant in Salemville. In 1945, the state purchased 796 acres from the coal company to turn into a state park. The deep mine operated until 1954 and, during Project Scarlift in the 1970s, the old mine entrance was sealed. That mine seal experienced a blowout not long after being sealed and DEP Bureau of Abandoned Mine Reclamation (BAMR) installed a borehole at the blowout point and piped the discharge from the mine directly into the stream. Mine drainage still flows from that entry today. The water is being collected and treated in a passive treatment system. The system was installed by BAMR.



- Streams
- Major Roads
- Boroughs and Cities
- McCune Run Subwatershed
- Lower Section



Watershed Assistance Center

**McCune Run Subwatershed:
Overall Location**

Map 3.C.1



Scarlift Report

One discharge was identified in the McCune Run Subwatershed during fieldwork for the Scarlift Report. That discharge is described below.

Scarlift Discharge Number	Current Discharge Name	Description of Discharge and Location
6159	Keystone	Discharge that flowed from the caved-in mouth of an abandoned mine at Keystone State Park. The discharge flowed at approximately 60 gpm and had a pH of 3.3 during Scarlift fieldwork. The discharge was located close to the outflow of Keystone Lake.

DEP Bureau of Abandoned Mine Reclamation (BAMR)

In 2002 BAMR dewatered the old Salem No. 2 deep mine. The sealed entrance to the mine was seeping acidic mine drainage into McCune Run. That drainage was decreased and improved during the dewatering process. In addition to dewatering the mine, BAMR removed the existing mine seals and conveyed the AMD to a convenient treatment area close to the park's water treatment plant.

BAMR constructed a passive treatment system in 2004 to treat the mine drainage. At the time of the report, the treatment system was functioning well and improving overall water quality within McCune Run. Information about the system can be obtained from the DEP Cambria County Office.

DEP McCune Run TMDL

The McCune Run was assessed by the DEP in 2002 and the TMDL for McCune Run was completed in 2004. The assessment was carried out below the lake because tributaries upstream were meeting designations set forth by the Clean Water Act.

According to the TMDL report, one portion of the subwatershed is impaired by high concentrations of metals, low pH, and suspended solids. That portion is directly downstream of the Keystone discharge flowing from the abandoned mine.

Water sampling completed during the DEP assessment of the McCune Run Subwatershed is consistent with assessment fieldwork completed in 2004.

PA Fish and Boat Commission (PAFBC)

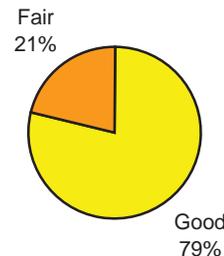
In 1993, the PAFBC completed a fish survey of Keystone Lake using PA-style trap nets and night electro-fishing. The PAFBC reported a high intensity catchable trout fishery. The abundance and size structure of bluegill, black crappie, yellow perch, and tiger muskellunge were good. Bass population was dense, but the size structure was swayed toward sub-legal. In the report, PAFBC recommended continuing current spring, winter, and fall stocking. Walleye, saugeye, and channel catfish would not be stocked due to lack of population growth. Lack of food source and habitat for these fish species was cited as a reason for their lack of success within Keystone Lake.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of McCune Run was completed in April of 2004. A total of 14 stream segments were assessed. As depicted in Figure 3.C.1, 79% of the subwatershed received a good rating and 21% received a fair rating. An average score of 7.77 was given to the entire subwatershed, which is a good rating overall. This overall rating reflects the presence of good riparian vegetation and canopy cover that surrounds a majority of stream segments within the subwatershed. Individual stream segment ratings are depicted in Map 3.C.2.

Figure 3.C.1: Visual Assessment Ratings for the McCune Run Subwatershed



Visual Assessment Description

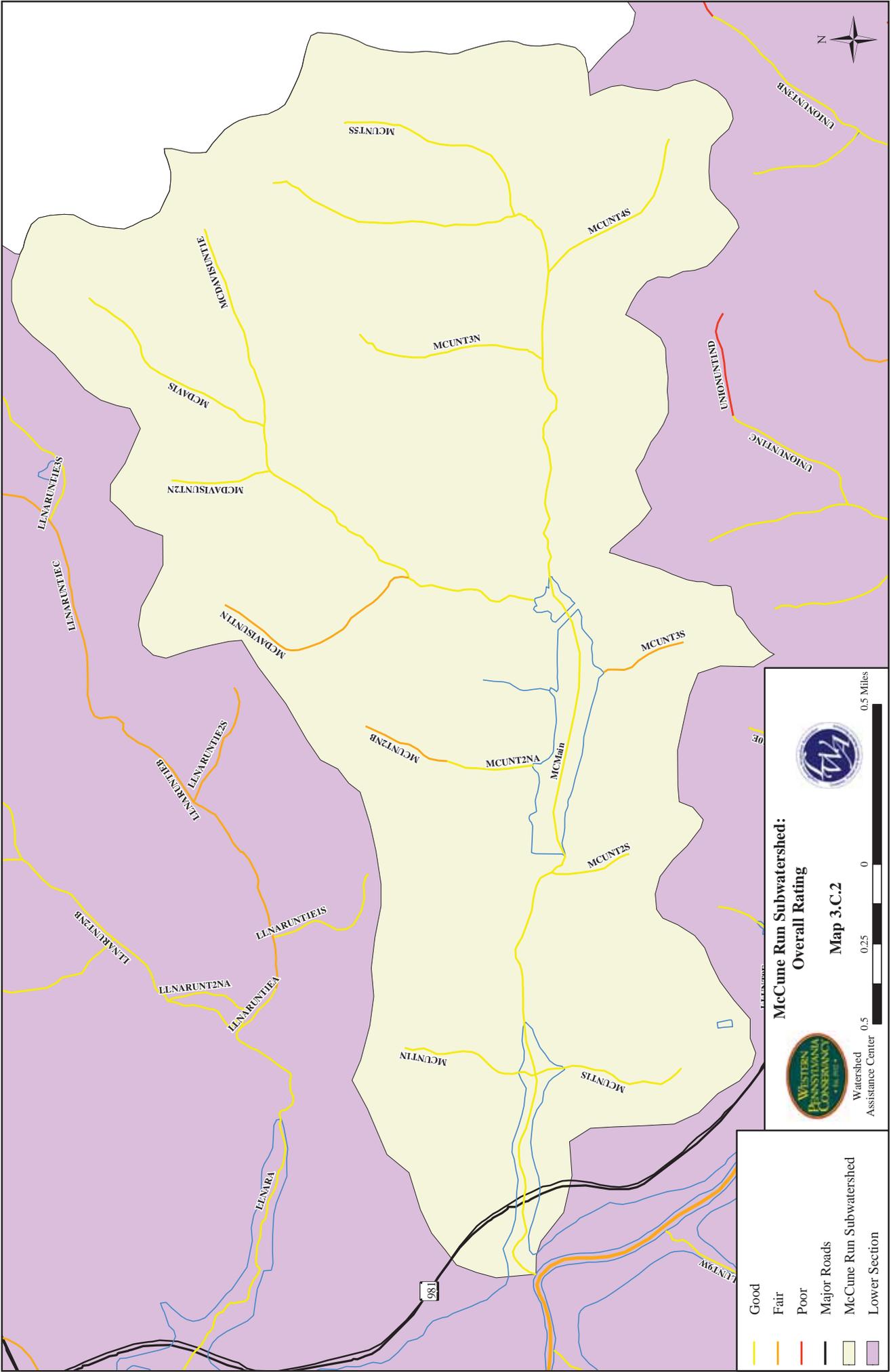
McCune Run Main Stem

The headwaters of McCune Run are located adjacent to Strawcutter Road in Derry Township. From the headwaters, the main stem of McCune Run flows south first and then turns to flow west. The headwaters are forested with a deciduous mix of trees, including white oak and maple. Very few homes surround the headwaters and the main stem. The substrate of the stream is comprised primarily of gravel with some cobble and silt mixed in. McCune Run maintains this substrate as it flows through forest toward Keystone Lake. The main stem of the stream forms a wetland prior to the beginning of the lake. The wetland contains sedges, cattails, and other water-loving trees and plants. Silt and sediment cover the substrate of the main channel through the wetland, which acts as a sediment trap before McCune Run enters the main portion of Keystone Lake.

Where McCune Run passes underneath Keystone Park Road, the main lake begins. The lake has a mixed substrate and varies in depth from 9.0 meters to 1.0 meter. It is surrounded by forest and lawns maintained by the state park. A dam in place at the end of the lake maintains lake depth. At the dam spillway, a small wetland has formed due to varying water depths.

After leaving the lake, McCune Run retreats into a forested landscape and continues to flow west. The field pH reading taken at the outflow to Keystone Lake was 7.9. Where the stream flows away from the lake, the substrate is dominated by cobble and some gravel. Approximately 500 to 1,000 yards downstream from the lake outflow; McCune Run receives flow from the Keystone AMD treatment site. The passive treatment system is treating 60 to 100 gpm of flow from the old Salem No. 2 Mine once located at the park. Some orange and white staining is visible, but very little. In the past, the precipitate was much more visible on the substrate.

Downstream of the treatment system, McCune Run maintains a forested buffer until reaching Route 981. Where it passes underneath Route 981, there is a brief break in the forest. Forest returns downstream of Route 981 as McCune Run enters USACE flood-control property. In times of high water flow, McCune Run floods to and past the Route 981 Bridge. As McCune Run nears its confluence with the Loyalhanna Creek, the substrate becomes more embedded with sediment and silt. This is due in part to upstream addition of sediment through erosion of streambanks, and also is due to the decrease in the velocity of the water at this point.



McCune Run Subwatershed:
Overall Rating

Map 3.C.2



- Good
- Fair
- Poor
- Major Roads
- McCune Run Subwatershed
- Lower Section

At the mouth of McCune Run, the field pH was 7.6. The substrate of the stream was entirely embedded with silt and sediment. In addition, the mouth was braided due to small islands of sediment that had formed.

McCune Run Unnamed Tributaries

Nine unnamed tributaries enter the main stem of McCune Run. In general, the tributaries experience very few negative impacts as they flow through primarily forested landscapes to meet McCune Run. Some of the tributaries contain embedded sections. The embeddedness is most often concentrated to particular areas where streambank erosion is occurring. Only two tributaries received low overall ratings - UNT2N and UNT3S. Both of the tributaries enter Keystone Lake and flow through cabin areas, campgrounds, and open fields. The tributaries are embedded and had field pH readings ranging from 8.0 – 9.0. The source of high pH readings was not determined during the visual assessment.

Water Quality

McCune Run was not sampled during fieldwork for the visual assessment. No samples were taken due to extensive water quality results provided by BAMR and the DEP TMDL report. Table 3.C.1 shows water quality results taken from the TMDL report completed in 2002 and 2003. Samples were taken prior to the installation of the treatment system at the state park.

Table 3.C.1: TMDL Sample Data									
McCune Run Mouth									
Date Sampled	pH	Alk. (mg/L)	Acid. (mg/L)	TSS (mg/L)	TDS (mg/L)	Sulfates (mg/L)	Iron (mg/L)	Mn (mg/L)	Al (mg/L)
6/10/03*	7.0	34	0	---	---	---	0.449	0.155	0

* Sample analyzed by the DEP Bureau of Laboratories for TMDL

Sample Location: The sample was taken at the mouth of the stream, which can be accessed by traveling Route 981. McCune Run passes underneath Route 981 one mile past Slag Road, an entrance to Keystone State Park, if traveling north.

Conclusions

Prior to the addition of the passive treatment system at Keystone State Park, McCune Run was impacted by one abandoned mine discharge. At the time of the report, the treatment system was functioning well and removing major metals and acidity from the discharge.

The McCune Run Subwatershed is surrounded by a forested landscape. Very few farms and residences can be found streamside. The lack of human and animal impact within the subwatershed is noticeable. Keystone Lake is a popular fishery and frequented by local and regional citizens. Wetlands at the head of the lake help to trap sediment and keep it from entering the lake. This has probably kept the lake in a healthy state.

It is important for the state and Keystone State Park to continue to maintain and manage the property surrounding the lake. The park is a nice buffer for the subwatershed, as are the upstream large forested properties surrounding the stream.

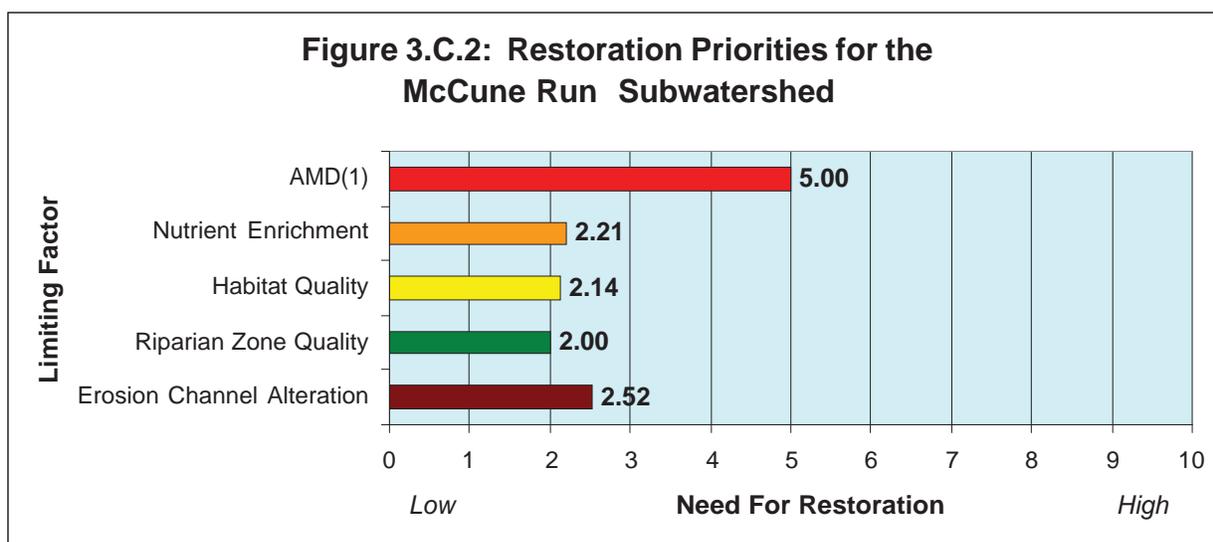
Recommendations

The following recommendations are made for the McCune Run Subwatershed:

- Work with Keystone State Park to educate McCune Run landowners and visitors about the value of the McCune Run Subwatershed.
- Encourage landowners to investigate land conservation options for large forested properties and old farmlands.
- Assist BAMR in maintaining the AMD treatment system located at Keystone State Park, i.e.: water quality monitoring.
- Investigate the possibility of holding community events and/or picnics at Keystone State Park to highlight the Loyalhanna Creek Watershed.

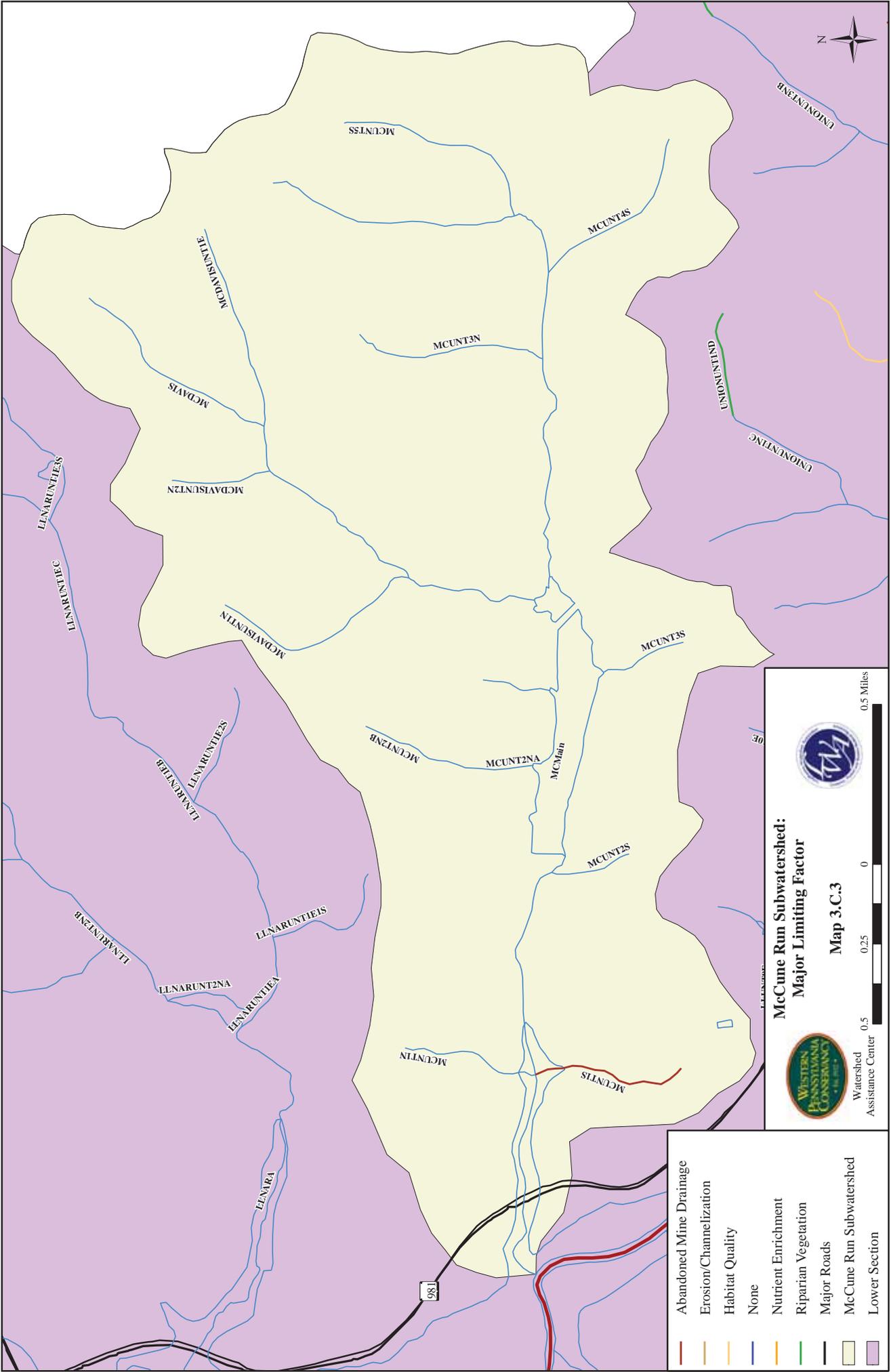
Overall Restoration Priorities

Figure 3.C.2 exhibits overall restoration priorities for the entire subwatershed. As indicated, the limiting factor that received the highest restoration priority rating was AMD. One source of AMD was noted within the subwatershed during the visual assessment. That AMD source is currently being treated passively.



Restoration Suggestions for Individual Stream Segments

Only one stream segment received scores identifying limiting factors. A small AMD seep was located on UNT1S. The impact from the seep was minimal and it dissipated quickly. Please refer to Map 3.C.3 for stream segment location.



- Abandoned Mine Drainage
- Erosion/Channelization
- Habitat Quality
- None
- Nutrient Enrichment
- Riparian Vegetation
- Major Roads
- McCune Run Subwatershed
- Lower Section



McCune Run Subwatershed:
Major Limiting Factor
Map 3.C.3

 Watershed Assistance Center



SECTION 3.D

CRABTREE CREEK

Section 3.D

Crabtree Creek Subwatershed

General Description

The 18.83 square-mile Crabtree Creek Subwatershed is located in the north-central portion of Westmoreland County. The subwatershed is situated south of Route 22 and is intersected by Route 119. Crabtree and its tributaries flow through the communities of Forbes Road, Hannastown, Luxor, Crabtree, and Greenwald. The Crabtree Creek Subwatershed is comprised of the **Crabtree Creek Main Stem** and **Little Crabtree Creek**, a large tributary.

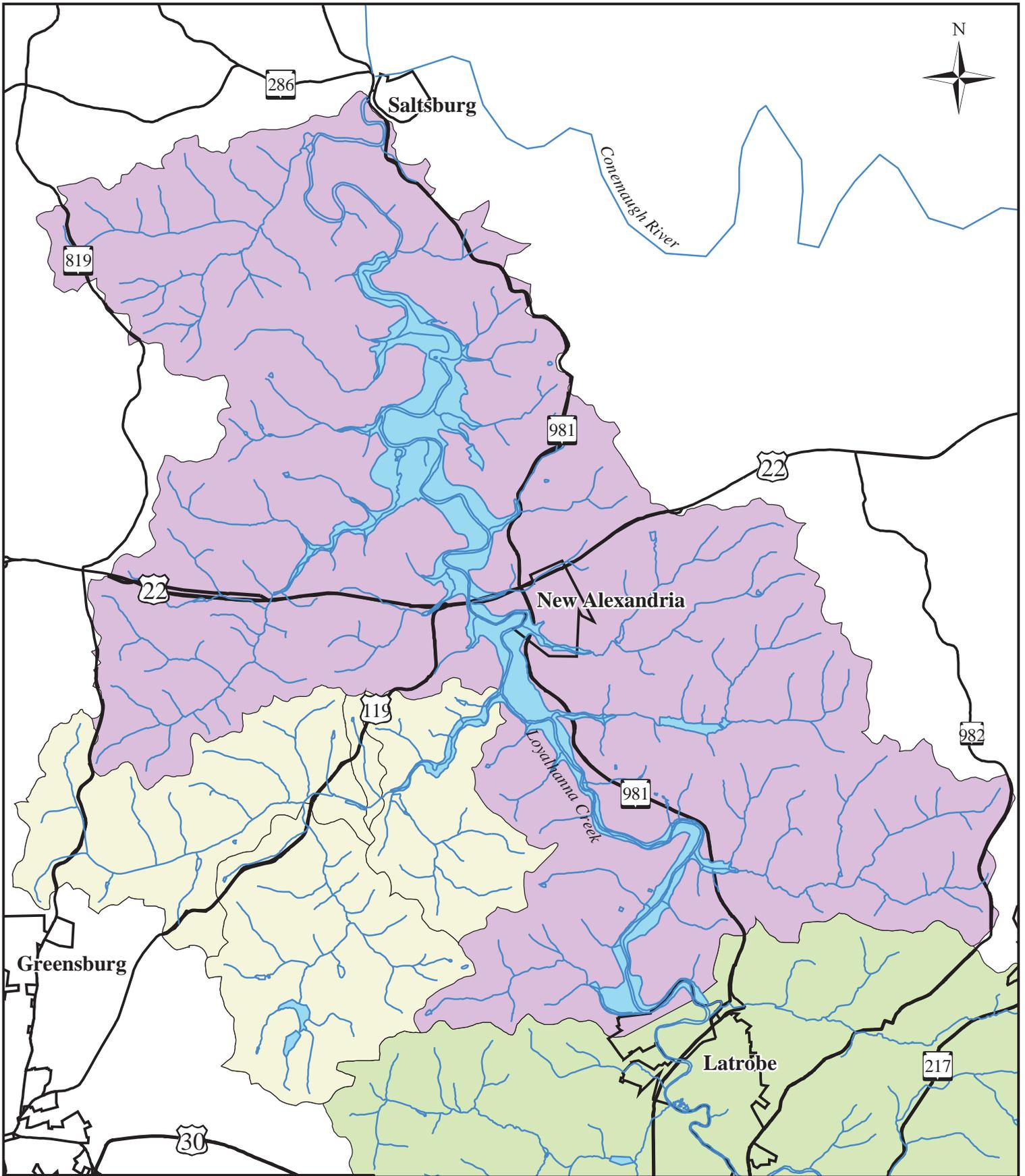
The **Crabtree Creek Main Stem** originates in the outskirts of Forbes Road, which is part of Salem Township. The headwaters are located adjacent to Route 819 as it travels south from Route 22 toward Greensburg. The main stem of Crabtree Creek flows south, parallel to Route 819, through a mix of forest and rural homes. In downtown Forbes Road, Crabtree Creek turns to flow east. As Crabtree Creek flows toward Hannastown, streamside vegetation is comprised primarily of Japanese knotweed. Surrounding landscape includes forest, coal refuse and open fields. Just before Hannastown, Crabtree Creek flows past a newly constructed golf course, Totteridge. In Hannastown, Crabtree Creek flows parallel to the old railroad grade and Main Street. A majority of homes in Hannastown are located on the south side of Crabtree Creek. The north side of the creek is occupied by a large open hillside that is a reclaimed coal refuse pile. The pile was associated with the deep mine in Hannastown. After leaving Hannastown, Crabtree Creek flows east through an agricultural landscape. Large farms blanket the hillsides surrounding the stream as it moves into the town of Crabtree. In downtown Crabtree, a major tributary, Little Crabtree Creek, enters from the south.

Little Crabtree Creek originates in Donohoe, east of the intersection of Donohoe Road and Georges Station Road. Its headwaters are comprised of four small tributaries that collect to form Twin Lakes, two small lakes surrounded by a county park. Downstream of the two lakes, Little Crabtree Creek flows through a rural area and past the community of Luxor. For the remaining portion of its length, Little Crabtree Creek is surrounded by a rural landscape including scattered homes, farms, and pasture.

Following its confluence with Little Crabtree Creek, the main stem of Crabtree Creek winds underneath Route 119. The community of Crabtree surrounds the stream on both sides. As the creek leaves downtown Crabtree, it follows the old Penn Central Railroad grade and flows adjacent to Latrobe-Crabtree Road. Behind the Crabtree Creek Fire Hall, located on Latrobe-Crabtree Road, a large abandoned mine discharge enters the main stem of Crabtree Creek. Downstream of the fire hall and the discharge, the streamside is overgrown with Japanese knotweed and other shrubs. Surrounding hillsides are open fields, pasture, and cropland.



Crabtree Creek main stem close to the mouth



-  Streams
-  Major Roads
-  Boroughs and Cities
-  Crabtree Creek Subwatershed
-  Lower Section



Watershed Assistance Center

**Crabtree Creek Subwatershed:
Overall Location**

Map 3.D.1

1 0.5 0 1 Miles




In the small town of Greenwald, a tributary enters the Crabtree Creek Main Stem from the south. The tributary has a small private lake at its mouth, known as Lake Dom. Downstream of the confluence with the tributary, Crabtree Creek passes into USACE flood-control property. Sycamore, silver maple, and other small hardwood trees surround the stream as it meanders northeast toward the Loyalhanna Creek. A mix of hardwood trees, Japanese knotweed, and shrubs surround the stream until its mouth. Crabtree Creek joins the Loyalhanna Creek 1,000 feet downstream from the Oasis Bridge.

Crabtree Creek is listed on the Clean Water Act (CWA) 303(d) list as an impaired waterway for pH, metals, and acidity. The entire subwatershed is classified as a WWF. Please refer to Map 3.D.1 for the geographical location of this subwatershed.

Review of Historic Information

Overall Summary

A majority of the Crabtree Creek Subwatershed is underlain by the Pittsburgh coal seam. As a result, much the area underneath the subwatershed was mined in the late 1800s and early 1900s. The communities of Luxor, Forbes Road, Hannastown, and Crabtree all contained deep mines that were operated by Jamison Coal and Coke. No deep mines operate today, but there are small remains of those deep mines left in each community. A coal refuse pile, buildings, and coke ovens are still present in Luxor, the site of the Jamison No. 1 mine. This mine operated well into the 1950s and later was a coal yard where coal was trucked in and distributed. Old mining buildings and a refuse pile are still a part of Forbes Road, the site of the Jamison No. 3 mine. A large, partially reclaimed refuse pile is located in Hannastown and an old playing field for coal miners is central to downtown Crabtree.

The mines in Crabtree, Hannastown, and Forbes Road were all connected in the years prior to closing. As a result, the water flooding the three abandoned mines discharges at the Crabtree Creek Discharge located behind the Crabtree Fire Hall. The discharge is the largest within the Loyalhanna Creek Watershed.

Surface mining, re-mining, and reclamation took place throughout the Crabtree Creek Subwatershed throughout the 1970s and 1980s. The Rural Abandoned Mine Program (RAMP) removed and reclaimed a large coal waste pile in Forbes Road. In addition, two large coal waste piles were covered and partially reclaimed in Crabtree and Hannastown.

Scarlift Report

Three abandoned mine discharges and multiple coal waste piles were inventoried during fieldwork for the Scarlift Report. The coal waste piles are referenced in Project Gobpile completed by WPCAMR. Each of the discharges inventoried are described below.

Crabtree Creek Subwatershed Discharges Catalogued During Scarlift		
Scarlift Discharge Number	Current Discharge Name	Description of Discharge and Location
5356	Crabtree	Discharge flows from underneath the Penn Central Railroad and directly into Crabtree Creek. During the Scarlift fieldwork, the average flow of the discharge was 5,100 gpm, pH was 2.4, and iron ranged from 30 mg/L to 196 mg/L. The discharge currently flows at an average of 3,500 gpm. Water quality has improved to a pH of 6.4 and the discharge contains much less acidity. Similar amounts of iron are still present.

5354		The discharge seeps from an old mine entry. The discharge flows into a tributary to Little Crabtree Creek (UNT1E). During the Scarlift fieldwork, the average flow of the discharge was 10 gpm, pH was 2.9, and iron ranged from 12 mg/L to 70 mg/L. The seep is currently flowing and, where it flows into the tributary, aluminum precipitate is visible. The field pH of the tributary was 4.6.
5355	Hannastown Seep	Surface discharge draining from the Hannastown coal refuse pile that drains into Crabtree Creek. During Scarlift fieldwork, the average flow of the discharge was 80 gpm, pH was 2.8, iron ranged from 8 mg/L to 90 mg/L, and aluminum ranged from 8.2 mg/L to 360 mg/L. The Scarlift Report recommended reclamation of the pile. It was covered and partially reclaimed in the late 1970s; however, coal waste remains. The discharge is present today, flowing at a reduced rate. The pH of the discharge has not changed. Where the discharge meets Crabtree Creek, aluminum and iron precipitates are visible in the stream substrate.

PA Fish and Boat Commission (PAFBC)

In 1994 and 1999 the PAFBC completed a fish survey of Upper Twin Lake and Lower Twin Lake at the headwaters of Little Crabtree Creek. The lakes included good populations of largemouth bass, trout, and various pan fish species. Recommendations for the lake included continued stocking of rainbow trout, brown trout, and channel catfish. In addition, the PAFBC recommended improving structure for increased growth in the largemouth bass population.

PA Department of Environmental Protection (DEP)

In September of 2002, the DEP took samples of Crabtree Creek above, at, and below the Crabtree Creek Discharge. The purpose of the sampling is unknown, but the samples provide excellent water quality data shown below.

pH	Alkalinity mg/L	Total Iron mg/L	Aluminum mg/L	Manganese mg/L	T.S.S mg/L	T.D.S mg/L
Crabtree Creek Above the Crabtree Creek Discharge at the Route 119 Bridge						
6.8	48	1.98	0.757	3.17	20	818
Crabtree Creek Below the Crabtree Creek Discharge at the Greenwald Bridge						
6.2	62	82.5	0.714	2.71	52	1482

PA Department of Environmental Protect District Mining Office

Various reports from the DEP District Mining Office in Greensburg highlight water quality samples related to surface mines throughout the Crabtree Creek Subwatershed. At the time of the assessment, there were no known active coal mines within the subwatershed. At the time of the report, a surface mine permit was being carried out in Crabtree adjacent to the Crabtree Discharge. More complete information can be obtained from District Mining Office.

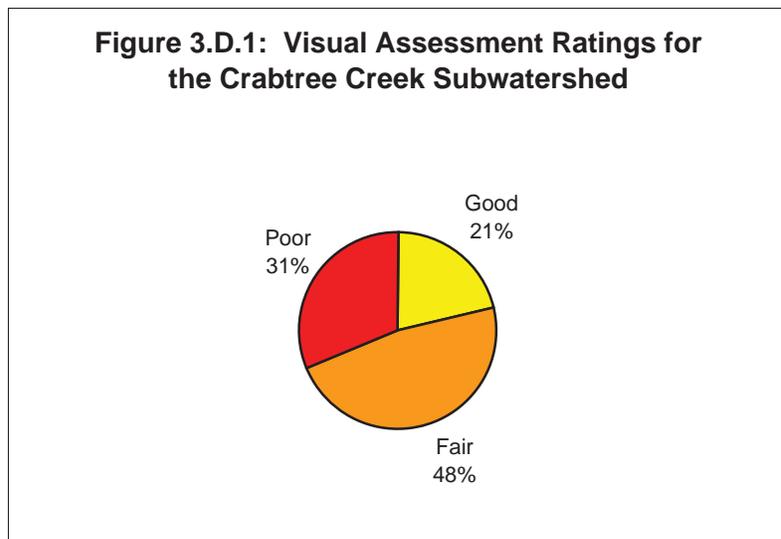
U.S. Army Corps of Engineers (USACE)

The USACE completed a survey of the Loyalhanna Creek Watershed in 2002. As a part of that survey, water quality samples were taken within the Crabtree Creek Subwatershed. Water quality results are consistent with samples collected during the visual assessment. That information can be referenced in files held at the LWA.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of the Crabtree Creek Subwatershed was completed in May of 2004. A total of 52 stream segments were assessed. As depicted in Figure 3.D.1, 21% of the subwatershed received a good rating, 48% received a fair rating, and 31% received a poor rating. An average score of 6.49 was given to the entire subwatershed, which is a fair rating overall. The overall fair rating primarily reflects the impacts of AMD and nutrient loading. Individual stream segment ratings are depicted in Map 3.D.2.



Visual Assessment Description

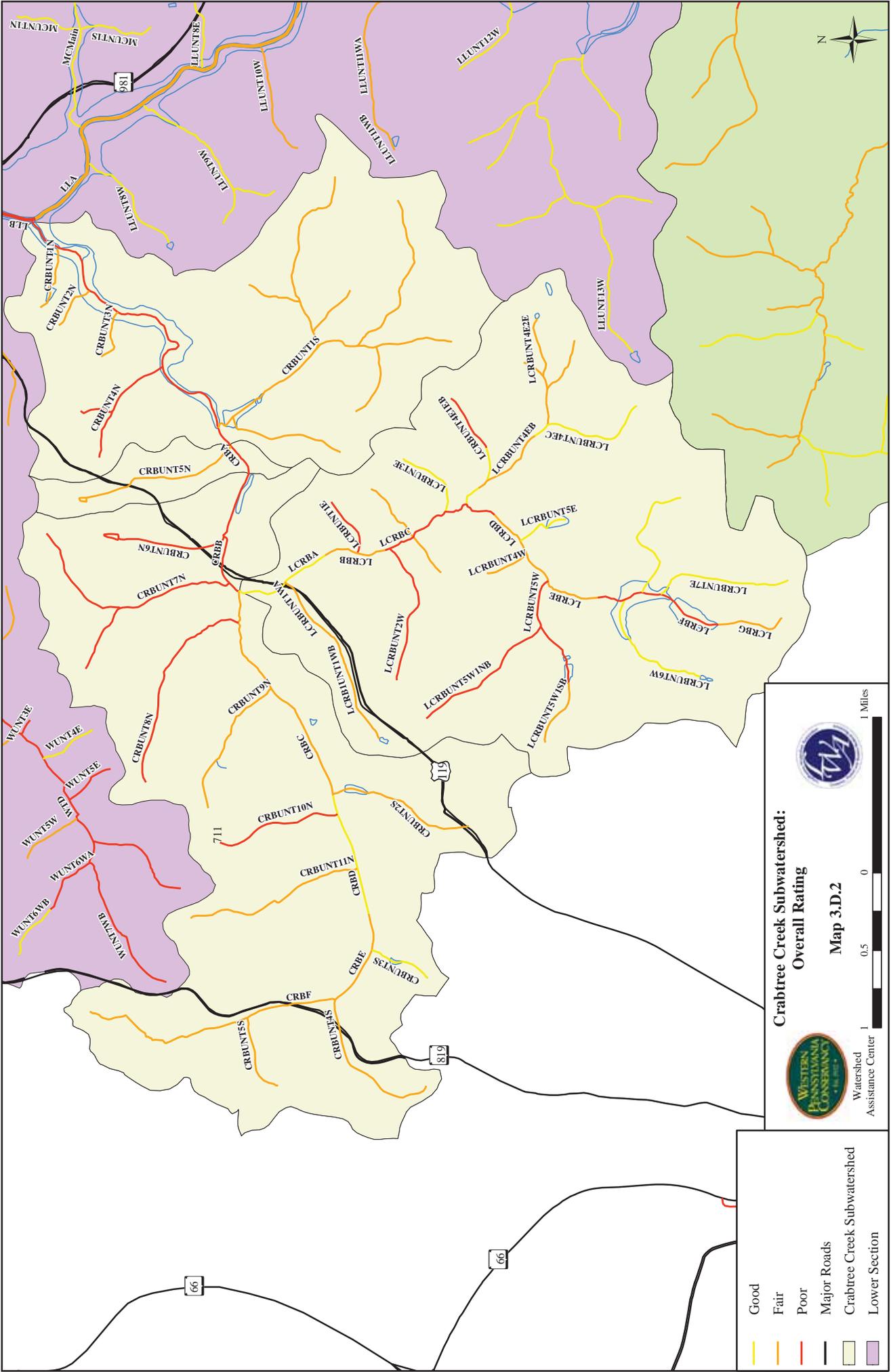
The Crabtree Creek Subwatershed is comprised of the Crabtree Creek main stem and a large tributary, Little Crabtree Creek. For the purpose of this report, Crabtree Creek is described separately from Little Crabtree Creek.

Crabtree Creek Main Stem

The Crabtree Creek main stem originates in a small, forested area behind an auto body shop. The shop is close to the intersection of Route 819 and Beaver Run Road. The stream flows away from the forested area and into a residential area where many of the homes have mowed lawns directly to the streambank. Passing through the residential area, the substrate of the stream is dominated by gravel and silt. Some algae are present on the substrate.

Crabtree Creek passes underneath Coal Hollow Road and, after continuing through another cluster of homes, it passes underneath Route 819. This occurs north of the town of Forbes Road. Upon reaching Forbes Road, the main stem of Crabtree Creek turns to flow east. In Forbes Road, an increased number of homes and small businesses surround the stream corridor. Despite the increase in residences, the riparian zone immediately surrounding the stream becomes vegetated. That vegetation, however, is comprised primarily of Japanese knotweed. The knotweed is so thick that, in some areas, it creates a closed canopy over the stream.

In Forbes Road, Crabtree Creek begins to follow the old railroad grade and Fire Station Road. As Crabtree Creek flows east out of Forbes Road, hardwood trees become mixed in with the Japanese



Crabtree Creek Subwatershed: Overall Rating
Map 3.D.2

Watershed Assistance Center
 Western Piedmont Area Planning Commission

1 0.5 0 1 Miles

Good
 Fair
 Poor
 Major Roads
 Crabtree Creek Subwatershed
 Lower Section

knotweed surrounding the stream. The substrate of the stream is comprised of mostly cobble, some gravel, and many chunks of coal refuse. At the outskirts of Forbes Road, a large coal refuse pile is located on the northern bank of Crabtree Creek. It is suspected that much of the coal in the substrate has washed off this refuse pile into the stream. For approximately 500 to 700 feet, the streambank is comprised of coal refuse mixed with some organic matter and blanketed with Japanese knotweed. Runoff



Aluminum seep entering Crabtree Creek from the Forbes Road coal refuse pile

from the coal refuse pile seeps into the stream in multiple areas through the section. One major seep enters the stream from the middle of the pile. That seep had a field pH of 2.9 and, upon meeting the stream, turns white with aluminum precipitate. Aluminum staining is visible downstream of the seep and the coal refuse pile for approximately 1,000 feet. Downstream of the coal refuse pile and the seep, the field pH of Crabtree Creek was 6.9.

After flowing past the coal refuse pile, the landscape surrounding the main stem of Crabtree Creek changes. The south bank is a thick hardwood forest and the north bank opens into fields and a golf course. Totteridge, a new golf course, was under construction at the time of the assessment. The substrate of the stream through this straight section of stream is comprised of primarily cobble. Pieces of coal and some silt are also present. The Japanese knotweed that crowded the streambank upstream is scaled back through this section and has been replaced by some multiflora rose and small trees.

Crabtree Creek then passes underneath Hannastown Road and continues to flow into Hannastown. As the creek flows through Hannastown, the landscape surrounding the stream is comprised of homes, small businesses, and open fields. The community of Hannastown is on the south side and a large, partially reclaimed coal refuse pile is on the north side. The coal refuse pile was covered and revegetated in the late 1970s. It extends downstream on the north side until Crabtree Creek passes underneath Front Street Road. Currently, the bony pile and property surrounding it are owned and maintained by the Keystone Rod and Gun Club. Multiple acidic seeps enter Crabtree Creek from the bony pile and from small coal refuse piles located along the streambank. The stream substrate, comprised of cobble and gravel, is coated with aluminum and iron precipitate. A large seep, with a field pH of 3.0, enters the Crabtree Creek Main Stem 100 feet upstream from the Front Street Bridge. The seep originates from the bony pile and flows at approximately 25-50 gpm. Bright white aluminum precipitate is visible within the seep and where it meets the main stem of Crabtree Creek.

Despite an increase in the number of residences in Hannastown, the stream remains surrounded by a vegetative buffer including Japanese knotweed, green briar, and multiflora rose. The substrate of the stream contains an equal mix of cobble, gravel, and silt. That substrate remains consistent as Crabtree Creek flows away from Hannastown. Surrounding hillsides are crop fields and pastureland. Through this section, as Crabtree Creek flows parallel to the railroad grade and Front Street, multiple high-pH discharges enter the stream. It is suspected that the discharges originate from failing septic systems located close to the stream. Vegetation surrounding the stream is still dominated by Japanese knotweed, green briar, multiflora rose, and some small trees. Not until flowing into the community of Crabtree does the landscape surrounding the stream change. Where Crabtree Creek passes behind Rizzo's Restaurant Banquet Hall, the streamside loses its vegetative buffer and the substrate of the stream becomes choked with sediment.

Fifty feet upstream of the intersection of Cemetery Road and Route 119, Little Crabtree Creek flows into Crabtree Creek. Downstream of that confluence, Crabtree Creek passes behind the Crabtree post office, where no canopy cover or riparian vegetation is present. Crabtree Creek then flows underneath Route 119. At the bridge, the stream substrate is entirely embedded with silt, and algae growth is present within the substrate and along the streambank. The field pH of Crabtree Creek at the Route 119 Bridge was 6.9. Past the bridge, Crabtree Creek continues to flow west adjacent to an open



The Crabtree Creek Discharge, located behind the Crabtree Fire Hall

field, homes, and small businesses. Some orange staining is visible in the substrate of the stream, but no AMD sources are visible. One thousand feet downstream from the Route 119 Bridge, Crabtree Creek passes behind the Crabtree Fire Hall. Directly behind the fire hall, a large abandoned mine discharge enters the stream. The 3,000-5,000 gpm discharge flows out of a large opening that is cut back into the streambank. Historic information indicates that the opening was, at one time, a pumping station for the deep mine located in Crabtree. The discharge emits the smell of rotten eggs and the opening is caked with iron oxide. Where it enters Crabtree Creek, the substrate is immediately covered in iron oxide sediment and the stream becomes orange in color. As it enters Crabtree Creek, the discharge doubles the size of the stream.

Downstream of the discharge,

Crabtree Creek is surrounded by a forested area. Streamside vegetation is comprised of Japanese knotweed, multiflora rose, small trees, and shrubs. The substrate is not visible due to the orange appearance of the water. As Crabtree Creek flows past the small community of Greenwald, southeast of Crabtree, a large tributary enters the main stem of Crabtree Creek. The tributary and its multiple branches all flow into Lake Dom (formerly known as Lake Greenwald), and then the lake empties into Crabtree Creek. The outflow from Lake Dom is located in the community of Greenwald. Right next to the outflow, a smelly, black discharge joins the outflow. The discharge is most likely sewage from the small community of Greenwald located adjacent to Lake Dom. The outflow enters Crabtree Creek directly downstream of the Kiley Road Bridge.

Immediately downstream of the bridge, a small coal waste pile covers the ground on the northern side of the stream. The pile covers a small area and appears to be used as an ATV track and trash dump. It covers the streambank for approximately 300 feet downstream of the Kiley Road Bridge. The pile is stained orange and red where rain washes through and down to the stream.

As Crabtree Creek continues to flow east past the coal waste pile, streamside vegetation becomes increasingly thick and almost impassable. The old Penn Central railroad grade continues to parallel the streambank; it is used by ATVs, and possibly hunters, to access property downstream. A small row of crumbled coke ovens are hidden against the north bank of the stream, approximately 100 feet from the outer limits of the coal waste pile. They are extremely grown over and difficult to see.

Crabtree Creek crosses onto USACE flood-control property just downstream of the coke ovens. For the remaining length of stream, the flood-control property maintains an excellent forested buffer containing Japanese knotweed, sycamore, oak, varied shrubs, and some pine



Small coal waste pile located in Greenwald at the intersection of Kiley Road and Latrobe-Crabtree Road

trees. The stream bottom is not visible and iron oxide sediment cakes the streambanks and covers any exposed rocks.



Assessment volunteer taking a field pH at the mouth of Crabtree Creek

The mouth of Crabtree Creek is located on flood-control property approximately 500 feet downstream from the Oasis Bridge on the main stem of the Loyalhanna Creek. Where Crabtree Creek meets the Loyalhanna Creek, a large plume of orange water appears. At the mouth of the stream, the field pH was 7.1. Iron oxide sediment is collected in and around the mouth and along the streambanks making the mouth difficult to access.

Unnamed Tributaries to the Crabtree Creek Main Stem

There are 16 unnamed tributaries that enter the main stem of Crabtree Creek. A majority of the tributaries are small and, in many cases, intermittent. Those tributaries located from Crabtree to the mouth of the stream flow through similar landscapes. They each begin in hayfields or open fields and join Crabtree Creek in the excellent forest buffer surrounding the creek. The tributaries that enter the main stem upstream of Crabtree are very different. A majority of those tributaries flow through mostly active farmland that is being grazed or

used for row crops and/or hay. UNT7N, UNT8N, and UNT9N are the most heavily impacted of those tributaries.

Two tributaries—UNT10N and UNT11N—originate in the new golf course, Totteridge. Along the length of both tributaries, they have been dammed or altered to make water hazards and to bypass greens and fairways.

The remaining tributaries found upstream of Crabtree originate in and flow through forested land. They are all very small and, at the time of the assessment, two of those tributaries were just barely a trickle of water entering Crabtree Creek.

None of the unnamed tributaries exhibit visible or measured signs of AMD. However, many of them did exhibit algal growth and higher field pH measurements, indicating the presence of excess nutrients as a result of human or animal waste.

Little Crabtree Creek Main Stem

Little Crabtree Creek originates in a residential area in the community of Donohoe. The headwaters of the stream flow north into Lower Twin Lake at Twin Lakes Park managed by Westmoreland County Parks and Recreation. The Lower Lake empties in the larger Upper Lake, which is located immediately north. A walking trail, several pavilions, fishing piers, forest, and open lawns surround both lakes. Twin Lakes Park is a popular recreation area where patrons can fish, boat, and picnic. A large population of geese occupies the shores of the lakes.

At the outflow of the Upper Lake, the Little Crabtree Creek continues to flow north, parallel to the road. The streambank downstream of the outflow is eroded and contains no riparian vegetation. The field pH at the outflow was 8.2. The erosion is only present for a short distance and then both forest and residences surround the stream that contains a substrate comprised of mostly cobble. A forested buffer surrounds Little Crabtree Creek until it arrives in Luxor. In Luxor, homes surround the streambank. Landowners mow lawns directly to the streambank and, in several instances, landowners have stabilized streambanks with tires, rocks, or logs. Flowing through Luxor, the substrate of the stream is comprised of some cobble, gravel, and silt. Luxor contains a large coal waste pile and the remains of a mining operation.

Little Crabtree Creek flows parallel to the road, the old railroad grade, as it leaves Luxor.

Residences and some forest surround this section of stream. It appears that the stream has been straightened where it encroaches upon the railroad bed. This entire section of stream contains areas of severe erosion. In one case, a home is very close to a high, eroded bank. As a result of excessive erosion, the stream substrate in this section is 40% embedded. Cobble and gravel in the stream are surrounded by silt and mud.

At an intersection of two roads, Little Crabtree turns to follow Cemetery Road toward Crabtree. Again, the stream channel is extremely straight, indicating that it has been altered. Grazing horses and cows have access to the stream and their movement in and out of the stream has made the banks very unstable. The substrate of the stream in this section is comprised mostly of silt and the water is very cloudy. The livestock impact Little Crabtree Creek until it passes underneath Calvary Hill Road. Downstream of the road, forest is present on one side of the stream and livestock are on the other side. Three active farming operations are stretched through this section and livestock have limited access to the stream. Despite this, the substrate is extremely embedded with silt and the water is cloudy as a result. When visible, the substrate contains algal growth.



Where Little Crabtree Creek passes underneath Route 119, it is surrounded by homes and small businesses. Downstream of Route 119, it passes through an area thick with Japanese knotweed, multiflora rose, and shrubs. The substrate of the stream is an even mix of small boulders, cobble, gravel, and silt. Fish are visible in this section of stream; habitat is abundant in downed trees, undercut banks, and in deep pools. Little Crabtree Creek flows into Crabtree Creek 50 feet upstream of the intersection of Cemetery Road and Route 119.

Unnamed Tributaries to Little Crabtree Creek

Thirteen unnamed tributaries enter Little Crabtree Creek. Livestock that have direct access to the stream impact four of those tributaries—UNT1W, UNT2W, UNT2E, and UNT3E. Each of the tributaries has an embedded substrate and eroded streambanks from the movement of livestock in and out of the stream.

UNT1E originates from an abandoned surface mine that was also a deep mine. The discharge was catalogued in Scarlift as discharge 5354. The field pH of the discharge was 3.6 and some aluminum precipitate was visible on the substrate just downstream of the discharge point. Where UNT1E flows into Little Crabtree Creek, there is no visual evidence of the mine drainage upstream. The field pH at the mouth of the stream was 4.9 and downstream of the mouth, the field pH of Little Crabtree Creek was 7.0.

UNT5W is a tributary that drains through the community of Luxor. The tributary is split into two headwater branches, both of which are impacted by agriculture and sewage. Several failing septic system discharges were located and detected along the streamside. Where the tributary flows through downtown Luxor, many houses surround the stream and practically no streamside vegetation is present. On the northern branch of the tributary (UNT5W-1N), a large coal waste pile occupies the land surrounding the stream. In addition to the coal waste pile, old buildings, coke ovens, and mining equipment are present. The coal waste pile is left from the Jamison No. 1 mining operations.

The remaining unnamed tributaries entering Little Crabtree Creek are forested and generally experience very few impacts.

Water Quality

Water quality samples were taken on Crabtree Creek throughout the assessment. Sample results reflect the large discharge located upstream behind the Crabtree Creek Fire Hall. Certain parameters are relatively consistent, with the exception of total iron. Large fluctuations could be a result of varying flow

amounts due to heavy rainfall. Regular sampling upstream of the Crabtree Creek Discharge will be recommended in the conclusion of this report.

Table 3.B.1: Sample Site LWA-13								
Crabtree Creek								
Date Sampled	pH	Alk. (mg/L)	Acid. (mg/L)	TSS (mg/L)	Sulfates (mg/L)	Total Iron (mg/L)	Mn (mg/L)	Al (mg/L)
8/12/04	6.47	64	-51	50	450	18.6	1.9	0.4
10/25/04	5.61	29	64	17	605	55.3	2.3	<0.04
1/25/05*	6.10	84.4	36.0	42.0	554.0	44.60	1.91	4.77
3/31/05*	6.50	106.4	17.6	14.0	323.1	24.10	1.22	1.13

* Sample analyzed by the DEP Bureau of Laboratories

Sample Location: The samples were collected from the Kiley Road Bridge, which is located at the base of Lake Dom in Greenwald. To reach the sample point, turn onto Latrobe-Crabtree Road from Route 119 in downtown Crabtree. Drive on Latrobe-Derry Road one mile past the fire hall to Kiley Road.

Conclusions

The Crabtree Creek Subwatershed is impacted by a combination of agricultural non-point source pollution, sewage, and AMD. The scars of historic coal mining are apparent throughout the subwatershed, although less prevalent than they were just 20 to 30 years ago. Reclamation and remediation efforts by federal and state agencies have allowed the subwatershed's landscape to partially recover. Some significant AMD impacts still remain, including the Crabtree Creek Discharge.

Multiple farming operations surround the tributaries and main stem of Crabtree Creek. In many cases, animals have direct access to the stream, creating erosion, nutrient loading, and degradation of streamside vegetation. On a positive note, the farmlands included in the subwatershed landscape are valuable open space.

The Crabtree community and surrounding areas do not have a sewer system. In many cases, household sewage is piped into the stream or down into the abandoned flooded mines. In 2004, a joint sewer authority submitted an application to fund sewerage for the a majority of the subwatershed area. This will remove significant nutrient loading from the subwatershed's streams.

Crabtree Creek contains the largest discharge within the entire Loyalhanna Creek Watershed. It devastates Crabtree Creek and its impact extends down the Loyalhanna Creek for thousands of yards. Reclamation of this discharge should be a top priority in the future.

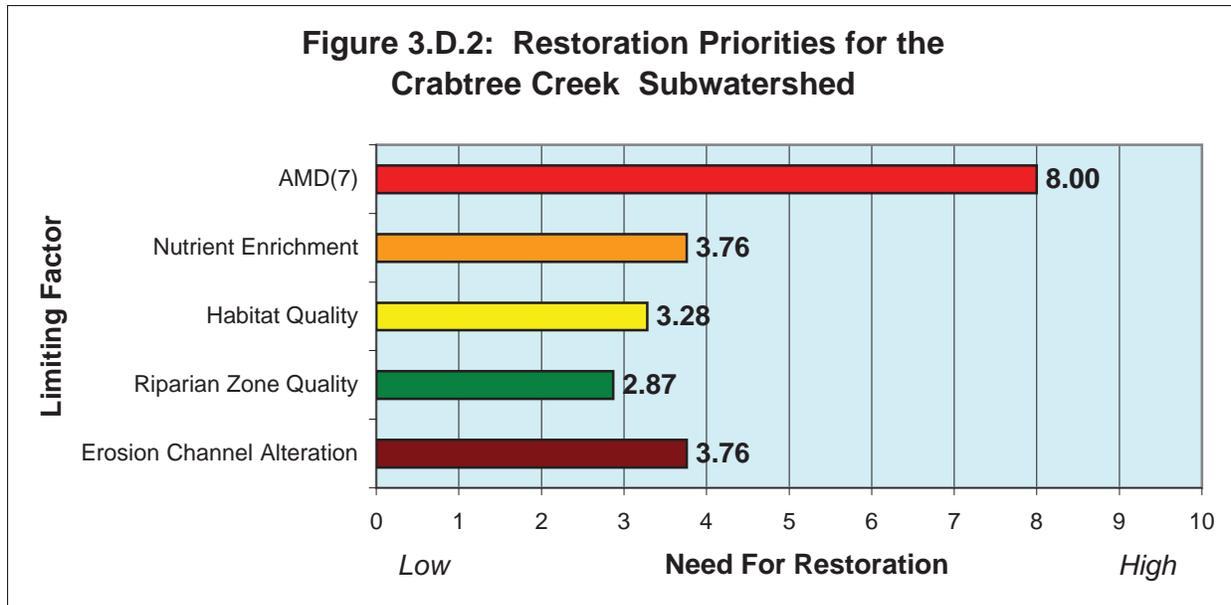
Recommendations

The following recommendations are made for the Crabtree Creek Subwatershed:

- Remediate the Crabtree Creek Discharge. Partner with community members, state and federal agencies, local businesses, and regional environmental organizations to design and construct an innovative treatment system.
- Encourage the protection of farmlands within the watershed. Work with Westmoreland County Agricultural Preservation and the Penn State Cooperative Extension to promote and educate landowners about the importance of land conservation.
- Explore total remediation and removal of the Hannastown coal waste pile and Forbes Road coal waste pile.
- Support the community as they proceed with the installation of a public sewer system.
- Sponsor a community event to share information about the subwatershed, its pollution problems, and possible solutions.

Overall Restoration Priorities

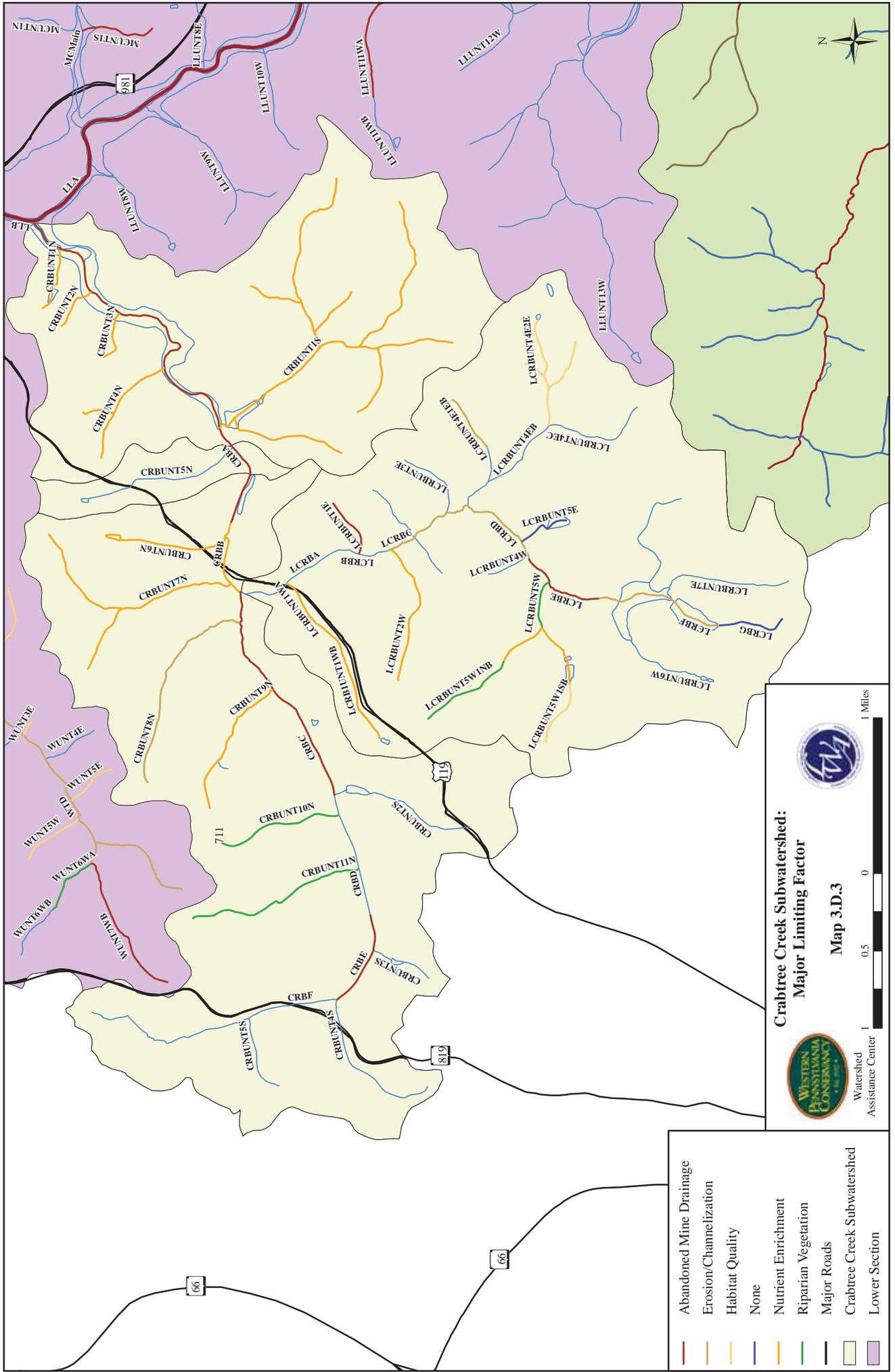
Figure 3.D.2 exhibits overall restoration priorities for the entire subwatershed. As indicated, the limiting factor that received the highest restoration priority rating was AMD. Eight stream segments showed impact from AMD sources. Approximately one-third of the Crabtree Creek main stem is impacted by one AMD discharge. In addition to AMD, restoration priority was also high for nutrient loading, as well as erosion and channel alteration. This reflects the presence of agricultural impacts throughout the subwatershed.



Restoration Suggestions for Individual Stream Segments

Twenty-eight stream segments received visual assessment scores identifying limiting factors. The limiting factors identified included erosion and channel alteration, compromised fish and macroinvertebrate habitat, riparian vegetation degradation, nutrient loading, and AMD. Please refer to Table 3.D.2 and Map 3.D.3 for impact description and stream segment location.

Table 3.D.2: Impacted Stream Segments and Restoration Suggestions for the Crabtree Creek Subwatershed				
LIMITING FACTOR: Riparian Vegetation Degradation				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
CRBB <i>Main stem segment that flows from the confluence with Little Crabtree Creek to the Crabtree Fire Hall.</i>	The stream flows through a residential area. There is some vegetation surrounding the stream, but mostly tall grass and occasional shrubs. There are very few trees to provide shade and cover.	1. Work with the community to use trees and shrubs to shade the stream through the downtown area. Possible Partners: Crabtree Borough, WCD, Private Business Owners, Crabtree Fire Company, DEP	Local, State	Low – Medium
CRBUNT4N <i>Small tributary that flows through a mix of forest and pasture.</i>	Grazing livestock and pasture surround the upper portion of the tributary. Riparian zone is compromised in this area with very few trees and plants surrounding the stream.	1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream. Possible Partners: WCD, USDA, WPC, DEP	State, Federal, Private	Low
CRBUNT6N <i>Tributary that flows directly through the residential portion of Crabtree. It also passes underneath Route 819.</i>	The stream begins in a farm pasture where no riparian vegetation is present, and continues into town where it is channelized through yards and underground. In town, homeowners mow lawns directly to the streambank and very few trees are present streamside.	1. Work with the community to use trees and shrubs to shade the stream through the downtown area. Possible Partners: Crabtree Borough, WCD, Private Business Owners, DEP	Local, State, Federal	Low



- Abandoned Mine Drainage
- Erosion/Channelization
- Habitat Quality
- None
- Nutrient Enrichment
- Riparian Vegetation
- Major Roads
- Crabtree Creek Subwatershed
- Lower Section



<p>CRBUNT7N <i>A tributary located close to town that flows through three separate farming operations.</i></p>	<p>The headwaters are forked and originate within pastures on two farms. Both are grazed by Holsteins that have direct access to the stream. The lower portion of the stream also flows through pasture where livestock graze in and around the waterway. There is minimal riparian vegetation or canopy cover present along most of the stream's length.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT9N <i>Tributary that is surrounded by pasture and crop fields.</i></p>	<p>The headwaters of this tributary originate in a pasture where livestock have direct access to the stream. It then flows through cropland and into the pasture of another farm. The upper portion of the tributary has very little riparian vegetation. It recovers slightly toward the mouth.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT10N <i>Tributary that flows through a portion of Totteridge Golf Course.</i></p>	<p>Very sparse vegetation surrounds the stream. It flows through manicured areas. Some newly planted trees are present, but have not grown to be effective at providing shade or cover.</p>	<p>1. Work with property owner to plant riparian vegetation along the streambank.</p> <p>Possible Partners: Totteridge Golf Course, DEP, WCD</p>	<p>Local, State, Private</p>	<p>Low</p>

<p>CRBUNT11N <i>Tributary that flows through Totteridge Golf Course.</i></p>	<p>This tributary flows through a small valley that intersects the golf course. It has some shrub and tall grass vegetation surrounding the streambank, but little canopy cover.</p>	<p>1. Work with property owner to plant riparian vegetation along the streambank.</p> <p>Possible Partners: Totteridge Golf Course, DEP, WCD</p>	<p>Local, State, Private</p>	<p>Low</p>
<p>LCRBUNT2W <i>Small tributary to Little Crabtree Creek that flows through a farm.</i></p>	<p>Livestock have direct access to the stream and were actively using the stream at the time of the assessment. There is a small patch of woods located at the headwaters, but the remainder of the stream is surrounded by grazed grass.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>Local, State, Federal</p>	<p>Low</p>
<p>LCRBUNT5W <i>Tributary that flows through downtown Luxor. It is surrounded by residences. A coal refuse pile is located close to the stream.</i></p>	<p>As the stream flows through the residential area, the only vegetation surrounding it is grass. One or two trees are present.</p>	<p>1. Work with property owners to plant riparian vegetation along the streambank.</p> <p>Possible Partners: WCD, DEP</p>	<p>Local, State</p>	<p>Low</p>
<p>LCRBUNT5W1NB <i>Small tributary that flows into UNT5W. It flows through a grazed pasture west of Luxor.</i></p>	<p>Livestock have direct access to the stream. Only grazed grass surrounds the streambank. No canopy cover is present.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>

LIMITING FACTOR: Compromised Fish and Macroinvertebrate Habitat				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
CRBUNT8N <i>Tributary that flows through a mix of fields, pasture, row crops, and residences.</i>	The headwaters of the stream are located in a farm and the surrounding landscape contains very little substantial vegetation other than hay or corn. The substrate of the stream is almost entirely embedded with silt and mud, which covers available habitat and food sources.	1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream. Possible Partners: WCD, USDA, WPC, DEP	State, Federal, Private	Low
CRBUNT10N <i>Tributary that flows through a portion of Totteridge Golf Course.</i>	The substrate of the stream is comprised of gravel and silt. With very little riparian vegetation, there is hardly any visible food source within the stream. Habitat is nominal due to substrate type.	1. Work with property owner to plant streamside vegetation and to remediate stream channel. Possible Partners: Totteridge Golf Course, DEP, WCD	Local, State, Private	Low
LCRBF <i>Main stem portion of Little Crabtree Creek that is impounded to form Upper Twin Lake and Lower Twin Lake.</i>	The outflow of the lake serves as a large fish barrier.	1. Determine strategy to provide fish a means of traveling up and downstream. Possible Partners: WCPR, WCD, DEP, PAFBC	Local, County, State	Low

<p>LCRBUNT1E <i>Small tributary that flows through a forested residential area into Little Crabtree Creek. The stream originates at an abandoned surface mine.</i></p>	<p>The tributary is impacted by AMD and therefore contains algae, iron oxide, and aluminum precipitate within the substrate. Therefore, it is difficult for macroinvertebrates to cling to the substrate, let alone survive in the acidic water. There are also seasonal fish barriers. It appears that portions of the stream are dry during low-flow months. The AMD is not visible once the tributary meets the Little Crabtree Creek main stem.</p>	<p>1. Investigate AMD source and remediate through re-mining or passive treatment.</p> <p>Possible Partners: OSM, DEP, WPC</p>	<p>Local, State, Federal</p>	<p>Low – Medium</p>
<p>LCRBUNT2W <i>Small tributary to Little Crabtree Creek that flows through a farm.</i></p>	<p>Livestock have direct access to the stream. The substrate of the stream is 100% embedded with silt and mud. This material is most likely washed into the stream from the pasture and active erosion of the streambanks. Habitat and food sources are covered.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>LCRBUNT4E1EB <i>Small tributary that flows into Little Crabtree Creek UNT4E. It passes through a grazed pasture and a few residential yards.</i></p>	<p>In the upper portion of the tributary, livestock have direct access to the stream. The substrate of the stream is 100% embedded with silt and mud. This material is most likely washed into the stream from the pasture and active erosion of the streambanks. Habitat and food sources are covered.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>

<p>LCRBUNT5W1SA <i>Lower portion of tributary to UNT5W that flows through a residential area in Luxor.</i></p>	<p>The substrate of the stream is 30-40% embedded and there is very little cover or food source present in the stream.</p>	<p>1. Work with property owners to identify and eliminate source of sediment, which is mostly likely caused by a variety of factors including surrounding landscape, the road, and lack of streamside vegetation.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>LCRBUNT5W1SB <i>Upper portion of tributary to UNT5W that flows through an old pasture and residential area in Luxor.</i></p>	<p>The substrate of the stream is 30-40% embedded and there is very little cover or food source present in the stream.</p>	<p>1. Work with property owners to identify and eliminate source of sediment, which is mostly likely caused by a variety of factors including surrounding landscape, the road, and lack of streamside vegetation.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>LCRBUNT5W1NA <i>Lower portion of tributary to UNT5W that flows through a residential area and old mining area. A coal refuse pile is located on the north bank of this section.</i></p>	<p>The substrate of the stream is 100% embedded with a combination of algae, sediment, and iron oxide runoff from the coal refuse pile. There is very little in-stream fish cover and very few habitat sites available for fish or insects.</p>	<p>1. Eliminate upstream sources of sediment from farm. 2. Address algal growth by attending to sewage discharges into the stream. 3. Remediate and remove coal refuse pile.</p> <p>Possible Partners: USDA RUS, DEP, OSM, WCD, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>

<p>LCRBUNT5W1NB <i>Small tributary that flows into UNT5W. It flows through a grazed pasture west of Luxor.</i></p>	<p>Livestock have direct access to the stream. Substrate is more than 60% embedded with silt and mud. Little to no in-stream fish cover present and habitat is covered with sediment.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>
<p>LIMITING FACTOR: Erosion and Channel Alteration</p>				
<p>Stream Segment Name</p>	<p>Description of Impact</p>	<p>Remediation Strategy</p>	<p>Possible Funding Sources</p>	<p>Priority Rating</p>
<p>CRBA <i>Main stem segment that extends from the mouth to the Crabtree Creek Fire Hall. Land surrounding the stream is forested. This portion is impacted by AMD.</i></p>	<p>This portion of the stream flows through USACE flood-control property. In times of high flow, the Loyalhanna Creek backs up into the Crabtree Creek channel. This has resulted in erosion of streambanks, severe downcutting, and undercutting.</p>	<p>1. Work with USACE and other partners to determine a method to reduce erosion of streambanks. Possible Partners: WCD, USACE, DEP</p>	<p>State, Federal</p>	<p>Medium</p>
<p>CRBB <i>Main stem segment that flows from the confluence with Little Crabtree Creek to the Crabtree Fire Hall.</i></p>	<p>Highly eroding banks are present and they seem very unstable through this section. The substrate of the stream is almost entirely embedded indicating upstream sediment addition through erosion and possibly other sources.</p>	<p>1. Work with USACE and other partners to determine a method to reduce erosion of streambanks. Possible Partners: WCD, USACE, DEP, Crabtree Borough</p>	<p>Local, State, Federal</p>	<p>Medium</p>

<p>CRBUNT7N <i>A tributary located close to town that flows through three separate farming operations.</i></p>	<p>The headwaters are forked and originate within pastures on two farms. Both are grazed by Holsteins that have direct access to the stream. The lower portion of the stream also flows through pasture where livestock graze in and around the waterway. The livestock in all situations have trampled banks, causing erosion.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>
<p>CRBUNT8N <i>Tributary that flows through a mix of fields, pasture, row crops, and residences.</i></p>	<p>The grazing livestock in all situations have trampled banks, causing erosion.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>
<p>LCRBC <i>Main stem segment of Little Crabtree Creek that flows through pasture and row crops.</i></p>	<p>Cows have direct access to the stream and they have caused bank instability. The substrate of the stream is more than 50% embedded.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>
<p>LCRBD <i>Main stem segment of Little Crabtree Creek that flows through a forested residential section along road.</i></p>	<p>The streambanks throughout the entire section are eroding. Erosion is most significant in the straight areas. At one point, the stream is channelized next to an old railroad bed. Erosion is also occurring there.</p>	<p>1. Determine cause of erosion and remediate accordingly. 2. Talk with landowners and encourage them to install appropriate bank stabilization methods.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low – Medium</p>

<p>LCRBF <i>Main stem portion of Little Crabtree Creek that is impounded to form Upper Twin Lake and Lower Twin Lake.</i></p>	<p>At the outflow to the lake there is a large area of streambank that is severely eroded. This portion of stream also has no riparian vegetation surrounding it. The erosion continues downstream for many feet.</p>	<p>1. Determine cause of erosion and remediate accordingly.</p> <p>Possible Partners: WCPR, WCD, PAFBC, DEP</p>	<p>Local, County, State</p>	<p>Low – Medium</p>
<p>LCRBUNT2W <i>Small tributary to Little Crabtree Creek that flows through a farm.</i></p>	<p>Cows have direct access to the stream and they have caused bank instability. The substrate of the stream is 100% embedded.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>LCRBUNT4E1EB <i>Small tributary that flows into Little Crabtree Creek UNT4E. It passes through a grazed pasture and a few residential yards.</i></p>	<p>Cows have direct access to the stream and they have caused bank instability. The substrate of the stream is 100% embedded. In addition, the stream is channeled underground in a few places.</p>	<p>1. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream. 2. Investigate reason for channelizing the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>LCRBUNT5W <i>Tributary that flows through downtown Luxor. It is surrounded by residences. A coal refuse pile is located close to the stream.</i></p>	<p>Streambanks are eroding and undercut throughout the entire length of stream.</p>	<p>1. Work with property owners to remediate eroding streambanks and to plant riparian vegetation to prevent further erosion.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>

<p>LCRBUNT5W1SA <i>Lower portion of tributary to UNT5W that flows through a residential area in Luxor.</i></p>	<p>Streambanks are eroding and undercut throughout the entire length of stream.</p>	<p>1. Work with property owners to remediate eroding streambanks and to plant riparian vegetation to prevent further erosion.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>
<p>LCRBUNT5W1NA <i>Lower portion of tributary to UNT5W that flows through a residential area and old mining area. A coal refuse pile is located on the north bank of this section.</i></p>	<p>Streambanks are eroding and undercut throughout the entire length of stream.</p>	<p>1. Work with property owners to remediate eroding streambanks and to plant riparian vegetation to prevent further erosion.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>
<p>LCRBUNT5W1NB <i>Small tributary that flows into UNT5W. It flows through a grazed pasture west of Luxor.</i></p>	<p>Streambanks are eroding and undercut throughout the entire length of stream. Livestock have access to the stream and are contributing to erosion.</p>	<p>1. Work with property owners to remediate eroding streambanks and to plant riparian vegetation to prevent further erosion. 2. Work with landowner to install agricultural BMPs to reduce amount of erosion and sediment movement into the stream.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>

LIMITING FACTOR: Nutrient Enrichment				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
CRBB <i>Main stem segment that flows from the confluence with Little Crabtree Creek to the Crabtree Fire Hall.</i>	Multiple direct sewage inputs were noted throughout this section. In addition, entering tributaries contain agricultural operations. Algal growth is present on the substrate.	1. Support community in current initiative to install a sewerage system for the community. 2. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem. Possible Partners: USDA RUS, DEP, WPC, WCD, USDA	State, Federal, Private	High
CRBIN <i>Small tributary that enters the creek, close to the mouth of the stream.</i>	The substrate of the stream is covered with brown algae. At the extreme headwaters of the tributary, a small farm is present. Manure is entering the stream channel due to grazing livestock.	1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem. Possible Partners: WCD, DEP, WPC, USDA	State, Federal, Private	Low
CRBUNT1S <i>Also known as the Lake Dom Tributary, it flows through a mix of residences and farms.</i>	Throughout the entire length of stream, direct sewage pipes were located. The most significant one was found at the base of Lake Dom where the tributary flows into Crabtree Creek. It emitted an odor that was detected from 50 feet away.	1. Support community in current initiative to install a sewerage system for the community. Possible Partners: WCD, USDA RUS, DEP	State, Federal	High

<p>CRBUNT2N <i>Small tributary that flows through mostly forest. The headwaters originate at a farm.</i></p>	<p>The substrate of the stream is covered with brown algae. At the extreme headwaters of the tributary, a farm is present. Manure is entering the stream channel due to grazing livestock.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT3N <i>Small tributary that flows through mostly forest. The headwaters originate at a farm.</i></p>	<p>The substrate of the stream is covered with brown algae. At the extreme headwaters of the tributary, a farm is present. Manure is entering the stream channel due to grazing livestock.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT4N <i>Tributary that flows through grazed pasture and forest.</i></p>	<p>Substrate of the stream is covered with algae. At least one-half of the stream is surrounded by pasture where livestock have direct access to the stream.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT6N <i>Tributary that flows directly through the residential portion of Crabtree. It also passes underneath Route 819.</i></p>	<p>The water is murky in color and the substrate of the stream is covered with algae. The nutrient enrichment source is most likely a combination of the impact from livestock upstream and direct sewage inputs downstream.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>2. Support community in current initiative to install a sewerage system for the community.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Low</p>

<p>CRBUNT7N <i>A tributary located close to town that flows through three separate farming operations.</i></p>	<p>Grazing livestock add nutrients to the stream. Algal growth is present on the entire stream length.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT8N <i>Tributary that flows through a mix of fields, pasture, row crops, and residences.</i></p>	<p>Grazing livestock add nutrients to the stream. Algal growth is present on the entire stream length.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>CRBUNT9N <i>Tributary that is surrounded by pasture and crop fields.</i></p>	<p>Grazing livestock add nutrients to the stream. Algal growth is present on the entire stream length.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>LCRBUNT1WA <i>Lower section of small tributary that flows into Little Crabtree Creek. It flows through a residential area.</i></p>	<p>Brown algae is present on the substrate of the stream. Although no direct pipes were found, it is suspected that the algal growth is due to leaking septic systems.</p>	<p>1. Support community in current initiative to install a sewerage system for the community.</p> <p>Possible Partners: WCD, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Medium</p>

<p>LCRBUNT1WB <i>Upper section of tributary to Little Crabtree Creek that originates in a pasture and flows through a residential area.</i></p>	<p>Horses in pasture have direct access to the stream. Algae growth is present in stream substrate.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal</p>	<p>Medium</p>
<p>LCRBUNT1E <i>Small tributary that flows through a forested residential area into Little Crabtree Creek. The stream originates at an abandoned surface mine.</i></p>	<p>Algal growth is present on the stream substrate. The growth is most likely due to the stream's pH of 4.6. An upstream AMD discharge is acidic and contains aluminum.</p>	<p>1. Remediate upstream discharge through re-mining or passive treatment.</p> <p>Possible Partners: WCD, DEP, WPC, OSM</p>	<p>State, Federal</p>	<p>Medium</p>
<p>LCRBUNT2W <i>Small tributary to Little Crabtree Creek that flows through a farm.</i></p>	<p>Grazing livestock add nutrients to the stream. Algal growth is present on the entire stream length.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal, Private</p>	<p>Medium</p>
<p>LCRBUNT5W <i>Tributary that flows through downtown Luxor. It is surrounded by residences. A coal refuse pile is located close to the stream.</i></p>	<p>Algal growth is present in stream substrate. Multiple discharging pipes and seeps were found through this section. It is suspected that they were from failing septic systems.</p>	<p>1. Support community in current initiative to install a sewerage system for the community.</p> <p>Possible Partners: WCD, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>High</p>

<p>LCRBUNT5W1SA <i>Lower portion of tributary to UNT5W that flows through a residential area in Luxor.</i></p>	<p>Algal growth is present in stream substrate. Multiple discharging pipes and seeps were found through this section. It is suspected that they were from failing septic systems.</p>	<p>1. Support community in current initiative to install a sewerage system for the community.</p> <p>Possible Partners: WCD, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>High</p>
<p>LCRBUNT5W1NA <i>Lower portion of tributary to UNT5W that flows through a residential area and old mining area. A coal refuse pile is located on the north bank of this section.</i></p>	<p>Algal growth is present in stream substrate. Multiple discharging pipes and seeps were found through this section. It is suspected that they were from failing septic systems.</p>	<p>1. Support community in current initiative to install a sewerage system for the community.</p> <p>Possible Partners: WCD, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>High</p>
<p>LCRBUNT5W1NB <i>Small tributary that flows into UNT5W. It flows through a grazed pasture west of Luxor.</i></p>	<p>Grazing livestock add nutrients to the stream. Algal growth is present on the entire stream length.</p>	<p>1. Encourage landowners to install agricultural BMPs to reduce overall nutrient loading to tributaries and ultimately the main stem.</p> <p>Possible Partners: WCD, DEP, USDA, WPC</p>	<p>State, Federal</p>	<p>Medium</p>

LIMITING FACTOR: Abandoned Mine Drainage				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>CRBA <i>Main stem segment that extends from the mouth to the Crabtree Creek Fire Hall. Land surrounding the stream is forested.</i></p>	<p>The stream is orange in color due to large AMD discharge (3,000-5,000 gpm) located by the Crabtree Fire Hall. The substrate of the stream is entirely embedded with iron oxide sediment. The field pH of Crabtree Creek at the mouth of the stream was 7.0. Where Crabtree Creek meets the Loyalhanna Creek, it turns the Loyalhanna Creek orange in color. That coloration remains for thousands of feet downstream.</p>	<p>1. Remediate the Crabtree Creek Discharge using a combination of passive and active treatment. 2. Combine treatment resources with pending sewage treatment plant.</p> <p>Possible Partners: Crabtree Creek Fire Company, Unity Township, Derry Township, Hempfield Township, Salem Township, USDA RUS, DEP, WPC, WCD, OSM, USACE, PSCE</p>	<p>Local, County, State, Federal, Private</p>	<p>High</p>
<p>CRBB <i>Main stem segment that flows from the confluence with Little Crabtree Creek to the Crabtree Fire Hall.</i></p>	<p>Some orange coloration is noticeable within this segment. No discharges were located, but the coloration could be due to historic AMD flow, or small discharges located upstream.</p>	<p>1. Investigate source of coloration. 2. Sample this section because it is above the Crabtree Creek Discharge. 3. Remediate upstream discharges.</p> <p>Possible Partners: WCD, OSM, DEP, WPC</p>	<p>State, Federal</p>	<p>Medium</p>

<p>CRBC <i>Main stem segment that extends from the community of Hannastown to the confluence with Little Crabtree Creek.</i></p>	<p>This segment contains a discharge that originates from the remains of a large, partially reclaimed, coal refuse pile in Hannastown. The field pH of the seep has been measured between 3.2 and 4.5. It contains aluminum that immediately precipitates as it meets the main stem of Crabtree Creek. The seep is located upstream of the Front Street Bridge over the creek. This bridge is located east of Hannastown.</p>	<p>1. Investigate the possibility of further reclaiming the refuse pile. 2. If reclamation is not an option, treat the discharge passively. 3. Monitor discharge quarterly.</p> <p>Possible Partners: WCD, OSM, DEP, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>CRBE <i>Main stem section of stream that flows through forested area east of the Forbes Road community. A large coal refuse pile is located on the northern bank of the stream.</i></p>	<p>The coal refuse pile is seeping into the stream. One large seep is apparent, and other stream channels, that drain the refuse pile in heavy rains, are noticeable. The substrate of the stream through this section contains white aluminum precipitate, and the water appears milky in color.</p>	<p>1. Remove and reclaim the refuse pile.</p> <p>Possible Partners: WCD, DEP, OSM</p>	<p>State, Federal</p>	<p>High</p>
<p>LCRBE <i>Main stem segment of Little Crabtree Creek that flows through Luxor.</i></p>	<p>In Luxor, UNT5W enters Little Crabtree Creek. It contains AMD from an upstream refuse pile. The addition of that tributary creates orange coloration in the main stem. Also, some seeps were located within the segment close to Luxor.</p>	<p>1. Remove and reclaim the refuse pile in Luxor.</p> <p>Possible Partners: WCD, DEP, OSM</p>	<p>State, Federal</p>	<p>High</p>

<p>LCRBUNT1E <i>Small tributary that flows through a forested residential area into Little Crabtree Creek. The stream originates at an abandoned surface mine.</i></p>	<p>Aluminum discharge is located at the source of this tributary. The discharge was also noted during the Scarlift Report. The discharge has no effect upon the main stem of Little Crabtree Creek.</p>	<p>1. Investigate source of AMD. 2. Remediate and reclaim source area. Possible Partners: WCD, DEP, OSM</p>	<p>State, Federal</p>	<p>Medium</p>
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SECTION 3.E

WHITETHORN CREEK

Section 3.E

Whitethorn Creek Subwatershed

General Description

The 9.95 square-mile Whitethorn Creek Subwatershed is located in Salem Township. The subwatershed is situated in the north-central portion of Westmoreland County, between Route 819 and the Loyalhanna Lake.

The headwaters of Whitethorn Creek, a WWF, originate near Route 819 and very close to the headwaters of Crabtree Creek. Surrounded by a mix of pasture and hayfields, three small tributaries meet to form the main stem. The tributaries originate from spring sources on open hillsides. Where Rosewood Road and Kennen Road intersect, the tributaries join to form the Whitethorn Creek main stem. From that point, Whitethorn Creek flows northeast parallel to Hannastown Road. The surrounding landscape is comprised of



Whitethorn Lake, which is located at the mouth of Whitethorn Creek

agriculture and forest until Whitethorn Creek passes underneath Route 22. At that point, the landscape surrounding the stream changes to include residences and more forest. Downstream of Route 22, Whitethorn Creek flows parallel to Whitethorn Road. Through this section, the stream is surrounded by mostly forest. The forest is comprised of an even mix of hardwood trees and mixed shrubs. On the south side of the stream, a steep hillside serves as a boundary.



Rock cliffs located on the main stem of Whitethorn Creek close to its mouth

Where Whitethorn Creek passes underneath Salem Drive, the stream experiences a major change. The velocity of the water slows significantly and the stream channel widens. Small wet areas surround the stream channel, which is contained by a sloping hillside to the north and a steep hillside to the south. Approximately 500 yards downstream from Salem Drive, Whitethorn Creek flows into the USACE flood-control property. At the mouth of Whitethorn Creek, a lake has formed. The lake is part of the pool formed as a result of the Loyalhanna Dam, which slows the flow of the Loyalhanna Creek.

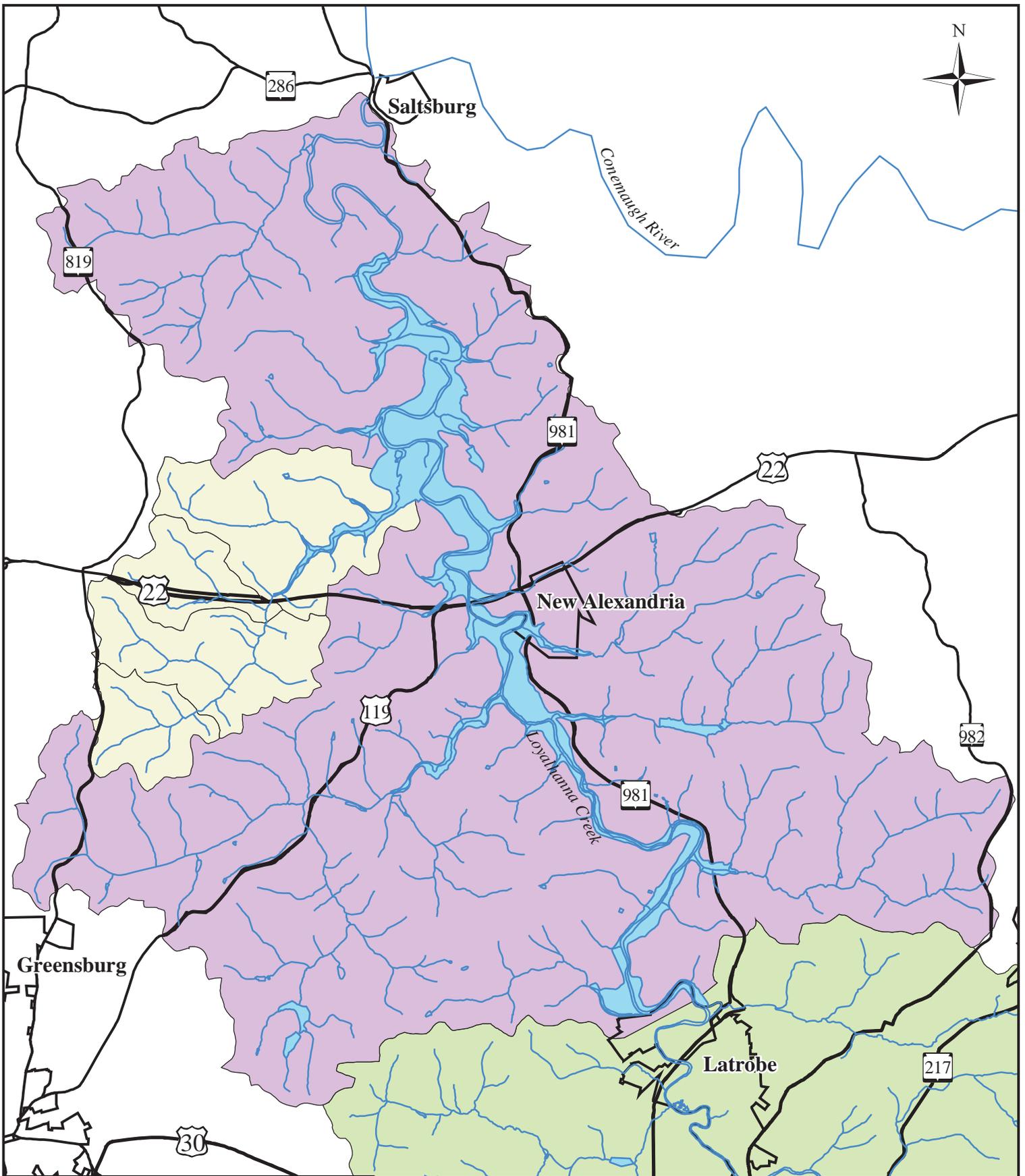
Wetland plants and muddy areas surround the main portion of the lake indicating water levels vary greatly throughout the year.

Please refer to Map 3.E.1 for the geographic location of this subwatershed.

Review of Historic Information

Overall Summary

A limited amount of historic information was found and collected for the Whitethorn Creek Subwatershed. It is a rural area with a landscape dominated by agriculture in the headwaters and forest

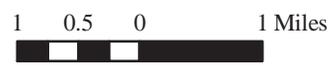


-  Streams
-  Major Roads
-  Boroughs and Cities
-  Whitethorn Run Subwatershed
-  Lower Section


 Watershed Assistance Center

**Whitethorn Run Subwatershed:
Overall Location**

Map 3.E.1



close to the mouth. The headwater region shares a border with the headwaters of Crabtree Creek north of Forbes Road. There was a small amount of surface mining along that border during the 1980s.

Closer to the mouth of the stream, tributaries draining into Whitethorn Creek originate from the same hillside as a tributary that drains directly to the Loyalhanna Creek. That tributary, LLUNT8W, contains acidic mine drainage originating from old deep mines and surface mines.

Scarlift Report

There were no abandoned mine discharges located in the Whitethorn Creek Subwatershed during fieldwork for the Scarlift Project. However, several coal refuse piles and surface mines were located on the subwatershed's southern border. Most of the surface runoff from those spoil piles and strip mines drained into other streams, including Crabtree Creek and LLUNT8W, a tributary to the Lower Loyalhanna Creek. No mine drainage was reported.

Westmoreland Conservation District (WCD)

In 2001, the WCD completed a chemical and biological study of the Whitethorn Creek Subwatershed. The initial survey was completed in order to develop baseline data for an agricultural BMP initiative that would take place throughout the subwatershed over the next few years. During the first sampling, the WCD completed a fish survey, macroinvertebrate survey, and chemical water quality samples. The results showed major impacts from agricultural operations in the subwatershed's headwaters. Low numbers of fish and macroinvertebrates occurred, as well as high readings for nitrates and phosphates.

Following the initial survey, WCD began the installation of agricultural BMPs on the main stem and various tributaries. Water quality sampling was carried out on a monthly basis in order to track the overall change or improvement as a result of the BMPs. Overall results are still pending and the project is still in progress as additional farms install conservation practices.

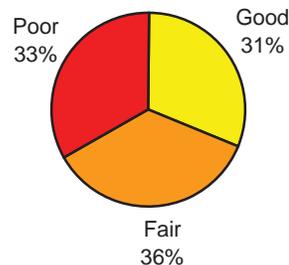
More complete information regarding the study can be obtained from the WCD.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of Whitethorn Creek was completed in May of 2004. A total of 36 stream segments were assessed. As depicted in Figure 3.E.1, 31% of the subwatershed received a good rating, 36% received a fair rating, and 33% received a poor rating. An average score of 6.50 was given to the entire subwatershed, which is a fair rating overall. The overall fair rating primarily reflects the impacts of habitat quality degradation, nutrient loading, and some AMD. Individual stream segment ratings are depicted in Map 3.E.2.

Figure 3.E.1: Visual Assessment Ratings for the Whitethorn Creek Subwatershed



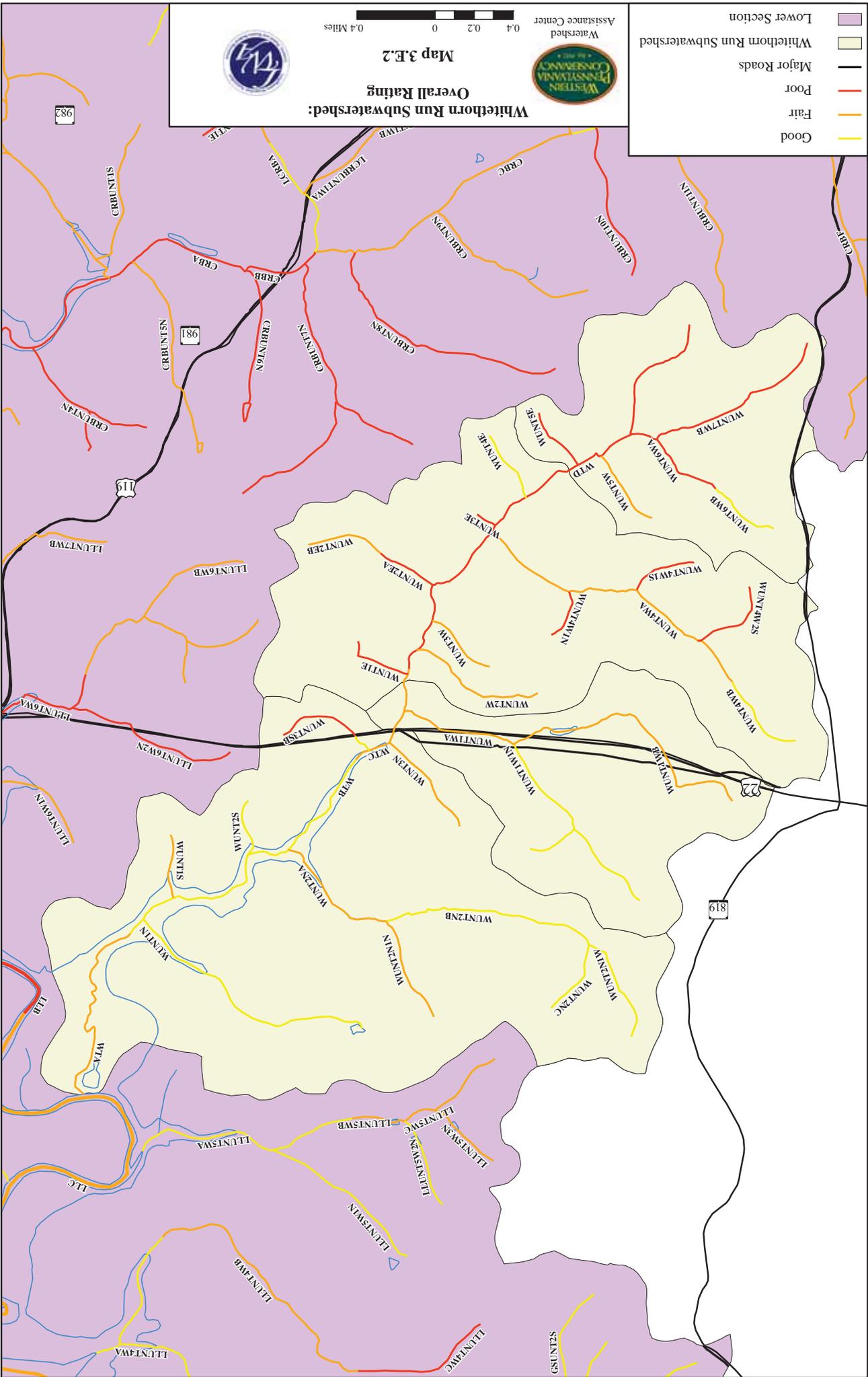
Whitehorn Run Subwatershed: Overall Rating

Map 3.E.2

Watershed Assistance Center 0.4 0.2 0 0.4 Miles



	Lower Section
	Whitehorn Run Subwatershed
	Major Roads
	Poor
	Fair
	Good



Visual Assessment Description

Whitethorn Creek Main Stem

The headwaters of Whitethorn Creek are made up of three separate tributaries. The southernmost tributary was assessed as part of the main stem. It originates on a hillside in between Route 819 and Hannastown Road. Livestock have direct access to the stream as it passes through a pasture. A large amount of silt is present in the substrate of the stream at its headwaters as it flows north to join the other two headwater tributaries, UNT7W and UNT6W, close to the intersection of Hannastown Road and Rosewood Road. UNT7W and UNT6W originate close to Route 819. UNT7W seeps out of an old abandoned strip mine located at the intersection of Route 819 and Rosewood Road. The field pH of UNT7W at its headwaters was 2.6, and iron staining is visible along its gravel and silt substrate. The stream flows east, crossing under Rosewood Road, and then passes through a recently logged area and grazed pasture. UNT6W, which originates at the intersection of Kennen Road and Route 819, and UNT7W meet and together they flow into the main stem. Approximately 100 yards downstream of the convergence of the three tributaries, Whitethorn Creek passes underneath Hannastown Road. At this point, the field pH of the stream was 4.8 and iron staining is visible. In addition to iron staining, some algae is noticeable along the substrate that is comprised of gravel and silt. Not until the entrance of the next tributaries does the pH of the main stem rise.

Whitethorn Creek continues east, flowing parallel to Hannastown Road. A mixture of hayfields, pasture, and some forest surrounds the stream. A few residences are located close to the stream, most of which are associated with farming operations on the hillsides surrounding the stream. Whitethorn Creek maintains this state until it passes underneath an unnamed road very close to Route 22. It is at this point



Looking upstream at a green-tinted Whitethorn Creek, close to the Salem Drive Bridge

that more trees surround the stream. In addition, a few more homes are located close to the stream.

Whitethorn Creek is conveyed underneath Route 22 in a large culvert. That culvert is a significant fish barrier and also channels the stream. Downstream of Route 22, Whitethorn Creek flows parallel to Whitethorn Road. Through this section, the amount of trees and other vegetation surrounding the stream increases. The substrate of the stream is very embedded. Some erosion is visible, mostly on outside bends of the stream. It is through this section that the southern bank of the stream becomes very steep. The bank is composed mostly of large rocks and cliffs.

As Whitethorn Creek continues to flow east, the velocity of flow decreases and the water becomes cloudy and green in coloration. Sediment and gravel line the stream bottom as it winds through a small valley that is thick

with vegetation. Sycamore trees, oak, maple, and small shrubs fill the area surrounding the stream. Where Whitethorn passes underneath Salem Drive, the substrate is almost entirely embedded. Very few rocks are visible within the stream substrate. Five hundred yards downstream of Salem Drive, Whitethorn Creek flows onto USACE flood-control property. It is also at this point that Whitethorn Creek spreads out to form Whitethorn Lake. The formation of the lake is a direct result of the slowed velocity of Loyalhanna Creek at its confluence with Whitethorn Creek. The slowed velocity of Loyalhanna



The confluence of Whitethorn Lake and the Loyalhanna Creek

Creek is due to the Loyalhanna Dam. Wet areas, wood debris, macrophyte beds, and numerous isolated pools surround the lake. It appears that the lake acts as a sediment and nutrient trap. This is apparent because of its sediment-covered banks, muddy color, and abundant algae.

Unnamed Tributaries to the Whitethorn Creek Main Stem

There are 18 unnamed tributaries in the Whitethorn Creek Subwatershed. The characteristics of the tributaries are diverse with some containing impacts from AMD and others containing impacts related to agricultural operations. In general, the tributaries contain significant amounts of sediment from a variety of sources, including farms, open fields, and roads. One tributary, UNT3E, is impacted by Route 22. Where the road crosses the stream, there is a large amount of sediment in the substrate and the stream becomes extremely stagnant.

UNT7W, a headwater tributary, contains impacts from AMD. It originates at what appears to be an abandoned deep mine and strip mine. Maps and historic information do not show a deep mine in this area. Regardless, the pH of UNT7W at its source is 2.6. The tributary flows out of the mined area and through a property that has been logged recently. Finally, UNT7W makes its way through a pasture grazed by approximately 140 holsteins. At its mouth, UNT7W had a field pH of 4.5 and visible orange staining. In addition to UNT7W, one other tributary exhibited impacts from AMD. UNT1S is located very close to the mouth of Whitethorn Creek. It originates from a mined hillside located close to New Alexandria on Salem Drive. It is also at this point that LLUNT8W, a tributary to the Lower Loyalhanna Creek main stem, originates. The tributary is also impacted by AMD. The discharge flowing into UNT1S is a seep and has a very small flow. The field pH of the seep was 5.0 and some orange staining was visible. Where the tributary flows into Whitethorn Creek, there is no visible evidence of AMD.

UNT6W, another headwater tributary, flows through a dairy cow pasture. The substrate of the stream is more than 50% embedded with sediment. As a result, there is no habitat structure or food source available for macroinvertebrates or small fish. There is absolutely no streamside vegetation through the lower portion of the tributary that is heavily grazed.

In addition to UNT6W there are three other tributaries that are impacted by agricultural operations, UNT4W, UNT2W, and UNT1E.

Water Quality

Water quality samples were taken on Whitethorn Creek throughout the assessment. Water quality samples did not provide evidence for upstream impacts discovered during the visual assessment. This data was compared to, and consistent with, water quality analysis completed by the WCD. Additional upstream data performed by the WCD does show increases in total suspended solids, as well as nitrates and phosphates.

Table 3.E.1: Sample Site LWA-14									
Whitethorn Creek									
Date Sampled	pH	Alk. (mg/L)	Acid. (mg/L)	TSS (mg/L)	TDS (mg/L)	Sulfates (mg/L)	Total Iron (mg/L)	Mn (mg/L)	Al (mg/L)
8/25/04	7.49	114	---	1	230	---	<0.06	---	---
10/25/05	7.45	96	---	1	232	---	<0.06	---	---
1/25/05	Frozen over - unable to sample								
3/31/05*	7.40	43.6	-7.6	8.0	---	47.6	0.46	0.10	<0.50

*Sample analyzed by the DEP Bureau of Laboratories

Sample Location: The sample was taken from the Salem Drive Bridge, which can be accessed by turning onto Whitethorn Road from Route 22. Continue on Whitethorn Road bearing right until crossing over Whitethorn Creek.

Conclusions

Although surrounding subwatersheds are significantly impacted by AMD, Whitethorn Creek escapes with only minor AMD impacts. Instead, its headwaters and various tributaries are impaired by nutrient loading as a result of agriculture.

At the mouth of Whitethorn Creek, a lake has formed. The lake is a direct result of the flood-control dam that exists downstream on the Loyalhanna Creek. Where Whitethorn Creek flows into the Loyalhanna Creek, the Loyalhanna Lake is just beginning to form. As a result of high water levels, the banks of the lake and surrounding landscape are covered with sediment and silt. Small stagnant pools of water exist in areas surrounding the lake and water-tolerant vegetation grows through the lake bed and at the lake shore. Without such severely fluctuating water levels, it is speculated that the mouth of Whitethorn Creek could become a wetland consisting of cattail, sedge, and other water-loving plants.

It will be important to monitor the progress of the agricultural BMP project in the upper portion of the subwatershed. Regular water quality monitoring should be performed in conjunction with work completed by the WCD.

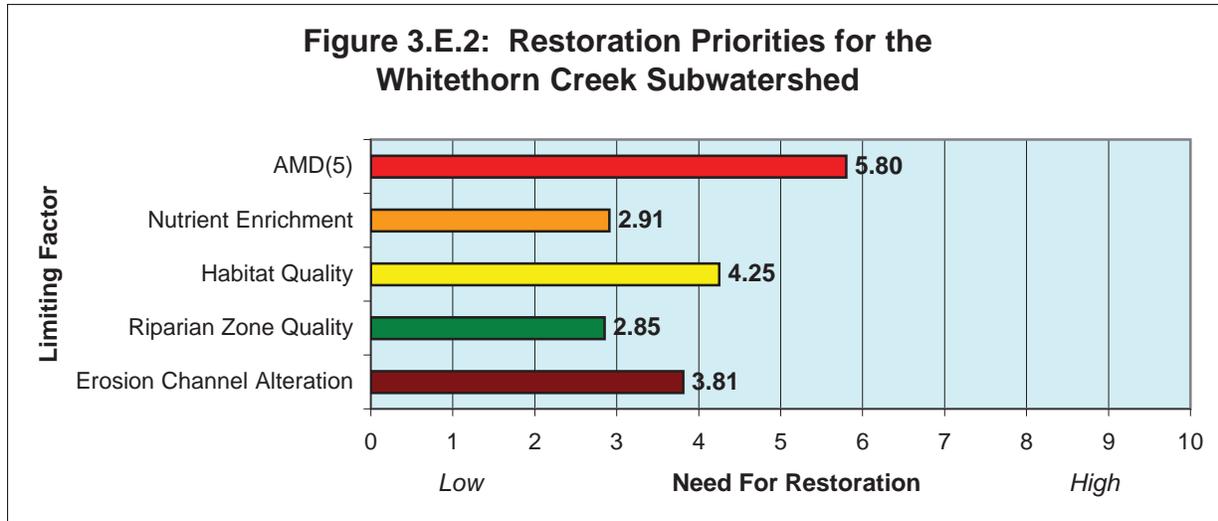
Recommendations

The following recommendations are made for the Whitethorn Creek Subwatershed:

- Investigate source of AMD at the headwaters of UNT7W. Work with DEP District Mining Office and WCD to determine a course of action for the site.
- Support the Westmoreland Conservation District in future agricultural BMP projects throughout the subwatershed. Consider continued water quality monitoring at the mouth of the stream to determine overall benefit.
- Inform and educate subwatershed citizens about the importance of riparian buffers.
- Encourage landowners with large property holdings within the subwatershed to consider conservation and preservation of their properties.
- Work with the USACE and other agencies to develop a strategy for sediment reduction within the entire subwatershed.

Overall Restoration Priorities

Figure 3.E.2 exhibits overall restoration priorities for the entire subwatershed. As indicated, the limiting factor that received the highest restoration score was AMD. Five stream segments were impacted by AMD. The most significant impact from AMD within the subwatershed is located in the headwaters. It is at that point that a discharge enters the stream, impacting water quality for close to a mile. The other AMD sources are seeps that only impact a concentrated section of stream and are quickly diluted. In addition to AMD, restoration priority was also high for compromised fish and macroinvertebrate habitat, or habitat quality, as shown in Figure 3.E.2. This reflects the common occurrence of sediment in the substrate of stream sections throughout the subwatershed.



Restoration Suggestions for Individual Stream Segments

Twenty-one stream segments received visual assessment scores identifying limiting factors. The limiting factors identified included AMD, nutrient loading, compromised fish and macroinvertebrate habitat, riparian zone degradation, and erosion and channel alteration. Please refer to Table 3.E.2 and Map 3.E.3 for impact description and stream segment location.

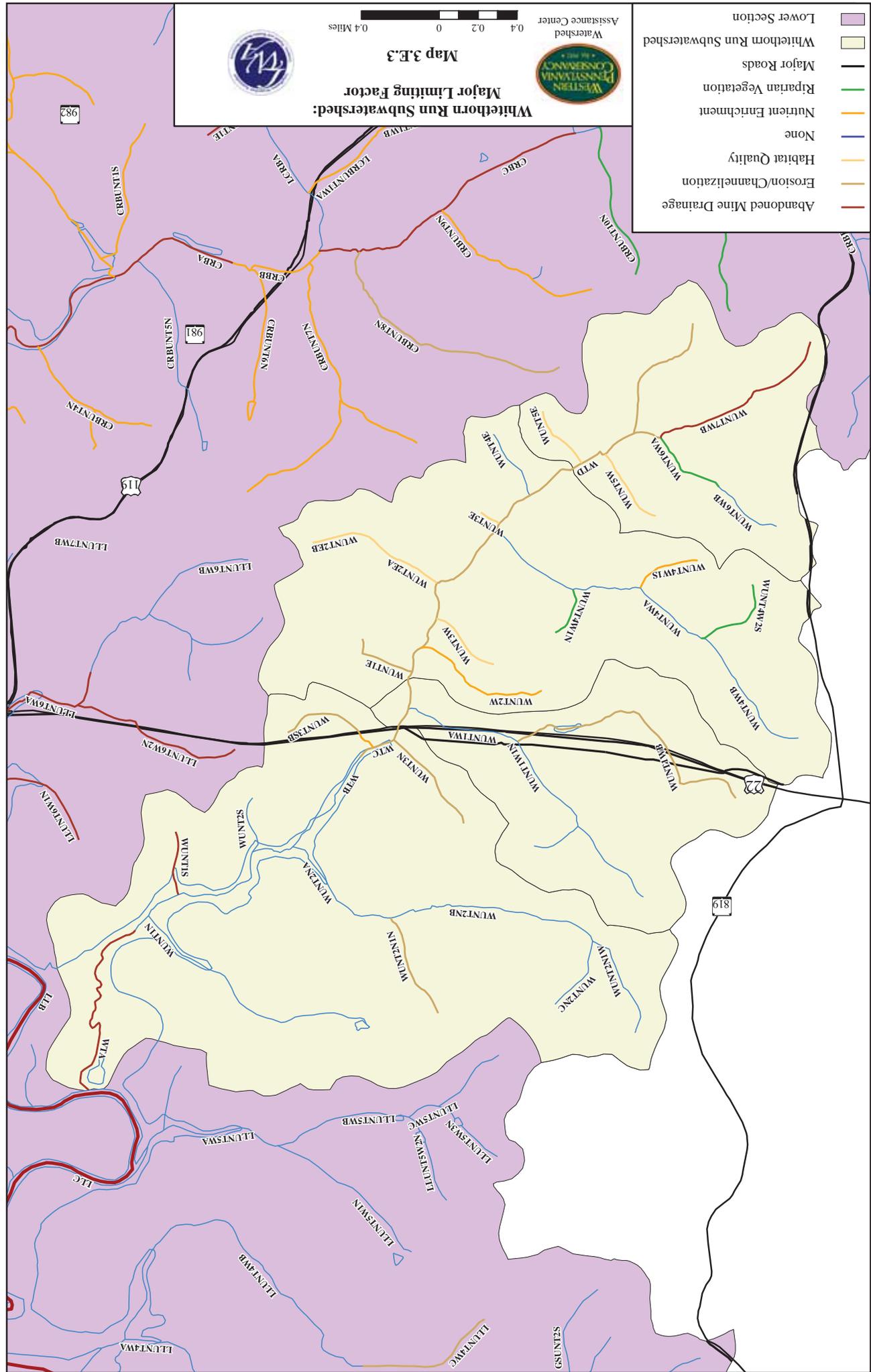
Table 3.E.2: Impacted Stream Segments and Restoration Suggestions for the Whitethorn Creek Subwatershed				
LIMITING FACTOR: Riparian Vegetation Degradation				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
WTUNT1E <i>Small tributary that flows into the main stem. It is located close to the Route 22 and flows through a pasture.</i>	Riparian vegetation is mowed grass, or grazed by livestock who have direct access to the stream. Some canopy cover is present.	1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream. Possible Partners: WCD, USDA, WPC, DEP	State, Federal	Low



Watershed Assistance Center
 0.4 0.2 0 0.4 Miles
Map 3.E.3
Whitehorn Run Subwatershed: Major Limiting Factor



- Lower Section
- Whitehorn Run Subwatershed
- Major Roads
- Riparian Vegetation
- Nutrient Enrichment
- None
- Habitat Quality
- Erosion/Channelization
- Abandoned Mine Drainage



<p>WTUNT3E <i>Very small tributary that flows through a residential area.</i></p>	<p>Landowners have mowed lawns directly to the streambank. Very little vegetation is present. The stream is also channeled underground.</p>	<p>1. Work with property owner to plant riparian vegetation along the streambank. Possible Partners: WCD, DEP, Salem Township</p>	<p>Local, State</p>	<p>Low</p>
<p>WTUNT4W1N <i>Small tributary that flows into UNT4W. It flows through an old pasture that is currently not in use.</i></p>	<p>Because the area surrounding the stream was once used for pasture, the riparian vegetation is heavily grazed. No trees are present along the tributary.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT4W2S <i>Small tributary that flows into UNT4W through a field.</i></p>	<p>The stream has very little vegetation surrounding it. The reach is 50% shaded with trees.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT5E <i>Tributary that flows through a residential area.</i></p>	<p>Riparian vegetation is comprised of mowed grass. The stream is about 25% shaded by trees.</p>	<p>1. Work with landowner to plant vegetation along the streambank. Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>
<p>WTUNT6WA <i>Lower portion of tributary that flows parallel to Kennen Road to join the main stem. It flows through a pasture.</i></p>	<p>This is the site of a WCD fencing project and the livestock access to the stream has been limited. The riparian vegetation is still in recovery and very few trees are present.</p>	<p>1. Work with WCD to continue maintaining the fencing and encourage riparian vegetation to grow. Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal</p>	<p>Low</p>

<p>WTUNT7WA <i>Lower portion of tributary that flows parallel to Rosewood Road to join with UNT6W. It flows through a pasture.</i></p>	<p>Similar to UNT6W, streambank fencing has also been installed here. Livestock access to the stream has been limited. The riparian vegetation is still in recovery and very few trees are present.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>LIMITING FACTOR: Compromised Fish and Macroinvertebrate Habitat</p>				
<p>Stream Segment Name</p>	<p>Description of Impact</p>	<p>Remediation Strategy</p>	<p>Possible Funding Sources</p>	<p>Priority Rating</p>
<p>WTUNT1E <i>Small tributary that flows into the main stem. It is located close to Route 22 and flows through a pasture.</i></p>	<p>The substrate of the stream is more than 30% embedded. Habitat and fish cover are covered by sediment.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate livestock access to stream. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>WTUNT2N1N <i>Small tributary that flows into UNT2N. It flows through a mix of residences and forest.</i></p>	<p>The substrate of the stream is almost entirely embedded with sediment. Multiple fish barriers exist. Habitat is nominal due to substrate type.</p>	<p>1. Work with property owners to identify and eliminate source of sediment, which is mostly likely caused by a variety of factors, including surrounding landscape, the road, and lack of streamside vegetation. Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>

<p>WTUNT2EA <i>Lower portion of a tributary that flows through a grazed pasture.</i></p>	<p>The stream is dry in some areas and where it is flowing, the substrate is 100% silt. Habitat and fish cover are embedded.</p>	<p>1. Determine source of sediment. 2. Work with property owner to take the steps necessary to help the stream recover.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT2EB <i>Upper portion of a tributary that flows through a forested area.</i></p>	<p>The streambed is entirely dry. This serves as a barrier to fish and other stream life.</p>			<p>Low</p>
<p>WTUNT3W <i>Small tributary that flows through a hayfield.</i></p>	<p>The streambed is almost entirely dry. This serves as a fish barrier to fish and other stream life.</p>			<p>Low</p>
<p>WTUNT3E <i>Very small tributary that flows through a residential area.</i></p>	<p>Substrate of the stream is 100% embedded. Habitat, fish cover, and food sources are covered by sediment. Large portions of the stream are channeled underground, serving as a barrier to fish.</p>	<p>1. Determine sediment source. 2. Work with property owner to take the steps necessary to help the stream recover.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT4W1N <i>Small tributary that flows into UNT4W. It flows through an old pasture that is currently not in use.</i></p>	<p>Because the area surrounding the stream was once used for pasture, the riparian vegetation is heavily grazed. The substrate of the stream is 40% embedded; therefore, habitat and food sources are covered with sediment. Due to lack of riparian vegetation, fish cover is non-existent.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate sediment source.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>

<p>WTUNT4W1S <i>Small tributary that flows into UNT4W through a field.</i></p>	<p>The substrate of the stream is 100% embedded and there is very little cover or food source present in the stream.</p>	<p>1. Work with property owners to identify and eliminate source of sediment, which is mostly likely caused by a variety of factors, including surrounding landscape, the road, and lack of streamside vegetation.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT4W2S <i>Small tributary that flows into UNT4W through a pasture and field.</i></p>	<p>The stream is in the process of recovering after streambank fencing was installed. Livestock access to the stream has been limited and tree plantings are in place. Substrate of the stream is 50-60% embedded.</p>	<p>1. Support WCD in their continued efforts to remediate the stream through agricultural BMPs.</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>WTUNT5E <i>Tributary that flows through a residential area.</i></p>	<p>The substrate of the stream is 100% embedded and there is very little cover or food source present in the stream.</p>	<p>1. Work with property owners to identify and eliminate source of sediment, which is mostly likely caused by a variety of factors, including surrounding landscape, the road, and lack of streamside vegetation.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT5W <i>Small stream that begins in old pasture and flows through a residential area at its mouth.</i></p>	<p>Substrate of the stream is 30-40% embedded, covering a good portion of habitat and food sources. A very large culvert in the stream acts a fish barrier because it is set higher than the current level of the stream.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate sediment source.</p> <p>Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal</p>	<p>Low</p>

<p>WTUNT6WA <i>Lower portion of tributary that flows parallel to Kennen Road to join the main stem. It flows through a pasture.</i></p>	<p>This is the site of a WCD fencing project and the livestock access to the stream has been limited. The riparian vegetation is still in recovery and very few trees are present. Substrate of the stream more than 50% embedded, covering significant habitat and food source.</p>	<p>1. Support WCD in their continued efforts to remediate the stream through agricultural BMPs.</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT7WA <i>Lower portion of tributary that flows parallel to Rosewood Road to join with UNT6W. It flows through a pasture.</i></p>	<p>Substrate of the stream is approximately 40% embedded. There is no fish cover available due to lack of riparian vegetation and canopy cover. Little or no habitat is available for insects and fish.</p>	<p>1. Work with landowner to install agricultural BMPs in order to recover the riparian area and eliminate sediment source. Possible Partners: WCD, USDA, WPC, DEP</p>	<p>State, Federal, Private</p>	<p>Medium</p>

LIMITING FACTOR: Erosion and Channel Alteration

Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>WTC <i>Main stem segment that is located upstream of Route 22. The area surrounding the stream in this section is a mix of field and forest.</i></p>	<p>Where the main stem passes underneath Route 22, it is channelized and passed through a large culvert. There is some erosion through the section on either side of the culvert.</p>	<p>1. Determine method to lessen the overall impact of the culvert upstream and downstream. Possible Partners: WCD, WPC, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTD <i>Main stem segment that extends from the headwaters down to upstream of Route 22. It flows through a mix of row crops and pasture.</i></p>	<p>Bank stability is compromised throughout the segment. In some cases it is directly related to grazing livestock. The stream is embedded with sediment from various sources, including upstream erosion.</p>	<p>1. Work with various landowners to install agricultural BMPs to reduce sediment loading and erosion of streambanks. Possible Partners: WCD, WPC, USDA, DEP</p>	<p>State, Federal, Private</p>	<p>Medium</p>

<p>WTUNT1S <i>Tributary that originates at an old surface mine and flows through forest to the main stem.</i></p>	<p>Large amount of sediment is present in substrate indicating some type of erosion in and around the stream. Some streambanks are eroding, but most of the sediment either comes from the road or the surface mine.</p>	<p>1. Reclaim surface mine and plant with trees and grasses to eliminate soil loss into the stream.</p> <p>Possible Partners: PAGC, WPC, USDA, DEP</p>	<p>State, Federal, Private</p>	<p>Low – Medium</p>
<p>WTUNT1WB <i>Upper section of large tributary that originates in Congruity and flows parallel to Route 22. It flows through a mix of forest and residences.</i></p>	<p>The stream is channelized due to its proximity to Route 22. Down cutting and erosion are visible throughout the entire stream segment. The substrate is 100% embedded with sediment that has washed into the stream through erosion and as runoff from the road.</p>	<p>1. Work with landowners to determine a method to reduce erosion of streambanks. 2. Using riparian buffers, attempt to reduce amount of sediment leaving Route 22 and entering the stream channel.</p> <p>Possible Partners: WCD, DEP, PennDOT</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>WTUNT1E <i>Small tributary that flows into the main stem. It is located close to Route 22 and flows through a pasture.</i></p>	<p>The substrate of the stream is more than 30% embedded. Grazing livestock have trampled the streambank.</p>	<p>1. Work with various landowners to install agricultural BMPs to reduce sediment loading and erosion of streambanks.</p> <p>Possible Partners: WCD, WPC, USDA, DEP</p>	<p>State, Federal, Private</p>	<p>Low</p>
<p>WTUNT2N1N <i>Small tributary that flows into UNT2N. It flows through a mix of residences and forest.</i></p>	<p>An ATV trail has been installed and has altered the stream channel. The substrate of the stream is more than 60% embedded, indicating possible erosion upstream.</p>	<p>1. Eliminate ATV trail. 2. Determine source of sediment upstream and work to remediate.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>

<p>WTUNT3SB <i>Small tributary that crosses underneath Route 22 and flows through a residential area.</i></p>	<p>The stream has been channelized due to Route 22. High eroding banks are present along the entire stream. The stream is more than 60% embedded.</p>	<p>1. Work with landowners to determine a method to reduce erosion of streambanks. 2. Using riparian buffers, attempt to reduce amount of sediment leaving Route 22 and entering the stream channel.</p> <p>Possible Partners: WCD, DEP, PennDOT</p>	<p>State, Federal</p>	<p>Low – Medium</p>
<p>WTUNT3E <i>Very small tributary that flows through a residential area.</i></p>	<p>Substrate of the stream is 100% embedded. Approximately one-half of the stream is channeled underground.</p>	<p>1. Determine sediment source. 2. Work with property owner to take the steps necessary to help the stream recover.</p> <p>Possible Partners: WCD, DEP</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT5E <i>Tributary that flows through a residential area.</i></p>	<p>Stream is dry and its substrate is 100% embedded.</p>			<p>Low</p>
<p>WTUNT6WA <i>Lower portion of tributary that flows parallel to Kennen Road to join the main stem. It flows through a pasture.</i></p>	<p>This is the site of a WCD fencing project and the livestock access to the stream has been limited. The riparian vegetation is still in recovery and very few trees are present. Substrate of the stream is more than 50% embedded and eroding banks are still recovering.</p>	<p>1. Support WCD in their continued efforts to remediate the stream through agricultural BMPs.</p>	<p>State, Federal</p>	<p>Low</p>

LIMITING FACTOR: Nutrient Enrichment				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
WTA <i>Main stem segment that flows from Salem Drive Bridge to the mouth of the stream.</i>	Water is green-tinted and the substrate is covered with algae. Near the mouth of the creek, a lake has formed. The shoreline of the lake is littered with algae and foul-smelling pools of water.	1. Identify upstream sources of nutrient loading and reduce or eliminate them. Possible Partners: WCD, DEP, USDA RUS, WPC, USDA FSA	State, Federal, Private	Medium
WTD <i>Main stem segment that extends from the headwaters down to upstream of Route 22. It flows through a mix of row crops and pasture.</i>	Livestock have access to many portions of this stream segment. The water is cloudy and in pools has floating globs of foam. Some algae growth is present in the substrate.	1. Work with landowners to install agricultural BMPs in order to reduce nutrient loading and eliminate livestock access to the creek. Possible Partners: WCD, DEP, WPC, USDA	State, Federal, Private	Medium – High
WTUNT2W <i>Tributary that flows through a sheep farm. The tributary is located close to Route 22.</i>	Sheep have direct access to the stream. The substrate of the stream is covered with green algae.	1. Work with landowners to install agricultural BMPs in order to reduce nutrient loading and eliminate livestock access to the creek. Possible Partners: WCD, DEP, WPC, USDA	State, Federal, Private	Medium – High

<p>WTUNT4W1S <i>Small tributary that flows into UNT4W through a field.</i></p>	<p>There is significant algae growth in the substrate of the stream.</p>	<p>1. Determine source of nutrient enrichment, which could be a number of things, including past grazing, fertilizer for the field, etc. 2. Reduce the nutrient source by working with the landowner to incorporate agricultural BMPs into property management plans.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Medium</p>
<p>WTUNT6WA Lower portion of tributary that flows parallel to Kennen Road to join the main stem. It flows through a pasture.</p>	<p>This is the site of a WCD fencing project and the livestock access to the stream has been limited. The riparian vegetation is still in recovery and very few trees are present. Substrate of the stream is more than 50% embedded, covering significant habitat and food source.</p>	<p>1. Support WCD in their continued efforts to remediate the stream through agricultural BMPs.</p>	<p>State, Federal</p>	<p>Low</p>
<p>WTUNT7WA Lower portion of tributary that flows parallel to Rosewood Road to join with UNT6W. It flows through a pasture.</p>	<p>Livestock have complete access to the stream and graze in and around it. There is some algae growth in the stream substrate.</p>	<p>1. Work with landowners to install agricultural BMPs in order to reduce nutrient loading and eliminate livestock access to the creek.</p> <p>Possible Partners: WCD, DEP, WPC, USDA</p>	<p>State, Federal, Private</p>	<p>Medium</p>

LIMITING FACTOR: Abandoned Mine Drainage				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
WTA <i>Main stem segment that flows from Salem Drive Bridge to the mouth of the stream.</i>	There is a small seep that enters this segment. The iron staining dissipates upon reaching the main stem.	1. Identify source of iron seep and investigate possibilities for remediation if necessary. Possible Partners: DEP	State	Low
WTUNT1S <i>Tributary that originates at an old surface mine and flows through forest to the main stem.</i>	The tributary is tinted orange and there is some iron oxide sediment on the substrate of the stream. The effect dissipates quickly as the tributary flows to meet the main stem.	1. Investigate surface mine at the source of the tributary. Remediate or re-mine if possible. Possible Partners: DEP, OSM	State, Federal	Low
WTUNT6W <i>Lower portion of tributary that flows parallel to Kennen Road to join the main stem. It flows through a pasture.</i>	There appears to be some iron staining in the stream substrate. Landowner stated that it was from an old surface mine at the headwaters. No information was located to support this information and the source of iron is unknown.	1. Investigate source of iron staining further. Possible Partners: DEP	State	Low
WTUNT7WA <i>Lower portion of tributary that flows parallel to Rosewood Road to join with UNT6W. It flows through a pasture.</i>	There is orange staining on the substrate of the stream and the field pH of the stream in the lower section was 4.5. Source of AMD is upstream in section B. The main stem of shows no field-measured impact from the discharge.	1. Remediate upstream source of AMD, either through reclamation, re-mining, or passive treatment. Possible Partners: DEP, OSM, WCD	State, Federal	Medium

<p>WTUNT7WB <i>Upper portion of tributary that flows parallel to Rosewood Road to join UNT6W. It originates in a forested area.</i></p>	<p>Discharge originates at an area that appears to be an abandoned surface mine site. The field pH at the site was 2.6. The stream then travels through a logged area. The water is orange tinted through the section and, prior to flowing into the pasture for section A, the field pH was still acidic at 3.0.</p>	<p>1. Investigate source of AMD and what was done at the site to produce the acidic water. 2. Remediate source of AMD, either through reclamation, re-mining, or passive treatment.</p> <p>Possible Partners: WCD, DEP, OSM</p>	<p>State, Federal</p>	<p>Medium – High</p>
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SECTION 3.F

GETTY RUN

Section 3.F

Getty Run Subwatershed

General Description

The 6.46 square-mile Getty Run Subwatershed is located in the northern portion of Westmoreland County. It is the last subwatershed to enter the Loyalhanna Creek before it meets the Conemaugh River in Saltsburg. Getty Run follows the old Turtle Creek railroad as it flows west through the small community of Slickville in Salem and Loyalhanna townships. Once the site of extensive coal mining, the subwatershed is heavily impacted by AMD. The main stem of the stream maintains a pH of no greater than 3.0 for its entire length.

Getty Run originates on the west side of Slickville, north of the intersection of Route 819 and Main Street. The headwaters are located in a small wooded lot surrounded by homes. Field observations concluded that the headwaters are an AMD source. From the headwaters, Getty Run flows south through a residential area located parallel to Route 819. At the intersection of Depot Street and Route 819, Getty Run turns east and flows underneath Route 819.

Flowing east through Slickville, Getty Run is surrounded by a mix of residences and some forest. To the north of the stream, homes and small business dot the hillside. The south side of the stream is comprised mostly of forest and some coal refuse.

Following Main Street and the railroad grade, Getty Run flows out of the town of Slickville. Once outside of Slickville, the landscape becomes more forested. At the intersection of Main Street and Butz Road, a large tributary enters Getty Run from the southwest. The tributary originates on a large farm at the intersection of Cells Road and Route 819.

Downstream of Butz Road, Getty Run flows through a small farm and past several large coal refuse piles. At the mouth of the stream, the surrounding landscape is forested. In addition, Japanese knotweed occupies most of the streamside riparian area.

Getty Run is listed on the Cold Water Act (CWA) 303(d) list as an impaired waterway for pH, metals, and acidity. The waterway is classified as a WWF. Please refer to 3.F.1 for geographic location of this subwatershed.



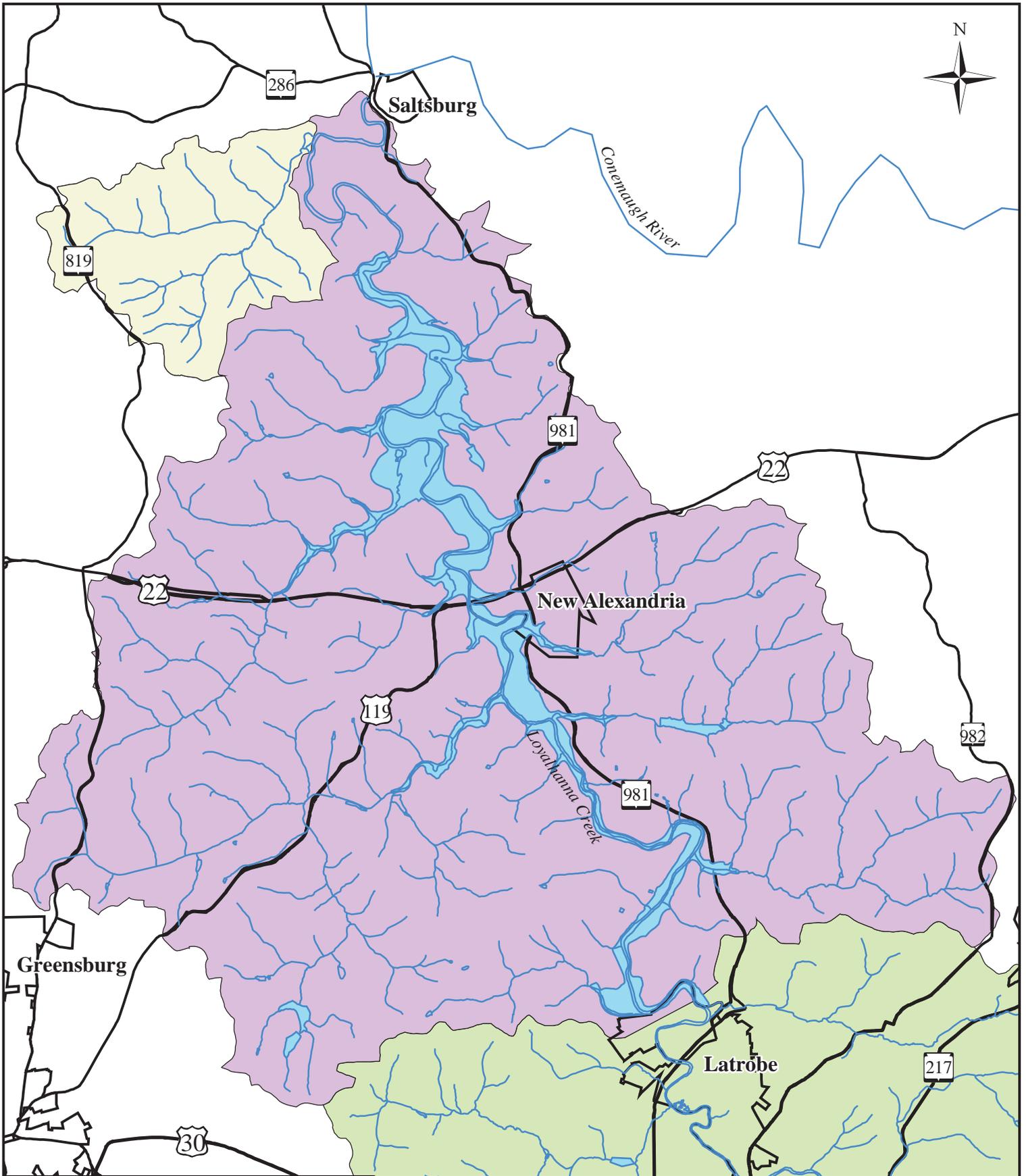
Looking downstream at Getty Run from the Turtle Creek Railroad Line/West Penn Trail

Review of Historic Information

Overall Summary

The Getty Run Subwatershed is underlain by the Pittsburgh coal seam. As a result, much of the area was heavily mined throughout the early 1900s. Bethlehem Mines Corporation, Irwin Gas Coal Company, Howard Gas Coal Company, and Seehart Coal Company all operated in the Slickville Area. Unlike other subwatershed mines, very little historic information was located regarding the deep mines in and around Slickville.

The coal-bearing geologic structure in the Getty Run Subwatershed area is referred to as the



-  Streams
-  Major Roads
-  Boroughs and Cities
-  Getty Run Subwatershed
-  Lower Section



Watershed Assistance Center

**Getty Run Subwatershed:
Overall Location**

Map 3.F.1



Elders Ridge Syncline. Unlike other synclines, its slope and dip allowed mines to be self-draining. During mining, this was advantageous because it was not necessary to pump water out of the mined areas. Today, this feature is what makes the Getty Run Subwatershed one of the most polluted in the entire Loyalhanna Creek Watershed. Getty Run flows through a valley that is at the low point of the coal seam. Therefore the natural drainage from the coal seam is towards the outcrop line. The sealing of any or all of the discharges within the subwatershed would only serve to divert discharge flow to other points. The fragmented nature of the coal seam prevents the utilization of any single discharge point as a drainway for the area to conduct flows to a single treatment facility.¹

Scarlift Report

According to the Scarlift Report, Getty Run Subwatershed is the most “acid mine drainage polluted tributary stream in the watershed.” It was also stated that the ability to achieve water quality improvement would be difficult due to its geologic and topographic structure.

During fieldwork for the Scarlift Report, 12 discharges were inventoried. In most cases, coal waste piles were found with the discharges, as well as along the streambank. Each of the discharges inventoried is described below.

Getty Run Subwatershed Discharges Catalogued During Scarlift		
Scarlift Discharge Number	Current Discharge Name	Description and Location of Discharge
5163	None	Drainage emanating from an abandoned drift mine opening east of the headwaters of UNT3N. During Scarlift fieldwork, the average water quality data was as follows: flow – 60 gpm, pH – 2.6, total iron – 82 mg/L, and aluminum – 28 mg/L. During the assessment, this exact discharge was not found. The discharge may have been eliminated during surface mining completed after the Scarlift Report.
5164	None	Drainage emanating from an abandoned drift mine opening at the headwaters of UNT3N. During Scarlift fieldwork, the average water quality data was as follows: flow – 45 gpm, pH – 2.6, total iron – 100 mg/L, and aluminum – 25 mg/L. During the assessment this discharge was found and it was flowing from underneath a coal refuse pile. The field pH of the discharge was 3.1 when it was assessed. There was a significant amount of flow and a large amount of filamentous algae in the stream substrate.
5167	None	Discharge seeping out of an old pipe at the site of an abandoned drift mine opening and stripped area. During Scarlift fieldwork, the average water quality was as follows: flow – 8 gpm, pH – 2.5, total iron – 104 mg/L, and aluminum – 72 mg/L. This discharge was located during the assessment on Depot Street, west of downtown Slickville. The discharge creates a small intermittent tributary that enters the main stem of Getty Run right before it crosses underneath Route 819. The field pH of the discharge was 3.1 during the assessment.

¹ Operation Scarlift, Project No. SL-122, December 1972, pp. X-17

5168	None	Small seep emanating from a stripped drift mine entry. During Scarlift Fieldwork, the average water quality was as follows: flow – 3 gpm, pH – 2.4, total iron – 222 mg/L, and aluminum – 60 mg/L. The seep was not located during the assessment. However, the stream near its historic location, UNT6N, had a field pH of 2.9 at its headwaters. Additional discharges impact the tributary.
5169	None	Discharge entering UNT6N from a slumped drift mine opening. The discharge collects into a small pond and then flows into the tributary. During Scarlift fieldwork, the average water quality was as follows: flow – 3 gpm, pH 2.4, total iron – 166 mg/L, and aluminum – 56 mg/L. The seep was located during the assessment and it still collects into a small pond prior to flowing into UNT6N. Field pH of the discharge below the pond was 2.9.
5170	Getty #1	Large discharge flowing from the old drainway for the Bethlehem Mine near the Getty Run headwaters. The discharge is located close to St. Sylvester’s church, just east of Route 819 and south of Main Street. During Scarlift fieldwork, the average water quality was as follows: flow – 240 gpm, pH – 2.6, total iron – 138 mg/L, and aluminum – 14.4 mg/L. The discharge was located during the assessment. It maintains a large flow volume between 150 gpm and 300 gpm. The field pH of the discharge was 3.1 during assessment fieldwork. The discharge was sampled in 2002 and 2003 by the LWA. That sample data is consistent with data collected during Scarlift.
5171	Getty #2	Drainage emanating from an abandoned drift mine opening downstream of 5170. During Scarlift fieldwork, the average water quality was as follows: flow – 45 gpm, pH – 2.5, total iron – 35 mg/L, and aluminum – 48 mg/L. The discharge was located during the assessment. It is located to the south of Sportsman’s Club Road on private property. During the assessment, the field pH of the discharge was 2.7. In 2002 and 2003 the discharge was sampled by the LWA. That sample data is consistent with data collected during Scarlift.
5172	None	Discharge associated with 5171.
5173	None	Drainage flowing from an abandoned airshaft from the Irwin Gas and Coal Company. During Scarlift fieldwork the average water quality was as follows: flow – 50 gpm, pH – 2.6, total iron – 78 mg/L, and aluminum – 45 mg/L. The discharge was located during the assessment and had a pH of 3.0. It is located at the headwaters of UNT5N and flows into a small pond.
5174	None	Seep coming from a strip cut that intersected deep mine workings. This discharge was not located during the assessment and it is suspected that additional surface mining has eliminated it.

5175	None	Seep emanating from an old surface mine and drift mine opening associated with the Howard Gas and Coal Company. During Scarlift fieldwork, the average water quality was as follows: flow – 10 gpm, pH – 2.6, total iron – 15.2 mg/L, and aluminum – 27 mg/L. Evidence of the seep was found during the assessment, but not the source. The source site is now covered by a landfill. The seep is located at the headwaters of UNT4N that has a pH of 3.8 at its mouth.
5176	Getty #3	Discharge draining from a slumped mine shaft. It collects into a pond and then flows to join the flow from 5171. During Scarlift fieldwork, the average water quality was as follows: flow – 25 gpm, pH – 2.5, total iron – 100 mg/L, and aluminum – 30 mg/L. The discharge was located during the assessment and it had a field pH of 2.7. In 2002 and 2003 the discharge was sampled by the LWA. That sample data is consistent with data collected during Scarlift. This discharge and 5171 form a tributary that enters Getty Run where Sportsman’s Club Road and Main Street meet.

DEP Getty Run TMDL

The Getty Run Subwatershed was assessed by the DEP in 2002. The TMDL for Getty Run was completed in 2004. According to the TMDL report, the subwatershed is exceeding designated TMDLs.

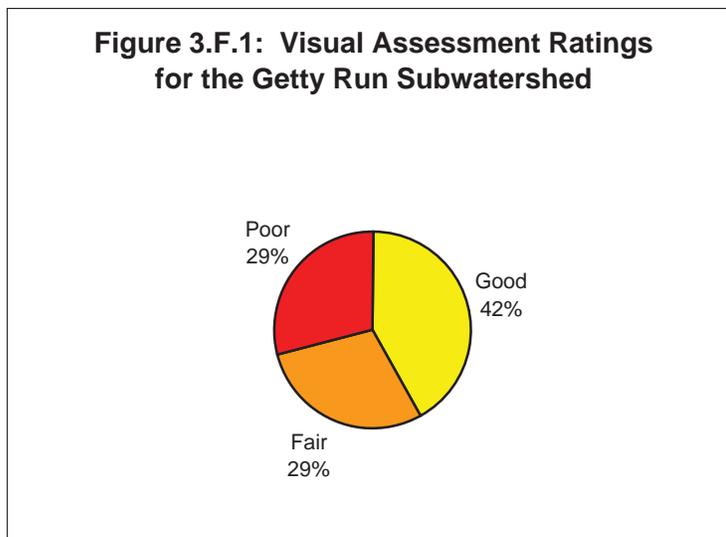
Loyalhanna Watershed Association (LWA)

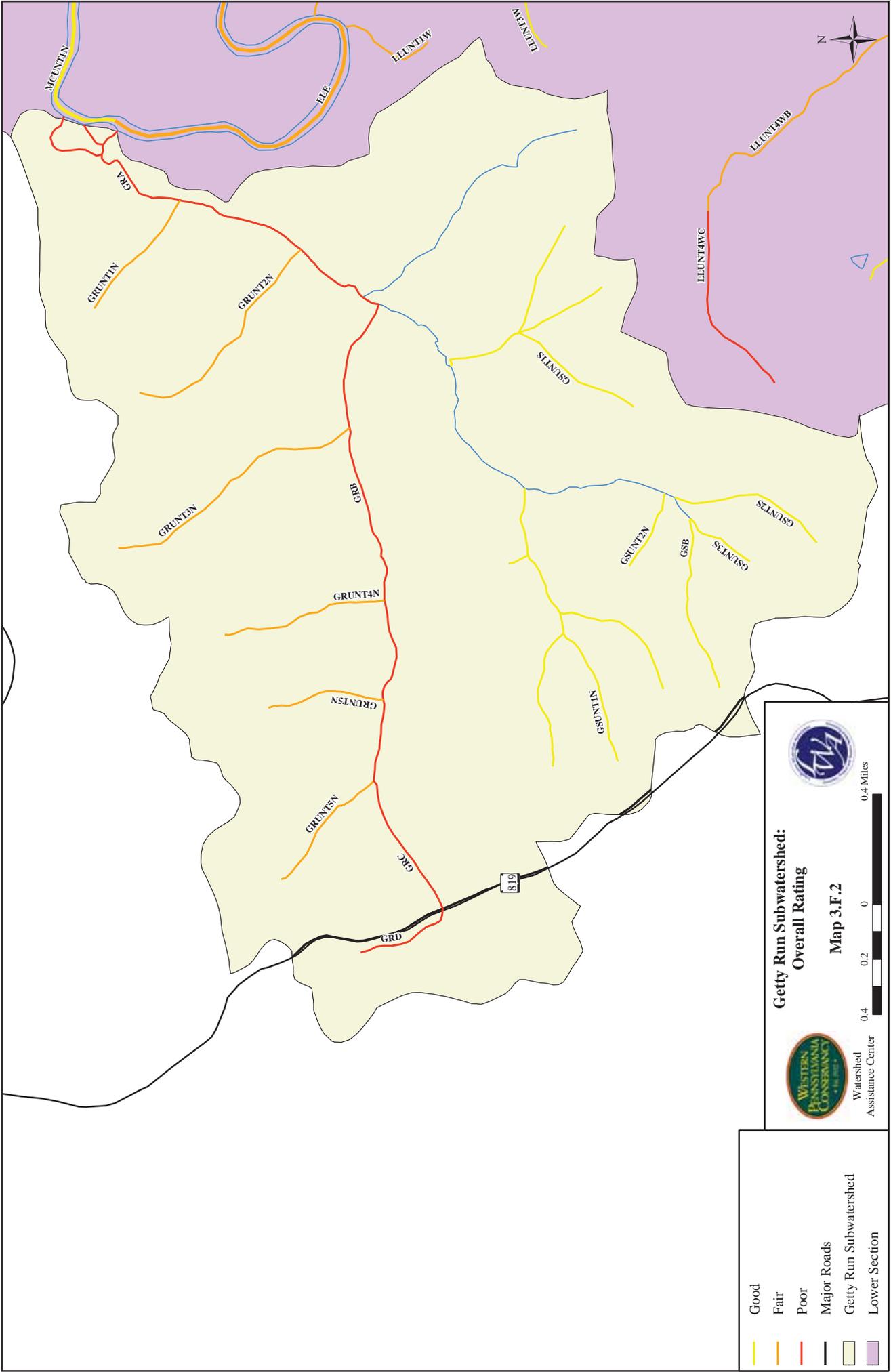
In 2002 and 2003, the LWA collected water quality samples from three discharges within the subwatershed. Those discharge sites are described and listed with water quality information in Appendix 3.

Visual Assessment Summary

Visual Assessment Findings

The visual assessment of the subwatershed was completed in June of 2004. A total of 17 stream segments were assessed. As depicted in Figure 3.F.1, 42% of the subwatershed received a good rating, 29% received a fair rating, and 29% received a poor rating. An average score of 6.98 was given to the entire subwatershed, which is a fair rating overall. The main stem of Getty Run is most significantly impacted by AMD. Other impacts do not pose a problem as significant as the AMD. Individual stream segment ratings are depicted in Map 3.F.2.





- Good
- Fair
- Poor
- Major Roads
- Getty Run Subwatershed
- Lower Section



**Getty Run Subwatershed:
Overall Rating**

Map 3.F.2

0.4 Miles



Watershed
Assistance Center

Visual Assessment Description

Getty Run Main Stem

The headwaters of Getty Run originate in a small, forested area adjacent to Route 819 in Slickville. From the headwaters, the stream flows south through a residential area toward the intersection of Route 819 and Main Street in Slickville. As it flows through the residential area, the substrate of the stream is comprised of gravel, silt, and mud. Most of the homeowners in the residential area mow lawns directly to the streambank. Where vegetation is left, Japanese knotweed dominates. The water has an orange tint to it and the pH of the stream at and below the headwaters is 3.0. It is suspected that the headwater source is a mine drainage discharge.

Along the stretch of stream that flows parallel to Route 819 and through the residential area, a large flowing pipe was found. The water flowing from the pipe had a bad odor, was black in color, and had a high pH. The discharging water is most likely sewage from surrounding homes.

At the intersection of Route 819 and Main Street, Getty Run turns east and passes underneath Route 819. The landscape surrounding the stream is dominated by residences to the north and forest to the south. The forest is comprised of small trees, Japanese knotweed, greenbriar, and other small shrubs. As Getty Run flows through the community of Slickville, it runs parallel to the old Turtle Creek railroad bed. The substrate of the stream is made up of mostly gravel, mud, bricks, and chunks of coal. Garbage is scattered everywhere along the streambank, in the stream, and throughout the scrubby forest surrounding the stream.

Approximately 1,000 yards downstream from Route 819, a large abandoned mine discharge enters Getty Run. With a pH of 3.0, the discharge adds additional acidity to the already acidic stream. Upstream of the discharge, the pH of Getty Run is 3.0 and the pH is the same downstream. The water in the stream remains orange in color as the stream continues to flow through Slickville.

Where Sportsman's Club Road meets Main Street, Getty Run crosses underneath Main Street and a second large discharge enters. The pH of the discharge is 3.0. Upstream and downstream of the discharge, the pH is also 3.0 indicating no overall change in pH from the discharge. After that discharge enters, Getty Run crosses underneath Main Street again. The stream substrate in this section is comprised mostly of cobble and the water has an orange tint. Similar to upstream, garbage litters the substrate, streambank, and hillside surrounding the stream. Getty Run does not change significantly until it is joined by a large tributary at the intersection of Main Street and Butz Road. It is at this point that iron and aluminum precipitate appear. Despite the appearance of the precipitates, there is not a large change in the pH of the stream. Upstream of the confluence the pH of Getty Run is 3.2 and downstream the pH is 3.4.

At the confluence of the main stem of Getty Run and the Getty Run South Branch, the stream turns northeast and continues to follow the old railroad bed. The riparian area immediately surrounding the stream remains vegetated with small trees, Japanese knotweed, and small shrubs. As Getty Run approaches the Loyalhanna Creek, it passes through a small farm and flows around a large coal waste pile. Some runoff from the coal waste pile is noticeable.

Approximately 100 yards upstream from its mouth, Getty Run passes underneath the railroad grade, which has been converted into a hiking and biking trail. At this point the stream is still orange in color and has a pH of 2.9. The cobble substrate is covered with bright green algae. The area surrounding the stream is vegetated with small hardwood trees, shrubs, and Japanese knotweed.



The confluence of the Getty Run main stem and Getty Run South Branch

Where Getty Run meets the Loyalhanna Creek, aluminum and iron precipitate are immediately visible. The most apparent precipitate however is aluminum. A white plume extends along the streambank for approximately 500 to 1,000 yards, and the rocks are covered with the slippery white aluminum precipitate.

Getty Run Unnamed Tributaries

There are seven unnamed tributaries that enter Getty Run as it flows from west to east. The largest of those tributaries is the South Branch of Getty Run. No impacts from AMD were discovered within the South Branch, which is surrounded by agriculture in its upper portion and forested in its lower portion. With a pH of 7.6, it flows into the main stem of Getty Run. The addition of water with a higher pH only makes a small and brief difference to Getty Run.

Four of the six other tributaries that enter Getty Run originate at abandoned mine discharges. At their mouths, they range in pH from 2.9 to 3.3. The remaining two tributaries entering have no AMD impacts.

Water Quality

Only one sample was taken at the mouth of Getty Run. Following the visual assessment, it was determined that further sampling would not provide any new information. Overall water quality in the Getty Run Subwatershed has not changed significantly since the completion of the Scarlift Report. Please refer to the chart below for the results of the sample taken during the assessment.

Date Sampled	pH	Alk. (mg/L)	Acid. (mg/L)	TSS (mg/L)	Sulfates (mg/L)	Total Iron (mg/L)	Mn (mg/L)	Al (mg/L)
8/25/04	2.86	<1.0	202	2	596	13.9	8.0	2.1

Sampling stopped at Getty Run - Will sample at mouth yearly

Conclusions

The Getty Run Subwatershed is severely impacted by AMD. Multiple discharges enter the stream from various sources within the watershed. One larger discharge, located close to St. Sylvester's church contributes approximately 40% of the total volume of AMD to the stream.

At the mouth of Getty Run, its impact to the Loyalhanna Creek is visually apparent. A plume of white and orange water extends to the mouth of the Loyalhanna Creek, thus impacting the Kiskimuntus River as well. If not for the impact of Getty Run, the Loyalhanna Creek would join with the Conemaugh River relatively unscathed.

In order to remediate AMD within Getty Run, a large investment of time, resources, and money would be required.

Recommendations

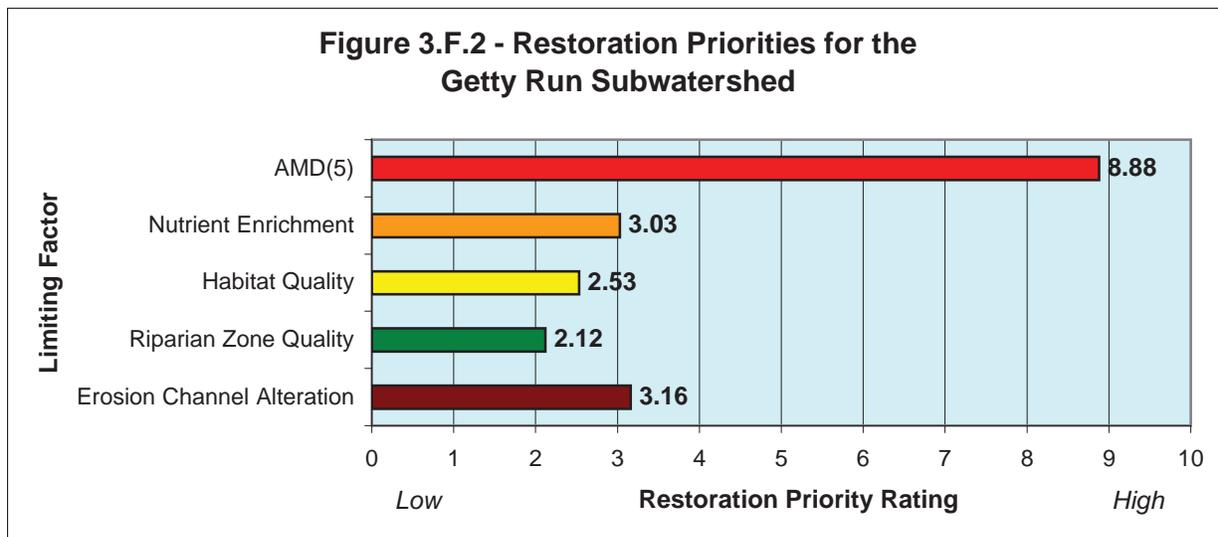
The following recommendations are made for the Getty Run Subwatershed:

- Develop a monitoring program for the entire subwatershed in order to gather baseline and seasonal information.

- Formulate a course of action for the subwatershed using the expertise and knowledge of regional AMD experts.
- Educate residents within the subwatershed about the AMD.
- Clean up trash dumps throughout the subwatershed.

Overall Restoration Priorities

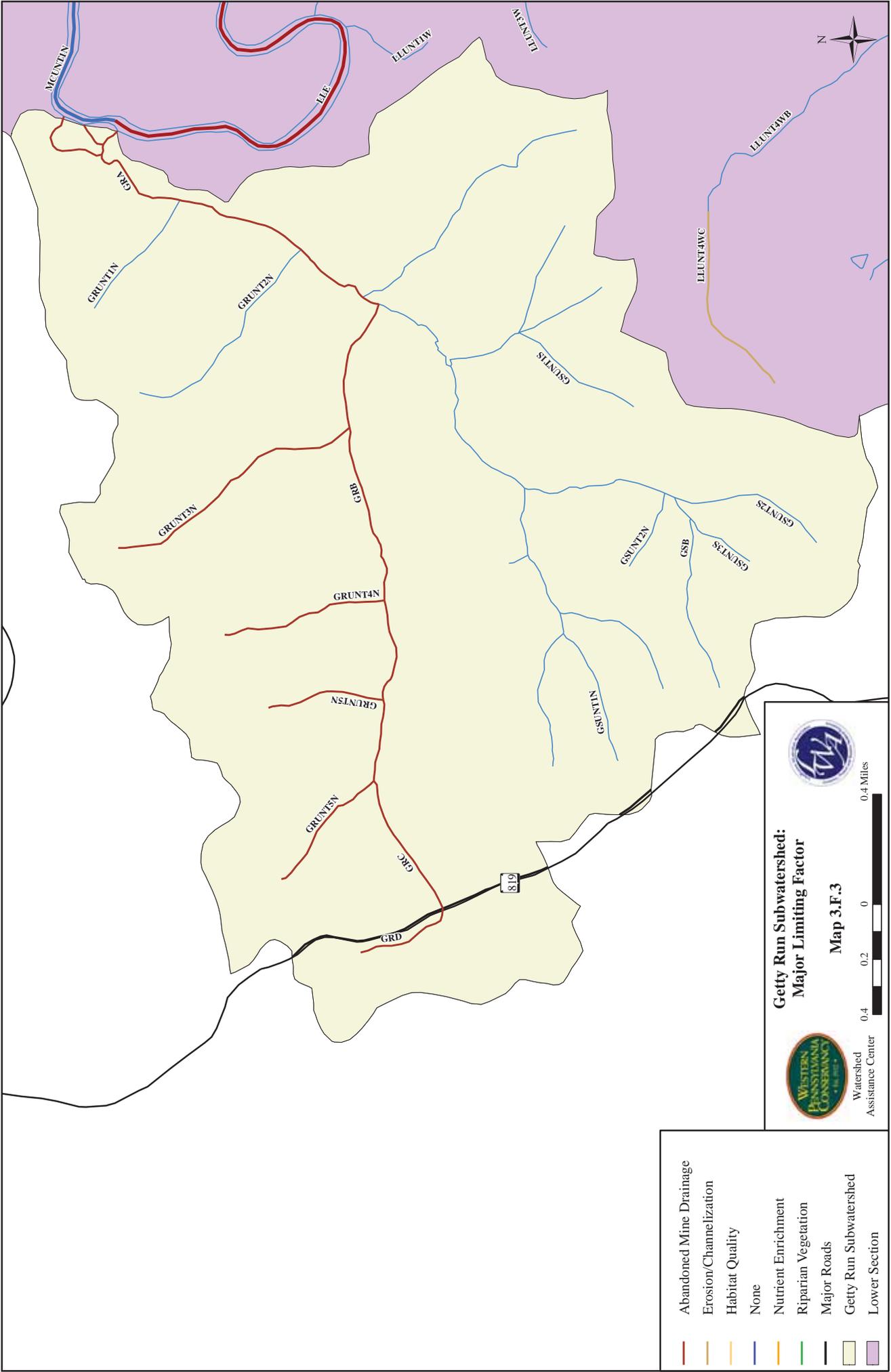
Figure 3.F.2 exhibits overall restoration priorities for the Getty Run Subwatershed. As indicated, the limiting factor that received the highest restoration priority score was AMD. Eight stream segments were impacted by AMD. Those impacted segments include the entire main stem of Getty Run.



Restoration Suggestions for Individual Stream Segments

Eight stream segments received visual assessment scores identifying limiting factors. The limiting factors identified included AMD, nutrient enrichment, compromised fish and macroinvertebrate habitat, riparian vegetation degradation, and erosion and channel alteration. Please refer to Table 3.F.2 and Map 3.F.3 for impact description and location.

Table 3.F.2: Impacted Stream Segments and Restoration Suggestions for the Getty Run Subwatershed				
LIMITING FACTOR: Riparian Vegetation Degradation				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
GRD <i>Headwater portion of the main stem that flows through a residential area. The source contains AMD.</i>	Riparian vegetation is absent; property owners mow lawns to the streambank.	1. Educate landowners. 2. Remediate riparian area. Possible Partners: WCD, DEP, Unity Township	Local, State	Low



- Abandoned Mine Drainage
- Erosion/Channelization
- Habitat Quality
- None
- Nutrient Enrichment
- Riparian Vegetation
- Major Roads
- Getty Run Subwatershed
- Lower Section

**Getty Run Subwatershed:
Major Limiting Factor**

Map 3.F.3



0.4 Miles



Watershed Assistance Center

LIMITING FACTOR: Compromised Fish and Macroinvertebrate Habitat				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
GRC <i>Main stem segment that flows through forest and residential area along Main Street in Slickville.</i>	Due to AMD, habitat and food source is poor. In addition, the stream substrate is embedded with sediment and iron oxide.	1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC	State, Federal, Private	High
GRD <i>Headwater portion of the main stem that flows through a residential area. The source contains AMD.</i>	Due to AMD, habitat and food source is poor. In addition, the stream substrate is embedded with sediment and iron oxide.	1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC	State, Federal, Private	High
LIMITING FACTOR: Erosion and Channel Alteration				
Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
GRA <i>Main stem segment that extends upstream from the mouth. It flows through forest and fields. In addition, it passes by a large coal waste pile.</i>	Streambanks are very high and heavily eroded.	1. Determine remediation strategy for the erosion problems. 2. Work with landowners upstream to alleviate erosion-causing effects. Possible Partners: WCD, DEP	State	Low
GRB <i>Main stem segment that flows through mostly forest with some residences.</i>	Stream is channelized where it flows next to the road. Banks are severely eroding.	1. Determine remediation strategy for the erosion problems. 2. Work with landowners upstream to alleviate erosion-causing effects. Possible Partners: WCD, DEP	State	Low

<p>GRD <i>Headwater portion of the main stem that flows through a residential area. The source contains AMD.</i></p>	<p>Stream is channelized where it flows next to the road. Banks are severely eroding.</p>	<p>1. Determine remediation strategy for the erosion problems. 2. Work with landowners upstream to alleviate erosion-causing effects.</p> <p>Possible Partners: WCD, DEP</p>	<p>State</p>	<p>Low</p>
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LIMITING FACTOR: Nutrient Enrichment

Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>GRD <i>Headwater portion of the main stem that flows through a residential area. The source contains AMD.</i></p>	<p>Multiple inputs of sewage enter this stream segment from the residential area. One large pipe (8-10 inches) was located close to the intersection of Route 819 and Depot Street. It was spewing sewage.</p>	<p>1. Work with community to initiate plans for sewerage. 2. Encourage landowners to adopt BMPs for septic systems.</p> <p>Possible Partners: WCD, PSCE, USDA RUS, DEP</p>	<p>State, Federal</p>	<p>Medium</p>

LIMITING FACTOR: Abandoned Mine Drainage

Stream Segment Name	Description of Impact	Remediation Strategy	Possible Funding Sources	Priority Rating
<p>GRA <i>Main stem segment that extends upstream from the mouth. It flows through forest and fields. In addition, it passes by a large coal waste pile.</i></p>	<p>The field pH of Getty Run at the mouth was 2.9. The water was orange and white in color. Upstream AMD sources are visibly affecting Getty Run all the way to the mouth.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment.</p> <p>Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>GRB <i>Main stem segment that flows through mostly forest with some residences.</i></p>	<p>The water was orange and white in color. Upstream AMD sources are visibly affecting Getty Run all the way to the mouth.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment.</p> <p>Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>

<p>GRC <i>Main stem segment that flows through forest and residential area along Main Street in Slickville.</i></p>	<p>The water was orange and white in color. Upstream and other sources of AMD are visibly affecting this section.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>GRD <i>Headwater portion of the main stem that flows through a residential area. The source contains AMD.</i></p>	<p>The water was slightly tinted orange and the substrate of the stream was covered with bright green algae. The field pH of the stream in the headwaters was between 2.9 and 3.2.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>GRUNT3N <i>Tributary that flows through residences and forest. The stream begins underneath a coal refuse pile.</i></p>	<p>The water is slightly orange and filled with dead worms and millipedes. Lots of algae are growing along the stream substrate.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>GRUNT4N <i>Tributary that originates in an old surface mine and flows down through a mix of forest residences.</i></p>	<p>Field pH of the stream ranged from 3.5 to 3.9. The water was deceptively clear. Some orange staining visible close to the mouth.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
<p>GRUNT5N <i>Tributary that originates as an AMD source. AMD flows from a hillside that could have been a mine entry or airshaft. It then flows through a pond/wetland.</i></p>	<p>The stream is orange in color with much algae growing along the gravel substrate. The pH of the stream at the mouth was 3.0.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment. Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>

<p>GRUNT6N <i>Tributary that originates in an old surface mine and flows down through a mix of forest residences.</i></p>	<p>The stream is orange in color with much algae growing along the gravel substrate. The pH of the stream at the mouth was 3.0.</p>	<p>1. Remediate AMD through reclamation and/or passive treatment.</p> <p>Possible Partners: USACE, OSM, DEP, WCD, WPC</p>	<p>State, Federal</p>	<p>High</p>
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CONCLUSION AND APPENDIX

Appendix 1 - Advisory Committee and Volunteers

Appendix 2 - Study Design and Visual Assessment Protocol

Appendix 3 - Water Quality Data and Sample Location Maps

Appendix 4 - Stream Abbreviations

Appendix 1

Appendix 1 – Committee Members and Volunteers

WATERSHED ASSESSMENT ADVISORY COMMITTEE

Drew Banas	Loyalhanna Watershed Association
Craig Barras	Westmoreland Conservation District (2002-2003)
Mike Barrik	Westmoreland Conservation District (2003-2005)
Floyd Eiseman	Loyalhanna Watershed Association Board Member
Jeff Fliss	Department of Environmental Protection
Wesley Gordon	Loyalhanna Watershed Association Board Member
Ron Horansky	Department of Environmental Protection
Mark Killar	Western Pennsylvania Conservancy
Beth Langham	Saint Vincent College
John Matviya	Department of Environmental Protection/LWA Board Member
Rosemary Reilly	U.S. Army Corps of Engineers
Carole Wright	Loyalhanna Watershed Association
Benjamin Wright	Western Pennsylvania Conservancy

WATERSHED ASSESSMENT VOLUNTEERS

Hank Balles	Trout Unlimited/Loyalhanna Watershed Association
Scott Balles	Western Pennsylvania Conservancy Summer Intern (2003)
Sam Banales	Loyalhanna Watershed Association
Hillary Bright	Western Pennsylvania Conservancy AmeriCorps Intern (2004)
Roger Brown	Loyalhanna Watershed Association
Susie Carmichael	Westmoreland Conservation District
Tammy Colt	Loyalhanna Watershed Association AmeriCorps Intern (2003)
Carly Colt	Loyalhanna Watershed Association
Melanie Holowaty	Loyalhanna Watershed Association AmeriCorps Intern (2002-2003)
Scott Minster	Forbes Trail Trout Unlimited/Loyalhanna Watershed Association
Roz Robataille	Loyalhanna Watershed Association
Alysha Trexler	Western Pennsylvania Conservancy AmeriCorps Intern (2004)
Ken Vallino	Forbes Trail Trout Unlimited/Loyalhanna Watershed Association

Appendix 2

Appendix 2 – Study Design and Protocol

Background

Founded in 1971, the Loyalhanna Creek Watershed Association (LWA) is a non-profit organization that strives to achieve its mission to protect, conserve and restore the natural resources of the Loyalhanna Creek. Originating in the limestone aquifers of Laurel Mountain and flowing to its confluence with the Conemaugh River in Saltsburg, Loyalhanna Creek drains approximately 298 square miles. From its beginning to its confluence with the Conemaugh, Loyalhanna Creek encounters a series of environmental issues. LWA has addressed some of these problems but has realized the need to clearly identify each issue. With the efforts of 400+ members, board members, staff and support of environmental partners, LWA plans to identify and characterize these issues and prioritize them in a remediation plan.

Purpose

Ultimately, LWA wants to assess the current conditions of the watershed, and with the information gathered, produce a restoration plan that LWA members, citizens and municipalities can use to guide efforts in addressing water quality challenges. The following are the objectives of the Loyalhanna Creek Watershed Assessment:

- Locate and map the location of impaired sites within the watershed
- Produce a restoration plan
- Perform watershed assessment
- Increase community awareness
- Prioritize pollution areas
- Continuous information over a period of time
- Information on worst streams, best streams
- Establish areas that should be treated (AMD) or addressed with BMP practices (AG) or investigated further with future work and partnerships (sewage, erosion control)

To fully address problems within the Loyalhanna Creek Watershed, information will need to be collected on the following issues:

- Abandoned Mine Drainage (AMD)
- Nutrient Enrichment from Agriculture
- Visual assessment of banks and riparian areas
- Cumulative effects of discharges (Sewage)

With the information that is collected LWA hopes to answer the following questions:

- Where are the impaired waters that should be a high priority for restoration?
What is causing these impairments?
- What are the present ecological conditions and how do they change over time?
- What is the impact of various types of land and water use activities on ecological conditions and human uses?

Assessment Type

A visual assessment based on the USDA Stream Visual Assessment Protocol will be used to evaluate stream characteristics. This assessment will consider various physical conditions that will give an account of stream quality. The conditions are as follows:

- Channel condition
- Riparian zone
- Bank stability
- Water appearance
- Nutrient enrichment
- Fish barriers
- Embeddedness
- Fish cover
- Macroinvertebrate habitat
- AMD
- Sewage
- Canopy cover
- Manure presence
- Knotweed

In addition to the visual assessment, water samples for chemical analysis will be taken for AMD impacts.

AMD

- pH, acidity, alkalinity
- Metals
- Sulfate

Data Quality Objectives

Data quality objectives for the visual assessment include:

- Data will be collected in a consistent manner using protocol based on USDA Stream Visual Assessment Protocol
- All volunteers will be trained prior to going out in the field
- Trained volunteers will receive a certificate of completion

Sampling sites will be chosen before fieldwork begins and will be tested quarterly. Completeness goal is 70% for all samples. Other QA objectives include:

- Samples collected are representative of water being sampled
- Data analyses are precise
- Data analyses are accurate
- Samples are not contaminated from sampling equipment.
- All samples will be collected using EPA Method 814-B-97-003
- All samples will be analyzed at a DEP approved laboratory

Precision and accuracy goals:

Parameter	Accuracy	Precision	Detection Limit
pH	±10%	±10%	
Iron (Fe)	±10%	±10%	
Aluminum (Al)	±10%	±10%	
Alkalinity	±10%	±10%	
Acidity	±10%	±10%	
Manganese (Mn)	±10%	±10%	
Sulfate	±10%	±10%	
TDS	±10%	±10%	
TSS	±10%	±10%	
Nitrate	±10%	±10%	
Phosphorus (T)	±10%	±10%	
Fecal Coliforms	±10%	±10%	
Conductivity	±10%	±10%	
Temperature	±10%	±10%	

Sample Collection and Analysis Methods

Water samples will be collected for field and laboratory analyses. Water-sample preservation methods are presented in table below. Surface-water samples for analysis of concentrations of total constituents will be collected as grab samples. All field equipment will be cleaned and calibrated in the LWA office in Ligonier, PA, prior to conducting fieldwork. In the field, all water sampling and processing equipment will be rinsed with deionized water between samplings. A portion of the sample water also will be rinsed through the equipment prior to collecting final samples.

Water samples for analysis of chemical constituents will be stored in new plastic bottles at 4°C. Samples for analysis of total metals will be acidified with concentrated nitric acid (unless otherwise noted) to a pH of <2. Water samples will be delivered by car, on ice to St. Vincent College laboratory or DEP Laboratories within 24 hours of collection. Detailed collection procedures for each parameter are listed in table below.

Parameter	Preservation	Quantity of Sample to be Collected	Reference Method
General Samples			
pH	Refrigerate	25 mL	EPA-600/4-79-020
Conductivity	Refrigerate	100 mL	Standard Methods, 19 ed
Temperature	Field	-----	-----
Turbidity	Refrigerate	100 mL	Standard Methods, 19 ed
TDS	Refrigerate	100 mL	Standard Methods, 19 ed
TSS	Refrigerate	100 mL	Standard Methods, 19 ed
AMD Samples			
pH	Refrigerate	25 mL	EPA-600/4-79-020
Acidity	Refrigerate	100 mL	EPA-600/4-79-020
Alkalinity	Refrigerate	100 mL	Standard Methods, 19 ed
Iron	Refrigerate/Acid	100 mL	Standard Methods, 19 ed
Manganese	Refrigerate/Acid	100 mL	Standard Methods, 19 ed
Aluminum	Refrigerate/Acid	100 mL	Standard Methods, 19 ed
Sulfate	Refrigerate	50 mL	Standard Methods, 19 ed
Temperature	Field	-----	-----
Turbidity	Refrigerate	100 mL	Standard Methods, 19 ed
Agricultural/Sewage Samples			
pH	Refrigerate	25 mL	EPA-600/4-79-020
TDS	Refrigerate	100 mL	Standard Methods, 19 ed
TSS	Refrigerate	100 mL	Standard Methods, 19 ed
Fecal Coliforms	Refrigerate	200 mL	Standard Methods, 19 ed
Nitrate	Refrigerate	100 mL	EPA-600/4-79-020
Total Phosphorus	Refrigerate/Acidify with H ₂ SO ₄	50 mL	EPA-600/4-79-020

Water samples will be analyzed for the physical characteristics and chemical constituents needed to characterize each site. All samples will be analyzed using methods, which employ EPA-approved techniques. Detailed analysis procedures are listed in table below.

Parameter	Max Holding Time	Reference Method	Reporting Units
General			
pH	ASAP		-----
Conductivity	28 days		µS/cm
Temperature	ASAP		°C
Turbidity	48 hours		ntu
TDS	7 days		mg/L
TSS	7 days		mg/L
pH	ASAP		-----
Acidity	14 days		mg/L

AMD			
Alkalinity	14 days		mg/L
Iron	6 months		mg/L
Manganese	6 months		mg/L
Aluminum	6 months		mg/L
Sulfate	28 days		mg/L
Agriculture/Sewage			
Temperature	ASAP		°C
Turbidity	48 hours		ntu
pH	ASAP		-----
TDS	7 days		mg/L
TSS	7 days		mg/L
Fecal Coliforms	6 hours		cfu/100 ml
Nitrate	48 hours		mg/L
Total Phosphorus	28 days		mg/L

Quality Assurance (QA)

One or more QA samples, including blanks, duplicates, and standards for inorganic constituents, will be analyzed as blind samples with each set of samples to check for contamination, accuracy, and precision of analytical results. Approximately 10 percent of the total samples for the project will be QA samples. Field and laboratory blanks will be collected at the greater frequency of one per sampling day or per twenty samples to check for contamination resulting during sample collection and analysis. Laboratory blanks will be used to check for contamination from the sample bottle or from laboratory processing of samples, and field blanks will be used to assess potential for contamination of samples from exposure to sampling equipment. Quality control measures for each parameter are listed below.

Parameter	Internal QC	External QC	Percent QC Samples
Coliforms	Field blanks, duplicates	Positive plate, negative plate	10
Fe, Al, Mn, sulfate, alkalinity, acidity	Field blanks, duplicates	Duplicate, lab blanks, calibration standard	10
pH	Duplicates, calibration standard	Duplicate, calibration standard	10

Precision and accuracy (bias) of the analytical data and potential for contamination from sample processing will be evaluated approximately quarterly as part of data validation. Contamination will be evaluated on the basis of results for field and laboratory blanks. Standard Deviation will be used to measure precision, and Relative Percent Difference will be used to measure accuracy.

Standard Deviation

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

where x is data value, \bar{X} is mean of data items and n is number of data items

Relative Percent Difference

$$\% \text{ RPD} = \frac{|X_1 - X_2|}{\bar{X}} * 100$$

where X_1 is value 1, X_2 is value 2 and \bar{X} is the mean of the two values

Quality Control Response Actions

Data and data-collection activities are routinely discussed and evaluated among project personnel. Corrective action is taken immediately if the evaluation indicates a problem.

Corrective action could include the following:

- Audit of field and lab procedures
- Data not meeting QC goals will not be used
- Evaluation of volunteer performance; if found unsatisfactory retraining may occur
- Field procedures may be changed if problems continue

Training

Initial field training will be taught in Spring 2003 by Western Pennsylvania Conservancy Watershed Assistance Center staff. New field monitors will either be trained by WPCWAC staff, or others deemed qualified WPCWAC. All volunteers will follow protocol set-up by WPCWAC.

Data Management

Completed field sheets will be given to LWA staff member. Analytical data, including field and laboratory analysis results and corresponding sample identification, will be entered into the LWA database by project personnel. Data for QA samples water samples will be maintained in the database. The LWA database will be maintained in Microsoft Excel 2000. Results below detection limit will be entered as "0" and missing values will be left blank. Approximately quarterly, data for the project will be retrieved from the databases and checked by project personnel to verify that data are correctly entered.

Field sheets will include the following: stream name, landowner's name, evaluators' names, certificate issue #, date, reference site, site ID#, reach location, land use, weather conditions, channel width, dominant substrate, % Japanese Knotweed, site diagram, visual assessment parameters and problem diagrams.

Project Tasks and Personnel

Major Project Tasks		
Task	Who Will Carry Out Task	Contact Information
Find a lab	LWA	(724) 238-7560
Purchase equipment	LWA	(724) 238-7560
Recruit volunteers	LWA	(724) 238-7560
Train volunteers	WPC	(724) 459-0953
Field work	LWA, WPC, volunteers	(724) 238-7560/724 459-0953
Quality Assurance	LWA, WPC	(724) 238-7560/724 459-0953
Data management	LWA	(724) 238-7560
Analyze data	LWA	(724) 238-7560
Report results	LWA	(724) 238-7560
Study design	WPC	(724) 459-0953
Monitoring protocol	WPC	(724) 459-0953
Research existing data	LWA	(724) 238-7560

Steering Committee		
Member Name	Organization	Contact Information
John Matviya	DEP	Southwest Regional Office Pittsburgh, PA 15222-4745 (412) 442-5811
Beth Langham	St. Vincent College	Latrobe, PA 15650 (724) 532-6600
Craig Barras	WCD	Greensburg, PA 15601 (724) 925-2947
Jeff Fliss	DEP	Southwest Regional Office Pittsburgh, PA 15222-4745 (412) 442-4207
Carole Wright	LWA	Ligonier, PA 15658 (724) 238-7560
Melanie Halowaty	LWA	Same as above
Drew Banas	LWA	Same as above
Ben Wright	WPC	Blairsville, PA 15717 (724) 459-0953
Mark Killar	WPC	Same as above
Floyd Eiserman	LWA Board	Ligonier, PA 15658 (724) 238-7560
Wesley Gordon	LWA Board	Ligonier, PA 15658 (724) 238-7560
Ron Horansky	DEP	Greensburg, PA 15601 (724) 925-5500
Rosemary Reilly	U.S. Army Corps of Engineers	Pittsburgh Office

Visual Assessment Protocol

The same visual assessment protocol will be used throughout the entire assessment. All completed sheets will be collected and reviewed by the Loyalhanna Watershed Association Program Director and the Watershed Assessment Advisory Committee. Information contained within the sheets will be entered into a database for future manipulation.

The following describes each page of the visual assessment and how it will be utilized to formulate the final copy of the assessment and restoration plan. The protocol is shown in pages A-10 through A-14.

Page 10: General Information

Descriptions of the surrounding landscape are critical for writing the report.

Page 11 – 13: Scoring Descriptions

There are ten different elements that will be assessed during each visual assessment. These pages describe score ranges and help assessors to determine which score to assign. The following elements are listed: channel condition, riparian zone, bank stability, water appearance, nutrient enrichment, fish barriers, instream fish cover, embeddedness, insect/macroinvertebrate habitat, and canopy cover. IF APPLICABLE, the following elements will also be assessed: AMD, sewage, and manure presence. Because all of the presence of any of these elements indicates significant stream impairment, they are only scored on a scale of 1 to 5.

Page 14: Score Sheet

Page used to record the scores received for the different items. Describing the score is critical to the report writer, who may not have seen the assessed stream segment. Total score is calculated on the bottom and given a rating.

Major Limiting Factor

Elements for the visual assessment protocol will be lumped into categories that align with the overall assessment priorities. Those categories will be called Major Limiting Factors.

Priority/Major Limiting Factor Name	Elements Included
Habitat Quality	Fish Barriers, Instream Fish Cover, Insect/Invertebrate Cover
Nutrient Enrichment	Nutrient Enrichment, Sewage, Manure Presence
Erosion and Channel Alteration	Bank Stability, Channel Condition, Embeddedness
Riparian Vegetation	Riparian Zone, Canopy Cover
Abandoned Mine Drainage	AMD

Visual assessment scores will be lumped into the above categories and averaged. Average scores falling below 5, will identify that category as a limiting factor the stream or stream segment. Those limiting factors will be shown in a map within each subwatershed report. If more than one category have scores below 5, the stream or stream segment will be labeled as having Multiple Limiting Factors.

Loyalhanna Watershed Visual Assessment

Evaluator's Names _____ Date: _____

Sub-Watershed _____ Stream Section Name _____

Common Stream Name _____ Reference Section Perfect Reach _____

Weather Conditions Today _____ Past 2-5 Days _____

Land use within drainage (%): Grazing Pasture _____ Forest _____ Residential _____ Industrial _____
Row Crop _____ Field _____ Conservation Reserve _____ Other _____

Dominant substrate (%): Boulder _____ Cobble _____ Gravel _____ Silt _____ Mud _____

Active Channel Width _____ Japanese Knotweed Presence _____

<p>PLEASE DESCRIBE THE AREA THAT THE WATER FLOWS THROUGH: What type of forest? What type of farm? What type of residential?</p>
<p>PLEASE WRITE DOWN ANY GPS POINTS TAKEN AND WHY</p>
<p>SHOULD WATER SAMPLES BE TAKEN HERE? NEAR HERE?</p>

Scoring Descriptions

Each assessment element is rated with a value of 1 to 10. Rate only those elements appropriate to the stream reach. Record the score that best fits the observations you make based on the narrative description provided.

Channel Condition

Natural channel; no structures, dikes. No evidence of down-Cutting or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel and banks. Any dikes or levees are set back to provide access to an adequate flood plain.	Altered channel; <50% of the reach with riprap and/or channelization. Excess aggradation ; braided channel. Dikes or levees restrict flood plain width.	Channel is actively downcutting or widening. >50% of the reach with riprap or channelization. Dikes or levees prevent access to the flood plain.
10 9 8	7 6 5 4	3 2	1

aggradation: The process by which a stream's gradient steepens due to increased deposition of sediment.

Keys: look for things like down cutting, lateral cutting, altered or widened sections, dykes, levees or other obstructions.

Riparian Zone

Natural Vegetation extends at least two active channel widths on each side.	Natural vegetation extends one active channel width on each side. Or If less than one width, covers entire flood plain.	Natural vegetation extends half of the active channel width on each side.	Natural vegetation extends a third of the active channel width on each side. Or Filtering function moderately compromised.	Natural vegetation less than a third of the active channel width on each side. Or Lack of regeneration. Or Filtering function severely compromised.
10 9	8 7 6	5 4	3 2	1

Keys: Related to ACTIVE channel width, an example would be a 5' wide stream. 10' = 2x active channel width.

Bank Stability

Banks are stable; at elevation of active flood plain; 33% or more of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately stable; at elevation of active flood plain; less than 33% of eroding surface area of banks in outside bends is protected by roots that extend to the base-flow elevation.	Moderately unstable; banks may be low, but typically are high (flooding occurs 1 year out of 5, or less frequently); outside bends are actively eroding (overhanging vegetation at top of bank, some mature trees falling into stream annually, some slope failures apparent).	Unstable; banks may be low, but typically are high; some straight reaches and inside edges of bends are actively eroding as well as outside bends (overhanging vegetation at top of bare bank, numerous mature trees falling into stream annually, numerous slope failures apparent).
10 9 8	7 6 5 4	3 2	1

Keys: All outside bends in streams erode; even the most stable streams may have 50% of its banks bare and eroding. A stable bank would be characterized by healthy vegetative cover, and/or a gentle slope. Unstable banks, on the other hand, would have little or no vegetative cover or a steep or vertical slope.

Water Appearance

Very clear, or clear but tea-colored; objects visible at depth 3 to 6 ft (less if slightly colored); no oil sheen on surface; no noticeable film on submerged objects or rocks.	Occasionally cloudy; objects visible at depth 1.5 to 3 ft; may have slightly green color; no oil sheen on water surface.	Considerable cloudiness most of time; objects visible to depth 0.5 to 1.5 ft; slow sections may appear pea-green; bottom rocks or submerged objects covered with heavy green or olive-green film. Or Moderate odor of ammonia or rotten eggs.	Very turbid or muddy appearance most of the time; objects visible to depth <0.5 ft; slow moving water may be bright-green; other obvious water pollutants; floating algal mats, surface scum, sheen or heavy coat of foam on surface. Or Strong odor of chemicals, oil, sewage, other pollutants.						
10	9	8	7	6	5	4	3	2	1

Keys: Remember to look at the water, not the substrate. If you dipped a glass in the water, what would the water look like?

Nutrient Enrichment

Clear water along entire reach; diverse aquatic plant community little algal growth present.	Fairly clear or slightly greenish water along entire reach; moderate algal growth on stream substrates.	Greenish water along entire reach; abundant algal growth, especially during warmer months.	Pea green, gray or brown water along entire reach; severe algal blooms create thick algal mats in stream.						
10	9	8	7	6	5	4	3	2	1

Keys: Looking for algae and other aquatic vegetation, some is good, but it should not be excessive.

Fish Barriers

No barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (<1ft drop) within the reach.	Drop structures, culverts, dams or diversions (>1ft drop) within 3 miles of reach.	Drop structures, culverts, dams or diversions (>1ft drop) within the reach.					
10	9	8	7	6	5	4	3	2	1

Keys: You are looking for withdrawals, culverts, dams and diversions. Anything that is imposed or constructed by man that would impede fish passage.

Instream Fish Cover

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available					
10	9	8	7	6	5	4	3	2	1

Cover types: Logs/large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense macrophyte beds, isolated/backwater pools, other: _____

Embeddedness

Gravel or cobble particles are <20% embedded.	Gravel or cobble particles are 20 to 30% embedded.	Gravel or cobble particles are 30 to 40% embedded.	Gravel or cobble particles are >40% embedded.	Completely embedded.					
10	9	8	7	6	5	4	3	2	1

Keys: Embeddedness is defined as the degree to which objects in the stream bottom are surrounded by fine sediment. Only evaluate this item in **riffles & runs**. Measure the depth to which objects are buried by sediment. Be sure that you are looking at the entire reach, not just one riffle. To help better define embeddedness, picture a rock. If the average sediment in the stream covers the bottom 20% of the rock than you would check 20%. If the rock is covered 1/3rd of the way by sediment then it is 30% embedded.

Insect/invertebrate Habitat

At least 5 types of habitat available. Habitat is at a stage to allow full insect colonization (woody debris and logs not freshly fallen).	3 to 4 types of habitat. Some potential habitat exists, such as overhanging trees, which will provide habitat, but have not yet entered the stream.	1 to 2 types of habitat. The substrate is often disturbed, covered, or removed by high stream velocities and scour or by sediment deposition.	None to 1 type of habitat.
10 9 8	7 6 5 4	3 2	1

Cover types: Fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: _____

Canopy Cover

Keys: This pertains to waterways where channel is 50’ or less.

Coldwater fishery

>75% of water surface shaded and upstream 2 to 3 miles generally well shaded.	> 50% shaded in reach. Or >75% in reach, but upstream 2 to 3 miles poorly shaded.	20 to 50% shaded.	<20% of water surface in reach shaded.
10 9 8	7 6 5 4	3 2	1

Warmwater fishery

25 to 90% of water surface shaded; mixture of conditions.	>90% shaded; full canopy; same shading condition throughout reach.	(Intentionally blank)	<25% water surface shaded in reach.
10 9 8	7 6 5 4	3 2	1

Abandoned Mine Drainage (if applicable)

(Intentionally blank)	Evidence of iron staining. Or Noticeable iron precipitant.	Iron precipitant visible, muddy orange appearance.	Heavy iron precipitant, noticeable kill zone. Or White precipitant visible, rotten egg smell.
	5 4	3 2	1

If AMD found, complete AMD site diagram and mark discharge point on map.

Sewage (if applicable)

(Intentionally blank)	Noticeable odor, excess plant growth and siltation.	Noticeable odor, excess plant growth. And Questionable pipe and black stream substrate.	Visible pipe with effluent, heavy odor.
	5 4	3 2	1

Manure Presence (if applicable)

(Intentionally blank)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream. Or Untreated human waste discharge pipes present.
	5 4	3 2	1

Assessment Score

Explanation of Score Given

Channel condition	<input type="checkbox"/>	_____
Riparian zone	<input type="checkbox"/>	_____
Bank stability	<input type="checkbox"/>	_____
Water appearance	<input type="checkbox"/>	_____
Nutrient enrichment	<input type="checkbox"/>	_____
Fish barriers	<input type="checkbox"/>	_____
In-stream fish cover	<input type="checkbox"/>	_____
Embeddedness	<input type="checkbox"/>	_____
Invertebrate habitat	<input type="checkbox"/>	_____
Canopy Cover	<input type="checkbox"/>	_____

Score only if applicable	
AMD	<input type="checkbox"/>
Sewage	<input type="checkbox"/>
Manure presence	<input type="checkbox"/>

TOTAL SCORE: _____
 (Add all scores and divide by number of scores given)

< 6.0 = POOR
 6.1 – 7.4 = FAIR
 7.5 – 8.9 = GOOD
 > 9.0 = EXCELLENT

Appendix 3

Appendix 3 – Water Quality Information

Water quality samples were collected throughout the assessment. Maps A.1 through A.3 show the location of those sample sites. They are labeled according to their designation within each subwatershed report.

During the watershed assessment, 35 AMD discharge sites were catalogued throughout the Loyalhanna Creek Watershed. Only 12 of the discharges are sampled regularly. Table A3-1 lists all of those discharges. The table corresponds with Maps A.1 through A.3, which show the locations of the discharges. Table A3-2 lists water quality data for sampled AMD Discharges, with the exception of Friedline Mine that is listed in Table A3-3.

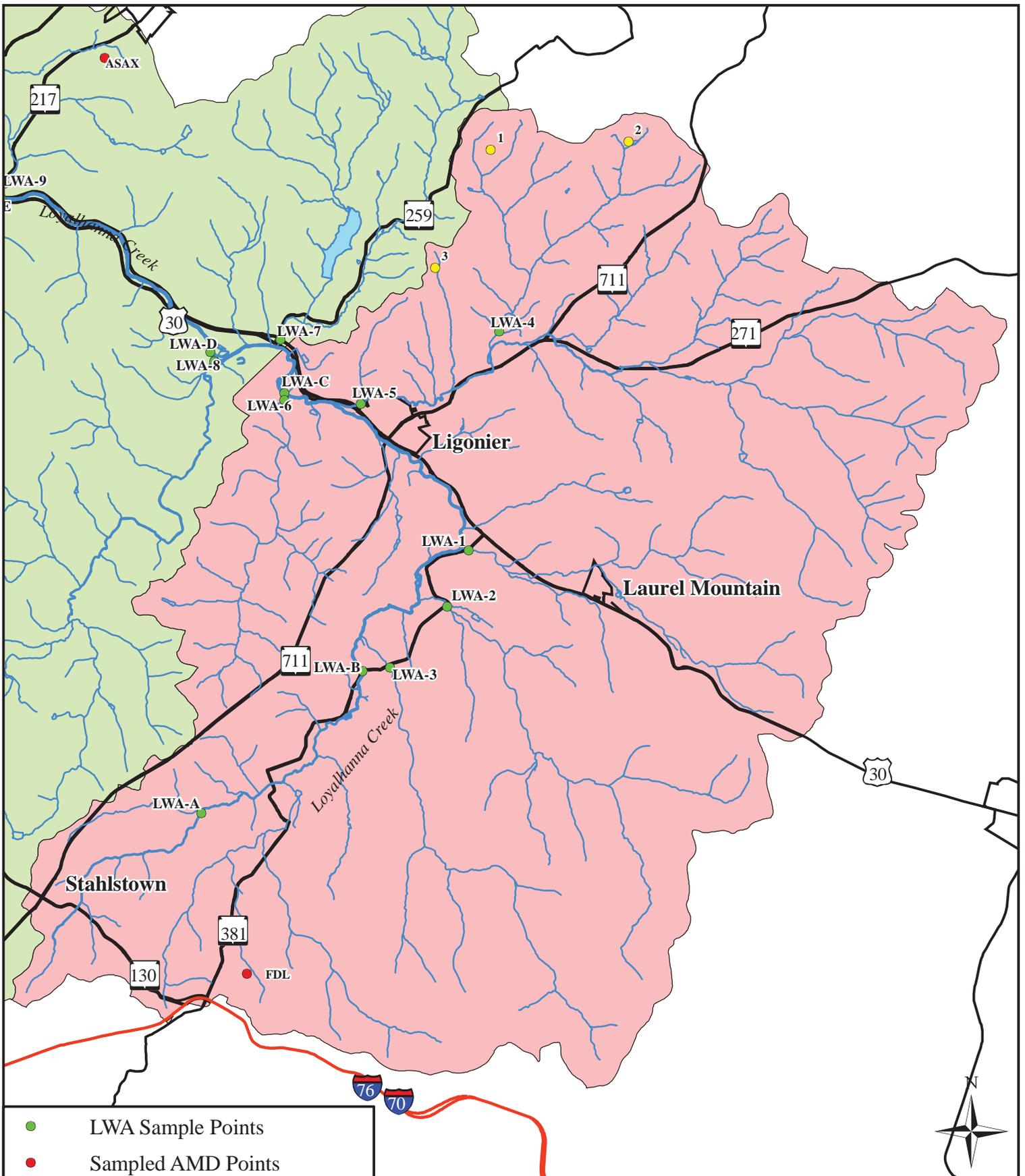
Table A3-1: AMD Discharges in the Loyalhanna Creek Watershed		
Sampled Discharges		
Discharge ID (As it appears on maps and in data)	Discharge Name	Location
AVP	Adelphoi Pipe	Middle Loyalhanna Creek - behind Adelphoi Village School complex.
LAT	Latrobe (formerly Ridilla)	Middle Loyalhanna Creek – on the Latrobe Foundation Property located behind Plants – n- More
UNT	Unity	Middle Loyalhanna Creek – behind Latrobe Fire Company building on Route 981 in the City of Latrobe.
LSAX	Lower Saxman	Saxman Run – On Lattazio Road where Saxman run crosses underneath the road.
USAX	Upper Saxman	Saxman Run – at the intersection of Route 981 and Latrobe-Derry Road.
ASAX	West Derry	Saxman Run – at the end of Valley Street, right off Route 217 North in Derry.
CRB	Crabtree	Crabtree Creek – behind the Crabtree Firehall in downtown Crabtree.
GET1	Getty #1	Getty Run – in Slickville behind the St.Sylvester Church on Route 819.
GET2	Getty #2	Getty Run – in Slickville on Sportsman’s Road
GET3	Getty #3	Getty Run – in Slickville on Sportsman’s Road
FRIEDLINE	Friedline Mine Input, etc.	Powdermill Run – in Powdermill Nature Reserve off Route 381 in Cook Township.
Discharges Not Sampled		
Discharge ID (As it appears on maps)	Subwatershed Location	Stream Segment (can be referenced in subwatershed reports)
1	Hannas Run	HRWESTC
2	Hannas Run	HRUNT5W
3	Mill Creek	MILLUNT4N
4	Ninemile Run	NMRUNT3WA

Discharges Not Sampled continued		
Discharge ID (As it appears on maps)	Subwatershed Location	Stream Segment (can be referenced in subwatershed reports)
5	Monastery Run	FMR-RTFKUNT4N
6	Lower Loyalhanna	LLUNT11W
7	Lower Loyalhanna	LLUNT10W
8	Lower Loyalhanna	LLUNT6WA
9	Lower Loyalhanna	LLUNT6W1N
10	Union Run	Banocy Road – URUNT3N
11	Union Run	Near Banocy Road on the main stem
12	Union Run	Panizzi Road – at the intersection of the two major forks
13	Union Run	UNT4N1N
14	Crabtree Creek	Seep from the Forbes Road coal waste pile
15	Crabtree Creek	Seep from the Hannastown coal waste pile
16	Little Crabtree Creek	LCRBUNT1E
17	Whitethorn Creek	WTUNT7W
18	Whitethorn Creek	WTUNT1S
19	Getty Run	Headwaters along Depot Street
20	Getty Run	Headwaters along Route 819
21	Getty Run	GRUNT6N
22	Getty Run	GRUNT5N
23	Getty Run	GRUNT4N
24	Getty Run	GRUNT3N

Table A3.2 Water Quality Data for Regularly Samples AMD Discharges in the Loyalhanna Creek Watershed										
	AVP	LAT	UNT	LSAX	USAX	ASAX	CRB	GET1	GET2	GET3
Average										
Flow (gpm)	172.1	104.4	60.7	1817.5	2089.9	214.8	3668.5		140.8	75.2
pH	6.32	6.3	6.2	5.8	5.6	2.7	6.1	2.9	2.7	2.7
Alkalinity (mg/L)	159.4	154.7	103.9	56.6	39	0	147.2	0	0	0
Hot Acidity (mg/L)	-4	-4.3	3.5	72.7	91.3	966.7	45.5	476.5	557.9	605.7
Total Iron (mg/L)	42.3	51	31.1	43.7	43	129.8	75.2	42.8	35.4	57.5
Manganese (mg/L)	3.6	3.7	3.7	4.8	5.2	15.2	2.9	14.2	7.7	7.9
Aluminum (mg/L)	0.2	0.2	0.2	0.5	2	87.7	1.7	42.2	50.2	50.3
Sulfate (mg/L)	444.4	474.9	485.3	500.6	544.5	1125.3	817.4	853.5	978.3	963.4
Fe Loading (lbs/day)	73.6	57.4				3	3312.1		62.6	54.1
Conductivity (mS)	1188.7	1106.1	1055.2	1031.9	1040.9		1672.6	1972.5	1938	2032.2
DO (mg/L)	0.7	0.7	2.1	0.6	1	1	0.9	3.5	3.8	7.7
Minimum Value										
Flow (gpm)	149	73.7	3.5	1574	196	63	1216		12.7	12.7
pH	6.2	6.2	6.1	5.6	5.2	2.7	6	2.8	2.6	2.6
Alkalinity (mg/L)	146	133.4	87.8	46	22	0	128	0	0	0
Hot Acidity (mg/L)	-64	-51.4	-21.6	32.8	53.4	633.6	11.2	360	420.6	358
Total Iron (mg/L)	29.9	36.2	16.5	29.5	26.3	47.9	55.2	30	23.8	31
Manganese (mg/L)	2.8	2.9	2.8	3.3	4.1	11.4	2.3	9.7	6.1	5.8
Aluminum (mg/L)	0.2	0.2	0.2	0.3	1.3	56.8	0.6	31.5	38	28.3
Sulfate (mg/L)	384.3	410.8	405.1	385.9	431.7	790.7	592.1	166.9	696	517
Fe Loading (lbs/day)	0	0				0	1291.8		6.5	10.6
Conductivity (mS)	395	371	379	636	632	0	1046	1397	1332	1482
DO (mg/L)	0.1	0	0.7	0	0.5	0.4	0.3	0.1	0.8	0.9
Maximum Value										
Flow (gpm)	240	187	105.9	2425	5820	630	6025		362.7	135.8
pH	6.5	6.4	6.4	6.1	5.9	2.9	6.3	3	2.8	2.8
Alkalinity (mg/L)	175.2	172	120.6	67.2	53.8	0	164	0	0	0
Hot Acidity (mg/L)	0	12.8	28.6	102.2	140.6	1212.4	68.6	607.2	679.8	745.4
Total Iron (mg/L)	51.4	67.1	41	53.7	54.4	197	89.1	59.9	50.5	83.8
Manganese (mg/L)	4.4	4.3	4.8	5.9	6	18.8	3.9	15.9	8.7	10.1
Aluminum (mg/L)	0.5	0.5	0.5	0.8	3.6	115	3.5	52.5	61.6	119
Sulfate (mg/L)	530	580	627.4	616	710	1402	999	1145	1208	1173
Fe Loading (lbs/day)	116.8	111.3				4.9	5763.4	0	174.3	136.8
Conductivity (mS)	1909	1451	1322	1300	1295	0	2020	2210	2370	2420
DO (mg/L)	2.5	1.6	3.2	1.5	1.6	1.8	2.1	7.4	8.8	12.1

Table A3-3 Friedline Mine		
Average	Input (F1)	Output (F2)
pH	2.9	5
Alkalinity (mg/L)	0	22.1
Hot Acidity (mg/L)	726.6	55.4
Sulfate (mg/L)	630.2	331.7
TSS (mg/L)	14.4	11.8
Total Iron (mg/L)	212.1	3.1
Ferrous Iron (mg/L)	161.4	0.6
Manganese (mg/L)	3.5	2.1
Aluminum (mg/L)	44.8	4.5
Temperature ©	10.8	12.5
Conductivity (m/S)	1228.3	576.6
DO	1.4	5.7

Table A3 – 3 shows water quality data for Friedline Mine. The discharge at Friedline Mine is treated by a Successive Alkalinity Producing System (SAPS). Therefore, two sample points are included in the data table. The Input is the raw discharge before treatment. The Output is the discharge following treatment. The treatment system is located in the Upper Loyalhanna Creek Watershed section within the Powdermill Run Subwatershed. It is indicated on Map A.1 as FRD.



- LWA Sample Points
- Sampled AMD Points
- Unsampled AMD Points
- Streams
- Major Roads
- Boroughs and Cities
- Upper Section



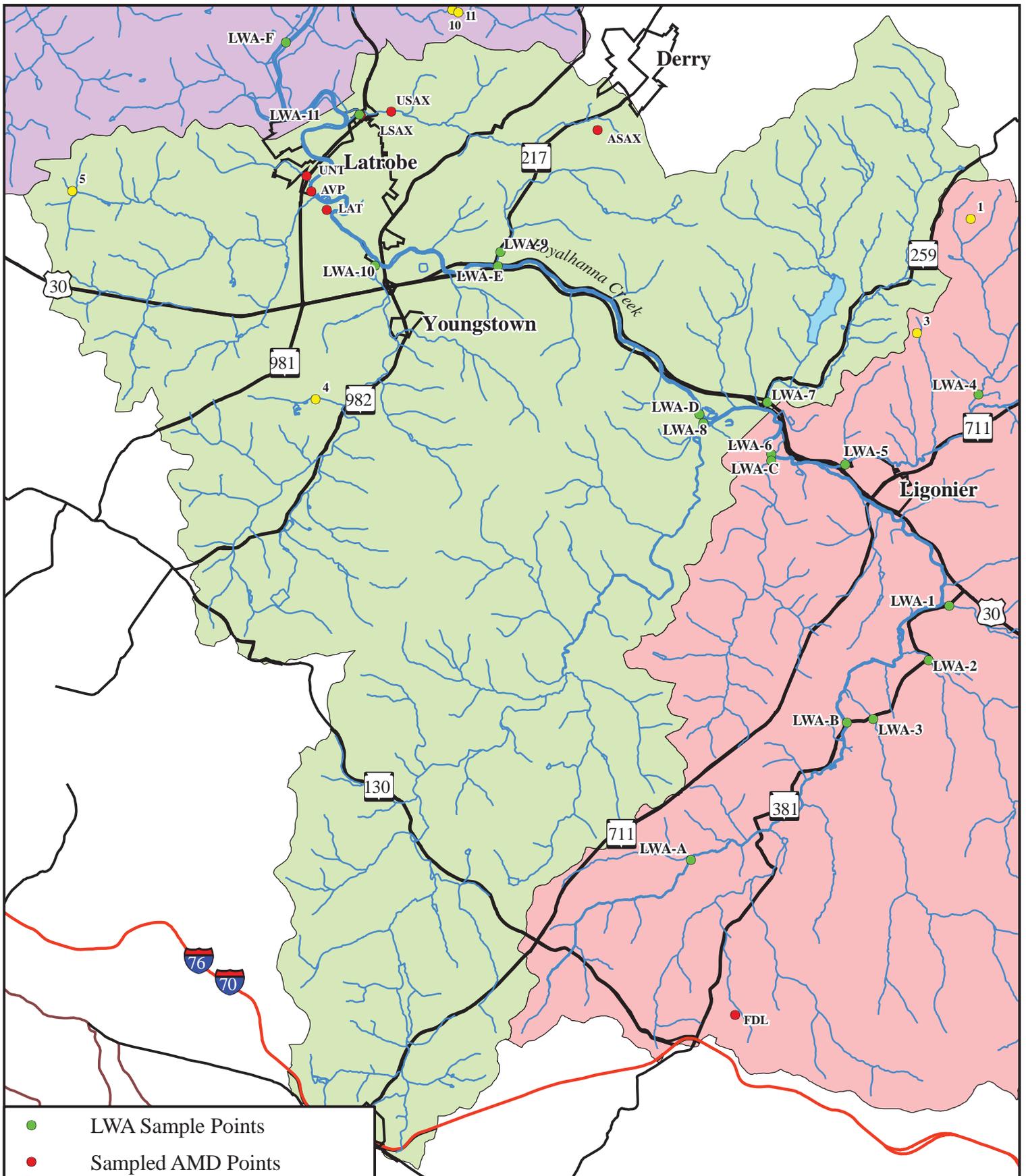
**Upper Loyalhanna Creek:
Sample Points**



Watershed
Assistance Center

Map A.1





- LWA Sample Points
- Sampled AMD Points
- Unsampled AMD Points
- Streams
- Major Roads
- Boroughs and Cities
- Middle Section

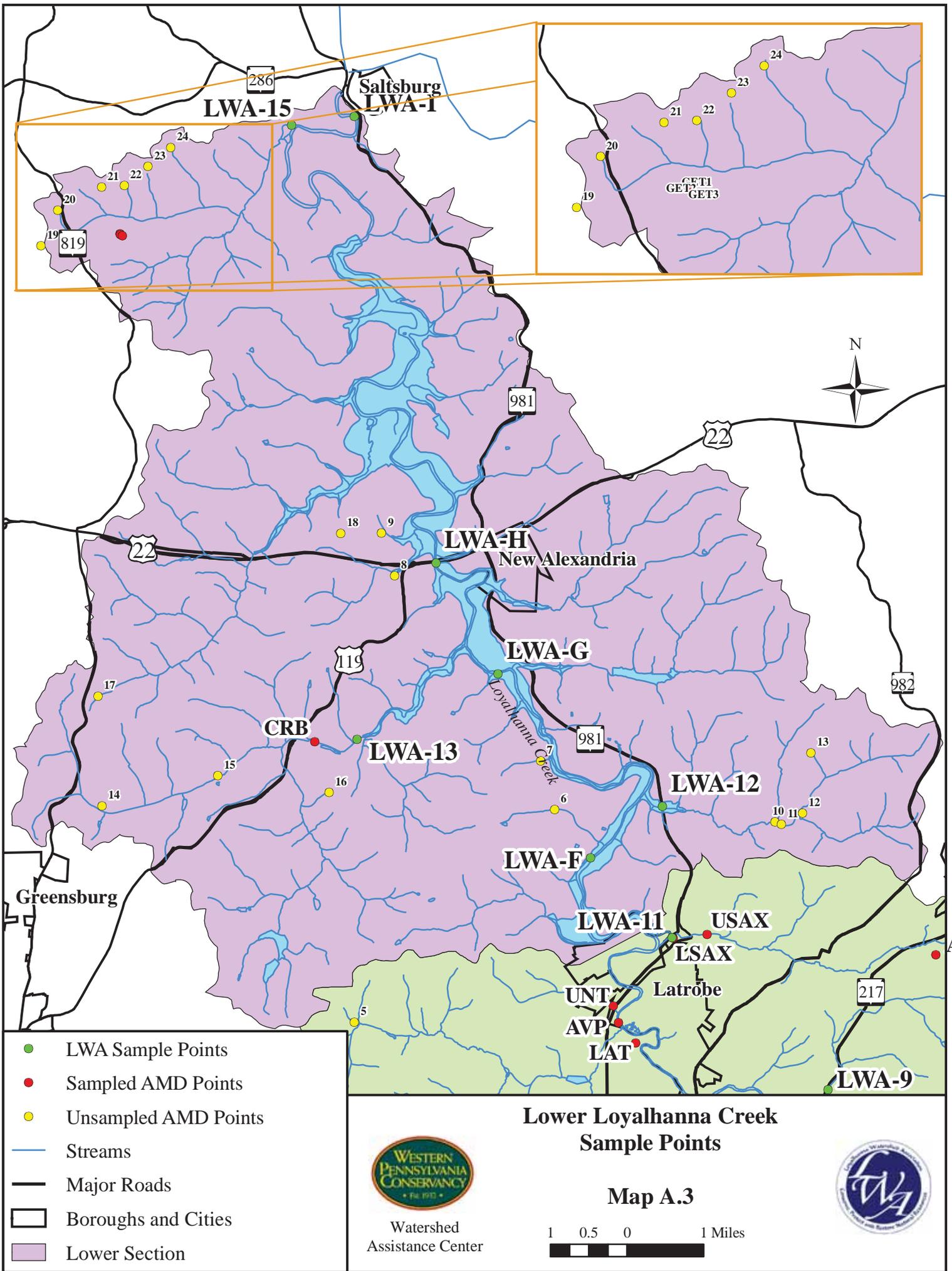
**Middle Loyalhanna Creek:
Sample Points**

Map A.2



Watershed Assistance Center





- LWA Sample Points
- Sampled AMD Points
- Unsampled AMD Points
- Streams
- Major Roads
- Boroughs and Cities
- Lower Section

**Lower Loyalhanna Creek
Sample Points**

Map A.3



Watershed
Assistance Center



Appendix 4

Appendix 4 – Stream Name Abbreviations

OVERALL ABBREVIATIONS

UNT Unnamed Tributary

UPPER WATERSHED SECTION

UPLOY Upper Loyalhanna Creek

PMILL Powdermill Run

LINN Linn Run

LAUGH Laughlintown Run

MILL Mill Creek

HR Hannas Run

TMR Twomile Run

MIDDLE WATERSHED SECTION

MIDLOY Middle Loyalhanna Creek

CP Coalpit Run

NF North Fork, a tributary to Coalpit Run

FMR Fourmile Run

FMRKR Keffer Run, a tributary to Fourmile Run

MILLER Miller Run

NMR Ninemile Run

ICR Indian Creek Run, a tributary to Ninemile Run

MON Monastery Run

FMRII Fourmile Run, a tributary to Monastery Run (located in Latrobe)

SAX Saxman Run

LOWER WATERSHED SECTION

LOWLOY Lower Loyalhanna Creek

UNION Union Run

McCune Run

CRB Crabtree Creek

LCRB Little Crabtree Creek, a tributary to Crabtree Creek

WT Whitethorn Creek

GR Getty Run

Appendix 5

Appendix 5 – New Projects Already In Place

The following projects have been initiated as a result of field work completed for the Loyalhanna Creek Watershed Assessment and Restoration Plan. Each project addresses a problem that was already identified prior to the assessment or one that was such a large impact it could not be overlooked any longer.

Saxman Run Mine Drainage Treatment and Hydroelectric Project

This \$211,400 Growing Greener project proposes to generate electricity for the treatment of abandoned mine drainage (AMD). Electricity will be generated using the flow from the Upper Saxman Run Discharge in the Loyalhanna Creek Watershed. It is estimated that 6 to 15 KW of power will be generated by the water flowing from the abandoned mine discharge. The generated electricity will be used to provide power to an existing pilot AMD treatment system and proposed AMD treatment system. Both systems will eventually be increased in size and used to treat multiple abandoned mine discharges to Saxman Run, including the discharge captured to create electricity. In addition, excess generated power will be used at the Latrobe Sewage Treatment Plant, the site of proposed power generation and AMD treatment.

Crabtree Concept

As a result of the Loyalhanna Creek Watershed Assessment and Restoration Plan, LWA and partners recognized the Crabtree Creek sub-watershed in the rural town of Crabtree, Pennsylvania as the single largest impact to the Loyalhanna Creek Watershed. Pollution sources to the watershed include sewage, abandoned mine drainage (AMD), agricultural waste, and some stream encroachment and urbanization. While looking for ways to address these impacts, these collaborating organizations learned of an initiative underway by the Crabtree community to address the need for municipal sewage. Since, a sewage authority has been formed, a consultant has been hired to design a new wastewater treatment plant, and an application for plan approval has been submitted to USDA.

After nearly a year of research and discussion, a possible solution through new and existing technologies may have been found in the form of a Biogas digester plant. In an effort to ensure the ideas generated will have the needed outcomes, the Coalition is seeking a third party evaluation that will consider all known and potentially unknown aspects of this project and make recommendations to proceed accordingly. An RFP to conduct a feasibility study of this project will be sent out to prospective consultants in March of 2006. To date, the group has received \$20,000 for this study.

Upper Loyalhanna Creek Agricultural Best Management Practices

LWA is committed to addressing agricultural non-point pollution sources in the upper half of the watershed. The overall goal of this project is to develop partnerships with local landowners in the Loyalhanna Creek Watershed and assist them with choosing and installing various best management practices (BMPs) to reduce agricultural non-point source pollution.

Through fieldwork related to the LWA Watershed Assessment, agriculture and agricultural land use were noted as significant contributors to sediment and nutrient loading in the upper Loyalhanna Watershed.

Several properties were recorded as potential sites for the installation of stream bank fencing, stabilized crossings and alternative watering sources. It is the goal of the LWA to provide a cost effective improvement to the sub-watersheds impacted agricultural non-point source pollution. Improvements have already been made to several farms along Hannas Run, Coal Pit Run, and the Loyalhanna Creek, with on-going projects along Four Mile Run that hope to be completed in the spring of 2006.

Conclusion

Conclusion

General Conclusion

The Loyalhanna Creek Watershed Assessment and Restoration Plan provides a comprehensive visual “snapshot” of the Loyalhanna Creek Watershed. That snapshot was taken over a three year period in which data and information were gathered from each and every inch of stream. It has enabled multiple individuals and organizations to become more familiar with the state of the Loyalhanna Creek Watershed, its impairments, and treasures. Until now, no other document provided a comprehensive look at the watershed. Today, it is anticipated that this assessment and restoration plan will afford conservation organizations the knowledge to pursue water quality improvement projects that will have a greater impact upon the entire watershed.

The largest impact to the Loyalhanna Creek Watershed discovered during the assessment was abandoned mine drainage. Large discharges in the Saxman Run Subwatershed, Crabtree Creek Subwatershed, and Getty Run Subwatershed each contribute hundreds of pounds of iron to the Loyalhanna Creek main stem each day. Prior to the printing of this report, projects were underway to address discharges in both the Crabtree Creek Subwatershed and Saxman Run Subwatershed. Innovative technology and hard work will ensure that within the next ten years, these discharges may have less of an impact on the entire watershed.

The most common impact noted throughout the assessment on each and every stream was riparian zone vegetation degradation. This impact was almost always the result of landowner choices to remove trees and other vegetation from the stream side. The cumulative effect of this impact is apparent in the lower section of the watershed. It is strongly recommended that an outreach campaign take place in order to educate community members about this impact that is so simple to reverse.

Overall Project Recommendations

➔ **Establish a regular review and update of the Loyalhanna Creek Watershed Assessment and Restoration Plan**

It is highly recommended that a process be established to continually review and update this watershed assessment and restoration plan. As organizations work to improve water quality throughout the watershed, progress should be tracked and recorded. The LWA, in partnership with the advisory committee, will develop a review process and timeline. In addition, the LWA will promote the recommendations within this plan and ensure that it serves its purpose to guide future work throughout the watershed.

➔ **Continue to focus upon AMD impacts in the watershed**

The assessment confirmed that AMD is still the largest impact to waterways within the watershed. This plan clearly states the importance of focusing upon the remediation of those large discharges.

→ **Engage in a community outreach campaign**

Watershed community members do not know enough about the watershed or its impacts. The LWA and partners should design and implement an outreach campaign that creatively informs community members and solicits their interest in watershed issues. The use of professional services is highly recommended.

→ **Protect the headwater region**

The headwaters of the Loyalhanna Creek Watershed are located in and around Ligonier Township. It is critical that the current forest buffer and green space remain.

Project Reflection

The Loyalhanna Creek Watershed Assessment was a large and time intensive project. Beginning in the fall of 2002 and wrapping up in the spring of 2006, the work required to complete it has spanned three and one-half years. The knowledge gained throughout the process has proven to be invaluable in determining future work for the entire Loyalhanna Creek Watershed.

Funding for the assessment was provided by Pennsylvania Department of Environmental Protection Growing Greener Program, an important funding source to organizations such as the LWA. Although this project was completed within budget, the amount of funding awarded was not entirely adequate for the project. Without the time and effort put forth by volunteers, the project would have exceeded the grant award. The work of volunteers and matching time provided by partner organizations enabled the LWA to complete the project for much less had a contractor been used.

LWA and partners made a bold choice to complete the assessment independently. That choice ensured that the LWA would complete the project with intimate knowledge of the watershed rather than just the account of a contractor. It also created a large amount of work for staff and volunteers. Without volunteers and project partners, the project would not have been as successful.

All individuals involved with the project are proud of the final product and hope that it serves as a guide and a model to future work within the Loyalhanna Creek Watershed and other watersheds throughout the state.

List of Native American archaeological sites on the National Register of Historic Places in Pennsylvania

From Wikipedia, the free encyclopedia

This is a **list of Native American archaeological sites on the National Register of Historic Places in Pennsylvania**.

Historic sites in the United States qualify to be listed on the National Register of Historic Places by passing one or more of four different criteria; Criterion D permits the inclusion of proven and potential archaeological sites.^[1] Approximately one hundred different sites in Pennsylvania are listed under this criterion, including both Native American and European sites.^[2] This list includes all properties in Pennsylvania that qualify under Criterion D due to the presence of Native American artifacts.

Sites

[3]	Landmark name	Image	Location	County	Culture	Comments
1	Archeological Site 36 LY 37 ^[4]		Loyalsock Township: coextensive with Canfield Island 41°14'32"N 76°57'11"W	Lycoming	Multiple: Late Archaic through Susquehannock	
2	Big and Little Indian Rock Petroglyphs ^[5]		Conestoga Township: in the Susquehanna River, south of Safe Harbor 39°55'15"N 76°23'5"W	Lancaster	Unknown	
3	Book Site (36 Jul) ^[6]		Beale Township: off Legislative Route 3019 40°28'44.5"N 77°30'2.4"W	Juniata	Clemson Island	
4	Calver Island ^[7]		Swatara Township: in the Susquehanna River, southeast of Harrisburg 40°12'20"N 76°48'24"W	Dauphin	Multiple: Late Archaic through Early Woodland	
5	Carbaugh Run Rhyolite Quarry Site (36AD30) ^[8]		Franklin Township: atop Snaggy Ridge, west of Carbaugh Run 39°53'2.4"N 77°27'26.4"W	Adams	Multiple: Late Archaic through Early Woodland	
6	Clemson Island Prehistoric District ^[9]		Halifax Township: southern portion of Clemson Island in the Susquehanna River 40°26'59"N 76°56'41.5"W	Dauphin	Multiple: Early Archaic through Late Woodland	Type site for the Clemson Island culture
7	Conestoga Town ^[10]		Manor Township: junction of Safe Harbor and Indian Marker Rds., near Letort 39°57'35.4"N 76°24'1.4"W	Lancaster	Susquehannock	
8	Deffenbaugh Site (36FA57) ^[11]		Nicholson Township: on a saddle between two hills, along Old Frame Rd. 39°48'7.2"N 79°51'36"W	Fayette	Monongahela	
9	Duncan Island (36LA60,61) ^[12]		Martic Township: in the Susquehanna River above Holtwood 39°51'41"N 76°21'49"W	Lancaster	Archaic	
10	Dykeman's Spring ^[13]		Shippensburg: Dykeman Rd., 0.25 miles (0.40 km) east of Pennsylvania Route 696 40°2'33"N 77°30'57"W	Cumberland	Multiple: Early Archaic through Woodland	
11	Fisher Farm Site ^[14]		Unionville: along U.S. Route 220, straddling a rail line 40°54'15.6"N 77°52'40"W	Centre	Late Woodland	
12	Fisher Site (36GR21) ^[15]		Richhill Township: off Camp Resort Rd. along the Enlow Fork 39°57'36"N 80°28'0"W	Greene	Monongahela	
13	Richard T. Foley Site (36GR52) ^[16]		Jackson Township: along Job Creek 39°49'50.7"N 80°22'54"W	Greene	Monongahela	
14	Francis Farm Petroglyphs Site (36FA35) ^{[17][18]}		Jefferson Township: off Perry Road, 1 mile (1.6 km) west of the junction of Pennsylvania Routes 51 and 201 40°3'0"N 79°47'30"W	Fayette	Unknown	
15	Frey-Haverstick Site (36LA6) ^[19]		Manor Township: eastern side of the Susquehanna River at Washington	Lancaster	Multiple: Late Archaic	

[3]	Landmark name	Image	Location	County	Culture	Comments
			Boro, north of Staman's Run 39°59'42"N 76°28'13.8"W		through Susquehannock	
16	Household No. 1 Site (36WM61) ^[20]		Rostraver Township: off Timms Ln. 40°10'27.7"N 79°46'44.4"W	Westmoreland	Monongahela	
17	Houserville Site (36CE65) ^[21]		College Township: 1300 block of E. College Ave., east of State College 40°48'42"N 77°50'4"W	Centre	Early and Middle Archaic	
18	Indian God Rock Petroglyphs Site (36VE26) ^[22]		Rockland Township: on the eastern bank of the Allegheny River above Brandon 41°19'48"N 79°49'27"W	Venango	Unknown	
19	Byrd Leibhart Site (36YO170) ^[23]		Lower Windsor Township: Native Lands County Park 39°58'41.4"N 76°29'54"W	York	Susquehannock	
20	Oscar Leibhart Site (36YO9) ^[24]		Lower Windsor Township: along the Susquehanna River, north of Klins Run 39°59'20.4"N 76°30'1"W	York	Susquehannock	
21	Locus 7 Site ^[25]		Washington Township: on a bluff above Downers Run north of Fayette City, 2,000 feet (610 m) east of the Monongahela River 40°6'24"N 79°50'13"W	Fayette	Monongahela	
22	Meadowcroft Rockshelter ^[26]		Independence Township: west of Avella 40°17'11"N 80°29'30"W	Washington	Multiple: Paleoindian through Late Woodland	
23	Memorial Park Site ^[27]		Lock Haven: on the southern bank of the Susquehanna River near the confluence of Bald Eagle Creek 41°8'19.2"N 77°25'4.3"W	Clinton	Clemson Island	
24	Minisink Archeological Site ^[28]		Dingman Township: in the vicinity of Minisink Island 41°17'26.2"N 74°49'44.4"W	Pike	Multiple: Early Archaic through Shawnee	
25	Murry Site ^[29]		Manor Township: 2 miles south of Washington Boro 39°58'44.4"N 76°27'10.8"W	Lancaster	Susquehannock	
26	North Warwick Historic and Archeological District ^[30]		Warwick Township: Pennsylvania Route 345 and Harmonyville, Bethesda, Hopewell, Piersol, Trythall, and Northside Rds. 40°11'18"N 75°46'8"W	Chester	Multiple: Late Archaic through Late Woodland	
27	Park Site 36La96 ^[31]		Lancaster: on a knoll in Central Park, midway between the Conestoga River and Mill Creek 40°1'7"N 76°17'3.7"W	Lancaster	Susquehannock	
28	Roberts Farm Site (36LA1) ^[32]		Manor Township: on a knoll above the Conestoga River, just above its confluence with the Susquehanna River, near Conestoga 39°56'42.4"N 76°22'26.8"W	Lancaster	Multiple: Late Archaic through Susquehannock	
29	Shawnee-Minisink Site ^[33]		Smithfield Township: confluence of Brodhead Creek and the Delaware	Monroe	Multiple: Paleoindian	

[3]	Landmark name	Image	Location	County	Culture	Comments
			River 40°59'25"N 75°8'2.7"W		through Late Archaic	
30	Shenks Ferry Site (36LA2) ^[34]		Conestoga Township: along Grubbs Creek north of Pequea, ¾ mile above the Susquehanna River 39°54'18"N 76°21'36.7"W	Lancaster	Multiple: Shenks Ferry through Susquehannock	Type site for the Shenks Ferry culture
31	Shoop Site (36DA20) ^[35]		Jackson Township: east of Enders 40°29'14"N 76°49'12"W	Dauphin	Paleoindian	
32	Shultz-Funk Site (36LA7 and 36LA9) ^[36]		Manor Township: above the Susquehanna River near Washington Boro, immediately south of Witmer's Run 39°58'6.4"N 76°27'17.9"W	Lancaster	Late Woodland	
33	Site 36BD90 ^[37]		Bedford Township: on the grounds of Bedford Village 40°2'31.2"N 78°30'38.4"W	Bedford	Monongahela	
34	Sommerheim Park Archaeological District ^[38]		Millcreek Township: on bluffs above Sommerheim Dr. and Presque Isle Bay 42°6'49"N 80°8'42"W	Erie	Multiple: Early Archaic through Middle Woodland	
35	Squirrel Hill Site ^[39]		St. Clair Township: west of New Florence near the banks of the Conemaugh River 40°22'49"N 79°5'20.3"W	Westmoreland	Monongahela	
36	Strickler Site ^[40]		Manor Township: ¾ mile north of Creswell Station, and 1 mile south of Washington Boro 39°58'48"N 76°27'40"W	Lancaster	Susquehannock	
37	Sugar Grove Petroglyph Site (36GR5) ^{[18][41]}		Monongahela Township: off Pennsylvania Route 88, 0.7 miles (1.1 km) northwest of its bridge over Whiteley Creek 39°49'36"N 79°57'40"W	Greene	Unknown	
38	Tudek Site ^[42]		College Township: along Orchard Rd., northeast of State College 40°49'1"N 77°51'3"W	Centre	Early and Middle Archaic	

See also

- National Register of Historic Places listings in Pennsylvania
- List of European archaeological sites on the National Register of Historic Places in Pennsylvania

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External links

- Pennsylvania Historical and Museum Commission (<http://www.phmc.state.pa.us>)

Retrieved from "https://en.wikipedia.org/w/index.php?

title=List_of_Native_American_archaeological_sites_on_the_National_Register_of_Historic_Places_in_Pennsylvania&oldid=676874444"

Categories: Archaeological sites on the National Register of Historic Places in Pennsylvania | Native American archeology

| Native American-related lists

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Archaeological and Historical Survey Report Information

Survey Information ▼

Report Number: 1984-1015-129-A
Title: A Culture Res. Surv. Of Loyalhanna Lake, WM Co, Pennsylvania
Author: C.Davis
Organization: CMNH
Date: 8/1/1983
Agency: COE
Agency Type: Federal Agency
No. of Pages: 153

Location ▼

County	Municipality
Westmoreland	Salem Township
Westmoreland	Derry Township
Westmoreland	Loyalhanna Township

Report Types ▼

Report Type	Area Surveyed (hectares)	No. of Properties/Sites	Method(s)
Phase I	0	27	Non Systematic Surface Survey
Phase I	0	27	Systematic Sub-Surface Testing

Repository **No Data Present**

Hydrology ▼

Sub-Basin	Watershed	Major Stream	Minor Stream
(18) Lower Allegheny River	Watershed C	Kiskimimetas River	Loyalhanna Creek

Resources Reported ▼

ID Number	Name
36WM0563	Ballfield #1
36WM0564	Ballfield #2
36WM0580	Bortz #1
36WM0594	Bush Recreation
36WM0568	Bush Rockshelter
36WM0573	Christopher #1
36WM0574	Christopher #2
36WM0575	Christopher #3
36WM0576	Christopher #4
36WM0577	Christopher #5

Archaeological and Historical Survey Report Information

36WM0567	Country Club
36WM0572	Deer Swim
36WM0578	Foster Farmstead
36WM0560	High Bank
36WM0565	Loyalhanna Mills
36WM0559	Lulu McBride
36WM0106	Mannitto
36WM0569	McBride Farmstead
36WM0557	Rt. 22 Bridge Site
36WM0581	Serviceberry Bluff
36WM0558	Serviceberry Run
36WM0570	Stromoch #1
36WM0571	Stromoch #2
36WM0579	Swimming Pool
36WM0561	Trestle #1
36WM0562	Trestle #2
36WM0566	Whitehorn Historic

Physiographic Zone ▼

Physiographic Zone: Pittsburgh Low Plateau Section(21)

Attachments No Data Present

Comments No Data Present

Archaeological and Historical Survey Report Information

Survey Information			
Report Number: 1992-0665-042-C Title: Ph I Arch. Survey Of The Proposed Reconstruction Of Traffic Route 22 (SR 0022, Sect B07) Author: S. Robertson, T. Benedict Organization: FHWA Date: 11/1/1992 Agency: FHWA Agency Type: Federal Agency No. of Pages: 60			
Location			
County		Municipality	
Westmoreland		Derry Township	
Report Types			
Report Type	Area Surveyed (hectares)	No. of Properties/Sites	Method(s)
Phase I	360	2	Systematic Shovel Testing
Phase I	360	2	Systematic Surface Survey
Repository			No Data Present
Hydrology			
Sub-Basin	Watershed	Major Stream	Minor Stream
(18) Lower Allegheny River	Watershed C	Kiskimimetas River	Loyalhanna Creek
Resources Reported			
ID Number	Name		
36WM0016	Fisher-Poole		
36WM0019	Steele		
Physiographic Zone			
Physiographic Zone: Pittsburgh Low Plateau Section(21)			
Attachments			No Data Present
Comments			No Data Present



DP-1 | Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see <http://www.census.gov/prod/cen2010/doc/dpsf.pdf>.

Geography: New Alexandria borough, Pennsylvania

Subject	Number	Percent
SEX AND AGE		
Total population	560	100.0
Under 5 years	31	5.5
5 to 9 years	14	2.5
10 to 14 years	20	3.6
15 to 19 years	30	5.4
20 to 24 years	22	3.9
25 to 29 years	29	5.2
30 to 34 years	30	5.4
35 to 39 years	29	5.2
40 to 44 years	32	5.7
45 to 49 years	50	8.9
50 to 54 years	48	8.6
55 to 59 years	44	7.9
60 to 64 years	58	10.4
65 to 69 years	29	5.2
70 to 74 years	37	6.6
75 to 79 years	29	5.2
80 to 84 years	22	3.9
85 years and over	6	1.1
Median age (years)	49.5	(X)
16 years and over	489	87.3
18 years and over	474	84.6
21 years and over	458	81.8
62 years and over	155	27.7
65 years and over	123	22.0
Male population		
Under 5 years	15	2.7
5 to 9 years	11	2.0
10 to 14 years	8	1.4
15 to 19 years	20	3.6
20 to 24 years	8	1.4
25 to 29 years	14	2.5
30 to 34 years	20	3.6
35 to 39 years	16	2.9
40 to 44 years	17	3.0
45 to 49 years	27	4.8
50 to 54 years	23	4.1
55 to 59 years	19	3.4
60 to 64 years	28	5.0
65 to 69 years	14	2.5
70 to 74 years	16	2.9

Subject	Number	Percent
75 to 79 years	13	2.3
80 to 84 years	9	1.6
85 years and over	2	0.4
Median age (years)	47.6	(X)
16 years and over	244	43.6
18 years and over	233	41.6
21 years and over	223	39.8
62 years and over	70	12.5
65 years and over	54	9.6
Female population	280	50.0
Under 5 years	16	2.9
5 to 9 years	3	0.5
10 to 14 years	12	2.1
15 to 19 years	10	1.8
20 to 24 years	14	2.5
25 to 29 years	15	2.7
30 to 34 years	10	1.8
35 to 39 years	13	2.3
40 to 44 years	15	2.7
45 to 49 years	23	4.1
50 to 54 years	25	4.5
55 to 59 years	25	4.5
60 to 64 years	30	5.4
65 to 69 years	15	2.7
70 to 74 years	21	3.8
75 to 79 years	16	2.9
80 to 84 years	13	2.3
85 years and over	4	0.7
Median age (years)	52.0	(X)
16 years and over	245	43.8
18 years and over	241	43.0
21 years and over	235	42.0
62 years and over	85	15.2
65 years and over	69	12.3
RACE		
Total population	560	100.0
One Race	552	98.6
White	538	96.1
Black or African American	5	0.9
American Indian and Alaska Native	0	0.0
Asian	9	1.6
Asian Indian	0	0.0
Chinese	9	1.6
Filipino	0	0.0
Japanese	0	0.0
Korean	0	0.0
Vietnamese	0	0.0
Other Asian [1]	0	0.0
Native Hawaiian and Other Pacific Islander	0	0.0
Native Hawaiian	0	0.0
Guamanian or Chamorro	0	0.0
Samoan	0	0.0
Other Pacific Islander [2]	0	0.0
Some Other Race	0	0.0

Subject	Number	Percent
Two or More Races	8	1.4
White; American Indian and Alaska Native [3]	3	0.5
White; Asian [3]	0	0.0
White; Black or African American [3]	5	0.9
White; Some Other Race [3]	0	0.0
Race alone or in combination with one or more other races: [4]		
White	546	97.5
Black or African American	10	1.8
American Indian and Alaska Native	3	0.5
Asian	9	1.6
Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	0	0.0
HISPANIC OR LATINO		
Total population	560	100.0
Hispanic or Latino (of any race)	0	0.0
Mexican	0	0.0
Puerto Rican	0	0.0
Cuban	0	0.0
Other Hispanic or Latino [5]	0	0.0
Not Hispanic or Latino	560	100.0
HISPANIC OR LATINO AND RACE		
Total population	560	100.0
Hispanic or Latino	0	0.0
White alone	0	0.0
Black or African American alone	0	0.0
American Indian and Alaska Native alone	0	0.0
Asian alone	0	0.0
Native Hawaiian and Other Pacific Islander alone	0	0.0
Some Other Race alone	0	0.0
Two or More Races	0	0.0
Not Hispanic or Latino	560	100.0
White alone	538	96.1
Black or African American alone	5	0.9
American Indian and Alaska Native alone	0	0.0
Asian alone	9	1.6
Native Hawaiian and Other Pacific Islander alone	0	0.0
Some Other Race alone	0	0.0
Two or More Races	8	1.4
RELATIONSHIP		
Total population	560	100.0
In households	560	100.0
Householder	249	44.5
Spouse [6]	139	24.8
Child	122	21.8
Own child under 18 years	74	13.2
Other relatives	23	4.1
Under 18 years	11	2.0
65 years and over	4	0.7
Nonrelatives	27	4.8
Under 18 years	1	0.2
65 years and over	2	0.4
Unmarried partner	23	4.1
In group quarters	0	0.0
Institutionalized population	0	0.0
Male	0	0.0

Subject	Number	Percent
Female	0	0.0
Noninstitutionalized population	0	0.0
Male	0	0.0
Female	0	0.0
HOUSEHOLDS BY TYPE		
Total households	249	100.0
Family households (families) [7]	165	66.3
With own children under 18 years	50	20.1
Husband-wife family	139	55.8
With own children under 18 years	38	15.3
Male householder, no wife present	8	3.2
With own children under 18 years	5	2.0
Female householder, no husband present	18	7.2
With own children under 18 years	7	2.8
Nonfamily households [7]	84	33.7
Householder living alone	64	25.7
Male	29	11.6
65 years and over	8	3.2
Female	35	14.1
65 years and over	22	8.8
Households with individuals under 18 years	57	22.9
Households with individuals 65 years and over	87	34.9
Average household size	2.25	(X)
Average family size [7]	2.72	(X)
HOUSING OCCUPANCY		
Total housing units	264	100.0
Occupied housing units	249	94.3
Vacant housing units	15	5.7
For rent	2	0.8
Rented, not occupied	1	0.4
For sale only	3	1.1
Sold, not occupied	2	0.8
For seasonal, recreational, or occasional use	2	0.8
All other vacants	5	1.9
Homeowner vacancy rate (percent) [8]	1.5	(X)
Rental vacancy rate (percent) [9]	3.6	(X)
HOUSING TENURE		
Occupied housing units	249	100.0
Owner-occupied housing units	197	79.1
Population in owner-occupied housing units	462	(X)
Average household size of owner-occupied units	2.35	(X)
Renter-occupied housing units	52	20.9
Population in renter-occupied housing units	98	(X)
Average household size of renter-occupied units	1.88	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.



<http://www.epa.gov/oaqps001/greenbk/ancl.html#> PENNSYLVANIA.

Last updated on Friday, January 30, 2015

Green Book

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Current Nonattainment Counties for All Criteria Pollutants

As of January 30, 2015

Listed by State, County then Pollutant

[View Notes](#)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

ALABAMA

Pike Co

Lead (2008) * Troy, AL

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

ALASKA

Fairbanks North Star Borough

PM-2.5 (2006) * Fairbanks, AK - (Moderate)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

ARIZONA

Cochise Co

PM-10 (1987) * Paul Spur/Douglas (Cochise County), AZ - (Moderate)

Gila Co

Lead (2008) * Hayden, AZ

PM-10 (1987) * Hayden, AZ - (Moderate)

PM-10 (1987) * Miami, AZ - (Moderate)

Sulfur Dioxide (2010) * Hayden, AZ

Sulfur Dioxide (2010) * Miami, AZ

Maricopa Co

PM-10 (1987) * Phoenix, AZ - (Serious)

8-Hr Ozone (2008) * Phoenix-Mesa, AZ - (Marginal)

Pima Co

PM-10 (1987) * Ajo (Pima County), AZ - (Moderate)

PM-10 (1987) * Rillito, AZ - (Moderate)

PM-2.5 (2006) * Klamath Falls, OR - (Moderate)

Lane Co

PM-10 (1987) * Lane Co, OR - (Moderate)

PM-2.5 (2006) * Oakridge, OR - (Moderate)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

PENNSYLVANIA

Allegheny Co

8-Hr Ozone (1997) Pittsburgh-Beaver Valley, PA - (Moderate)

PM-2.5 (1997) * Liberty-Clairton, PA - (Moderate)

PM-2.5 (1997) * Pittsburgh-Beaver Valley, PA - (Moderate)

PM-2.5 (2006) * Liberty-Clairton, PA - (Moderate)

PM-2.5 (2006) * Pittsburgh-Beaver Valley, PA - (Moderate)

Sulfur Dioxide (2010) * Allegheny, PA

8-Hr Ozone (2008) Pittsburgh-Beaver Valley, PA - (Marginal)

Armstrong Co

8-Hr Ozone (1997) Pittsburgh-Beaver Valley, PA - (Moderate)

PM-2.5 (1997) * Pittsburgh-Beaver Valley, PA - (Moderate)

PM-2.5 (2006) * Pittsburgh-Beaver Valley, PA - (Moderate)

Sulfur Dioxide (1971) * Armstrong Co, PA

Sulfur Dioxide (2010) * Indiana, PA

8-Hr Ozone (2008) Pittsburgh-Beaver Valley, PA - (Marginal)

Beaver Co

8-Hr Ozone (1997) Pittsburgh-Beaver Valley, PA - (Moderate)

Lead (2008) * Lower Beaver Valley, PA

PM-2.5 (1997) Pittsburgh-Beaver Valley, PA - (Moderate)

PM-2.5 (2006) Pittsburgh-Beaver Valley, PA - (Moderate)

Sulfur Dioxide (2010) * Beaver, PA

8-Hr Ozone (2008) Pittsburgh-Beaver Valley, PA - (Marginal)

Berks Co

Lead (2008) * Lyons, PA

Lead (2008) * North Reading, PA

PM-2.5 (1997) Reading, PA - (Moderate)

8-Hr Ozone (2008) Reading, PA - (Marginal)

*8-Hr Ozone
(2008)*

Westmoreland Co

<i>8-Hr Ozone (1997)</i>	Pittsburgh-Beaver Valley, PA - (Moderate)
<i>PM-2.5 (1997)</i>	Pittsburgh-Beaver Valley, PA - (Moderate)
<i>PM-2.5 (2006)</i>	Pittsburgh-Beaver Valley, PA - (Moderate)
<i>8-Hr Ozone (2008)</i>	Pittsburgh-Beaver Valley, PA - (Marginal)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

PUERTO RICO

Arecibo Municipio

Lead (2008) * Arecibo, PR

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

RHODE ISLAND

Bristol Co

*8-Hr Ozone
(1997)* Providence (all of RI), RI - (Moderate)

Kent Co

*8-Hr Ozone
(1997)* Providence (all of RI), RI - (Moderate)

Newport Co

*8-Hr Ozone
(1997)* Providence (all of RI), RI - (Moderate)

Providence Co

*8-Hr Ozone
(1997)* Providence (all of RI), RI - (Moderate)

Washington Co

*8-Hr Ozone
(1997)* Providence (all of RI), RI - (Moderate)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

SOUTH CAROLINA

York Co

*8-Hr Ozone
(2008)* * Charlotte-Rock Hill, NC-SC - (Marginal)

State, County, Pollutant, * Part County NAA, NAA Area Name - Classification Standard

TENNESSEE



<http://www.epa.gov/oaqps001/greenbk/hnc.html>

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Classifications of 8-Hr Ozone (2008) Nonattainment Areas

As of January 30, 2015

EXTREME

[Los Angeles-South Coast Air Basin, CA](#)

[San Joaquin Valley, CA](#)

SEVERE 15

[Los Angeles-San Bernardino Counties \(West Mojave Desert\), CA](#)

[Riverside Co. \(Coachella Valley\), CA](#)

[Sacramento Metro, CA](#)

SERIOUS

[Morongo Band of Mission Indians](#)

[Ventura County, CA](#)

MODERATE

[Baltimore, MD](#)

[Dallas-Fort Worth, TX](#)

[Pechanga Band of Luiseno Mission Indians of the Pechanga Reservation](#)

MARGINAL

[Allentown-Bethlehem-Easton, PA](#)

[Atlanta, GA](#)

[Baton Rouge, LA](#)

[Calaveras County, CA](#)

[Charlotte-Rock Hill, NC-SC](#)

[Chicago-Naperville, IL-IN-WI](#)

[Chico \(Butte County\), CA](#)

[Cincinnati, OH-KY-IN](#)

[Cleveland-Akron-Lorain, OH](#)

[Columbus, OH](#)

[Denver-Boulder-Greeley-Ft. Collins-Loveland, CO](#)

[Dukes County, MA](#)

[Greater Connecticut, CT](#)

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Sulfur Dioxide (2010) Nonattainment Areas

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Classifications of PM-2.5 (2006) Nonattainment Areas

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MODERATE

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Lead (2008) Nonattainment Areas

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A Operator's Way, New Alexandria, PA 15670

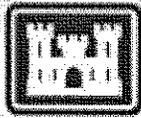
- | | | |
|---|--|---------------------------|
| | 1. Head south on Operator's Way toward US-119 S/US-22 W | go 453 ft
total 453 ft |
|  | 2. Take the 1st left onto US-119 N/US-22 E
About 3 mins | go 1.1 mi
total 1.2 mi |
|  | 3. Turn right onto PA-981 S
About 8 mins | go 6.2 mi
total 7.4 mi |
|  | 4. Slight right onto Lattanzio Rd | go 0.1 mi
total 7.5 mi |
|  | 5. Turn right onto Latanzio Rd | go 430 ft
total 7.6 mi |
|  | 6. Latanzio Rd turns slightly left and becomes Derry St | go 0.4 mi
total 8.0 mi |
|  | 7. Slight right onto Miller St
About 1 min | go 0.3 mi
total 8.3 mi |
|  | 8. Take the 3rd right onto Ligonier St
About 53 secs | go 0.3 mi
total 8.6 mi |
|  | 9. Turn left onto W 2nd Ave | go 0.1 mi
total 8.8 mi |

B 121 West 2nd street, latrobe, pa 15650

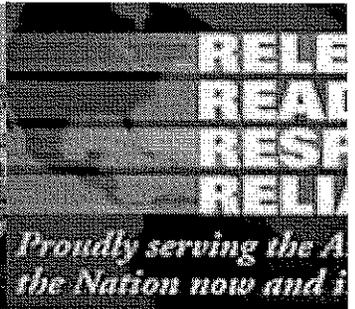
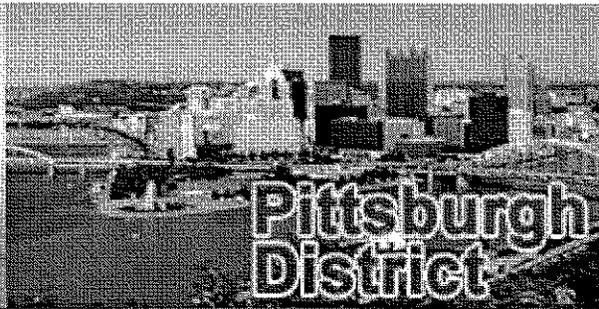
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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US Army Corps
of Engineers®



Derry Township FONSI released

The U. S. Army Corps of Engineers, Pittsburgh District, under the authority of Section 313 of the Water Resources Development Act of 1992 (Public Law 102-580) as amended, is providing design and construction assistance for the Borough of New Alexandria and the Derry Township Municipal Authority's public wastewater collection and treatment system. The area that this project will service currently has severe problems with sewage treatment— discharges of untreated sewage into open ditches and waterways are common due to malfunctioning on-lot and improperly designed septic systems— which poses a chronic health risk to area residents as well as fish, aquatic life, and wildlife. This project (Phase 2 New Alexandria Sewage Project) is also receiving funding from the U.S. Department of Agriculture (USDA) Rural Utilities Service.

FINDING OF NO SIGNIFICANT IMPACT
Derry Township/Borough of New Alexandria, Westmoreland County, PA
Section 313 Environmental Infrastructure Improvement
September 2009

The U. S. Army Corps of Engineers, Pittsburgh District (hereafter "District"), under the authority of Section 313 of the Water Resources Development Act of 1992 (Public Law 102-580) as amended, is providing design and construction assistance for the Borough of New Alexandria and the Derry Township Municipal Authority's public wastewater collection and treatment system. The area that this project will service currently has severe problems with sewage treatment— discharges of untreated sewage into open ditches and waterways are common due to malfunctioning on-lot and improperly designed septic systems— which poses a chronic health risk to area residents as well as fish, aquatic life, and wildlife. This project (Phase 2 New Alexandria Sewage Project) is also receiving funding from the U.S. Department of Agriculture (USDA) Rural Utilities Service.

The Corps' portion of the project will consist of design assistance for a public wastewater collection system that will include two pump stations, a gravity collection system, and a force main, and design and construction assistance of a 100,000 gallon-per-day sewage treatment facility, which will accommodate the current and projected needs of the service area. This projection is based on the Official Sewage Facilities Plan completed by the township, as required by the Pennsylvania Sewage Facilities Act (Act 537 of 1965, Public Law 1535, as amended) implemented by Pennsylvania Department of Environmental Protection. The proposed system will improve health, safety, and aesthetic conditions in the project area, as well as ameliorate ground and surface water contamination.

Under the National Environmental Policy Act (NEPA), the USDA completed an Environmental Assessment (EA) entitled *Environmental Report for the Derry Township Municipal Authority Phase 2 New Alexandria Sewage Project* and a Finding of No Significant Impact (FONSI) in June of 2007. These documents analyzed the entire Phase 2 New Alexandria Sewage Project. The USDA has coordinated with both the U.S. Fish and Wildlife Service to meet the requirements of the federal Fish and Wildlife Coordination Act and Endangered Species Act, and the Pennsylvania State Historic Preservation Officer under the requirements of Section 106 of the National Historic Preservation Act. The proposed action would not affect any endangered or threatened species, or any significant cultural resources. The USDA Natural Resource Conservation Service was also contacted and the determination was made that there were prime or statewide important farmland soils within the project area. A public notice that portions of the project area contain soils classified as prime agricultural land was published and the review period expired with no comments. All areas impacted will be restored following construction and may be used for agriculture. A floodplain issue has also been identified with the project described above; however, there is no practical alternative to locating the sewer line within the base floodplain. It has been determined that no fill will be placed in the floodplain and any excess material will be disposed of properly, and in a manner so as not to impact any floodplain values.

Three alternatives were considered for wastewater collection during project formulation and presented in the EA, including the No Action alternative. The No Action alternative was determined unacceptable because the Derry Township Municipal Authority is not in compliance with state and federal regulations, i.e., the Pennsylvania Clean Streams Law (Act of June 22, 1937, Public Law 1987, as amended). The first treatment option would require repair or replacement of individual on-site septic systems. Given the native soils are poor for on-site sewage disposal, great expense to individual property owners would result. Construction of a sewage treatment plant was determined to be the only feasible option. Additionally, three types of sewage treatment were discussed. Land application was ruled out due to high costs associated with land acquisition, problems with cold winters, short growing seasons, and high ground water. The use of biological process treatment was eliminated from consideration as a result of high construction costs and the need for specialized operation and maintenance. Activated sludge wastewater treatment was the chosen treatment. This type of facility is relatively easy to operate, economical in operation, and dependable when operated properly.

The site of a treatment facility is dependent on elevation, topography, land availability, stability, wetlands, flood plain, and other similar parameters. Site one, located just north of Union Cemetery off Township Road 944, was an option to predominantly serve the Borough of New Alexandria without regard to future expansion or growth. This was a viable location due to elevation concerns and proximity to service area. However, the property was determined to be landlocked, not readily accessible and was not available. Site two, located just off of RayAnn Drive (also called Saltsburg Road), along SR 981 approximately 3000 feet north of SR 22 is the property directly behind New Alexandria Mobile Home Park. This option was chosen to predominantly serve the Borough of New Alexandria without regard to future expansion or growth. Due to this area being higher in elevation than the service area, a pump station and force main will be required to pump the sewage up hill to the plant. This is a viable location based on land availability and access. Therefore, this is the chosen option. The proposed action, to construct an activated sludge sewage treatment facility at location two, would eliminate water pollution, reduce health hazards, and bring the community into compliance with state and federal regulations.

The proposed project would clearly enhance the quality of life for the residents of Derry Township and New Alexandria Borough by alleviating health and safety risks posed by discharges of raw sewage into the area surface and ground waters. Potential impacts were addressed with regard to floodplains, vegetation, fish and wildlife habitat, energy, water quality, wetlands, endangered species, cultural resources, wild and scenic rivers, air quality, noise, socio-economic resources, farmland, biosolids generation, and transportation. A portion of the project will need to be mitigated due to construction in the 100-year floodplain; however, no significant environmental or cultural resources have been identified in the immediate vicinity of this proposed project.

After having carefully evaluated and balanced all beneficial and detrimental aspects of the proposed action, including all regulatory agency input, I have reasonably concluded that the construction of the sewage treatment facility within the borough of New Alexandria would not constitute a major federal action significantly affecting the quality of the human

environment, as defined in the Council on Environmental Quality's current regulations implementing NEPA. Consequently, the preparation of an environmental impact statement for this action is not warranted. The public interest will be best served by the implementation of the proposed action. Further, the proposed work is in compliance with all applicable federal, state, and local laws and regulations. There are no unresolved issues regarding environmental compliance and coordination. This determination precedes the Corps of Engineers' final decision on the proposed action. A copy of this FONSI will be placed at the New Alexandria Public Library in Masontown, PA, and on the District's website (<http://www.lrp.usace.army.mil>).

SEPTEMBER 08 2009

Date



Michael P. Crall
Colonel, Corps of Engineers
District Engineer

the 1990s, the number of people with a diagnosis of schizophrenia has increased in many countries, including the United Kingdom (Murray & Lewis, 1998). The prevalence of schizophrenia is estimated to be 1% of the population (Murray & Lewis, 1998).

There is a growing awareness of the need to improve the lives of people with schizophrenia. The World Health Organization (WHO) has developed a number of initiatives to improve the lives of people with schizophrenia, including the 'Global Strategy for the Care of People with Schizophrenia' (WHO, 1993). The WHO has also developed a number of guidelines for the care of people with schizophrenia, including the 'Guidelines for the Management of Schizophrenia' (WHO, 1993).

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DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

Peg
RECEIVED
APR 15 2011

April 14, 2011

Environmental and Cultural Resources Section

Subject: 30-Day Review, Finding of No Significant Impact for Proposed Easement to Derry Township Municipal Authority, Loyalhanna Lake, Westmoreland County, Pennsylvania

To Whom It May Concern:

The U.S. Army Corps of Engineers, Pittsburgh District has prepared a Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA; 1970 [42 U.S.C.4321 et seq.]) for a permanent easement requested by the Derry Township Municipal Authority, on Federal property adjacent to Loyalhanna Lake in Derry Township, Pennsylvania. You are invited to review and comment on this document by May 17, 2011. Your comments on the FONSI should be addressed to Mr. Mark Wozniak at the above address or by email to: mark.a.wozniak@usace.army.mil. This document can also be found on the District's website (<http://www.lrp.usace.army.mil>).

The proposed New Alexandria Sewer Project, including the sewage treatment plant and effluent lines, was designed in cooperation with the U.S. Department of Agriculture, Rural Development Office, the U.S. Army Corps of Engineers, Pittsburgh District, and Gibson-Thomas Engineering Company. Under the National Environmental Policy Act, the Rural Development Office completed an Environmental Assessment (EA) entitled *Environmental Report for the Derry Township Municipal Authority Phase 2 New Alexandria Sewage Project* and a FONSI in June of 2007. Gibson-Thomas Engineering Co., Inc. completed a separate EA for the Pittsburgh District covering the specific impacts associated with the easement area. The EA addresses the proposed action and the no action alternative as well as other alternatives to placing the line on Federal property, including improvement of individual on-lot systems, land application of wastewater, and an alternate location for the treatment plant. Based on this information, the FONSI was completed.

If you have any questions regarding the FONSI or EA, feel free to contact Mr. Wozniak at: (412) 395-7180. Questions on the easement can be directed to Mr. Roger Kies in the Real Estate Branch, at: (412) 395-7116 or by e-mail to: roger.kies@usace.army.mil.

Sincerely,

Deborah L. Campbell

Acting Chief, Environmental and Cultural Resources Section

CC: Ed
Dane

Finding of No Significant Impact

NEW ALEXANDRIA SEWAGE TREATMENT PLANT OUTFALL PIPE DERRY TOWNSHIP, WESTMORELAND COUNTY, PENNSYLVANIA

The U.S. Army Corps of Engineers, Pittsburgh District, proposes to grant an easement for a sewage treatment plant outfall pipeline, at Loyalhanna Lake, to the Derry Township Municipal Authority in Derry Township, Westmoreland County, Pennsylvania.

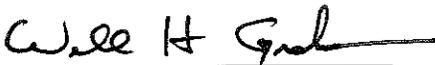
The proposed easement will be located about 3000 feet north of State Route 22, just off Ray Ann Drive, along State Route 981, adjacent to Loyalhanna Lake. The 8-inch PVC effluent line will extend a total of 676 feet, from the permitted 110,000 gallon per day sewage treatment plant, down a steep slope and will discharge from the easement location downstream into Loyalhanna Lake. A 15-inch stormwater pipe will also be installed, parallel to the effluent line, to convey the stormwater not infiltrated on-site, that is collected by the sewage treatment plant's detention pond. Both pipes will tie in to a 10 foot wide endwall and discharge to a 15-foot wide by 15-foot long rock apron. The proposed permanent easement will be 25 feet wide and will cover the last 250 feet of the effluent line. Additionally, a 10 foot wide temporary easement will be established on each side of the permanent easement to account for construction activities. The total area of easements on U.S. Government property will be approximately 11,250 square feet.

This project is part of the *Phase 2 New Alexandria Sewer Project*, being undertaken by the Borough of New Alexandria and Derry Township in conjunction with the U.S. Department of Agriculture, Rural Development Office, and the Pittsburgh District. Under the National Environmental Policy Act, the Rural Development Office completed an Environmental Assessment (EA) entitled *Environmental Report for the Derry Township Municipal Authority Phase 2 New Alexandria Sewage Project* and a Finding of No Significant Impact (FONSI) in June of 2007. These documents analyzed the entire Phase 2 New Alexandria Sewage Project. Gibson-Thomas Engineering Co., Inc. completed a separate EA for the Pittsburgh District covering the specific impacts associated with the easement area. The EA addresses the proposed action and the no action alternative as well as other alternatives including improvement of individual on-lot systems, land application of wastewater, and an alternate location for the treatment plant. The no-action alternative would allow for the unsatisfactory continuation of the current conditions that place the community in violation of state and federal regulations, i.e., the Pennsylvania Clean Streams Law (Act of June 22, 1937, Public Law 1987, as amended), and was therefore rejected as a viable option. The construction or improvement of individual on-lot systems would need to comply with Pennsylvania Department of Environmental Protection (PADEP) regulations contained in 25 Pa. Code Chapter 73. This alternative was rejected given the limitations of native soils, shallow depth to bedrock, and the small lot sizes, that would result in great expense to individual property owners from maintaining systems that operate at PADEP standards. Land application of wastewater was ruled out due to high costs associated with additional land acquisition, and technical constraints with cold winters, short growing seasons, and high ground water. All alternate locations were ruled out early in the plan formulation process due to topographic as well as economic limitations. The proposed action will allow residences and businesses to tie-in to an environmentally compliant sanitary sewer system and resolve existing violations facing the Derry Township Municipal Authority.

Potential impacts were addressed with regard to floodplains, vegetation, fish and wildlife habitat, hazardous and toxic wastes, water quality, wetlands, endangered species, cultural resources, traffic and public safety, noise, recreation and aesthetics, and land use and socioeconomic resources. No significant environmental and cultural resources have been identified in the immediate vicinity of the proposed project. Placement of the proposed lines in the area previously disturbed by the existing plant and strict adherence to the approved Erosion and Sedimentation Control Plan will minimize any temporary or long term environmental impacts. This project design will comply with all applicable environmental laws. Coordination under Section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service and Pennsylvania Historical and Museum Commission under Section 106 of the National Historic Preservation Act has been completed. The Derry Township Municipal Authority has obtained the necessary permits and approvals from the PADEP (NPDES permit number PA0254088 and General Permit GP056510216).

I have reasonably determined that granting the proposed easement at Loyalhanna Lake within Derry Township, Westmoreland County, Pennsylvania would not constitute a major Federal action significantly affecting the human environment as defined in the Council on Environmental Quality's current regulations implementing the National Environmental Policy Act. The preparation of an environmental impact statement under the National Environmental Policy Act is not warranted. This determination precedes the Corps of Engineers' final decision concerning this proposed action. Copies of this draft FONSI will be placed on the District's website (<http://www.lrp.usace.army.mil>) and circulated for a minimum 30-day review to concerned agencies, organizations and the interested public.

12 APRIL 2011
Date


William H. Graham
Colonel, Corps of Engineers
District Engineer

APPENDIX D – ENVIRONMENTAL DATABASE REPORT

Sanitary Sewer Route

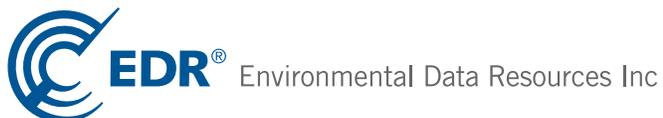
S.R. 22

New Alexandria, PA 15670

Inquiry Number: 4379411.2s

August 11, 2015

The EDR Radius Map™ Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

S.R. 22
NEW ALEXANDRIA, PA 15670

COORDINATES

Latitude (North): 40.3959000 - 40° 23' 45.24"
Longitude (West): 79.4359000 - 79° 26' 9.24"
Universal Transverse Mercator: Zone 17
UTM X (Meters): 632743.1
UTM Y (Meters): 4472663.5
Elevation: 982 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5949906 SALTSBURG, PA
Version Date: 2013

South Map: 5949860 LATROBE, PA
Version Date: 2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20100618
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
S.R. 22
NEW ALEXANDRIA, PA 15670

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
Reg	LOYALHANNA LAKE		DOD	Same	1 ft.

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

EXECUTIVE SUMMARY

LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

SHWS..... Hazardous Sites Cleanup Act Site List

HSCA..... HSCA Remedial Sites Listing

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Operating Facilities

State and tribal leaking storage tank lists

LUST..... Storage Tank Release Sites

UNREG LTANKS..... Unregulated Tank Cases

LAST..... Storage Tank Release Sites

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Listing of Pennsylvania Regulated Underground Storage Tanks

AST..... Listing of Pennsylvania Regulated Aboveground Storage Tanks

INDIAN UST..... Underground Storage Tanks on Indian Land

FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Engineering Controls Site Listing

INST CONTROL..... Institutional Controls Site Listing

AUL..... Environmental Covenants Listing

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

VCP..... Voluntary Cleanup Program Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

EXECUTIVE SUMMARY

HIST LF..... Abandoned Landfill Inventory
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

ARCHIVE UST..... Archived Underground Storage Tank Sites
ARCHIVE AST..... Archived Aboveground Storage Tank Sites

Local Land Records

LIENS 2..... CERCLA Lien Information
ACT 2-DEED..... Act 2-Deed Acknowledgment Sites

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... State spills

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
DOT OPS..... Incident and Accident Data
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
RMP..... Risk Management Plans
NPDES..... NPDES Permit Listing
UIC..... Underground Injection Wells
MANIFEST..... Manifest Information
DRYCLEANERS..... Drycleaner Facility Locations
AIRS..... Permit and Emissions Inventory Data
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
MINES..... MINES
LEAD SMELTERS..... Lead Smelter Sites
US AIRS..... Aerometric Information Retrieval System Facility Subsystem

EXECUTIVE SUMMARY

EPA WATCH LIST.....	EPA WATCH LIST
US FIN ASSUR.....	Financial Assurance Information
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
COAL ASH DOE.....	Steam-Electric Plant Operation Data
2020 COR ACTION.....	2020 Corrective Action Program List
PRP.....	Potentially Responsible Parties

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat.....	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners.....	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS.....	Recovered Government Archive State Hazardous Waste Facilities List
RGA LF.....	Recovered Government Archive Solid Waste Facilities List
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1.25 miles of the target property.

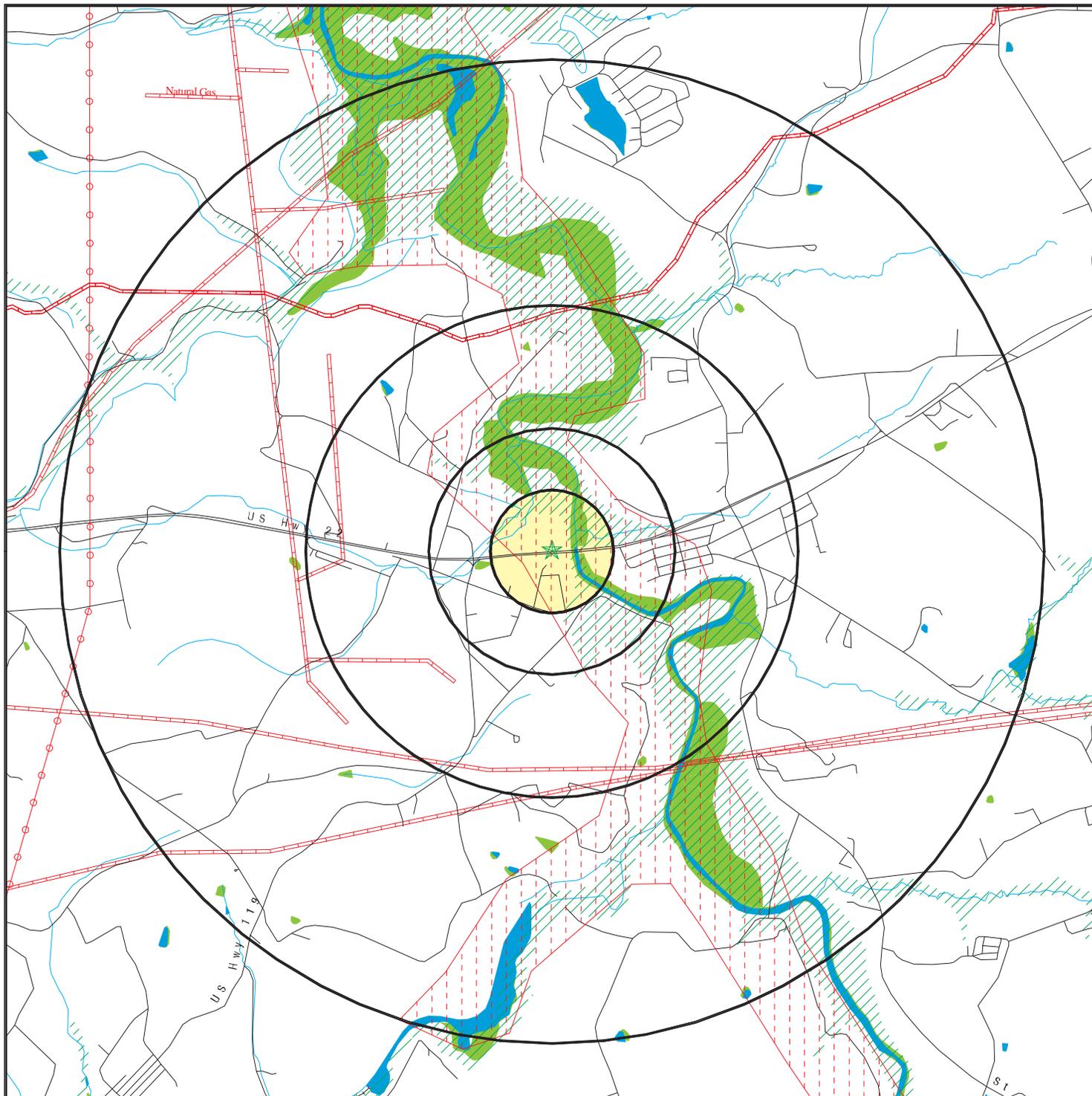
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LOYALHANNA LAKE		0 - 1/8 (0.000 mi.)	0	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 7 records.

<u>Site Name</u>	<u>Database(s)</u>
QUICK STOP	LUST, ARCHIVE UST
SHEETZ 314	LUST, UST
SHEETZ 314	LUST
RICHARD KEPPLER	LUST, AST
GRABIAK CHEVROLET	LUST
BEST OIL 18	LUST
R & L DEV	LUST

OVERVIEW MAP - 4379411.2S



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Manufactured Gas Plants

■ National Priority List Sites

■ Dept. Defense Sites

■ Indian Reservations BIA

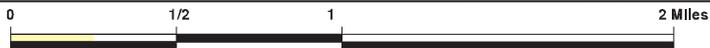
⚡ Power transmission lines

— Pipelines

▨ 100-year flood zone

▨ 500-year flood zone

▨ National Wetland Inventory

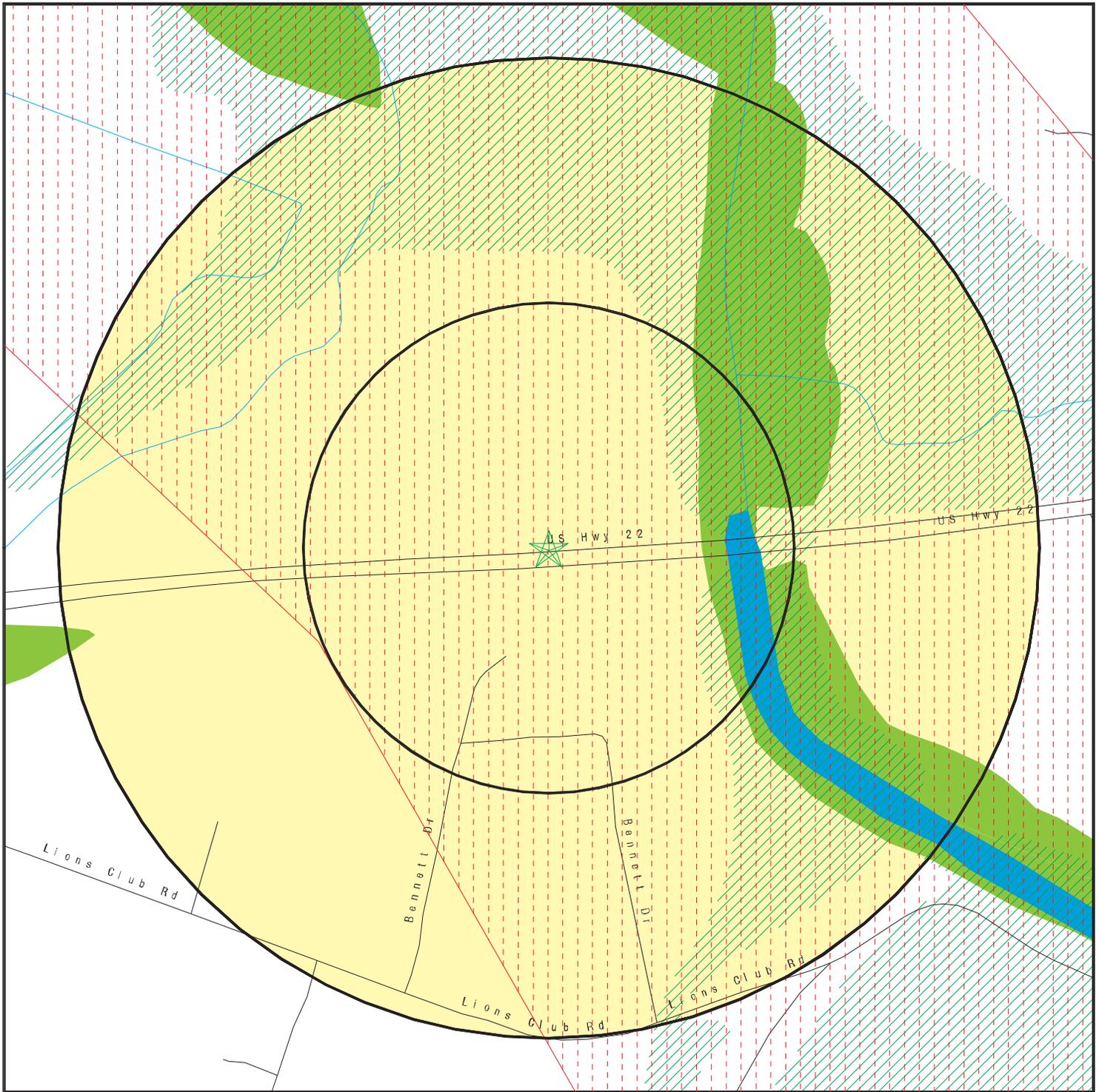


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Sanitary Sewer Route
 ADDRESS: S.R. 22
 New Alexandria PA 15670
 LAT/LONG: 40.3959 / 79.4359

CLIENT: Cardno ATC #39
 CONTACT: Pamela Wheeler
 INQUIRY #: 4379411.2S
 DATE: August 11, 2015 10:30 am

DETAIL MAP - 4379411.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Sanitary Sewer Route
 ADDRESS: S.R. 22
 New Alexandria PA 15670
 LAT/LONG: 40.3959 / 79.4359

CLIENT: Cardno ATC #39
 CONTACT: Pamela Wheeler
 INQUIRY #: 4379411.2s
 DATE: August 11, 2015 10:31 am

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.250		0	0	0	0	0	0
Proposed NPL	1.250		0	0	0	0	0	0
NPL LIENS	0.250		0	0	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.250		0	0	0	0	0	0
<i>Federal CERCLIS list</i>								
CERCLIS	0.750		0	0	0	0	NR	0
FEDERAL FACILITY	0.750		0	0	0	0	NR	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	0.750		0	0	0	0	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.250		0	0	0	0	0	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.750		0	0	0	0	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.500		0	0	0	NR	NR	0
RCRA-SQG	0.500		0	0	0	NR	NR	0
RCRA-CESQG	0.500		0	0	0	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	0.750		0	0	0	0	NR	0
US INST CONTROL	0.750		0	0	0	0	NR	0
LUCIS	0.750		0	0	0	0	NR	0
<i>Federal ERNS list</i>								
ERNS	0.250		0	0	NR	NR	NR	0
<i>State- and tribal - equivalent NPL</i>								
SHWS	1.250		0	0	0	0	0	0
HSCA	1.000		0	0	0	0	NR	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.750		0	0	0	0	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.750		0	0	0	0	NR	0
UNREG LTANKS	0.750		0	0	0	0	NR	0
LAST	0.750		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.750		0	0	0	0	NR	0
State and tribal registered storage tank lists								
UST	0.500		0	0	0	NR	NR	0
AST	0.500		0	0	0	NR	NR	0
INDIAN UST	0.500		0	0	0	NR	NR	0
FEMA UST	0.500		0	0	0	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.750		0	0	0	0	NR	0
INST CONTROL	0.750		0	0	0	0	NR	0
AUL	0.750		0	0	0	0	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.750		0	0	0	0	NR	0
VCP	0.750		0	0	0	0	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.750		0	0	0	0	NR	0
<u>ADDITIONAL ENVIRONMENTAL RECORDS</u>								
Local Brownfield lists								
US BROWNFIELDS	0.750		0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.750		0	0	0	0	NR	0
DEBRIS REGION 9	0.750		0	0	0	0	NR	0
HIST LF	0.750		0	0	0	0	NR	0
INDIAN ODI	0.750		0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	0.250		0	0	NR	NR	NR	0
US HIST CDL	0.250		0	0	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
ARCHIVE UST	0.500		0	0	0	NR	NR	0
ARCHIVE AST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	0.250		0	0	NR	NR	NR	0
ACT 2-DEED	0.750		0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS	0.250		0	0	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS	0.250		0	0	NR	NR	NR	0
DOD	1.250		1	0	0	0	0	1
FUDS	1.250		0	0	0	0	0	0
CONSENT	1.250		0	0	0	0	0	0
ROD	1.250		0	0	0	0	0	0
UMTRA	0.750		0	0	0	0	NR	0
US MINES	0.500		0	0	0	NR	NR	0
TRIS	0.250		0	0	NR	NR	NR	0
TSCA	0.250		0	0	NR	NR	NR	0
FTTS	0.250		0	0	NR	NR	NR	0
HIST FTTS	0.250		0	0	NR	NR	NR	0
SSTS	0.250		0	0	NR	NR	NR	0
ICIS	0.250		0	0	NR	NR	NR	0
PADS	0.250		0	0	NR	NR	NR	0
MLTS	0.250		0	0	NR	NR	NR	0
RADINFO	0.250		0	0	NR	NR	NR	0
FINDS	0.250		0	0	NR	NR	NR	0
RAATS	0.250		0	0	NR	NR	NR	0
RMP	0.250		0	0	NR	NR	NR	0
NPDES	0.250		0	0	NR	NR	NR	0
UIC	0.250		0	0	NR	NR	NR	0
MANIFEST	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.500		0	0	0	NR	NR	0
AIRS	0.250		0	0	NR	NR	NR	0
INDIAN RESERV	1.250		0	0	0	0	0	0
SCRD DRYCLEANERS	0.750		0	0	0	0	NR	0
MINES	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.250		0	0	NR	NR	NR	0
US AIRS	0.250		0	0	NR	NR	NR	0
EPA WATCH LIST	0.250		0	0	NR	NR	NR	0
US FIN ASSUR	0.250		0	0	NR	NR	NR	0
COAL ASH EPA	0.750		0	0	0	0	NR	0
PCB TRANSFORMER	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	0.250		0	0	NR	NR	NR	0
2020 COR ACTION	0.500		0	0	0	NR	NR	0
PRP	0.250		0	0	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.250		0	0	0	0	0	0
EDR US Hist Auto Stat	0.500		0	0	0	NR	NR	0
EDR US Hist Cleaners	0.500		0	0	0	NR	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS	0.250		0	0	NR	NR	NR	0
RGA LF	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
RGA LUST	0.250		0	0	NR	NR	NR	0
- Totals --		0	1	0	0	0	0	1

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

DOD
Region

LOYALHANNA LAKE
LOYALHANNA LAKE (County), PA

DOD CUSA128047
N/A

< 1/8
1 ft.

DOD:

Feature 1: Army Corps of Engineers DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Loyalhanna Lake
Name 2: Not reported
Name 3: Not reported
State: PA
DOD Site: Yes
Tile name: PAWESTMORELAND

Count: 7 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NEW ALEXANDRIA	U003772359	SHEETZ 314	ROUTE 22 & ROUTE 981	15670	LUST, UST
NEW ALEXANDRIA	S117280204	SHEETZ 314	ROUTE 22 & ROUTE 981	15670	LUST
NEW ALEXANDRIA	S105802844	RICHARD KEPPLER	SR 22 2 MI E OF SR 981 N SIDE	15670	LUST, AST
NEW ALEXANDRIA	S116710170	GRABIAK CHEVROLET	ROUTE 22 W & ROUTE 981	15670	LUST
NEW ALEXANDRIA	S106228082	BEST OIL 18	ROUTE 22	15670	LUST
NEW ALEXANDRIA	S105802841	R & L DEV	RTE 981 N	15670	LUST
NEW ALEXANDRIA	U003427228	QUICK STOP	ROUTE 981 & ROUTE 22	15670	LUST, ARCHIVE UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/26/2015	Source: EPA
Date Data Arrived at EDR: 04/08/2015	Telephone: N/A
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/09/2015
Number of Days to Update: 75	Next Scheduled EDR Contact: 10/19/2015
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/26/2015	Source: EPA
Date Data Arrived at EDR: 04/08/2015	Telephone: N/A
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/09/2015
Number of Days to Update: 75	Next Scheduled EDR Contact: 10/19/2015
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/26/2015	Source: EPA
Date Data Arrived at EDR: 04/08/2015	Telephone: N/A
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/09/2015
Number of Days to Update: 75	Next Scheduled EDR Contact: 10/19/2015
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 05/29/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 03/26/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/08/2015	Telephone: 703-603-8704
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 07/10/2015
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/19/2015
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 05/29/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/16/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/17/2015	Telephone: 703-603-0695
Date Made Active in Reports: 06/02/2015	Last EDR Contact: 06/01/2015
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/14/2015
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/16/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/17/2015	Telephone: 703-603-0695
Date Made Active in Reports: 06/02/2015	Last EDR Contact: 06/01/2015
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/14/2015
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015	Source: Department of the Navy
Date Data Arrived at EDR: 05/29/2015	Telephone: 843-820-7326
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 05/18/2015
Number of Days to Update: 13	Next Scheduled EDR Contact: 08/31/2015
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/30/2015	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 03/31/2015	Telephone: 202-267-2180
Date Made Active in Reports: 06/02/2015	Last EDR Contact: 06/26/2015
Number of Days to Update: 63	Next Scheduled EDR Contact: 10/12/2015
	Data Release Frequency: Annually

State- and tribal - equivalent NPL

SHWS: Hazardous Sites Cleanup Act Site List

The Hazardous Sites Cleanup Act Site List includes sites listed on PA Priority List, sites delisted from PA Priority List, Interim Response Completed sites, and Sites Being Studied or Response Being Planned.

Date of Government Version: 04/20/2015	Source: Department Environmental Protection
Date Data Arrived at EDR: 04/21/2015	Telephone: 717-783-7816
Date Made Active in Reports: 05/19/2015	Last EDR Contact: 07/21/2015
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HSCA: HSCA Remedial Sites Listing

A list of remedial sites on the PA Priority List. This is the PA state equivalent of the federal NPL superfund list.

Date of Government Version: 09/30/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 01/22/2015	Telephone: 717-783-7816
Date Made Active in Reports: 02/24/2015	Last EDR Contact: 07/21/2015
Number of Days to Update: 33	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Operating Facilities

The listing includes Municipal Waste Landfills, Construction/Demolition Waste Landfills and Waste-to-Energy Facilities.

Date of Government Version: 05/26/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/29/2015	Telephone: 717-787-7564
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 05/26/2015
Number of Days to Update: 34	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Storage Tank Release Sites

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/15/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-783-7509
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Semi-Annually

UNREG LTANKS: Unregulated Tank Cases

Leaking storage tank cases from unregulated storage tanks.

Date of Government Version: 04/12/2002	Source: Department of Environmental Protection
Date Data Arrived at EDR: 08/14/2003	Telephone: 717-783-7509
Date Made Active in Reports: 08/29/2003	Last EDR Contact: 08/14/2003
Number of Days to Update: 15	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

LAST: Storage Tank Release Sites

Leaking Aboveground Storage Tank Incident Reports.

Date of Government Version: 06/15/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-783-7509
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/03/2015	Source: EPA Region 1
Date Data Arrived at EDR: 04/30/2015	Telephone: 617-918-1313
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/31/2015
Number of Days to Update: 53	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014	Source: EPA Region 4
Date Data Arrived at EDR: 03/03/2015	Telephone: 404-562-8677
Date Made Active in Reports: 03/13/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 10	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Semi-Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/30/2015	Source: EPA, Region 5
Date Data Arrived at EDR: 05/29/2015	Telephone: 312-886-7439
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 24	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/30/2015	Source: EPA Region 8
Date Data Arrived at EDR: 05/05/2015	Telephone: 303-312-6271
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/08/2015	Telephone: 415-972-3372
Date Made Active in Reports: 02/09/2015	Last EDR Contact: 07/31/2015
Number of Days to Update: 32	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2015	Source: EPA Region 10
Date Data Arrived at EDR: 02/12/2015	Telephone: 206-553-2857
Date Made Active in Reports: 03/13/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 03/17/2015	Source: EPA Region 6
Date Data Arrived at EDR: 05/01/2015	Telephone: 214-665-6597
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 52	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/30/2015	Source: EPA Region 7
Date Data Arrived at EDR: 04/28/2015	Telephone: 913-551-7003
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 55	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal registered storage tank lists

UST: Listing of Pennsylvania Regulated Underground Storage Tanks

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/01/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-772-5599
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Varies

AST: Listing of Pennsylvania Regulated Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 06/01/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-772-5599
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 03/17/2015	Source: EPA Region 6
Date Data Arrived at EDR: 05/01/2015	Telephone: 214-665-7591
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 52	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/06/2015	Source: EPA Region 10
Date Data Arrived at EDR: 05/19/2015	Telephone: 206-553-2857
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014	Source: EPA Region 4
Date Data Arrived at EDR: 03/03/2015	Telephone: 404-562-9424
Date Made Active in Reports: 03/13/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 10	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Semi-Annually

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/30/2015	Source: EPA Region 8
Date Data Arrived at EDR: 05/05/2015	Telephone: 303-312-6137
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014	Source: EPA Region 9
Date Data Arrived at EDR: 02/13/2015	Telephone: 415-972-3368
Date Made Active in Reports: 03/13/2015	Last EDR Contact: 07/31/2015
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/03/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 04/30/2015	Telephone: 617-918-1313
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/31/2015
Number of Days to Update: 53	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/30/2015	Source: EPA Region 5
Date Data Arrived at EDR: 05/26/2015	Telephone: 312-886-6136
Date Made Active in Reports: 06/22/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014	Source: EPA Region 7
Date Data Arrived at EDR: 11/25/2014	Telephone: 913-551-7003
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/10/2015
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/28/2015
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Site Listing

Under the Land Recycling Act (Act 2) persons who perform a site cleanup using the site-specific standard or the special industrial area standard may use engineering or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/15/2008	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/16/2008	Telephone: 717-783-9470
Date Made Active in Reports: 06/12/2008	Last EDR Contact: 07/15/2015
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INST CONTROL: Institutional Controls Site Listing

Under the Land Recycling Act (Act 2) persons who perform a site cleanup using the site-specific standard or the special industrial area standard may use engineering or institutional controls as part of the response action. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/15/2008	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/16/2008	Telephone: 717-783-9470
Date Made Active in Reports: 06/12/2008	Last EDR Contact: 07/15/2015
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: No Update Planned

AUL: Environmental Covenants Listing

A listing of sites with environmental covenants.

Date of Government Version: 04/20/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/21/2015	Telephone: 717-783-7509
Date Made Active in Reports: 05/15/2015	Last EDR Contact: 07/21/2015
Number of Days to Update: 24	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014	Source: EPA, Region 1
Date Data Arrived at EDR: 10/01/2014	Telephone: 617-918-1102
Date Made Active in Reports: 11/06/2014	Last EDR Contact: 06/26/2015
Number of Days to Update: 36	Next Scheduled EDR Contact: 10/12/2015
	Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites

The VCP listings included Completed Sites, Sites in Progress and Act 2 Non-Use Aquifer Determinations Sites. Formerly known as the Act 2, the Land Recycling Program encourages the voluntary cleanup and reuse of contaminated commercial and industrial sites.

Date of Government Version: 04/13/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/16/2015	Telephone: 717-783-2388
Date Made Active in Reports: 05/15/2015	Last EDR Contact: 07/15/2015
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/28/2015
	Data Release Frequency: Semi-Annually

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites

Brownfields are generally defined as abandoned or underused industrial or commercial properties where redevelopment is complicated by actual or perceived environmental contamination. Brownfields vary in size, location, age and past use. They can range from a small, abandoned corner gas station to a large, multi-acre former manufacturing plant that has been closed for years.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/16/2015
Date Data Arrived at EDR: 04/21/2015
Date Made Active in Reports: 05/15/2015
Number of Days to Update: 24

Source: Department of Environmental Protection
Telephone: 717-783-1566
Last EDR Contact: 07/15/2015
Next Scheduled EDR Contact: 11/02/2015
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/23/2015
Date Data Arrived at EDR: 03/24/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/24/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/22/2015
Next Scheduled EDR Contact: 11/09/2015
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST LF ALI: Abandoned Landfill Inventory

The report provides facility information recorded in the Pennsylvania Department of Environmental Protection ALI database. Some of this information has been abstracted from old records and may not accurately reflect the current conditions and status at these facilities

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/04/2005
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 717-787-7564
Last EDR Contact: 11/26/2012
Next Scheduled EDR Contact: 03/11/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HIST LF INVENTORY: Facility Inventory

A listing of solid waste facilities. This listing is no longer updated or maintained by the Department of Environmental Protection. At the time the listing was available, the DEP's name was the Department of Environmental Resources.

Date of Government Version: 06/02/1999	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/12/2005	Telephone: 717-787-7381
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 09/19/2005
Number of Days to Update: 30	Next Scheduled EDR Contact: 12/19/2005
	Data Release Frequency: No Update Planned

HIST LF INACTIVE: Inactive Facilities List

A listing of inactive non-hazardous facilities (10000 & 300000 series). This listing is no longer updated or maintained by the Department of Environmental Protection. At the time the listing was available, the DEP's name was the Department of Environmental Resources.

Date of Government Version: 12/20/1994	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/12/2005	Telephone: 717-787-7381
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/21/2005
Number of Days to Update: 30	Next Scheduled EDR Contact: 12/19/2005
	Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/03/2007	Telephone: 703-308-8245
Date Made Active in Reports: 01/24/2008	Last EDR Contact: 05/01/2015
Number of Days to Update: 52	Next Scheduled EDR Contact: 08/17/2015
	Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/10/2015	Telephone: 202-307-1000
Date Made Active in Reports: 03/25/2015	Last EDR Contact: 05/29/2015
Number of Days to Update: 15	Next Scheduled EDR Contact: 09/14/2015
	Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/10/2015	Telephone: 202-307-1000
Date Made Active in Reports: 03/25/2015	Last EDR Contact: 05/29/2015
Number of Days to Update: 15	Next Scheduled EDR Contact: 09/14/2015
	Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ARCHIVE UST: Archived Underground Storage Tank Sites

The list includes tanks storing highly hazardous substances that were removed from the DEP's Storage Tank Information database because of the Department's policy on sensitive information. The list also may include tanks that are removed or permanently closed.

Date of Government Version: 06/01/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-772-5599
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Varies

ARCHIVE AST: Archived Aboveground Storage Tank Sites

The list includes aboveground tanks with a capacity greater than 21,000 gallons that were removed from the DEP's Storage Tank Information database because of the Department's policy on sensitive information. The list also may include tanks that are removed or permanently closed.

Date of Government Version: 06/01/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/18/2015	Telephone: 717-772-5599
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 09/28/2015
	Data Release Frequency: Varies

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/18/2014	Telephone: 202-564-6023
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 07/22/2015
Number of Days to Update: 37	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

ACT 2-DEED: Act 2-Deed Acknowledgment Sites

This listing pertains to sites where the Department has approved a cleanup requiring a deed acknowledgment under Act 2. This list includes sites remediated to a non-residential Statewide health standard (Section 303(g)); all sites demonstrating attainment of a Site-specific standard (Section 304(m)); and sites being remediated as a special industrial area (Section 305(g)). Persons who remediated a site to a standard that requires a deed acknowledgment shall comply with the requirements of the Solid Waste Management Act or the Hazardous Sites Cleanup Act, as referenced in Act 2. These statutes require a property description section in the deed concerning the hazardous substance disposal on the site. The location of disposed hazardous substances and a description of the type of hazardous substances disposed on the site shall be included in the deed acknowledgment. A deed acknowledgment is required at the time of conveyance of the property.

Date of Government Version: 04/23/2010	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/28/2010	Telephone: 717-783-9470
Date Made Active in Reports: 04/30/2010	Last EDR Contact: 07/22/2011
Number of Days to Update: 2	Next Scheduled EDR Contact: 11/07/2011
	Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/30/2015	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 03/31/2015	Telephone: 202-366-4555
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 06/26/2015
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/12/2015
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: State spills

A listing of hazardous material incidents.

Date of Government Version: 04/13/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 05/15/2015
Number of Days to Update: 28

Source: DEP, Emergency Response
Telephone: 717-787-5715
Last EDR Contact: 08/10/2015
Next Scheduled EDR Contact: 10/28/2015
Data Release Frequency: Varies

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/04/2015
Next Scheduled EDR Contact: 11/16/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/14/2015
Next Scheduled EDR Contact: 10/28/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 07/08/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 46

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013	Source: EPA
Date Data Arrived at EDR: 12/12/2013	Telephone: 703-416-0223
Date Made Active in Reports: 02/24/2014	Last EDR Contact: 06/12/2015
Number of Days to Update: 74	Next Scheduled EDR Contact: 09/21/2015
	Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010	Source: Department of Energy
Date Data Arrived at EDR: 10/07/2011	Telephone: 505-845-0011
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 05/26/2015
Number of Days to Update: 146	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 12/31/2014	Telephone: 303-231-5959
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 06/03/2015
Number of Days to Update: 29	Next Scheduled EDR Contact: 09/14/2015
	Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2013	Source: EPA
Date Data Arrived at EDR: 02/12/2015	Telephone: 202-566-0250
Date Made Active in Reports: 06/02/2015	Last EDR Contact: 01/29/2015
Number of Days to Update: 110	Next Scheduled EDR Contact: 06/08/2015
	Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012	Source: EPA
Date Data Arrived at EDR: 01/15/2015	Telephone: 202-260-5521
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 06/25/2015
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/05/2015
	Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/20/2015
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/20/2015
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 07/22/2015
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/06/2015	Telephone: 202-564-5088
Date Made Active in Reports: 03/09/2015	Last EDR Contact: 07/09/2015
Number of Days to Update: 31	Next Scheduled EDR Contact: 10/28/2015
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014	Source: EPA
Date Data Arrived at EDR: 10/15/2014	Telephone: 202-566-0500
Date Made Active in Reports: 11/17/2014	Last EDR Contact: 07/17/2015
Number of Days to Update: 33	Next Scheduled EDR Contact: 10/28/2015
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/31/2015	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 04/09/2015	Telephone: 301-415-7169
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 06/04/2015
Number of Days to Update: 63	Next Scheduled EDR Contact: 09/21/2015
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/07/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/09/2015	Telephone: 202-343-9775
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 07/09/2015
Number of Days to Update: 63	Next Scheduled EDR Contact: 10/19/2015
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2015	Source: EPA
Date Data Arrived at EDR: 02/27/2015	Telephone: (215) 814-5000
Date Made Active in Reports: 03/25/2015	Last EDR Contact: 06/10/2015
Number of Days to Update: 26	Next Scheduled EDR Contact: 09/21/2015
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

RMP: Risk Management Plans

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/13/2015	Telephone: 202-564-8600
Date Made Active in Reports: 03/25/2015	Last EDR Contact: 07/22/2015
Number of Days to Update: 40	Next Scheduled EDR Contact: 11/09/2015
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011	Source: EPA/NTIS
Date Data Arrived at EDR: 02/26/2013	Telephone: 800-424-9346
Date Made Active in Reports: 04/19/2013	Last EDR Contact: 05/29/2015
Number of Days to Update: 52	Next Scheduled EDR Contact: 09/07/2015
	Data Release Frequency: Biennially

UIC: Underground Injection Wells

A listing of underground injection well locations.

Date of Government Version: 06/21/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/24/2015	Telephone: 717-783-7209
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/24/2015
Number of Days to Update: 8	Next Scheduled EDR Contact: 10/05/2015
	Data Release Frequency: Varies

NPDES: NPDES Permit Listing

A listing of facilities with an NPDES permit.

Date of Government Version: 03/28/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/12/2014	Telephone: 717-787-9642
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 06/12/2015
Number of Days to Update: 54	Next Scheduled EDR Contact: 09/21/2015
	Data Release Frequency: Varies

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/21/2014	Telephone: 717-783-8990
Date Made Active in Reports: 08/25/2014	Last EDR Contact: 07/20/2015
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/02/2015
	Data Release Frequency: Annually

DRYCLEANERS: Drycleaner Facility Locations

A listing of drycleaner facility locations.

Date of Government Version: 06/18/2015	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/23/2015	Telephone: 717-787-9702
Date Made Active in Reports: 07/02/2015	Last EDR Contact: 06/18/2015
Number of Days to Update: 9	Next Scheduled EDR Contact: 10/05/2015
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AIRS: Permit and Emissions Inventory Data Permit and emissions inventory data.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/22/2014
Date Made Active in Reports: 09/17/2014
Number of Days to Update: 57

Source: Department of Environmental Protection
Telephone: 717-787-9702
Last EDR Contact: 06/23/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/14/2015
Next Scheduled EDR Contact: 10/28/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/21/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/14/2015
Next Scheduled EDR Contact: 10/28/2015
Data Release Frequency: N/A

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Varies

MINES: Abandoned Mine Land Inventory

This data set portrays the approximate location of Abandoned Mine Land Problem Areas containing public health, safety, and public welfare problems created by past coal mining.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/02/2015
Date Data Arrived at EDR: 04/29/2015
Date Made Active in Reports: 05/15/2015
Number of Days to Update: 16

Source: PASDA
Telephone: 814-863-0104
Last EDR Contact: 07/28/2015
Next Scheduled EDR Contact: 11/09/2015
Data Release Frequency: Semi-Annually

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/07/2015
Next Scheduled EDR Contact: 10/19/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/04/2015
Next Scheduled EDR Contact: 11/23/2015
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 07/31/2015
Next Scheduled EDR Contact: 11/09/2015
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/13/2015
Next Scheduled EDR Contact: 10/28/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/22/2015
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: Department Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

Date of Government Version: N/A

Date Data Arrived at EDR: 07/01/2013

Date Made Active in Reports: 12/30/2013

Number of Days to Update: 182

Source: Department Environmental Protection

Telephone: N/A

Last EDR Contact: 06/01/2012

Next Scheduled EDR Contact: N/A

Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013

Date Data Arrived at EDR: 08/19/2013

Date Made Active in Reports: 10/03/2013

Number of Days to Update: 45

Source: Department of Energy & Environmental Protection

Telephone: 860-424-3375

Last EDR Contact: 05/18/2015

Next Scheduled EDR Contact: 08/31/2015

Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012

Date Data Arrived at EDR: 04/29/2015

Date Made Active in Reports: 05/29/2015

Number of Days to Update: 30

Source: Department of Environmental Protection

Telephone: N/A

Last EDR Contact: 07/13/2015

Next Scheduled EDR Contact: 10/28/2015

Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2015

Date Data Arrived at EDR: 05/06/2015

Date Made Active in Reports: 05/20/2015

Number of Days to Update: 14

Source: Department of Environmental Conservation

Telephone: 518-402-8651

Last EDR Contact: 08/06/2015

Next Scheduled EDR Contact: 11/16/2015

Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013

Date Data Arrived at EDR: 06/19/2015

Date Made Active in Reports: 07/15/2015

Number of Days to Update: 26

Source: Department of Environmental Management

Telephone: 401-222-2797

Last EDR Contact: 05/26/2015

Next Scheduled EDR Contact: 09/07/2015

Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 06/03/2015
Date Made Active in Reports: 07/20/2015
Number of Days to Update: 47

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 07/20/2015
Next Scheduled EDR Contact: 11/02/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 04/07/2015
Number of Days to Update: 19

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/11/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation
Telephone: 281-546-1505

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: 800-823-6277

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facility List

Source: Department of Public Welfare
Telephone: 717-783-3856

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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**APPENDIX E – PHASE I ESA DATED OCTOBER 17, 2014 AND PHASE II
ESA DATED JANUARY 12, 2015**

Speedway Environmental Dept. Remediation Form for REPORTS

* **Store Number**

	1	0	0	6	2	3
--	---	---	---	---	---	---

* **Document Date**

Month

1	0
---	---

Day

1	7
---	---

Year

2	0	1	4
---	---	---	---

* **DESCRIPTION 1 (Must Choose One ONLY)**

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos, Phase I, etc.)

Description's 2 & 3 below are **OPTIONAL**

Note: For Description's 1, 2, & 3 DO NOT CHOOSE the SAME ANSWER MULTIPLE TIMES

DESCRIPTION 2 (Choose One ONLY)

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos, Phase I, etc.)

DESCRIPTION 3 (Choose One ONLY)

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos, Phase I, etc.)

AFE Number

					8	5	6	9	8
--	--	--	--	--	---	---	---	---	---

Work Order Number

--	--	--	--	--	--	--	--	--	--

Form ID ERERptXP
Form # 47806

Note: An asterisk designates that the field is required to be filled in.



Phase I Environmental Site Assessment

Proposed Speedway Store #100623

107 Operators Way
New Alexandria, Pennsylvania 15670
Westmoreland County

48.75302.0097



Prepared for
Speedway LLC

October 17, 2014

Document Information

Prepared for	Speedway LLC
Project Name	Proposed Speedway Store #100623
File Reference	New_Alexandria_100623_Phase_I_Report.docx
Job Reference	48.75302.0097
Date	October 17, 2014

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Executive Summary

Cardno ATC completed a Phase I Environmental Site Assessment (ESA) of the subject property (herein referred to as the "property" or "site") consisting of approximately 4.818 acres, and comprises the southern portion of Parcel Number 57-16-00-0-014 (25.9 acres). The property is located at 107 Operators Way, New Alexandria (Salem Township), Westmoreland County, Pennsylvania 15670. The study was performed in general accordance with American Society for Testing and Materials (ASTM) Standard E 1527-13.

The property is improved with a single-story brick structure (former residence) and is located in an area of residential, agricultural, and commercial development. The property and surrounding properties were not identified on the standard federal and state environmental databases reviewed. Cardno ATC conducted the property reconnaissance on October 6, 2014 and did not observe any environmental concerns associated with any of the following on the property: hazardous waste use/storage/disposal, unidentified substance containers, nonhazardous solid waste, wastewater, waste pits/ponds/lagoons, sumps, drains, septic systems, wells, ASTs, or USTs.

A review of the Pennsylvania Groundwater Information System (PaGWIS) indicated that two domestic or industrial water wells are located within a 2,000-foot radius of the property. A drinking water wells is located on the property. Cardno ATC recommends appropriate abandonment in accordance with all applicable regulations.

According to the Federal Emergency Management Agency (FEMA) website, no Flood Insurance Rate Maps (FIRMs) are available for the area.

Based on a review of the United States Department of the Interior, National Wetlands Inventory (NWI) Map, there are no jurisdictional federal wetlands on the property. Furthermore, evidence of wetland hydrology and hydrophytic vegetation were not observed on the property based on a cursory review of the property.

Cardno ATC's review of published radon data indicates that the property is located in an area of high propensity with regard to the potential for elevated levels of radon gas. Of the 64 tests reported in the 15670 zip code, 36 sites (56.25%) were 4.0 pCi/L or above, with the maximum reading at 30.9 pCi/L. However, based on the proposed commercial usage of the property, no additional investigations are recommended at this time.

This assessment has revealed one *recognized environmental condition* in connection with the property. A former retail petroleum facility (Toot n Scoot) is located adjacent to the property. No information was available with respect to the potential groundwater contamination identified at the former facility, and the status of the facility is listed as "Administrative Close Out (ACO)".

Based on information collected from the Phase I ESA, Cardno ATC recommends performing a Phase II ESA for the site.

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1 Introduction

1.1 Purpose

Cardno ATC completed a Phase I Environmental Site Assessment (ESA) of the 4.818-acre carve-out of Westmoreland County Parcel Number 57-16-00-0-014 (25.9 acres), located at 107 Operators Way, New Alexandria, Westmoreland County, Pennsylvania 15670 (herein referred to as the “property” or “site”) during October 2014. The property is located in the southern portion of the Parcel. The purpose of this Phase I ESA was to identify *recognized environmental conditions (RECs)* and certain potential environmental conditions outside the scope of ASTM Standard Practice E 1527-13 in connection with the property at the time of the property reconnaissance. This report documents the findings, opinions, and conclusions of the Phase I ESA.

1.2 Scope

This Phase I ESA was conducted in general accordance with the ASTM Standard Practice E 1527-13, consistent with a level of care and skill ordinarily practiced by the environmental consulting profession currently providing similar services under similar circumstances. Significant additions, deletions or exceptions to ASTM Standard Practice E 1527-13 are noted below or in the corresponding sections of this report. The scope of this assessment included an evaluation of the following.

- > Physical setting characteristics of the property through a review of referenced sources such as topographic maps and geologic, soils and hydrologic reports.
- > Usage of the property, adjoining properties and surrounding area through a review of referenced historical sources such as land title records, fire insurance maps, city directories, aerial photographs, prior reports and interviews.
- > Observations and interviews regarding current property usage and conditions including the use, treatment, storage, disposal or generation of hazardous substances, petroleum products, hazardous wastes, non-hazardous solid wastes and wastewater.
- > Usage of adjoining and surrounding area properties and the likely impact of known or suspected releases of hazardous substances or petroleum products from those properties on the property.
- > Information in referenced environmental agency databases and local environmental records, within the specified approximate minimum search distance from the property.

The scope of the assessment also included consideration of the following environmental issues or conditions that are beyond the scope of ASTM Standard Practice E 1527-13:

- > Visual observation and sampling of suspect asbestos-containing materials (ACM) during the site reconnaissance. The results of the ACM survey shall be summarized in a separate report to Speedway, LLC.
- > Radon document review, consisting of the review of published radon data with regard to the potential for elevated levels of radon gas in the surrounding area of the property. No radon sampling was conducted.
- > Lead in Drinking Water Data review, consisting of contacting the water supplier for information regarding whether or not the potable water provided to the property meets the drinking water standards for lead.
- > Visual observation and sampling of Lead-based paint (LBP) was performed during the site reconnaissance. The results of the LBP survey shall be summarized in a separate report to Speedway, LLC.
- > Sensitive Receptor Survey, consisting of a review of available information to determine if any potable water wells are located within an approximate 2,000-foot radius of the property.
- > Wetlands review, consisting of a review of a current National Wetlands Inventory map of the surrounding area to note if the property is identified as having a wetland and a physical survey of the property to note any areas containing potential wetland hydrology and wetland (hydrophytic) vegetation. Wetland delineation in accordance with the USACE 1987 Wetland Delineation Manual (Technical Report Y-87-1) and the

appropriate Regional Supplement to the Corps of Engineers Wetland Delineation Manual (Waynesburg Hills Appalachian Plateaus Province) was not conducted as part of this Phase I ESA.

- > Flood plain document review, consisting of a review of a reasonably ascertainable flood plain map of the surrounding area to note if the property is identified as being located within a flood plain.

1.3 Significant Assumptions

Any assumptions in this report were not considered as having significant impact on the determination of *recognized environmental conditions* associated with the property. This report assumes that surface topography and drainage patterns are reflective of groundwater flow in the uppermost water-bearing unit beneath the area of the property. Regional groundwater flow beneath the area of the property is assumed to flow generally to the southwest, for reasons discussed in Section 4.2.12 of this report. This assumption is utilized in assessing the potential for contaminants to migrate to or from the property via groundwater. Assumptions made in this report are generally consistent with standard industry practice, in the absence of having site-specific data on groundwater flow direction.

1.4 Limitations and Exceptions

Cardno ATC has prepared this Phase I ESA report using reasonable efforts to identify *recognized environmental conditions* associated with hazardous substances or petroleum products at the property. Findings contained within this report are based on information collected from observations made on the day(s) of the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

The ASTM Standard Practice E 1527-13 recognizes inherent limitations for Phase I ESAs, including, but not limited to:

- > *Uncertainty Not Eliminated* – A Phase I ESA cannot completely eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with any property.
- > *Not Exhaustive* – A Phase I ESA is not an exhaustive investigation of the property and environmental conditions on such property.
- > *Past Uses of the Property* – Phase I requirements only require review of standard historical sources at five year intervals. Therefore, past uses of property at less than five-year intervals may not be discovered.

Users of this report may refer to ASTM Standard Practice E 1527-13 for further information regarding these and other limitations. This report is not definitive and should not be assumed to be a complete and/or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions determined by surface observations, interviews and reviews of historical sources. The most reliable method of evaluating subsurface conditions is through intrusive techniques, which are beyond the scope of this report. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other property construction purposes. Any use of this report by any party, beyond the scope and intent of the original parties, shall be at the sole risk and expense of such user.

Cardno ATC makes no representation or warranty that the past or current operations at the property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Regardless of the findings stated in this report, Cardno ATC is not responsible for consequences or conditions arising from facts not fully disclosed to Cardno ATC during the assessment.

An independent data research company provided the government agency database referenced in this report. Information on surrounding area properties was requested for approximate minimum search distances and is assumed to be correct and complete unless obviously contradicted by Cardno ATC's observations or other credible referenced sources reviewed during the assessment. Cardno ATC shall not be liable for any such

database firm's failure to make relevant files or documents properly available, to properly index files, or otherwise to fail to maintain or produce accurate or complete records.

Cardno ATC used reasonable efforts to identify evidence of aboveground and underground storage tanks and ancillary equipment on the property during the assessment. "Reasonable efforts" were limited to observation of accessible areas, review of referenced public records and interviews. These reasonable efforts may not identify subsurface equipment or evidence hidden from view by things including, but not limited to, snow cover, paving, construction activities, stored materials and landscaping.

Any estimates of costs or quantities in this report are approximations for commercial real estate transaction due diligence purposes and are based on the findings, opinions and conclusions of this assessment, which are limited by the scope of the assessment, schedule demands, cost constraints, accessibility limitations and other factors associated with performing the Phase I ESA. Subsequent determinations of costs or quantities may vary from the estimates in this report. The estimated costs or quantities in this report are not intended to be used for financial disclosure related to the Financial Accounting Standards Board (FASB) Statement No. 143, FASB Interpretation No. 47, Sarbanes/Oxley Act or any United States Securities and Exchange Commission reporting obligations, and may not be used for such purposes in any form without the express written permission of Cardno ATC.

Cardno ATC is not a professional title insurance or land surveyor firm and makes no guarantee, express or implied, that any land title records acquired or reviewed in this report, or any physical descriptions or depictions of the property in this report, represent a comprehensive definition or precise delineation of property ownership or boundaries.

The Environmental Professional Statement in Section 1.1 of this report does not "certify" the findings contained in this report and is not a legal opinion of such *Environmental Professional*. The *Environmental Professional* Statement is intended to document Cardno ATC's opinion that an individual meeting the qualifications of an Environmental Professional was involved in the performance of the assessment and that the activities performed by, or under the supervision of, the *Environmental Professional* were performed in conformance with the standards and practices set forth in 40 CFR Part 312 per the methodology in ASTM Standard Practice E 1527-13 and the scope of work for this assessment.

Per ASTM Standard Practice E 1527-13, Section 6, User Responsibilities, the User of this assessment has specific obligations for performing tasks during this assessment that will help identify the possibility of *recognized environmental conditions* in connection with the property. Failure by the User to fully comply with the requirements may impact their ability to use this report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Cardno ATC makes no representations or warranties regarding a User's qualification for protection under any federal, state or local laws, rules or regulations.

In accordance with the ASTM Standard Practice E 1527-13, this report is presumed to be valid for a six-month period. If the report is older than six months, the following information must be updated in order for the report to be valid: (1) regulatory review, (2) site visit, (3) interviews, (4) specialized knowledge and (5) environmental liens search. Reports older than one year may not meet the ASTM Standard Practice 1527-13 and therefore, the entire report must be updated to reflect current conditions and property-specific information.

The following is a summary of *significant data gaps* identified in this report.

Table 1-1 Significant Data Gaps Summary

REPORT SECTION	DESCRIPTION
3.5 Current Uses of Adjoining Properties	No <i>significant data gap</i> identified.
4.2 Environmental Liens or Activity and Use Limitations (AULs)	No Environmental Liens or AULs information was provided by the User.
5.1 Standard Environmental Records	No <i>significant data gap</i> identified.

REPORT SECTION	DESCRIPTION
5.2 Physical Setting Sources	No <i>significant data gap</i> identified.
5.3 Historical Records Sources	No <i>significant data gap</i> identified.
6.1 Methodology and Limiting Conditions	No <i>significant data gap</i> identified.
7.0 Interviews	No <i>significant data gap</i> identified.

1.5 Special Terms and Conditions (User Reliance)

This report is for the use and benefit of, and may be relied upon by, Speedway LLC (“User”), and any of its affiliates, and third parties authorized in writing by Speedway LLC and Cardno ATC, including the lender(s) in connection with a secured financing of the property, and their respective successors and assigns. Any third party agrees by accepting this report that any use or reliance on this report shall be limited by the exceptions and limitations in this report, and with the acknowledgment that actual site conditions may change with time, and that hidden conditions may exist at the property that were not discovered within the authorized scope of the assessment. Any use by or distribution of this report to third parties, without the express written consent of Cardno ATC, is at the sole risk and expense of such third party.

Cardno ATC makes no other representation to any third party except that it has used the degree of care and skill ordinarily exercised by environmental consultants in the preparation of the report and in the assembling of data and information related thereto. No other warranties are made to any third party, either expressed or implied. Unless otherwise agreed upon in writing by Cardno ATC and a third party, Cardno ATC’s liability to any third party authorized to use or rely on this report with respect to any acts or omissions shall be limited to a total maximum amount of \$100,000.

2 Property Description

2.1 Location and Legal Description

The property consists of approximately 4.818 acres, and comprises the southern portion of Parcel Number 57-16-00-0-014 (25.9 acres). The property is located at 107 Operators Way, New Alexandria (Salem Township), Westmoreland County, Pennsylvania 15670. A Property Vicinity Map and Property Plan are included in the **Figures** appendix, and Property Photographs are provided in **Appendix A**.

A legal description of the property parcel, as well as parcel information, is included in **Appendix I**. According to the Westmoreland County Assessor's office, parcel 57-16-00-0-014 is owned by the Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund. The property is anticipated to be a Speedway convenience store as part of proposed development activities.

2.2 Surrounding Area General Characteristics

The property is located in an area of residential, commercial and agricultural land use. The property is relatively flat, and the surrounding area exhibits a slight declination to the south. Additional information on the area surrounding the property is provided in Sections 2.5 and 4.0.

2.3 Current Use of the Property

The property is currently developed with a single story brick structure used by the Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund.

2.4 Description of Property Improvements

The following table provides general descriptions of the property improvements.

Table 2-1 Property Improvements

Size of Property (approximate)	4.818 acres (portion of parcel 57-16-00-0-014)
General Topography of Property	Relatively flat
Adjoining and/or Access/Egress Roads	US 22 to the south, Operators Way to the east and north
Paved or Concrete Areas (including parking)	Small paved parking area east of the property building
Unimproved Areas	None
Landscaped Areas	Lawn surrounding the property building
Surface Water	None
Potable Water Source	Domestic well
Sanitary Sewer Utility	Septic System
Storm Sewer Utility	None
Electrical Utility	West Penn Power
Natural Gas Utility	None (serviced by heating oil)
Current Occupancy Status	Occupied
Unoccupied Buildings/Spaces/Structures	None
Number of Occupied Buildings	One
Building Name or General Building	Western Pennsylvania Operating Engineers Joint Apprenticeship &

Description	Training Fund
Number of Floors	One, with a basement
Total Square Feet of Space (approximate)	1,800 (footprint)
Construction Completion Date (year)	Late 1960s
Construction Type	Brick, wood frame, asphalt shingled roof, concrete block foundation
Interior Finishes Description	Drywall, rolled vinyl flooring, acoustic ceiling tiles, carpet
Exterior Finishes Description	Brick, asphalt-shingled roof
Cooling System Type	Electric
Heating System Type	Heating Oil
Emergency Power	None

2.5 Current Uses of Adjoining Properties

Current uses of the adjoining properties were observed to be as follows:

Table 2-2 Current Uses of Adjoining Properties

Direction from Property	Occupant(s) Name	Current Use	Potential Environmental Conditions
North	Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund (northern portion of parcel)	Agricultural	None
East	United States of America	Undeveloped	None
South	US Route 22	Roadway	None
	James Watt Jr., et al.	Commercial	None
	United States of America	Undeveloped	None
West	Dustin Shafer & Holly Watt	Residential	None
	Brian & Diana Phillips	Residential	None
	Unknown (part of US 22 right-of-way)	Vacant	Potential Migration of Petroleum Products
	Salem Drive (T900)	Roadway	None

One adjoining property was identified in the EDR databases as a potential threat of release to the property. The vacant adjoining parcel to the west, northeast of the intersection of US 22 and Salem Drive, was identified as a former Toot N Scoot (Best Oil Inc.) retail petroleum facility (Facility ID 65-16352), with a release date of November 18, 1999. The site is listed as an “Administrative Close Out (ACO)” as of November 3, 2008. The lack of information for this facility and its apparent upgradient, adjacent location with respect to the property is a *recognized environmental condition* to the property.

3 User Provided Information

The following section summarizes information (if any) provided by Speedway LLC (User) with regard to the Phase I ESA. Documentation may be found in **Appendix B** or where referenced in this report.

3.1 Title Records

Speedway LLC provided no title records information.

3.2 Environmental Liens or Activity and Use Limitations (AULs)

Speedway LLC provided no information regarding property environmental liens or activity and use limitations.

3.3 Specialized Knowledge or Experience of the User

Speedway LLC provided no specialized knowledge regarding *recognized environmental conditions* associated with the property.

3.4 Significant Valuation Reduction for Environmental Issues

Speedway LLC provided no information regarding a significant valuation reduction for environmental issues associated with the property.

3.5 Owner, Property Manager and Occupant Information

Speedway LLC identified the property as consisting of the southern portion of Westmoreland County Parcel Number 57-16-00-0-014 (25.9 acres), located at 107 Operators Way, New Alexandria (Salem Township), Pennsylvania 15670. Speedway LLC indicated the property is currently occupied by the Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund. Speedway LLC identified the property contact as Mr. Jason Cannon (Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund owner representative) and the Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Fund as the property owner.

3.6 Reason for Performing Phase I ESA

According to Speedway LLC, this Phase I ESA is being conducted to identify environmental concerns prior to the proposed purchase of the property.

3.7 Other User Provided Documents

No other documents were provided by Speedway LLC.

4 Records Review

4.1 Standard Environmental Records

The regulatory agency database report discussed in this section, provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut, was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the property. Cardno ATC also reviewed the “unmappable” (also referred to as “orphan”) listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property based on the partial street address, city, or zip code. Any unmappable site that was identified by Cardno ATC as being within the approximate minimum search distance from the property based on the property reconnaissance and/or cross-referencing to mapped listings is included in the discussion within this section. The complete regulatory agency database report may be found in **Appendix C**.

The following is a summary of the findings of the database review.

Table 4-1 Environmental Database Findings

Regulatory Database	Approx. Minimum Search Distance	Property Listed?	# Sites Listed
Federal National Priority List (NPL)	1 mile	No	0
Federal Delisted NPL	½ mile	No	0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list	½ mile	No	0
Federal CERCLIS No Further Remedial Action Planned (NFRAP)	½ mile	No	0
Federal Resource Conservation and Recovery Act (RCRA), Corrective Action facilities (CORRACTS)	1 mile	No	0
Federal RCRIS non- CORRACTS Treatment, Storage, and Disposal Facilities (TSD)	½ mile	No	0
Federal RCRA Generators	Property & Adjoining	No	0
Federal Institutional Control/Engineering Control Registry	Property	No	0
Federal Emergency Response Notification System (ERNS) list	Property	No	0
State and Tribal NPL	1 mile	No	0
State and Tribal CERCLIS	½ mile	No	0
State and Tribal Landfill or Solid Waste Disposal Sites (SWF/LF)	½ mile	No	0
State and Tribal Leaking Underground Storage Tanks (LUST)	½ mile	No	0
State and Tribal Abandoned Leaking Underground Storage Tanks (UNREG LTANK)	½ mile	No	0
State and Tribal Registered Underground Storage Tanks (UST)	Property & Adjoining	No	0
State and Tribal Historical Underground Storage Tanks (ARCHIVE UST)	1/4 mile	No	0

Regulatory Database	Approx. Minimum Search Distance	Property Listed?	# Sites Listed
State and Tribal Voluntary Cleanup Site	½ mile	No	0
EDR US Historical Cleaners	½ mile	No	0
EDR Historical Auto Stations	¼ mile	No	0
State Institutional/Engineering Controls	½ mile	No	0
Brownfields	½ mile	No	0

4.1.2 Federal Agency Database Findings

The property was not identified in any federal database listings in the EDR report. No additional properties were identified in the federal databases within the minimum search distances.

4.1.3 State Agency Database Findings

The property was not identified in any state or tribal database listings in the EDR report. No additional properties were identified in the state or tribal databases within the minimum search distances.

One orphaned facility, Best Oil #18, was identified as adjacent to the property and is a former retail petroleum facility. This facility was further identified as a former Toot N Scoot retail petroleum facility (Facility ID 65-16352), with a release date of November 18, 1999. The site is listed as an “Administrative Close Out (ACO)” as of November 3, 2008. The lack of information for this facility and its upgradient, adjacent location with respect to the property is a *recognized environmental condition* to the property

4.1.4 Non-Standard Environmental Databases

No non-standard environmental databases were searched.

4.2 Local Environmental Record Sources

4.2.1 Local Health Department

According to the personnel at the Westmoreland County Health Department (WCHD), a Freedom of Information Act (FOIA) request takes approximately four to six weeks to process. Therefore, Cardno ATC considers information from the WCHD not practically reviewable or reasonably ascertainable as defined in ASTM Practice E1527-13.

4.2.2 Building Department

Cardno ATC contacted Salem Township for information regarding historical building permits for the property. As of the date of this report, a response has not been received. If information becomes available at a later date the significantly alters the conclusions in this report, Cardno ATC will issue an addendum.

4.2.3 Fire Department

Cardno ATC contacted the Slickville Volunteer Fire Department regarding knowledge of petroleum spills or releases of hazardous materials at or near the property, as well as any other potential environmental concern for the property. As of the date of this report, a response has not been received. If information becomes available at a later date the significantly alters the conclusions in this report, Cardno ATC will issue an addendum.

4.2.4 Zoning/Planning Department

Cardno ATC contacted Salem Township for information regarding zoning information for the property. According to Betty (last name withheld), Salem Township Secretary, there are no zoning ordinances for Salem Township.

4.2.5 Electrical Utility

Cardno ATC confirmed with the site contact, Mr. Steven Columbus, Administrative Manager for the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund, that West Penn Power provides electric service to the property.

4.2.6 Water Utility

Cardno ATC confirmed with the site contact, Mr. Steven Columbus, Administrative Manager for the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund, that the no public water is supplied to the property. Water to property is supplied by an on-site domestic well.

4.2.7 Sewer Utility

Cardno ATC confirmed with the site contact, Mr. Steven Columbus, Administrative Manager for the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund, that no sanitary sewer services are provided to the property. Sanitary sewage is handled by the on-site septic system.

4.2.8 Other Local Environmental Record Sources

Cardno ATC reviewed available online resources on the Pennsylvania Department of Environmental Protection (PADEP) Environment Facility Application Compliance Tracking System (eFACTS) database. The property was listed in the database for a violation of the open burning limitations under 25 PA Code 129.14 on November 15, 2006. The enforcement status is listed as closed.

4.2.9 Topography

According to the USGS topographic map, *Saltsburg, Pennsylvania* Quadrangle (1973), the property is located at approximately 1,010 feet above mean sea level. The property is relatively flat, and the surrounding area declines gently to the south toward an unnamed tributary to Loyalhanna Creek. A copy of the topographic map is included in **Appendix A**.

4.2.10 Geology

According to the *Geologic Map of Pennsylvania* dated 1980, the geology beneath the property is identified as the Casselman Formation. This group consists of "cyclic sequences of shale, siltstone, sandstone, red beds, thin, impure limestone and thin, nonpersistent coal; red beds are associated with landslides; base is at top of Ames limestone". The property is located in the Pittsburgh Low Plateau Section of the Appalachian Plateaus Physiographic Province.

4.2.11 Soils

According to the United States Department of Agriculture Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov>), soil beneath the property is classified as Monongahela silt loam, 3 to 8 percent slopes (MoB). MoB soils are characterized as somewhat moderately well drained silt loams, clay loams, and gravelly clay loams with low water capacity. The parent material for the soil is fine loamy alluvium derived from sandstone and siltstone. These soils typically form terraces. A copy of the Custom Soil Resource Report for Beaver and Lawrence Counties, Pennsylvania is included in Appendix H.

4.2.12 Hydrology

Based upon a review of physical setting sources, the flow direction of shallow groundwater beneath the property is presumed to be from the north or northwest to the south or southeast. Therefore, in assessing potential external environmental impact, properties located north or northwest (presumed upgradient) of the property are of primary concern. Actual local groundwater flow direction can be influenced by factors such as surface topography, underground structures, seasonal fluctuations, soil and bedrock geology, and production wells, none of which was considered during this study. The actual groundwater flow direction under the property can be accurately determined only by installing groundwater monitoring wells, which was beyond the scope of work for this project.

4.2.13 Flood Plains

Cardno ATC reviewed the National Flood Insurance Program, Flood Insurance Rate Map (FIRM), map to determine if the property is located within a floodplain. According to the National Flood Insurance Program, Flood Insurance Rate Map (FIRM) internet website (<http://.msc.fema.gov/>), the property is located on FIRM No. 42129C0240F with an effective date March 17, 2011, and is not located within a 100-year or the 500-year flood zones. A copy of the FEMA flood plain map is included in Appendix H.

4.2.14 Wetlands

Cardno ATC did not observe any areas of the property that were indicative of potential wetlands. Cardno ATC’s review of the United States Department of the Interior Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) website (<http://wetlandsfws.er.usgs.gov/wtlns/launch.html>) revealed no designated federal wetland areas at the property. A copy of the NWI map is included in **Appendix I**.

4.2.15 Oil and Gas Wells

No oil/gas wells were identified on the property.

4.2.16 Other Physical Setting Sources

No other physical setting sources were reviewed.

4.3 Historical Records Sources

The readily available historical sources utilized as part of this assessment may not have strictly complied with ASTM Standard Practice E 1527-13 because they were not available in five-year intervals dating back to at least 1940. However, the review of available historical information has provided Cardno ATC with sufficient information to meet the requirements of ASTM Standard Practice E 1527-13 §8.3.2.1 §8.3.2.2 and as such, the historical research, as stated in ASTM Standard Practice E 1527-13 §8.3.2.3, is considered complete. The following table summarizes the findings of the research presented below pertaining to historical property and surrounding area uses.

Table 4-2 Historical Use Summary

Period	Property	Surrounding Area	Sources	Intervals/Comments
Prior to 1940	Agricultural	Agricultural	Aerial Photograph (1939) Topographic Map (1902)	Earliest Data Source – 1902 topographic map
1941 to 1960	Agricultural	Agricultural Undeveloped Commercial	Aerial Photograph (1948, 1957)	Data Gap: 1940-1945 Data Gap: 1950-1955
1961 to 1980	Agricultural Residential Commercial	Agricultural Residential Commercial	Aerial Photographs (1967, 1973) Topographic Maps (1964, 1973)	Data Gap: 1975-1980
1981 to 2000	Agricultural Commercial	Agricultural Residential Commercial	Aerial Photographs (1982, 1995)	Data Gap: 1985-1990
2001 to Present	Agricultural Commercial	Agricultural Residential Commercial	Aerial Photographs (2002, 2005, 2006, 2008, 2010) City Directories (2008, 2013) Tax Records Area Reconnaissance	None

Period	Property	Surrounding Area	Sources	Intervals/Comments
			Interviews	

4.3.1 Aerial Photographs

Historical aerial photographs representing the property and surrounding area were available from EDR for the years 1939, 1948, 1957, 1967, 1973, 1982, 1995, 2002, 2005, 2006, 2008, and 2010. The following are descriptions and interpretations from the aerial photograph review.

Table 4-3 Aerial Photograph Summary

Year	Scale	Comments
1939	1"=500'	Property: The property appears to be agricultural. Surrounding Area: The surrounding area appears to be agricultural.
1948	1"=1,000'	Property: The property appears to be undeveloped. Surrounding Area: The surrounding area appears to be undeveloped and agricultural.
1957	1"=500'	Property: The property appears to be agricultural. Surrounding Area: The surrounding area appears to be commercial and agricultural.
1967	1"=500'	Property: The property appears to be residential, and developed with the current structure. Surrounding Area: The surrounding area appears to be commercial, agricultural, and residential. The former Toot n Scoot retail petroleum facility appears to be shown west of the property.
1973	1"=1,000'	Property: The property appears to be developed with the current structure, although poor aerial photograph quality prohibits accurate interpretation. Surrounding Area: The surrounding area appears to be commercial, agricultural, and residential, although poor aerial photograph quality prohibits accurate interpretation.
1982 1995	1"=500'	Property: The property appears to be developed with the current structure. Surrounding Area: The surrounding area appears to be commercial, agricultural, and residential.
2002	1"=750'	Property: The property appears to be developed with the current structure. Operators Way is shown north of the property, although poor aerial photograph quality prohibits accurate interpretation. Surrounding Area: The surrounding area appears to be commercial, residential, and undeveloped, although poor aerial photograph quality prohibits accurate interpretation.
2005 2006 2008 2010	1"=500'	Property: The property appears to be developed with the current structure. Surrounding Area: The surrounding area appears to be commercial, residential, and undeveloped. The former Toot n Scoot retail petroleum facility is no longer observed in the 2005 aerial photograph.

The review of historical aerial photographs did not identify past uses indicating potential environmental conditions in connection with the property, with the exception of the former Toot n Scoot retail petroleum facility shown on the 1967 through 2002 aerial photographs. Copies of reproducible aerial photographs are included in **Appendix D**.

4.3.2 Fire Insurance Maps

A search for fire insurance maps for the property and surrounding area was conducted by EDR. The property was listed as "unmapped property". The Certified Sanborn® Map Report is included in **Appendix D**.

4.3.3 Property Tax Files

Cardno ATC reviewed available tax files via the Butler County Tax Assessor’s office for historical ownership information on the property. Historical ownership of the property parcel is summarized below. Parcel cards and the deed for the property are included in **Appendix I**.

Table 4-4 Ownership History

Parcel 57-16-00-0-014	
Owner	Dates of Ownership
Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund	May 30, 2013 to present
Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program	March 4, 1974 to May 30, 2013
Clarence Frye, <i>et al.</i>	January 31, 1955 to March 4, 1974
Mary K. Frye	Unknown to January 31, 1955

The review of property tax files and deeds did not identify past uses indicating *recognized environmental conditions* in connection with the property

4.3.4 Recorded Land Title Records

The acquisition of recorded land title records was not required by the scope of work for the Phase I ESA.

4.3.5 Historical USGS Topographic Quadrangles

Cardno ATC reviewed the historical USGS *Latrobe, Pennsylvania*, and the *Saltsburg, Pennsylvania* Topographic Quadrangle maps, which were obtained from EDR, for information regarding past uses of the property. The historical topographic maps were dated 1902 (*Latrobe, Pennsylvania* Quadrangle), 1964, and 1973 (photorevised from 1964) (*Saltsburg, Pennsylvania* Quadrangles). Because of the scale of the 1902 map, little detail of the property and surrounding areas is depicted.

The 1964 and 1973 maps depict the property as undeveloped.

The review of historical USGS Topographic Quadrangles did not identify past uses indicating *recognized environmental conditions* in connection with the property. A copy of the current topographic map (1973) is included in **Appendix A** and copies of historical topographic maps are included in **Appendix D**.

4.3.6 City Directories

Research regarding the availability of historical city directories was conducted by EDR. EDR researched historical city directory documentation for the years 2008 and 2013. Addresses reviewed included only those on Operators Way and US 22. Watts Mack Sales, Inc. and Watts Truck Center, Inc. were listed at 8059 US 22 in 2008 and 2013, respectively, and Western Pennsylvania Operating Engine was listed on Operators Way in 2008. The EDR City Directory Image Report is included in **Appendix D**.

4.3.7 Building Department Records

Building information is summarized in Section 4.2.2.

4.3.8 Zoning/Land Use Records

Available zoning/land use records are summarized in Sections 2.2 and 4.2.4.

4.3.9 **Prior Reports**

No prior reports were provided.

4.3.10 **Other Historical Sources**

No other historical sources were reviewed.

5 Property Reconnaissance

The property reconnaissance was conducted by Mr. Jared Anthony, Cardno ATC Project Scientist, on October 6, 2014. Mr. Anthony was accompanied during the property reconnaissance by Mr. Steven Columbus, Administrative Manager for the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund. The following is a summary of visual and/or physical observations of the property on the day of the property reconnaissance. Photographs are included in **Appendix A**.

5.1 Methodology and Limiting Conditions

The property reconnaissance consisted of visual and/or physical observations of the property and improvements, adjoining sites as viewed from the property, and the surrounding area based on visual observations made during the trip to and from the property. Unimproved portions of the property were observed along the perimeter and in a general grid pattern in safely accessible areas. At the time of the property reconnaissance, the weather was partly sunny with a temperature of approximately 60° Fahrenheit. No visibility limitations were encountered during the site reconnaissance.

5.2 Hazardous Substance Use, Storage, and Disposal

Cardno ATC did not observe hazardous substances on the property.

5.3 Underground Storage Tanks (USTs)

Cardno ATC did not observe indications of USTs on the property.

5.4 Aboveground Storage Tanks (ASTs)

Cardno ATC observed two 275-gallon heating oil ASTs in the basement of the property building. No evidence of spills was observed. The presence of ASTs on the property does not represent a *recognized environmental condition* to the property.

5.5 Other Petroleum Products

Cardno ATC did not observe the use and storage of other petroleum products on the property, with the exception of gasoline and oil in the garage for use with the lawnmower.

5.6 Polychlorinated Biphenyls (PCBs)

Cardno ATC did not observe equipment that is suspect for PCB content.

5.7 Unidentified Substance Containers

Cardno ATC did not observe the presence of unidentified substance containers on the property.

5.8 Nonhazardous Solid Waste

Cardno ATC did not observe nonhazardous solid waste on the property. According to Mr. Steven Columbus, Administrative Manager for the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund, residual waste is periodically taken to the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund's site on Christopher Road and combined with the residual waste generated at that site and properly disposed.

5.9 Wastewater

Cardno ATC observed evidence of wastewater generated, treated, or discharged on the property or to adjoining properties as summarized below:

WASTEWATER SUMMARY TABLE			
Type of Wastewater	Generation Process	Treatment System?	Discharged To?
Stormwater	Rainfall	No	Property (percolation)
Sanitary Sewage	Domestic Sewage	No	Septic system

The identified wastewater sources do not represent a *recognized environmental condition* based on observed conditions.

5.10 Waste Pits, Ponds and Lagoons

Cardno ATC did not observe evidence of waste pits, ponds, or lagoons on the property.

5.11 Drains and Sumps

Cardno ATC observed floor drains in the basement of the property building that reportedly discharge to the septic system.

5.12 Septic Systems

Cardno ATC observed evidence of a septic system on the property. The site contact reported no problems with the septic system.

5.13 Stormwater Management System

Stormwater on the property infiltrates into the soil, or flows overland to natural swales on or near the property.

5.14 Potable Wells

Cardno ATC observed a potable well on the property that serves the property building. No construction details were provided for the potable well.

6 Subsurface Vapor Migration

Cardno ATC conducted a limited screening for potential vapor encroachment conditions (VECs) that may affect the property. The VEC screening focused on the current and historical usage of the property with respect to the environmental impacts that are currently being addressed. Additionally, Cardno ATC utilized the aforementioned regulatory agency database report provided by EDR and an EDR Vapor Encroachment Screen (VES) Report to evaluate identified Chemicals of Concern (COCs), including petroleum hydrocarbons. To identify the area of concern (AOC) for contaminated sites with non-petroleum hydrocarbon COCs, Cardno ATC utilized the approximate minimum search distance defined by ASTM E 2600-10 of 1,760 feet (1/3 mile) from the property boundary for COC-contaminated sites. For sites contaminated with petroleum hydrocarbon COCs, Cardno ATC utilized the AOC approximate minimum search distance of 528 feet (1/10 mile). The AOC was adjusted accordingly based on review of physical setting characteristics, known release information, property and land features, groundwater flow direction, and soil type, et al.

ASTM's Vapor Encroachment guidance indicates that when groundwater flow direction can be estimated or determined, the cross-gradient or downgradient radius distances can be significantly reduced. The EDR VES report calculates the reduced AOC distances when considering groundwater flow direction by utilizing the following default distances, which were determined using the Buonicore Methodology: (non-petroleum hydrocarbon COCs) 1,760 feet in the upgradient direction; 365 feet in the cross-gradient direction; and 100 feet in the downgradient direction and (petroleum hydrocarbon COCs) 528 feet in the upgradient direction; 165 feet in the cross-gradient direction if Light, Non-Aqueous Phase Liquid, (LNAPL i.e. floating product) is suspected; 95 feet in the cross-gradient direction if no LNAPL is suspected; 100 feet in the downgradient direction (LNAPL suspected); and 30 feet in the downgradient position (LNAPL not suspected).

The screening was further refined by evaluating the Critical Distance (CD) factor. The CD is the upper distance a vapor may migrate through soil in the vadose zone assuming the path of least resistance is directly from the closest boundary of the contaminated media (i.e. groundwater or soil) to the nearest property boundary. For non-petroleum hydrocarbon COCs, the CD is 100 feet. For LNAPL petroleum hydrocarbon COCs, the CD is also 100 feet. For dissolved petroleum hydrocarbon COCs, the CD is 30 feet.

Cardno ATC reviewed potential sources of COCs from the facilities reported on the EDR database report and VES report. No potential sources of COCs were identified in the EDR database.

7 Interviews

The following persons were interviewed to obtain information regarding *recognized environmental conditions* in connection with the property:

Table 7-1 Interview Summary

Role	Name	Title/Company	Years Assoc. with Property	Interview Type
User	Eric M. Swaisgood	Environmental Representative/Speedway LLC	N/A	E-mail
Site Contact	Mr. Steven Columbus	Administrative Manager / Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund	10	In Person
Local Gov't Official	Betty (last name withheld)	Secretary / Salem Township	N/A	Telephone

Pertinent information from the interviews is discussed in applicable sections of this report.

8 Other Environmental Conditions

8.1 Asbestos-Containing Material (ACM)

Typical building materials that contain asbestos are found in a variety of types and uses. Frequently encountered types of ACMs used in building construction include floor tile, sheet flooring, mastic, ceiling tile, spray-applied acoustical/decorative ceiling materials, plaster, wallboard and wallboard joint compound, insulation, roofing and flashing, and many other materials in common use prior to 1978. ACMs must be handled according to Occupational Safety and Health Administration (OSHA) and USEPA regulations.

An ACM Survey was completed in conjunction with the Phase I ESA and will be submitted separately.

8.2 Radon

Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of radioactive materials potentially present in bedrock and soil. The EPA guidance action level for annual residential exposure to radon is 4.0 picoCuries per liter of air (pCi/L). The guidance action level is not a regulatory requirement for private owners of commercial real estate, but is commonly used for comparison purposes to suggest whether further action at a building may be prudent.

Cardno ATC's review of published radon data indicates that the property is located in an area of high propensity with regard to the potential for elevated levels of radon gas. Of the 64 tests reported in the 15670 zip code, 36 sites (56.25%) were 4.0 pCi/L or above, with the maximum reading at 30.9 pCi/L. However, based on the proposed commercial usage of the property, no additional investigations are recommended at this time.

8.3 Lead in Drinking Water

Potable water for the property is supplied by a domestic well. No records were provided to Cardno ATC documenting previous test results, if any. Thus, no information with respect to lead in drinking water was available.

8.4 Lead-Based Paint (LBP)

A LBP Survey was completed in conjunction with the Phase I ESA and will be submitted separately.

8.5 Sensitive Receptor Survey

8.5.1 Physical Water Well Survey

Cardno ATC conducted a physical water well survey at the property on October 6, 2014. No evidence of the presence of any drinking water supply wells or springs were observed on or within an approximate 2,000-foot radius of the property during the survey, with the exception of the domestic water well identified for the property and the water wells discussed below (Section 8.5.2). However, because the nature of the surrounding properties, water wells are likely to be located on adjacent residential properties.

8.5.2 Potable Water Well Database Search

A review of the Pennsylvania Groundwater Information System (PaGWIS) indicated that the following domestic water wells are located within a 2,000-foot radius of the property:

Table 8-1 Potable Water Well Summary

Well ID	Date Drilled	Well Depth (ft.)	Listed Use	Owner	Approximate Distance from Site (ft.)
151216	06/25/1985	80	Domestic	J. O'Brien	Adjacent west
253673	Unknown	125	Commercial	Toot n Scoot #18	Adjacent west

A water well was observed on the property. Cardno ATC recommends appropriate abandonment in accordance with all applicable regulations upon commencement of construction activities. Results of the PaGWIS well search are included in **Appendix J**.

8.5.3 Sensitive Area Requirements

The property does not lie within a Sensitive Area.

8.5.4 Wellhead Protection

According to the PADEP web site, the property is not located in a public wellhead protection area.

8.5.5 Sole Source Aquifers

The property is not located within a designated Sole Source Aquifer.

8.6 Wetlands

The presence of dominant hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology are indicators of jurisdictional wetlands as defined by the U.S. Army Corps of Engineers (USACE). For a site to be designated as a jurisdictional wetland, all three (3) of these criteria must be present.

According to the National Wetlands Inventory (NWI) map, reviewed via the U.S. Fish and Wildlife Service's Wetlands On-Line Mapper (<http://wetlandsfws.er.usgs.gov/NWI/>), no federally mapped wetlands or other potential jurisdictional waterways are located on the property. A copy of the NWI map is included in **Appendix I**.

According to the United States Department of Agriculture (USDA) Custom Soil Resource Report for Butler County, Pennsylvania, the property is underlain by the Monongahela silt loam, 3 to 8 percent slopes (MoB). MoB soils are characterized as somewhat moderately well drained silt loams, clay loams, and gravelly clay loams with low water capacity. The parent material for the soil is fine loamy alluvium derived from sandstone and siltstone. These soils typically form terraces. A copy of the Soil Survey map is included in **Appendix I**.

Cardno ATC conducted a cursory visual reconnaissance of the property for the presence of wetland conditions. No evidence of suspect hydrophytic vegetation or wetland conditions was observed on the property.

8.7 Additional User Requested Conditions

No additional user requested conditions were addressed as part of this assessment.

9 References

ASTM International, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation E1527-13, November 2013.

ASTM International, *Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions*, ASTM Designation E2600-08, March 2008.

Environmental Data Resources, Inc., *Aerial Photo Decade Package*, Inquiry No. 4092747.9, dated October 1, 2014.

Environmental Data Resources, Inc., *Certified Sanborn® Map Report*, Inquiry No. 4092747.3, dated October 1, 2014.

Environmental Data Resources, Inc., *City Directory Image Report*, Inquiry No. 4092747.5, dated October 2, 2014.

Environmental Data Resources, Inc., *Historical Topographic Map Report*, Inquiry No. 4092747.4, dated October 1, 2014.

Environmental Data Resources, Inc., *Radius Map Report™ with Geocheck®*, Inquiry No. 4092747.2s, dated October 1, 2014.

Pennsylvania Department of Environmental Protection (<http://www.depweb.state.pa.us>).

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>).

Commonwealth of Pennsylvania, Department of Environmental Resources, Bureau of Topographic and Geologic Survey, *Geologic Map of Pennsylvania*, 1980.

Westmoreland County Real Estate Assessments.

United States Fish and Wildlife Service, National Wetlands Inventory (<http://wetlandsfws.er.usgs.gov>)

Federal Emergency Management Agency, Flood Map Store (<http://www.fema.gov>), Flood Insurance Rate Map, Venango County, Pennsylvania, Map Number 42129C0240F, dated March 17, 2011.

10 Environmental Professional Statement

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in § 312.10 part of 40 CFR 312. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



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Resumes are included in **Appendix F**.

Proposed Speedway Store #100623

FIGURES
SITE LOCATION MAP
SITE MAP

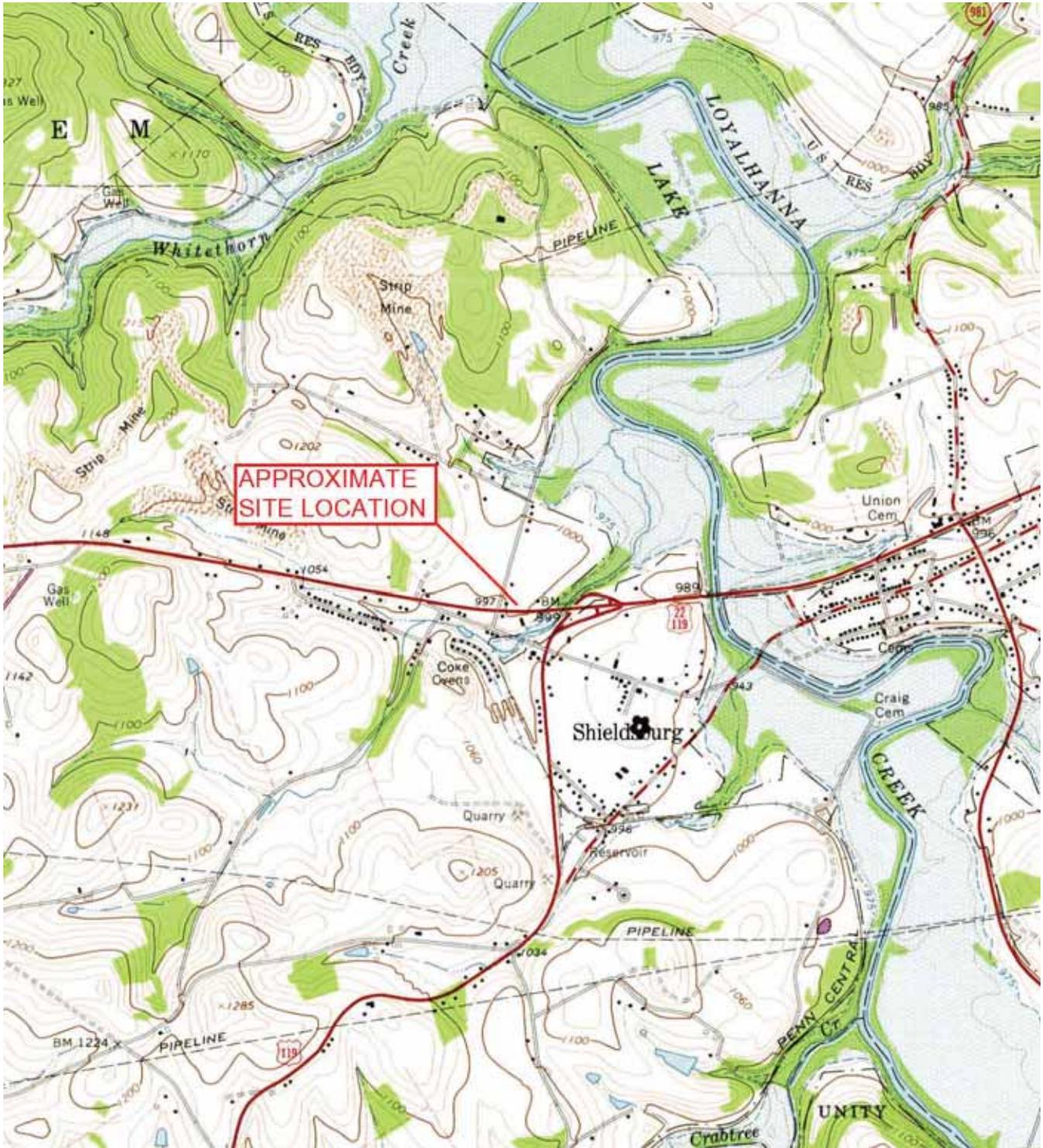


FIGURE 1 – SITE LOCATION MAP

Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Shaping the Future

103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
ATC Project No. 48.75302.0097

SOURCE: USGS 7.5-Minute Topographic Map *Saltsburg, Pennsylvania*, 1973

1:24000



FIGURE 2 – SITE MAP
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno ATC Project No. 48.75302.0097

Proposed Speedway Store #100623

APPENDIX A

PROPERTY PHOTOGRAPHS

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 1: View looking north across US 22 at southern property boundary.



Photograph 2: View looking south across Operators Way at the northern property boundary.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 3: View looking east from western property boundary.



Photograph 4: View looking west across Operators Way at east property boundary.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 5: View from southern portion of property looking south across US 22.



Photograph 6: View looking west across property at western adjoining property.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 7: View looking north across northern section of property.



Photograph 8: View from eastern portion of property looking east across Operators Way.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 9: View looking north at southern side of property building.



Photograph 10: View looking west at eastern side of property building.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 11: View looking south at northern side of property building.



Photograph 12: View looking east at western side of property building. Water well visible on south side of building.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 13: View looking west along southern boundary of property.



Photograph 14: View looking at office and kitchen areas.

Phase I Environmental Site Assessment
Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



Photograph 15: View looking at typical office setting.



Photograph 16: View looking west in basement at water pump and water softener equipment.



Photograph 17: View of both 275 gallon heating oil ASTs present in basement.



Photograph 18: View looking at garage storage area.



Photograph 19: View looking at drain outside basement garage door along eastern side of property building.



Photograph 20: View looking at concrete lid covering septic system.

Proposed Speedway Store #100623

APPENDIX B

USER PROVIDED DOCUMENTATION

This section is intentionally blank.

Proposed Speedway Store #100623

APPENDIX C

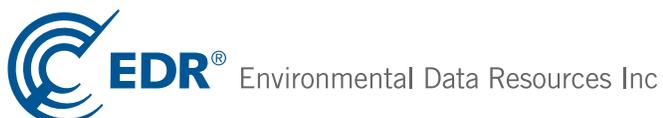
REGULATORY DATABASE REPORT

Proposed Speedway 100623

107 Operators Way
New Alexandria, PA 15670

Inquiry Number: 4092747.2s
October 01, 2014

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

COORDINATES

Latitude (North): 40.3963000 - 40° 23' 46.68"
Longitude (West): 79.4429000 - 79° 26' 34.44"
Universal Transverse Mercator: Zone 17
UTM X (Meters): 632148.2
UTM Y (Meters): 4472697.0
Elevation: 989 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 40079-D4 SALTSBURG, PA
Most Recent Revision: 1973

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20100618
Source: USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

SHWS..... Hazardous Sites Cleanup Act Site List
HSCA..... HSCA Remedial Sites Listing

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Operating Facilities

State and tribal leaking storage tank lists

LUST..... Storage Tank Release Sites
UNREG LTANKS..... Unregulated Tank Cases
LAST..... Storage Tank Release Sites
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

UST..... Listing of Pennsylvania Regulated Underground Storage Tanks
AST..... Listing of Pennsylvania Regulated Aboveground Storage Tanks
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Engineering Controls Site Listing
INST CONTROL..... Institutional Controls Site Listing
AUL..... Environmental Covenants Listing

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Cleanup Program Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
HIST LF..... Abandoned Landfill Inventory
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

ARCHIVE UST..... Archived Underground Storage Tank Sites
ARCHIVE AST..... Archived Aboveground Storage Tank Sites

Local Land Records

LIENS 2..... CERCLA Lien Information
ACT 2-DEED..... Act 2-Deed Acknowledgment Sites

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System

EXECUTIVE SUMMARY

SPILLS..... State spills

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
DOT OPS..... Incident and Accident Data
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
RMP..... Risk Management Plans
NPDES..... NPDES Permit Listing
UIC..... Underground Injection Wells
MANIFEST..... Manifest Information
DRYCLEANERS..... Drycleaner Facility Locations
AIRS..... Permit and Emissions Inventory Data
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
PRP..... Potentially Responsible Parties
US AIRS..... Aerometric Information Retrieval System Facility Subsystem
LEAD SMELTERS..... Lead Smelter Sites
2020 COR ACTION..... 2020 Corrective Action Program List
MINES..... MINES
EPA WATCH LIST..... EPA WATCH LIST
COAL ASH DOE..... Steam-Electric Plant Operation Data
PCB TRANSFORMER..... PCB Transformer Registration Database
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
US FIN ASSUR..... Financial Assurance Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat..... EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

EXECUTIVE SUMMARY

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

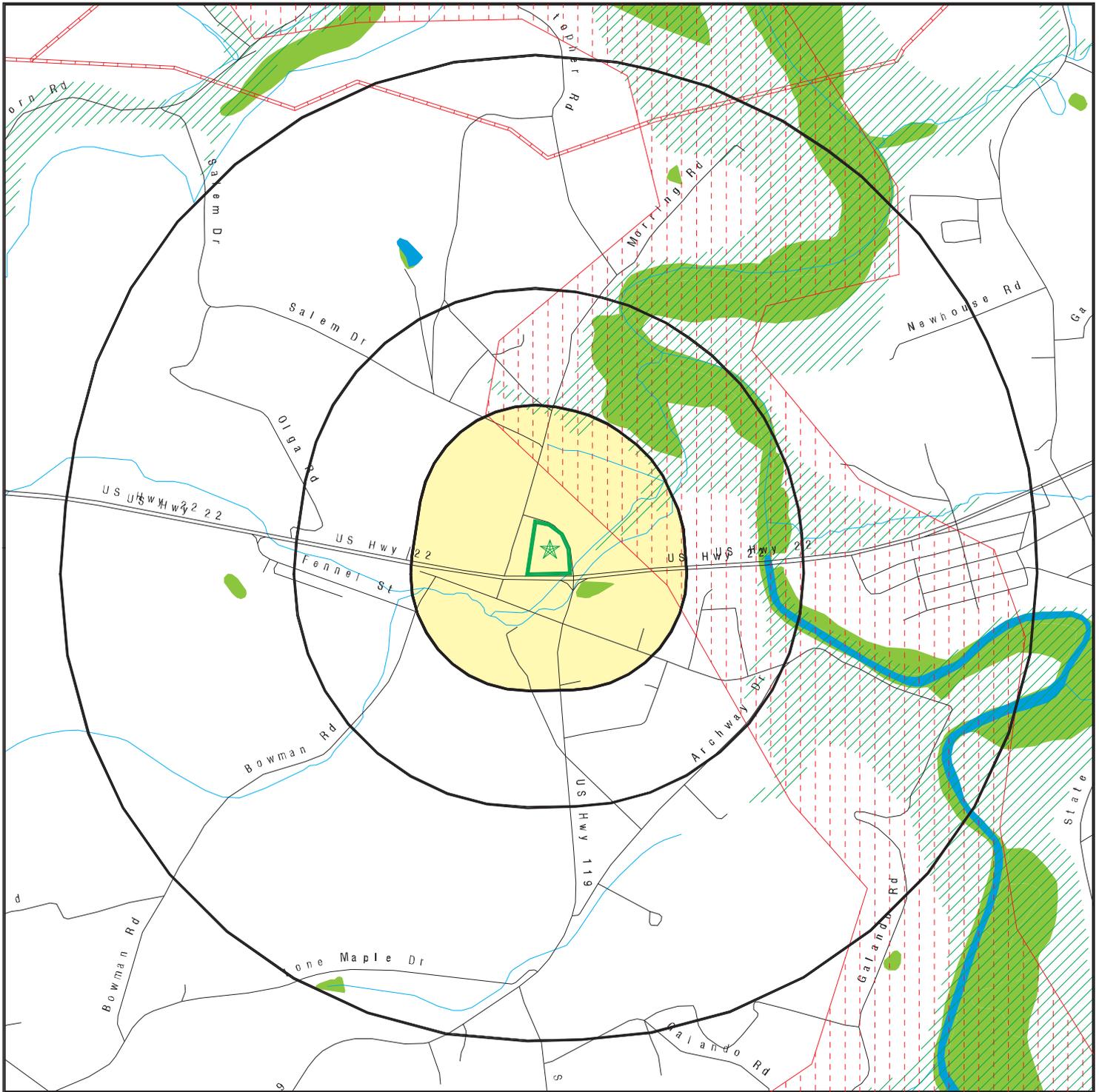
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LOYALHANNA LAKE		NE 0 - 1/8 (0.075 mi.)	0	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

<u>Site Name</u>	<u>Database(s)</u>
S & J MINI MART	ARCHIVE UST
RAMALEY EQUIP & SUP CO	ARCHIVE UST
GULF STA	ARCHIVE UST
BEST OIL INC 18	ARCHIVE UST
QUICK STOP	LUST, ARCHIVE UST
R&L DEVELOPMENT CO	ARCHIVE UST
A-SEPTIC TANK SERVICE / SHAW FARM	HIST LF
SHEETZ 314	LUST, UST
GRABIAK CHEVROLET	LUST
BEST OIL 18	LUST
RICHARD KEPPLER	LUST, AST
R & L DEV	LUST
WPA OPR ENGR JT APPRENTICESHIP & T	AST
TETLP CHRISTOPHER ROAD VALVE SITE	RCRA-SQG
TETCO M&R 1516 MP 5.34 PJ LNS	RCRA-SQG
DEMARYS BODY SHOP	RCRA-CESQG, MANIFEST
SHEETZ STORE NO 314	RCRA-CESQG
WATTS MACK SALES INC	RCRA-CESQG, FINDS
GRABIAK CHEVROLET I	MANIFEST
TEXAS EASTERN TRANSMISSIONS LP	MANIFEST

OVERVIEW MAP - 4092747.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Proposed Speedway 100623
 ADDRESS: 107 Operators Way
 New Alexandria PA 15670
 LAT/LONG: 40.3963 / 79.4429

CLIENT: Cardno ATC #48
 CONTACT: Chris Carlson
 INQUIRY #: 4092747.2s
 DATE: October 01, 2014 12:38 pm

DETAIL MAP - 4092747.2S



-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  Sensitive Receptors
-  National Priority List Sites
-  Dept. Defense Sites

-  Indian Reservations BIA
-  Oil & Gas pipelines from USGS
-  100-year flood zone
-  500-year flood zone
-  National Wetland Inventory



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Proposed Speedway 100623
 ADDRESS: 107 Operators Way
 New Alexandria PA 15670
 LAT/LONG: 40.3963 / 79.4429

CLIENT: Cardno ATC #48
 CONTACT: Chris Carlson
 INQUIRY #: 4092747.2s
 DATE: October 01, 2014 12:38 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL</i>								
SHWS	1.000		0	0	0	0	NR	0
HSCA	1.000		0	0	0	0	NR	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0
UNREG LTANKS	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
AUL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<u>ADDITIONAL ENVIRONMENTAL RECORDS</u>								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
ARCHIVE UST	0.250		0	0	NR	NR	NR	0
ARCHIVE AST	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
ACT 2-DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		1	0	0	0	NR	1
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
RGA HWS	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID
Direction
Distance
Elevation

Site

Database(s)

EDR ID Number
EPA ID Number

DOD
Region
NE
< 1/8
398 ft.

LOYALHANNA LAKE
LOYALHANNA LAKE (County), PA

DOD **CUSA128047**
N/A

DOD:

Feature 1: Army Corps of Engineers DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Loyalhanna Lake
Name 2: Not reported
Name 3: Not reported
State: PA
DOD Site: Yes
Tile name: PAWESTMORELAND

Count: 20 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NEW ALEXANDRIA	S106935282	A-SEPTIC TANK SERVICE / SHAW FARM	#2/SALEM DR	15670	HIST LF
NEW ALEXANDRIA	1004772453	DEMARYS BODY SHOP	RTE 119 S	15670	RCRA-CESQG, MANIFEST
NEW ALEXANDRIA	U003772359	SHEETZ 314	ROUTE 22 & ROUTE 981	15670	LUST, UST
NEW ALEXANDRIA	S116710170	GRABIAK CHEVROLET	ROUTE 22 W & ROUTE 981	15670	LUST
NEW ALEXANDRIA	S111115794	S & J MINI MART	RT 22 & 981	15670	ARCHIVE UST
NEW ALEXANDRIA	S111115270	RAMALEY EQUIP & SUP CO	RT 22	15670	ARCHIVE UST
NEW ALEXANDRIA	S111111110	GULF STA	ROUTE 22 & ROUTE 981	15670	ARCHIVE UST
NEW ALEXANDRIA	S111107746	BEST OIL INC 18	RT 22 BOX 188	15670	ARCHIVE UST
NEW ALEXANDRIA	S106228082	BEST OIL 18	ROUTE 22	15670	LUST
NEW ALEXANDRIA	S105802844	RICHARD KEPPLER	SR 22 2 MI E OF SR 981 N SIDE	15670	LUST, AST
NEW ALEXANDRIA	1008405236	SHEETZ STORE NO 314	8299 ROUTE 22	15670	RCRA-CESQG
NEW ALEXANDRIA	1004776683	WATTS MACK SALES INC	8059 RTE 22	15670	RCRA-CESQG, FINDS
NEW ALEXANDRIA	1000163341	GRABIAK CHEVROLET I	ROUTE 22	15670	MANIFEST
NEW ALEXANDRIA	U003427228	QUICK STOP	ROUTE 981 & ROUTE 22	15670	LUST, ARCHIVE UST
NEW ALEXANDRIA	S111115217	R&L DEVELOPMENT CO	RT 981 N	15670	ARCHIVE UST
NEW ALEXANDRIA	S105802841	R & L DEV	RTE 981 N	15670	LUST
NEW ALEXANDRIA	S116739672	TEXAS EASTERN TRANSMISSIONS LP	CHRISTOPHER ROAD	15670	MANIFEST
NEW ALEXANDRIA	A100392836	WPA OPR ENGR JT APPRENTICESHIP & T	CHRISTOPHER RD	15670	AST
NEW ALEXANDRIA	1016452233	TETLP CHRISTOPHER ROAD VALVE SITE	CHRISTOPHER RD	15670	RCRA-SQG
NEW ALEXANDRIA	1000570675	TETCO M&R 1516 MP 5.34 PJ LNS	PRIVATE LN .4 MI NW OF SR 1055	15670	RCRA-SQG

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 09/19/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/20/2014
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 09/19/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/20/2014
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 09/19/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/20/2014
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 08/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/08/2014	Telephone: 703-603-8704
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 07/08/2014
Number of Days to Update: 45	Next Scheduled EDR Contact: 10/20/2014
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 08/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 06/23/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/15/2014	Telephone: 703-603-0695
Date Made Active in Reports: 09/18/2014	Last EDR Contact: 09/08/2014
Number of Days to Update: 65	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 06/23/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/15/2014	Telephone: 703-603-0695
Date Made Active in Reports: 09/18/2014	Last EDR Contact: 09/08/2014
Number of Days to Update: 65	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2014	Source: Department of the Navy
Date Data Arrived at EDR: 05/30/2014	Telephone: 843-820-7326
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 08/14/2014
Number of Days to Update: 18	Next Scheduled EDR Contact: 12/01/2014
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 10/01/2013	Telephone: 202-267-2180
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 09/30/2014
Number of Days to Update: 66	Next Scheduled EDR Contact: 01/12/2015
	Data Release Frequency: Annually

State- and tribal - equivalent NPL

SHWS: Hazardous Sites Cleanup Act Site List

The Hazardous Sites Cleanup Act Site List includes sites listed on PA Priority List, sites delisted from PA Priority List, Interim Response Completed sites, and Sites Being Studied or Response Being Planned.

Date of Government Version: 04/01/2014	Source: Department Environmental Protection
Date Data Arrived at EDR: 04/24/2014	Telephone: 717-783-7816
Date Made Active in Reports: 05/05/2014	Last EDR Contact: 07/25/2014
Number of Days to Update: 11	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HSCA: HSCA Remedial Sites Listing

A list of remedial sites on the PA Priority List. This is the PA state equivalent of the federal NPL superfund list.

Date of Government Version: 09/30/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/25/2014	Telephone: 717-783-7816
Date Made Active in Reports: 05/05/2014	Last EDR Contact: 07/21/2014
Number of Days to Update: 10	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Operating Facilities

The listing includes Municipal Waste Landfills, Construction/Demolition Waste Landfills and Waste-to-Energy Facilities.

Date of Government Version: 05/27/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/30/2014	Telephone: 717-787-7564
Date Made Active in Reports: 06/20/2014	Last EDR Contact: 08/26/2014
Number of Days to Update: 21	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Storage Tank Release Sites

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/16/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-783-7509
Date Made Active in Reports: 08/08/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 50	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Semi-Annually

UNREG LTANKS: Unregulated Tank Cases

Leaking storage tank cases from unregulated storage tanks.

Date of Government Version: 04/12/2002	Source: Department of Environmental Protection
Date Data Arrived at EDR: 08/14/2003	Telephone: 717-783-7509
Date Made Active in Reports: 08/29/2003	Last EDR Contact: 08/14/2003
Number of Days to Update: 15	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

LAST: Storage Tank Release Sites

Leaking Aboveground Storage Tank Incident Reports.

Date of Government Version: 06/16/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-783-7509
Date Made Active in Reports: 08/08/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 50	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/13/2014	Source: EPA Region 8
Date Data Arrived at EDR: 08/15/2014	Telephone: 303-312-6271
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 7	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2013	Telephone: 415-972-3372
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/22/2014
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/14/2014	Source: EPA Region 6
Date Data Arrived at EDR: 05/15/2014	Telephone: 214-665-6597
Date Made Active in Reports: 07/15/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 61	Next Scheduled EDR Contact: 11/20/2014
	Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 08/04/2014	Source: EPA, Region 5
Date Data Arrived at EDR: 08/05/2014	Telephone: 312-886-7439
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014	Source: EPA Region 10
Date Data Arrived at EDR: 06/10/2014	Telephone: 206-553-2857
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 73	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014	Source: EPA Region 4
Date Data Arrived at EDR: 08/12/2014	Telephone: 404-562-8677
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 04/22/2014
Number of Days to Update: 10	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013	Source: EPA Region 1
Date Data Arrived at EDR: 05/01/2013	Telephone: 617-918-1313
Date Made Active in Reports: 11/01/2013	Last EDR Contact: 08/01/2014
Number of Days to Update: 184	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/22/2014	Source: EPA Region 7
Date Data Arrived at EDR: 08/22/2014	Telephone: 913-551-7003
Date Made Active in Reports: 09/18/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal registered storage tank lists

UST: Listing of Pennsylvania Regulated Underground Storage Tanks

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/02/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-772-5599
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 47	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Varies

AST: Listing of Pennsylvania Regulated Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 06/02/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-772-5599
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 47	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/20/2014	Source: EPA Region 7
Date Data Arrived at EDR: 08/22/2014	Telephone: 913-551-7003
Date Made Active in Reports: 09/18/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 07/25/2014	Source: EPA Region 6
Date Data Arrived at EDR: 07/28/2014	Telephone: 214-665-7591
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 25	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Semi-Annually

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014	Source: EPA Region 4
Date Data Arrived at EDR: 08/12/2014	Telephone: 404-562-9424
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 04/22/2014
Number of Days to Update: 10	Next Scheduled EDR Contact: 08/11/2014
	Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014	Source: EPA Region 10
Date Data Arrived at EDR: 06/10/2014	Telephone: 206-553-2857
Date Made Active in Reports: 08/15/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 66	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013	Source: EPA, Region 1
Date Data Arrived at EDR: 05/01/2013	Telephone: 617-918-1313
Date Made Active in Reports: 01/27/2014	Last EDR Contact: 08/01/2014
Number of Days to Update: 271	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/13/2014	Source: EPA Region 8
Date Data Arrived at EDR: 08/15/2014	Telephone: 303-312-6137
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 7	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014	Source: EPA Region 9
Date Data Arrived at EDR: 08/15/2014	Telephone: 415-972-3368
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 7	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/04/2014	Source: EPA Region 5
Date Data Arrived at EDR: 08/05/2014	Telephone: 312-886-6136
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 04/28/2014
Number of Days to Update: 17	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/08/2014
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Site Listing

Under the Land Recycling Act (Act 2) persons who perform a site cleanup using the site-specific standard or the special industrial area standard may use engineering or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/15/2008	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/16/2008	Telephone: 717-783-9470
Date Made Active in Reports: 06/12/2008	Last EDR Contact: 07/17/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INST CONTROL: Institutional Controls Site Listing

Under the Land Recycling Act (Act 2) persons who perform a site cleanup using the site-specific standard or the special industrial area standard may use engineering or institutional controls as part of the response action. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/15/2008	Source: Department of Environmental Protection
Date Data Arrived at EDR: 05/16/2008	Telephone: 717-783-9470
Date Made Active in Reports: 06/12/2008	Last EDR Contact: 07/17/2014
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: No Update Planned

AUL: Environmental Covenants Listing

A listing of sites with environmental covenants.

Date of Government Version: 07/21/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/22/2014	Telephone: 717-783-7509
Date Made Active in Reports: 08/20/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Sites

The VCP listings included Completed Sites, Sites in Progress and Act 2 Non-Use Aquifer Determinations Sites. Formerly known as the Act 2, the Land Recycling Program encourages the voluntary cleanup and reuse of contaminated commercial and industrial sites.

Date of Government Version: 07/14/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/16/2014	Telephone: 717-783-2388
Date Made Active in Reports: 08/21/2014	Last EDR Contact: 07/16/2014
Number of Days to Update: 36	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: Semi-Annually

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 05/30/2014	Source: EPA, Region 1
Date Data Arrived at EDR: 07/01/2014	Telephone: 617-918-1102
Date Made Active in Reports: 08/15/2014	Last EDR Contact: 07/01/2014
Number of Days to Update: 45	Next Scheduled EDR Contact: 10/13/2014
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites

Brownfields are generally defined as abandoned or underused industrial or commercial properties where redevelopment is complicated by actual or perceived environmental contamination. Brownfields vary in size, location, age and past use. They can range from a small, abandoned corner gas station to a large, multi-acre former manufacturing plant that has been closed for years.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 07/25/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 717-783-1566
Last EDR Contact: 07/21/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 07/03/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/23/2014
Next Scheduled EDR Contact: 01/05/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: No Update Planned

HIST LF ALI: Abandoned Landfill Inventory

The report provides facility information recorded in the Pennsylvania Department of Environmental Protection ALI database. Some of this information has been abstracted from old records and may not accurately reflect the current conditions and status at these facilities

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/04/2005
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 717-787-7564
Last EDR Contact: 11/26/2012
Next Scheduled EDR Contact: 03/11/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HIST LF INVENTORY: Facility Inventory

A listing of solid waste facilities. This listing is no longer updated or maintained by the Department of Environmental Protection. At the time the listing was available, the DEP's name was the Department of Environmental Resources.

Date of Government Version: 06/02/1999	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/12/2005	Telephone: 717-787-7381
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 09/19/2005
Number of Days to Update: 30	Next Scheduled EDR Contact: 12/19/2005
	Data Release Frequency: No Update Planned

HIST LF INACTIVE: Inactive Facilities List

A listing of inactive non-hazardous facilities (10000 & 300000 series). This listing is no longer updated or maintained by the Department of Environmental Protection. At the time the listing was available, the DEP's name was the Department of Environmental Resources.

Date of Government Version: 12/20/1994	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/12/2005	Telephone: 717-787-7381
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/21/2005
Number of Days to Update: 30	Next Scheduled EDR Contact: 12/19/2005
	Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/03/2007	Telephone: 703-308-8245
Date Made Active in Reports: 01/24/2008	Last EDR Contact: 08/01/2014
Number of Days to Update: 52	Next Scheduled EDR Contact: 11/17/2014
	Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 06/20/2014	Telephone: 202-307-1000
Date Made Active in Reports: 07/15/2014	Last EDR Contact: 09/03/2014
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/15/2014
	Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 06/20/2014	Telephone: 202-307-1000
Date Made Active in Reports: 07/15/2014	Last EDR Contact: 09/03/2014
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/15/2014
	Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ARCHIVE UST: Archived Underground Storage Tank Sites

The list includes tanks storing highly hazardous substances that were removed from the DEP's Storage Tank Information database because of the Department's policy on sensitive information. The list also may include tanks that are removed or permanently closed.

Date of Government Version: 06/02/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-772-5599
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 47	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Varies

ARCHIVE AST: Archived Aboveground Storage Tank Sites

The list includes aboveground tanks with a capacity greater than 21,000 gallons that were removed from the DEP's Storage Tank Information database because of the Department's policy on sensitive information. The list also may include tanks that are removed or permanently closed.

Date of Government Version: 06/02/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/19/2014	Telephone: 717-772-5599
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/18/2014
Number of Days to Update: 47	Next Scheduled EDR Contact: 12/29/2014
	Data Release Frequency: Varies

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/18/2014	Telephone: 202-564-6023
Date Made Active in Reports: 04/24/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 37	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

ACT 2-DEED: Act 2-Deed Acknowledgment Sites

This listing pertains to sites where the Department has approved a cleanup requiring a deed acknowledgment under Act 2. This list includes sites remediated to a non-residential Statewide health standard (Section 303(g)); all sites demonstrating attainment of a Site-specific standard (Section 304(m)); and sites being remediated as a special industrial area (Section 305(g)). Persons who remediated a site to a standard that requires a deed acknowledgment shall comply with the requirements of the Solid Waste Management Act or the Hazardous Sites Cleanup Act, as referenced in Act 2. These statutes require a property description section in the deed concerning the hazardous substance disposal on the site. The location of disposed hazardous substances and a description of the type of hazardous substances disposed on the site shall be included in the deed acknowledgment. A deed acknowledgment is required at the time of conveyance of the property.

Date of Government Version: 04/23/2010	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/28/2010	Telephone: 717-783-9470
Date Made Active in Reports: 04/30/2010	Last EDR Contact: 07/22/2011
Number of Days to Update: 2	Next Scheduled EDR Contact: 11/07/2011
	Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/30/2014	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 07/01/2014	Telephone: 202-366-4555
Date Made Active in Reports: 09/18/2014	Last EDR Contact: 07/01/2014
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/13/2014
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: State spills

A listing of hazardous material incidents.

Date of Government Version: 04/13/2014
Date Data Arrived at EDR: 04/18/2014
Date Made Active in Reports: 05/23/2014
Number of Days to Update: 35

Source: DEP, Emergency Response
Telephone: 717-787-5715
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Varies

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/06/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/10/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/30/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013	Source: EPA
Date Data Arrived at EDR: 12/12/2013	Telephone: 703-416-0223
Date Made Active in Reports: 02/24/2014	Last EDR Contact: 09/09/2014
Number of Days to Update: 74	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010	Source: Department of Energy
Date Data Arrived at EDR: 10/07/2011	Telephone: 505-845-0011
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 08/20/2014
Number of Days to Update: 146	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 01/30/2014	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 03/05/2014	Telephone: 303-231-5959
Date Made Active in Reports: 07/15/2014	Last EDR Contact: 09/04/2014
Number of Days to Update: 132	Next Scheduled EDR Contact: 12/15/2014
	Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011	Source: EPA
Date Data Arrived at EDR: 07/31/2013	Telephone: 202-566-0250
Date Made Active in Reports: 09/13/2013	Last EDR Contact: 08/29/2014
Number of Days to Update: 44	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006	Source: EPA
Date Data Arrived at EDR: 09/29/2010	Telephone: 202-260-5521
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 09/26/2014
Number of Days to Update: 64	Next Scheduled EDR Contact: 01/05/2015
	Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/19/2014
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/19/2014
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 07/22/2014
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 05/06/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/16/2014	Telephone: 202-564-5088
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 10/09/2014
Number of Days to Update: 32	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013	Source: EPA
Date Data Arrived at EDR: 07/17/2013	Telephone: 202-566-0500
Date Made Active in Reports: 11/01/2013	Last EDR Contact: 07/18/2014
Number of Days to Update: 107	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 08/02/2013	Telephone: 301-415-7169
Date Made Active in Reports: 11/01/2013	Last EDR Contact: 09/08/2014
Number of Days to Update: 91	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/10/2014	Telephone: 202-343-9775
Date Made Active in Reports: 07/28/2014	Last EDR Contact: 07/10/2014
Number of Days to Update: 18	Next Scheduled EDR Contact: 10/20/2014
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013	Source: EPA
Date Data Arrived at EDR: 02/27/2014	Telephone: (215) 814-5000
Date Made Active in Reports: 03/12/2014	Last EDR Contact: 09/10/2014
Number of Days to Update: 13	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

RMP: Risk Management Plans

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/23/2014	Telephone: 202-564-8600
Date Made Active in Reports: 07/28/2014	Last EDR Contact: 07/22/2014
Number of Days to Update: 66	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011	Source: EPA/NTIS
Date Data Arrived at EDR: 02/26/2013	Telephone: 800-424-9346
Date Made Active in Reports: 04/19/2013	Last EDR Contact: 08/29/2014
Number of Days to Update: 52	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Biennially

NPDES: NPDES Permit Listing

A listing of facilities with an NPDES permit.

Date of Government Version: 03/28/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/12/2014	Telephone: 717-787-9642
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/12/2014
Number of Days to Update: 54	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Varies

UIC: Underground Injection Wells

A listing of underground injection well locations.

Date of Government Version: 06/23/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/25/2014	Telephone: 717-783-7209
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/24/2014
Number of Days to Update: 41	Next Scheduled EDR Contact: 01/05/2015
	Data Release Frequency: Varies

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/21/2014	Telephone: 717-783-8990
Date Made Active in Reports: 08/25/2014	Last EDR Contact: 07/18/2014
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/03/2014
	Data Release Frequency: Annually

DRYCLEANERS: Drycleaner Facility Locations

A listing of drycleaner facility locations.

Date of Government Version: 06/23/2014	Source: Department of Environmental Protection
Date Data Arrived at EDR: 06/23/2014	Telephone: 717-787-9702
Date Made Active in Reports: 08/05/2014	Last EDR Contact: 09/22/2014
Number of Days to Update: 43	Next Scheduled EDR Contact: 01/05/2015
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AIRS: Permit and Emissions Inventory Data Permit and emissions inventory data.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/22/2014
Date Made Active in Reports: 09/17/2014
Number of Days to Update: 57

Source: Department of Environmental Protection
Telephone: 717-787-9702
Last EDR Contact: 09/29/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 11/24/2014
Data Release Frequency: Varies

MINES: Abandoned Mine Land Inventory

This data set portrays the approximate location of Abandoned Mine Land Problem Areas containing public health, safety, and public welfare problems created by past coal mining.

Date of Government Version: 07/02/2014
Date Data Arrived at EDR: 07/30/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 26

Source: PASDA
Telephone: 814-863-0104
Last EDR Contact: 07/30/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Semi-Annually

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001	Source: American Journal of Public Health
Date Data Arrived at EDR: 10/27/2010	Telephone: 703-305-6451
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 12/02/2009
Number of Days to Update: 36	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013	Source: EPA
Date Data Arrived at EDR: 07/03/2013	Telephone: 202-564-6023
Date Made Active in Reports: 09/13/2013	Last EDR Contact: 09/30/2014
Number of Days to Update: 72	Next Scheduled EDR Contact: 01/12/2015
	Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/18/2014
Number of Days to Update: 339	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013	Source: EPA
Date Data Arrived at EDR: 11/06/2013	Telephone: 202-564-2496
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 09/29/2014
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/12/2015
	Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/23/2013	Source: EPA
Date Data Arrived at EDR: 11/06/2013	Telephone: 202-564-2496
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 09/29/2014
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/12/2015
	Data Release Frequency: Annually

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/19/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/20/2014	Telephone: 202-566-1917
Date Made Active in Reports: 07/28/2014	Last EDR Contact: 08/14/2014
Number of Days to Update: 38	Next Scheduled EDR Contact: 12/01/2014
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 03/14/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/11/2014	Telephone: N/A
Date Made Active in Reports: 07/28/2014	Last EDR Contact: 09/10/2014
Number of Days to Update: 47	Next Scheduled EDR Contact: 12/22/2014
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 08/01/2014
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/10/2014
	Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 07/18/2014
Number of Days to Update: 76	Next Scheduled EDR Contact: 10/27/2014
	Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2014	Telephone: 617-520-3000
Date Made Active in Reports: 06/17/2014	Last EDR Contact: 08/15/2014
Number of Days to Update: 88	Next Scheduled EDR Contact: 11/24/2014
	Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

Date of Government Version: N/A	Source: Department Environmental Protection
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 12/30/2013	Last EDR Contact: 06/01/2012
Number of Days to Update: 182	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

Date of Government Version: N/A	Source: Department Environmental Protection
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 01/10/2014	Last EDR Contact: 06/01/2012
Number of Days to Update: 193	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department Environmental Protection in Pennsylvania.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: Department Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/19/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/17/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/07/2014
Date Made Active in Reports: 06/10/2014
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/26/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 03/27/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/17/2014
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 07/21/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013

Date Data Arrived at EDR: 06/20/2014

Date Made Active in Reports: 08/07/2014

Number of Days to Update: 48

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 09/15/2014

Next Scheduled EDR Contact: 12/29/2014

Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facility List

Source: Department of Public Welfare

Telephone: 717-783-3856

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PROPOSED SPEEDWAY 100623
107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

TARGET PROPERTY COORDINATES

Latitude (North):	40.3963 - 40° 23' 46.68"
Longitude (West):	79.4429 - 79° 26' 34.44"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	632148.2
UTM Y (Meters):	4472697.0
Elevation:	989 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	40079-D4 SALTSBURG, PA
Most Recent Revision:	1973

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

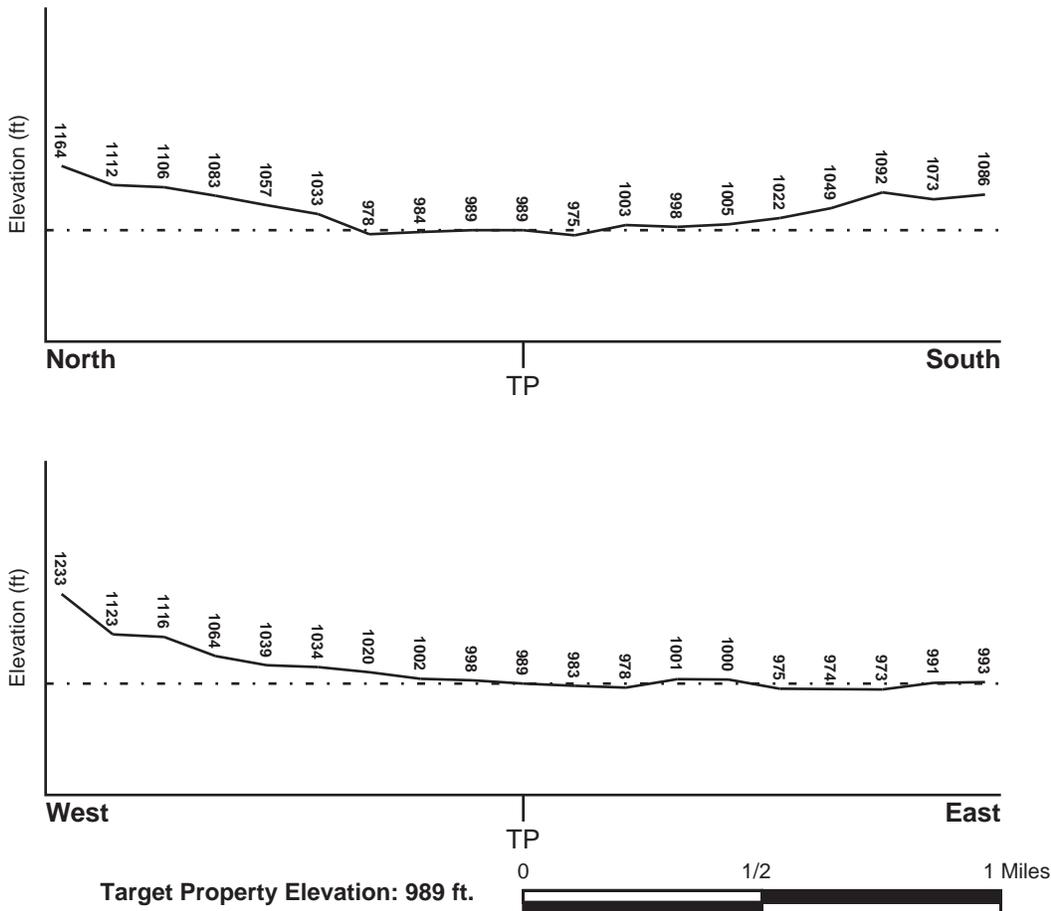
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County
WESTMORELAND, PA

FEMA Flood Electronic Data
YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 42129C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property
SALTSBURG

NWI Electronic Data Coverage
YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

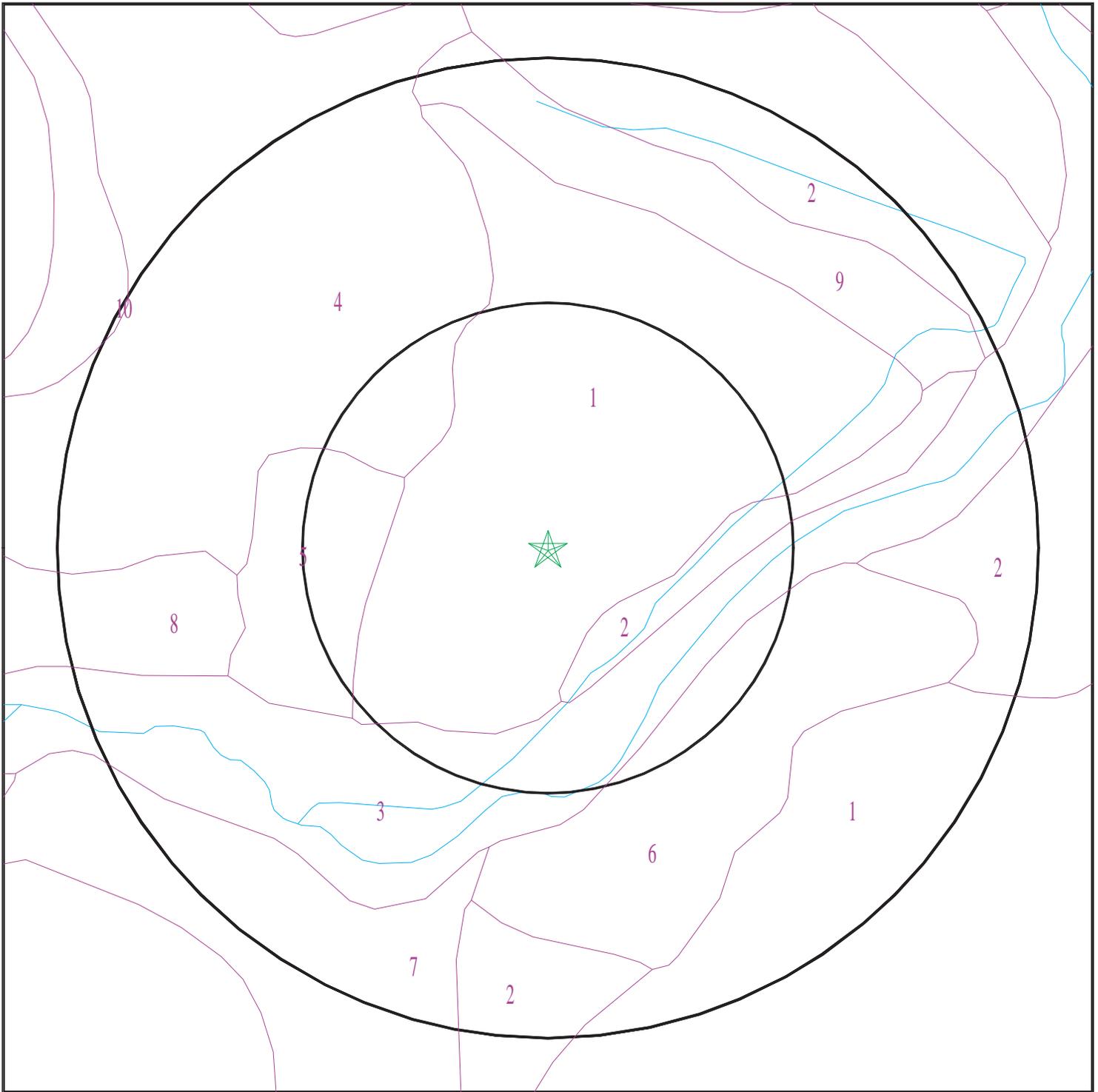
Era: Paleozoic
System: Pennsylvanian
Series: Missourian Series
Code: PP3 (*decoded above as Era, System & Series*)

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4092747.2s



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: Proposed Speedway 100623
ADDRESS: 107 Operators Way
New Alexandria PA 15670
LAT/LONG: 40.3963 / 79.4429

CLIENT: Cardno ATC #48
CONTACT: Chris Carlson
INQUIRY #: 4092747.2s
DATE: October 01, 2014 12:39 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Monongahela

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 53 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 7 Min: 5.1
2	9 inches	28 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 9.17 Min: 2.33	Max: 5.5 Min: 4.5
3	28 inches	62 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4.23 Min: 0.42	Max: 5.5 Min: 4.5
4	62 inches	79 inches	cobbly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4.23 Min: 1.41	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Monongahela

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 53 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 7 Min: 5.1
2	9 inches	28 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 9.17 Min: 2.33	Max: 5.5 Min: 4.5
3	28 inches	62 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4.23 Min: 0.42	Max: 5.5 Min: 4.5
4	62 inches	79 inches	cobbly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4.23 Min: 1.41	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: Linside

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 69 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 7.8 Min: 5.1
2	11 inches	38 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14.11 Min: 1.41	Max: 7.8 Min: 5.1
3	38 inches	64 inches	stratified gravelly sandy loam to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42.34 Min: 1.41	Max: 7.8 Min: 5.6

Soil Map ID: 4

Soil Component Name: Cavode

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 145 inches

Depth to Watertable Min: > 35 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 5.5 Min: 4.5
2	9 inches	46 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.41 Min: 0.42	Max: 5.5 Min: 4.5
3	46 inches	57 inches	channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.41 Min: 0.42	Max: 5.5 Min: 4.5
4	57 inches	61 inches	unweathered bedrock	Not reported	Not reported	Max: 14 Min: 0.42	Max: Min:

Soil Map ID: 5

Soil Component Name: Itmann

Soil Surface Texture: extremely channery loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	extremely channery loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 42.34 Min: 4.23	Max: 5.5 Min: 3.6
2	14 inches	64 inches	extremely channery loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141.14 Min: 14.11	Max: 5.5 Min: 3.6

Soil Map ID: 6

Soil Component Name: Urban land

Soil Surface Texture: extremely channery loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 53 inches

No Layer Information available.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 7

Soil Component Name: Bethesda

Soil Surface Texture: very channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	very channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 5.5 Min: 3.6
2	7 inches	64 inches	extremely channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 4.23 Min: 1.41	Max: 5.5 Min: 3.6

Soil Map ID: 8

Soil Component Name: Ernest

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 53 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 6.5 Min: 5.1
2	7 inches	24 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 1.41	Max: 5.5 Min: 4.5
3	24 inches	50 inches	channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 4.23 Min: 0.42	Max: 5.5 Min: 4.5
4	50 inches	74 inches	channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.33 Min: 0.42	Max: 5.5 Min: 4.5

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 9

Soil Component Name: Weinbach

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 25 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 7.3 Min: 4.5
2	9 inches	29 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4.23 Min: 1.41	Max: 6 Min: 4.5
3	29 inches	64 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.41 Min: 0.42	Max: 6 Min: 4.5
4	64 inches	79 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4.23 Min: 1.41	Max: 6.5 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 10

Soil Component Name: Bethesda

Soil Surface Texture: very channery silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	very channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 4.23	Max: 5.5 Min: 3.6
2	7 inches	64 inches	extremely channery silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 4.23 Min: 1.41	Max: 5.5 Min: 3.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A2	PA5650880	0 - 1/8 Mile SW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A1	PASI30000089768	0 - 1/8 Mile WSW
B3	PASI30000089867	0 - 1/8 Mile WNW
B4	SPAW0102577	0 - 1/8 Mile WNW
C5	SPAW0102718	1/2 - 1 Mile SSE
C6	PASI30000088615	1/2 - 1 Mile SSE
D7	PASI30000089896	1/2 - 1 Mile West
D8	SPAW0102589	1/2 - 1 Mile West
E9	SPAW0101829	1/2 - 1 Mile North
E10	PASI30000091339	1/2 - 1 Mile North
11	PASI30000088201	1/2 - 1 Mile SSE

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

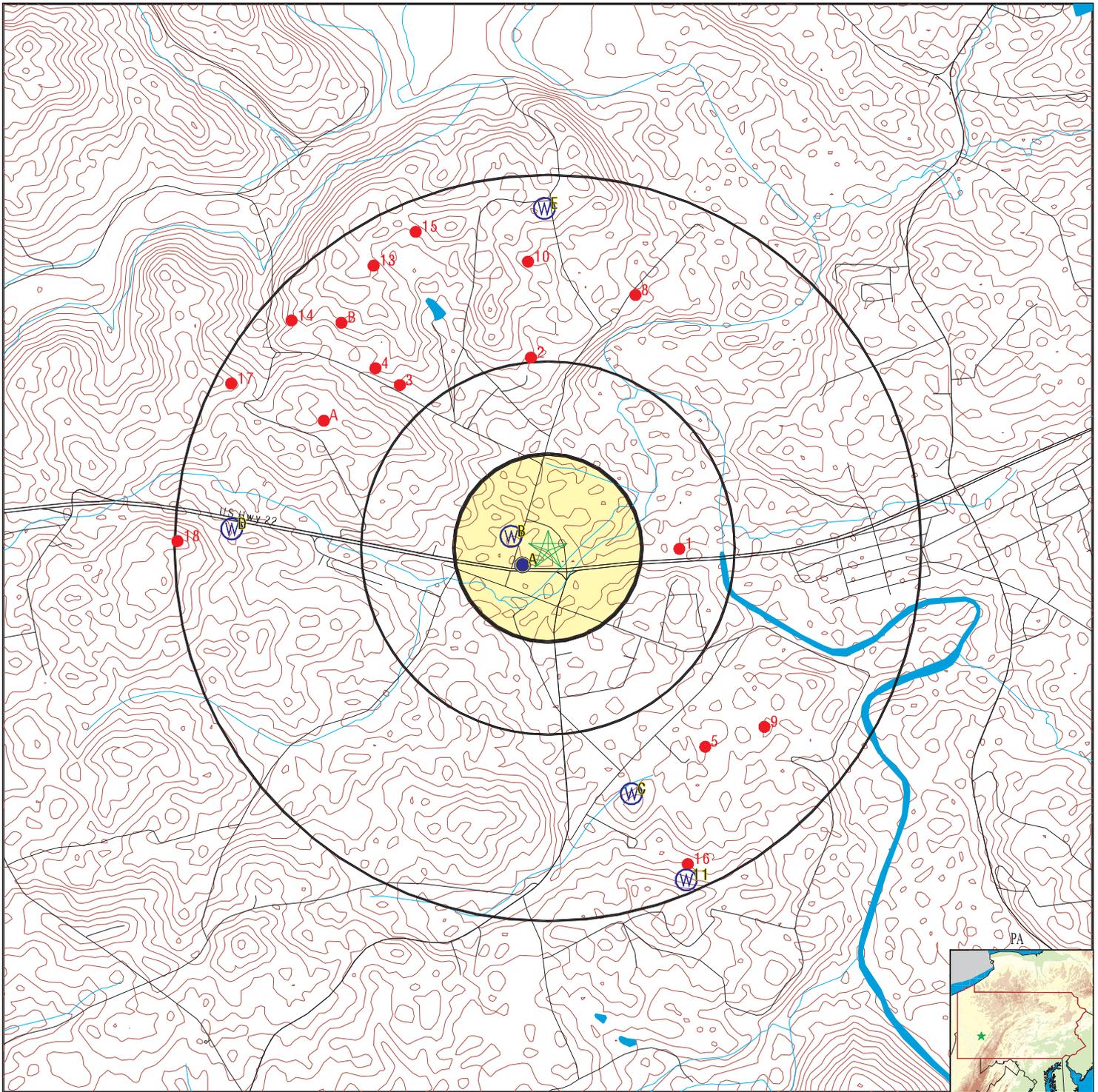
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	PAOG5000004308	1/4 - 1/2 Mile East
2	PAOG50000150350	1/2 - 1 Mile North
3	PAOG50000073160	1/2 - 1 Mile NW
4	PAOG50000150349	1/2 - 1 Mile NW
5	PAOG50000119678	1/2 - 1 Mile SE
A6	PAOG50000046204	1/2 - 1 Mile WNW
A7	PAOG50000050706	1/2 - 1 Mile WNW
8	PAOG50000150351	1/2 - 1 Mile NNE
9	PAOG50000150355	1/2 - 1 Mile SE
10	PAOG50000150357	1/2 - 1 Mile North

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

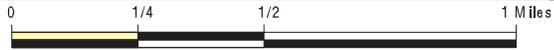
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
B11	PAOG50000110700	1/2 - 1 Mile NW
B12	PAOG50000150379	1/2 - 1 Mile NW
13	PAOG50000137397	1/2 - 1 Mile NNW
14	PAOG50000150358	1/2 - 1 Mile NW
15	PAOG50000134080	1/2 - 1 Mile NNW
16	PAOG50000050032	1/2 - 1 Mile SSE
17	PAOG50000146597	1/2 - 1 Mile WNW
18	PAOG50000137947	1/2 - 1 Mile West

PHYSICAL SETTING SOURCE MAP - 4092747.2s



-  County Boundary
-  Major Roads
-  Contour Lines
-  Earthquake epicenter, Richter 5 or greater
-  Water Wells
-  Public Water Supply Wells
-  Cluster of Multiple Icons

-  Groundwater Flow Direction
-  Indeterminate Groundwater Flow at Location
-  Groundwater Flow Varies at Location
-  Oil, gas or related wells



SITE NAME: Proposed Speedway 100623
 ADDRESS: 107 Operators Way
 New Alexandria PA 15670
 LAT/LONG: 40.3963 / 79.4429

CLIENT: Cardno ATC #48
 CONTACT: Chris Carlson
 INQUIRY #: 4092747.2s
 DATE: October 01, 2014 12:39 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

A1
WSW
0 - 1/8 Mile
Higher

PA WELLS PASI30000089768

Dep counter:	6052	Siteid:	Not Reported
Transactio:	0	Local welln:	Not Reported
County:	WESTMORELAND	Latitude:	Not Reported
Longitude:	Not Reported	Aapg code:	321CSLM
Topography:	Not Reported	Well depth:	125
Elevation:	0		
Elev method:	Not Reported		
Accuracy of elev:	Not Reported	Hydrologic:	Not Reported
Latlong acc:	Not Reported	Quad code:	SALTSBURG
Type of site:	WELL	Date created:	03-FEB-99
Date updated:	04-FEB-99		
Data Reliability:	Not Reported		
Source Depth Data:	Not Reported		
Municipality:	SALEM TWP.		
Latitude dd:	40.3956		
Longitude dd:	-79.4444		
Well address:	Not Reported		
Well zipcode:	Not Reported	Depth to bedrock:	0
Bedrock not:	0	Saltwaterz:	0
Date drilled:	01-JAN-69	Pagwis id:	217030
Source site:	5	Local permit:	Not Reported
Latest owner:	216000	Driller sc:	0
Latest prod:	214308	Latest well:	218418
Site id:	PASI30000089768		

Agency Use Information:			
Counterlink:	6052	Transaction counter:	1
Agency use of sitecode:	OBSERVATION		
Agency usedate:	Not Reported		

Construction Information:			
Recnum flag:	1	Counterlink:	6052
Conscounter:	6368	Transaction counter:	1
Recnum consubrec:	1	Parent seqnum consubrec:	1
Construction date:	01-JAN-88		
Driller:	0330		
Source Cons Data:	WELL OWNER		
Method Cons:	OTHER/UNKNOWN		
Finish:	UNKNOWN		
Drillers well id:	Not Reported		
Interimwell id:	Not Reported	Abandonmentreasoncode:	Not Reported
Construction code:	Not Reported	Original driller:	Not Reported
Original driller name:	Not Reported		

Hole Information:			
Transaction counter:	1	Parent seqnum consubrec:	1
Recnum hole subrec:	1	Top of hole:	0
Bottom of hole:	165	Hole diameter:	6
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Geohydrologic Information:

Counterlink:	6052	Transaction counter:	1
Seqnum geohsubrec:	1	Parent seqnum aqfrsubrec:	Not Reported
Aapg code:	231DIBS	Top of interval:	Not Reported
Lithology:	DIABASE		
Contributing Unit:	PRIMARY		
Bottom of interval:	Not Reported		

Site Water Use Information:

Counterlink:	6052	Transaction counter:	1
Site Use:	WITHDRAWAL		
Water Use:	DOMESTIC		
Date of use:	Not Reported	Note:	Not Reported
Site waterid:	6052		

Production Information:

Counterlink:	6052	Transaction counter:	1
Prod seqnum:	1		
Discharge Type:	PUMPED		
Data Source:	O		
Discharge Meas Method:	Not Reported		
Discharge:	3	Swl:	Not Reported
W L Data Source:	Not Reported		
W L Meas Method:	Not Reported		
Prodwl:	Not Reported	Drawdown:	Not Reported
Speccap:	Not Reported	Test length:	Not Reported
Site Status W L Meas:	Not Reported		
Date discharged:	01-JAN-88		
Conslink:	6368	Production id:	4681

Owner Information:

Counterlink:	6052	Transaction counter:	1
Seqnum owner subrec:	1	Owner:	MOYER, WAYNE
Zipcode:	Not Reported	Owner firstname:	Not Reported
Date ownership:	01-JAN-88	Conslink:	6368
Owner id:	6012		

**A2
SW
0 - 1/8 Mile
Higher**

FRDS PWS PA5650880

Pwsid:	PA5650880	Epa region:	03
State:	PA	County:	Westmoreland
Pws name:	TOOT N SCOOT #18		
Population Served:	100	Pwssvconn:	1
PWS Source:	Groundwater		
Pws type:	TNCWS		
Status:	Closed	Owner type:	Private
Facility id:	001		
Facility name:	WELL #1		
Facility type:	Well	Treatment process:	ion exchange
Treatment objective:	softening (hardness removal)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Latitude dd:	40.3966666667	Depth to bedrock:	38
Longitude dd:	-79.445	Saltwaterz:	0
Well address:	Not Reported	Pagwis id:	147120
Well zipcode:	Not Reported	Local permit:	Not Reported
Bedrock not:	0	Driller sc:	0
Date drilled:	25-JUN-85	Latest well:	148994
Source site:	2		
Latest owner:	146321		
Latest prod:	147295		
Site id:	PASI30000089867		

Hole Information:		Parent seqnum consubrec:	1
Transaction counter:	1	Top of hole:	0
Recnum hole subrec:	1	Hole diameter:	6
Bottom of hole:	165		
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

**B4
WNW
0 - 1/8 Mile
Higher**

PA WELLS SPAW0102577

Well ID:	1622N	County	WESTMORELAND
Owner's Name:	O'BRIEN J	Longitude:	792642
Latitude:	402348	Lat/Long Accuracy:	ACCURATE TO +1 MINUTE
Quadrangle:	SALTSBURG	Topographic Setting:	VALLEY FLAT
Hydrologic Unit:	05010007	Site Usage:	WITHDRAWAL
Water Usage:	DOMESTIC	Finish:	OPEN HOLE
Well Depth:	80	Casing1 Diameter(inches):	6
Casing 1:	40	Casing2 Diameter(inches):	Not Reported
Casing2:	Not Reported	Date Drilled:	6-25-85
Grouted:	No	Production WL:	Not Reported
Static Water Level:	Not Reported	Yield Measurement Method:	B
Yield (gpm):	10	Test Time:	Not Reported
Drawdown:	Not Reported	Driller:	474
Bedrock:	38	Water Bearing Zone 2:	Not Reported
Water Bearing Zone 1:	42	Lithology:	Not Reported
Water Bearing Zone 3:	Not Reported	Remark:	CAS MAT=STEEL
Municipality:	SALEM		
Aquifer:	CASSELMAN FORMATION		

**C5
SSE
1/2 - 1 Mile
Lower**

PA WELLS SPAW0102718

Well ID:	X 1048	County	WESTMORELAND
Owner's Name:	SCAGLIONE L	Longitude:	792620
Latitude:	402312	Lat/Long Accuracy:	ACCURATE TO +1 MINUTE
Quadrangle:	SALTSBURG	Topographic Setting:	VALLEY FLAT
Hydrologic Unit:	Not Reported	Site Usage:	WITHDRAWAL
Water Usage:	DOMESTIC	Finish:	OPEN HOLE
Well Depth:	105	Casing1 Diameter(inches):	6
Casing 1:	21	Casing2 Diameter(inches):	Not Reported
Casing2:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Grouted:	Not Reported	Date Drilled:	00-00-00
Static Water Level:	50	Production WL:	Not Reported
Yield (gpm):	8	Yield Measurement Method:	0
Drawdown:	55	Test Time:	2
Bedrock:	5	Driller:	0738
Water Bearing Zone 1:	30	Water Bearing Zone 2:	80
Water Bearing Zone 3:	Not Reported	Lithology:	Not Reported
Municipality:	SALEM	Remark:	1510
Aquifer:	CONEMAUGH GROUP		

C6
SSE
1/2 - 1 Mile
Lower

PA WELLS PASI30000088615

Dep counter:	0	Siteid:	Not Reported
Transactio:	0	Local welln:	X 1048
County:	WESTMORELAND	Latitude:	Not Reported
Longitude:	Not Reported	Aapg code:	321CNMG
Topography:	VALLEY FLAT	Well depth:	105
Elevation:	0		
Elev method:	Not Reported		
Accuracy of elev:	Not Reported	Hydrologic:	Not Reported
Latlong acc:	ACCURATE TO +1 MINUTE	Quad code:	SALTSBURG
Type of site:	WELL	Date created:	03-FEB-99
Date updated:	04-FEB-99		
Data Reliability:	LOCATION MAY NOT BE ACCURATE (WWI paper)		
Source Depth Data:	DRILLER'S RECORD		
Municipality:	SALEM TWP.		
Latitude dd:	40.3866666667		
Longitude dd:	-79.4388888889		
Well address:	Not Reported		
Well zipcode:	Not Reported		
Bedrock not:	0	Depth to bedrock:	5
Date drilled:	16-JUN-97	Saltwaterz:	0
Source site:	2	Pagwis id:	147261
Latest owner:	146462	Local permit:	Not Reported
Latest prod:	147435	Driller sc:	0
Site id:	PASI30000088615	Latest well:	149135

Hole Information:			
Transaction counter:	1	Parent seqnum consubrec:	1
Recnum hole subrec:	1	Top of hole:	0
Bottom of hole:	165	Hole diameter:	6
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

D7
West
1/2 - 1 Mile
Higher

PA WELLS PASI30000089896

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dep counter:	0	Siteid:	Not Reported
Transactio:	0	Local welln:	1634N
County:	WESTMORELAND	Latitude:	Not Reported
Longitude:	Not Reported	Aapg code:	321MNGL
Topography:	FLAT SURFACE	Well depth:	200
Elevation:	0		
Elev method:	Not Reported		
Accuracy of elev:	Not Reported	Hydrologic:	05010007
Latlong acc:	ACCURATE TO +1 MINUTE	Quad code:	SALTSBURG
Type of site:	WELL	Date created:	03-FEB-99
Date updated:	04-FEB-99		
Data Reliability:	LOCATION MAY NOT BE ACCURATE (WWI paper)		
Source Depth Data:	DRILLER'S RECORD		
Municipality:	SALEM TWP.		
Latitude dd:	40.3969444444		
Longitude dd:	-79.4591666667		
Well address:	Not Reported		
Well zipcode:	Not Reported	Depth to bedrock:	40
Bedrock not:	0	Saltwaterz:	0
Date drilled:	26-OCT-84	Pagwis id:	147132
Source site:	2	Local permit:	Not Reported
Latest owner:	146333	Driller sc:	0
Latest prod:	147307	Latest well:	149006
Site id:	PASI30000089896		

Hole Information:			
Transaction counter:	1	Parent seqnum consubrec:	1
Recnum hole subrec:	1	Top of hole:	0
Bottom of hole:	165	Hole diameter:	6
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

D8
West
1/2 - 1 Mile
Higher

PA WELLS SPAW0102589

Well ID:	1634N	County	WESTMORELAND
Owner's Name:	RIZZO S	Longitude:	792733
Latitude:	402349	Lat/Long Accuracy:	ACCURATE TO +1 MINUTE
Quadrangle:	SALTSBURG	Topographic Setting:	FLAT SURFACE
Hydrologic Unit:	05010007	Site Usage:	WITHDRAWAL
Water Usage:	INDUSTRIAL	Finish:	OPEN HOLE
Well Depth:	200	Casing1 Diameter(inches):	6
Casing 1:	40	Casing2 Diameter(inches):	Not Reported
Casing2:	Not Reported	Date Drilled:	10-26-84
Grouted:	Not Reported	Production WL:	Not Reported
Static Water Level:	Not Reported	Yield Measurement Method:	B
Yield (gpm):	3	Test Time:	Not Reported
Drawdown:	Not Reported	Driller:	474
Bedrock:	40	Water Bearing Zone 2:	Not Reported
Water Bearing Zone 1:	80	Lithology:	SHALE
Water Bearing Zone 3:	Not Reported	Remark:	Not Reported
Municipality:	SALEM		
Aquifer:	MONONGAHELA GROUP		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

E9
North
1/2 - 1 Mile
Higher

PA WELLS SPAW0101829

Well ID:	1758N	County:	WESTMORELAND
Owner's Name:	MORRING C	Longitude:	792636
Latitude:	402434	Lat/Long Accuracy:	ACCURATE TO +1 MINUTE
Quadrangle:	SALTSBURG	Topographic Setting:	HILLSIDE
Hydrologic Unit:	05010008	Site Usage:	WITHDRAWAL
Water Usage:	DOMESTIC	Finish:	OPEN HOLE
Well Depth:	120	Casing1 Diameter(inches):	6
Casing 1:	21	Casing2 Diameter(inches):	Not Reported
Casing2:	Not Reported	Date Drilled:	2-9-84
Grouted:	Yes	Production WL:	Not Reported
Static Water Level:	Not Reported	Yield Measurement Method:	Not Reported
Yield (gpm):	7	Test Time:	Not Reported
Drawdown:	Not Reported	Driller:	474
Bedrock:	21	Water Bearing Zone 2:	Not Reported
Water Bearing Zone 1:	40	Lithology:	SHALE
Water Bearing Zone 3:	Not Reported	Remark:	CAS MAT=STEEL
Municipality:	DERRY		
Aquifer:	CASSELMAN FORMATION		

E10
North
1/2 - 1 Mile
Higher

PA WELLS PASI30000091339

Dep counter:	0	Siteid:	Not Reported
Transactio:	0	Local welln:	1758N
County:	WESTMORELAND	Latitude:	Not Reported
Longitude:	Not Reported	Aapg code:	321CSLM
Topography:	HILLSIDE	Well depth:	120
Elevation:	0		
Elev method:	Not Reported	Hydrologic:	05010008
Accuracy of elev:	Not Reported	Quad code:	SALTSBURG
Latlong acc:	ACCURATE TO +1 MINUTE	Date created:	03-FEB-99
Type of site:	WELL		
Date updated:	04-FEB-99		
Data Reliability:	LOCATION MAY NOT BE ACCURATE (WWI paper)		
Source Depth Data:	DRILLER'S RECORD		
Municipality:	DERRY TWP.		
Latitude dd:	40.4094444444		
Longitude dd:	-79.4433333333		
Well address:	Not Reported		
Well zipcode:	Not Reported		
Bedrock not:	0	Depth to bedrock:	21
Date drilled:	09-FEB-84	Saltwaterz:	0
Source site:	2	Pagwis id:	146372
Latest owner:	145573	Local permit:	Not Reported
Latest prod:	146554	Driller sc:	0
		Latest well:	148247

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Site id: PASI30000091339

Hole Information:

Transaction counter:	1	Parent seqnum consubrec:	1
Recnum hole subrec:	1	Top of hole:	0
Bottom of hole:	165	Hole diameter:	6
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

**11
SSE
1/2 - 1 Mile
Higher**

PA WELLS PASI30000088201

Dep counter:	0	Siteid:	Not Reported
Transactio:	0	Local welln:	Not Reported
County:	WESTMORELAND	Latitude:	Not Reported
Longitude:	Not Reported	Aapg code:	Not Reported
Topography:	Not Reported	Well depth:	250
Elevation:	0		
Elev method:	Not Reported		
Accuracy of elev:	Not Reported	Hydrologic:	Not Reported
Latlong acc:	Not Reported	Quad code:	0
Type of site:	WELL	Date created:	25-APR-07
Date updated:	04-FEB-99		
Data Reliability:	Not Reported		
Source Depth Data:	Not Reported		
Municipality:	EXPORT BORO		
Latitude dd:	40.3833333333		
Longitude dd:	-79.4361111111		
Well address:	5938 GRAYBROOK DRIVE, EXPORT		
Well zipcode:	15632	Depth to bedrock:	18
Bedrock not:	0	Saltwaterz:	0
Date drilled:	22-AUG-06	Pagwis id:	0
Source site:	3	Local permit:	Not Reported
Latest owner:	492125	Driller sc:	1
Latest prod:	225461	Latest well:	232491
Site id:	PASI30000088201		

Hole Information:

Transaction counter:	1	Parent seqnum consubrec:	1
Recnum hole subrec:	1	Top of hole:	0
Bottom of hole:	165	Hole diameter:	6
Remarks:	Not Reported		
Conslink:	6052	Hole counter:	3282

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
East
1/4 - 1/2 Mile

OIL_GAS PAOG5000004308

Organizati:	KRIEBEL MINERALS INC		
Client nam:	KRIEBEL MINERALS INC		
Site name:	S STEELE 001 OG WELL		
Primary fa:	S STEELE 001		
Client id:	134908		
Primary 1:	713707		
Sub facili:	S STEELE 001		
Sub faci 1:	981646		
Primary 2:	Oil & Gas Location		
Primary 3:	NonCoal		
Other faci:	129-27762		
Sub faci 2:	Well		
Sother id:	129-27762		
Client rel:	Owner		
Site statu:	Proposed But Never Materialized		
Primary 4:	Operator Reported Not Drilled		
Sub faci 3:	401		
Compliance:	YES	Pa site id:	714605
Site id:	PAOG5000004308		

2
North
1/2 - 1 Mile

OIL_GAS PAOG50000150350

Organizati:	DORAN ASSOC INC		
Client nam:	DORAN ASSOC INC		
Site name:	WARREN E FENNELL 3 WELL		
Primary fa:	WARREN E FENNELL 3		
Client id:	64619		
Primary 1:	235914		
Sub facili:	WARREN E FENNELL 3		
Sub faci 1:	192310		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-22005		
Sub faci 2:	Well		
Sother id:	129-22005		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	233937
Site id:	PAOG50000150350		

3
NW
1/2 - 1 Mile

OIL_GAS PAOG50000073160

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Organizati:	INTERSTATE GAS MKT INC		
Client nam:	INTERSTATE GAS MKT INC		
Site name:	D SHAW 6 OG WELL		
Primary fa:	D SHAW 6		
Client id:	47315		
Primary 1:	662538		
Sub facili:	D SHAW 6		
Sub faci 1:	842377		
Primary 2:	Oil & Gas Location		
Primary 3:	NonCoal		
Other faci:	129-25611		
Sub faci 2:	Well		
Sother id:	129-25611		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	648457
Site id:	PAOG50000073160		

**4
NW
1/2 - 1 Mile**

OIL_GAS PAOG50000150349

Organizati:	DORAN ASSOC INC		
Client nam:	DORAN ASSOC INC		
Site name:	DAVID M SHAW 4 WELL		
Primary fa:	DAVID M SHAW 4		
Client id:	64619		
Primary 1:	235705		
Sub facili:	DAVID M SHAW 4		
Sub faci 1:	192101		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-21795		
Sub faci 2:	Well		
Sother id:	129-21795		
Client rel:	Owner		
Site statu:	Proposed But Never Materialized		
Primary 4:	Proposed But Never Materialized		
Sub faci 3:	6		
Compliance:	YES	Pa site id:	233728
Site id:	PAOG50000150349		

**5
SE
1/2 - 1 Mile**

OIL_GAS PAOG50000119678

Organizati:	KRIEBEL MINERALS INC		
Client nam:	KRIEBEL MINERALS INC		
Site name:	M DULL 001 OG WELL		
Primary fa:	M DULL 001		
Client id:	134908		
Primary 1:	713966		
Sub facili:	M DULL 001		
Sub faci 1:	982011		
Primary 2:	Oil & Gas Location		
Primary 3:	NonCoal		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Other faci: 129-27772
 Sub faci 2: Well
 Sother id: 129-27772
 Client rel: Owner
 Site statu: Proposed But Never Materialized
 Primary 4: Operator Reported Not Drilled
 Sub faci 3: 401
 Compliance: YES Pa site id: 714907
 Site id: PAOG50000119678

**A6
WNW
1/2 - 1 Mile**

OIL_GAS PAOG50000046204

Organizati: INTERSTATE GAS MKT INC
 Client nam: INTERSTATE GAS MKT INC
 Site name: D SHAW 7 OG WELL
 Primary fa: D SHAW 7
 Client id: 47315
 Primary 1: 662539
 Sub facili: D SHAW 7
 Sub faci 1: 842378
 Primary 2: Oil & Gas Location
 Primary 3: NonCoal
 Other faci: 129-25612
 Sub faci 2: Well
 Sother id: 129-25612
 Client rel: Owner
 Site statu: Proposed But Never Materialized
 Primary 4: Operator Reported Not Drilled
 Sub faci 3: 401
 Compliance: YES Pa site id: 648459
 Site id: PAOG50000046204

**A7
WNW
1/2 - 1 Mile**

OIL_GAS PAOG50000050706

Organizati: INTERSTATE GAS MKT INC
 Client nam: INTERSTATE GAS MKT INC
 Site name: D SHAW 7 OG WELL
 Primary fa: D SHAW 7
 Client id: 47315
 Primary 1: 676908
 Sub facili: D SHAW 7
 Sub faci 1: 914162
 Primary 2: Oil & Gas Location
 Primary 3: NonCoal
 Other faci: 129-26210
 Sub faci 2: Well
 Sother id: 129-26210
 Client rel: Owner
 Site statu: Active
 Primary 4: Active
 Sub faci 3: 4
 Compliance: YES Pa site id: 667469
 Site id: PAOG50000050706

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

8
NNE
1/2 - 1 Mile

OIL_GAS PAOG50000150351

Organizati:	DORAN ASSOC INC		
Client nam:	DORAN ASSOC INC		
Site name:	WARREN E FENNELL 2 WELL		
Primary fa:	WARREN E FENNELL 2		
Client id:	64619		
Primary 1:	235913		
Sub facili:	WARREN E FENNELL 2		
Sub faci 1:	192309		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-22004		
Sub faci 2:	Well		
Sother id:	129-22004		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	233936
Site id:	PAOG50000150351		

9
SE
1/2 - 1 Mile

OIL_GAS PAOG50000150355

Organizati:	PEOPLES TWP LLC		
Client nam:	PEOPLES TWP LLC		
Site name:	GEORGE G & JC MOFFAT 1 WELL		
Primary fa:	GEORGE G&J C MOFFAT 1		
Client id:	24453		
Primary 1:	234057		
Sub facili:	GEORGE G&J C MOFFAT 1		
Sub faci 1:	190451		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-20143		
Sub faci 2:	Well		
Sother id:	129-20143		
Client rel:	Owner		
Site statu:	Inactive		
Primary 4:	Plugged OG Well		
Sub faci 3:	361		
Compliance:	YES	Pa site id:	232080
Site id:	PAOG50000150355		

10
North
1/2 - 1 Mile

OIL_GAS PAOG50000150357

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Organizati: DORAN ASSOC INC
 Client nam: DORAN ASSOC INC
 Site name: WARREN E FENNELL 1 WELL
 Primary fa: WARREN E FENNELL 1
 Client id: 64619
 Primary 1: 235912
 Sub facili: WARREN E FENNELL 1
 Sub faci 1: 192308
 Primary 2: Oil & Gas Location
 Primary 3: Coal
 Other faci: 129-22003
 Sub faci 2: Well
 Sother id: 129-22003
 Client rel: Owner
 Site statu: Active
 Primary 4: Active
 Sub faci 3: 4
 Compliance: YES Pa site id: 233935
 Site id: PAOG50000150357

**B11
NW
1/2 - 1 Mile**

OIL_GAS PAOG50000110700

Organizati: INTERSTATE GAS MKT INC
 Client nam: INTERSTATE GAS MKT INC
 Site name: D SHAW 5 OG WELL
 Primary fa: D SHAW 5
 Client id: 47315
 Primary 1: 662537
 Sub facili: D SHAW 5
 Sub faci 1: 842376
 Primary 2: Oil & Gas Location
 Primary 3: NonCoal
 Other faci: 129-25610
 Sub faci 2: Well
 Sother id: 129-25610
 Client rel: Owner
 Site statu: Active
 Primary 4: Active
 Sub faci 3: 4
 Compliance: YES Pa site id: 648455
 Site id: PAOG50000110700

**B12
NW
1/2 - 1 Mile**

OIL_GAS PAOG50000150379

Organizati: PEOPLES TWP LLC
 Client nam: PEOPLES TWP LLC
 Site name: EIDEMILLER ENTERPRISES 1 WELL
 Primary fa: EIDEMILLER ENTERPRISES 1
 Client id: 24453
 Primary 1: 234072
 Sub facili: EIDEMILLER ENTERPRISES 1
 Sub faci 1: 190467
 Primary 2: Oil & Gas Location
 Primary 3: Coal

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Other faci:	129-20157		
Sub faci 2:	Well		
Sother id:	129-20157		
Client rel:	Owner		
Site statu:	Inactive		
Primary 4:	Plugged OG Well		
Sub faci 3:	361		
Compliance:	YES	Pa site id:	232095
Site id:	PAOG50000150379		

**13
NNW
1/2 - 1 Mile**

OIL_GAS PAOG50000137397

Organizati:	INTERSTATE GAS MKT INC		
Client nam:	INTERSTATE GAS MKT INC		
Site name:	D SHAW 4 OG WELL		
Primary fa:	D SHAW 4		
Client id:	47315		
Primary 1:	662536		
Sub facili:	D SHAW 4		
Sub faci 1:	842373		
Primary 2:	Oil & Gas Location		
Primary 3:	NonCoal		
Other faci:	129-25609		
Sub faci 2:	Well		
Sother id:	129-25609		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	648454
Site id:	PAOG50000137397		

**14
NW
1/2 - 1 Mile**

OIL_GAS PAOG50000150358

Organizati:	INTERSTATE GAS MKT INC		
Client nam:	INTERSTATE GAS MKT INC		
Site name:	DAVID M SHAW 2 WELL		
Primary fa:	DAVID M SHAW 2		
Client id:	47315		
Primary 1:	235213		
Sub facili:	DAVID M SHAW 2		
Sub faci 1:	191609		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-21300		
Sub faci 2:	Well		
Sother id:	129-21300		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	233236
Site id:	PAOG50000150358		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

15
NNW
1/2 - 1 Mile

OIL_GAS PAOG50000134080

Organizati:	INTERSTATE GAS MKT INC		
Client nam:	INTERSTATE GAS MKT INC		
Site name:	DAVID M SHAW 3 WELL		
Primary fa:	DAVID M SHAW 3		
Client id:	47315		
Primary 1:	235271		
Sub facili:	DAVID M SHAW 3		
Sub faci 1:	191667		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-21357		
Sub faci 2:	Well		
Sother id:	129-21357		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	233294
Site id:	PAOG50000134080		

16
SSE
1/2 - 1 Mile

OIL_GAS PAOG50000050032

Organizati:	CNX GAS CO LLC		
Client nam:	CNX GAS CO LLC		
Site name:	EIDEMILLER ENTERPRISES 1 OG WELL		
Primary fa:	EIDEMILLER ENTERPRISES 1		
Client id:	159257		
Primary 1:	236476		
Sub facili:	EIDEMILLER ENTERPRISES 1		
Sub faci 1:	192873		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-22612		
Sub faci 2:	Well		
Sother id:	129-22612		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	234499
Site id:	PAOG50000050032		

17
WNW
1/2 - 1 Mile

OIL_GAS PAOG50000146597

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Organizati:	KRIEBEL GAS INC		
Client nam:	KRIEBEL GAS INC		
Site name:	HORNOCK 001 WELL		
Primary fa:	HORNOCK 001		
Client id:	69637		
Primary 1:	236743		
Sub facili:	HORNOCK 001		
Sub faci 1:	193140		
Primary 2:	Oil & Gas Location		
Primary 3:	Coal		
Other faci:	129-22893		
Sub faci 2:	Well		
Sother id:	129-22893		
Client rel:	Owner		
Site statu:	Inactive		
Primary 4:	Plugged OG Well		
Sub faci 3:	361		
Compliance:	YES	Pa site id:	234766
Site id:	PAOG50000146597		

18
West
1/2 - 1 Mile

OIL_GAS

PAOG50000137947

Organizati:	XTO ENERGY INC		
Client nam:	XTO ENERGY INC		
Site name:	NEWHOUSE & JOHNSTON 2 OG WELL		
Primary fa:	NEWHOUSE & JOHNSTON 2		
Client id:	265476		
Primary 1:	697667		
Sub facili:	NEWHOUSE & JOHNSTON 2		
Sub faci 1:	953191		
Primary 2:	Oil & Gas Location		
Primary 3:	NonCoal		
Other faci:	129-27116		
Sub faci 2:	Well		
Sother id:	129-27116		
Client rel:	Owner		
Site statu:	Active		
Primary 4:	Active		
Sub faci 3:	4		
Compliance:	YES	Pa site id:	694700
Site id:	PAOG50000137947		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: PA Radon

Radon Test Results

Zipcode	Num Tests	Min pCi/L	Max pCi/L	Avg pCi/L
15670	97	0.4	70.2	9.7

EPA Region 3 Statistical Summary Readings for Zip Code: 15670

Number of sites tested: 64.

Maximum Radon Level: 30.9 pCi/L.

Minimum Radon Level: 0.2 pCi/L.

pCi/L <4	pCi/L 4-10	pCi/L 10-20	pCi/L 20-50	pCi/L 50-100	pCi/L >100
28 (43.75%)	16 (25.00%)	11 (17.19%)	9 (14.06%)	0 (0.00%)	0 (0.00%)

Federal EPA Radon Zone for WESTMORELAND County: 1

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Pennsylvania Public Water Supply Wells

Source: Pennsylvania Department of Environmental Resources Bureau of Water Supply

Telephone: 717-787-5017

Pennsylvania Groundwater Information System

Source: Department of Conservation and Natural Resources

Telephone: 717-702-2045

OTHER STATE DATABASE INFORMATION

Pennsylvania Oil and Gas Locations

Source: Pennsylvania Department of Environmental Protection

Telephone: 814-863-0104

An Oil and Gas Location is a DEP primary facility type related to the Oil & Gas Program. The sub-facility types related to Oil and Gas that are included in this layer are: Land Application -- An area where drilling cuttings or waste are disposed by land application; Well-- A well associated with oil and/or gas production; Pit -- An approved pit that is used for storage of oil and gas well fluids. Some sub facility types are not included in this layer due to security policies.

RADON

State Database: PA Radon

Source: Department of Environmental Protection

Telephone: 717-783-3594

Radon Test Results Statistics by Zip Code

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Region 3 Statistical Summary Readings

Source: Region 3 EPA

Telephone: 215-814-2082

Radon readings for Delaware, D.C., Maryland, Pennsylvania, Virginia and West Virginia.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

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Proposed Speedway Store #100623

APPENDIX D
HISTORICAL RESEARCH
DOCUMENTATION



Proposed Speedway 100623

107 Operators Way

New Alexandria, PA 15670

Inquiry Number: 4092747.9

October 01, 2014

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Date EDR Searched Historical Sources:

Aerial Photography October 01, 2014

Target Property:

107 Operators Way

New Alexandria, PA 15670

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1939	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1939	USDA
1948	Aerial Photograph. Scale: 1"=1000'	Flight Date: September 01, 1948	EDR
1957	Aerial Photograph. Scale: 1"=500'	Flight Date: May 08, 1957	EDR
1967	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1967	USDA
1973	Aerial Photograph. Scale: 1"=1000'	Flight Date: January 25, 1973	EDR
1982	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1982	USGS
1995	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: March 14, 1995	USGS/DOQQ
2002	Aerial Photograph. Scale: 1"=750'	Flight Date: April 10, 2002	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP



SITE

INQUIRY #: 4092747.9

YEAR: 1939

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 1948

| = 1000'





SITE

INQUIRY #: 4092747.9

YEAR: 1957

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 1967

| = 500'





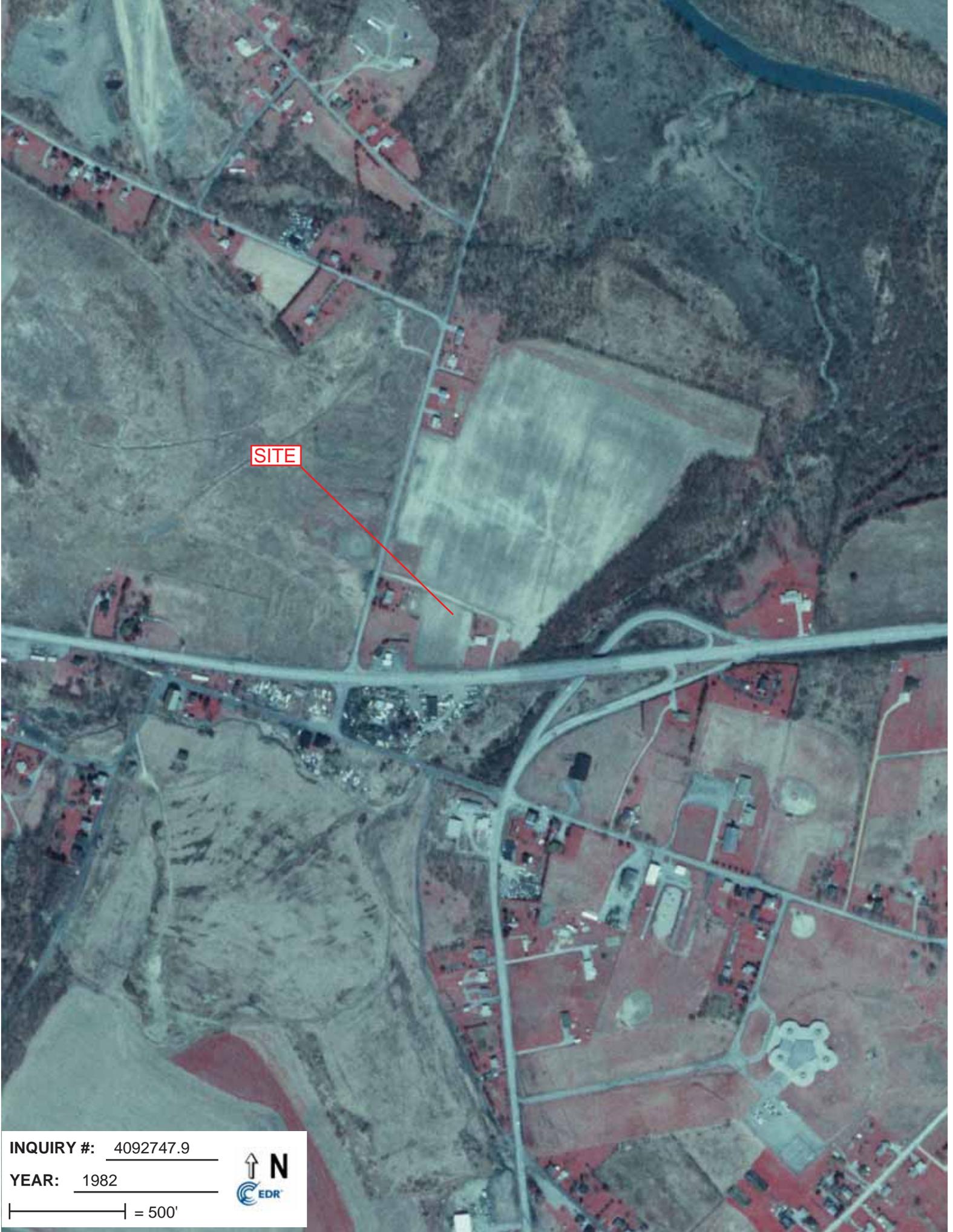
SITE

INQUIRY #: 4092747.9

YEAR: 1973

| = 1000'





SITE

INQUIRY #: 4092747.9

YEAR: 1982

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 1995

| = 500'





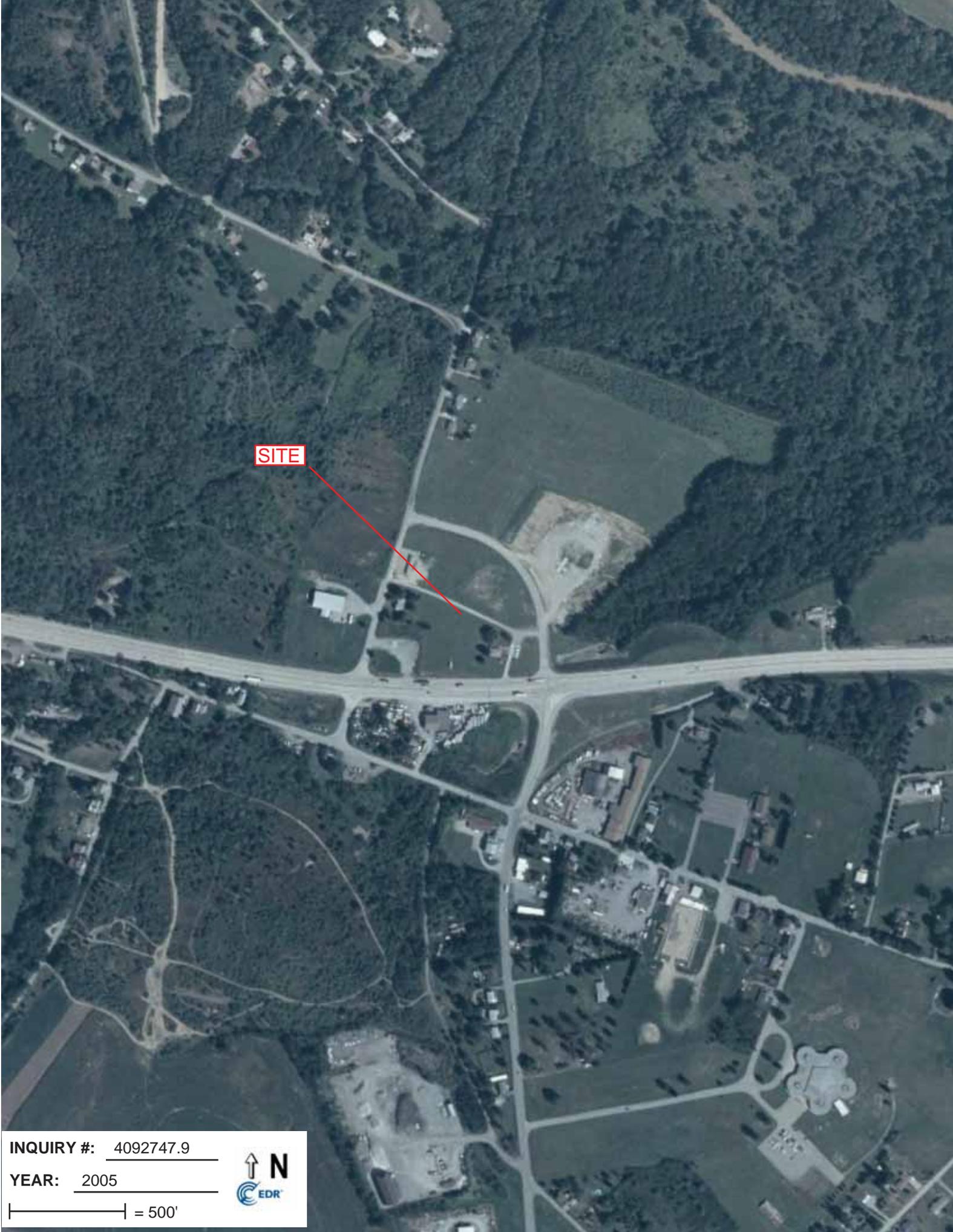
SITE

INQUIRY #: 4092747.9

YEAR: 2002

| = 750'





SITE

INQUIRY #: 4092747.9

YEAR: 2005

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 2006

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 2008

| = 500'





SITE

INQUIRY #: 4092747.9

YEAR: 2010

| = 500'





Proposed Speedway 100623

107 Operators Way

New Alexandria, PA 15670

Inquiry Number: 4092747.3

October 01, 2014

Certified Sanborn® Map Report



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/01/14

Site Name:

Proposed Speedway 100623
107 Operators Way
New Alexandria, PA 15670

Client Name:

Cardno ATC #48
103 North Meadows Drive
Wexford, PA 15090

EDR Inquiry # 4092747.3

Contact: Chris Carlson



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Cardno ATC #48 were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Proposed Speedway 100623
Address: 107 Operators Way
City, State, Zip: New Alexandria, PA 15670
Cross Street:
P.O. # NA
Project: Proposed Speedway 100623
Certification # 4158-4C96-9B00



Sanborn® Library search results
Certification # 4158-4C96-9B00

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

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Proposed Speedway 100623

107 Operators Way

New Alexandria, PA 15670

Inquiry Number: 4092747.4

October 01, 2014

EDR Historical Topographic Map Report



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

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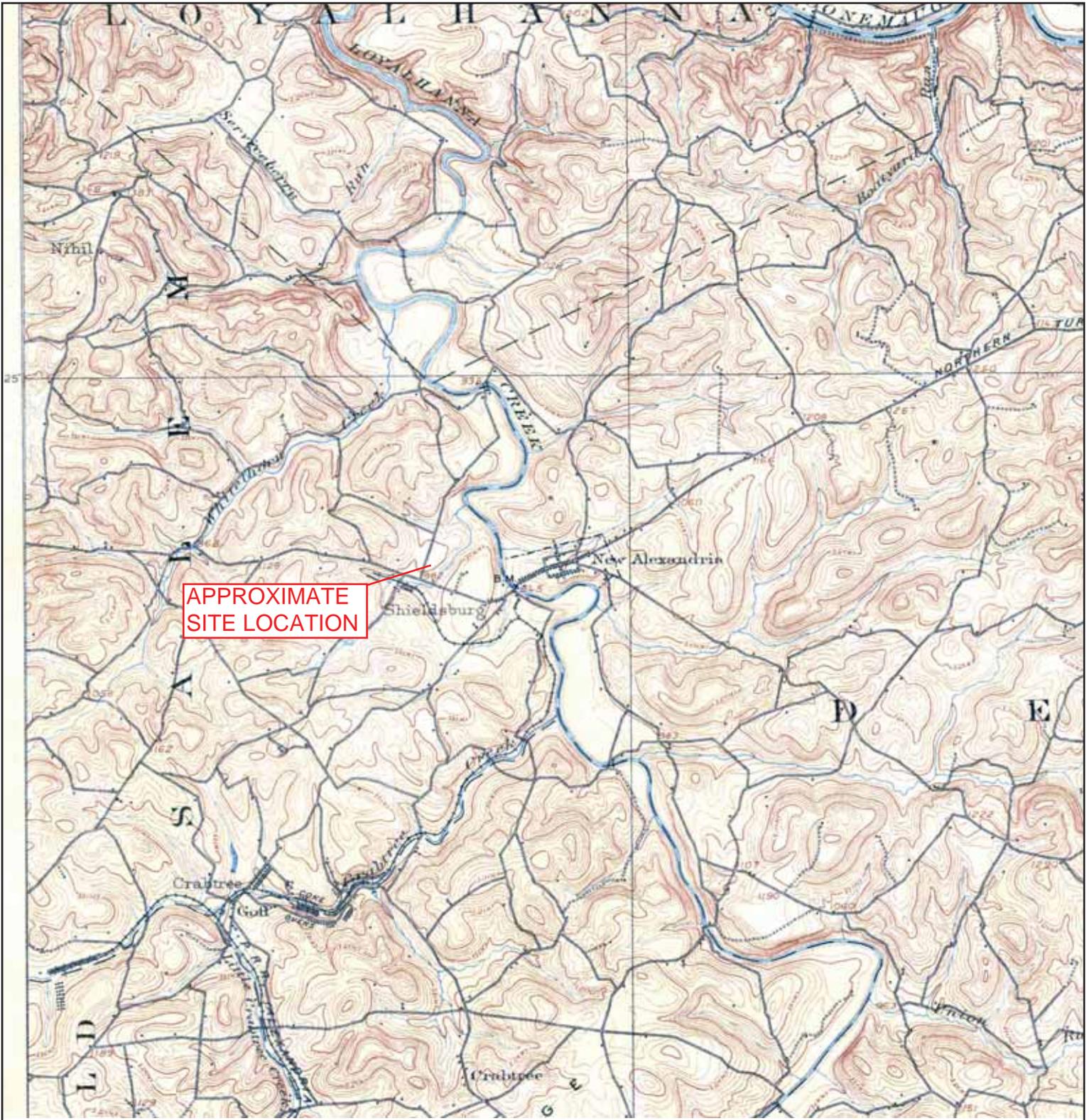
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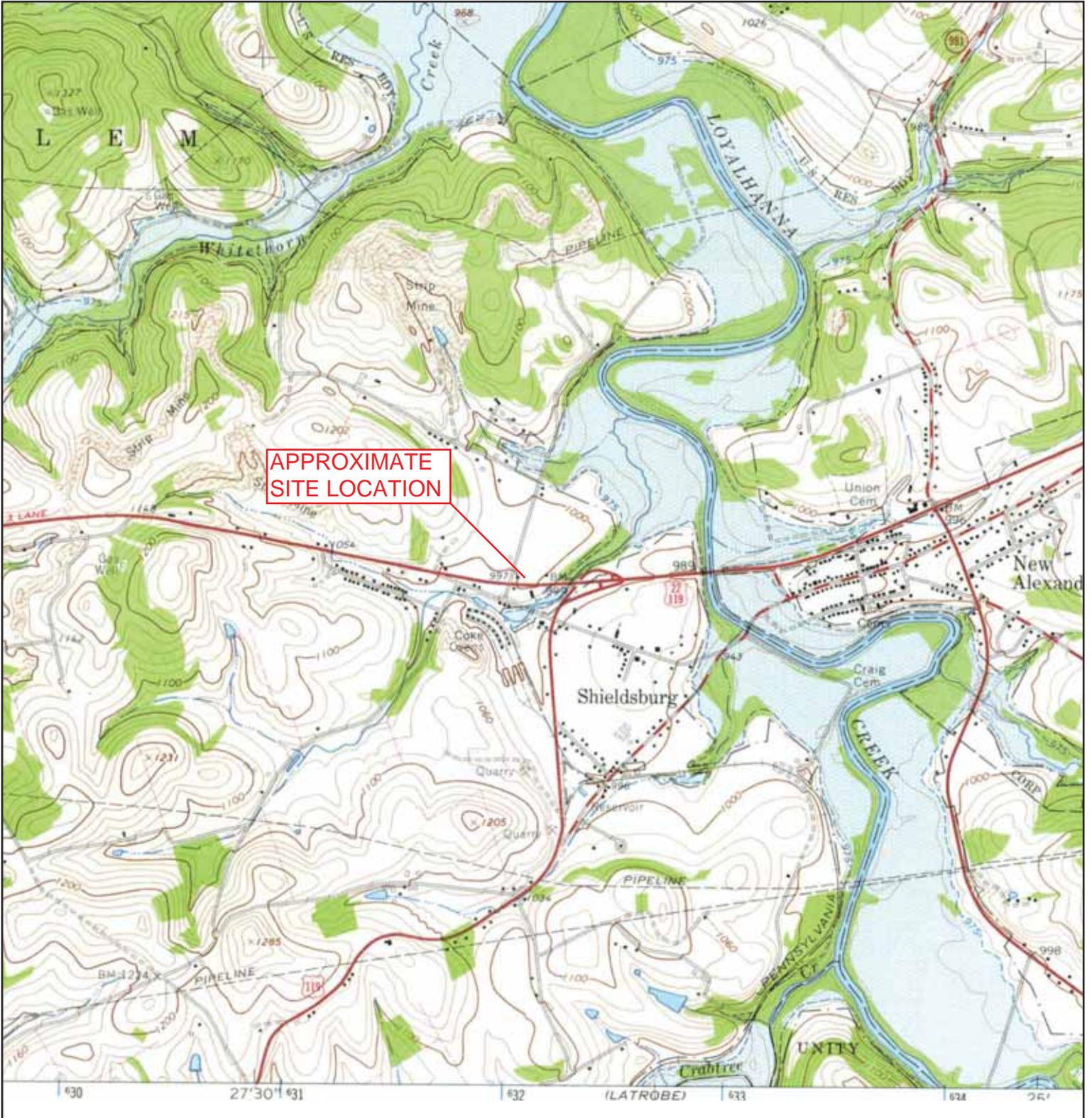
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Historical Topographic Map



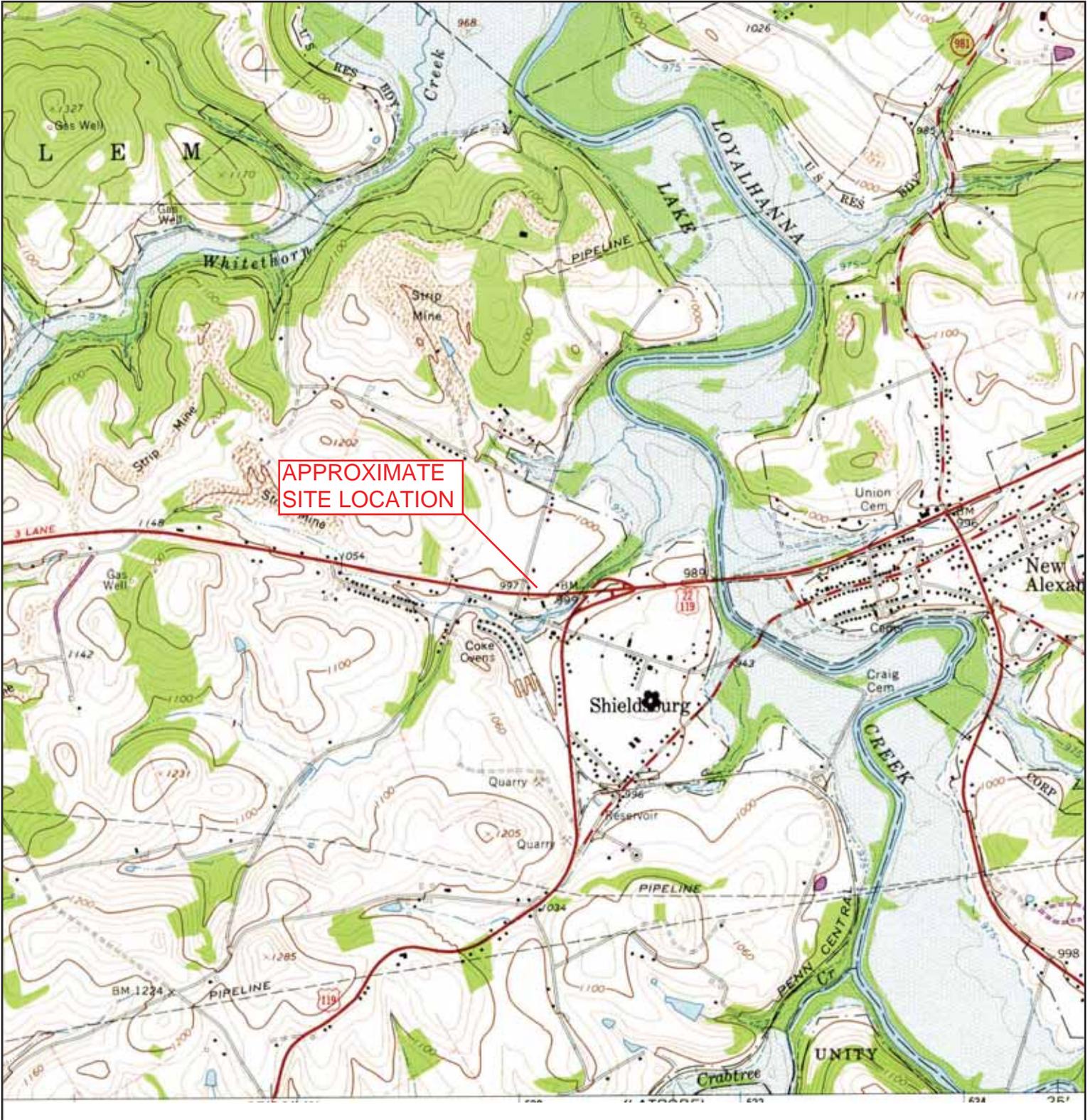
	TARGET QUAD	SITE NAME: Proposed Speedway 100623	CLIENT: Cardno ATC #48
	NAME: LATROBE	ADDRESS: 107 Operators Way New Alexandria, PA 15670	CONTACT: Chris Carlson
	MAP YEAR: 1902	LAT/LONG: 40.3963 / -79.4429	INQUIRY#: 4092747.4
	SERIES: 15		RESEARCH DATE: 10/01/2014
	SCALE: 1:62500		

Historical Topographic Map



	TARGET QUAD	SITE NAME: Proposed Speedway 100623	CLIENT: Cardno ATC #48
	NAME: SALTSBURG	ADDRESS: 107 Operators Way New Alexandria, PA 15670	CONTACT: Chris Carlson
	MAP YEAR: 1964	LAT/LONG: 40.3963 / -79.4429	INQUIRY#: 4092747.4
	SERIES: 7.5		RESEARCH DATE: 10/01/2014
	SCALE: 1:24000		

Historical Topographic Map



	TARGET QUAD	SITE NAME: Proposed Speedway 100623	CLIENT: Cardno ATC #48
	NAME: SALTSBURG	ADDRESS: 107 Operators Way	CONTACT: Chris Carlson
	MAP YEAR: 1973	ADDRESS: New Alexandria, PA 15670	INQUIRY#: 4092747.4
	PHOTOREVISED FROM : 1964	LAT/LONG: 40.3963 / -79.4429	RESEARCH DATE: 10/01/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Proposed Speedway 100623

107 Operators Way
New Alexandria, PA 15670

Inquiry Number: 4092747.5
October 02, 2014

The EDR-City Directory Image Report

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1992	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services

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FINDINGS

TARGET PROPERTY STREET

107 Operators Way
New Alexandria, PA 15670

Year

CD Image

Source

OPERATORS WAY

2013	-	Cole Information Services	Street not listed in Source
2008	pg A3	Cole Information Services	
2003	-	Cole Information Services	Street not listed in Source
1999	-	Cole Information Services	Street not listed in Source
1995	-	Cole Information Services	Street not listed in Source
1992	-	Cole Information Services	Street not listed in Source

STATE ROUTE 22

2013	pg A1	Cole Information Services	
2008	pg A4	Cole Information Services	
2003	-	Cole Information Services	Street not listed in Source
1999	-	Cole Information Services	Street not listed in Source
1995	-	Cole Information Services	Street not listed in Source
1992	-	Cole Information Services	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images



-

STATE ROUTE 22 2013

7457 DOLORES BOLLINGER
 7467 MARK GRUSS CPA
 MOSAIC CONSULTING
 7479 BUNDYS UP IN SMOKEHOUSE LLC
 FALLON KOCH
 JOSEPH GREEN
 PERRY PICKENS
 7566 PRODUCE CITY
 7897 GORDON MCCULLOCH
 7901 AMANDA BLOOM
 LISA LATKANICH
 OCCUPANT UNKNOWN
 7977 6 BUOYS
 JIM WERLEY
 7979 A BODYWORKS TATTOO STUDIO
 7993 ROAD DOG CYCLE INC
 8001 E DAVID
 8005 OCCUPANT UNKNOWN
 8059 WATTS TRUCK CENTER INC
 8113 MARCY MANCE
 8118 EDWARD MIKA
 8225 OCCUPANT UNKNOWN
 8269 POTTS WELDING
 8279 22 MUSIC & CRAFTS
 A PROFESSIONAL ANSWERING SERVICE
 ALEX NEW
 AMERICAN MUSIC
 CELESTIAL TANS
 COMMERCIAL SPRING & SUSPENSION
 JOHNAS HAIR DESIGN
 KAUFMAN CHIROPRACTIC
 KIDS CARE PEDIATRICS
 RONALD V PANICHELE NATIONWIDE INS
 8291 FIRST COMMONWEALTH BANK
 8296 SUBWAY SANDWICHES
 8335 PETER MILLER
 8339 JOHN SCAGLIONE
 8341 MUTUAL AID AMBULANCE SERVICE
 8346 STONE & COMPANY
 8370 NEW ALEXANDRIA FIREMENS CLUB
 8489 KEITH PATRICK
 8497 ARTHUR ROSBOROUGH
 8499 DONALD PATRICK
 8501 OCCUPANT UNKNOWN
 8505 OCCUPANT UNKNOWN
 8508 VINCE ELLIOTT
 8651 G & S SPEED SHOP
 LINDA THOMAS
 8736 BARBARA YOUNG
 8775 WILLIAM STEVENS

STATE ROUTE 22

2013

(Cont'd)

8784	ALLAN KERN
8814	OCCUPANT UNKNOWN
8830	D & D PIT STOP
8840	PAUL MURRAY
8846	CHRIS VICOLA
8880	OTIS EASTERN
8930	ROUTE 22 MOBILE HOME MART

OPERATORS WAY 2008

107 WESTERN PENNSYLVANIA OPERATING ENGINE

STATE ROUTE 22 2008

7457	DOLORES BOLLINGER
7479	BUNDYS UP IN SMOKEHOUSE LAWRENCE GRAHAM
7901	JUSTIN CAMP
7977	JIM WERLEY
7979	A BODYWORKS TATTOO STUDIO
8001	BODYWORKS TATTOO STUDIO
8005	JOHN PLETOVICH
8059	WATTS MACK SALES INC
8113	ALICIA PAINTER
8225	KRISTEN OSTRAWSKI
8279	BASKET O BUDS H & R BLOCK THE BEER STORE INC
8282	GRABIAK CHEVROLET INC
8304	BEE CLEAN
8335	PETER MILLER
8339	JOHN SCAGLIONE
8341	MUTUAL AID AMBULANCE SERVICE
8370	NEW ALEXANDRIA FIRE DEPT CLB
8465	BEAVERS TIRE SERVICE
8489	CAROLYN PURVIS
8497	ARTHUR ROSBOROUGH
8499	DONALD PATRICK
8508	ELSIE ELLIOTT
8736	MARK YOUNG
8769	GENE GAINER
8775	WILLIAM STEVENS
8784	ALLAN KERN
8830	WAYNES AUTO SALES
8840	PAUL MURRY
8846	JOHN VICOLA

Proposed Speedway Store #100623

APPENDIX E

PRIOR REPORTS

This section is intentionally blank.

Proposed Speedway Store #100623

APPENDIX F

RESUMES

Jared Anthony

Current Position

Scientist - Building Sciences

Profession

Project Scientist

Years' Experience

10

Joined Cardno

September 2013

Education

BS Earth Science

Professional Registrations

Pennsylvania
Asbestos Inspector
#043025

West Virginia Asbestos
Inspector #AI007488

Ohio Asbestos Hazard
Evaluation Specialist
#ES35714

Summary of Experience

Mr. Anthony is a Project Scientist and is responsible for managing the operations of the Building Sciences Department of the Pittsburgh Cardno ATC office. Mr. Anthony has over 11 years of experience of environmental and industrial experience. Mr. Anthony has conducted numerous surveys in multiple states for commercial, industrial, and residential clients. Mr. Anthony has experience conducting asbestos and lead-based paint surveys and assessments, monitoring small and large scale asbestos abatement projects, and providing oversight on asbestos abatement/demolition projects.

Significant Projects

- > Asbestos Building Inspector - Conducted visual surveys and sampling of suspect asbestos-containing building materials at multiple sites in Western Pennsylvania for a Retail Petroleum Client.
- > Project Monitor/Title II Services, Andrews AFB, MD - Provided asbestos abatement contractor oversight for AFCEE. Project site was a 340,000 SF former office building. Included daily contractor oversight, visual inspections for containment clearance, and technical document review.
- > Hazardous materials surveys of suspect asbestos-containing materials (ACMs), polychlorinated biphenyls (PCBs), mercury, lead-paint chip sampling, and other potentially hazardous materials at multiple Government Facilities.
- > Environmental Scientist, Former Contee Sand and Gravel Site, Laurel, MD: Oversaw the remediation of the pigment-related material and associated impacted soils. Collected and analyzed soil samples by XRF analysis in the field using the X-50 unit to verify all contaminated soil had been removed.

Professional History

October 2007 –
September 2013

Project Scientist

URS Corporation - Germantown, MD

Mr. Anthony was a Project Scientist and part of the Sustainability and Environmental Management Team with URS in Germantown, MD. Mr. Anthony specialized in field investigations, project site remediation, data analysis, and reporting.

Experience conducting hazardous materials surveys of suspect asbestos-containing materials (ACMs), polychlorinated biphenyls (PCBs), mercury, lead-paint chip sampling, and other potentially hazardous materials.

Experience conducting asbestos inspections including visual surveys and sampling of suspect ACMs following AHERA and/or other applicable regulations and guidelines and report writing.

Experience performing oversight of remedial activities including oversight of hazardous materials removal and waste activities, recording contractor activities, contractor quality assurance, documenting the containment and shipping of waste products, sample collection (air, water, and soil), ensuring project specifications, abatement design plans, and applicable regulations and guidelines were followed, and oversight of demolition activities.

October 2006– October
2007

Environmental Scientist

Terracon Consultants - Las Vegas, Nevada

Experience performing Phase I Environmental Site Assessments on various different types of properties, including historical property review and site reconnaissance.

Experience performing Phase II Environmental Site Assessments and Limited Site Investigations on various different types of sites, which would include soil boring and well installation, soil and groundwater sampling, and preparing comprehensive related environmental reports.

Experience performing asbestos surveys on numerous different types of structures. Duties would include bulk sampling, air monitoring and sampling, data compilation and report preparation.

Performing the sampling and compliance report writing associated with weekly, monthly, and quarterly sampling events.

Proposed Speedway Store #100623

APPENDIX G

RECORDS OF COMMUNICATION

Please refer to the details in the report for Records of Communication

Proposed Speedway Store #100623

APPENDIX H

LABORATORY REPORTS

This section is intentionally blank.

Proposed Speedway Store #100623

APPENDIX I
OTHER SUPPORTING
DOCUMENTATION

Parcel ID: 57-16-00-0-014

Owner: WESTERN PA OPRT ENG JNT APPR &

Co-Owner:

UPI Code: 57-03764-00000

St. No.: 457

Street: CHRISTOPHER RD

Street 2:

City: NEW ALEXANDRIA

State: PA

Zip: 15670

Zip Suffix: 0

District: 57

Map #: 16

Map # Page: 00

Map # Sub-page: 0

Parcel: 014

Land Use Code: C

Desc 1: HSE

Desc 2:

Desc 3:

Acres: 25.9

Deed Book: 132

Deed Page: 1968

Land Value: 17450

Improved Value: 9920

Muni Tax: 164.22

School Tax: 2256.93

County Tax: 574.5

CONFIRMATORY DEED



I hereby CERTIFY that this document is recorded in the RECORDERS OFFICE of Westmoreland County Pennsylvania

Frank Schiefer
Frank Schiefer - Recorder of Deeds

MADE the 30th day of May, 2013, between the **WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING PROGRAM** (hereinafter referred to as the "Grantor")

A

N

D

Instr: 201306030021968 06/03/2013
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Frank Schiefer T20130027507
Westmoreland County RecorderC

WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING FUND (hereinafter referred to as the "Grantee").

WITNESSETH:

WHEREAS, the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program, by deed from Orison Faulk and Ida Faulk, his wife, and Ellabella Bennett, widow, dated September 15, 1971, and recorded on December 6, 1971, with the Recorder's Office of Westmoreland County, Pennsylvania, in Deed Book Volume 2083, page 957, acquired the property described as Parcel "A" and Parcel "C" on Exhibit "A", attached hereto; and

WHEREAS, the Trustees of Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program, by deed from Mildred Kull, Hazel Murphy and Clarence Frye, Jr., Executors under the Last Will and Testament of Clarence H. Frye, a/k/a Clarence H. Frye, Sr., a/k/a C. H. Frye, Mildred Kull and David G. Kull, her husband, Hazel Murphy and Francis Murphy, her husband, and Clarence Frye, Jr., and Eunice L. Frye, his wife, dated March 4, 1974, and recorded on March 28, 1974, with the Recorder's Office of Westmoreland County, Pennsylvania, in Deed Book Volume 2149, page 489, acquired the property described as Parcel "B" on Exhibit "A", attached hereto and made a part hereof; and

WHEREAS, the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program and the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund are one in the same entity as created by Agreement of Declaration of Trust, with an effective date of June 13, 1967; and

WHEREAS, since the Grantee carries on its business in the name of "Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund," the parties hereto desire to confirm ownership of the property described as Parcel "A", Parcel "B" and Parcel "C" on Exhibit "A" in order to clarify for the record the true and correct name of the owner of said property and remove any confusion which may now or hereafter arise.

NOW, THEREFORE, the Grantor in consideration of the sum of Ten and No/100 Dollars (\$10.00), paid to the Grantor by the Grantee, receipt of which is hereby acknowledged, does grant, bargain, sell and convey to the Grantee, its successors and assigns the property described on Exhibit "A", attached hereto and made a part hereof.

UPI 57-04830-00000

W

UPI 57-03764-00000

MAP 57-16-00-0-014

UPI 57-03763-00000

MAP 57-15-00-0-028

OK

SUBJECT TO all prior grants and reservations of oil, gas, coal, mining rights, rights-of-way, easements, estates, reservations, covenants, building lines, restrictions and public and private roads.

THIS TRANSFER IS EXEMPT FROM THE PROVISIONS OF THE PENNSYLVANIA REALTY TRANSFER TAX ACT AS THIS IS A TRANSFER FOR NO ACTUAL CONSIDERATION, WHICH CORRECTS AND CONFIRMS THE NAME OF GRANTEE, WITHOUT A CHANGE IN THE UNDERLYING OWNERSHIP OF THE GRANTEE.

Together with the appurtenances.

TO HAVE AND TO HOLD the same to and for the use of the Grantee, its successors and assigns forever, and the Grantor, for itself, its successors and assigns hereby covenants and agrees that it will **WARRANT GENERALLY** the property hereby conveyed.

NOTICE -- THIS DOCUMENT MAY NOT/DOES NOT SELL, CONVEY, TRANSFER, INCLUDE OR INSURE THE TITLE TO THE COAL AND RIGHT OF SUPPORT UNDERNEATH THE SURFACE LAND DESCRIBED OR REFERRED TO HEREIN, AND THE OWNER OR OWNERS OF SUCH COAL MAY HAVE/HAVE THE COMPLETE LEGAL RIGHT TO REMOVE ALL OF SUCH COAL AND, IN THAT CONNECTION, DAMAGE MAY RESULT TO THE SURFACE OF THE LAND AND ANY HOUSE, BUILDING OR OTHER STRUCTURE ON OR IN SUCH LAND. THE INCLUSION OF THIS NOTICE DOES NOT ENLARGE, RESTRICT OR MODIFY ANY LEGAL RIGHTS OR ESTATES OTHERWISE CREATED, TRANSFERRED, EXCEPTED OR RESERVED BY THIS INSTRUMENT. [This notice is set forth in the manner provided in Section 1 of the Act of July 17, 1957, P.L. 984, as amended, and is not intended as notice of unrecorded instruments, if any.]

This Confirmatory Deed is made under and by virtue of a Resolution of the Board of Trustees of the Grantor duly passed as a regular meeting thereof, held on the 19th day of October, 2012, a full quorum being present, authorizing and directing the same to be done.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK;
SIGNATURES APPEAR ON FOLLOWING PAGE]



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EXHIBIT "A"
LEGAL DESCRIPTION


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 Westmoreland County RecorderC

PARCEL A:

ALL that certain tract of land situate in the Township of Salem, County of Westmoreland and Commonwealth of Pennsylvania, being bounded and described as follows:

BEGINNING at a point in the middle of Township Road No. 925, at corner of lands of David Shaw; thence by said David Shaw lands, North 22° 44' East, 668.59 feet to a point; thence by same, North 50° 49' West, 377.14 feet to a point; thence by same, North 40° 27' 10" East, 409.85 feet to a point, corner of lands of Salem Gun Club; thence by lands of Salem Gun Club, South 16° 36' 10" East, 437.18 feet to a point; thence by the same, South 20° 33' East, 215.10 feet to a point; thence by same, North 48° 41' East, 332.02 feet to a point; thence by same, North 16° 31' 10" East, 691.18 feet to a point; thence by same, North 19° 08' East, 273.60 feet to a point; thence by same, North 4° 56' East, 222.10 feet to a point; thence by same, North 24° 28' West, 216.90 feet to a point; thence by same, North 49° 11' West, 107.20 feet to a point on line of land of said David Shaw; thence by lands of David Shaw, North 23° 38' East, 562.16 feet to a point; thence by same, North 86° 39' West, 2,244.65 feet to a point on line of lands of United States Government; thence by lands of United States Government, North 54° 21' East, 485.00 feet to a point; thence by same, North 36° 02' West, 93.90 feet to a point; thence by same, North 58° 15' East, 300 feet to a point; thence by same, North 77° 41' East, 372.20 feet to a point; thence by same, North 46° 00' East, 945.30 feet to a point; thence by same, South 69° 03' East, 184.10 feet to a point on line of lands formerly of J. L. Drummond; thence along lands formerly of J. L. Drummond, South 11° 15' East, 392.30 feet to a point; thence by same, North 86° 04' East, 262.60 feet to a point; thence by same, North 83° 19' East, 360.50 feet to a point; thence by same, North 86° 45' East, 141.20 feet to a point; thence by same, South 89° 43' East, 398.00 feet to a point; thence by same, North 81° 28' East, 211.10 feet to a point in the middle of Township Road No. 900; thence along the middle of Township Road 900, South 49° 51' East, 118.90 feet to a point; thence by same, South 31° 19' East, 142.00 feet to a point; thence by same, South 15° 27' East, 125.40 feet to a point; thence by same, South 4° 17' East, 239.70 feet to a point; thence by same, South 2° 28' West, 197.28 feet to a point; thence by same, South 1° 25' West, 30.67 feet to a point; thence by same, South 25° 15' West, 77.67 feet to a point; thence by same, South 36° 56' West, 164.53 feet to a point; thence by same, South 7° 45' East, 146.30 feet to a point; thence by same, South 8° 36' East, 230.89 feet to a point on line of lands formerly of William T. Fennell; thence leaving said Township Road No. 900 and by lands formerly of William T. Fennell, South 80° 13' West, 337.36 feet to a point; thence by same, South 34° 43' West, 528.50 feet to a point; thence by same, South 54° 39' East, 475.20 feet to a point; thence by same, South 34° 32' East, 254.70 feet to a point; thence by same, South 52° 42' West, 403.70 feet to a point; thence by same, South 4° 23' West, 342.60 feet to a point; thence by same, South 26° 38' West 214.80 feet to a point; thence by same, South 35° 30' East, 122.50 feet to a point, corner of lands now or formerly of Frank Sigafos; thence by lands formerly of Frank Sigafos, South 21° 34' West, 340.52 feet; thence by lands of which this was formerly a part, South 41° 27' 30" West, 254.85 feet to a point; thence by same and along a 40-foot street, North 42° 58' West, 55.00 feet to a point; thence by

same and along a 50-foot street, North 41° 27' 30" East, 150.00 feet to a point; thence by same, North 42° 58' West, 335.60 feet to a point; thence by same, North 47° 02' East, 135.71 feet to a point; thence by same, North 42° 58' West, 380.66 feet to a point; thence by same, South 47° 02' West, 229.26 feet to a point; thence by same, North 84° 58' West, 40.00 feet to a point; thence by same, South 5° 02' West, 92.81 feet to a point; thence by same, South 42° 58' East, 72.10 feet to a point; thence by same, South 36° 05' West, 144.90 feet to a point; thence by same, South 19° 41' East, 59.37 feet to a point; thence by same, South 25° 55' East, 166.80 feet to a point; thence by same, South 24° 02' 30" East, 240.00 feet to a point; thence by same, South 28° 32' 30" East, 148.34 feet to a point on the westerly side of a 40-foot street; thence by said street, South 41° 27' 30" West, 7.17 feet to a point; thence by same, South 35° 01' West, 380.60 feet to a point in the middle of the said Township Road No. 925; thence by the middle of Township Road No. 925, North 63° 32' West, 474.82 feet to a point; thence by same, North 58° 09' West, 552.00 feet to a point, at the place of beginning.

CONTAINING 137.46 acres.

THE ABOVE-REFERENCED LEGAL DESCRIPTION is taken from that certain survey prepared for Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program by Frank Samella of New Alexandria, Pennsylvania, dated July 16, 1971 (Drawing No. A-135).

ALSO KNOWN AS Lot 1 and Lot 2 of that certain Operating Engineers Plan No. 1, dated July 19, 2012, prepared by The Gateway Engineers, Inc., as same is recorded with the Recorder's Office of Westmoreland County, Pennsylvania, on August 10, 2012, at Instrument #201208100033103.

BEING designated as **Tax Parcel #57-15-00-0-026** in the Deed Registry Office of Westmoreland County, Pennsylvania.

EXCEPTING that certain Lot 1 of that certain Operating Engineers Plan No. 1, dated July 19, 2012, prepared by The Gateway Engineers, Inc., as same is recorded with the Recorder's Office of Westmoreland County, Pennsylvania, on August 10, 2012, at Instrument #201208100033103.

PARCEL B:

ALL that certain piece, parcel or tract of land situate in the Township of Salem, County of Westmoreland and Commonwealth of Pennsylvania, bounded and described as follows:

BEGINNING at a point in the center line of Route 22 at line of land now or formerly of Joseph W. Swaskey; thence from said point of beginning along line of land of Joseph W. Swaskey, North 12° 06' East, a distance of 269.85 feet to a point; thence continuing along same, North 72° 44' West, a distance of 60.12 feet to a point on line of land of Agnes E. Romancik; thence along line of land of Agnes E. Romancik, North 17° 16' East, a distance of 120.00 feet to a point; thence continuing along same, North 72° 44' West, a distance of 160.00 feet to a point in the center of Township Road 900; thence along the center of said Township Road 900, North 17° 16' East, a distance of 50 feet to a point on line of land now or formerly of Joseph Machak; thence along line of land now

or formerly of Joseph Machak, South 72° 44' East, a distance of 160.00 feet to a point; thence continuing along line of land now or formerly of Joseph Machak, North 17° 16' East, a distance of 120.00 feet to a point; thence continuing along same, North 72° 44' West, a distance of 160.00 feet to a point also in the center of Township Road 900, aforesaid; thence along the center of said Township Road 900, North 17° 16' East, a distance of 501.40 feet to a point on line of land of Jerry M. Yates; thence along line of land of Jerry M. Yates, South 68° 29' East, a distance of 160.00 feet to a point; thence continuing along line of land of Jerry M. Yates, as well as along line of land now or formerly of Michael Lengel, North 17° 16' East, a distance of 200.00 feet to a point; thence along line of land now or formerly of Michael Lengel, North 68° 29' West, a distance of 160.00 feet to a point also in the center of Township Road 900; thence along the center line of Township Road 900, North 17° 16' East, a distance of 50.00 feet to a point on line of land of George Merichko; thence along line of land of said George Merichko, South 65° 01' East, a distance of 200.00 feet to a point; thence along same, as well as along line of land of Eugene Forish, South 17° 16' East, a distance of 200.00 feet to a point on line of land of the United States of America; thence along line of land of said United States of America, South 65° 01' East, a distance of 943.90 feet to a point; thence continuing along same, South 21° 20' East, a distance of 254.20 feet to a point; thence continuing along same, South 50° 03' West, a distance of 1,232.40 feet to a point in the center of Route 22; thence along the center line of Route 22 on a curve to the right having a radius of 3,274.20 feet an arcuate distance of 399.50 feet to the place of beginning.

CONTAINING an area of 27.9272 acres as per survey of Frank Samella, Surveyor, of New Alexandria, Pennsylvania, dated February 12, 1964, and updated on October 5, 1964.

EXCEPTING THEREFROM Parcel No. 105 of the Declaration of Taking by the Commonwealth of Pennsylvania, Department of Transportation, at No. 4317 of 2000, as recorded on July 17, 2000, with the Recorder's Office of Westmoreland County, Pennsylvania, in Deed Book Volume 3773, page 262, as shown on Viewers Plan for State Route 22, Parcel 105, Claim No. 64001180000, with a verification date of January 14, 2000.

BEING designated as **Tax Parcel #57-16-00-0-014** in the Deed Registry Office of Westmoreland County, Pennsylvania.

ALSO BEING 25.9 acres, according to the assessment records of Westmoreland County, Pennsylvania.

PARCEL C:

ALL that certain Lot 1 of that certain Operating Engineers Plan No. 1, dated July 19, 2012, prepared by The Gateway Engineers, Inc., as same is recorded with the Recorder's Office of Westmoreland County, Pennsylvania, on August 10, 2012, at Instrument #201208100033103, situate in the Township of Salem, Westmoreland County, Pennsylvania.

BEING DESIGNATED as **PART of Tax Parcel No. 57-15-00-0-026** in the Deed Registry Office of Westmoreland County, Pennsylvania.

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 Frank Schiefer T20130027507
 Westmoreland County RecorderC

IN WITNESS WHEREOF, Grantor has executed these presents on the day and year first above written.

WITNESS:

WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING PROGRAM a/k/a WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING FUND

[Signature]

By: *[Signature]*
James T. Kunz, Jr., Chairman and a Union Trustee of the Trust Fund

[Signature]

By: *[Signature]*
Richard Barcaskey, Employee Trustee of the Trust Fund


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NOTICE: THE UNDERSIGNED, AS EVIDENCED BY THE SIGNATURE(S) TO THIS NOTICE AND THE ACCEPTANCE AND RECORDING OF THIS DEED (IS/ARE) FULLY COGNIZANT OF THE FACT THAT THE UNDERSIGNED MAY NOT BE OBTAINING THE RIGHT OF PROTECTION AGAINST SUBSIDENCE, AS TO THE PROPERTY HEREIN CONVEYED, RESULTING FROM COAL MINING OPERATIONS AND THAT THE PURCHASED PROPERTY, HEREIN CONVEYED, MAY BE PROTECTED FROM DAMAGE DUE TO MINE SUBSIDENCE BY A PRIVATE CONTRACT WITH THE OWNERS OF THE ECONOMIC INTEREST IN THE COAL. THIS NOTICE IS INSERTED HEREIN TO COMPLY WITH THE BITUMINOUS MINE SUBSIDENCE AND LAND CONSERVATION ACT OF 1966, AS AMENDED 1980, OCT. 10, P.L. 874, NO. 156 § 1.

WITNESS:

WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING PROGRAM a/k/a WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING FUND

[Handwritten Signature]

By: *[Handwritten Signature]*
James T. Kunz, Jr., Chairman and a Union Trustee of the Trust Fund

[Handwritten Signature]

By: *[Handwritten Signature]*
Richard Barcaskey, Employer Trustee of the Trust Fund

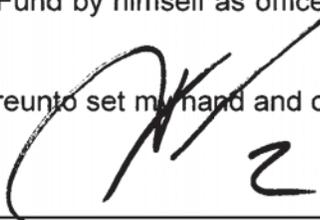


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Westmoreland County RecorderC

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this the 30th day of May, 2013, before me, a Notary Public, the undersigned offer, personally appeared **JAMES T. KUNZ, JR.**, the Chairman and a Union Trustee, and **RICHARD BARCASKEY**, Employer Trustee, both of the **WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING PROGRAM, A/K/A THE WESTERN PENNSYLVANIA OPERATING ENGINEERS JOINT APPRENTICESHIP AND TRAINING FUND, CREATED UNDER THAT CERTAIN AGREEMENT AND DECLARATION OF TRUST, MADE EFFECTIVE ON JULY 13, 1967** and that they as such officers, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Program, a/k/a the Western Pennsylvania Operating Engineers Joint Apprenticeship and Training Fund by himself as officer with authorization to do so.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



Notary Public

MY COMMISSION EXPIRES:

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Christopher P. Smith Jr., Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires March 15, 2014
Member, Pennsylvania Association of Notaries


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Westmoreland County RecorderC

CERTIFICATE OF RESIDENCE

I do hereby certify that the **Tax Bill Address**
of the within named grantee is:

I do hereby certify that the **Owner Mailing Address**
of the within named grantee is:

WESTERN PENNSYLVANIA OPERATING
Name/Mortgage Company ENJOICES

WESTERN PENNSYLVANIA OPERATING
Name/Mortgage Company ENJOICES

In Care Of (if required)
107 OPERATORS WAY
Address
SALEM TWP. PA 15670
City, State and Zip Code

In Care Of (if required)
107 OPERATORS WAY
Address
SALEM TWP. PA 15670
City, State and Zip Code


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CONFIRMARY DEED

**WESTERN PENNSYLVANIA
OPERATING ENGINEERS JOINT
APPRENTICESHIP AND
TRAINING PROGRAM**

GRANTOR

**WESTERN PENNSYLVANIA
OPERATING ENGINEERS JOINT
APPRENTICESHIP AND
TRAINING FUND,**

GRANTEE



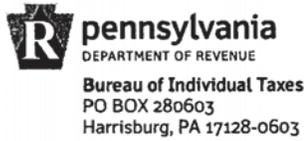
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Frank Schiefer T20130027507
Westmoreland County RecorderC

RECORDER, MAIL to:



J. Robert Hanlon, Esquire
535 Smithfield Street, Suite 1300
Pittsburgh, PA 15222

(412) 456-2839



REALTY TRANSFER TAX STATEMENT OF VALUE

See reverse for instructions.

RECORDER'S USE ONLY

State Tax P			
Book Numl	Instr: 201306030021968	06/03/2013	
Page Numl	P: 11 of 11	F: \$96.00	3:05PM
Date Recor	Frank Schiefer Westmoreland County RecorderC T20130027507		

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) the deed is without consideration or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on family relationship or public utility easement. If more space is needed, attach additional sheets.

A. CORRESPONDENT - All inquiries may be directed to the following person:

Name	J. Robert Hanlon, Jr., Attorney, Meyer, Unkovic & Scott LLP			Telephone Number:	(412) 456-2839
Mailing Address	City	State	ZIP Code		
535 Smithfield Street, Suite 1300	Pittsburgh	PA	15222		

B. TRANSFER DATA

C. Date of Acceptance of Document

Grantor(s)/Lessor(s) Western PA Operating Engineers Joint Apprenticeship and Training Program			Grantee(s)/Lessee(s) Western PA Operating Engineers Joint Apprenticeship and Training Fund		
Mailing Address 107 Operators Way			Mailing Address 107 Operators Way		
City	State	ZIP Code	City	State	ZIP Code
Salem Township	PA	15670	Salem Township	PA	15670

D. REAL ESTATE LOCATION

Street Address Operators Way & Christopher Road	City, Township, Borough Salem Township	(A) #57-15-00-0-026; and
County Westmoreland	School District Greensburg-Salem	Tax Parcel Number (B) #57-16-00-0-014; and (C) Part of #57-15-00-0-026

E. VALUATION DATA - WAS TRANSACTION PART OF AN ASSIGNMENT OR RELOCATION? Y N

1. Actual Cash Consideration 1.00	2. Other Consideration +0.00	3. Total Consideration = 1.00
4. County Assessed Value (Parcels A-C) Parcels A & C: \$113,480.00 Parcel B: \$27,370.00	5. Common Level Ratio Factor X 4.41	6. Fair Market Value = Parcels A&C: \$500,466.80; and Parcel B: \$120,701.70

F. EXEMPTION DATA

1a. Amount of Exemption Claimed 100%	1b. Percentage of Grantor's Interest in Real Estate 100%	1c. Percentage of Grantor's Interest Conveyed 100%
---	---	---

Check Appropriate Box Below for Exemption Claimed.

- Will or intestate succession. _____ (Name of Decedent) _____ (Estate File Number)
- Transfer to a trust. (Attach complete copy of trust agreement identifying all beneficiaries.)
- Transfer from a trust. Date of transfer into the trust _____
If trust was amended attach a copy of original and amended trust.
- Transfer between principal and agent/straw party. (Attach complete copy of agency/straw party agreement.)
- Transfers to the commonwealth, the U.S. and instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (If condemnation or in lieu of condemnation, attach copy of resolution.)
- Transfer from mortgagor to a holder of a mortgage in default. (Attach copy of mortgage and note/assignment.)
- Corrective or confirmatory deed. (Attach complete copy of the deed to be corrected or confirmed.)
- Statutory corporate consolidation, merger or division. (Attach copy of articles.)
- Other (Please explain exemption claimed.) _____

Under penalties of law, I declare that I have examined this statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party BY:	Date 05/31/13
, Attorney	

FAILURE TO COMPLETE THIS FORM PROPERLY OR ATTACH REQUESTED DOCUMENTATION MAY RESULT IN THE RECORDER'S REFUSAL TO RECORD THE DEED.



U.S. Fish and Wildlife Service National Wetlands Inventory

Oct 1, 2014



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:



MAP SCALE 1" = 1000'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0240F

FIRM
FLOOD INSURANCE RATE MAP

**WESTMORELAND COUNTY,
PENNSYLVANIA
(ALL JURISDICTIONS)**

PANEL 240 OF 875
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DERRY, TWP OF	421205	0240	F
LOYALHANNA, TWP OF	421190	0240	F
SALEM, TWP OF	422192	0240	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

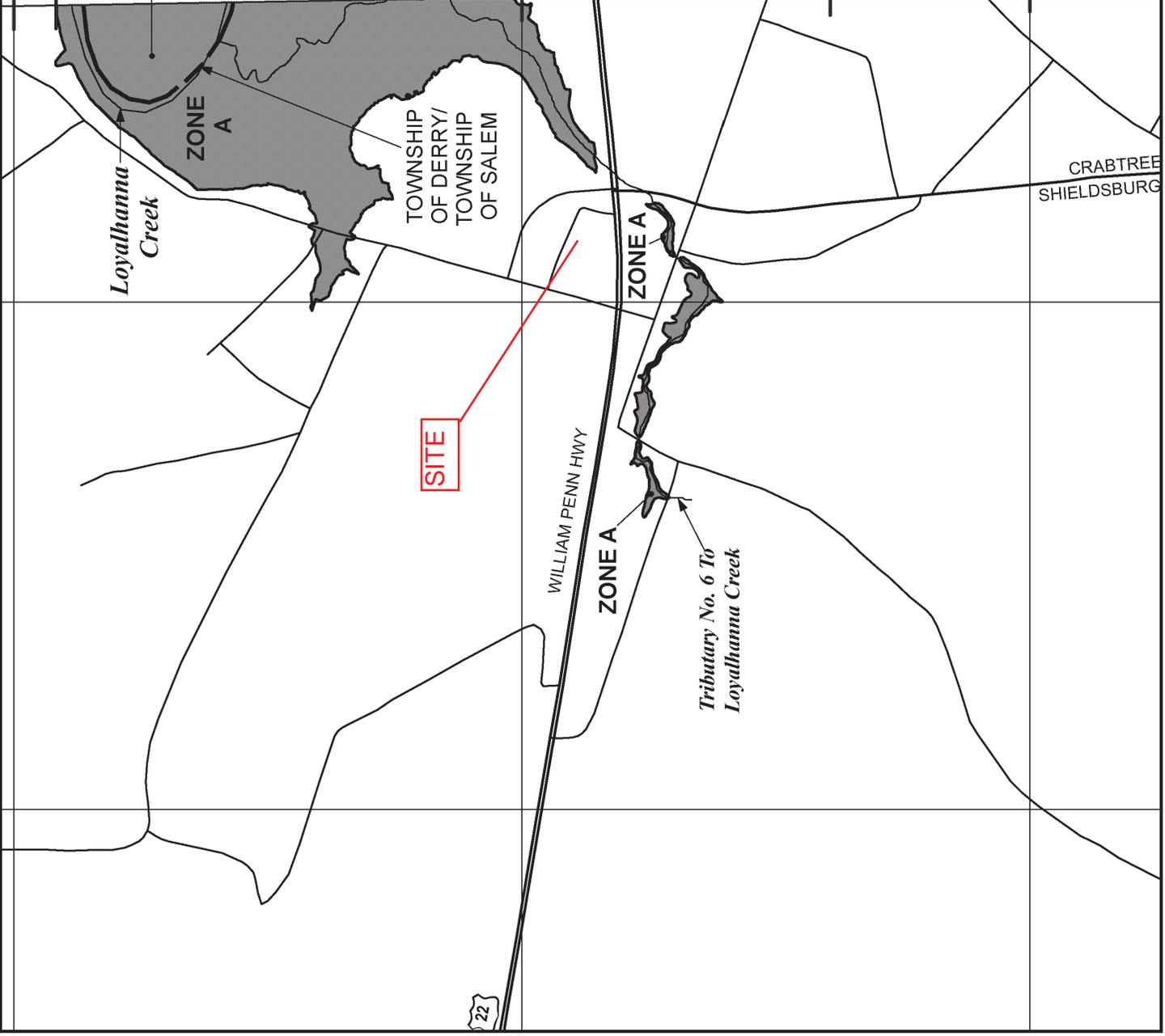
MAP NUMBER
42129C0240F

MAP REVISED
MARCH 17, 2011

Federal Emergency Management Agency



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov





United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Westmoreland County, Pennsylvania



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,870 if printed on A portrait (8.5" x 11") sheet.



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westmoreland County, Pennsylvania
 Survey Area Data: Version 6, Dec 16, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 27, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map-unit boundaries may be evident.

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soil Map Unit Polygons	 Stony Spot
 Soil Map Unit Lines	 Very Stony Spot
 Soil Map Unit Points	 Wet Spot
 Special Point Features	 Other
 Blowout	 Special Line Features
 Borrow Pit	Water Features
 Clay Spot	 Streams and Canals
 Closed Depression	Transportation
 Gravel Pit	 Rails
 Gravelly Spot	 Interstate Highways
 Landfill	 US Routes
 Lava Flow	 Major Roads
 Marsh or swamp	 Local Roads
 Mine or Quarry	Background
 Miscellaneous Water	 Aerial Photography
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

Map Unit Legend

Westmoreland County, Pennsylvania (PA129)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CaB	Cavode silt loam, 3 to 8 percent slopes	3.7	10.4%
ItB	Itmann extremely channery loam, 0 to 8 percent slopes	3.4	9.5%
Ln	Lindsay silt loam, 0 to 2 percent slopes	6.0	16.8%
MoB	Monongahela silt loam, 3 to 8 percent slopes	19.0	53.1%
MoC	Monongahela silt loam, 8 to 15 percent slopes	1.5	4.2%
UmB	Urban land-Monongahela complex, 0 to 8 percent slopes	2.1	5.9%
Totals for Area of Interest		35.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

Custom Soil Resource Report

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westmoreland County, Pennsylvania

CaB—Cavode silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18s4

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Cavode and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cavode

Setting

Landform: Hills

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear, concave

Across-slope shape: Concave

Parent material: Acid clayey residuum weathered from clayey shale

Typical profile

Ap - 0 to 10 inches: silt loam

Btg - 10 to 47 inches: silty clay loam

BCg - 47 to 57 inches: channery silt loam

R - 57 to 61 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 40 to 90 inches to lithic bedrock

Natural drainage class: Somewhat poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Minor Components

Gilpin

Percent of map unit: 10 percent

Landform: Hills

Landform position (two-dimensional): Summit, shoulder

Custom Soil Resource Report

Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex, linear

Brinkerton

Percent of map unit: 5 percent
Landform: Hills, draws
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

ItB—Itmann extremely channery loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: mhs4
Elevation: 700 to 1,700 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Itmann, unstable fill, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Itmann, Unstable Fill

Setting

Landform: Plateaus
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loamy coal extraction mine spoil derived from shale and siltstone

Typical profile

A - 0 to 14 inches: extremely channery loam
C - 14 to 65 inches: extremely channery loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: B

Ln—Lindside silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: l8r1

Elevation: 700 to 1,200 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 160 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Lindside and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lindside

Setting

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Recent silty alluvium derived from limestone, sandstone, and shale

Typical profile

A - 0 to 11 inches: silt loam

Bw - 11 to 38 inches: silty clay loam

C - 38 to 65 inches: gravelly silty clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Available water storage in profile: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Melvin

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave

MoB—Monongahela silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2rfbg
Elevation: 580 to 1,300 feet
Mean annual precipitation: 36 to 54 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 120 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Monongahela and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam
BA - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 51 inches: clay loam
BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 3 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: 18 to 30 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave

MoC—Monongahela silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2rfbj
Elevation: 580 to 1,700 feet
Mean annual precipitation: 35 to 54 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 115 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Monongahela and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces

Custom Soil Resource Report

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam

BA - 8 to 12 inches: silt loam

Bt - 12 to 22 inches: silt loam

Btx - 22 to 51 inches: clay loam

BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 18 to 30 inches to fragipan

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Other vegetative classification: Acid Loams (AL3)

Minor Components

Allegheny

Percent of map unit: 10 percent

Landform: Terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Purdy

Percent of map unit: 5 percent

Landform: Terraces

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Concave

Gilpin

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

UmB—Urban land-Monongahela complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 18rj
Elevation: 700 to 1,200 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent
Monongahela and similar soils: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

Description of Monongahela

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Old fine-loamy alluvium derived from sandstone and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 29 inches: loam
Btx - 29 to 63 inches: loam
C - 63 to 80 inches: cobbly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 25 to 35 inches to fragipan
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 17 to 28 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

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Proposed Speedway Store #100623

APPENDIX J
SENSITIVE RECEPTOR SURVEY
DOCUMENTATION



PA STATE AGENCIES

ONLINE SERVICES

Search PA

Tom Corbett, Governor Ellen Ferretti, Secretary

[DCNR Home](#) : [Geological Survey](#) : [Groundwater](#) : [PaGWIS](#) : [Records](#)

PaGWIS Records

Geological Survey

About the Survey

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Collecting

Economic Resources

Geology of PA

Geologic Hazards

Groundwater

Library

Web-Mapping Application

Publications and Digital Data

GeoLinks

Contact the Survey

Search DCNR



Radial Search

This retrieval approximates a radial search around a fixed location. the results will include wells in the "corners" of this figure.

Enter the coordinates of the center in decimal-degree format and the radius of the search in miles. All fields must be filled in to perform the search. The longitude must be a negative number.

Multiple Criteria Polygon Search Radial Search

Longitude :

Latitude :

Radius in Miles :

"Preview List" creates a list which contains links to individual well information.

You can choose to create a comma separated list from the preview.

"Create List" creates a comma separated list without viewing the selection first.

If you choose to open the file it may open in Excel if you have Microsoft Office installed.

Total Records Returned : 2 Records [Click on the column headers to sort the Search Results.](#)

<u>PA Well ID</u>	<u>Driller</u>	<u>Driller Ref</u>	<u>Date Drilled</u>	<u>Owner</u>	<u>County</u>	<u>Municipality</u>	<u>Image</u>
151216	JOBE DRILLING CO. INC.		6/25/1985	O'BRIEN J	WESTMORELAND	SALEM TWP.	
253673				TOOT N SCOOT #18	WESTMORELAND	SALEM TWP.	

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
 BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
 WATER WELL LICENSING/WATER WELL INVENTORY SECTION
 3240 Schoolhouse Rd
 Middletown, PA 17057
 717-702-2017

WATER WELL DETAILS

Well Driller:	PA Well ID: 253673
Driller License:	Driller Well ID:
Type of Activity:	Local Permit #:
Date Drilled:	Original Well By: UNKNOWN
	Drilling Method:

Owner: TOOT N SCOOT #18		
Address of Well:		Zipcode:
County: WESTMORELAND		
Municipality: SALEM TWP.		
Coordinate Method:		
Quadrangle: SALTSBURG	Latitude: 40.3956	Longitude: -79.4444

Well Depth (<i>ft</i>): 125	Well Finish: SCREEN
Depth to Bedrock (<i>ft</i>):	Did Not Encounter Bedrock:
Well Yield (<i>gpm</i>): 1	Yield Measure Method: REPORTED, METHOD NOT KNOWN
Static Water Level: (<i>ft below land surface</i>)	Water level after yield test: (<i>ft below land surface</i>)
Length of Yield Test: (<i>minutes</i>)	Saltwater Zone (<i>ft</i>):
Use of Well: WITHDRAWAL	Use of Water: COMMERCIAL

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
-----------------	--------------------	--

BOREHOLE

CASING

Casing 1:

Top: **0** Bottom: **25** Diameter: **6** Material: **STEEL**

Seal(Grout) 1:

Top: Bottom: Type:

SCREEN/SLOT

WELL LINER

PACKER

WATER BEARING ZONE

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
 BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
 WATER WELL LICENSING/WATER WELL INVENTORY SECTION
 3240 Schoolhouse Rd
 Middletown, PA 17057
 717-702-2017

WATER WELL DETAILS

Well Driller: **JOBE DRILLING CO. INC.**PA Well ID: **151216**Driller License: **0474**

Driller Well ID:

Type of Activity: **New Well**

Local Permit #:

Original Well By: **UNKNOWN**Date Drilled: **6/25/1985**

Drilling Method:

Owner: **O'BRIEN J**

Address of Well:

Zipcode:

County: **WESTMORELAND**Municipality: **SALEM TWP.**

Coordinate Method:

Quadrangle: **SALTSBURG**Latitude: **40.39667**Longitude: **-79.445**Well Depth (ft): **80**Well Finish: **OPEN HOLE**Depth to Bedrock (ft): **38**

Did Not Encounter Bedrock:

Well Yield (gpm): **10**Yield Measure Method: **BAILER**Static Water Level:
(ft below land surface)Water level after yield test:
(ft below land surface)Length of Yield Test:
(minutes)

Saltwater Zone (ft):

Use of Well: **WITHDRAWAL**Use of Water: **DOMESTIC**

DRILLER'S LOG

<u>UNIT TOP</u>	<u>UNIT BOTTOM</u>	<u>DESCRIPTION OF UNITS PENETRATED</u>
-----------------	--------------------	--

BOREHOLE

CASING

Casing 1:

Top: **0** Bottom: **40** Diameter: **6** Material:

Seal(Grout) 1:

Top: Bottom: Type: **NONE**

SCREEN/SLOT

WELL LINER

PACKER

WATER BEARING ZONE

Zone 1: Top: **42** Bottom: Yield:

Proposed Speedway Store #100623

APPENDIX K

TERMINOLOGY

TERMINOLOGY

The following provides definitions and descriptions of certain terms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E 1527-13. The Standard Practice should be referenced for further detail (such as the precise wording), related definitions or additional explanation regarding the meaning of terms.

recognized environmental condition(s) (REC) - the presence or likely presence of any *hazardous substances* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions.

de minimis conditions – are conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*.

historical recognized environmental condition(s) (HREC) - environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be considered a *recognized environmental condition* currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *historical recognized environmental condition* on the *property*. If a past release of any *hazardous substances* or *petroleum products* has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered a *historical recognized environmental condition*.

material threat – a physically observable or *obvious* threat which is reasonably likely to lead to a release that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank system that contains a *hazardous substance* and which shows evidence of damage such that it may cause or contribute to tank integrity failure with a release of contents to the environment.

threat to human health or the environment – a substantial risk of harm to public health or the environment resulting from the presence or likely presence of an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. An example might include a release of a *hazardous substance* in concentrations exceeding applicable governmental agency standards under conditions that could reasonably and foreseeably result in substantial exposure to humans or substantial damage to natural resources. The risk of that exposure or damage would represent a threat to human health or the environment.

generally would not be the subject of an enforcement action – the likelihood that an environmental condition would not be subject to enforcement action if brought to the attention of appropriate governmental agencies. If the circumstances suggest an enforcement action would be less likely than not, then the condition is considered to be generally not the likely the subject of an enforcement action.

**Speedway Environmental Dept.
Remediation Form
for
REPORTS**

* **Store Number**

1	0	0	6	2	3				
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* **Document Date**

Month

1	0
---	---

Day

1	7
---	---

Year

2	0	1	4
---	---	---	---

* **DESCRIPTION 1 (Must Choose One ONLY)**

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos,Phase I,etc.)

Description's 2 & 3 below are OPTIONAL

Note: For Description's 1, 2, & 3 DO NOT CHOOSE the SAME ANSWER MULTIPLE TIMES

DESCRIPTION 2 (Choose One ONLY)

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos,Phase I,etc.)

DESCRIPTION 3 (Choose One ONLY)

- Analytical Report (Lab)
- Closure Activity
- Corrective Action Plan
- DMR (Discharge Monitoring Report)
- GroundWater Monitoring Activity
- Monthly Update
- O&M Remedial Activity
- Site Investigation
- UST Removal
- Other (Secondary containment, Asbestos,Phase I,etc.)

AFE Number

8	5	6	9	8					
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Work Order Number

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Form ID ERERptXP
Form # 47806

Note: An asterisk designates that the field is required to be filled in.



Limited Phase II Environmental Site Assessment Report

Proposed Speedway Store #100623

107 OPERATORS WAY
NEW ALEXANDRIA, PA 15670

CARDNO PROJECT #Z048000045

Prepared for
Speedway LLC
500 Speedway Drive
Enon, OH 45323

January 12, 2015



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Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
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Executive Summary

This report summarizes the findings of the Limited Phase II Environmental Site Assessment (ESA) conducted by Cardno at 107 Operators Way, New Alexandria (Salem Township), Westmoreland County, Pennsylvania 15670 (Site). The Site has been identified for potential development as a retail convenience and gasoline store by Speedway, LLC (Speedway). The purpose of the Limited Phase II ESA was to characterize subsurface conditions with respect to the adjacent former retail petroleum facility, as noted in the October 2014 Phase I ESA for the Site.

On November 13, 2014, six soil borings, identified as SB-01 through SB-06, were advanced at the Site by Geo-Environmental Drilling Company, Inc. (Geo-Environmental) of Pittsburgh, Pennsylvania using hydraulic push technology and hand auger techniques. All soil borings were to be advanced to twenty (20) feet below ground surface (bgs); however, direct push refusal was encountered in all soil borings at depths ranging from 6 feet bgs (SB-01) to 10 feet bgs (SB-04 and SB-06). General soil profile consisted of a light-brown to light-gray, very stiff, silty-clay overlying decomposed shale bedrock. Fill was encountered in SB-04 from 0 to 2 feet bgs. Saturated conditions were not encountered in any soil boring. Photoionization detector (PID) readings ranged from 0.0 parts per million (ppm) to 16.2 ppm (SB-04, 0-2'). Twelve soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pesticides, herbicides, and polychlorinated biphenyls (PCBs) in accordance with the policy.

It was determined that a second field event, using hollow-stem augers, was necessary to collect groundwater samples. Therefore, on December 18, 2014, three soil borings identified as TW-01, TW-02, and TW-03, were advanced by EnviroCore, LLC of Plains City, Ohio (EnviroCore) using hollow-stem augers and converted to 1-inch diameter temporary monitoring wells. The three temporary monitoring wells were installed for the purpose of collecting groundwater samples at the western property boundary to investigate the former retail fuelling station *recognized environmental condition* (REC) noted in the Phase I ESA. Soil borings TW-01, TW-02, and TW-03 were advanced to auger refusal at depths of 24 feet, 24.50 feet, and 24.25 feet bgs, respectively. One soil sample from soil boring TW-03 (10-12 feet bgs) was collected at the interval above decomposed bedrock and submitted for laboratory analysis of VOCs, SVOCs, metals, pesticides, herbicides, and PCBs. Groundwater samples were collected for laboratory analysis of VOCs, polycyclic aromatic hydrocarbons (PAHs), and dissolved lead.

Soil sample laboratory analytical results were compared with the Pennsylvania Department of Environmental Protection (PADEP) Non-Residential Direct Contact Numeric Value Medium Specific Concentrations (MSCs), and groundwater laboratory analytical results were compared with the PADEP Residential Used-Aquifer MSCs.

Soil laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits are below the PADEP Non-Residential Direct Contact Numeric Value MSCs. However, it should be noted that arsenic, boron, and cobalt were detected above the Clean Fill standards. Therefore, the soil may not qualify as Clean Fill, but there are no reporting requirements.

Groundwater laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits below all applicable PADEP Residential Used-Aquifer MSCs.

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1 Site Information

1.1 Introduction

This report summarizes the findings of the Limited Phase II ESA conducted by Cardno at 107 Operators Way, New Alexandria (Salem Township), Westmoreland County, Pennsylvania 15670 (herein referred to as the “Site” or “Property”). The Site Location Map is included as **Figure 1**. This report summarizes the purpose, methods, findings, and conclusions of these investigations.

1.2 Site Description

The Site is situated at 40.39587 North -79.44248' West in the U.S. Geological Survey (USGS), 7.5-minute topographical *Saltsburg, Pennsylvania* Quadrangle (1973). The Property consists of approximately 4.818-acres, and comprises the southern portion of Westmoreland County Parcel Number 57-16-00-0-014 (25.9 acres).

The Property is currently developed with a single story brick structure used by the Western Pennsylvania Operating Engineers Joint Apprenticeship & Training Program.

The Property is located in an area of residential, commercial, and agricultural land use. The Property exhibits relatively level topography, and the surrounding area exhibits a slight declination to the south.

1.3 Background

The Site has been identified for potential development as a retail convenience and gasoline store by Speedway. Cardno completed a Phase I ESA in a report dated October 17, 2014 for the Site.

1.3.1 Phase I ESA – October 17, 2014

The Phase I ESA dated October 17, 2014 for the Site identified the following *REC* in connection with the parcel.

- One adjoining property was identified in the EDR databases as a potential threat of release to the Property. The vacant adjoining parcel to the west, northeast of the intersection of US 22 and Salem Drive, was identified as a former Toot N Scoot (Best Oil, Inc.) retail petroleum facility (PADEP Facility ID 65-16352), with a release date of November 18, 1999. The site is listed as an “Administrative Close Out (ACO)” as of November 3, 2008. The lack of information for this facility and its apparent upgradient, adjacent location with respect to the property is a *REC* to the property.

In response to the results of the Phase I ESA of the Site, Cardno recommended a subsurface investigation to confirm the absence/presence of hazardous materials/petroleum products in soil and groundwater underlying the Property.

1.4 Purpose

The purpose of the Limited Phase II ESA was to characterize soils and groundwater in the vicinity of possible impact as noted in the October 17, 2014 Phase I ESA for the Site and discussed in **Section 1.3.1**. Therefore, Cardno collected soil and groundwater samples for laboratory analysis to characterize current conditions beneath the Site.

2 Field Activities

2.1 Site-Specific Health and Safety Plan and PA One Call Notification

Prior to the initiation of field activities, Cardno prepared a Site-specific *Health and Safety Plan* (HASP) to inform and minimize the risk of potential exposure to chemical and physical hazards associated with the subsurface investigation. Additionally, a private utility locating firm and the Pennsylvania One Call were contacted to provide underground utility marking at the Site prior to the initiation of field activities.

2.2 Private Utility Locate Survey

On November 13, 2014, Cardno supervised the completion of a private utility locate (PUL) survey at the Site. The PUL survey was conducted by The Underground Detective of Cincinnati, Ohio and incorporated the use of ground-penetrating radar (GPR) and electro-magnetic (EM) scanning techniques. PUL survey activities were conducted across the entire Site to identify potential underground utilities and/or to detect subsurface anomalies in the vicinity of the proposed soil borings.

During the October 2014 Phase I ESA site visit, heating oil tanks were noted in the basement of the property building. During the PUL of the site, the property owner revealed an abandoned heating oil underground storage tank (UST) adjacent to the rear of the site building. The presence of the buried heating oil UST was located and marked during the PUL survey.

An 8-inch diameter steel pipe was noted adjacent to Operators Way along the proposed northeast Site boundary. The pipe protrudes approximately 6-inches above ground, is painted yellow, and is sealed via a steel cap securely welded to the pipe. This pipe is presumed to be a former potable water or supply well.

2.3 Limited Phase II ESA – November 2014

2.3.1 Soil Boring and Sample Collection

On November 13, 2014, six soil borings, identified as SB-01 through SB-06, were advanced at the Site by Geo-Environmental using hydraulic push technology and hand auger techniques. The soil borings were advanced in pre-determined locations to assess the REC identified during the October 2014 Phase I ESA for the Site. **Figure 2** illustrates the soil boring locations at the Site. A Cardno staff scientist was on-Site to observe the drilling activities and prepare detailed field descriptions of the subsurface material. Descriptions of the subsurface material in each sample were based upon the Unified Soil Classification System (USCS). Field observations such as color, odor, staining, and total photo-ionizable vapors were recorded in the boring logs. Soil boring and sample collection activities were completed in general accordance with the most current version of the Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Manual, SW-846 (*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Office of Solid Waste and Emergency Response*).

Each soil boring was hand cleared to 6 feet bgs using hand auger techniques to ensure underground utilities were not disturbed, and a Geoprobe was then used to direct push those soil borings to their terminal depths. The direct push technology involved driving a 2-inch diameter macro-core into the subsurface with a hydraulic ram. Soil samples were retrieved at approximately 4-foot intervals using a 1.5-inch inside diameter by 4-foot long macro-core. The sampler was fitted with a removable cutting shoe and clear acetate liners. Soil samples were collected in duplicate for each 2-foot sample interval. The first portion was placed into a re-sealable plastic bag and sealed for field screening; the second portion was placed into laboratory supplied glass jars with Teflon lined lids. The jarred samples were immediately placed in a cooler with ice for soil sample preservation. To reduce the possibility of cross-contamination, a new pair of disposable nitrile gloves was worn by the staff scientist for each sample collected.

Soil samples were screened with a PID, which measures total photo-ionizable vapors in units of ppm. PID readings ranged from 0.0 ppm to 16.2 ppm (SB-04, 0-2'). The jarred soil samples having the highest PID reading from each soil boring were submitted for laboratory analysis. The PID was calibrated in the field each day with 100 ppm isobutylene calibration gas. All soil samples were sent to Pace Analytical Services, Inc. (Pace) of Greensburg, Pennsylvania for laboratory analysis under chain-of-custody protocol.

Saturated conditions were not encountered in any soil boring during the November 2014 investigation.

2.4 Additional Limited Phase II ESA – December 2014

On December 18, 2014, Cardno installed three soil borings that were converted to temporary monitoring wells TW-01, TW-02, and TW-03 for the purpose of collecting groundwater samples at the western property boundary to investigate the former retail fuelling station REC noted in the Phase I ESA for the Site. **Figure 2** illustrates the soil boring / temporary monitoring well locations at the Site.

2.4.1 Soil Boring and Sample Collection

Cardno continued the Limited Phase II ESA activities at the Site by the installation of three soil borings that were converted to temporary monitoring wells. Three soil borings identified as TW-01, TW-02, and TW-03, were advanced at the Site by EnviroCore using hollow-stem augers and hand auger techniques. Soil borings TW-01 and TW-02 were installed adjacent to November 2014 soil boring locations SB-01 and SB-02, respectively, and soil boring TW-03 was installed at a location immediately between TW-01 and TW-02 locations. **Figure 2** illustrates the soil boring locations at the Site.

Soil borings TW-01, TW-02, and TW-03 were advanced to auger refusal at depths of 24 feet, 24.50 feet, and 24.25 feet bgs, respectively. One soil sample (TW-03, 10-12 feet bgs) was collected at the interval above decomposed bedrock and submitted for laboratory analysis. Soil samples were collected for laboratory analysis from the November 2014 soil boring locations SB-01 and SB-02, therefore, soil samples were collected from soil borings TW-01 and TW-02 only for soil descriptions and field screening purposes.

Soil samples were screened with a PID and readings ranged from 0.0 ppm to 0.1 ppm. All soil samples were sent to Pace for laboratory analysis under chain-of-custody protocol.

Saturated zones were not encountered prior to the installation of the temporary monitoring wells.

2.4.2 Temporary Monitoring Well Installation and Groundwater Sampling

Upon completion of the soil borings TW-01, TW-02, and TW-03, temporary monitoring wells consisting of 1-inch inner diameter poly-vinyl chloride (PVC) solid riser and 10-feet of slotted well screen were placed in the boreholes. Groundwater was allowed to infiltrate each boring prior to collection of groundwater samples for laboratory analysis.

Groundwater samples were collected via peristaltic pump and dedicated disposable tubing to minimize disturbance of sediment within the saturated portion of the soil borings. The jarred groundwater samples were immediately placed in a cooler with ice for soil sample preservation. All groundwater samples were delivered to Pace for laboratory analysis utilizing chain-of-custody controls.

At the completion of groundwater sampling activities, the temporary monitoring wells were abandoned by removing the well materials and plugging the boreholes with respective soil cuttings and bentonite, and repairing the surface to grade.

2.5 Laboratory Analysis

Soil Laboratory Analysis

The November 13, 2014 and December 18, 2014 soil samples were delivered to Pace for laboratory analysis for the following Clean Fill parameters:

- > Clean Fill VOCs by EPA Method 5035/8260C;

- > Clean Fill SVOCs by EPA Method 8270D.
- > Clean Fill Metals by EPA Methods 6010C/7470/7471B;
- > Clean Fill Pesticides by EPA Method 8081B;
- > Clean Fill Herbicides by EPA Method 8151; and
- > Clean Fill PCBs by EPA Method 8082A.

Groundwater Laboratory Analysis

The December 18, 2014 groundwater samples were delivered to Pace for laboratory analysis for the following parameters:

- > VOCs by EPA Method 8260B;
- > PAHs by EPA Method 8270SIM; and
- > Dissolved Lead by EPA Methods 200.7.

2.6 Waste Disposal

Soil cuttings from the November 13, 2014 and December 18, 2014 drilling activities were returned to the respective boring of origin, thus no soil drums were generated during these investigations.

3 Field Observations

3.1 Site Geology / Hydrogeology

Soil borings for the November 13, 2014 and December 18, 2014 were advanced at pre-determined locations to characterize current soil and groundwater at the Site. The location of each soil boring is depicted on **Figure 2**.

3.1.1 Soil Classification

The soil profile encountered during sampling activities generally consisted of grass surface and surficial topsoil overlying light-brown to light-gray, very stiff, silty-clay. Fill was encountered in soil boring SB-04 from 0-2 feet bgs. Decomposed shale bedrock and was encountered at direct push refusal in all soil borings. Soil boring logs are included as **Appendix A**.

According to database search information available from the October 2014 Phase I ESA report for the Site, soils beneath the Property are classified as Monongahela silt loam, 3 to 8 percent slopes (MoB). MoB soils are characterized as somewhat moderately well drained silt loams, clay loams, and gravelly clay loams with low water capacity. The parent material for the soil is fine loamy alluvium derived from sandstone and siltstone.

3.1.2 Geology

During the November 13, 2014 drilling event, direct push refusal was encountered in SB-01 (6 feet), SB-2 (7 feet), SB-03 (8.5 feet), SB-04 (10 feet), SB-05 (9.5 feet), and SB-06 (10 feet). During the December 18, 2014 drilling event, standard penetration test (SPT) refusal was encountered at 13 feet, 14 feet, and 13.5 feet; and auger refusal was encountered at 24 feet, 24.5 feet, and 24.25 feet bgs in soil borings TW-01, TW-02, and TW-03, respectively.

According to the *PA DCNR's Geologic Map of Pennsylvania* dated 1980, the geology beneath the Property is identified as the Casselman Formation. This group consists of "cyclic sequences of shale, siltstone, sandstone, red beds, thin, impure limestone and thin, nonpersistent coal; red beds are associated with landslides; base is at top of Ames limestone". The property is located in the Pittsburgh Low Plateau Section of the Appalachian Plateaus Physiographic Province.

3.1.3 Hydrogeology

During the December 18, 2014 drilling event, groundwater was measured at 9 feet, 7.5 feet, and 15 feet bgs in temporary monitoring wells TW-01, TW-02, and TW-03, respectively.

Based upon a review of physical setting sources from the October 2014 Phase I ESA of the Site, the flow direction of shallow groundwater beneath the Property is presumed to be from the north or northwest to the south or southeast.

4 Analytical Results

The purpose of the November 2014 Limited Phase II ESA was to characterize soil and groundwater in the vicinity of possible impact as noted in the October 2014 Phase I ESA for the Site. The laboratory analytical reports for the November and December 2014 Limited Phase II ESA samples were received from Pace on December 29, 2014 and January 6, 2015, respectively.

The following subsection provides a summary of the laboratory analytical data for the selected analyte schedule. A summary of the Limited Phase II ESA soil analytical results can be found in **Table 1a** and **Table 1b**. A summary of the Limited Phase II ESA groundwater analytical results can be found in **Table 2**. Laboratory analytical reports for soil and groundwater results are included in **Appendix B**.

4.1 Constituent of Concern Evaluation Criteria

Soil laboratory analytical results of samples collected during the Limited Phase II ESA are compared to the PADEP Non-Residential Direct Contact Numeric Value MSCs.

Groundwater laboratory analytical results of samples collected during the Limited Phase II ESA are compared to the PADEP Residential Used-Aquifer MSCs.

4.2 Laboratory Analytical Results

4.2.1 November 2014

Sixteen metals, five VOCs, and five herbicides were identified above laboratory detection limits in the Limited Phase II ESA soil samples submitted for analysis. All concentrations of metals, VOCs, and herbicides detected above their respective laboratory detection limits are below all applicable PADEP standards.

There were no SVOCs, PCBs, or pesticides identified above laboratory detection limits in the Limited Phase II ESA. A summary of the November 2014 Limited Phase II ESA soil analytical results can be found in **Table 1a**.

4.2.2 December 2014

Soil

Seventeen metals, three VOCs, and one herbicide were identified above laboratory detection limits in the December 2014 soil sample (TW-03, 10-12') submitted for analysis. All concentrations of metals, VOCs, and the herbicide detected above their respective laboratory detection limits are below all applicable PADEP standards.

There were no SVOCs, PCBs, or pesticides identified above laboratory detection limits in the December 2014 soil sample submitted for analysis. A summary of the December 2014 Limited Phase II ESA soil analytical results can be found in **Table 1b**.

Groundwater

Three VOCs were identified above laboratory detection limits in the December 2014 groundwater samples submitted for analysis. Benzene and MTBE were detected in the groundwater sample collected for analysis from the temporary monitoring well TW-01. The concentrations of benzene and MTBE detected above their respective laboratory detection limits are below all applicable standards.

One PAH was identified above laboratory detection limits in the December 2014 groundwater samples submitted for analysis. Naphthalene was detected in the groundwater samples collected for analysis from the temporary monitoring wells TW-01 and TW-02. The concentrations of naphthalene detected above their respective laboratory detection limits are below the applicable standard.

There was no dissolved lead identified above laboratory detection limits in the December 2014 groundwater samples submitted for analysis. A summary of the Limited Phase II ESA groundwater analytical results can be found in **Table 2**.

5 Conclusions

Soil laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits are below the PADEP Non-Residential Direct Contact Numeric Value MSCs.

Groundwater laboratory analytical results of the Limited Phase II ESA indicate that all concentrations identified above their respective laboratory method detection limits below all applicable PADEP Residential Used-Aquifer MSCs.

Soil Management

Arsenic was detected in five soil samples at concentrations above the Clean Fill Limit of 12 mg/Kg. Boron was detected in one soil sample at a concentration above the Clean Fill Limit of 6.7 mg/Kg. Cobalt was detected in seven soil samples at concentrations above the Clean Fill Limit of 8.1 mg/Kg. Therefore, soil at this site may not meet Clean Fill Standards.

6 Report Limitations

This investigation is intended to be a non-biased assessment of on-Site environmental conditions as presented by the data gathered during the investigations described herein. Subsurface investigative methodologies were performed in general accordance with applicable state and federal regulatory requirements. The information presented in this report is based upon site-specific observations, generally accepted geological and environmental consulting practices, and analytical results for environmental samples collected at the time the field investigation was performed. The data presented in this report are believed to represent subsurface conditions at the facility; however, data may not be completely representative of subsurface conditions at every location. Cardno assumes no liability arising from environmental impact to, or from, the Site, regardless of the date of impact occurrence or findings.

7 References

Phase I Environmental Site Assessment Report, Proposed Speedway Store #100623, Cardno, October 2014

United States Geologic Survey, 7.5 Minute Topographic Map, *Saltsburg, Pennsylvania*, 1973

United States Environmental Protection Agency Resource Conservation and Recovery Act Manual, SW-846 (*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Office of Solid Waste and Emergency Response*), Revised March 2009.

Speedway Store #100623

FIGURES

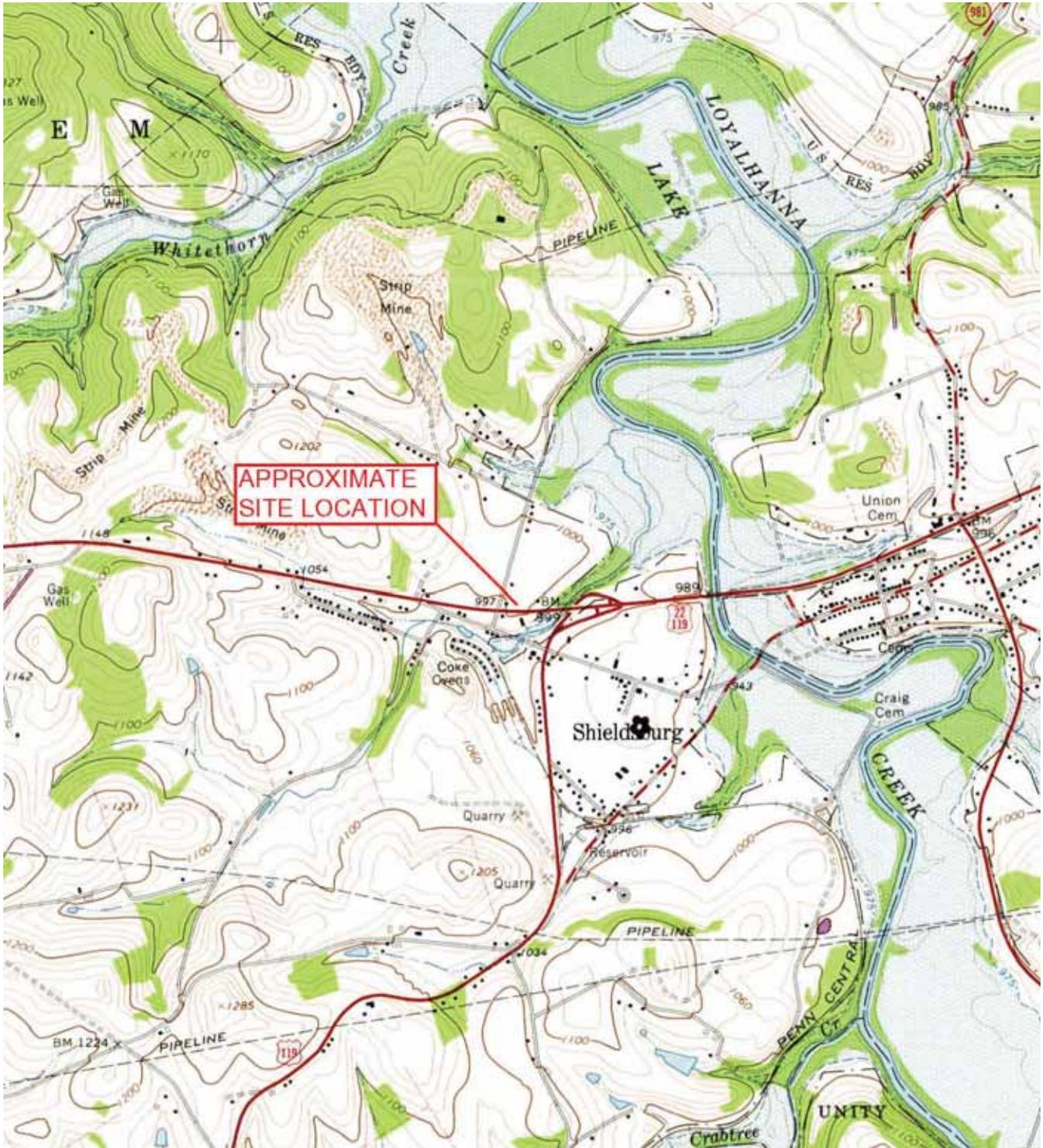


FIGURE 1 – SITE LOCATION MAP

Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. Z048000045

SOURCE: USGS 7.5-Minute Topographic Map *Saltsburg, Pennsylvania*, 1973

1:24000



FIGURE 2 – SOIL BORING / TEMPORARY WELL LOCATION MAP

Proposed Speedway #100623
107 Operators Way
New Alexandria, Pennsylvania 15670



103 North Meadows Drive, Suite 211
Wexford, Pennsylvania 15090
Cardno Project No. Z048000045

Speedway Store #100623

TABLES

Table 1b - Soil Analytical Results
December 18, 2014

Client Project ID					Speedway #100623	
Client Sample ID					TW-03 (10-12')	
Lab Sample ID					30137135001	
Sample Type					Grab	
Collect Date					12/18/2014	
Method	Compound/Parameter	Units	CAS No.	PADEP Non-Residential		Solid
				Direct Contact Numeric Values		
				0-2 feet	2-15 feet	
Total Solids, TPH-Oil & Grease						
ASTM D2974-87	Percent Moisture	%		--	--	12.7
Metals						
EPA 6010C	Antimony	mg/kg	7440-36-0	1100	190000	<0.34
EPA 6010C	Arsenic	mg/kg	7440-38-2	53	190000	28.9
EPA 6010C	Barium	mg/kg	7440-39-3	190000	190000	81.9
EPA 6010C	Beryllium	mg/kg	7440-41-7	5600	190000	1.3
EPA 6010C	Boron	mg/kg	7440-42-8	190000	190000	4.4 J
EPA 6010C	Cadmium	mg/kg	7440-43-9	1400	190000	0.24 J
EPA 6010C	Chromium	mg/kg	7440-47-3	--	--	13.8
EPA 6010C	Cobalt	mg/kg	7440-48-4	840	190000	21.6
EPA 6010C	Copper	mg/kg	7440-50-8	100000	190000	50.0
EPA 6010C	Lead	mg/kg	7439-92-1	1000	190000	19.7
EPA 6010C	Manganese	mg/kg	7439-96-5	130000	190000	938
EPA 6010C	Nickel	mg/kg	7440-02-0	56000	190000	38.5
EPA 6010C	Selenium	mg/kg	7782-49-2	14000	190000	<0.52
EPA 6010C	Silver	mg/kg	7440-22-4	14000	190000	0.23 J
EPA 6010C	Thallium	mg/kg	7440-28-0	200	190000	<0.30
EPA 6010C	Tin	mg/kg	7440-31-5	190000	190000	3.3 J
EPA 6010C	Vanadium	mg/kg	7440-62-2	20000	190000	20.7
EPA 6010C	Zinc	mg/kg	7440-66-6	190000	190000	61.7
EPA 7471B	Mercury	mg/kg	7439-97-6	450	190000	0.039 J
Volatile Organic Compounds (VOCs)						
EPA 8260C	Acetone	mg/kg	67-64-1	10000	10000	0.012
EPA 8260C	Acetonitrile	mg/kg	75-05-8	4800	5500	<0.0086
EPA 8260C	Acrolein	mg/kg	107-02-8	1.6	1.8	<0.0052
EPA 8260C	Acrylonitrile	mg/kg	107-13-1	33	38	<0.0031
EPA 8260C	Allyl chloride	mg/kg	107-05-1	80	91	<0.0037
EPA 8260C	Benzene	mg/kg	71-43-2	290	330	0.0039 J
EPA 8260C	Bromochloromethane	mg/kg	74-97-5	10000	10000	<0.00074
EPA 8260C	Bromodichloromethane	mg/kg	75-27-4	60	69	<0.0017
EPA 8260C	Bromoform	mg/kg	75-25-2	2000	2300	<0.0024
EPA 8260C	Bromomethane	mg/kg	74-83-9	400	460	<0.0028
EPA 8260C	2-Butanone (MEK)	mg/kg	78-93-3	10000	10000	<0.0012
EPA 8260C	n-Butylbenzene	mg/kg	104-51-8	10000	10000	<0.0021
EPA 8260C	sec-Butylbenzene	mg/kg	135-98-8	10000	10000	<0.0014
EPA 8260C	tert-Butylbenzene	mg/kg	98-06-6	10000	10000	<0.0019
EPA 8260C	Carbon disulfide	mg/kg	75-15-0	10000	10000	0.0014 J
EPA 8260C	Carbon tetrachloride	mg/kg	56-23-5	150	170	<0.00085
EPA 8260C	Chlorobenzene	mg/kg	108-90-7	4000	4600	<0.00095
EPA 8260C	Chloroethane	mg/kg	75-00-3	10000	10000	<0.0016
EPA 8260C	Chloroform	mg/kg	67-66-3	97	110	<0.00068
EPA 8260C	Chloromethane	mg/kg	74-87-3	1200	1400	<0.0010
EPA 8260C	Chloroprene	mg/kg	126-99-8	560	640	<0.00078
EPA 8260C	2-Chlorotoluene	mg/kg	95-49-8	10000	10000	<0.0011
EPA 8260C	Cyclohexanone	mg/kg	108-94-1	10000	10000	<0.012
EPA 8260C	1,2-Dibromo-3-chloropropane	mg/kg	96-12-8	0.37	0.43	<0.0016
EPA 8260C	Dibromochloromethane	mg/kg	124-48-1	82	95	<0.0015
EPA 8260C	1,2-Dibromoethane (EDB)	mg/kg	106-93-4	3.7	4.3	<0.0025
EPA 8260C	Dibromomethane	mg/kg	74-95-3	10000	10000	<0.0024
EPA 8260C	1,2-Dichlorobenzene	mg/kg	95-50-1	10000	10000	<0.0010
EPA 8260C	1,3-Dichlorobenzene	mg/kg	541-73-1	8400	10000	<0.0012
EPA 8260C	1,4-Dichlorobenzene	mg/kg	106-46-7	200	230	<0.0012
EPA 8260C	Dichlorodifluoromethane	mg/kg	75-71-8	10000	10000	<0.00085
EPA 8260C	1,1-Dichloroethane	mg/kg	75-34-3	1400	1600	<0.00076
EPA 8260C	1,2-Dichloroethane	mg/kg	107-06-2	86	98	<0.00087
EPA 8260C	1,1-Dichloroethene	mg/kg	75-35-4	10000	10000	<0.00078
EPA 8260C	cis-1,2-Dichloroethene	mg/kg	156-59-2	10000	10000	<0.0024
EPA 8260C	trans-1,2-Dichloroethene	mg/kg	156-60-5	4800	5500	<0.00079
EPA 8260C	1,2-Dichloropropane	mg/kg	78-87-5	220	260	<0.0016
EPA 8260C	cis-1,3-Dichloropropene	mg/kg	10061-01-5	--	--	<0.0015
EPA 8260C	trans-1,3-Dichloropropene	mg/kg	10061-02-6	--	--	<0.0016
EPA 8260C	Diethyl ether (Ethyl ether)	mg/kg	60-29-7	10000	10000	<0.00084
EPA 8260C	1,4-Dioxane (p-Dioxane)	mg/kg	123-91-1	290	330	<0.0029
EPA 8260C	Ethyl acetate	mg/kg	141-78-6	10000	10000	<0.00092
EPA 8260C	Ethylbenzene	mg/kg	100-41-4	10000	10000	<0.0025
EPA 8260C	Ethyl methacrylate	mg/kg	97-63-2	10000	10000	<0.0015
EPA 8260C	n-Hexane	mg/kg	110-54-3	10000	10000	<0.0024
EPA 8260C	Isobutanol	mg/kg	78-83-1	10000	10000	<0.0029
EPA 8260C	Methacrylonitrile	mg/kg	126-98-7	56	64	<0.0015
EPA 8260C	Methyl acetate	mg/kg	79-20-9	10000	10000	<0.0029
EPA 8260C	Methylene Chloride	mg/kg	75-09-2	4700	5400	<0.0013

Table 1b - Soil Analytical Results
December 18, 2014

Client Project ID						Speedway #100623
Client Sample ID						TW-03 (10-12')
Lab Sample ID						30137135001
Sample Type						Grab
Collect Date						12/18/2014
Method	Compound/Parameter	Units	CAS No.	PADEP Non-Residential		Solid
				Direct Contact Numeric Values		
				0-2 feet	2-15 feet	
EPA 8260C	Methyl methacrylate	mg/kg	80-62-6	10000	10000	<0.0017
EPA 8260C	2-Methylnaphthalene	mg/kg	91-57-6	11000	190000	<0.0016
EPA 8260C	4-Methyl-2-pentanone (MIBK)	mg/kg	108-10-1	10000	10000	<0.00099
EPA 8260C	Methyl-tert-butyl ether	mg/kg	1634-04-4	3200	3700	<0.00068
EPA 8260C	Naphthalene	mg/kg	91-20-3	56000	190000	<0.0024
EPA 8260C	2-Nitropropane	mg/kg	79-46-9	0.82	0.94	<0.011
EPA 8260C	n-Propylbenzene	mg/kg	103-65-1	10000	10000	<0.0012
EPA 8260C	Styrene	mg/kg	100-42-5	10000	10000	<0.0011
EPA 8260C	1,1,1,2-Tetrachloroethane	mg/kg	630-20-6	300	340	<0.00093
EPA 8260C	1,1,2,2-Tetrachloroethane	mg/kg	79-34-5	38	44	<0.00085
EPA 8260C	Tetrachloroethene	mg/kg	127-18-4	1500	4400	<0.00070
EPA 8260C	Toluene	mg/kg	108-88-3	10000	10000	0.0024 J
EPA 8260C	1,2,3-Trichlorobenzene	mg/kg	87-61-6	--	--	<0.0014
EPA 8260C	1,2,4-Trichlorobenzene	mg/kg	120-82-1	10000	10000	<0.0013
EPA 8260C	1,1,1-Trichloroethane	mg/kg	71-55-6	10000	10000	<0.0025
EPA 8260C	1,1,2-Trichloroethane	mg/kg	79-00-5	140	160	<0.00088
EPA 8260C	Trichloroethene	mg/kg	79-01-6	1300	1500	<0.00073
EPA 8260C	1,2,3-Trichloropropane	mg/kg	96-18-4	11	460	<0.00099
EPA 8260C	1,1,2-Trichlorotrifluoroethane	mg/kg	76-13-1	10000	10000	<0.00064
EPA 8260C	1,2,4-Trimethylbenzene	mg/kg	95-63-6	560	640	<0.0011
EPA 8260C	1,3,5-Trimethylbenzene	mg/kg	108-67-8	480	550	<0.0013
EPA 8260C	Vinyl acetate	mg/kg	108-05-4	10000	10000	<0.0013
EPA 8260C	Vinyl chloride	mg/kg	75-01-4	110	580	<0.00078
EPA 8260C	Xylene (Total)	mg/kg	1330-20-7	8000	9100	<0.0029
Pesticides						
EPA 8151	2,4-D	mg/kg	94-75-7	28000	190000	<0.034
EPA 8151	2,4,5-T	mg/kg	93-76-5	28000	190000	<0.032
EPA 8151	2,4,5-TP (Silvex)	mg/kg	93-72-1	22000	190000	<0.032
Herbicides						
EPA 8081B	Aldrin	mg/kg	309-00-2	4.7	190000	<0.00087
EPA 8081B	beta-BHC	mg/kg	319-85-7	44	190000	<0.00022
EPA 8081B	delta-BHC	mg/kg	319-86-8	100	100	<0.00011
EPA 8081B	gamma-BHC (Lindane)	mg/kg	58-89-9	72	190000	<0.00013
EPA 8081B	Chlordane (Technical)	mg/kg	57-74-9	230	190000	<0.011
EPA 8081B	4,4'-DDD	mg/kg	72-54-8	330	190000	<0.00017
EPA 8081B	4,4'-DDE	mg/kg	72-55-9	230	190000	<0.00017
EPA 8081B	4,4'-DDT	mg/kg	50-29-3	230	190000	<0.00019
EPA 8081B	Dieldrin	mg/kg	60-57-1	5	190000	<0.00021
EPA 8081B	Endosulfan I	mg/kg	959-98-8	17000	190000	<0.00011
EPA 8081B	Endosulfan II	mg/kg	33213-65-9	17000	190000	<0.00017
EPA 8081B	Endosulfan sulfate	mg/kg	1031-07-8	17000	190000	<0.00015
EPA 8081B	Endrin	mg/kg	72-20-8	840	190000	<0.00020
EPA 8081B	Heptachlor	mg/kg	76-44-8	18	190000	<0.00022
EPA 8081B	Heptachlor epoxide	mg/kg	1024-57-3	8.7	190000	0.00029 J
EPA 8081B	Methoxychlor	mg/kg	72-43-5	14000	190000	<0.0011
EPA 8081B	Toxaphene	mg/kg	8001-35-2	72	190000	<0.0040
Polychlorinated Biphenols (PCBs)						
EPA 8082A	PCB-1016 (Aroclor 1016)	mg/kg	12674-11-2	200	10000	<0.0028
EPA 8082A	PCB-1221 (Aroclor 1221)	mg/kg	11104-28-2	40	10000	<0.0087
EPA 8082A	PCB-1232 (Aroclor 1232)	mg/kg	11141-16-5	40	10000	<0.0058
EPA 8082A	PCB-1242 (Aroclor 1242)	mg/kg	53469-21-9	40	10000	<0.0037
EPA 8082A	PCB-1248 (Aroclor 1248)	mg/kg	12672-29-6	40	10000	<0.0040
EPA 8082A	PCB-1254 (Aroclor 1254)	mg/kg	11097-69-1	40	10000	<0.0088
EPA 8082A	PCB-1260 (Aroclor 1260)	mg/kg	11096-82-5	40	190000	<0.0029
EPA 8082A	PCB, Total	mg/kg	1336-36-3	--	--	<0.0191
Semi-Volatile Organic Compounds (SVOCs)						
EPA 8270D	Acenaphthene	mg/kg	83-32-9	170000	190000	<0.044
EPA 8270D	Acenaphthylene	mg/kg	208-96-8	170000	190000	<0.043
EPA 8270D	Acetophenone	mg/kg	98-86-2	10000	10000	<0.046
EPA 8270D	Aniline	mg/kg	62-53-3	79	91	<0.068
EPA 8270D	Anthracene	mg/kg	120-12-7	190000	190000	<0.058
EPA 8270D	Atrazine	mg/kg	1912-24-9	340	190000	<0.072
EPA 8270D	Benzidine	mg/kg	92-87-5	0.34	190000	<3.7
EPA 8270D	Benzo(a)anthracene	mg/kg	56-55-3	110	190000	<0.043
EPA 8270D	Benzo(a)pyrene	mg/kg	50-32-8	11	190000	<0.13
EPA 8270D	Benzo(b)fluoranthene	mg/kg	205-99-2	110	190000	<0.074
EPA 8270D	Benzo(g,h,i)perylene	mg/kg	191-24-2	170000	190000	<0.11
EPA 8270D	Benzo(k)fluoranthene	mg/kg	207-08-9	1100	190000	<0.13
EPA 8270D	Benzoic acid	mg/kg	65-85-0	190000	190000	<0.29
EPA 8270D	Benzyl alcohol	mg/kg	100-51-6	10000	10000	<0.055

Table 1b - Soil Analytical Results
December 18, 2014

Client Project ID					Speedway #100623	
Client Sample ID					TW-03 (10-12')	
Lab Sample ID					30137135001	
Sample Type					Grab	
Collect Date					12/18/2014	
Method	Compound/Parameter	Units	CAS No.	PADEP Non-Residential		Solid
				Direct Contact Numeric Values		
				0-2 feet	2-15 feet	
EPA 8270D	Biphenyl (Diphenyl)	mg/kg	92-52-4	140000	190000	<0.068
EPA 8270D	Butylbenzylphthalate	mg/kg	85-68-7	10000	10000	<0.043
EPA 8270D	Carbazole	mg/kg	86-74-8	4000	190000	<0.066
EPA 8270D	4-Chloro-3-methylphenol	mg/kg	59-50-7	14000	190000	<0.059
EPA 8270D	4-Chloroaniline	mg/kg	106-47-8	400	190000	<0.083
EPA 8270D	bis(2-Chloroethyl) ether	mg/kg	111-44-4	6.7	7.7	<0.18
EPA 8270D	bis(2-Chloroisopropyl) ether	mg/kg	108-60-1	220	250	<0.050
EPA 8270D	2-Chloronaphthalene	mg/kg	91-58-7	190000	190000	<0.039
EPA 8270D	2-Chlorophenol	mg/kg	95-57-8	10000	10000	<0.048
EPA 8270D	Chrysene	mg/kg	218-01-9	11000	190000	<0.080
EPA 8270D	Dibenz(a,h)anthracene	mg/kg	53-70-3	11	190000	<0.13
EPA 8270D	3,3'-Dichlorobenzidine	mg/kg	91-94-1	180	190000	<0.041
EPA 8270D	2,4-Dichlorophenol	mg/kg	120-83-2	8400	190000	<0.064
EPA 8270D	Diethylphthalate	mg/kg	84-66-2	10000	10000	<0.041
EPA 8270D	2,4-Dimethylphenol	mg/kg	105-67-9	10000	10000	<0.066
EPA 8270D	Di-n-butylphthalate	mg/kg	84-74-2	10000	10000	<0.062
EPA 8270D	2,4-Dinitrophenol	mg/kg	51-28-5	5600	190000	<0.34
EPA 8270D	2,4-Dinitrotoluene	mg/kg	121-14-2	260	190000	<0.078
EPA 8270D	2,6-Dinitrotoluene	mg/kg	606-20-2	2800	190000	<0.049
EPA 8270D	Di-n-octylphthalate	mg/kg	117-84-0	10000	10000	<0.069
EPA 8270D	bis(2-Ethylhexyl)phthalate	mg/kg	117-81-7	5700	10000	<0.13
EPA 8270D	Fluoranthene	mg/kg	206-44-0	110000	190000	<0.057
EPA 8270D	Fluorene	mg/kg	86-73-7	110000	190000	<0.053
EPA 8270D	Hexachloro-1,3-butadiene	mg/kg	87-68-3	1000	10000	<0.066
EPA 8270D	Hexachlorobenzene	mg/kg	118-74-1	50	190000	<0.048
EPA 8270D	Hexachlorocyclopentadiene	mg/kg	77-47-4	10000	10000	<0.12
EPA 8270D	Hexachloroethane	mg/kg	67-72-1	550	640	<0.057
EPA 8270D	Indeno(1,2,3-cd)pyrene	mg/kg	193-39-5	110	190000	<0.091
EPA 8270D	Isophorone	mg/kg	78-59-1	10000	10000	<0.041
EPA 8270D	3&4-Methylphenol(m&p Cresol)	mg/kg		--	--	<0.075
EPA 8270D	2-Nitroaniline	mg/kg	88-74-4	8400	190000	<0.044
EPA 8270D	3-Nitroaniline	mg/kg	99-09-2	840	190000	<0.070
EPA 8270D	4-Nitroaniline	mg/kg	100-01-6	4000	190000	<0.10
EPA 8270D	Nitrobenzene	mg/kg	98-95-3	5600	10000	<0.059
EPA 8270D	2-Nitrophenol	mg/kg	88-75-5	22000	190000	<0.042
EPA 8270D	4-Nitrophenol	mg/kg	100-02-7	22000	190000	<0.15
EPA 8270D	N-Nitrosodimethylamine	mg/kg	62-75-9	0.16	0.18	<0.048
EPA 8270D	N-Nitroso-di-n-propylamine	mg/kg	621-64-7	11	10000	<0.044
EPA 8270D	N-Nitrosodiphenylamine	mg/kg	86-30-6	16000	190000	<0.038
EPA 8270D	Pentachlorophenol	mg/kg	87-86-5	660	190000	<0.093
EPA 8270D	Phenanthrene	mg/kg	85-01-8	190000	190000	<0.069
EPA 8270D	Phenol	mg/kg	108-95-2	190000	190000	<0.091
EPA 8270D	Pyrene	mg/kg	129-00-0	84000	190000	<0.057
EPA 8270D	Pyridine	mg/kg	110-86-1	2800	10000	<0.31
EPA 8270D	1,2,4,5-Tetrachlorobenzene	mg/kg	95-94-3	840	190000	<0.070
EPA 8270D	2,3,4,6-Tetrachlorophenol	mg/kg	58-90-2	84000	190000	<0.068
EPA 8270D	2,4,5-Trichlorophenol	mg/kg	95-95-4	190000	190000	<0.11
EPA 8270D	2,4,6-Trichlorophenol	mg/kg	88-06-2	2800	190000	<0.068
EPA 8270D by SIM	Quinoline	mg/kg	91-22-5	26	10000	<0.0019
Other						
EPA 7196A	Chromium, Hexavalent	mg/kg	18540-29-9	8400	20000	<0.42
Trivalent Chromium Calculation	Chromium, Trivalent	mg/kg	16065-83-1	190000	190000	13.4

81.9 Parameter detected above detection limit.
<0.34 Parameter not detected above laboratory detection limit

Table 2 - Groundwater Analytical Results
December 18, 2014

Client Project ID					Speedway #100623	Speedway #100623	Speedway #100623
Client Sample ID					TW-01	TW-02	TW-03
Lab Sample ID					30137135002	30137135003	30137135004
Sample Type					Grab	Grab	Grab
Collect Date					12/18/2014	12/18/2014	12/18/2014
Method	Compound/Parameter	Units	CAS No.	PADEP MSCs	Water	Water	Water
				Used-Aquifer			
				Residential			
Dissolved Lead							
EPA 6010C	Lead, Dissolved	ug/L	7439-92-1	5	<3.7	<3.7	<3.7
Volatile Organic Compounds (VOCs)							
EPA 8260C	Acetone	ug/L	67-64-1	33000	<2.6	<2.6	<2.6
EPA 8260C	Acrolein	ug/L	107-02-8	0.042	<1.7	<1.7	<1.7
EPA 8260C	Acrylonitrile	ug/L	107-13-1	0.72	<1.6	<1.6	<1.6
EPA 8260C	Benzene	ug/L	71-43-2	5	2.4	<0.065	<0.065
EPA 8260C	Bromobenzene	ug/L	108-86-1	--	<0.23	<0.23	<0.23
EPA 8260C	Bromodichloromethane	ug/L	75-27-4	80	<0.15	<0.15	<0.15
EPA 8260C	Bromoform	ug/L	75-25-2	80	<0.25	<0.25	<0.25
EPA 8260C	Bromomethane	ug/L	74-83-9	10	<0.37	<0.37	<0.37
EPA 8260C	2-Butanone (MEK)	ug/L	78-93-3	4000	<1.1	<1.1	<1.1
EPA 8260C	n-Butylbenzene	ug/L	104-51-8	1500	<0.16	<0.16	<0.16
EPA 8260C	sec-Butylbenzene	ug/L	135-98-8	1500	<0.16	<0.16	<0.16
EPA 8260C	tert-Butylbenzene	ug/L	98-06-6	1500	<0.28	<0.28	<0.28
EPA 8260C	Carbon tetrachloride	ug/L	56-23-5	5	<0.24	<0.24	<0.24
EPA 8260C	Chlorobenzene	ug/L	108-90-7	100	<0.12	<0.12	<0.12
EPA 8260C	Chloroethane	ug/L	75-00-3	230	<0.48	<0.48	<0.48
EPA 8260C	2-Chloroethylvinyl ether	ug/L	110-75-8	5	<2.0	<2.0	<2.0
EPA 8260C	Chloroform	ug/L	67-66-3	80	<0.16	<0.16	<0.16
EPA 8260C	Chloromethane	ug/L	74-87-3	30	<0.21	<0.21	<0.21
EPA 8260C	2-Chlorotoluene	ug/L	95-49-8	100	<0.18	<0.18	<0.18
EPA 8260C	4-Chlorotoluene	ug/L	106-43-4	100	<0.21	<0.21	<0.21
EPA 8260C	Dibromochloromethane	ug/L	124-48-1	80	<0.22	<0.22	<0.22
EPA 8260C	Dibromomethane	ug/L	74-95-3	370	<0.19	<0.19	<0.19
EPA 8260C	1,2-Dichlorobenzene	ug/L	95-50-1	600	<0.23	<0.23	<0.23
EPA 8260C	1,3-Dichlorobenzene	ug/L	541-73-1	600	<0.26	<0.26	<0.26
EPA 8260C	1,4-Dichlorobenzene	ug/L	106-46-7	75	<0.17	<0.17	<0.17
EPA 8260C	Dichlorodifluoromethane	ug/L	75-71-8	1000	<0.20	<0.20	<0.20
EPA 8260C	1,1-Dichloroethane	ug/L	75-34-3	31	<0.16	<0.16	<0.16
EPA 8260C	1,2-Dichloroethane	ug/L	107-06-2	5	<0.14	<0.14	<0.14
EPA 8260C	1,1-Dichloroethene	ug/L	75-35-4	7	<0.14	<0.14	<0.14
EPA 8260C	cis-1,2-Dichloroethene	ug/L	156-59-2	70	<0.20	<0.20	<0.20
EPA 8260C	trans-1,2-Dichloroethene	ug/L	156-60-5	100	<0.18	<0.18	<0.18
EPA 8260C	1,2-Dichloropropane	ug/L	78-87-5	5	<0.23	<0.23	<0.23
EPA 8260C	1,3-Dichloropropane	ug/L	142-28-9	--	<0.24	<0.24	<0.24
EPA 8260C	2,2-Dichloropropane	ug/L	594-20-7	--	<0.26	<0.26	<0.26
EPA 8260C	1,1-Dichloropropene	ug/L	563-58-6	--	<0.29	<0.29	<0.29
EPA 8260C	cis-1,3-Dichloropropene	ug/L	10061-01-7	--	<0.19	<0.19	<0.19
EPA 8260C	trans-1,3-Dichloropropene	ug/L	10061-02-5	--	<0.23	<0.23	<0.23
EPA 8260C	Diisopropyl ether	ug/L	108-20-3	--	<0.14	<0.14	<0.14
EPA 8260C	Ethylbenzene	ug/L	100-41-4	700	<0.12	<0.12	<0.12
EPA 8260C	Hexachloro-1,3-butadiene	ug/L	87-68-3	8.5	<0.91	<0.91	<0.91
EPA 8260C	Isopropylbenzene (Cumene)	ug/L	98-82-8	840	<0.12	<0.12	<0.12
EPA 8260C	p-Isopropyltoluene	ug/L	99-87-6	--	<0.14	<0.14	<0.14
EPA 8260C	Methylene Chloride	ug/L	75-09-2	5	<0.23	<0.23	<0.23
EPA 8260C	4-Methyl-2-pentanone (MIBK)	ug/L	108-10-1	2900	<0.29	<0.29	<0.29
EPA 8260C	Methyl-tert-butyl ether	ug/L	1634-04-4	20	3.0	<0.19	<0.19
EPA 8260C	Naphthalene	ug/L	91-20-3	100	<0.33	<0.33	<0.33
EPA 8260C	n-Propylbenzene	ug/L	103-65-1	1500	<0.13	<0.13	<0.13
EPA 8260C	Styrene	ug/L	100-42-5	100	<0.18	<0.18	<0.18
EPA 8260C	1,1,1,2-Tetrachloroethane	ug/L	630-20-6	70	<0.14	<0.14	<0.14
EPA 8260C	1,1,2,2-Tetrachloroethane	ug/L	79-34-5	0.84	<0.22	<0.22	<0.22
EPA 8260C	Tetrachloroethene	ug/L	127-18-4	5	<0.12	<0.12	<0.12
EPA 8260C	Toluene	ug/L	108-88-3	1000	<0.11	<0.11	<0.11
EPA 8260C	1,2,3-Trichlorobenzene	ug/L	87-61-6	--	<0.29	<0.29	<0.29
EPA 8260C	1,2,4-Trichlorobenzene	ug/L	120-82-1	70	<0.33	<0.33	<0.33
EPA 8260C	1,1,1-Trichloroethane	ug/L	71-55-6	200	<0.19	<0.19	<0.19
EPA 8260C	1,1,2-Trichloroethane	ug/L	79-00-5	5	<0.23	<0.23	<0.23
EPA 8260C	Trichloroethene	ug/L	79-01-6	5	<0.15	<0.15	<0.15
EPA 8260C	Trichlorofluoromethane	ug/L	75-69-4	2000	<0.19	<0.19	<0.19
EPA 8260C	1,2,3-Trichloropropane	ug/L	96-18-4	40	<0.34	<0.34	<0.34
EPA 8260C	1,1,2-Trichlorotrifluoroethane	ug/L	76-13-1	63000	<0.14	<0.14	<0.14
EPA 8260C	1,2,4-Trimethylbenzene	ug/L	95-63-6	15	<0.13	<0.13	<0.13
EPA 8260C	1,3,5-Trimethylbenzene	ug/L	108-67-8	13	<0.12	<0.12	<0.12
EPA 8260C	Vinyl chloride	ug/L	75-01-4	2	<0.13	<0.13	<0.13
EPA 8260C	Xylene (Total)	ug/L	1330-20-7	10000	<0.31	<0.31	<0.31

Table 2 - Groundwater Analytical Results
December 18, 2014

Client Project ID					Speedway #100623	Speedway #100623	Speedway #100623
Client Sample ID					TW-01	TW-02	TW-03
Lab Sample ID					30137135002	30137135003	30137135004
Sample Type					Grab	Grab	Grab
Collect Date					12/18/2014	12/18/2014	12/18/2014
Method	Compound/Parameter	Units	CAS No.	PADEP MSCs	Water	Water	Water
				Used-Aquifer			
				Residential			
Polycyclic Aromatic Hydrocarbons (PAHs)							
EPA 8011	1,2-Dibromo-3-chloropropane	ug/L	96-12-8	0.2	<0.012	<0.012	<0.0098
EPA 8011	1,2-Dibromoethane (EDB)	ug/L	106-93-4	0.05	<0.0091	<0.0091	<0.0073
EPA 8270D by SIM	Acenaphthene	ug/L	83-32-9	2200	<0.023	<0.018	<0.018
EPA 8270D by SIM	Acenaphthylene	ug/L	208-96-8	2200	<0.022	<0.017	<0.017
EPA 8270D by SIM	Anthracene	ug/L	120-12-7	66	<0.039	<0.031	<0.030
EPA 8270D by SIM	Benzo(a)anthracene	ug/L	56-55-3	0.29	<0.0049	<0.0038	<0.0038
EPA 8270D by SIM	Benzo(a)pyrene	ug/L	50-32-8	0.2	<0.11	<0.087	<0.086
EPA 8270D by SIM	Benzo(b)fluoranthene	ug/L	205-99-2	0.29	<0.0055	<0.0043	<0.0042
EPA 8270D by SIM	Benzo(g,h,i)perylene	ug/L	191-24-2	0.26	<0.091	<0.072	<0.070
EPA 8270D by SIM	Benzo(k)fluoranthene	ug/L	207-08-9	0.55	<0.018	<0.014	<0.014
EPA 8270D by SIM	Chrysene	ug/L	218-01-9	1.9	<0.0026	<0.0020	<0.0020
EPA 8270D by SIM	Dibenz(a,h)anthracene	ug/L	53-70-3	0.029	<0.016	<0.013	<0.012
EPA 8270D by SIM	Fluoranthene	ug/L	206-44-0	260	<0.0046	<0.0036	<0.0035
EPA 8270D by SIM	Fluorene	ug/L	86-73-7	1500	<0.020	<0.015	<0.015
EPA 8270D by SIM	Indeno(1,2,3-cd)pyrene	ug/L	193-39-5	0.29	<0.0047	<0.0037	<0.0036
EPA 8270D by SIM	Naphthalene	ug/L	91-20-3	100	0.068 J	0.14	<0.030
EPA 8270D by SIM	Phenanthrene	ug/L	85-01-8	1100	<0.026	<0.020	<0.020
EPA 8270D by SIM	Pyrene	ug/L	129-00-0	130	<0.020	<0.016	<0.016

2.4 Parameter detected above detection limit.
<2.6 Parameter not detected above laboratory detection limit

Speedway Store #100623

APPENDIX A
SOIL BORING / TEMPORARY WELL
LOGS



103 North Meadows Drive, Suite 211
 Wexford, PA 15090
 Telephone: 724-935-4330
 Fax: 724-935-4350

TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-01
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
SURFACE ELEVATION											
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	1.0		0-2	HA				M		0.0	Soil Sample 0-2' @ 0920.
Silty-Clay (CL-ML) Brown, moist, silty-clay.			2-4	HA				M		0.0	
Some angular sandstone gravel.	4.0										
Light- to dark-gray.	4.5		4-6	HA				D		0.0	Soil Sample 4-6' @ 0925.
Light-gray, dry, decomposed shale bedrock.	5.3	5									
Direct push refusal at 6 feet bgs.	6.0										

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ Cave Depth _____ ft. | DP - Direct Push |
| MC - Macrocore | | | |



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 Fax: 724-935-4350

TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-02
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
SURFACE ELEVATION											
<p>TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.</p> <p>Silty-Clay (CL-ML) Brown, moist, silty-clay.</p> <p>Light-brown to light-gray, moist, very stiff/tight.</p> <p>Light-gray, dry, decomposed shale bedrock.</p> <p>Direct push refusal at 7 feet bgs.</p>	1.0		0-2	HA				M		0.0	Soil Sample 0-2' @ 0935.
			2-4	HA				M		0.0	
	4.0		4-6	HA				M		0.0	
		5									
	6.5		6-7	DP				D		0.0	Soil Sample 6-7' @ 1240.
	7.0										

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ After _____ hours _____ ft. | DP - Direct Push |
| MC - Macrocore | | ⊠ Cave Depth _____ ft. | |



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TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-03
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	1.0		0-2	HA				M		0.0	Soil Sample 0-2' @ 0955.
Sandy-gravel (GP) Brown, moist, angular and rounded unsorted gravel, some silt and clay.			2-4	HA				M		0.0	
Silty-Clay (CL-ML) Gray, moist, stiff, silty-clay.	3.0		4-6	HA				M		0.0	
Light-brown to dark-brown, very stiff.	6.0		6-8	DP				M		0.0	Soil Sample 6-8' @ 1155.
Light-gray, dry, decomposed shale bedrock.	8.0		8-8.5	DP				D		0.0	
Direct push refusal at 8.5 feet bgs.	8.5										

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ Cave Depth _____ ft. | DP - Direct Push |
| MC - Macrocore | | | |



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TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-04
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
SURFACE ELEVATION _____												
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	0.5		0-2	HA					M		16.2	Soil Sample 0-2' @ 1045.
FILL Gray, moist, unsorted sandy-gravel, asphalt slab at 1.5-feet, fuel odor.	1.5											
Silty-Clay (CL-ML) Brown, moist, stiff, silty-clay.			2-4	HA					M		2.4	
Light-brown to light-gray, moist, very stiff.	4.5		4-6	HA					M		0.0	
			6-8	DP					M		0.0	
Light-gray, dry, decomposed shale bedrock.	9.0		8-10	DP					D		0.0	Soil Sample 8-10' @ 1130.
	10.0	10										
Direct push refusal at 10 feet bgs.												

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ After _____ hours _____ ft. | DP - Direct Push |
| MC - Macrocore | | ⊠ Cave Depth _____ ft. | |



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TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-05
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
SURFACE ELEVATION											
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	0-2		0-2	HA				M		0.0	Soil Sample 0-2' @ 1025.
Silty-Clay (CL-ML) Light-brown, moist, silty-clay.	1.0										
			2-4	HA				M		0.0	
Some angular sandstone gravel.	4.0										
Light-gray to brown, moist, stiff.	4.5		4-6	HA				M		0.0	
	5										
			6-8	DP				M		0.0	
Light- to dark-gray, moist, very stiff.	8.0										
Light-gray, dry, decomposed shale bedrock.	8.5		8-9.5	DP				D		0.0	Soil Sample 8-9.5' @ 1255.
Direct push refusal at 9.5 feet bgs.	9.5										

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ After _____ hours _____ ft. | DP - Direct Push |
| MC - Macrocore | | ⊠ Cave Depth _____ ft. | |



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TEST BORING LOG

CLIENT Speedway, LLC
 PROJECT NAME New Alexandria
 PROJECT ADDRESS 107 Operators Way, New Alexandria, PA 15670
 PROJECT LOCATION _____

BORING # SB-06
 JOB # 100623
 DRAWN BY THS
 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 11/13/14 Hammer Wt. _____ lbs.
 Date Completed 11/13/14 Hammer Drop _____ in.
 Drill Foreman Geo-Environ. Spoon Sampler OD _____ in.
 Geologist THS Rock Core Dia. _____ in.
 Boring Method HA / DP Shelby Tube OD _____ in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics	Recovery %	Groundwater	Moisture Content	Standard Penetration Test N, Blows/6 inches	Total Photoionizable Vapors (ppm)	Remarks
SURFACE ELEVATION											
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	0.0		0-2	HA				M		16.2	Soil Sample 0-2' @ 1305.
Silty-Clay (CL-ML) Brown, moist, silty-clay.	1.0										
			2-4	HA				M		2.4	
Some angular sandstone gravel.	4.0										
Stiff.	4.5		4-6	HA				M		0.0	
	5.0										
Dark-brown.	6.0		6-8	DP				M		0.0	
	7.5										
Light-brown to light-gray, moist, very stiff/tight.	8.0		8-10	DP				D		0.0	Soil Sample 8-10' @ 1355.
	9.0										
Light-gray, dry, decomposed shale bedrock.	10.0										
Direct push refusal at 10 feet bgs.	10.0	10									

- | | | | |
|--------------------------|-------------------------|---------------------------------------|--------------------------------|
| <u>Sample Type</u> | <u>Moisture Content</u> | <u>Depth to Groundwater</u> | <u>Boring Method</u> |
| SS - Driven Split Spoon | D = Dry | ● Noted on Drilling Tools _____ ft. | HSA - Hollow Stem Augers |
| ST - Pressed Shelby Tube | M = Moist | ○ Water in Sample _____ ft. | CFA - Continuous Flight Augers |
| HA - Hand Auger | W = Wet | ∇ At Completion (open hole) _____ ft. | DC - Driving Casing |
| RC - Rock Core | | ∇ After _____ hours _____ ft. | MD - Mud Drilling |
| DT - Dual Tube | | ∇ After _____ hours _____ ft. | HA - Hand Auger |
| CT - Continuous Tube | | ∇ After _____ hours _____ ft. | DP - Direct Push |
| MC - Macrocore | | ⊠ Cave Depth _____ ft. | |



103 North Meadows Drive, Suite 211
 Wexford, PA 15090
 Telephone: 724-935-4330
 Fax: 724-935-4350

WELL LOG

CLIENT Speedway, LLC BORING # TW-02
 PROJECT MANAGER Chris Carlson PG JOB # 100623
 PROJECT NAME New Alexandria DRAWN BY THS
 PROJECT LOCATION 107 Operators Way, New Alexandria, PA 15670 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/18/14 Hammer Wt. 50 lbs.
 Date Completed 12/18/14 Casing Length 14.5 ft.
 Drill Foreman EnviroCore Casing Diameter 1 in.
 Geologist THS Screen Length. 10 ft.
 Boring Method HA / HSA / CFA Screen Diameter 1 in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	PID (PPM)	Standard Penetration Test N, Blows/6 inches	Groundwater	Well Completion	Remarks
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	1.0		0-2	HA		0.1	Hand Auger			Installed adjacent to SB-02 from which soil samples were collected on 11/13/14.
SILTY-CLAY (CL-ML) Light-brown, moist, stiff, silty-clay.			2-4	HA		0.1	Hand Auger			
			4-6	HA		0.1	Hand Auger			
Dark-brown. Medium-soft.	5.5 6.0	5	6-8	SPT		0.1	4-5-6-6			
			8-10	SPT		0.1	7-8-10-9			
SANDY-CLAY (SP-SC) Wet, dark-brown, sand and clay.	10.5 10.8	10	10-12	SPT		0.1	6-10-15-16			
SILTY-CLAY (CL-ML) Dark-brown and dark-orange, moist, stiff, silty-clay.	12.5 13.0		12-14	SPT		0.1	8-21-23-44			Installed 1-inch temporary well to collect groundwater sample.
Dark-gray, moist, hard, silty-clay.	14.5		14-16	SPT		0.1	38-50/3			
SHALE Light-gray, dry, powdery, decomposed bedrock.		15	16-18	CA						Collected groundwater sample at 1440 for lab analysis.
Switched to solid-flight augers.			18-20	CA						
		20	20-22	CA						
			22-24	CA						
Auger refusal at 24.25 feet bgs.	24.3		24-24.25	CA						

Sample Type _____ PID _____ Groundwater _____ Boring Method _____
 SS - Driven Split Spoon Span Pot.= **High=0.1** At Completion 7.5 ft.
 ST - Pressed Shelby Tube Cal. Date.= 12/18/14 After _____ hours _____ ft.
 HA - Hand Auger Water in Sample _____ ft.
 RC - Rock Core Water on Rods _____ ft.
 DT - Dual Tube + At Survey _____ ft.
 CT - Continuous Tube
 RCB - Rotosonic Core Barrel
 HSA - Hollow Stem Augers
 CFA - Continuous Flight Augers
 DP - Direct Push
 MD - Mud Drilling
 HA - Hand Auger
 AR - Air Rotary



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 Wexford, PA 15090
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WELL LOG

CLIENT Speedway, LLC BORING # TW-03
 PROJECT MANAGER Chris Carlson PG JOB # 100623
 PROJECT NAME New Alexandria DRAWN BY THS
 PROJECT LOCATION 107 Operators Way, New Alexandria, PA 15670 APPROVED BY CDC

DRILLING and SAMPLING INFORMATION

TEST DATA

Date Started 12/18/14 Hammer Wt. 50 lbs.
 Date Completed 12/18/14 Casing Length 14.25 ft.
 Drill Foreman EnviroCore Casing Diameter 1 in.
 Geologist THS Screen Length. 10 ft.
 Boring Method HA / HSA / CFA Screen Diameter 1 in.

SOIL DESCRIPTION	Stratum Depth	Depth Scale	Sample No.	Sample Type	Sampler Graphics Recovery Graphics	PID (PPM)	Standard Penetration Test N, Blows/6 inches	Groundwater	Well Completion	Remarks
TOPSOIL Grass surface. Dark-brown, moist, clayey-silt.	1.0		0-2	HA		0.1	Hand Auger			
SILTY-CLAY (CL-ML) Brown, moist, medium-stiff, silty-clay.			2-4	HA		0.1	Hand Auger			
			4-6	HA		0.0	Hand Auger			
	5									
	7.0		6-8	SPT		0.1	6-5-5-6			
Dark-brown to dark-gray, dry.	7.9									
Light- to dark-brown, moist, hard.			8-10	SPT		0.1	6-14-15-20			
	10.0									
Light olive-green, dry.			10-12	SPT		0.1	10-16-21-20			Collected 10-12 feet soil sample for lab analysis.
	12.5									
SHALE Light-gray, dry, hard, decomposed bedrock.	13.0		12-14	SPT		0.1	30-35-50/4			Installed 1-inch temporary well to collect groundwater sample.
Switched to solid-flight augers.			14-16	CA						
	15									
			16-18	CA						Collected groundwater sample at 1350 for lab analysis.
			18-20	CA						
	20									
			20-22	CA						
			22-24	CA						
	24.0									
Auger refusal at 24 feet bgs.			24-24.5	CA						

Sample Type PID Groundwater Boring Method
 SS - Driven Split Spoon Span Pot.= **High=0.1** ∇ At Completion 15.0 ft. HSA - Hollow Stem Augers
 ST - Pressed Shelby Tube Cal. Date.= **12/18/14** ∇ After hours ft. CFA - Continuous Flight Augers
 HA - Hand Auger \circ Water in Sample ft. DP - Direct Push
 RC - Rock Core \bullet Water on Rods ft. MD - Mud Drilling
 DT - Dual Tube $+$ At Survey ft. HA - Hand Auger
 CT - Continuous Tube AR - Air Rotary
 RCB - Rotosonic Core Barrel

Speedway Store #100623

APPENDIX B
LABORATORY ANALYTICAL REPORTS

December 01, 2014

Mr. Tom St. John
Cardno ATC
103 North Meadows Drive
Suite 211
Wexford, PA 15090

RE: Project: Speedway #100623
Pace Project No.: 30134548

Dear Mr. St. John:

Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Mr. Chad Harrison, Cardno ATC
Mr. Luke Slezak, Cardno ATC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Speedway #100623
Pace Project No.: 30134548

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
11277CA
Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC):
E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP):
02006
Oklahoma Department of Environmental Quality: 2010-
139

Oregon Environmental Laboratory Accreditation:
LA200001
Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC):
T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-
00119
Washington Department of Ecology: C2078

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235

Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: PA014572014-4
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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SAMPLE SUMMARY

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30134548001	SB-01 (0-2')	Solid	11/13/14 09:20	11/14/14 16:50
30134548002	SB-01 (4-6')	Solid	11/13/14 09:25	11/14/14 16:50
30134548003	SB-02 (0-2')	Solid	11/13/14 09:35	11/14/14 16:50
30134548004	SB-02 (6-7')	Solid	11/13/14 12:40	11/14/14 16:50
30134548005	SB-03 (0-2')	Solid	11/13/14 09:55	11/14/14 16:50
30134548006	SB-03 (6-8')	Solid	11/13/14 11:55	11/14/14 16:50
30134548007	SB-04 (0-2')	Solid	11/13/14 10:45	11/14/14 16:50
30134548008	SB-04 (8-10')	Solid	11/13/14 11:30	11/14/14 16:50
30134548009	SB-05 (0-2')	Solid	11/13/14 10:25	11/14/14 16:50
30134548010	SB-05 (8-9.5')	Solid	11/13/14 12:55	11/14/14 16:50
30134548011	SB-06 (0-2')	Solid	11/13/14 13:05	11/14/14 16:50
30134548012	SB-06 (8-10')	Solid	11/13/14 13:55	11/14/14 16:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30134548001	SB-01 (0-2')	EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
	Trivalent Chromium Calculation	BKH	1	PASI-PA	
30134548002	SB-01 (4-6')	EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
	Trivalent Chromium Calculation	BKH	1	PASI-PA	
30134548003	SB-02 (0-2')	EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
	Trivalent Chromium Calculation	BKH	1	PASI-PA	
30134548004	SB-02 (6-7')	EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA

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SAMPLE ANALYTE COUNT

Project: Speedway #100623
Pace Project No.: 30134548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30134548005	SB-03 (0-2')	EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
		Trivalent Chromium Calculation	BKH	1	PASI-PA
		EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
30134548006	SB-03 (6-8')	ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
		Trivalent Chromium Calculation	BKH	1	PASI-PA
		EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
		Trivalent Chromium Calculation	BKH	1	PASI-PA
		30134548007	SB-04 (0-2')	EPA 8081B	SJG
EPA 8082A	SJG			10	PASI-PA
EPA 8151	SNP1			3	PASI-N
EPA 6010C	CTS			17	PASI-PA
EPA 7471B	CTS			1	PASI-PA
EPA 8270D by SIM	DJL, JSH			3	PASI-PA
EPA 8270D	DJL			68	PASI-PA
EPA 8260C	JEW			76	PASI-PA

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SAMPLE ANALYTE COUNT

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
30134548008	SB-04 (8-10')	ASTM D2974-87	SMW	1	PASI-PA		
		EPA 7196A	MM1	1	PASI-PA		
		Trivalent Chromium Calculation	BKH	1	PASI-PA		
		EPA 8081B	SJG	19	PASI-PA		
		EPA 8082A	SJG	10	PASI-PA		
		EPA 8151	SNP1	3	PASI-N		
		EPA 6010C	CTS	17	PASI-PA		
		EPA 7471B	CTS	1	PASI-PA		
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA		
		EPA 8270D	DJL	68	PASI-PA		
		EPA 8260C	JEW	76	PASI-PA		
		ASTM D2974-87	SMW	1	PASI-PA		
		30134548009	SB-05 (0-2')	EPA 7196A	MM1	1	PASI-PA
Trivalent Chromium Calculation	BKH			1	PASI-PA		
EPA 8081B	SJG			19	PASI-PA		
EPA 8082A	SJG			10	PASI-PA		
EPA 8151	SNP1			3	PASI-N		
EPA 6010C	CTS			17	PASI-PA		
EPA 7471B	CTS			1	PASI-PA		
EPA 8270D by SIM	DJL, JSH			3	PASI-PA		
EPA 8270D	DJL			68	PASI-PA		
EPA 8260C	JEW			76	PASI-PA		
ASTM D2974-87	SMW			1	PASI-PA		
EPA 7196A	MM1			1	PASI-PA		
30134548010	SB-05 (8-9.5')			Trivalent Chromium Calculation	BKH	1	PASI-PA
		EPA 8081B	SJG	19	PASI-PA		
		EPA 8082A	SJG	10	PASI-PA		
		EPA 8151	SNP1	3	PASI-N		
		EPA 6010C	CTS	17	PASI-PA		
		EPA 7471B	CTS	1	PASI-PA		
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA		
		EPA 8270D	DJL	68	PASI-PA		
		EPA 8260C	JEW	76	PASI-PA		
		ASTM D2974-87	SMW	1	PASI-PA		
		EPA 7196A	MM1	1	PASI-PA		
		30134548011	SB-06 (0-2')	Trivalent Chromium Calculation	BKH	1	PASI-PA
				EPA 8081B	SJG	19	PASI-PA

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SAMPLE ANALYTE COUNT

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
		Trivalent Chromium Calculation	BKH	1	PASI-PA
30134548012	SB-06 (8-10')	EPA 8081B	SJG	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	3	PASI-N
		EPA 6010C	CTS	17	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL, JSH	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	SMW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
		Trivalent Chromium Calculation	BKH	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-01 (0-2') Lab ID: 30134548001 Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000091	mg/kg	0.0019	0.000091	1	11/22/14 09:00	11/25/14 03:49	309-00-2	2c
beta-BHC	<0.00023	mg/kg	0.0019	0.00023	1	11/22/14 09:00	11/25/14 03:49	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 03:49	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 03:49	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.019	0.012	1	11/22/14 09:00	11/25/14 03:49	57-74-9	2c
4,4'-DDD	0.00055J	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 03:49	72-54-8	2c
4,4'-DDE	<0.00018	mg/kg	0.0039	0.00018	1	11/22/14 09:00	11/25/14 03:49	72-55-9	2c
4,4'-DDT	0.00055J	mg/kg	0.0039	0.00019	1	11/22/14 09:00	11/25/14 03:49	50-29-3	2c
Dieldrin	0.00079J	mg/kg	0.0039	0.00022	1	11/22/14 09:00	11/25/14 03:49	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 03:49	959-98-8	2c
Endosulfan II	0.00056J	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 03:49	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0039	0.00016	1	11/22/14 09:00	11/25/14 03:49	1031-07-8	2c
Endrin	<0.00021	mg/kg	0.0039	0.00021	1	11/22/14 09:00	11/25/14 03:49	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0019	0.00023	1	11/22/14 09:00	11/25/14 03:49	76-44-8	2c
Heptachlor epoxide	<0.000095	mg/kg	0.0019	0.000095	1	11/22/14 09:00	11/25/14 03:49	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.019	0.0012	1	11/22/14 09:00	11/25/14 03:49	72-43-5	2c
Toxaphene	<0.0042	mg/kg	0.019	0.0042	1	11/22/14 09:00	11/25/14 03:49	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	61 %		37-113		1	11/22/14 09:00	11/25/14 03:49	877-09-8	2c
Decachlorobiphenyl (S)	74 %		39-122		1	11/22/14 09:00	11/25/14 03:49	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.8	ug/kg	19.0	2.8	1	11/21/14 09:50	11/26/14 01:38	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.7	ug/kg	19.0	8.7	1	11/21/14 09:50	11/26/14 01:38	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.7	ug/kg	19.0	5.7	1	11/21/14 09:50	11/26/14 01:38	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.7	ug/kg	19.0	3.7	1	11/21/14 09:50	11/26/14 01:38	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.0	ug/kg	19.0	4.0	1	11/21/14 09:50	11/26/14 01:38	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.8	ug/kg	19.0	8.8	1	11/21/14 09:50	11/26/14 01:38	11097-69-1	
PCB-1260 (Aroclor 1260)	<2.9	ug/kg	19.0	2.9	1	11/21/14 09:50	11/26/14 01:38	11096-82-5	
PCB, Total	<19.0	ug/kg	19.0	19.0	1	11/21/14 09:50	11/26/14 01:38	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	79 %		30-107		1	11/21/14 09:50	11/26/14 01:38	877-09-8	
Decachlorobiphenyl (S)	78 %		10-115		1	11/21/14 09:50	11/26/14 01:38	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.077	0.041	1	11/21/14 08:49	11/21/14 22:36	94-75-7	R1
2,4,5-T	ND	mg/kg	0.077	0.039	1	11/21/14 08:49	11/21/14 22:36	93-76-5	
Surrogates									
2,4-DCAA (S)	66 %		10-161		1	11/21/14 08:49	11/21/14 22:36	19719-28-9	
2,4-DCAA (S)	142 %		10-161		1	11/21/14 08:49	11/21/14 22:36	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.41	mg/kg	0.66	0.41	1	11/20/14 14:02	11/21/14 10:16	7440-36-0	M1
Arsenic	6.3	mg/kg	0.55	0.39	1	11/20/14 14:02	11/21/14 10:16	7440-38-2	
Barium	80.1	mg/kg	2.2	0.061	1	11/20/14 14:02	11/21/14 10:16	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-01 (0-2')** Lab ID: **30134548001** Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.69	mg/kg	0.22	0.026	1	11/20/14 14:02	11/21/14 10:16	7440-41-7	
Boron	1.8J	mg/kg	5.5	0.15	1	11/20/14 14:02	11/21/14 10:16	7440-42-8	
Cadmium	0.32J	mg/kg	0.33	0.043	1	11/20/14 14:02	11/21/14 10:16	7440-43-9	
Chromium	10.8	mg/kg	0.55	0.076	1	11/20/14 14:02	11/21/14 10:16	7440-47-3	
Cobalt	8.4	mg/kg	1.1	0.052	1	11/20/14 14:02	11/21/14 10:16	7440-48-4	
Copper	8.6	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:16	7440-50-8	
Lead	23.1	mg/kg	0.55	0.30	1	11/20/14 14:02	11/21/14 10:16	7439-92-1	
Manganese	674	mg/kg	1.1	0.038	1	11/20/14 14:02	11/21/14 10:16	7439-96-5	M1
Nickel	8.8	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:16	7440-02-0	
Selenium	<0.64	mg/kg	0.88	0.64	1	11/20/14 14:02	11/21/14 10:16	7782-49-2	
Silver	<0.059	mg/kg	0.66	0.059	1	11/20/14 14:02	11/21/14 10:16	7440-22-4	
Thallium	<0.36	mg/kg	2.2	0.36	1	11/20/14 14:02	11/21/14 10:16	7440-28-0	
Tin	4.1J	mg/kg	11.0	3.8	1	11/20/14 14:02	11/21/14 10:16	7440-31-5	B
Zinc	44.3	mg/kg	1.1	0.50	1	11/20/14 14:02	11/21/14 10:16	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.029J	mg/kg	0.11	0.0024	1	11/19/14 14:00	11/21/14 07:46	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0077	0.0019	1	11/21/14 15:45	11/23/14 11:33	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	94 %		35-141		1	11/21/14 15:45	11/23/14 22:22	321-60-8	
Terphenyl-d14 (S)	100 %		64-141		1	11/21/14 15:45	11/23/14 22:22	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 13:09	83-32-9	
Acenaphthylene	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 13:09	208-96-8	
Acetophenone	<0.047	mg/kg	0.39	0.047	1	11/20/14 07:00	11/23/14 13:09	98-86-2	
Aniline	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:09	62-53-3	
Anthracene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 13:09	120-12-7	
Atrazine	<0.074	mg/kg	0.39	0.074	1	11/20/14 07:00	11/23/14 13:09	1912-24-9	IC
Benzidine	<3.8	mg/kg	3.8	3.8	1	11/20/14 07:00	11/23/14 13:09	92-87-5	CU,IS
Benzo(a)anthracene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 13:09	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:09	50-32-8	
Benzo(b)fluoranthene	<0.076	mg/kg	0.39	0.076	1	11/20/14 07:00	11/23/14 13:09	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.39	0.11	1	11/20/14 07:00	11/23/14 13:09	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.39	0.14	1	11/20/14 07:00	11/23/14 13:09	207-08-9	
Benzoic acid	<0.30	mg/kg	0.96	0.30	1	11/20/14 07:00	11/23/14 13:09	65-85-0	CU
Benzyl alcohol	<0.057	mg/kg	0.39	0.057	1	11/20/14 07:00	11/23/14 13:09	100-51-6	
Biphenyl (Diphenyl)	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:09	92-52-4	
Butylbenzylphthalate	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 13:09	85-68-7	
Carbazole	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:09	86-74-8	
4-Chloro-3-methylphenol	<0.061	mg/kg	0.39	0.061	1	11/20/14 07:00	11/23/14 13:09	59-50-7	
4-Chloroaniline	<0.085	mg/kg	0.39	0.085	1	11/20/14 07:00	11/23/14 13:09	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.39	0.18	1	11/20/14 07:00	11/23/14 13:09	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-01 (0-2')** Lab ID: **30134548001** Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
bis(2-Chloroisopropyl) ether	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 13:09	108-60-1	
2-Chloronaphthalene	<0.041	mg/kg	0.39	0.041	1	11/20/14 07:00	11/23/14 13:09	91-58-7	
2-Chlorophenol	<0.049	mg/kg	0.39	0.049	1	11/20/14 07:00	11/23/14 13:09	95-57-8	
Chrysene	<0.083	mg/kg	0.39	0.083	1	11/20/14 07:00	11/23/14 13:09	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:09	53-70-3	
3,3'-Dichlorobenzidine	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:09	91-94-1	
2,4-Dichlorophenol	<0.066	mg/kg	0.39	0.066	1	11/20/14 07:00	11/23/14 13:09	120-83-2	
Diethylphthalate	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:09	84-66-2	
2,4-Dimethylphenol	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:09	105-67-9	
Di-n-butylphthalate	<0.064	mg/kg	0.39	0.064	1	11/20/14 07:00	11/23/14 13:09	84-74-2	
2,4-Dinitrophenol	<0.35	mg/kg	0.96	0.35	1	11/20/14 07:00	11/23/14 13:09	51-28-5	CU
2,4-Dinitrotoluene	<0.081	mg/kg	0.39	0.081	1	11/20/14 07:00	11/23/14 13:09	121-14-2	
2,6-Dinitrotoluene	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 13:09	606-20-2	
Di-n-octylphthalate	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 13:09	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:09	117-81-7	
Fluoranthene	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:09	206-44-0	
Fluorene	<0.054	mg/kg	0.39	0.054	1	11/20/14 07:00	11/23/14 13:09	86-73-7	
Hexachloro-1,3-butadiene	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:09	87-68-3	
Hexachlorobenzene	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 13:09	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.39	0.12	1	11/20/14 07:00	11/23/14 13:09	77-47-4	
Hexachloroethane	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:09	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.094	mg/kg	0.39	0.094	1	11/20/14 07:00	11/23/14 13:09	193-39-5	
Isophorone	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:09	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.078	mg/kg	0.77	0.078	1	11/20/14 07:00	11/23/14 13:09		
2-Nitroaniline	<0.045	mg/kg	0.96	0.045	1	11/20/14 07:00	11/23/14 13:09	88-74-4	
3-Nitroaniline	<0.072	mg/kg	0.96	0.072	1	11/20/14 07:00	11/23/14 13:09	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.96	0.10	1	11/20/14 07:00	11/23/14 13:09	100-01-6	
Nitrobenzene	<0.061	mg/kg	0.39	0.061	1	11/20/14 07:00	11/23/14 13:09	98-95-3	
2-Nitrophenol	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 13:09	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.39	0.16	1	11/20/14 07:00	11/23/14 13:09	100-02-7	CU
N-Nitrosodimethylamine	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 13:09	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 13:09	621-64-7	
N-Nitrosodiphenylamine	<0.039	mg/kg	0.39	0.039	1	11/20/14 07:00	11/23/14 13:09	86-30-6	
Pentachlorophenol	<0.096	mg/kg	0.96	0.096	1	11/20/14 07:00	11/23/14 13:09	87-86-5	CU
Phenanthrene	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 13:09	85-01-8	
Phenol	<0.094	mg/kg	0.39	0.094	1	11/20/14 07:00	11/23/14 13:09	108-95-2	
Pyrene	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:09	129-00-0	
Pyridine	<0.32	mg/kg	0.96	0.32	1	11/20/14 07:00	11/23/14 13:09	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 13:09	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:09	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.96	0.11	1	11/20/14 07:00	11/23/14 13:09	95-95-4	
2,4,6-Trichlorophenol	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 13:09	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	95 %		40-117		1	11/20/14 07:00	11/23/14 13:09	4165-60-0	
2-Fluorobiphenyl (S)	86 %		50-112		1	11/20/14 07:00	11/23/14 13:09	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-01 (0-2') Lab ID: 30134548001 Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	97 %		52-130		1	11/20/14 07:00	11/23/14 13:09	1718-51-0	
Phenol-d6 (S)	74 %		53-115		1	11/20/14 07:00	11/23/14 13:09	13127-88-3	
2-Fluorophenol (S)	61 %		38-124		1	11/20/14 07:00	11/23/14 13:09	367-12-4	
2,4,6-Tribromophenol (S)	87 %		21-133		1	11/20/14 07:00	11/23/14 13:09	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.033	mg/kg	0.011	0.0022	1		11/21/14 12:56	67-64-1	M5
Acetonitrile	<0.0089	mg/kg	0.050	0.0089	1		11/20/14 16:25	75-05-8	M5
Acrolein	<0.0053	mg/kg	0.050	0.0053	1		11/20/14 16:25	107-02-8	M5
Acrylonitrile	<0.0032	mg/kg	0.0050	0.0032	1		11/20/14 16:25	107-13-1	M5
Allyl chloride	<0.0038	mg/kg	0.050	0.0038	1		11/20/14 16:25	107-05-1	M5
Benzene	<0.00089	mg/kg	0.0057	0.00089	1		11/21/14 12:56	71-43-2	M5
Bromochloromethane	<0.00077	mg/kg	0.0050	0.00077	1		11/20/14 16:25	74-97-5	M5
Bromodichloromethane	<0.0018	mg/kg	0.0050	0.0018	1		11/20/14 16:25	75-27-4	M5
Bromoform	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 16:25	75-25-2	M5
Bromomethane	<0.0029	mg/kg	0.0050	0.0029	1		11/20/14 16:25	74-83-9	M5
2-Butanone (MEK)	<0.0012	mg/kg	0.0099	0.0012	1		11/20/14 16:25	78-93-3	M5
n-Butylbenzene	<0.0021	mg/kg	0.0050	0.0021	1		11/20/14 16:25	104-51-8	M5
sec-Butylbenzene	<0.0014	mg/kg	0.0050	0.0014	1		11/20/14 16:25	135-98-8	M5
tert-Butylbenzene	<0.0020	mg/kg	0.0050	0.0020	1		11/20/14 16:25	98-06-6	M5
Carbon disulfide	<0.00076	mg/kg	0.0050	0.00076	1		11/20/14 16:25	75-15-0	M5
Carbon tetrachloride	<0.00088	mg/kg	0.0050	0.00088	1		11/20/14 16:25	56-23-5	M5
Chlorobenzene	<0.00098	mg/kg	0.0050	0.00098	1		11/20/14 16:25	108-90-7	M5
Chloroethane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:25	75-00-3	M5
Chloroform	<0.00070	mg/kg	0.0050	0.00070	1		11/20/14 16:25	67-66-3	M5
Chloromethane	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 16:25	74-87-3	M5
Chloroprene	<0.00081	mg/kg	0.0050	0.00081	1		11/20/14 16:25	126-99-8	M5
2-Chlorotoluene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 16:25	95-49-8	M5
Cyclohexanone	<0.0012	mg/kg	0.050	0.012	1		11/20/14 16:25	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0017	mg/kg	0.0050	0.0017	1		11/20/14 16:25	96-12-8	M5
Dibromochloromethane	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:25	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0030	mg/kg	0.0057	0.0030	1		11/21/14 12:56	106-93-4	M5
Dibromomethane	<0.0024	mg/kg	0.0050	0.0024	1		11/20/14 16:25	74-95-3	M5
1,2-Dichlorobenzene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 16:25	95-50-1	M5
1,3-Dichlorobenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:25	541-73-1	M5
1,4-Dichlorobenzene	<0.0012	mg/kg	0.0050	0.0012	1		11/20/14 16:25	106-46-7	M5
Dichlorodifluoromethane	<0.00088	mg/kg	0.0050	0.00088	1		11/20/14 16:25	75-71-8	M5
1,1-Dichloroethane	<0.00079	mg/kg	0.0050	0.00079	1		11/20/14 16:25	75-34-3	M5
1,2-Dichloroethane	<0.0010	mg/kg	0.0057	0.0010	1		11/21/14 12:56	107-06-2	M5
1,1-Dichloroethene	<0.00080	mg/kg	0.0050	0.00080	1		11/20/14 16:25	75-35-4	M5
cis-1,2-Dichloroethene	<0.0028	mg/kg	0.0057	0.0028	1		11/21/14 12:56	156-59-2	M5
trans-1,2-Dichloroethene	<0.00081	mg/kg	0.0050	0.00081	1		11/20/14 16:25	156-60-5	M5
1,2-Dichloropropane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:25	78-87-5	M5
cis-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:25	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-01 (0-2') Lab ID: 30134548001 Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:25	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00087	mg/kg	0.0050	0.00087	1		11/20/14 16:25	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.030	mg/kg	0.099	0.030	1		11/20/14 16:25	123-91-1	M5
Ethyl acetate	<0.00095	mg/kg	0.0050	0.00095	1		11/20/14 16:25	141-78-6	M5
Ethylbenzene	<0.0029	mg/kg	0.0057	0.0029	1		11/21/14 12:56	100-41-4	M5
Ethyl methacrylate	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:25	97-63-2	M5
n-Hexane	<0.0024	mg/kg	0.0099	0.0024	1		11/20/14 16:25	110-54-3	M5
Isobutanol	<0.029	mg/kg	0.050	0.029	1		11/20/14 16:25	78-83-1	M5
Methacrylonitrile	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:25	126-98-7	M5
Methyl acetate	<0.0030	mg/kg	0.050	0.0030	1		11/20/14 16:25	79-20-9	M5
Methylene Chloride	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:25	75-09-2	M5
Methyl methacrylate	<0.0017	mg/kg	0.0050	0.0017	1		11/20/14 16:25	80-62-6	M5, N2
2-Methylnaphthalene	0.0024J	mg/kg	0.0057	0.0019	1		11/21/14 12:56	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.0010	mg/kg	0.0099	0.0010	1		11/20/14 16:25	108-10-1	M5
Methyl-tert-butyl ether	<0.00081	mg/kg	0.0057	0.00081	1		11/21/14 12:56	1634-04-4	M5
Naphthalene	<0.0029	mg/kg	0.0057	0.0029	1		11/21/14 12:56	91-20-3	M5
2-Nitropropane	<0.011	mg/kg		0.011	1		11/20/14 16:25	79-46-9	M5
n-Propylbenzene	0.0014J	mg/kg	0.0050	0.0013	1		11/20/14 16:25	103-65-1	M5
Styrene	<0.0013	mg/kg	0.0057	0.0013	1		11/21/14 12:56	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00096	mg/kg	0.0050	0.00096	1		11/20/14 16:25	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00088	mg/kg	0.0050	0.00088	1		11/20/14 16:25	79-34-5	M5
Tetrachloroethene	<0.00083	mg/kg	0.0057	0.00083	1		11/21/14 12:56	127-18-4	M5
Toluene	<0.00073	mg/kg	0.0057	0.00073	1		11/21/14 12:56	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:25	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:25	120-82-1	M5
1,1,1-Trichloroethane	<0.0026	mg/kg	0.0050	0.0026	1		11/20/14 16:25	71-55-6	M5
1,1,2-Trichloroethane	<0.00091	mg/kg	0.0050	0.00091	1		11/20/14 16:25	79-00-5	M5
Trichloroethene	<0.00086	mg/kg	0.0057	0.00086	1		11/21/14 12:56	79-01-6	M5
1,2,3-Trichloropropane	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 16:25	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00066	mg/kg	0.050	0.00066	1		11/20/14 16:25	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0013	mg/kg	0.0057	0.0013	1		11/21/14 12:56	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0015	mg/kg	0.0057	0.0015	1		11/21/14 12:56	108-67-8	M5
Vinyl acetate	<0.0014	mg/kg	0.050	0.0014	1		11/20/14 16:25	108-05-4	M5
Vinyl chloride	<0.00080	mg/kg	0.0050	0.00080	1		11/20/14 16:25	75-01-4	M5
Xylene (Total)	0.0054J	mg/kg	0.017	0.0035	1		11/21/14 12:56	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	92 %		73-124		1		11/21/14 12:56	2037-26-5	M5
4-Bromofluorobenzene (S)	102 %		71-124		1		11/21/14 12:56	460-00-4	M5
1,2-Dichloroethane-d4 (S)	104 %		83-138		1		11/21/14 12:56	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture 14.5 % 0.10 0.10 1 11/20/14 11:25

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent <0.42 mg/kg 1.2 0.42 1 11/20/14 11:30 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-01 (0-2') **Lab ID: 30134548001** Collected: 11/13/14 09:20 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	10.8	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-01 (4-6') Lab ID: 30134548002 Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.00010	mg/kg	0.0021	0.00010	1	11/22/14 09:00	11/25/14 05:38	309-00-2	2c
beta-BHC	<0.00025	mg/kg	0.0021	0.00025	1	11/22/14 09:00	11/25/14 05:38	319-85-7	2c
delta-BHC	<0.00012	mg/kg	0.0021	0.00012	1	11/22/14 09:00	11/25/14 05:38	319-86-8	2c
gamma-BHC (Lindane)	0.029	mg/kg	0.0021	0.00015	1	11/22/14 09:00	11/25/14 05:38	58-89-9	2c, C3
Chlordane (Technical)	<0.013	mg/kg	0.021	0.013	1	11/22/14 09:00	11/25/14 05:38	57-74-9	2c
4,4'-DDD	0.0041J	mg/kg	0.0043	0.00019	1	11/22/14 09:00	11/25/14 05:38	72-54-8	2c
4,4'-DDE	<0.00019	mg/kg	0.0043	0.00019	1	11/22/14 09:00	11/25/14 05:38	72-55-9	2c
4,4'-DDT	<0.00021	mg/kg	0.0043	0.00021	1	11/22/14 09:00	11/25/14 05:38	50-29-3	2c
Dieldrin	0.012	mg/kg	0.0043	0.00024	1	11/22/14 09:00	11/25/14 05:38	60-57-1	2c, C3
Endosulfan I	<0.00012	mg/kg	0.0021	0.00012	1	11/22/14 09:00	11/25/14 05:38	959-98-8	2c
Endosulfan II	<0.00019	mg/kg	0.0043	0.00019	1	11/22/14 09:00	11/25/14 05:38	33213-65-9	2c
Endosulfan sulfate	<0.00017	mg/kg	0.0043	0.00017	1	11/22/14 09:00	11/25/14 05:38	1031-07-8	2c
Endrin	<0.00023	mg/kg	0.0043	0.00023	1	11/22/14 09:00	11/25/14 05:38	72-20-8	2c
Heptachlor	<0.00025	mg/kg	0.0021	0.00025	1	11/22/14 09:00	11/25/14 05:38	76-44-8	2c
Heptachlor epoxide	<0.00010	mg/kg	0.0021	0.00010	1	11/22/14 09:00	11/25/14 05:38	1024-57-3	2c
Methoxychlor	<0.0013	mg/kg	0.021	0.0013	1	11/22/14 09:00	11/25/14 05:38	72-43-5	2c
Toxaphene	<0.0046	mg/kg	0.021	0.0046	1	11/22/14 09:00	11/25/14 05:38	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	60 %		37-113		1	11/22/14 09:00	11/25/14 05:38	877-09-8	2c
Decachlorobiphenyl (S)	71 %		39-122		1	11/22/14 09:00	11/25/14 05:38	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<3.1	ug/kg	21.2	3.1	1	11/21/14 09:50	11/26/14 02:03	12674-11-2	
PCB-1221 (Aroclor 1221)	<9.7	ug/kg	21.2	9.7	1	11/21/14 09:50	11/26/14 02:03	11104-28-2	
PCB-1232 (Aroclor 1232)	<6.4	ug/kg	21.2	6.4	1	11/21/14 09:50	11/26/14 02:03	11141-16-5	
PCB-1242 (Aroclor 1242)	<4.2	ug/kg	21.2	4.2	1	11/21/14 09:50	11/26/14 02:03	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.5	ug/kg	21.2	4.5	1	11/21/14 09:50	11/26/14 02:03	12672-29-6	
PCB-1254 (Aroclor 1254)	<9.8	ug/kg	21.2	9.8	1	11/21/14 09:50	11/26/14 02:03	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.3	ug/kg	21.2	3.3	1	11/21/14 09:50	11/26/14 02:03	11096-82-5	
PCB, Total	<21.2	ug/kg	21.2	21.2	1	11/21/14 09:50	11/26/14 02:03	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	75 %		30-107		1	11/21/14 09:50	11/26/14 02:03	877-09-8	
Decachlorobiphenyl (S)	77 %		10-115		1	11/21/14 09:50	11/26/14 02:03	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.083	0.044	1	11/21/14 08:49	11/21/14 23:24	94-75-7	
2,4,5-T	ND	mg/kg	0.083	0.042	1	11/21/14 08:49	11/21/14 23:24	93-76-5	
Surrogates									
2,4-DCAA (S)	59 %		10-161		1	11/21/14 08:49	11/21/14 23:24	19719-28-9	
2,4-DCAA (S)	65 %		10-161		1	11/21/14 08:49	11/21/14 23:24	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.45	mg/kg	0.73	0.45	1	11/20/14 14:02	11/21/14 10:27	7440-36-0	
Arsenic	27.7	mg/kg	0.61	0.43	1	11/20/14 14:02	11/21/14 10:27	7440-38-2	
Barium	261	mg/kg	2.4	0.068	1	11/20/14 14:02	11/21/14 10:27	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-01 (4-6')** Lab ID: **30134548002** Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	1.5	mg/kg	0.24	0.029	1	11/20/14 14:02	11/21/14 10:27	7440-41-7	
Boron	2.6J	mg/kg	6.1	0.16	1	11/20/14 14:02	11/21/14 10:27	7440-42-8	
Cadmium	1.9	mg/kg	0.37	0.048	1	11/20/14 14:02	11/21/14 10:27	7440-43-9	
Chromium	21.1	mg/kg	0.61	0.084	1	11/20/14 14:02	11/21/14 10:27	7440-47-3	
Cobalt	46.0	mg/kg	1.2	0.057	1	11/20/14 14:02	11/21/14 10:27	7440-48-4	
Copper	73.5	mg/kg	1.2	0.22	1	11/20/14 14:02	11/21/14 10:27	7440-50-8	
Lead	25.8	mg/kg	0.61	0.33	1	11/20/14 14:02	11/21/14 10:27	7439-92-1	
Manganese	4910	mg/kg	1.2	0.042	1	11/20/14 14:02	11/21/14 10:27	7439-96-5	
Nickel	156	mg/kg	2.4	0.17	1	11/20/14 14:02	11/21/14 10:27	7440-02-0	
Selenium	2.1	mg/kg	0.98	0.70	1	11/20/14 14:02	11/21/14 10:27	7782-49-2	
Silver	0.71J	mg/kg	0.73	0.065	1	11/20/14 14:02	11/21/14 10:27	7440-22-4	
Thallium	<0.40	mg/kg	2.4	0.40	1	11/20/14 14:02	11/21/14 10:27	7440-28-0	
Tin	5.3J	mg/kg	12.2	4.2	1	11/20/14 14:02	11/21/14 10:27	7440-31-5	B
Zinc	355	mg/kg	1.2	0.55	1	11/20/14 14:02	11/21/14 10:27	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.052J	mg/kg	0.13	0.0028	1	11/19/14 14:00	11/21/14 07:53	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0021	mg/kg	0.0085	0.0021	1	11/21/14 15:45	11/23/14 12:04	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	81	%	35-141		1	11/21/14 15:45	11/23/14 18:53	321-60-8	
Terphenyl-d14 (S)	91	%	64-141		1	11/21/14 15:45	11/23/14 18:53	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.049	mg/kg	0.42	0.049	1	11/20/14 07:00	11/23/14 13:28	83-32-9	
Acenaphthylene	<0.049	mg/kg	0.42	0.049	1	11/20/14 07:00	11/23/14 13:28	208-96-8	
Acetophenone	<0.051	mg/kg	0.42	0.051	1	11/20/14 07:00	11/23/14 13:28	98-86-2	
Aniline	<0.077	mg/kg	0.42	0.077	1	11/20/14 07:00	11/23/14 13:28	62-53-3	
Anthracene	<0.066	mg/kg	0.42	0.066	1	11/20/14 07:00	11/23/14 13:28	120-12-7	
Atrazine	<0.081	mg/kg	0.42	0.081	1	11/20/14 07:00	11/23/14 13:28	1912-24-9	IC
Benzidine	<4.2	mg/kg	4.2	4.2	1	11/20/14 07:00	11/23/14 13:28	92-87-5	CU,IS
Benzo(a)anthracene	<0.049	mg/kg	0.42	0.049	1	11/20/14 07:00	11/23/14 13:28	56-55-3	
Benzo(a)pyrene	<0.14	mg/kg	0.42	0.14	1	11/20/14 07:00	11/23/14 13:28	50-32-8	
Benzo(b)fluoranthene	<0.083	mg/kg	0.42	0.083	1	11/20/14 07:00	11/23/14 13:28	205-99-2	
Benzo(g,h,i)perylene	<0.12	mg/kg	0.42	0.12	1	11/20/14 07:00	11/23/14 13:28	191-24-2	
Benzo(k)fluoranthene	<0.15	mg/kg	0.42	0.15	1	11/20/14 07:00	11/23/14 13:28	207-08-9	
Benzoic acid	<0.33	mg/kg	1.1	0.33	1	11/20/14 07:00	11/23/14 13:28	65-85-0	CU
Benzyl alcohol	<0.062	mg/kg	0.42	0.062	1	11/20/14 07:00	11/23/14 13:28	100-51-6	
Biphenyl (Diphenyl)	<0.077	mg/kg	0.42	0.077	1	11/20/14 07:00	11/23/14 13:28	92-52-4	
Butylbenzylphthalate	<0.048	mg/kg	0.42	0.048	1	11/20/14 07:00	11/23/14 13:28	85-68-7	
Carbazole	<0.075	mg/kg	0.42	0.075	1	11/20/14 07:00	11/23/14 13:28	86-74-8	
4-Chloro-3-methylphenol	<0.067	mg/kg	0.42	0.067	1	11/20/14 07:00	11/23/14 13:28	59-50-7	
4-Chloroaniline	<0.093	mg/kg	0.42	0.093	1	11/20/14 07:00	11/23/14 13:28	106-47-8	
bis(2-Chloroethyl) ether	<0.20	mg/kg	0.42	0.20	1	11/20/14 07:00	11/23/14 13:28	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-01 (4-6') Lab ID: 30134548002 Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.056	mg/kg	0.42	0.056	1	11/20/14 07:00	11/23/14 13:28	108-60-1	
2-Chloronaphthalene	<0.044	mg/kg	0.42	0.044	1	11/20/14 07:00	11/23/14 13:28	91-58-7	
2-Chlorophenol	<0.054	mg/kg	0.42	0.054	1	11/20/14 07:00	11/23/14 13:28	95-57-8	
Chrysene	<0.091	mg/kg	0.42	0.091	1	11/20/14 07:00	11/23/14 13:28	218-01-9	
Dibenz(a,h)anthracene	<0.14	mg/kg	0.42	0.14	1	11/20/14 07:00	11/23/14 13:28	53-70-3	
3,3'-Dichlorobenzidine	<0.046	mg/kg	0.42	0.046	1	11/20/14 07:00	11/23/14 13:28	91-94-1	
2,4-Dichlorophenol	<0.072	mg/kg	0.42	0.072	1	11/20/14 07:00	11/23/14 13:28	120-83-2	
Diethylphthalate	<0.046	mg/kg	0.42	0.046	1	11/20/14 07:00	11/23/14 13:28	84-66-2	
2,4-Dimethylphenol	<0.074	mg/kg	0.42	0.074	1	11/20/14 07:00	11/23/14 13:28	105-67-9	
Di-n-butylphthalate	<0.070	mg/kg	0.42	0.070	1	11/20/14 07:00	11/23/14 13:28	84-74-2	
2,4-Dinitrophenol	<0.38	mg/kg	1.1	0.38	1	11/20/14 07:00	11/23/14 13:28	51-28-5	CU
2,4-Dinitrotoluene	<0.088	mg/kg	0.42	0.088	1	11/20/14 07:00	11/23/14 13:28	121-14-2	
2,6-Dinitrotoluene	<0.055	mg/kg	0.42	0.055	1	11/20/14 07:00	11/23/14 13:28	606-20-2	
Di-n-octylphthalate	<0.078	mg/kg	0.42	0.078	1	11/20/14 07:00	11/23/14 13:28	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.14	mg/kg	0.42	0.14	1	11/20/14 07:00	11/23/14 13:28	117-81-7	
Fluoranthene	<0.064	mg/kg	0.42	0.064	1	11/20/14 07:00	11/23/14 13:28	206-44-0	
Fluorene	<0.059	mg/kg	0.42	0.059	1	11/20/14 07:00	11/23/14 13:28	86-73-7	
Hexachloro-1,3-butadiene	<0.075	mg/kg	0.42	0.075	1	11/20/14 07:00	11/23/14 13:28	87-68-3	
Hexachlorobenzene	<0.054	mg/kg	0.42	0.054	1	11/20/14 07:00	11/23/14 13:28	118-74-1	
Hexachlorocyclopentadiene	<0.14	mg/kg	0.42	0.14	1	11/20/14 07:00	11/23/14 13:28	77-47-4	
Hexachloroethane	<0.065	mg/kg	0.42	0.065	1	11/20/14 07:00	11/23/14 13:28	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.10	mg/kg	0.42	0.10	1	11/20/14 07:00	11/23/14 13:28	193-39-5	
Isophorone	<0.046	mg/kg	0.42	0.046	1	11/20/14 07:00	11/23/14 13:28	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.085	mg/kg	0.84	0.085	1	11/20/14 07:00	11/23/14 13:28		
2-Nitroaniline	<0.050	mg/kg	1.1	0.050	1	11/20/14 07:00	11/23/14 13:28	88-74-4	
3-Nitroaniline	<0.079	mg/kg	1.1	0.079	1	11/20/14 07:00	11/23/14 13:28	99-09-2	
4-Nitroaniline	<0.11	mg/kg	1.1	0.11	1	11/20/14 07:00	11/23/14 13:28	100-01-6	
Nitrobenzene	<0.066	mg/kg	0.42	0.066	1	11/20/14 07:00	11/23/14 13:28	98-95-3	
2-Nitrophenol	<0.047	mg/kg	0.42	0.047	1	11/20/14 07:00	11/23/14 13:28	88-75-5	
4-Nitrophenol	<0.17	mg/kg	0.42	0.17	1	11/20/14 07:00	11/23/14 13:28	100-02-7	CU
N-Nitrosodimethylamine	<0.054	mg/kg	0.42	0.054	1	11/20/14 07:00	11/23/14 13:28	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.050	mg/kg	0.42	0.050	1	11/20/14 07:00	11/23/14 13:28	621-64-7	
N-Nitrosodiphenylamine	<0.043	mg/kg	0.42	0.043	1	11/20/14 07:00	11/23/14 13:28	86-30-6	
Pentachlorophenol	<0.11	mg/kg	1.1	0.11	1	11/20/14 07:00	11/23/14 13:28	87-86-5	CU
Phenanthrene	<0.078	mg/kg	0.42	0.078	1	11/20/14 07:00	11/23/14 13:28	85-01-8	
Phenol	<0.10	mg/kg	0.42	0.10	1	11/20/14 07:00	11/23/14 13:28	108-95-2	
Pyrene	<0.064	mg/kg	0.42	0.064	1	11/20/14 07:00	11/23/14 13:28	129-00-0	
Pyridine	<0.35	mg/kg	1.1	0.35	1	11/20/14 07:00	11/23/14 13:28	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.079	mg/kg	0.42	0.079	1	11/20/14 07:00	11/23/14 13:28	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.077	mg/kg	0.42	0.077	1	11/20/14 07:00	11/23/14 13:28	58-90-2	
2,4,5-Trichlorophenol	<0.13	mg/kg	1.1	0.13	1	11/20/14 07:00	11/23/14 13:28	95-95-4	
2,4,6-Trichlorophenol	<0.077	mg/kg	0.42	0.077	1	11/20/14 07:00	11/23/14 13:28	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	89 %		40-117		1	11/20/14 07:00	11/23/14 13:28	4165-60-0	
2-Fluorobiphenyl (S)	85 %		50-112		1	11/20/14 07:00	11/23/14 13:28	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-01 (4-6')** Lab ID: **30134548002** Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	93 %		52-130		1	11/20/14 07:00	11/23/14 13:28	1718-51-0	
Phenol-d6 (S)	73 %		53-115		1	11/20/14 07:00	11/23/14 13:28	13127-88-3	
2-Fluorophenol (S)	63 %		38-124		1	11/20/14 07:00	11/23/14 13:28	367-12-4	
2,4,6-Tribromophenol (S)	85 %		21-133		1	11/20/14 07:00	11/23/14 13:28	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.028	mg/kg	0.0097	0.0019	1		11/21/14 13:23	67-64-1	M5
Acetonitrile	<0.0090	mg/kg	0.050	0.0090	1		11/20/14 16:47	75-05-8	M5
Acrolein	<0.0054	mg/kg	0.050	0.0054	1		11/20/14 16:47	107-02-8	M5
Acrylonitrile	<0.0033	mg/kg	0.0050	0.0033	1		11/20/14 16:47	107-13-1	M5
Allyl chloride	<0.0038	mg/kg	0.050	0.0038	1		11/20/14 16:47	107-05-1	M5
Benzene	<0.00076	mg/kg	0.0049	0.00076	1		11/21/14 13:23	71-43-2	M5
Bromochloromethane	<0.00078	mg/kg	0.0050	0.00078	1		11/20/14 16:47	74-97-5	M5
Bromodichloromethane	<0.0018	mg/kg	0.0050	0.0018	1		11/20/14 16:47	75-27-4	M5
Bromoform	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 16:47	75-25-2	M5
Bromomethane	<0.0030	mg/kg	0.0050	0.0030	1		11/20/14 16:47	74-83-9	M5
2-Butanone (MEK)	<0.0013	mg/kg	0.010	0.0013	1		11/20/14 16:47	78-93-3	M5
n-Butylbenzene	<0.0022	mg/kg	0.0050	0.0022	1		11/20/14 16:47	104-51-8	M5
sec-Butylbenzene	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:47	135-98-8	M5
tert-Butylbenzene	<0.0020	mg/kg	0.0050	0.0020	1		11/20/14 16:47	98-06-6	M5
Carbon disulfide	<0.00077	mg/kg	0.0050	0.00077	1		11/20/14 16:47	75-15-0	M5
Carbon tetrachloride	<0.00090	mg/kg	0.0050	0.00090	1		11/20/14 16:47	56-23-5	M5
Chlorobenzene	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 16:47	108-90-7	M5
Chloroethane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:47	75-00-3	M5
Chloroform	<0.00072	mg/kg	0.0050	0.00072	1		11/20/14 16:47	67-66-3	M5
Chloromethane	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 16:47	74-87-3	M5
Chloroprene	<0.00082	mg/kg	0.0050	0.00082	1		11/20/14 16:47	126-99-8	M5
2-Chlorotoluene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 16:47	95-49-8	M5
Cyclohexanone	<0.0012	mg/kg	0.050	0.012	1		11/20/14 16:47	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0017	mg/kg	0.0050	0.0017	1		11/20/14 16:47	96-12-8	M5
Dibromochloromethane	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:47	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0025	mg/kg	0.0049	0.0025	1		11/21/14 13:23	106-93-4	M5
Dibromomethane	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 16:47	74-95-3	M5
1,2-Dichlorobenzene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 16:47	95-50-1	M5
1,3-Dichlorobenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:47	541-73-1	M5
1,4-Dichlorobenzene	<0.0012	mg/kg	0.0050	0.0012	1		11/20/14 16:47	106-46-7	M5
Dichlorodifluoromethane	<0.00090	mg/kg	0.0050	0.00090	1		11/20/14 16:47	75-71-8	M5
1,1-Dichloroethane	<0.00080	mg/kg	0.0050	0.00080	1		11/20/14 16:47	75-34-3	M5
1,2-Dichloroethane	<0.00088	mg/kg	0.0049	0.00088	1		11/21/14 13:23	107-06-2	M5
1,1-Dichloroethene	<0.00082	mg/kg	0.0050	0.00082	1		11/20/14 16:47	75-35-4	M5
cis-1,2-Dichloroethene	<0.0024	mg/kg	0.0049	0.0024	1		11/21/14 13:23	156-59-2	M5
trans-1,2-Dichloroethene	<0.00082	mg/kg	0.0050	0.00082	1		11/20/14 16:47	156-60-5	M5
1,2-Dichloropropane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:47	78-87-5	M5
cis-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:47	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-01 (4-6') Lab ID: 30134548002 Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:47	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00088	mg/kg	0.0050	0.00088	1		11/20/14 16:47	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.031	mg/kg	0.10	0.031	1		11/20/14 16:47	123-91-1	M5
Ethyl acetate	<0.00096	mg/kg	0.0050	0.00096	1		11/20/14 16:47	141-78-6	M5
Ethylbenzene	<0.0025	mg/kg	0.0049	0.0025	1		11/21/14 13:23	100-41-4	M5
Ethyl methacrylate	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 16:47	97-63-2	M5
n-Hexane	<0.0025	mg/kg	0.010	0.0025	1		11/20/14 16:47	110-54-3	M5
Isobutanol	<0.030	mg/kg	0.050	0.030	1		11/20/14 16:47	78-83-1	M5
Methacrylonitrile	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:47	126-98-7	M5
Methyl acetate	<0.0030	mg/kg	0.050	0.0030	1		11/20/14 16:47	79-20-9	M5
Methylene Chloride	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:47	75-09-2	M5
Methyl methacrylate	<0.0018	mg/kg	0.0050	0.0018	1		11/20/14 16:47	80-62-6	M5, N2
2-Methylnaphthalene	0.0048J	mg/kg	0.0049	0.0016	1		11/21/14 13:23	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.0010	mg/kg	0.010	0.0010	1		11/20/14 16:47	108-10-1	M5
Methyl-tert-butyl ether	<0.00069	mg/kg	0.0049	0.00069	1		11/21/14 13:23	1634-04-4	M5
Naphthalene	0.0025J	mg/kg	0.0049	0.0024	1		11/21/14 13:23	91-20-3	M5
2-Nitropropane	<0.011	mg/kg		0.011	1		11/20/14 16:47	79-46-9	M5
n-Propylbenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 16:47	103-65-1	M5
Styrene	<0.0011	mg/kg	0.0049	0.0011	1		11/21/14 13:23	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00097	mg/kg	0.0050	0.00097	1		11/20/14 16:47	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00089	mg/kg	0.0050	0.00089	1		11/20/14 16:47	79-34-5	M5
Tetrachloroethene	<0.00070	mg/kg	0.0049	0.00070	1		11/21/14 13:23	127-18-4	M5
Toluene	<0.00062	mg/kg	0.0049	0.00062	1		11/21/14 13:23	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 16:47	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0014	mg/kg	0.0050	0.0014	1		11/20/14 16:47	120-82-1	M5
1,1,1-Trichloroethane	<0.0026	mg/kg	0.0050	0.0026	1		11/20/14 16:47	71-55-6	M5
1,1,2-Trichloroethane	<0.00093	mg/kg	0.0050	0.00093	1		11/20/14 16:47	79-00-5	M5
Trichloroethene	<0.00073	mg/kg	0.0049	0.00073	1		11/21/14 13:23	79-01-6	M5
1,2,3-Trichloropropane	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 16:47	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00067	mg/kg	0.050	0.00067	1		11/20/14 16:47	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0011	mg/kg	0.0049	0.0011	1		11/21/14 13:23	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0013	mg/kg	0.0049	0.0013	1		11/21/14 13:23	108-67-8	M5
Vinyl acetate	<0.0014	mg/kg	0.050	0.0014	1		11/20/14 16:47	108-05-4	M5
Vinyl chloride	<0.00081	mg/kg	0.0050	0.00081	1		11/20/14 16:47	75-01-4	M5
Xylene (Total)	0.0042J	mg/kg	0.015	0.0030	1		11/21/14 13:23	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	93 %		73-124		1		11/21/14 13:23	2037-26-5	M5
4-Bromofluorobenzene (S)	98 %		71-124		1		11/21/14 13:23	460-00-4	M5
1,2-Dichloroethane-d4 (S)	109 %		83-138		1		11/21/14 13:23	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture 22.7 % 0.10 0.10 1 11/20/14 11:26

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent <0.47 mg/kg 1.3 0.47 1 11/20/14 11:30 11/21/14 12:00 18540-29-9

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-01 (4-6') **Lab ID: 30134548002** Collected: 11/13/14 09:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	21.1 mg/kg		1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-02 (0-2') Lab ID: 30134548003 Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000092	mg/kg	0.0020	0.000092	1	11/22/14 09:00	11/25/14 06:06	309-00-2	2c
beta-BHC	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 06:06	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0020	0.00011	1	11/22/14 09:00	11/25/14 06:06	319-86-8	2c
gamma-BHC (Lindane)	0.0027	mg/kg	0.0020	0.00014	1	11/22/14 09:00	11/25/14 06:06	58-89-9	2c, C3
Chlordane (Technical)	<0.012	mg/kg	0.020	0.012	1	11/22/14 09:00	11/25/14 06:06	57-74-9	2c
4,4'-DDD	0.0013J	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 06:06	72-54-8	2c
4,4'-DDE	<0.00018	mg/kg	0.0039	0.00018	1	11/22/14 09:00	11/25/14 06:06	72-55-9	2c
4,4'-DDT	0.00063J	mg/kg	0.0039	0.00020	1	11/22/14 09:00	11/25/14 06:06	50-29-3	2c
Dieldrin	0.0010J	mg/kg	0.0039	0.00022	1	11/22/14 09:00	11/25/14 06:06	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0020	0.00011	1	11/22/14 09:00	11/25/14 06:06	959-98-8	2c
Endosulfan II	0.00068J	mg/kg	0.0039	0.00018	1	11/22/14 09:00	11/25/14 06:06	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0039	0.00016	1	11/22/14 09:00	11/25/14 06:06	1031-07-8	2c
Endrin	<0.00021	mg/kg	0.0039	0.00021	1	11/22/14 09:00	11/25/14 06:06	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 06:06	76-44-8	2c
Heptachlor epoxide	<0.000096	mg/kg	0.0020	0.000096	1	11/22/14 09:00	11/25/14 06:06	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.020	0.0012	1	11/22/14 09:00	11/25/14 06:06	72-43-5	2c
Toxaphene	<0.0042	mg/kg	0.020	0.0042	1	11/22/14 09:00	11/25/14 06:06	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	62 %		37-113		1	11/22/14 09:00	11/25/14 06:06	877-09-8	2c
Decachlorobiphenyl (S)	74 %		39-122		1	11/22/14 09:00	11/25/14 06:06	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.9	ug/kg	19.5	2.9	1	11/21/14 09:50	11/26/14 02:11	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.9	ug/kg	19.5	8.9	1	11/21/14 09:50	11/26/14 02:11	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.9	ug/kg	19.5	5.9	1	11/21/14 09:50	11/26/14 02:11	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.8	ug/kg	19.5	3.8	1	11/21/14 09:50	11/26/14 02:11	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.1	ug/kg	19.5	4.1	1	11/21/14 09:50	11/26/14 02:11	12672-29-6	
PCB-1254 (Aroclor 1254)	<9.0	ug/kg	19.5	9.0	1	11/21/14 09:50	11/26/14 02:11	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.0	ug/kg	19.5	3.0	1	11/21/14 09:50	11/26/14 02:11	11096-82-5	
PCB, Total	<19.5	ug/kg	19.5	19.5	1	11/21/14 09:50	11/26/14 02:11	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	82 %		30-107		1	11/21/14 09:50	11/26/14 02:11	877-09-8	
Decachlorobiphenyl (S)	86 %		10-115		1	11/21/14 09:50	11/26/14 02:11	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.074	0.039	1	11/21/14 08:49	11/21/14 23:40	94-75-7	
2,4,5-T	ND	mg/kg	0.074	0.037	1	11/21/14 08:49	11/21/14 23:40	93-76-5	
Surrogates									
2,4-DCAA (S)	73 %		10-161		1	11/21/14 08:49	11/21/14 23:40	19719-28-9	
2,4-DCAA (S)	84 %		10-161		1	11/21/14 08:49	11/21/14 23:40	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.41	mg/kg	0.67	0.41	1	11/20/14 14:02	11/21/14 10:30	7440-36-0	
Arsenic	6.2	mg/kg	0.56	0.40	1	11/20/14 14:02	11/21/14 10:30	7440-38-2	
Barium	107	mg/kg	2.2	0.062	1	11/20/14 14:02	11/21/14 10:30	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (0-2')** Lab ID: **30134548003** Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.71	mg/kg	0.22	0.026	1	11/20/14 14:02	11/21/14 10:30	7440-41-7	
Boron	1.8J	mg/kg	5.6	0.15	1	11/20/14 14:02	11/21/14 10:30	7440-42-8	
Cadmium	0.22J	mg/kg	0.34	0.044	1	11/20/14 14:02	11/21/14 10:30	7440-43-9	
Chromium	13.3	mg/kg	0.56	0.077	1	11/20/14 14:02	11/21/14 10:30	7440-47-3	
Cobalt	12.1	mg/kg	1.1	0.052	1	11/20/14 14:02	11/21/14 10:30	7440-48-4	
Copper	8.8	mg/kg	1.1	0.21	1	11/20/14 14:02	11/21/14 10:30	7440-50-8	
Lead	21.0	mg/kg	0.56	0.30	1	11/20/14 14:02	11/21/14 10:30	7439-92-1	
Manganese	1040	mg/kg	1.1	0.038	1	11/20/14 14:02	11/21/14 10:30	7439-96-5	
Nickel	10.5	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:30	7440-02-0	
Selenium	0.69J	mg/kg	0.89	0.65	1	11/20/14 14:02	11/21/14 10:30	7782-49-2	
Silver	<0.059	mg/kg	0.67	0.059	1	11/20/14 14:02	11/21/14 10:30	7440-22-4	
Thallium	<0.37	mg/kg	2.2	0.37	1	11/20/14 14:02	11/21/14 10:30	7440-28-0	
Tin	4.3J	mg/kg	11.2	3.8	1	11/20/14 14:02	11/21/14 10:30	7440-31-5	B
Zinc	44.8	mg/kg	1.1	0.50	1	11/20/14 14:02	11/21/14 10:30	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.026J	mg/kg	0.12	0.0026	1	11/19/14 14:00	11/21/14 07:54	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0078	0.0019	1	11/21/14 15:45	11/23/14 12:19	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	88 %		35-141		1	11/21/14 15:45	11/23/14 19:11	321-60-8	
Terphenyl-d14 (S)	99 %		64-141		1	11/21/14 15:45	11/23/14 19:11	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 13:48	83-32-9	
Acenaphthylene	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 13:48	208-96-8	
Acetophenone	<0.047	mg/kg	0.39	0.047	1	11/20/14 07:00	11/23/14 13:48	98-86-2	
Aniline	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:48	62-53-3	
Anthracene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 13:48	120-12-7	
Atrazine	<0.074	mg/kg	0.39	0.074	1	11/20/14 07:00	11/23/14 13:48	1912-24-9	IC
Benzidine	<3.8	mg/kg	3.8	3.8	1	11/20/14 07:00	11/23/14 13:48	92-87-5	CU,IS
Benzo(a)anthracene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 13:48	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:48	50-32-8	
Benzo(b)fluoranthene	<0.076	mg/kg	0.39	0.076	1	11/20/14 07:00	11/23/14 13:48	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.39	0.11	1	11/20/14 07:00	11/23/14 13:48	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.39	0.14	1	11/20/14 07:00	11/23/14 13:48	207-08-9	
Benzoic acid	<0.30	mg/kg	0.96	0.30	1	11/20/14 07:00	11/23/14 13:48	65-85-0	CU
Benzyl alcohol	<0.057	mg/kg	0.39	0.057	1	11/20/14 07:00	11/23/14 13:48	100-51-6	
Biphenyl (Diphenyl)	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:48	92-52-4	
Butylbenzylphthalate	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 13:48	85-68-7	
Carbazole	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:48	86-74-8	
4-Chloro-3-methylphenol	<0.061	mg/kg	0.39	0.061	1	11/20/14 07:00	11/23/14 13:48	59-50-7	
4-Chloroaniline	<0.085	mg/kg	0.39	0.085	1	11/20/14 07:00	11/23/14 13:48	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.39	0.18	1	11/20/14 07:00	11/23/14 13:48	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-02 (0-2') Lab ID: 30134548003 Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 13:48	108-60-1	
2-Chloronaphthalene	<0.040	mg/kg	0.39	0.040	1	11/20/14 07:00	11/23/14 13:48	91-58-7	
2-Chlorophenol	<0.049	mg/kg	0.39	0.049	1	11/20/14 07:00	11/23/14 13:48	95-57-8	
Chrysene	<0.083	mg/kg	0.39	0.083	1	11/20/14 07:00	11/23/14 13:48	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:48	53-70-3	
3,3'-Dichlorobenzidine	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:48	91-94-1	
2,4-Dichlorophenol	<0.066	mg/kg	0.39	0.066	1	11/20/14 07:00	11/23/14 13:48	120-83-2	
Diethylphthalate	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:48	84-66-2	
2,4-Dimethylphenol	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:48	105-67-9	
Di-n-butylphthalate	<0.064	mg/kg	0.39	0.064	1	11/20/14 07:00	11/23/14 13:48	84-74-2	
2,4-Dinitrophenol	<0.35	mg/kg	0.96	0.35	1	11/20/14 07:00	11/23/14 13:48	51-28-5	CU
2,4-Dinitrotoluene	<0.081	mg/kg	0.39	0.081	1	11/20/14 07:00	11/23/14 13:48	121-14-2	
2,6-Dinitrotoluene	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 13:48	606-20-2	
Di-n-octylphthalate	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 13:48	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 13:48	117-81-7	
Fluoranthene	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:48	206-44-0	
Fluorene	<0.054	mg/kg	0.39	0.054	1	11/20/14 07:00	11/23/14 13:48	86-73-7	
Hexachloro-1,3-butadiene	<0.068	mg/kg	0.39	0.068	1	11/20/14 07:00	11/23/14 13:48	87-68-3	
Hexachlorobenzene	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 13:48	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.39	0.12	1	11/20/14 07:00	11/23/14 13:48	77-47-4	
Hexachloroethane	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:48	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.094	mg/kg	0.39	0.094	1	11/20/14 07:00	11/23/14 13:48	193-39-5	
Isophorone	<0.042	mg/kg	0.39	0.042	1	11/20/14 07:00	11/23/14 13:48	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.078	mg/kg	0.77	0.078	1	11/20/14 07:00	11/23/14 13:48		
2-Nitroaniline	<0.045	mg/kg	0.96	0.045	1	11/20/14 07:00	11/23/14 13:48	88-74-4	
3-Nitroaniline	<0.072	mg/kg	0.96	0.072	1	11/20/14 07:00	11/23/14 13:48	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.96	0.10	1	11/20/14 07:00	11/23/14 13:48	100-01-6	
Nitrobenzene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 13:48	98-95-3	
2-Nitrophenol	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 13:48	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.39	0.16	1	11/20/14 07:00	11/23/14 13:48	100-02-7	CU
N-Nitrosodimethylamine	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 13:48	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 13:48	621-64-7	
N-Nitrosodiphenylamine	<0.039	mg/kg	0.39	0.039	1	11/20/14 07:00	11/23/14 13:48	86-30-6	
Pentachlorophenol	<0.096	mg/kg	0.96	0.096	1	11/20/14 07:00	11/23/14 13:48	87-86-5	CU
Phenanthrene	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 13:48	85-01-8	
Phenol	<0.094	mg/kg	0.39	0.094	1	11/20/14 07:00	11/23/14 13:48	108-95-2	
Pyrene	<0.059	mg/kg	0.39	0.059	1	11/20/14 07:00	11/23/14 13:48	129-00-0	
Pyridine	<0.32	mg/kg	0.96	0.32	1	11/20/14 07:00	11/23/14 13:48	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 13:48	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:48	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.96	0.11	1	11/20/14 07:00	11/23/14 13:48	95-95-4	
2,4,6-Trichlorophenol	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 13:48	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	92 %		40-117		1	11/20/14 07:00	11/23/14 13:48	4165-60-0	
2-Fluorobiphenyl (S)	87 %		50-112		1	11/20/14 07:00	11/23/14 13:48	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (0-2')** Lab ID: **30134548003** Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	92 %		52-130		1	11/20/14 07:00	11/23/14 13:48	1718-51-0	
Phenol-d6 (S)	67 %		53-115		1	11/20/14 07:00	11/23/14 13:48	13127-88-3	
2-Fluorophenol (S)	55 %		38-124		1	11/20/14 07:00	11/23/14 13:48	367-12-4	
2,4,6-Tribromophenol (S)	82 %		21-133		1	11/20/14 07:00	11/23/14 13:48	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.055	mg/kg	0.0085	0.0017	1		11/20/14 17:10	67-64-1	M5
Acetonitrile	<0.0076	mg/kg	0.042	0.0076	1		11/20/14 17:10	75-05-8	M5
Acrolein	<0.0046	mg/kg	0.042	0.0046	1		11/20/14 17:10	107-02-8	M5
Acrylonitrile	<0.0028	mg/kg	0.0042	0.0028	1		11/20/14 17:10	107-13-1	M5
Allyl chloride	<0.0032	mg/kg	0.042	0.0032	1		11/20/14 17:10	107-05-1	M5
Benzene	<0.00066	mg/kg	0.0042	0.00066	1		11/20/14 17:10	71-43-2	M5
Bromochloromethane	<0.00066	mg/kg	0.0042	0.00066	1		11/20/14 17:10	74-97-5	M5
Bromodichloromethane	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 17:10	75-27-4	M5
Bromoform	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:10	75-25-2	M5
Bromomethane	<0.0025	mg/kg	0.0042	0.0025	1		11/20/14 17:10	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0085	0.0011	1		11/20/14 17:10	78-93-3	M5
n-Butylbenzene	<0.0018	mg/kg	0.0042	0.0018	1		11/20/14 17:10	104-51-8	M5
sec-Butylbenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 17:10	135-98-8	M5
tert-Butylbenzene	<0.0017	mg/kg	0.0042	0.0017	1		11/20/14 17:10	98-06-6	M5
Carbon disulfide	<0.00065	mg/kg	0.0042	0.00065	1		11/20/14 17:10	75-15-0	M5
Carbon tetrachloride	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 17:10	56-23-5	M5
Chlorobenzene	<0.00084	mg/kg	0.0042	0.00084	1		11/20/14 17:10	108-90-7	M5
Chloroethane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:10	75-00-3	M5
Chloroform	<0.00060	mg/kg	0.0042	0.00060	1		11/20/14 17:10	67-66-3	M5
Chloromethane	<0.00089	mg/kg	0.0042	0.00089	1		11/20/14 17:10	74-87-3	M5
Chloroprene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 17:10	126-99-8	M5
2-Chlorotoluene	<0.00095	mg/kg	0.0042	0.00095	1		11/20/14 17:10	95-49-8	M5
Cyclohexanone	<0.010	mg/kg	0.042	0.010	1		11/20/14 17:10	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:10	96-12-8	M5
Dibromochloromethane	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:10	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 17:10	106-93-4	M5
Dibromomethane	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:10	74-95-3	M5
1,2-Dichlorobenzene	<0.00092	mg/kg	0.0042	0.00092	1		11/20/14 17:10	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:10	541-73-1	M5
1,4-Dichlorobenzene	<0.0010	mg/kg	0.0042	0.0010	1		11/20/14 17:10	106-46-7	M5
Dichlorodifluoromethane	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 17:10	75-71-8	M5
1,1-Dichloroethane	<0.00067	mg/kg	0.0042	0.00067	1		11/20/14 17:10	75-34-3	M5
1,2-Dichloroethane	<0.00077	mg/kg	0.0042	0.00077	1		11/20/14 17:10	107-06-2	M5
1,1-Dichloroethene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 17:10	75-35-4	M5
cis-1,2-Dichloroethene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:10	156-59-2	M5
trans-1,2-Dichloroethene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 17:10	156-60-5	M5
1,2-Dichloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:10	78-87-5	M5
cis-1,3-Dichloropropene	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:10	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (0-2')** Lab ID: **30134548003** Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:10	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00074	mg/kg	0.0042	0.00074	1		11/20/14 17:10	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.026	mg/kg	0.085	0.026	1		11/20/14 17:10	123-91-1	M5
Ethyl acetate	<0.00081	mg/kg	0.0042	0.00081	1		11/20/14 17:10	141-78-6	M5
Ethylbenzene	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 17:10	100-41-4	M5
Ethyl methacrylate	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:10	97-63-2	M5
n-Hexane	<0.0021	mg/kg	0.0085	0.0021	1		11/20/14 17:10	110-54-3	M5
Isobutanol	<0.025	mg/kg	0.042	0.025	1		11/20/14 17:10	78-83-1	M5
Methacrylonitrile	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:10	126-98-7	M5
Methyl acetate	<0.0026	mg/kg	0.042	0.0026	1		11/20/14 17:10	79-20-9	M5
Methylene Chloride	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:10	75-09-2	M5
Methyl methacrylate	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 17:10	80-62-6	M5, N2
2-Methylnaphthalene	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:10	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00087	mg/kg	0.0085	0.00087	1		11/20/14 17:10	108-10-1	M5
Methyl-tert-butyl ether	<0.00060	mg/kg	0.0042	0.00060	1		11/20/14 17:10	1634-04-4	M5
Naphthalene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:10	91-20-3	M5
2-Nitropropane	<0.0097	mg/kg		0.0097	1		11/20/14 17:10	79-46-9	M5
n-Propylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:10	103-65-1	M5
Styrene	<0.00094	mg/kg	0.0042	0.00094	1		11/20/14 17:10	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00082	mg/kg	0.0042	0.00082	1		11/20/14 17:10	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 17:10	79-34-5	M5
Tetrachloroethene	<0.00061	mg/kg	0.0042	0.00061	1		11/20/14 17:10	127-18-4	M5
Toluene	<0.00054	mg/kg	0.0042	0.00054	1		11/20/14 17:10	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 17:10	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 17:10	120-82-1	M5
1,1,1-Trichloroethane	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 17:10	71-55-6	M5
1,1,2-Trichloroethane	<0.00078	mg/kg	0.0042	0.00078	1		11/20/14 17:10	79-00-5	M5
Trichloroethene	<0.00064	mg/kg	0.0042	0.00064	1		11/20/14 17:10	79-01-6	M5
1,2,3-Trichloropropane	<0.00087	mg/kg	0.0042	0.00087	1		11/20/14 17:10	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00056	mg/kg	0.042	0.00056	1		11/20/14 17:10	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00098	mg/kg	0.0042	0.00098	1		11/20/14 17:10	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:10	108-67-8	M5
Vinyl acetate	<0.0012	mg/kg	0.042	0.0012	1		11/20/14 17:10	108-05-4	M5
Vinyl chloride	<0.00068	mg/kg	0.0042	0.00068	1		11/20/14 17:10	75-01-4	M5
Xylene (Total)	<0.0026	mg/kg	0.013	0.0026	1		11/20/14 17:10	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	97 %		73-124		1		11/20/14 17:10	2037-26-5	M5
4-Bromofluorobenzene (S)	95 %		71-124		1		11/20/14 17:10	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138		1		11/20/14 17:10	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **15.6 %** 0.10 0.10 1 11/20/14 11:27

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **<0.43 mg/kg** 1.2 0.43 1 11/20/14 11:30 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-02 (0-2') **Lab ID: 30134548003** Collected: 11/13/14 09:35 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	13.3	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-02 (6-7) Lab ID: 30134548004 Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000091	mg/kg	0.0019	0.000091	1	11/22/14 09:00	11/25/14 06:33	309-00-2	2c
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 06:33	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 06:33	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 06:33	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.019	0.012	1	11/22/14 09:00	11/25/14 06:33	57-74-9	2c
4,4'-DDD	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 06:33	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 06:33	72-55-9	2c
4,4'-DDT	<0.00019	mg/kg	0.0039	0.00019	1	11/22/14 09:00	11/25/14 06:33	50-29-3	2c
Dieldrin	<0.00022	mg/kg	0.0039	0.00022	1	11/22/14 09:00	11/25/14 06:33	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 06:33	959-98-8	2c
Endosulfan II	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 06:33	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0039	0.00016	1	11/22/14 09:00	11/25/14 06:33	1031-07-8	2c
Endrin	<0.00021	mg/kg	0.0039	0.00021	1	11/22/14 09:00	11/25/14 06:33	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0019	0.00023	1	11/22/14 09:00	11/25/14 06:33	76-44-8	2c
Heptachlor epoxide	<0.000095	mg/kg	0.0019	0.000095	1	11/22/14 09:00	11/25/14 06:33	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.019	0.0012	1	11/22/14 09:00	11/25/14 06:33	72-43-5	2c
Toxaphene	<0.0041	mg/kg	0.019	0.0041	1	11/22/14 09:00	11/25/14 06:33	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	63 %		37-113		1	11/22/14 09:00	11/25/14 06:33	877-09-8	2c
Decachlorobiphenyl (S)	75 %		39-122		1	11/22/14 09:00	11/25/14 06:33	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.9	ug/kg	19.5	2.9	1	11/21/14 09:50	11/26/14 02:19	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.9	ug/kg	19.5	8.9	1	11/21/14 09:50	11/26/14 02:19	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.9	ug/kg	19.5	5.9	1	11/21/14 09:50	11/26/14 02:19	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.8	ug/kg	19.5	3.8	1	11/21/14 09:50	11/26/14 02:19	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.1	ug/kg	19.5	4.1	1	11/21/14 09:50	11/26/14 02:19	12672-29-6	
PCB-1254 (Aroclor 1254)	<9.0	ug/kg	19.5	9.0	1	11/21/14 09:50	11/26/14 02:19	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.0	ug/kg	19.5	3.0	1	11/21/14 09:50	11/26/14 02:19	11096-82-5	
PCB, Total	<19.5	ug/kg	19.5	19.5	1	11/21/14 09:50	11/26/14 02:19	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	82 %		30-107		1	11/21/14 09:50	11/26/14 02:19	877-09-8	
Decachlorobiphenyl (S)	87 %		10-115		1	11/21/14 09:50	11/26/14 02:19	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.075	0.040	1	11/21/14 08:49	11/21/14 23:56	94-75-7	
2,4,5-T	ND	mg/kg	0.075	0.038	1	11/21/14 08:49	11/21/14 23:56	93-76-5	
Surrogates									
2,4-DCAA (S)	61 %		10-161		1	11/21/14 08:49	11/21/14 23:56	19719-28-9	
2,4-DCAA (S)	69 %		10-161		1	11/21/14 08:49	11/21/14 23:56	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.41	mg/kg	0.67	0.41	1	11/20/14 14:02	11/21/14 10:32	7440-36-0	
Arsenic	1.7	mg/kg	0.55	0.40	1	11/20/14 14:02	11/21/14 10:32	7440-38-2	
Barium	112	mg/kg	2.2	0.062	1	11/20/14 14:02	11/21/14 10:32	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (6-7)** Lab ID: **30134548004** Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	1.1	mg/kg	0.22	0.026	1	11/20/14 14:02	11/21/14 10:32	7440-41-7	
Boron	0.67J	mg/kg	5.5	0.15	1	11/20/14 14:02	11/21/14 10:32	7440-42-8	
Cadmium	0.051J	mg/kg	0.33	0.044	1	11/20/14 14:02	11/21/14 10:32	7440-43-9	
Chromium	14.2	mg/kg	0.55	0.076	1	11/20/14 14:02	11/21/14 10:32	7440-47-3	
Cobalt	3.0	mg/kg	1.1	0.052	1	11/20/14 14:02	11/21/14 10:32	7440-48-4	
Copper	11.6	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:32	7440-50-8	
Lead	14.1	mg/kg	0.55	0.30	1	11/20/14 14:02	11/21/14 10:32	7439-92-1	
Manganese	19.6	mg/kg	1.1	0.038	1	11/20/14 14:02	11/21/14 10:32	7439-96-5	
Nickel	13.4	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:32	7440-02-0	
Selenium	<0.64	mg/kg	0.89	0.64	1	11/20/14 14:02	11/21/14 10:32	7782-49-2	
Silver	<0.059	mg/kg	0.67	0.059	1	11/20/14 14:02	11/21/14 10:32	7440-22-4	
Thallium	<0.36	mg/kg	2.2	0.36	1	11/20/14 14:02	11/21/14 10:32	7440-28-0	
Tin	4.1J	mg/kg	11.1	3.8	1	11/20/14 14:02	11/21/14 10:32	7440-31-5	B
Zinc	32.6	mg/kg	1.1	0.50	1	11/20/14 14:02	11/21/14 10:32	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.014J	mg/kg	0.11	0.0024	1	11/19/14 14:00	11/21/14 07:56	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0077	0.0019	1	11/21/14 15:45	11/23/14 12:34	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	86 %		35-141		1	11/21/14 15:45	11/23/14 19:28	321-60-8	
Terphenyl-d14 (S)	98 %		64-141		1	11/21/14 15:45	11/23/14 19:28	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 14:08	83-32-9	
Acenaphthylene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 14:08	208-96-8	
Acetophenone	<0.047	mg/kg	0.38	0.047	1	11/20/14 07:00	11/23/14 14:08	98-86-2	
Aniline	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 14:08	62-53-3	
Anthracene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 14:08	120-12-7	
Atrazine	<0.074	mg/kg	0.38	0.074	1	11/20/14 07:00	11/23/14 14:08	1912-24-9	IC
Benzidine	<3.8	mg/kg	3.8	3.8	1	11/20/14 07:00	11/23/14 14:08	92-87-5	CU,IS
Benzo(a)anthracene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 14:08	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:08	50-32-8	
Benzo(b)fluoranthene	<0.076	mg/kg	0.38	0.076	1	11/20/14 07:00	11/23/14 14:08	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.38	0.11	1	11/20/14 07:00	11/23/14 14:08	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.38	0.14	1	11/20/14 07:00	11/23/14 14:08	207-08-9	
Benzoic acid	<0.30	mg/kg	0.96	0.30	1	11/20/14 07:00	11/23/14 14:08	65-85-0	CU
Benzyl alcohol	<0.057	mg/kg	0.38	0.057	1	11/20/14 07:00	11/23/14 14:08	100-51-6	
Biphenyl (Diphenyl)	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 14:08	92-52-4	
Butylbenzylphthalate	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 14:08	85-68-7	
Carbazole	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 14:08	86-74-8	
4-Chloro-3-methylphenol	<0.061	mg/kg	0.38	0.061	1	11/20/14 07:00	11/23/14 14:08	59-50-7	
4-Chloroaniline	<0.085	mg/kg	0.38	0.085	1	11/20/14 07:00	11/23/14 14:08	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.38	0.18	1	11/20/14 07:00	11/23/14 14:08	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (6-7')** Lab ID: **30134548004** Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.051	mg/kg	0.38	0.051	1	11/20/14 07:00	11/23/14 14:08	108-60-1	
2-Chloronaphthalene	<0.040	mg/kg	0.38	0.040	1	11/20/14 07:00	11/23/14 14:08	91-58-7	
2-Chlorophenol	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 14:08	95-57-8	
Chrysene	<0.083	mg/kg	0.38	0.083	1	11/20/14 07:00	11/23/14 14:08	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:08	53-70-3	
3,3'-Dichlorobenzidine	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 14:08	91-94-1	
2,4-Dichlorophenol	<0.066	mg/kg	0.38	0.066	1	11/20/14 07:00	11/23/14 14:08	120-83-2	
Diethylphthalate	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 14:08	84-66-2	
2,4-Dimethylphenol	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 14:08	105-67-9	
Di-n-butylphthalate	<0.064	mg/kg	0.38	0.064	1	11/20/14 07:00	11/23/14 14:08	84-74-2	
2,4-Dinitrophenol	<0.35	mg/kg	0.96	0.35	1	11/20/14 07:00	11/23/14 14:08	51-28-5	CU
2,4-Dinitrotoluene	<0.080	mg/kg	0.38	0.080	1	11/20/14 07:00	11/23/14 14:08	121-14-2	
2,6-Dinitrotoluene	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 14:08	606-20-2	
Di-n-octylphthalate	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 14:08	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:08	117-81-7	
Fluoranthene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 14:08	206-44-0	
Fluorene	<0.054	mg/kg	0.38	0.054	1	11/20/14 07:00	11/23/14 14:08	86-73-7	
Hexachloro-1,3-butadiene	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 14:08	87-68-3	
Hexachlorobenzene	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 14:08	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.38	0.12	1	11/20/14 07:00	11/23/14 14:08	77-47-4	
Hexachloroethane	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 14:08	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.094	mg/kg	0.38	0.094	1	11/20/14 07:00	11/23/14 14:08	193-39-5	
Isophorone	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 14:08	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.077	mg/kg	0.77	0.077	1	11/20/14 07:00	11/23/14 14:08		
2-Nitroaniline	<0.045	mg/kg	0.96	0.045	1	11/20/14 07:00	11/23/14 14:08	88-74-4	
3-Nitroaniline	<0.072	mg/kg	0.96	0.072	1	11/20/14 07:00	11/23/14 14:08	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.96	0.10	1	11/20/14 07:00	11/23/14 14:08	100-01-6	
Nitrobenzene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 14:08	98-95-3	
2-Nitrophenol	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 14:08	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.38	0.16	1	11/20/14 07:00	11/23/14 14:08	100-02-7	CU
N-Nitrosodimethylamine	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 14:08	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 14:08	621-64-7	
N-Nitrosodiphenylamine	<0.039	mg/kg	0.38	0.039	1	11/20/14 07:00	11/23/14 14:08	86-30-6	
Pentachlorophenol	<0.096	mg/kg	0.96	0.096	1	11/20/14 07:00	11/23/14 14:08	87-86-5	CU
Phenanthrene	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 14:08	85-01-8	
Phenol	<0.093	mg/kg	0.38	0.093	1	11/20/14 07:00	11/23/14 14:08	108-95-2	
Pyrene	<0.058	mg/kg	0.38	0.058	1	11/20/14 07:00	11/23/14 14:08	129-00-0	
Pyridine	<0.32	mg/kg	0.96	0.32	1	11/20/14 07:00	11/23/14 14:08	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.072	mg/kg	0.38	0.072	1	11/20/14 07:00	11/23/14 14:08	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 14:08	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.96	0.11	1	11/20/14 07:00	11/23/14 14:08	95-95-4	
2,4,6-Trichlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 14:08	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	92 %		40-117		1	11/20/14 07:00	11/23/14 14:08	4165-60-0	
2-Fluorobiphenyl (S)	82 %		50-112		1	11/20/14 07:00	11/23/14 14:08	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-02 (6-7')** Lab ID: **30134548004** Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	91 %		52-130		1	11/20/14 07:00	11/23/14 14:08	1718-51-0	
Phenol-d6 (S)	88 %		53-115		1	11/20/14 07:00	11/23/14 14:08	13127-88-3	
2-Fluorophenol (S)	82 %		38-124		1	11/20/14 07:00	11/23/14 14:08	367-12-4	
2,4,6-Tribromophenol (S)	92 %		21-133		1	11/20/14 07:00	11/23/14 14:08	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	<0.0016	mg/kg	0.0083	0.0016	1		11/20/14 17:32	67-64-1	M5
Acetonitrile	<0.0075	mg/kg	0.042	0.0075	1		11/20/14 17:32	75-05-8	M5
Acrolein	<0.0045	mg/kg	0.042	0.0045	1		11/20/14 17:32	107-02-8	M5
Acrylonitrile	<0.0027	mg/kg	0.0042	0.0027	1		11/20/14 17:32	107-13-1	M5
Allyl chloride	<0.0032	mg/kg	0.042	0.0032	1		11/20/14 17:32	107-05-1	M5
Benzene	<0.00065	mg/kg	0.0042	0.00065	1		11/20/14 17:32	71-43-2	M5
Bromochloromethane	<0.00065	mg/kg	0.0042	0.00065	1		11/20/14 17:32	74-97-5	M5
Bromodichloromethane	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 17:32	75-27-4	M5
Bromoform	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:32	75-25-2	M5
Bromomethane	<0.0025	mg/kg	0.0042	0.0025	1		11/20/14 17:32	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0083	0.0011	1		11/20/14 17:32	78-93-3	M5
n-Butylbenzene	<0.0018	mg/kg	0.0042	0.0018	1		11/20/14 17:32	104-51-8	M5
sec-Butylbenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 17:32	135-98-8	M5
tert-Butylbenzene	<0.0016	mg/kg	0.0042	0.0016	1		11/20/14 17:32	98-06-6	M5
Carbon disulfide	<0.00064	mg/kg	0.0042	0.00064	1		11/20/14 17:32	75-15-0	M5
Carbon tetrachloride	<0.00074	mg/kg	0.0042	0.00074	1		11/20/14 17:32	56-23-5	M5
Chlorobenzene	<0.00083	mg/kg	0.0042	0.00083	1		11/20/14 17:32	108-90-7	M5
Chloroethane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:32	75-00-3	M5
Chloroform	<0.00059	mg/kg	0.0042	0.00059	1		11/20/14 17:32	67-66-3	M5
Chloromethane	<0.00088	mg/kg	0.0042	0.00088	1		11/20/14 17:32	74-87-3	M5
Chloroprene	<0.00068	mg/kg	0.0042	0.00068	1		11/20/14 17:32	126-99-8	M5
2-Chlorotoluene	<0.00093	mg/kg	0.0042	0.00093	1		11/20/14 17:32	95-49-8	M5
Cyclohexanone	<0.010	mg/kg	0.042	0.010	1		11/20/14 17:32	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:32	96-12-8	M5
Dibromochloromethane	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:32	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 17:32	106-93-4	M5
Dibromomethane	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:32	74-95-3	M5
1,2-Dichlorobenzene	<0.00091	mg/kg	0.0042	0.00091	1		11/20/14 17:32	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:32	541-73-1	M5
1,4-Dichlorobenzene	<0.0010	mg/kg	0.0042	0.0010	1		11/20/14 17:32	106-46-7	M5
Dichlorodifluoromethane	<0.00074	mg/kg	0.0042	0.00074	1		11/20/14 17:32	75-71-8	M5
1,1-Dichloroethane	<0.00066	mg/kg	0.0042	0.00066	1		11/20/14 17:32	75-34-3	M5
1,2-Dichloroethane	<0.00076	mg/kg	0.0042	0.00076	1		11/20/14 17:32	107-06-2	M5
1,1-Dichloroethene	<0.00068	mg/kg	0.0042	0.00068	1		11/20/14 17:32	75-35-4	M5
cis-1,2-Dichloroethene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:32	156-59-2	M5
trans-1,2-Dichloroethene	<0.00068	mg/kg	0.0042	0.00068	1		11/20/14 17:32	156-60-5	M5
1,2-Dichloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:32	78-87-5	M5
cis-1,3-Dichloropropene	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:32	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-02 (6-7)** Lab ID: **30134548004** Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:32	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00073	mg/kg	0.0042	0.00073	1		11/20/14 17:32	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.026	mg/kg	0.083	0.026	1		11/20/14 17:32	123-91-1	M5
Ethyl acetate	<0.00080	mg/kg	0.0042	0.00080	1		11/20/14 17:32	141-78-6	M5
Ethylbenzene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:32	100-41-4	M5
Ethyl methacrylate	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:32	97-63-2	M5
n-Hexane	<0.0020	mg/kg	0.0083	0.0020	1		11/20/14 17:32	110-54-3	M5
Isobutanol	<0.025	mg/kg	0.042	0.025	1		11/20/14 17:32	78-83-1	M5
Methacrylonitrile	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 17:32	126-98-7	M5
Methyl acetate	<0.0025	mg/kg	0.042	0.0025	1		11/20/14 17:32	79-20-9	M5
Methylene Chloride	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:32	75-09-2	M5
Methyl methacrylate	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 17:32	80-62-6	M5, N2
2-Methylnaphthalene	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 17:32	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00086	mg/kg	0.0083	0.00086	1		11/20/14 17:32	108-10-1	M5
Methyl-tert-butyl ether	<0.00059	mg/kg	0.0042	0.00059	1		11/20/14 17:32	1634-04-4	M5
Naphthalene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 17:32	91-20-3	M5
2-Nitropropane	<0.0095	mg/kg		0.0095	1		11/20/14 17:32	79-46-9	M5
n-Propylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:32	103-65-1	M5
Styrene	<0.00093	mg/kg	0.0042	0.00093	1		11/20/14 17:32	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00081	mg/kg	0.0042	0.00081	1		11/20/14 17:32	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00074	mg/kg	0.0042	0.00074	1		11/20/14 17:32	79-34-5	M5
Tetrachloroethene	<0.00061	mg/kg	0.0042	0.00061	1		11/20/14 17:32	127-18-4	M5
Toluene	<0.00054	mg/kg	0.0042	0.00054	1		11/20/14 17:32	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 17:32	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:32	120-82-1	M5
1,1,1-Trichloroethane	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 17:32	71-55-6	M5
1,1,2-Trichloroethane	<0.00077	mg/kg	0.0042	0.00077	1		11/20/14 17:32	79-00-5	M5
Trichloroethene	<0.00063	mg/kg	0.0042	0.00063	1		11/20/14 17:32	79-01-6	M5
1,2,3-Trichloropropane	<0.00086	mg/kg	0.0042	0.00086	1		11/20/14 17:32	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00055	mg/kg	0.042	0.00055	1		11/20/14 17:32	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00097	mg/kg	0.0042	0.00097	1		11/20/14 17:32	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 17:32	108-67-8	M5
Vinyl acetate	<0.0012	mg/kg	0.042	0.0012	1		11/20/14 17:32	108-05-4	M5
Vinyl chloride	<0.00067	mg/kg	0.0042	0.00067	1		11/20/14 17:32	75-01-4	M5
Xylene (Total)	<0.0026	mg/kg	0.013	0.0026	1		11/20/14 17:32	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	96 %		73-124		1		11/20/14 17:32	2037-26-5	M5
4-Bromofluorobenzene (S)	96 %		71-124		1		11/20/14 17:32	460-00-4	M5
1,2-Dichloroethane-d4 (S)	107 %		83-138		1		11/20/14 17:32	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **15.0 %** 0.10 0.10 1 11/20/14 11:28

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **0.56J mg/kg** 1.2 0.43 1 11/20/14 11:30 11/21/14 12:00 18540-29-9

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-02 (6-7') **Lab ID: 30134548004** Collected: 11/13/14 12:40 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	13.6	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-03 (0-2') Lab ID: 30134548005 Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000088	mg/kg	0.0019	0.000088	1	11/22/14 09:00	11/25/14 07:27	309-00-2	2c
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 07:27	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 07:27	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 07:27	58-89-9	2c
Chlordane (Technical)	<0.011	mg/kg	0.019	0.011	1	11/22/14 09:00	11/25/14 07:27	57-74-9	2c
4,4'-DDD	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:27	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:27	72-55-9	2c
4,4'-DDT	<0.00019	mg/kg	0.0038	0.00019	1	11/22/14 09:00	11/25/14 07:27	50-29-3	2c
Dieldrin	<0.00021	mg/kg	0.0038	0.00021	1	11/22/14 09:00	11/25/14 07:27	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 07:27	959-98-8	2c
Endosulfan II	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:27	33213-65-9	2c
Endosulfan sulfate	<0.00015	mg/kg	0.0038	0.00015	1	11/22/14 09:00	11/25/14 07:27	1031-07-8	2c
Endrin	<0.00020	mg/kg	0.0038	0.00020	1	11/22/14 09:00	11/25/14 07:27	72-20-8	2c
Heptachlor	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 07:27	76-44-8	2c
Heptachlor epoxide	<0.000092	mg/kg	0.0019	0.000092	1	11/22/14 09:00	11/25/14 07:27	1024-57-3	2c
Methoxychlor	<0.0011	mg/kg	0.019	0.0011	1	11/22/14 09:00	11/25/14 07:27	72-43-5	2c
Toxaphene	<0.0040	mg/kg	0.019	0.0040	1	11/22/14 09:00	11/25/14 07:27	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	65 %		37-113		1	11/22/14 09:00	11/25/14 07:27	877-09-8	2c
Decachlorobiphenyl (S)	76 %		39-122		1	11/22/14 09:00	11/25/14 07:27	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.7	ug/kg	18.5	2.7	1	11/21/14 09:50	11/26/14 02:27	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.5	ug/kg	18.5	8.5	1	11/21/14 09:50	11/26/14 02:27	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.6	ug/kg	18.5	5.6	1	11/21/14 09:50	11/26/14 02:27	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.6	ug/kg	18.5	3.6	1	11/21/14 09:50	11/26/14 02:27	53469-21-9	
PCB-1248 (Aroclor 1248)	<3.9	ug/kg	18.5	3.9	1	11/21/14 09:50	11/26/14 02:27	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.5	ug/kg	18.5	8.5	1	11/21/14 09:50	11/26/14 02:27	11097-69-1	
PCB-1260 (Aroclor 1260)	<2.9	ug/kg	18.5	2.9	1	11/21/14 09:50	11/26/14 02:27	11096-82-5	
PCB, Total	<18.5	ug/kg	18.5	18.5	1	11/21/14 09:50	11/26/14 02:27	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	79 %		30-107		1	11/21/14 09:50	11/26/14 02:27	877-09-8	
Decachlorobiphenyl (S)	89 %		10-115		1	11/21/14 09:50	11/26/14 02:27	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.074	0.039	1	11/21/14 08:49	11/22/14 00:12	94-75-7	
2,4,5-T	ND	mg/kg	0.074	0.037	1	11/21/14 08:49	11/22/14 00:12	93-76-5	
Surrogates									
2,4-DCAA (S)	70 %		10-161		1	11/21/14 08:49	11/22/14 00:12	19719-28-9	
2,4-DCAA (S)	94 %		10-161		1	11/21/14 08:49	11/22/14 00:12	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.40	mg/kg	0.64	0.40	1	11/20/14 14:02	11/21/14 10:40	7440-36-0	
Arsenic	6.1	mg/kg	0.53	0.38	1	11/20/14 14:02	11/21/14 10:40	7440-38-2	
Barium	47.4	mg/kg	2.1	0.059	1	11/20/14 14:02	11/21/14 10:40	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-03 (0-2')** Lab ID: **30134548005** Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.42	mg/kg	0.21	0.025	1	11/20/14 14:02	11/21/14 10:40	7440-41-7	
Boron	1.7J	mg/kg	5.3	0.14	1	11/20/14 14:02	11/21/14 10:40	7440-42-8	
Cadmium	0.087J	mg/kg	0.32	0.042	1	11/20/14 14:02	11/21/14 10:40	7440-43-9	
Chromium	13.3	mg/kg	0.53	0.073	1	11/20/14 14:02	11/21/14 10:40	7440-47-3	
Cobalt	4.3	mg/kg	1.1	0.050	1	11/20/14 14:02	11/21/14 10:40	7440-48-4	
Copper	9.9	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:40	7440-50-8	
Lead	12.4	mg/kg	0.53	0.29	1	11/20/14 14:02	11/21/14 10:40	7439-92-1	
Manganese	183	mg/kg	1.1	0.037	1	11/20/14 14:02	11/21/14 10:40	7439-96-5	
Nickel	8.2	mg/kg	2.1	0.15	1	11/20/14 14:02	11/21/14 10:40	7440-02-0	
Selenium	<0.62	mg/kg	0.85	0.62	1	11/20/14 14:02	11/21/14 10:40	7782-49-2	
Silver	<0.057	mg/kg	0.64	0.057	1	11/20/14 14:02	11/21/14 10:40	7440-22-4	
Thallium	<0.35	mg/kg	2.1	0.35	1	11/20/14 14:02	11/21/14 10:40	7440-28-0	
Tin	4.2J	mg/kg	10.7	3.7	1	11/20/14 14:02	11/21/14 10:40	7440-31-5	B
Zinc	29.0	mg/kg	1.1	0.48	1	11/20/14 14:02	11/21/14 10:40	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.029J	mg/kg	0.11	0.0024	1	11/19/14 14:00	11/21/14 07:57	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0018	mg/kg	0.0075	0.0018	1	11/21/14 15:45	11/23/14 12:50	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	91 %		35-141		1	11/21/14 15:45	11/23/14 19:45	321-60-8	
Terphenyl-d14 (S)	98 %		64-141		1	11/21/14 15:45	11/23/14 19:45	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 14:28	83-32-9	
Acenaphthylene	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 14:28	208-96-8	
Acetophenone	<0.046	mg/kg	0.38	0.046	1	11/20/14 07:00	11/23/14 14:28	98-86-2	
Aniline	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 14:28	62-53-3	
Anthracene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 14:28	120-12-7	
Atrazine	<0.072	mg/kg	0.38	0.072	1	11/20/14 07:00	11/23/14 14:28	1912-24-9	IC
Benzidine	<3.7	mg/kg	3.7	3.7	1	11/20/14 07:00	11/23/14 14:28	92-87-5	CU,IS
Benzo(a)anthracene	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 14:28	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:28	50-32-8	
Benzo(b)fluoranthene	<0.074	mg/kg	0.38	0.074	1	11/20/14 07:00	11/23/14 14:28	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.38	0.11	1	11/20/14 07:00	11/23/14 14:28	191-24-2	
Benzo(k)fluoranthene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:28	207-08-9	
Benzoic acid	<0.30	mg/kg	0.94	0.30	1	11/20/14 07:00	11/23/14 14:28	65-85-0	CU
Benzyl alcohol	<0.056	mg/kg	0.38	0.056	1	11/20/14 07:00	11/23/14 14:28	100-51-6	
Biphenyl (Diphenyl)	<0.069	mg/kg	0.38	0.069	1	11/20/14 07:00	11/23/14 14:28	92-52-4	
Butylbenzylphthalate	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 14:28	85-68-7	
Carbazole	<0.067	mg/kg	0.38	0.067	1	11/20/14 07:00	11/23/14 14:28	86-74-8	
4-Chloro-3-methylphenol	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 14:28	59-50-7	
4-Chloroaniline	<0.083	mg/kg	0.38	0.083	1	11/20/14 07:00	11/23/14 14:28	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.38	0.18	1	11/20/14 07:00	11/23/14 14:28	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (0-2') Lab ID: 30134548005 Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 14:28	108-60-1	
2-Chloronaphthalene	<0.040	mg/kg	0.38	0.040	1	11/20/14 07:00	11/23/14 14:28	91-58-7	
2-Chlorophenol	<0.048	mg/kg	0.38	0.048	1	11/20/14 07:00	11/23/14 14:28	95-57-8	
Chrysene	<0.081	mg/kg	0.38	0.081	1	11/20/14 07:00	11/23/14 14:28	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:28	53-70-3	
3,3'-Dichlorobenzidine	<0.041	mg/kg	0.38	0.041	1	11/20/14 07:00	11/23/14 14:28	91-94-1	
2,4-Dichlorophenol	<0.065	mg/kg	0.38	0.065	1	11/20/14 07:00	11/23/14 14:28	120-83-2	
Diethylphthalate	<0.041	mg/kg	0.38	0.041	1	11/20/14 07:00	11/23/14 14:28	84-66-2	
2,4-Dimethylphenol	<0.066	mg/kg	0.38	0.066	1	11/20/14 07:00	11/23/14 14:28	105-67-9	
Di-n-butylphthalate	<0.062	mg/kg	0.38	0.062	1	11/20/14 07:00	11/23/14 14:28	84-74-2	
2,4-Dinitrophenol	<0.34	mg/kg	0.94	0.34	1	11/20/14 07:00	11/23/14 14:28	51-28-5	CU
2,4-Dinitrotoluene	<0.079	mg/kg	0.38	0.079	1	11/20/14 07:00	11/23/14 14:28	121-14-2	
2,6-Dinitrotoluene	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 14:28	606-20-2	
Di-n-octylphthalate	<0.069	mg/kg	0.38	0.069	1	11/20/14 07:00	11/23/14 14:28	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 14:28	117-81-7	
Fluoranthene	<0.058	mg/kg	0.38	0.058	1	11/20/14 07:00	11/23/14 14:28	206-44-0	
Fluorene	<0.053	mg/kg	0.38	0.053	1	11/20/14 07:00	11/23/14 14:28	86-73-7	
Hexachloro-1,3-butadiene	<0.067	mg/kg	0.38	0.067	1	11/20/14 07:00	11/23/14 14:28	87-68-3	
Hexachlorobenzene	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 14:28	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.38	0.12	1	11/20/14 07:00	11/23/14 14:28	77-47-4	
Hexachloroethane	<0.058	mg/kg	0.38	0.058	1	11/20/14 07:00	11/23/14 14:28	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.092	mg/kg	0.38	0.092	1	11/20/14 07:00	11/23/14 14:28	193-39-5	
Isophorone	<0.041	mg/kg	0.38	0.041	1	11/20/14 07:00	11/23/14 14:28	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.076	mg/kg	0.75	0.076	1	11/20/14 07:00	11/23/14 14:28		
2-Nitroaniline	<0.044	mg/kg	0.94	0.044	1	11/20/14 07:00	11/23/14 14:28	88-74-4	
3-Nitroaniline	<0.071	mg/kg	0.94	0.071	1	11/20/14 07:00	11/23/14 14:28	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.94	0.10	1	11/20/14 07:00	11/23/14 14:28	100-01-6	
Nitrobenzene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 14:28	98-95-3	
2-Nitrophenol	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 14:28	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.38	0.16	1	11/20/14 07:00	11/23/14 14:28	100-02-7	CU
N-Nitrosodimethylamine	<0.048	mg/kg	0.38	0.048	1	11/20/14 07:00	11/23/14 14:28	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 14:28	621-64-7	
N-Nitrosodiphenylamine	<0.038	mg/kg	0.38	0.038	1	11/20/14 07:00	11/23/14 14:28	86-30-6	
Pentachlorophenol	<0.094	mg/kg	0.94	0.094	1	11/20/14 07:00	11/23/14 14:28	87-86-5	CU
Phenanthrene	<0.069	mg/kg	0.38	0.069	1	11/20/14 07:00	11/23/14 14:28	85-01-8	
Phenol	<0.091	mg/kg	0.38	0.091	1	11/20/14 07:00	11/23/14 14:28	108-95-2	
Pyrene	<0.057	mg/kg	0.38	0.057	1	11/20/14 07:00	11/23/14 14:28	129-00-0	
Pyridine	<0.31	mg/kg	0.94	0.31	1	11/20/14 07:00	11/23/14 14:28	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 14:28	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 14:28	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.94	0.11	1	11/20/14 07:00	11/23/14 14:28	95-95-4	
2,4,6-Trichlorophenol	<0.069	mg/kg	0.38	0.069	1	11/20/14 07:00	11/23/14 14:28	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	89 %		40-117		1	11/20/14 07:00	11/23/14 14:28	4165-60-0	
2-Fluorobiphenyl (S)	84 %		50-112		1	11/20/14 07:00	11/23/14 14:28	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (0-2') Lab ID: 30134548005 Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	92 %		52-130		1	11/20/14 07:00	11/23/14 14:28	1718-51-0	
Phenol-d6 (S)	83 %		53-115		1	11/20/14 07:00	11/23/14 14:28	13127-88-3	
2-Fluorophenol (S)	73 %		38-124		1	11/20/14 07:00	11/23/14 14:28	367-12-4	
2,4,6-Tribromophenol (S)	91 %		21-133		1	11/20/14 07:00	11/23/14 14:28	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.038	mg/kg	0.0087	0.0017	1		11/20/14 17:54	67-64-1	M5
Acetonitrile	<0.0078	mg/kg	0.044	0.0078	1		11/20/14 17:54	75-05-8	M5
Acrolein	<0.0047	mg/kg	0.044	0.0047	1		11/20/14 17:54	107-02-8	M5
Acrylonitrile	<0.0029	mg/kg	0.0044	0.0029	1		11/20/14 17:54	107-13-1	M5
Allyl chloride	<0.0033	mg/kg	0.044	0.0033	1		11/20/14 17:54	107-05-1	M5
Benzene	<0.00068	mg/kg	0.0044	0.00068	1		11/20/14 17:54	71-43-2	M5
Bromochloromethane	<0.00068	mg/kg	0.0044	0.00068	1		11/20/14 17:54	74-97-5	M5
Bromodichloromethane	<0.0016	mg/kg	0.0044	0.0016	1		11/20/14 17:54	75-27-4	M5
Bromoform	<0.0022	mg/kg	0.0044	0.0022	1		11/20/14 17:54	75-25-2	M5
Bromomethane	<0.0026	mg/kg	0.0044	0.0026	1		11/20/14 17:54	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0087	0.0011	1		11/20/14 17:54	78-93-3	M5
n-Butylbenzene	<0.0019	mg/kg	0.0044	0.0019	1		11/20/14 17:54	104-51-8	M5
sec-Butylbenzene	<0.0013	mg/kg	0.0044	0.0013	1		11/20/14 17:54	135-98-8	M5
tert-Butylbenzene	<0.0017	mg/kg	0.0044	0.0017	1		11/20/14 17:54	98-06-6	M5
Carbon disulfide	<0.00067	mg/kg	0.0044	0.00067	1		11/20/14 17:54	75-15-0	M5
Carbon tetrachloride	<0.00078	mg/kg	0.0044	0.00078	1		11/20/14 17:54	56-23-5	M5
Chlorobenzene	<0.00087	mg/kg	0.0044	0.00087	1		11/20/14 17:54	108-90-7	M5
Chloroethane	<0.0014	mg/kg	0.0044	0.0014	1		11/20/14 17:54	75-00-3	M5
Chloroform	<0.00062	mg/kg	0.0044	0.00062	1		11/20/14 17:54	67-66-3	M5
Chloromethane	<0.00092	mg/kg	0.0044	0.00092	1		11/20/14 17:54	74-87-3	M5
Chloroprene	<0.00071	mg/kg	0.0044	0.00071	1		11/20/14 17:54	126-99-8	M5
2-Chlorotoluene	<0.00098	mg/kg	0.0044	0.00098	1		11/20/14 17:54	95-49-8	M5
Cyclohexanone	<0.011	mg/kg	0.044	0.011	1		11/20/14 17:54	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0015	mg/kg	0.0044	0.0015	1		11/20/14 17:54	96-12-8	M5
Dibromochloromethane	<0.0013	mg/kg	0.0044	0.0013	1		11/20/14 17:54	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0023	mg/kg	0.0044	0.0023	1		11/20/14 17:54	106-93-4	M5
Dibromomethane	<0.0022	mg/kg	0.0044	0.0022	1		11/20/14 17:54	74-95-3	M5
1,2-Dichlorobenzene	<0.00095	mg/kg	0.0044	0.00095	1		11/20/14 17:54	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0044	0.0011	1		11/20/14 17:54	541-73-1	M5
1,4-Dichlorobenzene	<0.0011	mg/kg	0.0044	0.0011	1		11/20/14 17:54	106-46-7	M5
Dichlorodifluoromethane	<0.00078	mg/kg	0.0044	0.00078	1		11/20/14 17:54	75-71-8	M5
1,1-Dichloroethane	<0.00069	mg/kg	0.0044	0.00069	1		11/20/14 17:54	75-34-3	M5
1,2-Dichloroethane	<0.00080	mg/kg	0.0044	0.00080	1		11/20/14 17:54	107-06-2	M5
1,1-Dichloroethene	<0.00071	mg/kg	0.0044	0.00071	1		11/20/14 17:54	75-35-4	M5
cis-1,2-Dichloroethene	<0.0022	mg/kg	0.0044	0.0022	1		11/20/14 17:54	156-59-2	M5
trans-1,2-Dichloroethene	<0.00072	mg/kg	0.0044	0.00072	1		11/20/14 17:54	156-60-5	M5
1,2-Dichloropropane	<0.0014	mg/kg	0.0044	0.0014	1		11/20/14 17:54	78-87-5	M5
cis-1,3-Dichloropropene	<0.0014	mg/kg	0.0044	0.0014	1		11/20/14 17:54	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-03 (0-2') Lab ID: 30134548005 Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0014	mg/kg	0.0044	0.0014	1		11/20/14 17:54	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00077	mg/kg	0.0044	0.00077	1		11/20/14 17:54	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.027	mg/kg	0.087	0.027	1		11/20/14 17:54	123-91-1	M5
Ethyl acetate	<0.00084	mg/kg	0.0044	0.00084	1		11/20/14 17:54	141-78-6	M5
Ethylbenzene	<0.0022	mg/kg	0.0044	0.0022	1		11/20/14 17:54	100-41-4	M5
Ethyl methacrylate	<0.0013	mg/kg	0.0044	0.0013	1		11/20/14 17:54	97-63-2	M5
n-Hexane	<0.0021	mg/kg	0.0087	0.0021	1		11/20/14 17:54	110-54-3	M5
Isobutanol	<0.026	mg/kg	0.044	0.026	1		11/20/14 17:54	78-83-1	M5
Methacrylonitrile	<0.0013	mg/kg	0.0044	0.0013	1		11/20/14 17:54	126-98-7	M5
Methyl acetate	<0.0026	mg/kg	0.044	0.0026	1		11/20/14 17:54	79-20-9	M5
Methylene Chloride	<0.0012	mg/kg	0.0044	0.0012	1		11/20/14 17:54	75-09-2	M5
Methyl methacrylate	<0.0015	mg/kg	0.0044	0.0015	1		11/20/14 17:54	80-62-6	M5, N2
2-Methylnaphthalene	<0.0014	mg/kg	0.0044	0.0014	1		11/20/14 17:54	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00090	mg/kg	0.0087	0.00090	1		11/20/14 17:54	108-10-1	M5
Methyl-tert-butyl ether	<0.00062	mg/kg	0.0044	0.00062	1		11/20/14 17:54	1634-04-4	M5
Naphthalene	<0.0022	mg/kg	0.0044	0.0022	1		11/20/14 17:54	91-20-3	M5
2-Nitropropane	<0.010	mg/kg		0.010	1		11/20/14 17:54	79-46-9	M5
n-Propylbenzene	<0.0011	mg/kg	0.0044	0.0011	1		11/20/14 17:54	103-65-1	M5
Styrene	<0.00097	mg/kg	0.0044	0.00097	1		11/20/14 17:54	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00084	mg/kg	0.0044	0.00084	1		11/20/14 17:54	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00078	mg/kg	0.0044	0.00078	1		11/20/14 17:54	79-34-5	M5
Tetrachloroethene	<0.00063	mg/kg	0.0044	0.00063	1		11/20/14 17:54	127-18-4	M5
Toluene	<0.00056	mg/kg	0.0044	0.00056	1		11/20/14 17:54	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0013	mg/kg	0.0044	0.0013	1		11/20/14 17:54	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0012	mg/kg	0.0044	0.0012	1		11/20/14 17:54	120-82-1	M5
1,1,1-Trichloroethane	<0.0023	mg/kg	0.0044	0.0023	1		11/20/14 17:54	71-55-6	M5
1,1,2-Trichloroethane	<0.00081	mg/kg	0.0044	0.00081	1		11/20/14 17:54	79-00-5	M5
Trichloroethene	<0.00066	mg/kg	0.0044	0.00066	1		11/20/14 17:54	79-01-6	M5
1,2,3-Trichloropropane	<0.00090	mg/kg	0.0044	0.00090	1		11/20/14 17:54	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00058	mg/kg	0.044	0.00058	1		11/20/14 17:54	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0010	mg/kg	0.0044	0.0010	1		11/20/14 17:54	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0012	mg/kg	0.0044	0.0012	1		11/20/14 17:54	108-67-8	M5
Vinyl acetate	<0.0012	mg/kg	0.044	0.0012	1		11/20/14 17:54	108-05-4	M5
Vinyl chloride	<0.00071	mg/kg	0.0044	0.00071	1		11/20/14 17:54	75-01-4	M5
Xylene (Total)	<0.0027	mg/kg	0.013	0.0027	1		11/20/14 17:54	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	98 %		73-124		1		11/20/14 17:54	2037-26-5	M5
4-Bromofluorobenzene (S)	93 %		71-124		1		11/20/14 17:54	460-00-4	M5
1,2-Dichloroethane-d4 (S)	108 %		83-138		1		11/20/14 17:54	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture 11.7 % 0.10 0.10 1 11/20/14 11:29

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent <0.41 mg/kg 1.1 0.41 1 11/20/14 11:30 11/21/14 12:00 18540-29-9 M1

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (0-2') **Lab ID: 30134548005** Collected: 11/13/14 09:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	13.3	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-03 (6-8')** Lab ID: **30134548006** Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000089	mg/kg	0.0019	0.000089	1	11/22/14 09:00	11/25/14 07:55	309-00-2	2c
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 07:55	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 07:55	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 07:55	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.019	0.012	1	11/22/14 09:00	11/25/14 07:55	57-74-9	2c
4,4'-DDD	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:55	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:55	72-55-9	2c
4,4'-DDT	<0.00019	mg/kg	0.0038	0.00019	1	11/22/14 09:00	11/25/14 07:55	50-29-3	2c
Dieldrin	0.00041J	mg/kg	0.0038	0.00022	1	11/22/14 09:00	11/25/14 07:55	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 07:55	959-98-8	2c
Endosulfan II	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 07:55	33213-65-9	2c
Endosulfan sulfate	<0.00015	mg/kg	0.0038	0.00015	1	11/22/14 09:00	11/25/14 07:55	1031-07-8	2c
Endrin	<0.00020	mg/kg	0.0038	0.00020	1	11/22/14 09:00	11/25/14 07:55	72-20-8	2c
Heptachlor	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 07:55	76-44-8	2c
Heptachlor epoxide	<0.000094	mg/kg	0.0019	0.000094	1	11/22/14 09:00	11/25/14 07:55	1024-57-3	2c
Methoxychlor	<0.0011	mg/kg	0.019	0.0011	1	11/22/14 09:00	11/25/14 07:55	72-43-5	2c
Toxaphene	<0.0041	mg/kg	0.019	0.0041	1	11/22/14 09:00	11/25/14 07:55	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	62 %		37-113		1	11/22/14 09:00	11/25/14 07:55	877-09-8	2c
Decachlorobiphenyl (S)	73 %		39-122		1	11/22/14 09:00	11/25/14 07:55	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.8	ug/kg	19.2	2.8	1	11/21/14 09:50	11/26/14 02:35	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.8	ug/kg	19.2	8.8	1	11/21/14 09:50	11/26/14 02:35	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.8	ug/kg	19.2	5.8	1	11/21/14 09:50	11/26/14 02:35	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.8	ug/kg	19.2	3.8	1	11/21/14 09:50	11/26/14 02:35	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.1	ug/kg	19.2	4.1	1	11/21/14 09:50	11/26/14 02:35	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.9	ug/kg	19.2	8.9	1	11/21/14 09:50	11/26/14 02:35	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.0	ug/kg	19.2	3.0	1	11/21/14 09:50	11/26/14 02:35	11096-82-5	
PCB, Total	<19.2	ug/kg	19.2	19.2	1	11/21/14 09:50	11/26/14 02:35	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	83 %		30-107		1	11/21/14 09:50	11/26/14 02:35	877-09-8	
Decachlorobiphenyl (S)	94 %		10-115		1	11/21/14 09:50	11/26/14 02:35	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.076	0.040	1	11/18/14 15:09	11/22/14 15:38	94-75-7	
2,4,5-T	ND	mg/kg	0.076	0.038	1	11/18/14 15:09	11/22/14 15:38	93-76-5	
Surrogates									
2,4-DCAA (S)	105 %		10-161		1	11/18/14 15:09	11/22/14 15:38	19719-28-9	
2,4-DCAA (S)	89 %		10-161		1	11/18/14 15:09	11/22/14 15:38	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.40	mg/kg	0.65	0.40	1	11/20/14 14:02	11/21/14 10:42	7440-36-0	
Arsenic	15.4	mg/kg	0.54	0.39	1	11/20/14 14:02	11/21/14 10:42	7440-38-2	
Barium	43.0	mg/kg	2.2	0.060	1	11/20/14 14:02	11/21/14 10:42	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (6-8') **Lab ID: 30134548006** Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	1.0	mg/kg	0.22	0.025	1	11/20/14 14:02	11/21/14 10:42	7440-41-7	
Boron	0.99J	mg/kg	5.4	0.14	1	11/20/14 14:02	11/21/14 10:42	7440-42-8	
Cadmium	0.070J	mg/kg	0.33	0.043	1	11/20/14 14:02	11/21/14 10:42	7440-43-9	
Chromium	25.3	mg/kg	0.54	0.075	1	11/20/14 14:02	11/21/14 10:42	7440-47-3	
Cobalt	5.4	mg/kg	1.1	0.051	1	11/20/14 14:02	11/21/14 10:42	7440-48-4	
Copper	18.5	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:42	7440-50-8	
Lead	16.1	mg/kg	0.54	0.29	1	11/20/14 14:02	11/21/14 10:42	7439-92-1	
Manganese	120	mg/kg	1.1	0.037	1	11/20/14 14:02	11/21/14 10:42	7439-96-5	
Nickel	17.0	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:42	7440-02-0	
Selenium	<0.63	mg/kg	0.87	0.63	1	11/20/14 14:02	11/21/14 10:42	7782-49-2	
Silver	0.13J	mg/kg	0.65	0.058	1	11/20/14 14:02	11/21/14 10:42	7440-22-4	
Thallium	<0.36	mg/kg	2.2	0.36	1	11/20/14 14:02	11/21/14 10:42	7440-28-0	
Tin	4.8J	mg/kg	10.9	3.7	1	11/20/14 14:02	11/21/14 10:42	7440-31-5	B
Zinc	38.3	mg/kg	1.1	0.49	1	11/20/14 14:02	11/21/14 10:42	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.18	mg/kg	0.11	0.0023	1	11/19/14 14:00	11/21/14 08:02	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0077	0.0019	1	11/21/14 15:45	11/23/14 13:05	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	93 %		35-141		1	11/21/14 15:45	11/23/14 20:03	321-60-8	
Terphenyl-d14 (S)	99 %		64-141		1	11/21/14 15:45	11/23/14 20:03	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.043	mg/kg	0.37	0.043	1	11/20/14 07:00	11/23/14 14:48	83-32-9	
Acenaphthylene	<0.043	mg/kg	0.37	0.043	1	11/20/14 07:00	11/23/14 14:48	208-96-8	
Acetophenone	<0.045	mg/kg	0.37	0.045	1	11/20/14 07:00	11/23/14 14:48	98-86-2	
Aniline	<0.068	mg/kg	0.37	0.068	1	11/20/14 07:00	11/23/14 14:48	62-53-3	
Anthracene	<0.058	mg/kg	0.37	0.058	1	11/20/14 07:00	11/23/14 14:48	120-12-7	
Atrazine	<0.072	mg/kg	0.37	0.072	1	11/20/14 07:00	11/23/14 14:48	1912-24-9	IC
Benzidine	<3.7	mg/kg	3.7	3.7	1	11/20/14 07:00	11/23/14 14:48	92-87-5	CU,IS
Benzo(a)anthracene	<0.043	mg/kg	0.37	0.043	1	11/20/14 07:00	11/23/14 14:48	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.37	0.13	1	11/20/14 07:00	11/23/14 14:48	50-32-8	
Benzo(b)fluoranthene	<0.074	mg/kg	0.37	0.074	1	11/20/14 07:00	11/23/14 14:48	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.37	0.11	1	11/20/14 07:00	11/23/14 14:48	191-24-2	
Benzo(k)fluoranthene	<0.13	mg/kg	0.37	0.13	1	11/20/14 07:00	11/23/14 14:48	207-08-9	
Benzoic acid	<0.29	mg/kg	0.93	0.29	1	11/20/14 07:00	11/23/14 14:48	65-85-0	CU
Benzyl alcohol	<0.055	mg/kg	0.37	0.055	1	11/20/14 07:00	11/23/14 14:48	100-51-6	
Biphenyl (Diphenyl)	<0.068	mg/kg	0.37	0.068	1	11/20/14 07:00	11/23/14 14:48	92-52-4	
Butylbenzylphthalate	<0.043	mg/kg	0.37	0.043	1	11/20/14 07:00	11/23/14 14:48	85-68-7	
Carbazole	<0.066	mg/kg	0.37	0.066	1	11/20/14 07:00	11/23/14 14:48	86-74-8	
4-Chloro-3-methylphenol	<0.059	mg/kg	0.37	0.059	1	11/20/14 07:00	11/23/14 14:48	59-50-7	
4-Chloroaniline	<0.083	mg/kg	0.37	0.083	1	11/20/14 07:00	11/23/14 14:48	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.37	0.18	1	11/20/14 07:00	11/23/14 14:48	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (6-8') Lab ID: 30134548006 Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.049	mg/kg	0.37	0.049	1	11/20/14 07:00	11/23/14 14:48	108-60-1	
2-Chloronaphthalene	<0.039	mg/kg	0.37	0.039	1	11/20/14 07:00	11/23/14 14:48	91-58-7	
2-Chlorophenol	<0.048	mg/kg	0.37	0.048	1	11/20/14 07:00	11/23/14 14:48	95-57-8	
Chrysene	<0.080	mg/kg	0.37	0.080	1	11/20/14 07:00	11/23/14 14:48	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.37	0.13	1	11/20/14 07:00	11/23/14 14:48	53-70-3	
3,3'-Dichlorobenzidine	<0.041	mg/kg	0.37	0.041	1	11/20/14 07:00	11/23/14 14:48	91-94-1	
2,4-Dichlorophenol	<0.064	mg/kg	0.37	0.064	1	11/20/14 07:00	11/23/14 14:48	120-83-2	
Diethylphthalate	<0.041	mg/kg	0.37	0.041	1	11/20/14 07:00	11/23/14 14:48	84-66-2	
2,4-Dimethylphenol	<0.066	mg/kg	0.37	0.066	1	11/20/14 07:00	11/23/14 14:48	105-67-9	
Di-n-butylphthalate	<0.062	mg/kg	0.37	0.062	1	11/20/14 07:00	11/23/14 14:48	84-74-2	
2,4-Dinitrophenol	<0.34	mg/kg	0.93	0.34	1	11/20/14 07:00	11/23/14 14:48	51-28-5	CU
2,4-Dinitrotoluene	<0.078	mg/kg	0.37	0.078	1	11/20/14 07:00	11/23/14 14:48	121-14-2	
2,6-Dinitrotoluene	<0.049	mg/kg	0.37	0.049	1	11/20/14 07:00	11/23/14 14:48	606-20-2	
Di-n-octylphthalate	<0.069	mg/kg	0.37	0.069	1	11/20/14 07:00	11/23/14 14:48	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.37	0.13	1	11/20/14 07:00	11/23/14 14:48	117-81-7	
Fluoranthene	<0.057	mg/kg	0.37	0.057	1	11/20/14 07:00	11/23/14 14:48	206-44-0	
Fluorene	<0.053	mg/kg	0.37	0.053	1	11/20/14 07:00	11/23/14 14:48	86-73-7	
Hexachloro-1,3-butadiene	<0.066	mg/kg	0.37	0.066	1	11/20/14 07:00	11/23/14 14:48	87-68-3	
Hexachlorobenzene	<0.048	mg/kg	0.37	0.048	1	11/20/14 07:00	11/23/14 14:48	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.37	0.12	1	11/20/14 07:00	11/23/14 14:48	77-47-4	
Hexachloroethane	<0.057	mg/kg	0.37	0.057	1	11/20/14 07:00	11/23/14 14:48	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.091	mg/kg	0.37	0.091	1	11/20/14 07:00	11/23/14 14:48	193-39-5	
Isophorone	<0.041	mg/kg	0.37	0.041	1	11/20/14 07:00	11/23/14 14:48	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.075	mg/kg	0.75	0.075	1	11/20/14 07:00	11/23/14 14:48		
2-Nitroaniline	<0.044	mg/kg	0.93	0.044	1	11/20/14 07:00	11/23/14 14:48	88-74-4	
3-Nitroaniline	<0.070	mg/kg	0.93	0.070	1	11/20/14 07:00	11/23/14 14:48	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.93	0.10	1	11/20/14 07:00	11/23/14 14:48	100-01-6	
Nitrobenzene	<0.059	mg/kg	0.37	0.059	1	11/20/14 07:00	11/23/14 14:48	98-95-3	
2-Nitrophenol	<0.042	mg/kg	0.37	0.042	1	11/20/14 07:00	11/23/14 14:48	88-75-5	
4-Nitrophenol	<0.15	mg/kg	0.37	0.15	1	11/20/14 07:00	11/23/14 14:48	100-02-7	CU
N-Nitrosodimethylamine	<0.048	mg/kg	0.37	0.048	1	11/20/14 07:00	11/23/14 14:48	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.044	mg/kg	0.37	0.044	1	11/20/14 07:00	11/23/14 14:48	621-64-7	
N-Nitrosodiphenylamine	<0.038	mg/kg	0.37	0.038	1	11/20/14 07:00	11/23/14 14:48	86-30-6	
Pentachlorophenol	<0.093	mg/kg	0.93	0.093	1	11/20/14 07:00	11/23/14 14:48	87-86-5	CU
Phenanthrene	<0.069	mg/kg	0.37	0.069	1	11/20/14 07:00	11/23/14 14:48	85-01-8	
Phenol	<0.091	mg/kg	0.37	0.091	1	11/20/14 07:00	11/23/14 14:48	108-95-2	
Pyrene	<0.057	mg/kg	0.37	0.057	1	11/20/14 07:00	11/23/14 14:48	129-00-0	
Pyridine	<0.31	mg/kg	0.93	0.31	1	11/20/14 07:00	11/23/14 14:48	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.070	mg/kg	0.37	0.070	1	11/20/14 07:00	11/23/14 14:48	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.068	mg/kg	0.37	0.068	1	11/20/14 07:00	11/23/14 14:48	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.93	0.11	1	11/20/14 07:00	11/23/14 14:48	95-95-4	
2,4,6-Trichlorophenol	<0.068	mg/kg	0.37	0.068	1	11/20/14 07:00	11/23/14 14:48	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	86 %		40-117		1	11/20/14 07:00	11/23/14 14:48	4165-60-0	
2-Fluorobiphenyl (S)	81 %		50-112		1	11/20/14 07:00	11/23/14 14:48	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-03 (6-8')** Lab ID: **30134548006** Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	93 %		52-130		1	11/20/14 07:00	11/23/14 14:48	1718-51-0	
Phenol-d6 (S)	69 %		53-115		1	11/20/14 07:00	11/23/14 14:48	13127-88-3	
2-Fluorophenol (S)	60 %		38-124		1	11/20/14 07:00	11/23/14 14:48	367-12-4	
2,4,6-Tribromophenol (S)	82 %		21-133		1	11/20/14 07:00	11/23/14 14:48	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.022	mg/kg	0.0090	0.0018	1		11/20/14 18:16	67-64-1	M5
Acetonitrile	<0.0081	mg/kg	0.045	0.0081	1		11/20/14 18:16	75-05-8	M5
Acrolein	<0.0048	mg/kg	0.045	0.0048	1		11/20/14 18:16	107-02-8	M5
Acrylonitrile	<0.0029	mg/kg	0.0045	0.0029	1		11/20/14 18:16	107-13-1	M5
Allyl chloride	<0.0034	mg/kg	0.045	0.0034	1		11/20/14 18:16	107-05-1	M5
Benzene	<0.00070	mg/kg	0.0045	0.00070	1		11/20/14 18:16	71-43-2	M5
Bromochloromethane	<0.00070	mg/kg	0.0045	0.00070	1		11/20/14 18:16	74-97-5	M5
Bromodichloromethane	<0.0016	mg/kg	0.0045	0.0016	1		11/20/14 18:16	75-27-4	M5
Bromoform	<0.0023	mg/kg	0.0045	0.0023	1		11/20/14 18:16	75-25-2	M5
Bromomethane	<0.0026	mg/kg	0.0045	0.0026	1		11/20/14 18:16	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0090	0.0011	1		11/20/14 18:16	78-93-3	M5
n-Butylbenzene	<0.0019	mg/kg	0.0045	0.0019	1		11/20/14 18:16	104-51-8	M5
sec-Butylbenzene	<0.0013	mg/kg	0.0045	0.0013	1		11/20/14 18:16	135-98-8	M5
tert-Butylbenzene	<0.0018	mg/kg	0.0045	0.0018	1		11/20/14 18:16	98-06-6	M5
Carbon disulfide	<0.00069	mg/kg	0.0045	0.00069	1		11/20/14 18:16	75-15-0	M5
Carbon tetrachloride	<0.00080	mg/kg	0.0045	0.00080	1		11/20/14 18:16	56-23-5	M5
Chlorobenzene	<0.00089	mg/kg	0.0045	0.00089	1		11/20/14 18:16	108-90-7	M5
Chloroethane	<0.0015	mg/kg	0.0045	0.0015	1		11/20/14 18:16	75-00-3	M5
Chloroform	<0.00064	mg/kg	0.0045	0.00064	1		11/20/14 18:16	67-66-3	M5
Chloromethane	<0.00094	mg/kg	0.0045	0.00094	1		11/20/14 18:16	74-87-3	M5
Chloroprene	<0.00073	mg/kg	0.0045	0.00073	1		11/20/14 18:16	126-99-8	M5
2-Chlorotoluene	<0.0010	mg/kg	0.0045	0.0010	1		11/20/14 18:16	95-49-8	M5
Cyclohexanone	<0.011	mg/kg	0.045	0.011	1		11/20/14 18:16	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0015	mg/kg	0.0045	0.0015	1		11/20/14 18:16	96-12-8	M5
Dibromochloromethane	<0.0014	mg/kg	0.0045	0.0014	1		11/20/14 18:16	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0023	mg/kg	0.0045	0.0023	1		11/20/14 18:16	106-93-4	M5
Dibromomethane	<0.0022	mg/kg	0.0045	0.0022	1		11/20/14 18:16	74-95-3	M5
1,2-Dichlorobenzene	<0.00098	mg/kg	0.0045	0.00098	1		11/20/14 18:16	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0045	0.0011	1		11/20/14 18:16	541-73-1	M5
1,4-Dichlorobenzene	<0.0011	mg/kg	0.0045	0.0011	1		11/20/14 18:16	106-46-7	M5
Dichlorodifluoromethane	<0.00080	mg/kg	0.0045	0.00080	1		11/20/14 18:16	75-71-8	M5
1,1-Dichloroethane	<0.00071	mg/kg	0.0045	0.00071	1		11/20/14 18:16	75-34-3	M5
1,2-Dichloroethane	<0.00082	mg/kg	0.0045	0.00082	1		11/20/14 18:16	107-06-2	M5
1,1-Dichloroethene	<0.00073	mg/kg	0.0045	0.00073	1		11/20/14 18:16	75-35-4	M5
cis-1,2-Dichloroethene	<0.0022	mg/kg	0.0045	0.0022	1		11/20/14 18:16	156-59-2	M5
trans-1,2-Dichloroethene	<0.00074	mg/kg	0.0045	0.00074	1		11/20/14 18:16	156-60-5	M5
1,2-Dichloropropane	<0.0015	mg/kg	0.0045	0.0015	1		11/20/14 18:16	78-87-5	M5
cis-1,3-Dichloropropene	<0.0014	mg/kg	0.0045	0.0014	1		11/20/14 18:16	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-03 (6-8')** Lab ID: **30134548006** Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0015	mg/kg	0.0045	0.0015	1		11/20/14 18:16	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00079	mg/kg	0.0045	0.00079	1		11/20/14 18:16	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.028	mg/kg	0.090	0.028	1		11/20/14 18:16	123-91-1	M5
Ethyl acetate	<0.00086	mg/kg	0.0045	0.00086	1		11/20/14 18:16	141-78-6	M5
Ethylbenzene	<0.0023	mg/kg	0.0045	0.0023	1		11/20/14 18:16	100-41-4	M5
Ethyl methacrylate	<0.0014	mg/kg	0.0045	0.0014	1		11/20/14 18:16	97-63-2	M5
n-Hexane	<0.0022	mg/kg	0.0090	0.0022	1		11/20/14 18:16	110-54-3	M5
Isobutanol	<0.027	mg/kg	0.045	0.027	1		11/20/14 18:16	78-83-1	M5
Methacrylonitrile	<0.0014	mg/kg	0.0045	0.0014	1		11/20/14 18:16	126-98-7	M5
Methyl acetate	<0.0027	mg/kg	0.045	0.0027	1		11/20/14 18:16	79-20-9	M5
Methylene Chloride	<0.0012	mg/kg	0.0045	0.0012	1		11/20/14 18:16	75-09-2	M5
Methyl methacrylate	<0.0016	mg/kg	0.0045	0.0016	1		11/20/14 18:16	80-62-6	M5, N2
2-Methylnaphthalene	<0.0015	mg/kg	0.0045	0.0015	1		11/20/14 18:16	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00093	mg/kg	0.0090	0.00093	1		11/20/14 18:16	108-10-1	M5
Methyl-tert-butyl ether	<0.00064	mg/kg	0.0045	0.00064	1		11/20/14 18:16	1634-04-4	M5
Naphthalene	<0.0023	mg/kg	0.0045	0.0023	1		11/20/14 18:16	91-20-3	M5
2-Nitropropane	<0.010	mg/kg		0.010	1		11/20/14 18:16	79-46-9	M5
n-Propylbenzene	<0.0012	mg/kg	0.0045	0.0012	1		11/20/14 18:16	103-65-1	M5
Styrene	<0.0010	mg/kg	0.0045	0.0010	1		11/20/14 18:16	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00087	mg/kg	0.0045	0.00087	1		11/20/14 18:16	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00080	mg/kg	0.0045	0.00080	1		11/20/14 18:16	79-34-5	M5
Tetrachloroethene	<0.00065	mg/kg	0.0045	0.00065	1		11/20/14 18:16	127-18-4	M5
Toluene	<0.00058	mg/kg	0.0045	0.00058	1		11/20/14 18:16	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0013	mg/kg	0.0045	0.0013	1		11/20/14 18:16	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0012	mg/kg	0.0045	0.0012	1		11/20/14 18:16	120-82-1	M5
1,1,1-Trichloroethane	<0.0023	mg/kg	0.0045	0.0023	1		11/20/14 18:16	71-55-6	M5
1,1,2-Trichloroethane	<0.00083	mg/kg	0.0045	0.00083	1		11/20/14 18:16	79-00-5	M5
Trichloroethene	<0.00068	mg/kg	0.0045	0.00068	1		11/20/14 18:16	79-01-6	M5
1,2,3-Trichloropropane	<0.00093	mg/kg	0.0045	0.00093	1		11/20/14 18:16	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00060	mg/kg	0.045	0.00060	1		11/20/14 18:16	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0010	mg/kg	0.0045	0.0010	1		11/20/14 18:16	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0012	mg/kg	0.0045	0.0012	1		11/20/14 18:16	108-67-8	M5
Vinyl acetate	<0.0013	mg/kg	0.045	0.0013	1		11/20/14 18:16	108-05-4	M5
Vinyl chloride	<0.00073	mg/kg	0.0045	0.00073	1		11/20/14 18:16	75-01-4	M5
Xylene (Total)	<0.0028	mg/kg	0.013	0.0028	1		11/20/14 18:16	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	98 %		73-124		1		11/20/14 18:16	2037-26-5	M5
4-Bromofluorobenzene (S)	95 %		71-124		1		11/20/14 18:16	460-00-4	M5
1,2-Dichloroethane-d4 (S)	104 %		83-138		1		11/20/14 18:16	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **13.3 %** 0.10 0.10 1 11/20/14 11:29

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **<0.41 mg/kg** 1.1 0.41 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-03 (6-8') **Lab ID: 30134548006** Collected: 11/13/14 11:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation									
Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	25.3	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-04 (0-2')** Lab ID: **30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.0016	mg/kg	0.034	0.0016	20	11/22/14 09:00	11/25/14 09:44	309-00-2	2c
beta-BHC	<0.0040	mg/kg	0.034	0.0040	20	11/22/14 09:00	11/25/14 09:44	319-85-7	2c
delta-BHC	<0.0020	mg/kg	0.034	0.0020	20	11/22/14 09:00	11/25/14 09:44	319-86-8	2c
gamma-BHC (Lindane)	0.0054J	mg/kg	0.034	0.0024	20	11/22/14 09:00	11/25/14 09:44	58-89-9	2c
Chlordane (Technical)	<0.21	mg/kg	0.34	0.21	20	11/22/14 09:00	11/25/14 09:44	57-74-9	2c
4,4'-DDD	<0.0030	mg/kg	0.069	0.0030	20	11/22/14 09:00	11/25/14 09:44	72-54-8	2c
4,4'-DDE	<0.0031	mg/kg	0.069	0.0031	20	11/22/14 09:00	11/25/14 09:44	72-55-9	2c
4,4'-DDT	<0.0034	mg/kg	0.069	0.0034	20	11/22/14 09:00	11/25/14 09:44	50-29-3	2c
Dieldrin	<0.0039	mg/kg	0.069	0.0039	20	11/22/14 09:00	11/25/14 09:44	60-57-1	2c
Endosulfan I	<0.0020	mg/kg	0.034	0.0020	20	11/22/14 09:00	11/25/14 09:44	959-98-8	2c
Endosulfan II	<0.0031	mg/kg	0.069	0.0031	20	11/22/14 09:00	11/25/14 09:44	33213-65-9	2c
Endosulfan sulfate	<0.0028	mg/kg	0.069	0.0028	20	11/22/14 09:00	11/25/14 09:44	1031-07-8	2c
Endrin	<0.0036	mg/kg	0.069	0.0036	20	11/22/14 09:00	11/25/14 09:44	72-20-8	2c
Heptachlor	<0.0040	mg/kg	0.034	0.0040	20	11/22/14 09:00	11/25/14 09:44	76-44-8	2c
Heptachlor epoxide	<0.0017	mg/kg	0.034	0.0017	20	11/22/14 09:00	11/25/14 09:44	1024-57-3	2c
Methoxychlor	<0.021	mg/kg	0.34	0.021	20	11/22/14 09:00	11/25/14 09:44	72-43-5	2c
Toxaphene	<0.073	mg/kg	0.34	0.073	20	11/22/14 09:00	11/25/14 09:44	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	67 %		37-113		20	11/22/14 09:00	11/25/14 09:44	877-09-8	2c
Decachlorobiphenyl (S)	99 %		39-122		20	11/22/14 09:00	11/25/14 09:44	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.5	ug/kg	17.2	2.5	1	11/21/14 09:50	11/26/14 03:00	12674-11-2	
PCB-1221 (Aroclor 1221)	<7.9	ug/kg	17.2	7.9	1	11/21/14 09:50	11/26/14 03:00	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.2	ug/kg	17.2	5.2	1	11/21/14 09:50	11/26/14 03:00	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.4	ug/kg	17.2	3.4	1	11/21/14 09:50	11/26/14 03:00	53469-21-9	
PCB-1248 (Aroclor 1248)	<3.6	ug/kg	17.2	3.6	1	11/21/14 09:50	11/26/14 03:00	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.0	ug/kg	17.2	8.0	1	11/21/14 09:50	11/26/14 03:00	11097-69-1	
PCB-1260 (Aroclor 1260)	<2.7	ug/kg	17.2	2.7	1	11/21/14 09:50	11/26/14 03:00	11096-82-5	
PCB, Total	<17.2	ug/kg	17.2	17.2	1	11/21/14 09:50	11/26/14 03:00	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	53 %		30-107		1	11/21/14 09:50	11/26/14 03:00	877-09-8	
Decachlorobiphenyl (S)	65 %		10-115		1	11/21/14 09:50	11/26/14 03:00	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.069	0.036	1	11/21/14 08:49	11/22/14 00:28	94-75-7	
2,4,5-T	ND	mg/kg	0.069	0.034	1	11/21/14 08:49	11/22/14 00:28	93-76-5	
Surrogates									
2,4-DCAA (S)	62 %		10-161		1	11/21/14 08:49	11/22/14 00:28	19719-28-9	
2,4-DCAA (S)	112 %		10-161		1	11/21/14 08:49	11/22/14 00:28	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.37	mg/kg	0.60	0.37	1	11/20/14 14:02	11/21/14 10:44	7440-36-0	
Arsenic	4.9	mg/kg	0.50	0.36	1	11/20/14 14:02	11/21/14 10:44	7440-38-2	
Barium	78.6	mg/kg	2.0	0.055	1	11/20/14 14:02	11/21/14 10:44	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (0-2')** Lab ID: **30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.55	mg/kg	0.20	0.023	1	11/20/14 14:02	11/21/14 10:44	7440-41-7	
Boron	1.4J	mg/kg	5.0	0.13	1	11/20/14 14:02	11/21/14 10:44	7440-42-8	
Cadmium	0.17J	mg/kg	0.30	0.039	1	11/20/14 14:02	11/21/14 10:44	7440-43-9	
Chromium	7.3	mg/kg	0.50	0.069	1	11/20/14 14:02	11/21/14 10:44	7440-47-3	
Cobalt	7.7	mg/kg	1.0	0.047	1	11/20/14 14:02	11/21/14 10:44	7440-48-4	
Copper	8.0	mg/kg	1.0	0.18	1	11/20/14 14:02	11/21/14 10:44	7440-50-8	
Lead	14.4	mg/kg	0.50	0.27	1	11/20/14 14:02	11/21/14 10:44	7439-92-1	
Manganese	549	mg/kg	1.0	0.034	1	11/20/14 14:02	11/21/14 10:44	7439-96-5	
Nickel	12.1	mg/kg	2.0	0.14	1	11/20/14 14:02	11/21/14 10:44	7440-02-0	
Selenium	<0.58	mg/kg	0.80	0.58	1	11/20/14 14:02	11/21/14 10:44	7782-49-2	
Silver	<0.053	mg/kg	0.60	0.053	1	11/20/14 14:02	11/21/14 10:44	7440-22-4	
Thallium	<0.33	mg/kg	2.0	0.33	1	11/20/14 14:02	11/21/14 10:44	7440-28-0	
Tin	<3.4	mg/kg	10	3.4	1	11/20/14 14:02	11/21/14 10:44	7440-31-5	
Zinc	38.5	mg/kg	1.0	0.45	1	11/20/14 14:02	11/21/14 10:44	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.0087J	mg/kg	0.099	0.0021	1	11/19/14 14:00	11/21/14 08:04	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.017	mg/kg	0.070	0.017	10	11/21/14 15:45	11/23/14 11:48	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	142	%	35-141		10	11/21/14 15:45	11/23/14 22:40	321-60-8	S4
Terphenyl-d14 (S)	106	%	64-141		10	11/21/14 15:45	11/23/14 22:40	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.40	mg/kg	3.5	0.40	10	11/20/14 07:00	11/23/14 15:07	83-32-9	
Acenaphthylene	<0.40	mg/kg	3.5	0.40	10	11/20/14 07:00	11/23/14 15:07	208-96-8	
Acetophenone	<0.42	mg/kg	3.5	0.42	10	11/20/14 07:00	11/23/14 15:07	98-86-2	
Aniline	<0.63	mg/kg	3.5	0.63	10	11/20/14 07:00	11/23/14 15:07	62-53-3	
Anthracene	<0.54	mg/kg	3.5	0.54	10	11/20/14 07:00	11/23/14 15:07	120-12-7	
Atrazine	<0.66	mg/kg	3.5	0.66	10	11/20/14 07:00	11/23/14 15:07	1912-24-9	IC
Benzidine	<34.3	mg/kg	34.3	34.3	10	11/20/14 07:00	11/23/14 15:07	92-87-5	CU,IS
Benzo(a)anthracene	<0.40	mg/kg	3.5	0.40	10	11/20/14 07:00	11/23/14 15:07	56-55-3	
Benzo(a)pyrene	<1.2	mg/kg	3.5	1.2	10	11/20/14 07:00	11/23/14 15:07	50-32-8	
Benzo(b)fluoranthene	<0.68	mg/kg	3.5	0.68	10	11/20/14 07:00	11/23/14 15:07	205-99-2	
Benzo(g,h,i)perylene	<0.99	mg/kg	3.5	0.99	10	11/20/14 07:00	11/23/14 15:07	191-24-2	
Benzo(k)fluoranthene	<1.2	mg/kg	3.5	1.2	10	11/20/14 07:00	11/23/14 15:07	207-08-9	
Benzoic acid	<2.7	mg/kg	8.7	2.7	10	11/20/14 07:00	11/23/14 15:07	65-85-0	CU
Benzyl alcohol	<0.51	mg/kg	3.5	0.51	10	11/20/14 07:00	11/23/14 15:07	100-51-6	
Biphenyl (Diphenyl)	<0.63	mg/kg	3.5	0.63	10	11/20/14 07:00	11/23/14 15:07	92-52-4	
Butylbenzylphthalate	<0.40	mg/kg	3.5	0.40	10	11/20/14 07:00	11/23/14 15:07	85-68-7	
Carbazole	<0.61	mg/kg	3.5	0.61	10	11/20/14 07:00	11/23/14 15:07	86-74-8	
4-Chloro-3-methylphenol	<0.55	mg/kg	3.5	0.55	10	11/20/14 07:00	11/23/14 15:07	59-50-7	
4-Chloroaniline	<0.77	mg/kg	3.5	0.77	10	11/20/14 07:00	11/23/14 15:07	106-47-8	
bis(2-Chloroethyl) ether	<1.6	mg/kg	3.5	1.6	10	11/20/14 07:00	11/23/14 15:07	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (0-2')** Lab ID: **30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.46	mg/kg	3.5	0.46	10	11/20/14 07:00	11/23/14 15:07	108-60-1	
2-Chloronaphthalene	<0.36	mg/kg	3.5	0.36	10	11/20/14 07:00	11/23/14 15:07	91-58-7	
2-Chlorophenol	<0.44	mg/kg	3.5	0.44	10	11/20/14 07:00	11/23/14 15:07	95-57-8	
Chrysene	<0.75	mg/kg	3.5	0.75	10	11/20/14 07:00	11/23/14 15:07	218-01-9	
Dibenz(a,h)anthracene	<1.2	mg/kg	3.5	1.2	10	11/20/14 07:00	11/23/14 15:07	53-70-3	
3,3'-Dichlorobenzidine	<0.38	mg/kg	3.5	0.38	10	11/20/14 07:00	11/23/14 15:07	91-94-1	
2,4-Dichlorophenol	<0.59	mg/kg	3.5	0.59	10	11/20/14 07:00	11/23/14 15:07	120-83-2	
Diethylphthalate	<0.38	mg/kg	3.5	0.38	10	11/20/14 07:00	11/23/14 15:07	84-66-2	
2,4-Dimethylphenol	<0.61	mg/kg	3.5	0.61	10	11/20/14 07:00	11/23/14 15:07	105-67-9	
Di-n-butylphthalate	<0.57	mg/kg	3.5	0.57	10	11/20/14 07:00	11/23/14 15:07	84-74-2	
2,4-Dinitrophenol	<3.1	mg/kg	8.7	3.1	10	11/20/14 07:00	11/23/14 15:07	51-28-5	CU
2,4-Dinitrotoluene	<0.72	mg/kg	3.5	0.72	10	11/20/14 07:00	11/23/14 15:07	121-14-2	
2,6-Dinitrotoluene	<0.45	mg/kg	3.5	0.45	10	11/20/14 07:00	11/23/14 15:07	606-20-2	
Di-n-octylphthalate	<0.64	mg/kg	3.5	0.64	10	11/20/14 07:00	11/23/14 15:07	117-84-0	
bis(2-Ethylhexyl)phthalate	<1.2	mg/kg	3.5	1.2	10	11/20/14 07:00	11/23/14 15:07	117-81-7	
Fluoranthene	<0.53	mg/kg	3.5	0.53	10	11/20/14 07:00	11/23/14 15:07	206-44-0	
Fluorene	<0.49	mg/kg	3.5	0.49	10	11/20/14 07:00	11/23/14 15:07	86-73-7	
Hexachloro-1,3-butadiene	<0.61	mg/kg	3.5	0.61	10	11/20/14 07:00	11/23/14 15:07	87-68-3	
Hexachlorobenzene	<0.45	mg/kg	3.5	0.45	10	11/20/14 07:00	11/23/14 15:07	118-74-1	
Hexachlorocyclopentadiene	<1.1	mg/kg	3.5	1.1	10	11/20/14 07:00	11/23/14 15:07	77-47-4	
Hexachloroethane	<0.53	mg/kg	3.5	0.53	10	11/20/14 07:00	11/23/14 15:07	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.85	mg/kg	3.5	0.85	10	11/20/14 07:00	11/23/14 15:07	193-39-5	
Isophorone	<0.38	mg/kg	3.5	0.38	10	11/20/14 07:00	11/23/14 15:07	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.70	mg/kg	6.9	0.70	10	11/20/14 07:00	11/23/14 15:07		
2-Nitroaniline	<0.41	mg/kg	8.7	0.41	10	11/20/14 07:00	11/23/14 15:07	88-74-4	
3-Nitroaniline	<0.65	mg/kg	8.7	0.65	10	11/20/14 07:00	11/23/14 15:07	99-09-2	
4-Nitroaniline	<0.94	mg/kg	8.7	0.94	10	11/20/14 07:00	11/23/14 15:07	100-01-6	
Nitrobenzene	<0.54	mg/kg	3.5	0.54	10	11/20/14 07:00	11/23/14 15:07	98-95-3	
2-Nitrophenol	<0.39	mg/kg	3.5	0.39	10	11/20/14 07:00	11/23/14 15:07	88-75-5	
4-Nitrophenol	<1.4	mg/kg	3.5	1.4	10	11/20/14 07:00	11/23/14 15:07	100-02-7	CU
N-Nitrosodimethylamine	<0.45	mg/kg	3.5	0.45	10	11/20/14 07:00	11/23/14 15:07	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.41	mg/kg	3.5	0.41	10	11/20/14 07:00	11/23/14 15:07	621-64-7	
N-Nitrosodiphenylamine	<0.35	mg/kg	3.5	0.35	10	11/20/14 07:00	11/23/14 15:07	86-30-6	
Pentachlorophenol	<0.87	mg/kg	8.7	0.87	10	11/20/14 07:00	11/23/14 15:07	87-86-5	CU
Phenanthrene	<0.64	mg/kg	3.5	0.64	10	11/20/14 07:00	11/23/14 15:07	85-01-8	
Phenol	<0.84	mg/kg	3.5	0.84	10	11/20/14 07:00	11/23/14 15:07	108-95-2	
Pyrene	<0.53	mg/kg	3.5	0.53	10	11/20/14 07:00	11/23/14 15:07	129-00-0	
Pyridine	<2.9	mg/kg	8.7	2.9	10	11/20/14 07:00	11/23/14 15:07	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.65	mg/kg	3.5	0.65	10	11/20/14 07:00	11/23/14 15:07	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.63	mg/kg	3.5	0.63	10	11/20/14 07:00	11/23/14 15:07	58-90-2	
2,4,5-Trichlorophenol	<1.0	mg/kg	8.7	1.0	10	11/20/14 07:00	11/23/14 15:07	95-95-4	
2,4,6-Trichlorophenol	<0.63	mg/kg	3.5	0.63	10	11/20/14 07:00	11/23/14 15:07	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	76 %		40-117		10	11/20/14 07:00	11/23/14 15:07	4165-60-0	
2-Fluorobiphenyl (S)	84 %		50-112		10	11/20/14 07:00	11/23/14 15:07	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (0-2')** Lab ID: **30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	91 %		52-130		10	11/20/14 07:00	11/23/14 15:07	1718-51-0	
Phenol-d6 (S)	88 %		53-115		10	11/20/14 07:00	11/23/14 15:07	13127-88-3	
2-Fluorophenol (S)	77 %		38-124		10	11/20/14 07:00	11/23/14 15:07	367-12-4	
2,4,6-Tribromophenol (S)	74 %		21-133		10	11/20/14 07:00	11/23/14 15:07	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.039	mg/kg	0.0085	0.0016	1		11/20/14 18:39	67-64-1	M5
Acetonitrile	<0.0076	mg/kg	0.042	0.0076	1		11/20/14 18:39	75-05-8	M5
Acrolein	<0.0046	mg/kg	0.042	0.0046	1		11/20/14 18:39	107-02-8	M5
Acrylonitrile	<0.0028	mg/kg	0.0042	0.0028	1		11/20/14 18:39	107-13-1	M5
Allyl chloride	<0.0032	mg/kg	0.042	0.0032	1		11/20/14 18:39	107-05-1	M5
Benzene	<0.00066	mg/kg	0.0042	0.00066	1		11/20/14 18:39	71-43-2	M5
Bromochloromethane	<0.00066	mg/kg	0.0042	0.00066	1		11/20/14 18:39	74-97-5	M5
Bromodichloromethane	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 18:39	75-27-4	M5
Bromoform	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 18:39	75-25-2	M5
Bromomethane	<0.0025	mg/kg	0.0042	0.0025	1		11/20/14 18:39	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0085	0.0011	1		11/20/14 18:39	78-93-3	M5
n-Butylbenzene	<0.0018	mg/kg	0.0042	0.0018	1		11/20/14 18:39	104-51-8	M5
sec-Butylbenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 18:39	135-98-8	M5
tert-Butylbenzene	<0.0017	mg/kg	0.0042	0.0017	1		11/20/14 18:39	98-06-6	M5
Carbon disulfide	<0.00065	mg/kg	0.0042	0.00065	1		11/20/14 18:39	75-15-0	M5
Carbon tetrachloride	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 18:39	56-23-5	M5
Chlorobenzene	<0.00084	mg/kg	0.0042	0.00084	1		11/20/14 18:39	108-90-7	M5
Chloroethane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 18:39	75-00-3	M5
Chloroform	<0.00060	mg/kg	0.0042	0.00060	1		11/20/14 18:39	67-66-3	M5
Chloromethane	<0.00089	mg/kg	0.0042	0.00089	1		11/20/14 18:39	74-87-3	M5
Chloroprene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 18:39	126-99-8	M5
2-Chlorotoluene	<0.00095	mg/kg	0.0042	0.00095	1		11/20/14 18:39	95-49-8	M5
Cyclohexanone	<0.010	mg/kg	0.042	0.010	1		11/20/14 18:39	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 18:39	96-12-8	M5
Dibromochloromethane	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 18:39	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 18:39	106-93-4	M5
Dibromomethane	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 18:39	74-95-3	M5
1,2-Dichlorobenzene	<0.00092	mg/kg	0.0042	0.00092	1		11/20/14 18:39	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 18:39	541-73-1	M5
1,4-Dichlorobenzene	<0.0010	mg/kg	0.0042	0.0010	1		11/20/14 18:39	106-46-7	M5
Dichlorodifluoromethane	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 18:39	75-71-8	M5
1,1-Dichloroethane	<0.00067	mg/kg	0.0042	0.00067	1		11/20/14 18:39	75-34-3	M5
1,2-Dichloroethane	<0.00077	mg/kg	0.0042	0.00077	1		11/20/14 18:39	107-06-2	M5
1,1-Dichloroethene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 18:39	75-35-4	M5
cis-1,2-Dichloroethene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 18:39	156-59-2	M5
trans-1,2-Dichloroethene	<0.00069	mg/kg	0.0042	0.00069	1		11/20/14 18:39	156-60-5	M5
1,2-Dichloropropane	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 18:39	78-87-5	M5
cis-1,3-Dichloropropene	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 18:39	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (0-2')** Lab ID: **30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0014	mg/kg	0.0042	0.0014	1		11/20/14 18:39	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00074	mg/kg	0.0042	0.00074	1		11/20/14 18:39	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.026	mg/kg	0.085	0.026	1		11/20/14 18:39	123-91-1	M5
Ethyl acetate	<0.00081	mg/kg	0.0042	0.00081	1		11/20/14 18:39	141-78-6	M5
Ethylbenzene	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 18:39	100-41-4	M5
Ethyl methacrylate	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 18:39	97-63-2	M5
n-Hexane	<0.0021	mg/kg	0.0085	0.0021	1		11/20/14 18:39	110-54-3	M5
Isobutanol	<0.025	mg/kg	0.042	0.025	1		11/20/14 18:39	78-83-1	M5
Methacrylonitrile	<0.0013	mg/kg	0.0042	0.0013	1		11/20/14 18:39	126-98-7	M5
Methyl acetate	<0.0026	mg/kg	0.042	0.0026	1		11/20/14 18:39	79-20-9	M5
Methylene Chloride	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 18:39	75-09-2	M5
Methyl methacrylate	<0.0015	mg/kg	0.0042	0.0015	1		11/20/14 18:39	80-62-6	M5, N2
2-Methylnaphthalene	0.022	mg/kg	0.0042	0.0014	1		11/20/14 18:39	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00087	mg/kg	0.0085	0.00087	1		11/20/14 18:39	108-10-1	M5
Methyl-tert-butyl ether	<0.00060	mg/kg	0.0042	0.00060	1		11/20/14 18:39	1634-04-4	M5
Naphthalene	<0.0021	mg/kg	0.0042	0.0021	1		11/20/14 18:39	91-20-3	M5
2-Nitropropane	<0.0096	mg/kg		0.0096	1		11/20/14 18:39	79-46-9	M5
n-Propylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 18:39	103-65-1	M5
Styrene	<0.00094	mg/kg	0.0042	0.00094	1		11/20/14 18:39	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00082	mg/kg	0.0042	0.00082	1		11/20/14 18:39	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00075	mg/kg	0.0042	0.00075	1		11/20/14 18:39	79-34-5	M5
Tetrachloroethene	<0.00061	mg/kg	0.0042	0.00061	1		11/20/14 18:39	127-18-4	M5
Toluene	<0.00054	mg/kg	0.0042	0.00054	1		11/20/14 18:39	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0012	mg/kg	0.0042	0.0012	1		11/20/14 18:39	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 18:39	120-82-1	M5
1,1,1-Trichloroethane	<0.0022	mg/kg	0.0042	0.0022	1		11/20/14 18:39	71-55-6	M5
1,1,2-Trichloroethane	<0.00078	mg/kg	0.0042	0.00078	1		11/20/14 18:39	79-00-5	M5
Trichloroethene	<0.00064	mg/kg	0.0042	0.00064	1		11/20/14 18:39	79-01-6	M5
1,2,3-Trichloropropane	<0.00087	mg/kg	0.0042	0.00087	1		11/20/14 18:39	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00056	mg/kg	0.042	0.00056	1		11/20/14 18:39	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00098	mg/kg	0.0042	0.00098	1		11/20/14 18:39	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0011	mg/kg	0.0042	0.0011	1		11/20/14 18:39	108-67-8	M5
Vinyl acetate	<0.0012	mg/kg	0.042	0.0012	1		11/20/14 18:39	108-05-4	M5
Vinyl chloride	<0.00068	mg/kg	0.0042	0.00068	1		11/20/14 18:39	75-01-4	M5
Xylene (Total)	<0.0026	mg/kg	0.013	0.0026	1		11/20/14 18:39	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	96 %		73-124		1		11/20/14 18:39	2037-26-5	M5
4-Bromofluorobenzene (S)	107 %		71-124		1		11/20/14 18:39	460-00-4	M5
1,2-Dichloroethane-d4 (S)	108 %		83-138		1		11/20/14 18:39	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture 5.5 % 0.10 0.10 1 11/20/14 11:30

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent <0.38 mg/kg 1.1 0.38 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-04 (0-2') **Lab ID: 30134548007** Collected: 11/13/14 10:45 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	7.3	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-04 (8-10') Lab ID: 30134548008 Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.00090	mg/kg	0.0019	0.000090	1	11/22/14 09:00	11/25/14 10:11	309-00-2	2c
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 10:11	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 10:11	319-86-8	2c
gamma-BHC (Lindane)	0.00013J	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 10:11	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.019	0.012	1	11/22/14 09:00	11/25/14 10:11	57-74-9	2c
4,4'-DDD	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 10:11	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 10:11	72-55-9	2c
4,4'-DDT	<0.00019	mg/kg	0.0039	0.00019	1	11/22/14 09:00	11/25/14 10:11	50-29-3	2c
Dieldrin	<0.00022	mg/kg	0.0039	0.00022	1	11/22/14 09:00	11/25/14 10:11	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 10:11	959-98-8	2c
Endosulfan II	<0.00017	mg/kg	0.0039	0.00017	1	11/22/14 09:00	11/25/14 10:11	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0039	0.00016	1	11/22/14 09:00	11/25/14 10:11	1031-07-8	2c
Endrin	<0.00020	mg/kg	0.0039	0.00020	1	11/22/14 09:00	11/25/14 10:11	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0019	0.00023	1	11/22/14 09:00	11/25/14 10:11	76-44-8	2c
Heptachlor epoxide	<0.000095	mg/kg	0.0019	0.000095	1	11/22/14 09:00	11/25/14 10:11	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.019	0.0012	1	11/22/14 09:00	11/25/14 10:11	72-43-5	2c
Toxaphene	<0.0041	mg/kg	0.019	0.0041	1	11/22/14 09:00	11/25/14 10:11	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	66 %		37-113		1	11/22/14 09:00	11/25/14 10:11	877-09-8	2c
Decachlorobiphenyl (S)	75 %		39-122		1	11/22/14 09:00	11/25/14 10:11	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.8	ug/kg	18.9	2.8	1	11/21/14 09:50	11/26/14 03:08	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.7	ug/kg	18.9	8.7	1	11/21/14 09:50	11/26/14 03:08	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.7	ug/kg	18.9	5.7	1	11/21/14 09:50	11/26/14 03:08	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.7	ug/kg	18.9	3.7	1	11/21/14 09:50	11/26/14 03:08	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.0	ug/kg	18.9	4.0	1	11/21/14 09:50	11/26/14 03:08	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.8	ug/kg	18.9	8.8	1	11/21/14 09:50	11/26/14 03:08	11097-69-1	
PCB-1260 (Aroclor 1260)	<2.9	ug/kg	18.9	2.9	1	11/21/14 09:50	11/26/14 03:08	11096-82-5	
PCB, Total	<18.9	ug/kg	18.9	18.9	1	11/21/14 09:50	11/26/14 03:08	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	78 %		30-107		1	11/21/14 09:50	11/26/14 03:08	877-09-8	
Decachlorobiphenyl (S)	84 %		10-115		1	11/21/14 09:50	11/26/14 03:08	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.075	0.040	1	11/18/14 15:09	11/22/14 15:54	94-75-7	
2,4,5-T	ND	mg/kg	0.075	0.038	1	11/18/14 15:09	11/22/14 15:54	93-76-5	
Surrogates									
2,4-DCAA (S)	67 %		10-161		1	11/18/14 15:09	11/22/14 15:54	19719-28-9	
2,4-DCAA (S)	80 %		10-161		1	11/18/14 15:09	11/22/14 15:54	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.41	mg/kg	0.66	0.41	1	11/20/14 14:02	11/21/14 10:47	7440-36-0	
Arsenic	25.8	mg/kg	0.55	0.39	1	11/20/14 14:02	11/21/14 10:47	7440-38-2	
Barium	61.0	mg/kg	2.2	0.061	1	11/20/14 14:02	11/21/14 10:47	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-04 (8-10') Lab ID: 30134548008 Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.67	mg/kg	0.22	0.026	1	11/20/14 14:02	11/21/14 10:47	7440-41-7	
Boron	1.2J	mg/kg	5.5	0.15	1	11/20/14 14:02	11/21/14 10:47	7440-42-8	
Cadmium	0.13J	mg/kg	0.33	0.043	1	11/20/14 14:02	11/21/14 10:47	7440-43-9	
Chromium	14.2	mg/kg	0.55	0.075	1	11/20/14 14:02	11/21/14 10:47	7440-47-3	
Cobalt	26.0	mg/kg	1.1	0.052	1	11/20/14 14:02	11/21/14 10:47	7440-48-4	
Copper	31.8	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:47	7440-50-8	
Lead	25.2	mg/kg	0.55	0.29	1	11/20/14 14:02	11/21/14 10:47	7439-92-1	
Manganese	194	mg/kg	1.1	0.038	1	11/20/14 14:02	11/21/14 10:47	7439-96-5	
Nickel	29.2	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:47	7440-02-0	
Selenium	<0.63	mg/kg	0.88	0.63	1	11/20/14 14:02	11/21/14 10:47	7782-49-2	
Silver	<0.058	mg/kg	0.66	0.058	1	11/20/14 14:02	11/21/14 10:47	7440-22-4	
Thallium	<0.36	mg/kg	2.2	0.36	1	11/20/14 14:02	11/21/14 10:47	7440-28-0	
Tin	3.9J	mg/kg	11.0	3.8	1	11/20/14 14:02	11/21/14 10:47	7440-31-5	B
Zinc	69.0	mg/kg	1.1	0.49	1	11/20/14 14:02	11/21/14 10:47	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.023J	mg/kg	0.11	0.0023	1	11/19/14 14:00	11/21/14 08:06	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0076	0.0019	1	11/21/14 15:45	11/23/14 13:20	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	72 %		35-141		1	11/21/14 15:45	11/23/14 20:20	321-60-8	
Terphenyl-d14 (S)	93 %		64-141		1	11/21/14 15:45	11/23/14 20:20	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 15:27	83-32-9	
Acenaphthylene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 15:27	208-96-8	
Acetophenone	<0.047	mg/kg	0.38	0.047	1	11/20/14 07:00	11/23/14 15:27	98-86-2	
Aniline	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 15:27	62-53-3	
Anthracene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 15:27	120-12-7	
Atrazine	<0.074	mg/kg	0.38	0.074	1	11/20/14 07:00	11/23/14 15:27	1912-24-9	IC
Benzidine	<3.8	mg/kg	3.8	3.8	1	11/20/14 07:00	11/23/14 15:27	92-87-5	CU,IS
Benzo(a)anthracene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 15:27	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 15:27	50-32-8	
Benzo(b)fluoranthene	<0.076	mg/kg	0.38	0.076	1	11/20/14 07:00	11/23/14 15:27	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.38	0.11	1	11/20/14 07:00	11/23/14 15:27	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.38	0.14	1	11/20/14 07:00	11/23/14 15:27	207-08-9	
Benzoic acid	<0.30	mg/kg	0.96	0.30	1	11/20/14 07:00	11/23/14 15:27	65-85-0	CU
Benzyl alcohol	<0.057	mg/kg	0.38	0.057	1	11/20/14 07:00	11/23/14 15:27	100-51-6	
Biphenyl (Diphenyl)	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 15:27	92-52-4	
Butylbenzylphthalate	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 15:27	85-68-7	
Carbazole	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 15:27	86-74-8	
4-Chloro-3-methylphenol	<0.061	mg/kg	0.38	0.061	1	11/20/14 07:00	11/23/14 15:27	59-50-7	
4-Chloroaniline	<0.085	mg/kg	0.38	0.085	1	11/20/14 07:00	11/23/14 15:27	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.38	0.18	1	11/20/14 07:00	11/23/14 15:27	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-04 (8-10') Lab ID: 30134548008 Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.051	mg/kg	0.38	0.051	1	11/20/14 07:00	11/23/14 15:27	108-60-1	
2-Chloronaphthalene	<0.040	mg/kg	0.38	0.040	1	11/20/14 07:00	11/23/14 15:27	91-58-7	
2-Chlorophenol	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 15:27	95-57-8	
Chrysene	<0.083	mg/kg	0.38	0.083	1	11/20/14 07:00	11/23/14 15:27	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 15:27	53-70-3	
3,3'-Dichlorobenzidine	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 15:27	91-94-1	
2,4-Dichlorophenol	<0.066	mg/kg	0.38	0.066	1	11/20/14 07:00	11/23/14 15:27	120-83-2	
Diethylphthalate	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 15:27	84-66-2	
2,4-Dimethylphenol	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 15:27	105-67-9	
Di-n-butylphthalate	<0.064	mg/kg	0.38	0.064	1	11/20/14 07:00	11/23/14 15:27	84-74-2	
2,4-Dinitrophenol	<0.35	mg/kg	0.96	0.35	1	11/20/14 07:00	11/23/14 15:27	51-28-5	CU
2,4-Dinitrotoluene	<0.080	mg/kg	0.38	0.080	1	11/20/14 07:00	11/23/14 15:27	121-14-2	
2,6-Dinitrotoluene	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 15:27	606-20-2	
Di-n-octylphthalate	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 15:27	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 15:27	117-81-7	
Fluoranthene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 15:27	206-44-0	
Fluorene	<0.054	mg/kg	0.38	0.054	1	11/20/14 07:00	11/23/14 15:27	86-73-7	
Hexachloro-1,3-butadiene	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 15:27	87-68-3	
Hexachlorobenzene	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 15:27	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.38	0.12	1	11/20/14 07:00	11/23/14 15:27	77-47-4	
Hexachloroethane	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 15:27	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.094	mg/kg	0.38	0.094	1	11/20/14 07:00	11/23/14 15:27	193-39-5	
Isophorone	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 15:27	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.077	mg/kg	0.77	0.077	1	11/20/14 07:00	11/23/14 15:27		
2-Nitroaniline	<0.045	mg/kg	0.96	0.045	1	11/20/14 07:00	11/23/14 15:27	88-74-4	
3-Nitroaniline	<0.072	mg/kg	0.96	0.072	1	11/20/14 07:00	11/23/14 15:27	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.96	0.10	1	11/20/14 07:00	11/23/14 15:27	100-01-6	
Nitrobenzene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 15:27	98-95-3	
2-Nitrophenol	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 15:27	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.38	0.16	1	11/20/14 07:00	11/23/14 15:27	100-02-7	CU
N-Nitrosodimethylamine	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 15:27	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 15:27	621-64-7	
N-Nitrosodiphenylamine	<0.039	mg/kg	0.38	0.039	1	11/20/14 07:00	11/23/14 15:27	86-30-6	
Pentachlorophenol	<0.096	mg/kg	0.96	0.096	1	11/20/14 07:00	11/23/14 15:27	87-86-5	CU
Phenanthrene	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 15:27	85-01-8	
Phenol	<0.093	mg/kg	0.38	0.093	1	11/20/14 07:00	11/23/14 15:27	108-95-2	
Pyrene	<0.058	mg/kg	0.38	0.058	1	11/20/14 07:00	11/23/14 15:27	129-00-0	
Pyridine	<0.32	mg/kg	0.96	0.32	1	11/20/14 07:00	11/23/14 15:27	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.072	mg/kg	0.38	0.072	1	11/20/14 07:00	11/23/14 15:27	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 15:27	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.96	0.11	1	11/20/14 07:00	11/23/14 15:27	95-95-4	
2,4,6-Trichlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 15:27	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	96 %		40-117		1	11/20/14 07:00	11/23/14 15:27	4165-60-0	
2-Fluorobiphenyl (S)	93 %		50-112		1	11/20/14 07:00	11/23/14 15:27	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (8-10')** Lab ID: **30134548008** Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	104 %		52-130		1	11/20/14 07:00	11/23/14 15:27	1718-51-0	
Phenol-d6 (S)	98 %		53-115		1	11/20/14 07:00	11/23/14 15:27	13127-88-3	
2-Fluorophenol (S)	88 %		38-124		1	11/20/14 07:00	11/23/14 15:27	367-12-4	
2,4,6-Tribromophenol (S)	101 %		21-133		1	11/20/14 07:00	11/23/14 15:27	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.056	mg/kg	0.0081	0.0016	1		11/20/14 19:01	67-64-1	M5
Acetonitrile	<0.0072	mg/kg	0.040	0.0072	1		11/20/14 19:01	75-05-8	M5
Acrolein	<0.0043	mg/kg	0.040	0.0043	1		11/20/14 19:01	107-02-8	M5
Acrylonitrile	<0.0026	mg/kg	0.0040	0.0026	1		11/20/14 19:01	107-13-1	M5
Allyl chloride	<0.0031	mg/kg	0.040	0.0031	1		11/20/14 19:01	107-05-1	M5
Benzene	<0.00063	mg/kg	0.0040	0.00063	1		11/20/14 19:01	71-43-2	M5
Bromochloromethane	<0.00063	mg/kg	0.0040	0.00063	1		11/20/14 19:01	74-97-5	M5
Bromodichloromethane	<0.0015	mg/kg	0.0040	0.0015	1		11/20/14 19:01	75-27-4	M5
Bromoform	<0.0020	mg/kg	0.0040	0.0020	1		11/20/14 19:01	75-25-2	M5
Bromomethane	<0.0024	mg/kg	0.0040	0.0024	1		11/20/14 19:01	74-83-9	M5
2-Butanone (MEK)	<0.0010	mg/kg	0.0081	0.0010	1		11/20/14 19:01	78-93-3	M5
n-Butylbenzene	<0.0017	mg/kg	0.0040	0.0017	1		11/20/14 19:01	104-51-8	M5
sec-Butylbenzene	<0.0012	mg/kg	0.0040	0.0012	1		11/20/14 19:01	135-98-8	M5
tert-Butylbenzene	<0.0016	mg/kg	0.0040	0.0016	1		11/20/14 19:01	98-06-6	M5
Carbon disulfide	<0.00062	mg/kg	0.0040	0.00062	1		11/20/14 19:01	75-15-0	M5
Carbon tetrachloride	<0.00072	mg/kg	0.0040	0.00072	1		11/20/14 19:01	56-23-5	M5
Chlorobenzene	<0.00080	mg/kg	0.0040	0.00080	1		11/20/14 19:01	108-90-7	M5
Chloroethane	<0.0013	mg/kg	0.0040	0.0013	1		11/20/14 19:01	75-00-3	M5
Chloroform	<0.00057	mg/kg	0.0040	0.00057	1		11/20/14 19:01	67-66-3	M5
Chloromethane	<0.00085	mg/kg	0.0040	0.00085	1		11/20/14 19:01	74-87-3	M5
Chloroprene	<0.00066	mg/kg	0.0040	0.00066	1		11/20/14 19:01	126-99-8	M5
2-Chlorotoluene	<0.00090	mg/kg	0.0040	0.00090	1		11/20/14 19:01	95-49-8	M5
Cyclohexanone	<0.0099	mg/kg	0.040	0.0099	1		11/20/14 19:01	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0014	mg/kg	0.0040	0.0014	1		11/20/14 19:01	96-12-8	M5
Dibromochloromethane	<0.0012	mg/kg	0.0040	0.0012	1		11/20/14 19:01	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0021	mg/kg	0.0040	0.0021	1		11/20/14 19:01	106-93-4	M5
Dibromomethane	<0.0020	mg/kg	0.0040	0.0020	1		11/20/14 19:01	74-95-3	M5
1,2-Dichlorobenzene	<0.00088	mg/kg	0.0040	0.00088	1		11/20/14 19:01	95-50-1	M5
1,3-Dichlorobenzene	<0.0010	mg/kg	0.0040	0.0010	1		11/20/14 19:01	541-73-1	M5
1,4-Dichlorobenzene	<0.00098	mg/kg	0.0040	0.00098	1		11/20/14 19:01	106-46-7	M5
Dichlorodifluoromethane	<0.00072	mg/kg	0.0040	0.00072	1		11/20/14 19:01	75-71-8	M5
1,1-Dichloroethane	<0.00064	mg/kg	0.0040	0.00064	1		11/20/14 19:01	75-34-3	M5
1,2-Dichloroethane	<0.00073	mg/kg	0.0040	0.00073	1		11/20/14 19:01	107-06-2	M5
1,1-Dichloroethene	<0.00065	mg/kg	0.0040	0.00065	1		11/20/14 19:01	75-35-4	M5
cis-1,2-Dichloroethene	<0.0020	mg/kg	0.0040	0.0020	1		11/20/14 19:01	156-59-2	M5
trans-1,2-Dichloroethene	<0.00066	mg/kg	0.0040	0.00066	1		11/20/14 19:01	156-60-5	M5
1,2-Dichloropropane	<0.0013	mg/kg	0.0040	0.0013	1		11/20/14 19:01	78-87-5	M5
cis-1,3-Dichloropropene	<0.0013	mg/kg	0.0040	0.0013	1		11/20/14 19:01	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-04 (8-10')** Lab ID: **30134548008** Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0013	mg/kg	0.0040	0.0013	1		11/20/14 19:01	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00071	mg/kg	0.0040	0.00071	1		11/20/14 19:01	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.025	mg/kg	0.081	0.025	1		11/20/14 19:01	123-91-1	M5
Ethyl acetate	<0.00077	mg/kg	0.0040	0.00077	1		11/20/14 19:01	141-78-6	M5
Ethylbenzene	<0.0021	mg/kg	0.0040	0.0021	1		11/20/14 19:01	100-41-4	M5
Ethyl methacrylate	<0.0012	mg/kg	0.0040	0.0012	1		11/20/14 19:01	97-63-2	M5
n-Hexane	<0.0020	mg/kg	0.0081	0.0020	1		11/20/14 19:01	110-54-3	M5
Isobutanol	<0.024	mg/kg	0.040	0.024	1		11/20/14 19:01	78-83-1	M5
Methacrylonitrile	<0.0012	mg/kg	0.0040	0.0012	1		11/20/14 19:01	126-98-7	M5
Methyl acetate	<0.0024	mg/kg	0.040	0.0024	1		11/20/14 19:01	79-20-9	M5
Methylene Chloride	<0.0011	mg/kg	0.0040	0.0011	1		11/20/14 19:01	75-09-2	M5
Methyl methacrylate	<0.0014	mg/kg	0.0040	0.0014	1		11/20/14 19:01	80-62-6	M5, N2
2-Methylnaphthalene	<0.0013	mg/kg	0.0040	0.0013	1		11/20/14 19:01	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00083	mg/kg	0.0081	0.00083	1		11/20/14 19:01	108-10-1	M5
Methyl-tert-butyl ether	<0.00057	mg/kg	0.0040	0.00057	1		11/20/14 19:01	1634-04-4	M5
Naphthalene	<0.0020	mg/kg	0.0040	0.0020	1		11/20/14 19:01	91-20-3	M5
2-Nitropropane	<0.0092	mg/kg		0.0092	1		11/20/14 19:01	79-46-9	M5
n-Propylbenzene	<0.0010	mg/kg	0.0040	0.0010	1		11/20/14 19:01	103-65-1	M5
Styrene	<0.00089	mg/kg	0.0040	0.00089	1		11/20/14 19:01	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00078	mg/kg	0.0040	0.00078	1		11/20/14 19:01	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00072	mg/kg	0.0040	0.00072	1		11/20/14 19:01	79-34-5	M5
Tetrachloroethene	<0.00059	mg/kg	0.0040	0.00059	1		11/20/14 19:01	127-18-4	M5
Toluene	<0.00052	mg/kg	0.0040	0.00052	1		11/20/14 19:01	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0012	mg/kg	0.0040	0.0012	1		11/20/14 19:01	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0011	mg/kg	0.0040	0.0011	1		11/20/14 19:01	120-82-1	M5
1,1,1-Trichloroethane	<0.0021	mg/kg	0.0040	0.0021	1		11/20/14 19:01	71-55-6	M5
1,1,2-Trichloroethane	<0.00074	mg/kg	0.0040	0.00074	1		11/20/14 19:01	79-00-5	M5
Trichloroethene	<0.00061	mg/kg	0.0040	0.00061	1		11/20/14 19:01	79-01-6	M5
1,2,3-Trichloropropane	<0.00083	mg/kg	0.0040	0.00083	1		11/20/14 19:01	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00054	mg/kg	0.040	0.00054	1		11/20/14 19:01	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00094	mg/kg	0.0040	0.00094	1		11/20/14 19:01	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0011	mg/kg	0.0040	0.0011	1		11/20/14 19:01	108-67-8	M5
Vinyl acetate	<0.0011	mg/kg	0.040	0.0011	1		11/20/14 19:01	108-05-4	M5
Vinyl chloride	<0.00065	mg/kg	0.0040	0.00065	1		11/20/14 19:01	75-01-4	M5
Xylene (Total)	<0.0025	mg/kg	0.012	0.0025	1		11/20/14 19:01	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	97 %		73-124		1		11/20/14 19:01	2037-26-5	M5
4-Bromofluorobenzene (S)	93 %		71-124		1		11/20/14 19:01	460-00-4	M5
1,2-Dichloroethane-d4 (S)	108 %		83-138		1		11/20/14 19:01	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **14.1 %** 0.10 0.10 1 11/20/14 11:31

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **<0.42 mg/kg** 1.2 0.42 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-04 (8-10') **Lab ID: 30134548008** Collected: 11/13/14 11:30 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	14.2	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-05 (0-2') Lab ID: 30134548009 Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000093	mg/kg	0.0020	0.000093	1	11/22/14 09:00	11/25/14 10:38	309-00-2	2c
beta-BHC	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 10:38	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0020	0.00011	1	11/22/14 09:00	11/25/14 10:38	319-86-8	2c
gamma-BHC (Lindane)	<0.00014	mg/kg	0.0020	0.00014	1	11/22/14 09:00	11/25/14 10:38	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.020	0.012	1	11/22/14 09:00	11/25/14 10:38	57-74-9	2c
4,4'-DDD	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 10:38	72-54-8	2c
4,4'-DDE	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 10:38	72-55-9	2c
4,4'-DDT	<0.00020	mg/kg	0.0040	0.00020	1	11/22/14 09:00	11/25/14 10:38	50-29-3	2c
Dieldrin	<0.00023	mg/kg	0.0040	0.00023	1	11/22/14 09:00	11/25/14 10:38	60-57-1	2c
Endosulfan I	<0.00012	mg/kg	0.0020	0.00012	1	11/22/14 09:00	11/25/14 10:38	959-98-8	2c
Endosulfan II	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 10:38	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0040	0.00016	1	11/22/14 09:00	11/25/14 10:38	1031-07-8	2c
Endrin	<0.00021	mg/kg	0.0040	0.00021	1	11/22/14 09:00	11/25/14 10:38	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 10:38	76-44-8	2c
Heptachlor epoxide	<0.000097	mg/kg	0.0020	0.000097	1	11/22/14 09:00	11/25/14 10:38	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.020	0.0012	1	11/22/14 09:00	11/25/14 10:38	72-43-5	2c
Toxaphene	<0.0042	mg/kg	0.020	0.0042	1	11/22/14 09:00	11/25/14 10:38	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	64 %		37-113		1	11/22/14 09:00	11/25/14 10:38	877-09-8	2c
Decachlorobiphenyl (S)	78 %		39-122		1	11/22/14 09:00	11/25/14 10:38	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.9	ug/kg	19.9	2.9	1	11/21/14 09:50	11/26/14 03:16	12674-11-2	
PCB-1221 (Aroclor 1221)	<9.1	ug/kg	19.9	9.1	1	11/21/14 09:50	11/26/14 03:16	11104-28-2	
PCB-1232 (Aroclor 1232)	<6.0	ug/kg	19.9	6.0	1	11/21/14 09:50	11/26/14 03:16	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.9	ug/kg	19.9	3.9	1	11/21/14 09:50	11/26/14 03:16	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.2	ug/kg	19.9	4.2	1	11/21/14 09:50	11/26/14 03:16	12672-29-6	
PCB-1254 (Aroclor 1254)	<9.2	ug/kg	19.9	9.2	1	11/21/14 09:50	11/26/14 03:16	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.1	ug/kg	19.9	3.1	1	11/21/14 09:50	11/26/14 03:16	11096-82-5	
PCB, Total	<19.9	ug/kg	19.9	19.9	1	11/21/14 09:50	11/26/14 03:16	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	82 %		30-107		1	11/21/14 09:50	11/26/14 03:16	877-09-8	
Decachlorobiphenyl (S)	93 %		10-115		1	11/21/14 09:50	11/26/14 03:16	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.078	0.041	1	11/18/14 15:09	11/22/14 16:10	94-75-7	
2,4,5-T	ND	mg/kg	0.078	0.039	1	11/18/14 15:09	11/22/14 16:10	93-76-5	
Surrogates									
2,4-DCAA (S)	88 %		10-161		1	11/18/14 15:09	11/22/14 16:10	19719-28-9	
2,4-DCAA (S)	107 %		10-161		1	11/18/14 15:09	11/22/14 16:10	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.42	mg/kg	0.68	0.42	1	11/20/14 14:02	11/21/14 10:49	7440-36-0	
Arsenic	8.1	mg/kg	0.57	0.40	1	11/20/14 14:02	11/21/14 10:49	7440-38-2	
Barium	82.0	mg/kg	2.3	0.063	1	11/20/14 14:02	11/21/14 10:49	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-05 (0-2')** Lab ID: **30134548009** Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.72	mg/kg	0.23	0.026	1	11/20/14 14:02	11/21/14 10:49	7440-41-7	
Boron	1.2J	mg/kg	5.7	0.15	1	11/20/14 14:02	11/21/14 10:49	7440-42-8	
Cadmium	0.071J	mg/kg	0.34	0.044	1	11/20/14 14:02	11/21/14 10:49	7440-43-9	
Chromium	26.2	mg/kg	0.57	0.078	1	11/20/14 14:02	11/21/14 10:49	7440-47-3	
Cobalt	4.2	mg/kg	1.1	0.053	1	11/20/14 14:02	11/21/14 10:49	7440-48-4	
Copper	15.0	mg/kg	1.1	0.21	1	11/20/14 14:02	11/21/14 10:49	7440-50-8	
Lead	18.5	mg/kg	0.57	0.30	1	11/20/14 14:02	11/21/14 10:49	7439-92-1	
Manganese	76.8	mg/kg	1.1	0.039	1	11/20/14 14:02	11/21/14 10:49	7439-96-5	
Nickel	14.0	mg/kg	2.3	0.15	1	11/20/14 14:02	11/21/14 10:49	7440-02-0	
Selenium	<0.65	mg/kg	0.90	0.65	1	11/20/14 14:02	11/21/14 10:49	7782-49-2	
Silver	<0.060	mg/kg	0.68	0.060	1	11/20/14 14:02	11/21/14 10:49	7440-22-4	
Thallium	<0.37	mg/kg	2.3	0.37	1	11/20/14 14:02	11/21/14 10:49	7440-28-0	
Tin	5.0J	mg/kg	11.3	3.9	1	11/20/14 14:02	11/21/14 10:49	7440-31-5	B
Zinc	37.3	mg/kg	1.1	0.51	1	11/20/14 14:02	11/21/14 10:49	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.073J	mg/kg	0.11	0.0024	1	11/19/14 14:00	11/21/14 08:07	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0020	mg/kg	0.0080	0.0020	1	11/21/14 15:45	11/23/14 13:35	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	90 %		35-141		1	11/21/14 15:45	11/23/14 20:38	321-60-8	
Terphenyl-d14 (S)	96 %		64-141		1	11/21/14 15:45	11/23/14 20:38	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 15:47	83-32-9	
Acenaphthylene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 15:47	208-96-8	
Acetophenone	<0.048	mg/kg	0.39	0.048	1	11/20/14 07:00	11/23/14 15:47	98-86-2	
Aniline	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 15:47	62-53-3	
Anthracene	<0.061	mg/kg	0.39	0.061	1	11/20/14 07:00	11/23/14 15:47	120-12-7	
Atrazine	<0.075	mg/kg	0.39	0.075	1	11/20/14 07:00	11/23/14 15:47	1912-24-9	IC
Benzidine	<3.9	mg/kg	3.9	3.9	1	11/20/14 07:00	11/23/14 15:47	92-87-5	CU,IS
Benzo(a)anthracene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 15:47	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 15:47	50-32-8	
Benzo(b)fluoranthene	<0.077	mg/kg	0.39	0.077	1	11/20/14 07:00	11/23/14 15:47	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.39	0.11	1	11/20/14 07:00	11/23/14 15:47	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.39	0.14	1	11/20/14 07:00	11/23/14 15:47	207-08-9	
Benzoic acid	<0.31	mg/kg	0.98	0.31	1	11/20/14 07:00	11/23/14 15:47	65-85-0	CU
Benzyl alcohol	<0.058	mg/kg	0.39	0.058	1	11/20/14 07:00	11/23/14 15:47	100-51-6	
Biphenyl (Diphenyl)	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 15:47	92-52-4	
Butylbenzylphthalate	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 15:47	85-68-7	
Carbazole	<0.069	mg/kg	0.39	0.069	1	11/20/14 07:00	11/23/14 15:47	86-74-8	
4-Chloro-3-methylphenol	<0.062	mg/kg	0.39	0.062	1	11/20/14 07:00	11/23/14 15:47	59-50-7	
4-Chloroaniline	<0.087	mg/kg	0.39	0.087	1	11/20/14 07:00	11/23/14 15:47	106-47-8	
bis(2-Chloroethyl) ether	<0.19	mg/kg	0.39	0.19	1	11/20/14 07:00	11/23/14 15:47	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-05 (0-2') Lab ID: 30134548009 Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.052	mg/kg	0.39	0.052	1	11/20/14 07:00	11/23/14 15:47	108-60-1	
2-Chloronaphthalene	<0.041	mg/kg	0.39	0.041	1	11/20/14 07:00	11/23/14 15:47	91-58-7	
2-Chlorophenol	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 15:47	95-57-8	
Chrysene	<0.085	mg/kg	0.39	0.085	1	11/20/14 07:00	11/23/14 15:47	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 15:47	53-70-3	
3,3'-Dichlorobenzidine	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 15:47	91-94-1	
2,4-Dichlorophenol	<0.067	mg/kg	0.39	0.067	1	11/20/14 07:00	11/23/14 15:47	120-83-2	
Diethylphthalate	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 15:47	84-66-2	
2,4-Dimethylphenol	<0.069	mg/kg	0.39	0.069	1	11/20/14 07:00	11/23/14 15:47	105-67-9	
Di-n-butylphthalate	<0.065	mg/kg	0.39	0.065	1	11/20/14 07:00	11/23/14 15:47	84-74-2	
2,4-Dinitrophenol	<0.36	mg/kg	0.98	0.36	1	11/20/14 07:00	11/23/14 15:47	51-28-5	CU
2,4-Dinitrotoluene	<0.082	mg/kg	0.39	0.082	1	11/20/14 07:00	11/23/14 15:47	121-14-2	
2,6-Dinitrotoluene	<0.052	mg/kg	0.39	0.052	1	11/20/14 07:00	11/23/14 15:47	606-20-2	
Di-n-octylphthalate	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 15:47	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 15:47	117-81-7	
Fluoranthene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 15:47	206-44-0	
Fluorene	<0.055	mg/kg	0.39	0.055	1	11/20/14 07:00	11/23/14 15:47	86-73-7	
Hexachloro-1,3-butadiene	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 15:47	87-68-3	
Hexachlorobenzene	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 15:47	118-74-1	
Hexachlorocyclopentadiene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 15:47	77-47-4	
Hexachloroethane	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 15:47	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.096	mg/kg	0.39	0.096	1	11/20/14 07:00	11/23/14 15:47	193-39-5	
Isophorone	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 15:47	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.079	mg/kg	0.79	0.079	1	11/20/14 07:00	11/23/14 15:47		
2-Nitroaniline	<0.046	mg/kg	0.98	0.046	1	11/20/14 07:00	11/23/14 15:47	88-74-4	
3-Nitroaniline	<0.074	mg/kg	0.98	0.074	1	11/20/14 07:00	11/23/14 15:47	99-09-2	
4-Nitroaniline	<0.11	mg/kg	0.98	0.11	1	11/20/14 07:00	11/23/14 15:47	100-01-6	
Nitrobenzene	<0.062	mg/kg	0.39	0.062	1	11/20/14 07:00	11/23/14 15:47	98-95-3	
2-Nitrophenol	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 15:47	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.39	0.16	1	11/20/14 07:00	11/23/14 15:47	100-02-7	CU
N-Nitrosodimethylamine	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 15:47	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 15:47	621-64-7	
N-Nitrosodiphenylamine	<0.040	mg/kg	0.39	0.040	1	11/20/14 07:00	11/23/14 15:47	86-30-6	
Pentachlorophenol	<0.098	mg/kg	0.98	0.098	1	11/20/14 07:00	11/23/14 15:47	87-86-5	CU
Phenanthrene	<0.073	mg/kg	0.39	0.073	1	11/20/14 07:00	11/23/14 15:47	85-01-8	
Phenol	<0.095	mg/kg	0.39	0.095	1	11/20/14 07:00	11/23/14 15:47	108-95-2	
Pyrene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 15:47	129-00-0	
Pyridine	<0.33	mg/kg	0.98	0.33	1	11/20/14 07:00	11/23/14 15:47	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.074	mg/kg	0.39	0.074	1	11/20/14 07:00	11/23/14 15:47	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 15:47	58-90-2	
2,4,5-Trichlorophenol	<0.12	mg/kg	0.98	0.12	1	11/20/14 07:00	11/23/14 15:47	95-95-4	
2,4,6-Trichlorophenol	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 15:47	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	92 %		40-117		1	11/20/14 07:00	11/23/14 15:47	4165-60-0	
2-Fluorobiphenyl (S)	86 %		50-112		1	11/20/14 07:00	11/23/14 15:47	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-05 (0-2')** Lab ID: **30134548009** Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	97 %		52-130		1	11/20/14 07:00	11/23/14 15:47	1718-51-0	
Phenol-d6 (S)	87 %		53-115		1	11/20/14 07:00	11/23/14 15:47	13127-88-3	
2-Fluorophenol (S)	82 %		38-124		1	11/20/14 07:00	11/23/14 15:47	367-12-4	
2,4,6-Tribromophenol (S)	98 %		21-133		1	11/20/14 07:00	11/23/14 15:47	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.036	mg/kg	0.010	0.0020	1		11/20/14 19:23	67-64-1	M5
Acetonitrile	<0.0090	mg/kg	0.050	0.0090	1		11/20/14 19:23	75-05-8	M5
Acrolein	<0.0054	mg/kg	0.050	0.0054	1		11/20/14 19:23	107-02-8	M5
Acrylonitrile	<0.0033	mg/kg	0.0050	0.0033	1		11/20/14 19:23	107-13-1	M5
Allyl chloride	<0.0038	mg/kg	0.050	0.0038	1		11/20/14 19:23	107-05-1	M5
Benzene	<0.00079	mg/kg	0.0050	0.00079	1		11/20/14 19:23	71-43-2	M5
Bromochloromethane	<0.00078	mg/kg	0.0050	0.00078	1		11/20/14 19:23	74-97-5	M5
Bromodichloromethane	<0.0018	mg/kg	0.0050	0.0018	1		11/20/14 19:23	75-27-4	M5
Bromoform	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 19:23	75-25-2	M5
Bromomethane	<0.0030	mg/kg	0.0050	0.0030	1		11/20/14 19:23	74-83-9	M5
2-Butanone (MEK)	<0.0013	mg/kg	0.010	0.0013	1		11/20/14 19:23	78-93-3	M5
n-Butylbenzene	<0.0022	mg/kg	0.0050	0.0022	1		11/20/14 19:23	104-51-8	M5
sec-Butylbenzene	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 19:23	135-98-8	M5
tert-Butylbenzene	<0.0020	mg/kg	0.0050	0.0020	1		11/20/14 19:23	98-06-6	M5
Carbon disulfide	<0.00077	mg/kg	0.0050	0.00077	1		11/20/14 19:23	75-15-0	M5
Carbon tetrachloride	<0.00090	mg/kg	0.0050	0.00090	1		11/20/14 19:23	56-23-5	M5
Chlorobenzene	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 19:23	108-90-7	M5
Chloroethane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 19:23	75-00-3	M5
Chloroform	<0.00072	mg/kg	0.0050	0.00072	1		11/20/14 19:23	67-66-3	M5
Chloromethane	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 19:23	74-87-3	M5
Chloroprene	<0.00082	mg/kg	0.0050	0.00082	1		11/20/14 19:23	126-99-8	M5
2-Chlorotoluene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 19:23	95-49-8	M5
Cyclohexanone	<0.0012	mg/kg	0.050	0.012	1		11/20/14 19:23	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0017	mg/kg	0.0050	0.0017	1		11/20/14 19:23	96-12-8	M5
Dibromochloromethane	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 19:23	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0026	mg/kg	0.0050	0.0026	1		11/20/14 19:23	106-93-4	M5
Dibromomethane	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 19:23	74-95-3	M5
1,2-Dichlorobenzene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 19:23	95-50-1	M5
1,3-Dichlorobenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 19:23	541-73-1	M5
1,4-Dichlorobenzene	<0.0012	mg/kg	0.0050	0.0012	1		11/20/14 19:23	106-46-7	M5
Dichlorodifluoromethane	<0.00090	mg/kg	0.0050	0.00090	1		11/20/14 19:23	75-71-8	M5
1,1-Dichloroethane	<0.00080	mg/kg	0.0050	0.00080	1		11/20/14 19:23	75-34-3	M5
1,2-Dichloroethane	<0.00092	mg/kg	0.0050	0.00092	1		11/20/14 19:23	107-06-2	M5
1,1-Dichloroethene	<0.00082	mg/kg	0.0050	0.00082	1		11/20/14 19:23	75-35-4	M5
cis-1,2-Dichloroethene	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 19:23	156-59-2	M5
trans-1,2-Dichloroethene	<0.00083	mg/kg	0.0050	0.00083	1		11/20/14 19:23	156-60-5	M5
1,2-Dichloropropane	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 19:23	78-87-5	M5
cis-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 19:23	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-05 (0-2') Lab ID: 30134548009 Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 19:23	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00088	mg/kg	0.0050	0.00088	1		11/20/14 19:23	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.031	mg/kg	0.10	0.031	1		11/20/14 19:23	123-91-1	M5
Ethyl acetate	<0.00096	mg/kg	0.0050	0.00096	1		11/20/14 19:23	141-78-6	M5
Ethylbenzene	<0.0026	mg/kg	0.0050	0.0026	1		11/20/14 19:23	100-41-4	M5
Ethyl methacrylate	<0.0016	mg/kg	0.0050	0.0016	1		11/20/14 19:23	97-63-2	M5
n-Hexane	<0.0025	mg/kg	0.010	0.0025	1		11/20/14 19:23	110-54-3	M5
Isobutanol	<0.030	mg/kg	0.050	0.030	1		11/20/14 19:23	78-83-1	M5
Methacrylonitrile	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 19:23	126-98-7	M5
Methyl acetate	<0.0030	mg/kg	0.050	0.0030	1		11/20/14 19:23	79-20-9	M5
Methylene Chloride	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 19:23	75-09-2	M5
Methyl methacrylate	<0.0018	mg/kg	0.0050	0.0018	1		11/20/14 19:23	80-62-6	M5, N2
2-Methylnaphthalene	<0.0017	mg/kg	0.0050	0.0017	1		11/20/14 19:23	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.0010	mg/kg	0.010	0.0010	1		11/20/14 19:23	108-10-1	M5
Methyl-tert-butyl ether	<0.00072	mg/kg	0.0050	0.00072	1		11/20/14 19:23	1634-04-4	M5
Naphthalene	<0.0025	mg/kg	0.0050	0.0025	1		11/20/14 19:23	91-20-3	M5
2-Nitropropane	<0.011	mg/kg		0.011	1		11/20/14 19:23	79-46-9	M5
n-Propylbenzene	<0.0013	mg/kg	0.0050	0.0013	1		11/20/14 19:23	103-65-1	M5
Styrene	<0.0011	mg/kg	0.0050	0.0011	1		11/20/14 19:23	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00097	mg/kg	0.0050	0.00097	1		11/20/14 19:23	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00089	mg/kg	0.0050	0.00089	1		11/20/14 19:23	79-34-5	M5
Tetrachloroethene	<0.00073	mg/kg	0.0050	0.00073	1		11/20/14 19:23	127-18-4	M5
Toluene	<0.00065	mg/kg	0.0050	0.00065	1		11/20/14 19:23	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0015	mg/kg	0.0050	0.0015	1		11/20/14 19:23	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0014	mg/kg	0.0050	0.0014	1		11/20/14 19:23	120-82-1	M5
1,1,1-Trichloroethane	<0.0026	mg/kg	0.0050	0.0026	1		11/20/14 19:23	71-55-6	M5
1,1,2-Trichloroethane	<0.00093	mg/kg	0.0050	0.00093	1		11/20/14 19:23	79-00-5	M5
Trichloroethene	<0.00076	mg/kg	0.0050	0.00076	1		11/20/14 19:23	79-01-6	M5
1,2,3-Trichloropropane	<0.0010	mg/kg	0.0050	0.0010	1		11/20/14 19:23	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00067	mg/kg	0.050	0.00067	1		11/20/14 19:23	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0012	mg/kg	0.0050	0.0012	1		11/20/14 19:23	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0014	mg/kg	0.0050	0.0014	1		11/20/14 19:23	108-67-8	M5
Vinyl acetate	<0.0014	mg/kg	0.050	0.0014	1		11/20/14 19:23	108-05-4	M5
Vinyl chloride	<0.00081	mg/kg	0.0050	0.00081	1		11/20/14 19:23	75-01-4	M5
Xylene (Total)	<0.0031	mg/kg	0.015	0.0031	1		11/20/14 19:23	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	98 %		73-124		1		11/20/14 19:23	2037-26-5	M5
4-Bromofluorobenzene (S)	95 %		71-124		1		11/20/14 19:23	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138		1		11/20/14 19:23	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture 16.6 % 0.10 0.10 1 11/20/14 11:31

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent <0.43 mg/kg 1.2 0.43 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-05 (0-2') **Lab ID: 30134548009** Collected: 11/13/14 10:25 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	26.2	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000092	mg/kg	0.0020	0.000092	1	11/22/14 09:00	11/25/14 11:06	309-00-2	2c
beta-BHC	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 11:06	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0020	0.00011	1	11/22/14 09:00	11/25/14 11:06	319-86-8	2c
gamma-BHC (Lindane)	<0.00014	mg/kg	0.0020	0.00014	1	11/22/14 09:00	11/25/14 11:06	58-89-9	2c
Chlordane (Technical)	<0.012	mg/kg	0.020	0.012	1	11/22/14 09:00	11/25/14 11:06	57-74-9	2c
4,4'-DDD	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 11:06	72-54-8	2c
4,4'-DDE	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 11:06	72-55-9	2c
4,4'-DDT	<0.00020	mg/kg	0.0040	0.00020	1	11/22/14 09:00	11/25/14 11:06	50-29-3	2c
Dieldrin	<0.00023	mg/kg	0.0040	0.00023	1	11/22/14 09:00	11/25/14 11:06	60-57-1	2c
Endosulfan I	<0.00012	mg/kg	0.0020	0.00012	1	11/22/14 09:00	11/25/14 11:06	959-98-8	2c
Endosulfan II	<0.00018	mg/kg	0.0040	0.00018	1	11/22/14 09:00	11/25/14 11:06	33213-65-9	2c
Endosulfan sulfate	<0.00016	mg/kg	0.0040	0.00016	1	11/22/14 09:00	11/25/14 11:06	1031-07-8	2c
Endrin	<0.00021	mg/kg	0.0040	0.00021	1	11/22/14 09:00	11/25/14 11:06	72-20-8	2c
Heptachlor	<0.00023	mg/kg	0.0020	0.00023	1	11/22/14 09:00	11/25/14 11:06	76-44-8	2c
Heptachlor epoxide	<0.000097	mg/kg	0.0020	0.000097	1	11/22/14 09:00	11/25/14 11:06	1024-57-3	2c
Methoxychlor	<0.0012	mg/kg	0.020	0.0012	1	11/22/14 09:00	11/25/14 11:06	72-43-5	2c
Toxaphene	<0.0042	mg/kg	0.020	0.0042	1	11/22/14 09:00	11/25/14 11:06	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	62 %		37-113		1	11/22/14 09:00	11/25/14 11:06	877-09-8	2c
Decachlorobiphenyl (S)	76 %		39-122		1	11/22/14 09:00	11/25/14 11:06	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.9	ug/kg	19.7	2.9	1	11/21/14 09:50	11/26/14 03:24	12674-11-2	
PCB-1221 (Aroclor 1221)	<9.0	ug/kg	19.7	9.0	1	11/21/14 09:50	11/26/14 03:24	11104-28-2	
PCB-1232 (Aroclor 1232)	<6.0	ug/kg	19.7	6.0	1	11/21/14 09:50	11/26/14 03:24	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.9	ug/kg	19.7	3.9	1	11/21/14 09:50	11/26/14 03:24	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.2	ug/kg	19.7	4.2	1	11/21/14 09:50	11/26/14 03:24	12672-29-6	
PCB-1254 (Aroclor 1254)	<9.1	ug/kg	19.7	9.1	1	11/21/14 09:50	11/26/14 03:24	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.0	ug/kg	19.7	3.0	1	11/21/14 09:50	11/26/14 03:24	11096-82-5	
PCB, Total	<19.7	ug/kg	19.7	19.7	1	11/21/14 09:50	11/26/14 03:24	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	85 %		30-107		1	11/21/14 09:50	11/26/14 03:24	877-09-8	
Decachlorobiphenyl (S)	98 %		10-115		1	11/21/14 09:50	11/26/14 03:24	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.078	0.041	1	11/18/14 15:09	11/22/14 16:26	94-75-7	
2,4,5-T	ND	mg/kg	0.078	0.039	1	11/18/14 15:09	11/22/14 16:26	93-76-5	
Surrogates									
2,4-DCAA (S)	61 %		10-161		1	11/18/14 15:09	11/22/14 16:26	19719-28-9	
2,4-DCAA (S)	67 %		10-161		1	11/18/14 15:09	11/22/14 16:26	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.42	mg/kg	0.68	0.42	1	11/20/14 14:02	11/21/14 10:51	7440-36-0	
Arsenic	16.8	mg/kg	0.56	0.40	1	11/20/14 14:02	11/21/14 10:51	7440-38-2	
Barium	2010	mg/kg	2.3	0.063	1	11/20/14 14:02	11/21/14 10:51	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	1.5	mg/kg	0.23	0.026	1	11/20/14 14:02	11/21/14 10:51	7440-41-7	
Boron	10.3	mg/kg	5.6	0.15	1	11/20/14 14:02	11/21/14 10:51	7440-42-8	
Cadmium	0.13J	mg/kg	0.34	0.044	1	11/20/14 14:02	11/21/14 10:51	7440-43-9	
Chromium	20.4	mg/kg	0.56	0.077	1	11/20/14 14:02	11/21/14 10:51	7440-47-3	
Cobalt	13.7	mg/kg	1.1	0.053	1	11/20/14 14:02	11/21/14 10:51	7440-48-4	
Copper	57.3	mg/kg	1.1	0.21	1	11/20/14 14:02	11/21/14 10:51	7440-50-8	
Lead	33.6	mg/kg	0.56	0.30	1	11/20/14 14:02	11/21/14 10:51	7439-92-1	
Manganese	1070	mg/kg	1.1	0.039	1	11/20/14 14:02	11/21/14 10:51	7439-96-5	
Nickel	40.3	mg/kg	2.3	0.15	1	11/20/14 14:02	11/21/14 10:51	7440-02-0	
Selenium	0.89J	mg/kg	0.90	0.65	1	11/20/14 14:02	11/21/14 10:51	7782-49-2	
Silver	0.23J	mg/kg	0.68	0.060	1	11/20/14 14:02	11/21/14 10:51	7440-22-4	
Thallium	<0.37	mg/kg	2.3	0.37	1	11/20/14 14:02	11/21/14 10:51	7440-28-0	
Tin	4.5J	mg/kg	11.3	3.9	1	11/20/14 14:02	11/21/14 10:51	7440-31-5	B
Zinc	73.4	mg/kg	1.1	0.51	1	11/20/14 14:02	11/21/14 10:51	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.038J	mg/kg	0.12	0.0025	1	11/19/14 14:00	11/21/14 08:09	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0079	0.0019	1	11/21/14 15:45	11/23/14 13:51	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	89 %		35-141		1	11/21/14 15:45	11/23/14 20:55	321-60-8	
Terphenyl-d14 (S)	95 %		64-141		1	11/21/14 15:45	11/23/14 20:55	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 16:07	83-32-9	
Acenaphthylene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 16:07	208-96-8	
Acetophenone	<0.048	mg/kg	0.39	0.048	1	11/20/14 07:00	11/23/14 16:07	98-86-2	
Aniline	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 16:07	62-53-3	
Anthracene	<0.061	mg/kg	0.39	0.061	1	11/20/14 07:00	11/23/14 16:07	120-12-7	
Atrazine	<0.075	mg/kg	0.39	0.075	1	11/20/14 07:00	11/23/14 16:07	1912-24-9	IC
Benzidine	<3.9	mg/kg	3.9	3.9	1	11/20/14 07:00	11/23/14 16:07	92-87-5	CU,IS
Benzo(a)anthracene	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 16:07	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 16:07	50-32-8	
Benzo(b)fluoranthene	<0.077	mg/kg	0.39	0.077	1	11/20/14 07:00	11/23/14 16:07	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.39	0.11	1	11/20/14 07:00	11/23/14 16:07	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.39	0.14	1	11/20/14 07:00	11/23/14 16:07	207-08-9	
Benzoic acid	<0.31	mg/kg	0.98	0.31	1	11/20/14 07:00	11/23/14 16:07	65-85-0	CU
Benzyl alcohol	<0.058	mg/kg	0.39	0.058	1	11/20/14 07:00	11/23/14 16:07	100-51-6	
Biphenyl (Diphenyl)	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 16:07	92-52-4	
Butylbenzylphthalate	<0.045	mg/kg	0.39	0.045	1	11/20/14 07:00	11/23/14 16:07	85-68-7	
Carbazole	<0.069	mg/kg	0.39	0.069	1	11/20/14 07:00	11/23/14 16:07	86-74-8	
4-Chloro-3-methylphenol	<0.062	mg/kg	0.39	0.062	1	11/20/14 07:00	11/23/14 16:07	59-50-7	
4-Chloroaniline	<0.087	mg/kg	0.39	0.087	1	11/20/14 07:00	11/23/14 16:07	106-47-8	
bis(2-Chloroethyl) ether	<0.19	mg/kg	0.39	0.19	1	11/20/14 07:00	11/23/14 16:07	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.052	mg/kg	0.39	0.052	1	11/20/14 07:00	11/23/14 16:07	108-60-1	
2-Chloronaphthalene	<0.041	mg/kg	0.39	0.041	1	11/20/14 07:00	11/23/14 16:07	91-58-7	
2-Chlorophenol	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 16:07	95-57-8	
Chrysene	<0.085	mg/kg	0.39	0.085	1	11/20/14 07:00	11/23/14 16:07	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 16:07	53-70-3	
3,3'-Dichlorobenzidine	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 16:07	91-94-1	
2,4-Dichlorophenol	<0.067	mg/kg	0.39	0.067	1	11/20/14 07:00	11/23/14 16:07	120-83-2	
Diethylphthalate	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 16:07	84-66-2	
2,4-Dimethylphenol	<0.069	mg/kg	0.39	0.069	1	11/20/14 07:00	11/23/14 16:07	105-67-9	
Di-n-butylphthalate	<0.065	mg/kg	0.39	0.065	1	11/20/14 07:00	11/23/14 16:07	84-74-2	
2,4-Dinitrophenol	<0.36	mg/kg	0.98	0.36	1	11/20/14 07:00	11/23/14 16:07	51-28-5	CU
2,4-Dinitrotoluene	<0.082	mg/kg	0.39	0.082	1	11/20/14 07:00	11/23/14 16:07	121-14-2	
2,6-Dinitrotoluene	<0.052	mg/kg	0.39	0.052	1	11/20/14 07:00	11/23/14 16:07	606-20-2	
Di-n-octylphthalate	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 16:07	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 16:07	117-81-7	
Fluoranthene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 16:07	206-44-0	
Fluorene	<0.055	mg/kg	0.39	0.055	1	11/20/14 07:00	11/23/14 16:07	86-73-7	
Hexachloro-1,3-butadiene	<0.070	mg/kg	0.39	0.070	1	11/20/14 07:00	11/23/14 16:07	87-68-3	
Hexachlorobenzene	<0.051	mg/kg	0.39	0.051	1	11/20/14 07:00	11/23/14 16:07	118-74-1	
Hexachlorocyclopentadiene	<0.13	mg/kg	0.39	0.13	1	11/20/14 07:00	11/23/14 16:07	77-47-4	
Hexachloroethane	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 16:07	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.096	mg/kg	0.39	0.096	1	11/20/14 07:00	11/23/14 16:07	193-39-5	
Isophorone	<0.043	mg/kg	0.39	0.043	1	11/20/14 07:00	11/23/14 16:07	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.079	mg/kg	0.79	0.079	1	11/20/14 07:00	11/23/14 16:07		
2-Nitroaniline	<0.046	mg/kg	0.98	0.046	1	11/20/14 07:00	11/23/14 16:07	88-74-4	
3-Nitroaniline	<0.074	mg/kg	0.98	0.074	1	11/20/14 07:00	11/23/14 16:07	99-09-2	
4-Nitroaniline	<0.11	mg/kg	0.98	0.11	1	11/20/14 07:00	11/23/14 16:07	100-01-6	
Nitrobenzene	<0.062	mg/kg	0.39	0.062	1	11/20/14 07:00	11/23/14 16:07	98-95-3	
2-Nitrophenol	<0.044	mg/kg	0.39	0.044	1	11/20/14 07:00	11/23/14 16:07	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.39	0.16	1	11/20/14 07:00	11/23/14 16:07	100-02-7	CU
N-Nitrosodimethylamine	<0.050	mg/kg	0.39	0.050	1	11/20/14 07:00	11/23/14 16:07	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.046	mg/kg	0.39	0.046	1	11/20/14 07:00	11/23/14 16:07	621-64-7	
N-Nitrosodiphenylamine	<0.040	mg/kg	0.39	0.040	1	11/20/14 07:00	11/23/14 16:07	86-30-6	
Pentachlorophenol	<0.098	mg/kg	0.98	0.098	1	11/20/14 07:00	11/23/14 16:07	87-86-5	CU
Phenanthrene	<0.073	mg/kg	0.39	0.073	1	11/20/14 07:00	11/23/14 16:07	85-01-8	
Phenol	<0.095	mg/kg	0.39	0.095	1	11/20/14 07:00	11/23/14 16:07	108-95-2	
Pyrene	<0.060	mg/kg	0.39	0.060	1	11/20/14 07:00	11/23/14 16:07	129-00-0	
Pyridine	<0.33	mg/kg	0.98	0.33	1	11/20/14 07:00	11/23/14 16:07	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.074	mg/kg	0.39	0.074	1	11/20/14 07:00	11/23/14 16:07	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.071	mg/kg	0.39	0.071	1	11/20/14 07:00	11/23/14 16:07	58-90-2	
2,4,5-Trichlorophenol	<0.12	mg/kg	0.98	0.12	1	11/20/14 07:00	11/23/14 16:07	95-95-4	
2,4,6-Trichlorophenol	<0.072	mg/kg	0.39	0.072	1	11/20/14 07:00	11/23/14 16:07	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	103 %		40-117		1	11/20/14 07:00	11/23/14 16:07	4165-60-0	
2-Fluorobiphenyl (S)	95 %		50-112		1	11/20/14 07:00	11/23/14 16:07	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	107 %		52-130		1	11/20/14 07:00	11/23/14 16:07	1718-51-0	
Phenol-d6 (S)	100 %		53-115		1	11/20/14 07:00	11/23/14 16:07	13127-88-3	
2-Fluorophenol (S)	90 %		38-124		1	11/20/14 07:00	11/23/14 16:07	367-12-4	
2,4,6-Tribromophenol (S)	101 %		21-133		1	11/20/14 07:00	11/23/14 16:07	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	<0.0015	mg/kg	0.0078	0.0015	1		11/20/14 19:46	67-64-1	M5
Acetonitrile	<0.0070	mg/kg	0.039	0.0070	1		11/20/14 19:46	75-05-8	M5
Acrolein	<0.0042	mg/kg	0.039	0.0042	1		11/20/14 19:46	107-02-8	M5
Acrylonitrile	<0.0026	mg/kg	0.0039	0.0026	1		11/20/14 19:46	107-13-1	M5
Allyl chloride	<0.0030	mg/kg	0.039	0.0030	1		11/20/14 19:46	107-05-1	M5
Benzene	<0.00061	mg/kg	0.0039	0.00061	1		11/20/14 19:46	71-43-2	M5
Bromochloromethane	<0.00061	mg/kg	0.0039	0.00061	1		11/20/14 19:46	74-97-5	M5
Bromodichloromethane	<0.0014	mg/kg	0.0039	0.0014	1		11/20/14 19:46	75-27-4	M5
Bromoform	<0.0020	mg/kg	0.0039	0.0020	1		11/20/14 19:46	75-25-2	M5
Bromomethane	<0.0023	mg/kg	0.0039	0.0023	1		11/20/14 19:46	74-83-9	M5
2-Butanone (MEK)	<0.00098	mg/kg	0.0078	0.00098	1		11/20/14 19:46	78-93-3	M5
n-Butylbenzene	<0.0017	mg/kg	0.0039	0.0017	1		11/20/14 19:46	104-51-8	M5
sec-Butylbenzene	<0.0011	mg/kg	0.0039	0.0011	1		11/20/14 19:46	135-98-8	M5
tert-Butylbenzene	<0.0015	mg/kg	0.0039	0.0015	1		11/20/14 19:46	98-06-6	M5
Carbon disulfide	<0.00060	mg/kg	0.0039	0.00060	1		11/20/14 19:46	75-15-0	M5
Carbon tetrachloride	<0.00069	mg/kg	0.0039	0.00069	1		11/20/14 19:46	56-23-5	M5
Chlorobenzene	<0.00077	mg/kg	0.0039	0.00077	1		11/20/14 19:46	108-90-7	M5
Chloroethane	<0.0013	mg/kg	0.0039	0.0013	1		11/20/14 19:46	75-00-3	M5
Chloroform	<0.00055	mg/kg	0.0039	0.00055	1		11/20/14 19:46	67-66-3	M5
Chloromethane	<0.00082	mg/kg	0.0039	0.00082	1		11/20/14 19:46	74-87-3	M5
Chloroprene	<0.00063	mg/kg	0.0039	0.00063	1		11/20/14 19:46	126-99-8	M5
2-Chlorotoluene	<0.00087	mg/kg	0.0039	0.00087	1		11/20/14 19:46	95-49-8	M5
Cyclohexanone	<0.0096	mg/kg	0.039	0.0096	1		11/20/14 19:46	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0013	mg/kg	0.0039	0.0013	1		11/20/14 19:46	96-12-8	M5
Dibromochloromethane	<0.0012	mg/kg	0.0039	0.0012	1		11/20/14 19:46	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0020	mg/kg	0.0039	0.0020	1		11/20/14 19:46	106-93-4	M5
Dibromomethane	<0.0019	mg/kg	0.0039	0.0019	1		11/20/14 19:46	74-95-3	M5
1,2-Dichlorobenzene	<0.00085	mg/kg	0.0039	0.00085	1		11/20/14 19:46	95-50-1	M5
1,3-Dichlorobenzene	<0.00099	mg/kg	0.0039	0.00099	1		11/20/14 19:46	541-73-1	M5
1,4-Dichlorobenzene	<0.00095	mg/kg	0.0039	0.00095	1		11/20/14 19:46	106-46-7	M5
Dichlorodifluoromethane	<0.00069	mg/kg	0.0039	0.00069	1		11/20/14 19:46	75-71-8	M5
1,1-Dichloroethane	<0.00062	mg/kg	0.0039	0.00062	1		11/20/14 19:46	75-34-3	M5
1,2-Dichloroethane	<0.00071	mg/kg	0.0039	0.00071	1		11/20/14 19:46	107-06-2	M5
1,1-Dichloroethene	<0.00063	mg/kg	0.0039	0.00063	1		11/20/14 19:46	75-35-4	M5
cis-1,2-Dichloroethene	<0.0019	mg/kg	0.0039	0.0019	1		11/20/14 19:46	156-59-2	M5
trans-1,2-Dichloroethene	<0.00064	mg/kg	0.0039	0.00064	1		11/20/14 19:46	156-60-5	M5
1,2-Dichloropropane	<0.0013	mg/kg	0.0039	0.0013	1		11/20/14 19:46	78-87-5	M5
cis-1,3-Dichloropropene	<0.0012	mg/kg	0.0039	0.0012	1		11/20/14 19:46	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0013	mg/kg	0.0039	0.0013	1		11/20/14 19:46	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00068	mg/kg	0.0039	0.00068	1		11/20/14 19:46	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.024	mg/kg	0.078	0.024	1		11/20/14 19:46	123-91-1	M5
Ethyl acetate	<0.00075	mg/kg	0.0039	0.00075	1		11/20/14 19:46	141-78-6	M5
Ethylbenzene	<0.0020	mg/kg	0.0039	0.0020	1		11/20/14 19:46	100-41-4	M5
Ethyl methacrylate	<0.0012	mg/kg	0.0039	0.0012	1		11/20/14 19:46	97-63-2	M5
n-Hexane	<0.0019	mg/kg	0.0078	0.0019	1		11/20/14 19:46	110-54-3	M5
Isobutanol	<0.023	mg/kg	0.039	0.023	1		11/20/14 19:46	78-83-1	M5
Methacrylonitrile	<0.0012	mg/kg	0.0039	0.0012	1		11/20/14 19:46	126-98-7	M5
Methyl acetate	<0.0024	mg/kg	0.039	0.0024	1		11/20/14 19:46	79-20-9	M5
Methylene Chloride	<0.0010	mg/kg	0.0039	0.0010	1		11/20/14 19:46	75-09-2	M5
Methyl methacrylate	<0.0014	mg/kg	0.0039	0.0014	1		11/20/14 19:46	80-62-6	M5, N2
2-Methylnaphthalene	<0.0013	mg/kg	0.0039	0.0013	1		11/20/14 19:46	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00080	mg/kg	0.0078	0.00080	1		11/20/14 19:46	108-10-1	M5
Methyl-tert-butyl ether	<0.00055	mg/kg	0.0039	0.00055	1		11/20/14 19:46	1634-04-4	M5
Naphthalene	<0.0020	mg/kg	0.0039	0.0020	1		11/20/14 19:46	91-20-3	M5
2-Nitropropane	<0.0089	mg/kg		0.0089	1		11/20/14 19:46	79-46-9	M5
n-Propylbenzene	<0.0010	mg/kg	0.0039	0.0010	1		11/20/14 19:46	103-65-1	M5
Styrene	<0.00087	mg/kg	0.0039	0.00087	1		11/20/14 19:46	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00075	mg/kg	0.0039	0.00075	1		11/20/14 19:46	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00069	mg/kg	0.0039	0.00069	1		11/20/14 19:46	79-34-5	M5
Tetrachloroethene	<0.00057	mg/kg	0.0039	0.00057	1		11/20/14 19:46	127-18-4	M5
Toluene	<0.00050	mg/kg	0.0039	0.00050	1		11/20/14 19:46	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0011	mg/kg	0.0039	0.0011	1		11/20/14 19:46	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0011	mg/kg	0.0039	0.0011	1		11/20/14 19:46	120-82-1	M5
1,1,1-Trichloroethane	<0.0020	mg/kg	0.0039	0.0020	1		11/20/14 19:46	71-55-6	M5
1,1,2-Trichloroethane	<0.00072	mg/kg	0.0039	0.00072	1		11/20/14 19:46	79-00-5	M5
Trichloroethene	<0.00059	mg/kg	0.0039	0.00059	1		11/20/14 19:46	79-01-6	M5
1,2,3-Trichloropropane	<0.00080	mg/kg	0.0039	0.00080	1		11/20/14 19:46	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00052	mg/kg	0.039	0.00052	1		11/20/14 19:46	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00091	mg/kg	0.0039	0.00091	1		11/20/14 19:46	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0011	mg/kg	0.0039	0.0011	1		11/20/14 19:46	108-67-8	M5
Vinyl acetate	<0.0011	mg/kg	0.039	0.0011	1		11/20/14 19:46	108-05-4	M5
Vinyl chloride	<0.00063	mg/kg	0.0039	0.00063	1		11/20/14 19:46	75-01-4	M5
Xylene (Total)	<0.0024	mg/kg	0.012	0.0024	1		11/20/14 19:46	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	96 %		73-124		1		11/20/14 19:46	2037-26-5	M5
4-Bromofluorobenzene (S)	95 %		71-124		1		11/20/14 19:46	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138		1		11/20/14 19:46	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **16.3 %** 0.10 0.10 1 11/20/14 11:32

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **<0.43 mg/kg** 1.2 0.43 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-05 (8-9.5')** Lab ID: **30134548010** Collected: 11/13/14 12:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	20.4	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-06 (0-2') Lab ID: 30134548011 Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000086	mg/kg	0.0018	0.000086	1	11/22/14 09:00	11/25/14 12:00	309-00-2	2c
beta-BHC	<0.00021	mg/kg	0.0018	0.00021	1	11/22/14 09:00	11/25/14 12:00	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0018	0.00011	1	11/22/14 09:00	11/25/14 12:00	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0018	0.00013	1	11/22/14 09:00	11/25/14 12:00	58-89-9	2c
Chlordane (Technical)	<0.011	mg/kg	0.018	0.011	1	11/22/14 09:00	11/25/14 12:00	57-74-9	2c
4,4'-DDD	<0.00016	mg/kg	0.0037	0.00016	1	11/22/14 09:00	11/25/14 12:00	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0037	0.00017	1	11/22/14 09:00	11/25/14 12:00	72-55-9	2c
4,4'-DDT	<0.00018	mg/kg	0.0037	0.00018	1	11/22/14 09:00	11/25/14 12:00	50-29-3	2c
Dieldrin	0.00023J	mg/kg	0.0037	0.00021	1	11/22/14 09:00	11/25/14 12:00	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0018	0.00011	1	11/22/14 09:00	11/25/14 12:00	959-98-8	2c
Endosulfan II	<0.00016	mg/kg	0.0037	0.00016	1	11/22/14 09:00	11/25/14 12:00	33213-65-9	2c
Endosulfan sulfate	<0.00015	mg/kg	0.0037	0.00015	1	11/22/14 09:00	11/25/14 12:00	1031-07-8	2c
Endrin	<0.00020	mg/kg	0.0037	0.00020	1	11/22/14 09:00	11/25/14 12:00	72-20-8	2c
Heptachlor	<0.00022	mg/kg	0.0018	0.00022	1	11/22/14 09:00	11/25/14 12:00	76-44-8	2c
Heptachlor epoxide	<0.000091	mg/kg	0.0018	0.000091	1	11/22/14 09:00	11/25/14 12:00	1024-57-3	2c
Methoxychlor	<0.0011	mg/kg	0.018	0.0011	1	11/22/14 09:00	11/25/14 12:00	72-43-5	2c
Toxaphene	<0.0039	mg/kg	0.018	0.0039	1	11/22/14 09:00	11/25/14 12:00	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	59 %		37-113		1	11/22/14 09:00	11/25/14 12:00	877-09-8	2c
Decachlorobiphenyl (S)	76 %		39-122		1	11/22/14 09:00	11/25/14 12:00	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.7	ug/kg	18.2	2.7	1	11/21/14 09:50	11/26/14 03:32	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.3	ug/kg	18.2	8.3	1	11/21/14 09:50	11/26/14 03:32	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.5	ug/kg	18.2	5.5	1	11/21/14 09:50	11/26/14 03:32	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.6	ug/kg	18.2	3.6	1	11/21/14 09:50	11/26/14 03:32	53469-21-9	
PCB-1248 (Aroclor 1248)	<3.8	ug/kg	18.2	3.8	1	11/21/14 09:50	11/26/14 03:32	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.4	ug/kg	18.2	8.4	1	11/21/14 09:50	11/26/14 03:32	11097-69-1	
PCB-1260 (Aroclor 1260)	<2.8	ug/kg	18.2	2.8	1	11/21/14 09:50	11/26/14 03:32	11096-82-5	
PCB, Total	<18.2	ug/kg	18.2	18.2	1	11/21/14 09:50	11/26/14 03:32	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	81 %		30-107		1	11/21/14 09:50	11/26/14 03:32	877-09-8	
Decachlorobiphenyl (S)	98 %		10-115		1	11/21/14 09:50	11/26/14 03:32	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.073	0.039	1	11/21/14 08:49	11/22/14 14:33	94-75-7	
2,4,5-T	ND	mg/kg	0.073	0.037	1	11/21/14 08:49	11/22/14 14:33	93-76-5	
Surrogates									
2,4-DCAA (S)	145 %		10-161		1	11/21/14 08:49	11/22/14 14:33	19719-28-9	
2,4-DCAA (S)	105 %		10-161		1	11/21/14 08:49	11/22/14 14:33	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.39	mg/kg	0.63	0.39	1	11/20/14 14:02	11/21/14 10:54	7440-36-0	
Arsenic	6.1	mg/kg	0.52	0.37	1	11/20/14 14:02	11/21/14 10:54	7440-38-2	
Barium	53.5	mg/kg	2.1	0.058	1	11/20/14 14:02	11/21/14 10:54	7440-39-3	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-06 (0-2')** Lab ID: **30134548011** Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Beryllium	0.51	mg/kg	0.21	0.024	1	11/20/14 14:02	11/21/14 10:54	7440-41-7	
Boron	1.3J	mg/kg	5.2	0.14	1	11/20/14 14:02	11/21/14 10:54	7440-42-8	
Cadmium	0.14J	mg/kg	0.31	0.041	1	11/20/14 14:02	11/21/14 10:54	7440-43-9	
Chromium	12.7	mg/kg	0.52	0.072	1	11/20/14 14:02	11/21/14 10:54	7440-47-3	
Cobalt	5.3	mg/kg	1.0	0.049	1	11/20/14 14:02	11/21/14 10:54	7440-48-4	
Copper	6.4	mg/kg	1.0	0.19	1	11/20/14 14:02	11/21/14 10:54	7440-50-8	
Lead	14.7	mg/kg	0.52	0.28	1	11/20/14 14:02	11/21/14 10:54	7439-92-1	
Manganese	372	mg/kg	1.0	0.036	1	11/20/14 14:02	11/21/14 10:54	7439-96-5	
Nickel	7.3	mg/kg	2.1	0.14	1	11/20/14 14:02	11/21/14 10:54	7440-02-0	
Selenium	<0.60	mg/kg	0.84	0.60	1	11/20/14 14:02	11/21/14 10:54	7782-49-2	
Silver	<0.056	mg/kg	0.63	0.056	1	11/20/14 14:02	11/21/14 10:54	7440-22-4	
Thallium	<0.34	mg/kg	2.1	0.34	1	11/20/14 14:02	11/21/14 10:54	7440-28-0	
Tin	4.0J	mg/kg	10.4	3.6	1	11/20/14 14:02	11/21/14 10:54	7440-31-5	B
Zinc	29.8	mg/kg	1.0	0.47	1	11/20/14 14:02	11/21/14 10:54	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.018J	mg/kg	0.10	0.0022	1	11/19/14 14:00	11/21/14 08:11	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0018	mg/kg	0.0074	0.0018	1	11/21/14 15:45	11/23/14 14:06	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	91	%	35-141		1	11/21/14 15:45	11/23/14 21:13	321-60-8	
Terphenyl-d14 (S)	97	%	64-141		1	11/21/14 15:45	11/23/14 21:13	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.042	mg/kg	0.36	0.042	1	11/20/14 07:00	11/23/14 16:27	83-32-9	
Acenaphthylene	<0.042	mg/kg	0.36	0.042	1	11/20/14 07:00	11/23/14 16:27	208-96-8	
Acetophenone	<0.044	mg/kg	0.36	0.044	1	11/20/14 07:00	11/23/14 16:27	98-86-2	
Aniline	<0.066	mg/kg	0.36	0.066	1	11/20/14 07:00	11/23/14 16:27	62-53-3	
Anthracene	<0.057	mg/kg	0.36	0.057	1	11/20/14 07:00	11/23/14 16:27	120-12-7	
Atrazine	<0.070	mg/kg	0.36	0.070	1	11/20/14 07:00	11/23/14 16:27	1912-24-9	IC
Benzidine	<3.6	mg/kg	3.6	3.6	1	11/20/14 07:00	11/23/14 16:27	92-87-5	CU,IS
Benzo(a)anthracene	<0.042	mg/kg	0.36	0.042	1	11/20/14 07:00	11/23/14 16:27	56-55-3	
Benzo(a)pyrene	<0.12	mg/kg	0.36	0.12	1	11/20/14 07:00	11/23/14 16:27	50-32-8	
Benzo(b)fluoranthene	<0.072	mg/kg	0.36	0.072	1	11/20/14 07:00	11/23/14 16:27	205-99-2	
Benzo(g,h,i)perylene	<0.10	mg/kg	0.36	0.10	1	11/20/14 07:00	11/23/14 16:27	191-24-2	
Benzo(k)fluoranthene	<0.13	mg/kg	0.36	0.13	1	11/20/14 07:00	11/23/14 16:27	207-08-9	
Benzoic acid	<0.29	mg/kg	0.91	0.29	1	11/20/14 07:00	11/23/14 16:27	65-85-0	CU
Benzyl alcohol	<0.054	mg/kg	0.36	0.054	1	11/20/14 07:00	11/23/14 16:27	100-51-6	
Biphenyl (Diphenyl)	<0.067	mg/kg	0.36	0.067	1	11/20/14 07:00	11/23/14 16:27	92-52-4	
Butylbenzylphthalate	<0.042	mg/kg	0.36	0.042	1	11/20/14 07:00	11/23/14 16:27	85-68-7	
Carbazole	<0.064	mg/kg	0.36	0.064	1	11/20/14 07:00	11/23/14 16:27	86-74-8	
4-Chloro-3-methylphenol	<0.058	mg/kg	0.36	0.058	1	11/20/14 07:00	11/23/14 16:27	59-50-7	
4-Chloroaniline	<0.081	mg/kg	0.36	0.081	1	11/20/14 07:00	11/23/14 16:27	106-47-8	
bis(2-Chloroethyl) ether	<0.17	mg/kg	0.36	0.17	1	11/20/14 07:00	11/23/14 16:27	111-44-4	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-06 (0-2')** Lab ID: **30134548011** Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
bis(2-Chloroisopropyl) ether	<0.048	mg/kg	0.36	0.048	1	11/20/14 07:00	11/23/14 16:27	108-60-1	
2-Chloronaphthalene	<0.038	mg/kg	0.36	0.038	1	11/20/14 07:00	11/23/14 16:27	91-58-7	
2-Chlorophenol	<0.047	mg/kg	0.36	0.047	1	11/20/14 07:00	11/23/14 16:27	95-57-8	
Chrysene	<0.078	mg/kg	0.36	0.078	1	11/20/14 07:00	11/23/14 16:27	218-01-9	
Dibenz(a,h)anthracene	<0.12	mg/kg	0.36	0.12	1	11/20/14 07:00	11/23/14 16:27	53-70-3	
3,3'-Dichlorobenzidine	<0.040	mg/kg	0.36	0.040	1	11/20/14 07:00	11/23/14 16:27	91-94-1	
2,4-Dichlorophenol	<0.063	mg/kg	0.36	0.063	1	11/20/14 07:00	11/23/14 16:27	120-83-2	
Diethylphthalate	<0.040	mg/kg	0.36	0.040	1	11/20/14 07:00	11/23/14 16:27	84-66-2	
2,4-Dimethylphenol	<0.064	mg/kg	0.36	0.064	1	11/20/14 07:00	11/23/14 16:27	105-67-9	
Di-n-butylphthalate	<0.060	mg/kg	0.36	0.060	1	11/20/14 07:00	11/23/14 16:27	84-74-2	
2,4-Dinitrophenol	<0.33	mg/kg	0.91	0.33	1	11/20/14 07:00	11/23/14 16:27	51-28-5	CU
2,4-Dinitrotoluene	<0.076	mg/kg	0.36	0.076	1	11/20/14 07:00	11/23/14 16:27	121-14-2	
2,6-Dinitrotoluene	<0.048	mg/kg	0.36	0.048	1	11/20/14 07:00	11/23/14 16:27	606-20-2	
Di-n-octylphthalate	<0.067	mg/kg	0.36	0.067	1	11/20/14 07:00	11/23/14 16:27	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.12	mg/kg	0.36	0.12	1	11/20/14 07:00	11/23/14 16:27	117-81-7	
Fluoranthene	<0.056	mg/kg	0.36	0.056	1	11/20/14 07:00	11/23/14 16:27	206-44-0	
Fluorene	<0.051	mg/kg	0.36	0.051	1	11/20/14 07:00	11/23/14 16:27	86-73-7	
Hexachloro-1,3-butadiene	<0.065	mg/kg	0.36	0.065	1	11/20/14 07:00	11/23/14 16:27	87-68-3	
Hexachlorobenzene	<0.047	mg/kg	0.36	0.047	1	11/20/14 07:00	11/23/14 16:27	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.36	0.12	1	11/20/14 07:00	11/23/14 16:27	77-47-4	
Hexachloroethane	<0.056	mg/kg	0.36	0.056	1	11/20/14 07:00	11/23/14 16:27	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.089	mg/kg	0.36	0.089	1	11/20/14 07:00	11/23/14 16:27	193-39-5	
Isophorone	<0.040	mg/kg	0.36	0.040	1	11/20/14 07:00	11/23/14 16:27	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.073	mg/kg	0.73	0.073	1	11/20/14 07:00	11/23/14 16:27		
2-Nitroaniline	<0.043	mg/kg	0.91	0.043	1	11/20/14 07:00	11/23/14 16:27	88-74-4	
3-Nitroaniline	<0.068	mg/kg	0.91	0.068	1	11/20/14 07:00	11/23/14 16:27	99-09-2	
4-Nitroaniline	<0.098	mg/kg	0.91	0.098	1	11/20/14 07:00	11/23/14 16:27	100-01-6	
Nitrobenzene	<0.057	mg/kg	0.36	0.057	1	11/20/14 07:00	11/23/14 16:27	98-95-3	
2-Nitrophenol	<0.041	mg/kg	0.36	0.041	1	11/20/14 07:00	11/23/14 16:27	88-75-5	
4-Nitrophenol	<0.15	mg/kg	0.36	0.15	1	11/20/14 07:00	11/23/14 16:27	100-02-7	CU
N-Nitrosodimethylamine	<0.047	mg/kg	0.36	0.047	1	11/20/14 07:00	11/23/14 16:27	62-75-9	CU,L3
N-Nitroso-di-n-propylamine	<0.043	mg/kg	0.36	0.043	1	11/20/14 07:00	11/23/14 16:27	621-64-7	
N-Nitrosodiphenylamine	<0.037	mg/kg	0.36	0.037	1	11/20/14 07:00	11/23/14 16:27	86-30-6	
Pentachlorophenol	<0.091	mg/kg	0.91	0.091	1	11/20/14 07:00	11/23/14 16:27	87-86-5	CU
Phenanthrene	<0.067	mg/kg	0.36	0.067	1	11/20/14 07:00	11/23/14 16:27	85-01-8	
Phenol	<0.089	mg/kg	0.36	0.089	1	11/20/14 07:00	11/23/14 16:27	108-95-2	
Pyrene	<0.055	mg/kg	0.36	0.055	1	11/20/14 07:00	11/23/14 16:27	129-00-0	
Pyridine	<0.30	mg/kg	0.91	0.30	1	11/20/14 07:00	11/23/14 16:27	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.068	mg/kg	0.36	0.068	1	11/20/14 07:00	11/23/14 16:27	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.066	mg/kg	0.36	0.066	1	11/20/14 07:00	11/23/14 16:27	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.91	0.11	1	11/20/14 07:00	11/23/14 16:27	95-95-4	
2,4,6-Trichlorophenol	<0.067	mg/kg	0.36	0.067	1	11/20/14 07:00	11/23/14 16:27	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	98 %		40-117		1	11/20/14 07:00	11/23/14 16:27	4165-60-0	
2-Fluorobiphenyl (S)	90 %		50-112		1	11/20/14 07:00	11/23/14 16:27	321-60-8	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-06 (0-2')** Lab ID: **30134548011** Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Terphenyl-d14 (S)	100 %		52-130		1	11/20/14 07:00	11/23/14 16:27	1718-51-0	
Phenol-d6 (S)	87 %		53-115		1	11/20/14 07:00	11/23/14 16:27	13127-88-3	
2-Fluorophenol (S)	76 %		38-124		1	11/20/14 07:00	11/23/14 16:27	367-12-4	
2,4,6-Tribromophenol (S)	93 %		21-133		1	11/20/14 07:00	11/23/14 16:27	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.16	mg/kg	0.011	0.0021	1		11/20/14 20:08	67-64-1	M5
Acetonitrile	<0.0099	mg/kg	0.055	0.0099	1		11/20/14 20:08	75-05-8	M5
Acrolein	<0.0059	mg/kg	0.055	0.0059	1		11/20/14 20:08	107-02-8	M5
Acrylonitrile	<0.0036	mg/kg	0.0055	0.0036	1		11/20/14 20:08	107-13-1	M5
Allyl chloride	<0.0042	mg/kg	0.055	0.0042	1		11/20/14 20:08	107-05-1	M5
Benzene	<0.00086	mg/kg	0.0055	0.00086	1		11/20/14 20:08	71-43-2	M5
Bromochloromethane	<0.00085	mg/kg	0.0055	0.00085	1		11/20/14 20:08	74-97-5	M5
Bromodichloromethane	<0.0020	mg/kg	0.0055	0.0020	1		11/20/14 20:08	75-27-4	M5
Bromoform	<0.0028	mg/kg	0.0055	0.0028	1		11/20/14 20:08	75-25-2	M5
Bromomethane	<0.0032	mg/kg	0.0055	0.0032	1		11/20/14 20:08	74-83-9	M5
2-Butanone (MEK)	<0.0014	mg/kg	0.011	0.0014	1		11/20/14 20:08	78-93-3	M5
n-Butylbenzene	<0.0024	mg/kg	0.0055	0.0024	1		11/20/14 20:08	104-51-8	M5
sec-Butylbenzene	<0.0016	mg/kg	0.0055	0.0016	1		11/20/14 20:08	135-98-8	M5
tert-Butylbenzene	<0.0022	mg/kg	0.0055	0.0022	1		11/20/14 20:08	98-06-6	M5
Carbon disulfide	<0.00084	mg/kg	0.0055	0.00084	1		11/20/14 20:08	75-15-0	M5
Carbon tetrachloride	<0.00098	mg/kg	0.0055	0.00098	1		11/20/14 20:08	56-23-5	M5
Chlorobenzene	<0.0011	mg/kg	0.0055	0.0011	1		11/20/14 20:08	108-90-7	M5
Chloroethane	<0.0018	mg/kg	0.0055	0.0018	1		11/20/14 20:08	75-00-3	M5
Chloroform	<0.00078	mg/kg	0.0055	0.00078	1		11/20/14 20:08	67-66-3	M5
Chloromethane	<0.0012	mg/kg	0.0055	0.0012	1		11/20/14 20:08	74-87-3	M5
Chloroprene	<0.00089	mg/kg	0.0055	0.00089	1		11/20/14 20:08	126-99-8	M5
2-Chlorotoluene	<0.0012	mg/kg	0.0055	0.0012	1		11/20/14 20:08	95-49-8	M5
Cyclohexanone	<0.014	mg/kg	0.055	0.014	1		11/20/14 20:08	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0019	mg/kg	0.0055	0.0019	1		11/20/14 20:08	96-12-8	M5
Dibromochloromethane	<0.0017	mg/kg	0.0055	0.0017	1		11/20/14 20:08	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0029	mg/kg	0.0055	0.0029	1		11/20/14 20:08	106-93-4	M5
Dibromomethane	<0.0027	mg/kg	0.0055	0.0027	1		11/20/14 20:08	74-95-3	M5
1,2-Dichlorobenzene	<0.0012	mg/kg	0.0055	0.0012	1		11/20/14 20:08	95-50-1	M5
1,3-Dichlorobenzene	<0.0014	mg/kg	0.0055	0.0014	1		11/20/14 20:08	541-73-1	M5
1,4-Dichlorobenzene	<0.0013	mg/kg	0.0055	0.0013	1		11/20/14 20:08	106-46-7	M5
Dichlorodifluoromethane	<0.00098	mg/kg	0.0055	0.00098	1		11/20/14 20:08	75-71-8	M5
1,1-Dichloroethane	<0.00087	mg/kg	0.0055	0.00087	1		11/20/14 20:08	75-34-3	M5
1,2-Dichloroethane	<0.0010	mg/kg	0.0055	0.0010	1		11/20/14 20:08	107-06-2	M5
1,1-Dichloroethene	<0.00089	mg/kg	0.0055	0.00089	1		11/20/14 20:08	75-35-4	M5
cis-1,2-Dichloroethene	<0.0027	mg/kg	0.0055	0.0027	1		11/20/14 20:08	156-59-2	M5
trans-1,2-Dichloroethene	<0.00090	mg/kg	0.0055	0.00090	1		11/20/14 20:08	156-60-5	M5
1,2-Dichloropropane	<0.0018	mg/kg	0.0055	0.0018	1		11/20/14 20:08	78-87-5	M5
cis-1,3-Dichloropropene	<0.0017	mg/kg	0.0055	0.0017	1		11/20/14 20:08	10061-01-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: **SB-06 (0-2')** Lab ID: **30134548011** Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,3-Dichloropropene	<0.0018	mg/kg	0.0055	0.0018	1		11/20/14 20:08	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00096	mg/kg	0.0055	0.00096	1		11/20/14 20:08	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.034	mg/kg	0.11	0.034	1		11/20/14 20:08	123-91-1	M5
Ethyl acetate	<0.0011	mg/kg	0.0055	0.0011	1		11/20/14 20:08	141-78-6	M5
Ethylbenzene	<0.0028	mg/kg	0.0055	0.0028	1		11/20/14 20:08	100-41-4	M5
Ethyl methacrylate	<0.0017	mg/kg	0.0055	0.0017	1		11/20/14 20:08	97-63-2	M5
n-Hexane	<0.0027	mg/kg	0.011	0.0027	1		11/20/14 20:08	110-54-3	M5
Isobutanol	<0.033	mg/kg	0.055	0.033	1		11/20/14 20:08	78-83-1	M5
Methacrylonitrile	<0.0017	mg/kg	0.0055	0.0017	1		11/20/14 20:08	126-98-7	M5
Methyl acetate	<0.0033	mg/kg	0.055	0.0033	1		11/20/14 20:08	79-20-9	M5
Methylene Chloride	<0.0015	mg/kg	0.0055	0.0015	1		11/20/14 20:08	75-09-2	M5
Methyl methacrylate	<0.0019	mg/kg	0.0055	0.0019	1		11/20/14 20:08	80-62-6	M5, N2
2-Methylnaphthalene	<0.0018	mg/kg	0.0055	0.0018	1		11/20/14 20:08	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.0011	mg/kg	0.011	0.0011	1		11/20/14 20:08	108-10-1	M5
Methyl-tert-butyl ether	<0.00078	mg/kg	0.0055	0.00078	1		11/20/14 20:08	1634-04-4	M5
Naphthalene	<0.0028	mg/kg	0.0055	0.0028	1		11/20/14 20:08	91-20-3	M5
2-Nitropropane	<0.013	mg/kg		0.013	1		11/20/14 20:08	79-46-9	M5
n-Propylbenzene	<0.0014	mg/kg	0.0055	0.0014	1		11/20/14 20:08	103-65-1	M5
Styrene	<0.0012	mg/kg	0.0055	0.0012	1		11/20/14 20:08	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.0011	mg/kg	0.0055	0.0011	1		11/20/14 20:08	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00097	mg/kg	0.0055	0.00097	1		11/20/14 20:08	79-34-5	M5
Tetrachloroethene	<0.00080	mg/kg	0.0055	0.00080	1		11/20/14 20:08	127-18-4	M5
Toluene	<0.00071	mg/kg	0.0055	0.00071	1		11/20/14 20:08	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0016	mg/kg	0.0055	0.0016	1		11/20/14 20:08	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0015	mg/kg	0.0055	0.0015	1		11/20/14 20:08	120-82-1	M5
1,1,1-Trichloroethane	<0.0029	mg/kg	0.0055	0.0029	1		11/20/14 20:08	71-55-6	M5
1,1,2-Trichloroethane	<0.0010	mg/kg	0.0055	0.0010	1		11/20/14 20:08	79-00-5	M5
Trichloroethene	<0.00083	mg/kg	0.0055	0.00083	1		11/20/14 20:08	79-01-6	M5
1,2,3-Trichloropropane	<0.0011	mg/kg	0.0055	0.0011	1		11/20/14 20:08	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00073	mg/kg	0.055	0.00073	1		11/20/14 20:08	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0013	mg/kg	0.0055	0.0013	1		11/20/14 20:08	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0015	mg/kg	0.0055	0.0015	1		11/20/14 20:08	108-67-8	M5
Vinyl acetate	<0.0015	mg/kg	0.055	0.0015	1		11/20/14 20:08	108-05-4	M5
Vinyl chloride	<0.00089	mg/kg	0.0055	0.00089	1		11/20/14 20:08	75-01-4	M5
Xylene (Total)	<0.0034	mg/kg	0.016	0.0034	1		11/20/14 20:08	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	97 %		73-124		1		11/20/14 20:08	2037-26-5	M5
4-Bromofluorobenzene (S)	96 %		71-124		1		11/20/14 20:08	460-00-4	M5
1,2-Dichloroethane-d4 (S)	106 %		83-138		1		11/20/14 20:08	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **9.7 %** 0.10 0.10 1 11/20/14 11:33

7196 Chromium, Hexavalent

Analytical Method: EPA 7196A Preparation Method: EPA 7196A

Chromium, Hexavalent **<0.40 mg/kg** 1.1 0.40 1 11/20/14 12:55 11/21/14 12:00 18540-29-9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-06 (0-2') **Lab ID: 30134548011** Collected: 11/13/14 13:05 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Trivalent Chromium Calculation		Analytical Method: Trivalent Chromium Calculation							
Chromium, Trivalent	12.7	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-06 (8-10') Lab ID: 30134548012 Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.00088	mg/kg	0.0019	0.000088	1	11/22/14 09:00	11/25/14 12:27	309-00-2	2c
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 12:27	319-85-7	2c
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 12:27	319-86-8	2c
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	11/22/14 09:00	11/25/14 12:27	58-89-9	2c
Chlordane (Technical)	<0.011	mg/kg	0.019	0.011	1	11/22/14 09:00	11/25/14 12:27	57-74-9	2c
4,4'-DDD	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 12:27	72-54-8	2c
4,4'-DDE	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 12:27	72-55-9	2c
4,4'-DDT	<0.00019	mg/kg	0.0038	0.00019	1	11/22/14 09:00	11/25/14 12:27	50-29-3	2c
Dieldrin	<0.00022	mg/kg	0.0038	0.00022	1	11/22/14 09:00	11/25/14 12:27	60-57-1	2c
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	11/22/14 09:00	11/25/14 12:27	959-98-8	2c
Endosulfan II	<0.00017	mg/kg	0.0038	0.00017	1	11/22/14 09:00	11/25/14 12:27	33213-65-9	2c
Endosulfan sulfate	<0.00015	mg/kg	0.0038	0.00015	1	11/22/14 09:00	11/25/14 12:27	1031-07-8	2c
Endrin	<0.00020	mg/kg	0.0038	0.00020	1	11/22/14 09:00	11/25/14 12:27	72-20-8	2c
Heptachlor	<0.00022	mg/kg	0.0019	0.00022	1	11/22/14 09:00	11/25/14 12:27	76-44-8	2c
Heptachlor epoxide	<0.000093	mg/kg	0.0019	0.000093	1	11/22/14 09:00	11/25/14 12:27	1024-57-3	2c
Methoxychlor	<0.0011	mg/kg	0.019	0.0011	1	11/22/14 09:00	11/25/14 12:27	72-43-5	2c
Toxaphene	<0.0040	mg/kg	0.019	0.0040	1	11/22/14 09:00	11/25/14 12:27	8001-35-2	2c
Surrogates									
Tetrachloro-m-xylene (S)	56 %		37-113		1	11/22/14 09:00	11/25/14 12:27	877-09-8	2c
Decachlorobiphenyl (S)	74 %		39-122		1	11/22/14 09:00	11/25/14 12:27	2051-24-3	2c, SS
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.8	ug/kg	19.1	2.8	1	11/21/14 09:50	11/26/14 03:41	12674-11-2	
PCB-1221 (Aroclor 1221)	<8.8	ug/kg	19.1	8.8	1	11/21/14 09:50	11/26/14 03:41	11104-28-2	
PCB-1232 (Aroclor 1232)	<5.8	ug/kg	19.1	5.8	1	11/21/14 09:50	11/26/14 03:41	11141-16-5	
PCB-1242 (Aroclor 1242)	<3.8	ug/kg	19.1	3.8	1	11/21/14 09:50	11/26/14 03:41	53469-21-9	
PCB-1248 (Aroclor 1248)	<4.1	ug/kg	19.1	4.1	1	11/21/14 09:50	11/26/14 03:41	12672-29-6	
PCB-1254 (Aroclor 1254)	<8.8	ug/kg	19.1	8.8	1	11/21/14 09:50	11/26/14 03:41	11097-69-1	
PCB-1260 (Aroclor 1260)	<3.0	ug/kg	19.1	3.0	1	11/21/14 09:50	11/26/14 03:41	11096-82-5	
PCB, Total	<19.1	ug/kg	19.1	19.1	1	11/21/14 09:50	11/26/14 03:41	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	78 %		30-107		1	11/21/14 09:50	11/26/14 03:41	877-09-8	
Decachlorobiphenyl (S)	83 %		10-115		1	11/21/14 09:50	11/26/14 03:41	2051-24-3	
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	ND	mg/kg	0.075	0.039	1	11/18/14 15:09	11/19/14 23:26	94-75-7	
2,4-D	ND	mg/kg	0.075	0.040	1	11/21/14 08:49	11/22/14 14:49	94-75-7	
2,4,5-T	ND	mg/kg	0.075	0.037	1	11/18/14 15:09	11/19/14 23:26	93-76-5	
2,4,5-T	ND	mg/kg	0.075	0.037	1	11/21/14 08:49	11/22/14 14:49	93-76-5	
Surrogates									
2,4-DCAA (S)	5 %		10-161		1	11/21/14 08:49	11/22/14 14:49	19719-28-9	S1
2,4-DCAA (S)	8 %		10-161		1	11/18/14 15:09	11/19/14 23:26	19719-28-9	S1
2,4-DCAA (S)	9 %		10-161		1	11/18/14 15:09	11/19/14 23:26	19719-28-9	S1
2,4-DCAA (S)	6 %		10-161		1	11/21/14 08:49	11/22/14 14:49	19719-28-9	S1

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-06 (8-10') Lab ID: 30134548012 Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.41	mg/kg	0.66	0.41	1	11/20/14 14:02	11/21/14 10:56	7440-36-0	
Arsenic	10.4	mg/kg	0.55	0.39	1	11/20/14 14:02	11/21/14 10:56	7440-38-2	
Barium	55.8	mg/kg	2.2	0.061	1	11/20/14 14:02	11/21/14 10:56	7440-39-3	
Beryllium	0.88	mg/kg	0.22	0.026	1	11/20/14 14:02	11/21/14 10:56	7440-41-7	
Boron	2.2J	mg/kg	5.5	0.15	1	11/20/14 14:02	11/21/14 10:56	7440-42-8	
Cadmium	0.15J	mg/kg	0.33	0.043	1	11/20/14 14:02	11/21/14 10:56	7440-43-9	
Chromium	14.1	mg/kg	0.55	0.076	1	11/20/14 14:02	11/21/14 10:56	7440-47-3	
Cobalt	10.7	mg/kg	1.1	0.052	1	11/20/14 14:02	11/21/14 10:56	7440-48-4	
Copper	47.8	mg/kg	1.1	0.20	1	11/20/14 14:02	11/21/14 10:56	7440-50-8	
Lead	24.3	mg/kg	0.55	0.30	1	11/20/14 14:02	11/21/14 10:56	7439-92-1	
Manganese	357	mg/kg	1.1	0.038	1	11/20/14 14:02	11/21/14 10:56	7439-96-5	
Nickel	27.3	mg/kg	2.2	0.15	1	11/20/14 14:02	11/21/14 10:56	7440-02-0	
Selenium	<0.64	mg/kg	0.88	0.64	1	11/20/14 14:02	11/21/14 10:56	7782-49-2	
Silver	<0.059	mg/kg	0.66	0.059	1	11/20/14 14:02	11/21/14 10:56	7440-22-4	
Thallium	<0.36	mg/kg	2.2	0.36	1	11/20/14 14:02	11/21/14 10:56	7440-28-0	
Tin	4.2J	mg/kg	11.0	3.8	1	11/20/14 14:02	11/21/14 10:56	7440-31-5	B
Zinc	65.1	mg/kg	1.1	0.49	1	11/20/14 14:02	11/21/14 10:56	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.055J	mg/kg	0.11	0.0024	1	11/19/14 14:00	11/21/14 08:12	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0077	0.0019	1	11/21/14 15:45	11/23/14 10:47	91-22-5	
Surrogates									
2-Fluorobiphenyl (S)	87 %		35-141		1	11/21/14 15:45	11/23/14 21:30	321-60-8	
Terphenyl-d14 (S)	98 %		64-141		1	11/21/14 15:45	11/23/14 21:30	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 12:09	83-32-9	
Acenaphthylene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 12:09	208-96-8	
Acetophenone	<0.047	mg/kg	0.38	0.047	1	11/20/14 07:00	11/23/14 12:09	98-86-2	
Aniline	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 12:09	62-53-3	
Anthracene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 12:09	120-12-7	
Atrazine	<0.074	mg/kg	0.38	0.074	1	11/20/14 07:00	11/23/14 12:09	1912-24-9	IC
Benidine	<3.8	mg/kg	3.8	3.8	1	11/20/14 07:00	11/23/14 12:09	92-87-5	CU,IS
Benzo(a)anthracene	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 12:09	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 12:09	50-32-8	
Benzo(b)fluoranthene	<0.076	mg/kg	0.38	0.076	1	11/20/14 07:00	11/23/14 12:09	205-99-2	
Benzo(g,h,i)perylene	<0.11	mg/kg	0.38	0.11	1	11/20/14 07:00	11/23/14 12:09	191-24-2	
Benzo(k)fluoranthene	<0.14	mg/kg	0.38	0.14	1	11/20/14 07:00	11/23/14 12:09	207-08-9	
Benzoic acid	<0.30	mg/kg	0.96	0.30	1	11/20/14 07:00	11/23/14 12:09	65-85-0	CU
Benzyl alcohol	<0.057	mg/kg	0.38	0.057	1	11/20/14 07:00	11/23/14 12:09	100-51-6	
Biphenyl (Diphenyl)	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 12:09	92-52-4	
Butylbenzylphthalate	<0.044	mg/kg	0.38	0.044	1	11/20/14 07:00	11/23/14 12:09	85-68-7	
Carbazole	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 12:09	86-74-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30134548

Sample: SB-06 (8-10') Lab ID: 30134548012 Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
4-Chloro-3-methylphenol	<0.061	mg/kg	0.38	0.061	1	11/20/14 07:00	11/23/14 12:09	59-50-7	
4-Chloroaniline	<0.085	mg/kg	0.38	0.085	1	11/20/14 07:00	11/23/14 12:09	106-47-8	
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.38	0.18	1	11/20/14 07:00	11/23/14 12:09	111-44-4	
bis(2-Chloroisopropyl) ether	<0.051	mg/kg	0.38	0.051	1	11/20/14 07:00	11/23/14 12:09	108-60-1	
2-Chloronaphthalene	<0.040	mg/kg	0.38	0.040	1	11/20/14 07:00	11/23/14 12:09	91-58-7	
2-Chlorophenol	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 12:09	95-57-8	
Chrysene	<0.083	mg/kg	0.38	0.083	1	11/20/14 07:00	11/23/14 12:09	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 12:09	53-70-3	
3,3'-Dichlorobenzidine	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 12:09	91-94-1	
2,4-Dichlorophenol	<0.066	mg/kg	0.38	0.066	1	11/20/14 07:00	11/23/14 12:09	120-83-2	
Diethylphthalate	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 12:09	84-66-2	
2,4-Dimethylphenol	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 12:09	105-67-9	
Di-n-butylphthalate	<0.064	mg/kg	0.38	0.064	1	11/20/14 07:00	11/23/14 12:09	84-74-2	
2,4-Dinitrophenol	<0.35	mg/kg	0.96	0.35	1	11/20/14 07:00	11/23/14 12:09	51-28-5	CU
2,4-Dinitrotoluene	<0.080	mg/kg	0.38	0.080	1	11/20/14 07:00	11/23/14 12:09	121-14-2	
2,6-Dinitrotoluene	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 12:09	606-20-2	
Di-n-octylphthalate	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 12:09	117-84-0	
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.38	0.13	1	11/20/14 07:00	11/23/14 12:09	117-81-7	
Fluoranthene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 12:09	206-44-0	
Fluorene	<0.054	mg/kg	0.38	0.054	1	11/20/14 07:00	11/23/14 12:09	86-73-7	
Hexachloro-1,3-butadiene	<0.068	mg/kg	0.38	0.068	1	11/20/14 07:00	11/23/14 12:09	87-68-3	
Hexachlorobenzene	<0.050	mg/kg	0.38	0.050	1	11/20/14 07:00	11/23/14 12:09	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.38	0.12	1	11/20/14 07:00	11/23/14 12:09	77-47-4	
Hexachloroethane	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 12:09	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.094	mg/kg	0.38	0.094	1	11/20/14 07:00	11/23/14 12:09	193-39-5	
Isophorone	<0.042	mg/kg	0.38	0.042	1	11/20/14 07:00	11/23/14 12:09	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.077	mg/kg	0.77	0.077	1	11/20/14 07:00	11/23/14 12:09		
2-Nitroaniline	<0.045	mg/kg	0.96	0.045	1	11/20/14 07:00	11/23/14 12:09	88-74-4	
3-Nitroaniline	<0.072	mg/kg	0.96	0.072	1	11/20/14 07:00	11/23/14 12:09	99-09-2	
4-Nitroaniline	<0.10	mg/kg	0.96	0.10	1	11/20/14 07:00	11/23/14 12:09	100-01-6	
Nitrobenzene	<0.060	mg/kg	0.38	0.060	1	11/20/14 07:00	11/23/14 12:09	98-95-3	
2-Nitrophenol	<0.043	mg/kg	0.38	0.043	1	11/20/14 07:00	11/23/14 12:09	88-75-5	
4-Nitrophenol	<0.16	mg/kg	0.38	0.16	1	11/20/14 07:00	11/23/14 12:09	100-02-7	CU
N-Nitrosodimethylamine	<0.049	mg/kg	0.38	0.049	1	11/20/14 07:00	11/23/14 12:09	62-75-9	CH, CU, L3, M0
N-Nitroso-di-n-propylamine	<0.045	mg/kg	0.38	0.045	1	11/20/14 07:00	11/23/14 12:09	621-64-7	
N-Nitrosodiphenylamine	<0.039	mg/kg	0.38	0.039	1	11/20/14 07:00	11/23/14 12:09	86-30-6	
Pentachlorophenol	<0.096	mg/kg	0.96	0.096	1	11/20/14 07:00	11/23/14 12:09	87-86-5	CU
Phenanthrene	<0.071	mg/kg	0.38	0.071	1	11/20/14 07:00	11/23/14 12:09	85-01-8	
Phenol	<0.093	mg/kg	0.38	0.093	1	11/20/14 07:00	11/23/14 12:09	108-95-2	
Pyrene	<0.059	mg/kg	0.38	0.059	1	11/20/14 07:00	11/23/14 12:09	129-00-0	
Pyridine	<0.32	mg/kg	0.96	0.32	1	11/20/14 07:00	11/23/14 12:09	110-86-1	CU
1,2,4,5-Tetrachlorobenzene	<0.072	mg/kg	0.38	0.072	1	11/20/14 07:00	11/23/14 12:09	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 12:09	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.96	0.11	1	11/20/14 07:00	11/23/14 12:09	95-95-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-06 (8-10')** Lab ID: **30134548012** Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
2,4,6-Trichlorophenol	<0.070	mg/kg	0.38	0.070	1	11/20/14 07:00	11/23/14 12:09	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	91 %		40-117		1	11/20/14 07:00	11/23/14 12:09	4165-60-0	
2-Fluorobiphenyl (S)	86 %		50-112		1	11/20/14 07:00	11/23/14 12:09	321-60-8	
Terphenyl-d14 (S)	95 %		52-130		1	11/20/14 07:00	11/23/14 12:09	1718-51-0	
Phenol-d6 (S)	88 %		53-115		1	11/20/14 07:00	11/23/14 12:09	13127-88-3	
2-Fluorophenol (S)	78 %		38-124		1	11/20/14 07:00	11/23/14 12:09	367-12-4	
2,4,6-Tribromophenol (S)	93 %		21-133		1	11/20/14 07:00	11/23/14 12:09	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	<0.0017	mg/kg	0.0086	0.0017	1		11/20/14 20:30	67-64-1	M5
Acetonitrile	<0.0077	mg/kg	0.043	0.0077	1		11/20/14 20:30	75-05-8	M5
Acrolein	<0.0046	mg/kg	0.043	0.0046	1		11/20/14 20:30	107-02-8	M5
Acrylonitrile	<0.0028	mg/kg	0.0043	0.0028	1		11/20/14 20:30	107-13-1	M5
Allyl chloride	<0.0033	mg/kg	0.043	0.0033	1		11/20/14 20:30	107-05-1	M5
Benzene	<0.00067	mg/kg	0.0043	0.00067	1		11/20/14 20:30	71-43-2	M5
Bromochloromethane	<0.00067	mg/kg	0.0043	0.00067	1		11/20/14 20:30	74-97-5	M5
Bromodichloromethane	<0.0016	mg/kg	0.0043	0.0016	1		11/20/14 20:30	75-27-4	M5
Bromoform	<0.0022	mg/kg	0.0043	0.0022	1		11/20/14 20:30	75-25-2	M5
Bromomethane	<0.0025	mg/kg	0.0043	0.0025	1		11/20/14 20:30	74-83-9	M5
2-Butanone (MEK)	<0.0011	mg/kg	0.0086	0.0011	1		11/20/14 20:30	78-93-3	M5
n-Butylbenzene	<0.0019	mg/kg	0.0043	0.0019	1		11/20/14 20:30	104-51-8	M5
sec-Butylbenzene	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	135-98-8	M5
tert-Butylbenzene	<0.0017	mg/kg	0.0043	0.0017	1		11/20/14 20:30	98-06-6	M5
Carbon disulfide	<0.00066	mg/kg	0.0043	0.00066	1		11/20/14 20:30	75-15-0	M5
Carbon tetrachloride	<0.00076	mg/kg	0.0043	0.00076	1		11/20/14 20:30	56-23-5	M5
Chlorobenzene	<0.00085	mg/kg	0.0043	0.00085	1		11/20/14 20:30	108-90-7	M5
Chloroethane	<0.0014	mg/kg	0.0043	0.0014	1		11/20/14 20:30	75-00-3	M5
Chloroform	<0.00061	mg/kg	0.0043	0.00061	1		11/20/14 20:30	67-66-3	M5
Chloromethane	<0.00090	mg/kg	0.0043	0.00090	1		11/20/14 20:30	74-87-3	M5
Chloroprene	<0.00070	mg/kg	0.0043	0.00070	1		11/20/14 20:30	126-99-8	M5
2-Chlorotoluene	<0.00096	mg/kg	0.0043	0.00096	1		11/20/14 20:30	95-49-8	M5
Cyclohexanone	<0.011	mg/kg	0.043	0.011	1		11/20/14 20:30	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0015	mg/kg	0.0043	0.0015	1		11/20/14 20:30	96-12-8	M5
Dibromochloromethane	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0022	mg/kg	0.0043	0.0022	1		11/20/14 20:30	106-93-4	M5
Dibromomethane	<0.0021	mg/kg	0.0043	0.0021	1		11/20/14 20:30	74-95-3	M5
1,2-Dichlorobenzene	<0.00093	mg/kg	0.0043	0.00093	1		11/20/14 20:30	95-50-1	M5
1,3-Dichlorobenzene	<0.0011	mg/kg	0.0043	0.0011	1		11/20/14 20:30	541-73-1	M5
1,4-Dichlorobenzene	<0.0010	mg/kg	0.0043	0.0010	1		11/20/14 20:30	106-46-7	M5
Dichlorodifluoromethane	<0.00076	mg/kg	0.0043	0.00076	1		11/20/14 20:30	75-71-8	M5
1,1-Dichloroethane	<0.00068	mg/kg	0.0043	0.00068	1		11/20/14 20:30	75-34-3	M5
1,2-Dichloroethane	<0.00078	mg/kg	0.0043	0.00078	1		11/20/14 20:30	107-06-2	M5
1,1-Dichloroethene	<0.00070	mg/kg	0.0043	0.00070	1		11/20/14 20:30	75-35-4	M5
cis-1,2-Dichloroethene	<0.0021	mg/kg	0.0043	0.0021	1		11/20/14 20:30	156-59-2	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: **SB-06 (8-10')** Lab ID: **30134548012** Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
trans-1,2-Dichloroethene	<0.00070	mg/kg	0.0043	0.00070	1		11/20/14 20:30	156-60-5	M5
1,2-Dichloropropane	<0.0014	mg/kg	0.0043	0.0014	1		11/20/14 20:30	78-87-5	M5
cis-1,3-Dichloropropene	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	10061-01-5	M5
trans-1,3-Dichloropropene	<0.0014	mg/kg	0.0043	0.0014	1		11/20/14 20:30	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00075	mg/kg	0.0043	0.00075	1		11/20/14 20:30	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.026	mg/kg	0.086	0.026	1		11/20/14 20:30	123-91-1	M5
Ethyl acetate	<0.00082	mg/kg	0.0043	0.00082	1		11/20/14 20:30	141-78-6	M5
Ethylbenzene	<0.0022	mg/kg	0.0043	0.0022	1		11/20/14 20:30	100-41-4	M5
Ethyl methacrylate	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	97-63-2	M5
n-Hexane	<0.0021	mg/kg	0.0086	0.0021	1		11/20/14 20:30	110-54-3	M5
Isobutanol	<0.025	mg/kg	0.043	0.025	1		11/20/14 20:30	78-83-1	M5
Methacrylonitrile	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	126-98-7	M5
Methyl acetate	<0.0026	mg/kg	0.043	0.0026	1		11/20/14 20:30	79-20-9	M5
Methylene Chloride	<0.0011	mg/kg	0.0043	0.0011	1		11/20/14 20:30	75-09-2	M5
Methyl methacrylate	<0.0015	mg/kg	0.0043	0.0015	1		11/20/14 20:30	80-62-6	M5, N2
2-Methylnaphthalene	<0.0014	mg/kg	0.0043	0.0014	1		11/20/14 20:30	91-57-6	M5, N2
4-Methyl-2-pentanone (MIBK)	<0.00088	mg/kg	0.0086	0.00088	1		11/20/14 20:30	108-10-1	M5
Methyl-tert-butyl ether	<0.00061	mg/kg	0.0043	0.00061	1		11/20/14 20:30	1634-04-4	M5
Naphthalene	<0.0022	mg/kg	0.0043	0.0022	1		11/20/14 20:30	91-20-3	M5
2-Nitropropane	<0.0098	mg/kg		0.0098	1		11/20/14 20:30	79-46-9	M5
n-Propylbenzene	<0.0011	mg/kg	0.0043	0.0011	1		11/20/14 20:30	103-65-1	M5
Styrene	<0.00095	mg/kg	0.0043	0.00095	1		11/20/14 20:30	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00083	mg/kg	0.0043	0.00083	1		11/20/14 20:30	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00076	mg/kg	0.0043	0.00076	1		11/20/14 20:30	79-34-5	M5
Tetrachloroethene	<0.00062	mg/kg	0.0043	0.00062	1		11/20/14 20:30	127-18-4	M5
Toluene	<0.00055	mg/kg	0.0043	0.00055	1		11/20/14 20:30	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0013	mg/kg	0.0043	0.0013	1		11/20/14 20:30	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0012	mg/kg	0.0043	0.0012	1		11/20/14 20:30	120-82-1	M5
1,1,1-Trichloroethane	<0.0022	mg/kg	0.0043	0.0022	1		11/20/14 20:30	71-55-6	M5
1,1,2-Trichloroethane	<0.00079	mg/kg	0.0043	0.00079	1		11/20/14 20:30	79-00-5	M5
Trichloroethene	<0.00065	mg/kg	0.0043	0.00065	1		11/20/14 20:30	79-01-6	M5
1,2,3-Trichloropropane	<0.00088	mg/kg	0.0043	0.00088	1		11/20/14 20:30	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00057	mg/kg	0.043	0.00057	1		11/20/14 20:30	76-13-1	M5
1,2,4-Trimethylbenzene	<0.00099	mg/kg	0.0043	0.00099	1		11/20/14 20:30	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0012	mg/kg	0.0043	0.0012	1		11/20/14 20:30	108-67-8	M5
Vinyl acetate	<0.0012	mg/kg	0.043	0.0012	1		11/20/14 20:30	108-05-4	M5
Vinyl chloride	<0.00069	mg/kg	0.0043	0.00069	1		11/20/14 20:30	75-01-4	M5
Xylene (Total)	<0.0026	mg/kg	0.013	0.0026	1		11/20/14 20:30	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	99 %		73-124		1		11/20/14 20:30	2037-26-5	M5
4-Bromofluorobenzene (S)	92 %		71-124		1		11/20/14 20:30	460-00-4	M5
1,2-Dichloroethane-d4 (S)	108 %		83-138		1		11/20/14 20:30	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **14.3 %** 0.10 0.10 1 11/20/14 11:33

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30134548

Sample: SB-06 (8-10') **Lab ID: 30134548012** Collected: 11/13/14 13:55 Received: 11/14/14 16:50 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
7196 Chromium, Hexavalent	Analytical Method: EPA 7196A Preparation Method: EPA 7196A								
Chromium, Hexavalent	<0.42	mg/kg	1.1	0.42	1	11/20/14 12:55	11/21/14 12:00	18540-29-9	
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	14.1	mg/kg	1.0	1.0	1		11/24/14 10:55	16065-83-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

QC Batch: MERP/6044 Analysis Method: EPA 7471B
QC Batch Method: EPA 7471A Analysis Description: 7471B Mercury
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 819245 Matrix: Solid
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.0022	0.10	11/21/14 07:43	

LABORATORY CONTROL SAMPLE: 819246

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.042	0.040J	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 819247 819248

Parameter	Units	30134548001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.029J	.12	.12	0.14	0.14	97	98	80-120	0	20	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: MPRP/14366 Analysis Method: EPA 6010C
 QC Batch Method: EPA 3050B Analysis Description: 6010C MET
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 819955 Matrix: Solid
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/kg	<0.37	0.60	11/21/14 10:11	
Arsenic	mg/kg	<0.36	0.50	11/21/14 10:11	
Barium	mg/kg	<0.056	2.0	11/21/14 10:11	
Beryllium	mg/kg	<0.023	0.20	11/21/14 10:11	
Boron	mg/kg	<0.13	5.0	11/21/14 10:11	
Cadmium	mg/kg	<0.039	0.30	11/21/14 10:11	
Chromium	mg/kg	<0.069	0.50	11/21/14 10:11	
Cobalt	mg/kg	<0.047	1.0	11/21/14 10:11	
Copper	mg/kg	<0.18	1.0	11/21/14 10:11	
Lead	mg/kg	<0.27	0.50	11/21/14 10:11	
Manganese	mg/kg	0.11J	1.0	11/21/14 10:11	
Nickel	mg/kg	<0.14	2.0	11/21/14 10:11	
Selenium	mg/kg	<0.58	0.80	11/21/14 10:11	
Silver	mg/kg	<0.053	0.60	11/21/14 10:11	
Thallium	mg/kg	<0.33	2.0	11/21/14 10:11	
Tin	mg/kg	4.4J	10.0	11/21/14 10:11	
Zinc	mg/kg	0.57J	1.0	11/21/14 10:11	

LABORATORY CONTROL SAMPLE: 819956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/kg	50	49.9	100	80-120	
Arsenic	mg/kg	50	49.5	99	80-120	
Barium	mg/kg	50	51.0	102	80-120	
Beryllium	mg/kg	50	51.5	103	80-120	
Boron	mg/kg	50	47.2	94	80-120	
Cadmium	mg/kg	50	51.6	103	80-120	
Chromium	mg/kg	50	53.0	106	80-120	
Cobalt	mg/kg	50	52.0	104	80-120	
Copper	mg/kg	50	50.5	101	80-120	
Lead	mg/kg	50	49.7	99	80-120	
Manganese	mg/kg	50	52.0	104	80-120	
Nickel	mg/kg	50	51.7	103	80-120	
Selenium	mg/kg	50	47.4	95	80-120	
Silver	mg/kg	25	24.4	98	80-120	
Thallium	mg/kg	50	47.4	95	80-120	
Tin	mg/kg	50	56.0	112	80-120	
Zinc	mg/kg	50	52.6	105	80-120	

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 819958												819959											
Parameter	Units	30134548001 Result	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual									
			Spike Conc.	Spike Conc.																			
Antimony	mg/kg	<0.41	55.2	55.2	26.1	25.3	47	46	75-125	3	20	M1											
Arsenic	mg/kg	6.3	55.2	55.2	56.4	55.9	91	90	75-125	1	20												
Barium	mg/kg	80.1	55.2	55.2	146	146	119	120	75-125	0	20												
Beryllium	mg/kg	0.69	55.2	55.2	54.5	54.2	98	97	75-125	1	20												
Boron	mg/kg	1.8J	55.2	55.2	48.5	48.6	85	85	75-125	0	20												
Cadmium	mg/kg	0.32J	55.2	55.2	53.1	52.9	96	95	75-125	0	20												
Chromium	mg/kg	10.8	55.2	55.2	68.1	68.2	104	104	75-125	0	20												
Cobalt	mg/kg	8.4	55.2	55.2	64.4	64.4	101	101	75-125	0	20												
Copper	mg/kg	8.6	55.2	55.2	62.0	60.4	97	94	75-125	3	20												
Lead	mg/kg	23.1	55.2	55.2	75.7	77.7	95	99	75-125	3	20												
Manganese	mg/kg	674	55.2	55.2	700	710	46	65	75-125	1	20	M1											
Nickel	mg/kg	8.8	55.2	55.2	62.2	62.6	97	98	75-125	1	20												
Selenium	mg/kg	<0.64	55.2	55.2	48.9	48.7	87	87	75-125	0	20												
Silver	mg/kg	<0.059	27.6	27.6	26.3	26.1	96	95	75-125	1	20												
Thallium	mg/kg	<0.36	55.2	55.2	50.0	49.8	91	90	75-125	0	20												
Tin	mg/kg	4.1J	55.2	55.2	53.7	53.7	90	90	75-125	0	20												
Zinc	mg/kg	44.3	55.2	55.2	104	105	107	109	75-125	1	20												

SAMPLE DUPLICATE: 819957

Parameter	Units	30134548001 Result	Dup Result	RPD	Max RPD	Qualifiers
Antimony	mg/kg	<0.41	<0.41		20	
Arsenic	mg/kg	6.3	5.6	10	20	
Barium	mg/kg	80.1	81.1	1	20	
Beryllium	mg/kg	0.69	0.60	14	20	
Boron	mg/kg	1.8J	1.8J		20	
Cadmium	mg/kg	0.32J	0.24J		20	
Chromium	mg/kg	10.8	10.6	2	20	
Cobalt	mg/kg	8.4	7.3	15	20	
Copper	mg/kg	8.6	8.0	7	20	
Lead	mg/kg	23.1	20.7	11	20	
Manganese	mg/kg	674	595	13	20	
Nickel	mg/kg	8.8	8.5	3	20	
Selenium	mg/kg	<0.64	<0.64		20	
Silver	mg/kg	<0.059	<0.059		20	
Thallium	mg/kg	<0.36	<0.36		20	
Tin	mg/kg	4.1J	4.4J		20	
Zinc	mg/kg	44.3	43.4	2	20	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: MSV/21662 Analysis Method: EPA 8260C
 QC Batch Method: EPA 8260C Analysis Description: 8260C MSV 5035 Low
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 820449 Matrix: Solid
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	<0.00096	0.0050	11/20/14 12:20	M5
1,1,1-Trichloroethane	mg/kg	<0.0026	0.0050	11/20/14 12:20	M5
1,1,2,2-Tetrachloroethane	mg/kg	<0.00089	0.0050	11/20/14 12:20	M5
1,1,2-Trichloroethane	mg/kg	<0.00092	0.0050	11/20/14 12:20	M5
1,1,2-Trichlorotrifluoroethane	mg/kg	<0.00066	0.050	11/20/14 12:20	M5
1,1-Dichloroethane	mg/kg	<0.00079	0.0050	11/20/14 12:20	M5
1,1-Dichloroethene	mg/kg	<0.00081	0.0050	11/20/14 12:20	M5
1,2,3-Trichlorobenzene	mg/kg	<0.0015	0.0050	11/20/14 12:20	M5
1,2,3-Trichloropropane	mg/kg	<0.0010	0.0050	11/20/14 12:20	M5
1,2,4-Trichlorobenzene	mg/kg	<0.0014	0.0050	11/20/14 12:20	M5
1,2,4-Trimethylbenzene	mg/kg	<0.0012	0.0050	11/20/14 12:20	M5
1,2-Dibromo-3-chloropropane	mg/kg	<0.0017	0.0050	11/20/14 12:20	M5
1,2-Dibromoethane (EDB)	mg/kg	<0.0026	0.0050	11/20/14 12:20	M5
1,2-Dichlorobenzene	mg/kg	<0.0011	0.0050	11/20/14 12:20	M5
1,2-Dichloroethane	mg/kg	<0.00091	0.0050	11/20/14 12:20	M5
1,2-Dichloropropane	mg/kg	<0.0016	0.0050	11/20/14 12:20	M5
1,3,5-Trimethylbenzene	mg/kg	<0.0014	0.0050	11/20/14 12:20	M5
1,3-Dichlorobenzene	mg/kg	<0.0013	0.0050	11/20/14 12:20	M5
1,4-Dichlorobenzene	mg/kg	<0.0012	0.0050	11/20/14 12:20	M5
1,4-Dioxane (p-Dioxane)	mg/kg	<0.031	0.10	11/20/14 12:20	M5
2-Butanone (MEK)	mg/kg	<0.0013	0.010	11/20/14 12:20	M5
2-Chlorotoluene	mg/kg	<0.0011	0.0050	11/20/14 12:20	M5
2-Methylnaphthalene	mg/kg	<0.0016	0.0050	11/20/14 12:20	M5, N2
2-Nitropropane	mg/kg	<0.011		11/20/14 12:20	M5
4-Methyl-2-pentanone (MIBK)	mg/kg	<0.0010	0.010	11/20/14 12:20	M5
Acetone	mg/kg	<0.0020	0.010	11/20/14 12:20	M5
Acetonitrile	mg/kg	<0.0090	0.050	11/20/14 12:20	M5
Acrolein	mg/kg	<0.0054	0.050	11/20/14 12:20	M5
Acrylonitrile	mg/kg	<0.0033	0.0050	11/20/14 12:20	M5
Allyl chloride	mg/kg	<0.0038	0.050	11/20/14 12:20	M5
Benzene	mg/kg	<0.00078	0.0050	11/20/14 12:20	M5
Bromochloromethane	mg/kg	<0.00078	0.0050	11/20/14 12:20	M5
Bromodichloromethane	mg/kg	<0.0018	0.0050	11/20/14 12:20	M5
Bromoform	mg/kg	<0.0025	0.0050	11/20/14 12:20	M5
Bromomethane	mg/kg	<0.0029	0.0050	11/20/14 12:20	M5
Carbon disulfide	mg/kg	<0.00077	0.0050	11/20/14 12:20	M5
Carbon tetrachloride	mg/kg	<0.00089	0.0050	11/20/14 12:20	M5
Chlorobenzene	mg/kg	<0.00099	0.0050	11/20/14 12:20	M5
Chloroethane	mg/kg	<0.0016	0.0050	11/20/14 12:20	M5
Chloroform	mg/kg	<0.00071	0.0050	11/20/14 12:20	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

METHOD BLANK: 820449

Matrix: Solid

Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloromethane	mg/kg	<0.0010	0.0050	11/20/14 12:20	M5
Chloroprene	mg/kg	<0.00081	0.0050	11/20/14 12:20	M5
cis-1,2-Dichloroethene	mg/kg	<0.0025	0.0050	11/20/14 12:20	M5
cis-1,3-Dichloropropene	mg/kg	<0.0016	0.0050	11/20/14 12:20	M5
Cyclohexanone	mg/kg	<0.012	0.050	11/20/14 12:20	M5
Dibromochloromethane	mg/kg	<0.0015	0.0050	11/20/14 12:20	M5
Dibromomethane	mg/kg	<0.0025	0.0050	11/20/14 12:20	M5
Dichlorodifluoromethane	mg/kg	<0.00089	0.0050	11/20/14 12:20	M5
Diethyl ether (Ethyl ether)	mg/kg	<0.00088	0.0050	11/20/14 12:20	M5
Ethyl acetate	mg/kg	<0.00096	0.0050	11/20/14 12:20	M5
Ethyl methacrylate	mg/kg	<0.0015	0.0050	11/20/14 12:20	M5
Ethylbenzene	mg/kg	<0.0026	0.0050	11/20/14 12:20	M5
Isobutanol	mg/kg	<0.030	0.050	11/20/14 12:20	M5
Methacrylonitrile	mg/kg	<0.0015	0.0050	11/20/14 12:20	M5
Methyl acetate	mg/kg	<0.0030	0.050	11/20/14 12:20	M5
Methyl methacrylate	mg/kg	<0.0018	0.0050	11/20/14 12:20	M5,N2
Methyl-tert-butyl ether	mg/kg	<0.00071	0.0050	11/20/14 12:20	M5
Methylene Chloride	mg/kg	<0.0013	0.0050	11/20/14 12:20	M5
n-Butylbenzene	mg/kg	<0.0022	0.0050	11/20/14 12:20	M5
n-Hexane	mg/kg	<0.0024	0.010	11/20/14 12:20	M5
n-Propylbenzene	mg/kg	<0.0013	0.0050	11/20/14 12:20	M5
Naphthalene	mg/kg	<0.0025	0.0050	11/20/14 12:20	M5
sec-Butylbenzene	mg/kg	<0.0015	0.0050	11/20/14 12:20	M5
Styrene	mg/kg	<0.0011	0.0050	11/20/14 12:20	M5
tert-Butylbenzene	mg/kg	<0.0020	0.0050	11/20/14 12:20	M5
Tetrachloroethene	mg/kg	<0.00073	0.0050	11/20/14 12:20	M5
Toluene	mg/kg	<0.00064	0.0050	11/20/14 12:20	M5
trans-1,2-Dichloroethene	mg/kg	<0.00082	0.0050	11/20/14 12:20	M5
trans-1,3-Dichloropropene	mg/kg	<0.0016	0.0050	11/20/14 12:20	M5
Trichloroethene	mg/kg	<0.00076	0.0050	11/20/14 12:20	M5
Vinyl acetate	mg/kg	<0.0014	0.050	11/20/14 12:20	M5
Vinyl chloride	mg/kg	<0.00081	0.0050	11/20/14 12:20	M5
Xylene (Total)	mg/kg	<0.0031	0.015	11/20/14 12:20	M5
1,2-Dichloroethane-d4 (S)	%	99	83-138	11/20/14 12:20	M5
4-Bromofluorobenzene (S)	%	94	71-124	11/20/14 12:20	M5
Toluene-d8 (S)	%	99	73-124	11/20/14 12:20	M5

LABORATORY CONTROL SAMPLE: 820450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	.02	0.020	99	60-120	M5
1,1,1-Trichloroethane	mg/kg	.02	0.021	105	58-125	M5
1,1,2,2-Tetrachloroethane	mg/kg	.02	0.017	84	47-121	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

LABORATORY CONTROL SAMPLE: 820450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2-Trichloroethane	mg/kg	.02	0.020	98	57-117	M5
1,1,2-Trichlorotrifluoroethane	mg/kg	.02	0.023J	114	43-177	M5
1,1-Dichloroethane	mg/kg	.02	0.020	98	59-126	M5
1,1-Dichloroethene	mg/kg	.02	0.021	104	53-142	M5
1,2,3-Trichlorobenzene	mg/kg	.02	0.023	114	44-139	M5
1,2,3-Trichloropropane	mg/kg	.02	0.019	94	57-121	M5
1,2,4-Trichlorobenzene	mg/kg	.02	0.022	111	44-146	M5
1,2,4-Trimethylbenzene	mg/kg	.02	0.024	120	54-131	M5
1,2-Dibromo-3-chloropropane	mg/kg	.02	0.015	77	28-131	M5
1,2-Dibromoethane (EDB)	mg/kg	.02	0.020	100	57-110	M5
1,2-Dichlorobenzene	mg/kg	.02	0.021	104	51-132	M5
1,2-Dichloroethane	mg/kg	.02	0.019	95	52-121	M5
1,2-Dichloropropane	mg/kg	.02	0.018	91	58-122	M5
1,3,5-Trimethylbenzene	mg/kg	.02	0.021	104	54-131	M5
1,3-Dichlorobenzene	mg/kg	.02	0.020	100	52-130	M5
1,4-Dichlorobenzene	mg/kg	.02	0.020	102	53-130	M5
1,4-Dioxane (p-Dioxane)	mg/kg	.2	0.21	104	26-141	M5
2-Butanone (MEK)	mg/kg	.02	0.020	100	52-129	M5
2-Chlorotoluene	mg/kg	.02	0.020	101	53-138	M5
2-Methylnaphthalene	mg/kg	.02	0.020	100	14-170	M5, N2
2-Nitropropane	mg/kg		0.066			M5
4-Methyl-2-pentanone (MIBK)	mg/kg	.02	0.020	100	52-122	M5
Acetone	mg/kg	.02	0.025	126	12-183	M5
Acetonitrile	mg/kg	.1	0.088	88	29-148	M5
Acrylonitrile	mg/kg	.02	0.015	76	55-117	M5
Allyl chloride	mg/kg	.1	0.094	94	42-168	M5
Benzene	mg/kg	.02	0.020	98	52-126	M5
Bromochloromethane	mg/kg	.02	0.021	104	63-110	M5
Bromodichloromethane	mg/kg	.02	0.017	84	49-114	M5
Bromoform	mg/kg	.02	0.017	85	33-123	M5
Bromomethane	mg/kg	.02	0.031	157	12-179	M5
Carbon disulfide	mg/kg	.02	0.020	99	31-163	M5
Carbon tetrachloride	mg/kg	.02	0.018	92	59-125	M5
Chlorobenzene	mg/kg	.02	0.021	105	61-122	M5
Chloroethane	mg/kg	.02	0.025	127	61-150	M5
Chloroform	mg/kg	.02	0.019	97	58-121	M5
Chloromethane	mg/kg	.02	0.015	74	45-133	M5
cis-1,2-Dichloroethene	mg/kg	.02	0.019	95	57-121	M5
cis-1,3-Dichloropropene	mg/kg	.02	0.018	89	44-119	M5
Cyclohexanone	mg/kg	.1	0.031J	31	10-175	M5
Dibromochloromethane	mg/kg	.02	0.018	91	46-115	M5
Dibromomethane	mg/kg	.02	0.021	104	59-116	M5
Dichlorodifluoromethane	mg/kg	.02	0.031	154	15-184	M5
Diethyl ether (Ethyl ether)	mg/kg	.02	0.018	89	62-118	M5
Ethyl methacrylate	mg/kg	.02	0.0097	49	24-117	M5
Ethylbenzene	mg/kg	.02	0.021	103	54-128	M5
Isobutanol	mg/kg	.1	0.078	78	34-113	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

LABORATORY CONTROL SAMPLE: 820450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methacrylonitrile	mg/kg	.02	0.016	79	10-175	M5
Methyl acetate	mg/kg	.02	0.018J	92	44-159	M5
Methyl methacrylate	mg/kg	.02	0.020	98	35-126	M5, N2
Methyl-tert-butyl ether	mg/kg	.02	0.019	94	57-129	M5
Methylene Chloride	mg/kg	.02	0.024	120	21-152	M5
n-Butylbenzene	mg/kg	.02	0.019	97	41-156	M5
n-Hexane	mg/kg	.02	0.017	86	10-175	M5
n-Propylbenzene	mg/kg	.02	0.019	96	51-144	M5
Naphthalene	mg/kg	.02	0.021	103	36-152	M5
sec-Butylbenzene	mg/kg	.02	0.020	99	51-145	M5
Styrene	mg/kg	.02	0.021	106	48-123	M5
tert-Butylbenzene	mg/kg	.02	0.020	101	54-139	M5
Tetrachloroethene	mg/kg	.02	0.023	113	60-129	M5
Toluene	mg/kg	.02	0.021	104	53-127	M5
trans-1,2-Dichloroethene	mg/kg	.02	0.020	98	54-129	M5
trans-1,3-Dichloropropene	mg/kg	.02	0.017	84	43-111	M5
Trichloroethene	mg/kg	.02	0.021	105	57-123	M5
Vinyl chloride	mg/kg	.02	0.022	109	51-135	M5
Xylene (Total)	mg/kg	.06	0.065	108	53-127	M5
1,2-Dichloroethane-d4 (S)	%			97	83-138	M5
4-Bromofluorobenzene (S)	%			100	71-124	M5
Toluene-d8 (S)	%			99	73-124	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: OEXT/21753 Analysis Method: EPA 8081B
 QC Batch Method: EPA 3546 Analysis Description: 8081 GCS Pesticides
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 821241 Matrix: Solid
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	mg/kg	<0.00015	0.0033	11/25/14 02:55	2c
4,4'-DDE	mg/kg	<0.00015	0.0033	11/25/14 02:55	2c
4,4'-DDT	mg/kg	<0.00017	0.0033	11/25/14 02:55	2c
Aldrin	mg/kg	<0.000078	0.0017	11/25/14 02:55	2c
beta-BHC	mg/kg	<0.00019	0.0017	11/25/14 02:55	2c
Chlordane (Technical)	mg/kg	<0.010	0.017	11/25/14 02:55	2c
delta-BHC	mg/kg	<0.000095	0.0017	11/25/14 02:55	2c
Dieldrin	mg/kg	<0.00019	0.0033	11/25/14 02:55	2c
Endosulfan I	mg/kg	<0.000097	0.0017	11/25/14 02:55	2c
Endosulfan II	mg/kg	<0.00015	0.0033	11/25/14 02:55	2c
Endosulfan sulfate	mg/kg	<0.00013	0.0033	11/25/14 02:55	2c
Endrin	mg/kg	<0.00018	0.0033	11/25/14 02:55	2c
gamma-BHC (Lindane)	mg/kg	<0.00012	0.0017	11/25/14 02:55	2c
Heptachlor	mg/kg	<0.00020	0.0017	11/25/14 02:55	2c
Heptachlor epoxide	mg/kg	<0.000082	0.0017	11/25/14 02:55	2c
Methoxychlor	mg/kg	<0.0010	0.017	11/25/14 02:55	2c
Toxaphene	mg/kg	<0.0036	0.017	11/25/14 02:55	2c
Decachlorobiphenyl (S)	%	77	39-122	11/25/14 02:55	2c,SS
Tetrachloro-m-xylene (S)	%	64	37-113	11/25/14 02:55	2c

LABORATORY CONTROL SAMPLE: 821242

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	mg/kg	.027	0.022	83	64-119	2c
4,4'-DDE	mg/kg	.027	0.022	82	50-114	2c
4,4'-DDT	mg/kg	.027	0.024	90	68-118	2c
Aldrin	mg/kg	.013	0.010	77	50-98	2c
beta-BHC	mg/kg	.013	0.011	83	49-104	2c
delta-BHC	mg/kg	.013	0.011	82	48-113	2c
Dieldrin	mg/kg	.027	0.022	83	63-112	2c
Endosulfan I	mg/kg	.013	0.011	82	60-108	2c
Endosulfan II	mg/kg	.027	0.022	82	51-112	2c
Endosulfan sulfate	mg/kg	.027	0.022	84	54-112	2c
Endrin	mg/kg	.027	0.023	86	65-114	2c
gamma-BHC (Lindane)	mg/kg	.013	0.011	82	55-112	2c
Heptachlor	mg/kg	.013	0.011	81	59-108	2c
Heptachlor epoxide	mg/kg	.013	0.011	80	51-105	2c
Methoxychlor	mg/kg	.13	0.11	81	64-116	2c

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

LABORATORY CONTROL SAMPLE: 821242

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Decachlorobiphenyl (S)	%			77	39-122	2c,SS
Tetrachloro-m-xylene (S)	%			63	37-113	2c

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 821243 821244

Parameter	Units	30134548001		MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec						
4,4'-DDD	mg/kg	0.00055J	.03	.03	0.024	0.025	78	79	64-119	2	25	2c		
4,4'-DDE	mg/kg	<0.00018	.03	.03	0.023	0.024	75	77	50-114	3	25	2c		
4,4'-DDT	mg/kg	0.00055J	.03	.03	0.026	0.028	84	89	68-118	7	25	2c		
Aldrin	mg/kg	<0.000091	.015	.015	0.010	0.011	68	74	50-98	8	25	2c		
beta-BHC	mg/kg	<0.00023	.015	.015	0.012	0.012	81	81	49-104	0	25	2c		
delta-BHC	mg/kg	<0.00011	.015	.015	0.012	0.012	76	80	48-113	5	25	2c		
Dieldrin	mg/kg	0.00079J	.03	.03	0.024	0.024	75	77	63-112	3	25	2c		
Endosulfan I	mg/kg	<0.00011	.015	.015	0.012	0.012	75	77	60-108	3	25	2c		
Endosulfan II	mg/kg	0.00056J	.03	.03	0.023	0.024	73	75	51-112	3	25	2c		
Endosulfan sulfate	mg/kg	<0.00016	.03	.03	0.024	0.024	78	79	54-112	1	25	2c		
Endrin	mg/kg	<0.00021	.03	.03	0.026	0.026	83	85	65-114	3	25	2c		
gamma-BHC (Lindane)	mg/kg	<0.00013	.015	.015	0.012	0.012	76	76	55-112	0	25	2c		
Heptachlor	mg/kg	<0.00023	.015	.015	0.012	0.012	77	81	59-108	6	25	2c		
Heptachlor epoxide	mg/kg	<0.000095	.015	.015	0.011	0.012	73	78	51-105	6	25	2c		
Methoxychlor	mg/kg	<0.00012	.15	.15	0.13	0.13	82	85	64-116	3	25	2c		
Decachlorobiphenyl (S)	%						73	75	39-122			2c,SS		
Tetrachloro-m-xylene (S)	%						58	61	37-113			2c		

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

QC Batch: OEXT/21732 Analysis Method: EPA 8082A
QC Batch Method: EPA 3546 Analysis Description: 8082A GCS PCB
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 820407 Matrix: Solid
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<2.5	16.7	11/25/14 19:15	
PCB-1221 (Aroclor 1221)	ug/kg	<7.6	16.7	11/25/14 19:15	
PCB-1232 (Aroclor 1232)	ug/kg	<5.0	16.7	11/25/14 19:15	
PCB-1242 (Aroclor 1242)	ug/kg	<3.3	16.7	11/25/14 19:15	
PCB-1248 (Aroclor 1248)	ug/kg	<3.5	16.7	11/25/14 19:15	
PCB-1254 (Aroclor 1254)	ug/kg	<7.7	16.7	11/25/14 19:15	
PCB-1260 (Aroclor 1260)	ug/kg	<2.6	16.7	11/25/14 19:15	
Decachlorobiphenyl (S)	%	61	10-115	11/25/14 19:15	
Tetrachloro-m-xylene (S)	%	66	30-107	11/25/14 19:15	

LABORATORY CONTROL SAMPLE: 820408

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1232 (Aroclor 1232)	ug/kg	167	106	64	39-107	
Decachlorobiphenyl (S)	%			70	10-115	
Tetrachloro-m-xylene (S)	%			72	30-107	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 820409 820410

Parameter	Units	30134548001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		
										RPD	RPD	Qual
PCB-1232 (Aroclor 1232)	ug/kg	<5.7	193	189	135	132	70	70	39-107	2	25	
Decachlorobiphenyl (S)	%						89	82	10-115			
Tetrachloro-m-xylene (S)	%						75	72	30-107			

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: OEXT/3458 Analysis Method: EPA 8151
 QC Batch Method: EPA 3546 Analysis Description: 8151 GCS Herbicides
 Associated Lab Samples: 30134548006, 30134548008, 30134548009, 30134548010, 30134548012

METHOD BLANK: 72709 Matrix: Solid
 Associated Lab Samples: 30134548006, 30134548008, 30134548009, 30134548010, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-T	mg/kg	ND	0.067	11/22/14 15:05	
2,4-D	mg/kg	ND	0.067	11/22/14 15:05	
2,4-DCAA (S)	%.	70	10-161	11/22/14 15:05	
2,4-DCAA (S)	%.	72	10-161	11/22/14 15:05	

LABORATORY CONTROL SAMPLE: 72710

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-T	mg/kg	.067	.044J	67	13-174	
2,4-D	mg/kg	.67	0.49	74	14-171	
2,4-DCAA (S)	%.			71	10-161	
2,4-DCAA (S)	%.			85	10-161	

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

QC Batch: OEXT/3486 Analysis Method: EPA 8151
QC Batch Method: EPA 3546 Analysis Description: 8151 GCS Herbicides
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548007, 30134548011, 30134548012

METHOD BLANK: 73558 Matrix: Solid
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548007, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-T	mg/kg	ND	0.067	11/21/14 22:03	
2,4-D	mg/kg	ND	0.067	11/21/14 22:03	
2,4-DCAA (S)	%.	55	10-161	11/21/14 22:03	
2,4-DCAA (S)	%.	60	10-161	11/21/14 22:03	

LABORATORY CONTROL SAMPLE: 73559

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-T	mg/kg	.067	ND	34	13-174	
2,4-D	mg/kg	.67	0.26	39	14-171	
2,4-DCAA (S)	%.			39	10-161	
2,4-DCAA (S)	%.			28	10-161	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 73560 73561

Parameter	Units	30134548001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	RPD				RPD		
2,4,5-T	mg/kg	ND	.0772	.076	.045J	.06J	57	78	10-210		20	
2,4-D	mg/kg	ND	.772	.76	0.48	0.64	61	83	10-174	28	20	R1
2,4-DCAA (S)	%.						35	71	10-161			
2,4-DCAA (S)	%.						148	225	10-161			S0

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: OEXT/21746 Analysis Method: EPA 8270D by SIM
 QC Batch Method: EPA 3546 Analysis Description: 8270D/3546 MSSV PAH by SIM
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 820763 Matrix: Solid
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Quinoline	mg/kg	<0.0016	0.0067	11/23/14 10:32	
2-Fluorobiphenyl (S)	%	78	35-141	11/23/14 18:18	
Terphenyl-d14 (S)	%	96	64-141	11/23/14 18:18	

LABORATORY CONTROL SAMPLE: 820764

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Quinoline	mg/kg	.13	0.13	99	45-124	
2-Fluorobiphenyl (S)	%			93	35-141	
Terphenyl-d14 (S)	%			99	64-141	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 820765 820766

Parameter	Units	30134548012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Quinoline	mg/kg	<0.0019	.15	.15	0.14	0.17	91	109	45-124	18	20	
2-Fluorobiphenyl (S)	%						84	85	35-141			
Terphenyl-d14 (S)	%						93	95	64-141			

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

QC Batch: OEXT/21713 Analysis Method: EPA 8270D
 QC Batch Method: EPA 3546 Analysis Description: 8270D Solid MSSV Microwave
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 819332 Matrix: Solid
 Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007,
 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.062	0.33	11/23/14 16:46	
2,3,4,6-Tetrachlorophenol	mg/kg	<0.061	0.33	11/23/14 16:46	
2,4,5-Trichlorophenol	mg/kg	<0.099	0.83	11/23/14 16:46	
2,4,6-Trichlorophenol	mg/kg	<0.061	0.33	11/23/14 16:46	
2,4-Dichlorophenol	mg/kg	<0.057	0.33	11/23/14 16:46	
2,4-Dimethylphenol	mg/kg	<0.059	0.33	11/23/14 16:46	
2,4-Dinitrophenol	mg/kg	<0.30	0.83	11/23/14 16:46	CU
2,4-Dinitrotoluene	mg/kg	<0.070	0.33	11/23/14 16:46	
2,6-Dinitrotoluene	mg/kg	<0.044	0.33	11/23/14 16:46	
2-Chloronaphthalene	mg/kg	<0.035	0.33	11/23/14 16:46	
2-Chlorophenol	mg/kg	<0.042	0.33	11/23/14 16:46	
2-Nitroaniline	mg/kg	<0.039	0.83	11/23/14 16:46	
2-Nitrophenol	mg/kg	<0.037	0.33	11/23/14 16:46	
3&4-Methylphenol(m&p Cresol)	mg/kg	<0.067	0.67	11/23/14 16:46	
3,3'-Dichlorobenzidine	mg/kg	<0.036	0.33	11/23/14 16:46	
3-Nitroaniline	mg/kg	<0.062	0.83	11/23/14 16:46	
4-Chloro-3-methylphenol	mg/kg	<0.053	0.33	11/23/14 16:46	
4-Chloroaniline	mg/kg	<0.074	0.33	11/23/14 16:46	
4-Nitroaniline	mg/kg	<0.090	0.83	11/23/14 16:46	
4-Nitrophenol	mg/kg	<0.14	0.33	11/23/14 16:46	CU
Acenaphthene	mg/kg	<0.039	0.33	11/23/14 16:46	
Acenaphthylene	mg/kg	<0.038	0.33	11/23/14 16:46	
Acetophenone	mg/kg	<0.041	0.33	11/23/14 16:46	
Aniline	mg/kg	<0.060	0.33	11/23/14 16:46	
Anthracene	mg/kg	<0.052	0.33	11/23/14 16:46	
Atrazine	mg/kg	<0.064	0.33	11/23/14 16:46	IC
Benzidine	mg/kg	<3.3	3.3	11/23/14 16:46	CU,IS
Benzo(a)anthracene	mg/kg	<0.038	0.33	11/23/14 16:46	
Benzo(a)pyrene	mg/kg	<0.11	0.33	11/23/14 16:46	
Benzo(b)fluoranthene	mg/kg	<0.066	0.33	11/23/14 16:46	
Benzo(g,h,i)perylene	mg/kg	<0.096	0.33	11/23/14 16:46	
Benzo(k)fluoranthene	mg/kg	<0.12	0.33	11/23/14 16:46	
Benzoic acid	mg/kg	<0.26	0.83	11/23/14 16:46	CU
Benzyl alcohol	mg/kg	<0.049	0.33	11/23/14 16:46	
Biphenyl (Diphenyl)	mg/kg	<0.061	0.33	11/23/14 16:46	
bis(2-Chloroethyl) ether	mg/kg	<0.16	0.33	11/23/14 16:46	
bis(2-Chloroisopropyl) ether	mg/kg	<0.044	0.33	11/23/14 16:46	
bis(2-Ethylhexyl)phthalate	mg/kg	<0.11	0.33	11/23/14 16:46	
Butylbenzylphthalate	mg/kg	<0.038	0.33	11/23/14 16:46	
Carbazole	mg/kg	<0.059	0.33	11/23/14 16:46	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

METHOD BLANK: 819332

Matrix: Solid

Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chrysene	mg/kg	<0.072	0.33	11/23/14 16:46	
Di-n-butylphthalate	mg/kg	<0.055	0.33	11/23/14 16:46	
Di-n-octylphthalate	mg/kg	<0.061	0.33	11/23/14 16:46	
Dibenz(a,h)anthracene	mg/kg	<0.11	0.33	11/23/14 16:46	
Diethylphthalate	mg/kg	<0.037	0.33	11/23/14 16:46	
Fluoranthene	mg/kg	<0.051	0.33	11/23/14 16:46	
Fluorene	mg/kg	<0.047	0.33	11/23/14 16:46	
Hexachloro-1,3-butadiene	mg/kg	<0.059	0.33	11/23/14 16:46	
Hexachlorobenzene	mg/kg	<0.043	0.33	11/23/14 16:46	
Hexachlorocyclopentadiene	mg/kg	<0.11	0.33	11/23/14 16:46	
Hexachloroethane	mg/kg	<0.051	0.33	11/23/14 16:46	
Indeno(1,2,3-cd)pyrene	mg/kg	<0.081	0.33	11/23/14 16:46	
Isophorone	mg/kg	<0.036	0.33	11/23/14 16:46	
N-Nitroso-di-n-propylamine	mg/kg	<0.039	0.33	11/23/14 16:46	
N-Nitrosodimethylamine	mg/kg	<0.043	0.33	11/23/14 16:46	CU
N-Nitrosodiphenylamine	mg/kg	<0.034	0.33	11/23/14 16:46	
Nitrobenzene	mg/kg	<0.052	0.33	11/23/14 16:46	
Pentachlorophenol	mg/kg	<0.083	0.83	11/23/14 16:46	CU
Phenanthrene	mg/kg	<0.062	0.33	11/23/14 16:46	
Phenol	mg/kg	<0.081	0.33	11/23/14 16:46	
Pyrene	mg/kg	<0.051	0.33	11/23/14 16:46	
Pyridine	mg/kg	<0.28	0.83	11/23/14 16:46	CU
2,4,6-Tribromophenol (S)	%	97	21-133	11/23/14 16:46	
2-Fluorobiphenyl (S)	%	90	50-112	11/23/14 16:46	
2-Fluorophenol (S)	%	82	38-124	11/23/14 16:46	
Nitrobenzene-d5 (S)	%	92	40-117	11/23/14 16:46	
Phenol-d6 (S)	%	90	53-115	11/23/14 16:46	
Terphenyl-d14 (S)	%	96	52-130	11/23/14 16:46	

LABORATORY CONTROL SAMPLE: 819333

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg		<0.062			
2,3,4,6-Tetrachlorophenol	mg/kg	3.3	3.5	105	57-146	
2,4,5-Trichlorophenol	mg/kg	3.3	3.2	96	67-136	
2,4,6-Trichlorophenol	mg/kg	3.3	3.5	105	67-135	
2,4-Dichlorophenol	mg/kg	3.3	2.5	75	37-133	
2,4-Dimethylphenol	mg/kg	3.3	2.3	70	33-137	
2,4-Dinitrophenol	mg/kg	3.3	3.3	99	10-160	1c
2,4-Dinitrotoluene	mg/kg	3.3	3.3	100	73-119	
2,6-Dinitrotoluene	mg/kg	3.3	3.2	97	23-169	
2-Chloronaphthalene	mg/kg	3.3	3.1	94	63-124	
2-Chlorophenol	mg/kg	3.3	3.1	93	70-110	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

LABORATORY CONTROL SAMPLE: 819333

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Nitroaniline	mg/kg	3.3	3.4	102	75-136	
2-Nitrophenol	mg/kg	3.3	2.5	76	32-134	
3&4-Methylphenol(m&p Cresol)	mg/kg	3.3	3.1	92	49-142	
3,3'-Dichlorobenzidine	mg/kg		<0.036			
3-Nitroaniline	mg/kg	3.3	3.1	94	58-161	
4-Chloro-3-methylphenol	mg/kg	3.3	2.5	75	58-115	
4-Chloroaniline	mg/kg	3.3	2.3	68	12-147	
4-Nitroaniline	mg/kg	3.3	4.4	131	25-195	
4-Nitrophenol	mg/kg	3.3	3.5	106	56-145	1c
Acenaphthene	mg/kg	3.3	3.1	94	74-109	
Acenaphthylene	mg/kg	3.3	3.1	92	77-110	
Acetophenone	mg/kg	3.3	2.4	73	52-88	
Aniline	mg/kg	3.3	3.6	108	10-175	
Anthracene	mg/kg	3.3	3.2	96	85-109	
Atrazine	mg/kg		<0.064			IC
Benzidine	mg/kg		<3.3			1c, IS
Benzo(a)anthracene	mg/kg	3.3	3.2	95	82-111	
Benzo(a)pyrene	mg/kg	3.3	3.1	93	85-110	
Benzo(b)fluoranthene	mg/kg	3.3	3.3	99	76-124	
Benzo(g,h,i)perylene	mg/kg	3.3	3.0	89	30-156	
Benzo(k)fluoranthene	mg/kg	3.3	3.2	97	74-125	
Benzoic acid	mg/kg	3.3	4.0	120	11-128	1c
Benzyl alcohol	mg/kg	3.3	3.4	103	54-139	
Biphenyl (Diphenyl)	mg/kg		<0.061			
bis(2-Chloroethyl) ether	mg/kg	3.3	3.1	94	50-125	
bis(2-Chloroisopropyl) ether	mg/kg	3.3	3.4	101	52-131	
bis(2-Ethylhexyl)phthalate	mg/kg	3.3	3.1	92	68-145	
Butylbenzylphthalate	mg/kg	3.3	3.2	96	64-152	
Carbazole	mg/kg	3.3	4.0	119	56-172	
Chrysene	mg/kg	3.3	3.2	95	83-114	
Di-n-butylphthalate	mg/kg	3.3	3.0	90	73-127	
Di-n-octylphthalate	mg/kg	3.3	3.0	91	66-146	
Dibenz(a,h)anthracene	mg/kg	3.3	2.9	87	44-146	
Diethylphthalate	mg/kg	3.3	3.1	94	70-128	
Fluoranthene	mg/kg	3.3	3.1	93	82-115	
Fluorene	mg/kg	3.3	3.2	95	79-112	
Hexachloro-1,3-butadiene	mg/kg	3.3	2.7	80	34-138	
Hexachlorobenzene	mg/kg	3.3	3.1	94	72-128	
Hexachlorocyclopentadiene	mg/kg	3.3	2.6	78	32-116	
Hexachloroethane	mg/kg	3.3	3.2	96	51-123	
Indeno(1,2,3-cd)pyrene	mg/kg	3.3	2.9	87	42-146	
Isophorone	mg/kg	3.3	2.6	78	40-122	
N-Nitroso-di-n-propylamine	mg/kg	3.3	3.3	99	66-117	
N-Nitrosodimethylamine	mg/kg	3.3	9.0	269	16-145	CH,E,LO
N-Nitrosodiphenylamine	mg/kg	3.3	3.1	94	70-137	
Nitrobenzene	mg/kg	3.3	2.6	79	31-131	
Pentachlorophenol	mg/kg	3.3	4.1	123	18-150	1c

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

LABORATORY CONTROL SAMPLE: 819333

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	mg/kg	3.3	3.1	93	84-109	
Phenol	mg/kg	3.3	3.0	90	68-111	
Pyrene	mg/kg	3.3	3.2	97	68-126	
Pyridine	mg/kg	3.3	4.8	143	10-144	1c,E
2,4,6-Tribromophenol (S)	%			97	21-133	
2-Fluorobiphenyl (S)	%			87	50-112	
2-Fluorophenol (S)	%			83	38-124	
Nitrobenzene-d5 (S)	%			72	40-117	
Phenol-d6 (S)	%			89	53-115	
Terphenyl-d14 (S)	%			92	52-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 819334 819335

Parameter	Units	30134548012		MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result						
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.072				<0.072	<0.072						
2,3,4,6-Tetrachlorophenol	mg/kg	<0.070		3.9	3.9	4.4	4.4	115	114	57-146	0		
2,4,5-Trichlorophenol	mg/kg	<0.11		3.9	3.9	3.8	3.8	99	100	67-136	1	25	
2,4,6-Trichlorophenol	mg/kg	<0.070		3.9	3.9	4.2	4.1	108	106	67-135	2	25	
2,4-Dichlorophenol	mg/kg	<0.066		3.9	3.9	2.9	2.8	74	73	37-133	1	25	
2,4-Dimethylphenol	mg/kg	<0.068		3.9	3.9	2.0	1.9	51	49	33-137	4	25	
2,4-Dinitrophenol	mg/kg	<0.35		3.9	3.9	3.4	3.4	88	89	10-160	1	25	1c
2,4-Dinitrotoluene	mg/kg	<0.080		3.9	3.9	4.1	4.1	106	105	73-119	1	25	
2,6-Dinitrotoluene	mg/kg	<0.050		3.9	3.9	3.8	3.3	98	87	23-169	12	25	
2-Chloronaphthalene	mg/kg	<0.040		3.9	3.9	3.8	3.7	98	95	63-124	3	25	
2-Chlorophenol	mg/kg	<0.049		3.9	3.9	3.6	3.6	94	95	70-110	1	25	
2-Nitroaniline	mg/kg	<0.045		3.9	3.9	4.1	4.1	106	106	75-136	1	25	
2-Nitrophenol	mg/kg	<0.043		3.9	3.9	2.9	2.9	77	76	32-134	1	25	
3&4-Methylphenol(m&p Cresol)	mg/kg	<0.077		3.9	3.9	3.3	3.2	85	84	49-142	2	25	
3,3'-Dichlorobenzidine	mg/kg	<0.042				<0.042	<0.042						25
3-Nitroaniline	mg/kg	<0.072		3.9	3.9	4.4	4.2	113	108	58-161	5	25	
4-Chloro-3-methylphenol	mg/kg	<0.061		3.9	3.9	2.9	2.8	75	74	58-115	2	25	
4-Chloroaniline	mg/kg	<0.085		3.9	3.9	3.0	3.0	79	78	12-147	1	25	
4-Nitroaniline	mg/kg	<0.10		3.9	3.9	5.9	5.6	153	146	25-195	5	25	
4-Nitrophenol	mg/kg	<0.16		3.9	3.9	4.5	4.4	117	116	56-145	2	25	1c
Acenaphthene	mg/kg	<0.045		3.9	3.9	3.7	3.7	96	95	74-109	1	25	
Acenaphthylene	mg/kg	<0.044		3.9	3.9	3.6	3.6	94	93	77-110	2	25	
Acetophenone	mg/kg	<0.047		3.9	3.9	3.0	2.9	78	76	52-88	2	25	
Aniline	mg/kg	<0.070		3.9	3.9	4.3	4.3	111	112	10-175	1	25	
Anthracene	mg/kg	<0.060		3.9	3.9	3.7	3.8	97	98	85-109	1	25	
Atrazine	mg/kg	<0.074				<0.074	<0.074						25 IC
Benzidine	mg/kg	<3.8				<3.8	<3.8						25 1c,IS
Benzo(a)anthracene	mg/kg	<0.044		3.9	3.9	3.7	3.7	96	96	82-111	0	25	
Benzo(a)pyrene	mg/kg	<0.13		3.9	3.9	3.6	3.7	94	96	85-110	3	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30134548

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 819334			819335								
Parameter	Units	30134548012	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Benzo(b)fluoranthene	mg/kg	<0.076	3.9	3.9	3.6	3.9	93	102	76-124	9	25
Benzo(g,h,i)perylene	mg/kg	<0.11	3.9	3.9	3.3	3.5	86	91	30-156	6	25
Benzo(k)fluoranthene	mg/kg	<0.14	3.9	3.9	3.8	3.7	100	96	74-125	3	25
Benzoic acid	mg/kg	<0.30	3.9	3.9	2.5	2.4	64	64	11-128	1	25 1c
Benzyl alcohol	mg/kg	<0.057	3.9	3.9	4.2	4.1	109	106	54-139	3	25
Biphenyl (Diphenyl)	mg/kg	<0.070			<0.070	<0.070					25
bis(2-Chloroethyl) ether	mg/kg	<0.18	3.9	3.9	3.8	3.8	99	98	50-125	1	25
bis(2-Chloroisopropyl) ether	mg/kg	<0.051	3.9	3.9	4.1	4.0	106	105	52-131	0	25
bis(2-Ethylhexyl)phthalate	mg/kg	<0.13	3.9	3.9	3.7	3.5	96	91	68-145	6	25
Butylbenzylphthalate	mg/kg	<0.044	3.9	3.9	3.9	3.6	101	94	64-152	7	25
Carbazole	mg/kg	<0.068	3.9	3.9	5.0	5.1	129	132	56-172	2	25
Chrysene	mg/kg	<0.083	3.9	3.9	3.8	3.8	98	98	83-114	0	25
Di-n-butylphthalate	mg/kg	<0.064	3.9	3.9	3.4	3.5	89	90	73-127	2	25
Di-n-octylphthalate	mg/kg	<0.071	3.9	3.9	3.6	3.5	93	90	66-146	3	25
Dibenz(a,h)anthracene	mg/kg	<0.13	3.9	3.9	3.4	3.5	89	92	44-146	4	25
Diethylphthalate	mg/kg	<0.042	3.9	3.9	3.7	3.7	96	95	70-128	1	25
Fluoranthene	mg/kg	<0.059	3.9	3.9	3.6	3.7	94	96	82-115	1	25
Fluorene	mg/kg	<0.054	3.9	3.9	3.8	3.7	98	96	79-112	2	25
Hexachloro-1,3-butadiene	mg/kg	<0.068	3.9	3.9	3.1	3.1	80	80	34-138	1	25
Hexachlorobenzene	mg/kg	<0.050	3.9	3.9	3.5	3.5	90	91	72-128	1	25
Hexachlorocyclopentadiene	mg/kg	<0.12	3.9	3.9	3.0	3.1	78	81	32-116	4	25
Hexachloroethane	mg/kg	<0.059	3.9	3.9	3.7	3.8	97	98	51-123	1	25
Indeno(1,2,3-cd)pyrene	mg/kg	<0.094	3.9	3.9	3.3	3.5	87	91	42-146	5	25
Isophorone	mg/kg	<0.042	3.9	3.9	3.0	3.0	79	78	40-122	0	25
N-Nitroso-di-n-propylamine	mg/kg	<0.045	3.9	3.9	3.9	4.0	103	103	66-117	1	25
N-Nitrosodimethylamine	mg/kg	<0.049	3.9	3.9	10.3	10.3	269	269	16-145	0	25 CH,E, MO
N-Nitrosodiphenylamine	mg/kg	<0.039	3.9	3.9	3.6	3.6	93	94	70-137	1	25
Nitrobenzene	mg/kg	<0.060	3.9	3.9	3.1	3.1	80	80	31-131	0	25
Pentachlorophenol	mg/kg	<0.096	3.9	3.9	5.0	5.0	129	131	18-150	1	25 1c
Phenanthrene	mg/kg	<0.071	3.9	3.9	3.6	3.6	94	95	84-109	1	25
Phenol	mg/kg	<0.093	3.9	3.9	3.5	3.5	90	91	68-111	0	25
Pyrene	mg/kg	<0.059	3.9	3.9	3.9	3.6	101	93	68-126	8	25
Pyridine	mg/kg	<0.32	3.9	3.9	4.6	5.0	119	131	10-144	10	25 1c,E
2,4,6-Tribromophenol (S)	%						96	97	21-133		
2-Fluorobiphenyl (S)	%						89	86	50-112		
2-Fluorophenol (S)	%						81	80	38-124		
Nitrobenzene-d5 (S)	%						73	72	40-117		
Phenol-d6 (S)	%						88	89	53-115		
Terphenyl-d14 (S)	%						97	90	52-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30134548

QC Batch: WET/26110 Analysis Method: EPA 7196A
QC Batch Method: EPA 7196A Analysis Description: 7196 Chromium, Hexavalent
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

METHOD BLANK: 820002 Matrix: Solid
Associated Lab Samples: 30134548001, 30134548002, 30134548003, 30134548004, 30134548005, 30134548006, 30134548007, 30134548008, 30134548009, 30134548010, 30134548011, 30134548012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	<0.36	0.99	11/21/14 12:00	

LABORATORY CONTROL SAMPLE: 820003

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	19.9	20.6	104	80-120	

MATRIX SPIKE SAMPLE: 820006

Parameter	Units	30134548005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	<0.41	22.5	10.4	45	75-125	M1

SAMPLE DUPLICATE: 820007

Parameter	Units	30134548005 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/kg	<0.41	<0.41		20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Speedway #100623
Pace Project No.: 30134548

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-N Pace Analytical Services - New Orleans

PASI-PA Pace Analytical Services - Greensburg

SAMPLE QUALIFIERS

Sample: 30134548007

[1] 8270: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

BATCH QUALIFIERS

Batch: GCSV/2854

[1] The sample chosen for QC for batch 2854 was later canceled; acceptable method performance was demonstrated by the LCS recoveries.

Batch: MSV/21662

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/7506

[1] The following samples were diluted due to the presence of high levels of non-target analytes or other matrix interference, resulting in elevated reporting limits for all analytes: 30134458007.

ANALYTE QUALIFIERS

1c The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Results unaffected by high bias.

2c The following samples were diluted due to the presence of high levels of non-target analytes or other matrix interference, resulting in elevated reporting limits for all analytes: 30134458007.

B Analyte was detected in the associated method blank.

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QUALIFIERS

Project: Speedway #100623

Pace Project No.: 30134548

ANALYTE QUALIFIERS

C3	Relative percent difference between results from each column was greater than 40%. The higher of the two results was reported.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
CU	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
IC	The initial calibration for this compound was outside of method control limits. The result is estimated.
IS	The internal standard response is below criteria. Results may be biased high.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M5	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
N2	The lab does not hold TNI accreditation for this parameter.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S1	Surrogate recovery outside laboratory control limits (confirmed by re-analysis).
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
SS	This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30134548001	SB-01 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548002	SB-01 (4-6')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548003	SB-02 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548004	SB-02 (6-7')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548005	SB-03 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548006	SB-03 (6-8')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548007	SB-04 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548008	SB-04 (8-10')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548009	SB-05 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548010	SB-05 (8-9.5')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548011	SB-06 (0-2')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548012	SB-06 (8-10')	EPA 3546	OEXT/21753	EPA 8081B	GCSV/7506
30134548001	SB-01 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548002	SB-01 (4-6')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548003	SB-02 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548004	SB-02 (6-7')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548005	SB-03 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548006	SB-03 (6-8')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548007	SB-04 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548008	SB-04 (8-10')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548009	SB-05 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548010	SB-05 (8-9.5')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548011	SB-06 (0-2')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548012	SB-06 (8-10')	EPA 3546	OEXT/21732	EPA 8082A	GCSV/7510
30134548001	SB-01 (0-2')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548002	SB-01 (4-6')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548003	SB-02 (0-2')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548004	SB-02 (6-7')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548005	SB-03 (0-2')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548006	SB-03 (6-8')	EPA 3546	OEXT/3458	EPA 8151	GCSV/2854
30134548007	SB-04 (0-2')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548008	SB-04 (8-10')	EPA 3546	OEXT/3458	EPA 8151	GCSV/2854
30134548009	SB-05 (0-2')	EPA 3546	OEXT/3458	EPA 8151	GCSV/2854
30134548010	SB-05 (8-9.5')	EPA 3546	OEXT/3458	EPA 8151	GCSV/2854
30134548011	SB-06 (0-2')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548012	SB-06 (8-10')	EPA 3546	OEXT/3458	EPA 8151	GCSV/2854
30134548012	SB-06 (8-10')	EPA 3546	OEXT/3486	EPA 8151	GCSV/2874
30134548001	SB-01 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548002	SB-01 (4-6')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548003	SB-02 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548004	SB-02 (6-7')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548005	SB-03 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548006	SB-03 (6-8')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548007	SB-04 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Speedway #100623
Pace Project No.: 30134548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30134548008	SB-04 (8-10')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548009	SB-05 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548010	SB-05 (8-9.5')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548011	SB-06 (0-2')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548012	SB-06 (8-10')	EPA 3050B	MPRP/14366	EPA 6010C	ICP/13613
30134548001	SB-01 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548002	SB-01 (4-6')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548003	SB-02 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548004	SB-02 (6-7')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548005	SB-03 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548006	SB-03 (6-8')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548007	SB-04 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548008	SB-04 (8-10')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548009	SB-05 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548010	SB-05 (8-9.5')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548011	SB-06 (0-2')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548012	SB-06 (8-10')	EPA 7471A	MERP/6044	EPA 7471B	MERC/5779
30134548001	SB-01 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548002	SB-01 (4-6')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548003	SB-02 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548004	SB-02 (6-7')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548005	SB-03 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548006	SB-03 (6-8')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548007	SB-04 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548008	SB-04 (8-10')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548009	SB-05 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548010	SB-05 (8-9.5')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548011	SB-06 (0-2')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548012	SB-06 (8-10')	EPA 3546	OEXT/21746	EPA 8270D by SIM	MSSV/7037
30134548001	SB-01 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548002	SB-01 (4-6')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548003	SB-02 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548004	SB-02 (6-7')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548005	SB-03 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548006	SB-03 (6-8')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548007	SB-04 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548008	SB-04 (8-10')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548009	SB-05 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548010	SB-05 (8-9.5')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548011	SB-06 (0-2')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548012	SB-06 (8-10')	EPA 3546	OEXT/21713	EPA 8270D	MSSV/7038
30134548001	SB-01 (0-2')	EPA 8260C	MSV/21662		
30134548002	SB-01 (4-6')	EPA 8260C	MSV/21662		
30134548003	SB-02 (0-2')	EPA 8260C	MSV/21662		
30134548004	SB-02 (6-7')	EPA 8260C	MSV/21662		
30134548005	SB-03 (0-2')	EPA 8260C	MSV/21662		
30134548006	SB-03 (6-8')	EPA 8260C	MSV/21662		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Speedway #100623
Pace Project No.: 30134548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30134548007	SB-04 (0-2')	EPA 8260C	MSV/21662		
30134548008	SB-04 (8-10')	EPA 8260C	MSV/21662		
30134548009	SB-05 (0-2')	EPA 8260C	MSV/21662		
30134548010	SB-05 (8-9.5')	EPA 8260C	MSV/21662		
30134548011	SB-06 (0-2')	EPA 8260C	MSV/21662		
30134548012	SB-06 (8-10')	EPA 8260C	MSV/21662		
30134548001	SB-01 (0-2')	ASTM D2974-87	PMST/4986		
30134548002	SB-01 (4-6')	ASTM D2974-87	PMST/4986		
30134548003	SB-02 (0-2')	ASTM D2974-87	PMST/4986		
30134548004	SB-02 (6-7')	ASTM D2974-87	PMST/4986		
30134548005	SB-03 (0-2')	ASTM D2974-87	PMST/4986		
30134548006	SB-03 (6-8')	ASTM D2974-87	PMST/4986		
30134548007	SB-04 (0-2')	ASTM D2974-87	PMST/4986		
30134548008	SB-04 (8-10')	ASTM D2974-87	PMST/4986		
30134548009	SB-05 (0-2')	ASTM D2974-87	PMST/4986		
30134548010	SB-05 (8-9.5')	ASTM D2974-87	PMST/4986		
30134548011	SB-06 (0-2')	ASTM D2974-87	PMST/4986		
30134548012	SB-06 (8-10')	ASTM D2974-87	PMST/4986		
30134548001	SB-01 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548002	SB-01 (4-6')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548003	SB-02 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548004	SB-02 (6-7')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548005	SB-03 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548006	SB-03 (6-8')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548007	SB-04 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548008	SB-04 (8-10')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548009	SB-05 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548010	SB-05 (8-9.5')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548011	SB-06 (0-2')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548012	SB-06 (8-10')	EPA 7196A	WET/26110	EPA 7196A	WET/26111
30134548001	SB-01 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548002	SB-01 (4-6')	Trivalent Chromium Calculation	WET/26141		
30134548003	SB-02 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548004	SB-02 (6-7')	Trivalent Chromium Calculation	WET/26141		
30134548005	SB-03 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548006	SB-03 (6-8')	Trivalent Chromium Calculation	WET/26141		
30134548007	SB-04 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548008	SB-04 (8-10')	Trivalent Chromium Calculation	WET/26141		
30134548009	SB-05 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548010	SB-05 (8-9.5')	Trivalent Chromium Calculation	WET/26141		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Speedway #100623

Pace Project No.: 30134548

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30134548011	SB-06 (0-2')	Trivalent Chromium Calculation	WET/26141		
30134548012	SB-06 (8-10')	Trivalent Chromium Calculation	WET/26141		

REPORT OF LABORATORY ANALYSIS

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Chain-of-Custody-Record

Speedway Project Information

Speedway STORE #: 100623 FACILITY ID
 ADDRESS: 107 Operators Way
 CITY: Salem Township STATE: PA
 Speedway PROJ. MGR: Mr Eric Matthew Swaisgood ***INVOICE
 TO***
 PHONE #: O:937-863-6513 FAX #: Fax:
 AFE #: WORK ORDER #:
 CODE: 20 - Site Investigation-Operational/Non-
 TYPE: Operational Facility
L - Analytical



TURN AROUND TIME
STANDARD

COC ID # 00037800

LAB: Pace Analytical Services (PA)
 CONSULTANT: Cardno ATC - Pittsburgh, PA
 PROJECT MGR: Chad Harrison
 ADDRESS: 103 North Meadows Drive, Suite 211,
Wexford, PA 15090
 PHONE #: FAX #:
 SAMPLER: Tom St John
 SHIPPED VIA: Pickup
 TRACKING #:

Sample ID	Date/Time Sampled	Matrix	# of Cont.	Container Type	Preservative	Analysis to be Performed	Remarks
SB-01 (4-6')	11/13/2014 09:25am	S	6	4 OZ	NONE	Herbicides	002
SB-02 (0-2')	11/13/2014 09:35am	S	6	4 OZ	COOL	SVOC 8270C	Clean Fill Analytical Parameters 002
				4 OZ	NONE	TCL Pesticide	
				8 OZ JAR	COOL	Priority Pollutant Metals	
				VOA	NAHSO4	VOCs 8260/5035	
				4 OZ	NONE	Herbicides	
				4 OZ	NONE	TCL Pesticide	
SB-03 (0-2')	11/13/2014 09:55am	S	6	4 OZ	COOL	SVOC 8270C	Clean Fill Analytical Parameters 002
				4 OZ	NONE	Priority Pollutant Metals	
Relinquished by:	Date					Received by:	Date
Relinquished by:	Date					Received by laboratory:	Date
Special Reporting Requirements: Standard 6-day/Day TOT						Lab Notes:	Temp

Chain-of-Custody-Record

COC ID # 00037800

Speedway Project Information

Speedway STORE #: 100623 FACILITY ID
 ADDRESS: 107 Operators Way
 CITY: Salem Township STATE: PA
 Speedway PROJ. MGR: Mr Eric Matthew Swaisgood ***INVOICE
 TO***
 PHONE #: 0:937-863-6513 FAX #: Fax:
 AFE #: WORK ORDER #:
 CODE: 20 - Site Investigation-Operational/Non-
 TYPE: Operational Facility
L - Analytical

LAB: Pace Analytical Services (PA)
 CONSULTANT: Cardno ATC - Pittsburgh, PA
 PROJECT MGR: Chad Harrison
 ADDRESS: 103 North Meadows Drive, Suite 211,
Wexford, PA 15090
 PHONE #: FAX #:
 SAMPLER: Tom St John
 SHIPPED VIA: Pickup
 TRACKING #:



TURN AROUND TIME
STANDARD

Sample ID	Date/Time Sampled	Matrix	# of Cont.	Container Type	Preservative	Analysis to be Performed	Remarks		
SB-04 (8-10')	11/13/2014 11:30am	S	6	4 OZ	NONE	Herbicides	008		
SB-03 (6-8')	11/13/2014 11:55am	S	6	4 OZ	COOL	SVOC 8270C	Clean Fill Analytical Parameters 000		
				4 OZ	NONE	Priority Pollutant Metals			
				8 OZ JAR	COOL	PCBs 8082			
				VOA	NAHSO4	VOCs 8260/5035			
				4 OZ	NONE	Herbicides			
				4 OZ	NONE	TCL Pesticide			
SB-02 (6-7')	11/13/2014 12:40pm	S	6	4 OZ	COOL	SVOC 8270C	Clean Fill Analytical Parameters 004		
				4 OZ	NONE	Priority Pollutant Metals			
Relinquished by:	Date	Time	Received by:					Date	Time
Relinquished by:	Date	Time	Received by Laboratory:					Date	Time
Special Reporting Requirements: Standard 6-day/Day TOT								Temp	

Page 6 of 8

Chain-of-Custody-Record

COC ID # 00037800

Speedway Project Information

Speedway STORE #: 100623 FACILITY ID
 ADDRESS: 107 Operators Way
 CITY: Salem Township STATE: PA
 Speedway PROJ. MGR.: Mr Eric Matthew Swaisgood ***INVOICE
 TO***
 PHONE #: 0:937-863-6513 FAX #: WORK ORDER #:
 AFE #: 20 - Site Investigation-Operational/Non-
 CODE: Operational Facility
 TYPE: L - Analytical

LAB: Pace Analytical Services (PA)
 CONSULTANT: Cardno ATC - Pittsburgh, PA
 PROJECT MGR: Chad Harrison
 ADDRESS: 103 North Meadows Drive, Suite 211,
Wexford, PA 15090
 PHONE #: FAX #:
 SAMPLER: Tom St John
 SHIPPED VIA: Pickup
 TRACKING #:



TURN AROUND TIME
STANDARD

Sample ID	Date/Time Sampled	Matrix	# of Cont.	Container Type	Preservative	Analysis to be Performed	Remarks
SB-02 (6-7')	11/13/2014 12:40pm	S	6	8 OZ JAR	COOL	PCBs 8082	004
				VOA	NAHSO4	VOCs 8260/5035	
				4 OZ	NONE	Herbicides	
				4 OZ	NONE	TCL Pesticide	
SB-05 (8-9.5')	11/13/2014 12:55pm	S	6	4 OZ	COOL	SVOC 8270C	Clean Fill Analytical Parameters 010
				4 OZ	NONE	Priority Pollutant Metals	
				8 OZ JAR	COOL	PCBs 8082	
				VOA	NAHSO4	VOCs 8260/5035	
				4 OZ	NONE	Herbicides	
				4 OZ	NONE	TCL Pesticide	
Relinquished by:	Date	Time	Received by:		Date	Time	
Relinquished by:	Date	Time	Received by laboratory:		Date	Time	
Special Reporting Requirements: Standard 6-day/Day TOT Lab Notes:							

001



Sample Condition Upon Receipt

Client Name: Cardno

Project # 30134548

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap Bubble Bags None _____ Other _____

Thermometer Used # _____ Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 1.8 °C Correction Factor: 0 °C Final Temp: 1.8 °C

Date and Initials of person examining contents: SRA 11-14-14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>SI</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>SRA</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature]

Date: 11/17/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



30134548

Project Number:

Client Name: Cardno

Item No.	Matrix Code	Glass Jar (120/250/500/1L)	Soil Kit (2 SB) (Msoil jar)	Chemistry (250/500/1L)	Organics (1L)	Nutrient (250/500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubtainer (500 ml / 4L)	Ziploc	Other	Other
0210	K	N	5																					
1100	K	N	5																					

January 08, 2015

Mr. Tom St. John
Cardno ATC
103 North Meadows Drive
Suite 211
Wexford, PA 15090

RE: Project: Speedway #100623
Pace Project No.: 30137135

Dear Mr. St. John:

Enclosed are the analytical results for sample(s) received by the laboratory on December 18, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was reissued on January 8, 2014 to include Acrolein on Samples 30137135002 and 30137135003.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Mr. Chad Harrison, Cardno ATC
Mr. Luke Slezak, Cardno ATC



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Speedway #100623

Pace Project No.: 30137135

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC):

T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-
00119

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification

Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Speedway #100623
Pace Project No.: 30137135

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30137135001	TW-03 (10-12')	Solid	12/18/14 11:45	12/18/14 15:40
30137135002	TW-01	Water	12/18/14 12:20	12/18/14 15:40
30137135003	TW-02	Water	12/18/14 14:40	12/18/14 15:40
30137135004	TW-03	Water	12/18/14 13:50	12/18/14 15:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Speedway #100623

Pace Project No.: 30137135

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30137135001	TW-03 (10-12')	EPA 8081B	CWB	19	PASI-PA
		EPA 8082A	SJG	10	PASI-PA
		EPA 8151	SNP1	4	PASI-N
		EPA 6010C	CTS	18	PASI-PA
		EPA 7471B	CTS	1	PASI-PA
		EPA 8270D by SIM	DJL	3	PASI-PA
		EPA 8270D	DJL	68	PASI-PA
		EPA 8260C	JEW	76	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
		EPA 7196A	MM1	1	PASI-PA
	Trivalent Chromium Calculation	BMS	1	PASI-PA	
30137135002	TW-01	EPA 8011	CWB	3	PASI-PA
		EPA 6010C	CTS	1	PASI-PA
		EPA 8270D by SIM	JSH	18	PASI-PA
30137135003	TW-02	EPA 8260C	JAS	67	PASI-PA
		EPA 8011	CWB	3	PASI-PA
		EPA 6010C	CTS	1	PASI-PA
30137135004	TW-03	EPA 8270D by SIM	JSH	18	PASI-PA
		EPA 8260C	JAS	67	PASI-PA
		EPA 8011	CWB	3	PASI-PA
		EPA 6010C	CTS	1	PASI-PA
	EPA 8270D by SIM	JSH	18	PASI-PA	
	EPA 8260C	JAS	67	PASI-PA	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30137135

Sample: TW-03 (10-12') Lab ID: 30137135001 Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081B GCS Pesticides									
Analytical Method: EPA 8081B Preparation Method: EPA 3546									
Aldrin	<0.000087	mg/kg	0.0019	0.000087	1	12/23/14 16:00	12/30/14 05:14	309-00-2	
beta-BHC	<0.00022	mg/kg	0.0019	0.00022	1	12/23/14 16:00	12/30/14 05:14	319-85-7	
delta-BHC	<0.00011	mg/kg	0.0019	0.00011	1	12/23/14 16:00	12/30/14 05:14	319-86-8	
gamma-BHC (Lindane)	<0.00013	mg/kg	0.0019	0.00013	1	12/23/14 16:00	12/30/14 05:14	58-89-9	
Chlordane (Technical)	<0.011	mg/kg	0.019	0.011	1	12/23/14 16:00	12/30/14 05:14	57-74-9	
4,4'-DDD	<0.00017	mg/kg	0.0038	0.00017	1	12/23/14 16:00	12/30/14 05:14	72-54-8	
4,4'-DDE	<0.00017	mg/kg	0.0038	0.00017	1	12/23/14 16:00	12/30/14 05:14	72-55-9	
4,4'-DDT	<0.00019	mg/kg	0.0038	0.00019	1	12/23/14 16:00	12/30/14 05:14	50-29-3	
Dieldrin	<0.00021	mg/kg	0.0038	0.00021	1	12/23/14 16:00	12/30/14 05:14	60-57-1	
Endosulfan I	<0.00011	mg/kg	0.0019	0.00011	1	12/23/14 16:00	12/30/14 05:14	959-98-8	
Endosulfan II	<0.00017	mg/kg	0.0038	0.00017	1	12/23/14 16:00	12/30/14 05:14	33213-65-9	
Endosulfan sulfate	<0.00015	mg/kg	0.0038	0.00015	1	12/23/14 16:00	12/30/14 05:14	1031-07-8	
Endrin	<0.00020	mg/kg	0.0038	0.00020	1	12/23/14 16:00	12/30/14 05:14	72-20-8	
Heptachlor	<0.00022	mg/kg	0.0019	0.00022	1	12/23/14 16:00	12/30/14 05:14	76-44-8	
Heptachlor epoxide	0.00029J	mg/kg	0.0019	0.00092	1	12/23/14 16:00	12/30/14 05:14	1024-57-3	
Methoxychlor	<0.0011	mg/kg	0.019	0.0011	1	12/23/14 16:00	12/30/14 05:14	72-43-5	
Toxaphene	<0.0040	mg/kg	0.019	0.0040	1	12/23/14 16:00	12/30/14 05:14	8001-35-2	
Surrogates									
Tetrachloro-m-xylene (S)	74 %		37-113		1	12/23/14 16:00	12/30/14 05:14	877-09-8	
Decachlorobiphenyl (S)	81 %		39-122		1	12/23/14 16:00	12/30/14 05:14	2051-24-3	
8082A GCS PCB									
Analytical Method: EPA 8082A Preparation Method: EPA 3546									
PCB-1016 (Aroclor 1016)	<2.8	ug/kg	19.1	2.8	1	12/22/14 09:30	12/30/14 19:49	12674-11-2	1c
PCB-1221 (Aroclor 1221)	<8.7	ug/kg	19.1	8.7	1	12/22/14 09:30	12/30/14 19:49	11104-28-2	1c
PCB-1232 (Aroclor 1232)	<5.8	ug/kg	19.1	5.8	1	12/22/14 09:30	12/30/14 19:49	11141-16-5	1c
PCB-1242 (Aroclor 1242)	<3.7	ug/kg	19.1	3.7	1	12/22/14 09:30	12/30/14 19:49	53469-21-9	1c
PCB-1248 (Aroclor 1248)	<4.0	ug/kg	19.1	4.0	1	12/22/14 09:30	12/30/14 19:49	12672-29-6	1c
PCB-1254 (Aroclor 1254)	<8.8	ug/kg	19.1	8.8	1	12/22/14 09:30	12/30/14 19:49	11097-69-1	1c
PCB-1260 (Aroclor 1260)	<2.9	ug/kg	19.1	2.9	1	12/22/14 09:30	12/30/14 19:49	11096-82-5	1c, R1
PCB, Total	<19.1	ug/kg	19.1	19.1	1	12/22/14 09:30	12/30/14 19:49	1336-36-3	1c
Surrogates									
Tetrachloro-m-xylene (S)	85 %		30-107		1	12/22/14 09:30	12/30/14 19:49	877-09-8	1c
Decachlorobiphenyl (S)	82 %		10-115		1	12/22/14 09:30	12/30/14 19:49	2051-24-3	1c
8151 Chlorinated Herbicides MW									
Analytical Method: EPA 8151 Preparation Method: EPA 3546									
2,4-D	<0.034	mg/kg	0.064	0.034	1	12/22/14 15:49	12/23/14 17:13	94-75-7	R1
2,4,5-T	<0.032	mg/kg	0.064	0.032	1	12/22/14 15:49	12/23/14 17:13	93-76-5	
2,4,5-TP (Silvex)	<0.032	mg/kg	0.064	0.032	1	12/22/14 15:49	12/23/14 17:13	93-72-1	
Surrogates									
2,4-DCAA (S)	35 %		10-161		1	12/22/14 15:49	12/23/14 17:13	19719-28-9	
2,4-DCAA (S)	34 %		10-161		1	12/22/14 15:49	12/23/14 17:13	19719-28-9	
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Antimony	<0.34	mg/kg	0.55	0.34	1	12/24/14 13:41	12/30/14 12:43	7440-36-0	M1
Arsenic	28.9	mg/kg	0.45	0.32	1	12/24/14 13:41	12/30/14 12:43	7440-38-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30137135

Sample: TW-03 (10-12') Lab ID: 30137135001 Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP									
Analytical Method: EPA 6010C Preparation Method: EPA 3050B									
Barium	81.9	mg/kg	1.8	0.050	1	12/24/14 13:41	12/30/14 12:43	7440-39-3	
Beryllium	1.3	mg/kg	0.18	0.021	1	12/24/14 13:41	12/30/14 12:43	7440-41-7	
Boron	4.4J	mg/kg	4.5	0.12	1	12/24/14 13:41	12/30/14 12:43	7440-42-8	M1
Cadmium	0.24J	mg/kg	0.27	0.036	1	12/24/14 13:41	12/30/14 12:43	7440-43-9	B
Chromium	13.8	mg/kg	0.45	0.062	1	12/24/14 13:41	12/30/14 12:43	7440-47-3	
Cobalt	21.6	mg/kg	0.91	0.043	1	12/24/14 13:41	12/30/14 12:43	7440-48-4	
Copper	50.0	mg/kg	0.91	0.17	1	12/24/14 13:41	12/30/14 13:43	7440-50-8	D6,M1
Lead	19.7	mg/kg	0.45	0.24	1	12/24/14 13:41	12/30/14 12:43	7439-92-1	
Manganese	938	mg/kg	0.91	0.031	1	12/24/14 13:41	12/30/14 12:43	7439-96-5	M1
Nickel	38.5	mg/kg	1.8	0.12	1	12/24/14 13:41	12/30/14 12:43	7440-02-0	
Selenium	<0.52	mg/kg	0.73	0.52	1	12/24/14 13:41	12/30/14 12:43	7782-49-2	
Silver	0.23J	mg/kg	0.55	0.048	1	12/24/14 13:41	12/30/14 12:43	7440-22-4	
Thallium	<0.30	mg/kg	1.8	0.30	1	12/24/14 13:41	12/30/14 12:43	7440-28-0	
Tin	3.3J	mg/kg	9.1	3.1	1	12/24/14 13:41	12/30/14 12:43	7440-31-5	B
Vanadium	20.7	mg/kg	0.91	0.052	1	12/24/14 13:41	12/30/14 12:43	7440-62-2	
Zinc	61.7	mg/kg	0.91	0.41	1	12/24/14 13:41	12/30/14 12:43	7440-66-6	
7471B Mercury									
Analytical Method: EPA 7471B Preparation Method: EPA 7471A									
Mercury	0.039J	mg/kg	0.11	0.0025	1	12/24/14 13:44	12/31/14 10:48	7439-97-6	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3546									
Quinoline	<0.0019	mg/kg	0.0076	0.0019	1	12/23/14 17:00	12/29/14 14:37	91-22-5	L2,M0
Surrogates									
2-Fluorobiphenyl (S)	99 %		35-141		1	12/23/14 17:00	12/29/14 14:37	321-60-8	
Terphenyl-d14 (S)	102 %		64-141		1	12/23/14 17:00	12/29/14 14:37	1718-51-0	
8270D MSSV Microwave									
Analytical Method: EPA 8270D Preparation Method: EPA 3546									
Acenaphthene	<0.044	mg/kg	0.37	0.044	1	12/22/14 15:00	12/23/14 20:32	83-32-9	
Acenaphthylene	<0.043	mg/kg	0.37	0.043	1	12/22/14 15:00	12/23/14 20:32	208-96-8	
Acetophenone	<0.046	mg/kg	0.37	0.046	1	12/22/14 15:00	12/23/14 20:32	98-86-2	
Aniline	<0.068	mg/kg	0.37	0.068	1	12/22/14 15:00	12/23/14 20:32	62-53-3	
Anthracene	<0.058	mg/kg	0.37	0.058	1	12/22/14 15:00	12/23/14 20:32	120-12-7	
Atrazine	<0.072	mg/kg	0.37	0.072	1	12/22/14 15:00	12/23/14 20:32	1912-24-9	
Benzidine	<3.7	mg/kg	3.7	3.7	1	12/22/14 15:00	12/23/14 20:32	92-87-5	CL
Benzo(a)anthracene	<0.043	mg/kg	0.37	0.043	1	12/22/14 15:00	12/23/14 20:32	56-55-3	
Benzo(a)pyrene	<0.13	mg/kg	0.37	0.13	1	12/22/14 15:00	12/23/14 20:32	50-32-8	IS
Benzo(b)fluoranthene	<0.074	mg/kg	0.37	0.074	1	12/22/14 15:00	12/23/14 20:32	205-99-2	IS,M1
Benzo(g,h,i)perylene	<0.11	mg/kg	0.37	0.11	1	12/22/14 15:00	12/23/14 20:32	191-24-2	CU,IS
Benzo(k)fluoranthene	<0.13	mg/kg	0.37	0.13	1	12/22/14 15:00	12/23/14 20:32	207-08-9	IS
Benzoic acid	<0.29	mg/kg	0.93	0.29	1	12/22/14 15:00	12/23/14 20:32	65-85-0	
Benzyl alcohol	<0.055	mg/kg	0.37	0.055	1	12/22/14 15:00	12/23/14 20:32	100-51-6	
Biphenyl (Diphenyl)	<0.068	mg/kg	0.37	0.068	1	12/22/14 15:00	12/23/14 20:32	92-52-4	
Butylbenzylphthalate	<0.043	mg/kg	0.37	0.043	1	12/22/14 15:00	12/23/14 20:32	85-68-7	
Carbazole	<0.066	mg/kg	0.37	0.066	1	12/22/14 15:00	12/23/14 20:32	86-74-8	
4-Chloro-3-methylphenol	<0.059	mg/kg	0.37	0.059	1	12/22/14 15:00	12/23/14 20:32	59-50-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 (10-12') Lab ID: 30137135001 Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
4-Chloroaniline	<0.083	mg/kg	0.37	0.083	1	12/22/14 15:00	12/23/14 20:32	106-47-8	CL
bis(2-Chloroethyl) ether	<0.18	mg/kg	0.37	0.18	1	12/22/14 15:00	12/23/14 20:32	111-44-4	
bis(2-Chloroisopropyl) ether	<0.050	mg/kg	0.37	0.050	1	12/22/14 15:00	12/23/14 20:32	108-60-1	
2-Chloronaphthalene	<0.039	mg/kg	0.37	0.039	1	12/22/14 15:00	12/23/14 20:32	91-58-7	
2-Chlorophenol	<0.048	mg/kg	0.37	0.048	1	12/22/14 15:00	12/23/14 20:32	95-57-8	
Chrysene	<0.080	mg/kg	0.37	0.080	1	12/22/14 15:00	12/23/14 20:32	218-01-9	
Dibenz(a,h)anthracene	<0.13	mg/kg	0.37	0.13	1	12/22/14 15:00	12/23/14 20:32	53-70-3	CU,IS, M1
3,3'-Dichlorobenzidine	<0.041	mg/kg	0.37	0.041	1	12/22/14 15:00	12/23/14 20:32	91-94-1	
2,4-Dichlorophenol	<0.064	mg/kg	0.37	0.064	1	12/22/14 15:00	12/23/14 20:32	120-83-2	
Diethylphthalate	<0.041	mg/kg	0.37	0.041	1	12/22/14 15:00	12/23/14 20:32	84-66-2	
2,4-Dimethylphenol	<0.066	mg/kg	0.37	0.066	1	12/22/14 15:00	12/23/14 20:32	105-67-9	
Di-n-butylphthalate	<0.062	mg/kg	0.37	0.062	1	12/22/14 15:00	12/23/14 20:32	84-74-2	
2,4-Dinitrophenol	<0.34	mg/kg	0.93	0.34	1	12/22/14 15:00	12/23/14 20:32	51-28-5	CU
2,4-Dinitrotoluene	<0.078	mg/kg	0.37	0.078	1	12/22/14 15:00	12/23/14 20:32	121-14-2	L2
2,6-Dinitrotoluene	<0.049	mg/kg	0.37	0.049	1	12/22/14 15:00	12/23/14 20:32	606-20-2	
Di-n-octylphthalate	<0.069	mg/kg	0.37	0.069	1	12/22/14 15:00	12/23/14 20:32	117-84-0	M1
bis(2-Ethylhexyl)phthalate	<0.13	mg/kg	0.37	0.13	1	12/22/14 15:00	12/23/14 20:32	117-81-7	
Fluoranthene	<0.057	mg/kg	0.37	0.057	1	12/22/14 15:00	12/23/14 20:32	206-44-0	
Fluorene	<0.053	mg/kg	0.37	0.053	1	12/22/14 15:00	12/23/14 20:32	86-73-7	
Hexachloro-1,3-butadiene	<0.066	mg/kg	0.37	0.066	1	12/22/14 15:00	12/23/14 20:32	87-68-3	
Hexachlorobenzene	<0.048	mg/kg	0.37	0.048	1	12/22/14 15:00	12/23/14 20:32	118-74-1	
Hexachlorocyclopentadiene	<0.12	mg/kg	0.37	0.12	1	12/22/14 15:00	12/23/14 20:32	77-47-4	
Hexachloroethane	<0.057	mg/kg	0.37	0.057	1	12/22/14 15:00	12/23/14 20:32	67-72-1	
Indeno(1,2,3-cd)pyrene	<0.091	mg/kg	0.37	0.091	1	12/22/14 15:00	12/23/14 20:32	193-39-5	CH,CU, IS
Isophorone	<0.041	mg/kg	0.37	0.041	1	12/22/14 15:00	12/23/14 20:32	78-59-1	
3&4-Methylphenol(m&p Cresol)	<0.075	mg/kg	0.75	0.075	1	12/22/14 15:00	12/23/14 20:32		
2-Nitroaniline	<0.044	mg/kg	0.93	0.044	1	12/22/14 15:00	12/23/14 20:32	88-74-4	
3-Nitroaniline	<0.070	mg/kg	0.93	0.070	1	12/22/14 15:00	12/23/14 20:32	99-09-2	CL
4-Nitroaniline	<0.10	mg/kg	0.93	0.10	1	12/22/14 15:00	12/23/14 20:32	100-01-6	CL
Nitrobenzene	<0.059	mg/kg	0.37	0.059	1	12/22/14 15:00	12/23/14 20:32	98-95-3	
2-Nitrophenol	<0.042	mg/kg	0.37	0.042	1	12/22/14 15:00	12/23/14 20:32	88-75-5	
4-Nitrophenol	<0.15	mg/kg	0.37	0.15	1	12/22/14 15:00	12/23/14 20:32	100-02-7	
N-Nitrosodimethylamine	<0.048	mg/kg	0.37	0.048	1	12/22/14 15:00	12/23/14 20:32	62-75-9	
N-Nitroso-di-n-propylamine	<0.044	mg/kg	0.37	0.044	1	12/22/14 15:00	12/23/14 20:32	621-64-7	
N-Nitrosodiphenylamine	<0.038	mg/kg	0.37	0.038	1	12/22/14 15:00	12/23/14 20:32	86-30-6	
Pentachlorophenol	<0.093	mg/kg	0.93	0.093	1	12/22/14 15:00	12/23/14 20:32	87-86-5	
Phenanthrene	<0.069	mg/kg	0.37	0.069	1	12/22/14 15:00	12/23/14 20:32	85-01-8	
Phenol	<0.091	mg/kg	0.37	0.091	1	12/22/14 15:00	12/23/14 20:32	108-95-2	
Pyrene	<0.057	mg/kg	0.37	0.057	1	12/22/14 15:00	12/23/14 20:32	129-00-0	
Pyridine	<0.31	mg/kg	0.93	0.31	1	12/22/14 15:00	12/23/14 20:32	110-86-1	
1,2,4,5-Tetrachlorobenzene	<0.070	mg/kg	0.37	0.070	1	12/22/14 15:00	12/23/14 20:32	95-94-3	
2,3,4,6-Tetrachlorophenol	<0.068	mg/kg	0.37	0.068	1	12/22/14 15:00	12/23/14 20:32	58-90-2	
2,4,5-Trichlorophenol	<0.11	mg/kg	0.93	0.11	1	12/22/14 15:00	12/23/14 20:32	95-95-4	CU
2,4,6-Trichlorophenol	<0.068	mg/kg	0.37	0.068	1	12/22/14 15:00	12/23/14 20:32	88-06-2	

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 (10-12') Lab ID: 30137135001 Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV Microwave		Analytical Method: EPA 8270D Preparation Method: EPA 3546							
Surrogates									
Nitrobenzene-d5 (S)	73 %		40-117		1	12/22/14 15:00	12/23/14 20:32	4165-60-0	
2-Fluorobiphenyl (S)	78 %		50-112		1	12/22/14 15:00	12/23/14 20:32	321-60-8	
Terphenyl-d14 (S)	101 %		52-130		1	12/22/14 15:00	12/23/14 20:32	1718-51-0	
Phenol-d6 (S)	69 %		53-115		1	12/22/14 15:00	12/23/14 20:32	13127-88-3	
2-Fluorophenol (S)	65 %		38-124		1	12/22/14 15:00	12/23/14 20:32	367-12-4	
2,4,6-Tribromophenol (S)	72 %		21-133		1	12/22/14 15:00	12/23/14 20:32	118-79-6	
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
Acetone	0.012	mg/kg	0.0096	0.0019	1		12/30/14 13:54	67-64-1	M5
Acetonitrile	<0.0086	mg/kg	0.048	0.0086	1		12/30/14 13:54	75-05-8	M5
Acrolein	<0.0052	mg/kg	0.048	0.0052	1		12/30/14 13:54	107-02-8	M5
Acrylonitrile	<0.0031	mg/kg	0.0048	0.0031	1		12/30/14 13:54	107-13-1	M5
Allyl chloride	<0.0037	mg/kg	0.048	0.0037	1		12/30/14 13:54	107-05-1	M5
Benzene	0.0039J	mg/kg	0.0048	0.00075	1		12/30/14 13:54	71-43-2	M5
Bromochloromethane	<0.00074	mg/kg	0.0048	0.00074	1		12/30/14 13:54	74-97-5	M5
Bromodichloromethane	<0.0017	mg/kg	0.0048	0.0017	1		12/30/14 13:54	75-27-4	M5
Bromoform	<0.0024	mg/kg	0.0048	0.0024	1		12/30/14 13:54	75-25-2	M5
Bromomethane	<0.0028	mg/kg	0.0048	0.0028	1		12/30/14 13:54	74-83-9	M5
2-Butanone (MEK)	<0.0012	mg/kg	0.0096	0.0012	1		12/30/14 13:54	78-93-3	M5
n-Butylbenzene	<0.0021	mg/kg	0.0048	0.0021	1		12/30/14 13:54	104-51-8	M5
sec-Butylbenzene	<0.0014	mg/kg	0.0048	0.0014	1		12/30/14 13:54	135-98-8	M5
tert-Butylbenzene	<0.0019	mg/kg	0.0048	0.0019	1		12/30/14 13:54	98-06-6	M5
Carbon disulfide	0.0014J	mg/kg	0.0048	0.00074	1		12/30/14 13:54	75-15-0	M5
Carbon tetrachloride	<0.00085	mg/kg	0.0048	0.00085	1		12/30/14 13:54	56-23-5	M5
Chlorobenzene	<0.00095	mg/kg	0.0048	0.00095	1		12/30/14 13:54	108-90-7	M5
Chloroethane	<0.0016	mg/kg	0.0048	0.0016	1		12/30/14 13:54	75-00-3	M5
Chloroform	<0.00068	mg/kg	0.0048	0.00068	1		12/30/14 13:54	67-66-3	M5
Chloromethane	<0.0010	mg/kg	0.0048	0.0010	1		12/30/14 13:54	74-87-3	M5
Chloroprene	<0.00078	mg/kg	0.0048	0.00078	1		12/30/14 13:54	126-99-8	M5
2-Chlorotoluene	<0.0011	mg/kg	0.0048	0.0011	1		12/30/14 13:54	95-49-8	M5
Cyclohexanone	<0.012	mg/kg	0.048	0.012	1		12/30/14 13:54	108-94-1	M5
1,2-Dibromo-3-chloropropane	<0.0016	mg/kg	0.0048	0.0016	1		12/30/14 13:54	96-12-8	M5
Dibromochloromethane	<0.0015	mg/kg	0.0048	0.0015	1		12/30/14 13:54	124-48-1	M5
1,2-Dibromoethane (EDB)	<0.0025	mg/kg	0.0048	0.0025	1		12/30/14 13:54	106-93-4	M5
Dibromomethane	<0.0024	mg/kg	0.0048	0.0024	1		12/30/14 13:54	74-95-3	M5
1,2-Dichlorobenzene	<0.0010	mg/kg	0.0048	0.0010	1		12/30/14 13:54	95-50-1	M5
1,3-Dichlorobenzene	<0.0012	mg/kg	0.0048	0.0012	1		12/30/14 13:54	541-73-1	M5
1,4-Dichlorobenzene	<0.0012	mg/kg	0.0048	0.0012	1		12/30/14 13:54	106-46-7	M5
Dichlorodifluoromethane	<0.00085	mg/kg	0.0048	0.00085	1		12/30/14 13:54	75-71-8	M5
1,1-Dichloroethane	<0.00076	mg/kg	0.0048	0.00076	1		12/30/14 13:54	75-34-3	M5
1,2-Dichloroethane	<0.00087	mg/kg	0.0048	0.00087	1		12/30/14 13:54	107-06-2	M5
1,1-Dichloroethene	<0.00078	mg/kg	0.0048	0.00078	1		12/30/14 13:54	75-35-4	M5
cis-1,2-Dichloroethene	<0.0024	mg/kg	0.0048	0.0024	1		12/30/14 13:54	156-59-2	M5
trans-1,2-Dichloroethene	<0.00079	mg/kg	0.0048	0.00079	1		12/30/14 13:54	156-60-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 (10-12') Lab ID: 30137135001 Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV 5030 Low Level		Analytical Method: EPA 8260C							
1,2-Dichloropropane	<0.0016	mg/kg	0.0048	0.0016	1		12/30/14 13:54	78-87-5	M5
cis-1,3-Dichloropropene	<0.0015	mg/kg	0.0048	0.0015	1		12/30/14 13:54	10061-01-5	M5
trans-1,3-Dichloropropene	<0.0016	mg/kg	0.0048	0.0016	1		12/30/14 13:54	10061-02-6	M5
Diethyl ether (Ethyl ether)	<0.00084	mg/kg	0.0048	0.00084	1		12/30/14 13:54	60-29-7	M5
1,4-Dioxane (p-Dioxane)	<0.0029	mg/kg	0.096	0.029	1		12/30/14 13:54	123-91-1	M5
Ethyl acetate	<0.00092	mg/kg	0.0048	0.00092	1		12/30/14 13:54	141-78-6	L2,M5
Ethylbenzene	<0.0025	mg/kg	0.0048	0.0025	1		12/30/14 13:54	100-41-4	M5
Ethyl methacrylate	<0.0015	mg/kg	0.0048	0.0015	1		12/30/14 13:54	97-63-2	M5
n-Hexane	<0.0024	mg/kg	0.0096	0.0024	1		12/30/14 13:54	110-54-3	M5
Isobutanol	<0.0029	mg/kg	0.048	0.029	1		12/30/14 13:54	78-83-1	M5
Methacrylonitrile	<0.0015	mg/kg	0.0048	0.0015	1		12/30/14 13:54	126-98-7	M5
Methyl acetate	<0.0029	mg/kg	0.048	0.0029	1		12/30/14 13:54	79-20-9	M5
Methylene Chloride	<0.0013	mg/kg	0.0048	0.0013	1		12/30/14 13:54	75-09-2	M5
Methyl methacrylate	<0.0017	mg/kg	0.0048	0.0017	1		12/30/14 13:54	80-62-6	M5,N2
2-Methylnaphthalene	<0.0016	mg/kg	0.0048	0.0016	1		12/30/14 13:54	91-57-6	M5,N2
4-Methyl-2-pentanone (MIBK)	<0.00099	mg/kg	0.0096	0.00099	1		12/30/14 13:54	108-10-1	M5
Methyl-tert-butyl ether	<0.00068	mg/kg	0.0048	0.00068	1		12/30/14 13:54	1634-04-4	M5
Naphthalene	<0.0024	mg/kg	0.0048	0.0024	1		12/30/14 13:54	91-20-3	M5
2-Nitropropane	<0.0011	mg/kg		0.011	1		12/30/14 13:54	79-46-9	M5
n-Propylbenzene	<0.0012	mg/kg	0.0048	0.0012	1		12/30/14 13:54	103-65-1	M5
Styrene	<0.0011	mg/kg	0.0048	0.0011	1		12/30/14 13:54	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.00093	mg/kg	0.0048	0.00093	1		12/30/14 13:54	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.00085	mg/kg	0.0048	0.00085	1		12/30/14 13:54	79-34-5	M5
Tetrachloroethene	<0.00070	mg/kg	0.0048	0.00070	1		12/30/14 13:54	127-18-4	M5
Toluene	0.0024J	mg/kg	0.0048	0.00062	1		12/30/14 13:54	108-88-3	M5
1,2,3-Trichlorobenzene	<0.0014	mg/kg	0.0048	0.0014	1		12/30/14 13:54	87-61-6	M5
1,2,4-Trichlorobenzene	<0.0013	mg/kg	0.0048	0.0013	1		12/30/14 13:54	120-82-1	M5
1,1,1-Trichloroethane	<0.0025	mg/kg	0.0048	0.0025	1		12/30/14 13:54	71-55-6	M5
1,1,2-Trichloroethane	<0.00088	mg/kg	0.0048	0.00088	1		12/30/14 13:54	79-00-5	M5
Trichloroethene	<0.00073	mg/kg	0.0048	0.00073	1		12/30/14 13:54	79-01-6	M5
1,2,3-Trichloropropane	<0.00099	mg/kg	0.0048	0.00099	1		12/30/14 13:54	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.00064	mg/kg	0.048	0.00064	1		12/30/14 13:54	76-13-1	M5
1,2,4-Trimethylbenzene	<0.0011	mg/kg	0.0048	0.0011	1		12/30/14 13:54	95-63-6	M5
1,3,5-Trimethylbenzene	<0.0013	mg/kg	0.0048	0.0013	1		12/30/14 13:54	108-67-8	M5
Vinyl acetate	<0.0013	mg/kg	0.048	0.0013	1		12/30/14 13:54	108-05-4	M5
Vinyl chloride	<0.00078	mg/kg	0.0048	0.00078	1		12/30/14 13:54	75-01-4	M5
Xylene (Total)	<0.0029	mg/kg	0.014	0.0029	1		12/30/14 13:54	1330-20-7	M5
Surrogates									
Toluene-d8 (S)	93 %		73-124		1		12/30/14 13:54	2037-26-5	M5
4-Bromofluorobenzene (S)	94 %		71-124		1		12/30/14 13:54	460-00-4	M5
1,2-Dichloroethane-d4 (S)	115 %		83-138		1		12/30/14 13:54	17060-07-0	M5

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **12.7 %** 0.10 0.10 1 12/23/14 17:21

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 (10-12') **Lab ID: 30137135001** Collected: 12/18/14 11:45 Received: 12/18/14 15:40 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
7196 Chromium, Hexavalent	Analytical Method: EPA 7196A Preparation Method: EPA 7196A								
Chromium, Hexavalent	<0.42	mg/kg	1.1	0.42	1	12/24/14 11:55	12/29/14 12:00	18540-29-9	
Trivalent Chromium Calculation	Analytical Method: Trivalent Chromium Calculation								
Chromium, Trivalent	13.4	mg/kg	1.0	1.0	1		12/30/14 16:40	16065-83-1	H1

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30137135

Sample: TW-01 **Lab ID:** 30137135002 Collected: 12/18/14 12:20 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromo-3-chloropropane	<0.012	ug/L	0.050	0.012	1	12/22/14 10:58	12/23/14 10:20	96-12-8	
1,2-Dibromoethane (EDB)	<0.0091	ug/L	0.050	0.0091	1	12/22/14 10:58	12/23/14 10:20	106-93-4	
Surrogates									
1,1,1,2-Tetrachloroethane	89 %		60-140		1	12/22/14 10:58	12/23/14 10:20	630-20-6	
6010C MET ICP, Lab Filtered									
Analytical Method: EPA 6010C Preparation Method: EPA 3005A									
Lead, Dissolved	<3.6	ug/L	5.0	3.6	1	12/24/14 13:58	12/30/14 09:20	7439-92-1	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C									
Acenaphthene	<0.023	ug/L	0.15	0.023	1	12/23/14 08:50	12/23/14 15:22	83-32-9	
Acenaphthylene	<0.022	ug/L	0.15	0.022	1	12/23/14 08:50	12/23/14 15:22	208-96-8	
Anthracene	<0.039	ug/L	0.15	0.039	1	12/23/14 08:50	12/23/14 15:22	120-12-7	
Benzo(a)anthracene	<0.0049	ug/L	0.15	0.0049	1	12/23/14 08:50	12/23/14 15:22	56-55-3	
Benzo(a)pyrene	<0.11	ug/L	0.15	0.11	1	12/23/14 08:50	12/23/14 15:22	50-32-8	
Benzo(b)fluoranthene	<0.0055	ug/L	0.15	0.0055	1	12/23/14 08:50	12/23/14 15:22	205-99-2	
Benzo(g,h,i)perylene	<0.091	ug/L	0.15	0.091	1	12/23/14 08:50	12/23/14 15:22	191-24-2	
Benzo(k)fluoranthene	<0.018	ug/L	0.15	0.018	1	12/23/14 08:50	12/23/14 15:22	207-08-9	
Chrysene	<0.0026	ug/L	0.15	0.0026	1	12/23/14 08:50	12/23/14 15:22	218-01-9	
Dibenz(a,h)anthracene	<0.016	ug/L	0.15	0.016	1	12/23/14 08:50	12/23/14 15:22	53-70-3	
Fluoranthene	<0.0046	ug/L	0.15	0.0046	1	12/23/14 08:50	12/23/14 15:22	206-44-0	
Fluorene	<0.020	ug/L	0.15	0.020	1	12/23/14 08:50	12/23/14 15:22	86-73-7	
Indeno(1,2,3-cd)pyrene	<0.0047	ug/L	0.15	0.0047	1	12/23/14 08:50	12/23/14 15:22	193-39-5	
Naphthalene	0.068J	ug/L	0.15	0.038	1	12/23/14 08:50	12/23/14 15:22	91-20-3	B
Phenanthrene	<0.026	ug/L	0.15	0.026	1	12/23/14 08:50	12/23/14 15:22	85-01-8	
Pyrene	<0.020	ug/L	0.15	0.020	1	12/23/14 08:50	12/23/14 15:22	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	79 %		19-123		1	12/23/14 08:50	12/23/14 15:22	321-60-8	
Terphenyl-d14 (S)	94 %		58-130		1	12/23/14 08:50	12/23/14 15:22	1718-51-0	
8260C MSV									
Analytical Method: EPA 8260C									
Acetone	<2.6	ug/L	10.0	2.6	1		12/24/14 07:15	67-64-1	M5
Acrolein	<1.7	ug/L	2.0	1.7	1		12/24/14 07:15	107-02-8	M5
Acrylonitrile	<1.6	ug/L	2.0	1.6	1		12/24/14 07:15	107-13-1	M5
Benzene	2.4	ug/L	1.0	0.065	1		12/24/14 07:15	71-43-2	M5
Bromobenzene	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	108-86-1	M5
Bromodichloromethane	<0.15	ug/L	1.0	0.15	1		12/24/14 07:15	75-27-4	M5
Bromoform	<0.25	ug/L	1.0	0.25	1		12/24/14 07:15	75-25-2	M5
Bromomethane	<0.37	ug/L	1.0	0.37	1		12/24/14 07:15	74-83-9	M5
2-Butanone (MEK)	<1.1	ug/L	10.0	1.1	1		12/24/14 07:15	78-93-3	M5
n-Butylbenzene	<0.16	ug/L	1.0	0.16	1		12/24/14 07:15	104-51-8	M5
sec-Butylbenzene	<0.16	ug/L	1.0	0.16	1		12/24/14 07:15	135-98-8	M5
tert-Butylbenzene	<0.28	ug/L	1.0	0.28	1		12/24/14 07:15	98-06-6	M5
Carbon tetrachloride	<0.24	ug/L	1.0	0.24	1		12/24/14 07:15	56-23-5	M5
Chlorobenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:15	108-90-7	M5
Chloroethane	<0.48	ug/L	1.0	0.48	1		12/24/14 07:15	75-00-3	M5
2-Chloroethylvinyl ether	<2.0	ug/L	2.0	2.0	1		12/24/14 07:15	110-75-8	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-01 **Lab ID: 30137135002** Collected: 12/18/14 12:20 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Chloroform	<0.16	ug/L	1.0	0.16	1		12/24/14 07:15	67-66-3	M5
Chloromethane	<0.21	ug/L	1.0	0.21	1		12/24/14 07:15	74-87-3	M5
2-Chlorotoluene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:15	95-49-8	M5
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		12/24/14 07:15	106-43-4	M5
Dibromochloromethane	<0.22	ug/L	1.0	0.22	1		12/24/14 07:15	124-48-1	M5
Dibromomethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:15	74-95-3	M5
1,2-Dichlorobenzene	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	95-50-1	M5
1,3-Dichlorobenzene	<0.26	ug/L	1.0	0.26	1		12/24/14 07:15	541-73-1	M5
1,4-Dichlorobenzene	<0.17	ug/L	1.0	0.17	1		12/24/14 07:15	106-46-7	M5
Dichlorodifluoromethane	<0.20	ug/L	1.0	0.20	1		12/24/14 07:15	75-71-8	M5
1,1-Dichloroethane	<0.16	ug/L	1.0	0.16	1		12/24/14 07:15	75-34-3	M5
1,2-Dichloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 07:15	107-06-2	M5
1,1-Dichloroethene	<0.14	ug/L	1.0	0.14	1		12/24/14 07:15	75-35-4	M5
cis-1,2-Dichloroethene	<0.20	ug/L	1.0	0.20	1		12/24/14 07:15	156-59-2	M5
trans-1,2-Dichloroethene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:15	156-60-5	M5
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	78-87-5	M5
1,3-Dichloropropane	<0.24	ug/L	1.0	0.24	1		12/24/14 07:15	142-28-9	M5
2,2-Dichloropropane	<0.26	ug/L	1.0	0.26	1		12/24/14 07:15	594-20-7	M5
1,1-Dichloropropene	<0.29	ug/L	1.0	0.29	1		12/24/14 07:15	563-58-6	M5
cis-1,3-Dichloropropene	<0.19	ug/L	1.0	0.19	1		12/24/14 07:15	10061-01-5	M5
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	10061-02-6	M5
Diisopropyl ether	<0.14	ug/L	1.0	0.14	1		12/24/14 07:15	108-20-3	M5
Ethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:15	100-41-4	M5
Hexachloro-1,3-butadiene	<0.91	ug/L	1.0	0.91	1		12/24/14 07:15	87-68-3	M5
Isopropylbenzene (Cumene)	<0.12	ug/L	1.0	0.12	1		12/24/14 07:15	98-82-8	M5
p-Isopropyltoluene	<0.14	ug/L	1.0	0.14	1		12/24/14 07:15	99-87-6	M5
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	<0.29	ug/L	10.0	0.29	1		12/24/14 07:15	108-10-1	M5
Methyl-tert-butyl ether	3.0	ug/L	1.0	0.19	1		12/24/14 07:15	1634-04-4	M5
Naphthalene	<0.33	ug/L	2.0	0.33	1		12/24/14 07:15	91-20-3	M5
n-Propylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 07:15	103-65-1	M5
Styrene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:15	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 07:15	630-20-6	M5
1,1,1,2,2-Tetrachloroethane	<0.22	ug/L	1.0	0.22	1		12/24/14 07:15	79-34-5	M5
Tetrachloroethene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:15	127-18-4	M5
Toluene	<0.11	ug/L	1.0	0.11	1		12/24/14 07:15	108-88-3	M5
1,2,3-Trichlorobenzene	<0.29	ug/L	2.0	0.29	1		12/24/14 07:15	87-61-6	M5
1,2,4-Trichlorobenzene	<0.33	ug/L	1.0	0.33	1		12/24/14 07:15	120-82-1	M5
1,1,1-Trichloroethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:15	71-55-6	M5
1,1,2-Trichloroethane	<0.23	ug/L	1.0	0.23	1		12/24/14 07:15	79-00-5	M5
Trichloroethene	<0.15	ug/L	1.0	0.15	1		12/24/14 07:15	79-01-6	M5
Trichlorofluoromethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:15	75-69-4	M5
1,2,3-Trichloropropane	<0.34	ug/L	1.0	0.34	1		12/24/14 07:15	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.14	ug/L	50.0	0.14	1		12/24/14 07:15	76-13-1	M5
1,2,4-Trimethylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 07:15	95-63-6	M5
1,3,5-Trimethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:15	108-67-8	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-01 **Lab ID: 30137135002** Collected: 12/18/14 12:20 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Vinyl chloride	<0.13	ug/L	1.0	0.13	1		12/24/14 07:15	75-01-4	M5
Xylene (Total)	<0.31	ug/L	3.0	0.31	1		12/24/14 07:15	1330-20-7	M5
Surrogates									
4-Bromofluorobenzene (S)	101 %		84-113		1		12/24/14 07:15	460-00-4	M5
1,2-Dichloroethane-d4 (S)	91 %		84-124		1		12/24/14 07:15	17060-07-0	M5
Toluene-d8 (S)	102 %		79-118		1		12/24/14 07:15	2037-26-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30137135

Sample: TW-02 **Lab ID:** 30137135003 Collected: 12/18/14 14:40 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromo-3-chloropropane	<0.012	ug/L	0.050	0.012	1	12/22/14 10:58	12/23/14 10:40	96-12-8	
1,2-Dibromoethane (EDB)	<0.0091	ug/L	0.050	0.0091	1	12/22/14 10:58	12/23/14 10:40	106-93-4	
Surrogates									
1,1,1,2-Tetrachloroethane	91 %		60-140		1	12/22/14 10:58	12/23/14 10:40	630-20-6	
6010C MET ICP, Lab Filtered									
Analytical Method: EPA 6010C Preparation Method: EPA 3005A									
Lead, Dissolved	<3.6	ug/L	5.0	3.6	1	12/24/14 13:58	12/30/14 09:31	7439-92-1	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C									
Acenaphthene	<0.018	ug/L	0.12	0.018	1	12/23/14 08:50	12/23/14 15:40	83-32-9	
Acenaphthylene	<0.017	ug/L	0.12	0.017	1	12/23/14 08:50	12/23/14 15:40	208-96-8	
Anthracene	<0.031	ug/L	0.12	0.031	1	12/23/14 08:50	12/23/14 15:40	120-12-7	
Benzo(a)anthracene	<0.0038	ug/L	0.12	0.0038	1	12/23/14 08:50	12/23/14 15:40	56-55-3	
Benzo(a)pyrene	<0.087	ug/L	0.12	0.087	1	12/23/14 08:50	12/23/14 15:40	50-32-8	
Benzo(b)fluoranthene	<0.0043	ug/L	0.12	0.0043	1	12/23/14 08:50	12/23/14 15:40	205-99-2	
Benzo(g,h,i)perylene	<0.072	ug/L	0.12	0.072	1	12/23/14 08:50	12/23/14 15:40	191-24-2	
Benzo(k)fluoranthene	<0.014	ug/L	0.12	0.014	1	12/23/14 08:50	12/23/14 15:40	207-08-9	
Chrysene	<0.0020	ug/L	0.12	0.0020	1	12/23/14 08:50	12/23/14 15:40	218-01-9	
Dibenz(a,h)anthracene	<0.013	ug/L	0.12	0.013	1	12/23/14 08:50	12/23/14 15:40	53-70-3	
Fluoranthene	<0.0036	ug/L	0.12	0.0036	1	12/23/14 08:50	12/23/14 15:40	206-44-0	
Fluorene	<0.015	ug/L	0.12	0.015	1	12/23/14 08:50	12/23/14 15:40	86-73-7	
Indeno(1,2,3-cd)pyrene	<0.0037	ug/L	0.12	0.0037	1	12/23/14 08:50	12/23/14 15:40	193-39-5	
Naphthalene	0.14	ug/L	0.12	0.030	1	12/23/14 08:50	12/23/14 15:40	91-20-3	B
Phenanthrene	<0.020	ug/L	0.12	0.020	1	12/23/14 08:50	12/23/14 15:40	85-01-8	
Pyrene	<0.016	ug/L	0.12	0.016	1	12/23/14 08:50	12/23/14 15:40	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	84 %		19-123		1	12/23/14 08:50	12/23/14 15:40	321-60-8	
Terphenyl-d14 (S)	103 %		58-130		1	12/23/14 08:50	12/23/14 15:40	1718-51-0	
8260C MSV									
Analytical Method: EPA 8260C									
Acetone	<2.6	ug/L	10.0	2.6	1	12/24/14 07:40	12/24/14 07:40	67-64-1	M5
Acrolein	<1.7	ug/L	2.0	1.7	1	12/24/14 07:40	12/24/14 07:40	107-02-8	M5
Acrylonitrile	<1.6	ug/L	2.0	1.6	1	12/24/14 07:40	12/24/14 07:40	107-13-1	M5
Benzene	<0.065	ug/L	1.0	0.065	1	12/24/14 07:40	12/24/14 07:40	71-43-2	M5
Bromobenzene	<0.23	ug/L	1.0	0.23	1	12/24/14 07:40	12/24/14 07:40	108-86-1	M5
Bromodichloromethane	<0.15	ug/L	1.0	0.15	1	12/24/14 07:40	12/24/14 07:40	75-27-4	M5
Bromoform	<0.25	ug/L	1.0	0.25	1	12/24/14 07:40	12/24/14 07:40	75-25-2	M5
Bromomethane	<0.37	ug/L	1.0	0.37	1	12/24/14 07:40	12/24/14 07:40	74-83-9	M5
2-Butanone (MEK)	<1.1	ug/L	10.0	1.1	1	12/24/14 07:40	12/24/14 07:40	78-93-3	M5
n-Butylbenzene	<0.16	ug/L	1.0	0.16	1	12/24/14 07:40	12/24/14 07:40	104-51-8	M5
sec-Butylbenzene	<0.16	ug/L	1.0	0.16	1	12/24/14 07:40	12/24/14 07:40	135-98-8	M5
tert-Butylbenzene	<0.28	ug/L	1.0	0.28	1	12/24/14 07:40	12/24/14 07:40	98-06-6	M5
Carbon tetrachloride	<0.24	ug/L	1.0	0.24	1	12/24/14 07:40	12/24/14 07:40	56-23-5	M5
Chlorobenzene	<0.12	ug/L	1.0	0.12	1	12/24/14 07:40	12/24/14 07:40	108-90-7	M5
Chloroethane	<0.48	ug/L	1.0	0.48	1	12/24/14 07:40	12/24/14 07:40	75-00-3	M5
2-Chloroethylvinyl ether	<2.0	ug/L	2.0	2.0	1	12/24/14 07:40	12/24/14 07:40	110-75-8	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-02 **Lab ID: 30137135003** Collected: 12/18/14 14:40 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Chloroform	<0.16	ug/L	1.0	0.16	1		12/24/14 07:40	67-66-3	M5
Chloromethane	<0.21	ug/L	1.0	0.21	1		12/24/14 07:40	74-87-3	M5
2-Chlorotoluene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:40	95-49-8	M5
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		12/24/14 07:40	106-43-4	M5
Dibromochloromethane	<0.22	ug/L	1.0	0.22	1		12/24/14 07:40	124-48-1	M5
Dibromomethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:40	74-95-3	M5
1,2-Dichlorobenzene	<0.23	ug/L	1.0	0.23	1		12/24/14 07:40	95-50-1	M5
1,3-Dichlorobenzene	<0.26	ug/L	1.0	0.26	1		12/24/14 07:40	541-73-1	M5
1,4-Dichlorobenzene	<0.17	ug/L	1.0	0.17	1		12/24/14 07:40	106-46-7	M5
Dichlorodifluoromethane	<0.20	ug/L	1.0	0.20	1		12/24/14 07:40	75-71-8	M5
1,1-Dichloroethane	<0.16	ug/L	1.0	0.16	1		12/24/14 07:40	75-34-3	M5
1,2-Dichloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 07:40	107-06-2	M5
1,1-Dichloroethene	<0.14	ug/L	1.0	0.14	1		12/24/14 07:40	75-35-4	M5
cis-1,2-Dichloroethene	<0.20	ug/L	1.0	0.20	1		12/24/14 07:40	156-59-2	M5
trans-1,2-Dichloroethene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:40	156-60-5	M5
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		12/24/14 07:40	78-87-5	M5
1,3-Dichloropropane	<0.24	ug/L	1.0	0.24	1		12/24/14 07:40	142-28-9	M5
2,2-Dichloropropane	<0.26	ug/L	1.0	0.26	1		12/24/14 07:40	594-20-7	M5
1,1-Dichloropropene	<0.29	ug/L	1.0	0.29	1		12/24/14 07:40	563-58-6	M5
cis-1,3-Dichloropropene	<0.19	ug/L	1.0	0.19	1		12/24/14 07:40	10061-01-5	M5
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		12/24/14 07:40	10061-02-6	M5
Diisopropyl ether	<0.14	ug/L	1.0	0.14	1		12/24/14 07:40	108-20-3	M5
Ethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:40	100-41-4	M5
Hexachloro-1,3-butadiene	<0.91	ug/L	1.0	0.91	1		12/24/14 07:40	87-68-3	M5
Isopropylbenzene (Cumene)	<0.12	ug/L	1.0	0.12	1		12/24/14 07:40	98-82-8	M5
p-Isopropyltoluene	<0.14	ug/L	1.0	0.14	1		12/24/14 07:40	99-87-6	M5
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		12/24/14 07:40	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	<0.29	ug/L	10.0	0.29	1		12/24/14 07:40	108-10-1	M5
Methyl-tert-butyl ether	<0.19	ug/L	1.0	0.19	1		12/24/14 07:40	1634-04-4	M5
Naphthalene	<0.33	ug/L	2.0	0.33	1		12/24/14 07:40	91-20-3	M5
n-Propylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 07:40	103-65-1	M5
Styrene	<0.18	ug/L	1.0	0.18	1		12/24/14 07:40	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 07:40	630-20-6	M5
1,1,1,2,2-Tetrachloroethane	<0.22	ug/L	1.0	0.22	1		12/24/14 07:40	79-34-5	M5
Tetrachloroethene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:40	127-18-4	M5
Toluene	<0.11	ug/L	1.0	0.11	1		12/24/14 07:40	108-88-3	M5
1,2,3-Trichlorobenzene	<0.29	ug/L	2.0	0.29	1		12/24/14 07:40	87-61-6	M5
1,2,4-Trichlorobenzene	<0.33	ug/L	1.0	0.33	1		12/24/14 07:40	120-82-1	M5
1,1,1-Trichloroethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:40	71-55-6	M5
1,1,2-Trichloroethane	<0.23	ug/L	1.0	0.23	1		12/24/14 07:40	79-00-5	M5
Trichloroethene	<0.15	ug/L	1.0	0.15	1		12/24/14 07:40	79-01-6	M5
Trichlorofluoromethane	<0.19	ug/L	1.0	0.19	1		12/24/14 07:40	75-69-4	M5
1,2,3-Trichloropropane	<0.34	ug/L	1.0	0.34	1		12/24/14 07:40	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.14	ug/L	50.0	0.14	1		12/24/14 07:40	76-13-1	M5
1,2,4-Trimethylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 07:40	95-63-6	M5
1,3,5-Trimethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 07:40	108-67-8	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-02 **Lab ID: 30137135003** Collected: 12/18/14 14:40 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Vinyl chloride	<0.13	ug/L	1.0	0.13	1		12/24/14 07:40	75-01-4	M5
Xylene (Total)	<0.31	ug/L	3.0	0.31	1		12/24/14 07:40	1330-20-7	M5
Surrogates									
4-Bromofluorobenzene (S)	95 %		84-113		1		12/24/14 07:40	460-00-4	M5
1,2-Dichloroethane-d4 (S)	94 %		84-124		1		12/24/14 07:40	17060-07-0	M5
Toluene-d8 (S)	96 %		79-118		1		12/24/14 07:40	2037-26-5	M5

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 **Lab ID:** 30137135004 Collected: 12/18/14 13:50 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP									
Analytical Method: EPA 8011 Preparation Method: EPA 8011									
1,2-Dibromo-3-chloropropane	<0.0098	ug/L	0.040	0.0098	1	12/22/14 10:58	12/23/14 11:01	96-12-8	
1,2-Dibromoethane (EDB)	<0.0073	ug/L	0.040	0.0073	1	12/22/14 10:58	12/23/14 11:01	106-93-4	
Surrogates									
1,1,1,2-Tetrachloroethane	86 %		60-140		1	12/22/14 10:58	12/23/14 11:01	630-20-6	
6010C MET ICP, Lab Filtered									
Analytical Method: EPA 6010C Preparation Method: EPA 3005A									
Lead, Dissolved	<3.6	ug/L	5.0	3.6	1	12/24/14 13:58	12/30/14 09:34	7439-92-1	
8270D MSSV PAH by SIM									
Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C									
Acenaphthene	<0.018	ug/L	0.12	0.018	1	12/23/14 08:50	12/23/14 15:57	83-32-9	
Acenaphthylene	<0.017	ug/L	0.12	0.017	1	12/23/14 08:50	12/23/14 15:57	208-96-8	
Anthracene	<0.030	ug/L	0.12	0.030	1	12/23/14 08:50	12/23/14 15:57	120-12-7	
Benzo(a)anthracene	<0.0038	ug/L	0.12	0.0038	1	12/23/14 08:50	12/23/14 15:57	56-55-3	
Benzo(a)pyrene	<0.086	ug/L	0.12	0.086	1	12/23/14 08:50	12/23/14 15:57	50-32-8	
Benzo(b)fluoranthene	<0.0042	ug/L	0.12	0.0042	1	12/23/14 08:50	12/23/14 15:57	205-99-2	
Benzo(g,h,i)perylene	<0.070	ug/L	0.12	0.070	1	12/23/14 08:50	12/23/14 15:57	191-24-2	
Benzo(k)fluoranthene	<0.014	ug/L	0.12	0.014	1	12/23/14 08:50	12/23/14 15:57	207-08-9	
Chrysene	<0.0020	ug/L	0.12	0.0020	1	12/23/14 08:50	12/23/14 15:57	218-01-9	
Dibenz(a,h)anthracene	<0.012	ug/L	0.12	0.012	1	12/23/14 08:50	12/23/14 15:57	53-70-3	
Fluoranthene	<0.0035	ug/L	0.12	0.0035	1	12/23/14 08:50	12/23/14 15:57	206-44-0	
Fluorene	<0.015	ug/L	0.12	0.015	1	12/23/14 08:50	12/23/14 15:57	86-73-7	
Indeno(1,2,3-cd)pyrene	<0.0036	ug/L	0.12	0.0036	1	12/23/14 08:50	12/23/14 15:57	193-39-5	
Naphthalene	<0.030	ug/L	0.12	0.030	1	12/23/14 08:50	12/23/14 15:57	91-20-3	
Phenanthrene	<0.020	ug/L	0.12	0.020	1	12/23/14 08:50	12/23/14 15:57	85-01-8	
Pyrene	<0.016	ug/L	0.12	0.016	1	12/23/14 08:50	12/23/14 15:57	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	49 %		19-123		1	12/23/14 08:50	12/23/14 15:57	321-60-8	
Terphenyl-d14 (S)	67 %		58-130		1	12/23/14 08:50	12/23/14 15:57	1718-51-0	
8260C MSV									
Analytical Method: EPA 8260C									
Acetone	<2.6	ug/L	10.0	2.6	1	12/24/14 08:04	12/24/14 08:04	67-64-1	M5
Acrolein	<1.7	ug/L	2.0	1.7	1	12/24/14 08:04	12/24/14 08:04	107-02-8	M5
Acrylonitrile	<1.6	ug/L	2.0	1.6	1	12/24/14 08:04	12/24/14 08:04	107-13-1	M5
Benzene	<0.065	ug/L	1.0	0.065	1	12/24/14 08:04	12/24/14 08:04	71-43-2	M5
Bromobenzene	<0.23	ug/L	1.0	0.23	1	12/24/14 08:04	12/24/14 08:04	108-86-1	M5
Bromodichloromethane	<0.15	ug/L	1.0	0.15	1	12/24/14 08:04	12/24/14 08:04	75-27-4	M5
Bromoform	<0.25	ug/L	1.0	0.25	1	12/24/14 08:04	12/24/14 08:04	75-25-2	M5
Bromomethane	<0.37	ug/L	1.0	0.37	1	12/24/14 08:04	12/24/14 08:04	74-83-9	M5
2-Butanone (MEK)	<1.1	ug/L	10.0	1.1	1	12/24/14 08:04	12/24/14 08:04	78-93-3	M5
n-Butylbenzene	<0.16	ug/L	1.0	0.16	1	12/24/14 08:04	12/24/14 08:04	104-51-8	M5
sec-Butylbenzene	<0.16	ug/L	1.0	0.16	1	12/24/14 08:04	12/24/14 08:04	135-98-8	M5
tert-Butylbenzene	<0.28	ug/L	1.0	0.28	1	12/24/14 08:04	12/24/14 08:04	98-06-6	M5
Carbon tetrachloride	<0.24	ug/L	1.0	0.24	1	12/24/14 08:04	12/24/14 08:04	56-23-5	M5
Chlorobenzene	<0.12	ug/L	1.0	0.12	1	12/24/14 08:04	12/24/14 08:04	108-90-7	M5
Chloroethane	<0.48	ug/L	1.0	0.48	1	12/24/14 08:04	12/24/14 08:04	75-00-3	M5
2-Chloroethylvinyl ether	<2.0	ug/L	2.0	2.0	1	12/24/14 08:04	12/24/14 08:04	110-75-8	M5

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623

Pace Project No.: 30137135

Sample: TW-03 **Lab ID: 30137135004** Collected: 12/18/14 13:50 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Chloroform	<0.16	ug/L	1.0	0.16	1		12/24/14 08:04	67-66-3	M5
Chloromethane	<0.21	ug/L	1.0	0.21	1		12/24/14 08:04	74-87-3	M5
2-Chlorotoluene	<0.18	ug/L	1.0	0.18	1		12/24/14 08:04	95-49-8	M5
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		12/24/14 08:04	106-43-4	M5
Dibromochloromethane	<0.22	ug/L	1.0	0.22	1		12/24/14 08:04	124-48-1	M5
Dibromomethane	<0.19	ug/L	1.0	0.19	1		12/24/14 08:04	74-95-3	M5
1,2-Dichlorobenzene	<0.23	ug/L	1.0	0.23	1		12/24/14 08:04	95-50-1	M5
1,3-Dichlorobenzene	<0.26	ug/L	1.0	0.26	1		12/24/14 08:04	541-73-1	M5
1,4-Dichlorobenzene	<0.17	ug/L	1.0	0.17	1		12/24/14 08:04	106-46-7	M5
Dichlorodifluoromethane	<0.20	ug/L	1.0	0.20	1		12/24/14 08:04	75-71-8	M5
1,1-Dichloroethane	<0.16	ug/L	1.0	0.16	1		12/24/14 08:04	75-34-3	M5
1,2-Dichloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 08:04	107-06-2	M5
1,1-Dichloroethene	<0.14	ug/L	1.0	0.14	1		12/24/14 08:04	75-35-4	M5
cis-1,2-Dichloroethene	<0.20	ug/L	1.0	0.20	1		12/24/14 08:04	156-59-2	M5
trans-1,2-Dichloroethene	<0.18	ug/L	1.0	0.18	1		12/24/14 08:04	156-60-5	M5
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		12/24/14 08:04	78-87-5	M5
1,3-Dichloropropane	<0.24	ug/L	1.0	0.24	1		12/24/14 08:04	142-28-9	M5
2,2-Dichloropropane	<0.26	ug/L	1.0	0.26	1		12/24/14 08:04	594-20-7	M5
1,1-Dichloropropene	<0.29	ug/L	1.0	0.29	1		12/24/14 08:04	563-58-6	M5
cis-1,3-Dichloropropene	<0.19	ug/L	1.0	0.19	1		12/24/14 08:04	10061-01-5	M5
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		12/24/14 08:04	10061-02-6	M5
Diisopropyl ether	<0.14	ug/L	1.0	0.14	1		12/24/14 08:04	108-20-3	M5
Ethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 08:04	100-41-4	M5
Hexachloro-1,3-butadiene	<0.91	ug/L	1.0	0.91	1		12/24/14 08:04	87-68-3	M5
Isopropylbenzene (Cumene)	<0.12	ug/L	1.0	0.12	1		12/24/14 08:04	98-82-8	M5
p-Isopropyltoluene	<0.14	ug/L	1.0	0.14	1		12/24/14 08:04	99-87-6	M5
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		12/24/14 08:04	75-09-2	M5
4-Methyl-2-pentanone (MIBK)	<0.29	ug/L	10.0	0.29	1		12/24/14 08:04	108-10-1	M5
Methyl-tert-butyl ether	<0.19	ug/L	1.0	0.19	1		12/24/14 08:04	1634-04-4	M5
Naphthalene	<0.33	ug/L	2.0	0.33	1		12/24/14 08:04	91-20-3	M5
n-Propylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 08:04	103-65-1	M5
Styrene	<0.18	ug/L	1.0	0.18	1		12/24/14 08:04	100-42-5	M5
1,1,1,2-Tetrachloroethane	<0.14	ug/L	1.0	0.14	1		12/24/14 08:04	630-20-6	M5
1,1,2,2-Tetrachloroethane	<0.22	ug/L	1.0	0.22	1		12/24/14 08:04	79-34-5	M5
Tetrachloroethene	<0.12	ug/L	1.0	0.12	1		12/24/14 08:04	127-18-4	M5
Toluene	<0.11	ug/L	1.0	0.11	1		12/24/14 08:04	108-88-3	M5
1,2,3-Trichlorobenzene	<0.29	ug/L	2.0	0.29	1		12/24/14 08:04	87-61-6	M5
1,2,4-Trichlorobenzene	<0.33	ug/L	1.0	0.33	1		12/24/14 08:04	120-82-1	M5
1,1,1-Trichloroethane	<0.19	ug/L	1.0	0.19	1		12/24/14 08:04	71-55-6	M5
1,1,2-Trichloroethane	<0.23	ug/L	1.0	0.23	1		12/24/14 08:04	79-00-5	M5
Trichloroethene	<0.15	ug/L	1.0	0.15	1		12/24/14 08:04	79-01-6	M5
Trichlorofluoromethane	<0.19	ug/L	1.0	0.19	1		12/24/14 08:04	75-69-4	M5
1,2,3-Trichloropropane	<0.34	ug/L	1.0	0.34	1		12/24/14 08:04	96-18-4	M5
1,1,2-Trichlorotrifluoroethane	<0.14	ug/L	50.0	0.14	1		12/24/14 08:04	76-13-1	M5
1,2,4-Trimethylbenzene	<0.13	ug/L	1.0	0.13	1		12/24/14 08:04	95-63-6	M5
1,3,5-Trimethylbenzene	<0.12	ug/L	1.0	0.12	1		12/24/14 08:04	108-67-8	M5

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Speedway #100623
Pace Project No.: 30137135

Sample: TW-03 **Lab ID: 30137135004** Collected: 12/18/14 13:50 Received: 12/18/14 15:40 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260C MSV		Analytical Method: EPA 8260C							
Vinyl chloride	<0.13	ug/L	1.0	0.13	1		12/24/14 08:04	75-01-4	M5
Xylene (Total)	<0.31	ug/L	3.0	0.31	1		12/24/14 08:04	1330-20-7	M5
Surrogates									
4-Bromofluorobenzene (S)	98 %		84-113		1		12/24/14 08:04	460-00-4	M5
1,2-Dichloroethane-d4 (S)	95 %		84-124		1		12/24/14 08:04	17060-07-0	M5
Toluene-d8 (S)	98 %		79-118		1		12/24/14 08:04	2037-26-5	M5

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: GCSV/7627 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 30137135002, 30137135003, 30137135004

METHOD BLANK: 834565 Matrix: Water
Associated Lab Samples: 30137135002, 30137135003, 30137135004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	<0.0098	0.040	12/23/14 05:08	
1,2-Dibromoethane (EDB)	ug/L	<0.0073	0.040	12/23/14 05:08	
1,1,1,2-Tetrachloroethane	%	83	60-140	12/23/14 05:08	

LABORATORY CONTROL SAMPLE: 834566

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	.25	0.28	111	80-120	
1,2-Dibromoethane (EDB)	ug/L	.25	0.24	95	80-120	
1,1,1,2-Tetrachloroethane	%			84	60-140	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 834567 834568

Parameter	Units	30136870021		30136870021		834568		834568		% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,2-Dibromo-3-chloropropane	ug/L	ND	.4	.4	0.49	0.50	123	124	60-140	1	25	
1,2-Dibromoethane (EDB)	ug/L	ND	.4	.4	0.41	0.41	100	100	60-140	0	25	
1,1,1,2-Tetrachloroethane	%						84	87	60-140			

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: MERP/6134 Analysis Method: EPA 7471B
QC Batch Method: EPA 7471A Analysis Description: 7471B Mercury
Associated Lab Samples: 30137135001

METHOD BLANK: 836039 Matrix: Solid
Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.0022	0.10	12/31/14 10:33	

LABORATORY CONTROL SAMPLE: 836040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.042	0.042J	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 836041 836042

Parameter	Units	30137135001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.039J	.11	.11	0.15	0.15	97	97	80-120	3	20	

SAMPLE DUPLICATE: 836043

Parameter	Units	30137135001 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	mg/kg	0.039J	0.031J		20	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch:	MPRP/14596	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3050B	Analysis Description:	6010C MET
Associated Lab Samples:	30137135001		

METHOD BLANK: 836021 Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	mg/kg	<0.37	0.60	12/30/14 12:39	
Arsenic	mg/kg	<0.36	0.50	12/30/14 12:39	
Barium	mg/kg	0.056J	2.0	12/30/14 12:39	
Beryllium	mg/kg	<0.023	0.20	12/30/14 12:39	
Boron	mg/kg	<0.13	5.0	12/30/14 12:39	
Cadmium	mg/kg	0.040J	0.30	12/30/14 12:39	
Chromium	mg/kg	0.74	0.50	12/30/14 12:39	
Cobalt	mg/kg	<0.047	1.0	12/30/14 12:39	
Copper	mg/kg	<0.18	1.0	12/30/14 13:38	
Lead	mg/kg	<0.27	0.50	12/30/14 12:39	
Manganese	mg/kg	0.038J	1.0	12/30/14 12:39	
Nickel	mg/kg	3.4	2.0	12/30/14 12:39	
Selenium	mg/kg	<0.58	0.80	12/30/14 12:39	
Silver	mg/kg	<0.053	0.60	12/30/14 12:39	
Thallium	mg/kg	<0.33	2.0	12/30/14 12:39	
Tin	mg/kg	3.6J	10.0	12/30/14 12:39	
Vanadium	mg/kg	<0.057	1.0	12/30/14 12:39	
Zinc	mg/kg	<0.45	1.0	12/30/14 12:39	

LABORATORY CONTROL SAMPLE: 836022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/kg	50	49.4	99	80-120	
Arsenic	mg/kg	50	47.2	94	80-120	
Barium	mg/kg	50	48.8	98	80-120	
Beryllium	mg/kg	50	49.6	99	80-120	
Boron	mg/kg	50	46.4	93	80-120	
Cadmium	mg/kg	50	48.6	97	80-120	
Chromium	mg/kg	50	51.1	102	80-120	
Cobalt	mg/kg	50	49.8	100	80-120	
Copper	mg/kg	50	50.1	100	80-120	
Lead	mg/kg	50	48.3	97	80-120	
Manganese	mg/kg	50	50.4	101	80-120	
Nickel	mg/kg	50	49.5	99	80-120	
Selenium	mg/kg	50	45.5	91	80-120	
Silver	mg/kg	25	24.9	99	80-120	
Thallium	mg/kg	50	47.0	94	80-120	
Tin	mg/kg	50	53.7	107	80-120	
Vanadium	mg/kg	50	50.9	102	80-120	
Zinc	mg/kg	50	49.2	98	80-120	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		836027		836028							
Parameter	Units	30137135001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Antimony	mg/kg	<0.34	45.5	41.5	7.5	6.7	17	16	75-125	11	20 M1
Arsenic	mg/kg	28.9	45.5	41.5	66.8	60.9	83	77	75-125	9	20
Barium	mg/kg	81.9	45.5	41.5	137	128	120	110	75-125	7	20
Beryllium	mg/kg	1.3	45.5	41.5	40.3	37.1	86	86	75-125	8	20
Boron	mg/kg	4.4J	45.5	41.5	35.0	33.3	67	70	75-125	5	20 M1
Cadmium	mg/kg	0.24J	45.5	41.5	39.8	36.4	87	87	75-125	9	20
Chromium	mg/kg	13.8	45.5	41.5	60.0	55.7	102	101	75-125	8	20
Cobalt	mg/kg	21.6	45.5	41.5	67.8	61.9	102	97	75-125	9	20
Copper	mg/kg	50.0	45.5	41.5	82.1	80.5	71	73	75-125	2	20 M1
Lead	mg/kg	19.7	45.5	41.5	64.9	59.6	99	96	75-125	8	20
Manganese	mg/kg	938	45.5	41.5	964	912	58	-62	75-125	6	20 M1
Nickel	mg/kg	38.5	45.5	41.5	77.4	72.9	86	83	75-125	6	20
Selenium	mg/kg	<0.52	45.5	41.5	35.9	32.7	79	78	75-125	9	20
Silver	mg/kg	0.23J	22.7	20.7	20.5	20.6	89	98	75-125	0	20
Thallium	mg/kg	<0.30	45.5	41.5	41.3	37.3	91	90	75-125	10	20
Tin	mg/kg	3.3J	45.5	41.5	37.5	36.6	75	80	75-125	2	20
Vanadium	mg/kg	20.7	45.5	41.5	69.5	63.8	107	104	75-125	9	20
Zinc	mg/kg	61.7	45.5	41.5	101	94.3	86	78	75-125	7	20

SAMPLE DUPLICATE: 836026

Parameter	Units	30137135001	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
Antimony	mg/kg	<0.34	<0.34		20	
Arsenic	mg/kg	28.9	28.9	0	20	
Barium	mg/kg	81.9	81.1	1	20	
Beryllium	mg/kg	1.3	1.3	1	20	
Boron	mg/kg	4.4J	4.6		20	
Cadmium	mg/kg	0.24J	0.22J		20	
Chromium	mg/kg	13.8	14.0	1	20	
Cobalt	mg/kg	21.6	21.0	3	20	
Copper	mg/kg	50.0	39.2	24	20	D6
Lead	mg/kg	19.7	19.9	1	20	
Manganese	mg/kg	938	893	5	20	
Nickel	mg/kg	38.5	38.4	0	20	
Selenium	mg/kg	<0.52	<0.52		20	
Silver	mg/kg	0.23J	0.25J		20	
Thallium	mg/kg	<0.30	<0.30		20	
Tin	mg/kg	3.3J	3.3J		20	
Vanadium	mg/kg	20.7	20.4	2	20	
Zinc	mg/kg	61.7	68.8	11	20	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: MPRP/14604

Analysis Method: EPA 6010C

QC Batch Method: EPA 3005A

Analysis Description: 6010C MET Dissolved

Associated Lab Samples: 30137135002, 30137135003, 30137135004

METHOD BLANK: 836094

Matrix: Water

Associated Lab Samples: 30137135002, 30137135003, 30137135004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	<3.6	5.0	12/30/14 09:15	

LABORATORY CONTROL SAMPLE: 836095

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	500	423	85	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 836097

836098

Parameter	Units	30137135002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	<3.6	500	500	472	458	94	92	75-125	3	20	

SAMPLE DUPLICATE: 836096

Parameter	Units	30137135002 Result	Dup Result	RPD	Max RPD	Qualifiers
Lead, Dissolved	ug/L	<3.6	<3.6		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: MSV/22059

Analysis Method: EPA 8260C

QC Batch Method: EPA 8260C

Analysis Description: 8260C MSV 5035 Low

Associated Lab Samples: 30137135001

METHOD BLANK: 837347

Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	<0.00096	0.0050	12/30/14 13:32	M5
1,1,1-Trichloroethane	mg/kg	<0.0026	0.0050	12/30/14 13:32	M5
1,1,2,2-Tetrachloroethane	mg/kg	<0.00089	0.0050	12/30/14 13:32	M5
1,1,2-Trichloroethane	mg/kg	<0.00092	0.0050	12/30/14 13:32	M5
1,1,2-Trichlorotrifluoroethane	mg/kg	<0.00066	0.050	12/30/14 13:32	M5
1,1-Dichloroethane	mg/kg	<0.00079	0.0050	12/30/14 13:32	M5
1,1-Dichloroethene	mg/kg	<0.00081	0.0050	12/30/14 13:32	M5
1,2,3-Trichlorobenzene	mg/kg	<0.0015	0.0050	12/30/14 13:32	M5
1,2,3-Trichloropropane	mg/kg	<0.0010	0.0050	12/30/14 13:32	M5
1,2,4-Trichlorobenzene	mg/kg	<0.0014	0.0050	12/30/14 13:32	M5
1,2,4-Trimethylbenzene	mg/kg	<0.0012	0.0050	12/30/14 13:32	M5
1,2-Dibromo-3-chloropropane	mg/kg	<0.0017	0.0050	12/30/14 13:32	M5
1,2-Dibromoethane (EDB)	mg/kg	<0.0026	0.0050	12/30/14 13:32	M5
1,2-Dichlorobenzene	mg/kg	<0.0011	0.0050	12/30/14 13:32	M5
1,2-Dichloroethane	mg/kg	<0.00091	0.0050	12/30/14 13:32	M5
1,2-Dichloropropane	mg/kg	<0.0016	0.0050	12/30/14 13:32	M5
1,3,5-Trimethylbenzene	mg/kg	<0.0014	0.0050	12/30/14 13:32	M5
1,3-Dichlorobenzene	mg/kg	<0.0013	0.0050	12/30/14 13:32	M5
1,4-Dichlorobenzene	mg/kg	<0.0012	0.0050	12/30/14 13:32	M5
1,4-Dioxane (p-Dioxane)	mg/kg	<0.031	0.10	12/30/14 13:32	M5
2-Butanone (MEK)	mg/kg	<0.0013	0.010	12/30/14 13:32	M5
2-Chlorotoluene	mg/kg	<0.0011	0.0050	12/30/14 13:32	M5
2-Methylnaphthalene	mg/kg	<0.0016	0.0050	12/30/14 13:32	M5, N2
2-Nitropropane	mg/kg	<0.011		12/30/14 13:32	M5
4-Methyl-2-pentanone (MIBK)	mg/kg	<0.0010	0.010	12/30/14 13:32	M5
Acetone	mg/kg	0.0026J	0.010	12/30/14 13:32	M5
Acetonitrile	mg/kg	<0.0090	0.050	12/30/14 13:32	M5
Acrolein	mg/kg	<0.0054	0.050	12/30/14 13:32	M5
Acrylonitrile	mg/kg	<0.0033	0.0050	12/30/14 13:32	M5
Allyl chloride	mg/kg	<0.0038	0.050	12/30/14 13:32	M5
Benzene	mg/kg	<0.00078	0.0050	12/30/14 13:32	M5
Bromochloromethane	mg/kg	<0.00078	0.0050	12/30/14 13:32	M5
Bromodichloromethane	mg/kg	<0.0018	0.0050	12/30/14 13:32	M5
Bromoform	mg/kg	<0.0025	0.0050	12/30/14 13:32	M5
Bromomethane	mg/kg	<0.0029	0.0050	12/30/14 13:32	M5
Carbon disulfide	mg/kg	<0.00077	0.0050	12/30/14 13:32	M5
Carbon tetrachloride	mg/kg	<0.00089	0.0050	12/30/14 13:32	M5
Chlorobenzene	mg/kg	<0.00099	0.0050	12/30/14 13:32	M5
Chloroethane	mg/kg	<0.0016	0.0050	12/30/14 13:32	M5
Chloroform	mg/kg	<0.00071	0.0050	12/30/14 13:32	M5
Chloromethane	mg/kg	<0.0010	0.0050	12/30/14 13:32	M5

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

METHOD BLANK: 837347

Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloroprene	mg/kg	<0.00081	0.0050	12/30/14 13:32	M5
cis-1,2-Dichloroethene	mg/kg	<0.0025	0.0050	12/30/14 13:32	M5
cis-1,3-Dichloropropene	mg/kg	<0.0016	0.0050	12/30/14 13:32	M5
Cyclohexanone	mg/kg	<0.012	0.050	12/30/14 13:32	M5
Dibromochloromethane	mg/kg	<0.0015	0.0050	12/30/14 13:32	M5
Dibromomethane	mg/kg	<0.0025	0.0050	12/30/14 13:32	M5
Dichlorodifluoromethane	mg/kg	<0.00089	0.0050	12/30/14 13:32	M5
Diethyl ether (Ethyl ether)	mg/kg	<0.00088	0.0050	12/30/14 13:32	M5
Ethyl acetate	mg/kg	<0.00096	0.0050	12/30/14 13:32	M5
Ethyl methacrylate	mg/kg	<0.0015	0.0050	12/30/14 13:32	M5
Ethylbenzene	mg/kg	<0.0026	0.0050	12/30/14 13:32	M5
Isobutanol	mg/kg	<0.030	0.050	12/30/14 13:32	M5
Methacrylonitrile	mg/kg	<0.0015	0.0050	12/30/14 13:32	M5
Methyl acetate	mg/kg	<0.0030	0.050	12/30/14 13:32	M5
Methyl methacrylate	mg/kg	<0.0018	0.0050	12/30/14 13:32	M5,N2
Methyl-tert-butyl ether	mg/kg	<0.00071	0.0050	12/30/14 13:32	M5
Methylene Chloride	mg/kg	<0.0013	0.0050	12/30/14 13:32	M5
n-Butylbenzene	mg/kg	<0.0022	0.0050	12/30/14 13:32	M5
n-Hexane	mg/kg	0.0029J	0.010	12/30/14 13:32	M5
n-Propylbenzene	mg/kg	<0.0013	0.0050	12/30/14 13:32	M5
Naphthalene	mg/kg	<0.0025	0.0050	12/30/14 13:32	M5
sec-Butylbenzene	mg/kg	<0.0015	0.0050	12/30/14 13:32	M5
Styrene	mg/kg	<0.0011	0.0050	12/30/14 13:32	M5
tert-Butylbenzene	mg/kg	<0.0020	0.0050	12/30/14 13:32	M5
Tetrachloroethene	mg/kg	<0.00073	0.0050	12/30/14 13:32	M5
Toluene	mg/kg	<0.00064	0.0050	12/30/14 13:32	M5
trans-1,2-Dichloroethene	mg/kg	<0.00082	0.0050	12/30/14 13:32	M5
trans-1,3-Dichloropropene	mg/kg	<0.0016	0.0050	12/30/14 13:32	M5
Trichloroethene	mg/kg	<0.00076	0.0050	12/30/14 13:32	M5
Vinyl acetate	mg/kg	<0.0014	0.050	12/30/14 13:32	M5
Vinyl chloride	mg/kg	<0.00081	0.0050	12/30/14 13:32	M5
Xylene (Total)	mg/kg	<0.0031	0.015	12/30/14 13:32	M5
1,2-Dichloroethane-d4 (S)	%	103	83-138	12/30/14 13:32	M5
4-Bromofluorobenzene (S)	%	92	71-124	12/30/14 13:32	M5
Toluene-d8 (S)	%	93	73-124	12/30/14 13:32	M5

LABORATORY CONTROL SAMPLE: 837348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	mg/kg	.02	0.017	85	60-120	M5
1,1,1-Trichloroethane	mg/kg	.02	0.020	99	58-125	M5
1,1,2,2-Tetrachloroethane	mg/kg	.02	0.017	84	47-121	M5
1,1,2-Trichloroethane	mg/kg	.02	0.017	86	57-117	M5
1,1,2-Trichlorotrifluoroethane	mg/kg	.02	0.031J	153	43-177	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 837348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	mg/kg	.02	0.019	94	59-126	M5
1,1-Dichloroethene	mg/kg	.02	0.021	103	53-142	M5
1,2,3-Trichlorobenzene	mg/kg	.02	0.015	76	44-139	M5
1,2,3-Trichloropropane	mg/kg	.02	0.017	87	57-121	M5
1,2,4-Trichlorobenzene	mg/kg	.02	0.015	77	44-146	M5
1,2,4-Trimethylbenzene	mg/kg	.02	0.017	84	54-131	M5
1,2-Dibromo-3-chloropropane	mg/kg	.02	0.018	89	28-131	M5
1,2-Dibromoethane (EDB)	mg/kg	.02	0.018	90	57-110	M5
1,2-Dichlorobenzene	mg/kg	.02	0.017	85	51-132	M5
1,2-Dichloroethane	mg/kg	.02	0.018	88	52-121	M5
1,2-Dichloropropane	mg/kg	.02	0.017	84	58-122	M5
1,3,5-Trimethylbenzene	mg/kg	.02	0.018	89	54-131	M5
1,3-Dichlorobenzene	mg/kg	.02	0.017	87	52-130	M5
1,4-Dichlorobenzene	mg/kg	.02	0.017	86	53-130	M5
1,4-Dioxane (p-Dioxane)	mg/kg	.2	0.19	93	26-141	M5
2-Butanone (MEK)	mg/kg	.02	0.018	92	52-129	M5
2-Chlorotoluene	mg/kg	.02	0.017	87	53-138	M5
2-Methylnaphthalene	mg/kg	.02	0.016	79	14-170	M5, N2
2-Nitropropane	mg/kg		0.078			M5
4-Methyl-2-pentanone (MIBK)	mg/kg	.02	0.018	91	52-122	M5
Acetone	mg/kg	.02	0.019	95	12-183	M5
Acetonitrile	mg/kg	.1	0.095	95	29-148	M5
Acrolein	mg/kg		0.017J			M5
Acrylonitrile	mg/kg	.02	0.017	87	55-117	M5
Allyl chloride	mg/kg	.1	0.11	112	42-168	M5
Benzene	mg/kg	.02	0.017	87	52-126	M5
Bromochloromethane	mg/kg	.02	0.017	84	63-110	M5
Bromodichloromethane	mg/kg	.02	0.019	93	49-114	M5
Bromoform	mg/kg	.02	0.017	83	33-123	M5
Bromomethane	mg/kg	.02	0.020	100	12-179	M5
Carbon disulfide	mg/kg	.02	0.022	112	31-163	M5
Carbon tetrachloride	mg/kg	.02	0.020	101	59-125	M5
Chlorobenzene	mg/kg	.02	0.018	88	61-122	M5
Chloroethane	mg/kg	.02	0.020	100	61-150	M5
Chloroform	mg/kg	.02	0.018	90	58-121	M5
Chloromethane	mg/kg	.02	0.018	89	45-133	M5
Chloroprene	mg/kg		<0.00081			M5
cis-1,2-Dichloroethene	mg/kg	.02	0.017	87	57-121	M5
cis-1,3-Dichloropropene	mg/kg	.02	0.016	80	44-119	M5
Cyclohexanone	mg/kg	.1	0.060	60	10-175	M5
Dibromochloromethane	mg/kg	.02	0.017	85	46-115	M5
Dibromomethane	mg/kg	.02	0.017	83	59-116	M5
Dichlorodifluoromethane	mg/kg	.02	0.022	111	15-184	M5
Diethyl ether (Ethyl ether)	mg/kg	.02	0.018	88	62-118	M5
Ethyl acetate	mg/kg	.02	<0.00096	0	10-175	L0, M5
Ethyl methacrylate	mg/kg	.02	0.0096	48	24-117	M5
Ethylbenzene	mg/kg	.02	0.018	90	54-128	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 837348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isobutanol	mg/kg	.1	0.090	90	34-113	M5
Methacrylonitrile	mg/kg	.02	0.019	95	10-175	M5
Methyl acetate	mg/kg	.02	0.016J	79	44-159	M5
Methyl methacrylate	mg/kg	.02	0.023	117	35-126	M5, N2
Methyl-tert-butyl ether	mg/kg	.02	0.019	96	57-129	M5
Methylene Chloride	mg/kg	.02	0.017	83	21-152	M5
n-Butylbenzene	mg/kg	.02	0.019	93	41-156	M5
n-Hexane	mg/kg	.02	0.031	156	10-175	M5
n-Propylbenzene	mg/kg	.02	0.018	91	51-144	M5
Naphthalene	mg/kg	.02	0.015	77	36-152	M5
sec-Butylbenzene	mg/kg	.02	0.019	94	51-145	M5
Styrene	mg/kg	.02	0.018	90	48-123	M5
tert-Butylbenzene	mg/kg	.02	0.019	93	54-139	M5
Tetrachloroethene	mg/kg	.02	0.019	96	60-129	M5
Toluene	mg/kg	.02	0.018	88	53-127	M5
trans-1,2-Dichloroethene	mg/kg	.02	0.019	94	54-129	M5
trans-1,3-Dichloropropene	mg/kg	.02	0.016	79	43-111	M5
Trichloroethene	mg/kg	.02	0.018	89	57-123	M5
Vinyl acetate	mg/kg		0.017J			M5
Vinyl chloride	mg/kg	.02	0.019	93	51-135	M5
Xylene (Total)	mg/kg	.06	0.056	93	53-127	M5
1,2-Dichloroethane-d4 (S)	%			103	83-138	M5
4-Bromofluorobenzene (S)	%			96	71-124	M5
Toluene-d8 (S)	%			97	73-124	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: MSV/21999 Analysis Method: EPA 8260C
QC Batch Method: EPA 8260C Analysis Description: 8260C MSV
Associated Lab Samples: 30137135002, 30137135003, 30137135004

METHOD BLANK: 835204 Matrix: Water

Associated Lab Samples: 30137135002, 30137135003, 30137135004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.14	1.0	12/24/14 00:41	M5
1,1,1-Trichloroethane	ug/L	<0.19	1.0	12/24/14 00:41	M5
1,1,2,2-Tetrachloroethane	ug/L	<0.22	1.0	12/24/14 00:41	M5
1,1,2-Trichloroethane	ug/L	<0.23	1.0	12/24/14 00:41	M5
1,1,2-Trichlorotrifluoroethane	ug/L	<0.14	50.0	12/24/14 00:41	M5
1,1-Dichloroethane	ug/L	<0.16	1.0	12/24/14 00:41	M5
1,1-Dichloroethene	ug/L	<0.14	1.0	12/24/14 00:41	M5
1,1-Dichloropropene	ug/L	<0.29	1.0	12/24/14 00:41	M5
1,2,3-Trichlorobenzene	ug/L	<0.29	2.0	12/24/14 00:41	M5
1,2,3-Trichloropropane	ug/L	<0.34	1.0	12/24/14 00:41	M5
1,2,4-Trichlorobenzene	ug/L	<0.33	1.0	12/24/14 00:41	M5
1,2,4-Trimethylbenzene	ug/L	<0.13	1.0	12/24/14 00:41	M5
1,2-Dichlorobenzene	ug/L	<0.23	1.0	12/24/14 00:41	M5
1,2-Dichloroethane	ug/L	<0.14	1.0	12/24/14 00:41	M5
1,2-Dichloropropane	ug/L	<0.23	1.0	12/24/14 00:41	M5
1,3,5-Trimethylbenzene	ug/L	<0.12	1.0	12/24/14 00:41	M5
1,3-Dichlorobenzene	ug/L	<0.26	1.0	12/24/14 00:41	M5
1,3-Dichloropropane	ug/L	<0.24	1.0	12/24/14 00:41	M5
1,4-Dichlorobenzene	ug/L	<0.17	1.0	12/24/14 00:41	M5
2,2-Dichloropropane	ug/L	<0.26	1.0	12/24/14 00:41	M5
2-Butanone (MEK)	ug/L	<1.1	10.0	12/24/14 00:41	M5
2-Chloroethylvinyl ether	ug/L	<2.0	2.0	12/24/14 00:41	M5
2-Chlorotoluene	ug/L	<0.18	1.0	12/24/14 00:41	M5
4-Chlorotoluene	ug/L	<0.21	1.0	12/24/14 00:41	M5
4-Methyl-2-pentanone (MIBK)	ug/L	<0.29	10.0	12/24/14 00:41	M5
Acetone	ug/L	<2.6	10.0	12/24/14 00:41	M5
Acrolein	ug/L	<1.7	2.0	12/24/14 00:41	M5
Acrylonitrile	ug/L	<1.6	2.0	12/24/14 00:41	M5
Benzene	ug/L	<0.065	1.0	12/24/14 00:41	M5
Bromobenzene	ug/L	<0.23	1.0	12/24/14 00:41	M5
Bromodichloromethane	ug/L	<0.15	1.0	12/24/14 00:41	M5
Bromoform	ug/L	<0.25	1.0	12/24/14 00:41	M5
Bromomethane	ug/L	<0.37	1.0	12/24/14 00:41	M5
Carbon tetrachloride	ug/L	<0.24	1.0	12/24/14 00:41	M5
Chlorobenzene	ug/L	<0.12	1.0	12/24/14 00:41	M5
Chloroethane	ug/L	<0.48	1.0	12/24/14 00:41	M5
Chloroform	ug/L	<0.16	1.0	12/24/14 00:41	M5
Chloromethane	ug/L	<0.21	1.0	12/24/14 00:41	M5
cis-1,2-Dichloroethene	ug/L	<0.20	1.0	12/24/14 00:41	M5
cis-1,3-Dichloropropene	ug/L	<0.19	1.0	12/24/14 00:41	M5
Dibromochloromethane	ug/L	<0.22	1.0	12/24/14 00:41	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Project No.: 30137135

METHOD BLANK: 835204

Matrix: Water

Associated Lab Samples: 30137135002, 30137135003, 30137135004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	<0.19	1.0	12/24/14 00:41	M5
Dichlorodifluoromethane	ug/L	<0.20	1.0	12/24/14 00:41	M5
Diisopropyl ether	ug/L	<0.14	1.0	12/24/14 00:41	M5
Ethylbenzene	ug/L	<0.12	1.0	12/24/14 00:41	M5
Hexachloro-1,3-butadiene	ug/L	<0.91	1.0	12/24/14 00:41	M5
Isopropylbenzene (Cumene)	ug/L	<0.12	1.0	12/24/14 00:41	M5
Methyl-tert-butyl ether	ug/L	<0.19	1.0	12/24/14 00:41	M5
Methylene Chloride	ug/L	<0.23	1.0	12/24/14 00:41	M5
n-Butylbenzene	ug/L	<0.16	1.0	12/24/14 00:41	M5
n-Propylbenzene	ug/L	<0.13	1.0	12/24/14 00:41	M5
Naphthalene	ug/L	<0.33	2.0	12/24/14 00:41	M5
p-Isopropyltoluene	ug/L	<0.14	1.0	12/24/14 00:41	M5
sec-Butylbenzene	ug/L	<0.16	1.0	12/24/14 00:41	M5
Styrene	ug/L	<0.18	1.0	12/24/14 00:41	M5
tert-Butylbenzene	ug/L	<0.28	1.0	12/24/14 00:41	M5
Tetrachloroethene	ug/L	<0.12	1.0	12/24/14 00:41	M5
Toluene	ug/L	<0.11	1.0	12/24/14 00:41	M5
trans-1,2-Dichloroethene	ug/L	<0.18	1.0	12/24/14 00:41	M5
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	12/24/14 00:41	M5
Trichloroethene	ug/L	<0.15	1.0	12/24/14 00:41	M5
Trichlorofluoromethane	ug/L	<0.19	1.0	12/24/14 00:41	M5
Vinyl chloride	ug/L	<0.13	1.0	12/24/14 00:41	M5
Xylene (Total)	ug/L	<0.31	3.0	12/24/14 00:41	M5
1,2-Dichloroethane-d4 (S)	%	97	84-124	12/24/14 00:41	M5
4-Bromofluorobenzene (S)	%	100	84-113	12/24/14 00:41	M5
Toluene-d8 (S)	%	101	79-118	12/24/14 00:41	M5

LABORATORY CONTROL SAMPLE: 835205

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.0	85	65-127	M5
1,1,1-Trichloroethane	ug/L	20	18.9	95	62-130	M5
1,1,2,2-Tetrachloroethane	ug/L	20	18.2	91	74-115	M5
1,1,2-Trichloroethane	ug/L	20	18.9	95	73-121	M5
1,1,2-Trichlorotrifluoroethane	ug/L	20	21.8J	109	42-196	M5
1,1-Dichloroethane	ug/L	20	19.8	99	64-125	M5
1,1-Dichloroethene	ug/L	20	17.5	87	58-126	M5
1,1-Dichloropropene	ug/L	20	19.4	97	66-116	M5
1,2,3-Trichlorobenzene	ug/L	20	18.8	94	66-146	M5
1,2,3-Trichloropropane	ug/L	20	17.8	89	66-121	M5
1,2,4-Trichlorobenzene	ug/L	20	19.3	97	72-136	M5
1,2,4-Trimethylbenzene	ug/L	20	17.7	89	70-123	M5
1,2-Dichlorobenzene	ug/L	20	17.9	89	76-117	M5
1,2-Dichloroethane	ug/L	20	18.2	91	66-124	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 835205

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloropropane	ug/L	20	17.7	89	66-119	M5
1,3,5-Trimethylbenzene	ug/L	20	17.8	89	67-123	M5
1,3-Dichlorobenzene	ug/L	20	17.2	86	73-116	M5
1,3-Dichloropropane	ug/L	20	18.2	91	75-115	M5
1,4-Dichlorobenzene	ug/L	20	17.7	88	75-119	M5
2,2-Dichloropropane	ug/L	20	13.9	70	37-146	M5
2-Butanone (MEK)	ug/L	20	19.1	95	69-126	M5
2-Chloroethylvinyl ether	ug/L	20	3.5	18	65-123	L2,M5
2-Chlorotoluene	ug/L	20	17.5	88	70-114	M5
4-Chlorotoluene	ug/L	20	16.9	84	71-116	M5
4-Methyl-2-pentanone (MIBK)	ug/L	20	18.3	92	68-124	M5
Acetone	ug/L	20	22.3	112	56-142	M5
Acrolein	ug/L		2.7			M5
Acrylonitrile	ug/L	20	18.8	94	52-121	M5
Benzene	ug/L	20	18.7	93	69-123	M5
Bromobenzene	ug/L	20	17.3	86	68-118	M5
Bromodichloromethane	ug/L	20	18.0	90	64-120	M5
Bromoform	ug/L	20	20.6	103	56-133	M5
Bromomethane	ug/L	20	22.4	112	19-151	M5
Carbon tetrachloride	ug/L	20	17.0	85	52-133	M5
Chlorobenzene	ug/L	20	17.8	89	72-121	M5
Chloroethane	ug/L	20	21.3	106	53-143	M5
Chloroform	ug/L	20	19.9	100	63-123	M5
Chloromethane	ug/L	20	14.3	72	48-139	M5
cis-1,2-Dichloroethene	ug/L	20	19.3	97	63-123	M5
cis-1,3-Dichloropropene	ug/L	20	17.4	87	65-121	M5
Dibromochloromethane	ug/L	20	19.0	95	58-132	M5
Dibromomethane	ug/L	20	17.6	88	70-125	M5
Dichlorodifluoromethane	ug/L	20	17.6	88	30-157	M5
Diisopropyl ether	ug/L	20	19.9	99	66-131	M5
Ethylbenzene	ug/L	20	17.4	87	70-123	M5
Hexachloro-1,3-butadiene	ug/L	20	19.5	97	68-132	M5
Isopropylbenzene (Cumene)	ug/L	20	19.7	99	66-136	M5
Methyl-tert-butyl ether	ug/L	20	20.9	105	69-133	M5
Methylene Chloride	ug/L	20	16.8	84	55-134	M5
n-Butylbenzene	ug/L	20	17.6	88	69-120	M5
n-Propylbenzene	ug/L	20	18.0	90	72-116	M5
Naphthalene	ug/L	20	18.1	91	65-134	M5
p-Isopropyltoluene	ug/L	20	18.4	92	76-117	M5
sec-Butylbenzene	ug/L	20	18.7	93	72-116	M5
Styrene	ug/L	20	17.6	88	66-126	M5
tert-Butylbenzene	ug/L	20	19.0	95	72-116	M5
Tetrachloroethene	ug/L	20	17.6	88	62-131	M5
Toluene	ug/L	20	17.8	89	73-123	M5
trans-1,2-Dichloroethene	ug/L	20	18.6	93	61-124	M5
trans-1,3-Dichloropropene	ug/L	20	17.1	85	70-111	M5
Trichloroethene	ug/L	20	17.7	88	66-125	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 835205

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichlorofluoromethane	ug/L	20	18.2	91	57-144	M5
Vinyl chloride	ug/L	20	20.3	101	58-131	M5
Xylene (Total)	ug/L	60	51.5	86	70-123	M5
1,2-Dichloroethane-d4 (S)	%			95	84-124	M5
4-Bromofluorobenzene (S)	%			98	84-113	M5
Toluene-d8 (S)	%			96	79-118	M5

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: OEXT/22106

Analysis Method: EPA 8081B

QC Batch Method: EPA 3546

Analysis Description: 8081 GCS Pesticides

Associated Lab Samples: 30137135001

METHOD BLANK: 835121

Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	mg/kg	<0.00015	0.0033	12/30/14 04:20	
4,4'-DDE	mg/kg	<0.00015	0.0033	12/30/14 04:20	
4,4'-DDT	mg/kg	<0.00017	0.0033	12/30/14 04:20	
Aldrin	mg/kg	<0.000078	0.0017	12/30/14 04:20	
beta-BHC	mg/kg	<0.00019	0.0017	12/30/14 04:20	
Chlordane (Technical)	mg/kg	<0.010	0.017	12/30/14 04:20	
delta-BHC	mg/kg	<0.000095	0.0017	12/30/14 04:20	
Dieldrin	mg/kg	<0.00019	0.0033	12/30/14 04:20	
Endosulfan I	mg/kg	<0.000097	0.0017	12/30/14 04:20	
Endosulfan II	mg/kg	0.00040J	0.0033	12/30/14 04:20	
Endosulfan sulfate	mg/kg	<0.00013	0.0033	12/30/14 04:20	
Endrin	mg/kg	<0.00018	0.0033	12/30/14 04:20	
gamma-BHC (Lindane)	mg/kg	<0.00012	0.0017	12/30/14 04:20	
Heptachlor	mg/kg	<0.00020	0.0017	12/30/14 04:20	
Heptachlor epoxide	mg/kg	<0.000082	0.0017	12/30/14 04:20	
Methoxychlor	mg/kg	<0.0010	0.017	12/30/14 04:20	
Toxaphene	mg/kg	<0.0036	0.017	12/30/14 04:20	
Decachlorobiphenyl (S)	%	85	39-122	12/30/14 04:20	
Tetrachloro-m-xylene (S)	%	77	37-113	12/30/14 04:20	

LABORATORY CONTROL SAMPLE: 835122

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	mg/kg	.027	0.026	97	64-119	
4,4'-DDE	mg/kg	.027	0.021	80	50-114	
4,4'-DDT	mg/kg	.027	0.025	95	68-118	
Aldrin	mg/kg	.013	0.011	80	50-98	
beta-BHC	mg/kg	.013	0.011	81	49-104	
delta-BHC	mg/kg	.013	0.010	77	48-113	
Dieldrin	mg/kg	.027	0.022	83	63-112	
Endosulfan I	mg/kg	.013	0.011	80	60-108	
Endosulfan II	mg/kg	.027	0.023	88	51-112	
Endosulfan sulfate	mg/kg	.027	0.024	90	54-112	
Endrin	mg/kg	.027	0.025	92	65-114	
gamma-BHC (Lindane)	mg/kg	.013	0.010	78	55-112	
Heptachlor	mg/kg	.013	0.011	86	59-108	
Heptachlor epoxide	mg/kg	.013	0.011	81	51-105	
Methoxychlor	mg/kg	.13	0.13	98	64-116	
Decachlorobiphenyl (S)	%			86	39-122	
Tetrachloro-m-xylene (S)	%			76	37-113	

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

Parameter	Units	30137135001		MS		MSD		835123		835124		% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec								
4,4'-DDD	mg/kg	<0.00017	.03	.03	0.027	0.026	91	89	64-119	2	25					
4,4'-DDE	mg/kg	<0.00017	.03	.03	0.023	0.022	77	75	50-114	2	25					
4,4'-DDT	mg/kg	<0.00019	.03	.03	0.027	0.026	90	88	68-118	3	25					
Aldrin	mg/kg	<0.000087	.015	.015	0.010	0.0097	67	65	50-98	3	25					
beta-BHC	mg/kg	<0.00022	.015	.015	0.011	0.011	75	74	49-104	1	25					
delta-BHC	mg/kg	<0.00011	.015	.015	0.011	0.010	73	71	48-113	4	25					
Dieldrin	mg/kg	<0.00021	.03	.03	0.023	0.023	79	76	63-112	3	25					
Endosulfan I	mg/kg	<0.00011	.015	.015	0.011	0.011	76	74	60-108	3	25					
Endosulfan II	mg/kg	<0.00017	.03	.03	0.024	0.024	82	80	51-112	2	25					
Endosulfan sulfate	mg/kg	<0.00015	.03	.03	0.025	0.025	86	83	54-112	3	25					
Endrin	mg/kg	<0.00020	.03	.03	0.025	0.024	84	82	65-114	2	25					
gamma-BHC (Lindane)	mg/kg	<0.00013	.015	.015	0.011	0.010	72	69	55-112	5	25					
Heptachlor	mg/kg	<0.00022	.015	.015	0.012	0.012	81	79	59-108	3	25					
Heptachlor epoxide	mg/kg	0.00029J	.015	.015	0.011	0.011	75	73	51-105	2	25					
Methoxychlor	mg/kg	<0.0011	.15	.15	0.13	0.13	90	88	64-116	2	25					
Decachlorobiphenyl (S)	%						80	78	39-122							
Tetrachloro-m-xylene (S)	%						69	66	37-113							

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: OEXT/22074 Analysis Method: EPA 8082A
QC Batch Method: EPA 3546 Analysis Description: 8082A GCS PCB
Associated Lab Samples: 30137135001

METHOD BLANK: 834480 Matrix: Solid
Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<2.5	16.7	12/23/14 02:09	1c
PCB-1221 (Aroclor 1221)	ug/kg	<7.6	16.7	12/23/14 02:09	1c
PCB-1232 (Aroclor 1232)	ug/kg	<5.0	16.7	12/23/14 02:09	1c
PCB-1242 (Aroclor 1242)	ug/kg	<3.3	16.7	12/23/14 02:09	1c
PCB-1248 (Aroclor 1248)	ug/kg	<3.5	16.7	12/23/14 02:09	1c
PCB-1254 (Aroclor 1254)	ug/kg	<7.7	16.7	12/23/14 02:09	1c
PCB-1260 (Aroclor 1260)	ug/kg	<2.6	16.7	12/23/14 02:09	1c
Decachlorobiphenyl (S)	%	60	10-115	12/23/14 02:09	1c
Tetrachloro-m-xylene (S)	%	75	30-107	12/23/14 02:09	1c

LABORATORY CONTROL SAMPLE: 834481

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	167	128	77	40-100	1c
PCB-1260 (Aroclor 1260)	ug/kg	167	112	67	41-109	1c
Decachlorobiphenyl (S)	%			60	10-115	1c
Tetrachloro-m-xylene (S)	%			83	30-107	1c

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 834482 834483

Parameter	Units	30137135001		834483		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
PCB-1016 (Aroclor 1016)	ug/kg	<2.8	187	187	104	56	70	40-100	24	25	1c
PCB-1260 (Aroclor 1260)	ug/kg	<2.9	187	187	87.8	47	66	41-109	34	25	1c,R1
Decachlorobiphenyl (S)	%					50	71	10-115			1c
Tetrachloro-m-xylene (S)	%					61	73	30-107			1c

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: OEXT/3778 Analysis Method: EPA 8151
QC Batch Method: EPA 3546 Analysis Description: 8151 GCS Herbicides
Associated Lab Samples: 30137135001

METHOD BLANK: 82547 Matrix: Solid
Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-T	mg/kg	<0.033	0.067	12/23/14 16:24	
2,4,5-TP (Silvex)	mg/kg	<0.033	0.067	12/23/14 16:24	
2,4-D	mg/kg	<0.035	0.067	12/23/14 16:24	
2,4-DCAA (S)	%.	70	10-161	12/23/14 16:24	
2,4-DCAA (S)	%.	79	10-161	12/23/14 16:24	

LABORATORY CONTROL SAMPLE: 82548

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-T	mg/kg	.067	0.040J	60	13-174	
2,4,5-TP (Silvex)	mg/kg	.067	0.043J	64	17-173	
2,4-D	mg/kg	.67	0.48	72	14-171	
2,4-DCAA (S)	%.			82	10-161	
2,4-DCAA (S)	%.			73	10-161	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 82549 82550

Parameter	Units	30137135001		82550		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
2,4,5-T	mg/kg	<0.032	.065	.064	<0.033	<0.032	16	33	10-210	20	
2,4,5-TP (Silvex)	mg/kg	<0.032	.065	.064	<0.033	<0.032	21	48	10-175	20	
2,4-D	mg/kg	<0.034	.65	.64	0.13	0.25	20	39	10-174	61	20 R1
2,4-DCAA (S)	%.						32	64	10-161		
2,4-DCAA (S)	%.						25	55	10-161		

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: OEXT/22108 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270D/3546 MSSV PAH by SIM
Associated Lab Samples: 30137135001

METHOD BLANK: 835130 Matrix: Solid
Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Quinoline	mg/kg	<0.0016	0.0067	12/29/14 15:23	
2-Fluorobiphenyl (S)	%	109	35-141	12/29/14 15:23	
Terphenyl-d14 (S)	%	100	64-141	12/29/14 15:23	

LABORATORY CONTROL SAMPLE: 835131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Quinoline	mg/kg	.13	<0.0016	0	45-124	L2
2-Fluorobiphenyl (S)	%			107	35-141	
Terphenyl-d14 (S)	%			103	64-141	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 835132 835133

Parameter	Units	30137135001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Quinoline	mg/kg	<0.0019	.15	.15	<0.0019	<0.0019	0	0	45-124	20	M0
2-Fluorobiphenyl (S)	%						100	81	35-141		
Terphenyl-d14 (S)	%						78	77	64-141		

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

QC Batch: OEXT/22077 Analysis Method: EPA 8270D
QC Batch Method: EPA 3546 Analysis Description: 8270D Solid MSSV Microwave
Associated Lab Samples: 30137135001

METHOD BLANK: 834490 Matrix: Solid
Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.062	0.33	12/23/14 19:27	
2,3,4,6-Tetrachlorophenol	mg/kg	<0.061	0.33	12/23/14 19:27	
2,4,5-Trichlorophenol	mg/kg	<0.099	0.83	12/23/14 19:27	
2,4,6-Trichlorophenol	mg/kg	<0.061	0.33	12/23/14 19:27	
2,4-Dichlorophenol	mg/kg	<0.057	0.33	12/23/14 19:27	
2,4-Dimethylphenol	mg/kg	<0.059	0.33	12/23/14 19:27	
2,4-Dinitrophenol	mg/kg	<0.30	0.83	12/23/14 19:27	
2,4-Dinitrotoluene	mg/kg	<0.070	0.33	12/23/14 19:27	
2,6-Dinitrotoluene	mg/kg	<0.044	0.33	12/23/14 19:27	
2-Chloronaphthalene	mg/kg	<0.035	0.33	12/23/14 19:27	
2-Chlorophenol	mg/kg	<0.042	0.33	12/23/14 19:27	
2-Nitroaniline	mg/kg	<0.039	0.83	12/23/14 19:27	
2-Nitrophenol	mg/kg	<0.037	0.33	12/23/14 19:27	
3&4-Methylphenol(m&p Cresol)	mg/kg	<0.067	0.67	12/23/14 19:27	
3,3'-Dichlorobenzidine	mg/kg	<0.036	0.33	12/23/14 19:27	
3-Nitroaniline	mg/kg	<0.062	0.83	12/23/14 19:27	
4-Chloro-3-methylphenol	mg/kg	<0.053	0.33	12/23/14 19:27	
4-Chloroaniline	mg/kg	<0.074	0.33	12/23/14 19:27	
4-Nitroaniline	mg/kg	<0.090	0.83	12/23/14 19:27	
4-Nitrophenol	mg/kg	<0.14	0.33	12/23/14 19:27	
Acenaphthene	mg/kg	<0.039	0.33	12/23/14 19:27	
Acenaphthylene	mg/kg	<0.038	0.33	12/23/14 19:27	
Acetophenone	mg/kg	<0.041	0.33	12/23/14 19:27	
Aniline	mg/kg	<0.060	0.33	12/23/14 19:27	
Anthracene	mg/kg	<0.052	0.33	12/23/14 19:27	
Atrazine	mg/kg	<0.064	0.33	12/23/14 19:27	
Benzidine	mg/kg	<3.3	3.3	12/23/14 19:27	
Benzo(a)anthracene	mg/kg	<0.038	0.33	12/23/14 19:27	
Benzo(a)pyrene	mg/kg	<0.11	0.33	12/23/14 19:27	
Benzo(b)fluoranthene	mg/kg	<0.066	0.33	12/23/14 19:27	
Benzo(g,h,i)perylene	mg/kg	<0.096	0.33	12/23/14 19:27	
Benzo(k)fluoranthene	mg/kg	<0.12	0.33	12/23/14 19:27	
Benzoic acid	mg/kg	<0.26	0.83	12/23/14 19:27	
Benzyl alcohol	mg/kg	<0.049	0.33	12/23/14 19:27	
Biphenyl (Diphenyl)	mg/kg	<0.061	0.33	12/23/14 19:27	
bis(2-Chloroethyl) ether	mg/kg	<0.16	0.33	12/23/14 19:27	
bis(2-Chloroisopropyl) ether	mg/kg	<0.044	0.33	12/23/14 19:27	
bis(2-Ethylhexyl)phthalate	mg/kg	<0.11	0.33	12/23/14 19:27	
Butylbenzylphthalate	mg/kg	<0.038	0.33	12/23/14 19:27	
Carbazole	mg/kg	<0.059	0.33	12/23/14 19:27	
Chrysene	mg/kg	<0.072	0.33	12/23/14 19:27	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

METHOD BLANK: 834490

Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Di-n-butylphthalate	mg/kg	<0.055	0.33	12/23/14 19:27	
Di-n-octylphthalate	mg/kg	<0.061	0.33	12/23/14 19:27	
Dibenz(a,h)anthracene	mg/kg	<0.11	0.33	12/23/14 19:27	
Diethylphthalate	mg/kg	<0.037	0.33	12/23/14 19:27	
Fluoranthene	mg/kg	<0.051	0.33	12/23/14 19:27	
Fluorene	mg/kg	<0.047	0.33	12/23/14 19:27	
Hexachloro-1,3-butadiene	mg/kg	<0.059	0.33	12/23/14 19:27	
Hexachlorobenzene	mg/kg	<0.043	0.33	12/23/14 19:27	
Hexachlorocyclopentadiene	mg/kg	<0.11	0.33	12/23/14 19:27	
Hexachloroethane	mg/kg	<0.051	0.33	12/23/14 19:27	
Indeno(1,2,3-cd)pyrene	mg/kg	<0.081	0.33	12/23/14 19:27	
Isophorone	mg/kg	<0.036	0.33	12/23/14 19:27	
N-Nitroso-di-n-propylamine	mg/kg	<0.039	0.33	12/23/14 19:27	
N-Nitrosodimethylamine	mg/kg	<0.043	0.33	12/23/14 19:27	
N-Nitrosodiphenylamine	mg/kg	<0.034	0.33	12/23/14 19:27	
Nitrobenzene	mg/kg	<0.052	0.33	12/23/14 19:27	
Pentachlorophenol	mg/kg	<0.083	0.83	12/23/14 19:27	
Phenanthrene	mg/kg	<0.062	0.33	12/23/14 19:27	
Phenol	mg/kg	<0.081	0.33	12/23/14 19:27	
Pyrene	mg/kg	<0.051	0.33	12/23/14 19:27	
Pyridine	mg/kg	<0.28	0.83	12/23/14 19:27	
2,4,6-Tribromophenol (S)	%	76	21-133	12/23/14 19:27	
2-Fluorobiphenyl (S)	%	87	50-112	12/23/14 19:27	
2-Fluorophenol (S)	%	79	38-124	12/23/14 19:27	
Nitrobenzene-d5 (S)	%	83	40-117	12/23/14 19:27	
Phenol-d6 (S)	%	84	53-115	12/23/14 19:27	
Terphenyl-d14 (S)	%	109	52-130	12/23/14 19:27	

LABORATORY CONTROL SAMPLE: 834491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4,5-Tetrachlorobenzene	mg/kg		<0.062			
2,3,4,6-Tetrachlorophenol	mg/kg	3.3	2.4	73	57-146	
2,4,5-Trichlorophenol	mg/kg	3.3	2.8	83	67-136	
2,4,6-Trichlorophenol	mg/kg	3.3	3.3	100	67-135	
2,4-Dichlorophenol	mg/kg	3.3	2.3	68	37-133	
2,4-Dimethylphenol	mg/kg	3.3	2.2	66	33-137	
2,4-Dinitrophenol	mg/kg	3.3	2.7	80	10-160	
2,4-Dinitrotoluene	mg/kg	3.3	2.3	68	73-119 L0	
2,6-Dinitrotoluene	mg/kg	3.3	3.3	100	23-169	
2-Chloronaphthalene	mg/kg	3.3	3.1	92	63-124	
2-Chlorophenol	mg/kg	3.3	2.9	88	70-110	
2-Nitroaniline	mg/kg	3.3	3.1	93	75-136	
2-Nitrophenol	mg/kg	3.3	2.5	75	32-134	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 834491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
3&4-Methylphenol(m&p Cresol)	mg/kg	3.3	2.9	86	49-142	
3,3'-Dichlorobenzidine	mg/kg		<0.036			
3-Nitroaniline	mg/kg	3.3	2.2	66	58-161	
4-Chloro-3-methylphenol	mg/kg	3.3	2.3	68	58-115	
4-Chloroaniline	mg/kg	3.3	1.3	40	12-147	
4-Nitroaniline	mg/kg	3.3	2.7	81	25-195	
4-Nitrophenol	mg/kg	3.3	2.8	85	56-145	
Acenaphthene	mg/kg	3.3	3.1	94	74-109	
Acenaphthylene	mg/kg	3.3	3.0	89	77-110	
Acetophenone	mg/kg	3.3	2.1	62	52-88	
Aniline	mg/kg	3.3	2.9	86	10-175	
Anthracene	mg/kg	3.3	3.0	89	85-109	
Atrazine	mg/kg		<0.064			
Benzidine	mg/kg		<3.3			
Benzo(a)anthracene	mg/kg	3.3	3.3	99	82-111	
Benzo(a)pyrene	mg/kg	3.3	3.2	97	85-110	
Benzo(b)fluoranthene	mg/kg	3.3	3.8	113	76-124	
Benzo(g,h,i)perylene	mg/kg	3.3	1.6	49	30-156	
Benzo(k)fluoranthene	mg/kg	3.3	3.7	112	74-125	
Benzoic acid	mg/kg	3.3	2.1	64	11-128	
Benzyl alcohol	mg/kg	3.3	2.8	83	54-139	
Biphenyl (Diphenyl)	mg/kg		<0.061			
bis(2-Chloroethyl) ether	mg/kg	3.3	2.8	83	50-125	
bis(2-Chloroisopropyl) ether	mg/kg	3.3	3.1	94	52-131	
bis(2-Ethylhexyl)phthalate	mg/kg	3.3	2.8	85	68-145	
Butylbenzylphthalate	mg/kg	3.3	3.2	97	64-152	
Carbazole	mg/kg	3.3	3.3	100	56-172	
Chrysene	mg/kg	3.3	3.4	102	83-114	
Di-n-butylphthalate	mg/kg	3.3	3.0	90	73-127	
Di-n-octylphthalate	mg/kg	3.3	2.5	74	66-146	
Dibenz(a,h)anthracene	mg/kg	3.3	1.8	54	44-146	
Diethylphthalate	mg/kg	3.3	3.1	94	70-128	
Fluoranthene	mg/kg	3.3	3.3	98	82-115	
Fluorene	mg/kg	3.3	3.2	95	79-112	
Hexachloro-1,3-butadiene	mg/kg	3.3	2.7	80	34-138	
Hexachlorobenzene	mg/kg	3.3	3.2	96	72-128	
Hexachlorocyclopentadiene	mg/kg	3.3	1.8	54	32-116	
Hexachloroethane	mg/kg	3.3	2.9	86	51-123	
Indeno(1,2,3-cd)pyrene	mg/kg	3.3	2.0	59	42-146	
Isophorone	mg/kg	3.3	2.2	65	40-122	
N-Nitroso-di-n-propylamine	mg/kg	3.3	3.0	89	66-117	
N-Nitrosodimethylamine	mg/kg	3.3	2.6	77	16-145	
N-Nitrosodiphenylamine	mg/kg	3.3	3.0	89	70-137	
Nitrobenzene	mg/kg	3.3	2.1	62	31-131	
Pentachlorophenol	mg/kg	3.3	3.1	93	18-150	
Phenanthrene	mg/kg	3.3	3.2	95	84-109	
Phenol	mg/kg	3.3	2.7	82	68-111	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623
Pace Project No.: 30137135

LABORATORY CONTROL SAMPLE: 834491

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pyrene	mg/kg	3.3	3.4	103	68-126	
Pyridine	mg/kg	3.3	2.4	72	10-144	
2,4,6-Tribromophenol (S)	%			87	21-133	
2-Fluorobiphenyl (S)	%			87	50-112	
2-Fluorophenol (S)	%			78	38-124	
Nitrobenzene-d5 (S)	%			63	40-117	
Phenol-d6 (S)	%			82	53-115	
Terphenyl-d14 (S)	%			102	52-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 835015 835016

Parameter	Units	30137135001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.070			<0.071	<0.070							
2,3,4,6-Tetrachlorophenol	mg/kg	<0.068	3.8	3.7	2.8	3.0	74	81	57-146	7			
2,4,5-Trichlorophenol	mg/kg	<0.11	3.8	3.7	3.2	3.4	85	91	67-136	5	25	CH	
2,4,6-Trichlorophenol	mg/kg	<0.068	3.8	3.7	3.2	3.2	85	87	67-135	0	25		
2,4-Dichlorophenol	mg/kg	<0.064	3.8	3.7	2.5	2.4	65	65	37-133	1	25		
2,4-Dimethylphenol	mg/kg	<0.066	3.8	3.7	2.2	2.1	58	57	33-137	3	25		
2,4-Dinitrophenol	mg/kg	<0.34	3.8	3.7	1.4	1.6	38	43	10-160	12	25	CH	
2,4-Dinitrotoluene	mg/kg	<0.078	3.8	3.7	3.3	3.4	88	91	73-119	1	25		
2,6-Dinitrotoluene	mg/kg	<0.049	3.8	3.7	3.3	3.4	88	92	23-169	3	25		
2-Chloronaphthalene	mg/kg	<0.039	3.8	3.7	3.3	3.3	86	88	63-124	0	25		
2-Chlorophenol	mg/kg	<0.048	3.8	3.7	3.2	3.2	83	85	70-110	0	25		
2-Nitroaniline	mg/kg	<0.044	3.8	3.7	3.3	3.3	86	88	75-136	0	25		
2-Nitrophenol	mg/kg	<0.042	3.8	3.7	2.7	2.5	71	66	32-134	8	25		
3&4-Methylphenol(m&p Cresol)	mg/kg	<0.075	3.8	3.7	3.0	3.0	79	81	49-142	0	25		
3,3'-Dichlorobenzidine	mg/kg	<0.041			<0.041	<0.041						25	
3-Nitroaniline	mg/kg	<0.070	3.8	3.7	2.8	3.1	73	82	58-161	10	25	CL	
4-Chloro-3-methylphenol	mg/kg	<0.059	3.8	3.7	2.4	2.5	64	66	58-115	2	25		
4-Chloroaniline	mg/kg	<0.083	3.8	3.7	2.0	2.1	54	57	12-147	4	25	CL	
4-Nitroaniline	mg/kg	<0.10	3.8	3.7	2.8	2.9	74	78	25-195	4	25	CL	
4-Nitrophenol	mg/kg	<0.15	3.8	3.7	2.8	3.0	73	79	56-145	6	25		
Acenaphthene	mg/kg	<0.044	3.8	3.7	3.3	3.3	88	90	74-109	1	25		
Acenaphthylene	mg/kg	<0.043	3.8	3.7	3.1	3.2	83	85	77-110	1	25		
Acetophenone	mg/kg	<0.046	3.8	3.7	2.3	2.2	60	60	52-88	1	25		
Aniline	mg/kg	<0.068	3.8	3.7	3.4	3.4	89	90	10-175	0	25		
Anthracene	mg/kg	<0.058	3.8	3.7	3.3	3.4	86	92	85-109	5	25		
Atrazine	mg/kg	<0.072			<0.073	<0.071						25	
Benzidine	mg/kg	<3.7			<3.8	<3.7						25	CL
Benzo(a)anthracene	mg/kg	<0.043	3.8	3.7	3.4	3.4	89	91	82-111	0	25		
Benzo(a)pyrene	mg/kg	<0.13	3.8	3.7	3.5	3.5	91	95	85-110	2	25	IS	
Benzo(b)fluoranthene	mg/kg	<0.074	3.8	3.7	4.1	4.7	107	125	76-124	13	25	IS,M1	
Benzo(g,h,i)perylene	mg/kg	<0.11	3.8	3.7	1.3	1.2	36	33	30-156	10	25	CH,IS	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 835015			835016									
Parameter	Units	30137135001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		RPD
Benzo(k)fluoranthene	mg/kg	<0.13	3.8	3.7	4.3	4.4	113	118	74-125	2	25	IS
Benzoic acid	mg/kg	<0.29	3.8	3.7	1.1	1.2	30	31	11-128	4	25	
Benzyl alcohol	mg/kg	<0.055	3.8	3.7	3.1	3.1	81	83	54-139	1	25	
Biphenyl (Diphenyl)	mg/kg	<0.068			<0.069	<0.068					25	
bis(2-Chloroethyl) ether	mg/kg	<0.18	3.8	3.7	3.0	3.0	80	81	50-125	1	25	
bis(2-Chloroisopropyl) ether	mg/kg	<0.050	3.8	3.7	3.4	3.4	89	91	52-131	1	25	
bis(2-Ethylhexyl)phthalate	mg/kg	<0.13	3.8	3.7	2.8	2.9	75	78	68-145	2	25	
Butylbenzylphthalate	mg/kg	<0.043	3.8	3.7	3.3	3.5	87	93	64-152	5	25	
Carbazole	mg/kg	<0.066	3.8	3.7	3.2	3.5	86	94	56-172	8	25	
Chrysene	mg/kg	<0.080	3.8	3.7	3.5	3.6	91	97	83-114	5	25	
Di-n-butylphthalate	mg/kg	<0.062	3.8	3.7	3.2	3.3	85	88	73-127	2	25	
Di-n-octylphthalate	mg/kg	<0.069	3.8	3.7	2.5	2.3	65	62	66-146	6	25	M1
Dibenz(a,h)anthracene	mg/kg	<0.13	3.8	3.7	1.7	1.5	44	39	44-146	12	25	CH,IS, M1
Diethylphthalate	mg/kg	<0.041	3.8	3.7	3.3	3.3	86	90	70-128	2	25	
Fluoranthene	mg/kg	<0.057	3.8	3.7	3.4	3.5	90	94	82-115	2	25	
Fluorene	mg/kg	<0.053	3.8	3.7	3.4	3.4	88	91	79-112	1	25	
Hexachloro-1,3-butadiene	mg/kg	<0.066	3.8	3.7	2.9	2.9	77	77	34-138	1	25	
Hexachlorobenzene	mg/kg	<0.048	3.8	3.7	3.4	3.4	91	93	72-128	0	25	
Hexachlorocyclopentadiene	mg/kg	<0.12	3.8	3.7	1.8	1.8	47	48	32-116	0	25	
Hexachloroethane	mg/kg	<0.057	3.8	3.7	3.2	3.1	84	84	51-123	2	25	
Indeno(1,2,3-cd)pyrene	mg/kg	<0.091	3.8	3.7	1.8	1.7	47	45	42-146	7	25	CH,IS
Isophorone	mg/kg	<0.041	3.8	3.7	2.4	2.4	63	64	40-122	0	25	
N-Nitroso-di-n-propylamine	mg/kg	<0.044	3.8	3.7	3.2	3.2	85	87	66-117	0	25	
N-Nitrosodimethylamine	mg/kg	<0.048	3.8	3.7	2.6	2.6	69	69	16-145	3	25	
N-Nitrosodiphenylamine	mg/kg	<0.038	3.8	3.7	3.2	3.2	83	86	70-137	2	25	
Nitrobenzene	mg/kg	<0.059	3.8	3.7	2.3	2.2	60	60	31-131	1	25	
Pentachlorophenol	mg/kg	<0.093	3.8	3.7	3.1	3.2	81	87	18-150	5	25	
Phenanthrene	mg/kg	<0.069	3.8	3.7	3.2	3.2	85	86	84-109	0	25	
Phenol	mg/kg	<0.091	3.8	3.7	2.9	2.9	76	78	68-111	1	25	
Pyrene	mg/kg	<0.057	3.8	3.7	3.5	3.8	92	103	68-126	9	25	
Pyridine	mg/kg	<0.31	3.8	3.7	2.5	2.5	66	66	10-144	3	25	
2,4,6-Tribromophenol (S)	%						81	82	21-133			
2-Fluorobiphenyl (S)	%						82	80	50-112			
2-Fluorophenol (S)	%						73	70	38-124			
Nitrobenzene-d5 (S)	%						60	60	40-117			
Phenol-d6 (S)	%						76	76	53-115			
Terphenyl-d14 (S)	%						93	99	52-130			

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: OEXT/22093

Analysis Method: EPA 8270D by SIM

QC Batch Method: EPA 3510C

Analysis Description: 8270D Water PAH by SIM MSSV

Associated Lab Samples: 30137135002, 30137135003, 30137135004

METHOD BLANK: 835023

Matrix: Water

Associated Lab Samples: 30137135002, 30137135003, 30137135004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.015	0.10	12/23/14 14:48	
Acenaphthylene	ug/L	<0.014	0.10	12/23/14 14:48	
Anthracene	ug/L	<0.026	0.10	12/23/14 14:48	
Benzo(a)anthracene	ug/L	<0.0032	0.10	12/23/14 14:48	
Benzo(a)pyrene	ug/L	<0.073	0.10	12/23/14 14:48	
Benzo(b)fluoranthene	ug/L	<0.0036	0.10	12/23/14 14:48	
Benzo(g,h,i)perylene	ug/L	<0.060	0.10	12/23/14 14:48	
Benzo(k)fluoranthene	ug/L	<0.012	0.10	12/23/14 14:48	
Chrysene	ug/L	<0.0017	0.10	12/23/14 14:48	
Dibenz(a,h)anthracene	ug/L	<0.010	0.10	12/23/14 14:48	
Fluoranthene	ug/L	<0.0030	0.10	12/23/14 14:48	
Fluorene	ug/L	0.020J	0.10	12/23/14 14:48	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0031	0.10	12/23/14 14:48	
Naphthalene	ug/L	0.059J	0.10	12/23/14 14:48	
Phenanthrene	ug/L	<0.017	0.10	12/23/14 14:48	
Pyrene	ug/L	<0.013	0.10	12/23/14 14:48	
2-Fluorobiphenyl (S)	%	72	19-123	12/23/14 14:48	
Terphenyl-d14 (S)	%	93	58-130	12/23/14 14:48	

LABORATORY CONTROL SAMPLE: 835024

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	2	1.5	77	48-104	
Acenaphthylene	ug/L	2	1.6	82	44-109	
Anthracene	ug/L	2	1.7	84	49-112	
Benzo(a)anthracene	ug/L	2	1.8	89	63-109	
Benzo(a)pyrene	ug/L	2	1.7	84	51-98	
Benzo(b)fluoranthene	ug/L	2	1.9	94	41-139	
Benzo(g,h,i)perylene	ug/L	2	1.8	92	44-124	
Benzo(k)fluoranthene	ug/L	2	1.9	96	58-125	
Chrysene	ug/L	2	1.9	94	62-115	
Dibenz(a,h)anthracene	ug/L	2	1.9	93	55-124	
Fluoranthene	ug/L	2	1.9	94	65-112	
Fluorene	ug/L	2	1.6	80	49-108	
Indeno(1,2,3-cd)pyrene	ug/L	2	1.9	93	54-125	
Naphthalene	ug/L	2	1.4	70	42-107	
Phenanthrene	ug/L	2	1.6	80	50-109	
Pyrene	ug/L	2	1.8	92	64-109	
2-Fluorobiphenyl (S)	%			70	19-123	
Terphenyl-d14 (S)	%			99	58-130	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch:	PMST/5054	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	30137135001		

SAMPLE DUPLICATE: 835319

Parameter	Units	30136643001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	23.1	22.5	3	20	

SAMPLE DUPLICATE: 835320

Parameter	Units	30136644001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	80.5	80.5	0	20	

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QUALITY CONTROL DATA

Project: Speedway #100623

Pace Project No.: 30137135

QC Batch: WET/26588

Analysis Method: EPA 7196A

QC Batch Method: EPA 7196A

Analysis Description: 7196 Chromium, Hexavalent

Associated Lab Samples: 30137135001

METHOD BLANK: 835961

Matrix: Solid

Associated Lab Samples: 30137135001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Hexavalent	mg/kg	<0.36	1.0	12/29/14 12:00	

LABORATORY CONTROL SAMPLE: 835962

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	19.8	21.2	107	80-120	

MATRIX SPIKE SAMPLE: 835963

Parameter	Units	30137135001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/kg	<0.42	22.7	23.3	102	75-125	

SAMPLE DUPLICATE: 835964

Parameter	Units	30137135001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chromium, Hexavalent	mg/kg	<0.42	<0.42		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Speedway #100623
Pace Project No.: 30137135

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-N Pace Analytical Services - New Orleans

PASI-PA Pace Analytical Services - Greensburg

SAMPLE QUALIFIERS

Sample: 30137135002

[1] Acrolein is reported to the MDL.

Sample: 30137135003

[1] Acrolein is reported to the MDL.

Sample: 30137135004

[1] Acrolein is reported to the MDL.

BATCH QUALIFIERS

Batch: OEXT/22093

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: OEXT/22108

[1] Due to a laboratory error, Quinoline was not spiked in the Laboratory Control Sample (LCS) or Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Batch: MSV/21999

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/7640

[1] The samples from this Batch were analyzed in an analytical bracket of more than ten samples, but less than twenty.

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QUALIFIERS

Project: Speedway #100623

Pace Project No.: 30137135

BATCH QUALIFIERS

Batch: MSV/22059

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1c The samples from this Batch were analyzed in an analytical bracket of more than ten samples, but less than twenty.

B Analyte was detected in the associated method blank.

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

CU The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

H1 Analysis conducted outside the EPA method holding time.

IS The internal standard response is below criteria. Results may be biased high.

L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M5 A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

N2 The lab does not hold TNI accreditation for this parameter.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Speedway #100623
Pace Project No.: 30137135

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30137135002	TW-01	EPA 8011	GCSV/7627	EPA 8011	GCSV/7628
30137135003	TW-02	EPA 8011	GCSV/7627	EPA 8011	GCSV/7628
30137135004	TW-03	EPA 8011	GCSV/7627	EPA 8011	GCSV/7628
30137135001	TW-03 (10-12')	EPA 3546	OEXT/22106	EPA 8081B	GCSV/7645
30137135001	TW-03 (10-12')	EPA 3546	OEXT/22074	EPA 8082A	GCSV/7640
30137135001	TW-03 (10-12')	EPA 3546	OEXT/3778	EPA 8151	GCSV/3089
30137135001	TW-03 (10-12')	EPA 3050B	MPRP/14596	EPA 6010C	ICP/13832
30137135002	TW-01	EPA 3005A	MPRP/14604	EPA 6010C	ICP/13839
30137135003	TW-02	EPA 3005A	MPRP/14604	EPA 6010C	ICP/13839
30137135004	TW-03	EPA 3005A	MPRP/14604	EPA 6010C	ICP/13839
30137135001	TW-03 (10-12')	EPA 7471A	MERP/6134	EPA 7471B	MERC/5863
30137135001	TW-03 (10-12')	EPA 3546	OEXT/22108	EPA 8270D by SIM	MSSV/7131
30137135001	TW-03 (10-12')	EPA 3546	OEXT/22077	EPA 8270D	MSSV/7129
30137135002	TW-01	EPA 3510C	OEXT/22093	EPA 8270D by SIM	MSSV/7125
30137135003	TW-02	EPA 3510C	OEXT/22093	EPA 8270D by SIM	MSSV/7125
30137135004	TW-03	EPA 3510C	OEXT/22093	EPA 8270D by SIM	MSSV/7125
30137135001	TW-03 (10-12')	EPA 8260C	MSV/22059		
30137135002	TW-01	EPA 8260C	MSV/21999		
30137135003	TW-02	EPA 8260C	MSV/21999		
30137135004	TW-03	EPA 8260C	MSV/21999		
30137135001	TW-03 (10-12')	ASTM D2974-87	PMST/5054		
30137135001	TW-03 (10-12')	EPA 7196A	WET/26588	EPA 7196A	WET/26589
30137135001	TW-03 (10-12')	Trivalent Chromium Calculation	WET/26613		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: Cardno Address: 103 N. Meadows Fr. Ste 211 Wexford, PA 15090 Email: bill.harrison@cardno.com Phone: 724-935-41380 Requested Due Date/TAT: Standard 6-day

Section B Required Project Information: Report To: Same Copy To: Same Purchase Order No.: 100623 Project Name: New Alexandria (100623) Project Number: 100623

Section C Invoice Information: Attention: Same Company Name: Same Address: PA Pace Quote Reference: PA Pace Project Manager: Rache/Christner

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER RCRA UST OTHER

Site Location: PA STATE: PA

Page: 1 of 1
1850407

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)				Pace Project No./ Lab I.D.		
					COMPOSITE START	COMPOSITE END/GRAB					DATE	TIME	CF VOCs	CF SVOCs		CF Metals	CF Pesticides
1	TW-03 (10-12')	Drinking Water DW	WT 6	G	2014	12/18	1145	63	Unpreserved			X	X	X	X	X	001
2	TW-01	Water WT	WT 6	G		1220		73	H ₂ SO ₄			X	X	X	X	X	002
3	TW-02	Waste Water WW	WT 6	G		1440		1	HCl			X	X	X	X	X	003
4	TW-03	Product P	WT 6	G		1350		↓	HNO ₃			X	X	X	X	X	004
5		Soil/Solid SL							NaOH								
6		Oil OL							H ₂ O ₂								
7		Wipe WP							Other								
8		Air AR															
9		TS															
10		Other OT															
11																	
12																	
	CF = Clean Fill																
	Lab Filter for Metals																

ADDITIONAL COMMENTS: CF = Clean Fill
Lab Filter for Metals

RELINQUISHED BY / AFFILIATION: Tom St. John DATE: 12/18/14 TIME: 840

ACCEPTED BY / AFFILIATION: Adaloff Pace DATE: 12/18/14 TIME: 1540

Temp in °C: 38 Received on: Y Sealed Cooler: N Custody: N Samples Intact: Y

SAMPLER NAME AND SIGNATURE: Tom St. John PRINT Name of SAMPLER: Tom St. John SIGNATURE of SAMPLER: Tom St. John DATE Signed (MM/DD/YY): 12/18/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days



Sample Condition Upon Receipt

AL

Client Name: Cardno

Project # 30137135

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other foam

Thermometer Used 6 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 3.8 °C Correction Factor: 0.0 °C Final Temp: 3.8 °C

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: AMM
12-18-14

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. <u>12-18-14</u>
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT, SL</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> coliform, TOC, O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed <u>AMM</u> Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Amel DiChristina

Date: 12/19/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

APPENDIX F – DISTRIBUTION MAILING LIST

APPENDIX F - MAILING LIST

Lora Zimmerman
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State College, PA 16801

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Pennsylvania Department of Conservation
and Natural Resources
Rachel Carson State Office Building
PO Box 8552
Harrisburg, PA 17105-8552

Matt Hough, Executive Director
Pennsylvania Game Commission
Bureau of Land Management
2001 Elmerton Avenue
Harrisburg, PA 17110-9797

John Arway
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Pennsylvania Fish and Boat Commission
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Pennsylvania Department of Environmental
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New Derry, PA 15671

David Sliska
Derry Township Board of Supervisors
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Derry PA 15627

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Salem Township Board of Supervisors
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Western PA Operating Engineers
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Pittsburgh, PA 15222

Katelyn Almeter
U.S. EPA Region 3
Office of Environmental Programs
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